



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, S.E.
Charleston, WV 25304
(304) 926-0450
fax: (304) 926-0452

Jim Justice , Governor
Austin Caperton , Cabinet Secretary
www.dep.wv.gov

Wednesday, March 08, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

EQT PRODUCTION COMPANY (A)
120 PROFESSIONAL PLACE
BUILDING II
BRIDGEPORT, WV 26330

Re: Permit approval for 515652
47-085-10303-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.



James A. Martin
Chief

Operator's Well Number: 515652
Farm Name: NATHANIEL L. MASON ET AL
U.S. WELL NUMBER: 47-085-10303-00-00
Horizontal 6A / New Drill
Date Issued: 3/8/2017

Promoting a healthy environment.

03/10/2017

PERMIT CONDITIONS

4700810303

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

PERMIT CONDITIONS 4700510303

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

4708510303

WW-6B
(04/15)

API NO. 47-85
OPERATOR WELL NO. 515652
Well Pad Name: HAR10

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator: EQT Production Company 306686 Ritchie Union Harrisville
Operator ID County District Quadrangle

2) Operator's Well Number: 515652 Well Pad Name: HAR10

3) Farm Name/Surface Owner: Nathaniel L. Mason et al Public Road Access: WV RT 16

4) Elevation, current ground: 1161 Elevation, proposed post-construction: 1141.1

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep
Horizontal

Michael Goff
2/17/17

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 6313', 52', 2190 PSI

8) Proposed Total Vertical Depth: 6439

9) Formation at Total Vertical Depth: Onondaga

10) Proposed Total Measured Depth: 9674

11) Proposed Horizontal Leg Length: 3027

12) Approximate Fresh Water Strata Depths: 139,280,311,337

13) Method to Determine Fresh Water Depths: From offset wells

14) Approximate Saltwater Depths: None reported

15) Approximate Coal Seam Depths: None reported

16) Approximate Depth to Possible Void (coal mine, karst, other): None reported

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No

(a) If Yes, provide Mine Info: Name: _____
Depth: _____
Seam: _____
Owner: _____

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18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20	New	A-500	78.6	40	40	60 ft ³ / CTS
Fresh Water	13 3/8	New	J-55	54.5	487	487	449 ft ³ / CTS
Coal							
Intermediate	9 5/8	New	P-110	40	5262	5262	2084 ft ³ / CTS
Production	5 1/2	New	P-110	20	9674	9674	500' above top producing zone
Tubing	2 3/8		J-55	4.7		May not be run, if run set 40' above top perf or 80' incl/inclination.	
Liners							

4708510303 MDC 2/17/17

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20	26	.375	1378	1102	Class A	1.18
Fresh Water	13 3/8	17 1/2	.38	2700	2160	See Variance	1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	7900	6320	See Variance	1.19
Production	5 1/2	8 1/2	.361	12640	10112	Class A/H	1.123/2.098
Tubing	2 3/8	NA	.19	7700			
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill and complete a new horizontal well in the Marcellus Formation. Drill the vertical to an approximate depth of 6439'. Tag the Onondaga not more than 100', run logs, then plug back with a solid cement plug to approximately 5332'. Kick off and drill curve. Drill the lateral in the Marcellus. Cement casing.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemicals (including 15% Hydrochloric acid, friction reducer, biocide, and scale inhibitor), referred to in the industry as a "slickwater" completion. Maximum anticipated internal casing pressure is expected to be approximately 10000 psi, maximum anticipated treating rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 250,000 gallons of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 250,000 pounds of sand per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): +/- 28.98

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2/17/17

22) Area to be disturbed for well pad only, less access road (acres): +/- 4.99

23) Describe centralizer placement for each casing string:

- Surface: Bow spring centralizers – One centralizer at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers– One centralizer at the shoe and one spaced every 500'.
- Production: One solid body centralizer spaced every joint from production casing shoe to KOP

24) Describe all cement additives associated with each cement type:

Conductor: Class A no additives
 Surface (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries
 Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Used to speed the setting of cement slurries.
 Production:
 Lead (Class A Cement): 0.2% CO-20 (dispersant makes cement easier to mix), .15% SuperFL-300 (fluid loss/lengthens thickening time), .15% SEC-10 (fluid loss), 50:50 POZ (extender)
 Tail (Class H Cement): 0.2% Super CR-1 (Retarder). Lengthens thickening time, .3% Super FL-200 (fluid loss), .2% SEC-10 (Fluid loss), .2% SuperFL-350 (fluid loss) Reduces amount of water lost to formation, 60 % Calcium Carbonate. Acid solubility.

25) Proposed borehole conditioning procedures:

Surface: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
 Intermediate: Circulate hole clean while rotating & reciprocating the drill string until cuttings diminish at surface.
 Production: Pump marker sweep with nut plug to determine actual hole washout. Calculate and gauge holes bottoms up volume. Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

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 Page 3 of 3

*Note: Attach additional sheets as needed.

Well 515652(HAR10H1)

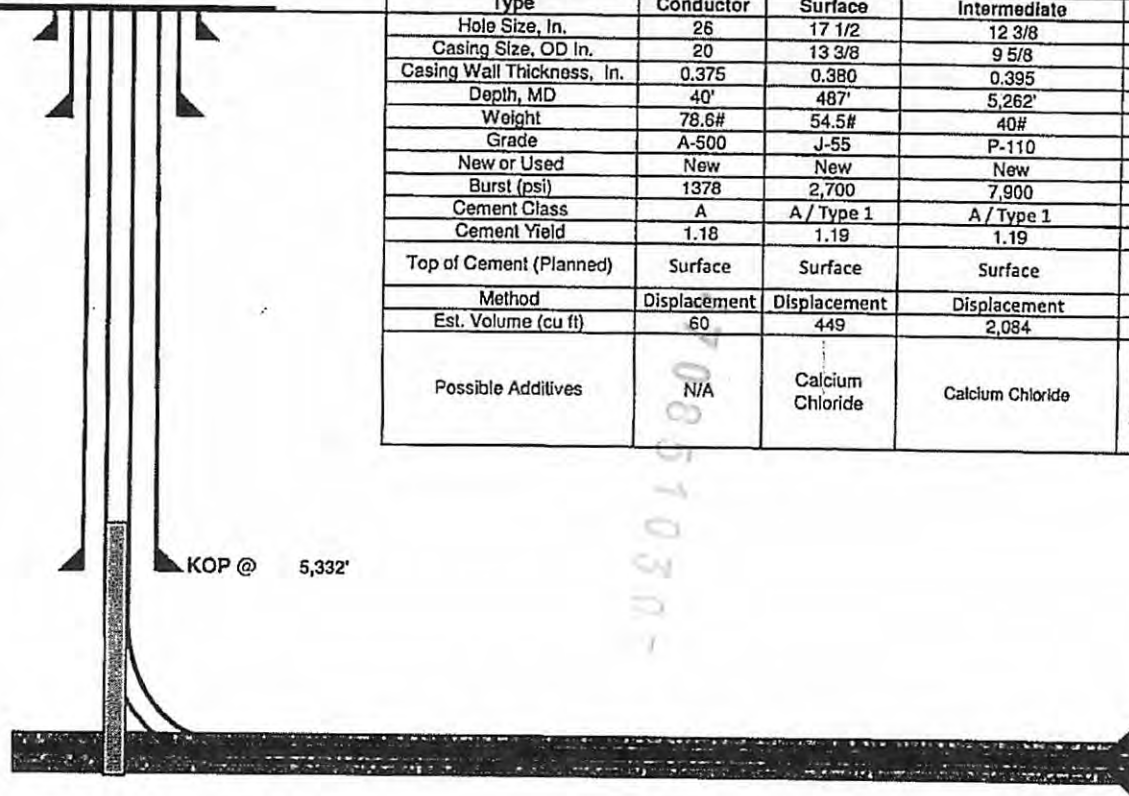
EQT Production
Harrisville Quad
Ritchie County, WV

Azimuth 334
Vertical Section 3536

Note: Diagram is not to scale

Formations	Top TVD	Base TVD
Conductor	40	
Base Fresh Water	337	
Surface Casing	407	
Maxton	904 - 923	
Big Lime	973 - 1022	
Base Red Rock	1399	
Big Injun	2175 - 2235	
Weir	2273 - 2426	
Gantz	2609 - 2620	
Fifty foot	2629 - 2645	
Thirty foot	2699 - 2737	
Gordon	2799 - 2834	
Forth Sand	2843 - 2853	
Bayard	2992 - 3014	
Warren	3659 - 3726	
Speechley	3789 - 3817	
Balltown A	3905 - 3979	
Riley	4496 - 4524	
Benson	4844 - 4885	
Alexander	5076 - 5187	
Intermediate Casing	5262	
Sonyea	6042 - 1224	
Middlesex	6142 - 6192	
Genesee	6192 - 6247	
Genesee	6247 - 6275	
Tully	6275 - 6282	
Hamilton	6282 - 6288	
Marcellus	6288 - 6339	
Production Casing	9674 MD	
Onondaga	6339	

Casing and Cementing				Deepest Fresh Water: 337'
Type	Conductor	Surface	Intermediate	Production
Hole Size, In.	26	17 1/2	12 3/8	8 1/2
Casing Size, OD In.	20	13 3/8	9 5/8	5 1/2
Casing Wall Thickness, In.	0.375	0.380	0.395	0.361
Depth, MD	40'	487'	5,262'	9,674'
Weight	78.6#	54.5#	40#	20#
Grade	A-500	J-55	P-110	P-110
New or Used	New	New	New	New
Burst (psi)	1378	2,700	7,900	12,640
Cement Class	A	A / Type 1	A / Type 1	A / H
Cement Yield	1.18	1.19	1.19	1.123 / 2.098
Top of Cement (Planned)	Surface	Surface	Surface	500' above top Producing Zone
Method	Displacement	Displacement	Displacement	Displacement
Est. Volume (cu ft)	60	449	2,084	1,051
Possible Additives	N/A	Calcium Chloride	Calcium Chloride	Calcium Carbonate, Fluid Loss, Extender, Dispersant, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent



Land curve @ 6,313' TVD 6,647' MD
Est. TD @ 6,313' TVD 9,674' MD

3,027' Lateral

Proposed Well Work:
Drill and complete a new horizontal well in the Marcellus formation.
Drill the vertical to an approximate depth of 6439'.
Tag the Onondaga not more than 100', run logs, then plug back with a solid cement plug to approximately 5332'.
Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

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EQT Production
Hydraulic Fracturing Monitoring Plan
Pad ID: HAR10
Ritchie County, WV

4708510303

12/19/16

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Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near EQT hydraulic fracturing in Ritchie County, WV prior to hydraulic fracturing at the following EQT wells on HAR10 pad: 515652, 515653, 515654, 515655 and 515656.

Due to the requirements under 35CSR8 5.11, the permittee is required to review the area surrounding the proposed well pad so as to identify and evaluate potential conduits for unintended fracture propagation. A report is required to be submitted along with a well work permit application.

The plan is being implemented as an additional safety measure to be utilized in conjunction with existing best management practices and emergency action plans for the site. These additional measures include coordination with well operators of the timing and location of the hydraulic fracturing, establishment of measures well operators should implement, and assurance that the OOG is notified of the timeline, as well as any issues that may arise during fracturing.

1. Communications with Well Operators

EQT, using available data (WV Geological Survey, WVDEP website, and IHS data service), has identified all known wells and well operators within 1,500 feet of this pad and the lateral sections that are known or could reasonably be expected to be within range of the fracture propagation. A map showing these wells along with a list of the wells and operators is included in **Attachment A**.

EQT will notify these operators of the hydraulic fracturing schedule for these wells, and coordinate with them throughout the fracturing process.

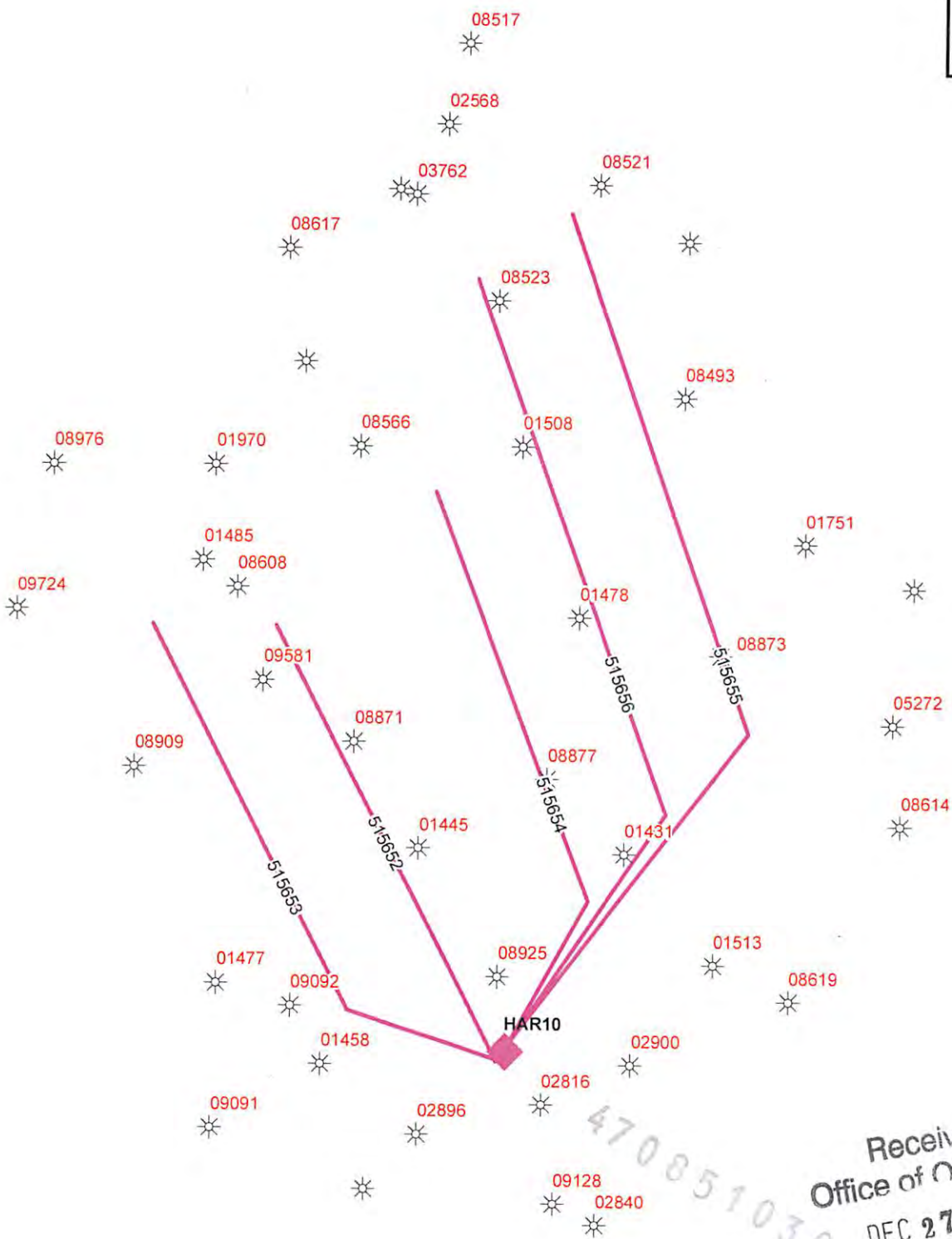
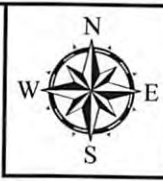
EQT will recommend to these operators at a minimum to:

1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure
3. Inspect or install master valves or other necessary equipment for wellhead integrity capable of a pressure recommended by EQT
4. Notify the OOG and EQT if any changes in water, gas production, pressure, or other anomalies are identified

2. Reporting

EQT will provide information relating to the hydraulic fracturing schedule, communication with other operators, and ongoing monitoring of the work upon request of OOG or immediately in the event of any noted abnormalities.

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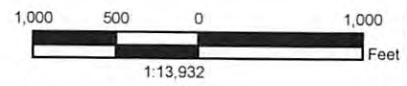


EQT Corporation
625 Liberty Avenue
Pittsburgh, PA 15222

HAR10

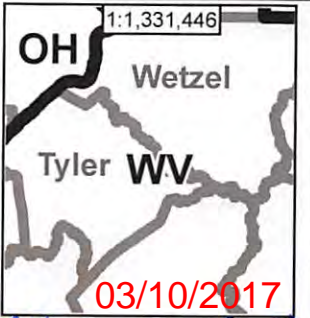
Vertical Offsets and
Foreign Laterals
within 1500'

- HAR10 Vertical Offsets
- Genesee Spud
- Marcellus Spud
- Middlesex Spud
- Utica Spud
- GENESEO
- MARCELLEUS
- MIDDLESEX
- POINT PLEASANT
- UTICA
- Prospect Wells



Disclaimer:

This map is confidential and is to be used only for the express informational purposes for which it was created. Unauthorized use, copying, or dissemination is strictly prohibited. EQT does not warrant the accuracy of the location of any items shown on this map, including, but not limited to, any structures, well or pipeline facilities, property boundaries, topography, roadways, or waterways. The items shown on the map may not have been placed on the map using survey lines or GPS coordinates. The specific location of any of the map items should be determined by a field survey performed by a licensed surveyor upon consultation with EQT.



Attachment A (1)

WellID	WellStatus	Comp Date	FmatTD	Permit	Operator	Longitude	Latitude	TargetFm	Datum Eleva	SS Depth	Total Deptl	
4708501431	GAS	11/26/1952		01431	HARRY F DAVIS	-81.0127	39.1545			852	-962	1814
4708501445	GAS	9/27/1958		01445	HARRY F DAVIS	-81.0180	39.1546			833	-1325	2158
4708501458	GAS	5/29/1953		01458	F S DEEM	-81.0205	39.1503			976	-744	1720
4708501477	GAS	8/4/1953		01477	F S DEEM	-81.0232	39.1519			804	-4220	5024
4708501478	GAS	10/24/1953		01478	EPC	-81.0139	39.1592			948	-1071	2019
4708501485	DRY	9/15/1953		01485	F S DEEM	-81.0236	39.1603			878	-1477	2355
4708501508	O&G	4/2/1954		01508	EPC	-81.0154	39.1626			853	-1056	1909
4708501513	DRY	3/28/1954		01513	F S DEEM	-81.0104	39.1523			1080	-1210	2290
4708501751	GAS	5/30/1957		01751	F A DEEM	-81.0081	39.1607			856	-1029	1885
4708501970	GAS	1/30/1959		01970	F S DEEM	-81.0233	39.1622			908	-1011	1919
4708502568	GAS	7/23/1962		02568	BLAHO OIL & GAS	-81.0174	39.1690			1055	-1147	2202
4708502816	O&G-P	11/28/1963		02816	OIL STATE SALES	-81.0148	39.1495			1081	-880	1961
4708502840	O&G	2/7/1964		02840	OIL STATE SALES	-81.0134	39.1471			1024	-1131	2155
4708502896	O&G	7/3/1964		02896	OIL STATES SALES	-81.0180	39.1489			1086	-1025	2111
4708502900	GAS	7/12/1964		02900	SOUTHWESTERN DEVELOP.	-81.0125	39.1503			1098	-1102	2200
4708503762	GAS	10/22/1977		03762	HAUGHT	-81.0182	39.1676			1165	-1020	2185
4708505272	O&G	9/14/1981		05272	ALLSTATE ENERGY	-81.0058	39.1571			1070	-942	2012
4708508493	GAS	12/21/1997		08493	MURVIN & MEIER OIL	-81.0112	39.1636			1040	-3891	4931
4708508517	GAS	8/1/1998		08517	MURVIN & MEIER OIL	-81.0169	39.1706			1130	-4508	5638
4708508521	GAS	9/30/1998		08521	MURVIN & MEIER OIL	-81.0135	39.1678			1130	-3921	5051
4708508523	O&G	4/20/1998		08523	EPC	-81.0160	39.1655			980	-4172	5152
4708508566	GAS	10/16/1998		08566	MURVIN & MEIER OIL	-81.0196	39.1626			940	-3985	4925
4708508608	GAS	8/11/1999		08608	MURVIN & MEIER OIL	-81.0227	39.1598			870	-3935	4805
4708508614	GAS	8/20/1999		08614	MURVIN & MEIER OIL	-81.0056	39.1551			1087	-4188	5275
4708508617	GAS	9/10/1999		08617	MURVIN & MEIER OIL	-81.0215	39.1665			1076	-3981	5057
4708508619	GAS	9/21/1999		08619	MURVIN & MEIER OIL	-81.0084	39.1516			1142	-4187	5329
4708508871	GAS	8/9/2002		08871	MURVIN & MEIER OIL	-81.0197	39.1567			858	-3940	4798
4708508873	GAS	8/16/2002		08873	MURVIN & MEIER OIL	-81.0102	39.1585			1152	-3896	5048
4708508877	GAS	10/25/2002		08877	MURVIN & MEIER OIL	-81.0147	39.1560			980	-3882	4862
4708508909	GAS	8/18/2003		08909	MURVIN & MEIER OIL	-81.0253	39.1562			987	-3907	4894
4708508925	GAS	8/11/2003		08925	MURVIN & MEIER OIL	-81.0159	39.1521			991	-3903	4894
4708508976	GAS	11/24/2003		08976	MURVIN & MEIER OIL	-81.0275	39.1622			1044	-3994	5038
4708509091	GAS	12/10/2004		09091		-81.0233	39.1490			892	-4328	5220
4708509092	GAS	12/17/2004		09092		-81.0213	39.1515			949	-4481	5430
4708509128	GAS	1/29/2005		09128	JAY-BEE	-81.0145	39.1475			985	-4182	5167
4708509581	GAS	6/18/2007		09581	MURVIN & MEIER OIL	-81.0220	39.1579			1005	-1133	2138
4708509724	GAS	7/10/2008		09724	MURVIN & MEIER	-81.0284	39.1593			1137	-1141	2278
4708506404	OIL	12/7/1983	DEVONIAN /SH/	06404	SOLOMON PRODUCTION CORPORATION	-81.0112	39.1667			1070	-4165	5235
4708502841	1O&1G	1/1/1964		02841	JAY-BEE OIL & GAS	-81.0194	39.1478			864	-1094	1958
4708508591	GAS	8/6/1999	DEVONIAN /SD/	08591	MURVIN & MEIER OIL COMPANY	-81.0186	39.1677			827	-3915	4742
4708505236	OIL	8/22/1981	DEVONIAN /SD/	05236	ALLSTATE ENERGY	-81.0053	39.1598			890	-1621	2511
4708509835	GAS	11/9/2009	BIG INJUN	09835	MURVIN & MEIER OIL COMPANY	-81.0210	39.1642			1064	-1141	2205

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Attachment A (2)

UWI	Name	Depth Top	Base Depth
47085037620000	BIG LIME	1981	2090
47085037620000	BIG INJUN /SD/	2090	2159
47085052360000	BIG LIME	1998	2045
47085052360000	BIG INJUN /SD/	2045	2130
47085052360000	WEIR /SD/	2418	2428
47085052720000	BIG LIME	1755	1830
47085052720000	BIG INJUN /SD/	1830	1910
47085064040000	BLUE MONDAY /SD/	1872	1894
47085064040000	BIG LIME	1904	1968
47085064040000	KEENER /SD/	1971	2014
47085064040000	BIG INJUN /SD/	2018	2064
47085064040000	WEIR /SD/	2292	2410
47085064040000	DEVONIAN /SH/	2586	
47085084930000	BIG LIME	1921	2019
47085084930000	BIG INJUN /SD/	2019	2338
47085084930000	WEIR /SD/	2338	2811
47085084930000	GORDON /SD/	2811	3346
47085084930000	WARREN /SD/	3346	3824
47085084930000	BALLTOWN /SD/	3824	4426
47085084930000	RILEY /SD/	4426	4608
47085084930000	RILEY 2	4608	4790
47085084930000	BENSON /SD/	4790	
47085085170000	BIG LIME	2015	2099
47085085170000	BIG INJUN /SD/	2107	2172
47085085170000	WEIR /SD/	2446	2478
47085085170000	GORDON /SD/	2911	2926
47085085170000	WARREN /SD/	3480	3550
47085085170000	BALLTOWN /SD/	3826	4490
47085085170000	RILEY /SD/	4526	4595
47085085170000	RILEY 2	4712	4834
47085085170000	BENSON /SD/	4891	4898
47085085170000	ALEXANDER	5076	5184
47085085230000	LITTLE LIME	1849	1886
47085085230000	BIG LIME	1886	1942
47085085230000	BIG INJUN /SD/	1942	2299
47085085230000	WEIR /SD/	2299	3343
47085085230000	SPEECHLEY	3343	3684
47085085230000	BALLTOWN /SD/	3684	4340
47085085230000	RILEY /SD/	4340	4626
47085085230000	BENSON /SD/	4748	4931
47085085230000	ALEXANDER	4931	
47085085660000	WEIR /SD/	2277	2315
47085085660000	WARREN /SD/	3272	3380
47085085660000	BALLTOWN /SD/	3753	4228
47085085660000	RILEY /SD/	4346	4420
47085085660000	RILEY 3	4635	4688

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47085085660000 BENSON /SD/	4874	
47085085910000 BIG LIME	1684	1785
47085085910000 BIG INJUN /SD/	1785	1800
47085085910000 WEIR /SD/	2130	2163
47085085910000 WARREN /SD/	3160	3258
47085085910000 BALLTOWN /SD/	3645	4050
47085085910000 RILEY /SD/	4230	4290
47085085910000 BENSON /SD/	4598	4604
47085086140000 BIG LIME	1968	2065
47085086140000 BIG INJUN	2065	2127
47085086140000 WARREN /SD/	3391	3488
47085086140000 BALLTOWN /SD/	3674	4414
47085086140000 RILEY /SD/	4464	4540
47085086140000 BENSON /SD/	4832	4892
47085086140000 ALEXANDER	5077	5132
47085086170000 BIG LIME	1951	2039
47085086170000 BIG INJUN /SD/	2039	2091
47085086170000 WEIR /SD/	2385	2416
47085086170000 WARREN /SD/	3386	3486
47085086170000 BALLTOWN /SD/	3788	4319
47085086170000 RILEY /SD/	4453	4512
47085086170000 RILEY 2	4640	4692
47085086170000 BENSON /SD/	4816	4823
47085086190000 BIG LIME	2054	2138
47085086190000 BIG INJUN /SD/	2138	2156
47085086190000 WEIR /SD/	2462	2490
47085086190000 WARREN /SD/	3480	3558
47085086190000 BALLTOWN /SD/	3932	4504
47085086190000 RILEY /SD/	4532	4604
47085086190000 BENSON /SD/	4900	4909
47085086190000 ALEXANDER	5136	5203
47085088710000 BIG LIME	1770	1863
47085088710000 BIG INJUN	1863	2209
47085088710000 WEIR /SD/	2209	3190
47085088710000 WARREN /SD/	3190	3336
47085088710000 SPEECHLEY	3336	3659
47085088710000 BALLTOWN /SD/	3659	4268
47085088710000 RILEY /SD/	4268	4608
47085088710000 BENSON /SD/	4608	
47085088730000 BIG LIME	2069	2495
47085088730000 WEIR /SD/	2495	3450
47085088730000 WARREN /SD/	3450	3920
47085088730000 BALLTOWN /SD/	3920	4524
47085088730000 RILEY /SD/	4524	4704
47085088730000 RILEY 2	4704	4892
47085088730000 BENSON /SD/	4892	
47085088770000 BIG LIME	1875	2310

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Office of the
085 DEC 27 2016
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47085088770000 WEIR /SD/	2310	3302
47085088770000 WARREN /SD/	3302	3764
47085088770000 BALLTOWN /SD/	3764	4370
47085088770000 RILEY /SD/	4370	4550
47085088770000 RILEY 2	4550	4734
47085088770000 BENSON /SD/	4734	
47085089090000 BIG LIME	1893	1995
47085089090000 BIG INJUN	1995	2030
47085089090000 WEIR /SD/	2300	2360
47085089090000 WARREN /SD/	3345	3416
47085089090000 BALLTOWN	3690	4348
47085089090000 BENSON /SD/	4734	4744
47085089250000 LITTLE LIME	1854	1872
47085089250000 BIG LIME	1977	
47085089250000 WEIR /SD/	2318	2332
47085089250000 WARREN /SD/	3340	3412
47085089250000 BALLTOWN /SD/	3594	4245
47085089250000 RILEY /SD/	4378	4447
47085089250000 RILEY 2	4560	4574
47085089250000 BENSON /SD/	4738	4748
47085089760000 BIG LIME	1981	2068
47085089760000 BIG INJUN	2068	2114
47085089760000 WEIR /SD/	2400	2451
47085089760000 WARREN /SD/	3398	3506
47085089760000 BALLTOWN	3850	4344
47085089760000 RILEY /SD/	4452	4522
47085089760000 RILEY 2	4631	4682
47085089760000 BENSON /SD/	4820	4828
47085090910000 BIG INJUN	1896	2206
47085090910000 WEIR /SD/	2206	2610
47085090910000 BERA	2610	2679
47085090910000 GORDON	2679	3280
47085090910000 WARREN /SD/	3280	3546
47085090910000 WARREN LOWER /SD/	3546	3762
47085090910000 BALLTOWN	3762	4328
47085090910000 RILEY /SD/	4328	4498
47085090910000 RILEY 2	4498	4676
47085090910000 BENSON /SD/	4676	4848
47085090910000 ALEXANDER	4848	4900
47085090910000 ELK /SD/	4900	
47085090920000 BIG INJUN	1960	
47085090920000 WEIR /SD/	2306	
47085090920000 GORDON	2645	
47085090920000 WARREN /SD/	3338	
47085090920000 WARREN LOWER /SD/	3710	
47085090920000 BALLTOWN	4088	
47085090920000 RILEY /SD/	4390	

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47085090920000 BENSON /SD/	4740
47085090920000 ALEXANDER	4909
47085090920000 ELK /SD/	4994
47085091280000 BIG LIME	1949
47085091280000 BIG INJUN	1974
47085091280000 WEIR /SD/	2278
47085091280000 GORDON	2751
47085091280000 WARREN /SD/	3339
47085091280000 BALLTOWN	3706
47085091280000 RILEY /SD/	4417
47085091280000 RILEY 2	4598
47085091280000 BENSON /SD/	4752
47085091280000 ALEXANDER	4920
47085091280000 ELK /SD/	5002
47085095810000 MAXTON	1698
47085095810000 BIG LIME	1900
47085095810000 BIG INJUN	1953
47085097240000 SALT SD 3	1758
47085097240000 MAXTON	1851
47085097240000 BLUE MONDAY /SD/	2035
47085097240000 BIG LIME	2052
47085097240000 BIG INJUN	2105
47085098350000 SALT SD 3	1839
47085098350000 MAXTON	1940
47085098350000 BIG LIME	1980
47085098350000 BIG INJUN	2021

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Fi.
Office

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west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

March 18, 2014

Nabors Completion & Production Services Company
1380 Route 286 Hwy E #121
Indiana PA 15701

Re: Cement Variance Request

Dear Sir or Madam,

This agency is approving a variance request for the cement blend listed below to be used on surface and coal protection strings for the drilling of oil and gas wells in the state of West Virginia. The variance cannot be used without requesting its use on a permit application and approval by this agency:

- Type 1 (2% Calcium Chloride-Accelerator, 0.25% Super Flake-Lost Circulation, 5.2% Water, 94% Type "1" Cement)

If you have any questions regarding this matter feel free to contact me at 304-926-0499, ext. 1653.

Sincerely,

James Peterson
Environmental Resources Specialist / Permitting

Promoting a healthy environment.

Received
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03/10/2017



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.gov

**BEFORE THE OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA**

IN THE MATTER OF A VARIANCE FROM) ORDER NO. 2014 - 17
REGULATION 35 CSR § 4-11.4/11.5/14.1)
AND 35 CSR § 8-9.2.h. 4/5/6/8 OF THE)
THE OPERATIONAL)
REGULATIONS OF CEMENTING OIL)
AND GAS WELLS)

REPORT OF THE OFFICE

Nabors Completion & Production Services Co. requests approval of a different cement blend for use in cementing surface and coal protection casing of oil and gas wells.

FINDINGS OF FACT

- 1.) Nabors Completion & Production Services Co. proposes the following cement blend:
 - 2% Calcium Chloride (Accelerator)
 - 0.25 % Super Flake (Lost Circulation)
 - 94% Type "1" Cement
 - 5.20 % Water
- 2.) Laboratory testing results indicate that the blend listed in Fact No.1 will achieve a 500 psi compressive strength within 6 hours and a 2,435 psi compressive strength within 24 hours.

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Office of Oil & Gas**

DEC 27 2016

Promoting a healthy environment.

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CONCLUSIONS OF LAW

Pursuant to Articles 6 and 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter embraced in said notice, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to 35 CSR § 4-11.5 and 35 CSR § 8-9.2.h.8 the Chief of the Office of Oil and Gas may approve different cement blends upon the well operator providing satisfactory proof that different cement types are adequate.

ORDER

It is ordered that Nabors Completion & Production Services Co. may use the cement blend listed in Findings of Fact No.1 for the cementing of surface and coal protection casing of oil and gas wells in the State as may be requested by oil and gas operators. The waiting time on the cement blend shall be 8 hours. The cement blend shall be mixed in strict accordance with the specifications for each blend and weight measurements made on-site to assure the cement slurries meet the minimum weight specifications. A sample shall be collected and, if after 8 hours the cement is not set up, additional time will be required. Nabors Completion & Production Services Co. shall keep a record of cement blend jobs in which the cement blend approved under this order is to be used and made available to the Office of Oil and Gas upon request.

Dated this, the 18th day of March, 2014.

IN THE NAME OF THE STATE OF WEST VIRGINIA

OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OF THE STATE OF WEST VIRGINIA



James Martin, Chief
Office of Oil and Gas

Received
Office of Oil & Gas
DEC 27 2016

03/10/2017



4708570300

May 17, 2016

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Casing on HAR10

Dear Mr. Smith,

EQT is requesting the 13-3/8" surface casing be set at 487' KB, 150' below the deepest fresh water.

For the 9 5/8" casing string, EQT is requesting that the first well set the 9 5/8" casing at 5262' KB, 75' below the Alexander formation. Prior to cementing the 9 5/8" casing, a test will be performed to determine if a deep 9 5/8" casing string is needed. If the test is successful, the remaining wells on the pad will have 9 5/8" casing set at a shallower depth of 2695' KB, 50' below the 50' Sand formation. If the test is unsuccessful, the remaining wells on the pad will have 9 5/8" casing set at the original set depth of 5262' KB. Upon completion of the test, the WV DEP inspector will be notified of the test results and the casing depth for the remaining wells on the pad will be discussed.

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

Vicki Roark
Permitting Supervisor - WV

Enc.

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Office of Oil & Gas
DEC 27 2016

WW-9
(4/16)

API Number 47 - 085 - _____

Operator's Well No. 515852

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name EQT Production Company OP Code 306686

Watershed (HUC 10) Adds Run and Twolck Run of Chevaux De Frise Run Quadrangle Harrisville

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: n/a

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number 0014, 8462, 4037)
- Reuse (at API Number Various)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

MAC
2/17/17

Will closed loop system be used? If so, describe: Yes, The closed loop system will remove drill cuttings from the drilling fluid. The drill cuttings are then prepared for transportation to an off-site disposal facility.

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. See Attached

-If oil based, what type? Synthetic, petroleum, etc. Synthetic Mud

Additives to be used in drilling medium? See Attached

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Landfill

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) N/A

-Landfill or offsite name/permit number? See Attached List

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

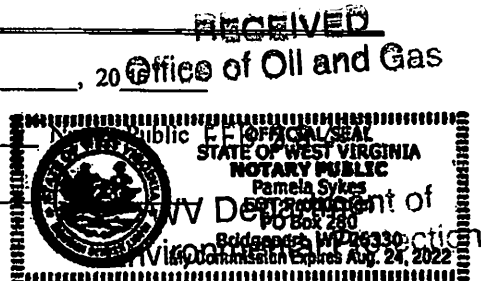
Company Official Signature *Victoria J. Roark*

Company Official (Typed Name) Victoria J. Roark

Company Official Title Permitting Supervisor

Subscribed and sworn before me this 7 day of Dec., 2017 Office of Oil and Gas

My commission expires 8-24-22



EQT Production Company

Proposed Revegetation Treatment: Acres Disturbed +/-28.98 Prevegetation pH 6.5

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type Granular 10-20-20

Fertilizer amount 1/3 lbs/acre

Mulch 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
KY-31	40	Orchard Grass	15
Alsike Clover	5	Alsike Clover	5
Annual Rye	15		

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Michael Doff

Comments: Presseed & mulch any disturbed areas per WVDEA regulations. Maintain & upgrade E-n-s as necessary.

Title: Oil & Gas Inspector

Date: 2/17/17

Field Reviewed? (x) Yes () No

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FEB 28 2017

WV Department of Environmental Protection

03/10/2017

EQT Production Water plan

Offsite disposals for Marcellus wells

CWS TRUCKING INC.

P.O. Box 391
Williamstown, WV 26187
740-516-3586
Noble County/Noble Township
Permit # 3390

4708510303

BROAD STREET ENERGY LLC

37 West Broad Street
Suite 1100
Columbus, Ohio 43215
740-516-5381
Washington County/Belpre Twp.
Permit # 8462

LAD LIQUID ASSETS DISPOSAL INC.

226 Rankin Road
Washington, PA 15301
724-350-2760
724-222-6080
724-229-7034 fax
Ohio County/Wheeling
Permit # USEPA WV 0014

TRIAD ENERGY

P.O. Box 430
Reno, OH 45773
740-516-6021 Well
740-374-2940 Reno Office Jennifer
Nobel County/Jackson Township
Permit # 4037

TRI COUNTY WASTE WATER MANAGEMENT, INC.

1487 Toms Run Road
Holbrook, PA 15341
724-627-7178 Plant
724-499-5647 Office
Greene County/Waynesburg
Permit # TC-1009

KING EXCAVATING CO.

Advanced Waste Services
101 River Park Drive
New Castle, Pa. 16101
Facility Permit# PAR000029132

Waste Management - Meadowfill Landfill

Rt. 2, Box 68 Dawson Drive
Bridgeport, WV 26330
304-326-6027
Permit #SWF-1032-98
Approval #100785WV

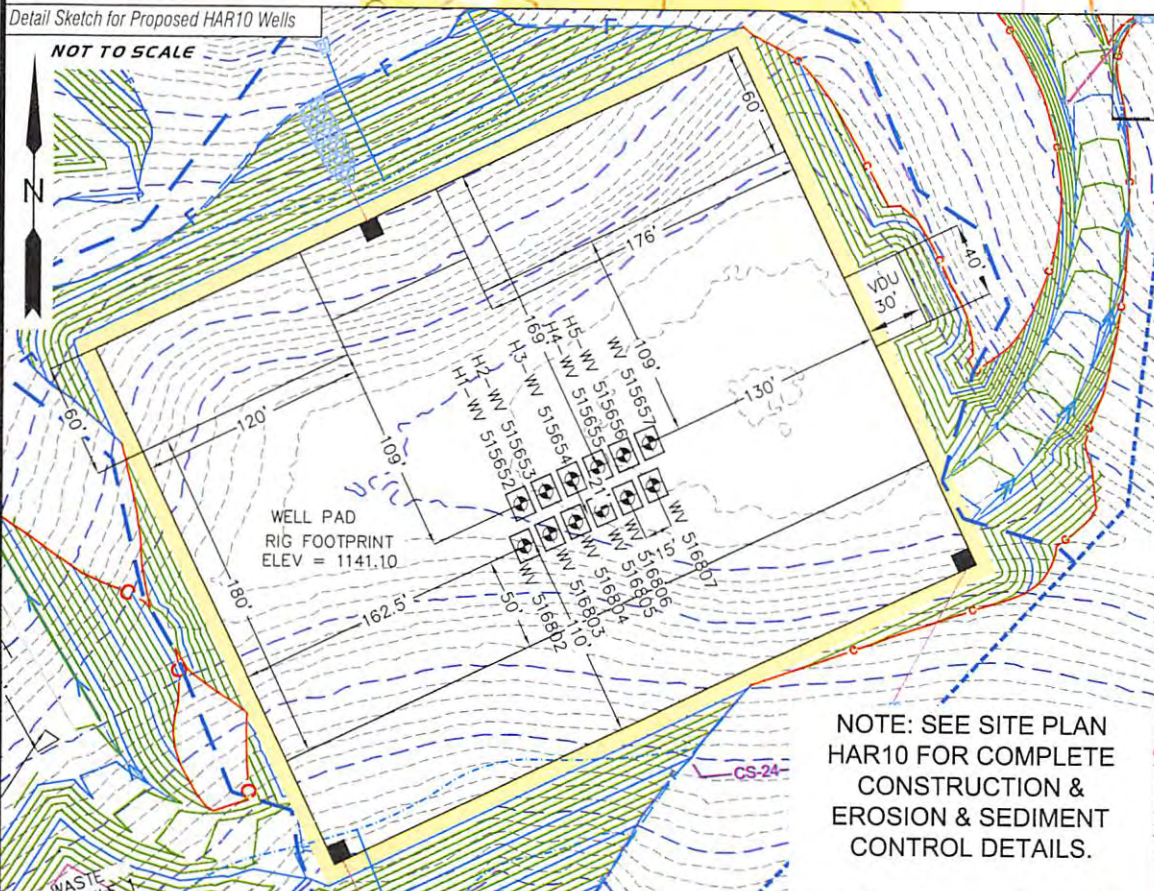
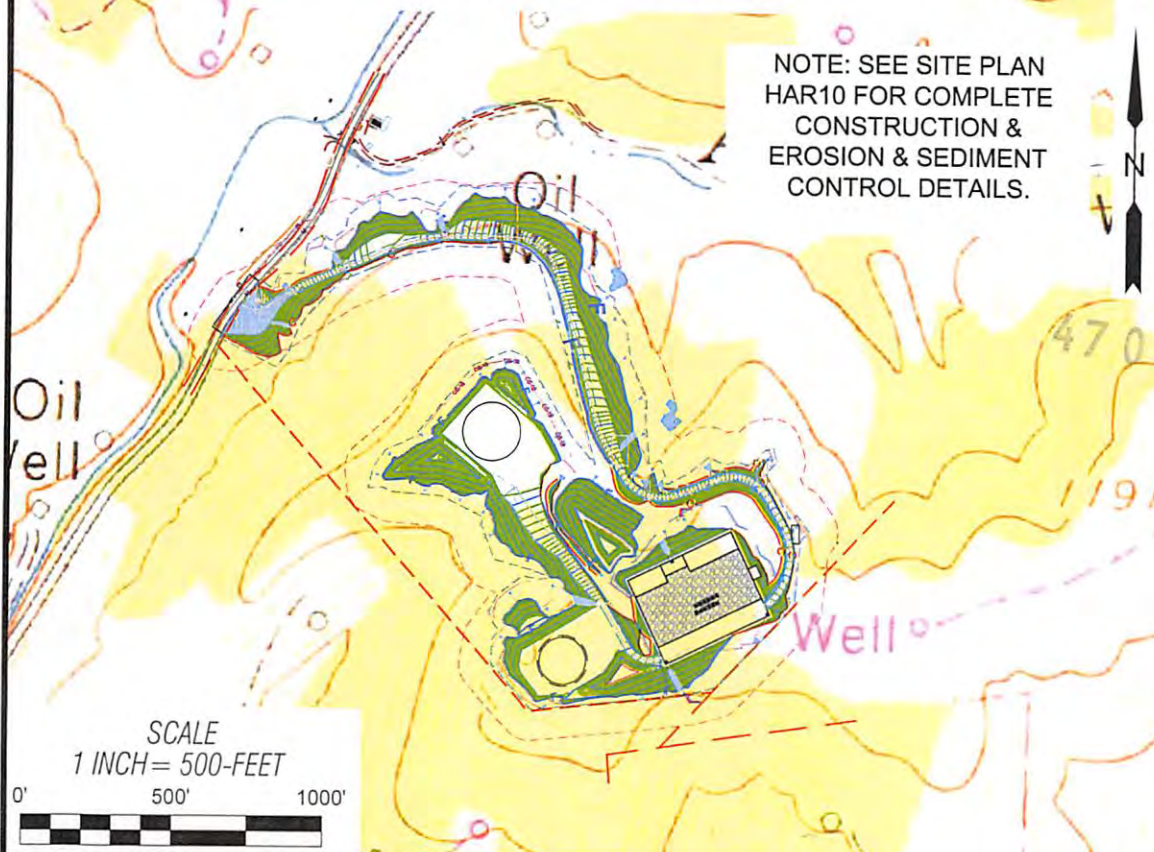
Waste Management - Northwestern Landfill

512 E. Dry Road
Parkersburg, WV 26104
304-428-0602
Permit #SWF-1025 WV-0109400
Approval #100833WV

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HAR10 WELLS



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DEC 27 2016

JOB #: 8511
DRAWN BY: K.D.W.
DATE: 10-28-16
SCALE: 1" = 500'

RECLAMATION PLAN

FOR HAR10 PAD LOCATED
IN UNION DISTRICT RITCHIE COUNTY,
WEST VIRGINIA

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Site Specific Safety Plan

EQT
HAR 10 Unit Pad

West Union
Ritchie County, WV

For Wells:

515652 515653 515654 515655 515656 _____

[Signature]
 EQT Production
Permitting Supervisor
 Title
12-6-16
 Date

Date Prepared: October 12, 2016
Michael Goff
 WV Oil and Gas Inspector
 Title
2/17/17
 Date

RECEIVED
 Office of Oil and Gas
 FEB 28 2017
 WV Department of
 Environmental Protection

03/10/2017

Section VIII: Collision Avoidance

4708510303

Section VII: Collision Avoidance

Collision avoidance is managed by utilizing gyro tools, downhole steering tools (MWD/EM), and anti-collision software by engineers. Two drilling scenarios that occur are normal pad drilling and return to pad drilling. EQT categorizes these two scenarios as such because the two scenarios utilize very different mitigation plans.

Normal pad drilling is defined when a top hole rig drills each well on the pad down to kick off point (KOP) and then a bottom hole rig moves onto the pad after the top-hole rig moves off and drills the curve and lateral sections. Normal pad drilling can also be defined when a bottom hole rig moves to a pad and drills each well on the pad from surface to TD (Grassroots Well). Normal pad drilling carries much less risk and thus does not require frequent surveying and collision avoidance maneuvers because no producing wells are present and risk of unexpected pressure or well control events are not present.

Return to pad drilling is a scenario where a top-hole rig or a bottom hole rig returns to a pad to drill additional well(s) that currently have producing (live) wells on the pad. Return to pad drilling requires more frequent surveying and anti-collision avoidance management because producing wells are present. By utilizing good engineering well design, anti-collision software and frequent surveys, wells can safely be drilled while existing or producing wells exist on the pad.

With both normal and return to pad drilling operations, every well planned to be drilled has a surface plot diagram, 2-D plot diagram, and a pad plot diagram prepared. (Plots attached under "Collision Avoidance Diagrams") In each scenario, a continuous north seeking gyro tools, MWD/EM tools, and anti-collision processes are utilized to mitigate the risk of downhole collisions. Anti-collision processes include conformation of gyro accuracy, evaluation of anti-collision software (Compass or equivalent program), and 2-D/3-D model plotting. In both scenarios, it is EQT's standard operating procedure (SOP) for the on-site supervisor of EQT and the directional drilling company supervisor to confirm the orientation of the directional tools and ensure that the tools are orientated consistent with the directional motor's high side. When anti-collision is a risk and directional assemblies are required to navigate utilizing a gyro tool, it is EQT's SOP to use the Gyro company's muleshoe to ensure the accuracy of the gyro seat in the muleshoe. In addition, when using this muleshoe, it is EQT's SOP to have the EQT's on-site supervisor, directional drilling company supervisor, and gyro company supervisor confirm the alignment and orientation of the tool and ensure that the tools are orientated consistent with the directional motor's high side. This ensures the azimuthal direction is correct when steering the well.

4708510303

Normal Pad Drilling

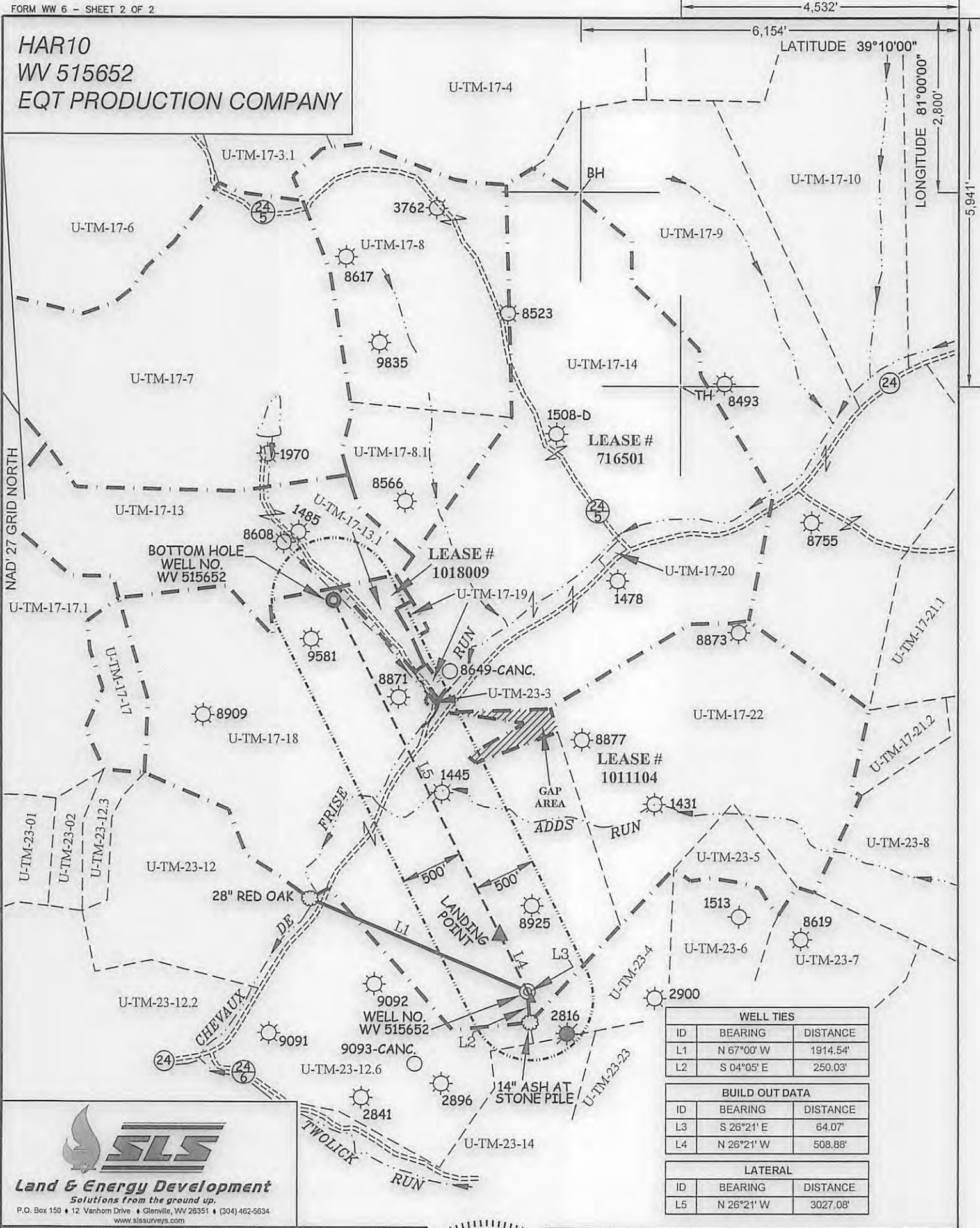
In this scenario, there are no existing wells on the pad. A top-hole rig will move on to the pad and drill each well to KOP and then a bottom hole rig will move on after the top hole rig finishes and drill the each well to horizontal TD. At times, the bottom hole rig may drill each well from surface to horizontal TD.

During this scenario, if two wells come within 10 feet or a separation factor of 1.5, each survey is monitored closely and anti-collision is run after each survey until the wells are clear of a collision risk. The frequency of surveys can vary from 30-500' depending on the trajectory of the wells, hole walk, and risk of collision. If a $SF \leq 1.0$ or $\leq 5'$ separation is encountered or a collision occurs, an email notification will be sent by the EQT on-site drilling supervisor to the appropriate state inspector. In the event the proximity of wells get to a point where a collision cannot be avoided or a collision occurs, EQT will properly secure each well and evaluate the most prudent plan forward while communicating plans with the state inspector.

Vertical Section:

Each hole is drilled to KOP by either the top-hole rig or bottom hole rig. Once KOP is achieved then a gyro survey is run. No nudges are planned.

HAR10
WV 515652
EQT PRODUCTION COMPANY



WELL TIES		
ID	BEARING	DISTANCE
L1	N 67°00' W	1914.54'
L2	S 04°05' E	250.03'

BUILD OUT DATA		
ID	BEARING	DISTANCE
L3	S 26°21' E	64.07'
L4	N 26°21' W	508.88'

LATERAL		
ID	BEARING	DISTANCE
L5	N 26°21' W	3027.08'

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 www.slsurveys.com

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

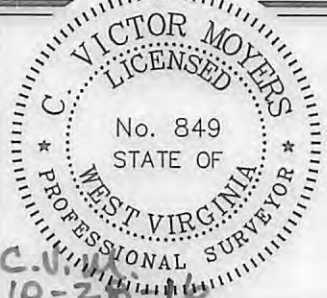
NAD27 S.P.C.(FT)	N. 240,500.58	E. 1,570,081.30
NAD27 GEO.	LAT-(N) 39.150356	LONG-(W) 81.015981
NAD83 UTM (M)	N. 4,333,471.17	E. 498,633.61

LANDING POINT

NAD27 S.P.C.(FT)	N. 240,956.60	E. 1,569,855.44
NAD27 GEO.	LAT-(N) 39.151597	LONG-(W) 81.016805
NAD83 UTM (M)	N. 4,333,608.94	E. 498,562.48

BOTTOM HOLE

NAD27 S.P.C.(FT)	N. 243,669.20	E. 1,568,511.94
NAD27 GEO.	LAT-(N) 39.158992	LONG-(W) 81.021703
NAD83 UTM (M)	N. 4,334,428.47	E. 498,139.39



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

SCALE 1" = 1000' FILE NO. 8511P515652

DATE OCTOBER 28, 20 16

REVISED _____, 20 _____

OPERATORS WELL NO. WV 515652

API WELL NO. 47 — 085 — 10303

NO. STATE COUNTY PERMIT

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

LEGEND

- LEASE LINE
- SURFACE LINE
- WELL LATERAL
- OFFSET LINE
- TIE LINE
- CREEK
- ROAD
- COUNTY ROUTE
- PROPOSED WELL
- EXISTING WELL
- PERMITTED WELL
- UNION DISTRICT TAX MAP-PARCEL

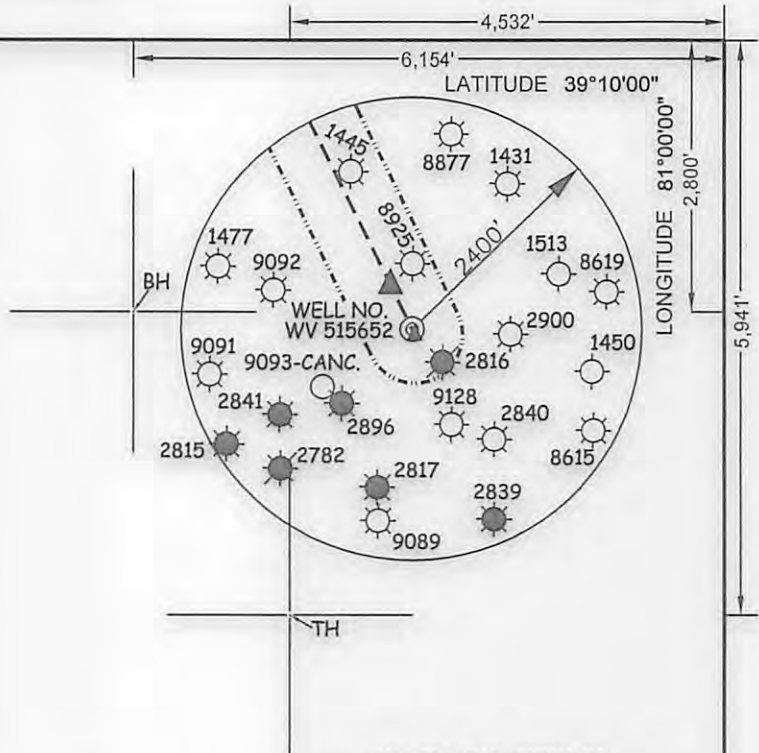
U-TM-00-00

03/10/2017

WELL OPERATOR EQT PRODUCTION COMPANY	DESIGNATED AGENT REX C. RAY
ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330	ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

COUNTY NAME PERMIT

HAR10
WV 515652
EQT PRODUCTION COMPANY



(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)

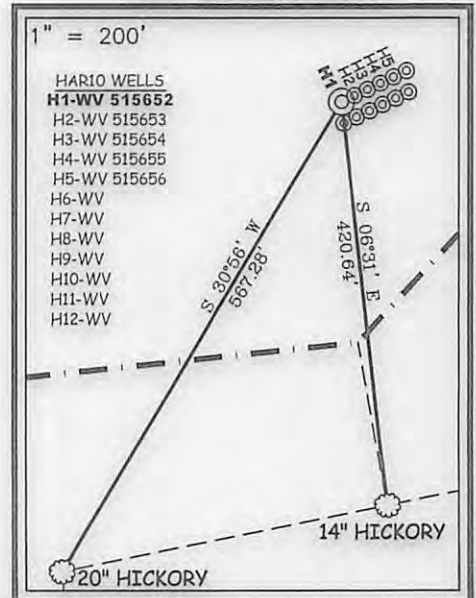
NAD'27 S.P.C.(FT)	N. 240,500.58	E. 1,570,081.30
NAD'27 GEO.	LAT-(N) 39.150356	LONG-(W) 81.015981
NAD'83 UTM (M)	N. 4,333,471.17	E. 498,633.61
LANDING POINT		
NAD'27 S.P.C.(FT)	N. 240,956.60	E. 1,569,855.44
NAD'27 GEO.	LAT-(N) 39.151597	LONG-(W) 81.016805
NAD'83 UTM (M)	N. 4,333,608.94	E. 498,562.48
BOTTOM HOLE		
NAD'27 S.P.C.(FT)	N. 243,669.20	E. 1,568,511.94
NAD'27 GEO.	LAT-(N) 39.158982	LONG-(W) 81.021703
NAD'83 UTM (M)	N. 4,334,428.47	E. 498,139.39

U-TM-17-3.1	CAROL & DAVID REYNOLDS (LIFE) ET AL	48.9 ACRES±
U-TM-17-4	TOMMIE & ANDREA MITCHELL	195.808 ACRES±
U-TM-17-6	JEREMY & RUBY EASTON	70.87 ACRES±
U-TM-17-7	DALEN SCHLABACH	120 ACRES±
U-TM-17-8	STAATS FAMILY TRUST	67.25 ACRES±
U-TM-17-8.1	STAATS FAMILY TRUST	26.75 ACRES±
U-TM-17-9	CLARA STEVENS ET AL	147 ACRES±
U-TM-17-10	DALE IAMS	70.08 ACRES±
U-TM-17-13	DALEN SCHLABACH	55 ACRES±
U-TM-17-13.1	RIDGETOP CAPITAL V LP	6.3 ACRES±
U-TM-17-14	JAMES & MARY JONES (LIFE) ET AL	159.56 ACRES±
U-TM-17-17	NATHANAEL MASON ET AL	11.5 ACRES±
U-TM-17-17.1	FLOYD & JEAN CRONIN TRUST	78.59 ACRES±
U-TM-17-18	NATHANAEL MASON ET AL	187 ACRES±
U-TM-17-19	CHEVAUX DE FRISE CHURCH & CEMETERY BY TRS	LOT (1.7 ACRES± CALC.)
U-TM-17-20	ROGER GEORGE	0.44 ACRES±
U-TM-17-21.1	SUSAN BROWNE ET AL	32.40 ACRES±
U-TM-17-21.2	SUSAN BROWNE ET AL	8.55 ACRES±
U-TM-17-22	NATHANAEL MASON ET AL	96 ACRES±
U-TM-23-1	CHARLES & ROSA WASS	55.90 ACRES±
U-TM-23-2	WINSTON LOVE FAMILY TRUST ET AL	5.27 ACRES±
U-TM-23-3	NATHANAEL MASON ET AL	1/8 ACRE±
U-TM-23-4	C.W. RADCLIFF	15 ACRES±
U-TM-23-5	NATHANAEL MASON ET AL	10.5 ACRES±
U-TM-23-6	C.W. RADCLIFF	20 ACRES±
U-TM-23-7	C.W. RADCLIFF	25.25 ACRES±
U-TM-23-8	STEVEN REED ET AL	41.45 ACRES±
U-TM-23-12	GUY BAKER	48.5 ACRES±
U-TM-23-12.2	GUY BAKER	33.5 ACRES±
U-TM-23-12.3	GUY BAKER	9.75 ACRES±
U-TM-23-12.6	GUY BAKER	65.25 ACRES±
U-TM-23-14	CAROLYN VINCENT	35 ACRES±
U-TM-23-23	BRUCE & AUDREY DRESSLER	14.85 ACRES±

NOTES ON SURVEY

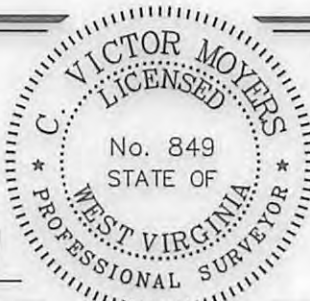
1. NO WATER WELLS WERE FOUND WITHIN 250' OF PROPOSED GAS WELL. NO AGRICULTURAL BUILDINGS ≥ 2500 SQ. FT. OR DWELLINGS WERE FOUND WITHIN 625' OF THE CENTER OF PROPOSED WELL PAD.
2. WELL SPOT CIRCLE & TOPO MARK SCALE IS 1"=2000'

REFERENCES



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 DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. C. Victor Moyers
 849



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.
 DATE OCTOBER 28, 20 16
 REVISED _____, 20 ____
 OPERATORS WELL NO. WV 515652
 API WELL NO. 47-085-10303 HGA
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 2500 FILE NO. 8511P515652.dwg
 HORIZONTAL & VERTICAL CONTROL DETERMINED BY DGPS (SURVEY GRADE TIE TO CORS NETWORK) SCALE SEE NOTE 2

STATE OF WEST VIRGINIA
 DIVISION OF ENVIRONMENTAL PROTECTION
 OFFICE OF OIL AND GAS

WELL TYPE: OIL _____ GAS X LIQUID INJECTION _____ WASTE DISPOSAL _____ IF "GAS" PRODUCTION X STORAGE _____ DEEP _____ SHALLOW X

LOCATION: (GROUND) (PROPOSED)
 ELEVATION 1,161' 1,141.1' WATERSHED ADDS RUN AND TWOLICK RUN OF CHEVAUX DE FRISE RUN
 DISTRICT UNION COUNTY RITCHIE QUADRANGLE HARRISVILLE 7.5'

SURFACE OWNER NATHANAEL L. MASON ET AL ACREAGE 187±
 ROYALTY OWNER NATHANAEL L. MASON ET AL ACREAGE 310±

PROPOSED WORK: LEASE NO. 1011104

DRILL X CONVERT _____ DRILL DEEPER _____ REDRILL _____ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION _____ PERFORATE NEW FORMATION _____ PLUG AND ABANDON _____ CLEAN OUT AND REPLUG _____ OTHER _____

PHYSICAL CHANGE IN WELL (SPECIFY) _____ TARGET FORMATION MARCELLUS
 ESTIMATED DEPTH 6,313'

WELL OPERATOR EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE P.O. BOX 280 BRIDGEPORT, WV 26330

03/10/2017

COUNTY NAME PERMIT

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
-------------------------	-----------------------	-----------------------	---------	-----------

See Attached

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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Office of Oil & Gas
DEC 27 2016

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: EQT Production Company
 By: Victoria J Roark
 Its: Permitting Supervisor

Lease No.	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
1011104	<u>Nathanael L. Mason, et al (current royalty owner)</u>		***	
	J.E. Amos (original lessor)	Carnegie Natural Gas Co		69/129
	Carnegie Natural Gas Co	Harry F. Davis		81/265
	Harry F. Davis	F.S. Deem		84/67
	F.S. Deem, individually and dba Deem Supply Company	Carl R. Morris and Sue W. McCoy, dba Baker Gas Company		116/223
	Carl R. Morris and Sue W. McCoy, dba Baker Gas Company	Creston Oil Corporation		193/257
	Creston Oil Corporation	EQT Production Company		289/379

***We certify that we will pay a minimum one-eighth of the total amount paid to or received by or allowed to the owner of the working interest at the wellhead for the oil or gas so extracted, produced or marketed before deducting the amount to be paid to or set aside for the owner of the oil or gas in place, on all such oil or gas to be extracted, produced or marketed from the well.

47085-0000

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03/10/2017



December 5, 2016

Mr. James Martin
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

4708510303

Re: HAR10 well pad, well number 515652
Union District, Ritchie County

Dear Mr. Martin,

EQT Production Company is submitting an application for a new well work permit for the above well number. Upon information and belief, Operator's lease and/ or other real property rights permit it to conduct drilling operations for the subject well in the location shown on the plat, including under any public roads that the well lateral crosses.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Vicki Roark'.

Vicki Roark
Permitting Supervisor-WV

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DEC 27 2016

**STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE CERTIFICATION**

Date of Notice Certification: 12-23-16

API No. 47- 85 -
Operator's Well No. 515652
Well Pad Name: HAR10

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

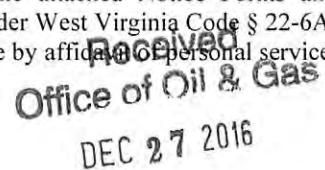
State:	<u>WV</u>	UTM NAD 83	Easting:	<u>498633.61</u>
County:	<u>Ritchie</u>		Northing:	<u>4333471.17</u>
District:	<u>Union</u>	Public Road Access:		<u>WV RT 16</u>
Quadrangle:	<u>Harrisville</u>	Generally used farm name:		<u>Nathaniel L. Mason et al</u>
Watershed:	<u>Adds Run and Twolick Run of Chevaux de Frise</u>			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
---	---

Required Attachments:

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit, personal service, the return receipt card or other postal receipt for certified mailing.



03/10/2017

Certification of Notice is hereby given.

THEREFORE, I *Victoria J Roark*, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator: EQT Production Company
By: Victoria J Roark
Its: Permitting Supervisor
Telephone: 304-848-0076

Address: 115 Professional Place PO Box 280
Bridgeport WV 26330
Facsimile: 304-848-0041
Email: vroark@eqt.com



Subscribed and sworn before me this 7 day of Dec 2016.
Pamela Sykes Notary Public
My Commission Expires 8-24-22

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

4700570500

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DEC 27 2016

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 12-23-16 **Date Permit Application Filed:** 12-23-16
Notice of:

- PERMIT FOR ANY WELL WORK CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE REGISTERED MAIL METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
Name: See Attached
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: See Attached
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: See Attached
Address: _____

COAL OWNER OR LESSEE
Name: See Attached
Address: _____

COAL OPERATOR
Name: _____
Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
Name: See Attached
Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name: _____
Address: _____

*Please attach additional forms if necessary

47-8570303

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Surface Owners:

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346

✓

4700510502

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Surface Owners (road or other disturbance):

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346



47005908

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Surface Owners (AST's):

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346



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Coal Owner

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346



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Owners of Water Wells

BRUCE DRESSLER
340 HARDBARGER RUN RD.
HARRISVILLE WV 26362

✓

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examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

4700510505

Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Office of Oil & Gas
DEC 27 2016

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

4700010005

Comment Requirements

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Received
Office of Oil & Gas
DEC 27 2016

WW-6A
(8-13)

API NO. 47- 85 -
OPERATOR WELL NO. 515652
Well Pad Name: HAR10

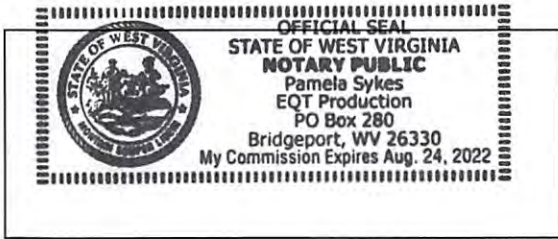
Notice is hereby given by:

Well Operator: EQT Production Company
Telephone: 304-848-0076
Email: vroark@eqt.com

Address: 115 Professional Place PO Box 280
Bridgeport WV 26330
Facsimile: 304-848-0041

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.



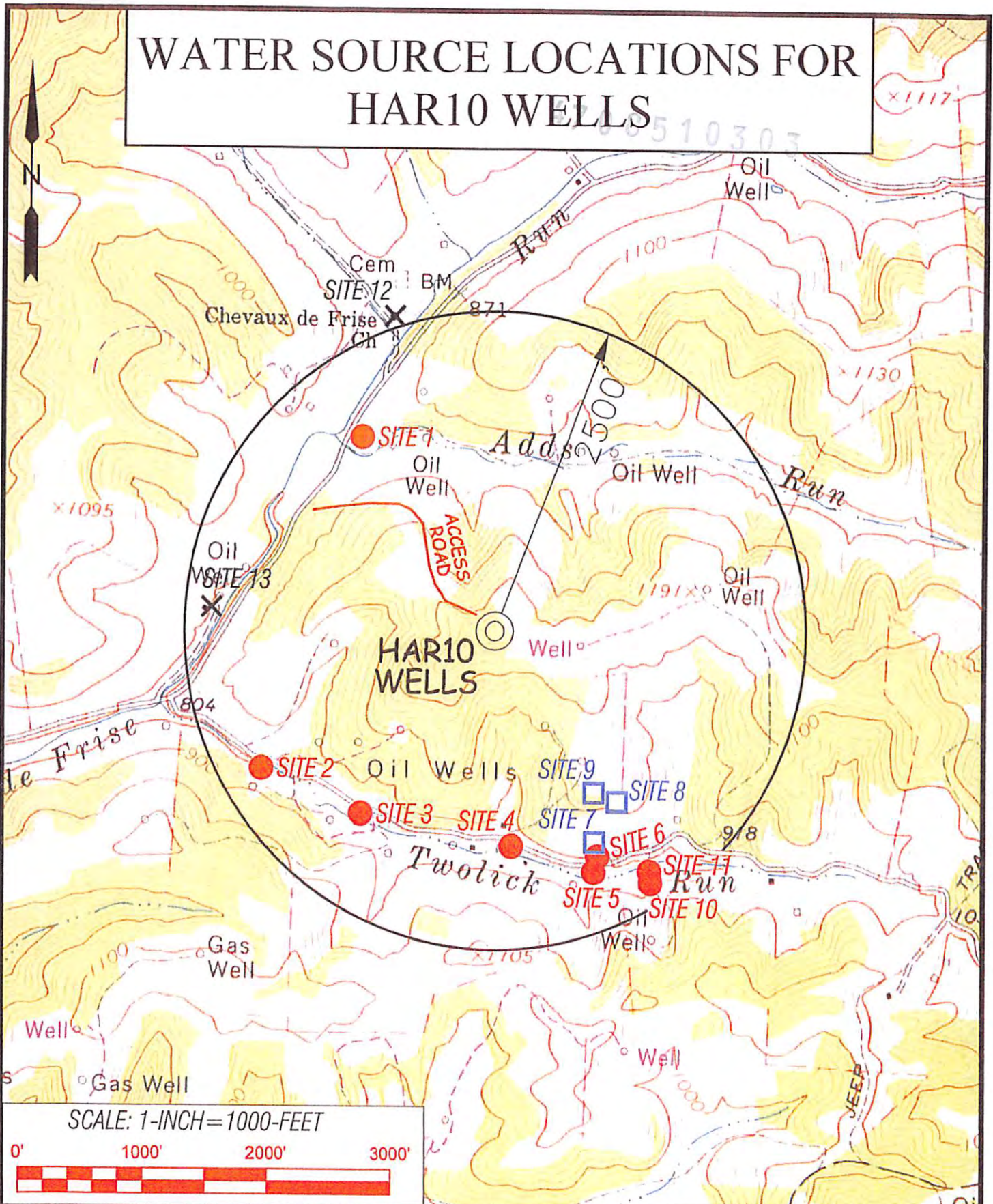
[Handwritten Signature]
Subscribed and sworn before me this 7 day of Dec, 2016.
[Handwritten Signature] Notary Public
My Commission Expires 8-24-22

4700510303

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DEC 27 2016

03/10/2017

WATER SOURCE LOCATIONS FOR HAR10 WELLS



SLS
Land & Energy Development
Solutions from the ground up
P.O. BOX 30 410 VANDERGRIFT, BRIDGEPORT, WV 26330
www.slsenergy.com

DRAWN BY: K.D.W.	FILE NO. 8511	DATE 10/31/15	CADD FILE: 8511.dwg
---------------------	------------------	------------------	------------------------

TOPO SECTION OF:
HARRISVILLE, WV 7.5' QUAD

DISTRICT	COUNTY	TAX MAP-PARCEL NO.
UNION	RITCHIE	17-18

OPERATOR: **Received**
EQT PRODUCTION COMPANY
115 PROFESSIONAL PLACE
P.O. BOX 280
BRIDGEPORT, WV 26330

Office of Oil & Gas
DEC 27 2016

03/10/2017

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF INTENT TO DRILL

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.
Date of Notice: 10/24/2016 **Date Permit Application Filed:** 11/02/2016

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

HAND DELIVERY **CERTIFIED MAIL RETURN RECEIPT REQUESTED**

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

Notice is hereby provided to the SURFACE OWNER(s):

Name: See Attached
Address: _____

4703510503

Name: See Attached
Address: _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>WV</u>	UTM NAD 83	Easting:	<u>498633.61</u>
County:	<u>Ritchie</u>		Northing:	<u>4333471.17</u>
District:	<u>Union</u>	Public Road Access:		<u>WV RT 16</u>
Quadrangle:	<u>Harrisville</u>	Generally used farm name:		<u>Nathaniel L. Mason et al</u>
Watershed:	<u>Adds Run and Twolick Run of Chevaux de Frise</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: EQT Production Company
Address: 115 Professional Place PO Box 280
Bridgeport WV 26330
Telephone: 304-848-0076
Email: vroark@eqt.com
Facsimile: 304-848-0041

Authorized Representative: Victoria Roark
Address: 115 Professional Place PO Box 280
Bridgeport WV 26330
Telephone: 304-848-0076
Email: vroark@eqt.com
Facsimile: 304-848-0041

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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Office of Oil & Gas

DEC 27 2016

03/10/2017

Surface Owners:

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346

J

4700510305

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DEC 27 2016

03/10/2017

Surface Owners (road or other disturbance):

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346

4700510305

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Surface Owners (AST's):

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346

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03/10/2017

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF PLANNED OPERATION

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 12-23-16 **Date Permit Application Filed:** 12-23-16

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

- CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)

(at the address listed in the records of the sheriff at the time of notice):

Name: See attached
Address: _____

Name: _____
Address: _____

4708590515

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>WV</u>	UTM NAD 83	Easting:	<u>498633.61</u>
County:	<u>Ritchie</u>		Northing:	<u>4333471.17</u>
District:	<u>Union</u>	Public Road Access:	<u>WV RT 16</u>	
Quadrangle:	<u>Harrisville</u>	Generally used farm name:	<u>Nathaniel L. Mason et al</u>	
Watershed:	<u>Adds Run and Twolick Run of Chevaux de Frise</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator: EQT Production Company
Telephone: 304-848-0076
Email: vroark@eqt.com

Address: 115 Professional Place PO Box 280
Bridgeport WV 26330
Facsimile: 304-848-0041

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Surface Owners:

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346



4700510302

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Surface Owners (road or other disturbance):

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346



4700510807

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DEC 27 2016

03/10/2017

Surface Owners (AST's):

NATHANAEL L MASON
12985 AUBURN ROAD
AUBURN, WV 26325

PEARL EVERETT MASON II
PO BOX 295
ELLENBORO, WV 26346



47025102

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DEC 27 2016

03/10/2017



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

December 5, 2016

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the HAR10 Pad Site, Ritchie County

47085107

515652 HAR10 H1

515653 HAR10 H2

515654 HAR10 H3

515655 HAR10 H4

515656 HAR10 H5

515657 HAR10 H6

516802 HAR10 H7

516803 HAR10 H8

516804 HAR10 H9

516805 HAR10 H10

516806 HAR10 H11

516807 HAR10 H12

Dear Mr. Martin,

This well site will be accessed from Permit #03-2016-0374 issued to EQT Production Company for access to the State Road. The well site is located off of Ritchie County Route 24 SLS. Approved permit must be received before the start of construction.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

Cc: Nick Bumgardner
EQT Production Company
CH, OM, D-3, File

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DEC 27 2016

Anticipated Frac Additives
Chemical Names and CAS numbers

<u>Material</u>	<u>Ingredient</u>	<u>CAS Number</u>
Water		
Sand	Hydrotreated light petroleum distillate	14808-60-7
Friction Reducer	Tributyl tetradecyl phosphonium chloride	64742-47-8
Biocide	Ammonium chloride	81741-28-8
Scale Inhibitor	Hydrochloric Acid	12125-02-9
15% Hydrochloric Acid	Propargyl Alcohol	7647-01-0
Corrosion Inhibitor	Methanol	107-19-7
Corrosion Inhibitor	Guar Gum	67-56-1
Gelling Agent	Sodium Persulfate	9000-30-0
Oxidizing Breaker	Potassium Carbonate	7775-27-1
Buffering Agent		584-08-7

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PROJECT INFORMATION

PROJECT NAME: EQT HAR 10
 TAX PARCEL:
 UNION DISTRICT, RITCHIE COUNTY, WV
 DISTRICT 10 MAP 17 PARCEL 18
 SURFACE OWNER:
 NATHANIEL MASON, ET AL
 PID 10-17-18
 TOTAL PROPERTY AREA: 187 ACRES
 TOTAL DISTURBED AREA: 28.91 ACRES

OPERATOR

EQT PRODUCTION COMPANY
 OPERATOR ID: 306686
 P.O. BOX 280
 BRIDGEPORT, WV 26630
 PHONE: (304) 348-3870

SURVEYOR

SMITH LAND SURVEYING
 P.O. BOX 150
 12 VANHORN DRIVE
 GLENVILLE, WV 26351
 PHONE: (304) 462-5634

ENGINEER - SITE DESIGN

LARSON DESIGN GROUP
 2502 CRANBERRY SQUARE
 MORGANTOWN, WV 26508
 PHONE: (304) 777-2940

BLUE MOUNTAIN AERIAL MAPPING

11023 MASON DIXON HIGHWAY
 BURTON, WV 26562
 PHONE: (304) 662-2626

ENGINEER - GEOTECHNICAL

CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
 600 MARKETPLACE AVE, SUITE 200
 BRIDGEPORT, WV 26330
 PHONE: (304) 933-3327

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- 8-13 ACCESS ROAD CROSS SECTIONS
- 14 WELL PAD + AST PAD CROSS SECTIONS
- 12 WELL PAD CROSS SECTIONS
- 15-16 RECLAMATION PLAN
- 17-27 CONSTRUCTION DETAILS
- 28 CONSTRUCTION QUANTITIES

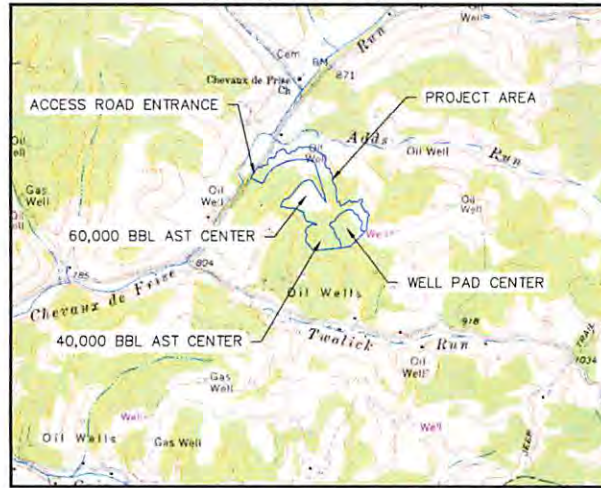
RESTRICTIONS NOTES:

1. THERE ARE NO PERENNIAL STREAMS, WETLANDS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD LOD.
2. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEET OF THE WELL PAD AND LOD.
3. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD AND LOD.
4. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL(S) BEING DRILLED.
5. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.
6. THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.

EQT HAR 10 SITE PLAN

EQT PRODUCTION COMPANY

SITUATE ON THE WATERS OF ADDS RUN, TWOLICK RUN,
 AND CHEVAUX DE FRISE RUN IN UNION DISTRICT, RITCHIE
 COUNTY, WEST VIRGINIA



SCALE: 1" = 2000'
 HARRISVILLE QUADRANGLE
 WEST VIRGINIA

MISS Utility of West Virginia
 1-800-245-4848
 West Virginia State Law
 (Section XIV, Chapter 24-C)
 Requires that you call two
 business days before you dig in
 the state of West Virginia.
 IT'S THE LAW!!



LOCATION COORDINATES

ACCESS ROAD ENTRANCE
 LATITUDE: 39.153036 LONGITUDE: -81.021216 (NAD 83)
 N 241506.25 E 1537124.65 (WV NORTH NAD 83)

CENTER OF WELL PAD

LATITUDE: 39.150507 LONGITUDE: -81.015788 (NAD 83)
 N 240559.13 E 1538647.98 (WV NORTH NAD 83)

CENTER OF 40,000 BBL AST PAD (IMPAIRED)

LATITUDE: 39.151953 LONGITUDE: -81.017350 (NAD 83)
 N 240350.64 E 1538201.54 (WV NORTH NAD 83)

CENTER OF 60,000 BBL AST PAD (FRESHWATER)

LATITUDE: 39.151953 LONGITUDE: -81.018248 (NAD 83)
 N 241097.54 E 1537959.33 (WV NORTH NAD 83)

SITE DISTURBANCE COMPUTATIONS

WELL PAD LIMIT OF DISTURBANCE = 4.97 AC
 AST PAD LIMIT OF DISTURBANCE = 10.46 AC
 ACCESS ROADS LIMIT OF DISTURBANCE = 13.48 AC
 TOTAL SITE DISTURBANCE = 28.91 AC

ENTRANCE PERMIT

FOT WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES

ENVIRONMENTAL NOTES

WETLAND DELINEATIONS WERE PERFORMED ON NOVEMBER 20, DECEMBER 8, 2015, AND MAY 10, 2016 BY POTESA & ASSOCIATES TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE EQT HAR-10 JURISDICTIONAL STREAMS & WETLANDS MAPS WERE PREPARED BY POTESA & ASSOCIATES AND SUMMARIZE THE RESULTS OF THE FIELD DELINEATION. THE MAPS DO NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP. IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN WRITTEN CONFIRMATION OF THE DELINEATION SHOWN ON THIS EXHIBIT PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTE

A GEOTECHNICAL INVESTIGATION OF THE PROPOSED SITE WAS CONDUCTED BY CIVIL & ENVIRONMENTAL CONSULTANTS IN JUNE OF 2016. THE REPORT PREPARED BY CIVIL & ENVIRONMENTAL CONSULTANTS, DATED JUNE 2016 REFLECTS THE RESULTS OF THE SUBSURFACE INVESTIGATION. THE INFORMATION AND RECOMMENDATIONS CONTAINED IN THE JUNE 2016 REPORT WAS USED IN THE PREPARATION OF THESE PLANS. PLEASE REFER TO THE SUBSURFACE INVESTIGATION REPORT BY CIVIL & ENVIRONMENTAL CONSULTANTS FOR ADDITIONAL INFORMATION.

SOURCE OF MAPPING DATA

THE CONTOURS DEPICTED IN THE PLANS WERE COMPILED TO NATIONAL MAP ACCURACY STANDARDS BY BLUE MOUNTAIN AERIAL SURVEY, BURTON, WEST VIRGINIA, USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY TAKEN ON APRIL 1, 2015. CONTOURS WHICH ARE IN WOODED OR DENSE VEGETATION AREAS ARE APPROXIMATIONS ONLY. THE PROPERTY BOUNDARIES SHOWN IN THE PLANS WERE LOCATED BY SMITH LAND SURVEYING.

FLOODPLAIN NOTE

NO PART OF THE PROJECT IS LOCATED WITHIN THE EXISTING FEMA 100-YEAR FLOODPLAIN, PER FEMA MAP #54085C0200C.

GENERAL DESCRIPTION

THE ACCESS ROAD(S), WELL PAD, AND ABOVEGROUND STORAGE TANK PADS ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL SHALE GAS WELLS.

MISS UTILITY STATEMENT

EQT WILL NOTIFY MISS UTILITY OF WEST VIRGINIA FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN. TICKET #1612349225. IN ADDITION, MISS UTILITY WILL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.



Larson Design Group

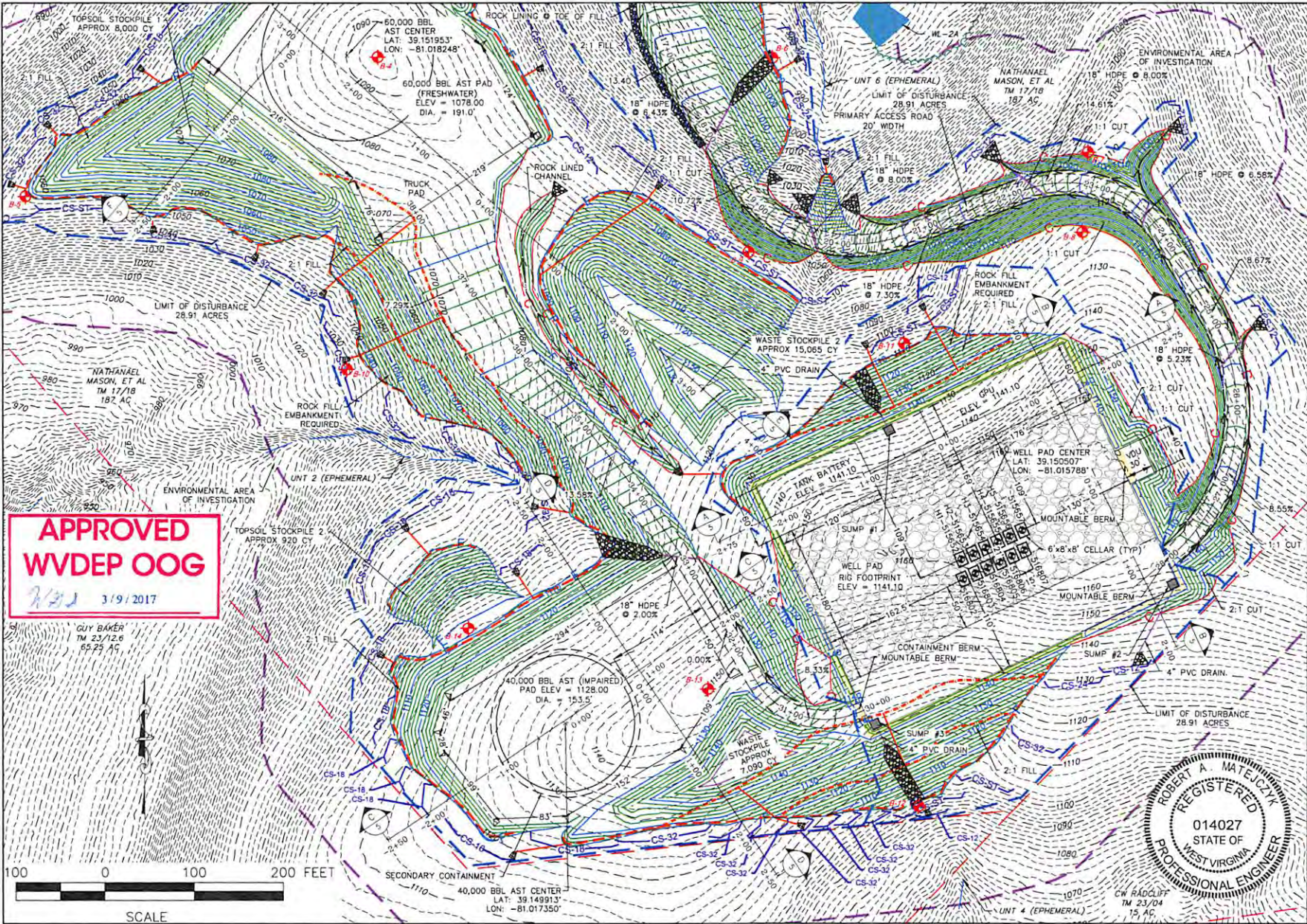
NO	DATE	ISSUE / REVISIONS
14	2/13/17	LABEL EXISTING WELL AP #
13	1/27/17	CONSTRUCTION QUANTITIES
12	1/27/17	ADJUST LOD FOR NEW SPRINGS
11	12/29/16	ASPHALT PLACEMENT NOTE
10	11/07/16	ENTRANCE REVISION
9	10/04/16	ENTRANCE RECONFIGURATION
8	11/25/16	QUANTITY CALCULATIONS
7	11/25/16	PREFINAL DESIGN
6	11/25/16	PRELIMINARY DESIGN
5	11/25/16	SCHEMATICS
4	11/25/16	SCHEMATICS
3	11/25/16	SCHEMATICS
2	11/25/16	SCHEMATICS
1	11/25/16	SCHEMATICS

COVER SHEET
EQT HAR 10 WELL PAD
 RITCHIE COUNTY, WEST VIRGINIA
 Larson Design Group - Architects Engineers Surveyors
 2502 Cranberry Square
 Morgantown, WV 26508
 PHONE 304.777.2940 TOLL FREE 877.323.6603
 FAX 725.779.5044 • www.larsondesigngroup.com

EQT Corporation
 115 Professional Pl
 Bridgeport, WV 26330
 PHONE 304.848.0000
Smith Land Surveying
 P.O. Box 150
 12 Vanhorn Drive
 Glenville, WV 26351
 PHONE 304.462.5634



SHEET NO:
1 OF 28
 PROJECT NO:
 10793-012



NO.	DATE	ISSUE / REVISIONS
14	2/13/17	LABEL EXISTING WELL LPS
13	1/23/17	CONSTRUCTION QUANTITIES
12	1/23/17	ADJUST LOD FOR NEW SPRINGS
11	12/8/16	ASPHALT PLACEMENT NOTE
10	11/27/16	ENTRANCE REVISION
9	10/4/16	ENTRANCE RECONFIGURATION
8	7/23/16	QUANTITY CALCULATIONS
7	11/9/15	PRELIMINARY DESIGN
6	11/9/15	PRELIMINARY DESIGN
5		
4		
3		
2		
1		

SITE LAYOUT
EOT HAR 10 WELL PAD
 WETHE COUNTY, WEST VIRGINIA

Larson Design Group • Architects Engineers Surveyors
 2502 Cranberry Sq.
 Morgantown, WV 26508
 PHONE 304.777.2940 TOLL FREE 877.323.6603
 FAX 724.779.5044 • www.larsondesigngroup.com

EOT Corporation
 115 Professional Pl.
 Bridgeport, WV 26336
 PHONE 304.945.0000

Smith Land Surveying
 P.O. Box 40
 12 Vanhorn Drive
 Cranville, WV 26351
 PHONE 304.462.5544



SHEET NO.:
6 OF 28

PROJECT NO.:
 10793-012

PROJECT INFORMATION

PROJECT NAME: EQT HAR 10
 TAX PARCEL:
 UNION DISTRICT, RITCHIE COUNTY, WV
 DISTRICT 10 MAP 17 PARCEL 18
 SURFACE OWNER:
 NATHANIEL MASON, ET AL
 PID 10-17-18
 TOTAL PROPERTY AREA: 187 ACRES
 TOTAL DISTURBED AREA: 28.91 ACRES

OPERATOR

EQT PRODUCTION COMPANY
 OPERATOR ID: 306686
 P.O. BOX 280
 BRIDGEPORT, WV 26530
 PHONE: (304) 348-3870

SURVEYOR

SMITH LAND SURVEYING
 P.O. BOX 150
 12 VANHORN DRIVE
 GLENVILLE, WV 26351
 PHONE: (304) 462-5634

ENGINEER - SITE DESIGN

LARSON DESIGN GROUP
 2502 CRANBERRY SQUARE
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 PHONE: (304) 777-2940

BLUE MOUNTAIN AERIAL MAPPING

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 BURTON, WV 26562
 PHONE: (304) 662-2626

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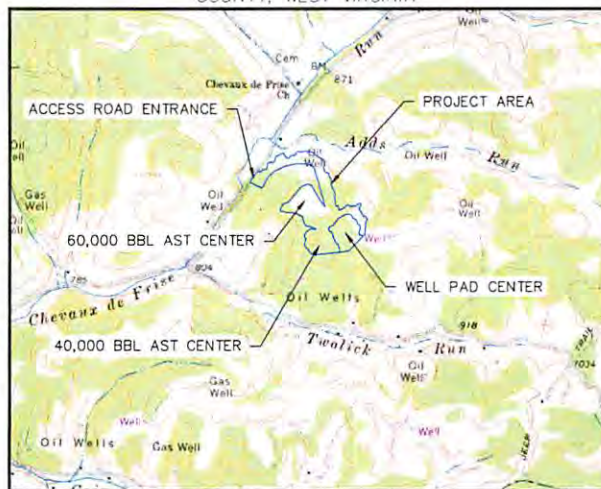
RESTRICTIONS NOTES:

1. THERE ARE NO PERENNIAL STREAMS, WETLANDS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD LOD.
2. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEET OF THE WELL PAD AND LOD.
3. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD AND LOD.
4. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL(S) BEING DRILLED.
5. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.
6. THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.

EQT HAR 10 SITE PLAN

EQT PRODUCTION COMPANY

SITUATE ON THE WATERS OF ADDS RUN, TWOLICK RUN,
 AND CHEVAUX DE FRISE RUN IN UNION DISTRICT, RITCHIE
 COUNTY, WEST VIRGINIA



SCALE: 1" = 200'
 HARRISVILLE QUADRANG F
 WEST VIRGINIA

M-SS Utility of West Virginia
 1-800-245-4848
 West Virginia State Law
 (Section XIV, Chapter 24-C)
 Requires that you call two
 business days before you dig in
 the state of West Virginia.
 IT'S THE LAW!!



LOCATION COORDINATES

ACCESS ROAD ENTRANCE
 LATITUDE: 39.153036 LONGITUDE: -81.021216 (NAD 83)
 N 241506.25 E 1537124.65 (WV NORTH NAD 83)

CENTER OF WELL PAD
 LATITUDE: 39.150507 LONGITUDE: -81.015788 (NAD 83)
 N 240559.13 E 1538647.98 (WV NORTH NAD 83)

CENTER OF 40,000 BBL AST PAD (IMPAIRED)
 LATITUDE: 39.151953 LONGITUDE: -81.018248 (NAD 83)
 N 240350.64 E 1538201.54 (WV NORTH NAD 83)

CENTER OF 60,000 BBL AST PAD (FRESHWATER)
 LATITUDE: 39.151953 LONGITUDE: -81.018248 (NAD 83)
 N 241097.54 E 1537959.33 (WV NORTH NAD 83)

SITE DISTURBANCE COMPUTATIONS

WELL PAD LIMIT OF DISTURBANCE	=	4.57 AC
AST PAD LIMIT OF DISTURBANCE	=	10.46 AC
ACCESS ROADS LIMIT OF DISTURBANCE	=	13.48 AC
TOTAL SITE DISTURBANCE	=	28.91 AC

ENTRANCE PERMIT

EQT WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MV-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES

WETLAND DELINEATIONS WERE PERFORMED ON NOVEMBER 20, DECEMBER 8, 2015, AND MAY 10, 2016 BY POTESTA & ASSOCIATES TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE EQT HAR-10 JURISDICTIONAL STREAMS & WETLANDS MAPS WERE PREPARED BY POTESTA & ASSOCIATES AND SUMMARIZE THE RESULTS OF THE FIELD DELINEATION. THE MAPS DO NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP. IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN WRITTEN CONFIRMATION OF THE DELINEATION SHOWN ON THIS EXHIBIT PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTE

A GEOTECHNICAL INVESTIGATION OF THE PROPOSED SITE WAS CONDUCTED BY CIVIL & ENVIRONMENTAL CONSULTANTS IN JUNE OF 2016. THE REPORT PREPARED BY CIVIL & ENVIRONMENTAL CONSULTANTS, DATED JUNE 2016 REFLECTS THE RESULTS OF THE SUBSURFACE INVESTIGATION. THE INFORMATION AND RECOMMENDATIONS CONTAINED IN THE JUNE 2016 REPORT WAS USED IN THE PREPARATION OF THESE PLANS. PLEASE REFER TO THE SUBSURFACE INVESTIGATION REPORT BY CIVIL & ENVIRONMENTAL CONSULTANTS FOR ADDITIONAL INFORMATION.

SOURCE OF MAPPING DATA

THE CONTOURS DEPICTED IN THE PLANS WERE COMPILED TO NATIONAL MAP ACCURACY STANDARDS BY BLUE MOUNTAIN AERIAL SURVEY, BURTON, WEST VIRGINIA, USING PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHY TAKEN ON APRIL 1, 2015. CONTOURS WHICH ARE IN WOODED OR DENSE VEGETATION ARE APPROXIMATIONS ONLY. THE PROPERTY BOUNDARIES SHOWN IN THE PLANS WERE LOCATED BY SMITH LAND SURVEYING.

FLOODPLAIN NOTE

NO PART OF THE PROJECT IS LOCATED WITHIN THE EXISTING FEMA 100-YEAR FLOODPLAIN, PER FEMA MAP #54085C0200C.

GENERAL DESCRIPTION

THE ACCESS ROAD(S), WELL PAD, AND ABOVEGROUND STORAGE TANK PADS ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL SHALE GAS WELLS.

MISS UTILITY STATEMENT

EQT WILL NOTIFY MISS UTILITY OF WEST VIRGINIA FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN. TICKET #1612349225. IN ADDITION, MISS UTILITY WILL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.

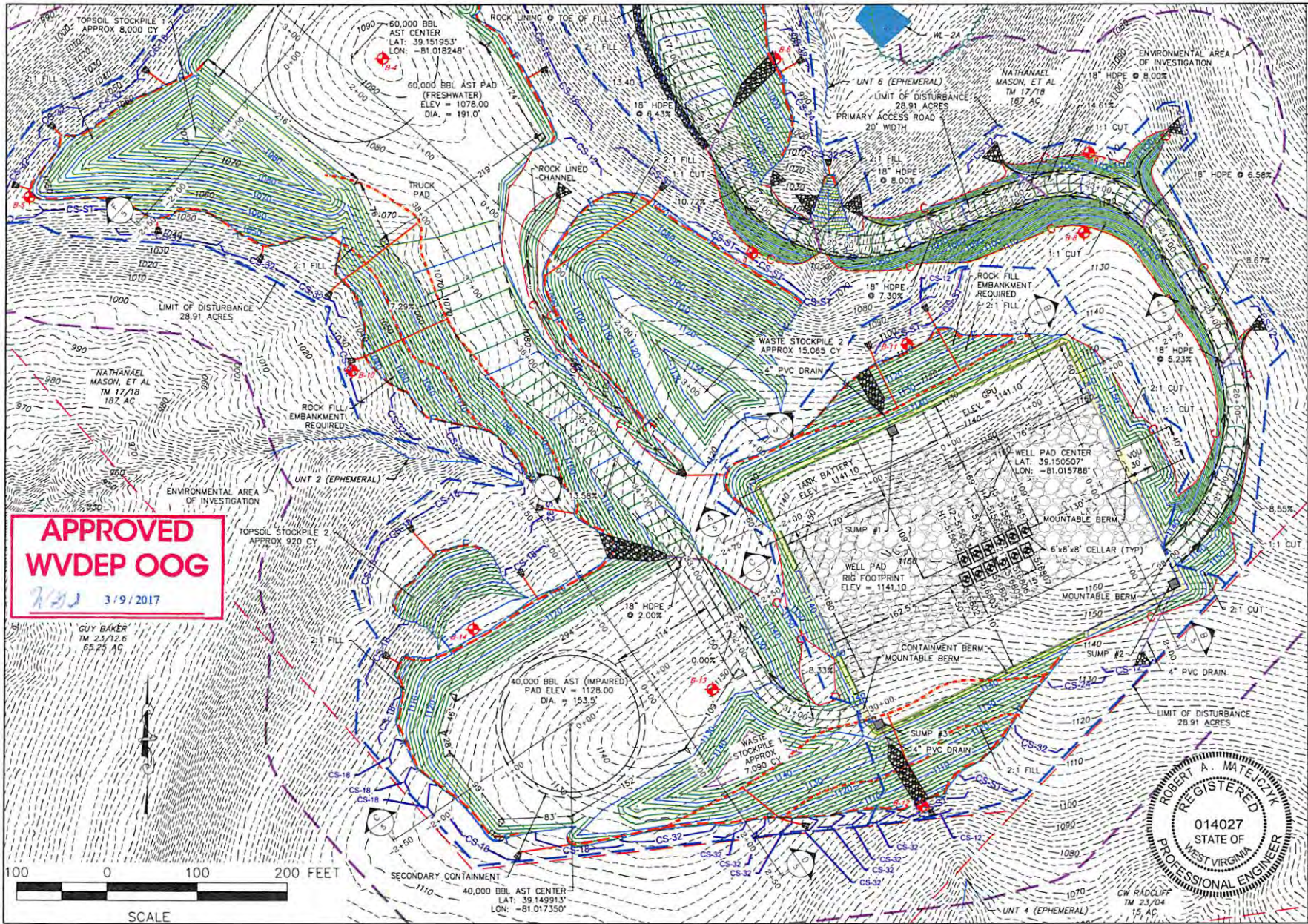


NO.	DATE	BY	CHK	REVISIONS
14	2/13/17	JAM	JAM	ISSUE / REVISIONS
13	1/23/17	JAM	JAM	CONSTRUCTION QUANTITIES
12	1/22/17	JAM	JAM	ADJUST LOD FOR NEW SPRINGS
11	1/22/17	JAM	JAM	REVISION NOTE
10	11/27/16	JAM	JAM	ENTRANCE REVISION
9	10/14/16	JAM	JAM	ENTRANCE RECONFIGURATION
8	7/25/16	JAM	JAM	QUANTITY CALCULATIONS
7	7/25/16	JAM	JAM	PRELIMINARY DESIGN
6	11/6/15	JAM	JAM	PRELIMINARY DESIGN
5	11/6/15	JAM	JAM	COMMENTS
4	11/6/15	JAM	JAM	COMMENTS
3	11/6/15	JAM	JAM	COMMENTS
2	11/6/15	JAM	JAM	COMMENTS
1	11/6/15	JAM	JAM	COMMENTS

COVER SHEET
EQT HAR 10 WELL PAD
 RITCHIE COUNTY, WEST VIRGINIA
 Larson Design Group • Architects Engineers Surveyors
 2502 Cranberry Sq.
 Morgantown, WV 26508
 PHONE 304.777.2940 TOLL FREE 877.323.6603
 FAX 724.779.5044 • www.larsondesigngroup.com

EQT Corporation
 115 Professional Pl
 Bridgeport, WV 26330
 PHONE 304.848.0000
Smith Land Surveying
 P.O. Box 150
 12 Vanhorn Drive
 Glenville, WV 26351
 PHONE 304.462.5634





NO.	DATE	BY	CHK	COMMENTS
14	2/23/17	JMD/HAM		ISSUE / REVISIONS
13	1/23/17	JMD/HAM		CONSTRUCTION QUANTITIES
12	1/22/17	JMD/HAM		ADJUST LOD FOR NEW SPRINGS
11	12/29/16	JMD/HAM		ADJUST PLACEMENT NOTE
10	11/27/16	JMD/HAM		ENTRANCE REVISION
9	10/27/16	JMD/HAM		ENTRANCE REVISION
8	11/17/16	JMD/HAM		ENTRANCE REVISION
7	11/17/16	JMD/HAM		ENTRANCE REVISION
6	11/17/16	JMD/HAM		ENTRANCE REVISION
5	11/17/16	JMD/HAM		ENTRANCE REVISION
4	11/17/16	JMD/HAM		ENTRANCE REVISION
3	11/17/16	JMD/HAM		ENTRANCE REVISION
2	11/17/16	JMD/HAM		ENTRANCE REVISION
1	11/17/16	JMD/HAM		ENTRANCE REVISION

SITE LAYOUT
EOT HAR 10, WEST PAD
BRITCHE COUNTY, WEST VIRGINIA

Larson Design Group • Architects Engineers Surveyors
 2302 Cranberry St.
 Morgantown, WV 26508
 PHONE 304.777.2940 TOLL FREE 877.323.6603
 FAX 724.779.5644 • www.larsondesigngroup.com

EOT Corporation
 115 Professional Pl
 Bridgeport, WV 26330
 PHONE 304.848.0000

Smith Land
 Surveying
 P.O. Box 150
 12 Vanhorn Drive
 Greenville, WV 26351
 PHONE 304.462.5634



SHEET NO:
6 OF 28

PROJECT NO:
 10793-012

4708510303

PROJECT INFORMATION

PROJECT NAME: EQT HAR 10
 TAX PARCEL:
 UNION DISTRICT, RITCHIE COUNTY, WV
 DISTRICT 10 MAP 17 PARCEL 18
 SURFACE OWNER:
 NATHANIEL MASON, ET AL
 PID 10-17-18
 TOTAL PROPERTY AREA: 187 ACRES
 TOTAL DISTURBED AREA: 28.91 ACRES

OPERATOR

EQT PRODUCTION COMPANY
 OPERATOR ID: 306686
 P.O. BOX 280
 BRIDGEPORT, WV 26630
 PHONE (304) 348-3870

SURVEYOR

SMITH LAND SURVEYING
 P.O. BOX 150
 12 VANHORN DRIVE
 GLENVILLE, WV 26351
 PHONE: (304) 462-5634

ENGINEER - SITE DESIGN

LARSON DESIGN GROUP
 2502 CRANBERRY SQUARE
 MORGANTOWN, WV 26508
 PHONE: (304) 777-2940

BLUE MOUNTAIN AERIAL MAPPING

11023 MASON DIXON HIGHWAY
 BURTON, WV 26562
 PHONE: (304) 662-2626

ENGINEER - GEOTECHNICAL

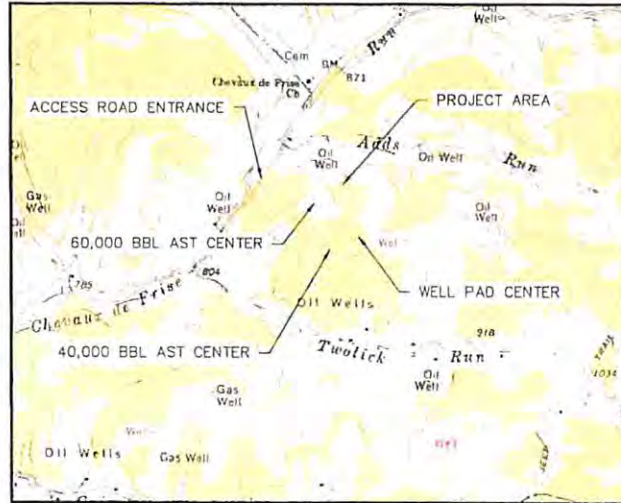
CIVIL & ENVIRONMENTAL CONSULTANTS, INC.
 600 MARKETPLACE AVE, SUITE 200
 BRIDGEPORT, WV 26330
 PHONE: (304) 933-3327



EQT HAR 10 SITE PLAN

EQT PRODUCTION COMPANY

SITUATE ON THE WATERS OF ADDS RUN, TWOLICK RUN, AND CHEVAUX DE FRISE RUN IN UNION DISTRICT, RITCHIE COUNTY, WEST VIRGINIA



SCALE: 1" = 2000'

HARRISVILLE QUADRANGLE
 WEST VIRGINIA

Michael Stoff
 2/12/17

MISS Utility of West Virginia
 1-800-245-4848
 West Virginia State Law
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 Requires that you call two
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 the state of West Virginia
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LOCATION COORDINATES

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CENTER OF WELL PAD
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 N 240559.13 E 1538647.98 (WV NORTH NAD 83)

CENTER OF 40,000 BBL AST PAD
 LATITUDE: 39.149913 LONGITUDE: -81.017350 (NAD 83)
 N 240350.64 E 1538201.54 (WV NORTH NAD 83)

CENTER OF 60,000 BBL AST PAD
 LATITUDE: 39.151953 LONGITUDE: -81.018248 (NAD 83)
 N 241097.54 E 1537959.33 (WV NORTH NAD 83)

SITE DISTURBANCE COMPUTATIONS

WELL PAD LIMIT OF DISTURBANCE	4,977.2
AST PAD LIMIT OF DISTURBANCE	10,467.4
ACCESS ROADS LIMIT OF DISTURBANCE	13,481.0
TOTAL SITE DISTURBANCE	28,915.6

ENTRANCE PERMIT

EQT WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-100) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

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SHEET INDEX

- 1 COVER SHEET
- 2-3 GENERAL NOTES
- 4 OVERALL PLAN SHEET INDEX
- 5-6 SITE LAYOUT
- 7 ACCESS ROAD PROFILES
- 8-13 ACCESS ROAD CROSS SECTIONS
- 14 WELL PAD + AST PAD CROSS SECTIONS
- 12 WELL PAD CROSS SECTIONS
- 15-16 RECLAMATION PLAN
- 17-27 CONSTRUCTION DETAILS
- 28 CONSTRUCTION QUANTITIES

RESTRICTIONS NOTES:

- 1. THERE ARE NO PERENNIAL STREAMS, WETLANDS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD LOD.
- 2. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEET OF THE WELL PAD AND LOD.
- 3. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD AND LOD.
- 4. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL(S) BEING DRILLED.
- 5. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.
- 6. THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.



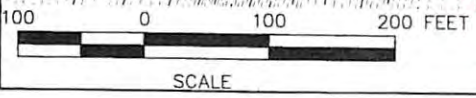
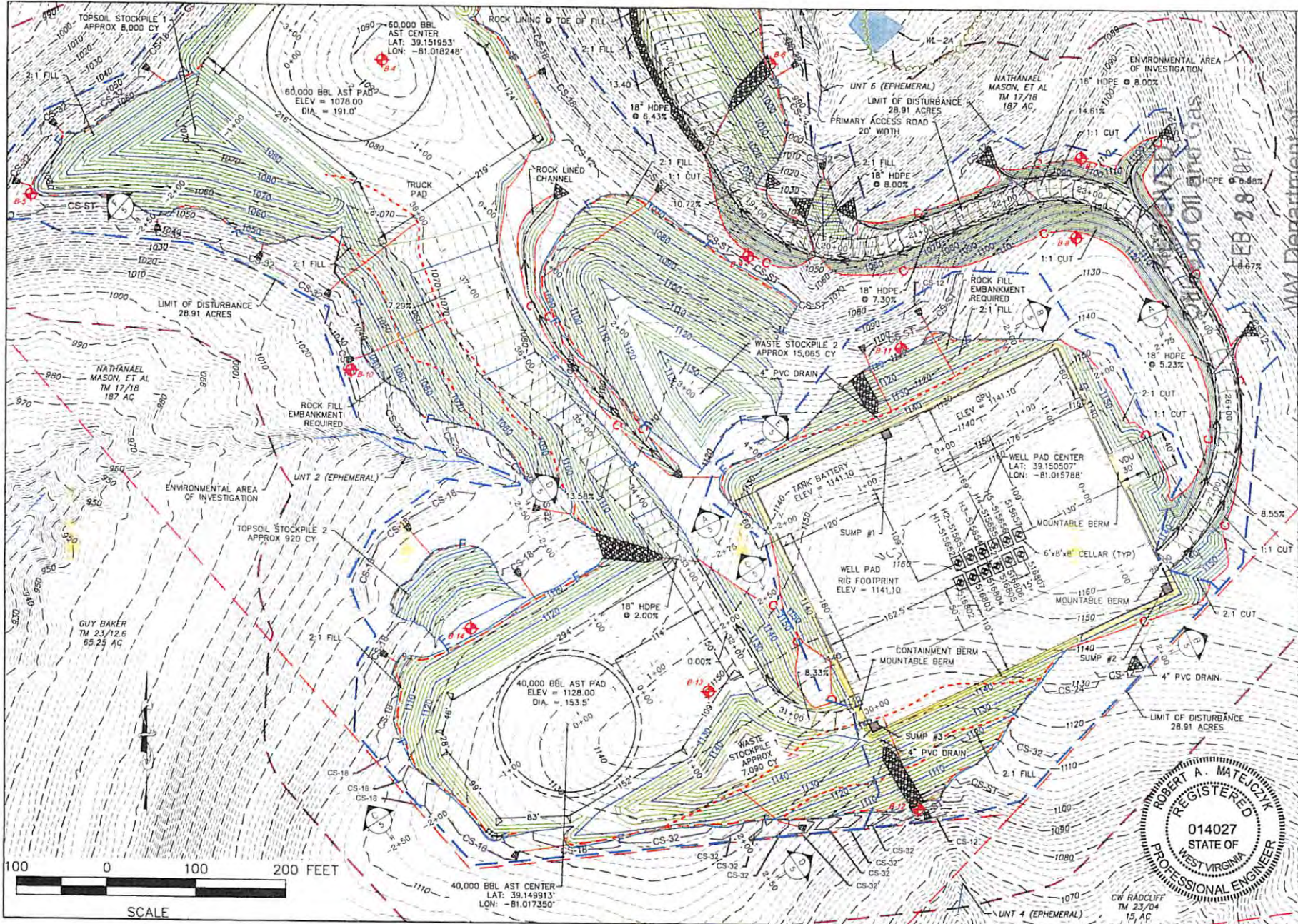
NO.	DATE	COMMENTS	BY
1	1/22/17	ISSUE FOR PERMITTING	JAM
2	1/22/17	ISSUE FOR PERMITTING	JAM
3	1/22/17	ISSUE FOR PERMITTING	JAM
4	1/22/17	ISSUE FOR PERMITTING	JAM
5	1/22/17	ISSUE FOR PERMITTING	JAM
6	1/22/17	ISSUE FOR PERMITTING	JAM
7	1/22/17	ISSUE FOR PERMITTING	JAM
8	1/22/17	ISSUE FOR PERMITTING	JAM
9	1/22/17	ISSUE FOR PERMITTING	JAM
10	1/22/17	ISSUE FOR PERMITTING	JAM

RECEIVED
 Office of Oil and Gas
 FEB 28 2017
 WV Department of Environmental Protection
 COVER SHEET
 EQT HAR 10 WELL PAD
 RITCHIE COUNTY, WEST VIRGINIA
 Larson Design Group • Architects Engineers Surveyors
 2802 Cranberry Square
 Morgantown, WV 26508
 PHONE 304.777.2940 TOLL FREE 877.323.6603
 FAX 304.724.7793044 • www.larsondesigngroup.com



SHEET NO 1 OF 28
 PROJECT NO 10793-012

4708510303



Department of Environmental Protection

NO.	DATE	ISSUE / REVISIONS
1	11/17/16	ISSUE FOR PERMIT
2	12/17/16	REVISION: ADDITIONAL COMMENTS
3	10/14/16	ENTRANCE RECONFIGURATION
4	10/14/16	QUANTITY CALCULATION
5	7/25/16	SECURITY CALCULATION
6	11/6/15	PRELIMINARY DESIGN
7		COMMENTS
8		BY CHK
9		BY DSK

SITE LAYOUT
EOT HAR 10 WEST PAD
 FITCHES COUNTY, WEST VIRGINIA

Larson Design Group - Architects Engineers Surveyors
 2302 Cranberry Hill
 Morgantown, WV 26508
 PHONE 304.777.2940 TOLL FREE 877.323.6603
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 115 Professional Pl
 Bridgeport, WV 26330
 PHONE 304.848.0000

Smith Land Surveying
 P.O. Box 150
 12 Vanhorn Drive
 Glenville, WV 26035
 PHONE 304.462.5654

