



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

PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well

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

Re: Permit Modification Approval for YURIGAN 5H
47-095-02301-00-00

Shorten length of lateral, shift the azimuth, and adjust landing point and bottom hole

EQT PRODUCTION COMPANY

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before 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: YURIGAN 5H
Farm Name: STATOIL USA ONSHORE PROPERTIES, INC
U.S. WELL NUMBER: 47-095-02301-00-00
Horizontal 6A / Horizontal 6A Well
Date Issued: 8/10/2017

Promoting a healthy environment.

08/11/2017

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

1) Well Operator: EQT Production Company 306686 Tyler Ellsworth Shirley
Operator ID County District Quadrangle

2) Operator's Well Number: Yurigan 5H Well Pad Name: Yurigan

3) Farm Name/Surface Owner: EQT Production Co. Public Road Access: Co.Rt. 34

4) Elevation, current ground: 1260.0 Elevation, proposed post-construction: 1241.0

5) Well Type (a) Gas Oil Underground Storage
Other

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus, 6967', 49', 2747 PSI

JPS
3/1/17
DmH
3-1-17

8) Proposed Total Vertical Depth: 6967

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 11404

11) Proposed Horizontal Leg Length: 3391

12) Approximate Fresh Water Strata Depths: 155, 875

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

14) Approximate Saltwater Depths: 1580, 1713, 1917

15) Approximate Coal Seam Depths: 432, 610, 868, 1065

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: _____

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	1119	1119	976 ft ³ / CTS
Coal							
Intermediate	9 5/8	New	A-500	40	3269	3269	1274 ft ³ / CTS
Production	5 1/2	New	P-110	20	11404	11404	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° inclination	
Liners							

J/S 3/1/17 DMH 3-1-17

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 2014-17	1.19
Coal							
Intermediate	9 5/8	12 3/8	.395	3950	3160	See Variance 2014-17	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 4448'. 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, gelling agent, gel breaker, 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 200,000 barrels of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000 pounds of sand per stage.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 14.32

22) Area to be disturbed for well pad only, less access road (acres): 13.46

23) Describe centralizer placement for each casing string:

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

DmH
3-1-17
JPS
3/1/17

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. 25% Flake Loss Circulation Material (LCM) is used to combat the loss of the cement slurry to a thief zone
 Intermediate (Type 1 Cement): 0-3% Calcium Chloride. Salt is used in shallow, low temperature formations to speed the setting of cement slurries. 0.25% flake. Loss Circulation Material (LCM) is used to combat the loss of whole drilling fluid or cement slurry (not filtrate) to a thief zone.
 Production:
 Lead (Type H Cement): 0.2% CD-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 (Type 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 a 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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*Note: Attach additional sheets as needed.

Well Yurigan 5H
 EQT Production Shirley Quad
 Tyler County, WV

Azimuth 157
 Vertical Section 4895

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3/11/17

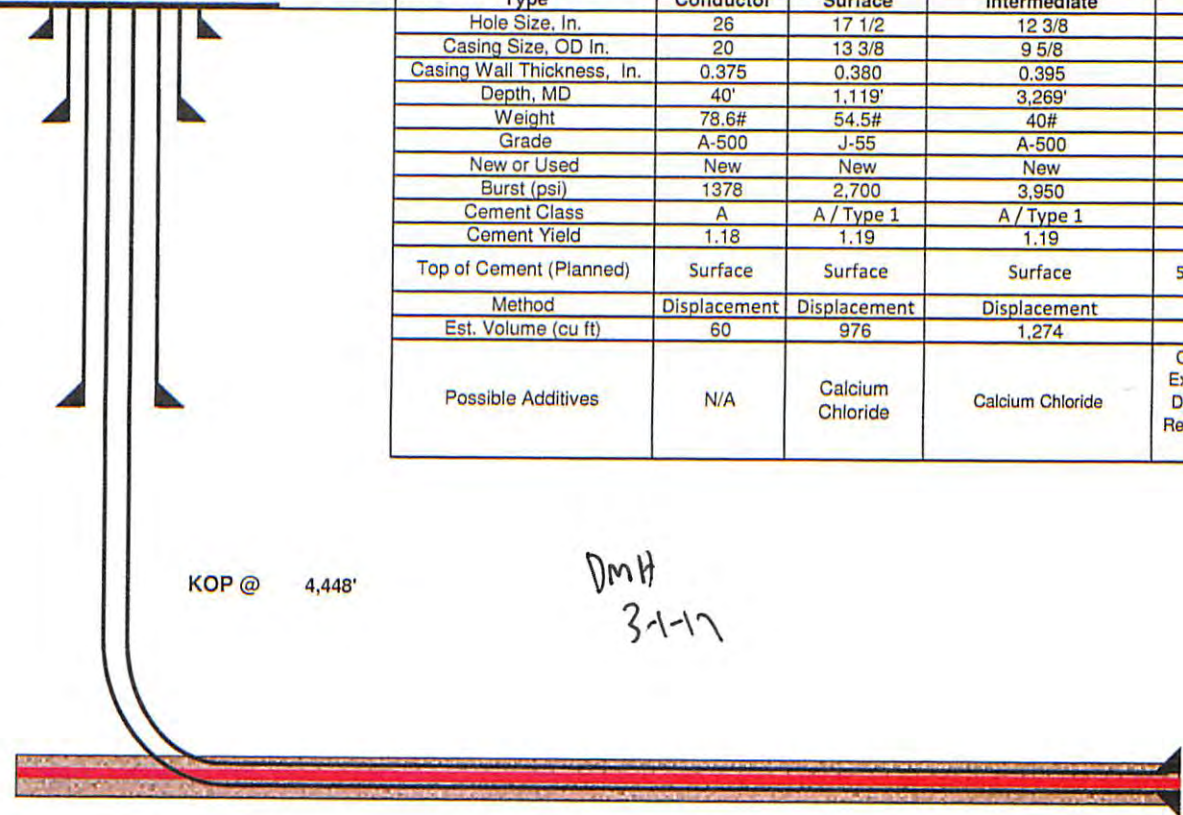
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Note: Diagram is not to scale

Formations	Top TVD	Base TVD
Conductor	40	
Base Fresh Water	875	
Surface Casing	1119	
Base Red Rock	1307	
Maxton	1987 - 2023	
Big Lime	2071 - 2289	
Big Injun	2289 - 2341	
Weir	2353 - 2451	
Gantz	2728 - 2800	
Fifty foot	2876 - 2932	
Gordon	2954 - 3032	
Fifth Sand	3108 - 3169	
Intermediate Casing	3269	
Bayard	3180 - 3375	
Warren	3659 - 3819	
Speechley	3850 - 4036	
Balltown A	4125 - 4345	
Riley	4860 - 4905	
Benson	5315 - 5372	
Alexander	5559 - 5610	
Sonyea	6606 - 6742	
Middlesex	6742 - 6774	
Genesee	6774 - 6844	
Geneseo	6844 - 6875	
Tully	6875 - 6893	
Hamilton	6893 - 6941	
Marcellus	6941 - 6990	
Production Casing	11404	MD
Onondaga	6990	

Casing and Cementing				Deepest Fresh Water: 875'
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'	1,119'	3,269'	11,404'
Weight	78.6#	54.5#	40#	20#
Grade	A-500	J-55	A-500	P-110
New or Used	New	New	New	New
Burst (psi)	1378	2,700	3,950	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	976	1,274	2,074
Possible Additives	N/A	Calcium Chloride	Calcium Chloride	Calcium Carbonate, Fluid Loss, Extender, Dispersant, Viscosifier, Defoamer, POZ, Bonding Agent, Retarder, Anti-Settling/Suspension Agent

4709502301



DMH
3-1-17

Land curve @ 6,967' TVD 8,013' MD Est. TD @ 6,967' TVD 11,404' MD

Proposed Well Work:
 Drill and complete a new horizontal well in the Marcellus formation.
 Drill the vertical to an approximate depth of 4448'.
 Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

3,391' Lateral

4709502301



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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

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08/11/2017



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**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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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

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08/11/2017

WW-9
(4/16)

4709502301

API Number 47 - 095 - _____
Operator's Well No. Yurigan 5H

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) Elk Fork Quadrangle Shirley

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.? n/a

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 _____)

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.

DMH
3-1-17

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

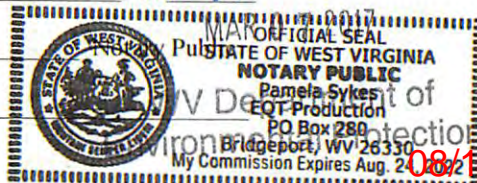
JPS
3/1/17

Subscribed and sworn before me this 15 day of Feb, 2017

My commission expires 8-24-22

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2017



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WW-9 Attachment

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

- Air is used to drill the top-hole sections of the wellbore (surface, intermediate, and pilot). Water based mud may be necessary depending on hole conditions to stabilize and drill the intermediate section. The pilot hole, curve, and lateral sections will be drilled with either air, water based mud, or oil based mud.

Additives to be used in drilling medium?

- Air - biodegradable oil lubricant, detergent, defoaming, water. Water based mud – Barite, viscosifer, alkalinity control, lime, filtration control, deflocculates, biodegradable oil lubricant, defoaming, walnut shell, salt, x-cide, carbonates. Oil based mud – synthetic base oil, emulsifier, salt, lime, viscosifer, alkalinity control, filtration control, deflocculates, biodegradable oil lubricant, defoaming, carbonates.

EQT Production Water plan

4709502301

Offsite disposals for Marcellus wells

CWS TRUCKING INC.

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

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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EQT Production Company

Proposed Revegetation Treatment: Acres Disturbed 14.32 Prevegetation pH 6.8

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

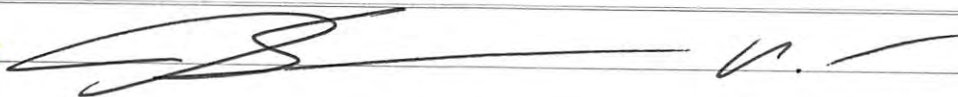
Seed Mixtures

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: 

Comments:

Title: Oil & Gas INSPECTOR

Date: 3/1/17

Field Reviewed? Yes No

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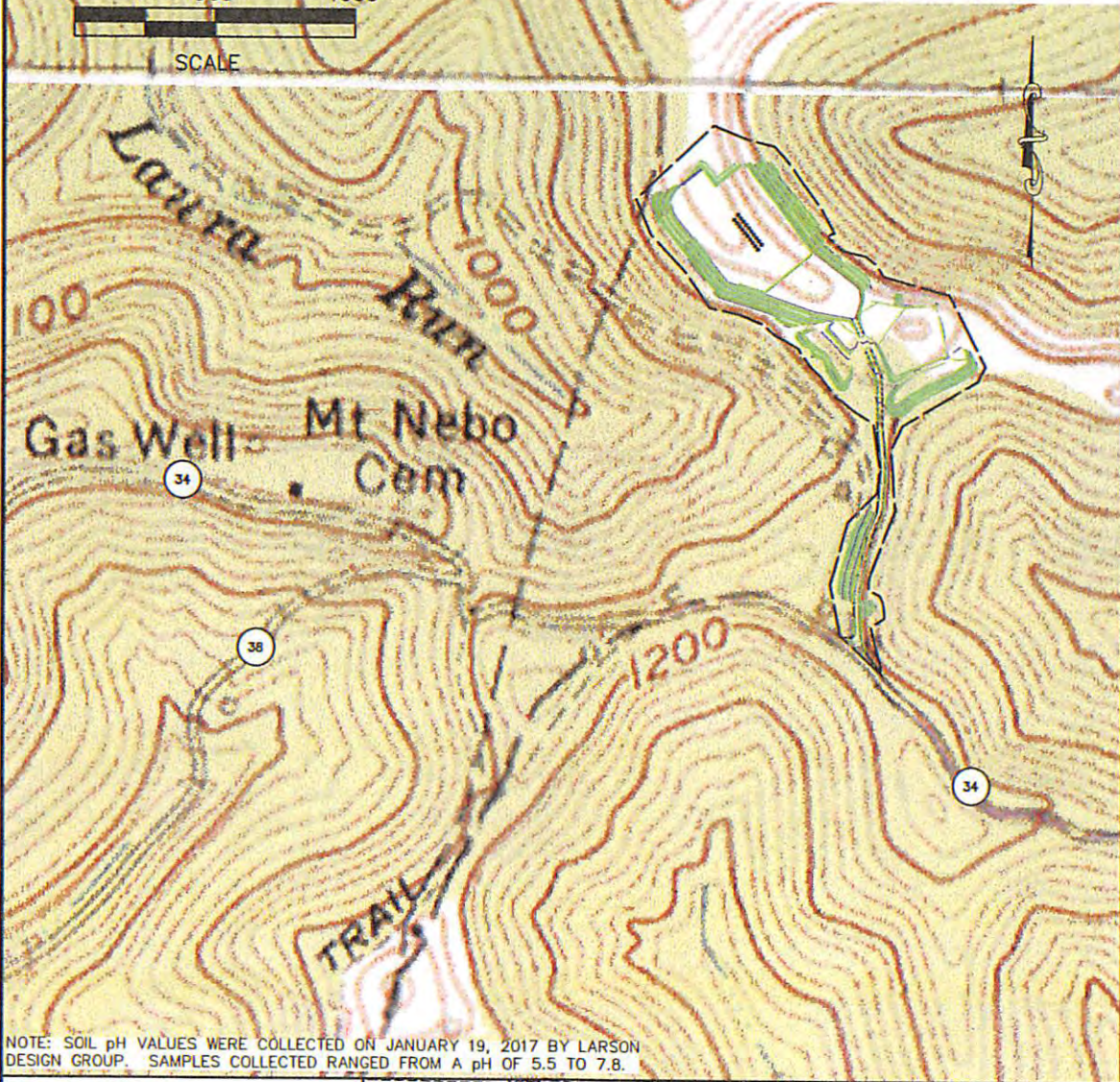
08/11/2017

0' 500' 1000'



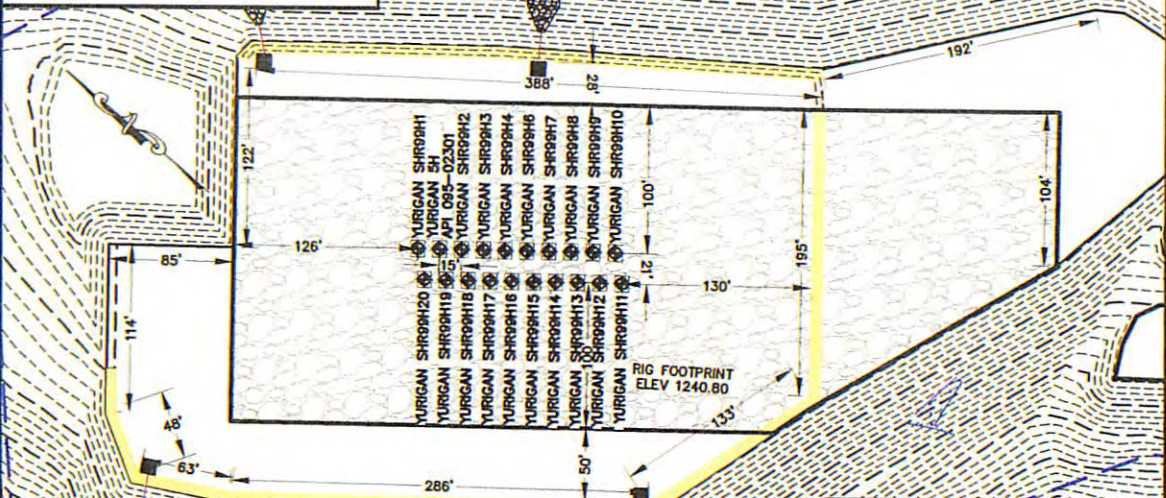
SCALE

NOTE: SEE YURIGAN SITE PLAN FOR COMPLETE CONSTRUCTION AND EROSION AND SEDIMENT CONTROL DETAILS.



NOTE: SOIL pH VALUES WERE COLLECTED ON JANUARY 19, 2017 BY LARSON DESIGN GROUP. SAMPLES COLLECTED RANGED FROM A pH OF 5.5 TO 7.8.

DETAIL SKETCH FOR PROPOSED SHR99 WELLS



NOTE: SEE YURIGAN SITE PLAN FOR COMPLETE CONSTRUCTION AND EROSION AND SEDIMENT CONTROL DETAILS.

0' 100' 200'



SCALE

Larson Design Group logo and contact information: Architects Engineers Surveyors, 2502 Cranberry Square, Morgantown, WV 26508, PHONE 304.777.2940, TOLL FREE 877.323.6603, FAX 570.323.9902, www.larsondesigngroup.com

RECLAMATION PLAN
YURIGAN WELL SITE
ELLSWORTH DISTRICT - TYLER COUNTY, WV
FOR EOT

Office of Oil and Gas
DATE: 1-24-2017
SHEET NO. 20
EXH
PROJECT NO.: 7936-006
DRAWN BY: JWD

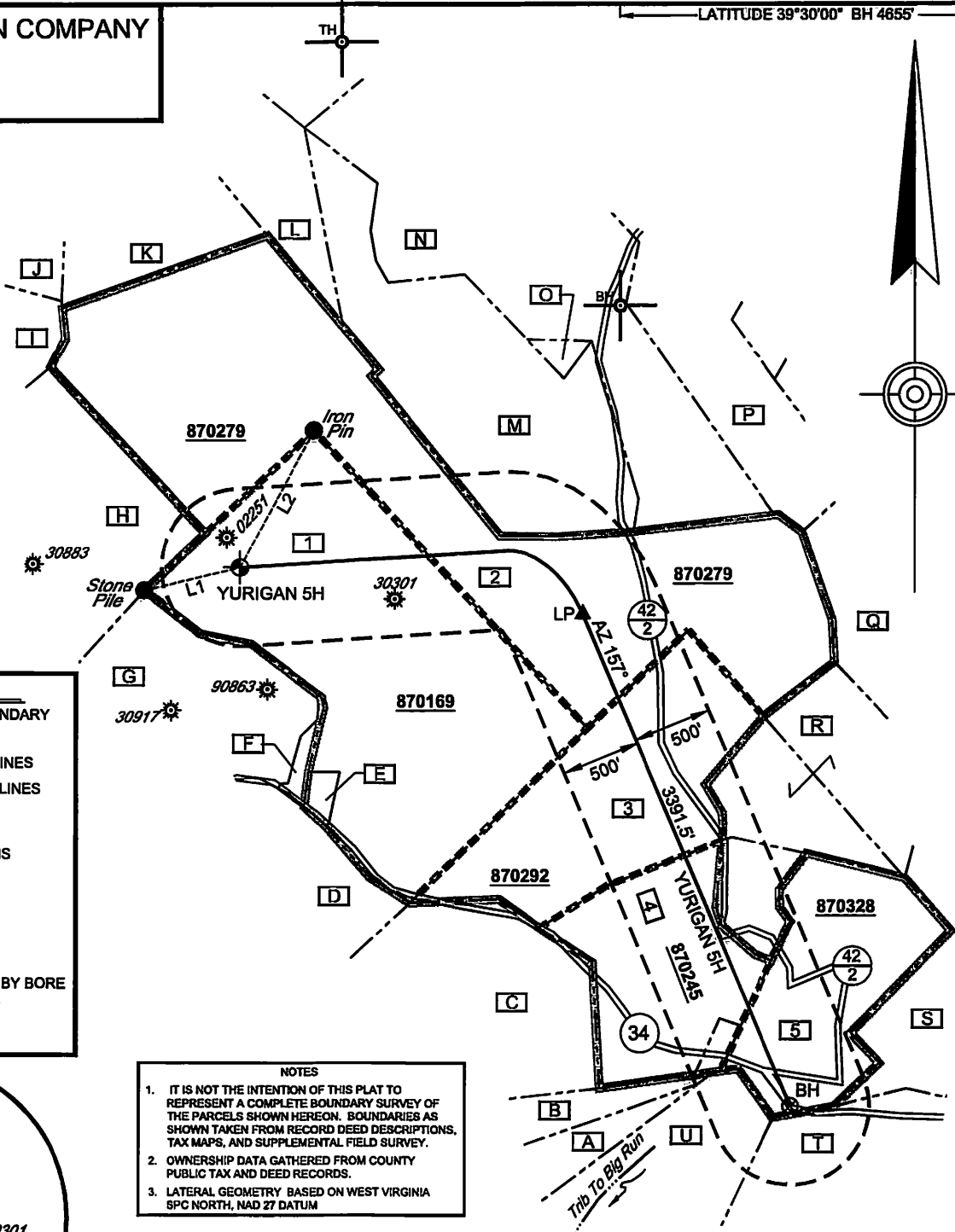
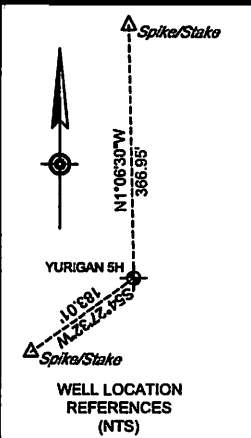
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5/11/17
DMH
3-1-17

EQT PRODUCTION COMPANY
WELL # YURIGAN 5H
PAD: YURIGAN
PAGE 1 OF 2

PROPERTY TIES
L1 - S76°21'20"E 625.15'
L2 - N28°28'57"E 986.84'

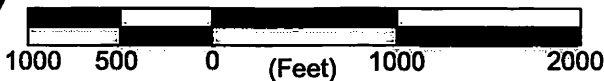
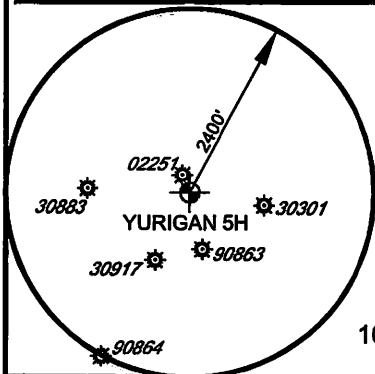


LEGEND

- OUTER LEASE BOUNDARY
- LEASE BOUNDARY
- SURFACE TRACT LINES
- WELL REFERENCE LINES
- ⊙ - COUNTY ROADS
- PUBLIC ROADS
- BLUE-LINE STREAMS
- ⊗ - PROPOSED WELL
- ☀ - EXISTING WELL
- ▲ - LANDING POINT
- ⊗ - BOTTOM HOLE
- 1 - PROPERTY CROSSED BY BORE
- A - ADJOINER PROPERTY
- 870378 - LEASE NUMBER

NOTES

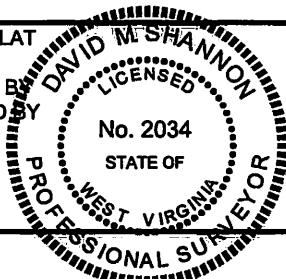
- IT IS NOT THE INTENTION OF THIS PLAT TO REPRESENT A COMPLETE BOUNDARY SURVEY OF THE PARCELS SHOWN HEREON. BOUNDARIES AS SHOWN TAKEN FROM RECORD DEED DESCRIPTIONS, TAX MAPS, AND SUPPLEMENTAL FIELD SURVEY.
- OWNERSHIP DATA GATHERED FROM COUNTY PUBLIC TAX AND DEED RECORDS.
- LATERAL GEOMETRY BASED ON WEST VIRGINIA SPC NORTH, NAD 27 DATUM



FILE NO. 7936-006
 DRAWN BY DMS
 SCALE 1 INCH = 1000 FEET
 MIN DEGREE OF ACCURACY 1 IN 2500
 PROVEN SOURCE OF ELEVATION SURVEY GRADE GPS

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

David M. Shannon PS #2034



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

W.V.D.E.P.
OFFICE OF OIL AND GAS
601 57th STREET
CHARLESTON, WV 25304

DATE 1-10-2017

OPERATORS WELL NO. YURIGAN 5H

API WELL NO. 47 095 02301

STATE 47 COUNTY 095 PERMIT 02301

WASTE DISPOSAL

SHALLOW

ELEVATION (EXIST) 1260 (PROP) 1241

QUADRANGLE SHIRLEY - SEC3

ACREAGE 84.07±

ACREAGE 84.07 LEASE# 870169

WELL TYPE: OIL GAS LIQUID INJECTION

IF "GAS", PRODUCTION STORAGE DEEP

LOCATION: WATERSHED ELK FORK

COUNTY/DISTRICT TYLER / ELLSWORTH

SURFACE OWNER EQT PRODUCTION COMPANY

OIL & GAS ROYALTY OWNER DENVER E. HAUGHT, ET AL

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) _____

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH 6941

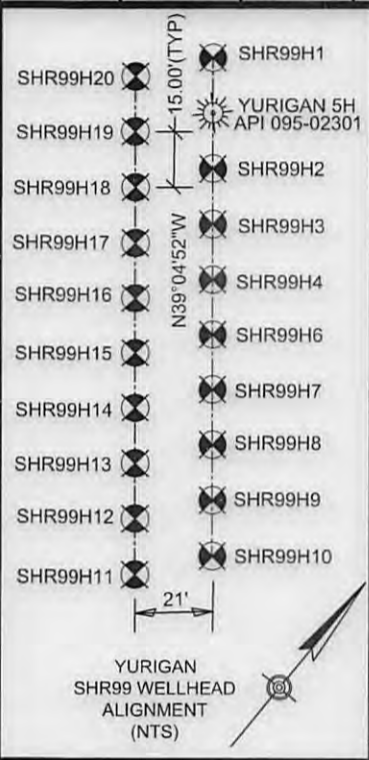
WELL OPERATOR: EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY

ADDRESS 115 PROFESSIONAL PLACE, PO BOX 280 BRIDGEPORT, WV 26330 ADDRESS 115 PROFESSIONAL PLACE, PO BOX 280 BRIDGEPORT, WV 26330

08/11/2017

EQT PRODUCTION COMPANY
WELL # YURIGAN 5H
PAD: YURIGAN
PAGE 2 OF 2

UTM NAD83 ZONE 17N (METERS)	TOPHOLE	N-4372156.14	E-519007.83
	LANDING PT	N-4372076.94	E-519673.20
	BOT HOLE	N-4371132.60	E-520092.79
NAD27 SPC FEET NORTH ZONE	TOPHOLE	N-366328.98	E-1639059.59
	LANDING PT	N-366032.60	E-1641238.65
	BOT HOLE	N-362910.73	E-1642563.81
NAD27 GEO LAT(N) LONG(W)	TOPHOLE	N039.498733	W080.779102
	LANDING PT	N039.498005	W080.771366
	BOT HOLE	N039.489486	W080.766515



TAB	OWNER	DISTRICT	TAX MAP	PARCEL #	AREA
1	EQT PRODUCTION COMPANY	ELLSWORTH	2-17	52	84.069
2	JONATHAN S. COOPER	ELLSWORTH	2-17	51	108.67
3	JENNIFER R. CAMPBELL WILLIAMS	ELLSWORTH	2-23	28	50
4	TERRY E. AND JASON JOY	ELLSWORTH	2-23	12	31.88
5	JOSEPH MICHAEL FERRELL	ELLSWORTH	2-23	13	43

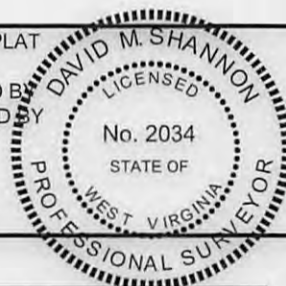
TAB	OWNER	DISTRICT	TAX MAP	PARCEL #	AREA
A	RICHARD J. BLANKENSHIP AND POLITI CARMINA	MCELROY	5-2	9.1	16.028
B	BRIAN K. AND SANDRA L. JOCHUM	MCELROY	5-2	9.3	16.132
C	LOYD D. & PHYLLIS J. WEEKLEY	ELLSWORTH	5-2	4	167.56
D	ILLIAM J. & ALMEDA S. JAMES	ELLSWORTH	5-2	30	50.7
E	ILLIAM WIKER & ALBERT MOSCHETTI	ELLSWORTH	2-23	29	1.237
F	ILLIAM J. & ALMEDA S. JAMES	ELLSWORTH	2-17	53	91.46
G	ILLIAM J. & ALMEDA S. JAMES	ELLSWORTH	2-17	53	91.46
H	ILLIAM J. & ALMEDA S. JAMES	ELLSWORTH	2-17	53	91.46
I	SAMUEL C HAMMETT, ET AL	ELLSWORTH	2-17	36	39.6
J	JOANNE WILKINSON	ELLSWORTH	2-17	27	26.5
K	RICHARD C. & SHARON L. NEFF	ELLSWORTH	2-17	26	29.54
L	ELIZABETH MENGES	ELLSWORTH	2-17	25	31.5
M	MARTHA E. MENGES	ELLSWORTH	2-17	50	47
N	JOHN COOPER	ELLSWORTH	2-17	37.1	70.05
O	MARTHA E. MENGES	ELLSWORTH	2-17	49	1.03
P	PATRICK G. KELLER	ELLSWORTH	2-17	37.2	33.34
Q	EQT PRODUCTION COMPANY	ELLSWORTH	2-17	46	35
R	RICHARD C. & SHARON L. NEFF	ELLSWORTH	2-23	28	25.21
S	WANDA JUNE PARR	ELLSWORTH	2-23	14	54.75
T	WANDA PARR	MCELROY	5-2	10	104.75
U	LYLE AND LACY BLANKENSHIP	MCELROY	5-2	9.2	63.08

LEASE#	MINERAL OWNERS	AREA
870279	JONATHAN S. COOPER, ET AL	108.67
870292	CHARLES ROBERT FUCHS, ET AL	50
870245	TINA LOUISE ZEDIKER, ET AL	33
870328	TINA LOUISE ZEDIKER, ET AL	35

FILE NO. 7936-006
 DRAWN BY DMS
 SCALE 1 INCH = 1000 FEET
 MIN DEGREE OF ACCURACY 1 IN 2500
 PROVEN SOURCE OF ELEVATION SURVEY GRADE GPS

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

David M. Shannon PS #2034



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

W.V.D.E.P.
 OFFICE OF OIL AND GAS
 601 57TH STREET
 CHARLESTON, WV 25304

DATE 1-10-2017
 OPERATORS WELL NO. YURIGAN 5H
 API WELL NO. 47 095 02301
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 IF "GAS", PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: WATERSHED ELK FORK ELEVATION (EXIST) 1260 (PROP) 1241
 COUNTY/DISTRICT TYLER / ELLSWORTH QUADRANGLE SHIRLEY - SEC3
 SURFACE OWNER EQT PRODUCTION COMPANY ACREAGE 84.07±
 OIL & GAS ROYALTY OWNER DENVER E. HAUGHT, ET AL ACREAGE 84.07 LEASE# 870169
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY) _____
 TARGET FORMATION: MARCELLUS ESTIMATED DEPTH 6941
 WELL OPERATOR: EQT PRODUCTION COMPANY DESIGNATED AGENT REX C. RAY
 ADDRESS 115 PROFESSIONAL PLACE, PO BOX 280 ADDRESS 115 PROFESSIONAL PLACE, PO BOX 280
BRIDGEPORT, WV 26330 BRIDGEPORT, WV 26330

08/11/2017

COUNTY NAME PERMIT

WW-6A1
(5/13)

Operator's Well No. Yurigan 5H

**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
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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

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
<u>870189</u>	<u>Denver E. Haught, et al (current royalty owner)</u> Holly Hill Campbell (original lessor) Petroedge Energy LLC Statoil USA Onshore Properties Inc.	Petroedge Energy LLC Statoil USA Onshore Properties Inc. EQT Production Company	***	411/586 436/1 539/239
<u>870279</u>	<u>Jonathan S. Cooper, et al (current royalty owner)</u> Richard Neff, et ux (original lessor) Petroedge Energy LLC Statoil USA Onshore Properties Inc.	Petroedge Energy LLC Statoil USA Onshore Properties Inc. EQT Production Company	***	392/443 408/147 539/239
<u>870292</u>	<u>Charles Robert Fuchs, et al (current royalty owner)</u> Charles Robert Fuchs (original lessor) Petroedge Energy LLC Statoil USA Onshore Properties Inc.	Petroedge Energy LLC Statoil USA Onshore Properties Inc. EQT Production Company	***	410/821 436/1 539/239
<u>870245</u>	<u>Tina Louise Zediker, et al (current royalty owner)</u> Rockford Energy LLC, et al Petroedge Energy LLC Statoil USA Onshore Properties Inc.	Petroedge Energy LLC Statoil USA Onshore Properties Inc. EQT Production Company	***	390/5 406/147 539/239
<u>870328</u>	<u>Tina Louise Zediker, et al (current royalty owner)</u> Tina Louise Zediker, et al Petroedge Energy LLC Statoil USA Onshore Properties Inc.	Petroedge Energy LLC Statoil USA Onshore Properties Inc. EQT Production Company	***	395/498 406/147 539/239

4709502301

EQT Production
Hydraulic Fracturing Monitoring Plan
Pad ID: Yurigan
Tyler County, WV

1/18/17

Purpose

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near EQT hydraulic fracturing in Tyler County, WV prior to hydraulic fracturing at the following EQT wells on Yurigan pad: Yurigan 5H, SHR99H1

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 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.

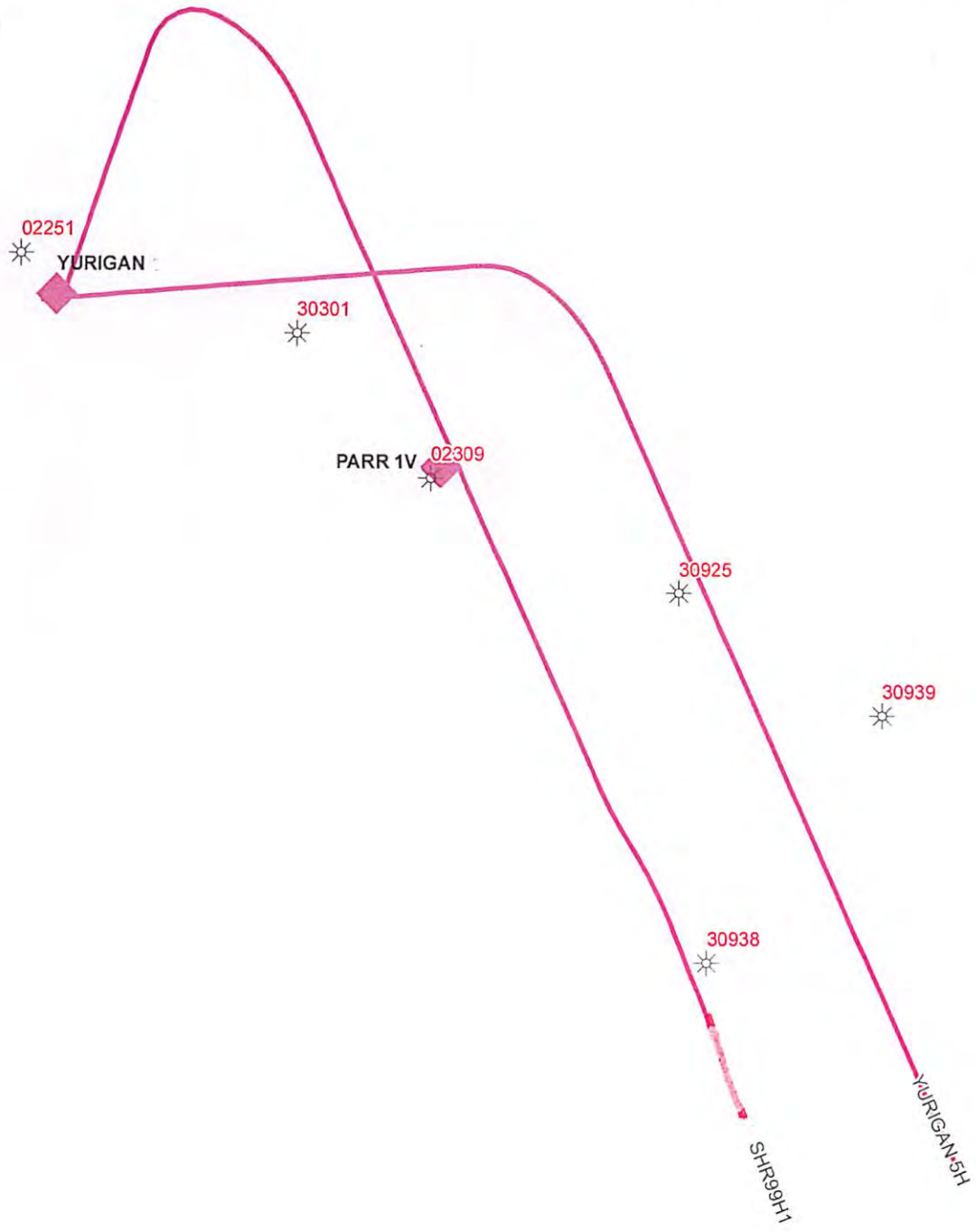
EQT will recommend to these operators at a minimum to:

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.

4709502301

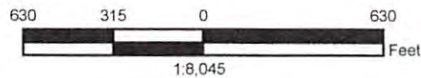


EQT Corporation
625 Liberty Avenue
Pittsburgh, PA 15222

Yurigan Pad

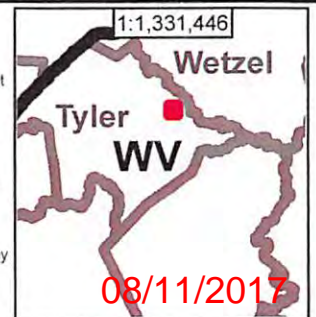
Vertical Offsets and Foreign Laterals within 500'

- Legend
- Yurigan Vertical Offsets
 - GENESEO
 - MARCELLUS
 - MIDDLESEX
 - POINT PLEASANT
 - UTICA



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.



WELL ID	COMP DATE	CURRENT OPERATOR	ELEVATION	DATUM TYPE	STATUS	LATITUDE	LONGITUDE	OPERATOR	PERMIT DATE	PROJECTED FM	PROJECTED TD	SPUD DATE	TD FORMATION	TD	PERMIT
47095309350000		MANUFACTURERS LIGHT & HEAT	0 GR		PEUDO	39.4956	-80.7704	MANUFACTURERS LIGHT & HEAT			0			0	30925
47095309390000	2/16/1904	MANUFACTURERS LIGHT & HEAT	966 GR		ABD-GW	39.4943	-80.7676	MANUFACTURERS LIGHT & HEAT	1/2/1904		0	1/17/1904	HURON LOWER	2733	30939
47095303010000		MANUFACTURERS LIGHT & HEAT	1105 GR		ABD-GW	39.4984	-80.7756	MANUFACTURERS LIGHT & HEAT			0		BIG HURON /SD/	1943	30301
47095309380000		MANUFACTURERS LIGHT & HEAT	1000 GR		ABD-GW	39.4917	-80.7700	MANUFACTURERS LIGHT & HEAT			0		HURON LOWER	2816	30938
47095022510000		ALLIANCE PETROLEUM CORPORATION	1251 GR		AT-TD	39.4993	-80.7794	ALLIANCE PETROLEUM CORPORATION	4/7/2015	SPEECHLEY	3950	4/28/2015		4050	02251
47095023090000	12/14/2015	ALLIANCE PETROLEUM CORPORATION	1210 KB		GAS	39.4959	-80.7738	ALLIANCE PETROLEUM CORPORATION	9/16/2015	RHINESTREET	6000	9/28/2015	RHINESTREET	6000	02309