



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

API 47-103-02943 County WETZEL District GRANT
Quad BIG RUN Pad Name BIG367 Field/Pool Name _____
Farm name DENCIL HENTHORN ET AL Well Number 514569
Operator (as registered with the OOG) EQT Production Company
Address 625 Liberty Ave. EQT Plaza, Suite 1700 City Pittsburgh State PA Zip 15222

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4,378,620.025 Easting 536,104.242
Landing Point of Curve Northing 4,378,532.765 Easting 536,432.016
Bottom Hole Northing 4,376,452.571 Easting 537,144.543

Elevation (ft) 1443 GL Type of Well New Existing Type of Report Interim Final
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other _____
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine

Mud Type(s) and Additive(s)
SBM 14.1 ppg – powdered hydrocarbon resin, calcium carbonate, ground almond hulls, barium sulfate, calcium chloride, lecithin liquid, organophilic clay, partially hydrolyzed polyacrylamide/polyacrylate, potassium chloride, sodium carbonate, ground walnut shells, alcohol and modified fatty acid, ferrochrome lignosulfonate, calcium carbonate, fibrous cellulose

Date permit issued 11/12/2013 Date drilling commenced 3/18/2014 Date drilling ceased 8/4/2014
Date completion activities began 1/5/2016 Date completion activities ceased 2/10/2016
Verbal plugging (Y/N) N Date permission granted N/A Granted by N/A

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

Freshwater depth(s) ft 708' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 2171' Void(s) encountered (Y/N) depths N
Coal depth(s) ft 516', 730', 834', 885', 1022', 1193', 1683' Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

APPROVED

NAME: Derek A. Hught
DATE: 8-27-16

Reviewed by: Dan H
10/28/2016

API 47-103 - 02943

Farm name DENCIL HENTHORN ET AL

Well number 514569

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	28"	26"	80'	NEW	A-500	NONE	Y
Surface	17-1/2"	13-3/8"	959'	NEW	J-55	110'	Y
Coal							
Intermediate 1	12-3/8"	9-5/8"	2908'	NEW	A-500	NONE	Y
Intermediate 2							
Intermediate 3							
Production	8-1/2"	5-1/2"	15,540'	NEW	P-110	NONE	N
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	98	15.6	1.18	116	0	8
Surface	Class A	820	15.6	1.19	976	0	8
Coal							
Intermediate 1	Class A	1075	15.6	1.19	1279	0	8
Intermediate 2							
Intermediate 3	Class A/Class H	665/975	14.2/15.2	1.26/1.97	2759	3745	
Production							
Tubing							

Drillers TD (ft) 15,552'

Loggers TD (ft) N/A

Deepest formation penetrated Marcellus

Plug back to (ft) N/A

Plug back procedure _____

Kick off depth (ft) 8,160'

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

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING _____

Conductor- N/A

Surface-Bowspring centralizer on shoe track and every 150' to surface

Intermediate-Bowspring centralizer on shoe track and every 150' to surface

Production- Composite bodied centralizers on every joint from TD up to 4,860'

WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS _____

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS _____

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

API 47- 103 - 02943 Farm name DENCIL HENTHORN ET AL Well number 514569

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
MARCELLUS	7,578.10 TVD	8,049.00 MD

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,287 psi Bottom Hole N/A psi DURATION OF TEST 133.50 hrs

OPEN FLOW Gas 12,289 mcfpd Oil N/A bpd NGL 0.0 bpd Water 998 bpd GAS MEASURED BY Estimated Orifice Pilot

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

Please insert additional pages as applicable.

Drilling Contractor Savanna Drilling
Address 2204 Timberloch Place Suite 230 City Woodlands State TX Zip 77380

Logging Company Hoss Co. Services LLC
Address 614 Trotters Lane City Charleston State WV Zip 25312

Cementing Company Nabors Completion & Production Services Co.
Address PO BOX 975682 City Dallas State TX Zip 75397-5682

Stimulating Company C&J Energy Services
Address 3990 Rogerdale Road City Houston State TX Zip 77042

Please insert additional pages as applicable.

Completed by Jim Helmick Telephone (412) 395-5518
Signature  Title VP Completions Date 6/21/2016

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

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Formation Name	Final Top MD (ftGL) (ft)	Final Top TVD (ft)	Final Btm MD (ftGL) (ft)	Final Btm TVD (ft)
FRESH WATER ZONE	1	1	708	708
SAND/SHALE	1	1	516	516
COAL	516	516	528	528
SAND/SHALE	528	528	730	730
FAIRVIEW COAL	730	730	734	734
SAND/SHALE	734	734	834	834
WAYNESBURG COAL	834	834	836	836
SAND/SHALE	836	836	885	885
COAL	885	885	896	896
SAND/SHALE	896	896	1,022.00	1,022.00
MAPLETOWN COAL	1,022.00	1,022.00	1,025.00	1,025.00
SAND/SHALE	1,025.00	1,025.00	1,193.00	1,193.00
PITTSBURGH COAL	1,193.00	1,193.00	1,199.00	1,199.00
SAND/SHALE	1,199.00	1,199.00	1,683.00	1,683.00
COAL	1,683.00	1,683.00	1,687.00	1,687.00
SAND/SHALE	1,687.00	1,687.00	2,252.00	2,252.00
MAXTON	2,255.00	2,255.00	2,410.00	2,409.90
BIG LIME	2,410.00	2,409.90	2,512.00	2,511.90
BIG INJUN	2,512.00	2,511.90	2,806.00	2,805.80
WEIR	2,806.00	2,805.80	2,956.00	2,955.80
GANTZ	2,956.00	2,955.80	3,006.00	3,005.80
50F	3,006.00	3,005.80	3,100.00	3,099.80
30F	3,100.00	3,099.80	3,224.00	3,223.80
GORDON	3,224.00	3,223.80	3,317.00	3,316.80
4TH	3,317.00	3,316.80	3,472.00	3,471.70
BAYARD	3,472.00	3,471.70	3,838.00	3,837.70
WARREN	3,838.00	3,837.70	4,052.00	4,051.70
SPEECHLEY	4,052.00	4,051.70	4,402.00	4,401.70
BALLTOWN A	4,402.00	4,401.70	4,837.00	4,836.60
RILEY	4,837.00	4,836.60	5,514.00	5,513.60
BENSON	5,514.00	5,513.60	5,908.00	5,907.60
ALEXANDER	5,908.00	5,907.60	6,957.00	6,872.90
RHINESTREET UPPER	6,957.00	6,872.90	7,084.00	6,969.60
RHINESTREET	7,084.00	6,969.60	7,317.00	7,317.00
SONYEA	7,314.00	7,146.60	7,514.00	7,514.00
MIDDLESEX	7,514.00	7,297.30	7,577.00	7,342.30
GENESSEE	7,577.00	7,342.30	7,716.00	7,716.00
GENESE0	7,716.00	7,432.30	7,762.00	7,458.10
TULLY	7,762.00	7,458.10	7,804.00	7,804.00
HAMILTON	7,804.00	7,480.10	8,049.00	7,578.10
MARCELLUS	8,049.00	7,578.10	15,552.00	7,578.10

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514569 47-103-02943-0000 - Perforations

Stage Number	Perforation Date	Top Perf Depth (ftKB)	Bottom Perf Depth (ftKB)	Number of Shots	Formation
Initiation Sleeve	3/9/2015	15,538	15,540	10	MARCELLUS
1	1/5/2016	15,378	15,498	40	MARCELLUS
2	1/6/2016	15,232	15,350	40	MARCELLUS
3	1/6/2016	15,078	15,200	40	MARCELLUS
4	1/6/2016	14,928	15,050	40	MARCELLUS
5	1/6/2016	14,778	14,900	40	MARCELLUS
6	1/6/2016	14,628	14,744	40	MARCELLUS
7	1/7/2016	14,478	14,596	40	MARCELLUS
8	1/7/2016	14,328	14,450	40	MARCELLUS
9	1/7/2016	14,182	14,298	40	MARCELLUS
10	1/7/2016	14,028	14,150	40	MARCELLUS
11	1/7/2016	13,878	14,000	40	MARCELLUS
12	1/8/2016	13,728	13,850	40	MARCELLUS
13	1/8/2016	13,578	13,698	40	MARCELLUS
14	1/8/2016	13,428	13,550	40	MARCELLUS
15	1/8/2016	13,278	13,400	40	MARCELLUS
16	1/8/2016	13,132	13,250	40	MARCELLUS
17	1/8/2016	12,978	13,100	40	MARCELLUS
18	1/9/2016	12,828	12,950	40	MARCELLUS
19	1/9/2016	12,678	12,800	40	MARCELLUS
20	1/9/2016	12,528	12,646	40	MARCELLUS
21	1/9/2016	12,378	12,500	40	MARCELLUS
22	1/9/2016	12,228	12,348	40	MARCELLUS
23	1/9/2016	12,076	12,200	40	MARCELLUS
24	1/10/2016	11,928	12,050	40	MARCELLUS
25	1/10/2016	11,778	11,900	40	MARCELLUS
26	1/10/2016	11,628	11,750	40	MARCELLUS
27	2/4/2016	11,414	11,597	40	MARCELLUS
28	2/6/2016	11,263	11,385	40	MARCELLUS
29	2/7/2016	11,113	11,235	40	MARCELLUS
30	2/7/2016	10,963	11,085	40	MARCELLUS
31	2/7/2016	10,813	10,935	40	MARCELLUS
32	2/7/2016	10,663	10,785	40	MARCELLUS
33	2/7/2016	10,513	10,632	40	MARCELLUS
34	2/7/2016	10,363	10,485	40	MARCELLUS
35	2/8/2016	10,213	10,335	40	MARCELLUS
36	2/8/2016	10,066	10,185	40	MARCELLUS
37	2/8/2016	9,913	10,035	40	MARCELLUS
38	2/8/2016	9,763	9,885	40	MARCELLUS
39	2/8/2016	9,613	9,735	40	MARCELLUS
40	2/8/2016	9,463	9,583	40	MARCELLUS
41	2/9/2016	9,313	9,433	40	MARCELLUS
42	2/9/2016	9,163	9,285	40	MARCELLUS
43	2/9/2016	9,013	9,135	40	MARCELLUS
44	2/9/2016	8,863	8,985	40	MARCELLUS
45	2/9/2016	8,713	8,833	40	MARCELLUS
46	2/10/2016	8,563	8,685	40	MARCELLUS
47	2/10/2016	8,413	8,535	40	MARCELLUS
48	2/10/2016	8,266	8,385	40	MARCELLUS
49	2/10/2016	8,113	8,235	40	MARCELLUS

10/28/2016

514569 47-103-02943-0000 - Stimulated Stages

Stage Number	Stimulation Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (psi)	Max Breakdown Pressure (psi)	ISIP (psi)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
Initiation Sleeve	1/5/2016	11.2	8,212	8,919	6,261	0	1,624	0
1	1/5/2016	78.9	8,750	8,913	5,715	201,500.00	6,533	0
2	1/6/2016	82.7	8,660	8,925	5,482	205,300.00	7,350	0
3	1/6/2016	83.2	8,723	8,918	5,115	208,100.00	5,897	0
4	1/6/2016	85.6	8,745	8,934	5,147	201,400.00	5,557	0
5	1/6/2016	87.4	8,829	8,932	5,549	201,900.00	5,576	0
6	1/7/2016	85	8,820	8,976	5,437	205,500.00	5,497	0
7	1/7/2016	87.2	8,796	8,933	5,442	204,600.00	5,622	0
8	1/7/2016	89.1	8,718	8,942	5,523	204,500.00	5,135	0
9	1/7/2016	90.2	8,729	8,294	5,498	200,400.00	5,094	0
10	1/7/2016	90.9	8,753	8,942	5,559	204,200.00	5,512	0
11	1/7/2016	90.9	8,792	8,937	5,489	201,000.00	5,386	0
12	1/8/2016	94.7	8,791	8,942	5,324	200,700.00	5,383	0
13	1/8/2016	92.8	8,768	8,966	5,564	204,000.00	5,309	0
14	1/8/2016	82	8,781	8,930	5,429	198,600.00	5,475	0
15	1/8/2016	92.5	8,751	8,921	5,351	201,900.00	5,553	0
16	1/8/2016	92.3	8,821	8,963	5,454	198,600.00	5,499	0
17	1/8/2016	88.5	8,761	8,990	5,265	197,900.00	5,377	0
18	1/9/2016	94.6	8,772	8,943	5,243	201,200.00	5,394	0
19	1/9/2016	93.7	8,679	8,883	5,442	200,400.00	5,399	0
20	1/9/2016	95	8,729	8,967	5,241	199,400.00	5,145	0
21	1/9/2016	94.1	8,557	9,078	5,393	200,400.00	7,210	0
22	1/9/2016	98.7	8,753	8,947	5,299	199,000.00	5,340	0
23	1/9/2016	99.1	8,732	8,920	5,594	198,600.00	5,308	0
24	1/10/2016	97.6	8,727	8,907	5,251	202,400.00	5,278	0
25	1/10/2016	96.7	8,669	8,936	5,343	204,500.00	5,481	0
26	1/10/2016	94.6	8,663	8,912	5,471	204,000.00	5,385	0
27.01	2/3/2016	12.9	5,562	6,408	5,074	0.00	396	0
27	2/6/2016	100.5	8,640	8,861	5,652	282,900.00	7,343	0
28	2/6/2016	99.6	8,662	8,929	5,543	200,100.00	5,245	0
29	2/7/2016	98.6	8,679	8,876	5,531	201,100.00	5,122	0
30	2/7/2016	100.1	8,672	8,888	5,501	197,100.00	4,998	0
31	2/7/2016	100.6	8,602	8,819	5,527	199,400.00	5,136	0
32	2/7/2016	87.4	8,713	8,821	5,424	201,100.00	4,990	0
33	2/7/2016	99.4	8,533	8,843	5,581	200,200.00	5,014	0
34	2/7/2016	91.3	8,401	8,646	5,700	199,500.00	5,196	0
35	2/8/2016	95.8	8,583	8,830	5,761	199,800.00	5,075	0
36	2/8/2016	100	8,604	8,961	5,341	199,800.00	4,719	0
37	2/8/2016	99.1	8,643	8,880	5,668	200,800.00	4,999	0
38	2/8/2016	100.4	8,576	8,771	5,335	199,900.00	4,925	0
39	2/8/2016	100.2	8,385	8,608	5,496	200,000.00	5,093	0
40	2/9/2016	99.7	8,520	8,739	5,707	203,300.00	4,981	0
41	2/9/2016	100.2	8,288	8,478	5,689	201,800.00	4,928	0
42	2/9/2016	98.9	8,495	9,035	5,554	199,600.00	6,008	0
43	2/9/2016	100.9	8,441	8,677	5,561	205,600.00	4,998	0
44	2/9/2016	100.3	8,273	8,605	5,745	204,500.00	5,112	0
45	2/9/2016	101.3	8,316	8,743	5,538	200,300.00	5,098	0
46	2/10/2016	99.7	8,156	8,711	5,529	199,500.00	5,077	0
47	2/10/2016	100.6	8,081	8,702	5,523	199,000.00	5,349	0
48	2/10/2016	98.7	8,407	8,863	5,304	200,100.00	4,991	0
49	2/10/2016	98.5	8,398	8,720	5,609	202,000.00	4,958	0

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date	1/5/2015
Job End Date	2/10/2016
State	West Virginia
County	Wetzel
API Number	47-103-02943-00-00
Operator Name	EQT Production
Well Name and Number	514569
Longitude	-80.57992700
Latitude	39.55642400
Datum	NAD83
Federal/Tribal Well	NO
True Vertical Depth	7,579
Total Base Water Volume (gal)	11,216,940
Total Base Non Water Volume	0



Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	C and J Energy Services	Carrier/Base Fluid					
Sand (Proppant)	C and J Energy Services	Proppant	Water	7732-18-5	100.00000	89.98248	None
MC MX 437-5	Multi-Chem Group	Calcium Nitrate Solution	Silica Substrate	14808-60-7	100.00000	9.56240	None
FR-18	C and J Energy Services	Anionic Friction Reducer	Calcium Nitrate	10124-37-5	60.00000	0.05752	None
Hydrochloric Acid (15%)	C and J Energy Services	Acidizing	Distillates (petroleum), Hydrotreated Light Ethylene Glycol	64742-47-8	45.00000	0.03677	None
MC MX 8-2544	Multi-Chem Group	Blend	Hydrochloric Acid	107-21-1	10.00000	0.00817	None
SI-6	C and J Energy Services	Scale Inhibitor	Sodium chloride	7647-01-0	15.00000	0.03637	None
			Sodium chloride	7647-14-5	100.00000	0.00982	None
			Sodium chloride	7631-99-4	5.00000	0.00049	None
			Trade Secret	Proprietary	7.00000	0.00173	None

				2002-24-6	2.00000	0.00049	None
				12125-02-9	2.00000	0.00049	None
				87-55-1	1.00000	0.00025	None
CI-3	C and J Energy Services	Corrosion Inhibitor					
				107-21-1	40.00000	0.00019	None
				88-12-2	20.00000	0.00010	None
				111-76-2	15.00000	0.00007	None
				104-55-2	15.00000	0.00007	None
				72480-70-7	15.00000	0.00007	None
				127087-87-0	5.00000	0.00002	None
				112-30-1	5.00000	0.00002	None
				78-40-0	2.50000	0.00001	None
				87-63-0	2.50000	0.00001	None
				111-87-5	2.50000	0.00001	None
GA-7A	C and J Energy Services	Gelling Agent					
				64742-47-8	60.00000	0.00005	None
				9000-30-0	60.00000	0.00005	None
				Proprietary	10.00000	0.00001	None

Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.

* Total Water Volume sources may include fresh water, produced water, and/or recycled water

** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided. Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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EQT WELL NO. 514569

AS DRILLED COORDINATES FOR WELL NO. WV 514569

(S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)
NAD'27 S.P.C.(FT) N. 386,602.037 E. 1,695,513.107
NAD'27 GEO. LAT-(N) 39.556507 LONG-(W) 80.579741
NAD'83 UTM (M) N. 4,378,620.025 E. 536,104.242

NOTES:
-PLAT ORIENTATION, CORNERS, AND WELL REFERENCES ARE BASED UPON THE GRID NORTH MERIDIAN FOR THE WV STATE PLANE COORDINATE SYSTEM, NORTH ZONE NAD 27. WELL LOCATION REFERENCE TIES ARE BASED UPON THE MAGNETIC MERIDIAN.
-THERE ARE NO (O) WATER WELL(S) LOCATED WITHIN 250' OF WELL H1.
-THERE ARE NO (O) STRUCTURE(S) LOCATED WITHIN 825' OF WELL H1.

NAD'27 GRID NORTH

LONGITUDE 80°32'30"

9,774' TOP HOLE

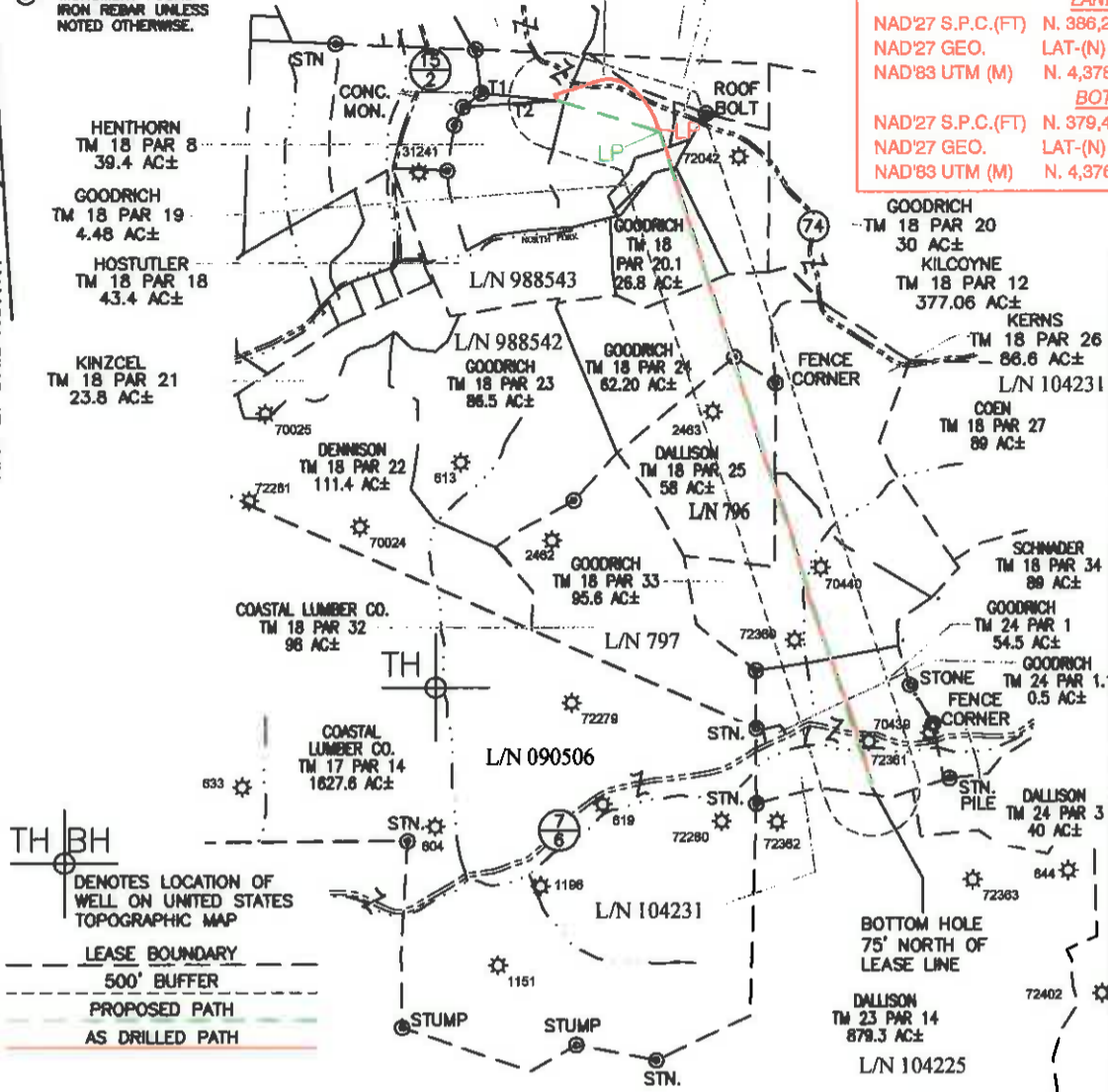


Table with 3 columns: Well ID, State Plane Coordinates, UTM Coordinates. Row 1: WELL 514569 TOP HOLE.

Table with 3 columns: Well ID, State Plane Coordinates, UTM Coordinates. Row 1: WELL 514569 LAUNCH POINT.

Table with 3 columns: Well ID, State Plane Coordinates, UTM Coordinates. Row 1: WELL 514569 BOTTOM HOLE.

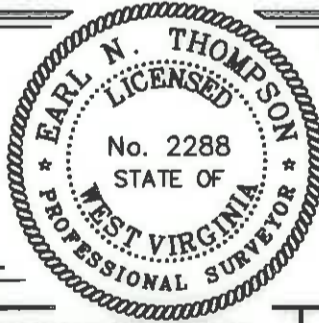
Table with 3 columns: LINE, BEARING, DIST. Row 1: T1 S84°24'41"E 794.25'

SPECIAL NOTES
-LEASE AND SURFACE INFO SHOWN HEREON WAS TAKEN FROM PERMIT PLAT FOR AP# 47-103-02943H.
-AS DRILLED INFORMATION PROVIDED BY EQT.



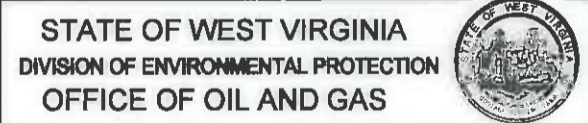
I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DIVISION OF ENVIRONMENTAL PROTECTION.

P.S. 2288 [Signature]



Form fields for well location, date (JANUARY 13, 20 14), revised date (04/29/16 & 06/13/16), operators well no. (WV 514569), API well no. (47-103-02943H).

Form fields for accuracy (1/2500), file no. (8471BIG367WELLS-RH1R), scale (1" = 2000'), and control determined by (OPUS).



Main well details form including well type (GAS X), location (BIG RUN 7.5'), surface owner (DENCIL HENTHORN ET AL), and proposed work (DRILL X).

Well operator and designated agent information: EQT PRODUCTION COMPANY, REX C. RAY, 115 PROFESSIONAL PLACE, BRIDGEPORT, WV 26330.

COUNTY NAME PERMIT