

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

API 47-091-1293 County Taylor District BOOTH'S CREEK  
Quad ROSEMONT, GRAFTON Pad Name DUNHAM Field/Pool Name \_\_\_\_\_  
Farm name DUNHAM, MITCHELL., ET AL Well Number 6H  
Operator (as registered with the OOG) Triana Energy LLC  
Address 900 VIRGINIA STREET EAST City CHARLESTON State WV Zip 25301

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 14286317.94 Easting 1886522.39  
Landing Point of Curve Northing 14287050.33 Easting 1888269.54  
Bottom Hole Northing 14284195.02 Easting 1892373.16

Elevation (ft) 1420 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)  
Synthetic oil based mud with LCM when needed

Office of Oil and Gas  
WV Dept. of Environmental Protection

Date permit issued 2/26/14 Date drilling commenced 5/18/14 Date drilling ceased 8/15/14  
Date completion activities began 10/20/14 Date completion activities ceased 10/31/14  
Verbal plugging (Y/N) No Date permission granted NA Granted by NA

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

Freshwater depth(s) ft none reported Open mine(s) (Y/N) depths N  
Salt water depth(s) ft none reported Void(s) encountered (Y/N) depths N  
Coal depth(s) ft 293-294,555-556,574-576, 652-653,678-683(from 2H coal log) Cavern(s) encountered (Y/N) depths N  
Is coal being mined in area (Y/N) N

Reviewed by:

AL. 5/19/15  
RECEIVED  
11/06/2015

Received

FEB 25 2015

RECEIVED  
Office of Oil and Gas

AUG 05 2015

WV Department of  
Environmental Protection

API 47-091 - 1293 Farm name DUNHAM, MITCHELL., ET AL Well number 6H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade w/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	n/a	20"	51'	New	n/a	n/a	No
Surface	17.5"	13.375"	977'	New	H-40 (48/ft)	n/a	Yes
Coal	-	-	-	-	-	-	-
Intermediate 1	12.25"	9.625"	2469'	New	J-55 (40/ft)	n/a	Yes
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	8.75"	5.5"	13627'	New	P110 (20/ft)	n/a	No
Tubing							
Packer type and depth set							

Comment Details \_\_\_\_\_

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor	Class A	125	15.6	1.2	150	Surface	1440
Surface	Type 1	706	15.6	1.18	833.08	Surface	8
Coal	-	-	-	-	-	-	-
Intermediate 1	Type 1 (lead) / Type 1 (tail)	616 (lead) / 150 (tail)	15.2 (L) / 15.6 (T)	1.2 (lead) / 1.18 (tail)	739.2 (L) / 177 (T)	Surface	8.25
Intermediate 2	-	-	-	-	-	-	-
Intermediate 3	-	-	-	-	-	-	-
Production	50:50 Type 1 / Fly Ash	212 (lead) / 1860 (tail)	14.5 (lead) / 14.7 (tail)	1.2 (lead) / 1.16 (tail)	254.4(L) / 2157.6(T)	4178'	14.00
Tubing							

Drillers TD (ft) 13,704 Loggers TD (ft) n/a  
 Deepest formation penetrated Marcellus Plug back to (ft) n/a  
 Plug back procedure n/a

Kick off depth (ft) 5655'

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 \_\_\_\_\_

Received

WAS WELL COMPLETED AS SHOT HOLE  Yes  No DETAILS \_\_\_\_\_

FEB 25 2015  
 RECEIVED  
 Office of Oil and Gas  
 Office of Oil and Gas  
 WV Dept. of Environmental Protection

WAS WELL COMPLETED OPEN HOLE?  Yes  No DETAILS \_\_\_\_\_

AUG 05 2015

WERE TRACERS USED  Yes  No TYPE OF TRACER(S) USED \_\_\_\_\_

WV Department of  
 Environmental Protection

11/06/2015

API 47-091 - 1293

Farm name DUNHAM, MITCHELL., ET AL Well number 6H

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft	Perforated to MD ft	Number of Perforations	Formation(s)
1	10/20/14	13399	13582	60	Marcellus
2	10/21/14	13159	13344	60	Marcellus
3	10/21/14	12918	13096	60	Marcellus
4	10/22/14	12682	12867	60	Marcellus
5	10/22/14	12444	12629	60	Marcellus
6	10/23/14	12206	12391	60	Marcellus
7	10/23/14	11968	12153	60	Marcellus
8	10/23/14	11730	11915	60	Marcellus
9	10/24/14	11491	11677	60	Marcellus
10	10/29/14	11253	11432	60	Marcellus
11	10/29/14	11015	11200	60	Marcellus
12	10/29/14	10775	10962	60	Marcellus
13	10/30/14	10539	10724	60	Marcellus
14	10/30/14	10304	10486	60	Marcellus
15	10/30/14	10062	10247	60	Marcellus
16	10/30/14	9824	10009	60	Marcellus

Please insert additional pages as applicable.

FEB 25 2015

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Office of Oil and Gas  
WV Dept of Environmental Protection

Stage No.	Stimulations 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)
1	10/20/14	86.1	8180	7167/9159	5550	412020	9053	0
2	10/21/14	85.3	8677	6640/9445	5427	337460	9027	0
3	10/21/14	85.6	8316	5710/9035	5549	403660	9295	0
4	10/22/14	86.7	8340	5772/8732	5500	411940	8521	0
5	10/22/14	86.8	8217	5780/8806	4854	405240	9222	0
6	10/23/14	86.8	8443	5793/8946	4530	409940	8446	0
7	10/23/14	86.8	8430	5970/8929	5258	402620	8432	0
8	10/23/14	86.9	8150	5776/8547	5848	410860	9378	0
9	10/24/14	87.2	8250	6116/8772	5837	411600	9422	0
10	10/29/14	85.7	8535	6015/8852	5700	410800	10231	0
11	10/29/14	85.3	8319	5470/9156	5985	409200	9232	0
12	10/29/14	86.0	8293	6136/9030	5963	409860	9319	0
13	10/30/14	86.2	8335	6325/8834	6056	411220	9361	0
14	10/30/14	84.9	8596	6364/8903	5200	410740	9192	0
15	10/30/14	84.8	8819	6215/9339	6050	415760	9342	0
16	10/30/14	86.6	8599	6015/9246	5800	405640	9051	0

Please insert additional pages as applicable.

AUG 05 2015



API 47- 091 - 1293 Farm name DUNHAM, MITCHELL., ET AL Well number 6H

PRODUCING FORMATION(S)	DEPTHS
Marcellus	7,541-7,791 TVD 8,395-13,582 MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump  
 SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs  
 OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ 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 <sub>2</sub> S, ETC)
	0		0		
Lower Kittanning	678	683	678	683	Coal
Little Lime	1225	1269	1225	1269	
Big Lime	1269	1405	1269	1405	
Big Injun	1405	1437	1405	1437	
Gantz/50-Foot	1807	1890	1807	1890	
5th Sand	2334	2381	2334	2381	
Benson	4323	4373	4323	4373	
Sycamore	6553	6647	6761	6904	
Tully	7228	7289	7776	7867	
Marcellus	7431	7799	8089	13704 (MTD)	GAS

Please insert additional pages as applicable.

Drilling Contractor Pioneer Energy Resources  
 Address 5205 North O'Connor Blvd City Irving State Texas Zip 75039

Logging Company \_\_\_\_\_  
 Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Cementing Company Universal Well Services, Inc  
 Address Route 5 Hall Road City Buckhannon State WV Zip 26201

Stimulating Company Universal Well Services, Inc  
 Address 124 Industrial Drive City Bradford State PA Zip \_\_\_\_\_

Please insert additional pages as applicable.

Completed by Rachelle A. King Telephone 304-305-8560  
 Signature Rachelle A. King Title Director of Regulatory Affairs Date 2/19/15

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

Received

FEB 25 2015

Office of Oil and Gas  
 WV Dept. of Environmental Protection  
 RECEIVED  
 Office of Oil and Gas

AUG 05 2015

WV Department of  
 Environmental Protection

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/20/2014
Job End Date:	10/31/2014
State:	West Virginia
County:	Taylor
API Number:	47-091-01293-00-00
Operator Name:	Triana Energy
Well Name and Number:	Dunham 6H
Longitude:	-80.12980000
Latitude:	39.33640000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,676
Total Base Water Volume (gal):	8,666,154
Total Base Non Water Volume:	

## Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Service Number (CAS #)	Maximum Ingredient Concentration In Additive (% by mass)**	Maximum Ingredient Concentration In HF Fluid (% by mass)**	Comments
Water	Triana Energy	Carrier/Base Fluid	Water	7732-18-5	100.00000	88.30867	
Sand (Proppant)	Universal Well Services	Proppant	Crystalline Silica in the form of Quartz	14808-60-7	99.90000	10.91522	
Hydrochloric Acid (7.5%)	Universal Well Services	Acidizing	Other - (non-hazardous)	NA	92.50000	0.64682	
			Hydrochloric Acid	7647-01-0	7.50000	0.05244	
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.							
Unislick ST-50	Universal Well Services	Friction Reducer	Other - (non-hazardous)	NA	70.00000	0.04027	
			Petroleum Distillates, Hydrotreated Light	64742-47-8	30.00000	0.01726	
B-84	XChem	Biocide	Glutaraldehyde	111-30-8	27.00000	0.00962	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	8.00000	0.00285	
			n-Alkyl Dimethyl Benzyl Ammonium Chloride	68424-85-1	5.50000	0.00196	
			Ethanol	64-17-5	4.00000	0.00143	

91-01293



Received  
 RECEIVED  
 Office of Oil and Gas  
 FEB 25 2015  
 AUG 05  
 Office of Oil and Gas  
 WV Department of Environmental Protection  
 Environmental Protection  
 11/06/2015

91-01293

ITS-30	XChem	Scale Inhibitor	Sodium Polyacrylate	9003-04-7	30.00000	0.00282
Unhib G	Universal Well Services	Acid Inhibitor	Short Chained Glycol Ether Ethoxylated Alcohol	112-34-5	60.00000	0.00037
			Methanol	67-56-1	5.00000	0.00003
			Thiourea	62-56-6	1.00000	0.00001
			Acetophenone	98-86-2	1.00000	0.00001
			Formaldehyde	50-00-0	1.00000	0.00001

\* 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)

Received

FEB 25 2015

Office of Oil and Gas  
 West Virginia Department of Environmental Protection

RECEIVED  
 Office of Oil and Gas

AUG 05

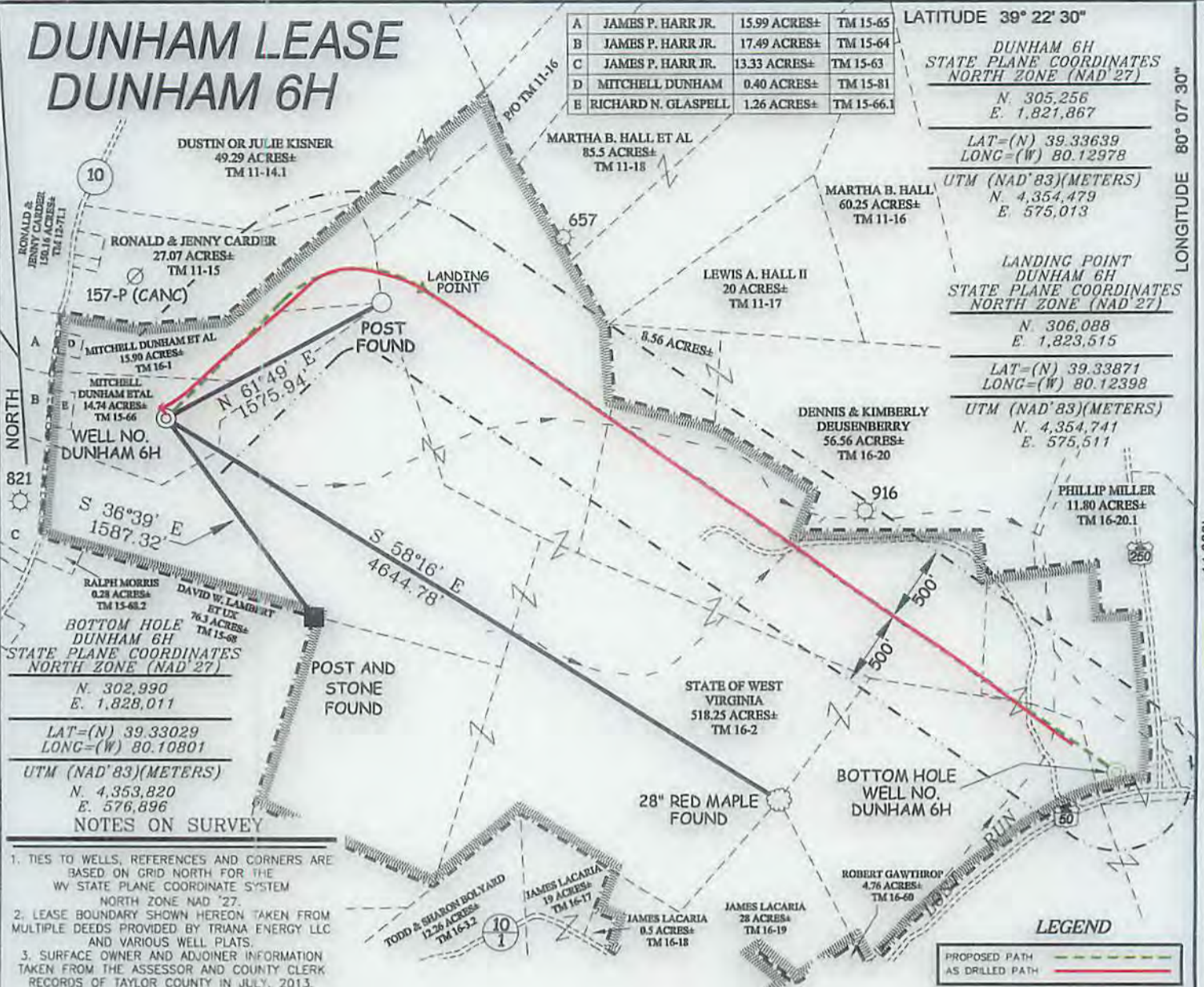
WV Department of Environmental Protection  
 11/06/2015

# DUNHAM LEASE DUNHAM 6H

A	JAMES P. HARR JR.	15.99 ACRES±	TM 15-65
B	JAMES P. HARR JR.	17.49 ACRES±	TM 15-64
C	JAMES P. HARR JR.	13.33 ACRES±	TM 15-63
D	MITCHELL DUNHAM	0.40 ACRES±	TM 15-81
E	RICHARD N. GLASPELL	1.26 ACRES±	TM 15-66.1

LATITUDE 39° 22' 30"  
 DUNHAM 6H  
 STATE PLANE COORDINATES  
 NORTH ZONE (NAD'27)  
 N. 305,256  
 E. 1,821,867  
 LAT=(N) 39.33639  
 LONG=(W) 80.12978  
 UTM (NAD'83)(METERS)  
 N. 4,354,479  
 E. 575,013

LANDING POINT  
 DUNHAM 6H  
 STATE PLANE COORDINATES  
 NORTH ZONE (NAD'27)  
 N. 306,088  
 E. 1,823,515  
 LAT=(N) 39.33871  
 LONG=(W) 80.12398  
 UTM (NAD'83)(METERS)  
 N. 4,354,741  
 E. 575,511



STATE PLANE COORDINATES  
 NORTH ZONE (NAD'27)  
 N. 302,990  
 E. 1,828,011  
 LAT=(N) 39.33029  
 LONG=(W) 80.10801  
 UTM (NAD'83)(METERS)  
 N. 4,353,820  
 E. 576,896

- NOTES ON SURVEY
1. TIES TO WELLS, REFERENCES AND CORNERS ARE BASED ON GRID NORTH FOR THE WV STATE PLANE COORDINATE SYSTEM NORTH ZONE NAD'27.
  2. LEASE BOUNDARY SHOWN HEREON TAKEN FROM MULTIPLE DEEDS PROVIDED BY TRIANA ENERGY LLC AND VARIOUS WELL PLATS.
  3. SURFACE OWNER AND ADJOINER INFORMATION TAKEN FROM THE ASSESSOR AND COUNTY CLERK RECORDS OF TAYLOR COUNTY IN JULY, 2013.
  4. WELL LAT./LONG. (NAD'27) ESTABLISHED BY DGPS(SURVEY GRADE).
  5. NO DWELLINGS OR AGRICULTURAL BUILDINGS WITHIN 625 FEET OF CENTER OF PAD. NO WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF PROPOSED WELL. NO PERENNIAL STREAMS, LAKES, PONDS, RESERVOIRS OR WETLANDS WITHIN 100 FEET OF THE PAD LIMITS OF DISTURBANCE.
  6. AS DRILLED INFORMATION PROVIDED BY TRIANA ENERGY, LLC.
  7. TOP HOLE AS DRILLED COORDINATES DETERMINED BY BISECTING STEEL PLATE COVERING CELLAR.
  8. THIS PERMITTED PLAT REVISED TO SHOW THE AS DRILLED PATH AND COORDINATES RELATIVE TO THE PROPOSED WELL.

**AS DRILLED COORDINATES  
 FOR WELL NO. DUNHAM 6H  
 (S.P.C. NORTH ZONE) (UTM(M) ZONE 17 NORTH)**

NAD'27 S.P.C.(FT)	N. 305,288	E. 1,821,868
NAD'27 GEO.	LAT-(N) 39.33648	LONG-(W) 80.12978
NAD'83 UTM (M)	N. 4,354,489	E. 575,013

**BOTTOM HOLE**

NAD'27 S.P.C.(FT)	N. 303,165	E. 1,827,719
NAD'27 GEO.	LAT-(N) 39.33077	LONG-(W) 80.10905
NAD'83 UTM (M)	N. 4,353,872	E. 576,808



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. 2294 *Matthew J. Hilton*



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.  
 DATE DECEMBER 17, 20 13  
 REVISED JULY 29, 20 15  
 OPERATORS WELL NO. DUNHAM 6H  
 API WELL NO. 47 - 091 - 01293H  
 STATE COUNTY PERMIT

MINIMUM DEGREE OF ACCURACY 1 / 200 FILE NO. 7754AD6H  
 PROVEN SOURCE OF ELEVATION DGPS (SURVEY GRADE GPS TIES TO COORS)  
 SCALE 1" = 1000'

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

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

LOCATION: ELEVATION 1,420' WATERSHED TRIBUTARY OF LOST RUN DISTRICT BOOTH'S CREEK COUNTY TAYLOR QUADRANGLE ROSEMONT 7.5'

SURFACE OWNER MITCHELL DUNHAM ET AL ACREAGE 14.74±

ROYALTY OWNER MITCHELL DUNHAM ET AL (14.74 & 15.90 AC.±) AND W.V. DEPT. OF AGRICULTURAL (518.25 AC.±) MITCHELL CARL DUNHAM (0.40 AC.±)

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  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 TVD 7,800' / TMD

WELL OPERATOR TRIANA ENERGY, L.L.C. DESIGNATED AGENT RACHELLE A. KING  
 ADDRESS 900 VIRGINIA STREET EAST, SUITE 400 CHARLESTON, WV 25301  
 ADDRESS 900 VIRGINIA STREET EAST, SUITE 400 CHARLESTON, WV 25301

11/06/2015

COUNTY NAME PERMIT