

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

API 47-095-02160 County Tyler District McElroy  
Quad Shirley Pad Name Grumpy Field/Pool Name \_\_\_\_\_  
Farm name Woodburn Well Number Grumpy 3  
Operator (as registered with the OOG) Jay-Bee Oil & Gas, Inc.  
Address 3570 Shields Hill Rd. City Cairo State WV Zip 26337

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4,368,679.2 Easting 520,296.8  
Landing Point of Curve Northing 4,368,450.0 Easting 520,396.4  
Bottom Hole Northing 4,366,456.4 Easting 520,934.0

Elevation (ft) 1297.2 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)  
ABS 40

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Date permit issued 5/16/2014 Date drilling commenced 7/7/2014 Date drilling ceased 12/8/2014  
Date completion activities began 2/5/2015 Date completion activities ceased 3/26/2015  
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 90' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N  
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) N

**APPROVED**  
NAME: Paqualin Thurston  
DATE: 6/7/2016

Reviewed by:  
AX 06/14/2016  
WS

API 47-095 - 02160 Farm name Woodburn Well number Grumpy 3

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	17"	16"	30'	New	20/32/24		Y
Surface	15"	11 3/4"	549'	New	20/23/24	50'	Y
Coal							
Intermediate 1	11"	8 5/8"	2504'	New	20/17/24	1500'	Y
Intermediate 2							
Intermediate 3							
Production	7 7/8"	5 1/2"	14420'	New	20		Y
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							
Surface	Class A	330	15.2	1.18	258	CTS	8
Coal							
Intermediate 1	Class A	620	14.7	1.36	634	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	1975	14.4	1.30	2454	274' from surface	8
Tubing							

Drillers TD (ft) 14425 Loggers TD (ft) 14425  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6187

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 Spiral centralizer every joint from TD back to start of  
90 degree.  
90 - 70 degree every second joint.  
70 degree - KOP every third joint.  
KOP - Surface centralizer placed every 500'.

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 \_\_\_\_\_

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	2/5/15	14410	14199	96	Marcellus
2	3/1/15	14166	14044	72	Marcellus
3	3/1/15	13996	13836	72	Marcellus
4	3/2/15	13798	13648	72	Marcellus
5	3/2/15	13558	13425	72	Marcellus
6	3/2/15	13381	13229	72	Marcellus
7	3/2/15	13194	13054	72	Marcellus
8	3/3/15	12993	12833	72	Marcellus
9	3/3/15	12794	12579	72	Marcellus
10	3/3/15	12534	12331	72	Marcellus
11	3/3/15	12293	12122	72	Marcellus
12	3/4/15	12072	11958	72	Marcellus
13	3/4/15	11904	11740	72	Marcellus
14	3/4/15	11701	11538	72	Marcellus
15	3/6/15	11490	11320	72	Marcellus
16	3/7/15	11288	11140	72	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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	3/1/15	75.0	6761	7005	4481	183938	6991	N/A
2	3/1/15	74.9	6894	7165	4858	181960	7471	N/A
3	3/1/15	74.4	6780	7149	4736	178592	7165	N/A
4	3/2/15	74.4	6836	7248	4435	180520	7247	N/A
5	3/2/15	74.4	6551	6846	4942	178191	6907	N/A
6	3/2/15	75.0	6468	6976	5454	178936	6879	N/A
7	3/2/15	74.3	6450	6700	4866	181265	7009	N/A
8	3/3/15	74.4	6609	6794	4814	181902	7064	N/A
9	3/3/15	74.7	6958	7217	5068	180810	7354	N/A
10	3/3/15	74.9	6697	7517	4715	180517	7337	N/A
11	3/3/15	74.6	6544	6763	4500	181189	6811	N/A
12	3/4/15	74.8	6405	6558	4707	180489	6648	N/A
13	3/4/15	74.9	6774	6926	4414	181170	6685	N/A
14	3/4/15	73.8	6405	6603	5138	178025	6635	N/A
15	3/6/15	74.7	6398	6475	5100	80242	5819	N/A
16	3/7/15	74.8	6560	7542	4657	180140	6705	N/A

Please insert additional pages as applicable.

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Farm name Woodburn

Well number Grumpy 3

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	3/8/15	11088	10946	72	Marcellus
18	3/8/15	10886	10724	72	Marcellus
19	3/8/15	10692	10546	72	Marcellus
20	3/8/15	10482	10350	72	Marcellus
21	3/9/15	10274	10144	72	Marcellus
22	3/9/15	10100	9926	72	Marcellus
23	3/9/15	9888	9706	72	Marcellus
24	3/9/15	9658	9501	72	Marcellus
25	3/9/15	9452	9277	72	Marcellus
26	3/10/15	9238	9114	72	Marcellus
27	3/10/15	9064	8875	72	Marcellus
28	3/10/15	8820	8644	72	Marcellus
29	3/11/15	8600	8424	72	Marcellus
30	3/11/15	8362	8196	72	Marcellus
31	3/11/15	8154	8014	72	Marcellus
32	3/11/15	7985	7817	72	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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)
17	3/8/15	76.1	6591	6856	4699	181517	6585	N/A
18	3/8/15	73.1	6367	6557	4622	180316	6785	N/A
19	3/8/15	74.7	6224	6497	5050	180656	6560	N/A
20	3/8/15	74.4	6275	6511	4975	179713	6738	N/A
21	3/9/15	74.4	6356	6522	4606	181116	6728	N/A
22	3/9/15	74.7	6228	6431	4959	180283	6670	N/A
23	3/9/15	75.2	6443	6738	4194	182714	6856	N/A
24	3/9/15	74.3	6438	6919	4132	181636	6600	N/A
25	3/9/15	75.6	6590	8328	4722	180985	7154	N/A
26	3/10/15	74.8	6220	6439	4997	180008	6489	N/A
27	3/10/15	75.0	6229	6670	4694	181057	6517	N/A
28	3/10/15	76.0	6273	6453	4777	179547	6556	N/A
29	3/11/15	76.1	6361	7040	4659	172554	6204	N/A
30	3/11/15	76.1	6167	6375	4477	184345	6653	N/A
31	3/11/15	75.0	6353	6708	4385	180015	6149	N/A
32	3/11/15	75.2	6351	7590	5354	183188	6133	N/A

Please insert additional pages as applicable.

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Well number Grumpy 3

**PERFORATION RECORD**

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
33	3/11/15	7782	7656	72	Marcellus
34	3/12/15	7616	7484	72	Marcellus

Please insert additional pages as applicable.

**STIMULATION INFORMATION PER STAGE**

Complete a separate record for each stimulation stage.

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)
33	3/11/15	75.0	6303	6602	4707	182308	6140	N/A
34	3/12/15	74.5	6184	6576	4718	185189	5454	N/A

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PRODUCING FORMATION(S)	DEPTHS	
<u>Marcellus</u>	<u>7075</u> TVD	<u>14425</u> MD
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable. Flowback not Initiated

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 7300 mcfpd Oil 25 bpd NGL \_\_\_\_\_ bpd Water 75 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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

Please insert additional pages as applicable.

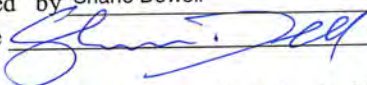
Drilling Contractor Horizontal Well Drillers  
Address 2915 SH 74 South City Purcell State OK Zip 73080

Logging Company Precise Well Analysis  
Address PO Box 542 City Belpre State OH Zip 45714

Cementing Company Nabors Completion & Production  
Address 1650 Hackers Creek Rd. City Jane Lew State WV Zip 26378

Stimulating Company Baker Hughes  
Address 837 Phillipi Rd. City Clarksburg State WV Zip 26378

Please insert additional pages as applicable.

Completed by Shane Dowell Telephone 304-628-3111  
Signature  Title Office Manager Date 2-5-2015

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

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**Lithology**

Grumpy 3 47-095-02160

<u>FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>
MISC. RED ROCK & SHALES	0	2396
LIME	2396	2496
INJUN	2496	2613
SHALE	2613	2960
GORDON STRAY	2960	2980
SHALE	2980	3176
GORDON	3176	3206
SHALE	3206	3485
BAYARD	3485	3494
SHALE	3494	3823
WARREN	3823	3921
SHALE	3921	4157
BALLTOWN	4157	4320
SHALE	4320	4758
2ND RILEY	4758	4866
SHALE	4866	5017
3RD RILEY	5017	5058
SHALE	5058	5115
BENSON	5115	5118
SHALE	5118	5360
ALEXANDER	5360	5531
SHALE	5531	5776
ELK	5776	5824
SHALE	5824	6158
HAMILTON	6158	6332
SHALE	6332	6988
UPPER Marcellus	6988	6994
PARCELL LIME	6994	7029
SHALE	7029	7053
LOWER MARCELLUS	7053	

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# Hydraulic Fracturing Fluid Product Component Information Disclosure



Job Start Date:	3/1/2015
Job End Date:	3/12/2015
State:	West Virginia
County:	Tyler
API Number:	47-095-02160-00-00
Operator Name:	Jay-Bee Oil & Gas, Inc.
Well Name and Number:	GRUMPY 3
Longitude:	-80.76422000
Latitude:	39.46736000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,075
Total Base Water Volume (gal):	9,542,316
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	Operator	Carrier	Water	7732-18-5	100.00000	92.16108	
Sand, White, 100 mesh	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		3.14981	
Sand, White, 30/50	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		3.12739	
Sand, White, 20/40	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.78476	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.54734	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.06503	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.03505	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.02591	SmartCare Product

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Alpha 1427	Baker Hughes	Biocide					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.02268	SmartCare Product
Enzyme G-NE	Baker Hughes	Breaker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01808	SmartCare Product
Ferrotrol 300L	Baker Hughes	Iron Control					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00376	SmartCare Product
Calcium Chloride	Baker Hughes	Salts					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00348	
InFlo 251G	Baker Hughes	Surfactant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00258	
CI-14	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00113	SmartCare Product
CI-39	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00077	
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.							
Ingredients in Additive (s) (MSDS and non- MSDS)	Baker Hughes	See Trade Name(s) List					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	7.05805	
			Water	7732-18-5	95.00000	0.53871	
			Hydrochloric Acid	7647-01-0	15.00000	0.08207	
			Mineral Oil	8042-47-5	70.00000	0.02452	
			Guar Gum	9000-30-0	60.00000	0.02102	
			Poly (acrylamide-co-acrylic acid) partial sodium salt	62649-23-4	30.00000	0.01950	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.01950	
			Ethylene Glycol	107-21-1	45.00000	0.01165	
			Petroleum Distillates	64742-47-8	30.00000	0.01051	
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.01051	
			Glutaraldehyde	111-30-8	30.00000	0.00680	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9	20.00000	0.00518	
			Calcium Chloride	10043-52-4	100.00000	0.00477	
			Sodium Chloride	7647-14-5	5.00000	0.00368	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00227	
			Citric Acid	77-92-9	60.00000	0.00226	
			Ammonium Chloride	12125-02-9	3.00000	0.00195	
			1-butoxy-2-propanol	5131-66-8	5.00000	0.00175	
			Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00175	
			Crystalline Silica: Quartz	14808-60-7	5.00000	0.00175	
			Ethanol	64-17-5	10.00000	0.00139	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00130	

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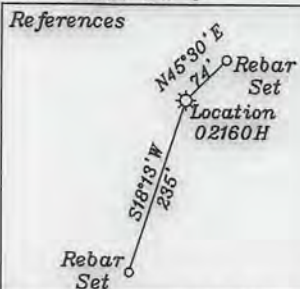
		Oleamide DEA	93-83-4	2.00000	0.00130
		Quaternary Ammonium Compound	68424-85-1	5.00000	0.00117
		Methanol	67-56-1	100.00000	0.00113
		Hemicellulase Enzyme Concentrate	9025-56-3	5.00000	0.00090
		Potassium Chloride	7447-40-7	5.00000	0.00043
		Polyoxyalkylenes	68951-67-7	30.00000	0.00034
		Sorbitan Monooleate	1338-43-8	0.50000	0.00033
		Polyoxyethylene Sorbitan Monooleate	9005-65-6	0.50000	0.00033
		Oxyalkylated Fatty Acid	61791-002	40.00000	0.00031
		Aldehyde	104-55-2	30.00000	0.00023
		Formic Acid	64-18-6	30.00000	0.00023
		Tar Bases, Quinoline Derivs., Benzyl Chloride-Quaternized	72480-70-7	30.00000	0.00023
		Alcohols, ethoxylated	68551-12-2	8.00000	0.00021
		Alcohols, C6-12, ethoxylated propoxylated	68937-66-6	7.00000	0.00018
		Alcohols, C10-16, ethoxylated propoxylated	69227-22-1	7.00000	0.00018
		Fatty Acids	61790-12-3	10.00000	0.00011
		Amines, unsatd, alkyl, ethoxylated	68155-39-5	4.00000	0.00010
		Modified Thiourea Polymer	68527-49-1	7.00000	0.00008
		Propargyl Alcohol	107-19-7	5.00000	0.00006
		Olefin	64743-02-8	5.00000	0.00006
		Isopropanol	67-63-0	5.00000	0.00004
		Sulfurized polyolefin	68037-13-8	5.00000	0.00004
		2-butoxy-1-propanol	15821-83-7	0.10000	0.00004
		Potassium Iodide	7681-11-0	2.00000	0.00002
		Formaldehyde	50-00-0	1.00000	0.00001
		Polyakylene	7756-94-7	1.00000	0.00001
		Potassium Acetate	127-08-2	0.50000	0.00000

\* 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)

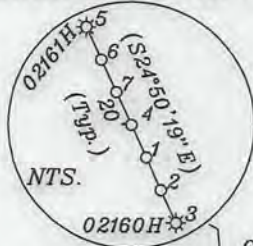
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LATITUDE 39-30-00 N (TH)  
LATITUDE 39-27-30 N (BH)

Bottom Hole 1,893'

Note: No water wells were found within 250' of the location. No dwellings or agricultural buildings were found within 625' of the center of the well pad.

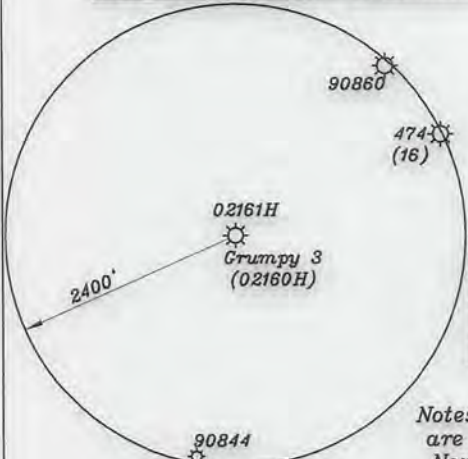


- A- Samson TM 6/19 42 Ac. Ls. T1-18
- B- Samson TM 6/20 85 Ac. Ls. T3039
- C- Westbrook TM 6/28 22.98 Ac.
- D- Kile Family Trust TM 6/27 80 Ac.
- E- Ayers TM 6/21 64.22 Ac. Ls. T3045A
- F- Westbrook 6/26 48.45 Ac.
- G- Titus TM 6/25.2 1.08 Ac. Ls. T3045B
- H- Titus TM 6/25.3 4.83 Ac. Ls. T3045B
- I- Simons & Weedon TM 6/25 82.85 Ac. Ls. T3045B
- J- Roller TM 6/22 88 Ac. Ls. T1-09
- K- Reali et al TM 6/23 58.25 Ac. Ls. T3047
- L- Headley TM 11/8 91.51 Ac. Ls. T3049
- M- Yeater TM 6/25.1 1.1 Ac.
- N- Stafford TM 6/26.2 1.331 Ac.
- O- Ayers TM 6/26.1 0.22 Ac.

Note: Lease numbers are in red.

<b>Top Hole</b>
Geo NAD 83- 39.467455 N, 80.764043 W
UTM NAD 83 (Meters)- 4368679.2 N, 520296.8 E
UTM NAD 83 (Feet)- 14332908.4 N, 1707007.0 E
<b>LP1</b>
Geo NAD 83- 39.465387 N, 80.762892 W
UTM NAD 83 (Meters)- 4368450.0 N, 520396.4 E
UTM NAD 83 (Feet)- 14332156.3 N, 1707334.0 E
<b>Bottom Hole</b>
Geo NAD 83- 39.447411 N, 80.756706 W
UTM NAD 83 (Meters)- 4366456.4 N, 520934.0 E
UTM NAD 83 (Feet)- 14325615.8 N, 1709097.6 E

NORTH



Note: All wells within 500' of the horizontal leg are shown on this plat based upon information taken from DEP mapping, well plats & aerial photos.

NUMBER	DIRECTION	DISTANCE
L1	S22°32'E	820'
L2	N24°56'E	3,819'
L3	N81°09'W	1,863'

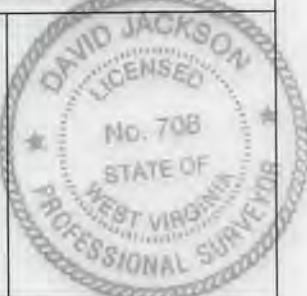
Notes: Ties to wells and corners are based on State Plane Grid North-WV North Zone NAD 83.

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

FILE NO. \_\_\_\_\_  
DRAWING NO. 1  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY 1 in 200  
PROVEN SOURCE OF ELEVATION GPS  
submeter unit

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 DEPARTMENT OF ENERGY.

(SIGNED) David L Jackson  
R.P.E. \_\_\_\_\_ L.L.S. 708



STATE OF WEST VIRGINIA  
Division of Environmental Protection  
OFFICE OF OIL AND GAS

DATE February 5, 2016  
OPERATOR'S WELL NO. Grumpy 3  
API WELL NO. AsDrilled

WELL TYPE: OIL GAS LIQUID INJECTION X WASTE DISPOSAL 47 - 095 - 2160H  
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT

LOCATION: ELEVATION 1297.2' WATER SHED Elder Run & Woodburn Run  
DISTRICT McElroy COUNTY Tyler  
QUADRANGLE Shirley 7 1/2'

SURFACE OWNER Diana Woodburn Samson ACREAGE 42.00 ac.  
OIL & GAS ROYALTY OWNER Diana Woodburn Samson LEASE ACREAGE 42.00 ac.

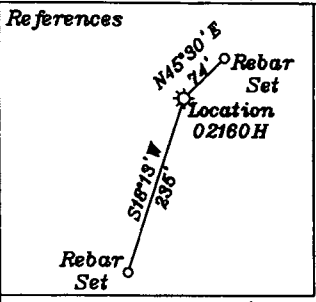
06/17/2016

LEASE NO. & ACREAGE: "See ownership list above for lease numbers"

PROPOSED WORK: DRILL X CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION \_\_\_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AsDrilled

PLUG AND ABANDON \_\_\_\_\_ CLEAN OUT AND REPLUG \_\_\_\_\_  
TARGET FORMATION Marcellus ESTIMATED DEPTH TVD=7,083' TMD=14,425'  
WELL OPERATOR Jay-Bee Oil & Gas, Inc. DESIGNATED AGENT Randy Broda  
ADDRESS 1720 Rt. 22, East Union, NJ 07083 ADDRESS 3570 Shields Hill Rd., Cairo, WV 26337

LONGITUDE 80-45-00 N  
Top Hole 11,855'  
Bottom Hole 3,978'



LATITUDE 39-30-00 N (TH)  
LATITUDE 39-27-30 N (BH)

Bottom Hole 1,893'

Note: No water wells were found within 250' of the location. No dwellings or agricultural buildings were found within 625' of the center of the well pad.

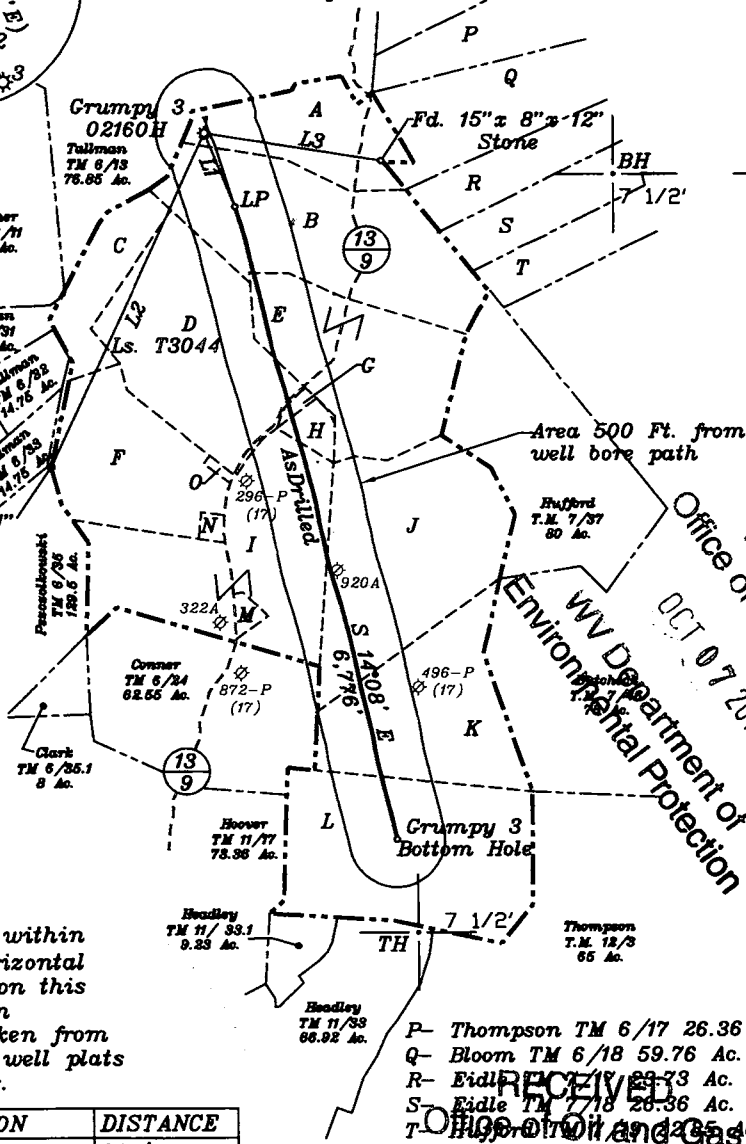
- A- Samson TM 6/19 42 Ac. Ls. T1-18
- B- Samson TM 6/20 85 Ac. Ls. T3039
- C- Westbrook TM 6/28 22.98 Ac.
- D- Kile Family Trust TM 6/27 80 Ac.
- E- Ayers TM 6/21 64.22 Ac. Ls. T3045A
- F- Westbrook 6/26 48.45 Ac.
- G- Titus TM 6/25.2 1.08 Ac. Ls. T3045B
- H- Titus TM 6/25.3 4.83 Ac. Ls. T3045B
- I- Simons & Weedon TM 6/25 82.85 Ac. Ls. T3045B
- J- Roller TM 6/22 88 Ac. Ls. T1-09
- K- Reali et al TM 6/23 58.25 Ac. Ls. T3047
- L- Headley TM 11/8 91.511 Ac. Ls. T3049
- M- Yeater TM 6/25.1 1.1 Ac.
- N- Stafford TM 6/26.2 1.331 Ac.
- O- Ayers TM 6/26.1 0.22 Ac.

Note: Lease numbers are in red.

<b>Top Hole</b>
Geo NAD 83- 39.467455 N, 80.764043 W
UTM NAD 83 (Meters)- 4368679.2 N, 520296.8 E
UTM NAD 83 (Feet)- 1432908.4 N, 1707007.0 E
<b>LP1</b>
Geo NAD 83- 39.465387 N, 80.762892 W
UTM NAD 83 (Meters)- 4368450.0 N, 520396.4 E
UTM NAD 83 (Feet)- 14332156.3 N, 1707334.0 E
<b>Bottom Hole</b>
Geo NAD 83- 39.447411 N, 80.756706 W
UTM NAD 83 (Meters)- 4366456.4 N, 520934.0 E
UTM NAD 83 (Feet)- 14325615.8 N, 1709097.6 E

NORTH

Fd. 5" x 7" x 4" Stone



Note: All wells within 500' of the horizontal leg are shown on this plat based upon information taken from DEP mapping, well plats & aerial photos.

NUMBER	DIRECTION	DISTANCE
L1	S22°32'E	820'
L2	N24°56'E	3,819'
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Notes: Ties to wells and corners are based on State Plane Grid North-WV North Zone NAD 83.

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

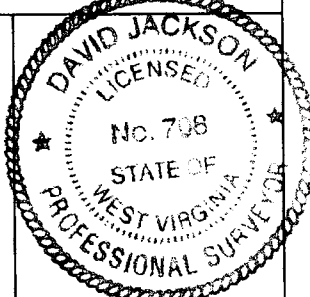
- P- Thompson TM 6/17 26.36 Ac.
- Q- Bloom TM 6/18 59.76 Ac.
- R- Eidle TM 6/18 28.33 Ac.
- S- Eidle TM 6/18 28.36 Ac.
- T- ...

NOTES:  
1. CORNER TIES, REFERENCES, PROPERTY LINE INFORMATION, 2400' CIRCLES AND SURFACE OWNERSHIPS WERE TAKEN FROM PLAT BY ERNEST J. BENCHEK III DATED MAY 13, 2014, FILE NO. 201988.  
2. WELL HEAD WAS FIELD LOCATED BY JACKSON SURVEYING USING GPS AND IS BASED UPON AN OPUS SOLUTION.  
3. LEG AND BEARINGS ARE BASED UPON A DRILLING REPORT BY PANTHER ENERGY DATED 11-27-14 WITH JOB NUMBER NE1400352.

FILE NO. \_\_\_\_\_  
DRAWING NO. 1  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY 1 in 200  
PROVEN SOURCE OF ELEVATION GPS  
submeter unit

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 DEPARTMENT OF ENERGY.

(SIGNED) David Jackson  
R.P.E. \_\_\_\_\_ L.L.S. 708



STATE OF WEST VIRGINIA  
Division of Environmental Protection  
OFFICE OF OIL AND GAS

DATE February 5, 2016  
OPERATOR'S WELL NO. Grumpy 3  
API WELL NO. AsDrilled

WELL TYPE: OIL GAS LIQUID INJECTION X WASTE DISPOSAL \_\_\_\_\_  
(IF 'GAS') PRODUCTION X STORAGE \_\_\_\_\_ DEEP \_\_\_\_\_ SHALLOW X

LOCATION: ELEVATION 1297.2' WATER SHED Elder Run & Woodburn Run  
DISTRICT McElroy COUNTY Tyler  
QUADRANGLE Shirley 7 1/2'

SURFACE OWNER Diana Woodburn Samson ACREAGE 42.00 ac.  
OIL & GAS ROYALTY OWNER Diana Woodburn Samson LEASE ACREAGE 42.00 ac.

LEASE NO. & ACREAGE: "See ownership list above for lease numbers"

PROPOSED WORK: DRILL X CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AsDrilled

PLUG AND ABANDON \_\_\_\_\_ CLEAN OUT AND REPLUG \_\_\_\_\_  
TARGET FORMATION Marcellus ESTIMATED DEPTH TVD=7,083' TMD=14,425'

WELL OPERATOR Jay-Bee Oil & Gas, Inc. DESIGNATED AGENT Randy Broda  
ADDRESS 1720 Rt. 22, East Union, NJ 07083 ADDRESS 3570 Shields Hill Rd., Cairo, WV 26337

06/17/2016

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WV Department of Environmental Protection  
PRECEDENCE 80-45-00 N  
Top Hole 11,855'  
Bottom Hole 3,978'

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

API 47-095-02160 County Tyler District McElroy  
Quad Shirley Pad Name Grumpy Field/Pool Name \_\_\_\_\_  
Farm name Woodburn Well Number Grumpy 3  
Operator (as registered with the OOG) Jay-Bee Oil & Gas, Inc.  
Address 3570 Shields Hill Rd. City Cairo State WV Zip 26337

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4,368,679.2 Easting 520,296.8  
Landing Point of Curve Northing 4,368,450.0 Easting 520,396.4  
Bottom Hole Northing 4,366,456.4 Easting 520,934.0

Elevation (ft) 1297.2 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)  
ABS 40

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Date permit issued 5/16/2014 Date drilling commenced 7/7/2014 Date drilling ceased 12/8/2014  
Date completion activities began 2/5/2015 Date completion activities ceased 3/26/2015  
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 90' Open mine(s) (Y/N) depths N  
Salt water depth(s) ft N/A Void(s) encountered (Y/N) depths N  
Coal depth(s) ft N/A Cavern(s) encountered (Y/N) depths N

Is coal being mined in area (Y/N) N

**APPROVED**

NAME: Opagualin Thurston  
DATE: 6/7/2016

Reviewed by:

AX 06/14/2016  
WS

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June 13, 2016

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Agency Department of

APPROVED

06/17/2016

DATE:

API 47-095 - 02160 Farm name Woodburn Well number Grumpy 3

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	17"	16"	30'	New	20/32/24		Y
Surface	15"	11 3/4"	549'	New	20/23/24	50'	Y
Coal							
Intermediate 1	11"	8 5/8"	2504'	New	20/17/24	1500'	Y
Intermediate 2							
Intermediate 3							
Production	7 7/8"	5 1/2"	14420'	New	20		Y
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							
Surface	Class A	330	15.2	1.18	258	CTS	8
Coal							
Intermediate 1	Class A	620	14.7	1.36	634	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	1975	14.4	1.30	2454	274' from surface	8
Tubing							

Drillers TD (ft) 14425 Loggers TD (ft) 14425

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 6187

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 Spiral centralizer every joint from TD back to start of  
90 degree.  
90 - 70 degree every second joint.  
70 degree - KOP every third joint.  
KOP - Surface centralizer placed every 500'.

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 \_\_\_\_\_

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Environmental Protection  
06/17/2016

API 47- 095 - 02160 Farm name Woodburn Well number Grumpy 3

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	2/5/15	14410	14199	96	Marcellus
2	3/1/15	14166	14044	72	Marcellus
3	3/1/15	13996	13836	72	Marcellus
4	3/2/15	13798	13648	72	Marcellus
5	3/2/15	13558	13425	72	Marcellus
6	3/2/15	13381	13229	72	Marcellus
7	3/2/15	13194	13054	72	Marcellus
8	3/3/15	12993	12833	72	Marcellus
9	3/3/15	12794	12579	72	Marcellus
10	3/3/15	12534	12331	72	Marcellus
11	3/3/15	12293	12122	72	Marcellus
12	3/4/15	12072	11958	72	Marcellus
13	3/4/15	11904	11740	72	Marcellus
14	3/4/15	11701	11538	72	Marcellus
15	3/6/15	11490	11320	72	Marcellus
16	3/7/15	11288	11140	72	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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	3/1/15	75.0	6761	7005	4481	183938	6991	N/A
2	3/1/15	74.9	6894	7165	4858	181960	7471	N/A
3	3/1/15	74.4	6780	7149	4736	178592	7165	N/A
4	3/2/15	74.4	6836	7248	4435	180520	7247	N/A
5	3/2/15	74.4	6551	6846	4942	178191	6907	N/A
6	3/2/15	75.0	6468	6976	5454	178936	6879	N/A
7	3/2/15	74.3	6450	6700	4866	181265	7009	N/A
8	3/3/15	74.4	6609	6794	4814	181902	7064	N/A
9	3/3/15	74.7	6958	7217	5068	180810	7354	N/A
10	3/3/15	74.9	6697	7517	4715	180517	7337	N/A
11	3/3/15	74.6	6544	6763	4500	181189	6811	N/A
12	3/4/15	74.8	6405	6558	4707	180489	6648	N/A
13	3/4/15	74.9	6774	6926	4414	181170	6685	N/A
14	3/4/15	73.8	6405	6603	5138	178025	6638	N/A
15	3/6/15	74.7	6398	6475	5100	80242	6618	N/A
16	3/7/15	74.8	6560	7542	4657	180140	6705	N/A

Please insert additional pages as applicable.

OCT 07 2015



API 47- 095 - 02160 Farm name Woodburn Well number Grumpy 3

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	3/8/15	11088	10946	72	Marcellus
18	3/8/15	10886	10724	72	Marcellus
19	3/8/15	10692	10546	72	Marcellus
20	3/8/15	10482	10350	72	Marcellus
21	3/9/15	10274	10144	72	Marcellus
22	3/9/15	10100	9926	72	Marcellus
23	3/9/15	9888	9706	72	Marcellus
24	3/9/15	9658	9501	72	Marcellus
25	3/9/15	9452	9277	72	Marcellus
26	3/10/15	9238	9114	72	Marcellus
27	3/10/15	9064	8875	72	Marcellus
28	3/10/15	8820	8644	72	Marcellus
29	3/11/15	8600	8424	72	Marcellus
30	3/11/15	8362	8196	72	Marcellus
31	3/11/15	8154	8014	72	Marcellus
32	3/11/15	7985	7817	72	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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)
17	3/8/15	76.1	6591	6856	4699	181517	6585	N/A
18	3/8/15	73.1	6367	6557	4622	180316	6785	N/A
19	3/8/15	74.7	6224	6497	5050	180656	6560	N/A
20	3/8/15	74.4	6275	6511	4975	179713	6738	N/A
21	3/9/15	74.4	6356	6522	4606	181116	6728	N/A
22	3/9/15	74.7	6228	6431	4959	180283	6670	N/A
23	3/9/15	75.2	6443	6738	4194	182714	6856	N/A
24	3/9/15	74.3	6438	6919	4132	181636	6600	N/A
25	3/9/15	75.6	6590	8328	4722	180985	7154	N/A
26	3/10/15	74.8	6220	6439	4997	180008	6489	N/A
27	3/10/15	75.0	6229	6670	4694	181057	6517	N/A
28	3/10/15	76.0	6273	6453	4777	179547	6556	N/A
29	3/11/15	76.1	6361	7040	4659	172554	6204	N/A
30	3/11/15	76.1	6167	6375	4477	184345	6653	N/A
31	3/11/15	75.0	6353	6708	4385	180015	6149	N/A
32	3/11/15	75.2	6351	7590	5354	183188	6135	N/A

Please insert additional pages as applicable.

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06/17/2016

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API 47- 095 - 02160 Farm name Woodburn Well number Grumpy 3

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
33	3/11/15	7782	7656	72	Marcellus
34	3/12/15	7616	7484	72	Marcellus

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

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)
33	3/11/15	75.0	6303	6602	4707	182308	6140	N/A
34	3/12/15	74.5	6184	6576	4718	185189	5454	N/A

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Please insert additional pages as applicable.

API 47- 095 - 02160 Farm name Woodburn Well number Grumpy 3

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>	
<u>Marcellus</u>	<u>7075</u> TVD	<u>14425</u> MD
_____	_____	_____
_____	_____	_____

Please insert additional pages as applicable. Flowback not Initiated

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface 2800 psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 7300 mcfpd Oil 25 bpd NGL \_\_\_\_\_ bpd Water 75 bpd GAS MEASURED BY  Estimated  Orifice  Pilot

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

Please insert additional pages as applicable.

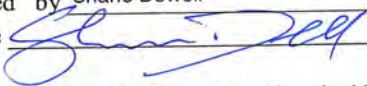
Drilling Contractor Horizontal Well Drillers  
Address 2915 SH 74 South City Purcell State OK Zip 73080

Logging Company Precise Well Analysis  
Address PO Box 542 City Belpre State OH Zip 45714

Cementing Company Nabors Completion & Production  
Address 1650 Hackers Creek Rd. City Jane Lew State WV Zip 26378

Stimulating Company Baker Hughes  
Address 837 Phillipi Rd. City Clarksburg State WV Zip 26378

Please insert additional pages as applicable.

Completed by Shane Dowell Telephone 304-628-3111  
Signature  Title Office Manager Date 2-5-2015

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

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Office of Oil and Gas  
OCT 07 2015  
WV Department of  
Environmental Protection

**Lithology**

Grumpy 3 47-095-02160

<u>FORMATION</u>	<u>TOP</u>	<u>BOTTOM</u>
MISC. RED ROCK & SHALES	0	2396
LIME	2396	2496
INJUN	2496	2613
SHALE	2613	2960
GORDON STRAY	2960	2980
SHALE	2980	3176
GORDON	3176	3206
SHALE	3206	3485
BAYARD	3485	3494
SHALE	3494	3823
WARREN	3823	3921
SHALE	3921	4157
BALLTOWN	4157	4320
SHALE	4320	4758
2ND RILEY	4758	4866
SHALE	4866	5017
3RD RILEY	5017	5058
SHALE	5058	5115
BENSON	5115	5118
SHALE	5118	5360
ALEXANDER	5360	5531
SHALE	5531	5776
ELK	5776	5824
SHALE	5824	6158
HAMILTON	6158	6332
SHALE	6332	6988
UPPER Marcellus	6988	6994
PARCELL LIME	6994	7029
SHALE	7029	7053
LOWER MARCELLUS	7053	

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OCT 07 2015

WV Department of  
Environmental Protection

06/17/2016

State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Discharge Monitoring Report  
Oil and Gas General Permit

Company Name: Jay-Bee Oil & Gas, Inc.  
API No: 47-095-02160 County: Tyler  
District: McElroy Well No: Grumpy 3  
Farm Name: Woodburn

Discharge Date/s From:(MMDDYY) \_\_\_\_\_ To: (MMDDYY) \_\_\_\_\_  
Discharge Times. From: \_\_\_\_\_ To: \_\_\_\_\_

Total Volume to be Disposed from this facility (gallons): NO DISCHARGE

Disposal Option(s) Utilized (write volumes in gallons):

- (1) Land Application: \_\_\_\_\_ (Include a topographical map of the Area.)
- (2) UIC: \_\_\_\_\_ Permit No. \_\_\_\_\_
- (3) Offsite Disposal: \_\_\_\_\_ Site Location: \_\_\_\_\_
- (4) Reuse: \_\_\_\_\_ Alternate Permit Number: \_\_\_\_\_
- (5) Centralized Facility: \_\_\_\_\_ Permit No. \_\_\_\_\_
- (6) Other method: \_\_\_\_\_ (Include an explanation)

Follow Instructions below to determine your treatment category:

Optional Pretreatment test: n/a Cl- mg/l n/a DO mg/l

1. Do you have permission to use expedited treatment from the Director or his representative?  
(Y/N) N If yes, who? n/a and place a four (4) on line 7.  
If not go to line 2
2. Was Frac Fluid or flowback put into the pit? (Y/N) N If yes, go to line 5. If not, go to line 3.
3. Do you have a chloride value pretreatment (see above)? (Y/N) n/a If yes, go to line 4  
If not, go to line 5.
4. Is the Chloride level less than 5000 mg/l? (Y/N) n/a If yes, then enter a one (1) on line 7.
5. Do you have a pretreatment value for DO? (See above) (Y/N) n/a If yes, go to line 6  
If not, enter a three (3) in line 7.
6. Is the DO level greater than 2.5 mg/l?(Y/N) n/a If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
7. n/a is the category of your pit. Use the Appropriate section.
8. Comments on Pit condition: n/a

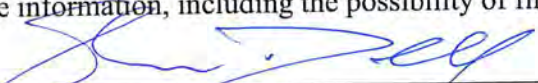
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Office of Oil and Gas

~~OCT 07 2015~~

Name of Principal Exec. Officer: Shane Dowell  
Title of Officer: Office Manager  
Date Completed: 2-5-2015

WV Department of  
Environmental Protection

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.

  
\_\_\_\_\_  
Signature of a Principal Exec. Officer or Authorized agent.

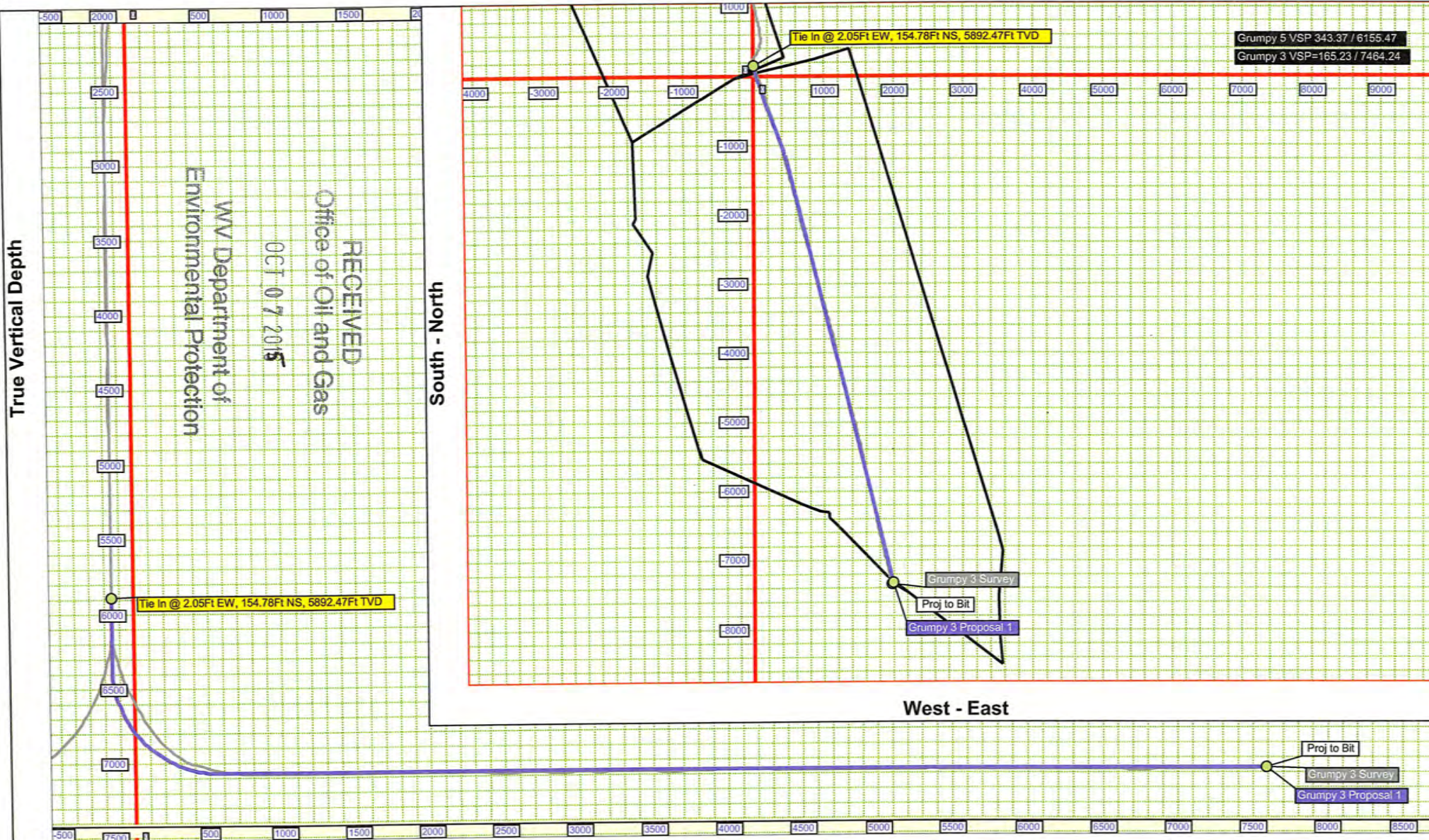
06/17/2016



Job Number: Grumpy 3 Svys  
Company: Jay Bee Oil & Gas  
Lease/Well: Grumpy 3  
Location: Northern  
Rig Name:  
State/County: West Virginia/ Tyler  
Country: USA  
API Number:



Elevation (To MSL): 1298.01 ft  
RKB: 16.00 ft  
Projection System: US State Plane 1927 (Exact solution)  
Projection Group: West Virginia North 4701  
Projection Datum: CLARKE 1866  
Magnetic Declination: -8.53  
Grid Convergence: -0.80623 W  
Date: Monday, December 08, 2014



Vertical Section (500 Ft/Div) VSP: 164.75°

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NEW YORK  
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06/17/2016



**Job Number:** Grumpy 3 Svys  
**Company:** Jay Bee Oil & Gas  
**Lease/Well:** Grumpy 3  
**Location:** Northern  
**Rig Name:**  
**State/County:** West Virginia/ Tyler  
**Country:** USA

**Elev. GL:** 1298.01 ft    **RKB:** 16.00 ft  
**System:** US State Plane 1927 (Exact solution)  
**Group:** West Virginia North 4701  
**Datum:** CLARKE 1866  
**Mag. Decl.:** -8.53° (C:\HawkEye\IGRF2010.MIF)  
**Grid Conv.:** -0.80623 W  
**Date:** Monday, December 08, 2014



Calculated by HawkEye Software  
 Minimum Curvature Method  
 Vertical Section Plane 164.75°  
 Northing (US ft): 354844.04    Easting (US ft): 1643097.45  
 Latitude: 39°28'2.5000" N    Longitude: -80°45'51.2000" W  
 Direction Reference: Grid North



#	Measured Depth (Ft)	INC Deg	AZM Deg	CL (Ft)	TVD (Ft)	VS (Ft)	NS (Ft)	EW (Ft)	Northing (US ft)	Easting (US ft)	DLS */100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	354844.04	1643097.45	0.00	-	-
2	100.00	0.34	195.66	100.00	100.00	0.25	-0.29	-0.08	354843.75	1643097.37	0.34	-	-
3	200.00	1.05	130.16	100.00	199.99	1.26	-1.16	0.54	354842.88	1643097.99	0.96	-	-
4	300.00	1.20	93.14	100.00	299.97	2.35	-1.81	2.29	354842.23	1643099.74	0.73	-	-
5	400.00	0.62	88.81	100.00	399.96	2.81	-1.86	3.87	354842.18	1643101.32	0.58	-	-
6	500.00	0.97	85.91	100.00	499.95	3.11	-1.79	5.26	354842.25	1643102.71	0.35	-	-
7	600.00	1.26	81.89	100.00	599.93	3.41	-1.57	7.19	354842.47	1643104.64	0.30	-	-
8	700.00	1.65	69.95	100.00	699.90	3.42	-0.92	9.63	354843.12	1643107.08	0.49	-	-
9	800.00	1.65	27.20	100.00	799.86	2.24	0.85	11.64	354844.89	1643109.09	1.20	-	-
10	900.00	5.45	19.96	100.00	899.65	-2.70	6.60	13.92	354850.64	1643111.37	3.82	-	-
11	1000.00	6.28	6.04	100.00	999.13	-11.68	16.50	16.12	354860.54	1643113.57	1.64	-	-
12	1100.00	6.15	6.94	100.00	1098.55	-21.74	27.26	17.34	354871.30	1643114.79	0.16	-	-
13	1200.00	6.10	6.86	100.00	1197.97	-31.62	37.85	18.62	354881.89	1643116.07	0.05	-	-
14	1300.00	6.05	7.03	100.00	1297.41	-41.42	48.36	19.90	354892.40	1643117.35	0.05	-	-
15	1400.00	5.96	5.59	100.00	1396.86	-51.15	58.75	21.05	354902.79	1643118.50	0.18	-	-
16	1500.00	5.70	3.52	100.00	1496.35	-60.70	68.88	21.86	354912.92	1643119.31	0.33	-	-
17	1600.00	5.73	3.64	100.00	1595.85	-70.12	78.82	22.49	354922.86	1643119.94	0.03	-	-
18	1700.00	5.52	2.32	100.00	1695.37	-79.43	88.60	23.00	354932.64	1643120.45	0.25	-	-
19	1800.00	5.27	356.87	100.00	1794.93	-88.51	98.00	22.94	354942.04	1643120.39	0.57	-	-
20	1900.00	5.02	356.68	100.00	1894.52	-97.28	106.95	22.44	354950.99	1643119.89	0.25	-	-
21	2000.00	4.43	5.16	100.00	1994.18	-105.18	115.16	22.53	354959.20	1643119.98	0.91	-	-
22	2100.00	4.09	8.96	100.00	2093.91	-112.05	122.53	23.43	354966.57	1643120.88	0.44	-	-
23	2200.00	3.84	9.71	100.00	2193.67	-118.34	129.36	24.55	354973.40	1643122.00	0.26	-	-
24	2300.00	3.97	10.07	100.00	2293.44	-124.50	136.06	25.72	354980.10	1643123.17	0.13	-	-
25	2400.00	3.46	13.49	100.00	2393.23	-130.28	142.41	27.03	354986.45	1643124.48	0.56	-	-
26	2500.00	3.30	15.89	100.00	2493.05	-135.39	148.11	28.53	354992.15	1643125.98	0.21	-	-
27	2600.00	3.27	17.91	100.00	2592.89	-140.24	153.59	30.19	354997.63	1643127.64	0.12	-	-
28	2700.00	2.46	11.66	100.00	2692.76	-144.54	158.41	31.50	355002.45	1643128.95	0.87	-	-
29	2800.00	1.43	3.47	100.00	2792.70	-147.63	161.76	32.01	355005.80	1643129.46	1.06	-	-
30	2900.00	0.73	354.86	100.00	2892.69	-149.44	163.64	32.03	355007.68	1643129.48	0.72	-	-

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 Jay Bee Oil & Gas





#	Measured Depth (Ft)	INC Deg	AZM Deg	CL (Ft)	TVD (Ft)	VS (Ft)	NS (Ft)	EW (Ft)	Northing (US ft)	Easting (US ft)	DLS <sup>2</sup> /100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)
31	3000.00	0.62	329.26	100.00	2992.68	-150.59	164.73	31.70	355008.77	1643129.15	0.32	-	-
32	3100.00	0.66	314.66	100.00	3092.67	-151.61	165.60	31.01	355009.64	1643128.46	0.17	-	-
33	3200.00	0.43	307.77	100.00	3192.67	-152.41	166.24	30.30	355010.28	1643127.75	0.24	-	-
34	3300.00	0.54	270.61	100.00	3292.66	-152.84	166.47	29.54	355010.51	1643126.99	0.33	-	-
35	3400.00	0.61	267.61	100.00	3392.66	-153.09	166.46	28.53	355010.50	1643125.98	0.08	-	-
36	3500.00	0.60	260.45	100.00	3492.65	-153.26	166.35	27.48	355010.39	1643124.93	0.08	-	-
37	3600.00	0.50	254.88	100.00	3592.65	-153.31	166.15	26.55	355010.19	1643124.00	0.11	-	-
38	3700.00	0.39	255.38	100.00	3692.65	-153.31	165.95	25.80	355009.99	1643123.25	0.11	-	-
39	3800.00	0.36	251.08	100.00	3792.64	-153.30	165.76	25.17	355009.80	1643122.62	0.04	-	-
40	3900.00	0.48	249.67	100.00	3892.64	-153.24	165.51	24.48	355009.55	1643121.93	0.12	-	-
41	4000.00	0.49	232.30	100.00	3992.64	-153.04	165.11	23.75	355009.15	1643121.20	0.15	-	-
42	4100.00	0.48	238.76	100.00	4092.63	-152.76	164.63	23.05	355008.67	1643120.50	0.06	-	-
43	4200.00	0.60	247.44	100.00	4192.63	-152.58	164.21	22.21	355008.25	1643119.66	0.14	-	-
44	4300.00	0.45	269.62	100.00	4292.63	-152.61	164.00	21.33	355008.04	1643118.78	0.25	-	-
45	4400.00	0.61	266.73	100.00	4392.62	-152.83	163.97	20.41	355008.01	1643117.86	0.16	-	-
46	4500.00	0.62	270.42	100.00	4492.62	-153.08	163.95	19.34	355007.99	1643116.79	0.04	-	-
47	4600.00	0.53	261.95	100.00	4592.61	-153.29	163.88	18.34	355007.92	1643115.79	0.12	-	-
48	4700.00	0.74	237.85	100.00	4692.60	-153.16	163.48	17.33	355007.52	1643114.78	0.34	-	-
49	4800.00	0.83	226.08	100.00	4792.60	-152.62	162.63	16.27	355006.67	1643113.72	0.18	-	-
50	4900.00	1.02	231.11	100.00	4892.58	-151.92	161.57	15.05	355005.61	1643112.50	0.21	-	-
51	5000.00	1.10	245.81	100.00	4992.57	-151.41	160.62	13.48	355004.66	1643110.93	0.28	-	-
52	5100.00	0.98	248.08	100.00	5092.55	-151.16	159.90	11.81	355003.94	1643109.26	0.13	-	-
53	5200.00	0.88	249.08	100.00	5192.54	-150.99	159.31	10.30	355003.35	1643107.75	0.10	-	-
54	5300.00	0.85	237.71	100.00	5292.52	-150.69	158.64	8.96	355002.68	1643106.41	0.17	-	-
55	5400.00	0.83	231.44	100.00	5392.51	-150.19	157.79	7.77	355001.83	1643105.22	0.09	-	-
56	5500.00	0.79	239.34	100.00	5492.50	-149.72	156.99	6.61	355001.03	1643104.06	0.12	-	-
57	5600.00	0.74	241.23	100.00	5592.49	-149.39	156.33	5.45	355000.37	1643102.90	0.06	-	-
58	5700.00	0.64	237.05	100.00	5692.49	-149.07	155.71	4.41	354999.75	1643101.86	0.11	-	-
59	5800.00	0.70	244.26	100.00	5792.48	-148.79	155.14	3.39	354999.18	1643100.84	0.10	-	-
60	5900.00	0.92	263.03	100.00	5892.47	-148.79	154.78	2.05	354998.82	1643099.50	0.34	0.00 (W)	0.00 (N)
61	5969.00	0.80	283.80	69.00	5961.46	-149.10	154.83	1.03	354998.87	1643098.48	0.48	0.08 (E)	0.18 (N)
62	6013.00	0.70	279.10	44.00	6005.46	-149.36	154.94	0.46	354998.98	1643097.91	0.27	0.22 (E)	0.38 (N)
63	6057.00	0.40	257.60	44.00	6049.46	-149.48	154.95	0.05	354998.99	1643097.50	0.82	0.50 (E)	0.48 (N)
64	6101.00	0.40	255.90	44.00	6093.46	-149.49	154.88	-0.25	354998.92	1643097.20	0.03	0.90 (E)	0.50 (N)
65	6143.00	0.40	313.10	42.00	6135.46	-149.62	154.95	-0.50	354998.99	1643096.95	0.91	1.32 (E)	0.64 (N)
66	6187.00	4.90	150.50	44.00	6179.41	-147.93	153.42	0.31	354997.46	1643097.76	12.01	-2.08 (L)	2.11 (U)
67	6232.00	12.90	155.40	45.00	6223.83	-141.10	147.17	3.36	354991.21	1643100.81	17.84	-3.12 (L)	9.32 (U)
68	6276.00	16.80	155.40	44.00	6266.35	-129.97	136.92	8.05	354980.96	1643105.50	8.86	-3.84 (L)	21.51 (U)
69	6320.00	18.20	154.40	44.00	6308.31	-116.94	124.94	13.67	354968.98	1643111.12	3.25	-4.08 (L)	35.92 (U)
70	6362.00	17.60	159.40	42.00	6348.28	-104.16	113.08	18.74	354957.12	1643116.19	3.93	-8.29 (L)	48.73 (U)
71	6407.00	18.00	167.00	45.00	6391.13	-90.44	99.93	22.69	354943.97	1643120.14	5.24	-15.76 (L)	59.49 (U)

Environmental Protection

Department of

OCT 07 2015

Methane Gas

Methane Gas

#	Measured Depth (Ft)	INC Deg	AZM Deg	CL (Ft)	TVD (Ft)	VS (Ft)	NS (Ft)	EW (Ft)	Northing (US ft)	Easting (US ft)	DLS <sup>1</sup> /100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)
72	6451.00	21.30	165.10	44.00	6432.57	-75.65	85.58	26.28	354929.62	1643123.73	7.64	-13.96 (L)	71.05 (U)
73	6493.00	24.10	166.80	42.00	6471.31	-59.45	69.86	30.20	354913.90	1643127.65	6.85	-15.96 (L)	80.74 (U)
74	6537.00	25.20	161.20	44.00	6511.30	-41.12	52.24	35.27	354896.28	1643132.72	5.86	-8.39 (L)	90.40 (U)
75	6581.00	27.30	157.90	44.00	6550.77	-21.75	34.02	42.09	354878.06	1643139.54	5.81	-4.51 (L)	97.81 (U)
76	6626.00	28.70	156.70	45.00	6590.50	-0.80	14.53	50.24	354858.57	1643147.69	3.35	-4.33 (L)	103.32 (U)
77	6670.00	29.10	154.90	44.00	6629.02	20.20	-4.86	58.96	354839.18	1643156.41	2.18	-3.66 (L)	106.21 (U)
78	6714.00	29.80	155.70	44.00	6667.33	41.54	-24.51	68.00	354819.53	1643165.45	1.82	-7.55 (L)	106.74 (U)
79	6758.00	31.20	156.10	44.00	6705.25	63.60	-44.90	77.12	354799.14	1643174.57	3.22	-10.82 (L)	104.94 (U)
80	6803.00	33.40	157.20	45.00	6743.28	87.41	-66.97	86.64	354777.07	1643184.09	5.06	-15.05 (L)	101.35 (U)
81	6847.00	35.80	158.60	44.00	6779.50	112.21	-90.12	96.03	354753.92	1643193.48	5.75	-19.02 (L)	96.13 (U)
82	6892.00	39.60	158.80	45.00	6815.09	139.57	-115.76	106.02	354728.28	1643203.47	8.45	-20.97 (L)	90.11 (U)
83	6936.00	42.90	160.80	44.00	6848.17	168.47	-142.99	116.02	354701.05	1643213.47	8.08	-24.19 (L)	83.58 (U)
84	6981.00	45.00	162.60	45.00	6880.57	199.66	-172.64	125.82	354671.40	1643223.27	5.43	-25.64 (L)	75.99 (U)
85	7025.00	48.70	161.40	44.00	6910.66	231.71	-203.16	135.74	354640.88	1643233.19	8.64	-23.96 (L)	68.32 (U)
86	7069.00	52.40	161.90	44.00	6938.61	265.63	-235.40	146.44	354608.64	1643243.89	8.45	-23.85 (L)	60.22 (U)
87	7114.00	57.30	162.90	45.00	6964.51	302.38	-270.46	157.55	354573.58	1643255.00	11.04	-23.24 (L)	51.87 (U)
88	7156.00	63.40	163.30	42.00	6985.28	338.85	-305.37	168.15	354538.67	1643265.60	14.55	-21.68 (L)	45.59 (U)
89	7201.00	70.50	161.90	45.00	7002.89	380.20	-344.85	180.54	354499.19	1643277.99	16.03	-19.74 (L)	41.43 (U)
90	7246.00	75.90	162.10	45.00	7015.89	423.22	-385.81	193.84	354458.23	1643291.29	12.01	-18.72 (L)	39.04 (U)
91	7290.00	76.20	161.80	44.00	7026.49	465.87	-426.41	207.07	354417.63	1643304.52	0.95	-17.69 (L)	36.47 (U)
92	7335.00	76.30	161.90	45.00	7037.19	509.52	-467.95	220.69	354376.09	1643318.14	0.31	-16.71 (L)	30.83 (U)
93	7379.00	76.20	162.30	44.00	7047.65	552.22	-508.62	233.83	354335.42	1643331.28	0.91	-15.55 (L)	22.80 (U)
94	7423.00	79.90	161.80	44.00	7056.76	595.21	-549.56	247.09	354294.48	1643344.54	8.48	-14.26 (L)	13.47 (U)
95	7467.00	83.60	161.50	44.00	7063.07	638.68	-590.88	260.80	354253.16	1643358.25	8.44	-13.34 (L)	6.99 (U)
96	7512.00	84.70	162.20	45.00	7067.66	683.39	-633.42	274.74	354210.62	1643372.19	2.89	-12.27 (L)	2.37 (U)
97	7556.00	84.40	162.30	44.00	7071.84	727.15	-675.14	288.10	354168.90	1643385.55	0.72	-10.91 (L)	-1.83 (D)
98	7598.00	84.10	162.50	42.00	7076.04	768.90	-714.97	300.73	354129.07	1643398.18	0.86	-9.51 (L)	-6.06 (D)
99	7643.00	88.20	161.90	45.00	7079.06	813.75	-757.71	314.45	354086.33	1643411.90	9.21	-8.18 (L)	-9.06 (D)
100	7685.00	91.60	161.40	42.00	7079.14	855.68	-797.57	327.68	354046.47	1643425.13	8.18	-7.34 (L)	-9.13 (D)
101	7729.00	91.80	161.60	44.00	7077.83	899.59	-839.27	341.63	354004.77	1643439.08	0.64	-6.56 (L)	-7.82 (D)
102	7774.00	91.60	161.60	45.00	7076.50	944.50	-881.96	355.83	353962.08	1643453.28	0.44	-5.69 (L)	-6.49 (D)
103	7818.00	89.10	162.50	44.00	7076.23	988.45	-923.81	369.39	353920.23	1643466.84	6.04	-4.49 (L)	-6.22 (D)
104	7863.00	88.90	163.30	45.00	7077.01	1033.42	-966.81	382.62	353877.23	1643480.07	1.83	-2.59 (L)	-7.01 (D)
105	7907.00	89.00	163.40	44.00	7077.82	1077.40	-1008.96	395.22	353835.08	1643492.67	0.32	-0.40 (L)	-7.81 (D)
106	7951.00	88.80	163.10	44.00	7078.67	1121.37	-1051.09	407.90	353792.95	1643505.35	0.82	1.73 (R)	-8.66 (D)
107	7996.00	89.20	165.80	45.00	7079.45	1166.36	-1094.43	419.96	353749.61	1643517.41	6.06	4.81 (R)	-9.44 (D)
108	8040.00	92.70	168.00	44.00	7078.72	1210.31	-1137.27	429.93	353706.77	1643527.38	9.39	8.11 (R)	-8.72 (D)
109	8084.00	92.50	167.20	44.00	7076.73	1254.21	-1180.20	439.37	353663.84	1643536.82	1.87	9.91 (R)	-6.72 (D)
110	8128.00	92.10	165.80	44.00	7074.96	1298.16	-1222.95	449.63	353621.09	1643547.08	3.31	10.41 (R)	-4.95 (D)
111	8173.00	91.70	165.90	45.00	7073.47	1343.12	-1266.56	460.63	353577.48	1643558.08	0.92	10.40 (R)	-3.46 (D)
112	8217.00	89.90	165.50	44.00	7072.85	1387.11	-1309.19	471.49	353534.85	1643568.94	4.19	10.28 (R)	-2.84 (D)

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Table with multiple columns and rows of data, including numerical values and text labels. The text is extremely faint and difficult to read.

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#	Measured Depth (Ft)	INC Deg	AZM Deg	CL (Ft)	TVD (Ft)	VS (Ft)	NS (Ft)	EW (Ft)	Northing (US ft)	Easting (US ft)	DLS %/100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)
113	8261.00	89.80	165.50	44.00	7072.97	1431.11	-1351.79	482.51	353492.25	1643579.96	0.23	10.00 (R)	-2.96 (D)
114	8306.00	89.80	165.20	45.00	7073.13	1476.11	-1395.32	493.89	353448.72	1643591.34	0.67	9.60 (R)	-3.12 (D)
115	8350.00	89.40	164.80	44.00	7073.43	1520.10	-1437.82	505.28	353406.22	1643602.73	1.29	8.94 (R)	-3.42 (D)
116	8395.00	89.00	165.10	45.00	7074.06	1565.10	-1481.27	516.96	353362.77	1643614.41	1.11	8.22 (R)	-4.05 (D)
117	8439.00	88.90	165.20	44.00	7074.87	1609.09	-1523.80	528.24	353320.24	1643625.69	0.32	7.67 (R)	-4.86 (D)
118	8483.00	89.20	165.20	44.00	7075.60	1653.08	-1566.33	539.47	353277.71	1643636.92	0.68	7.17 (R)	-5.59 (D)
119	8527.00	90.50	165.80	44.00	7075.71	1697.08	-1608.93	550.49	353235.11	1643647.94	3.25	6.89 (R)	-5.70 (D)
120	8572.00	90.50	165.80	45.00	7075.32	1742.07	-1652.55	561.53	353191.49	1643658.98	0.00	6.84 (R)	-5.31 (D)
121	8616.00	90.20	165.90	44.00	7075.05	1786.06	-1695.22	572.29	353148.82	1643669.74	0.72	6.83 (R)	-5.04 (D)
122	8660.00	90.40	166.60	44.00	7074.82	1830.04	-1737.95	582.74	353106.09	1643680.19	1.65	7.13 (R)	-4.81 (D)
123	8705.00	90.90	166.80	45.00	7074.31	1875.01	-1781.74	593.10	353062.30	1643690.55	1.20	7.79 (R)	-4.30 (D)
124	8749.00	89.80	166.90	44.00	7074.04	1918.98	-1824.59	603.10	353019.45	1643700.55	2.51	8.55 (R)	-4.03 (D)
125	8794.00	89.40	166.60	45.00	7074.36	1963.95	-1868.39	613.42	352975.65	1643710.87	1.11	9.25 (R)	-4.35 (D)
126	8838.00	89.30	166.80	44.00	7074.85	2007.93	-1911.21	623.54	352932.83	1643720.99	0.51	9.89 (R)	-4.85 (D)
127	8883.00	89.30	166.90	45.00	7075.40	2052.89	-1955.02	633.78	352889.02	1643731.23	0.22	10.67 (R)	-5.40 (D)
128	8927.00	89.40	166.80	44.00	7075.90	2096.86	-1997.87	643.79	352846.17	1643741.24	0.32	11.43 (R)	-5.90 (D)
129	8969.00	89.20	166.50	42.00	7076.42	2138.83	-2038.73	653.48	352805.31	1643750.93	0.86	12.01 (R)	-6.41 (D)
130	9014.00	89.30	166.20	45.00	7077.01	2183.81	-2082.45	664.10	352761.59	1643761.55	0.70	12.39 (R)	-7.00 (D)
131	9058.00	88.70	166.10	44.00	7077.77	2227.79	-2125.17	674.63	352718.87	1643772.08	1.38	12.61 (R)	-7.77 (D)
132	9103.00	89.10	167.40	45.00	7078.64	2272.75	-2168.96	684.95	352675.08	1643782.40	3.02	13.32 (R)	-8.63 (D)
133	9147.00	89.30	166.60	44.00	7079.25	2316.72	-2211.83	694.84	352632.21	1643792.29	1.87	14.19 (R)	-9.24 (D)
134	9192.00	89.50	164.00	45.00	7079.72	2361.71	-2255.35	706.26	352588.69	1643803.71	5.79	13.75 (R)	-9.71 (D)
135	9236.00	88.70	162.10	44.00	7080.41	2405.68	-2297.43	719.08	352546.61	1643816.53	4.68	11.59 (R)	-10.41 (D)
136	9280.00	90.20	161.90	44.00	7080.84	2449.63	-2339.27	732.68	352504.77	1643830.13	3.44	8.65 (R)	-10.83 (D)
137	9324.00	89.90	162.30	44.00	7080.80	2493.58	-2381.14	746.20	352462.90	1643843.65	1.14	5.75 (R)	-10.79 (D)
138	9369.00	89.80	161.60	45.00	7080.92	2538.53	-2423.93	760.15	352420.11	1643857.60	1.57	2.67 (R)	-10.91 (D)
139	9413.00	90.60	163.20	44.00	7080.76	2582.49	-2465.87	773.45	352378.17	1643870.90	4.07	0.02 (R)	-10.75 (D)
140	9458.00	90.60	163.30	45.00	7080.29	2627.47	-2508.96	786.42	352335.08	1643883.87	0.22	-2.04 (L)	-10.28 (D)
141	9502.00	90.20	162.90	44.00	7079.98	2671.45	-2551.05	799.21	352292.99	1643896.66	1.29	-4.16 (L)	-9.98 (D)
142	9547.00	89.80	162.70	45.00	7079.98	2716.42	-2594.04	812.52	352250.00	1643909.97	0.99	-6.57 (L)	-9.98 (D)
143	9591.00	89.50	165.50	44.00	7080.25	2760.41	-2636.35	824.57	352207.69	1643922.02	6.40	-7.92 (L)	-10.24 (D)
144	9633.00	89.20	165.20	42.00	7080.73	2802.41	-2676.99	835.19	352167.05	1643932.64	1.01	-8.29 (L)	-10.72 (D)
145	9676.00	90.20	166.60	43.00	7080.95	2845.40	-2718.69	845.67	352125.35	1643943.12	4.00	-8.26 (L)	-10.95 (D)
146	9720.00	89.70	166.00	44.00	7080.99	2889.38	-2761.44	856.09	352082.60	1643953.54	1.78	-7.92 (L)	-10.98 (D)
147	9764.00	91.00	165.60	44.00	7080.72	2933.37	-2804.09	866.88	352039.95	1643964.33	3.09	-7.97 (L)	-10.72 (D)
148	9809.00	90.80	165.20	45.00	7080.02	2978.36	-2847.63	878.22	351996.41	1643975.67	0.99	-8.33 (L)	-10.01 (D)
149	9853.00	90.00	165.20	44.00	7079.71	3022.36	-2890.17	889.46	351953.87	1643986.91	1.82	-8.84 (L)	-9.70 (D)
150	9897.00	89.30	164.40	44.00	7079.98	3066.36	-2932.63	901.00	351911.41	1643998.45	2.42	-9.66 (L)	-9.97 (D)
151	9942.00	89.30	164.60	45.00	7080.53	3111.36	-2975.99	913.02	351868.05	1644010.47	0.44	-10.73 (L)	-10.52 (D)
152	9986.00	90.90	164.80	44.00	7080.45	3155.35	-3018.43	924.63	351825.61	1644022.08	3.66	-11.61 (L)	-10.44 (D)
153	10031.00	90.30	163.50	45.00	7079.98	3200.35	-3061.71	936.92	351782.33	1644034.37	3.18	-12.97 (L)	-9.97 (D)

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#	Measured Depth (Ft)	INC Deg	AZM Deg	CL (Ft)	TVD (Ft)	VS (Ft)	NS (Ft)	EW (Ft)	Northing (US ft)	Easting (US ft)	DLS %/100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)
154	10075.00	90.60	164.00	44.00	7079.63	3244.34	-3103.95	949.23	351740.09	1644046.68	1.33	-14.58 (L)	-9.63 (D)
155	10119.00	90.40	163.90	44.00	7079.25	3288.33	-3146.24	961.40	351697.80	1644058.85	0.51	-16.05 (L)	-9.24 (D)
156	10164.00	89.90	163.80	45.00	7079.13	3333.33	-3189.46	973.91	351654.58	1644071.36	1.13	-17.64 (L)	-9.12 (D)
157	10208.00	89.60	163.30	44.00	7079.32	3377.32	-3231.66	986.37	351612.38	1644083.82	1.33	-19.42 (L)	-9.32 (D)
158	10250.00	89.20	163.20	42.00	7079.76	3419.30	-3271.88	998.48	351572.16	1644095.93	0.98	-21.34 (L)	-9.76 (D)
159	10292.00	89.80	164.50	42.00	7080.13	3461.29	-3312.22	1010.16	351531.82	1644107.61	3.41	-22.80 (L)	-10.12 (D)
160	10337.00	89.80	165.10	45.00	7080.29	3506.29	-3355.64	1021.96	351488.40	1644119.41	1.33	-23.62 (L)	-10.28 (D)
161	10381.00	89.80	165.80	44.00	7080.44	3550.29	-3398.23	1033.01	351445.81	1644130.46	1.59	-23.94 (L)	-10.43 (D)
162	10425.00	89.50	165.00	44.00	7080.71	3594.29	-3440.81	1044.10	351403.23	1644141.55	1.94	-24.30 (L)	-10.70 (D)
163	10470.00	89.60	165.20	45.00	7081.06	3639.28	-3484.29	1055.67	351359.75	1644153.12	0.50	-24.89 (L)	-11.06 (D)
164	10514.00	92.00	165.90	44.00	7080.45	3683.27	-3526.89	1066.65	351317.15	1644164.10	5.68	-25.13 (L)	-10.45 (D)
165	10556.00	92.40	165.90	42.00	7078.84	3725.23	-3567.60	1076.87	351276.44	1644174.32	0.95	-25.10 (L)	-8.84 (D)
166	10600.00	92.40	165.50	44.00	7077.00	3769.19	-3610.20	1087.73	351233.84	1644185.18	0.91	-25.22 (L)	-6.99 (D)
167	10645.00	91.50	164.40	45.00	7075.46	3814.16	-3653.63	1099.41	351190.41	1644196.86	3.16	-25.94 (L)	-5.46 (D)
168	10689.00	91.80	164.70	44.00	7074.20	3858.14	-3696.02	1111.13	351148.02	1644208.58	0.96	-26.95 (L)	-4.19 (D)
169	10733.00	92.40	165.30	44.00	7072.58	3902.11	-3738.49	1122.51	351105.55	1644219.96	1.93	-27.61 (L)	-2.58 (D)
170	10781.00	91.50	167.80	48.00	7070.95	3950.05	-3785.14	1133.66	351058.90	1644231.11	5.53	-27.05 (L)	-0.94 (D)
171	10823.00	90.90	168.60	42.00	7070.07	3991.97	-3826.25	1142.25	351017.79	1644239.70	2.38	-25.34 (L)	-0.06 (D)
172	10867.00	90.90	168.70	44.00	7069.38	4035.86	-3869.38	1150.91	350974.66	1644248.36	0.23	-23.20 (L)	0.63 (U)
173	10911.00	89.30	169.20	44.00	7069.30	4079.74	-3912.56	1159.34	350931.48	1644256.79	3.81	-20.84 (L)	0.71 (U)
174	10955.00	89.50	170.90	44.00	7069.76	4123.55	-3955.90	1166.94	350888.14	1644264.39	3.89	-17.66 (L)	0.25 (U)
175	11000.00	89.80	171.10	45.00	7070.04	4168.28	-4000.34	1173.98	350843.70	1644271.43	0.80	-13.62 (L)	-0.03 (D)
176	11044.00	89.80	168.10	44.00	7070.19	4212.12	-4043.61	1181.93	350800.43	1644279.38	6.82	-10.70 (L)	-0.18 (D)
177	11088.00	89.40	166.50	44.00	7070.50	4256.07	-4086.54	1191.60	350757.50	1644289.05	3.75	-9.59 (L)	-0.49 (D)
178	11133.00	87.50	166.10	45.00	7071.72	4301.04	-4130.24	1202.25	350713.80	1644299.70	4.31	-9.24 (L)	-1.71 (D)
179	11177.00	86.60	165.90	44.00	7073.98	4344.97	-4172.87	1212.88	350671.17	1644310.33	2.10	-9.13 (L)	-3.98 (D)
180	11221.00	90.00	166.60	44.00	7075.29	4388.92	-4215.59	1223.33	350628.45	1644320.78	7.89	-8.84 (L)	-5.28 (D)
181	11266.00	90.70	170.20	45.00	7075.01	4433.82	-4259.66	1232.38	350584.38	1644329.83	8.15	-6.87 (L)	-5.00 (D)
182	11310.00	90.70	170.20	44.00	7074.47	4477.62	-4303.01	1239.87	350541.03	1644337.32	0.00	-3.53 (L)	-4.47 (D)
183	11354.00	89.20	168.00	44.00	7074.51	4521.49	-4346.22	1248.19	350497.82	1644345.64	6.05	-1.03 (L)	-4.50 (D)
184	11399.00	88.80	167.10	45.00	7075.30	4566.43	-4390.15	1257.89	350453.89	1644355.34	2.19	0.30 (R)	-5.29 (D)
185	11443.00	88.40	166.70	44.00	7076.37	4610.39	-4432.99	1267.86	350411.05	1644365.31	1.29	1.10 (R)	-6.37 (D)
186	11486.00	90.30	166.10	43.00	7076.86	4653.36	-4474.78	1277.97	350369.26	1644375.42	4.63	1.50 (R)	-6.85 (D)
187	11530.00	89.70	164.80	44.00	7076.86	4697.36	-4517.37	1289.02	350326.67	1644386.47	3.25	1.18 (R)	-6.85 (D)
188	11575.00	89.20	163.70	45.00	7077.29	4742.35	-4560.68	1301.24	350283.36	1644398.69	2.69	-0.09 (L)	-7.28 (D)
189	11620.00	89.70	163.00	45.00	7077.72	4787.34	-4603.79	1314.13	350240.25	1644411.58	1.91	-2.06 (L)	-7.72 (D)
190	11664.00	89.20	163.00	44.00	7078.15	4831.32	-4645.86	1326.99	350198.18	1644424.44	1.14	-4.26 (L)	-8.14 (D)
191	11709.00	88.80	162.00	45.00	7078.93	4876.27	-4688.77	1340.52	350155.27	1644437.97	2.39	-6.92 (L)	-8.93 (D)
192	11753.00	90.10	162.80	44.00	7079.35	4920.23	-4730.71	1353.82	350113.33	1644451.27	3.47	-9.56 (L)	-9.35 (D)
193	11798.00	89.70	161.80	45.00	7079.43	4965.19	-4773.58	1367.51	350070.46	1644464.96	2.39	-12.37 (L)	-9.42 (D)
194	11842.00	90.00	163.40	44.00	7079.55	5009.16	-4815.57	1380.66	350028.47	1644478.11	3.70	-14.86 (L)	-9.54 (D)

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#	Measured Depth (Ft)	INC Deg	AZM Deg	CL (Ft)	TVD (Ft)	VS (Ft)	NS (Ft)	EW (Ft)	Northing (US ft)	Easting (US ft)	DLS %/100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)
195	11886.00	90.20	163.00	44.00	7079.47	5053.14	-4857.69	1393.38	349986.35	1644490.83	1.02	-16.90 (L)	-9.46 (D)
196	11931.00	92.00	165.10	45.00	7078.61	5098.13	-4900.94	1405.74	349943.10	1644503.19	6.15	-18.30 (L)	-8.60 (D)
197	11976.00	92.10	164.50	45.00	7077.00	5143.10	-4944.34	1417.53	349899.70	1644514.98	1.35	-19.14 (L)	-6.99 (D)
198	12020.00	92.00	165.20	44.00	7075.42	5187.07	-4986.78	1429.03	349857.26	1644526.48	1.61	-19.92 (L)	-5.42 (D)
199	12064.00	91.70	164.70	44.00	7074.00	5231.05	-5029.25	1440.45	349814.79	1644537.90	1.32	-20.62 (L)	-4.00 (D)
200	12109.00	91.50	164.60	45.00	7072.75	5276.03	-5072.63	1452.35	349771.41	1644549.80	0.50	-21.57 (L)	-2.74 (D)
201	12153.00	91.10	164.20	44.00	7071.75	5320.02	-5115.00	1464.18	349729.04	1644561.63	1.29	-22.70 (L)	-1.74 (D)
202	12198.00	89.60	166.60	45.00	7071.47	5365.01	-5158.54	1475.52	349685.50	1644572.97	6.29	-23.05 (L)	-1.46 (D)
203	12240.00	89.30	166.50	42.00	7071.88	5406.98	-5199.39	1485.29	349644.65	1644582.74	0.75	-22.55 (L)	-1.87 (D)
204	12285.00	88.70	167.20	45.00	7072.66	5451.95	-5243.20	1495.53	349600.84	1644592.98	2.05	-21.77 (L)	-2.65 (D)
205	12329.00	88.60	166.80	44.00	7073.70	5495.90	-5286.06	1505.42	349557.98	1644602.87	0.94	-20.90 (L)	-3.69 (D)
206	12373.00	88.00	166.90	44.00	7075.00	5539.85	-5328.89	1515.43	349515.15	1644612.88	1.38	-20.14 (L)	-5.00 (D)
207	12418.00	87.60	166.20	45.00	7076.73	5584.80	-5372.62	1525.89	349471.42	1644623.34	1.79	-19.59 (L)	-6.73 (D)
208	12459.00	89.80	167.70	41.00	7077.66	5625.75	-5412.55	1535.14	349431.49	1644632.59	6.49	-18.82 (L)	-7.65 (D)
209	12504.00	89.80	167.60	45.00	7077.82	5670.69	-5456.51	1544.77	349387.53	1644642.22	0.22	-17.42 (L)	-7.81 (D)
210	12549.00	89.80	168.40	45.00	7077.98	5715.62	-5500.52	1554.12	349343.52	1644651.57	1.78	-15.75 (L)	-7.97 (D)
211	12592.00	90.20	168.50	43.00	7077.98	5758.53	-5542.65	1562.73	349301.39	1644660.18	0.96	-13.81 (L)	-7.97 (D)
212	12636.00	90.10	168.60	44.00	7077.86	5802.43	-5585.77	1571.47	349258.27	1644668.92	0.32	-11.74 (L)	-7.85 (D)
213	12680.00	90.00	168.80	44.00	7077.82	5846.33	-5628.92	1580.09	349215.12	1644677.54	0.51	-9.56 (L)	-7.81 (D)
214	12725.00	90.60	169.50	45.00	7077.59	5891.19	-5673.12	1588.56	349170.92	1644686.01	2.05	-6.98 (L)	-7.58 (D)
215	12769.00	91.10	168.10	44.00	7076.93	5935.08	-5716.27	1597.10	349127.77	1644694.55	3.38	-4.72 (L)	-6.93 (D)
216	12814.00	90.50	168.10	45.00	7076.31	5980.00	-5760.30	1606.38	349083.74	1644703.83	1.33	-2.96 (L)	-6.30 (D)
217	12858.00	91.00	166.10	44.00	7075.73	6023.95	-5803.18	1616.20	349040.86	1644713.65	4.68	-2.00 (L)	-5.72 (D)
218	12902.00	91.10	165.90	44.00	7074.92	6067.93	-5845.87	1626.85	348998.17	1644724.30	0.51	-1.89 (L)	-4.92 (D)
219	12945.00	89.20	166.90	43.00	7074.81	6110.91	-5887.66	1636.96	348956.38	1644734.41	4.99	-1.49 (L)	-4.80 (D)
220	12987.00	89.00	166.60	42.00	7075.47	6152.88	-5928.54	1646.58	348915.50	1644744.03	0.86	-0.84 (L)	-5.46 (D)
221	13032.00	88.70	167.10	45.00	7076.37	6197.84	-5972.35	1656.82	348871.69	1644754.27	1.30	-0.06 (L)	-6.37 (D)
222	13074.00	88.80	167.70	42.00	7077.29	6239.79	-6013.33	1665.98	348830.71	1644763.43	1.45	1.07 (R)	-7.28 (D)
223	13118.00	89.40	166.00	44.00	7077.98	6283.75	-6056.17	1675.99	348787.87	1644773.44	4.10	1.83 (R)	-7.97 (D)
224	13163.00	89.50	165.60	45.00	7078.41	6328.74	-6099.79	1687.02	348744.25	1644784.47	0.92	1.78 (R)	-8.40 (D)
225	13205.00	89.20	165.40	42.00	7078.89	6370.74	-6140.45	1697.54	348703.59	1644794.99	0.86	1.51 (R)	-8.88 (D)
226	13247.00	89.10	165.10	42.00	7079.51	6412.73	-6181.06	1708.23	348662.98	1644805.68	0.75	1.06 (R)	-9.50 (D)
227	13291.00	90.20	167.80	44.00	7079.78	6456.70	-6223.83	1718.54	348620.21	1644815.99	6.63	1.52 (R)	-9.77 (D)
228	13336.00	90.10	169.70	45.00	7079.66	6501.59	-6267.96	1727.32	348576.08	1644824.77	4.23	3.79 (R)	-9.65 (D)
229	13380.00	90.00	171.80	44.00	7079.63	6545.35	-6311.39	1734.39	348532.65	1644831.84	4.78	7.58 (R)	-9.62 (D)
230	13425.00	89.60	172.40	45.00	7079.78	6589.98	-6355.96	1740.58	348488.08	1644838.03	1.60	12.51 (R)	-9.77 (D)
231	13469.00	89.20	169.70	44.00	7080.24	6633.70	-6399.42	1747.42	348444.62	1644844.87	6.20	16.45 (R)	-10.24 (D)
232	13513.00	88.40	168.10	44.00	7081.16	6677.58	-6442.59	1755.89	348401.45	1644853.34	4.06	18.76 (R)	-11.16 (D)
233	13558.00	88.30	168.70	45.00	7082.46	6722.47	-6486.65	1764.93	348357.39	1644862.38	1.35	20.77 (R)	-12.46 (D)
234	13602.00	90.20	166.80	44.00	7083.04	6766.40	-6529.64	1774.27	348314.40	1644871.72	6.11	22.18 (R)	-13.03 (D)
235	13647.00	92.40	166.20	45.00	7082.02	6811.36	-6573.38	1784.77	348270.66	1644882.22	5.07	22.68 (R)	-12.02 (D)

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#	Measured Depth (Ft)	INC Deg	AZM Deg	CL (Ft)	TVD (Ft)	VS (Ft)	NS (Ft)	EW (Ft)	Northing (US ft)	Easting (US ft)	DLS %/100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)
236	13691.00	92.40	166.20	44.00	7080.17	6855.31	-6616.07	1795.25	348227.97	1644892.70	0.00	22.94 (R)	-10.17 (D)
237	13736.00	92.60	165.70	45.00	7078.21	6900.26	-6659.69	1806.17	348184.35	1644903.62	1.20	23.01 (R)	-8.21 (D)
238	13780.00	92.40	165.80	44.00	7076.29	6944.21	-6702.29	1816.99	348141.75	1644914.44	0.51	22.92 (R)	-6.29 (D)
239	13824.00	90.90	166.70	44.00	7075.02	6988.17	-6745.01	1827.44	348099.03	1644924.89	3.98	23.22 (R)	-5.02 (D)
240	13868.00	90.80	166.70	44.00	7074.37	7032.14	-6787.83	1837.56	348056.21	1644935.01	0.23	23.87 (R)	-4.36 (D)
241	13913.00	90.40	166.30	45.00	7073.90	7077.12	-6831.58	1848.07	348012.46	1644945.52	1.26	24.37 (R)	-3.89 (D)
242	13957.00	89.50	165.50	44.00	7073.94	7121.11	-6874.25	1858.79	347969.79	1644956.24	2.74	24.40 (R)	-3.93 (D)
243	14002.00	89.30	165.10	45.00	7074.41	7166.11	-6917.78	1870.21	347926.26	1644967.66	0.99	23.96 (R)	-4.40 (D)
244	14089.00	90.50	166.00	87.00	7074.56	7253.09	-7002.02	1891.91	347842.02	1644989.36	1.72	23.48 (R)	-4.55 (D)
245	14133.00	90.30	165.90	44.00	7074.25	7297.08	-7044.71	1902.60	347799.33	1645000.05	0.51	23.55 (R)	-4.24 (D)
246	14175.00	90.20	165.50	42.00	7074.07	7339.08	-7085.40	1912.97	347758.64	1645010.42	0.98	23.44 (R)	-4.06 (D)
247	14220.00	90.80	166.10	45.00	7073.68	7384.07	-7129.03	1924.01	347715.01	1645021.46	1.89	23.39 (R)	-3.67 (D)
248	14265.00	90.90	167.30	45.00	7073.01	7429.04	-7172.81	1934.36	347671.23	1645031.81	2.68	24.05 (R)	-3.00 (D)
249	14309.00	90.90	167.70	44.00	7072.32	7472.98	-7215.77	1943.88	347628.27	1645041.33	0.91	25.32 (R)	-2.31 (D)
250	14354.00	90.40	167.30	45.00	7071.81	7517.92	-7259.70	1953.62	347584.34	1645051.07	1.42	26.60 (R)	-1.80 (D)
<b>Proj to Bit</b>													
251	14425.00	90.40	167.30	71.00	7071.31	7588.85	-7328.96	1969.23	347515.08	1645066.68	0.00	-	-

**GEODETTIC INFORMATION**

Latitude: 39°28'2.5000" N	Geodetic Zone: West Virginia North 4701
Dec. Latitude: 39.46736110	Geodetic Datum: NAD27
Longitude: -80°45'51.2000" W	Easting: 1643097.45
Dec. Longitude: -80.76422222	Northing: 354844.04
Geodetic Group: US State Plane 1927 (Exact solution)	Convergence: -0.81

**MAGNETICS INFORMATION**

Magnetic Model: C:\HawkEye\IGRF2010.MIF	Field Strength (nt): 52336
Date for Magnetics: 11/12/2014	B-X Component (nt): 20298
Latitude: 39°28'2.5000" N	B-Y Component (nt): -3045
Longitude: -80°45'51.2000" W	B-Z Component (nt): 48144
Magnetic Declination: -8.53	B-Horz Component (nt): 20525
Total Correction(Mag to Grid): -7.73	Dip Angle: 66.91

**TARGET DATA**

Name	Shape	Easting (Ft)	Northing (Ft)	Subsea (Ft)	TVD (Ft)	NS (Ft)	EW (Ft)	Side A (Ft)	Side B (Ft)	Diameter (Ft)
Grumpy 3 VSP=165.23 / 7464.24	POINT	1645054.1	356955.4	-1314.0	0.0	2111.3	1956.6	-	-	-
Grumpy 3 KOP Gyro	POINT	1642944.0	354828.9	-1314.0	0.0	-15.1	-153.4	-	-	-
Grumpy 3 PTL	POINT	1643521.4	353752.8	5756.0	7070.0	-1091.2	423.9	-	-	-
Grumpy 3 TD	POINT	1644999.9	347626.3	5756.0	7070.0	-7217.7	1902.5	-	-	-
Grumpy 3 TD#2	POINT	1645093.9	347523.0	5756.0	7070.0	-7321.0	1996.5	-	-	-

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LEASE LINE DATA

#	X Point (Ft)	Y Point (Ft)	Direction (Deg)	Quad	Deg	Min	Sec	Distance (Ft)	Easting (Ft)	Northing (Ft)	Latitude (Deg)	Longitude (Deg)
<b>Name: Lease Lines (Top)</b>												
0	465.0	153.9	246.43945111	3	66	26	22.0240	542.9	1643519.0	355109.2	39.46810543	-80.76274233
1	-32.7	-63.1	245.50020673	3	65	30	0.7442	216.5	1643021.4	354892.2	39.46749046	-80.76449407
2	-229.7	-152.9	238.34440844	3	58	20	39.8704	1723.4	1642824.3	354802.4	39.46723631	-80.76518750
3	-1696.8	-1057.4	336.96655095	4	23	2	0.4166	3109.7	1641357.3	353898.0	39.46469643	-80.77033798
4	-2913.5	1804.4	337.88322037	4	22	7	0.4067	3249.2	1640140.6	356759.7	39.47250551	-80.77479098
5	-4136.8	4814.5	43.05633290	1	43	3	22.7985	198.3	1638917.3	359769.9	39.48072136	-80.77927576
6	-4001.4	4959.4	88.51199044	1	88	30	43.1656	1047.5	1639052.6	359914.7	39.48112436	-80.77880357
7	-2954.3	4986.6	7.45355547	1	7	27	12.7997	707.1	1640099.7	359941.9	39.48123990	-80.77509566
8	-2862.6	5687.7	78.82304134	1	78	49	22.9488	1485.6	1640191.5	360643.1	39.48316832	-80.77480596
9	-1405.2	5975.7	162.19391611	2	17	48	21.9020	6122.0	1641648.8	360931.0	39.48401551	-80.76965755
10	466.8	147.0	344.72386561	4	15	16	34.0838	7.2	1643520.9	355102.3	39.46808650	-80.76273529
11	465.0	153.9	246.43945111	3	66	26	22.0240	0.0	1643519.0	355109.2	39.46810543	-80.76274233

#	X Point (Ft)	Y Point (Ft)	Direction (Deg)	Quad	Deg	Min	Sec	Distance (Ft)	Easting (Ft)	Northing (Ft)	Latitude (Deg)	Longitude (Deg)
<b>Name: Lease Lines (Bot)</b>												
0	-718.6	-5643.1	114.32849853	2	65	40	17.4053	1590.2	1642335.5	349312.3	39.45214545	-80.76664466
1	730.5	-6298.2	112.73848306	2	67	15	41.4610	266.0	1643784.5	348657.2	39.45040291	-80.76148112
2	975.8	-6401.0	95.63100928	2	84	22	8.3666	147.6	1644029.9	348554.3	39.45013007	-80.76060722
3	1122.7	-6415.5	178.64602971	2	1	21	14.2930	75.3	1644176.7	348539.9	39.45009597	-80.76008649
4	1124.5	-6490.8	135.64450507	2	44	21	19.7817	1174.9	1644178.5	348464.6	39.44988929	-80.76007645
5	1945.8	-7330.9	127.79207521	2	52	12	28.5292	2107.4	1644999.9	347624.5	39.44761465	-80.75712643
6	3611.2	-8622.3	356.23296571	4	3	46	1.3235	393.8	1646665.3	346333.0	39.44413310	-80.75116603
7	3585.4	-8229.4	358.42611118	4	1	34	25.9998	616.0	1646639.4	346726.0	39.44521077	-80.75127700
8	3568.4	-7613.6	5.04394343	1	5	2	38.1963	641.2	1646622.5	347341.8	39.44690067	-80.75136728
9	3624.8	-6974.9	342.86479019	4	17	8	6.7553	295.7	1646678.9	347980.4	39.44865616	-80.75119919
10	3537.7	-6692.4	342.74113747	4	17	15	31.9051	1910.4	1646591.7	348263.0	39.44942857	-80.75152160
11	2970.9	-4867.9	343.00497470	4	16	59	42.0911	1677.1	1646024.9	350087.4	39.45441546	-80.75361873
12	2480.7	-3264.1	342.73871814	4	17	15	40.6147	568.3	1645534.7	351691.3	39.45879975	-80.75543394
13	2312.0	-2721.4	342.93749973	4	17	3	45.0010	2051.3	1645366.1	352234.0	39.46028314	-80.75605799
14	1710.2	-760.3	343.04276228	4	16	57	26.0558	1100.8	1644764.2	354195.0	39.46564363	-80.75828679
15	1389.1	292.6	252.72607524	3	72	43	33.8709	505.7	1644443.2	355248.0	39.46852192	-80.75947615
16	906.2	142.5	256.18063348	3	76	10	50.2805	903.5	1643960.3	355097.8	39.46809112	-80.76117885
17	28.9	-73.3	252.89602589	3	72	53	45.6932	270.7	1643083.0	354882.0	39.46746484	-80.76427529
18	-229.7	-152.9	238.34440844	3	58	20	39.8704	1723.4	1642824.3	354802.4	39.46723631	-80.76518750
19	-1696.8	-1057.4	177.87760360	2	2	7	20.6270	1109.2	1641357.3	353898.0	39.46469643	-80.77033798
20	-1655.7	-2165.9	206.32091618	3	26	19	15.2982	84.0	1641398.4	352789.5	39.46165494	-80.77013698
21	-1692.9	-2241.1	145.62914155	2	34	22	15.0904	493.2	1641361.2	352714.2	39.46144688	-80.77026506
22	-1414.5	-2648.3	190.10091841	3	10	6	3.3063	341.8	1641639.6	352307.1	39.46034006	-80.76925858
23	-1474.4	-2984.7	164.35046945	2	15	38	58.3100	1336.2	1641579.7	351970.6	39.45941403	-80.76945401
24	-1114.0	-4271.3	163.92058203	2	16	4	45.9047	1427.6	1641940.1	350684.0	39.45589587	-80.76811329
25	-718.6	-5643.1	114.32849853	2	65	40	17.4053	0.0	1642335.5	349312.3	39.45214545	-80.76664466

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# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	3/1/2015
Job End Date:	3/12/2015
State:	West Virginia
County:	Tyler
API Number:	47-095-02160-00-00
Operator Name:	Jay-Bee Oil & Gas, Inc.
Well Name and Number:	GRUMPY 3
Longitude:	-80.76422000
Latitude:	39.46736000
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	7,075
Total Base Water Volume (gal):	9,542,316
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	Operator	Carrier	Water	7732-18-5	100.00000	92.16108	
Sand, White, 100 mesh	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		3.14981	
Sand, White, 30/50	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		3.12739	
Sand, White, 20/40	Baker Hughes	Proppant	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.78476	
HCl, 10.1 - 15%	Baker Hughes	Acidizing	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.54734	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.06503	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.03505	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor	MSDS and Non-MSDS Ingredients Listed Below	N/A		0.02591	SmartCare Product

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Alpha 1427	Baker Hughes	Biocide					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.02268	SmartCare Product
Enzyme G-NE	Baker Hughes	Breaker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.01808	SmartCare Product
Ferrotrol 300L	Baker Hughes	Iron Control					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00376	SmartCare Product
Calcium Chloride	Baker Hughes	Salts					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00348	
InFlo 251G	Baker Hughes	Surfactant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00258	
CI-14	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00113	SmartCare Product
CI-39	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00077	
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.							
Ingredients in Additive (s) (MSDS and non- MSDS)	Baker Hughes	See Trade Name(s) List					
			Crystalline Silica (Quartz)	14808-60-7	100.00000	7.05805	
			Water	7732-18-5	95.00000	0.53871	
			Hydrochloric Acid	7647-01-0	15.00000	0.08207	
			Mineral Oil	8042-47-5	70.00000	0.02452	
			Guar Gum	9000-30-0	60.00000	0.02102	
			Poly (acrylamide-co-acrylic acid) partial sodium salt	62649-23-4	30.00000	0.01950	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.01950	
			Ethylene Glycol	107-21-1	45.00000	0.01165	
			Petroleum Distillates	64742-47-8	30.00000	0.01051	
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.01051	
			Glutaraldehyde	111-30-8	30.00000	0.00680	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9	20.00000	0.00518	
			Calcium Chloride	10043-52-4	100.00000	0.00477	
			Sodium Chloride	7647-14-5	5.00000	0.00368	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00227	
			Citric Acid	77-92-9	60.00000	0.00226	
			Ammonium Chloride	12125-02-9	3.00000	0.00195	
			1-butoxy-2-propanol	5131-66-8	5.00000	0.00175	
			Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00175	
			Crystalline Silica: Quartz	14808-60-7	5.00000	0.00175	
			Ethanol	64-17-5	10.00000	0.00139	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00130	

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		Oleamide DEA	93-83-4	2.00000	0.00130
		Quaternary Ammonium Compound	68424-85-1	5.00000	0.00117
		Methanol	67-56-1	100.00000	0.00113
		Hemicellulase Enzyme Concentrate	9025-56-3	5.00000	0.00090
		Potassium Chloride	7447-40-7	5.00000	0.00043
		Polyoxyalkylenes	68951-67-7	30.00000	0.00034
		Sorbitan Monooleate	1338-43-8	0.50000	0.00033
		Polyoxyethylene Sorbitan Monooleate	9005-65-6	0.50000	0.00033
		Oxyalkylated Fatty Acid	61791-002	40.00000	0.00031
		Aldehyde	104-55-2	30.00000	0.00023
		Formic Acid	64-18-6	30.00000	0.00023
		Tar Bases, Quinoline Derivs., Benzyl Chloride-Quaternized	72480-70-7	30.00000	0.00023
		Alcohols, ethoxylated	68551-12-2	8.00000	0.00021
		Alcohols, C6-12, ethoxylated propoxylated	68937-66-6	7.00000	0.00018
		Alcohols, C10-16, ethoxylated propoxylated	69227-22-1	7.00000	0.00018
		Fatty Acids	61790-12-3	10.00000	0.00011
		Amines, unsatd, alkyl, ethoxylated	68155-39-5	4.00000	0.00010
		Modified Thiourea Polymer	68527-49-1	7.00000	0.00008
		Propargyl Alcohol	107-19-7	5.00000	0.00006
		Olefin	64743-02-8	5.00000	0.00006
		Isopropanol	67-63-0	5.00000	0.00004
		Sulfurized polyolefin	68037-13-8	5.00000	0.00004
		2-butoxy-1-propanol	15821-83-7	0.10000	0.00004
		Potassium Iodide	7681-11-0	2.00000	0.00002
		Formaldehyde	50-00-0	1.00000	0.00001
		Polyaklylene	7756-94-7	1.00000	0.00001
		Potassium Acetate	127-08-2	0.50000	0.00000

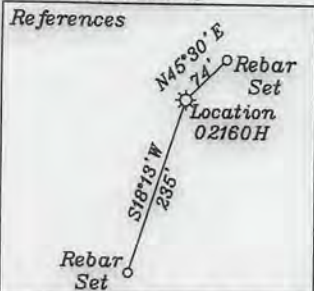
\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* 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)

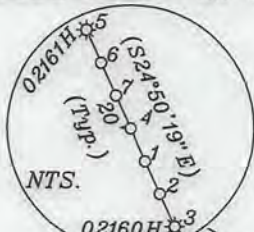
**RECEIVED**  
 Office of Oil and Gas  
 OCT 07 2015  
 WV Department of  
 Environmental Protection



LATITUDE 39-30-00 N (TH)  
 LATITUDE 39-27-30 N (BH)

Bottom Hole 1,893'

Note: No water wells were found within 250' of the location. No dwellings or agricultural buildings were found within 625' of the center of the well pad.

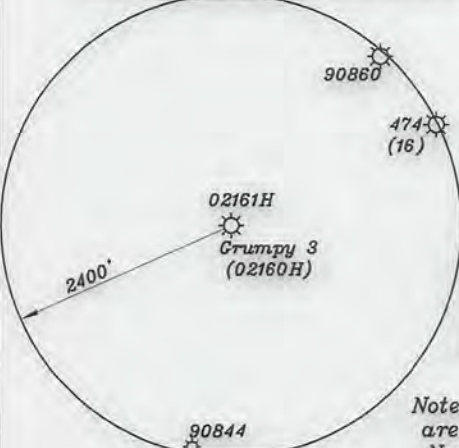


- A- Samson TM 6/19 42 Ac. Ls. T1-18
- B- Samson TM 6/20 85 Ac. Ls. T3039
- C- Westbrook TM 6/28 22.98 Ac.
- D- Kile Family Trust TM 6/27 80 Ac.
- E- Ayers TM 6/21 64.22 Ac. Ls. T3045A
- F- Westbrook 6/26 48.45 Ac.
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- H- Titus TM 6/25.3 4.83 Ac. Ls. T3045B
- I- Simons & Weedon TM 6/25 82.85 Ac. Ls. T3045B
- J- Roller TM 6/22 88 Ac. Ls. T1-09
- K- Reali et al TM 6/23 58.25 Ac. Ls. T3047
- L- Headley TM 11/8 91.511 Ac. Ls. T3049
- M- Yeater TM 6/25.1 1.1 Ac.
- N- Stafford TM 6/26.2 1.331 Ac.
- O- Ayers TM 6/26.1 0.22 Ac.

Note: Lease numbers are in red.

<b>Top Hole</b>
Geo NAD 83- 39.467455 N, 80.764043 W
UTM NAD 83 (Meters)- 4368679.2 N, 520296.8 E
UTM NAD 83 (Feet)- 14332908.4 N, 1707007.0 E
<b>LPI</b>
Geo NAD 83- 39.465387 N, 80.762892 W
UTM NAD 83 (Meters)- 4368450.0 N, 520396.4 E
UTM NAD 83 (Feet)- 14332156.3 N, 1707334.0 E
<b>Bottom Hole</b>
Geo NAD 83- 39.447411 N, 80.756706 W
UTM NAD 83 (Meters)- 4366456.4 N, 520934.0 E
UTM NAD 83 (Feet)- 14325615.8 N, 1709097.6 E

NORTH



Note: All wells within 500' of the horizontal leg are shown on this plat based upon information taken from DEP mapping, well plats & aerial photos.

NUMBER	DIRECTION	DISTANCE
L1	S22°32'E	820'
L2	N24°56'E	3,819'
L3	N81°09'W	1,863'

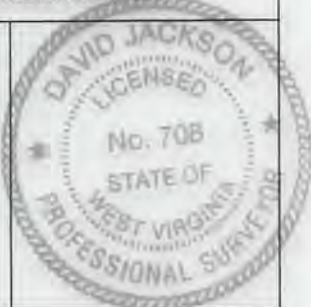
Notes: Ties to wells and corners are based on State Plane Grid North-WV North Zone NAD 83.

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

FILE NO. \_\_\_\_\_  
 DRAWING NO. 1  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY 1 in 200  
 PROVEN SOURCE OF ELEVATION GPS  
submeter unit

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 DEPARTMENT OF ENERGY.

(SIGNED) David L Jackson  
 R.P.E. \_\_\_\_\_ L.L.S. 708



STATE OF WEST VIRGINIA  
 Division of Environmental Protection  
 OFFICE OF OIL AND GAS

DATE February 5, 2016  
 OPERATOR'S WELL NO. Grumpy 3  
 API WELL NO. AsDrilled

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL \_\_\_\_\_  
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X PERMIT \_\_\_\_\_  
 LOCATION: ELEVATION 1297.2' WATER SHED Elder Run & Woodburn Run  
 DISTRICT McElroy COUNTY Tyler

QUADRANGLE Shirley 7 1/2'  
 SURFACE OWNER Diana Woodburn Samson ACREAGE 42.00 ac.  
 OIL & GAS ROYALTY OWNER Diana Woodburn Samson LEASE ACREAGE 42.00 ac.

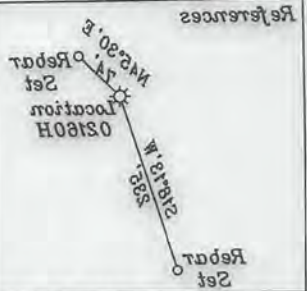
06/17/2016

LEASE NO. & ACREAGE: "See ownership list above for lease numbers"

PROPOSED WORK: DRILL X CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AsDrilled

PLUG AND ABANDON \_\_\_\_\_ CLEAN OUT AND REPLUG \_\_\_\_\_  
 TARGET FORMATION Marcellus ESTIMATED DEPTH TVD=7,083' TMD=14,425'  
 WELL OPERATOR Jay-Bee Oil & Gas, Inc. DESIGNATED AGENT Randy Broda  
 ADDRESS 1720 Rt. 22, East Union, NJ 07083 ADDRESS 3570 Shields Hill Rd., Cairo, WV 26337

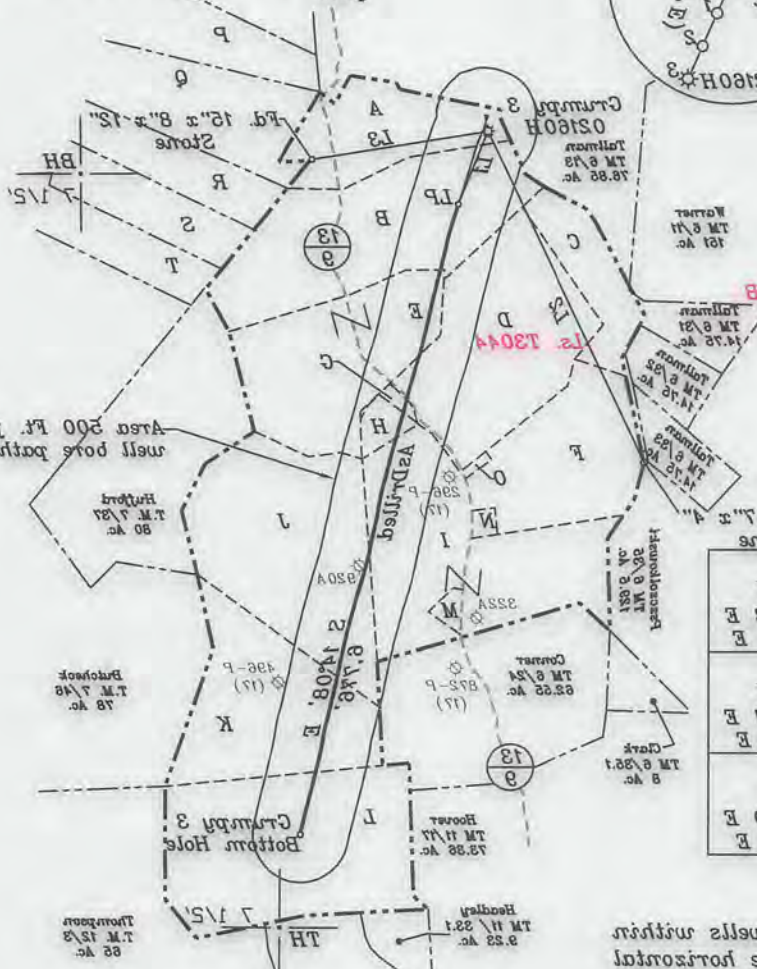
LONGITUDE 80-45-00 N  
 Top Hole 11,855'  
 Bottom Hole 3,978'



LATITUDE 39-27-30 N (BH)  
LATITUDE 39-30-00 N (TH)

Bottom Hole 1,883'  
Top Hole 3,963'

Note: No water wells were found within 250' of the location. No dwellings or agricultural buildings were found within 625' of the center of the well pad.



- 0- Ayers TM 6/28.1.0.22 Ac.
- 1- Stafford TM 6/28.2.1.31 Ac.
- M- Yeater TM 6/25.1.1.1 Ac.
- L- Headley TM 11/8.91.511 Ac. La. 13049
- K- Reali et al TM 6/23.58.25 Ac. La. 13047
- J- Roller TM 6/23.88 Ac. La. 11-09
- I- Simons & Westover TM 6/25.82.85 Ac. La. 13045B
- H- Tiras TM 6/25.3.4.83 Ac. La. 13045B
- C- Tiras TM 6/25.2.1.08 Ac. La. 13045B
- F- Westbrook 6/28.48.45 Ac.
- E- Ayers TM 6/21.64.22 Ac. La. 13045A
- D- Kite Family Trust TM 6/27.80 Ac.
- B- Westbrook TM 6/28.22.38 Ac.
- A- Samson TM 6/20.85 Ac. La. 13038
- A- Samson TM 6/19.42 Ac. La. 11-18

Note: Lease numbers are in red.

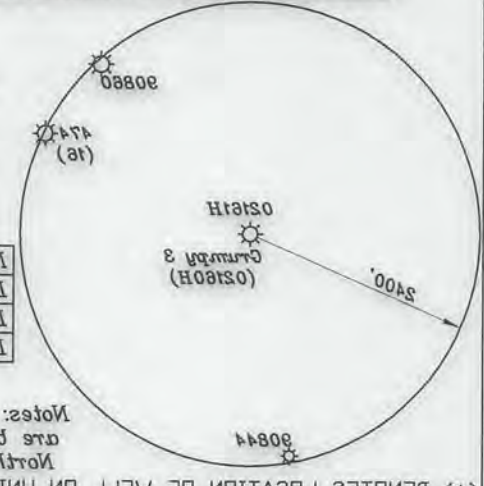
Top Hole Geo NAD 83 - 39.467455 N, 80.764043 W UTM NAD 83 (Meters) - 4368879.2 N, 520398.8 E UTM NAD 83 (Feet) - 14332908.4 N, 1707007.0 E
LPI Geo NAD 83 - 39.465387 N, 80.762892 W UTM NAD 83 (Meters) - 4368450.0 N, 520398.4 E UTM NAD 83 (Feet) - 1433256.3 N, 1707334.0 E
Bottom Hole Geo NAD 83 - 39.447411 N, 80.752706 W UTM NAD 83 (Meters) - 4366458.4 N, 520934.0 E UTM NAD 83 (Feet) - 14325615.8 N, 1709097.6 E

Note: All wells within 500' of the horizontal leg are shown on this plat based upon information taken from DEP mapping, well plats & aerial photos.

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Note: Ties to wells and corners are based on State Plane Grid North-WV North Zone NAD 83

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



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(SIGNED) David Jackson  
L.L.S. 708 R.P.E.



FILE NO.	
DRAWING NO.	1
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	1 in 200
PROVEN SOURCE OF ELEVATION	GPS
submeter unit	

STATE OF WEST VIRGINIA  
Division of Environmental Protection  
OFFICE OF OIL AND GAS

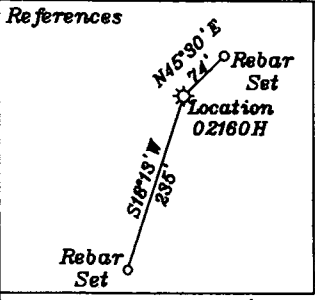
WELL TYPE: OIL GAS  LIQUID INJECTION WASTE DISPOSAL \_\_\_\_\_  
(IF GAS) PRODUCTION  STORAGE  DEEP  SHALLOW \_\_\_\_\_  
LOCATION: ELEVATION 1297.5' WATER SHED Elder Run & Woodburn Run  
DISTRICT McElroy  
QUADRANGLE Shiner 7 1/2'  
SURFACE OWNER Diana Woodburn Samson  
OIL & GAS ROYALTY OWNER Diana Woodburn Samson  
ACREAGE 42.00 ac.  
LEASE ACREAGE 42.00 ac.

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) As Drilled  
PLUG AND ABANDON  CLEAN OUT AND REPLUG \_\_\_\_\_  
TARGET FORMATION Marcellus ESTIMATED DEPTH TVD=7,083', TMD=14,425'  
WELL OPERATOR Jay-Bee Oil & Gas, Inc. DESIGNATED AGENT Randy Broda  
ADDRESS 2570 Shields Hill Rd., Carro, WV 26337 ADDRESS 2570 Shields Hill Rd., Carro, WV 26337

LEASE NO. & ACREAGE: "See ownership list above for lease numbers"

DATE February 5, 2016  
OPERATOR'S WELL NO. Group 3  
API WELL NO. As Drilled  
STATE COUNTY 47 - 095 - 2160H PERMIT

06/17/2016



LATITUDE 39-30-00 N (TH)  
LATITUDE 39-27-30 N (BH)

Bottom Hole 1,893'

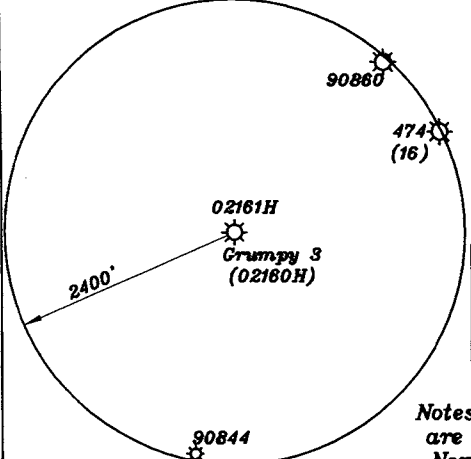
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- H- Titus TM 6/25.3 4.83 Ac. Ls. T3045B
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- K- Reali et al TM 6/23 58.25 Ac. Ls. T3047
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UTM NAD 83 (Feet)- 1432908.4 N, 1707007.0 E
<b>LP1</b>
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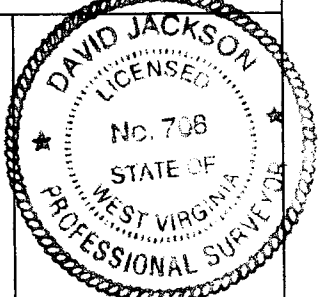
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MINIMUM DEGREE OF ACCURACY 1 in 200  
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submeter unit

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(SIGNED) David Jackson  
R.P.E. \_\_\_\_\_ L.L.S. 708



STATE OF WEST VIRGINIA  
Division of Environmental Protection  
OFFICE OF OIL AND GAS

DATE February 5, 2016  
OPERATOR'S WELL NO. Grumpy 3  
API WELL NO. AsDrilled

WELL TYPE: OIL GAS LIQUID INJECTION X WASTE DISPOSAL \_\_\_\_\_  
(IF 'GAS') PRODUCTION X STORAGE \_\_\_\_\_ DEEP \_\_\_\_\_ SHALLOW X

LOCATION: ELEVATION 1297.2' WATER SHED Elder Run & Woodburn Run  
DISTRICT McElroy COUNTY Tyler  
QUADRANGLE Shirley 7 1/2'

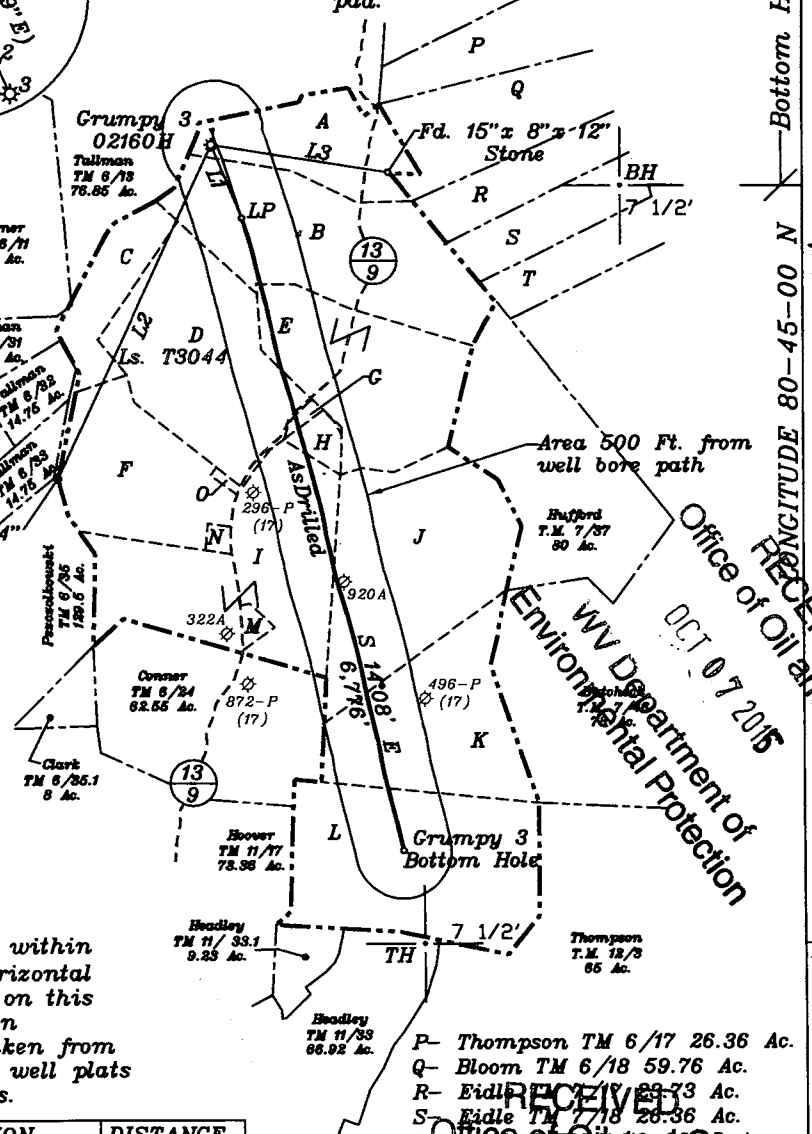
SURFACE OWNER Diana Woodburn Samson ACREAGE 42.00 ac.  
OIL & GAS ROYALTY OWNER Diana Woodburn Samson LEASE ACREAGE 42.00 ac.

06/17/2016

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PROPOSED WORK: DRILL X CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) AsDrilled

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TARGET FORMATION Marcellus ESTIMATED DEPTH TVD=7,083' TMD=14,425'  
WELL OPERATOR Jay-Bee Oil & Gas, Inc. DESIGNATED AGENT Randy Broda  
ADDRESS 1720 Rt. 22, East Union, NJ 07083 ADDRESS 3570 Shields Hill Rd., Cairo, WV 26337



Bottom Hole 3,978'

Latitude 80-45-00 N

Top Hole 11,855'

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