

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

RECEIVED  
Office of Oil and Gas

MAR 04 2019

API 47 - 095 - 02228 County Tyler District McElroy WV Department of Environmental Protection  
Quad Shirley Pad Name Happy Field/Pool Name Happy  
Farm name Bloom, Arthur & Lois Well Number Happy 4  
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 4368952.13 Easting 521440.65  
Landing Point of Curve Northing 4368861.26 Easting 521886.37  
Bottom Hole Northing 4367307.03 Easting 522354.93

Elevation (ft) 1253.5 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 OBM

Date permit issued 06/23/2015 Date drilling commenced 09/8/2016 Date drilling ceased 4/12/17  
Date completion activities began 5/20/17 Date completion activities ceased 7/23/17  
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 60-90' 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

Reviewed by: [Signature]  
3/14/2019

WR-35  
Rev. 8/23/13

API 47-095 - 02228 Farm name Bloom, Arthur & Lois Well number Happy 4

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	J55-40		Y
Surface	15"	11 3/4"	482' <i>Set 5/11/19</i>	New	J55-32	50'	Y
Coal							
Intermediate 1	11"	8 5/8"	2450'	New	J55-24	1500'	Y
Intermediate 2							
Intermediate 3							
Production	7 7/8"	5 1/2"	13709'	New	P110-17		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	356	15.6	1.21	431	CTS	8
Coal							
Intermediate 1	Class A	706	15.2	1.27	897	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	1979	14.5	1.17	2315	CTS	8
Tubing							

Drillers TD (ft) 13715' Loggers TD (ft) 13715'  
 Deepest formation penetrated Marcellus Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 6358

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 \_\_\_\_\_

API 47- 095 - 02228

Farm name Bloom, Arthur & LoisWell number Happy 4

## PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	5/27/17	13664	13529	48	Marcellus
2	5/28/17	13499	13296	84	Marcellus
3	5/28/17	13261	13112	84	Marcellus
4	5/28/17	13077	12906	84	Marcellus
5	5/29/17	12871	12713	84	Marcellus
6	5/29/17	12678	12516	84	Marcellus
7	5/29/17	12481	12294	84	Marcellus
8	5/30/17	12259	12114	84	Marcellus
9	5/30/17	12079	11928	84	Marcellus
10	5/30/17	11893	11738	84	Marcellus
11	5/31/17	11703	11515	84	Marcellus
12	5/31/17	11480	11341	84	Marcellus
13	5/31/17	11306	11133	84	Marcellus
14	5/31/17	11098	10943	84	Marcellus
15	6/1/17	10896	10716	84	Marcellus
16	6/1/17	10661	10517	84	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	5/27/17	72	7584	8327	4915	173000	5982	N/A
2	5/28/17	80	7433	7391	5202	182100	6446	N/A
3	5/28/17	80	7397	7380	4695	180400	6130	N/A
4	5/28/17	80	7322	6057	4736	186800	6722	N/A
5	5/29/17	81	6945	7566	4828	191200	6661	N/A
6	5/29/17	81	7154	7195	5513	176300	5752	N/A
7	5/29/17	80	7110	8221	4952	179200	6251	N/A
8	5/30/17	80	6971	7243	5020	181800	5977	N/A
9	5/30/17	81	7091	7002	4768	180200	5933	N/A
10	5/30/17	80	6762	6780	4946	175800	5488	N/A
11	5/31/17	80	6613	6826	4812	183300	6326	N/A
12	5/31/17	81	6764	7138	4788	182600	6338	N/A
13	5/31/17	80	6660	6443	4883	178900	5924	N/A
14	5/31/17	80.2	6333	6488	4997	174100	5986	N/A
15	6/1/17	80	6308	7110	4518	181000	6280	N/A
16	6/1/17	80	6647	7144	4937	187800	6398	N/A

Please insert additional pages as applicable.

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Farm name Bloom, Arthur &amp; Lois

Well number Happy 4

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Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	6/1/17	10479	10314	84	Marcellus
18	6/2/17	10275	10112	84	Marcellus
19	6/2/17	10070	9910	84	Marcellus
20	6/2/17	9859	9722	84	Marcellus
21	6/3/17	9680	9512	84	Marcellus
22	6/3/17	9476	9304	84	Marcellus
23	6/4/17	9269	9129	72	Marcellus
24	6/4/17	9089	8924	84	Marcellus
25	6/4/17	8882	8723	84	Marcellus
26	6/4/17	8688	8519	84	Marcellus
27	6/5/17	8455	8322	84	Marcellus
28	6/5/17	8256	8108	84	Marcellus
29	6/5/17	8059	7908	84	Marcellus
30	6/6/17	7860	7730	84	Marcellus
31	6/6/17	7692	7484	84	Marcellus
32					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	6/1/17	80	6450	6495	4896	176200	6123	N/A
18	6/2/17	79	6878	7605	4601	178800	6019	N/A
19	6/2/17	80	6311	6934	4772	183400	6344	N/A
20	6/2/17	79	6390	7089	4885	187200	6204	N/A
21	6/3/17	78	6458	6986	5080	179800	6690	N/A
22	6/3/17	81	6683	7874	5364	181600	5940	N/A
23	6/4/17	81	6517	7312	4743	177100	6028	N/A
24	6/4/17	81	6926	8565	5119	178100	5907	N/A
25	6/4/17	81	6618	7217	4507	178100	5661	N/A
26	6/4/17	80	6546	6699	4672	181100	5772	N/A
27	6/5/17	80	7151	8256	4882	182300	8783	N/A
28	6/5/17	79	7034	7507	4011	181500	4625	N/A
29	6/5/17	80	6385	6620	4365	179500	4064	N/A
30	6/6/17	80	6747	5730	4176	179200	4002	N/A
31	6/6/17	81	6148	5032	3611	182700	4534	N/A
								N/A

Please insert additional pages as applicable.



**Lithology**

Happy 4

47-095-02228

<b>FORMATION</b>	<b>TOP</b>	<b>BOTTOM</b>
MISC. RED ROCK & SHALES	0	2349
LIME	2349	2449
INJUN	2449	2566
SHALE	2566	2913
GORDON STRAY	2913	2933
SHALE	2933	3129
GORDON	3129	3159
SHALE	3159	3438
BAYARD	3438	3447
SHALE	3447	3776
WARREN	3776	3874
SHALE	3874	4110
BALLTOWN	4110	4273
SHALE	4273	4711
2ND RILEY	4711	4819
SHALE	4819	4970
3RD RILEY	4970	5011
SHALE	5011	5068
BENSON	5068	5071
SHALE	5071	5313
ALEXANDER	5313	5484
SHALE	5484	5729
ELK	5729	5777
SHALE	5777	6141
HAMILTON	6141	6315
SHALE	6315	6971
UPPER MARCELLUS	6971	6977
PARCELL LIME	6977	7012
SHALE	7012	7066
LOWER MARCELLUS	7066	

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	5/27/2017
Job End Date:	6/6/2017
State:	West Virginia
County:	Tyler
API Number:	47-095-02228-00-00
Operator Name:	Jay-Bee Oil & Gas, Inc.
Well Name and Number:	HAPPY 4
Latitude:	39.46980800
Longitude:	-80.75091100
Datum:	NAD83
Federal Well:	NO
Indian Well:	NO
True Vertical Depth:	7,052
Total Base Water Volume (gal):	8,094,744
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	Company 1	Carrier/Base Fluid	Water	7732-18-5	100.00000	91.85144	None
Sand (Proppant)	Producers Service Corp	Proppant	Silica Substrate	14808-60-7	100.00000	7.61605	None
15% IC Acid	Producers Service Corp	Acidizing	Hydrochloric Acid	7647-01-0	15.00000	0.06115	None
SUPERSLIK	Producers Service Corp	Friction Reducer	Distillates	64742-47-8	18.00000	0.01077	None
SCALECLEAR 112	Producers Service Corp	Scale Inhibitor	Ethylene Glycol	107-21-1	40.00000	0.00987	None
MB-7530	Producers Service Corp	Biocide	Tetrahydro-3, 5-dimethyl-2H-1,3,5-thiadiazine-2-thione	533-74-4	24.00000	0.00601	None
			Sodium Hydroxide	1310-73-2	4.00000	0.00100	None
STIMLUBE F	Producers Service Corp	Friction Reducer					

			Petroleum Distillates	54742-47-8	30.00000	0.00283	None
			Alcohols, ethoxylated	68002-97-1	3.10000	0.00029	None
			Alcohols, ethoxylated	68439-50-9	3.10000	0.00029	None
			Alcohols, ethoxylated	68551-12-2	3.10000	0.00029	None
PRO GEL 4.0L	Producers Service Corp	Gel					
			Guar Gum Blend	9000-30-0	100.00000	0.00303	None
BIOCLEAR 1430	Producers Service Corp	Biocide					
			Glutaraldehyde	111-30-8	20.00000	0.00056	None
			Alkyl dimethyl benzyl ammonium chloride	68424-85-1	5.00000	0.00014	None
			Dimethylamine	68439-70-3	0.50000	0.00001	None
PRO BREAK 4	Producers Service Corp	Gel Breaker					
			Surcose	57-50-1	46.00000	0.00001	None
			Ethylene Glycol	107-21-1	14.00000	0.00000	None
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Other Chemical(s)	Listed Above	See Trade Name(s) List					
			Sodium Hydroxide	1310-73-2	4.00000	0.00100	
			Alcohols, ethoxylated	68551-12-2	3.10000	0.00029	
			Alcohols, ethoxylated	68439-50-9	3.10000	0.00029	
			Alcohols, ethoxylated	68002-97-1	3.10000	0.00029	
			Alkyl dimethyl benzyl ammonium chloride	68424-85-1	5.00000	0.00014	
			Dimethylamine	68439-70-3	0.50000	0.00001	
			Ethylene Glycol	107-21-1	14.00000	0.00000	

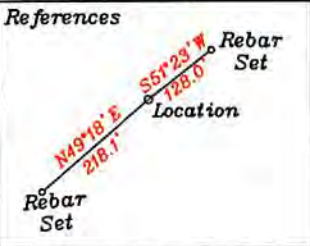
\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* 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)

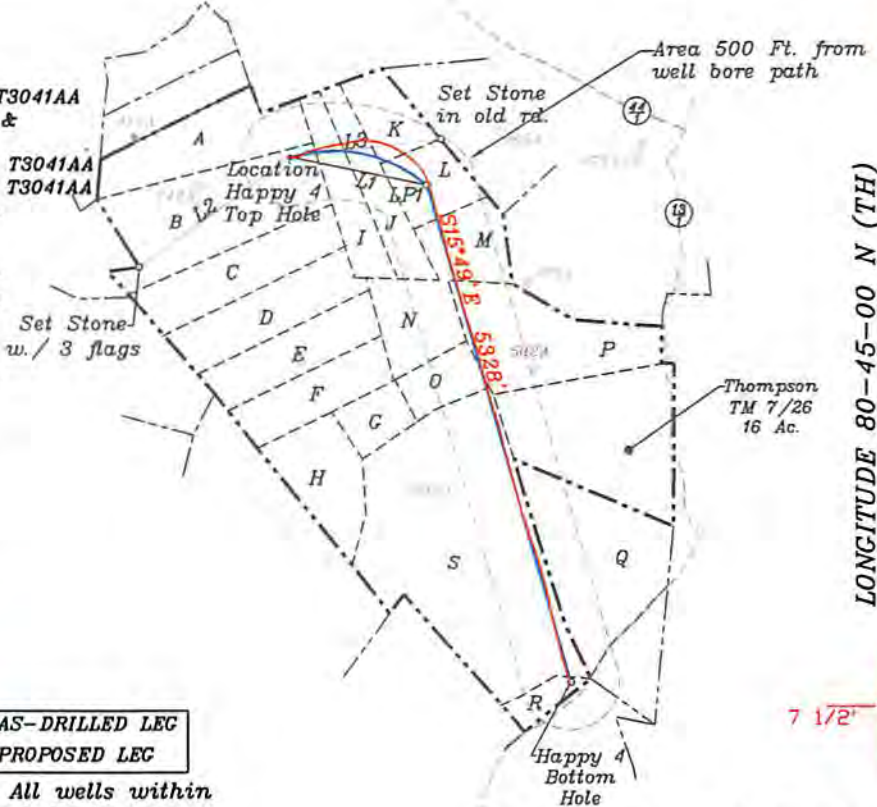




Bottom Hole 8,988'  
 LATITUDE 39-30-00 N (TH)  
 LATITUDE 39-27-30 N (BH)

05/03/2019

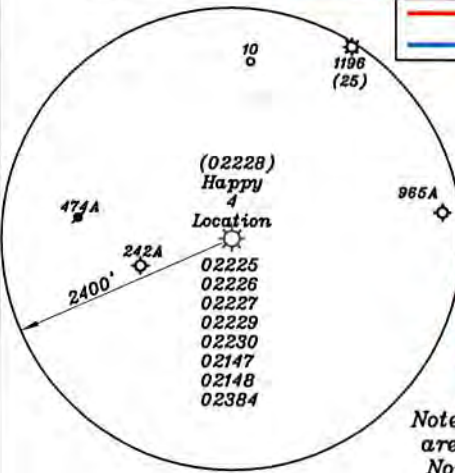
- A- Eidle TM 6/17 26.36 Ac.
- B- Bloom TM 6/18 59.76 Ac. Ls. T3042A1
- C- Eidle TM 7/17 23.73 Ac.
- D- Bessinger TM 7/18 26.36 Ac.
- E- Hufford TM 7/19 22.85 Ac.
- F- Hufford TM 7/20 20.21 Ac.
- G- Hufford TM 7/22 10 Ac.
- H- Hufford TM 7/21 20 Ac.
- I- R. Thompson TM 7/2 17.5 Ac. Ls. T3040 & T3041AA
- J- R. R. Thompson TM 7/3 17.5 Ac. Ls. T3040 & T3041AA
- K- R. Thompson TM 7/4 11.66 Ac. Ls. T3040 & T3041AA
- L- R. Thompson TM 7/5 11.66 Ac. Ls. T3040 & T3041AA
- M- R. Thompson TM 7/6 11.66 Ac. Ls. T3040 & T3041AB
- N- Thompson TM 7/23 15.34 Ac.
- O- Hufford & Crew TM 7/24 10 Ac. Ls. T3039C
- P- R. Thompson TM 7/25 31.75 Ac. Ls. T3038A
- Q- Griffin p/o TM 7/38 37.307 Ac.
- R- O'Neil TM 7/38.2 5.03 Ac. Ls. T1-04B
- S- Griffin p/o TM 7/38 106.47 Ac. Ls. T1-04A



LONGITUDE 80-45-00 N (TH)  
LONGITUDE 80-42-30 N (BH)

Proposed	
Top Hole	UTM NAD 83(Meters)- 4368952.4 N, 521440.7 E
Landing Point	UTM NAD 83(Meters)- 4368871.5 N, 521876.3 E
Bottom Hole	UTM NAD 83(Meters)- 4367309.8 N, 522358.7 E
AsDrilled	
Top Hole	UTM NAD 83(Meters)- 4368952.13 N, 521440.85 E
Landing Point	UTM NAD 83(Meters)- 4368861.26 N, 521886.37 E
Bottom Hole	UTM NAD 83(Meters)- 4367307.03 N, 522354.93 E

NORTH



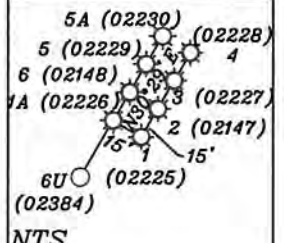
NUMBER	DIRECTION	DISTANCE
L1	S77°31'E	1493'
L2	N54°09'E	1947'
L3	S83°07'W	1579'

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.

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.

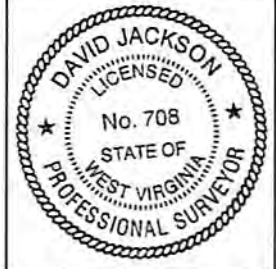
Notes: Ties to wells and corners are based on State Plane Grid North-WV North Zone NAD 27.

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



FILE NO. \_\_\_\_\_  
 DRAWING NO. 1  
 SCALE 1" = 2000'  
 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 December 27, 2017  
 OPERATOR'S WELL NO. Happy 4  
 API WELL NO. AsDrilled

WELL TYPE: OIL X LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_ 47 \_\_\_\_\_ 095 \_\_\_\_\_ 02228  
 (IF 'GAS') PRODUCTION \_\_\_\_\_ STORAGE \_\_\_\_\_ DEEP \_\_\_\_\_ SHALLOW X STATE COUNTY PERMIT

LOCATION: ELEVATION 1256.4' WATER SHED Walnut Fork & Woodburn Run  
 DISTRICT McElroy COUNTY Tyler  
 QUADRANGLE TH Shirley 7 1/2', BH Center Point 7 1/2'

SURFACE OWNER Arthur & Lois Bloom ACREAGE 59.76 ac.  
 OIL & GAS ROYALTY OWNER John Lambert Ice LEASE ACREAGE 282.99 ac.

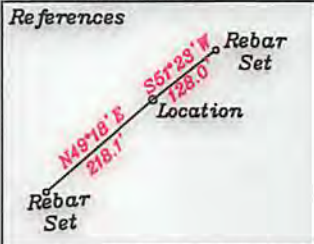
LEASE NO. & ACREAGE: "See ownership list above for lease numbers"

PROPOSED WORK: DRILL \_\_\_\_\_ CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR STIMULATE \_\_\_\_\_ 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=7,088' - TMD=13,715'

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

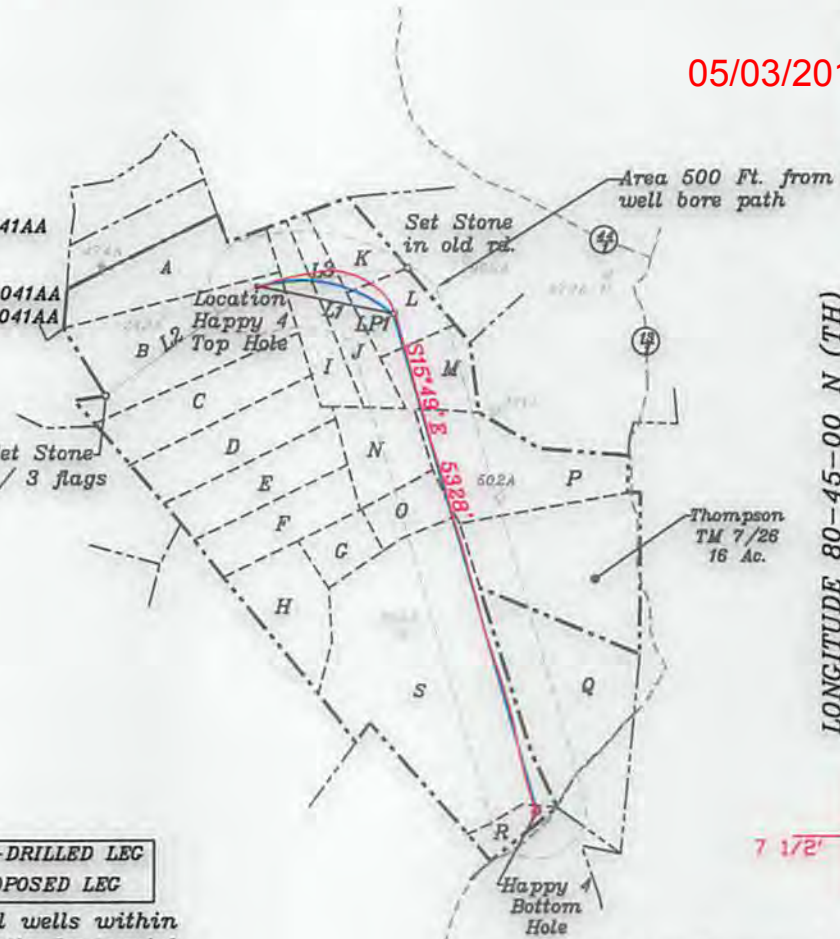


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 LATITUDE 39-30-00 N (TH)  
 LATITUDE 39-27-30 N (BH)



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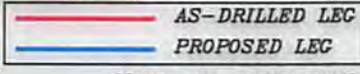


LONGITUDE 80-45-00 N (TH)  
 LONGITUDE 80-42-30 N (BH)

Bottom Hole 1,200'  
 Top Hole 10,992'

Proposed	
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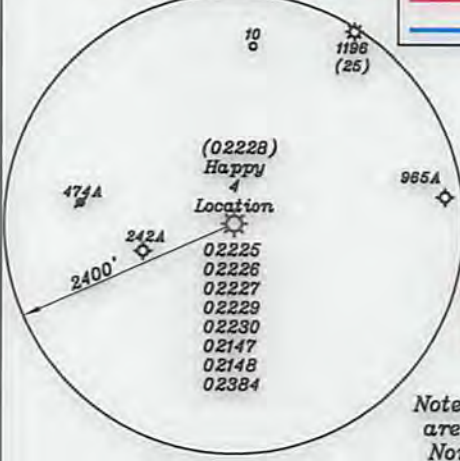
NORTH



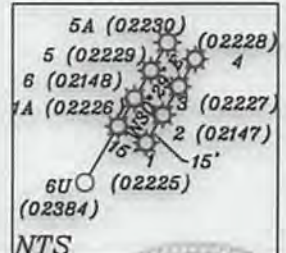
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 PROVEN SOURCE OF ELEVATION GPS  
submeter unit

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 S. Jackson  
 R.P.E. \_\_\_\_\_ L.L.S. 708



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

DATE December 27, 2017  
 OPERATOR'S WELL NO. Happy 4  
 API WELL NO. AsDrilled

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02228  
 (IF 'GAS') PRODUCTION STORAGE DEEP SHALLOW X STATE COUNTY PERMIT

LOCATION: ELEVATION 1256.4' WATER SHED Walnut Fork & Woodburn Run  
 DISTRICT McElroy COUNTY Tyler  
 QUADRANGLE TH Shirley 7 1/2', BH Center Point 7 1/2'

SURFACE OWNER Arthur & Lois Bloom ACREAGE 59.76 ac.  
 OIL & GAS ROYALTY OWNER John Lambert Ice LEASE ACREAGE 282.99 ac.

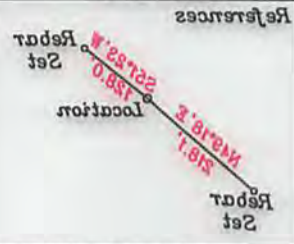
LEASE NO. & ACREAGE: "See ownership list above for lease numbers"

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE 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=7,088' - TMD=13,715'

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

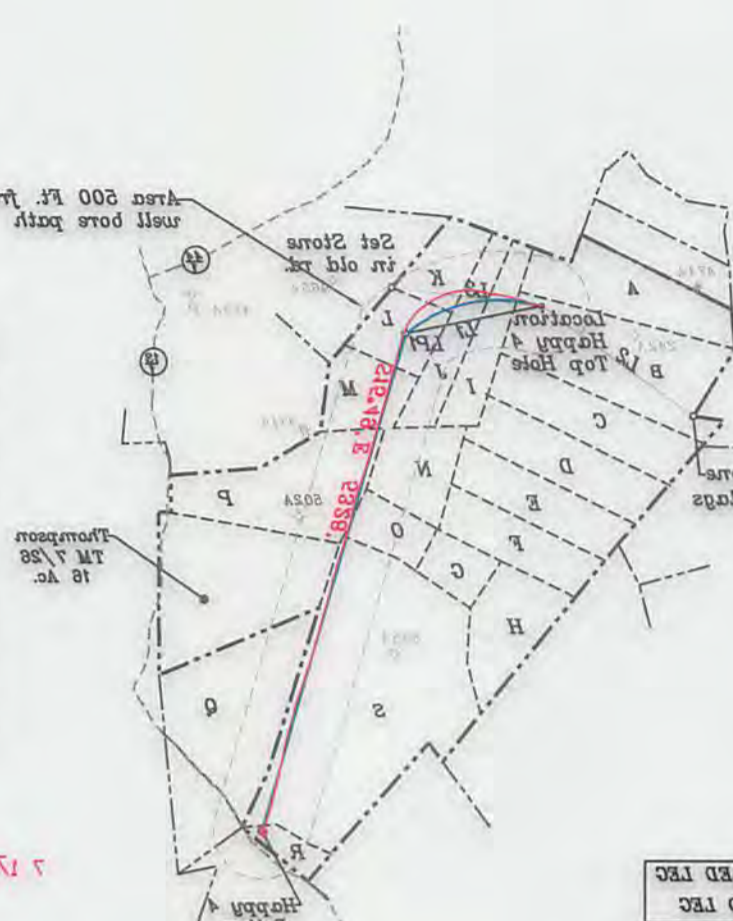


LATITUDE 39-27-30 N (BH)  
 LATITUDE 39-30-00 N (TH)  
 Bottom Hole 8,988'  
 Top Hole 410'

Job Hole 10' 0.888' 300'

CONCLUIDE 80-45-30 N (BH)  
 CONCLUIDE 80-42-00 N (TH)

- 2- Critter p/o TM 7/38 108'47 Ac. Ls. T1-04B
- 3- O'Neil TM 7/38 5.03 Ac. Ls. T1-04B
- 4- Critter p/o TM 7/38 37.307 Ac.
- 5- R. Thompson TM 7/25 31.75 Ac. Ls. T3038A
- 6- Hufford & Crew TM 7/24 10 Ac. Ls. T3039C
- 7- Thompson TM 7/23 15.34 Ac.
- 8- Thompson TM 7/4 11.66 Ac. Ls. T3040 & T3041AA
- 9- R. Thompson TM 7/5 11.66 Ac. Ls. T3040 & T3041AA
- 10- R. Thompson TM 7/3 17.5 Ac. Ls. T3040 & T3041AA
- 11- R. Thompson TM 7/2 17.5 Ac. Ls. T3040 & T3041AA
- 12- Hufford TM 7/18 28.38 Ac.
- 13- Hufford TM 7/19 25.85 Ac.
- 14- Hufford TM 7/20 20.21 Ac.
- 15- Hufford TM 7/22 10 Ac.
- 16- Hufford TM 7/21 20 Ac.
- 17- R. Thompson TM 8/17 28.38 Ac.
- 18- Bloom TM 8/18 28.78 Ac. Ls. T3042A1
- 19- Fiddle TM 8/17 28.38 Ac.



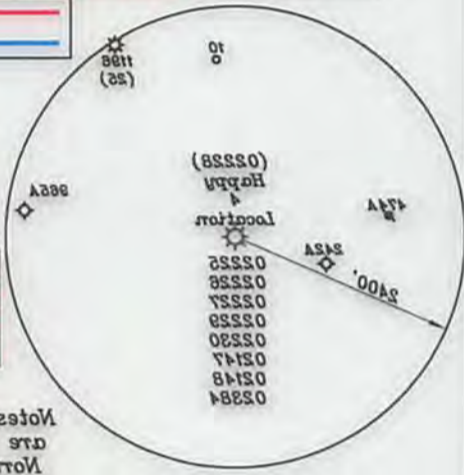
UTM NAD 83 (Meters)	UTM NAD 83 (Meters)
438824.4 N 52440.7 E	438824.4 N 52440.7 E
438871.5 N 52483.3 E	438871.5 N 52483.3 E
438730.8 N 52387.7 E	438730.8 N 52387.7 E
438825.13 N 52440.85 E	438825.13 N 52440.85 E
438881.38 N 52488.27 E	438881.38 N 52488.27 E
438730.03 N 52324.93 E	438730.03 N 52324.93 E

AS-DRILLED LEG  
 PROPOSED LEG

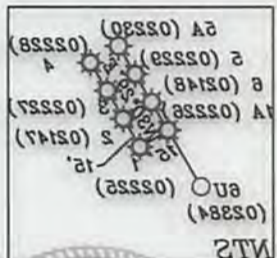
Note: All wells within 500' of the horizontal leg are shown on this plat passed upon information taken from DEP mapping, well plats & aerial photos.

NUMBER	DIRECTION	DISTANCE
L1	S27°31'E	1493'
L2	N54°09'E	1947'
L3	S28°07'W	1579'

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



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



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

FILE NO. \_\_\_\_\_  
 DRAWING NO. 1  
 SCALE 1" = 2000'  
 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  
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 (IF GAS) PRODUCTION STORAGE DEEP SHALLOW X STATE COUNTY PERMIT  
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