

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

API 47 - 095 - 02094 County Tyler District McElroy
Quad Shirley 7 1/2' Pad Name T1-03 Field/Pool Name _____
Farm name Lisby, Donald J. and Judith Well Number T1-03-7
Operator (as registered with the OOG) Jay-Bee Oil & Gas, Inc.
Address 3570 Shields Hills Rd. City Cairo State WV Zip 26170

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 517,061 Easting 4,366,585
Landing Point of Curve Northing N/A Easting N/A
Bottom Hole Northing 515,597 Easting 4,368,434

Elevation (ft) 723.6' 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)
Enviromul

Date permit issued 5/24/2013 Date drilling commenced 7/16/2013 Date drilling ceased 10/2/2013
Date completion activities began 10/21/2013 Date completion activities ceased 3/25/2014
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 65-90' 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

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Reviewed by:
D.H.H.

02/19/2016

API 47-095 - 02094 Farm name Lisby, Donald J. and Judith Well number T1-03-7

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"	60'	New	20/32/24		Y
Surface	15"	11 3/4"	357.9	New	20/23/24	50'	Y
Coal							
Intermediate 1	11"	8 5/8"	2042.55	New	20/17/24	1500'	Y
Intermediate 2							
Intermediate 3							
Production	7 7/8'	5 1/2"	13,754'	New	17/20		Y
Tubing							
Packer type and depth set							

Comment Details _____

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Class A	134.4	15	1.25	168	CTS	8
Coal							
Intermediate 1	Class A	355.9	14.5	1.45	516	CTS	8
Intermediate 2							
Intermediate 3							
Production	Class A	1,726.6	14.3	1.35	2,331	300' from surface	8
Tubing							

Drillers TD (ft) 13,754' Loggers TD (ft) 13,754'
 Deepest formation penetrated Marcellus Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) 5,593'

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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API 47-095 - 02094

Farm name Lisby, Donald J. and Judith

Well number T1-03-7

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	10/21/13	13540	13742	96	Marcellus
2	12/12/13	13292	13492	72	Marcellus
3	12/12/13	13032	13242	72	Marcellus
4	12/13/13	12688	12980	72	Marcellus
5	12/14/13	12454	12628	72	Marcellus
6	12/14/13	12149	12402	72	Marcellus
7	12/16/13	11867	12074	72	Marcellus
8	12/17/13	11530	11770	72	Marcellus
9	12/24/13	11184	11495	72	Marcellus
10	12/24/13	10810	11106	72	Marcellus
11	12/27/13	10504	10750	72	Marcellus
12	12/27/13	10244	10450	72	Marcellus
13	12/27/13	9900	10146	72	Marcellus
14	12/28/13	9605	9830	72	Marcellus
15	2/11/14	9216	9550	72	Marcellus
16	2/12/14	8940	9158	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 (bbbls)	Amount of Nitrogen/other (units)
1	12/13/13	74	7482	8289	4585	178,856	7607	N/A
2	12/14/13	73	7313	8275	4908	166,000	8183	N/A
3	12/15/13	70	7198	8436	4479	179,533	6799	N/A
4	12/16/13	71	7145	7907	4423	181,331	6852	N/A
5	12/17/13	71	7237	7976	4851	176,629	7332	N/A
6	12/17/13	71	7029	8258	4156	182,233	6686	N/A
7	12/19/13	70	6750	7800	4273	182,180	7343	N/A
8	12/20/13	69	6839	8239	4121	164,562	7401	N/A
9	12/27/13	70	7004	8015	4482	150,012	6652	N/A
10	12/28/13	70	6803	8201	4356	179,872	6224	N/A
11	12/29/13	70	6919	8077	3439	182,165	6847	N/A
12	12/29/13	72	6896	8047	4628	180,093	7172	N/A
13	12/30/13	69	6787	8311	4403	180,802	7041	N/A
14	1/2/14	72	6794	5572	4589	182,616	7222	N/A
15	2/13/14	70	6486	6850	3944	178,500	7872	N/A
16	2/14/14	70.4	6246	6280	4421	179,000	7872	N/A

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Please insert additional pages as applicable.

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PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
17	2/12/14	8536	8858	72	Marcellus
18	2/13/14	8267	8482	72	Marcellus
19	2/15/14	8004	8192	72	Marcellus
20	2/18/14	7780	7960	72	Marcellus
21	2/19/14	7488	7698	72	Marcellus
22	2/21/14	7222	7444	72	Marcellus
23	2/22/14	7050	7177	72	Marcellus
24	2/22/14	6774	6976	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	2/16/14	65.7	6505	6651	5262	163,000	6794	N/A
18	2/17/14	71.2	6739	7011	5223	182,000	7985	N/A
19	2/23/14	69.9	6447	7333	4993	182,226	6487	N/A
20	2/23/14	70	6448	6715	5105	172,340	6647	N/A
21	2/23/14	70.8	6211	7093	5411	172,500	6928	N/A
22	2/24/14	70.2	6082	6447	5208	177,500	6966	N/A
23	2/24/14	70.5	6045	7222	5241	184,300	6306	N/A
24	2/24/14	70.5	6163	6723	4549	179,900	6163	N/A

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Please insert additional pages as applicable.

API 47-095-02094 Farm name Lisby, Donald J. and Judith Well number T1-03-7

<u>PRODUCING FORMATION(S)</u>	<u>DEPTHS</u>		
<u>Marcellus</u>	<u>6,383'</u>	<u>TVD</u>	<u>13,754'</u> <u>MD</u>
_____	_____	_____	_____
_____	_____	_____	_____

Please insert additional pages as applicable.

GAS TEST Build up Drawdown Open Flow OIL TEST Flow Pump

SHUT-IN PRESSURE Surface 1,462 psi Bottom Hole N/A psi DURATION OF TEST 24 hrs

OPEN FLOW Gas 5,700 mcfpd Oil N/A bpd NGL 68 bpd Water 53 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 ₂ S, ETC)
	DEPTH IN FT NAME TVD	DEPTH IN FT TVD	DEPTH IN FT MD	DEPTH IN FT MD	
See Attached.	0		0		
Injun	1699	1799	1699	1799	
Gordon	2402	2422	2402	2422	
Upper Marcellus	6274	6306	6183	6213	
Parcell Lime	6306	6328	6213	6230	

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Please insert additional pages as applicable.

Drilling Contractor HWD
Address 2915 Oklahoma 74 City Purcell State OK Zip 73080

Logging Company Precise
Address PO Box 975682 City Belpre State OH Zip 45714

Cementing Company Nabors
Address PO Box 975682 City Dallas State TX Zip 75397-5682

Stimulating Company Baker Hughes
Address 837 Philippi Pike City Clarksburg State WV Zip 26301

Please insert additional pages as applicable.

Completed by Randy Broda Telephone 304-628-3111
Signature _____ Title President Date 12-2-2015

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

02/19/2016

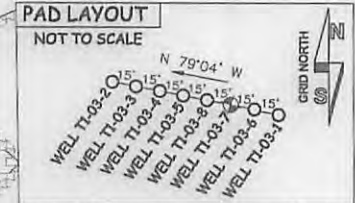
LATITUDE 39°27'30" 2,887'

LONGITUDE 80°47'30" 3,554'

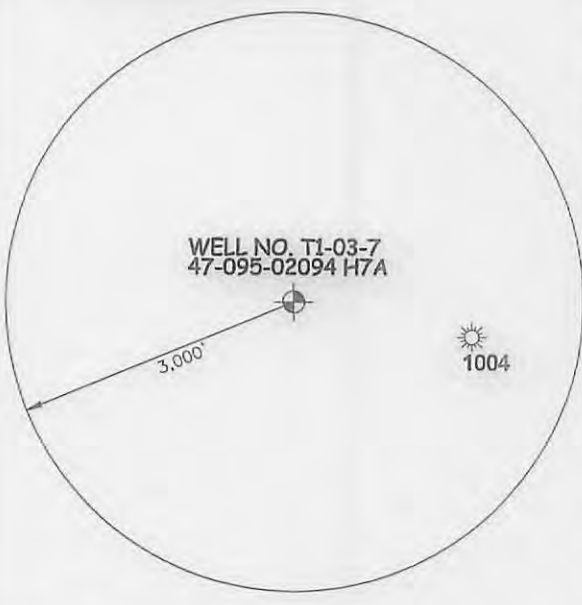
Jay Bee Oil & Gas, Inc.
Well No. T1-03-7
47-095-02094 H7A (AS DRILLED)

AS DRILLED DATA:
WELL T1-03-7 TOP HOLE INFORMATION:
N: 348,155ft E: 1,632,365ft
LAT: 39.44858 LON: 80.80189
BOTTOM HOLE INFORMATION:
N: 354,302ft E: 1,627,664ft
LAT: 39.46526 LON: 80.81886
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER
T1-03-7 TOP HOLE MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL T1-03-7 TOP HOLE INFORMATION:
N: 4,366,585m E: 517,061m
BOTTOM HOLE INFORMATION:
N: 4,368,434m E: 515,597m



- NOTE**
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD AND NO WATER WELLS OR DEVELOPED SPRINGS WITHIN TWO HUNDRED FIFTY (250) FEET OF WELL.
 2. TOP HOLE DATA TAKEN FROM A WELL PLAT FOR API# 47-095-02094HEA DATED THE 20TH DAY OF NOVEMBER 2012 AS PREPARED BY DAVID JACKSON.
 3. AS DRILLED DATA AND LEASE INFORMATION WAS PROVIDED BY JAY BEE OIL & GAS, INC.
 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.



WV NORTH ZONE GRID NORTH

7,676' TO BOTTOM HOLE

LATITUDE 39°30'00"

DISTRICT

JIM YOUNG ET UX
D.B. 368 PG. 797
T.M. 28 PAR. 36
46.5 AC. ±

LAURA L. GARGASZ
D.B. 364 PG. 490
T.M. 05 PAR. 16
90.13 AC. ±

JOANNE GRAFF ET AL
W.B. 22 PG. 95
T.M. 05 PAR. 12
53.38 AC. ±

W-698 LEASE

W-657A LEASE
KEITH A. RIEGELSBERGER
D.B. 376 PG. 828
T.M. 05 PAR. 10
58.49 AC. ±

W-682 LEASE
KEITH A. RIEGELSBERGER
D.B. 376 PG. 828
T.M. 05 PAR. 09
43.22 AC. ±

KEITH A. RIEGELSBERGER
D.B. 376 PG. 828
T.M. 05 PAR. 07
58.49 AC. ±

LAURA L. GARGASZ
D.B. 364 PG. 490
T.M. 05 PAR. 14
62.5 AC. ±

T-3130 LEASE
BRIAN K. HAYDEN ET AL
D.B. 396 PG. 85
T.M. 05 PAR. 17
61.73 AC. ±

ANDREW A. HAUGHT ET AL
D.B. 375 PG. 338
T.M. 06 PAR. 40
93 AC. ±

JANET L. BAKER ET AL
D.B. 338 PG. 224
T.M. 06 PAR. 41
115 AC. ±

JUDY NICHOLS ET AL
D.B. 388 PG. 179
T.M. 11 PAR. 49
133.71 AC. ±

EDSEL HOOVER, JR. ET AL
D.B. 311 PG. 611
T.M. 05 PAR. 15
112.25 AC. ±

JACK F. STARCHER JR ET AL
D.B. 330 PG. 81
T.M. 10 PAR. 214
60.832 AC. ±

DONALD J. & JUDITH A. LISBY
D.B. 297 PG. 402
T.M. 10 PAR. 04
80 AC. ±

JOB # JAYBEET1-03
DRAWING # T1-03-7AD
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



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

WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO
WEST VIRGINIA 26415

LEGEND
--- Surface Owner Boundary Lines +/-
--- Interior Surface Tracts +/-
⊕ Found monument, as noted
○ Proposed Well Path
⊗ As Drilled Well Path

DATE 12/04/15
OPERATOR'S WELL # T1-03-7

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02094 H7A
(IF "GAS") PRODUCTION STORAGE DEEP SHALLOW STATE COUNTY PERMIT
LOCATION: ELEVATION 723.6' WATERSHED OUTLET MIDDLE ISLAND CREEK 02/19/2016
QUADRANGLE SHIRLEY 7.5' DISTRICT MCELROY COUNTY TYLER
SURFACE OWNER DONALD J. & JUDITH A. LISBY ACREAGE 80 ACRES +/-
OIL & GAS ROYALTY OWNER T1-03; T-3130; W-698; T-3151; LEASE ACREAGE 639 ACRES±; 61.73 ACRES±; 143 ACRES±; 32 ACRES±; W657A; W682 58.49 ACRES±; 43.23 ACRES±

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,383' TVD 13,754' MD
WELL OPERATOR JAY BEE OIL & GAS, INC. DESIGNATED AGENT RANDY BRODA
ADDRESS 1720 ROUTE 22 ADDRESS ROUTE 1, BOX 5
FORM WW-6 EAST UNION, NJ 07083 CAIRO, WV 26337

LATITUDE 39°27'30"

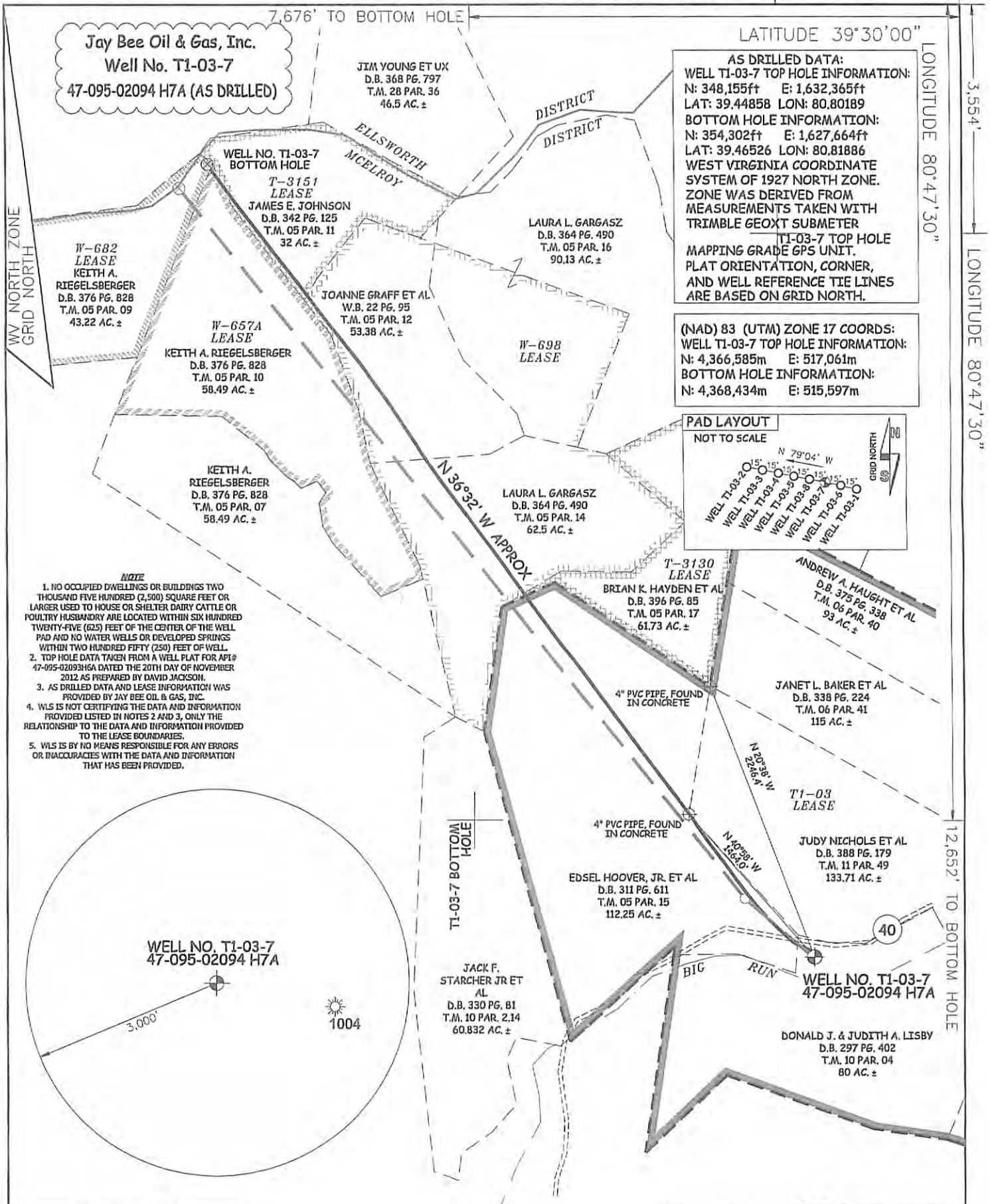
2,887'

LATITUDE 39°30'00"

LONGITUDE 80°47'30"

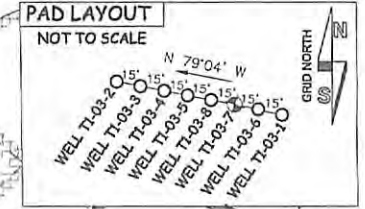
LONGITUDE 80°47'30"

12,652' TO BOTTOM HOLE

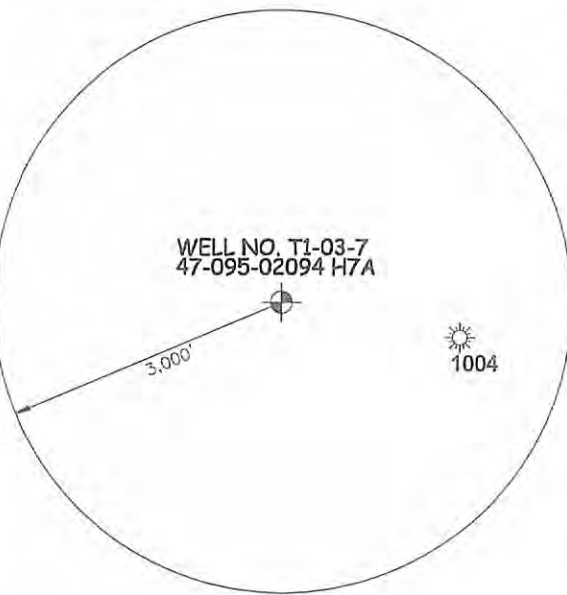


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 WILLOW LAND SURVEYING PLLC
 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

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 WELL OPERATOR JAY BEE OIL & GAS, INC. DESIGNATED AGENT RANDY BRODA
 ADDRESS 1720 ROUTE 22 ADDRESS ROUTE 1, BOX 5
EAST UNION, NJ 07083 CAIRO, WV 26337

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
T1-03	George Spencer	Jay-Bee Production Company	12.5%	390/247
W698	Mary Ann Ketelson	JB Exploration I, LLC	12.5%	398/354
T3151	James Edward Johnson	JB Exploration I, LLC	12.5%	411/79
W657A	Keith Riegelsberger	JB Exploration I, LLC	12.5%	403/513
W682	Keith Riegelsberger	JB Exploration I, LLC	12.5%	403/513

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Jay-Bee Oil & Gas, Inc
 By: Shane Dowell
 Its: Office Manager

Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	12/13/2013
Job End Date:	1/2/2014
State:	West Virginia
County:	Tyler
API Number:	47-095-02094-00-00
Operator Name:	Jay-Bee Oil & Gas, Inc.
Well Name and Number:	T1-03-7 (Stages 1 thru 14)
Longitude:	-80.80189100
Latitude:	39.44857600
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	6,382
Total Base Water Volume (gal):	4,297,230
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	92.85633	
Sand, White, 100 mesh	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		2.88312	
Sand, White, 30/50	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		2.70264	
Sand, White, 20/40	Baker Hughes	Proppant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.74117	
HCl, 10.1 - 15%	Baker Hughes	Acidizing					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.65052	SmartCare Product
FRW-18	Baker Hughes	Friction Reducer					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.07716	SmartCare Product
Scaletrol 720	Baker Hughes	Scale Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.02587	SmartCare Product
Alpha 1427	Baker Hughes	Biocide					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.02259	SmartCare Product

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InFlo 250G, 330 gl tote	Baker Hughes	Surfactant					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00677	
Ferrotrol 300L	Baker Hughes	Iron Control					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00458	SmartCare Product
GW-3LDF	Baker Hughes	Gelling Agent					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00367	SmartCare Product
CI-14	Baker Hughes	Corrosion Inhibitor					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00210	SmartCare Product
Enzyme G-NE	Baker Hughes	Breaker					
			MSDS and Non-MSDS Ingredients Listed Below	N/A		0.00022	SmartCare Product
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	6.32536	
			Water	7732-18-5	95.00000	0.61773	
			Hydrochloric Acid	7647-01-0	15.00000	0.09757	
			Poly (acrylamide-co-acrylic acid) partial sodium salt	52649-23-4	30.00000	0.02314	
			Hydrotreated Light Distillate	64742-47-8	30.00000	0.02314	
			Ethylene Glycol	107-21-1	45.00000	0.01164	
			Glutaraldehyde	111-30-8	30.00000	0.00678	
			2-Propenoic, Polymer with Sodium Phosphinate, Sodium Salt	71050-62-9	20.00000	0.00517	
			Sodium Chloride	7647-14-5	5.00000	0.00412	
			Methanol	67-56-1	100.00000	0.00346	
			Citric Acid	77-92-9	60.00000	0.00274	
			Mineral Oil	8042-47-5	70.00000	0.00257	
			Ammonium Chloride	12125-02-9	3.00000	0.00231	
			Didecyl Dimethyl Ammonium Chloride	7173-51-5	10.00000	0.00226	
			Guar Gum	9000-30-0	60.00000	0.00220	
			Surfactant	9016-45-9	15.00000	0.00183	
			Oleamide DEA	93-83-4	2.00000	0.00154	
			Alcohols, C12-16, ethoxylated	68551-12-2	2.00000	0.00154	
			Calcium Chloride	10043-52-4	5.00000	0.00129	
			Ethanol	64-17-5	5.00000	0.00113	
			Quaternary Ammonium Compound	68424-85-1	5.00000	0.00113	
			Petroleum Distillates	64742-47-8	30.00000	0.00110	
			Paraffinic Petroleum Distillate	64742-55-8	30.00000	0.00110	
			Polyoxyalkylenes	68951-67-7	30.00000	0.00063	
			Polyoxyethylene Sorbitan Monooleate	9005-65-6	0.50000	0.00039	
			Sorbitan Monooleate	1338-43-8	0.50000	0.00039	

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		Potassium Chloride	7447-40-7	1.00000	0.00026
		Fatty Acids	61790-12-3	10.00000	0.00021
		Crystalline Silica: Quartz	14808-60-7	5.00000	0.00018
		Isotridecanol, ethoxylated	9043-30-5	5.00000	0.00018
		1-butoxy-2-propanol	5131-66-8	5.00000	0.00018
		Modified Thiourea Polymer	68527-49-1	7.00000	0.00015
		Olefin	64743-02-8	5.00000	0.00011
		Propargyl Alcohol	107-19-7	5.00000	0.00011
		Formaldehyde	50-00-0	1.00000	0.00002
		Hemicellulase Enzyme Concentrate	9025-56-3	5.00000	0.00001
		2-butoxy-1-propanol	15821-83-7	0.10000	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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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	10/21/2013
Job End Date:	2/23/2014
State:	West Virginia
County:	Tyler
API Number:	47-095-02094-00-00
Operator Name:	Jay-Bee Oil & Gas, Inc.
Well Name and Number:	T1-03-7 (Stages 15 thru 25)
Longitude:	-80.80189100
Latitude:	39.44857600
Datum:	NAD27
Federal/Tribal Well:	
True Vertical Depth:	6,382
Total Base Water Volume (gal):	8,258,404
Total Base Non Water Volume:	



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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	Jay-Bee Oil & Gas, Inc.	Water	Water	7732-18-5	100.00000	92.62681	
100 Mesh	FTS International, LLC	Frac Sand	Crystalline Silica	14808-60-7	99.00000	2.96589	
			Aluminum Oxide	1344-28-1	1.10000	0.03295	
			Iron Oxide	1309-37-1	0.10000	0.00300	
			Titanium Oxide	13463-67-7	0.10000	0.00300	
30/50 Mesh	FTS International, LLC	Frac Sand	Crystalline Silica	14808-60-7	99.90000	2.84365	
			Aluminum Oxide	1344-28-1	1.10000	0.03160	
			Titanium Oxide	13463-67-7	0.10000	0.00287	
			Iron Oxide	1309-37-1	0.10000	0.00287	
20/40 Mesh	FTS International, LLC	Frac Sand	Crystalline Silica	14808-60-7	99.90000	0.75170	
			Aluminum Oxide	1344-28-1	1.10000	0.00835	
			Iron Oxide	1309-37-1	0.10000	0.00076	
			Titanium Oxide	13463-67-7	0.10000	0.00076	
10.1-15% HCL	FTS International, LLC	Acid	Hydrochloric Acid	7647-01-0	15.00000	0.09395	

CI-3240	FTS International, LLC	Biocide				
			Dazomet	533-74-4	24.00000	0.00601
			Sodium Hydroxide	1310-73-2	4.00000	0.00100
FRW-600	FTS International, LLC	Friction Reducer				
			Ammonium acetate	631-61-8	6.00000	0.00376
CS-500 SI	FTS International, LLC	Scale Inhibitor				
			Ethylene Glycol	107-21-1	10.00000	0.00251
CI-150	FTS International, LLC	Corrosion Inhibitor				
			Isopropanol	67-63-0	30.00000	0.00038
			Ethylene Glycol	107-21-1	30.00000	0.00038
			Dimethylformamide	68-12-2	10.00000	0.00013
NE-100	FTS International, LLC	Non-Emulsifier				
			2-Propanol	67-63-0	10.00000	0.00006
			Dodecylbenzenesulfonic acid	27176-87-0	5.00000	0.00003
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.						
10.1-15% HCL	FTS International, LLC	Acid				
			Water	7732-18-5	85.00000	0.53240
FRW-600	FTS International, LLC	Friction Reducer				
			Water	7732-18-5	64.00000	0.04009
			Hydrotreated light distillate	64742-47-8	30.00000	0.01879
CS-500 SI	FTS International, LLC	Scale Inhibitor				
			Water	7732-18-5	90.00000	0.02255
CI-3240	FTS International, LLC	Biocide				
			Water	7732-18-5	72.00000	0.01804
HVG-1	FTS International, LLC	Gel				
			Petroleum Distillate	64742-47-8	55.00000	0.00103
			Guar Gum	9000-30-0	50.00000	0.00094
			Surfactant	68439-51-0	2.00000	0.00004
			Clay	14808-60-7	2.00000	0.00004
FE 100L	FTS International, LLC	Iron Control				
			Citric Acid	77-92-9	55.00000	0.00103
			Water	7732-18-5	45.00000	0.00085
LEB-300	FTS International, LLC	Breaker				
			Proprietary	Proprietary	100.00000	0.00094
CI-150	FTS International, LLC	Corrosion Inhibitor				
			Organic amine resin salt	Proprietary	30.00000	0.00038
			Quaternary ammonium compound	Proprietary	10.00000	0.00013
			Aromatic aldehyde	Proprietary	10.00000	0.00013
NE-100	FTS International, LLC	Non-Emulsifier				
			Water	7732-18-5	75.00000	0.00047
			Methanol	111-76-2	10.00000	0.00006

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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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