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**west virginia** department of environmental protection

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Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304  
(304) 926-0450  
(304) 926-0452 fax

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

June 16, 2014

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-9502145, issued to JAY-BEE OIL & GAS, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin  
Chief

Operator's Well No: SLEEPY 5  
Farm Name: WEIMER, BRENT A. & EMMA  
**API Well Number: 47-9502145**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 06/16/2014

**Promoting a healthy environment.**

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

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## CONDITIONS

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

	<b>Applicant: JAY BEE OIL &amp; GAS</b> <b>Reference ID: Sleepy 5 (12/11/2013)</b> <b>Status: New</b>	<b>Type: Horizontal 6A Well</b> <b>Permit ID: 9502145</b> <b>Printed: Jun. 09, 2014 3:24 PM</b>
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**WW-6B: General and Location Information**

API Number:	<input type="text" value="95-02145"/>	(47-____-____)
Operator's Well Number:	<input type="text" value="Sleepy 5"/>	
Filing Fee:	<input type="radio"/> First Well on Pad <input checked="" type="radio"/> Subsequent Well on Pad	<input type="text" value="5,150.00"/>
Well Pad Name:	<input type="text" value="Sleepy (T3036) Pad"/>	
Surface Owner:	<input type="text" value="Brent A. &amp; Wilma K. Weimer"/>	
Public Road Access:	<input type="text" value="Walnut Fork Rd"/>	

Please attach each of the following as separate documents:

- Well Plat
- Wellbore Schematic

County:	<input type="text" value="Tyler"/>	District:	<input type="text" value="McElroy-xx"/>
Quadrangle:	<input type="text" value="CENTER POINT"/>		
Top Hole(UTM NAD83):			
Easting:	<input type="text" value="522459.22"/>	Northing:	<input type="text" value="4369579.26"/>
Zone:	<input type="text" value="17"/>		
Proposed Landing Point(UTM):			
Easting:	<input type="text" value="522342.9"/>	Northing:	<input type="text" value="4369602.1"/>
Zone:	<input type="text" value="17"/>		
Proposed Bottom Hole(UTM):			
Easting:	<input type="text" value="521710.86"/>	Northing:	<input type="text" value="4370528.02"/>
Zone:	<input type="text" value="17"/>		
Elevations (feet) -- Current Ground:	<input type="text" value="1125.4"/>	Proposed Post-Construction:	<input type="text" value="1109.3"/>

Well Type:	<input checked="" type="radio"/> Gas <input type="radio"/> Oil
	<input type="radio"/> Underground Storage <input type="radio"/> Other <input type="text"/>
Will well be drilled more than 100 feet into the Onondaga Group?	<input type="radio"/> Yes <input checked="" type="radio"/> No
Depth Type:	<input checked="" type="radio"/> Shallow <input type="radio"/> Deep
Existing Pad?	<input type="radio"/> Yes <input checked="" type="radio"/> No

**WW-6B: Target Formations**

Complete the following table.

Target Formation	Depth-Top (ft)	Anticipated Thickness (ft)	Associated Pressure (psi)
Marcellus	7108	40	3500

**WW-6B: Well Work and Mine Details**

Is proposed well location directly overlying or tributary to an active mine?

Yes  No

If Yes, indicate name, depth, coal seam and owner of mine:

Coal Seam:  Depth:   
 Mine Name:  Owner:

Describe proposed well work, including the drilling and plugging back of any pilot hole.

Drill and Stimulate a new Horizontal Well. Using a top hole rig, we will drill top hole to kick off point by drilling the conductor, freshwater and intermediate holes. Using a directional rig we will drill the production holes.

Describe fracturing/stimulating methods in detail, including anticipated max pressure and anticipated max rate.

300-350' per stage 8,500bbls of water, 150,000-400,000lbs of sand, friction reducer, 1# per gallon, scale inhibitor and bacteria prevention 1/4# per gallon 2000 gallons 15% vol acid.

Total area to be disturbed, including roads, stockpile area, pits, etc, (acres):

Area to be disturbed for well pad only, less access road (acres):

**WW-6B: FRAC Additives**

Please select the chemical names of each additive used in your fracturing compounds.

You may opt to provide these compounds listed in the form of an attachment.  See Attached.

Chemical (CAS) Number	Name/Description

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Please list any and all chemicals and compounds used not found in list above.

CAS Number	Chemical/Compound Name
07732-18-5	Water
00107-21-1	Ethylene Glycol
00111-30-8	Glutaraldehyde
00064-17-5	Ethyl Alcohol
07647-01-0	Hydrochloric Acid
14808-60-7	Sand
64742-47-8	Distillates (petroleum),hydrotreated light(Friction Reducer)
10043-52-4	Calcium chloride
7173-51-5	Didecyldimethylammonium chloride
68424-85-1	Benzalkonium chloride

**WW-6B: Depth Specifics**

Proposed Post-Construction Elevation:	<input type="text" value="1108"/>
Proposed Total Vertical Depth:	<input type="text" value="7108"/> (ft.)
Formation at Total Vertical Depth:	<input type="text" value="Marcellus"/>
Proposed Total Measured Depth:	<input type="text" value="12845"/> (ft.)
Proposed Total Horizontal Leg Length:	<input type="text" value="5737"/> (ft.)
Method to Determine Fresh Water Depth:	<div style="border: 1px solid black; padding: 5px; min-height: 40px;">API 47-095-00010 for salt and coal. Freshwater was closest creek at 840' elevation.</div>

Approximate Fresh Water Strata Depths
<input type="text" value="268"/> (ft.)

Approximate Coal Seam Depths
<input type="text" value="602"/> (ft.) Coal Seam Name, if known: <input type="text"/>
<input type="text" value="741"/> (ft.) Coal Seam Name, if known: <input type="text"/>

835	(ft.)	Coal Seam Name, if known:	
994	(ft.)	Coal Seam Name, if known:	
1057	(ft.)	Coal Seam Name, if known:	Pittsburgh

Approximate Depth to Possible Void(coal mine, karst, other)	
	(ft.) Not Anticipated: <input checked="" type="checkbox"/>

Approximate Saltwater Depths	
	(ft.)

**WW-6B: Casing and Cementing**

Complete the following table, adding as many rows of each **Type** as needed.

Type	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	Footage: For Drilling	Intervals: Left in Well
Conductor	16	New	J55	40	30	30
Wellbore Diameter (in)		Wall Thickness (in)		Burst Pressure (psi)		
Cement Type		Yield (cu. ft./sk)	Fillup - Cubic Feet	Top of Cement	Circulated to Surface?	
Type	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	Footage: For Drilling	Intervals: Left in Well
Fresh Water	11 3/4	New	J55	32	318	318
Wellbore Diameter (in)		Wall Thickness (in)		Burst Pressure (psi)		
Cement Type		Yield (cu. ft./sk)	Fillup - Cubic Feet	Top of Cement	Circulated to Surface?	
Type	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	Footage: For Drilling	Intervals: Left in Well
Intermediate	8 5/8	New	J55	24/23	2000	2000
Wellbore Diameter (in)		Wall Thickness (in)		Burst Pressure (psi)		
Cement Type		Yield (cu. ft./sk)	Fillup - Cubic Feet	Top of Cement	Circulated to Surface?	
Type	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	Footage: For Drilling	Intervals: Left in Well
Production	5 1/2	New	J55	20/17	12845	12845
Wellbore Diameter (in)		Wall Thickness (in)		Burst Pressure (psi)		

	Cement Type	Yield (cu. ft./sk)	Fillup - Cubic Feet	Top of Cement	Circulated to Surface?
	Type 1 Cement	1.34	2225.46	1000	<input type="checkbox"/>

**WW-6B: Centralizers, Cement, Borehole**

Describe proposed borehole conditioning procedures.

Air Hole: 15" hole for the 11 3/4 fresh water case - Circulate until clean with air. If soaping, slug then dry.  
 Air Hole: 11" hole for the 8 5/8 intermediate base - Circulate until clean with air. If soaping, slug then dry.  
 7 7/8" hole for the 5 1/2 production case - Circulate with mud and sweeps for two times bottoms up.  
 If needed weight up mud until no cuttings retrieved, then circulate with mud and sweeps for two times bottoms up.

Centralizers Type and Placement.

Vertical - Every 500' Bow Centralizer, and 50' from top of ground. Horizontal every 42' Spiral Centralizer, Curve - Every 84' Spiral Centralizer.

Cement Additives.

Superior Well Services - 15" hole for the 11 3/4 fresh water case, Class A Cement, 2% Calcium Chloride, 1/4# flake.  
 Superior Well Services - 11" hole for the 8 5/8 intermediate base, Class A Cement, 2% Calcium Chloride  
 Baker Hughes - 7 7/8" hole for the 5 1/2 production case, Type 1 Cement, Fly Ash, Barite, Finetol 300L, R-3 Celio Flake, Sugar, CD-32, FL-62

**WW-6B: Packers**

Will Packers be Used?  Yes  No

If Yes, complete the following:

Kind	Sizes	Depths Set
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Bentonite, Salt, Soda Ash

Solid Waste disposal method from Plugging Activities:

- Leave in Pit (Indicate medium used: cement, sawdust, lime, etc):
- Landfill (name/permit number?)
- Removed Offsite (name/permit number?)
- Other: (please explain)

Proposed Revegetation Treatment:

Acres Disturbed:  Prevegetation pH:

Lime Tons/acre to correct to pH:

Fertilizer (10-20-20 or equivalent):  lbs/acre

Mulch  lbs/acre

Comments:

Attach a Reclamation Plan/Drawing

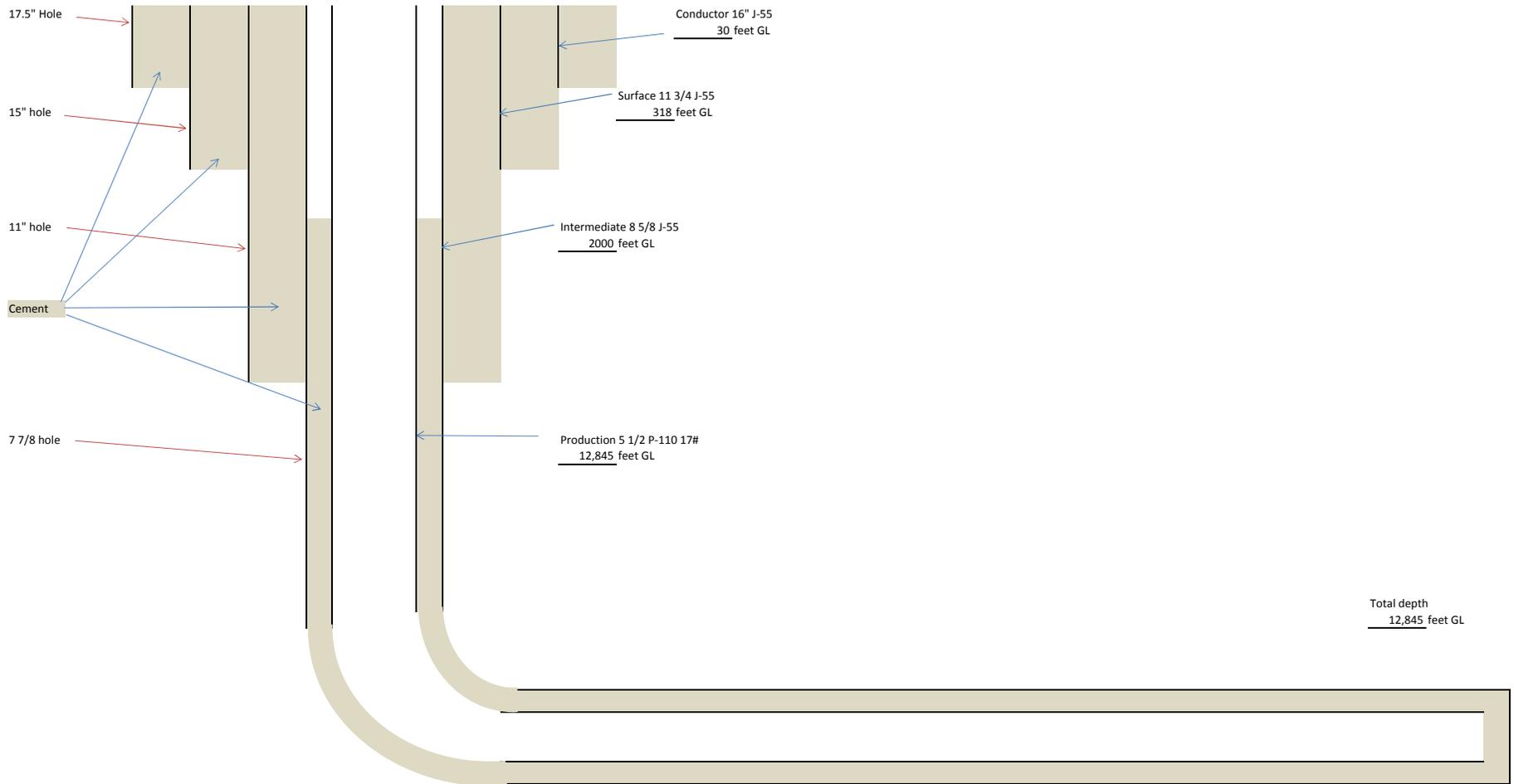
Seed Mixtures

Area Type	Seed Type	lbs/acre
Permanent	KY-31	20
Permanent	Creeping Red Fescue	30
Permanent	Lathco Flat Pea/Perennial Ryegrass	30
Temporary	Annual Ryegrass	40

Jay-Bee Oil & Gas Inc.  
Well Name Sleepy 5  
GL Elevation 1108  
KB 14 feet

Date 1/3/2014  
District McElroy  
County Tyler  
State West Virginia

Input by: Shane Dowell



**JAY –BEE OIL & GAS INC**  
**3570 SHIELDS HILL RD**  
**CAIRO, WV 26337**  
**OFFICE (304) 628-3111**  
**FAX (304) 628-3107**

Full copy of Site Safety Plan stored on OOG network drive:

Q://OIL GAS/Permit Scanned Copies

**WELL SITE DRILLING PROCEDURES AND SITE SAFETY PLAN**

**Per 35CSR8/§22-6A**

(Any changes or modifications to previously approved plans must be approved by the West Virginia Department of Environmental Protection - Office of Oil and Gas)

A copy of this plan will be provided to the local emergency planning committee or county emergency services offices at least 7 days prior to land disturbance from well work.

**SITING STANDARDS**

<b>Well Name</b>	Sleepy 5
<b>Well Pad</b>	Sleepy (T3036) Pad
<b>Latitude/Longitude</b>	NAD83- Lat. 39.475511 Long. -80.738874
<b>Location of Access Road</b>	From WV18 and Indian Creek Rd, 6 miles east on Indian Creek Rd. 2.5 miles north on Walnut Fork. Lease road on left.
<b>Detail of Actual Well Work</b>	Drill and Stimulate a New Horizontal Well.
<b>Detail of Completion and Production Activities</b>	<u><b>Fracturing/ Stimulating Methods</b></u> 300-350' per stage 8,500bbls of water, 150,000 – 400,000lbs of sand, friction reducer, 1# per gallon, scale inhibitor, and bacteria prevention ¼# per gallon 2000 gallons 15% vol acid.
<b>Directions to Well</b>	From Middlebourne city center, head south down WV 18 for 6.7 miles. Turn left onto Indian Creek Rd, and follow east for 6 miles. Turn left onto Walnut Fork and follow north for 2.5 miles, lease road on left.
<b>Prevailing Wind Direction</b>	South/ South East



# Water Management Plan: Secondary Water Sources



WMP-01782

API/ID Number 047-095-02145

Operator: Jay-Bee Oil & Gas, Inc.

Sleepy 5

### Important:

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

### Multi-site impoundment

Source ID:	34230	Source Name	W701 Fresh Water Centralized Impoundment		Source start date:	4/1/2014	
					Source end date:	4/1/2015	
		Source Lat:	39.438678	Source Long:	-80.720864	County	Tyler
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		7,845,000	
DEP Comments:	095-FWC-00001						

The intake identified above has been defined in a previous water management plan. The thresholds established in that plan govern this water management plan unless otherwise noted.

Reference: WMP-577

**APPROVED FEB 03 2014**

Sleepy 5

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**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
  - For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.
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## Recycled Frac Water

Source ID: 34231 Source Name Various

Source start date: 4/1/2014

Source end date: 4/1/2015

Source Lat:

Source Long:

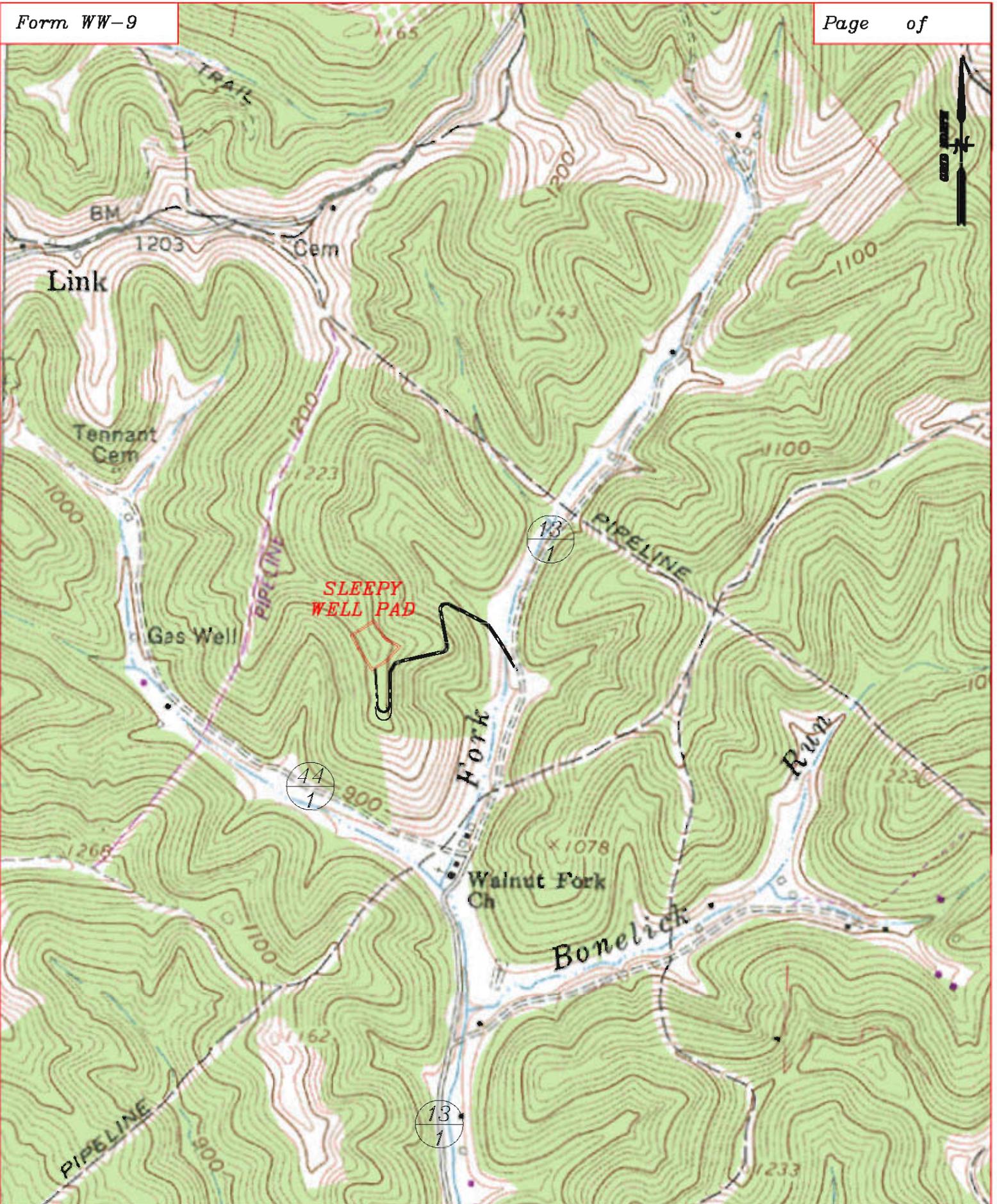
County

Max. Daily Purchase (gal)

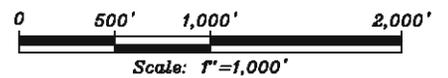
Total Volume from Source (gal): 7,845,000

DEP Comments:

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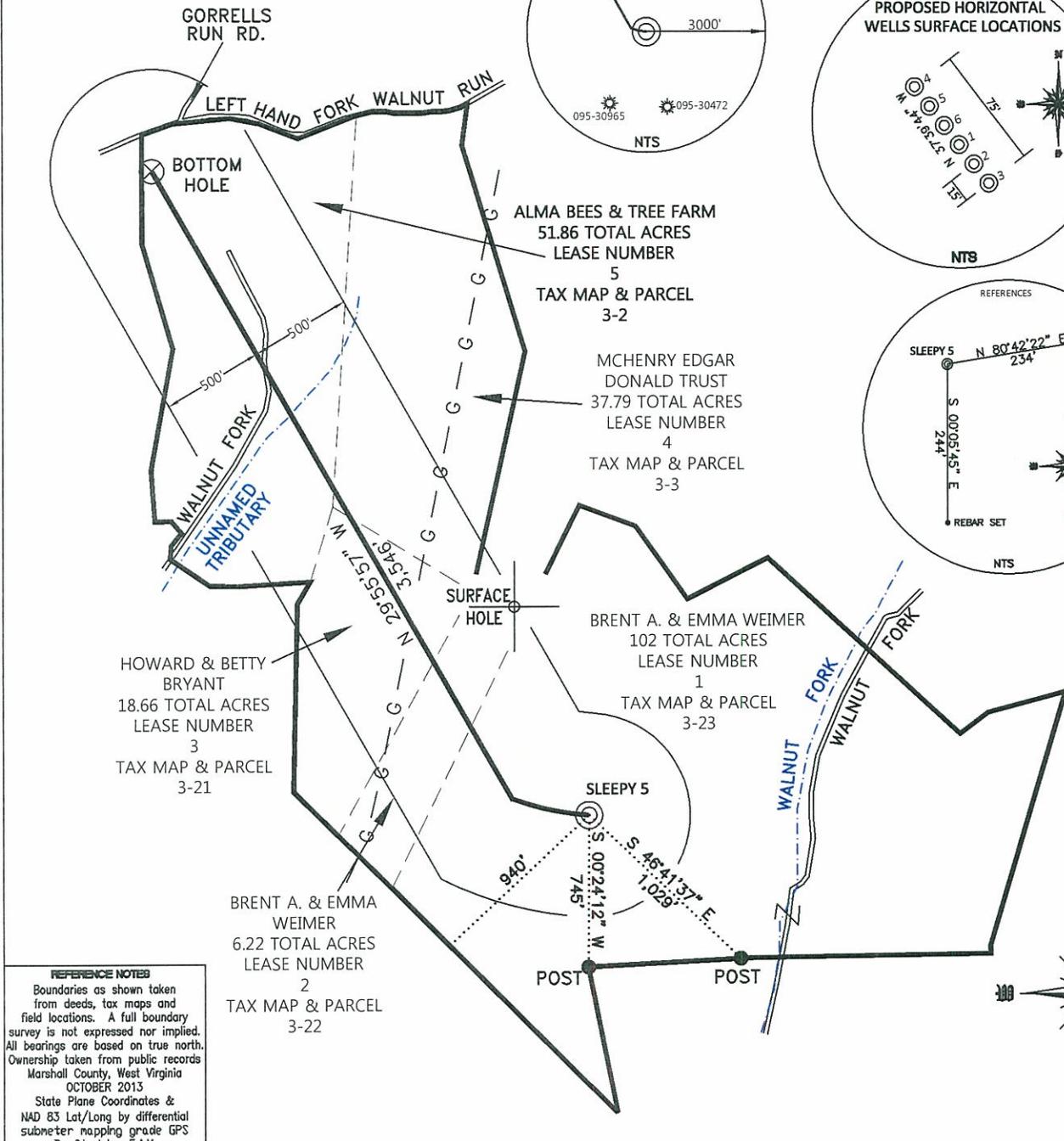
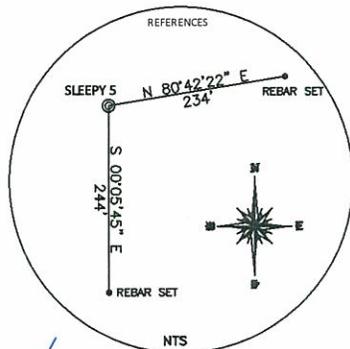
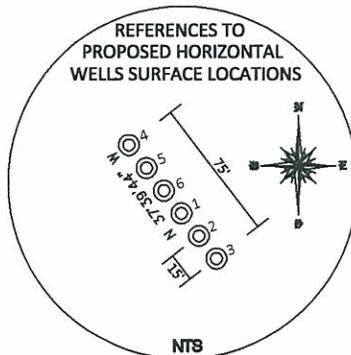
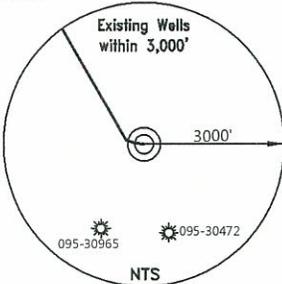
Well: Sleepy Well Pad  
Quad: Center Point 7 1/2'  
District: McElroy  
County: Tyler



**TOP HOLE (UTM NAD 83)**  
 N) 4369579.3  
 E) 522459.2

**BOTTOM HOLE (UTM NAD 83)**  
 N) 4370529.3  
 E) 521788.2

NO DWELLINGS FOUND WITHIN 650' OF THE CENTER OF THE WELL PAD  
 NO WATER WELLS FOUND WITHIN 250' OF THE CENTER OF WELL PAD



**REFERENCE NOTES**  
 Boundaries as shown taken from deeds, tax maps and field locations. A full boundary survey is not expressed nor implied. All bearings are based on true north. Ownership taken from public records Marshall County, West Virginia OCTOBER 2013  
 State Plane Coordinates & NAD 83 Lat/Long by differential submeter mapping grade GPS  
 Drafted by: E.A.M.

FILE #: 201366  
 DRAWING #: 1  
 SCALE: PLAT - 1" = 800'  
 TICK MARK - 1" = 2000'

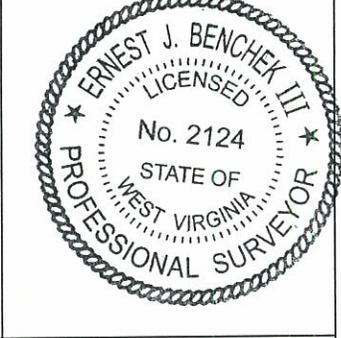
MINIMUM DEGREE OF ACCURACY: 1/200

PROVEN SOURCE OF ELEVATION: SUBMETER MAPPING GRADE GPS

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 ENVIRONMENTAL PROTECTION.

Signed:

L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS  
**WVDEP**  
**OFFICE OF OIL & GAS**  
**601 57TH STREET**  
**CHARLESTON, WV 25304**

Well Type:  Oil  Waste Diposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow

WATERSHED: OUTLET MIDDLE ISLAND CREEK ELEVATION: 1120'  
 COUNTY/DISTRICT: TYLER/McELROY QUADRANGLE: CENTER POINT, WV  
 SURFACE OWNER: BRENT A. & EMMA WEIMER ACREAGE: 102.00 +/-  
 OIL & GAS ROYALTY OWNER: MARY GWEN TUSTIN (TM3/22,23), SHARON KAY BRYANT (TM3/21), JOHN LAMBERT ICE (TM3/2,3) ACREAGE: 216.53 +/-  
 LEASE NUMBERS: 1. T3036, 2. 3076C, 3. 3076B, 4. 3076D, 5. T3208A, T3208C, T3208B

DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
 PLUG OFF FORMATION  PERFORATE NEW FORMATION  PLUG & ABANDON   
 CLEAN OUT & REPLUG  OTHER CHANGE  (SPECIFY): \_\_\_\_\_

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TMD: 12,845'  
 WELL OPERATOR: JAY BEE OIL & GAS, LLC. DESIGNATED AGENT: SHANE DOWELL  
 ADDRESS: 3570 SHIELDS HILL ROAD ADDRESS: 3570 SHIELDS HILL ROAD  
 CITY: CAIRO STATE: WV ZIP CODE: 26337 CITY: CAIRO STATE: WV ZIP CODE: 26337

DATE: JUNE 6, 2014  
 OPERATOR'S WELL #: SLEEPY 5  
 API WELL #: 47 95 02145 H6A  
 STATE COUNTY PERMIT