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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Monday, October 17, 2022  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ARSENAL RESOURCES LLC  
6031 WALLACE RD EXT., SUITE 101  
WEXFORD, PA 15090

Re: Permit Modification Approval for JOHNSON TFP-40 204  
47-091-01369-00-00

**Lateral Extension**

ARSENAL RESOURCES LLC

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926- 0450.

James A. Martin  
Chief

A blue ink signature of James A. Martin, Chief, is written over the printed name and title.

Operator's Well Number: JOHNSON TFP-40 204  
Farm Name: RENEE JOHNSON  
U.S. WELL NUMBER: 47-091-01369-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 10/17/2022

Promoting a healthy environment.

10/21/2022

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

1) Well Operator: Arsenal Resources      494519412      Taylor      Fleming      Rosemont  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: 204      Well Pad Name: Johnson TFP 40

3) Farm Name/Surface Owner: Renee Johnson      Public Road Access: CR 17, Oral Lake Road

4) Elevation, current ground: 1338.79      Elevation, proposed post-construction: 1332.5

5) Well Type    (a) Gas          Oil            Underground Storage        
Other      \_\_\_\_\_  
(b) If Gas    Shallow          Deep      \_\_\_\_\_  
Horizontal   

6) Existing Pad: Yes or No    Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Target Formation - Marcellus Shale, Top - 7824.5 ft, Bottom - 7916.5 ft, Anticipated Thickness - 92 ft, Associated Pressure - 0.5 psi/ft

8) Proposed Total Vertical Depth: 7,903.5 ft

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 29,554 ft

11) Proposed Horizontal Leg Length: 21,183 ft

12) Approximate Fresh Water Strata Depths: 38', 40', 49', 362', 670'

13) Method to Determine Fresh Water Depths: Offsetting wells reported water depths (091-00116, 091-00118, 091-00108, 091-00120)

14) Approximate Saltwater Depths: 1980'

15) Approximate Coal Seam Depths: Elk Lick-322.5', Harlem-398.5', Bakerstown-477.5', Brush Creek-577.5', Upper Freeport-630.5', Lower Freeport-692.5', Upper Kittanning-760.5', Middle Kittanning-825.5', Lower Kittanning-845.5', Clarion-875.5' \_\_\_\_\_

16) Approximate Depth to Possible Void (coal mine, karst, other): None Known

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine?    Yes      \_\_\_\_\_    No    None Known

(a) If Yes, provide Mine Info:    Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

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18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	24	New	H-40	102.7	120	120	CTS
Fresh Water	13.375	New	J-55	54.5	725	725	CTS
Coal							
Intermediate	9.625	New	J-55	40	2100	2100	CTS
Production	5.5	New	P-110	20	29,554	29,554	TOC @ 1,950
Tubing							
Liners							

Kenneth Greynolds Digitally signed by: Kenneth Greynolds; DN: CN = Kenneth Greynolds, email = Kenneth.L.Greynolds@wv.gov, C = AD-0 - WVDEP OJ - Oil and Gas; Date: 2022.10.12 13:36:53 -0400

<b>TYPE</b>	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	24	36			0	Class A, 3% CaCl <sub>2</sub>	1.2
Fresh Water	13.375	17.5	0.38	2,730	900	Class A, 3% CaCl <sub>2</sub>	1.2
Coal							
Intermediate	9.625	12.25	0.395	3,950	1,500	Class A, 3% CaCl <sub>2</sub>	1.29
Production	5.5	8.5-8.75	0.361	14,360	11,500	Class A/50:50 Poz	1.29/1.34
Tubing					5,000		
Liners					N/A		

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

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19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

The well will be started with a conductor rig drilling a 36" hole to Conductor programmed depth then running 24" casing and circulate cement back to surface. The conductor rig will move out and the drilling rig will move in and rig up. The drilling rig will then spud a 17 1/2" hole and drill to fresh water casing (Surface) to the programmed depth, Run 13- 3/8" casing and cement to surface. The rig will continue drilling a 12- 1/4" intermediate hole to the programmed depth, run 9- 5/8" casing and cement to surface. The rig will then continue to drill an 8- 3/4" hole to a designed KOP. We will then start drilling the curve and lateral section to the programmed total measured depth, run 5 1/2" casing and cement according to the program.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The well will be completed using a plug and perforation method and stimulated with a slickwater and sand slurry. The anticipated maximum rate will be 90 bpm and the maximum pressure will be 11,500 psi.

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21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 33.56

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22) Area to be disturbed for well pad only, less access road (acres): 6.20

23) Describe centralizer placement for each casing string:

24"- No centralizers 13 3/8" – one bow spring centralizer on every other joint 9 5/8" – one bow spring centralizer every third joint from TD to surface 5 1/2" – one semi rigid centralizer on every joint from TD of casing to end of curve. Then every other joint to KOP. Every third joint from KOP to 2,300'; there will be no centralizers from 2,300' to surface.

24) Describe all cement additives associated with each cement type:

24" will be circulated to surface. The 13 3/8" casing will be cemented to surface with Class A cement and no greater than 3% CaCl (calcium chloride). The 9 5/8" casing will be cemented to surface with Class A cement, & no greater than 3% calcium chloride. The 5 1/2" production string will be cemented back to 1,950' (+/- 150' above the casing shoe for the 9 5/8") with Class A and 50/50 Poz cement retarded (to extend pumpability) cellophane flaked for fluid loss, Bentonite gel as an extender (increased pumpability and fluid loss), a defoaming agent to decrease cement foaming during mixing to insure the cement is of proper weight to placement and possibly gypsum gas blocking additive to aid in blocking/gas migration (in combination with other additive mentioned here, helps cement achieve a "right angle" set) during the plastic phase of the cement set-up.

25) Proposed borehole conditioning procedures:

Top holes will be drilled with fresh water KOP. At KOP, the wellbore will be loaded with synthetic oil based mud, barite-weighted mud system with such properties as to build a filter-cake on the face of the bore-hole. This will provide lubricity as well as stabilizing the well bore. We will begin rotating the drill string and mud will be circulated upon reaching TD until no further cuttings are observed coming across the shaker screens. Once clean mud is circulated back to surface, we will pull three stands of drill pipe, load the hole, pull three strands and load the hole. The weight indicator on the rig will be monitored for any occurrences of drag and if any are noticed, we will re-run the previous stand of pipe pulled across and circulate 2x bottoms up while watching shakers for signs of cuttings. Once at the base curve, the string will be continuously rotated while pumping 2x bottoms up. We will pull three stands and fill the hole until we reach the vertical section of the well.

\*Note: Attach additional sheets as needed.

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## **Purpose**

The purpose of this pad-specific Hydraulic Fracturing Monitoring Plan is to identify and notify conventional well operators near Arsenal Resources hydraulic fracturing in Taylor County, WV prior to hydraulic fracturing at Johnson TFP40 and Well Number 201.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 7,910' TVD) and existing conventional natural gas wells in the partially-depleted, relatively high permeability Benson formations (approximately 4,900' TVD).

The plan is being implemented as an additional safety measure to be utilized in conjunction with best management practices and emergency action plans for this site. These additional measures include pre-notification of conventional well operators of the timing and location of the hydraulic fracturing, establishment of measures conventional well operators should implement, and assurance that the Division of Oil and Gas is notified of the timeline, as well as any issues that may arise during fracturing.

### **1. Communications with Conventional Operators.**

Arsenal Resources, using available data (WV Geological Survey, WVDEP Website, and IHS data service), has identified all known conventional wells and well operators within 500 feet of this pad and the lateral sections. A map showing these wells along with a list of the wells and operators is included in Attachment A.

Upon approval of this plan, Arsenal Resources will notify these operators, via letter, of the hydraulic fracturing schedule for these wells. A copy of this letter is included in Attachment B.

The letter provides recommendations to these conventional operators to 1) increase their monitoring of their wells during that time period, 2) ensure that their well head equipment is sound, and 3) provide immediate notification to Arsenal Resources and the OOG in the event of any changes in their well conditions.

Specifically, the letter recommends that conventional well operators conduct the following activities during and after fracturing operations:

1. Inspect their surface equipment prior to fracturing to establish integrity and establish pre-frac well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas or pressure.
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and ARSENAL RESOURCES if any changes in water, gas production, pressure or other anomalies are identified.



## 2. Reporting

Arsenal Resources will provide information relating to the hydraulic fracturing schedule, communication with conventional operators, and ongoing monitoring of the work upon request of OOG or immediately after any event of any noted abnormalities.

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Click or tap to enter a date.

Alliance Petroleum Corp  
4150 Belden Village Ave. NW Ste 410  
Canton, OH 44718-2553

RE: Johnson TFP 40 Pad

Dear Sir/Madam,

Arsenal Resources has developed a Marcellus pad, Johnson TFP40, well #204, located in Taylor County, WV. As an owner or operator of conventional natural gas wells in this area, we are requesting your assistance in this matter.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water, or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 7,910 TVD) and existing conventional natural gas wells included in the attached well list for which you are believed to be the operator.

Arsenal Resources anticipates conducting hydraulic fracturing at the Johnson TFP40 pad, well #201, during the 4<sup>th</sup> Quarter of 2022. We have identified conventional natural gas wells operated by your company within 500' (lateral distance) of our newly planned wells. Plats for each well on this pad are attached.

We recommend that conventional well operators conduct the following activities before, during and after fracturing operations:

1. Inspect surface equipment, prior to fracturing, to establish integrity and establish well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in water, gas, or pressure.
3. Inspect or install master valves rated to 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and Arsenal Resources if any changes in water, gas production, pressure or other anomalies are identified.

Please feel free to contact me at 724-940-1218 with any questions or comments. You may also contact the WV Office of Oil and Gas at 304-926-0499.

Sincerely,

Ross Schweitzer  
Sr. Director of Drilling, Construction & Permitting

Environment & Safety  
OCT 11 2022

AOR - Attachment "B"





**ARSENAL**  
R E S O U R C E S

## **SITE SAFETY PLAN**

### **JOHNSON TFP 40 WELL PAD #204**

**911 Address:**

4006 Green Valley Rd

Bridgeport, WV 26330

Kenneth Greynolds

Digitally signed by Kenneth Greynolds  
DN: cn = Kenneth Greynolds email = Kenneth.L.  
Greynolds@wv.gov c = AD O = WVDEP OU = Oil and Gas  
Date: 2022.10.12 13:38:50 -0400

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## **SITE SAFETY PLAN**

**JOHNSON TFP 40 WELL PAD #204**

**911 Address:**

4006 Green Valley Rd  
Bridgeport, WV 26330

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**JOHNSON TFP40 Well Pad #204  
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## Section 1 – Contacts, Schedules, and Meetings

### **A. Emergency Contact Information**

This section details the method of notification to the public if an H2S Gas, blowout, or flaring emergency would be encountered. This section also lists the H2S Safety Services and Equipment that will be brought on site in case of an H2S Emergency.

#### Emergency Contact Information

The 24-hour Emergency Contact Information including the name and phone numbers of persons to be notified shall be posted in the production trailer in a common area and in plain sight for reference. The Emergency Contact Information is identified in the following table:

<b>Arsenal Resources – Emergency Contact Information</b>		
<b>Name</b>	<b>Position</b>	<b>24-Hour Phone #</b>
Jon Sheldon	Chief Operating Officer	304-376-0719
Ross Schweitzer	Sr. Director of Drilling, Cons & Permitting	724-584-1192
Brandon Wedde	Sr Director of Completions & Production	724-719-1240
<b>West Virginia DEP Office of Oil &amp; Gas – Emergency Contact Information</b>		
<b>Name</b>	<b>Position</b>	<b>24-Hour Phone #</b>
Ken Greynolds	Local WVDEP Inspector, Taylor County	304-206-6613
	Office of Oil & Gas	304-926-0499
	WVDEP Emergency Spill Hotline	1-800-642-3074
<b>Emergency Response Units</b>		
National Response Center for Reporting Chemical or Oil Spills		800-424-8802
WVDEP Emergency Spill Center		800-642-3074
<b>Ambulance, Fire, and Law Enforcement</b>		<b>911</b>
Taylor County EMS		304-265-0904
Taylor County Emergency Service Center		304-265-2524
Taylor County Sheriff Department		304-265-3428

### **B. Public Facility Contact Information**

According to information provided to Arsenal Resources by D&H, there are six public facilities located within the one-mile radius of the site. These facilities are listed in the table below:

Bailey Memorial UMC	63 Bailey Church Rd	Rosemont	WV	26424	304-842-1141
Flemington Assembly Church of God	1001 West Veterans Memorial HWY	Flemington	WV	26347	304-506-3448
Victory Valley Church	Route 76	Rosemont	WV	26424	304-739-4787
USPS	1791 W Veterans Memorial Hwy	Rosemont	WV	26424	800-275-8777
D&K Custom Cutting	1686 E Veterans Memorial Hwy	Flemington	WV	26347	304-739-2686
Mustangs & Bullets	4041 Green Valley Rd	Bridgeport	WV	26330	304-842-4363

All landowners within a 1 Mile Radius are listed as part of the Well Safety Plan Map.

\* - *ESRI Aerial Imaging was used to determine the location of Schools/Public Facilities/Houses within one mile of the project site.*

### **C. H2S Gas, Blow Out, and Flaring Emergency Notification and Evacuation Procedures**

This section details the method of notification to the public if an H2S Gas, blowout, or flaring emergency would be encountered. This section also lists the H2S Safety Services and Equipment that will be brought on-site in case of an H2S Emergency.

#### Evacuation Plan

In the event of an emergency that requires evacuation, personnel are to vacate the well pad area in a calm and orderly fashion by exiting the pad via the access road onto CR 17.

The procedure to be used in alerting nearby persons in the event of any occurrence that could pose a threat to life or property will be arranged and completed with public officials in detail, prior to drilling into the hydrogen sulfide formations.

In the event of an actual emergency, the following steps will be immediately taken:

1. Arsenal Resources will immediately notify the appropriate parties from the Emergency Contacts Section of this plan and any other appropriate parties to conduct necessary evacuation notifications. The emergency officials will immediately warn each resident and transient's down-wind within the radius of exposure from the well site, and then warn all residents in the radius of exposure. Additional evacuation zones may be necessary as the situation warrants. Arsenal Resources will provide assistance to emergency authorities.
2. Arsenal Resources will dispatch sufficient personnel to assist with traffic control in the vicinity away from the potentially dangerous area as requested and directed by the emergency authorities in charge of the evacuation procedures. A guard will be stationed at the entrance of the well site to monitor essential and non-essential traffic.
3. **General:**
  - A. The area included within the radius of exposure is considered to be the zone of maximum potential hazard from a hydrogen sulfide gas escape. Immediate evacuation of public areas, in accordance with the provisions of this contingency plan, is imperative. When it is determined that conditions exist which create an additional area (beyond the initial zone of maximum potential hazard) vulnerable to possible hazard, public areas in the additional hazardous area will be evacuated in accordance

with the contingency plan.

- B. In the event of a disaster, after the public areas have been evacuated and traffic stopped, it is expected that local civil authorities will have arrived and within a few hours will have assumed direction of and control of the public, including all public areas. Arsenal Resources will cooperate with these authorities to the fullest extent and will exert every effort by careful advice to such authorities to prevent panic or rumors.
- C. Arsenal Resources will dispatch appropriate management personnel at the disaster site as soon as possible. The company's personnel will cooperate with and provide such information to civil authorities as they might require.
- D. One of the products of the combustion of hydrogen sulfide is sulfur dioxide (SO<sub>2</sub>). Under certain conditions this gas may be equally as dangerous as H<sub>2</sub>S. A pump type detector device, which determines the percent of SO<sub>2</sub> in air through concentrations in ppm, will be available. Although normal air movement is sufficient to dissipate this material to safe levels, the SO<sub>2</sub> detector should be utilized to check concentrations in the proximity of the well once every hour, or as necessary and the situation warrants. Also, if any low areas are suspected of having high concentrations, personnel should be made aware of these areas, and steps should be taken to determine whether or not these low areas are hazardous.

This evacuation plan will also be posted in the production trailer in a common area and in plain sight for personnel to reference if there is an emergency that requires evacuation. The evacuation plan will be reviewed in the pre-drill or weekly safety meetings with all personnel.



#### **D. Pre-Spud Meeting.**

The Pre-Spud Meeting Form included on the next page will be used during the pre-spud meeting to account for all parties that are present. The invited parties shall include Representatives from Arsenal Resources Drilling and HSE Departments, the regional WVDEP Inspector, and representatives from all contractor companies being utilized during the drilling process.

Meeting Date: \_\_\_\_\_

Pre-Spud Meeting

JOHNSON TFP40 Well Pad # \_\_\_\_\_

**NAME**

**TITLE**

<b>NAME</b>	<b>TITLE</b>
	Arsenal Resources DRILLING REPRESENTATIVE
	Arsenal Resources SITE SUPERVISOR/REPRESENTATIVE
	STATE INSPECTOR
	DRILLING CONTRACTOR REPRESENTATIVE

## **E. Daily Visitor Sign-In Sheets**

Arsenal Resources utilizes a third-party security contractor to monitor the main entry to our sites from the start of the drilling process through the conclusion of flowback. The contractors will be utilizing their forms to document all individuals that access Arsenal Resources' well pad.

## **F. Safety Meetings**

Safety Meetings: Arsenal Resources and selected contractors shall hold a "pre-drill" safety meeting to discuss Well Site Safety during operations at the project location.

Safety Meetings will be held on a daily basis, prior to starting different phases of the operation (e.g., completion or work over operations), or when safety issues arise or need to be addressed.

Attendance logs will be kept for all site safety meetings and maintained on site.

The local WV DEP inspector, Bryan Harris, or another Office of Oil and Gas representative and emergency responders from the area will be notified of and invited to the pre-drill and subsequent meeting.

## **Section 2 – Maps and Diagrams**

### **A. Plan View Map**

The following pages include a Plan view map of the location, access road, pit(s), flare lines, nearby dwellings, notation of the north direction and the prevailing wind direction.



## **B. Topographic Map**

This section includes a Topographic map of the well location, including a 1 mile radius of well location, and UTM NAD 83 coordinates of well site entrance, UTM NAD 83 coordinates of the point the access road intersects the public route, and public route numbers and/or route names.



### C. Evacuation Plan Procedures

In the event of an H<sub>2</sub>S emergency, the following steps will be immediately taken:

1. Arsenal Resources will immediately notify the appropriate parties from the Emergency Contacts Section of this plan and any other appropriate parties to conduct necessary evacuation notifications. The emergency officials will immediately warn each resident and transient's down-wind within the radius of exposure from the well site, and then warn all residents in the radius of exposure. Additional evacuation zones may be necessary as the situation warrants. Arsenal Resources will provide assistance to emergency authorities.
2. Arsenal Resources will dispatch sufficient personnel to assist with traffic control in the vicinity away from the potentially dangerous area as requested and directed by the emergency authorities in charge of the evacuation procedures. A guard will be stationed at the entrance of the well site to monitor essential and non-essential traffic.

General:

- A. The area included within the radius of exposure is considered to be the zone of maximum potential hazard from a hydrogen sulfide gas escape. Immediate evacuation of public areas, in accordance with the provisions of this contingency plan, is imperative. When it is determined that conditions exist which create an additional area (beyond the initial zone of maximum potential hazard) vulnerable to possible hazard, public areas in the additional hazardous area will be evacuated in accordance with the contingency plan.
- B. In the event of a disaster, after the public areas have been evacuated and traffic stopped, it is expected that local civil authorities will have arrived and within a few hours will have assumed direction of and control of the public, including all public areas. Arsenal Resources will cooperate with these authorities to the fullest extent and will exert every effort by careful advice to such authorities to prevent panic or rumors.
- C. Arsenal Resources will dispatch appropriate management personnel at the disaster site as soon as possible. The company's personnel will cooperate with and provide such information to civil authorities as they might require.
- D. One of the products of the combustion of hydrogen sulfide is sulfur dioxide (SO<sub>2</sub>). Under certain conditions this gas may be equally as dangerous as H<sub>2</sub>S. A pump type detector device, which determines the percent of SO<sub>2</sub> in air through concentrations in ppm, will be available. Although normal air movement is sufficient to dissipate this material to safe levels, the SO<sub>2</sub> detector should be utilized to check concentrations in the proximity of the well once every hour, or as necessary and the situation warrants. Also, if any low areas are suspected of having high concentrations, personnel should be made aware of these areas, and steps should be taken to determine whether or not these low areas are hazardous.



### **Section 3 - Well Work**

This section includes written descriptions of well work and procedure to be used during the drilling, completion, and production phases, including schematic plan views of each, as well as casing sheets.

#### **Project Description**

This project includes the construction of several temporary and permanent features including a 8,383 foot long, 16 foot wide gravel access road to a 182,660 square foot gravel well pad with associated erosion and sediment control BMP's. An additional 238 foot long access road is to be constructed from the gravel well pad to a 40,280 square foot gravel AST and Manifold pad. Once the well pad is constructed, the well is to be drilled as a horizontal well for natural gas extraction purposes.

#### **General Drilling Program**

1. Move in and rig up rat hole rig and drill 36" conductor hole and run 24" conductor casing to approximately 80' depth. Cement to surface via pump truck thru swedge and up the backside and drill 16" mouse hole per rig specifications. Rig down move off rat hole rig.
2. Move in and rig up a double or triple drilling rig, rig up flow lines and steel pits, and drill 17 ½" hole to a depth of 300' – 1000' depending on local fresh water depth. Drilling medium will be on fresh water. Run new, J-55, 54.5#, 13 3/8" casing and hardware to near bottom and cement to surface with Class A, 3% CaCl<sub>2</sub> cement. Wait at least 8 hrs. on cement prior to drilling. If no cement circulation, call the inspector, run a CBL to determine cement top, then grout from the top back to surface. Wait on top grout 8hrs if grout is needed prior to drilling. Nipple up casing with annular BOP and test.
3. *Open Mine Contingency Plan:* when an open mine is encountered, Arsenal Resources will run 20" (H-40, 94#) and hardware as a mine string. The mine string will be set between 30 to 50 feet below the base of the open mine encountered. The mine string will have a cement balance job on the bottom (below the open mine), and the top will be surface-grouted to ground level. Then drill down to the proposed surface depth and set 13 -3/8" casing as originally planned.
4. Rig up directional drillers (if they are scheduled to nudge the surface) and trip in hole with 12 ¼" bit and drill on fresh water to the depth of 50 feet below the base of the 5<sup>th</sup> Sand, at approximately 1,500-2,800 feet. Any change from permitted depth will result in immediate notification to the OOG inspector for approval and subsequent modification to other well casing plans on the same pad will be made immediately to the OOG inspector. Run new, J-55 40#, 9 5/8" casing and hardware to near bottom and cement to surface with Class A cement. Wait at least 8 hrs. on cement prior to drilling.
5. Trip in hole with directional tools and 8 ¾" bit, continue drilling on fresh water to KOP. Then switch to a synthetic base mud system, and drill and build angle at 9 degree doglegs and land well at approximately 90 degrees horizontal in the lower Marcellus. Trip for directional issues or bit as needed, and drill 8 ¾" or 8 ½" hole.
6. Drill 8 3/4" or 8 ½" hole to planned total depth. Condition and prep the hole for casing run, and trip out of the hole. Lay down drilling assembly, and rig up casing crew and handling equipment. Run 5.5" 20# P-110, production casing the entire

measured depth of the well. Rig down casing crew and equipment, and rig up cementing crew. Cement production casing in 2 stages, with the lead and tail consisting of various densities of Class A cement slurry. The top of the production cement will be brought to approximately 150' within the intermediate casing shoe.

Once drilling operations have finished, the Johnson TFP40 #204 will be handed over to completions. Arsenal Resources will complete the well, using wireline perforating, and slickwater fracing. The number of stages will be determined once the lateral has been drilled. Each stage will consist of 400,000 lbs. of sand and approximately 350,000 gallons of water.

### **Well Equipment Set Up Procedure**

1. Well set up starts by meeting with completions, flow back, set up contractor, and production supervisor.
2. A discussion is made on where to set surface equipment, GPU's Tanks and lines.
3. Procedure for equipment setup is to level off and gravel GPU and Tank area. Build concrete pad for GPU's and construct tank containment, and then set GPU's and Tanks. Install header pipe and dump lines to tanks. Install Sand traps, Lock-out casing valve and install prefabbed well head fittings, and dig up and install 3" lines to well heads. X-Ray all welds on gas lines; install skillets and block of lines for Hydrostatic test, test pipe. Drain pipe, remove plugs and skillets, bolt piping back up. Finish hooking up ESD Controls.
4. Welding is done in one corner of locations, utilizing flow backs LEL and our Personal LEL Monitors

## Wellbore Casing and Cement Information

Geology information pertaining to the depths of freshwater, saltwater, coal, voids, etc., as listed on the Well Permit Application have been identified in the table below:

Geologic Information	
Approximate freshwater strata depths	38', 40', 49', 362', 670'
Approximate saltwater depths	1980'
Approximate coal seam depths	322.5', 398.5', 477.5', 577.5', 630.5', 692.5', 760.5', 825.5', 845.5, 876.5'
Approximate void depths (coal, karst, other)	None

1. Casing and Cementing Standards listed on the Well Work Permit Application Casing and Tubing Program Table have been identified in the table below:

Casing & Tubing Program						
Casing Type	Size	Grade	Weight /FT	For Drilling	Left in Well	Fill Up
Conductor	24"		94#	120'	120'	CTS
Fr. Water	13.375"	J-55	54.5#	725'	725'	CTS
Intermediate	9.625"	J-55	40#	2,100'	2,100'	CTS
Production	5.5"	P-110	20#	28,422'	28,422'	TOC @ 1.950
Tubing						

All casing and cement will meet current API standards any special conditions required of the permit that were set forth upon approval.



PREVAILING WIND

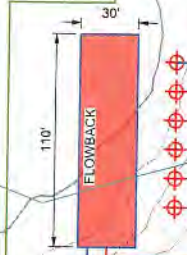
SUMP (TYPE G DROP INLET)

PROPOSED GAS LINE RELOCATION

22'  
116'  
TANKS

BLIND DITCH (TYP.)

UNDERDRAIN



70'  
80'  
WATER TANKS

PERIMETER BERM (TYP.)

DELINEATED WETLAND Z (PEM) (0.102 AC) DISTURBED: 0.102 AC

DELINEATED WETLAND BB (PFO) (0.579 AC)

FLARE

UNDERDRAIN SYSTEM (TYP.)

RIP RAP APRON

LIMITS OF DISTURBANCE

SUMP (TYPE G DROP INLET)

DELINEATED WETLAND W (PEM) (0.076 AC)

DELINEATED WETLAND Y (PEM) (0.144 AC) DISTURBED: 0.079 AC

DELINEATED WETLAND X (PEM) (0.009 AC)

### PRODUCTION EQUIPMENT LAYOUT

made for  
**ARSENAL RESOURCES**  
**JOHNSON TFP40 WELL SITE**

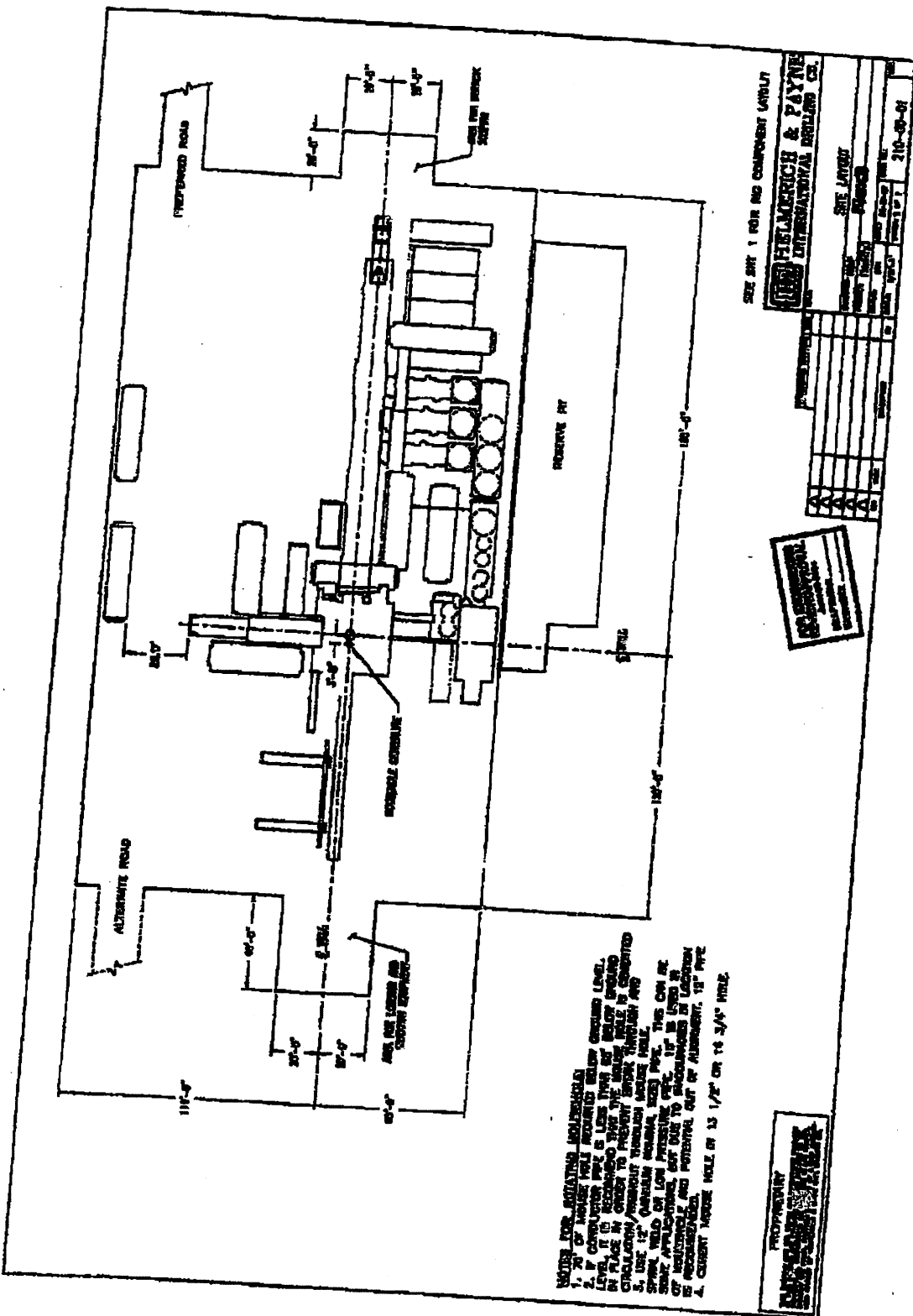
Harrison and Taylor County, West Virginia  
prepared by  
**DIEFFENBAUCH & HRITZ, LLC**

1095 Chaplin Rd Suite 200, Morgantown, WV 26501  
Phone: 304-985-5555 Fax: 304-985-5557



K:\Mountaineer\KeyStone\2017\17078-007 - Johnson TFP40\Common\Production Equipment Layout.dgn  
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10/21/2022



- NOTES FOR ROTATING MACHINERY**
1. 70' OF MACHINERY WILL BE MOUNTED BELIEF EXCEEDS 1000.
  2. IF CONSTRUCTION WILL EXCEED 1000' OF BELIEF EXCEEDS 1000, IT IS RECOMMENDED THAT THE MACHINERY BE CONSIDERED IN PLACE IN ORDER TO PREVENT DAMAGE THROUGHOUT AND THROUGHOUT THROUGHOUT THROUGHOUT THROUGHOUT.
  3. USE 12" (MACHINERY MOUNTING) BELIEF EXCEEDS 1000.
  4. CURRENT MACHINERY BELIEF EXCEEDS 1000.

SEE SHEET 1 FOR NO COMPONENT LAYOUT

**HILMERICH & PAYNE**  
INTERNATIONAL DESIGN CO.

DATE: 10/21/2022  
PROJECT: 210-00-01



## **B. LEPC Submission**

The following page contains a Statement detailing that the plan will be provided to the local emergency planning committee or county emergency services office within at least 7 days from land disturbance or well work.



Arsenal Resources acknowledges that a copy of this Site Safety Plan will be submitted to the Local Emergency Planning Committee or county emergency services office as listed in the contacts section of this plan, within at least 7 days from land disturbance or well work.

*R. Schweitzer*

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Ross Schweitzer  
Sr. Director of Drilling, Construction and Permitting

## **Section 4 – Chemical Inventory and Safety Data Sheets (SDS)**

### **A. SDS Availability / Location**

The SDS sheets will be provided and maintained by the selected contractor(s) and for personnel to reference.

The location of the SDS sheets, how they are referenced, and maintained shall be detailed in each of the operations meetings and the pre-drill or weekly safety meetings with all personnel.

### **B. Inventory of Mud Materials**

1. Inventory: At least 70,965 pounds of barite will be kept on location plus additional weight at the warehouse. At least 2,075 bbls of drilling fluid will be onsite and additional fluid will be stored both on location and at the warehouse.
2. The number and type of mixing units for mixing the mud on site shall be provided by the selected contractor and kept in the production trailer in a designated archive area for reference.
3. The selected driller shall use IADC well control methods. These shall include the Driller's Method, Wait and Weight, Dynamic Volumetric, Migration/Bleed, and Lubrication/Bleed. The primary methods are Driller's Method and Wait and Weight.

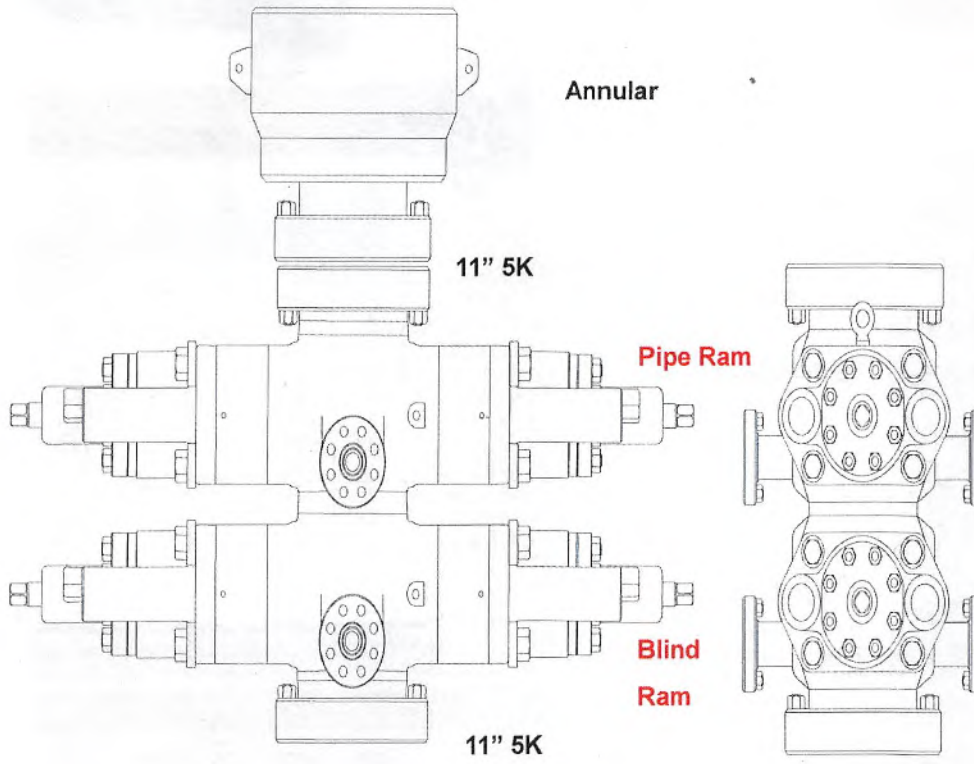


**Section 5 -BOP and Well Control**

**A. BOP Equipment**

The following pages include schematics and information on the BOP equipment.

11" 5K Double Ram BOP



# Choke & Kill, BOP



- Choke & Kill, BOP
- Rotary hose
- Hydraulic hose
- Hammer Unions
- Industrial hose
- Fire hose
- Metal hose, Expansion Joints
- Ducting hose
- Automotive hose
- Crimp Fittings & Machines
- Frac Fittings, Notched KCs
- Cam & Groove, Universal, Shank Fittings
- Valves
- Black Pipe
- Quick Couplings
- Gauges
- Belts, Sheaves, & Bushings
- Steel Adapters
- Brass Adapters

## MWH Choke & Kill

Designed as a flexible connection to the choke manifold.

**Tube:** petroleum resistant for oil based drilling fluids

**Cover:** ozone, petroleum, and abrasion resistant

**Reinforcement:** high tensile steel wire spiral layers

**Thermal Blanket:** 1500°

continuous ratings, non-flammable, non-conductive

**Armor Wall:** .144"

**Max Length:** 150 feet

-20° F / +212° F  
-29° C / +100° C



Item	ID inch	OD inch	WP psi	Test psi	Weight lbs./ft
CK-48 Red	3	4.94	5,000	10,000	14.9
CK-56 Red	3½	5.44			17.7
CK-64 Red	4	6.31			26.4
CK-48 Armor	3	6.5			20.8
CK-56 Armor	3½	7	10,000	15,000	23.1
CK-64 Armor	4	8			26.3
CK-4810K Red	3	5.31			22.3
CK-5610K Red	3½	5.81			25.0
CK-6410K Red	4	4.75	10,000	15,000	36.1
CK-4810K Armor	3	6.5			26.0
CK-5610K Armor	3½	7			29.0
CK-6410K Armor	4	8			32.8

## MWH BOP Control Line

For blowout preventer lines.

**Tube:** for hydraulic BOP actuation

**Thermal Blanket:** 1500°

continuous rating, non-flammable, non-conductive

**Armor Wall:** .08"

Popular with a larger hex and longer threads for easier installation of hammer unions.

-20° F / +212° F  
-29° C / +100° C



Item	ID inch	OD inch	WP psi	Test psi	Weight lbs./ft
BOP-16 Armor	1	2.06	5,000	10,000	3.9
BOP-32 Armor	2	3.75			11.7
BOP-16	1	1.77			2.1
BOP-32	2	3.09			10.2

Carbon or stainless steel nipples are available and 1/2", 3/4", 1-1/4", and 1-1/2" sizes are available too.



## **Section 5, continued**

### **B. BOP Testing**

Procedure and Schedule for Testing the BOP Stack: For the bottom and horizontal wellbore drilling phase, the BOP equipment shall be function tested upon initial installation, weekly, and after each bit trip. The BOP equipment shall be pressure tested upon initial installation and every twenty-one (21) days thereafter. All pressure tests shall be performed for thirty (30) minutes. Annular preventers should be tested to seventy percent (70%) of the rated capacity and ram preventers should be tested to eighty percent (80%) of the rated capacity.

BOP Schedule: A schedule of BOP equipment installation and operation shall be kept for each applicable string in the Detailed Daily Reports that are kept in the production trailer in a designated archive location for reference.

Adjustments and variances are only permitted with consent of the area drilling/completion manager and WVDEP Inspector.

The Testing will follow the requirements of 35-8 5.7.c.2.

### **C. BOP Equipment and Assembly Installation Schedule**

1. The 13 3/8" Rotating Head will be installed when nipping up on the 13 3/8" casing. It will divert returns to the pit while air drilling this section.
2. The 9 5/8" BOP stack will be installed when nipping up on the 13 3/8" casing. The BOP will be pressure tested using a test plug. The BOP will be tested to a pressure of 250 psi low and 5,000 psi high and the annular to 250 psi low and 2,500 psi high prior to drilling out 8 5/8" casing.
3. When the 10,000 psi BOP stack is in use, a 10,000 psi upper and lower Kelly cock will be employed. They will be tested when the BOP stack is tested.

### **D. Personnel with Well Control Training**

A list of all personnel with approved well control training and current certification recognized by the International Association of Drilling Contractors (IADC) shall be provided to the Office prior to the pre-spud meeting. Current Arsenal Resources employee with Wild Well Control training is Ross Schweitzer and Jarrett Toms.

### **E. Well Event Record Keeping**

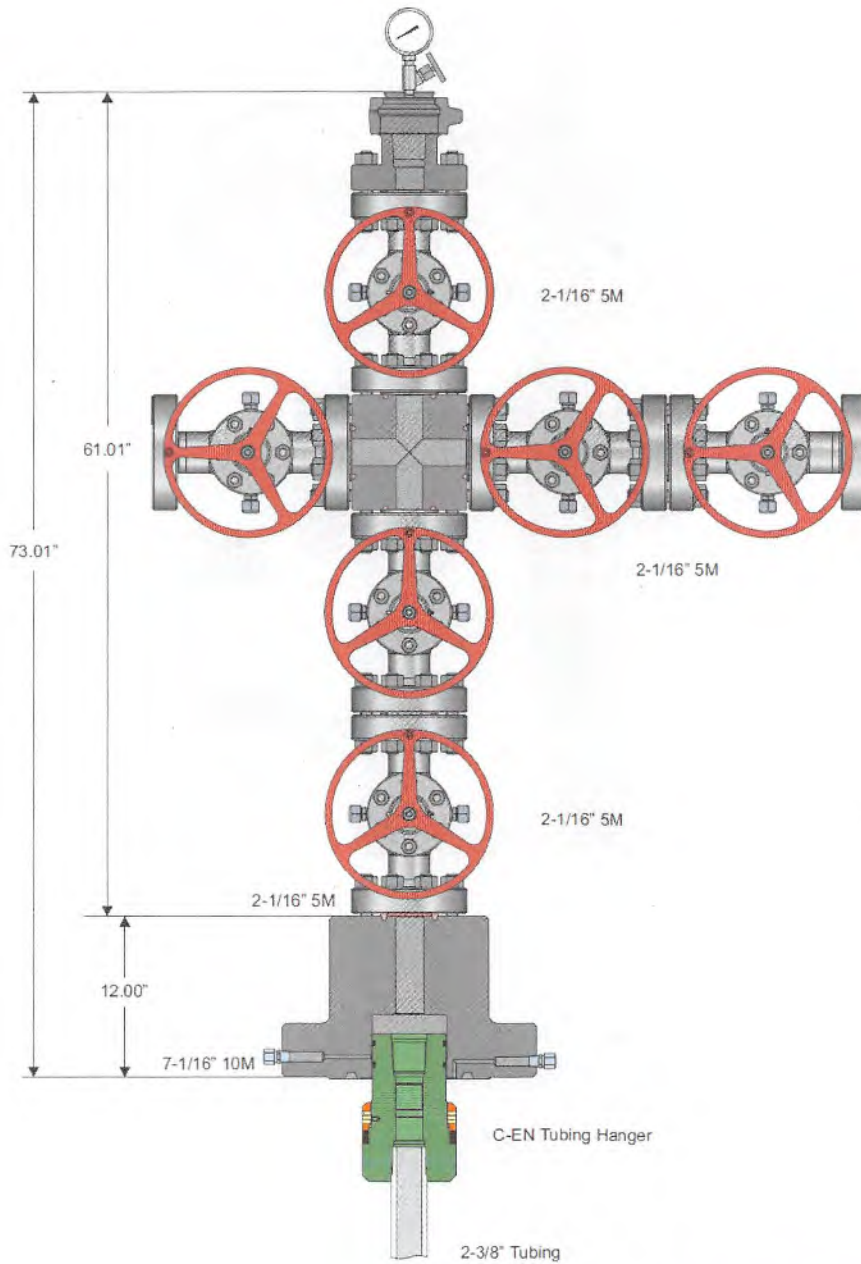
Detailed Log: A detailed daily record of events shall be kept during the drilling operation noting any significant event (e.g., lost circulation, presence of hydrogen sulfide, fluid entry, kicks and abnormal pressures). The daily reports will be kept in the production trailer in a designated archive location for reference.

## **F. Inspector Notification**

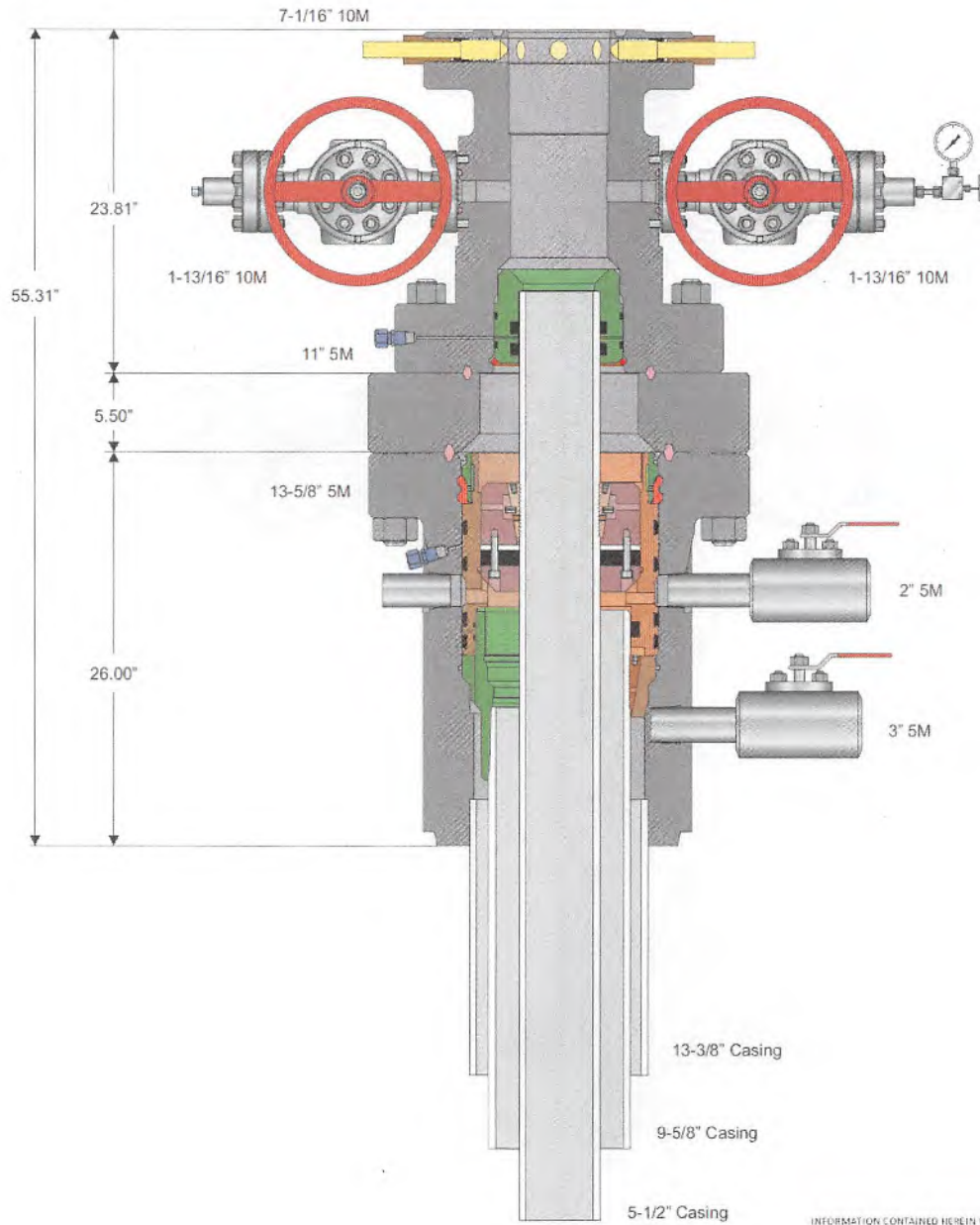
A detailed record of significant drilling events will be recorded in Arsenal Resources well log book. The state inspector will be notified upon any significant drilling events including the encounter of Hydrogen Sulfide Gas, lost circulation, fluid entry, abnormal pressures, etc.

## **G. Wellhead Assembly**

The following pages contain sketches of the anticipated wellhead assemblies that will be used.



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## H. Well Kill Procedures

1. Inventory: At least 70,965 pounds of barite will be kept on location plus additional weight at the warehouse. At least 2,075 bbls of drilling fluid will be onsite and additional fluid will be stored both on location and at the warehouse.
2. The number and type of mixing units for mixing the mud on site shall be provided by the selected contractor and kept in the production trailer in a designated archive area for reference.
3. The selected driller shall use IADC well control methods. These shall include the Driller's Method, Wait and Weight, Dynamic Volumetric, Migration/Bleed, and Lubrication/Bleed. The primary methods are Driller's Method and Wait and Weight.

REVIEWED  
Oil & Gas

OCT 11 2022

10/11/2022



## **Section 6 – Hydrogen Sulfide (H2S)**

### **A. Hydrogen Sulfide (H2S) Detection and Warning Equipment**

Arsenal Resources has a MeshGuard LEL and H2S Monitoring system installed on the rig. The system triggers audio and visual alarms if it detects LEL or H2S at action levels.

The system consists of the following:

- 1 H<sub>2</sub>S Fixed Monitor w/2 relays (relays location in doghouse & company man trailer)
- 4 H<sub>2</sub>S Sensors (sensors located on rig floor, cellar, shakers, and mud tank)
- 2 Explosion Proof Alarms (Light and Siren)

Arsenal Resources employees will utilize MGC multi-gas detectors. The selected contractor foreman shall immediately notify the WV DEP Office of Oil and Gas Inspector and the Office when Hydrogen Sulfide is encountered.

### **B. H2S Personnel Training**

Personnel involved with the monitoring, detection or warning of the presence of Hydrogen Sulfide shall be provided training in a special training session detailing how to use the equipment and issue the necessary warning prior to the operations commencing. This is special Hydrogen Sulfide detection training that will be conducted by the selected contractor.

### **C. Inspector Notification of H2S Presence**

The selected contractor shall immediately contact the WV DEP Office of Oil and Gas Inspector by phone when Hydrogen Sulfide is detected and alert the guard station that no entry to the site shall be granted to unauthorized personnel during that time until the presence of Hydrogen Sulfide is no longer detected and the site is deemed safe by the WV DEP Office of Oil and Gas Inspector or Office Representative.

### **D. Establishment of Protective Zones**

#### **Evacuation and Notification of General Public if an H2S Emergency Occurs:**

In the event of an accident that requires notification to the residents within 2,500 feet of the well site, local emergency responders and the Taylor County Emergency Services shall be notified by phone and coordinate alerting the residents by phone or in person and advise them of the appropriate action.

The selected contractor shall maintain the 2,500 foot protection zone during all applicable events such as hydrogen sulfide, blow-outs and flaring by alerting the local emergency responders and the Taylor County Emergency Services and having them coordinate notifications and evacuation of the protection zone.

## **E. H2S PPE**

### Personal Protective Equipment (PPE):

During operations, all personnel shall have on hard hats, safety goggles, fire retardant clothing, steel toe boots and earplugs at all times. Additional PPE may be required for specialized tasks.

Each individual's required PPE will be detailed in the Job Safety Analysis report that is kept in the production trailer in a designated archive area for reference, and shall be reviewed by each individual prior to the start of their shift.

Personnel without the required PPE will not be granted access to the site.

### H<sub>2</sub>S Safety Services Equipment List:

In the event of an H<sub>2</sub>S Emergency, Total Safety or TekSolv will be contacted to provide the following:

#### Hydrogen Sulfide Safety Package

##### **Respiratory Safety Systems**

<u>QTY</u>	<u>DESCRIPTION</u>
8	30-minute pressure demand SCBA with Pigtail.
4	4 supplied Air Respirators with 5 minute escape bottles.

##### **Detection and Alarm Safety System**

1	Personal H <sub>2</sub> S monitors
1	Portable Tri-Gas Hand Held Meter (O <sub>2</sub> , LEL, H <sub>2</sub> S)
1	Gastech Manual Impingement Pump Type Detector
2	Boxes H <sub>2</sub> S Tubes Various Ranges
2	Boxes SO <sub>2</sub> Tubes Various Ranges
1	Calibration Gas
1	Set Paper Work for Records: Training, Cal, Inspection, other

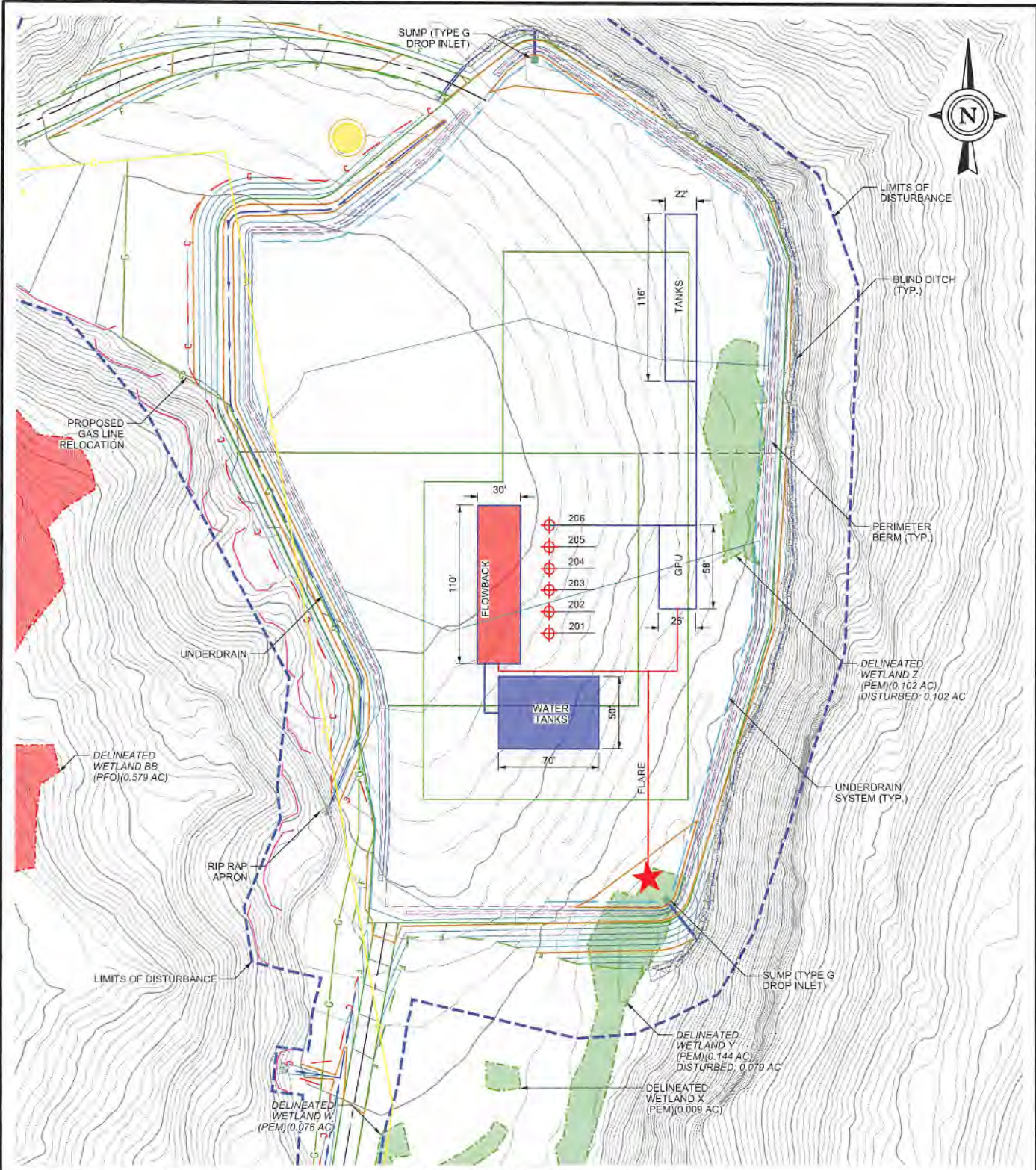
### **Additional Safety Related Equipment**

<u>QTY</u>	<u>Description</u>
2	Windssocks with Pole and Bracket
1	Set Well Condition Sign w/Green, Yellow, Red Flags
1	Primary Safe Briefing Area Sign
1	Secondary Safe Briefing Area Sign
1	Oxygen Resuscitator

## **Section 7 – Flaring**

- A. Description and Plan including schematic of installation for duration of flaring activities:
1. Flare Line will be constructed using three inch flare line tubing and anchored with cement anchor blocks. The line will have a dual choke assembly manifold with adjustable manual chokes. A detailed Pad Flaring Diagram is located in Section 7.
  2. The selected contractor will designate the system to light the flare and the dedication of the back-up igniters.
  3. The Taylor County Emergency Services and local Volunteer Fire Department shall be notified by the selected contractor foreman prior to lighting the flare when possible, and as soon after lighting the flare as reasonably possible.
  4. A minimum distance of 100 feet will be maintained to the nearest flammable material beyond the end of the flare line. The flare line has been placed in order to avoid any distance less than 100 feet to the nearest wooded area. The flare line minimum distances to the nearest flammable material shall be detailed in each of the operations meetings and the pre-drill or weekly safety meetings with all personnel.
  5. The estimated flaring operations for this site are anticipated to last no longer than two weeks.

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WELL NO.	STATE PLAN COORDINATE (WV NAD 83)	LAT/LONG COORDINATE	LAT/LONG COORDINATE (NAD 83) (DMS)	UTM COORDINATE (NAD83-ZONE 17-METER)	EXISTING ELEV (NAVD88) (FT)	PROPOSED ELEV (NAVD88) (FT)
WELL 201	NORTHING 276971.7221	LAT. 39.258499°	LAT. 39°15'30.60"	NORTHING 4345792.144	1335.08'	1333.5'
	EASTING 1779051.6624	LONG. -80.169060°	LONG. -80°10'08.61"	EASTING 571690.548		
WELL 202	NORTHING 276986.7221	LAT. 39.258540°	LAT. 39°15'30.75"	NORTHING 4345796.714	1335.90'	1333.5'
	EASTING 1779051.6624	LONG. -80.169060°	LONG. -80°10'08.62"	EASTING 571690.472		
WELL 203	NORTHING 277001.7221	LAT. 39.258582°	LAT. 39°15'30.89"	NORTHING 4345801.284	1337.01'	1333.5'
	EASTING 1779051.6624	LONG. -80.169060°	LONG. -80°10'08.62"	EASTING 571690.397		
WELL 204	NORTHING 277016.7221	LAT. 39.258623°	LAT. 39°15'31.04"	NORTHING 4345805.854	1337.79'	1333.5'
	EASTING 1779051.6624	LONG. -80.169061°	LONG. -80°10'06.62"	EASTING 571690.321		
WELL 205	NORTHING 277031.7221	LAT. 39.258664°	LAT. 39°15'31.19"	NORTHING 4345810.424	1338.26'	1333.5'
	EASTING 1779051.6624	LONG. -80.169061°	LONG. -80°10'08.62"	EASTING 571690.245		
WELL 206	NORTHING 277046.7221	LAT. 39.258705°	LAT. 39°15'31.34"	NORTHING 4345814.994	1338.79'	1333.5'
	EASTING 1779051.6624	LONG. -80.169062°	LONG. -80°10'08.62"	EASTING 571690.169		



**FLOWBACK SCHEMATIC LAYOUT**  
 made for  
**ARSENAL RESOURCES**  
**JOHNSON TFP40 WELL SITE**  
 Harrison and Taylor County, West Virginia

prepared by  
**DIEFFENBAUCH & HRTZ, LLC**  
 1095 Chaplin Rd Suite 200, Morgantown, WV 26501  
 Phone: 304-985-5555 Fax: 304-985-1555

10/21/2022

## **Section 8 – Collision Avoidance**

### **A. Established Definitions**

Protocol and established safeguard designed to prevent underground collisions during any drilling on multi-well pads.

### **B. Description of Risk**

Arsenal Resources uses an anti-collision protocol on all wells as a safeguard designed to prevent underground collision during any drilling on multi-well pads.

### **C. Plan Components**

1. All surveys will be MWD/EM survey tools in all hole sections, and surveys will be taken every stand (Around 90'). If the SF < 1 surveys will be taken on a more frequent basis, most likely every 30'. We will discuss with the WVDEP Oil and Gas Inspector.
2. All directional and MWD tools will be visually inspected by directional MWD personnel and Arsenal Resources site representatives at a minimum.
3. Surface nudges will be planned by the directional company as needed to maintain a safe SF.
4. The same survey tools that we use in the vertical section will be used.
5. The directional company uses a AC software to maintain a safe SF. Compass is the current company's software.
6. Arsenal Resources will maintain the state minimum SF factors in all whole sections.
  - a. Minimum SF standards (thresholds) required – SF > 1.5 shall be obtained early as practical and maintained. Survey every stand (90').
  - b. SF > 2 applies when in proximity to any fractured or any producing well that exists on the well pad. Survey every stand (90'). \*\*Additional risk management might be needed as well and will be addressed as needed.
7. Lateral Section
  - a. Arsenal Resources will work with the directional companies to maintain delineation, grid connections, and ensure magnetic interference correction is being followed. The onsite Arsenal Resources representative and the directional company's MWD personnel will be responsible for QC/QA.

8. For any existing horizontal or vertical well found adjacent to the lateral section Arsenal Resources will maintain over a 2 SF and will review each well on a case by case basis with a pre-drilled AC program along with continually updating the plan while drilling.
9. Arsenal Resources will attach the wall map showing all wells on the pad spaced at 10' - 15' apart. If there is a fractured well, (live) well, Arsenal Resources will note it in the drawing.
10. When there is an existing wellbore on the pad, Arsenal Resources will attach notes and or surveys for the well.
11. If a collision should occur, the wellbores would be shut in immediately and the well would need to be killed with kill mud. If a survey shows imminent risk for a collision, Arsenal Resources will stop drilling and confirm with a gyro, then evaluate the situation on a case by case basis. If Arsenal Resources can steer away with MWD or a gyro we will, or we will plug back if needed.
12. Arsenal Resources will notify the WVDEP Oil and Gas inspector immediately of any underground collision or if the SF level 1 is determined.
13. Arsenal Resources will provide other supportive resources as needed.



## **Arsenal Resources**

Taylor County, WV  
Johnson TFP40  
204 - Slot 204

Orig.

Plan: DEP Plan 6

## **Standard Planning Report**

17 September, 2022



[www.scientificdrilling.com](http://www.scientificdrilling.com)

10/21/2022



Database:	Northeast	Local Co-ordinate Reference:	Well 204 - Slot 204
Company:	Arsenal Resources	TVD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Project:	Taylor County, WV	MD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Site:	Johnson TFP40	North Reference:	Grid
Well:	204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Orig.		
Design:	DEP Plan 6		

Project	Taylor County, WV		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	West Virginia Northern Zone		

Site	Johnson TFP40		
Site Position:		Northing:	276,971.63 usft
From:	Map	Easting:	1,779,051.83 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39.2584990
		Longitude:	-80.1690590
		Grid Convergence:	-0.43 °

Well	204 - Slot 204					
Well Position	+N/-S	45.1 usft	Northing:	277,016.72 usft	Latitude:	39.2586228
	+E/-W	-0.2 usft	Easting:	1,779,051.66 usft	Longitude:	-80.1690607
Position Uncertainty		0.0 usft	Wellhead Elevation:		Ground Level:	1,332.5 usft

Wellbore	Orig.				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM2022	2/1/2022	-9.52	65.77	51,612.60000000

Design	DEP Plan 6			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	160.97

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,000.0	4.00	77.00	999.8	1.6	6.8	2.00	2.00	0.00	77.00	
2,604.1	4.00	77.00	2,600.0	26.7	115.8	0.00	0.00	0.00	0.00	
2,929.1	10.50	77.00	2,922.2	36.0	155.8	2.00	2.00	0.00	0.00	
4,025.0	10.50	77.00	3,999.8	80.9	350.4	0.00	0.00	0.00	0.00	
4,249.6	11.50	53.87	4,220.4	98.7	388.4	2.00	0.45	-10.30	-88.76	
7,333.1	11.50	53.87	7,241.9	461.2	884.9	0.00	0.00	0.00	0.00	
8,370.4	90.00	160.97	7,903.5	-97.7	1,213.7	9.00	7.57	10.32	106.78	Joh_TPF40_204_LP I
29,553.7	90.00	160.97	7,903.5	-20,123.7	8,119.7	0.00	0.00	0.00	0.00	Joh_TPF40_204_PBI

Database:	Northeast	Local Co-ordinate Reference:	Well 204 - Slot 204
Company:	Arsenal Resources	TVD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Project:	Taylor County, WV	MD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Site:	Johnson TFP40	North Reference:	Grid
Well:	204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Orig.		
Design:	DEP Plan 6		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>KOP 800' MD/ TVD 800'</b>									
900.0	2.00	77.00	900.0	0.4	1.7	0.2	2.00	2.00	0.00
1,000.0	4.00	77.00	999.8	1.6	6.8	0.7	2.00	2.00	0.00
<b>Hold 4° Inc</b>									
1,100.0	4.00	77.00	1,099.6	3.1	13.6	1.5	0.00	0.00	0.00
1,200.0	4.00	77.00	1,199.4	4.7	20.4	2.2	0.00	0.00	0.00
1,300.0	4.00	77.00	1,299.1	6.3	27.2	2.9	0.00	0.00	0.00
1,400.0	4.00	77.00	1,398.9	7.8	34.0	3.7	0.00	0.00	0.00
1,500.0	4.00	77.00	1,498.6	9.4	40.8	4.4	0.00	0.00	0.00
1,600.0	4.00	77.00	1,598.4	11.0	47.6	5.1	0.00	0.00	0.00
1,700.0	4.00	77.00	1,698.1	12.6	54.4	5.9	0.00	0.00	0.00
1,800.0	4.00	77.00	1,797.9	14.1	61.2	6.6	0.00	0.00	0.00
1,900.0	4.00	77.00	1,897.6	15.7	68.0	7.3	0.00	0.00	0.00
2,000.0	4.00	77.00	1,997.4	17.3	74.8	8.1	0.00	0.00	0.00
2,100.0	4.00	77.00	2,097.2	18.8	81.6	8.8	0.00	0.00	0.00
2,200.0	4.00	77.00	2,196.9	20.4	88.4	9.5	0.00	0.00	0.00
2,300.0	4.00	77.00	2,296.7	22.0	95.2	10.3	0.00	0.00	0.00
2,400.0	4.00	77.00	2,396.4	23.5	102.0	11.0	0.00	0.00	0.00
2,500.0	4.00	77.00	2,496.2	25.1	108.8	11.7	0.00	0.00	0.00
2,604.1	4.00	77.00	2,600.0	26.7	115.8	12.5	0.00	0.00	0.00
<b>KO Tangent 2°/100</b>									
2,700.0	5.92	77.00	2,695.6	28.6	123.9	13.4	2.00	2.00	0.00
2,800.0	7.92	77.00	2,794.8	31.3	135.6	14.6	2.00	2.00	0.00
2,900.0	9.92	77.00	2,893.6	34.8	150.7	16.3	2.00	2.00	0.00
2,929.1	10.50	77.00	2,922.3	36.0	155.8	16.8	2.00	2.00	0.00
<b>Hold 10.5° Inc</b>									
3,000.0	10.50	77.00	2,992.0	38.9	168.4	18.2	0.00	0.00	0.00
3,100.0	10.50	77.00	3,090.3	43.0	186.1	20.1	0.00	0.00	0.00
3,200.0	10.50	77.00	3,188.6	47.1	203.9	22.0	0.00	0.00	0.00
3,300.0	10.50	77.00	3,286.9	51.2	221.6	23.9	0.00	0.00	0.00
3,400.0	10.50	77.00	3,385.3	55.3	239.4	25.8	0.00	0.00	0.00
3,500.0	10.50	77.00	3,483.6	59.4	257.1	27.7	0.00	0.00	0.00
3,600.0	10.50	77.00	3,581.9	63.5	274.9	29.6	0.00	0.00	0.00
3,700.0	10.50	77.00	3,680.2	67.6	292.7	31.6	0.00	0.00	0.00
3,800.0	10.50	77.00	3,778.6	71.7	310.4	33.5	0.00	0.00	0.00
3,900.0	10.50	77.00	3,876.9	75.8	328.2	35.4	0.00	0.00	0.00
4,000.0	10.50	77.00	3,975.2	79.9	345.9	37.3	0.00	0.00	0.00
4,025.0	10.50	77.00	3,999.8	80.9	350.4	37.8	0.00	0.00	0.00
<b>Build/ Turn Tangent</b>									
4,100.0	10.64	68.85	4,073.5	84.9	363.5	38.2	2.00	0.18	-10.87
4,200.0	11.13	58.57	4,171.7	93.3	380.3	35.8	2.00	0.50	-10.28
4,249.6	11.50	53.87	4,220.4	98.7	388.4	33.3	2.00	0.74	-9.48

<b>Database:</b>	Northeast	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Company:</b>	Arsenal Resources	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Project:</b>	Taylor County, WW	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site:</b>	Johnson TFP40	<b>North Reference:</b>	Grid
<b>Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Orig.		
<b>Design:</b>	DEP Plan 6		

**Planned Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
<b>Hold 11.5°</b>									
4,300.0	11.50	53.87	4,269.8	104.6	396.5	30.4	0.00	0.00	-0.01
4,400.0	11.50	53.87	4,367.8	116.4	412.6	24.5	0.00	0.00	0.00
4,500.0	11.50	53.87	4,465.8	128.1	428.7	18.7	0.00	0.00	0.00
4,600.0	11.50	53.87	4,563.8	139.9	444.8	12.8	0.00	0.00	0.00
4,700.0	11.50	53.87	4,661.7	151.6	460.9	6.9	0.00	0.00	0.00
4,800.0	11.50	53.87	4,759.7	163.4	477.0	1.1	0.00	0.00	0.00
4,900.0	11.50	53.87	4,857.7	175.2	493.1	-4.8	0.00	0.00	0.00
5,000.0	11.50	53.87	4,955.7	186.9	509.2	-10.6	0.00	0.00	0.00
5,100.0	11.50	53.87	5,053.7	198.7	525.3	-16.5	0.00	0.00	0.00
5,200.0	11.50	53.87	5,151.7	210.4	541.4	-22.4	0.00	0.00	0.00
5,300.0	11.50	53.87	5,249.7	222.2	557.5	-28.2	0.00	0.00	0.00
5,400.0	11.50	53.87	5,347.7	233.9	573.7	-34.1	0.00	0.00	0.00
5,500.0	11.50	53.87	5,445.7	245.7	589.8	-40.0	0.00	0.00	0.00
5,600.0	11.50	53.87	5,543.7	257.4	605.9	-45.8	0.00	0.00	0.00
5,700.0	11.50	53.87	5,641.7	269.2	622.0	-51.7	0.00	0.00	0.00
5,800.0	11.50	53.87	5,739.7	280.9	638.1	-57.5	0.00	0.00	0.00
5,900.0	11.50	53.87	5,837.7	292.7	654.2	-63.4	0.00	0.00	0.00
6,000.0	11.50	53.87	5,935.6	304.5	670.3	-69.3	0.00	0.00	0.00
6,100.0	11.50	53.87	6,033.6	316.2	686.4	-75.1	0.00	0.00	0.00
6,200.0	11.50	53.87	6,131.6	328.0	702.5	-81.0	0.00	0.00	0.00
6,300.0	11.50	53.87	6,229.6	339.7	718.6	-86.9	0.00	0.00	0.00
6,400.0	11.50	53.87	6,327.6	351.5	734.7	-92.7	0.00	0.00	0.00
6,500.0	11.50	53.87	6,425.6	363.2	750.8	-98.6	0.00	0.00	0.00
6,600.0	11.50	53.87	6,523.6	375.0	766.9	-104.4	0.00	0.00	0.00
6,700.0	11.50	53.87	6,621.6	386.7	783.0	-110.3	0.00	0.00	0.00
6,800.0	11.50	53.87	6,719.6	398.5	799.1	-116.2	0.00	0.00	0.00
6,900.0	11.50	53.87	6,817.6	410.3	815.2	-122.0	0.00	0.00	0.00
7,000.0	11.50	53.87	6,915.6	422.0	831.3	-127.9	0.00	0.00	0.00
7,100.0	11.50	53.87	7,013.6	433.8	847.4	-133.8	0.00	0.00	0.00
7,200.0	11.50	53.87	7,111.6	445.5	863.5	-139.6	0.00	0.00	0.00
7,300.0	11.50	53.87	7,209.5	457.3	879.6	-145.5	0.00	0.00	0.00
7,333.1	11.50	53.87	7,242.0	461.2	884.9	-147.4	0.00	0.00	0.00
<b>KO Curve 9°/100</b>									
7,350.0	11.15	61.44	7,258.6	462.9	887.7	-148.2	9.02	-2.04	44.77
7,400.0	11.32	84.67	7,307.6	465.7	896.9	-147.8	9.00	0.33	46.47
7,450.0	13.11	104.34	7,356.5	464.8	907.2	-143.5	9.00	3.58	39.33
7,500.0	15.98	118.21	7,404.9	460.1	918.8	-135.4	9.00	5.75	27.76
7,550.0	19.47	127.61	7,452.5	451.8	931.5	-123.3	9.00	6.98	18.78
7,600.0	23.30	134.13	7,499.1	439.8	945.2	-107.6	9.00	7.65	13.05
7,650.0	27.32	138.86	7,544.3	424.2	959.8	-88.1	9.00	8.05	9.47
7,700.0	31.46	142.45	7,587.9	405.2	975.4	-65.1	9.00	8.29	7.17
7,750.0	35.69	145.26	7,629.5	382.9	991.6	-38.7	9.00	8.44	5.64
7,800.0	39.96	147.56	7,669.0	357.4	1,008.6	-9.0	9.00	8.55	4.58
7,850.0	44.28	149.47	7,706.1	328.8	1,026.0	23.8	9.00	8.63	3.83
7,900.0	48.62	151.11	7,740.5	297.3	1,044.0	59.4	9.00	8.68	3.28
7,950.0	52.98	152.54	7,772.1	263.1	1,062.3	97.6	9.00	8.72	2.87
8,000.0	57.35	153.82	7,800.7	226.5	1,080.8	138.3	9.00	8.75	2.55
8,050.0	61.74	154.97	7,826.0	187.7	1,099.4	181.1	9.00	8.78	2.31
8,100.0	66.14	156.04	7,848.0	146.8	1,118.0	225.8	9.00	8.79	2.13
8,150.0	70.54	157.03	7,866.4	104.2	1,136.5	272.1	9.00	8.81	1.99
8,200.0	74.95	157.98	7,881.2	60.1	1,154.7	319.7	9.00	8.82	1.88

Database:	Northeast	Local Co-ordinate Reference:	Well 204 - Slot 204
Company:	Arsenal Resources	TVD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Project:	Taylor County, WV	MD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Site:	Johnson TFP40	North Reference:	Grid
Well:	204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Orig.		
Design:	DEP Plan 6		

**Planned Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,250.0	79.36	158.88	7,892.4	14.7	1,172.7	368.4	9.00	8.83	1.81
8,300.0	83.78	159.76	7,899.7	-31.5	1,190.1	417.9	9.00	8.83	1.76
8,350.0	88.20	160.62	7,903.2	-78.4	1,207.0	467.7	9.00	8.83	1.73
8,370.4	90.00	160.97	7,903.5	-97.7	1,213.7	488.1	9.00	8.83	1.72
<b>LP @ 90° Inc/ 160.9° Az/ 8370.4' MD/ TVD 7903.5'</b>									
8,400.0	90.00	160.97	7,903.5	-125.7	1,223.4	517.7	0.00	0.00	0.00
8,500.0	90.00	160.97	7,903.5	-220.2	1,256.0	617.7	0.00	0.00	0.00
8,600.0	90.00	160.97	7,903.5	-314.8	1,288.6	717.7	0.00	0.00	0.00
8,700.0	90.00	160.97	7,903.5	-409.3	1,321.2	817.7	0.00	0.00	0.00
8,800.0	90.00	160.97	7,903.5	-503.8	1,353.8	917.7	0.00	0.00	0.00
8,900.0	90.00	160.97	7,903.5	-598.4	1,386.4	1,017.7	0.00	0.00	0.00
9,000.0	90.00	160.97	7,903.5	-692.9	1,419.0	1,117.7	0.00	0.00	0.00
9,100.0	90.00	160.97	7,903.5	-787.4	1,451.6	1,217.7	0.00	0.00	0.00
9,200.0	90.00	160.97	7,903.5	-882.0	1,484.2	1,317.7	0.00	0.00	0.00
9,300.0	90.00	160.97	7,903.5	-976.5	1,516.8	1,417.7	0.00	0.00	0.00
9,400.0	90.00	160.97	7,903.5	-1,071.1	1,549.4	1,517.7	0.00	0.00	0.00
9,500.0	90.00	160.97	7,903.5	-1,165.6	1,582.0	1,617.7	0.00	0.00	0.00
9,600.0	90.00	160.97	7,903.5	-1,260.1	1,614.6	1,717.7	0.00	0.00	0.00
9,700.0	90.00	160.97	7,903.5	-1,354.7	1,647.2	1,817.7	0.00	0.00	0.00
9,800.0	90.00	160.97	7,903.5	-1,449.2	1,679.8	1,917.7	0.00	0.00	0.00
9,900.0	90.00	160.97	7,903.5	-1,543.7	1,712.4	2,017.7	0.00	0.00	0.00
10,000.0	90.00	160.97	7,903.5	-1,638.3	1,745.0	2,117.7	0.00	0.00	0.00
10,100.0	90.00	160.97	7,903.5	-1,732.8	1,777.6	2,217.7	0.00	0.00	0.00
10,200.0	90.00	160.97	7,903.5	-1,827.3	1,810.2	2,317.7	0.00	0.00	0.00
10,300.0	90.00	160.97	7,903.5	-1,921.9	1,842.8	2,417.7	0.00	0.00	0.00
10,400.0	90.00	160.97	7,903.5	-2,016.4	1,875.4	2,517.7	0.00	0.00	0.00
10,500.0	90.00	160.97	7,903.5	-2,111.0	1,908.0	2,617.7	0.00	0.00	0.00
10,600.0	90.00	160.97	7,903.5	-2,205.5	1,940.6	2,717.7	0.00	0.00	0.00
10,700.0	90.00	160.97	7,903.5	-2,300.0	1,973.2	2,817.7	0.00	0.00	0.00
10,800.0	90.00	160.97	7,903.5	-2,394.6	2,005.8	2,917.7	0.00	0.00	0.00
10,900.0	90.00	160.97	7,903.5	-2,489.1	2,038.4	3,017.7	0.00	0.00	0.00
11,000.0	90.00	160.97	7,903.5	-2,583.6	2,071.0	3,117.7	0.00	0.00	0.00
11,100.0	90.00	160.97	7,903.5	-2,678.2	2,103.6	3,217.7	0.00	0.00	0.00
11,200.0	90.00	160.97	7,903.5	-2,772.7	2,136.2	3,317.7	0.00	0.00	0.00
11,300.0	90.00	160.97	7,903.5	-2,867.2	2,168.8	3,417.7	0.00	0.00	0.00
11,400.0	90.00	160.97	7,903.5	-2,961.8	2,201.4	3,517.7	0.00	0.00	0.00
11,500.0	90.00	160.97	7,903.5	-3,056.3	2,234.0	3,617.7	0.00	0.00	0.00
11,600.0	90.00	160.97	7,903.5	-3,150.9	2,266.6	3,717.7	0.00	0.00	0.00
11,700.0	90.00	160.97	7,903.5	-3,245.4	2,299.2	3,817.7	0.00	0.00	0.00
11,800.0	90.00	160.97	7,903.5	-3,339.9	2,331.8	3,917.7	0.00	0.00	0.00
11,900.0	90.00	160.97	7,903.5	-3,434.5	2,364.4	4,017.7	0.00	0.00	0.00
12,000.0	90.00	160.97	7,903.5	-3,529.0	2,397.0	4,117.7	0.00	0.00	0.00
12,100.0	90.00	160.97	7,903.5	-3,623.5	2,429.6	4,217.7	0.00	0.00	0.00
12,200.0	90.00	160.97	7,903.5	-3,718.1	2,462.2	4,317.7	0.00	0.00	0.00
12,300.0	90.00	160.97	7,903.5	-3,812.6	2,494.8	4,417.7	0.00	0.00	0.00
12,400.0	90.00	160.97	7,903.5	-3,907.1	2,527.4	4,517.7	0.00	0.00	0.00
12,500.0	90.00	160.97	7,903.5	-4,001.7	2,560.0	4,617.7	0.00	0.00	0.00
12,600.0	90.00	160.97	7,903.5	-4,096.2	2,592.6	4,717.7	0.00	0.00	0.00
12,700.0	90.00	160.97	7,903.5	-4,190.8	2,625.2	4,817.7	0.00	0.00	0.00
12,800.0	90.00	160.97	7,903.5	-4,285.3	2,657.8	4,917.7	0.00	0.00	0.00
12,900.0	90.00	160.97	7,903.5	-4,379.8	2,690.4	5,017.7	0.00	0.00	0.00
13,000.0	90.00	160.97	7,903.5	-4,474.4	2,723.0	5,117.7	0.00	0.00	0.00

<b>Database:</b>	Northeast	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Company:</b>	Arsenal Resources	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Project:</b>	Taylor County, WV	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site:</b>	Johnson TFP40	<b>North Reference:</b>	Grid
<b>Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Orig.		
<b>Design:</b>	DEP Plan 6		

**Planned Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,100.0	90.00	160.97	7,903.5	-4,568.9	2,755.6	5,217.7	0.00	0.00	0.00
13,200.0	90.00	160.97	7,903.5	-4,663.4	2,788.2	5,317.7	0.00	0.00	0.00
13,300.0	90.00	160.97	7,903.5	-4,758.0	2,820.8	5,417.7	0.00	0.00	0.00
13,400.0	90.00	160.97	7,903.5	-4,852.5	2,853.4	5,517.7	0.00	0.00	0.00
13,500.0	90.00	160.97	7,903.5	-4,947.1	2,886.0	5,617.7	0.00	0.00	0.00
13,600.0	90.00	160.97	7,903.5	-5,041.6	2,918.6	5,717.7	0.00	0.00	0.00
13,700.0	90.00	160.97	7,903.5	-5,136.1	2,951.2	5,817.7	0.00	0.00	0.00
13,800.0	90.00	160.97	7,903.5	-5,230.7	2,983.8	5,917.7	0.00	0.00	0.00
13,900.0	90.00	160.97	7,903.5	-5,325.2	3,016.4	6,017.7	0.00	0.00	0.00
14,000.0	90.00	160.97	7,903.5	-5,419.7	3,049.0	6,117.7	0.00	0.00	0.00
14,100.0	90.00	160.97	7,903.5	-5,514.3	3,081.6	6,217.7	0.00	0.00	0.00
14,200.0	90.00	160.97	7,903.5	-5,608.8	3,114.2	6,317.7	0.00	0.00	0.00
14,300.0	90.00	160.97	7,903.5	-5,703.3	3,146.8	6,417.7	0.00	0.00	0.00
14,400.0	90.00	160.97	7,903.5	-5,797.9	3,179.4	6,517.7	0.00	0.00	0.00
14,500.0	90.00	160.97	7,903.5	-5,892.4	3,212.0	6,617.7	0.00	0.00	0.00
14,600.0	90.00	160.97	7,903.5	-5,987.0	3,244.6	6,717.7	0.00	0.00	0.00
14,700.0	90.00	160.97	7,903.5	-6,081.5	3,277.2	6,817.7	0.00	0.00	0.00
14,800.0	90.00	160.97	7,903.5	-6,176.0	3,309.8	6,917.7	0.00	0.00	0.00
14,900.0	90.00	160.97	7,903.5	-6,270.6	3,342.4	7,017.7	0.00	0.00	0.00
15,000.0	90.00	160.97	7,903.5	-6,365.1	3,375.0	7,117.7	0.00	0.00	0.00
15,100.0	90.00	160.97	7,903.5	-6,459.6	3,407.6	7,217.7	0.00	0.00	0.00
15,200.0	90.00	160.97	7,903.5	-6,554.2	3,440.2	7,317.7	0.00	0.00	0.00
15,300.0	90.00	160.97	7,903.5	-6,648.7	3,472.8	7,417.7	0.00	0.00	0.00
15,400.0	90.00	160.97	7,903.5	-6,743.2	3,505.4	7,517.7	0.00	0.00	0.00
15,500.0	90.00	160.97	7,903.5	-6,837.8	3,538.0	7,617.7	0.00	0.00	0.00
15,600.0	90.00	160.97	7,903.5	-6,932.3	3,570.6	7,717.7	0.00	0.00	0.00
15,700.0	90.00	160.97	7,903.5	-7,026.9	3,603.2	7,817.7	0.00	0.00	0.00
15,800.0	90.00	160.97	7,903.5	-7,121.4	3,635.8	7,917.7	0.00	0.00	0.00
15,900.0	90.00	160.97	7,903.5	-7,215.9	3,668.4	8,017.7	0.00	0.00	0.00
16,000.0	90.00	160.97	7,903.5	-7,310.5	3,701.0	8,117.7	0.00	0.00	0.00
16,100.0	90.00	160.97	7,903.5	-7,405.0	3,733.6	8,217.7	0.00	0.00	0.00
16,200.0	90.00	160.97	7,903.5	-7,499.5	3,766.2	8,317.7	0.00	0.00	0.00
16,300.0	90.00	160.97	7,903.5	-7,594.1	3,798.8	8,417.7	0.00	0.00	0.00
16,400.0	90.00	160.97	7,903.5	-7,688.6	3,831.4	8,517.7	0.00	0.00	0.00
16,500.0	90.00	160.97	7,903.5	-7,783.2	3,864.1	8,617.7	0.00	0.00	0.00
16,600.0	90.00	160.97	7,903.5	-7,877.7	3,896.7	8,717.7	0.00	0.00	0.00
16,700.0	90.00	160.97	7,903.5	-7,972.2	3,929.3	8,817.7	0.00	0.00	0.00
16,800.0	90.00	160.97	7,903.5	-8,066.8	3,961.9	8,917.7	0.00	0.00	0.00
16,900.0	90.00	160.97	7,903.5	-8,161.3	3,994.5	9,017.7	0.00	0.00	0.00
17,000.0	90.00	160.97	7,903.5	-8,255.8	4,027.1	9,117.7	0.00	0.00	0.00
17,100.0	90.00	160.97	7,903.5	-8,350.4	4,059.7	9,217.7	0.00	0.00	0.00
17,200.0	90.00	160.97	7,903.5	-8,444.9	4,092.3	9,317.7	0.00	0.00	0.00
17,300.0	90.00	160.97	7,903.5	-8,539.4	4,124.9	9,417.7	0.00	0.00	0.00
17,400.0	90.00	160.97	7,903.5	-8,634.0	4,157.5	9,517.7	0.00	0.00	0.00
17,500.0	90.00	160.97	7,903.5	-8,728.5	4,190.1	9,617.7	0.00	0.00	0.00
17,600.0	90.00	160.97	7,903.5	-8,823.1	4,222.7	9,717.7	0.00	0.00	0.00
17,700.0	90.00	160.97	7,903.5	-8,917.6	4,255.3	9,817.7	0.00	0.00	0.00
17,800.0	90.00	160.97	7,903.5	-9,012.1	4,287.9	9,917.7	0.00	0.00	0.00
17,900.0	90.00	160.97	7,903.5	-9,106.7	4,320.5	10,017.7	0.00	0.00	0.00
18,000.0	90.00	160.97	7,903.5	-9,201.2	4,353.1	10,117.7	0.00	0.00	0.00
18,100.0	90.00	160.97	7,903.5	-9,295.7	4,385.7	10,217.7	0.00	0.00	0.00
18,200.0	90.00	160.97	7,903.5	-9,390.3	4,418.3	10,317.7	0.00	0.00	0.00

<b>Database:</b>	Northeast	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Company:</b>	Arsenal Resources	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Project:</b>	Taylor County, WV	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site:</b>	Johnson TFP40	<b>North Reference:</b>	Grid
<b>Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Orig.		
<b>Design:</b>	DEP Plan 6		

**Planned Survey**

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
18,300.0	90.00	160.97	7,903.5	-9,484.8	4,450.9	10,417.7	0.00	0.00	0.00
18,400.0	90.00	160.97	7,903.5	-9,579.3	4,483.5	10,517.7	0.00	0.00	0.00
18,500.0	90.00	160.97	7,903.5	-9,673.9	4,516.1	10,617.7	0.00	0.00	0.00
18,600.0	90.00	160.97	7,903.5	-9,768.4	4,548.7	10,717.7	0.00	0.00	0.00
18,700.0	90.00	160.97	7,903.5	-9,863.0	4,581.3	10,817.7	0.00	0.00	0.00
18,800.0	90.00	160.97	7,903.5	-9,957.5	4,613.9	10,917.7	0.00	0.00	0.00
18,900.0	90.00	160.97	7,903.5	-10,052.0	4,646.5	11,017.7	0.00	0.00	0.00
19,000.0	90.00	160.97	7,903.5	-10,146.6	4,679.1	11,117.7	0.00	0.00	0.00
19,100.0	90.00	160.97	7,903.5	-10,241.1	4,711.7	11,217.7	0.00	0.00	0.00
19,200.0	90.00	160.97	7,903.5	-10,335.6	4,744.3	11,317.7	0.00	0.00	0.00
19,300.0	90.00	160.97	7,903.5	-10,430.2	4,776.9	11,417.7	0.00	0.00	0.00
19,400.0	90.00	160.97	7,903.5	-10,524.7	4,809.5	11,517.7	0.00	0.00	0.00
19,500.0	90.00	160.97	7,903.5	-10,619.2	4,842.1	11,617.7	0.00	0.00	0.00
19,600.0	90.00	160.97	7,903.5	-10,713.8	4,874.7	11,717.7	0.00	0.00	0.00
19,700.0	90.00	160.97	7,903.5	-10,808.3	4,907.3	11,817.7	0.00	0.00	0.00
19,800.0	90.00	160.97	7,903.5	-10,902.9	4,939.9	11,917.7	0.00	0.00	0.00
19,900.0	90.00	160.97	7,903.5	-10,997.4	4,972.5	12,017.7	0.00	0.00	0.00
20,000.0	90.00	160.97	7,903.5	-11,091.9	5,005.1	12,117.7	0.00	0.00	0.00
20,100.0	90.00	160.97	7,903.5	-11,186.5	5,037.7	12,217.7	0.00	0.00	0.00
20,200.0	90.00	160.97	7,903.5	-11,281.0	5,070.3	12,317.7	0.00	0.00	0.00
20,300.0	90.00	160.97	7,903.5	-11,375.5	5,102.9	12,417.7	0.00	0.00	0.00
20,400.0	90.00	160.97	7,903.5	-11,470.1	5,135.5	12,517.7	0.00	0.00	0.00
20,500.0	90.00	160.97	7,903.5	-11,564.6	5,168.1	12,617.7	0.00	0.00	0.00
20,600.0	90.00	160.97	7,903.5	-11,659.2	5,200.7	12,717.7	0.00	0.00	0.00
20,700.0	90.00	160.97	7,903.5	-11,753.7	5,233.3	12,817.7	0.00	0.00	0.00
20,800.0	90.00	160.97	7,903.5	-11,848.2	5,265.9	12,917.7	0.00	0.00	0.00
20,900.0	90.00	160.97	7,903.5	-11,942.8	5,298.5	13,017.7	0.00	0.00	0.00
21,000.0	90.00	160.97	7,903.5	-12,037.3	5,331.1	13,117.7	0.00	0.00	0.00
21,100.0	90.00	160.97	7,903.5	-12,131.8	5,363.7	13,217.7	0.00	0.00	0.00
21,200.0	90.00	160.97	7,903.5	-12,226.4	5,396.3	13,317.7	0.00	0.00	0.00
21,300.0	90.00	160.97	7,903.5	-12,320.9	5,428.9	13,417.7	0.00	0.00	0.00
21,400.0	90.00	160.97	7,903.5	-12,415.4	5,461.5	13,517.7	0.00	0.00	0.00
21,500.0	90.00	160.97	7,903.5	-12,510.0	5,494.1	13,617.7	0.00	0.00	0.00
21,600.0	90.00	160.97	7,903.5	-12,604.5	5,526.7	13,717.7	0.00	0.00	0.00
21,700.0	90.00	160.97	7,903.5	-12,699.1	5,559.3	13,817.7	0.00	0.00	0.00
21,800.0	90.00	160.97	7,903.5	-12,793.6	5,591.9	13,917.7	0.00	0.00	0.00
21,900.0	90.00	160.97	7,903.5	-12,888.1	5,624.5	14,017.7	0.00	0.00	0.00
22,000.0	90.00	160.97	7,903.5	-12,982.7	5,657.1	14,117.7	0.00	0.00	0.00
22,100.0	90.00	160.97	7,903.5	-13,077.2	5,689.7	14,217.7	0.00	0.00	0.00
22,200.0	90.00	160.97	7,903.5	-13,171.7	5,722.3	14,317.7	0.00	0.00	0.00
22,300.0	90.00	160.97	7,903.5	-13,266.3	5,754.9	14,417.7	0.00	0.00	0.00
22,400.0	90.00	160.97	7,903.5	-13,360.8	5,787.5	14,517.7	0.00	0.00	0.00
22,500.0	90.00	160.97	7,903.5	-13,455.3	5,820.1	14,617.7	0.00	0.00	0.00
22,600.0	90.00	160.97	7,903.5	-13,549.9	5,852.7	14,717.7	0.00	0.00	0.00
22,700.0	90.00	160.97	7,903.5	-13,644.4	5,885.3	14,817.7	0.00	0.00	0.00
22,800.0	90.00	160.97	7,903.5	-13,739.0	5,917.9	14,917.7	0.00	0.00	0.00
22,900.0	90.00	160.97	7,903.5	-13,833.5	5,950.5	15,017.7	0.00	0.00	0.00
23,000.0	90.00	160.97	7,903.5	-13,928.0	5,983.1	15,117.7	0.00	0.00	0.00
23,100.0	90.00	160.97	7,903.5	-14,022.6	6,015.7	15,217.7	0.00	0.00	0.00
23,200.0	90.00	160.97	7,903.5	-14,117.1	6,048.3	15,317.7	0.00	0.00	0.00
23,300.0	90.00	160.97	7,903.5	-14,211.6	6,080.9	15,417.7	0.00	0.00	0.00
23,400.0	90.00	160.97	7,903.5	-14,306.2	6,113.5	15,517.7	0.00	0.00	0.00

<b>Database:</b>	Northeast	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Company:</b>	Arsenal Resources	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Project:</b>	Taylor County, WV	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site:</b>	Johnson TFP40	<b>North Reference:</b>	Grid
<b>Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Orig.		
<b>Design:</b>	DEP Plan 6		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
23,500.0	90.00	160.97	7,903.5	-14,400.7	6,146.1	15,617.7	0.00	0.00	0.00
23,600.0	90.00	160.97	7,903.5	-14,495.3	6,178.7	15,717.7	0.00	0.00	0.00
23,700.0	90.00	160.97	7,903.5	-14,589.8	6,211.3	15,817.7	0.00	0.00	0.00
23,800.0	90.00	160.97	7,903.5	-14,684.3	6,243.9	15,917.7	0.00	0.00	0.00
23,900.0	90.00	160.97	7,903.5	-14,778.9	6,276.5	16,017.7	0.00	0.00	0.00
24,000.0	90.00	160.97	7,903.5	-14,873.4	6,309.1	16,117.7	0.00	0.00	0.00
24,100.0	90.00	160.97	7,903.5	-14,967.9	6,341.7	16,217.7	0.00	0.00	0.00
24,200.0	90.00	160.97	7,903.5	-15,062.5	6,374.3	16,317.7	0.00	0.00	0.00
24,300.0	90.00	160.97	7,903.5	-15,157.0	6,406.9	16,417.7	0.00	0.00	0.00
24,400.0	90.00	160.97	7,903.5	-15,251.5	6,439.5	16,517.7	0.00	0.00	0.00
24,500.0	90.00	160.97	7,903.5	-15,346.1	6,472.1	16,617.7	0.00	0.00	0.00
24,600.0	90.00	160.97	7,903.5	-15,440.6	6,504.7	16,717.7	0.00	0.00	0.00
24,700.0	90.00	160.97	7,903.5	-15,535.2	6,537.3	16,817.7	0.00	0.00	0.00
24,800.0	90.00	160.97	7,903.5	-15,629.7	6,569.9	16,917.7	0.00	0.00	0.00
24,900.0	90.00	160.97	7,903.5	-15,724.2	6,602.5	17,017.7	0.00	0.00	0.00
25,000.0	90.00	160.97	7,903.5	-15,818.8	6,635.1	17,117.7	0.00	0.00	0.00
25,100.0	90.00	160.97	7,903.5	-15,913.3	6,667.7	17,217.7	0.00	0.00	0.00
25,200.0	90.00	160.97	7,903.5	-16,007.8	6,700.3	17,317.7	0.00	0.00	0.00
25,300.0	90.00	160.97	7,903.5	-16,102.4	6,732.9	17,417.7	0.00	0.00	0.00
25,400.0	90.00	160.97	7,903.5	-16,196.9	6,765.5	17,517.7	0.00	0.00	0.00
25,500.0	90.00	160.97	7,903.5	-16,291.4	6,798.1	17,617.7	0.00	0.00	0.00
25,600.0	90.00	160.97	7,903.5	-16,386.0	6,830.7	17,717.7	0.00	0.00	0.00
25,700.0	90.00	160.97	7,903.5	-16,480.5	6,863.3	17,817.7	0.00	0.00	0.00
25,800.0	90.00	160.97	7,903.5	-16,575.1	6,895.9	17,917.7	0.00	0.00	0.00
25,900.0	90.00	160.97	7,903.5	-16,669.6	6,928.5	18,017.7	0.00	0.00	0.00
26,000.0	90.00	160.97	7,903.5	-16,764.1	6,961.1	18,117.7	0.00	0.00	0.00
26,100.0	90.00	160.97	7,903.5	-16,858.7	6,993.7	18,217.7	0.00	0.00	0.00
26,200.0	90.00	160.97	7,903.5	-16,953.2	7,026.3	18,317.7	0.00	0.00	0.00
26,300.0	90.00	160.97	7,903.5	-17,047.7	7,059.0	18,417.7	0.00	0.00	0.00
26,400.0	90.00	160.97	7,903.5	-17,142.3	7,091.6	18,517.7	0.00	0.00	0.00
26,500.0	90.00	160.97	7,903.5	-17,236.8	7,124.2	18,617.7	0.00	0.00	0.00
26,600.0	90.00	160.97	7,903.5	-17,331.3	7,156.8	18,717.7	0.00	0.00	0.00
26,700.0	90.00	160.97	7,903.5	-17,425.9	7,189.4	18,817.7	0.00	0.00	0.00
26,800.0	90.00	160.97	7,903.5	-17,520.4	7,222.0	18,917.7	0.00	0.00	0.00
26,900.0	90.00	160.97	7,903.5	-17,615.0	7,254.6	19,017.7	0.00	0.00	0.00
27,000.0	90.00	160.97	7,903.5	-17,709.5	7,287.2	19,117.7	0.00	0.00	0.00
27,100.0	90.00	160.97	7,903.5	-17,804.0	7,319.8	19,217.7	0.00	0.00	0.00
27,200.0	90.00	160.97	7,903.5	-17,898.6	7,352.4	19,317.7	0.00	0.00	0.00
27,300.0	90.00	160.97	7,903.5	-17,993.1	7,385.0	19,417.7	0.00	0.00	0.00
27,400.0	90.00	160.97	7,903.5	-18,087.6	7,417.6	19,517.7	0.00	0.00	0.00
27,500.0	90.00	160.97	7,903.5	-18,182.2	7,450.2	19,617.7	0.00	0.00	0.00
27,600.0	90.00	160.97	7,903.5	-18,276.7	7,482.8	19,717.7	0.00	0.00	0.00
27,700.0	90.00	160.97	7,903.5	-18,371.3	7,515.4	19,817.7	0.00	0.00	0.00
27,800.0	90.00	160.97	7,903.5	-18,465.8	7,548.0	19,917.7	0.00	0.00	0.00
27,900.0	90.00	160.97	7,903.5	-18,560.3	7,580.6	20,017.7	0.00	0.00	0.00
28,000.0	90.00	160.97	7,903.5	-18,654.9	7,613.2	20,117.7	0.00	0.00	0.00
28,100.0	90.00	160.97	7,903.5	-18,749.4	7,645.8	20,217.7	0.00	0.00	0.00
28,200.0	90.00	160.97	7,903.5	-18,843.9	7,678.4	20,317.7	0.00	0.00	0.00
28,300.0	90.00	160.97	7,903.5	-18,938.5	7,711.0	20,417.7	0.00	0.00	0.00
28,400.0	90.00	160.97	7,903.5	-19,033.0	7,743.6	20,517.7	0.00	0.00	0.00
28,500.0	90.00	160.97	7,903.5	-19,127.5	7,776.2	20,617.7	0.00	0.00	0.00
28,600.0	90.00	160.97	7,903.5	-19,222.1	7,808.8	20,717.7	0.00	0.00	0.00

Database:	Northeast	Local Co-ordinate Reference:	Well 204 - Slot 204
Company:	Arsenal Resources	TVD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Project:	Taylor County, WV	MD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Site:	Johnson TFP40	North Reference:	Grid
Well:	204	Survey Calculation Method:	Minimum Curvature
Wellbore:	Orig.		
Design:	DEP Plan 6		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
28,700.0	90.00	160.97	7,903.5	-19,316.6	7,841.4	20,817.7	0.00	0.00	0.00	
28,800.0	90.00	160.97	7,903.5	-19,411.2	7,874.0	20,917.7	0.00	0.00	0.00	
28,900.0	90.00	160.97	7,903.5	-19,505.7	7,906.6	21,017.7	0.00	0.00	0.00	
29,000.0	90.00	160.97	7,903.5	-19,600.2	7,939.2	21,117.7	0.00	0.00	0.00	
29,100.0	90.00	160.97	7,903.5	-19,694.8	7,971.8	21,217.7	0.00	0.00	0.00	
29,200.0	90.00	160.97	7,903.5	-19,789.3	8,004.4	21,317.7	0.00	0.00	0.00	
29,300.0	90.00	160.97	7,903.5	-19,883.8	8,037.0	21,417.7	0.00	0.00	0.00	
29,400.0	90.00	160.97	7,903.5	-19,978.4	8,069.6	21,517.7	0.00	0.00	0.00	
29,500.0	90.00	160.97	7,903.5	-20,072.9	8,102.2	21,617.7	0.00	0.00	0.00	
29,553.5	90.00	160.97	7,903.5	-20,123.5	8,119.6	21,671.2	0.00	0.00	0.00	
TD @ 90° Inc/ 160.9° Az/ 28553.7' MD/ TVD 7903.5'										
29,553.7	90.00	160.97	7,903.5	-20,123.7	8,119.7	21,671.4	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Joh_TPF40_204_SHL - hit/miss target - Shape - Point	0.00	0.00	0.0	0.0	0.0	277,016.72	1,779,051.66	39.2586228	-80.1690607	
Joh_TPF40_204_KOP - plan hits target center - Point	0.00	0.00	800.0	0.0	0.0	277,016.72	1,779,051.66	39.2586228	-80.1690607	
Joh_TPF40_204_LP rev - plan hits target center - Point	0.00	360.00	7,903.5	-97.7	1,213.7	276,919.01	1,780,265.38	39.2583793	-80.1647719	
Joh_TPF40_204_PBHL - plan hits target center - Point	0.00	360.00	7,903.5	-20,123.7	8,119.7	256,893.04	1,787,171.35	39.2035360	-80.1398798	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
7,731.7	7,614.5	Tully @ 7614.5' TVD		0.00	160.95	
8,042.7	7,822.5	Marcellus @ 7822.5' TVD		0.00	160.95	
8,217.2	7,885.5	Lower Marcellus @ 7885.5' TVD		0.00	160.95	



<b>Database:</b>	Northeast	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Company:</b>	Arsenal Resources	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Project:</b>	Taylor County, WV	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site:</b>	Johnson TFP40	<b>North Reference:</b>	Grid
<b>Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Orig.		
<b>Design:</b>	DEP Plan 6		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
800.0	800.0	0.0	0.0	KOP 800' MD/ TVD 800'
1,000.0	999.8	1.6	6.8	Hold 4° Inc
2,604.1	2,600.0	26.7	115.8	KO Tangent 2°/100
2,929.1	2,922.3	36.0	155.8	Hold 10.5° Inc
4,025.0	3,999.8	80.9	350.4	Build/ Turn Tangent
4,249.6	4,220.4	98.7	388.4	Hold 11.5°
7,333.1	7,242.0	461.2	884.9	KO Curve 9°/100
8,370.4	7,903.5	-97.7	1,213.7	LP @ 90° Inc/ 160.9° Az/ 8370.4' MD/ TVD 7903.5'
29,553.5	7,903.5	-20,123.5	8,119.6	TD @ 90° Inc/ 160.9° Az/ 28553.7' MD/ TVD 7903.5'

Well Location Plat  
Page 4 Cross Section

Arsenal Resources, LLC  
Applicant / Well Operator Name

DEP ID#

Johnson TFP40  
Taylor County, WV  
GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)

Well #  
204



WELL PLAN

Operator Name: Arsenal Resources

Well/Farm Name: Johnson TFP40

DEP  
Use  
Only

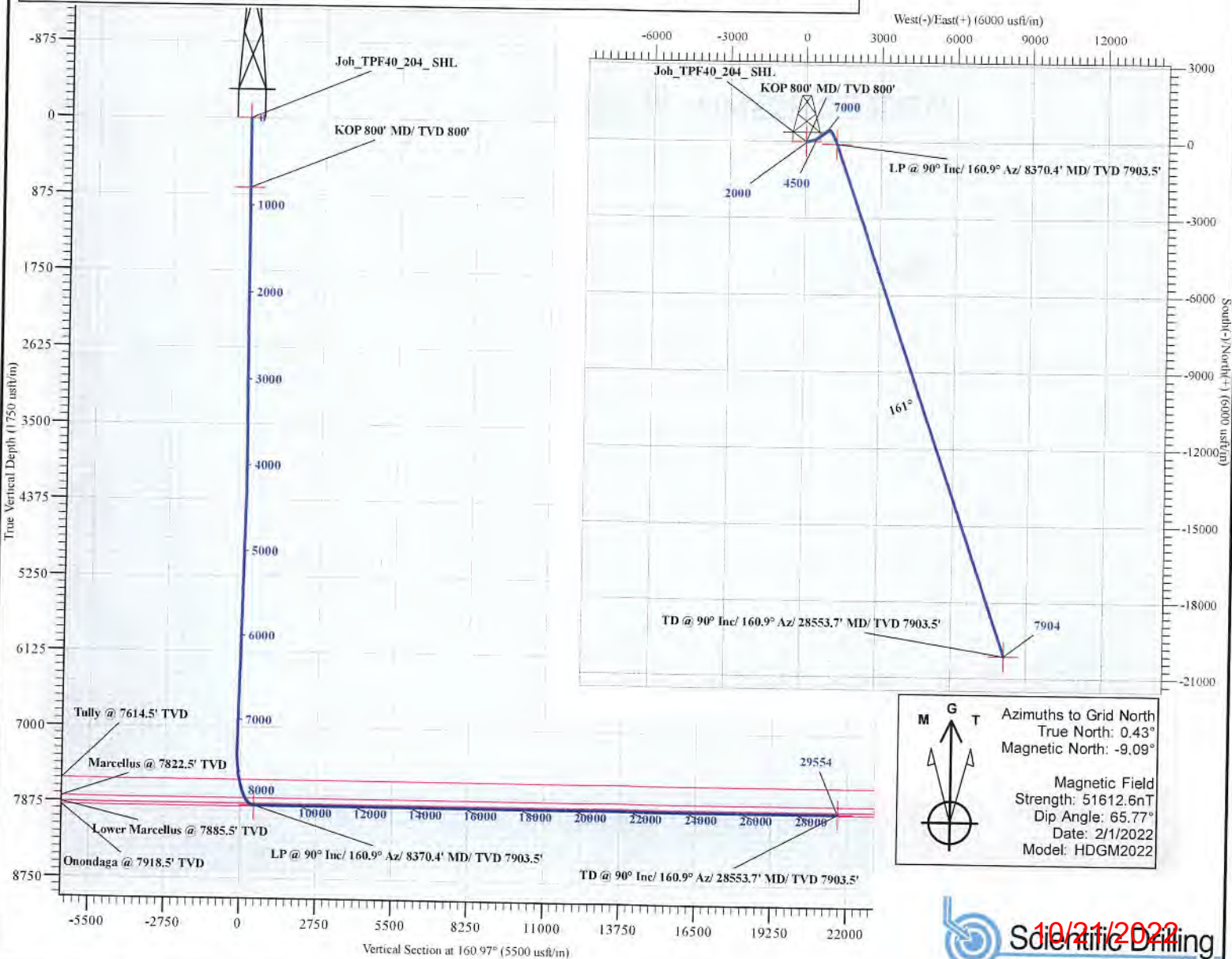
Permit #

NOTES:

Name	TVD	Latitude	Longitude	TMD
Joh_TPF40_204_SHL	0.0	39.2586228	-80.1690608	0
Joh_TPF40_204_KOP	800.0	39.2586228	-80.1690608	800
Joh_TPF40_204_LP rev4	7903.5	39.2583793	-80.1647720	8370.4
Joh_TPF40_204_PBHL rev5	7903.5	39.2035359	-80.1398799	29553.7

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.0	KOP 800' MD/ TVD 800'
1000.0	4.00	77.00	999.8	1.6	6.8	2.00	77.00	0.7	Hold 4° Inc
2504.1	4.00	77.00	2600.0	26.7	115.8	0.00	0.00	12.5	KO Tangent 2°/100
2929.1	10.50	77.00	2922.2	36.0	155.8	2.00	0.00	16.8	Hold 10.5° Inc
4025.0	10.50	77.00	3999.8	80.9	350.4	0.00	0.00	37.8	Build/ Turn Tangent
4249.6	11.50	53.87	4220.4	98.7	388.4	2.00	-88.76	33.3	Hold 11.5°
7333.1	11.50	53.87	7241.9	461.2	884.9	0.00	0.00	-147.4	KO Curve 9°/100
8370.4	90.00	160.97	7903.5	-97.7	1213.7	9.00	106.78	488.1	LP @ 90° Inc/ 160.9° Az
29553.7	90.00	160.97	7903.5	-20123.7	8119.7	0.00	0.00	21671.4	TD @ 90° Inc/ 160.9° Az





**ARSENAL**<sup>TM</sup>  
R E S O U R C E S

## **Arsenal Resources**

Taylor County, WV  
Johnson TFP40  
204

Orig.  
DEP Plan 6

## **Anticollision Report**

28 September, 2022



**Scientific Drilling**

[www.scientificdrilling.com](http://www.scientificdrilling.com)

10/21/2022

Company:	Arsenal Resources	Local Co-ordinate Reference:	Well 204 - Slot 204
Project:	Taylor County, WV	TVD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Reference Site:	Johnson TFP40	MD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	204	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Orig.	Database:	Northeast
Reference Design:	DEP Plan 6	Offset TVD Reference:	Offset Datum

Reference	DEP Plan 6		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
Interpolation Method:	MD Interval 100.0usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum ellipse separation of 2,500.0 usft	Error Surface:	Ellipsoid Separation
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date	9/28/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	800.0	DEP Plan 6 (Orig.)	MWD+HRGM+Int	MWD with High Resolution Geomagnetic model and Ex
800.0	2,600.0	DEP Plan 6 (Orig.)	MWD+AfterInt	OWSG MWD with High resolution geomagnetic model
2,600.0	29,553.7	DEP Plan 6 (Orig.)	SDI MWD	SDI MWD - Standard ver 1.0.1

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
<b>Offset Well - Wellbore - Design</b>						
Fiber TFP22						
201 - Orig. - DEP Plan 4	12,182.1	8,318.8	2,512.1	2,403.2	23.072	CC
201 - Orig. - DEP Plan 4	29,553.7	25,690.3	2,513.1	1,757.7	3.327	ES, SF
Johnson TFP40						
201 - Orig. - 201 As Drilled	363.1	363.1	40.8	39.0	22.887	CC
201 - Orig. - 201 As Drilled	400.0	399.6	41.0	39.0	20.584	ES
201 - Orig. - 201 As Drilled	600.0	595.9	50.7	47.6	16.286	SF
202 - Orig. - SDI Plan 2	800.0	800.0	30.0	24.5	5.413	CC
202 - Orig. - SDI Plan 2	900.0	899.9	30.6	24.3	4.898	ES
202 - Orig. - SDI Plan 2	22,900.0	22,717.6	2,210.2	1,637.0	3.856	SF
203 - Orig. - SDI Plan 1 Prelim	885.9	886.1	14.9	8.8	2.423	CC
203 - Orig. - SDI Plan 1 Prelim	900.0	900.2	14.9	8.7	2.386	ES
203 - Orig. - SDI Plan 1 Prelim	29,300.0	29,199.3	1,211.0	394.0	1.482	Level 3, SF
205 - Orig. - DEP Plan 5	800.0	800.0	15.0	9.5	2.707	CC, ES
205 - Orig. - DEP Plan 5	29,553.7	29,906.9	1,211.7	385.3	1.466	Level 3, SF

Offset Design													Offset Site Error:	0.0 usft
Fiber TFP22 - 201 - Orig. - DEP Plan 4													Offset Well Error:	0.0 usft
Survey Program: 0-SDI MWD														
Measured Depth (usft)	Vertical Depth (usft)	Reference		Offset		Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Distance				Separation Factor	Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)				Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		
9,900.0	7,903.5	7,650.0	7,447.7	45.2	32.3	-82.02	-2,332.6	4,730.4	3,140.6	3,087.9	52.64	59.664		
10,000.0	7,903.5	7,672.0	7,465.9	46.8	32.4	-82.40	-2,344.9	4,729.4	3,086.3	3,031.8	54.54	56.591		
10,100.0	7,903.5	7,700.0	7,488.5	48.5	32.4	-82.88	-2,361.3	4,728.5	3,034.3	2,977.8	56.56	53.649		
10,200.0	7,903.5	7,700.0	7,488.5	50.2	32.4	-82.88	-2,361.3	4,728.5	2,984.3	2,925.7	58.60	50.929		
10,300.0	7,903.5	7,700.0	7,488.5	51.9	32.4	-82.88	-2,361.3	4,728.5	2,936.8	2,876.1	60.75	48.344		
10,400.0	7,903.5	7,732.1	7,513.6	53.6	32.5	-83.41	-2,381.3	4,728.1	2,891.4	2,828.3	63.07	45.843		
10,500.0	7,903.5	7,750.0	7,527.3	55.3	32.5	-83.70	-2,392.9	4,728.2	2,848.5	2,783.0	65.44	43.530		
10,600.0	7,903.5	7,769.1	7,541.4	57.1	32.6	-84.00	-2,405.7	4,728.5	2,808.1	2,740.2	67.88	41.367		
10,700.0	7,903.5	7,800.0	7,563.6	58.8	32.6	-84.48	-2,427.2	4,729.5	2,770.4	2,700.0	70.40	39.353		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design														Offset Site Error:	0.0 usft
Fiber TFP22 - 201 - Orig. - DEP Plan 4														Offset Well Error:	0.0 usft
Survey Program: 0-SDI MWD															
Reference		Offset		Semi Major Axis			Distance					Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
10,800.0	7,903.5	7,800.0	7,563.6	60.6	32.6	-84.48	-2,427.2	4,729.5	2,735.2	2,662.2	72.95	37.494			
10,900.0	7,903.5	7,850.0	7,597.4	62.3	32.7	-85.21	-2,463.9	4,732.4	2,702.6	2,627.1	75.56	35.768			
11,000.0	7,903.5	7,850.0	7,597.4	64.1	32.7	-85.21	-2,463.9	4,732.4	2,672.7	2,594.5	78.21	34.173			
11,100.0	7,903.5	7,900.0	7,628.3	65.9	32.8	-85.89	-2,502.9	4,736.9	2,645.5	2,564.6	80.86	32.717			
11,200.0	7,903.5	7,919.0	7,639.3	67.7	32.9	-86.13	-2,518.3	4,739.0	2,620.9	2,537.3	83.55	31.369			
11,300.0	7,903.5	7,950.0	7,656.3	69.5	32.9	-86.50	-2,543.9	4,742.9	2,599.0	2,512.8	86.23	30.141			
11,400.0	7,903.5	7,985.0	7,674.0	71.3	33.0	-86.89	-2,573.7	4,748.1	2,579.7	2,490.8	88.90	29.019			
11,500.0	7,903.5	8,021.4	7,690.7	73.1	33.0	-87.27	-2,605.4	4,754.2	2,563.1	2,471.5	91.55	27.996			
11,600.0	7,903.5	8,050.0	7,702.6	74.9	33.1	-87.53	-2,630.9	4,759.5	2,548.9	2,454.7	94.19	27.060			
11,700.0	7,903.5	8,100.0	7,720.6	76.7	33.2	-87.93	-2,676.3	4,770.0	2,537.1	2,440.3	96.78	26.216			
11,800.0	7,903.5	8,150.0	7,735.0	78.5	33.2	-88.26	-2,722.7	4,781.8	2,527.7	2,428.4	99.34	25.445			
11,900.0	7,903.5	8,200.0	7,745.8	80.3	33.3	-88.50	-2,769.7	4,794.9	2,520.6	2,418.7	101.88	24.741			
12,000.0	7,903.5	8,233.6	7,751.0	82.2	33.4	-88.62	-2,801.5	4,804.4	2,515.6	2,411.2	104.40	24.097			
12,096.7	7,903.5	8,278.6	7,755.3	83.9	33.5	-88.72	-2,844.3	4,817.9	2,512.9	2,406.1	106.79	23.532			
12,100.0	7,903.5	8,280.2	7,755.4	84.0	33.5	-88.72	-2,845.7	4,818.4	2,512.8	2,406.0	106.86	23.514			
12,182.1	7,903.5	8,318.8	7,755.5	85.5	33.6	-88.75	-2,882.4	4,830.7	2,512.1	2,403.2	108.88	23.072 CC			
12,200.0	7,903.5	8,336.6	7,756.5	85.8	33.6	-88.75	-2,899.2	4,836.5	2,512.1	2,402.8	109.32	22.980			
12,223.2	7,903.5	8,359.8	7,756.5	86.3	33.7	-88.75	-2,921.1	4,844.0	2,512.1	2,402.1	109.98	22.841			
12,300.0	7,903.5	8,436.6	7,756.5	87.7	33.9	-88.75	-2,993.7	4,869.1	2,512.1	2,400.2	111.90	22.540			
12,323.2	7,903.5	8,459.8	7,756.5	88.1	34.0	-88.75	-3,015.7	4,876.6	2,512.1	2,399.5	112.59	22.311			
12,400.0	7,903.5	8,536.6	7,756.5	89.5	34.3	-88.75	-3,088.2	4,901.7	2,512.1	2,397.5	114.60	21.920			
12,423.2	7,903.5	8,559.8	7,756.5	89.9	34.4	-88.75	-3,110.2	4,909.3	2,512.1	2,396.8	115.33	21.782			
12,500.0	7,903.5	8,636.6	7,756.5	91.4	34.8	-88.75	-3,182.8	4,934.3	2,512.1	2,394.7	117.43	21.392			
12,523.2	7,903.5	8,659.8	7,756.5	91.8	34.9	-88.75	-3,204.7	4,941.9	2,512.1	2,393.9	118.19	21.256			
12,600.0	7,903.5	8,736.6	7,756.5	93.2	35.4	-88.75	-3,277.3	4,966.9	2,512.1	2,391.8	120.37	20.870			
12,623.2	7,903.5	8,759.8	7,756.5	93.6	35.5	-88.75	-3,299.3	4,974.5	2,512.1	2,391.0	121.15	20.736			
12,700.0	7,903.5	8,836.6	7,756.5	95.0	36.1	-88.75	-3,371.8	4,999.5	2,512.1	2,388.7	123.41	20.356			
12,723.2	7,903.5	8,859.8	7,756.5	95.5	36.2	-88.75	-3,393.8	5,007.1	2,512.1	2,387.9	124.20	20.226			
12,800.0	7,903.5	8,936.6	7,756.5	96.9	36.8	-88.75	-3,466.4	5,032.1	2,512.2	2,385.6	126.53	19.854			
12,823.2	7,903.5	8,959.8	7,756.5	97.3	37.0	-88.75	-3,488.3	5,039.7	2,512.2	2,384.8	127.35	19.727			
12,900.0	7,903.5	9,036.6	7,756.5	98.7	37.7	-88.75	-3,560.9	5,064.7	2,512.2	2,382.4	129.73	19.365			
12,923.2	7,903.5	9,059.8	7,756.5	99.2	37.9	-88.75	-3,582.9	5,072.3	2,512.2	2,381.6	130.56	19.242			
13,000.0	7,903.5	9,136.6	7,756.5	100.6	38.7	-88.75	-3,655.4	5,097.3	2,512.2	2,379.2	132.99	18.890			
13,023.2	7,903.5	9,159.8	7,756.5	101.0	38.9	-88.75	-3,677.4	5,104.9	2,512.2	2,378.3	133.83	18.771			
13,100.0	7,903.5	9,236.6	7,756.5	102.5	39.7	-88.75	-3,750.0	5,129.9	2,512.2	2,375.9	136.31	18.430			
13,123.2	7,903.5	9,259.8	7,756.5	102.9	39.9	-88.75	-3,771.9	5,137.5	2,512.2	2,375.0	137.16	18.316			
13,200.0	7,903.5	9,336.6	7,756.5	104.3	40.8	-88.75	-3,844.5	5,162.5	2,512.2	2,372.5	139.67	17.986			
13,223.2	7,903.5	9,359.8	7,756.5	104.7	41.1	-88.75	-3,866.5	5,170.1	2,512.2	2,371.6	140.54	17.876			
13,300.0	7,903.5	9,436.6	7,756.5	106.2	42.0	-88.75	-3,939.0	5,195.1	2,512.2	2,369.1	143.08	17.558			
13,323.2	7,903.5	9,459.8	7,756.5	106.6	42.2	-88.75	-3,961.0	5,202.7	2,512.2	2,368.2	143.95	17.452			
13,400.0	7,903.5	9,536.6	7,756.5	108.0	43.2	-88.75	-4,033.6	5,227.7	2,512.2	2,365.7	146.52	17.145			
13,423.2	7,903.5	9,559.8	7,756.5	108.5	43.5	-88.75	-4,055.5	5,235.3	2,512.2	2,364.8	147.40	17.043			
13,500.0	7,903.5	9,636.6	7,756.5	109.9	44.5	-88.75	-4,128.1	5,260.3	2,512.2	2,362.2	150.00	16.748			
13,523.2	7,903.5	9,659.8	7,756.5	110.3	44.8	-88.75	-4,150.1	5,267.9	2,512.2	2,361.3	150.89	16.649			
13,600.0	7,903.5	9,736.6	7,756.5	111.8	45.8	-88.75	-4,222.6	5,293.0	2,512.2	2,358.7	153.51	16.366			
13,623.2	7,903.5	9,759.8	7,756.5	112.2	46.1	-88.75	-4,244.6	5,300.5	2,512.2	2,357.8	154.40	16.271			
13,700.0	7,903.5	9,836.6	7,756.5	113.6	47.2	-88.75	-4,317.2	5,325.6	2,512.2	2,355.2	157.04	15.997			
13,723.2	7,903.5	9,859.8	7,756.5	114.1	47.5	-88.75	-4,339.1	5,333.1	2,512.2	2,354.3	157.94	15.906			
13,800.0	7,903.5	9,936.6	7,756.5	115.5	48.6	-88.75	-4,411.7	5,358.2	2,512.2	2,351.6	160.59	15.643			
13,823.2	7,903.5	9,959.8	7,756.5	115.9	49.0	-88.75	-4,433.7	5,365.7	2,512.2	2,350.7	161.50	15.556			
13,900.0	7,903.5	10,036.6	7,756.5	117.4	50.1	-88.75	-4,506.2	5,390.8	2,512.2	2,348.1	164.17	15.303			

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Fiber TFP22 - 201 - Orig. - DEP Plan 4													Offset Site Error:	0.0 usft
Survey Program: 0-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance				Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			Minimum Separation (usft)	
13,923.2	7,903.5	10,059.8	7,756.5	117.8	50.4	-88.75	-4,528.2	5,398.3	2,512.2	2,347.1	165.07	15,219		
14,000.0	7,903.5	10,136.6	7,756.5	119.2	51.6	-88.75	-4,600.8	5,423.4	2,512.2	2,344.5	167.76	14,975		
14,023.2	7,903.5	10,159.8	7,756.5	119.7	51.9	-88.75	-4,622.8	5,431.0	2,512.2	2,343.6	168.67	14,894		
14,100.0	7,903.5	10,236.6	7,756.5	121.1	53.1	-88.75	-4,695.3	5,456.0	2,512.2	2,340.9	171.36	14,660		
14,123.2	7,903.5	10,259.8	7,756.5	121.5	53.4	-88.75	-4,717.3	5,463.6	2,512.2	2,339.9	172.28	14,582		
14,200.0	7,903.5	10,336.6	7,756.5	123.0	54.6	-88.75	-4,789.9	5,488.6	2,512.2	2,337.2	174.98	14,357		
14,223.2	7,903.5	10,359.8	7,756.5	123.4	55.0	-88.75	-4,811.8	5,496.2	2,512.2	2,336.3	175.90	14,282		
14,300.0	7,903.5	10,436.6	7,756.5	124.8	56.2	-88.75	-4,884.4	5,521.2	2,512.2	2,333.6	178.62	14,065		
14,323.2	7,903.5	10,459.8	7,756.5	125.3	56.6	-88.75	-4,906.4	5,528.8	2,512.2	2,332.7	179.54	13,993		
14,400.0	7,903.5	10,536.6	7,756.5	126.7	57.8	-88.75	-4,978.9	5,553.8	2,512.2	2,330.0	182.26	13,784		
14,423.2	7,903.5	10,559.8	7,756.5	127.1	58.1	-88.75	-5,000.9	5,561.4	2,512.2	2,329.1	183.19	13,714		
14,500.0	7,903.5	10,636.6	7,756.5	128.6	59.4	-88.75	-5,073.5	5,586.4	2,512.3	2,326.3	185.92	13,513		
14,523.2	7,903.5	10,659.8	7,756.5	129.0	59.8	-88.75	-5,095.4	5,594.0	2,512.3	2,325.4	186.85	13,446		
14,600.0	7,903.5	10,736.6	7,756.5	130.5	61.0	-88.75	-5,168.0	5,619.0	2,512.3	2,322.7	189.58	13,251		
14,623.2	7,903.5	10,759.8	7,756.5	130.9	61.4	-88.75	-5,190.0	5,626.6	2,512.3	2,321.7	190.51	13,187		
14,700.0	7,903.5	10,836.6	7,756.5	132.3	62.7	-88.75	-5,262.5	5,651.6	2,512.3	2,319.0	193.26	13,000		
14,723.2	7,903.5	10,859.8	7,756.5	132.8	63.0	-88.75	-5,284.5	5,659.2	2,512.3	2,318.1	194.19	12,937		
14,800.0	7,903.5	10,936.6	7,756.5	134.2	64.3	-88.75	-5,357.1	5,684.2	2,512.3	2,315.3	196.94	12,757		
14,823.2	7,903.5	10,959.8	7,756.5	134.6	64.7	-88.75	-5,379.0	5,691.8	2,512.3	2,314.4	197.87	12,696		
14,900.0	7,903.5	11,036.6	7,756.5	136.1	66.0	-88.75	-5,451.6	5,716.8	2,512.3	2,311.6	200.63	12,522		
14,923.2	7,903.5	11,059.8	7,756.5	136.5	66.4	-88.75	-5,473.6	5,724.4	2,512.3	2,310.7	201.56	12,464		
15,000.0	7,903.5	11,136.6	7,756.5	138.0	67.7	-88.75	-5,546.1	5,749.4	2,512.3	2,308.0	204.32	12,296		
15,023.2	7,903.5	11,159.8	7,756.5	138.4	68.1	-88.75	-5,568.1	5,757.0	2,512.3	2,307.0	205.26	12,240		
15,100.0	7,903.5	11,236.6	7,756.5	139.8	69.4	-88.75	-5,640.7	5,782.0	2,512.3	2,304.3	208.03	12,077		
15,123.2	7,903.5	11,259.8	7,756.5	140.3	69.8	-88.75	-5,662.6	5,789.6	2,512.3	2,303.3	208.96	12,023		
15,200.0	7,903.5	11,336.6	7,756.5	141.7	71.1	-88.75	-5,735.2	5,814.7	2,512.3	2,300.6	211.73	11,865		
15,223.2	7,903.5	11,359.8	7,756.5	142.2	71.5	-88.75	-5,757.2	5,822.2	2,512.3	2,299.6	212.67	11,813		
15,300.0	7,903.5	11,436.6	7,756.5	143.6	72.8	-88.75	-5,829.7	5,847.3	2,512.3	2,296.8	215.45	11,661		
15,323.2	7,903.5	11,459.8	7,756.5	144.0	73.2	-88.75	-5,851.7	5,854.8	2,512.3	2,295.9	216.39	11,610		
15,400.0	7,903.5	11,536.6	7,756.5	145.5	74.5	-88.75	-5,924.3	5,879.9	2,512.3	2,293.1	219.18	11,462		
15,423.2	7,903.5	11,559.8	7,756.5	145.9	74.9	-88.75	-5,946.2	5,887.4	2,512.3	2,292.2	220.12	11,413		
15,500.0	7,903.5	11,636.6	7,756.5	147.4	76.3	-88.75	-6,018.8	5,912.5	2,512.3	2,289.5	222.85	11,274		
15,523.2	7,903.5	11,659.8	7,756.5	147.8	76.7	-88.75	-6,040.8	5,920.1	2,512.3	2,288.5	223.77	11,227		
15,600.0	7,903.5	11,736.6	7,756.5	149.2	78.0	-88.75	-6,113.3	5,945.1	2,512.3	2,285.7	226.60	11,087		
15,623.2	7,903.5	11,759.8	7,756.5	149.7	78.4	-88.75	-6,135.3	5,952.7	2,512.3	2,284.8	227.54	11,041		
15,700.0	7,903.5	11,836.6	7,756.5	151.1	79.7	-88.75	-6,207.9	5,977.7	2,512.3	2,282.0	230.33	10,907		
15,723.2	7,903.5	11,859.8	7,756.5	151.6	80.2	-88.75	-6,229.8	5,985.3	2,512.3	2,281.0	231.27	10,863		
15,800.0	7,903.5	11,936.6	7,756.5	153.0	81.5	-88.75	-6,302.4	6,010.3	2,512.3	2,278.3	234.06	10,733		
15,823.2	7,903.5	11,959.8	7,756.5	153.4	81.9	-88.75	-6,324.4	6,017.9	2,512.3	2,277.3	235.01	10,690		
15,900.0	7,903.5	12,036.6	7,756.5	154.9	83.3	-88.75	-6,396.9	6,042.9	2,512.3	2,274.5	237.80	10,565		
15,923.2	7,903.5	12,059.8	7,756.5	155.3	83.7	-88.75	-6,418.9	6,050.5	2,512.3	2,273.6	238.75	10,523		
16,000.0	7,903.5	12,136.6	7,756.5	156.8	85.0	-88.75	-6,491.5	6,075.5	2,512.3	2,270.8	241.54	10,401		
16,023.2	7,903.5	12,159.8	7,756.5	157.2	85.5	-88.75	-6,513.4	6,083.1	2,512.3	2,269.9	242.49	10,361		
16,100.0	7,903.5	12,236.6	7,756.5	158.7	86.8	-88.75	-6,586.0	6,108.1	2,512.3	2,267.1	245.28	10,243		
16,123.2	7,903.5	12,259.8	7,756.5	159.1	87.2	-88.75	-6,608.0	6,115.7	2,512.3	2,266.1	246.23	10,203		
16,200.0	7,903.5	12,336.6	7,756.5	160.5	88.6	-88.75	-6,680.5	6,140.7	2,512.4	2,263.3	249.03	10,089		
16,223.2	7,903.5	12,359.8	7,756.5	161.0	89.0	-88.75	-6,702.5	6,148.3	2,512.4	2,262.4	249.98	10,050		
16,300.0	7,903.5	12,436.6	7,756.5	162.4	90.4	-88.75	-6,775.1	6,173.3	2,512.4	2,259.6	252.78	9,939		
16,323.2	7,903.5	12,459.8	7,756.5	162.9	90.8	-88.75	-6,797.1	6,180.9	2,512.4	2,258.6	253.72	9,902		
16,400.0	7,903.5	12,536.6	7,756.5	164.3	92.2	-88.75	-6,869.6	6,205.9	2,512.4	2,255.8	256.53	9,794		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company: Arsenal Resources  
 Project: Taylor County, WV  
 Reference Site: Johnson TFP40  
 Site Error: 0.0 usft  
 Reference Well: 204  
 Well Error: 0.0 usft  
 Reference Wellbore: Orig.  
 Reference Design: DEP Plan 6

Local Co-ordinate Reference: Well 204 - Slot 204  
 TVD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 MD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Output errors are at: 2.00 sigma  
 Database: Northeast  
 Offset TVD Reference: Offset Datum

Offset Design Fiber TFP22 - 201 - Orig. - DEP Plan 4

Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
16,423.2	7,903.5	12,559.6	7,756.5	164.8	92.6	-88.75	-6,891.6	6,213.5	2,512.4	2,254.9	257.48	9.758	
16,500.0	7,903.5	12,636.6	7,756.5	166.2	94.0	-88.75	-6,964.2	6,238.5	2,512.4	2,252.1	260.28	9.653	
16,523.2	7,903.5	12,659.8	7,756.5	166.6	94.4	-88.75	-6,986.1	6,246.1	2,512.4	2,251.1	261.23	9.618	
16,600.0	7,903.5	12,736.6	7,756.5	168.1	95.8	-88.75	-7,058.7	6,271.1	2,512.4	2,248.3	264.03	9.515	
16,623.2	7,903.5	12,759.8	7,756.5	168.5	96.2	-88.75	-7,080.7	6,278.7	2,512.4	2,247.4	264.98	9.481	
16,700.0	7,903.5	12,836.6	7,756.5	170.0	97.6	-88.75	-7,153.2	6,303.8	2,512.4	2,244.6	267.79	9.382	
16,723.2	7,903.5	12,859.8	7,756.5	170.4	98.0	-88.75	-7,175.2	6,311.3	2,512.4	2,243.6	268.74	9.349	
16,800.0	7,903.5	12,936.6	7,756.5	171.9	99.4	-88.75	-7,247.8	6,336.4	2,512.4	2,240.8	271.55	9.252	
16,823.2	7,903.5	12,959.8	7,756.5	172.3	99.8	-88.75	-7,269.7	6,343.9	2,512.4	2,239.9	272.50	9.220	
16,900.0	7,903.5	13,036.6	7,756.5	173.8	101.2	-88.75	-7,342.3	6,369.0	2,512.4	2,237.1	275.31	9.126	
16,923.2	7,903.5	13,059.8	7,756.5	174.2	101.6	-88.75	-7,364.3	6,376.5	2,512.4	2,236.1	276.26	9.094	
17,000.0	7,903.5	13,136.6	7,756.5	175.6	103.0	-88.75	-7,436.8	6,401.6	2,512.4	2,233.3	279.07	9.003	
17,023.2	7,903.5	13,159.8	7,756.5	176.1	103.4	-88.75	-7,458.8	6,409.2	2,512.4	2,232.4	280.02	8.972	
17,100.0	7,903.5	13,236.6	7,756.5	177.5	104.8	-88.75	-7,531.4	6,434.2	2,512.4	2,229.6	282.84	8.883	
17,123.2	7,903.5	13,259.8	7,756.5	178.0	105.3	-88.75	-7,553.3	6,441.8	2,512.4	2,228.6	283.79	8.853	
17,200.0	7,903.5	13,336.6	7,756.5	179.4	106.7	-88.75	-7,625.9	6,466.8	2,512.4	2,225.8	286.60	8.766	
17,223.2	7,903.5	13,359.8	7,756.5	179.9	107.1	-88.75	-7,647.9	6,474.4	2,512.4	2,224.9	287.55	8.737	
17,300.0	7,903.5	13,436.6	7,756.5	181.3	108.5	-88.75	-7,720.4	6,499.4	2,512.4	2,222.0	290.37	8.653	
17,323.2	7,903.5	13,459.8	7,756.5	181.8	108.9	-88.75	-7,742.4	6,507.0	2,512.4	2,221.1	291.32	8.624	
17,400.0	7,903.5	13,536.6	7,756.5	183.2	110.3	-88.75	-7,815.0	6,532.0	2,512.4	2,218.3	294.13	8.542	
17,423.2	7,903.5	13,559.8	7,756.5	183.6	110.7	-88.75	-7,836.9	6,539.6	2,512.4	2,217.3	295.09	8.514	
17,500.0	7,903.5	13,636.6	7,756.5	185.1	112.1	-88.75	-7,909.5	6,564.6	2,512.4	2,214.5	297.90	8.434	
17,523.2	7,903.5	13,659.8	7,756.5	185.5	112.6	-88.75	-7,931.5	6,572.2	2,512.4	2,213.6	298.86	8.407	
17,600.0	7,903.5	13,736.6	7,756.5	187.0	114.0	-88.75	-8,004.0	6,597.2	2,512.4	2,210.8	301.67	8.328	
17,623.2	7,903.5	13,759.8	7,756.5	187.4	114.4	-88.75	-8,026.0	6,604.8	2,512.4	2,209.8	302.63	8.302	
17,700.0	7,903.5	13,836.6	7,756.5	188.9	115.8	-88.75	-8,098.6	6,629.8	2,512.4	2,207.0	305.45	8.225	
17,723.2	7,903.5	13,859.8	7,756.5	189.3	116.2	-88.75	-8,120.5	6,637.4	2,512.4	2,206.0	306.40	8.200	
17,800.0	7,903.5	13,936.6	7,756.5	190.8	117.6	-88.75	-8,193.1	6,662.4	2,512.4	2,203.2	309.22	8.125	
17,823.2	7,903.5	13,959.8	7,756.5	191.2	118.1	-88.75	-8,215.1	6,670.0	2,512.4	2,202.3	310.17	8.100	
17,900.0	7,903.5	14,036.6	7,756.5	192.7	119.5	-88.75	-8,287.6	6,695.0	2,512.4	2,199.5	312.99	8.027	
17,923.2	7,903.5	14,059.8	7,756.5	193.1	119.9	-88.75	-8,309.6	6,702.6	2,512.5	2,198.5	313.95	8.003	
18,000.0	7,903.5	14,136.6	7,756.5	194.5	121.3	-88.75	-8,382.2	6,727.6	2,512.5	2,195.7	316.77	7.932	
18,023.2	7,903.5	14,159.8	7,756.5	195.0	121.8	-88.75	-8,404.1	6,735.2	2,512.5	2,194.7	317.72	7.908	
18,100.0	7,903.5	14,236.6	7,756.5	196.4	123.2	-88.75	-8,476.7	6,760.2	2,512.5	2,191.9	320.54	7.838	
18,123.2	7,903.5	14,259.8	7,756.5	196.9	123.6	-88.75	-8,498.7	6,767.8	2,512.5	2,191.0	321.50	7.815	
18,200.0	7,903.5	14,336.6	7,756.5	198.3	125.0	-88.75	-8,571.2	6,792.9	2,512.5	2,188.1	324.32	7.747	
18,223.2	7,903.5	14,359.8	7,756.5	198.8	125.4	-88.75	-8,593.2	6,800.4	2,512.5	2,187.2	325.28	7.724	
18,300.0	7,903.5	14,436.6	7,756.5	200.2	126.9	-88.75	-8,665.8	6,825.5	2,512.5	2,184.4	328.10	7.658	
18,323.2	7,903.5	14,459.8	7,756.5	200.7	127.3	-88.75	-8,687.7	6,833.0	2,512.5	2,183.4	329.05	7.635	
18,400.0	7,903.5	14,536.6	7,756.5	202.1	128.7	-88.75	-8,760.3	6,858.1	2,512.5	2,180.6	331.88	7.571	
18,423.2	7,903.5	14,559.8	7,756.5	202.6	129.1	-88.75	-8,782.3	6,865.6	2,512.5	2,179.6	332.83	7.549	
18,500.0	7,903.5	14,636.6	7,756.5	204.0	130.6	-88.75	-8,854.8	6,890.7	2,512.5	2,176.8	335.66	7.485	
18,523.2	7,903.5	14,659.8	7,756.5	204.4	131.0	-88.75	-8,876.8	6,898.2	2,512.5	2,175.9	336.61	7.464	
18,600.0	7,903.5	14,736.6	7,756.5	205.9	132.4	-88.75	-8,949.4	6,923.3	2,512.5	2,173.1	339.44	7.402	
18,623.2	7,903.5	14,759.8	7,756.5	206.3	132.8	-88.75	-8,971.3	6,930.9	2,512.5	2,172.1	340.39	7.381	
18,700.0	7,903.5	14,836.6	7,756.5	207.8	134.3	-88.75	-9,043.9	6,955.9	2,512.5	2,169.3	343.22	7.320	
18,723.2	7,903.5	14,859.8	7,756.5	208.2	134.7	-88.75	-9,065.9	6,963.5	2,512.5	2,168.3	344.17	7.300	
18,800.0	7,903.5	14,936.6	7,756.5	209.7	136.1	-88.75	-9,138.4	6,988.5	2,512.5	2,165.5	347.00	7.241	
18,823.2	7,903.5	14,959.8	7,756.5	210.1	136.6	-88.75	-9,160.4	6,996.1	2,512.5	2,164.5	347.96	7.221	
18,900.0	7,903.5	15,036.6	7,756.5	211.6	138.0	-88.75	-9,233.0	7,021.1	2,512.5	2,161.7	350.78	7.163	
18,923.2	7,903.5	15,059.8	7,756.5	212.0	138.4	-88.75	-9,255.0	7,028.7	2,512.5	2,160.8	351.74	7.143	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Arsenal Resources	Local Co-ordinate Reference:	Well 204 - Slot 204
Project:	Taylor County, WV	TVD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Reference Site:	Johnson TFP40	MD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	204	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Orig.	Database:	Northeast
Reference Design:	DEP Plan 6	Offset TVD Reference:	Offset Datum

Offset Design Fiber TFP22 - 201 - Orig. - DEP Plan 4														Offset Site Error:	0.0 usft
Survey Program: 0-SDI MWD														Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance				Warning		
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)				Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
19,000.0	7,903.5	15,136.6	7,756.5	213.5	139.8	-88.75	-9,327.5	7,053.7	2,512.5	2,157.9	354.57	7.086			
19,023.2	7,903.5	15,159.8	7,756.5	213.9	140.3	-88.75	-9,349.5	7,061.3	2,512.5	2,157.0	355.52	7.067			
19,100.0	7,903.5	15,236.6	7,756.5	215.4	141.7	-88.75	-9,422.1	7,086.3	2,512.5	2,154.2	358.35	7.011			
19,123.2	7,903.5	15,259.8	7,756.5	215.8	142.1	-88.75	-9,444.0	7,093.9	2,512.5	2,153.2	359.31	6.993			
19,200.0	7,903.5	15,336.6	7,756.5	217.3	143.6	-88.75	-9,516.6	7,118.9	2,512.5	2,150.4	362.13	6.938			
19,223.2	7,903.5	15,359.8	7,756.5	217.7	144.0	-88.75	-9,538.6	7,126.5	2,512.5	2,149.4	363.09	6.920			
19,300.0	7,903.5	15,436.6	7,756.5	219.2	145.4	-88.75	-9,611.1	7,151.5	2,512.5	2,146.6	365.92	6.866			
19,323.2	7,903.5	15,459.8	7,756.5	219.6	145.8	-88.75	-9,633.1	7,159.1	2,512.5	2,145.7	366.88	6.848			
19,400.0	7,903.5	15,536.6	7,756.5	221.1	147.3	-88.75	-9,705.7	7,184.1	2,512.5	2,142.8	369.71	6.796			
19,423.2	7,903.5	15,559.8	7,756.5	221.5	147.7	-88.75	-9,727.6	7,191.7	2,512.5	2,141.9	370.65	6.779			
19,500.0	7,903.5	15,636.6	7,756.5	222.9	149.1	-88.75	-9,800.2	7,216.7	2,512.5	2,139.1	373.49	6.727			
19,523.2	7,903.5	15,659.8	7,756.5	223.4	149.6	-88.75	-9,822.2	7,224.3	2,512.5	2,138.1	374.45	6.710			
19,600.0	7,903.5	15,736.6	7,756.5	224.8	151.0	-88.75	-9,894.7	7,249.3	2,512.5	2,135.3	377.28	6.660			
19,623.2	7,903.5	15,759.8	7,756.5	225.3	151.4	-88.75	-9,916.7	7,256.9	2,512.6	2,134.3	378.23	6.643			
19,700.0	7,903.5	15,836.6	7,756.5	226.7	152.9	-88.75	-9,989.3	7,282.0	2,512.6	2,131.5	381.07	6.593			
19,723.2	7,903.5	15,859.8	7,756.5	227.2	153.3	-88.75	-10,011.2	7,289.5	2,512.6	2,130.5	382.02	6.577			
19,800.0	7,903.5	15,936.6	7,756.5	228.6	154.7	-88.75	-10,083.8	7,314.6	2,512.6	2,127.7	384.85	6.529			
19,823.2	7,903.5	15,959.8	7,756.5	229.1	155.2	-88.75	-10,105.6	7,322.1	2,512.6	2,126.8	385.81	6.512			
19,900.0	7,903.5	16,036.6	7,756.5	230.5	156.6	-88.75	-10,178.3	7,347.2	2,512.6	2,123.9	388.64	6.465			
19,923.2	7,903.5	16,059.8	7,756.5	231.0	157.0	-88.75	-10,200.3	7,354.7	2,512.6	2,123.0	389.60	6.449			
20,000.0	7,903.5	16,136.6	7,756.5	232.4	158.5	-88.75	-10,272.9	7,379.8	2,512.6	2,120.1	392.43	6.403			
20,023.2	7,903.5	16,159.8	7,756.5	232.9	158.9	-88.75	-10,294.8	7,387.3	2,512.6	2,119.2	393.39	6.387			
20,100.0	7,903.5	16,236.6	7,756.5	234.3	160.3	-88.75	-10,367.4	7,412.4	2,512.6	2,116.4	396.22	6.341			
20,123.2	7,903.5	16,259.8	7,756.5	234.8	160.8	-88.75	-10,389.4	7,420.0	2,512.6	2,115.4	397.18	6.326			
20,200.0	7,903.5	16,336.6	7,756.5	236.2	162.2	-88.75	-10,461.9	7,445.0	2,512.6	2,112.6	400.01	6.281			
20,223.2	7,903.5	16,359.8	7,756.5	236.7	162.6	-88.75	-10,483.9	7,452.6	2,512.6	2,111.6	400.97	6.266			
20,300.0	7,903.5	16,436.6	7,756.5	238.1	164.1	-88.75	-10,556.5	7,477.6	2,512.6	2,108.8	403.80	6.222			
20,323.2	7,903.5	16,459.8	7,756.5	238.6	164.5	-88.75	-10,578.4	7,485.2	2,512.6	2,107.8	404.76	6.208			
20,400.0	7,903.5	16,536.6	7,756.5	240.0	165.9	-88.75	-10,651.0	7,510.2	2,512.6	2,105.0	407.59	6.165			
20,423.2	7,903.5	16,559.8	7,756.5	240.4	166.4	-88.75	-10,673.0	7,517.8	2,512.6	2,104.0	408.55	6.150			
20,500.0	7,903.5	16,636.6	7,756.5	241.9	167.8	-88.75	-10,745.5	7,542.8	2,512.6	2,101.2	411.38	6.108			
20,523.2	7,903.5	16,659.8	7,756.5	242.3	168.3	-88.75	-10,767.5	7,550.4	2,512.6	2,100.3	412.34	6.094			
20,600.0	7,903.5	16,736.6	7,756.5	243.8	169.7	-88.75	-10,840.1	7,575.4	2,512.6	2,097.4	415.17	6.052			
20,623.2	7,903.5	16,759.8	7,756.5	244.2	170.1	-88.75	-10,862.0	7,583.0	2,512.6	2,096.5	416.13	6.038			
20,700.0	7,903.5	16,836.6	7,756.5	245.7	171.6	-88.75	-10,934.6	7,608.0	2,512.6	2,093.6	418.96	5.997			
20,723.2	7,903.5	16,859.8	7,756.5	246.1	172.0	-88.75	-10,956.6	7,615.6	2,512.6	2,092.7	419.92	5.984			
20,800.0	7,903.5	16,936.6	7,756.5	247.6	173.4	-88.75	-11,029.1	7,640.6	2,512.6	2,089.9	422.76	5.943			
20,823.2	7,903.5	16,959.8	7,756.5	248.0	173.9	-88.75	-11,051.1	7,648.2	2,512.6	2,088.9	423.71	5.930			
20,900.0	7,903.5	17,036.6	7,756.5	249.5	175.3	-88.75	-11,123.7	7,673.2	2,512.6	2,086.1	426.55	5.891			
20,923.2	7,903.5	17,059.8	7,756.5	249.9	175.7	-88.75	-11,145.6	7,680.8	2,512.6	2,085.1	427.51	5.877			
21,000.0	7,903.5	17,136.6	7,756.5	251.4	177.2	-88.75	-11,218.2	7,705.8	2,512.6	2,082.3	430.34	5.839			
21,023.2	7,903.5	17,159.8	7,756.5	251.8	177.6	-88.75	-11,240.2	7,713.4	2,512.6	2,081.3	431.30	5.826			
21,100.0	7,903.5	17,236.6	7,756.5	253.3	179.1	-88.75	-11,312.7	7,738.4	2,512.6	2,078.5	434.13	5.788			
21,123.2	7,903.5	17,259.8	7,756.5	253.7	179.6	-88.75	-11,334.7	7,746.0	2,512.6	2,077.5	435.09	5.775			
21,200.0	7,903.5	17,336.6	7,756.5	255.2	180.9	-88.75	-11,407.3	7,771.0	2,512.6	2,074.7	437.93	5.736			
21,223.2	7,903.5	17,359.8	7,756.5	255.6	181.4	-88.75	-11,429.3	7,778.6	2,512.6	2,073.8	438.88	5.725			
21,300.0	7,903.5	17,436.6	7,756.5	257.1	182.8	-88.75	-11,501.8	7,803.7	2,512.6	2,070.9	441.72	5.688			
21,323.2	7,903.5	17,459.8	7,756.5	257.5	183.3	-88.75	-11,523.8	7,811.2	2,512.6	2,070.0	442.68	5.676			
21,400.0	7,903.5	17,536.6	7,756.5	259.0	184.7	-88.75	-11,596.4	7,836.3	2,512.7	2,067.1	445.51	5.640			
21,423.2	7,903.5	17,559.8	7,756.5	259.4	185.1	-88.75	-11,618.3	7,843.8	2,512.7	2,066.2	446.47	5.628			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Fiber TFP22 - 201 - Orig - DEP Plan 4													Offset Site Error:	0.0 usft
Survey Program: 0-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
21,500.0	7,903.5	17,636.6	7,756.5	260.9	186.6	-88.75	-11,690.9	7,868.9	2,512.7	2,063.4	449.31	5.592		
21,523.2	7,903.5	17,659.8	7,756.5	261.3	187.0	-88.75	-11,712.9	7,876.4	2,512.7	2,062.4	450.27	5.580		
21,600.0	7,903.5	17,736.6	7,756.5	262.8	188.4	-88.75	-11,785.4	7,901.5	2,512.7	2,059.6	453.10	5.545		
21,623.2	7,903.5	17,759.8	7,756.5	263.2	188.9	-88.75	-11,807.4	7,909.1	2,512.7	2,058.6	454.06	5.534		
21,700.0	7,903.5	17,836.6	7,756.5	264.7	190.3	-88.75	-11,880.0	7,934.1	2,512.7	2,055.8	456.90	5.499		
21,723.2	7,903.5	17,859.8	7,756.5	265.1	190.8	-88.75	-11,901.9	7,941.7	2,512.7	2,054.8	457.86	5.488		
21,800.0	7,903.5	17,936.6	7,756.5	266.6	192.2	-88.75	-11,974.5	7,966.7	2,512.7	2,052.0	460.69	5.454		
21,823.2	7,903.5	17,959.8	7,756.5	267.0	192.6	-88.75	-11,996.5	7,974.3	2,512.7	2,051.0	461.65	5.443		
21,900.0	7,903.5	18,036.6	7,756.5	268.5	194.1	-88.75	-12,069.0	7,999.3	2,512.7	2,048.2	464.49	5.410		
21,923.2	7,903.5	18,059.8	7,756.5	268.9	194.5	-88.75	-12,091.0	8,006.9	2,512.7	2,047.2	465.44	5.398		
22,000.0	7,903.5	18,136.6	7,756.5	270.4	196.0	-88.75	-12,163.6	8,031.9	2,512.7	2,044.4	468.28	5.366		
22,023.2	7,903.5	18,159.8	7,756.5	270.8	196.4	-88.75	-12,185.5	8,039.5	2,512.7	2,043.5	469.24	5.355		
22,100.0	7,903.5	18,236.6	7,756.5	272.3	197.8	-88.75	-12,258.1	8,064.5	2,512.7	2,040.6	472.08	5.323		
22,123.2	7,903.5	18,259.8	7,756.5	272.7	198.3	-88.75	-12,280.1	8,072.1	2,512.7	2,039.7	473.04	5.312		
22,200.0	7,903.5	18,336.6	7,756.5	274.2	199.7	-88.75	-12,352.6	8,097.1	2,512.7	2,036.8	475.87	5.280		
22,223.2	7,903.5	18,359.8	7,756.5	274.6	200.2	-88.75	-12,374.6	8,104.7	2,512.7	2,035.9	476.83	5.270		
22,300.0	7,903.5	18,436.6	7,756.5	276.1	201.6	-88.75	-12,447.2	8,129.7	2,512.7	2,033.0	479.67	5.238		
22,323.2	7,903.5	18,459.8	7,756.5	276.5	202.1	-88.75	-12,469.1	8,137.3	2,512.7	2,032.1	480.63	5.228		
22,400.0	7,903.5	18,536.6	7,756.5	278.0	203.5	-88.75	-12,541.7	8,162.3	2,512.7	2,029.2	483.47	5.197		
22,423.2	7,903.5	18,559.8	7,756.5	278.4	203.9	-88.75	-12,563.7	8,169.9	2,512.7	2,028.3	484.42	5.187		
22,500.0	7,903.5	18,636.6	7,756.5	279.9	205.4	-88.75	-12,636.2	8,194.9	2,512.7	2,025.5	487.26	5.157		
22,523.2	7,903.5	18,659.8	7,756.5	280.3	205.8	-88.75	-12,658.2	8,202.5	2,512.7	2,024.5	488.22	5.147		
22,600.0	7,903.5	18,736.6	7,756.5	281.8	207.3	-88.75	-12,730.8	8,227.5	2,512.7	2,021.7	491.06	5.117		
22,623.2	7,903.5	18,759.8	7,756.5	282.2	207.7	-88.75	-12,752.7	8,235.1	2,512.7	2,020.7	492.02	5.107		
22,700.0	7,903.5	18,836.6	7,756.5	283.7	209.1	-88.75	-12,825.3	8,260.1	2,512.7	2,017.9	494.86	5.078		
22,723.2	7,903.5	18,859.8	7,756.5	284.1	209.6	-88.75	-12,847.3	8,267.7	2,512.7	2,016.9	495.81	5.068		
22,800.0	7,903.5	18,936.6	7,756.5	285.6	211.0	-88.75	-12,919.8	8,292.8	2,512.7	2,014.1	498.65	5.039		
22,823.2	7,903.5	18,959.8	7,756.5	286.0	211.5	-88.75	-12,941.8	8,300.3	2,512.7	2,013.1	499.61	5.029		
22,900.0	7,903.5	19,036.6	7,756.5	287.4	212.9	-88.75	-13,014.4	8,325.4	2,512.7	2,010.3	502.45	5.001		
22,923.2	7,903.5	19,059.8	7,756.5	287.9	213.4	-88.75	-13,036.3	8,332.9	2,512.7	2,009.3	503.41	4.991		
23,000.0	7,903.5	19,136.6	7,756.5	289.3	214.8	-88.75	-13,108.9	8,358.0	2,512.7	2,006.5	506.25	4.963		
23,023.2	7,903.5	19,159.8	7,756.5	289.8	215.2	-88.75	-13,130.9	8,365.5	2,512.7	2,005.5	507.21	4.954		
23,100.0	7,903.5	19,236.6	7,756.5	291.2	216.7	-88.75	-13,203.4	8,390.6	2,512.8	2,002.7	510.04	4.927		
23,123.2	7,903.5	19,259.8	7,756.5	291.7	217.1	-88.75	-13,225.4	8,398.2	2,512.8	2,001.8	511.00	4.917		
23,200.0	7,903.5	19,336.6	7,756.5	293.1	218.6	-88.75	-13,298.0	8,423.2	2,512.8	1,998.9	513.84	4.890		
23,223.2	7,903.5	19,359.8	7,756.5	293.6	219.0	-88.75	-13,319.9	8,430.8	2,512.8	1,998.0	514.80	4.881		
23,300.0	7,903.5	19,436.6	7,756.5	295.0	220.5	-88.75	-13,392.5	8,455.8	2,512.8	1,995.1	517.64	4.854		
23,323.2	7,903.5	19,459.8	7,756.5	295.5	220.9	-88.75	-13,414.5	8,463.4	2,512.8	1,994.2	518.60	4.845		
23,400.0	7,903.5	19,536.6	7,756.5	296.9	222.3	-88.75	-13,487.0	8,488.4	2,512.8	1,991.3	521.44	4.819		
23,423.2	7,903.5	19,559.8	7,756.5	297.4	222.8	-88.75	-13,509.0	8,496.0	2,512.8	1,990.4	522.40	4.810		
23,500.0	7,903.5	19,636.6	7,756.5	298.8	224.2	-88.75	-13,581.6	8,521.0	2,512.8	1,987.5	525.24	4.784		
23,523.2	7,903.5	19,659.8	7,756.5	299.3	224.7	-88.75	-13,603.6	8,528.6	2,512.8	1,986.6	526.20	4.775		
23,600.0	7,903.5	19,736.6	7,756.5	300.7	226.1	-88.75	-13,676.1	8,553.6	2,512.8	1,983.7	529.04	4.750		
23,623.2	7,903.5	19,759.8	7,756.5	301.2	226.6	-88.75	-13,698.1	8,561.2	2,512.8	1,982.8	529.99	4.741		
23,700.0	7,903.5	19,836.6	7,756.5	302.6	228.0	-88.75	-13,770.7	8,586.2	2,512.8	1,980.0	532.83	4.716		
23,723.2	7,903.5	19,859.8	7,756.5	303.1	228.4	-88.75	-13,792.6	8,593.8	2,512.8	1,979.0	533.79	4.707		
23,800.0	7,903.5	19,936.6	7,756.5	304.5	229.9	-88.75	-13,865.2	8,618.8	2,512.8	1,976.2	536.63	4.683		
23,823.2	7,903.5	19,959.8	7,756.5	305.0	230.3	-88.75	-13,887.2	8,626.4	2,512.8	1,975.2	537.59	4.674		
23,900.0	7,903.5	20,036.6	7,756.5	306.4	231.8	-88.75	-13,959.7	8,651.4	2,512.8	1,972.4	540.43	4.650		
23,923.2	7,903.5	20,059.8	7,756.5	306.9	232.2	-88.75	-13,981.7	8,659.0	2,512.8	1,971.4	541.39	4.641		
24,000.0	7,903.5	20,136.6	7,756.5	308.3	233.7	-88.75	-14,054.3	8,684.0	2,512.8	1,968.6	544.23	4.617		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	Arsenal Resources	Local Co-ordinate Reference:	Well 204 - Slot 204
Project:	Taylor County, WV	TVD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Reference Site:	Johnson TFP40	MD Reference:	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
Site Error:	0.0 usft	North Reference:	Grid
Reference Well:	204	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0 usft	Output errors are at	2.00 sigma
Reference Wellbore	Orig.	Database:	Northeast
Reference Design:	DEP Plan 6	Offset TVD Reference:	Offset Datum

Offset Design Fiber TFP22 - 201 - Orig - DEP Plan 4														Offset Site Error:	0.0 usft
Survey Program: 0-SDI MWD														Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning		
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
24,023.2	7,903.5	20,159.8	7,756.5	308.8	234.1	-88.75	-14,076.2	8,691.6	2,512.8	1,967.6	545.19	4.609			
24,100.0	7,903.5	20,236.6	7,756.5	310.2	235.5	-88.75	-14,148.8	8,716.6	2,512.8	1,964.8	548.03	4.585			
24,123.2	7,903.5	20,259.8	7,756.5	310.7	236.0	-88.75	-14,170.8	8,724.2	2,512.8	1,963.8	548.99	4.577			
24,200.0	7,903.5	20,336.6	7,756.5	312.1	237.4	-88.75	-14,243.3	8,749.2	2,512.5	1,961.0	551.83	4.554			
24,223.2	7,903.5	20,359.8	7,756.5	312.6	237.9	-88.75	-14,265.3	8,756.8	2,512.8	1,960.0	552.79	4.546			
24,300.0	7,903.5	20,436.6	7,756.5	314.0	239.3	-88.75	-14,337.9	8,781.9	2,512.8	1,957.2	555.63	4.522			
24,323.2	7,903.5	20,459.8	7,756.5	314.5	239.8	-88.75	-14,359.8	8,789.4	2,512.8	1,956.2	556.59	4.515			
24,400.0	7,903.5	20,536.6	7,756.5	315.9	241.2	-88.75	-14,432.4	8,814.5	2,512.8	1,953.4	559.43	4.492			
24,423.2	7,903.5	20,559.8	7,756.5	316.4	241.7	-88.75	-14,454.4	8,822.0	2,512.8	1,952.4	560.39	4.484			
24,500.0	7,903.5	20,636.6	7,756.5	317.8	243.1	-88.75	-14,526.9	8,847.1	2,512.8	1,949.6	563.23	4.461			
24,523.2	7,903.5	20,659.8	7,756.5	318.3	243.5	-88.75	-14,548.9	8,854.6	2,512.8	1,948.6	564.19	4.454			
24,600.0	7,903.5	20,736.6	7,756.5	319.7	245.0	-88.75	-14,621.5	8,879.7	2,512.8	1,945.8	567.03	4.432			
24,623.2	7,903.5	20,759.8	7,756.5	320.2	245.4	-88.75	-14,643.4	8,887.2	2,512.8	1,944.9	567.99	4.424			
24,700.0	7,903.5	20,836.6	7,756.5	321.6	246.9	-88.75	-14,716.0	8,912.3	2,512.8	1,942.0	570.83	4.402			
24,723.2	7,903.5	20,859.8	7,756.5	322.1	247.3	-88.75	-14,738.0	8,919.9	2,512.8	1,941.1	571.79	4.395			
24,800.0	7,903.5	20,936.6	7,756.5	323.5	248.8	-88.75	-14,810.5	8,944.9	2,512.9	1,938.2	574.63	4.373			
24,823.2	7,903.5	20,959.8	7,756.5	324.0	249.2	-88.75	-14,832.5	8,952.5	2,512.9	1,937.3	575.59	4.366			
24,900.0	7,903.5	21,036.6	7,756.5	325.4	250.7	-88.75	-14,905.1	8,977.5	2,512.9	1,934.4	578.43	4.344			
24,923.2	7,903.5	21,059.8	7,756.5	325.9	251.1	-88.75	-14,927.0	8,985.1	2,512.9	1,933.5	579.39	4.337			
25,000.0	7,903.5	21,136.6	7,756.5	327.3	252.6	-88.75	-14,999.6	9,010.1	2,512.9	1,930.6	582.23	4.316			
25,023.2	7,903.5	21,159.8	7,756.5	327.8	253.0	-88.75	-15,021.6	9,017.7	2,512.9	1,929.7	583.19	4.309			
25,100.0	7,903.5	21,236.6	7,756.5	329.2	254.4	-88.75	-15,094.1	9,042.7	2,512.9	1,926.8	586.03	4.288			
25,123.2	7,903.5	21,259.8	7,756.5	329.7	254.9	-88.75	-15,116.1	9,050.3	2,512.9	1,925.9	586.99	4.281			
25,200.0	7,903.5	21,336.6	7,756.5	331.1	256.3	-88.75	-15,188.7	9,075.3	2,512.9	1,923.0	589.83	4.260			
25,223.2	7,903.5	21,359.8	7,756.5	331.6	256.8	-88.75	-15,210.6	9,082.9	2,512.9	1,922.1	590.79	4.253			
25,300.0	7,903.5	21,436.6	7,756.5	333.0	258.2	-88.75	-15,283.2	9,107.9	2,512.9	1,919.2	593.63	4.233			
25,323.2	7,903.5	21,459.8	7,756.5	333.5	258.7	-88.75	-15,305.2	9,115.5	2,512.9	1,918.3	594.59	4.226			
25,400.0	7,903.5	21,536.6	7,756.5	334.9	260.1	-88.75	-15,377.7	9,140.5	2,512.9	1,915.5	597.43	4.206			
25,423.2	7,903.5	21,559.8	7,756.5	335.4	260.6	-88.75	-15,399.7	9,148.1	2,512.9	1,914.5	598.39	4.199			
25,500.0	7,903.5	21,636.6	7,756.5	336.8	262.0	-88.75	-15,472.3	9,173.1	2,512.9	1,911.7	601.23	4.180			
25,523.2	7,903.5	21,659.8	7,756.5	337.3	262.4	-88.75	-15,494.2	9,180.7	2,512.9	1,910.7	602.19	4.173			
25,600.0	7,903.5	21,736.6	7,756.5	338.7	263.9	-88.75	-15,566.8	9,205.7	2,512.9	1,907.9	605.04	4.153			
25,623.2	7,903.5	21,759.8	7,756.5	339.2	264.3	-88.75	-15,588.8	9,213.3	2,512.9	1,906.9	605.99	4.147			
25,700.0	7,903.5	21,836.6	7,756.5	340.6	265.8	-88.75	-15,661.3	9,238.3	2,512.9	1,904.1	608.84	4.127			
25,723.2	7,903.5	21,859.8	7,756.5	341.1	266.2	-88.75	-15,683.3	9,245.9	2,512.9	1,903.1	609.80	4.121			
25,800.0	7,903.5	21,936.6	7,756.5	342.5	267.7	-88.75	-15,755.9	9,270.9	2,512.9	1,900.3	612.64	4.102			
25,823.2	7,903.5	21,959.8	7,756.5	343.0	268.1	-88.75	-15,777.8	9,278.5	2,512.9	1,899.3	613.60	4.095			
25,900.0	7,903.5	22,036.6	7,756.5	344.4	269.6	-88.75	-15,850.4	9,303.6	2,512.9	1,896.5	616.44	4.077			
25,923.2	7,903.5	22,059.8	7,756.5	344.9	270.0	-88.75	-15,872.4	9,311.1	2,512.9	1,895.5	617.40	4.070			
26,000.0	7,903.5	22,136.6	7,756.5	346.3	271.5	-88.75	-15,944.9	9,336.2	2,512.9	1,892.7	620.24	4.052			
26,023.2	7,903.5	22,159.8	7,756.5	346.8	271.9	-88.75	-15,966.9	9,343.7	2,512.9	1,891.7	621.20	4.045			
26,100.0	7,903.5	22,236.6	7,756.5	348.3	273.4	-88.75	-16,039.5	9,368.8	2,512.9	1,888.9	624.04	4.027			
26,123.2	7,903.5	22,259.8	7,756.5	348.7	273.8	-88.75	-16,061.5	9,376.3	2,512.9	1,887.9	625.00	4.021			
26,200.0	7,903.5	22,336.6	7,756.5	350.2	275.2	-88.75	-16,134.0	9,401.4	2,512.9	1,885.1	627.84	4.002			
26,223.2	7,903.5	22,359.8	7,756.5	350.6	275.7	-88.75	-16,156.0	9,409.0	2,512.9	1,884.1	628.80	3.996			
26,300.0	7,903.5	22,436.6	7,756.5	352.1	277.1	-88.75	-16,228.6	9,434.0	2,512.9	1,881.3	631.65	3.978			
26,323.2	7,903.5	22,459.8	7,756.5	352.5	277.6	-88.75	-16,250.5	9,441.6	2,512.9	1,880.3	632.61	3.972			
26,400.0	7,903.5	22,536.6	7,756.5	354.0	279.0	-88.75	-16,323.1	9,466.6	2,512.9	1,877.5	635.45	3.955			
26,423.2	7,903.5	22,559.8	7,756.5	354.4	279.5	-88.75	-16,345.1	9,474.2	2,512.9	1,876.5	636.41	3.949			
26,500.0	7,903.5	22,636.6	7,756.5	355.9	280.9	-88.75	-16,417.6	9,499.2	2,513.0	1,873.7	639.25	3.931			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Fiber TFP22 - 201 - Orig - DEP Plan 4														Offset Site Error:	0.0 usft
Survey Program: D-SDI MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
26,523.2	7,903.5	22,659.8	7,756.5	356.3	281.4	-88.75	-16,439.6	9,506.8	2,513.0	1,872.7	640.21	3.925			
26,800.0	7,903.5	22,736.6	7,756.5	357.8	282.8	-88.75	-16,512.2	9,531.8	2,513.0	1,869.9	643.05	3.908			
26,623.2	7,903.5	22,759.8	7,756.5	358.2	283.3	-88.75	-16,534.1	9,539.4	2,513.0	1,868.9	644.01	3.902			
26,700.0	7,903.5	22,836.6	7,756.5	359.7	284.7	-88.75	-16,606.7	9,564.4	2,513.0	1,866.1	646.85	3.885			
26,723.2	7,903.5	22,859.8	7,756.5	360.1	285.2	-88.75	-16,628.7	9,572.0	2,513.0	1,865.2	647.81	3.879			
26,800.0	7,903.5	22,936.6	7,756.5	361.6	286.6	-88.75	-16,701.2	9,597.0	2,513.0	1,862.3	650.66	3.862			
26,823.2	7,903.5	22,959.8	7,756.5	362.0	287.0	-88.75	-16,723.2	9,604.6	2,513.0	1,861.4	651.62	3.857			
26,900.0	7,903.5	23,036.6	7,756.5	363.5	288.5	-88.75	-16,795.8	9,629.6	2,513.0	1,858.5	654.46	3.840			
26,923.2	7,903.5	23,059.8	7,756.5	363.9	288.9	-88.75	-16,817.7	9,637.2	2,513.0	1,857.6	655.42	3.834			
27,000.0	7,903.5	23,136.6	7,756.5	365.4	290.4	-88.75	-16,890.3	9,662.2	2,513.0	1,854.7	658.26	3.818			
27,023.2	7,903.5	23,159.8	7,756.5	365.8	290.8	-88.75	-16,912.3	9,669.8	2,513.0	1,853.8	659.22	3.812			
27,100.0	7,903.5	23,236.6	7,756.5	367.3	292.3	-88.75	-16,984.8	9,694.8	2,513.0	1,850.9	662.06	3.796			
27,123.2	7,903.5	23,259.8	7,756.5	367.7	292.7	-88.75	-17,006.8	9,702.4	2,513.0	1,850.0	663.02	3.790			
27,200.0	7,903.5	23,336.6	7,756.5	369.2	294.2	-88.75	-17,079.4	9,727.4	2,513.0	1,847.1	665.87	3.774			
27,223.2	7,903.5	23,359.8	7,756.5	369.6	294.6	-88.75	-17,101.3	9,735.0	2,513.0	1,846.2	666.83	3.769			
27,300.0	7,903.5	23,436.6	7,756.5	371.1	296.1	-88.75	-17,173.9	9,760.0	2,513.0	1,843.3	669.67	3.753			
27,323.2	7,903.5	23,459.8	7,756.5	371.5	296.5	-88.75	-17,195.9	9,767.6	2,513.0	1,842.4	670.63	3.747			
27,400.0	7,903.5	23,536.6	7,756.5	373.0	298.0	-88.75	-17,268.4	9,792.7	2,513.0	1,839.5	673.47	3.731			
27,423.2	7,903.5	23,559.8	7,756.5	373.4	298.4	-88.75	-17,290.4	9,800.2	2,513.0	1,838.6	674.43	3.726			
27,500.0	7,903.5	23,636.6	7,756.5	374.9	299.9	-88.75	-17,363.0	9,825.3	2,513.0	1,835.7	677.27	3.710			
27,523.2	7,903.5	23,659.8	7,756.5	375.3	300.3	-88.75	-17,384.9	9,832.8	2,513.0	1,834.8	678.23	3.705			
27,600.0	7,903.5	23,736.6	7,756.5	376.8	301.8	-88.75	-17,457.5	9,857.9	2,513.0	1,831.9	681.08	3.690			
27,623.2	7,903.5	23,759.8	7,756.5	377.2	302.2	-88.75	-17,479.5	9,865.4	2,513.0	1,831.0	682.04	3.685			
27,700.0	7,903.5	23,836.6	7,756.5	378.7	303.7	-88.75	-17,552.0	9,890.5	2,513.0	1,828.1	684.88	3.669			
27,723.2	7,903.5	23,859.8	7,756.5	379.1	304.1	-88.75	-17,574.0	9,898.1	2,513.0	1,827.2	685.84	3.664			
27,800.0	7,903.5	23,936.6	7,756.5	380.6	305.5	-88.75	-17,646.6	9,923.1	2,513.0	1,824.3	688.68	3.649			
27,823.2	7,903.5	23,959.8	7,756.5	381.0	306.0	-88.75	-17,668.5	9,930.7	2,513.0	1,823.4	689.64	3.644			
27,900.0	7,903.5	24,036.6	7,756.5	382.5	307.4	-88.75	-17,741.1	9,955.7	2,513.0	1,820.5	692.49	3.628			
27,923.2	7,903.5	24,059.8	7,756.5	382.9	307.9	-88.75	-17,763.1	9,963.3	2,513.0	1,819.6	693.45	3.624			
28,000.0	7,903.5	24,136.6	7,756.5	384.4	309.3	-88.75	-17,835.6	9,988.3	2,513.0	1,816.7	696.29	3.609			
28,023.2	7,903.5	24,159.8	7,756.5	384.8	309.8	-88.75	-17,857.6	9,995.9	2,513.0	1,815.8	697.25	3.604			
28,100.0	7,903.5	24,236.6	7,756.5	386.3	311.2	-88.75	-17,930.2	10,020.9	2,513.0	1,813.0	700.09	3.590			
28,123.2	7,903.5	24,259.8	7,756.5	386.7	311.7	-88.75	-17,952.1	10,028.5	2,513.0	1,812.0	701.05	3.585			
28,200.0	7,903.5	24,336.6	7,756.5	388.2	313.1	-88.75	-18,024.7	10,053.5	2,513.1	1,809.2	703.90	3.570			
28,223.2	7,903.5	24,359.8	7,756.5	388.6	313.6	-88.75	-18,046.7	10,061.1	2,513.1	1,808.2	704.86	3.565			
28,300.0	7,903.5	24,436.6	7,756.5	390.1	315.0	-88.75	-18,119.2	10,086.1	2,513.1	1,805.4	707.70	3.551			
28,323.2	7,903.5	24,459.8	7,756.5	390.5	315.5	-88.75	-18,141.2	10,093.7	2,513.1	1,804.4	708.66	3.546			
28,400.0	7,903.5	24,536.6	7,756.5	392.0	316.9	-88.75	-18,213.8	10,118.7	2,513.1	1,801.6	711.50	3.532			
28,423.2	7,903.5	24,559.8	7,756.5	392.4	317.4	-88.75	-18,235.8	10,126.3	2,513.1	1,800.6	712.46	3.527			
28,500.0	7,903.5	24,636.6	7,756.5	393.9	318.8	-88.75	-18,308.3	10,151.3	2,513.1	1,797.8	715.31	3.513			
28,523.2	7,903.5	24,659.8	7,756.5	394.3	319.3	-88.75	-18,330.3	10,158.9	2,513.1	1,796.8	716.27	3.509			
28,600.0	7,903.5	24,736.6	7,756.5	395.8	320.7	-88.75	-18,402.9	10,183.9	2,513.1	1,794.0	719.11	3.495			
28,623.2	7,903.5	24,759.8	7,756.5	396.2	321.1	-88.75	-18,424.8	10,191.5	2,513.1	1,793.0	720.07	3.490			
28,700.0	7,903.5	24,836.6	7,756.5	397.7	322.6	-88.75	-18,497.4	10,216.5	2,513.1	1,790.2	722.91	3.476			
28,723.2	7,903.5	24,859.8	7,756.5	398.1	323.0	-88.75	-18,519.4	10,224.1	2,513.1	1,789.2	723.87	3.472			
28,800.0	7,903.5	24,936.6	7,756.5	399.6	324.5	-88.75	-18,591.9	10,249.1	2,513.1	1,786.4	726.72	3.458			
28,823.2	7,903.5	24,959.8	7,756.5	400.0	324.9	-88.75	-18,613.9	10,256.7	2,513.1	1,785.4	727.68	3.454			
28,900.0	7,903.5	25,036.6	7,756.5	401.5	326.4	-88.75	-18,686.5	10,281.8	2,513.1	1,782.6	730.52	3.440			
28,923.2	7,903.5	25,059.8	7,756.5	401.9	326.8	-88.75	-18,708.4	10,289.3	2,513.1	1,781.6	731.48	3.436			
29,000.0	7,903.5	25,136.6	7,756.5	403.4	328.3	-88.75	-18,781.0	10,314.4	2,513.1	1,777.8	734.33	3.422			
29,023.2	7,903.5	25,159.8	7,756.5	403.8	328.7	-88.75	-18,803.0	10,321.9	2,513.1	1,777.8	735.29	3.418			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Fiber TFP22 - 201 - Orig. - DEP Plan 4														Offset Site Error:	0.0 usft
Survey Program: 0-SDI MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore +N/-S (usft)	Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning		
29,100.0	7,903.5	25,236.6	7,756.5	405.3	330.2	-88.75	-18,875.5	10,347.0	2,513.1	1,775.0	738.13	3.405			
29,123.2	7,903.5	25,259.8	7,756.5	405.7	330.6	-88.75	-18,897.5	10,354.5	2,513.1	1,774.0	739.09	3.400			
29,200.0	7,903.5	25,336.6	7,756.5	407.2	332.1	-88.75	-18,970.1	10,379.6	2,513.1	1,771.2	741.93	3.387			
29,223.2	7,903.5	25,359.8	7,756.5	407.6	332.5	-88.75	-18,992.0	10,387.2	2,513.1	1,770.2	742.89	3.383			
29,300.0	7,903.5	25,436.6	7,756.5	409.1	334.0	-88.75	-19,064.6	10,412.2	2,513.1	1,767.4	745.74	3.370			
29,323.2	7,903.5	25,459.8	7,756.5	409.5	334.4	-88.75	-19,086.6	10,419.8	2,513.1	1,766.4	746.70	3.366			
29,400.0	7,903.5	25,536.6	7,756.5	411.0	335.9	-88.75	-19,159.1	10,444.8	2,513.1	1,763.6	749.54	3.353			
29,423.2	7,903.5	25,559.8	7,756.5	411.4	336.3	-88.75	-19,181.1	10,452.4	2,513.1	1,762.6	750.50	3.349			
29,500.0	7,903.5	25,636.6	7,756.5	412.9	337.8	-88.75	-19,253.7	10,477.4	2,513.1	1,759.8	753.34	3.336			
29,512.5	7,903.5	25,649.1	7,756.5	413.1	338.0	-88.75	-19,265.5	10,481.5	2,513.1	1,759.3	753.86	3.334			
29,553.7	7,903.5	25,690.3	7,756.5	413.9	338.8	-88.75	-19,304.4	10,494.9	2,513.1	1,757.7	755.39	3.327	ES, SF		

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 201 - Orig. - 201 As Drilled														Offset Site Error:	0.0 usft
Survey Program: 175-SDI MWD, 873-SDI MWD, 2205-SDI MWD, 3440-MWD														Offset Well Error:	0.0 usft
Reference	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)		Offset (usft)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)				Between Ellipses (usft)		
0.0	0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-45.0	0.0	45.0					
100.0	100.0	100.4	100.4	0.3	0.1	-179.75	-44.5	-0.2	44.5	44.2	0.35	124.305			
200.0	200.0	200.7	200.7	0.6	0.2	-178.97	-43.1	-0.8	43.2	42.3	0.85	51.057			
300.0	300.0	300.8	300.7	1.0	0.4	-177.45	-41.4	-1.8	41.4	40.0	1.43	29.046			
363.1	363.1	363.1	363.1	1.2	0.6	-175.79	-40.7	-3.0	40.8	39.0	1.78	22.887 CC			
400.0	400.0	399.6	399.5	1.3	0.7	-174.43	-40.8	-4.0	41.0	39.0	1.99	20.584 ES			
500.0	500.0	498.1	498.0	1.7	0.9	-170.80	-43.3	-7.0	43.9	41.3	2.56	17.167			
600.0	600.0	595.9	595.5	2.1	1.1	-169.98	-49.7	-8.8	50.7	47.6	3.11	16.286 SF			
700.0	700.0	693.6	692.7	2.4	1.3	-171.73	-60.0	-8.7	61.1	57.4	3.67	16.650			
800.0	800.0	792.2	790.4	2.8	1.5	-174.34	-72.9	-7.2	73.9	69.7	4.16	17.778			
900.0	900.0	891.7	889.0	3.1	1.7	107.63	-86.0	-5.7	87.4	82.8	4.61	18.957			
1,000.0	999.8	993.0	989.7	3.5	1.8	109.01	-97.6	-4.4	100.3	95.3	5.02	19.986			
1,100.0	1,099.6	1,093.9	1,090.2	3.8	1.9	112.26	-106.8	-5.1	111.9	106.5	5.46	20.503			
1,200.0	1,199.4	1,194.5	1,190.4	4.2	2.1	116.28	-114.2	-8.4	122.7	116.8	5.93	20.689			
1,300.0	1,299.1	1,295.0	1,290.6	4.5	2.3	120.81	-119.7	-14.0	132.8	126.4	6.42	20.678			
1,400.0	1,398.9	1,394.1	1,389.4	4.9	2.4	125.50	-123.7	-21.3	143.0	136.1	6.92	20.658			
1,500.0	1,498.6	1,493.5	1,488.4	5.3	2.6	129.68	-127.7	-28.9	154.1	146.7	7.43	20.750			
1,600.0	1,598.4	1,593.1	1,587.6	5.6	2.8	133.61	-130.5	-37.0	165.1	157.2	7.95	20.778			
1,700.0	1,698.1	1,690.4	1,684.5	6.0	3.0	137.38	-132.7	-46.0	177.1	168.6	8.47	20.906			
1,800.0	1,797.9	1,789.6	1,783.1	6.4	3.2	140.70	-135.5	-55.6	190.4	181.4	9.00	21.153			
1,900.0	1,897.6	1,889.1	1,882.3	6.7	3.4	143.19	-138.7	-63.6	203.4	193.9	9.53	21.350			
2,000.0	1,997.4	1,988.9	1,979.8	7.1	3.6	145.15	-142.3	-71.0	216.8	206.8	10.05	21.589			
2,100.0	2,097.2	2,085.0	2,077.4	7.5	3.8	146.74	-146.7	-78.3	231.0	220.4	10.59	21.816			
2,200.0	2,196.9	2,181.2	2,173.3	7.8	3.9	147.94	-152.0	-85.3	245.9	234.8	11.04	22.281			
2,300.0	2,296.7	2,277.8	2,269.4	8.2	4.0	148.78	-158.7	-92.3	261.8	250.4	11.42	22.925			
2,400.0	2,396.4	2,369.9	2,360.9	8.6	4.2	149.38	-166.3	-99.6	279.2	267.4	11.78	23.702			
2,500.0	2,496.2	2,460.2	2,450.3	8.9	4.3	150.15	-174.5	-109.3	299.2	287.0	12.13	24.655			
2,600.0	2,595.9	2,554.6	2,543.4	9.1	4.5	151.10	-183.4	-121.8	321.3	308.9	12.32	26.072			
2,700.0	2,695.6	2,652.3	2,639.7	9.1	4.7	152.21	-191.2	-136.1	345.0	332.6	12.41	27.810			
2,800.0	2,794.8	2,749.8	2,735.9	9.2	4.9	153.63	-197.5	-151.1	371.6	359.1	12.51	29.707			
2,900.0	2,893.6	2,845.4	2,830.0	9.2	5.1	155.25	-202.2	-166.6	401.1	388.5	12.62	31.780			
3,000.0	2,992.0	2,937.8	2,921.1	9.3	5.4	156.99	-206.3	-181.9	433.3	420.6	12.74	34.002			
3,100.0	3,090.3	3,031.0	3,012.9	9.3	5.6	158.65	-210.1	-197.9	466.4	453.5	12.89	36.169			
3,200.0	3,188.6	3,116.0	3,096.3	9.4	5.9	160.15	-212.5	-213.6	500.2	487.2	13.01	38.438			
3,300.0	3,286.9	3,194.7	3,173.2	9.5	6.1	161.44	-215.4	-230.1	536.7	523.5	13.11	40.920			
3,400.0	3,385.3	3,269.6	3,246.0	9.7	6.4	162.63	-218.4	-247.8	575.9	562.7	13.21	43.601			
3,500.0	3,483.6	3,345.0	3,318.4	9.8	6.7	163.80	-221.6	-268.3	618.3	605.0	13.32	46.408			
3,600.0	3,581.9	3,407.2	3,377.6	9.9	7.0	164.75	-224.4	-287.3	663.8	650.5	13.31	49.881			
3,700.0	3,680.2	3,475.0	3,441.3	10.1	7.3	165.79	-227.3	-310.1	712.3	699.0	13.29	53.601			
3,800.0	3,778.6	3,545.0	3,506.6	10.3	7.6	166.82	-230.3	-335.4	763.1	749.8	13.28	57.453			
3,900.0	3,876.9	3,621.3	3,577.2	10.5	7.9	167.85	-233.7	-364.0	815.3	802.0	13.34	61.102			
4,000.0	3,975.2	3,700.2	3,650.0	10.7	8.4	168.83	-237.0	-394.4	868.4	855.0	13.45	64.564			
4,100.0	4,073.5	3,775.2	3,718.8	10.9	8.8	178.62	-239.6	-423.8	922.5	908.9	13.55	68.055			
4,200.0	4,171.7	3,855.2	3,792.0	11.1	9.3	-169.35	-241.8	-456.3	977.9	964.2	13.71	71.340			
4,300.0	4,269.8	3,947.2	3,876.3	11.3	9.8	-163.62	-243.9	-493.1	1,033.3	1,019.4	13.96	74.031			
4,400.0	4,367.8	4,036.5	3,958.4	11.6	10.4	-163.29	-246.1	-528.3	1,088.2	1,074.0	14.22	76.554			
4,500.0	4,465.8	4,124.8	4,039.7	11.9	10.9	-163.03	-248.8	-562.4	1,142.8	1,128.3	14.49	78.855			
4,600.0	4,563.8	4,211.2	4,119.5	12.1	11.5	-162.80	-251.3	-595.6	1,197.0	1,182.3	14.77	81.057			
4,700.0	4,661.7	4,291.3	4,193.3	12.4	12.0	-162.59	-253.4	-626.5	1,251.4	1,236.3	15.04	83.215			
4,800.0	4,759.7	4,395.8	4,289.9	12.7	12.7	-162.33	-255.7	-666.3	1,305.2	1,289.8	15.47	84.365			
4,900.0	4,857.7	4,473.9	4,362.3	13.0	13.2	-162.15	-257.4	-696.7	1,358.7	1,342.9	15.76	86.202			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

**Offset Design** Johnson TFP40 - 201 - Orig. - 201 As Drilled

Survey Program: 175-SDI MWD, 873-SDI MWD, 2205-SDI MWD, 3440-MWD													Offset Site Error:	0.0 usft
Reference													Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning	
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,000.0	4,955.7	4,547.8	4,430.7	13.3	13.7	-162.05	-260.2	-723.5	1,412.5	1,396.5	16.04	88.067		
5,100.0	5,053.7	4,617.7	4,495.3	13.6	14.2	-162.04	-264.5	-749.8	1,467.1	1,450.8	16.31	89.963		
5,200.0	5,151.7	4,676.0	4,549.0	13.9	14.6	-162.04	-268.4	-772.2	1,522.6	1,506.1	16.52	92.182		
5,300.0	5,249.7	4,745.3	4,612.3	14.3	15.2	-161.97	-271.9	-800.0	1,579.1	1,562.2	16.82	93.895		
5,400.0	5,347.7	4,803.5	4,665.0	14.6	15.7	-161.82	-273.1	-824.8	1,636.7	1,619.7	17.06	95.912		
5,500.0	5,445.7	4,866.0	4,721.0	14.9	16.2	-161.62	-273.6	-852.6	1,695.6	1,678.3	17.35	97.704		
5,600.0	5,543.7	4,938.3	4,785.5	15.3	16.8	-161.41	-274.6	-885.1	1,755.2	1,737.5	17.72	99.041		
5,700.0	5,641.7	5,051.1	4,887.1	15.6	17.7	-161.26	-279.4	-934.0	1,814.2	1,795.9	18.35	98.864		
5,800.0	5,739.7	5,397.7	5,209.9	16.0	20.1	-160.97	-288.5	-1,056.3	1,866.1	1,845.9	20.21	92.356		
5,900.0	5,837.7	5,460.9	5,270.4	16.3	20.5	-161.00	-291.1	-1,076.6	1,912.6	1,892.1	20.50	93.285		
6,000.0	5,935.6	5,507.8	5,314.9	16.7	20.7	-161.02	-293.2	-1,091.0	1,960.7	1,940.0	20.73	94.600		
6,100.0	6,033.6	5,531.0	5,336.9	17.0	20.9	-161.03	-294.4	-1,098.5	2,011.0	1,990.1	20.83	96.539		
6,200.0	6,131.6	5,593.1	5,395.1	17.4	21.3	-161.06	-298.1	-1,119.6	2,062.6	2,041.4	21.15	97.545		
6,300.0	6,229.6	5,655.2	5,452.8	17.8	21.8	-161.09	-302.5	-1,142.2	2,116.2	2,094.7	21.47	98.574		
6,400.0	6,327.6	5,892.0	5,675.0	18.2	23.3	-160.98	-309.1	-1,223.6	2,167.3	2,144.6	22.71	95.428		
6,500.0	6,425.6	5,995.2	5,773.4	18.5	23.9	-161.01	-313.1	-1,254.4	2,214.4	2,191.2	23.23	95.331		
6,600.0	6,523.6	6,041.0	5,817.0	18.9	24.2	-161.03	-315.5	-1,268.1	2,262.1	2,238.7	23.48	96.339		
6,700.0	6,621.6	6,101.0	5,873.7	19.3	24.6	-161.07	-319.2	-1,287.6	2,312.0	2,288.2	23.80	97.126		
6,800.0	6,719.6	6,123.4	5,894.6	19.7	24.7	-161.09	-320.8	-1,295.2	2,363.1	2,339.1	23.94	98.697		
6,900.0	6,817.6	6,173.2	5,941.1	20.1	25.1	-161.12	-324.4	-1,312.7	2,415.8	2,391.5	24.22	99.725		
7,000.0	6,915.6	6,196.0	5,962.4	20.4	25.3	-161.14	-326.2	-1,321.0	2,469.9	2,445.6	24.36	101.395		
7,100.0	7,013.6	6,243.5	6,006.1	20.8	25.6	-161.15	-329.5	-1,339.1	2,525.5	2,500.8	24.65	102.470		
7,200.0	7,111.6	6,291.0	6,049.2	21.2	26.0	-161.13	-332.1	-1,358.9	2,583.1	2,558.2	24.93	103.603		
7,300.0	7,209.6	6,516.1	6,256.1	21.6	27.6	-160.95	-338.4	-1,447.1	2,637.4	2,611.1	26.26	100.420		
7,400.0	7,307.6	6,551.0	6,288.4	22.0	28.0	165.00	-339.3	-1,460.5	2,691.4	2,665.0	26.46	101.709		
7,500.0	7,404.9	6,632.5	6,363.3	22.3	28.7	127.00	-341.5	-1,492.2	2,746.0	2,719.2	26.84	102.304		
7,600.0	7,499.1	6,711.3	6,435.9	22.6	29.3	107.19	-343.5	-1,522.9	2,799.1	2,772.0	27.12	103.198		
7,700.0	7,587.9	6,768.5	6,488.6	22.8	29.7	95.34	-344.9	-1,545.2	2,850.3	2,823.1	27.23	104.691		
7,800.0	7,669.0	6,809.9	6,526.6	23.0	30.1	87.04	-346.0	-1,561.6	2,899.2	2,872.0	27.21	106.534		
7,900.0	7,740.5	6,836.0	6,550.5	23.3	30.3	80.61	-346.7	-1,572.1	2,945.3	2,918.1	27.19	108.323		
8,000.0	7,800.7	6,863.3	6,575.4	23.6	30.5	75.67	-347.4	-1,583.3	2,987.9	2,960.7	27.26	109.591		
8,100.0	7,848.0	6,878.0	6,588.7	23.9	30.6	71.60	-347.8	-1,589.4	3,026.6	2,999.2	27.38	110.558		
8,200.0	7,881.2	6,886.4	6,596.3	24.4	30.7	68.35	-348.0	-1,592.9	3,060.5	3,032.9	27.59	110.940		
8,300.0	7,899.7	6,888.5	6,598.3	24.9	30.7	65.83	-348.1	-1,593.6	3,089.3	3,061.4	27.91	110.671		
8,400.0	7,903.5	6,884.7	6,594.8	25.5	30.7	64.42	-348.0	-1,592.2	3,112.8	3,084.4	28.36	109.764		
8,500.0	7,903.5	6,879.4	6,590.0	26.3	30.6	64.32	-347.8	-1,589.9	3,137.0	3,108.1	28.92	108.479		

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig - SDI Plan 2														Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD														Offset Well Error:	0.0 usft
Reference	Offset		Semi Major Axis		Highside		Offset Wellbore Centre		Distance		Minimum	Separation	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Toolface (°)	+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Separation (usft)	Factor			
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-30.0	0.0	30.0						
100.0	100.0	100.0	100.0	0.3	0.3	180.00	-30.0	0.0	30.0	29.5	0.52	57.321			
200.0	200.0	200.0	200.0	0.6	0.6	180.00	-30.0	0.0	30.0	28.8	1.24	24.187			
300.0	300.0	300.0	300.0	1.0	1.0	180.00	-30.0	0.0	30.0	28.0	1.96	15.328			
400.0	400.0	400.0	400.0	1.3	1.3	180.00	-30.0	0.0	30.0	27.3	2.67	11.218			
500.0	500.0	500.0	500.0	1.7	1.7	180.00	-30.0	0.0	30.0	26.6	3.39	8.847			
600.0	600.0	600.0	600.0	2.1	2.1	180.00	-30.0	0.0	30.0	25.9	4.11	7.303			
700.0	700.0	700.0	700.0	2.4	2.4	180.00	-30.0	0.0	30.0	25.2	4.83	6.218			
800.0	800.0	800.0	800.0	2.8	2.8	180.00	-30.0	0.0	30.0	24.5	5.54	5.413	CC		
900.0	900.0	899.9	899.9	3.1	3.1	109.44	-30.0	-1.7	30.5	24.3	6.24	4.898	ES		
1,000.0	999.8	999.0	998.9	3.5	3.5	126.32	-30.0	-6.9	34.4	27.5	6.94	4.964			
1,100.0	1,099.6	1,088.1	1,097.7	3.8	3.8	142.43	-30.0	-13.8	43.1	35.4	7.63	5.642			
1,200.0	1,199.4	1,197.1	1,196.5	4.2	4.2	152.68	-30.0	-20.7	53.9	45.6	8.32	6.474			
1,300.0	1,299.1	1,296.2	1,295.3	4.5	4.5	159.38	-30.0	-27.6	65.9	56.8	9.02	7.301			
1,400.0	1,398.9	1,395.2	1,394.1	4.9	4.9	163.99	-30.0	-34.5	78.4	68.7	9.72	8.071			
1,500.0	1,498.6	1,494.2	1,492.9	5.3	5.2	167.31	-30.0	-41.5	91.4	81.0	10.42	8.770			
1,600.0	1,598.4	1,593.3	1,591.7	5.6	5.6	169.80	-30.0	-48.4	104.5	93.4	11.12	9.400			
1,700.0	1,698.1	1,692.3	1,690.5	6.0	6.0	171.73	-30.0	-55.3	117.9	106.0	11.83	9.966			
1,800.0	1,797.9	1,791.4	1,789.3	6.4	6.3	173.27	-30.0	-62.2	131.3	118.8	12.53	10.476			
1,900.0	1,897.6	1,890.4	1,888.1	6.7	6.7	174.52	-30.0	-69.1	144.8	131.6	13.24	10.936			
2,000.0	1,997.4	1,989.4	1,986.9	7.1	7.0	175.56	-30.0	-76.0	158.4	144.4	13.95	11.353			
2,100.0	2,097.2	2,088.5	2,085.7	7.5	7.4	176.44	-30.0	-82.9	172.0	157.3	14.66	11.732			
2,200.0	2,196.9	2,187.5	2,184.5	7.8	7.8	177.19	-30.0	-89.8	185.6	170.2	15.37	12.078			
2,300.0	2,296.7	2,286.5	2,283.3	8.2	8.1	177.83	-30.0	-96.7	199.2	183.2	16.08	12.394			
2,400.0	2,396.4	2,385.6	2,382.1	8.6	8.5	178.39	-30.0	-103.6	212.9	196.1	16.79	12.684			
2,500.0	2,496.2	2,484.6	2,480.8	8.9	8.9	178.89	-30.0	-110.5	226.6	209.1	17.50	12.951			
2,600.0	2,595.9	2,583.7	2,579.6	9.1	9.1	179.32	-30.0	-117.4	240.3	222.5	17.87	13.446			
2,700.0	2,695.6	2,676.0	2,671.7	9.1	9.1	179.70	-30.1	-124.8	256.6	238.8	17.89	14.344			
2,800.0	2,794.8	2,765.1	2,760.2	9.2	9.1	-179.93	-30.7	-134.6	279.4	261.5	17.85	15.648			
2,900.0	2,893.6	2,851.9	2,846.2	9.2	9.2	-179.59	-31.7	-146.7	308.5	290.6	17.81	17.314			
3,000.0	2,992.0	2,936.2	2,929.2	9.3	9.2	-179.29	-33.1	-160.9	342.8	325.1	17.77	19.288			
3,100.0	3,090.3	3,024.9	3,016.3	9.3	9.2	-179.02	-34.9	-178.0	379.6	361.8	17.80	21.331			
3,200.0	3,188.6	3,117.8	3,107.4	9.4	9.3	-178.78	-36.8	-196.1	416.7	398.8	17.87	23.311			
3,300.0	3,286.9	3,210.7	3,198.5	9.5	9.4	-178.58	-38.7	-214.2	453.7	435.7	17.97	25.255			
3,400.0	3,385.3	3,303.6	3,289.6	9.7	9.5	-178.41	-40.6	-232.3	490.8	472.7	18.07	27.161			
3,500.0	3,483.6	3,396.5	3,380.6	9.8	9.7	-178.26	-42.5	-250.4	527.8	509.6	18.18	29.025			
3,600.0	3,581.9	3,489.3	3,471.7	9.9	9.8	-178.13	-44.4	-268.5	564.9	546.5	18.31	30.845			
3,700.0	3,680.2	3,582.2	3,562.8	10.1	10.0	-178.02	-46.3	-286.6	601.9	583.5	18.45	32.619			
3,800.0	3,778.6	3,675.1	3,653.9	10.3	10.1	-177.92	-48.2	-304.7	639.0	620.4	18.60	34.343			
3,900.0	3,876.9	3,768.0	3,744.9	10.5	10.3	-177.83	-50.2	-322.8	676.0	657.2	18.77	36.018			
4,000.0	3,975.2	3,860.8	3,836.0	10.7	10.5	-177.75	-52.1	-340.9	713.1	694.1	18.94	37.641			
4,100.0	4,073.5	3,953.7	3,927.1	10.9	10.7	-169.15	-54.0	-359.0	750.1	731.0	19.13	39.214			
4,200.0	4,171.7	4,046.6	4,018.2	11.1	10.9	-158.54	-55.9	-377.1	787.1	767.7	19.32	40.731			
4,300.0	4,269.8	4,139.3	4,109.1	11.3	11.1	-154.01	-57.8	-395.1	824.0	804.4	19.54	42.176			
4,400.0	4,367.8	4,232.0	4,200.0	11.6	11.4	-154.48	-59.7	-413.2	860.9	841.1	19.77	43.554			
4,500.0	4,465.8	4,324.7	4,290.9	11.9	11.6	-154.90	-61.6	-431.2	897.8	877.8	20.01	44.877			
4,600.0	4,563.8	4,417.5	4,381.8	12.1	11.9	-155.30	-63.5	-449.3	934.9	914.6	20.26	46.146			
4,700.0	4,661.7	4,510.2	4,472.8	12.4	12.1	-155.66	-65.4	-467.4	971.9	951.4	20.52	47.362			
4,800.0	4,759.7	4,602.9	4,563.7	12.7	12.4	-156.00	-67.3	-485.4	1,009.0	988.2	20.79	48.524			
4,900.0	4,857.7	4,696.6	4,654.6	13.0	12.7	-156.31	-69.2	-503.5	1,046.1	1,026.0	21.08	49.635			
5,000.0	4,955.7	4,788.3	4,745.5	13.3	13.0	-156.60	-71.1	-521.6	1,083.2	1,061.8	21.37	50.694			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at:</b>	2.00 sigma
<b>Reference Wellbore:</b>	Ong	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig - SDI Plan 2													Offset Site Error:	0.0 usft
Survey Program: O-MWD+IRGM/Inl, 800-MWD+Afterlnl, 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance									Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Tooltrace (')	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.0	5,053.7	4,881.0	4,836.4	13.6	13.3	-156.88	-73.0	-539.6	1,120.3	1,098.7	21.67	51.705		
5,200.0	5,151.7	4,873.7	4,827.4	13.9	13.6	-157.13	-74.9	-557.7	1,157.5	1,135.5	21.98	52.688		
5,300.0	5,249.7	5,066.8	5,018.3	14.3	13.9	-157.37	-76.6	-575.8	1,194.7	1,172.4	22.30	53.585		
5,400.0	5,347.7	5,159.2	5,109.9	14.6	14.2	-157.59	-78.7	-593.8	1,231.9	1,209.3	22.62	54.459		
5,500.0	5,445.7	5,251.9	5,200.1	14.9	14.5	-157.81	-80.6	-611.9	1,269.1	1,246.2	22.95	55.289		
5,600.0	5,543.7	5,344.8	5,291.0	15.3	14.8	-158.01	-82.5	-629.9	1,306.4	1,283.1	23.30	56.079		
5,700.0	5,641.7	5,437.5	5,381.8	15.6	15.1	-158.19	-84.4	-648.0	1,343.6	1,320.0	23.64	56.829		
5,800.0	5,739.7	5,530.0	5,472.9	16.0	15.5	-158.37	-86.3	-666.1	1,380.4	1,356.9	24.00	57.542		
5,900.0	5,837.7	5,622.7	5,563.8	16.3	15.8	-158.54	-88.3	-684.1	1,418.2	1,393.8	24.36	58.220		
6,000.0	5,935.6	5,715.5	5,654.7	16.7	16.1	-158.70	-90.2	-702.2	1,455.4	1,430.7	24.73	58.882		
6,100.0	6,033.6	5,808.2	5,745.6	17.0	16.4	-158.86	-92.1	-720.3	1,492.7	1,467.5	25.10	59.475		
6,200.0	6,131.6	5,900.9	5,836.5	17.4	16.8	-159.00	-94.0	-738.3	1,530.0	1,504.6	25.48	60.052		
6,300.0	6,229.6	5,993.6	5,927.5	17.8	17.1	-159.14	-95.9	-756.4	1,567.3	1,541.5	25.85	60.601		
6,400.0	6,327.6	6,086.3	6,018.4	18.2	17.5	-159.27	-97.8	-774.5	1,604.7	1,578.4	26.23	61.122		
6,500.0	6,425.6	6,179.0	6,109.3	18.5	17.9	-159.40	-99.7	-792.5	1,642.0	1,615.3	26.61	61.617		
6,600.0	6,523.6	6,271.8	6,200.2	18.9	18.2	-159.52	-101.6	-810.6	1,679.3	1,652.3	27.00	62.088		
6,700.0	6,621.6	6,364.5	6,291.1	19.3	18.5	-159.63	-103.5	-828.6	1,716.6	1,689.2	27.40	62.531		
6,800.0	6,719.6	6,457.2	6,382.1	19.7	18.9	-159.74	-105.4	-846.7	1,754.0	1,726.1	27.80	62.953		
6,900.0	6,817.6	6,549.9	6,473.0	20.1	19.2	-159.85	-107.3	-864.8	1,791.3	1,763.1	28.20	63.354		
7,000.0	6,915.6	6,642.6	6,563.9	20.4	19.6	-159.95	-109.2	-882.8	1,828.7	1,800.0	28.59	63.734		
7,100.0	7,013.6	6,735.3	6,654.8	20.8	19.9	-160.05	-111.1	-900.9	1,866.0	1,836.9	29.11	64.095		
7,200.0	7,111.6	6,828.0	6,745.7	21.2	20.2	-160.14	-113.0	-919.0	1,903.4	1,873.9	29.54	64.437		
7,300.0	7,209.6	6,920.8	6,836.6	21.6	20.7	-160.23	-114.8	-937.0	1,940.8	1,910.8	29.97	64.762		
7,400.0	7,307.6	7,013.4	6,927.5	22.0	21.0	-160.31	-116.6	-955.1	1,978.3	1,947.9	30.37	65.074		
7,500.0	7,404.9	7,107.2	7,019.9	22.3	21.4	-160.38	-118.1	-973.2	2,015.9	1,985.2	30.70	65.355		
7,600.0	7,499.1	7,210.2	7,120.3	22.6	21.7	-160.44	-119.5	-989.7	2,052.7	2,021.7	30.96	65.630		
7,700.0	7,587.9	7,317.6	7,223.4	22.8	22.0	-160.49	-119.9	-1,001.3	2,089.7	2,058.6	31.16	65.914		
7,800.0	7,680.0	7,430.5	7,326.9	23.0	22.2	-160.52	-120.3	-1,007.2	2,120.1	2,088.8	31.23	66.179		
7,900.0	7,740.5	7,550.1	7,428.5	23.3	22.5	-160.52	-120.6	-1,006.2	2,149.0	2,117.6	31.44	66.357		
8,000.0	7,800.7	7,677.4	7,524.2	23.6	22.7	-160.54	-120.9	-1,006.9	2,173.7	2,141.7	31.98	66.981		
8,100.0	7,848.0	7,812.8	7,608.7	23.9	23.0	-160.54	-121.3	-1,007.2	2,193.5	2,160.6	32.88	66.707		
8,200.0	7,881.2	7,956.0	7,675.6	24.4	23.5	-160.54	-121.6	-1,007.2	2,207.5	2,173.3	34.27	64.411		
8,300.0	7,899.7	8,105.7	7,717.8	24.9	24.2	-160.54	-121.9	-1,007.2	2,215.6	2,179.3	36.23	61.149		
8,400.0	7,903.6	8,248.4	7,730.3	25.5	25.0	-160.54	-122.2	-1,007.2	2,217.3	2,178.7	38.58	57.479		
8,479.4	7,903.6	8,327.7	7,731.6	26.1	25.6	-160.54	-122.5	-1,007.2	2,217.2	2,176.9	40.29	55.033		
8,500.0	7,903.5	8,348.3	7,731.9	26.3	25.8	-160.54	-122.6	-1,007.2	2,217.1	2,176.4	40.75	54.402		
8,579.4	7,903.5	8,427.7	7,733.1	27.0	26.5	-160.54	-122.7	-1,007.2	2,217.1	2,174.4	42.64	51.997		
8,600.0	7,903.5	8,448.3	7,733.5	27.2	26.7	-160.54	-122.8	-1,007.2	2,217.0	2,173.9	43.15	51.985		
8,679.4	7,903.5	8,527.7	7,734.7	27.9	27.5	-160.54	-122.9	-1,007.2	2,216.9	2,173.7	45.18	49.064		
8,700.0	7,903.5	8,548.3	7,735.0	28.2	27.7	-160.54	-123.0	-1,007.2	2,216.9	2,173.2	45.73	48.480		
8,779.4	7,903.5	8,627.7	7,736.3	29.0	28.6	-160.54	-123.1	-1,007.2	2,216.8	2,168.0	47.90	46.282		
8,800.0	7,903.5	8,648.3	7,736.6	29.3	28.8	-160.54	-123.2	-1,007.2	2,216.8	2,168.3	48.47	45.733		
8,879.4	7,903.5	8,727.7	7,737.8	30.2	29.8	-160.54	-123.3	-1,007.2	2,216.7	2,165.9	50.75	43.678		
8,900.0	7,903.5	8,748.3	7,738.2	30.4	30.0	-160.54	-123.4	-1,007.2	2,216.7	2,165.3	51.35	43.167		
8,979.4	7,903.5	8,827.7	7,739.4	31.4	31.0	-160.54	-123.5	-1,007.2	2,216.6	2,162.9	53.72	41.261		
9,000.0	7,903.5	8,848.3	7,739.7	31.7	31.3	-160.54	-123.6	-1,007.2	2,216.6	2,162.2	54.34	40.787		
9,079.4	7,903.5	8,927.7	7,741.0	32.7	32.4	-160.54	-123.7	-1,007.2	2,216.5	2,159.7	56.79	39.026		
9,100.0	7,903.5	8,948.3	7,741.3	33.0	32.7	-160.54	-123.8	-1,007.2	2,216.4	2,159.0	57.43	38.591		
9,179.4	7,903.5	9,027.7	7,742.6	34.1	33.8	-160.54	-123.9	-1,007.2	2,216.4	2,156.4	59.95	36.972		
9,200.0	7,903.5	9,048.3	7,742.9	34.4	34.1	-160.54	-124.0	-1,007.2	2,216.3	2,155.7	60.60	36.570		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



Company: Arsenal Resources  
 Project: Taylor County, WV  
 Reference Site: Johnson TFP40  
 Site Error: 0.0 usft  
 Reference Well: 204  
 Well Error: 0.0 usft  
 Reference Wellbore: Orig.  
 Reference Design: DEP Plan 6

Local Co-ordinate Reference: Well 204 - Slot 204  
 TVD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 MD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Output errors are at: 2.00 sigma  
 Database: Northeast  
 Offset TVD Reference: Offset Datum

**Offset Design** Johnson TFP40 - 202 - Orig - SDI Plan 2

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
9,279.4	7,903.5	9,127.6	7,744.1	35.5	35.2	85.88	-1,680.0	-578.9	2,216.2	2,153.1	63.17	35.082	
9,300.0	7,903.5	9,148.2	7,744.4	35.8	35.5	85.88	-1,699.5	-572.1	2,216.2	2,152.4	63.84	34.713	
9,379.4	7,903.5	9,227.6	7,745.7	37.0	36.7	85.92	-1,774.5	-546.3	2,216.1	2,149.7	66.46	33.345	
9,400.0	7,903.5	9,248.2	7,746.0	37.3	37.0	85.92	-1,794.0	-539.6	2,216.1	2,149.0	67.14	33.005	
9,479.4	7,903.5	9,327.6	7,747.3	38.5	38.2	85.96	-1,869.1	-513.7	2,216.0	2,146.2	69.80	31.747	
9,500.0	7,903.5	9,348.2	7,747.6	38.8	38.5	85.97	-1,888.5	-507.0	2,216.0	2,145.5	70.50	31.435	
9,579.4	7,903.5	9,427.6	7,748.8	40.0	39.8	86.00	-1,963.6	-481.1	2,215.9	2,142.7	73.19	30.277	
9,600.0	7,903.5	9,448.2	7,749.2	40.4	40.1	86.01	-1,983.0	-474.4	2,215.9	2,142.0	73.89	29.989	
9,679.4	7,903.5	9,527.6	7,750.4	41.6	41.4	86.04	-2,058.1	-448.5	2,215.8	2,139.2	76.61	28.922	
9,700.0	7,903.5	9,548.2	7,750.7	41.9	41.7	86.05	-2,077.6	-441.8	2,215.8	2,138.5	77.32	28.656	
9,779.4	7,903.5	9,627.6	7,752.0	43.2	43.0	86.08	-2,152.6	-415.9	2,215.7	2,135.6	80.07	27.671	
9,800.0	7,903.5	9,648.2	7,752.3	43.5	43.3	86.09	-2,172.1	-409.2	2,215.7	2,134.9	80.79	27.425	
9,879.4	7,903.5	9,727.6	7,753.5	44.8	44.6	86.12	-2,247.1	-383.3	2,215.6	2,132.0	83.56	26.514	
9,900.0	7,903.5	9,748.2	7,753.9	45.2	45.0	86.13	-2,266.6	-376.6	2,215.6	2,131.3	84.29	26.286	
9,979.4	7,903.5	9,827.6	7,755.1	46.5	46.3	86.16	-2,341.6	-350.7	2,215.5	2,128.4	87.08	25.441	
10,000.0	7,903.5	9,848.2	7,755.4	46.8	46.6	86.17	-2,361.1	-344.0	2,215.5	2,127.6	87.81	25.230	
10,079.4	7,903.5	9,927.5	7,756.7	48.1	48.0	86.20	-2,436.1	-318.1	2,215.4	2,124.8	90.63	24.445	
10,100.0	7,903.5	9,948.1	7,757.0	48.5	48.3	86.21	-2,455.6	-311.4	2,215.4	2,124.0	91.36	24.249	
10,179.4	7,903.5	10,027.5	7,758.3	49.8	49.7	86.24	-2,530.7	-285.5	2,215.3	2,121.1	94.22	23.511	
10,200.0	7,903.5	10,048.1	7,758.6	50.2	50.0	86.25	-2,550.1	-278.8	2,215.3	2,120.3	94.95	23.330	
10,279.4	7,903.5	10,127.5	7,759.8	51.5	51.4	86.28	-2,625.2	-252.9	2,215.2	2,117.4	97.74	22.663	
10,300.0	7,903.5	10,148.1	7,760.2	51.9	51.7	86.29	-2,644.6	-246.2	2,215.2	2,116.7	98.48	22.493	
10,379.4	7,903.5	10,227.5	7,761.4	53.2	53.1	86.32	-2,719.7	-220.3	2,215.1	2,113.7	101.35	21.856	
10,400.0	7,903.5	10,248.1	7,761.7	53.6	53.5	86.33	-2,739.2	-213.6	2,215.1	2,113.0	102.09	21.697	
10,479.4	7,903.5	10,327.5	7,763.0	55.0	54.8	86.36	-2,814.2	-187.7	2,215.0	2,110.0	104.96	21.103	
10,500.0	7,903.5	10,348.1	7,763.3	55.3	55.2	86.37	-2,833.7	-181.0	2,215.0	2,109.2	105.71	20.954	
10,579.4	7,903.5	10,427.5	7,764.5	56.7	56.6	86.40	-2,908.7	-155.2	2,214.9	2,106.3	108.59	20.397	
10,600.0	7,903.5	10,448.1	7,764.9	57.1	56.9	86.41	-2,928.2	-148.4	2,214.9	2,105.5	109.33	20.258	
10,679.4	7,903.5	10,527.5	7,766.1	58.4	58.3	86.44	-3,003.2	-122.6	2,214.8	2,102.6	112.22	19.735	
10,700.0	7,903.5	10,548.1	7,766.4	58.8	58.7	86.45	-3,022.7	-115.9	2,214.8	2,101.8	112.97	19.604	
10,779.4	7,903.5	10,627.5	7,767.7	60.2	60.1	86.48	-3,097.7	-90.0	2,214.7	2,098.8	115.87	19.113	
10,800.0	7,903.5	10,648.1	7,768.0	60.6	60.5	86.49	-3,117.2	-83.3	2,214.7	2,098.0	116.63	18.990	
10,879.4	7,903.5	10,727.5	7,769.3	62.0	61.9	86.52	-3,192.3	-57.4	2,214.6	2,095.1	119.53	18.527	
10,900.0	7,903.5	10,748.0	7,769.6	62.3	62.2	86.53	-3,211.7	-50.7	2,214.6	2,094.3	120.29	18.411	
10,979.4	7,903.5	10,827.4	7,770.8	63.7	63.6	86.57	-3,286.8	-24.8	2,214.5	2,091.3	123.20	17.975	
11,000.0	7,903.5	10,848.0	7,771.1	64.1	64.0	86.57	-3,306.2	-18.1	2,214.5	2,090.5	123.96	17.865	
11,079.4	7,903.5	10,927.4	7,772.4	65.5	65.4	86.61	-3,381.3	7.8	2,214.4	2,087.5	126.88	17.453	
11,100.0	7,903.5	10,948.0	7,772.7	65.9	65.8	86.61	-3,400.8	14.5	2,214.4	2,086.7	127.63	17.350	
11,179.4	7,903.5	11,027.4	7,774.0	67.3	67.2	86.65	-3,475.8	40.4	2,214.3	2,083.7	130.56	16.960	
11,200.0	7,903.5	11,048.0	7,774.3	67.7	67.6	86.65	-3,495.3	47.1	2,214.3	2,083.0	131.32	16.862	
11,279.4	7,903.5	11,127.4	7,775.5	69.1	69.0	86.69	-3,570.3	73.0	2,214.2	2,080.0	134.25	16.493	
11,300.0	7,903.5	11,148.0	7,775.9	69.5	69.4	86.70	-3,589.8	79.7	2,214.2	2,079.2	135.01	16.400	
11,379.4	7,903.5	11,227.4	7,777.1	70.9	70.8	86.73	-3,664.8	105.6	2,214.1	2,076.2	137.95	16.050	
11,400.0	7,903.5	11,248.0	7,777.4	71.3	71.2	86.74	-3,684.3	112.3	2,214.1	2,075.4	138.71	15.962	
11,479.4	7,903.5	11,327.4	7,778.7	72.7	72.6	86.77	-3,759.4	138.2	2,214.0	2,072.4	141.65	15.630	
11,500.0	7,903.5	11,348.0	7,779.0	73.1	73.0	86.78	-3,778.8	144.9	2,214.0	2,071.6	142.41	15.546	
11,579.4	7,903.5	11,427.4	7,780.2	74.5	74.5	86.81	-3,853.9	170.8	2,213.9	2,068.6	145.36	15.231	
11,600.0	7,903.5	11,448.0	7,780.6	74.9	74.8	86.82	-3,873.3	177.5	2,213.9	2,067.8	146.12	15.151	
11,679.4	7,903.5	11,527.4	7,781.8	76.3	76.3	86.85	-3,948.4	203.4	2,213.9	2,064.8	149.07	14.851	
11,700.0	7,903.5	11,547.9	7,782.1	76.7	76.7	86.86	-3,967.8	210.1	2,213.8	2,064.0	149.84	14.775	
11,779.4	7,903.5	11,627.4	7,783.4	78.1	78.1	86.89	-4,042.9	236.0	2,213.8	2,061.0	152.79	14.489	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - SDI Plan 2														Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+Aferint, 2600-SDI MWD														Offset Well Error:	0.0 usft
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance				Warning		
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
11,800.0	7,903.5	11,647.9	7,783.7	78.5	78.5	86.90	-4,062.3	242.7	2,213.8	2,060.2	153.56	14.416			
11,879.4	7,903.5	11,727.3	7,785.0	80.0	79.9	86.93	-4,137.4	268.5	2,213.7	2,057.2	156.52	14.143			
11,900.0	7,903.5	11,747.9	7,785.3	80.3	80.3	86.94	-4,156.9	275.3	2,213.7	2,056.4	157.28	14.074			
11,979.4	7,903.5	11,827.3	7,786.5	81.8	81.8	86.97	-4,231.9	301.1	2,213.6	2,053.4	160.25	13.814			
12,000.0	7,903.5	11,847.9	7,786.9	82.2	82.1	86.98	-4,251.4	307.8	2,213.6	2,052.6	161.01	13.748			
12,079.4	7,903.5	11,927.3	7,788.1	83.6	83.6	87.01	-4,326.4	333.7	2,213.5	2,049.6	163.98	13.499			
12,100.0	7,903.5	11,947.9	7,788.4	84.0	84.0	87.02	-4,345.9	340.4	2,213.5	2,048.8	164.75	13.436			
12,179.4	7,903.5	12,027.3	7,789.7	85.5	85.4	87.05	-4,421.0	366.3	2,213.4	2,045.7	167.71	13.198			
12,200.0	7,903.5	12,047.9	7,790.0	85.8	85.8	87.06	-4,440.4	373.0	2,213.4	2,045.0	168.48	13.137			
12,279.4	7,903.5	12,127.3	7,791.2	87.3	87.3	87.09	-4,515.5	398.9	2,213.4	2,041.9	171.45	12.910			
12,300.0	7,903.5	12,147.9	7,791.6	87.7	87.7	87.10	-4,534.9	405.6	2,213.4	2,041.1	172.22	12.852			
12,379.4	7,903.5	12,227.3	7,792.8	89.1	89.1	87.13	-4,610.0	431.5	2,213.3	2,038.1	175.19	12.633			
12,400.0	7,903.5	12,247.9	7,793.1	89.5	89.5	87.14	-4,629.4	438.2	2,213.3	2,037.3	175.96	12.578			
12,479.4	7,903.5	12,327.3	7,794.4	91.0	91.0	87.17	-4,704.5	464.1	2,213.2	2,034.3	178.94	12.368			
12,500.0	7,903.5	12,347.8	7,794.7	91.4	91.3	87.18	-4,723.9	470.8	2,213.2	2,033.5	179.71	12.315			
12,579.3	7,903.5	12,427.0	7,795.9	92.8	92.8	87.21	-4,798.7	496.6	2,213.1	2,030.5	182.68	12.115			
12,600.0	7,903.5	12,447.0	7,796.2	93.2	93.2	87.22	-4,817.6	503.1	2,213.1	2,029.7	183.44	12.064			
12,678.9	7,903.5	12,525.2	7,796.2	94.7	94.6	87.22	-4,891.6	528.6	2,213.1	2,026.7	186.38	11.874			
12,700.0	7,903.5	12,546.3	7,796.2	95.0	95.0	87.22	-4,911.5	535.5	2,213.1	2,025.9	187.18	11.824			
12,778.9	7,903.5	12,625.2	7,796.2	96.5	96.5	87.22	-4,985.1	561.2	2,213.1	2,023.0	190.13	11.640			
12,800.0	7,903.5	12,646.3	7,796.2	96.9	96.9	87.22	-5,006.1	568.1	2,213.1	2,022.2	190.92	11.592			
12,878.9	7,903.5	12,725.2	7,796.2	98.4	98.3	87.22	-5,080.7	593.8	2,213.1	2,019.2	193.88	11.415			
12,900.0	7,903.5	12,746.3	7,796.2	98.7	98.7	87.22	-5,100.6	600.7	2,213.1	2,018.4	194.67	11.368			
12,978.9	7,903.5	12,825.2	7,796.2	100.2	100.2	87.22	-5,175.2	626.4	2,213.1	2,015.5	197.63	11.198			
13,000.0	7,903.5	12,846.3	7,796.2	100.6	100.6	87.22	-5,195.1	633.3	2,213.1	2,014.7	198.43	11.153			
13,078.9	7,903.5	12,925.2	7,796.2	102.1	102.0	87.22	-5,269.7	659.0	2,213.1	2,011.7	201.39	10.989			
13,100.0	7,903.5	12,946.3	7,796.2	102.5	102.4	87.22	-5,289.7	665.9	2,213.1	2,010.9	202.18	10.946			
13,178.9	7,903.5	13,025.2	7,796.2	103.9	103.9	87.22	-5,364.3	691.7	2,213.1	2,007.9	205.14	10.788			
13,200.0	7,903.5	13,046.3	7,796.2	104.3	104.3	87.22	-5,384.2	698.5	2,213.1	2,007.2	205.93	10.747			
13,278.9	7,903.5	13,125.2	7,796.2	105.8	105.8	87.22	-5,458.8	724.3	2,213.1	2,004.2	208.90	10.594			
13,300.0	7,903.5	13,146.3	7,796.2	106.2	106.1	87.22	-5,478.7	731.1	2,213.1	2,003.4	209.69	10.554			
13,378.9	7,903.5	13,225.2	7,796.2	107.6	107.6	87.22	-5,553.3	756.9	2,213.1	2,000.4	212.66	10.407			
13,400.0	7,903.5	13,246.3	7,796.2	108.0	108.0	87.22	-5,573.3	763.7	2,213.1	1,999.6	213.45	10.368			
13,478.9	7,903.5	13,325.2	7,796.2	109.5	109.5	87.22	-5,647.9	789.5	2,213.1	1,996.7	216.42	10.226			
13,500.0	7,903.5	13,346.3	7,796.2	109.9	109.9	87.22	-5,667.8	796.4	2,213.1	1,995.9	217.21	10.188			
13,578.9	7,903.5	13,425.2	7,796.2	111.4	111.3	87.22	-5,742.4	822.1	2,213.1	1,992.9	220.18	10.051			
13,600.0	7,903.5	13,446.3	7,796.2	111.8	111.7	87.22	-5,762.3	829.0	2,213.1	1,992.1	220.98	10.015			
13,678.9	7,903.5	13,525.2	7,796.2	113.2	113.2	87.22	-5,836.9	854.7	2,213.1	1,989.1	223.95	9.882			
13,700.0	7,903.5	13,546.3	7,796.2	113.6	113.6	87.22	-5,856.9	861.6	2,213.1	1,988.3	224.74	9.847			
13,778.9	7,903.5	13,625.2	7,796.2	115.1	115.1	87.22	-5,931.5	887.3	2,213.1	1,985.3	227.71	9.719			
13,800.0	7,903.5	13,646.3	7,796.2	115.5	115.5	87.22	-5,951.4	894.2	2,213.1	1,984.6	228.50	9.685			
13,878.9	7,903.5	13,725.2	7,796.2	117.0	117.0	87.22	-6,026.0	919.9	2,213.1	1,981.6	231.48	9.561			
13,900.0	7,903.5	13,746.3	7,796.2	117.4	117.3	87.22	-6,045.9	926.8	2,213.1	1,980.8	232.27	9.528			
13,978.9	7,903.5	13,825.2	7,796.2	118.8	118.8	87.22	-6,120.5	952.5	2,213.0	1,977.8	235.24	9.407			
14,000.0	7,903.5	13,846.3	7,796.2	119.2	119.2	87.22	-6,140.5	959.4	2,213.0	1,977.0	236.04	9.376			
14,078.9	7,903.5	13,925.2	7,796.2	120.7	120.7	87.22	-6,215.1	985.1	2,213.0	1,974.0	239.01	9.259			
14,100.0	7,903.5	13,946.3	7,796.2	121.1	121.1	87.22	-6,235.0	992.0	2,213.0	1,973.2	239.81	9.228			
14,178.9	7,903.5	14,025.2	7,796.2	122.6	122.6	87.22	-6,309.6	1,017.7	2,213.0	1,970.3	242.78	9.115			
14,200.0	7,903.5	14,046.3	7,796.2	123.0	123.0	87.22	-6,329.5	1,024.6	2,213.0	1,969.5	243.58	9.086			
14,278.9	7,903.5	14,125.2	7,796.2	124.4	124.4	87.22	-6,404.1	1,050.3	2,213.0	1,966.5	246.55	8.976			

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - SDI Plan 2													Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+Afterint, 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
14,300.0	7,903.5	14,146.3	7,796.2	124.8	124.8	87.22	-6,424.1	1,057.2	2,213.0	1,965.7	247.35	8.947		
14,378.9	7,903.5	14,225.2	7,796.2	126.3	126.3	87.22	-6,498.7	1,082.9	2,213.0	1,962.7	250.33	8.841		
14,400.0	7,903.5	14,246.3	7,796.2	126.7	126.7	87.22	-6,518.6	1,089.8	2,213.0	1,961.9	251.12	8.813		
14,478.9	7,903.5	14,325.2	7,796.2	128.2	128.2	87.22	-6,593.2	1,115.5	2,213.0	1,958.9	254.10	8.709		
14,500.0	7,903.5	14,346.3	7,796.2	128.6	128.6	87.22	-6,613.2	1,122.4	2,213.0	1,958.1	254.89	8.682		
14,578.9	7,903.5	14,425.2	7,796.2	130.1	130.1	87.22	-6,687.7	1,148.1	2,213.0	1,955.1	257.87	8.582		
14,600.0	7,903.5	14,446.3	7,796.2	130.5	130.5	87.22	-6,707.7	1,155.0	2,213.0	1,954.3	258.67	8.555		
14,678.9	7,903.5	14,525.2	7,796.2	131.9	131.9	87.22	-6,782.3	1,180.8	2,213.0	1,951.4	261.65	8.458		
14,700.0	7,903.5	14,546.3	7,796.2	132.3	132.3	87.22	-6,802.2	1,187.6	2,213.0	1,950.6	262.44	8.432		
14,778.9	7,903.5	14,625.2	7,796.2	133.8	133.8	87.22	-6,876.8	1,213.4	2,213.0	1,947.6	265.42	8.336		
14,800.0	7,903.5	14,646.3	7,796.2	134.2	134.2	87.22	-6,896.8	1,220.2	2,213.0	1,946.8	266.22	8.313		
14,878.9	7,903.5	14,725.2	7,796.2	135.7	135.7	87.22	-6,971.3	1,246.0	2,213.0	1,943.8	269.20	8.221		
14,900.0	7,903.5	14,746.3	7,796.2	136.1	136.1	87.22	-6,991.3	1,252.8	2,213.0	1,943.0	270.00	8.196		
14,978.9	7,903.5	14,825.2	7,796.2	137.6	137.6	87.22	-7,065.9	1,278.6	2,213.0	1,940.0	272.98	8.107		
15,000.0	7,903.5	14,846.3	7,796.2	138.0	138.0	87.22	-7,085.8	1,285.4	2,213.0	1,939.2	273.77	8.083		
15,078.9	7,903.5	14,925.2	7,796.2	139.4	139.5	87.22	-7,160.4	1,311.2	2,213.0	1,936.2	276.76	7.996		
15,100.0	7,903.5	14,946.3	7,796.2	139.8	139.8	87.22	-7,180.4	1,318.1	2,213.0	1,935.4	277.55	7.973		
15,178.9	7,903.5	15,025.2	7,796.2	141.3	141.3	87.22	-7,255.0	1,343.8	2,213.0	1,932.4	280.53	7.888		
15,200.0	7,903.5	15,046.3	7,796.2	141.7	141.7	87.22	-7,274.9	1,350.7	2,213.0	1,931.6	281.33	7.866		
15,278.9	7,903.5	15,125.2	7,796.2	143.2	143.2	87.22	-7,349.5	1,376.4	2,213.0	1,928.7	284.31	7.784		
15,300.0	7,903.5	15,146.3	7,796.2	143.6	143.6	87.22	-7,369.4	1,383.3	2,213.0	1,927.9	285.11	7.762		
15,378.9	7,903.5	15,225.2	7,796.2	145.1	145.1	87.22	-7,444.0	1,409.0	2,213.0	1,924.9	288.09	7.681		
15,400.0	7,903.5	15,246.3	7,796.2	145.5	145.5	87.22	-7,464.0	1,415.9	2,213.0	1,924.1	288.89	7.660		
15,478.9	7,903.5	15,325.2	7,796.2	147.0	147.0	87.22	-7,538.6	1,441.6	2,213.0	1,921.1	291.87	7.582		
15,500.0	7,903.5	15,346.3	7,796.2	147.4	147.4	87.22	-7,558.5	1,448.5	2,213.0	1,920.3	292.67	7.561		
15,578.9	7,903.5	15,425.2	7,796.2	148.8	148.9	87.22	-7,633.1	1,474.2	2,213.0	1,917.3	295.66	7.485		
15,600.0	7,903.5	15,446.3	7,796.2	149.2	149.3	87.22	-7,653.0	1,481.1	2,213.0	1,916.5	296.45	7.465		
15,678.9	7,903.5	15,525.2	7,796.2	150.7	150.7	87.22	-7,727.6	1,506.8	2,213.0	1,913.5	299.44	7.390		
15,700.0	7,903.5	15,546.3	7,796.2	151.1	151.1	87.22	-7,747.6	1,513.7	2,213.0	1,912.7	300.24	7.371		
15,778.9	7,903.5	15,625.2	7,796.2	152.6	152.6	87.22	-7,822.2	1,539.4	2,212.9	1,909.7	303.22	7.298		
15,800.0	7,903.5	15,646.3	7,796.2	153.0	153.0	87.22	-7,842.1	1,546.3	2,212.9	1,908.9	304.02	7.279		
15,878.9	7,903.5	15,725.2	7,796.2	154.5	154.5	87.22	-7,916.7	1,572.0	2,212.9	1,905.9	307.00	7.208		
15,900.0	7,903.5	15,746.3	7,796.2	154.9	154.9	87.22	-7,936.6	1,578.9	2,212.9	1,905.1	307.80	7.190		
15,979.0	7,903.5	15,825.7	7,796.2	156.4	156.4	87.22	-8,011.7	1,604.8	2,212.9	1,902.2	310.78	7.121		
16,000.0	7,903.5	15,847.4	7,796.4	156.8	156.7	87.23	-8,032.3	1,611.9	2,212.9	1,901.4	311.53	7.103		
16,079.6	7,903.5	15,927.7	7,797.7	158.3	158.1	87.26	-8,108.1	1,638.1	2,212.9	1,898.4	314.44	7.037		
16,100.0	7,903.5	15,948.1	7,798.1	158.7	158.5	87.27	-8,127.4	1,644.7	2,212.8	1,897.6	315.22	7.020		
16,179.5	7,903.5	16,027.7	7,799.5	160.2	160.0	87.31	-8,202.6	1,670.6	2,212.8	1,894.5	318.24	6.953		
16,200.0	7,903.5	16,048.1	7,799.8	160.5	160.4	87.31	-8,222.0	1,677.3	2,212.8	1,893.7	319.01	6.936		
16,279.5	7,903.5	16,127.7	7,801.2	162.0	161.9	87.35	-8,297.1	1,703.2	2,212.7	1,890.7	322.03	6.871		
16,300.0	7,903.5	16,148.1	7,801.6	162.4	162.3	87.36	-8,316.5	1,709.9	2,212.7	1,889.9	322.81	6.854		
16,379.5	7,903.5	16,227.6	7,803.0	163.9	163.8	87.40	-8,391.6	1,735.8	2,212.6	1,886.8	325.83	6.791		
16,400.0	7,903.5	16,248.1	7,803.3	164.3	164.2	87.40	-8,411.0	1,742.5	2,212.6	1,886.0	326.61	6.774		
16,479.5	7,903.5	16,327.6	7,804.7	165.8	165.7	87.44	-8,486.1	1,768.4	2,212.5	1,882.9	329.63	6.712		
16,500.0	7,903.5	16,348.1	7,805.1	166.2	166.1	87.45	-8,505.5	1,775.1	2,212.5	1,882.1	330.40	6.696		
16,579.5	7,903.5	16,427.6	7,806.4	167.7	167.6	87.49	-8,580.7	1,801.0	2,212.4	1,879.0	333.43	6.635		
16,600.0	7,903.5	16,448.1	7,806.8	168.1	167.9	87.49	-8,600.0	1,807.7	2,212.4	1,878.2	334.20	6.620		
16,679.6	7,903.5	16,527.6	7,808.2	169.6	169.4	87.53	-8,675.2	1,833.6	2,212.3	1,875.1	337.22	6.560		
16,700.0	7,903.5	16,548.1	7,808.5	170.0	169.8	87.54	-8,694.5	1,840.3	2,212.3	1,874.3	338.00	6.545		
16,779.6	7,903.5	16,627.6	7,809.9	171.5	171.3	87.58	-8,769.7	1,866.2	2,212.3	1,871.2	341.02	6.487		
16,800.0	7,903.5	16,648.0	7,810.3	171.9	171.7	87.59	-8,789.0	1,872.9	2,212.3	1,870.5	341.80	6.472		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - SDI Plan 2													Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
16,879.6	7,903.5	16,727.6	7,811.7	173.4	173.2	87.62	-8,864.2	1,898.8	2,212.2	1,867.4	344.82	6.415		
16,900.0	7,903.5	16,748.0	7,812.0	173.8	173.6	87.63	-8,883.5	1,905.5	2,212.2	1,866.6	345.60	6.401		
16,979.6	7,903.5	16,827.6	7,813.4	175.3	175.1	87.67	-8,958.7	1,931.4	2,212.1	1,863.5	348.62	6.345		
17,000.0	7,903.5	16,848.0	7,813.6	175.6	175.5	87.68	-8,978.0	1,938.1	2,212.1	1,862.7	349.40	6.331		
17,079.6	7,903.5	16,927.6	7,815.2	177.1	177.0	87.71	-9,053.2	1,964.0	2,212.0	1,859.6	352.42	6.277		
17,100.0	7,903.5	16,948.0	7,815.5	177.5	177.4	87.72	-9,072.5	1,970.7	2,212.0	1,858.8	353.20	6.263		
17,179.6	7,903.5	17,027.6	7,816.9	179.0	178.9	87.76	-9,147.7	1,996.6	2,212.0	1,855.7	356.22	6.209		
17,200.0	7,903.5	17,048.0	7,817.3	179.4	179.3	87.77	-9,167.0	2,003.3	2,211.9	1,854.9	357.00	6.196		
17,279.6	7,903.5	17,127.5	7,818.7	180.9	180.8	87.80	-9,242.2	2,029.2	2,211.9	1,851.9	360.03	6.144		
17,300.0	7,903.5	17,148.0	7,819.0	181.3	181.2	87.81	-9,261.5	2,035.9	2,211.9	1,851.1	360.80	6.130		
17,379.6	7,903.5	17,227.5	7,820.4	182.8	182.7	87.85	-9,336.7	2,061.8	2,211.8	1,848.0	363.83	6.079		
17,400.0	7,903.5	17,247.9	7,820.8	183.2	183.1	87.86	-9,356.0	2,068.5	2,211.8	1,847.2	364.60	6.066		
17,479.6	7,903.5	17,327.5	7,822.1	184.7	184.6	87.89	-9,431.2	2,094.4	2,211.7	1,844.1	367.63	6.016		
17,500.0	7,903.5	17,347.9	7,822.5	185.1	184.9	87.90	-9,450.5	2,101.1	2,211.7	1,843.3	368.41	6.004		
17,579.6	7,903.5	17,427.5	7,823.9	186.6	186.4	87.94	-9,525.8	2,127.0	2,211.7	1,840.2	371.43	5.954		
17,600.0	7,903.5	17,447.9	7,824.2	187.0	186.8	87.95	-9,545.0	2,133.7	2,211.7	1,839.5	372.21	5.942		
17,679.6	7,903.5	17,527.5	7,825.6	188.5	188.3	87.98	-9,620.3	2,159.6	2,211.6	1,836.4	375.23	5.894		
17,700.0	7,903.5	17,547.9	7,826.0	188.9	188.7	87.99	-9,639.5	2,166.3	2,211.6	1,835.6	376.01	5.882		
17,779.6	7,903.5	17,627.5	7,827.4	190.4	190.2	88.03	-9,714.8	2,192.2	2,211.5	1,832.5	379.04	5.835		
17,800.0	7,903.5	17,647.9	7,827.7	190.8	190.6	88.04	-9,734.1	2,198.9	2,211.5	1,831.7	379.81	5.823		
17,879.6	7,903.5	17,727.5	7,829.1	192.3	192.1	88.07	-9,809.3	2,224.8	2,211.5	1,828.6	382.84	5.777		
17,900.0	7,903.5	17,747.9	7,829.5	192.7	192.5	88.08	-9,828.6	2,231.5	2,211.5	1,827.8	383.62	5.765		
17,979.6	7,903.5	17,827.5	7,830.9	194.2	194.0	88.12	-9,903.8	2,257.4	2,211.4	1,824.8	386.64	5.720		
18,000.0	7,903.5	17,847.9	7,831.2	194.5	194.4	88.13	-9,923.1	2,264.1	2,211.4	1,824.0	387.42	5.708		
18,079.6	7,903.5	17,927.5	7,832.6	196.1	195.9	88.16	-9,998.3	2,290.0	2,211.4	1,820.9	390.45	5.664		
18,100.0	7,903.5	17,947.8	7,833.0	196.4	196.3	88.17	-10,017.6	2,296.6	2,211.3	1,820.1	391.22	5.652		
18,179.6	7,903.5	18,027.5	7,834.4	197.9	197.8	88.21	-10,092.8	2,322.6	2,211.3	1,817.0	394.25	5.609		
18,200.0	7,903.5	18,047.8	7,834.7	198.3	198.2	88.22	-10,112.1	2,329.2	2,211.3	1,816.3	395.03	5.598		
18,279.6	7,903.5	18,127.4	7,836.1	199.8	199.7	88.25	-10,187.3	2,355.2	2,211.2	1,813.2	398.06	5.555		
18,300.0	7,903.5	18,147.8	7,836.5	200.2	200.1	88.26	-10,206.6	2,361.8	2,211.2	1,812.4	398.83	5.544		
18,379.6	7,903.5	18,227.4	7,837.9	201.7	201.6	88.30	-10,281.8	2,387.8	2,211.2	1,809.3	401.86	5.502		
18,400.0	7,903.5	18,247.8	7,838.2	202.1	202.0	88.31	-10,301.1	2,394.4	2,211.2	1,808.5	402.63	5.492		
18,479.6	7,903.5	18,327.4	7,839.6	203.6	203.5	88.34	-10,376.4	2,420.4	2,211.1	1,805.5	405.66	5.451		
18,500.0	7,903.5	18,347.8	7,840.0	204.0	203.9	88.35	-10,395.6	2,427.0	2,211.1	1,804.7	406.44	5.440		
18,579.7	7,903.5	18,427.4	7,841.3	205.5	205.4	88.39	-10,470.9	2,453.0	2,211.1	1,801.6	409.47	5.400		
18,600.0	7,903.5	18,447.8	7,841.7	205.9	205.8	88.40	-10,490.1	2,459.6	2,211.1	1,800.8	410.24	5.390		
18,679.7	7,903.5	18,527.4	7,843.1	207.4	207.3	88.43	-10,565.4	2,485.6	2,211.0	1,797.7	413.27	5.350		
18,700.0	7,903.5	18,547.7	7,843.4	207.8	207.6	88.44	-10,584.6	2,492.2	2,211.0	1,796.9	414.05	5.340		
18,779.7	7,903.5	18,627.4	7,844.8	209.3	209.2	88.48	-10,659.9	2,518.2	2,211.0	1,793.9	417.08	5.301		
18,800.0	7,903.5	18,647.7	7,845.2	209.7	209.5	88.49	-10,679.1	2,524.8	2,210.9	1,793.1	417.85	5.291		
18,879.7	7,903.5	18,727.4	7,846.6	211.2	211.0	88.52	-10,754.4	2,550.8	2,210.9	1,790.0	420.89	5.253		
18,900.0	7,903.5	18,747.7	7,846.9	211.6	211.4	88.53	-10,773.6	2,557.4	2,210.9	1,789.2	421.66	5.243		
18,979.7	7,903.5	18,827.4	7,848.3	213.1	212.9	88.57	-10,848.9	2,583.4	2,210.9	1,786.2	424.69	5.206		
19,000.0	7,903.5	18,847.7	7,848.7	213.5	213.3	88.58	-10,868.1	2,590.0	2,210.8	1,785.4	425.46	5.196		
19,079.7	7,903.5	18,927.4	7,850.1	215.0	214.8	88.62	-10,943.4	2,616.0	2,210.8	1,782.3	428.50	5.159		
19,100.0	7,903.5	18,947.7	7,850.4	215.4	215.2	88.62	-10,962.6	2,622.6	2,210.8	1,781.5	429.27	5.150		
19,179.7	7,903.5	19,027.4	7,851.8	216.9	216.7	88.66	-11,038.0	2,648.6	2,210.8	1,778.5	432.30	5.114		
19,200.0	7,903.5	19,047.7	7,852.2	217.3	217.1	88.67	-11,057.1	2,655.2	2,210.7	1,777.7	433.07	5.105		
19,279.7	7,903.5	19,127.4	7,853.6	218.8	218.6	88.71	-11,132.5	2,681.2	2,210.7	1,774.6	436.11	5.069		
19,300.0	7,903.5	19,147.7	7,853.9	219.2	219.0	88.71	-11,151.6	2,687.8	2,210.7	1,773.8	436.88	5.060		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company: Arsenal Resources  
 Project: Taylor County, WV  
 Reference Site: Johnson TFP40  
 Site Error: 0.0 usft  
 Reference Well: 204  
 Well Error: 0.0 usft  
 Reference Wellbore: Orig.  
 Reference Design: DEP Plan 6

Local Co-ordinate Reference: Well 204 - Slot 204  
 TVD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 MD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Output errors are at: 2.00 sigma  
 Database: Northeast  
 Offset TVD Reference: Offset Datum

**Offset Design** Johnson TFP40 - 202 - Orig. - SDI Plan 2

Survey Program: 0-MWD+HRGM+Int, 800-MWD+Aterint, 2600-SDI MWD

Offset Site Error: 0.0 usft  
 Offset Well Error: 0.0 usft

Measured Depth (usft)	Vertical Depth (usft)	Reference		Offset		Semi Major Axis	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance			Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)					Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	
19,379.7	7,903.5	19,227.4	7,855.3	220.7	220.5	88.75		-11,227.0	2,713.8	2,210.7	1,770.8	439.91	5.025
19,400.0	7,903.5	19,247.6	7,855.7	221.1	220.9	88.76		-11,246.1	2,720.4	2,210.7	1,770.0	440.69	5.016
19,479.7	7,903.5	19,327.4	7,857.1	222.6	222.4	88.80		-11,321.5	2,746.4	2,210.6	1,766.9	443.72	4.982
19,500.0	7,903.5	19,347.6	7,857.4	222.9	222.8	88.81		-11,340.7	2,753.0	2,210.6	1,766.1	444.49	4.973
19,579.8	7,903.5	19,427.4	7,858.8	224.5	224.3	88.84		-11,416.0	2,779.0	2,210.6	1,763.1	447.53	4.940
19,600.0	7,903.5	19,447.6	7,859.1	224.8	224.7	88.85		-11,435.2	2,785.6	2,210.6	1,762.3	448.30	4.931
19,679.8	7,903.5	19,527.4	7,860.5	226.4	226.2	88.89		-11,510.6	2,811.6	2,210.5	1,759.2	451.33	4.898
19,700.0	7,903.5	19,547.6	7,860.9	226.7	226.6	88.90		-11,529.7	2,818.2	2,210.5	1,758.4	452.10	4.889
19,779.8	7,903.5	19,627.4	7,862.3	228.2	228.1	88.93		-11,605.1	2,844.2	2,210.5	1,755.4	455.14	4.857
19,800.0	7,903.5	19,647.6	7,862.6	228.6	228.5	88.94		-11,624.2	2,850.8	2,210.5	1,754.6	455.91	4.849
19,879.8	7,903.5	19,727.4	7,864.0	230.1	230.0	88.98		-11,699.6	2,876.8	2,210.5	1,751.5	458.95	4.816
19,900.0	7,903.5	19,747.6	7,864.4	230.5	230.4	88.99		-11,718.7	2,883.4	2,210.5	1,750.7	459.72	4.808
19,979.8	7,903.5	19,827.4	7,865.8	232.0	231.9	89.02		-11,794.1	2,909.4	2,210.4	1,747.7	462.75	4.777
20,000.0	7,903.5	19,847.6	7,866.1	232.4	232.3	89.03		-11,813.2	2,916.0	2,210.4	1,746.9	463.52	4.769
20,079.9	7,903.5	19,927.4	7,867.5	233.9	233.8	89.07		-11,888.7	2,942.0	2,210.4	1,743.8	466.56	4.738
20,100.0	7,903.5	19,947.6	7,867.9	234.3	234.2	89.08		-11,907.7	2,948.6	2,210.4	1,743.1	467.33	4.730
20,179.9	7,903.5	20,027.4	7,869.3	235.8	235.7	89.11		-11,983.2	2,974.6	2,210.4	1,740.0	470.37	4.699
20,200.0	7,903.5	20,047.6	7,869.6	236.2	236.1	89.12		-12,002.2	2,981.2	2,210.4	1,739.2	471.13	4.692
20,279.9	7,903.5	20,127.4	7,871.0	237.7	237.6	89.16		-12,077.7	3,007.2	2,210.3	1,736.2	474.17	4.661
20,300.0	7,903.5	20,147.6	7,871.4	238.1	238.0	89.17		-12,096.7	3,013.8	2,210.3	1,735.4	474.94	4.654
20,379.9	7,903.5	20,227.4	7,872.8	239.6	239.5	89.20		-12,172.2	3,039.8	2,210.3	1,732.3	477.98	4.624
20,400.0	7,903.5	20,247.6	7,873.1	240.0	239.9	89.21		-12,191.2	3,046.4	2,210.3	1,731.5	478.75	4.617
20,480.0	7,903.5	20,327.6	7,874.5	241.5	241.4	89.25		-12,266.8	3,072.4	2,210.3	1,728.5	481.79	4.588
20,500.0	7,903.5	20,347.6	7,874.9	241.9	241.8	89.26		-12,285.7	3,079.0	2,210.3	1,727.7	482.55	4.580
20,580.0	7,903.5	20,427.6	7,876.3	243.4	243.3	89.29		-12,361.3	3,105.0	2,210.2	1,724.6	485.60	4.552
20,600.0	7,903.5	20,447.6	7,876.6	243.8	243.6	89.30		-12,380.2	3,111.6	2,210.2	1,723.9	486.36	4.544
20,680.1	7,903.5	20,527.6	7,878.0	245.3	245.2	89.34		-12,455.9	3,137.7	2,210.2	1,720.8	489.40	4.516
20,700.0	7,903.5	20,547.6	7,878.3	245.7	245.5	89.35		-12,474.7	3,144.2	2,210.2	1,720.0	490.16	4.509
20,780.1	7,903.5	20,627.6	7,879.7	247.2	247.1	89.38		-12,550.4	3,170.3	2,210.2	1,717.0	493.21	4.481
20,800.0	7,903.5	20,647.6	7,880.1	247.6	247.4	89.39		-12,569.2	3,176.7	2,210.2	1,716.2	493.97	4.474
20,880.2	7,903.5	20,727.6	7,881.5	249.1	249.0	89.43		-12,645.0	3,202.9	2,210.2	1,713.1	497.02	4.447
20,900.0	7,903.5	20,747.6	7,881.8	249.5	249.3	89.44		-12,663.7	3,209.3	2,210.2	1,712.4	497.78	4.440
20,980.2	7,903.5	20,827.6	7,883.2	251.0	250.9	89.47		-12,739.6	3,235.5	2,210.1	1,709.3	500.83	4.413
21,000.0	7,903.5	20,847.6	7,883.6	251.4	251.2	89.48		-12,758.2	3,241.9	2,210.1	1,708.6	501.58	4.406
21,080.3	7,903.5	20,927.7	7,885.0	252.9	252.8	89.52		-12,834.1	3,268.1	2,210.1	1,705.5	504.64	4.380
21,100.0	7,903.5	20,947.6	7,885.3	253.3	253.1	89.53		-12,852.7	3,274.5	2,210.1	1,704.7	505.39	4.373
21,180.4	7,903.5	21,027.8	7,886.7	254.8	254.7	89.57		-12,928.7	3,300.7	2,210.1	1,701.7	508.45	4.347
21,200.0	7,903.5	21,047.6	7,887.1	255.2	255.0	89.57		-12,947.3	3,307.1	2,210.1	1,700.9	509.19	4.340
21,280.5	7,903.5	21,127.9	7,888.5	256.7	256.6	89.61		-13,023.4	3,333.4	2,210.1	1,697.8	512.26	4.314
21,300.0	7,903.5	21,147.6	7,888.8	257.1	256.9	89.62		-13,041.8	3,339.7	2,210.1	1,697.1	513.00	4.308
21,380.7	7,903.5	21,228.0	7,890.2	258.6	258.5	89.66		-13,118.0	3,366.0	2,210.1	1,694.0	516.06	4.283
21,400.0	7,903.5	21,247.6	7,890.6	259.0	258.8	89.66		-13,136.3	3,372.3	2,210.1	1,693.3	516.80	4.276
21,480.9	7,903.5	21,328.2	7,892.0	260.5	260.4	89.70		-13,212.7	3,398.7	2,210.1	1,690.2	519.88	4.251
21,500.0	7,903.5	21,347.6	7,892.3	260.9	260.7	89.71		-13,230.8	3,404.9	2,210.1	1,689.4	520.60	4.245
21,581.1	7,903.5	21,428.4	7,893.7	262.4	262.3	89.75		-13,307.4	3,431.4	2,210.0	1,686.4	523.69	4.220
21,600.0	7,903.5	21,447.6	7,894.0	262.8	262.6	89.75		-13,325.3	3,437.5	2,210.0	1,685.6	524.41	4.214
21,681.5	7,903.5	21,528.8	7,895.5	264.3	264.2	89.79		-13,402.3	3,464.1	2,210.0	1,682.5	527.51	4.190
21,700.0	7,903.5	21,547.6	7,895.8	264.7	264.5	89.80		-13,419.8	3,470.1	2,210.0	1,681.8	528.21	4.184
21,782.0	7,903.5	21,629.3	7,897.2	266.2	266.1	89.84		-13,497.3	3,496.9	2,210.0	1,678.7	531.33	4.159
21,800.0	7,903.5	21,647.6	7,897.5	266.6	266.4	89.85		-13,514.3	3,502.7	2,210.0	1,678.0	532.02	4.154
21,883.0	7,903.5	21,730.3	7,899.0	268.1	268.0	89.88		-13,592.7	3,529.8	2,210.0	1,674.8	535.17	4.130

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - SDI Plan 2														Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2800-SDI MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)					
21,900.0	7,903.5	21,747.3	7,899.3	268.5	268.3	89.89	-13,608.8	3,535.3	2,210.0	1,674.2	535.82	4.125			
21,985.0	7,903.5	21,832.2	7,900.8	270.1	269.9	89.93	-13,689.1	3,563.0	2,210.0	1,670.9	539.05	4.100			
22,000.0	7,903.5	21,847.2	7,901.0	270.4	270.2	89.94	-13,703.3	3,567.9	2,210.0	1,670.4	539.62	4.095			
22,091.7	7,903.5	21,938.9	7,902.6	272.1	271.9	89.98	-13,789.9	3,597.8	2,210.0	1,666.9	543.11	4.069			
22,100.0	7,903.5	21,947.2	7,902.8	272.3	272.1	89.98	-13,797.8	3,600.5	2,210.0	1,666.6	543.42	4.067			
22,200.0	7,903.5	22,047.2	7,904.5	274.2	274.0	90.03	-13,892.3	3,633.1	2,210.0	1,662.8	547.23	4.039			
22,300.0	7,903.5	22,147.2	7,906.3	276.1	275.9	90.07	-13,986.8	3,665.7	2,210.0	1,659.0	551.03	4.011			
22,317.4	7,903.5	22,164.6	7,906.6	276.4	276.2	90.08	-14,003.3	3,671.4	2,210.0	1,658.3	551.69	4.006			
22,400.0	7,903.5	22,247.2	7,908.0	278.0	277.8	90.12	-14,081.3	3,698.3	2,210.0	1,655.1	554.83	3.983			
22,418.5	7,903.5	22,265.7	7,908.3	278.3	278.1	90.13	-14,098.8	3,704.3	2,210.0	1,654.4	555.54	3.978			
22,500.0	7,903.5	22,347.2	7,909.8	279.9	279.7	90.16	-14,175.8	3,730.9	2,210.0	1,651.3	558.84	3.956			
22,548.1	7,903.5	22,395.3	7,910.6	280.8	280.6	90.18	-14,221.3	3,746.6	2,210.0	1,649.5	560.46	3.943			
22,600.0	7,903.5	22,447.2	7,911.5	281.8	281.6	90.21	-14,270.3	3,763.5	2,210.0	1,647.5	562.44	3.929			
22,604.4	7,903.5	22,451.6	7,911.6	281.8	281.7	90.21	-14,274.5	3,764.9	2,210.0	1,647.4	562.61	3.928			
22,700.0	7,903.5	22,547.1	7,913.2	283.7	283.5	90.25	-14,364.8	3,796.1	2,210.0	1,643.7	566.24	3.903			
22,704.4	7,903.5	22,551.6	7,913.3	283.7	283.6	90.25	-14,369.1	3,797.5	2,210.0	1,643.6	566.41	3.902			
22,800.0	7,903.5	22,647.1	7,915.0	285.6	285.4	90.30	-14,459.4	3,828.7	2,210.0	1,639.9	570.04	3.877			
22,804.4	7,903.5	22,651.6	7,915.1	285.6	285.5	90.30	-14,463.6	3,830.1	2,210.0	1,639.8	570.21	3.876			
22,900.0	7,903.5	22,717.6	7,916.2	287.4	286.7	90.33	-14,526.0	3,851.7	2,210.2	1,637.0	573.20	3.856 SF			
23,000.0	7,903.5	22,717.6	7,916.2	289.3	286.7	90.33	-14,526.0	3,851.7	2,213.8	1,640.0	573.81	3.858			
23,100.0	7,903.5	22,717.6	7,916.2	291.2	286.7	90.33	-14,526.0	3,851.7	2,221.9	1,649.0	572.86	3.879			
23,200.0	7,903.5	22,717.6	7,916.2	293.1	286.7	90.33	-14,526.0	3,851.7	2,234.4	1,664.0	570.41	3.917			
23,300.0	7,903.5	22,717.6	7,916.2	295.0	286.7	90.33	-14,526.0	3,851.7	2,251.4	1,684.8	566.54	3.974			
23,400.0	7,903.5	22,717.6	7,916.2	296.9	286.7	90.33	-14,526.0	3,851.7	2,272.6	1,711.2	561.35	4.048			
23,500.0	7,903.5	22,717.6	7,916.2	298.8	286.7	90.33	-14,526.0	3,851.7	2,297.9	1,742.9	555.01	4.140			
23,600.0	7,903.5	22,717.6	7,916.2	300.7	286.7	90.33	-14,526.0	3,851.7	2,327.3	1,779.7	547.63	4.250			
23,700.0	7,903.5	22,717.6	7,916.2	302.6	286.7	90.33	-14,526.0	3,851.7	2,360.6	1,821.2	539.40	4.376			
23,800.0	7,903.5	22,717.6	7,916.2	304.5	286.7	90.33	-14,526.0	3,851.7	2,397.5	1,867.1	530.45	4.520			
23,900.0	7,903.5	22,717.6	7,916.2	306.4	286.7	90.33	-14,526.0	3,851.7	2,438.1	1,917.1	520.94	4.680			
24,000.0	7,903.5	22,717.6	7,916.2	308.3	286.7	90.33	-14,526.0	3,851.7	2,481.9	1,970.9	511.00	4.857			
24,100.0	7,903.5	22,717.6	7,916.2	310.2	286.7	90.33	-14,526.0	3,851.7	2,529.0	2,028.3	500.77	5.050			
24,200.0	7,903.5	22,717.6	7,916.2	312.1	286.7	90.33	-14,526.0	3,851.7	2,579.1	2,088.8	490.35	5.260			
24,300.0	7,903.5	22,717.6	7,916.2	314.0	286.7	90.33	-14,526.0	3,851.7	2,632.1	2,152.2	479.85	5.485			
24,400.0	7,903.5	22,717.6	7,916.2	315.9	286.7	90.33	-14,526.0	3,851.7	2,687.7	2,218.4	469.34	5.726			
24,500.0	7,903.5	22,717.6	7,916.2	317.8	286.7	90.33	-14,526.0	3,851.7	2,745.8	2,286.9	458.90	5.983			
24,600.0	7,903.5	22,717.6	7,916.2	319.7	286.7	90.33	-14,526.0	3,851.7	2,806.3	2,357.8	448.59	6.256			
24,700.0	7,903.5	22,717.6	7,916.2	321.6	286.7	90.33	-14,526.0	3,851.7	2,869.1	2,430.6	438.44	6.544			
24,800.0	7,903.5	22,717.6	7,916.2	323.5	286.7	90.33	-14,526.0	3,851.7	2,933.6	2,505.3	428.50	6.847			
24,900.0	7,903.5	22,717.6	7,916.2	325.4	286.7	90.33	-14,526.0	3,851.7	3,000.6	2,581.8	418.79	7.165			
25,000.0	7,903.5	22,717.6	7,916.2	327.3	286.7	90.33	-14,526.0	3,851.7	3,069.1	2,659.7	409.34	7.498			
25,100.0	7,903.5	22,717.6	7,916.2	329.2	286.7	90.33	-14,526.0	3,851.7	3,139.3	2,739.1	400.15	7.845			

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 1 Prelim											Offset Site Error:	0.0 usft	
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2500-SDI MWD											Offset Well Error:	0.0 usft	
Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-15.0	0.0	15.0				
100.0	100.0	100.0	100.0	0.3	0.3	180.00	-15.0	0.0	15.0	14.5	0.52	28.660	
200.0	200.0	200.0	200.0	0.6	0.6	180.00	-15.0	0.0	15.0	13.8	1.24	12.094	
300.0	300.0	300.0	300.0	1.0	1.0	180.00	-15.0	0.0	15.0	13.0	1.96	7.664	
400.0	400.0	400.0	400.0	1.3	1.3	180.00	-15.0	0.0	15.0	12.3	2.67	5.609	
500.0	500.0	500.0	500.0	1.7	1.7	180.00	-15.0	0.0	15.0	11.6	3.39	4.423	
600.0	600.0	600.0	600.0	2.1	2.1	180.00	-15.0	0.0	15.0	10.9	4.11	3.651	
700.0	700.0	700.0	700.0	2.4	2.4	180.00	-15.0	0.0	15.0	10.2	4.83	3.109	
800.0	800.0	800.0	800.0	2.8	2.8	-180.00	-15.0	0.0	15.0	9.5	5.54	2.707	
885.9	885.9	886.1	886.1	3.1	3.1	109.50	-14.5	-0.4	14.9	8.8	6.15	2.423 CC	
900.0	900.0	900.2	900.1	3.1	3.1	111.81	-14.3	-0.6	14.9	8.7	6.25	2.386 ES	
1,000.0	999.8	1,000.0	1,000.0	3.5	3.5	136.11	-12.4	-2.3	16.7	9.7	6.95	2.398	
1,100.0	1,099.6	1,099.6	1,099.4	3.8	3.8	159.77	-9.2	-5.2	22.5	14.8	7.66	2.933	
1,200.0	1,199.4	1,198.8	1,198.5	4.2	4.2	175.46	-4.6	-9.2	31.1	22.7	8.36	3.717	
1,300.0	1,299.1	1,297.7	1,297.0	4.5	4.5	-174.03	1.1	-14.4	41.9	32.9	9.06	4.629	
1,400.0	1,398.9	1,396.1	1,395.0	4.9	4.9	-166.60	8.1	-20.6	54.7	45.0	9.75	5.612	
1,500.0	1,498.6	1,495.0	1,493.3	5.3	5.3	-161.49	15.8	-27.5	68.8	58.3	10.46	6.577	
1,600.0	1,598.4	1,593.8	1,591.7	5.6	5.6	-158.11	23.5	-34.3	83.2	72.0	11.16	7.448	
1,700.0	1,698.1	1,692.7	1,690.0	6.0	6.0	-155.74	31.3	-41.2	97.7	85.9	11.88	8.231	
1,800.0	1,797.9	1,791.5	1,788.3	6.4	6.4	-153.99	39.0	-48.1	112.5	99.9	12.59	8.934	
1,900.0	1,897.6	1,890.4	1,886.6	6.7	6.7	-152.64	46.7	-55.0	127.3	113.9	13.30	9.566	
2,000.0	1,997.4	1,989.3	1,984.9	7.1	7.1	-151.57	54.4	-61.8	142.1	128.1	14.02	10.137	
2,100.0	2,097.2	2,088.1	2,083.3	7.5	7.5	-150.71	62.1	-68.7	157.0	142.2	14.73	10.655	
2,200.0	2,196.9	2,187.0	2,181.6	7.8	7.9	-149.99	69.8	-75.6	171.9	156.4	15.45	11.125	
2,300.0	2,296.7	2,285.8	2,279.9	8.2	8.2	-149.39	77.5	-82.4	186.8	170.7	16.17	11.555	
2,400.0	2,396.4	2,384.7	2,378.2	8.6	8.6	-148.88	85.2	-89.3	201.8	184.9	16.89	11.949	
2,500.0	2,496.2	2,483.6	2,476.5	8.9	9.0	-148.44	92.9	-96.2	216.7	199.1	17.61	12.311	
2,600.0	2,595.9	2,582.4	2,574.9	9.1	9.2	-148.05	100.6	-103.0	231.7	213.7	17.99	12.883	
2,700.0	2,695.6	2,681.1	2,673.0	9.1	9.2	-147.74	108.3	-109.9	248.1	230.0	18.04	13.748	
2,800.0	2,794.8	2,779.2	2,770.6	9.2	9.3	-147.82	116.0	-116.7	267.3	249.2	18.08	14.787	
2,900.0	2,893.6	2,876.7	2,867.5	9.2	9.3	-148.20	123.6	-123.5	289.4	271.3	18.13	15.966	
3,000.0	2,992.0	2,973.6	2,963.9	9.3	9.3	-148.92	131.1	-130.2	313.8	295.6	18.20	17.241	
3,100.0	3,090.3	3,072.6	3,062.4	9.3	9.4	-149.63	138.7	-137.0	338.2	319.9	18.29	18.486	
3,200.0	3,188.6	3,175.1	3,164.5	9.4	9.4	-150.40	145.5	-143.0	361.4	343.0	18.41	19.632	
3,300.0	3,286.9	3,278.2	3,267.3	9.5	9.4	-151.23	150.9	-147.8	383.2	364.6	18.53	20.680	
3,400.0	3,385.3	3,381.9	3,370.8	9.7	9.5	-152.12	154.9	-151.4	403.6	384.9	18.66	21.632	
3,500.0	3,483.6	3,486.0	3,474.9	9.8	9.5	-153.07	157.6	-153.8	422.6	403.8	18.79	22.489	
3,600.0	3,581.9	3,590.6	3,579.5	9.9	9.6	-154.09	158.8	-154.9	440.2	421.3	18.93	23.256	
3,700.0	3,680.2	3,691.4	3,680.2	10.1	9.6	-155.10	158.9	-155.0	456.8	437.8	19.07	23.951	
3,800.0	3,778.6	3,789.7	3,778.6	10.3	9.7	-156.03	158.9	-155.0	473.5	454.3	19.23	24.628	
3,900.0	3,876.9	3,888.0	3,876.9	10.5	9.8	-156.89	158.9	-155.0	490.2	470.8	19.39	25.287	
4,000.0	3,975.2	3,986.3	3,975.2	10.7	9.8	-157.70	158.9	-155.0	507.1	487.5	19.56	25.928	
4,100.0	4,073.5	4,084.6	4,073.5	10.9	9.9	-158.30	158.9	-155.0	523.7	504.0	19.74	26.535	
4,200.0	4,171.7	4,182.9	4,171.7	11.1	10.0	-141.05	158.9	-155.0	539.3	519.4	19.92	27.066	
4,300.0	4,269.8	4,280.9	4,269.8	11.3	10.0	-137.67	158.9	-155.0	554.2	534.0	20.13	27.526	
4,400.0	4,367.8	4,378.9	4,367.8	11.6	10.1	-139.01	158.9	-155.0	569.2	548.8	20.36	27.962	
4,500.0	4,465.8	4,476.9	4,465.8	11.9	10.2	-140.28	158.9	-155.0	584.5	563.9	20.59	28.392	
4,600.0	4,563.8	4,574.9	4,563.8	12.1	10.3	-141.49	158.9	-155.0	600.1	579.3	20.83	28.814	
4,700.0	4,661.7	4,672.8	4,661.7	12.4	10.4	-142.64	158.9	-155.0	615.9	594.9	21.07	29.227	
4,800.0	4,759.7	4,770.8	4,759.7	12.7	10.5	-143.73	158.9	-155.0	632.0	610.7	21.33	29.632	
4,900.0	4,857.7	4,868.8	4,857.7	13.0	10.6	-144.76	158.9	-155.0	648.3	626.7	21.59	30.027	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 1 Prelim														Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2500-SDI MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
5,000.0	4,955.7	4,966.8	4,955.7	13.3	10.7	-145.75	158.9	-155.0	664.8	642.9	21.86	30.413			
5,100.0	5,053.7	5,064.8	5,053.7	13.6	10.8	-146.68	158.9	-155.0	681.5	659.3	22.13	30.788			
5,200.0	5,151.7	5,162.8	5,151.7	13.9	10.9	-147.58	158.9	-155.0	698.3	675.9	22.41	31.154			
5,300.0	5,249.7	5,260.8	5,249.7	14.3	11.0	-148.43	158.9	-155.0	715.3	692.6	22.70	31.509			
5,400.0	5,347.7	5,358.8	5,347.7	14.6	11.1	-149.24	158.9	-155.0	732.5	709.5	22.99	31.853			
5,500.0	5,445.7	5,456.8	5,445.7	14.9	11.2	-150.02	158.9	-155.0	749.8	726.5	23.29	32.187			
5,600.0	5,543.7	5,554.8	5,543.7	15.3	11.4	-150.76	158.9	-155.0	767.2	743.6	23.60	32.511			
5,700.0	5,641.7	5,652.8	5,641.7	15.6	11.5	-151.47	158.9	-155.0	784.7	760.8	23.91	32.824			
5,800.0	5,739.7	5,750.8	5,739.7	16.0	11.6	-152.14	158.9	-155.0	802.4	778.1	24.22	33.127			
5,900.0	5,837.7	5,848.8	5,837.7	16.3	11.7	-152.79	158.9	-155.0	820.1	795.6	24.54	33.420			
6,000.0	5,935.6	5,946.7	5,935.6	16.7	11.9	-153.41	158.9	-155.0	838.0	813.1	24.86	33.702			
6,100.0	6,033.6	6,044.7	6,033.6	17.0	12.0	-154.01	158.9	-155.0	855.9	830.7	25.19	33.975			
6,200.0	6,131.6	6,142.7	6,131.6	17.4	12.1	-154.58	158.9	-155.0	873.9	848.4	25.52	34.239			
6,300.0	6,229.6	6,240.7	6,229.6	17.8	12.3	-155.12	158.9	-155.0	892.1	866.2	25.86	34.493			
6,400.0	6,327.6	6,338.7	6,327.6	18.2	12.4	-155.65	158.9	-155.0	910.2	884.0	26.20	34.738			
6,500.0	6,425.6	6,436.7	6,425.6	18.5	12.6	-156.16	158.9	-155.0	928.5	902.0	26.55	34.974			
6,600.0	6,523.6	6,534.7	6,523.6	18.9	12.7	-156.64	158.9	-155.0	946.8	919.9	26.90	35.201			
6,700.0	6,621.6	6,632.7	6,621.6	19.3	12.9	-157.11	158.9	-155.0	965.2	938.0	27.25	35.420			
6,800.0	6,719.6	6,730.7	6,719.6	19.7	13.0	-157.56	158.9	-155.0	983.7	956.1	27.61	35.631			
6,900.0	6,817.6	6,828.7	6,817.6	20.1	13.2	-157.99	158.9	-155.0	1,002.2	974.2	27.97	35.834			
7,000.0	6,915.6	6,926.7	6,915.6	20.4	13.3	-158.41	158.9	-155.0	1,020.7	992.4	28.33	36.030			
7,100.0	7,013.6	7,024.7	7,013.6	20.8	13.5	-158.82	158.9	-155.0	1,039.4	1,010.7	28.70	36.218			
7,200.0	7,111.6	7,122.7	7,111.6	21.2	13.7	-159.21	158.9	-155.0	1,058.0	1,028.9	29.07	36.399			
7,300.0	7,209.5	7,220.6	7,209.5	21.6	13.8	-159.58	158.9	-155.0	1,076.7	1,047.3	29.43	36.581			
7,400.0	7,307.6	7,318.7	7,307.6	22.0	13.9	-160.00	158.9	-155.0	1,095.2	1,065.4	29.79	36.754			
7,500.0	7,405.6	7,416.7	7,405.6	22.3	14.0	-160.41	158.9	-155.0	1,113.7	1,083.6	29.92	37.226			
7,600.0	7,503.6	7,514.7	7,503.6	22.6	14.1	-160.82	158.9	-155.0	1,131.8	1,101.7	30.05	37.621			
7,700.0	7,601.6	7,612.7	7,601.6	22.8	14.3	-161.21	158.9	-155.0	1,149.9	1,119.6	30.28	37.938			
7,800.0	7,699.6	7,710.7	7,699.6	23.0	14.5	-161.58	158.9	-155.0	1,167.7	1,137.1	30.60	38.063			
7,900.0	7,797.6	7,808.7	7,797.6	23.3	14.9	-161.99	158.9	-155.0	1,185.2	1,154.5	31.11	37.884			
8,000.0	7,895.6	7,906.7	7,895.6	23.6	15.4	-162.41	158.9	-155.0	1,202.7	1,171.4	31.91	37.296			
8,100.0	7,993.6	7,999.7	7,993.6	23.9	16.1	-162.82	158.9	-155.0	1,219.9	1,187.4	33.07	36.273			
8,200.0	8,091.6	8,102.7	8,091.6	24.4	16.9	-163.21	158.9	-155.0	1,236.9	1,202.4	34.56	34.891			
8,300.0	8,189.6	8,200.7	8,189.6	24.9	18.0	-163.58	158.9	-155.0	1,253.7	1,216.3	36.39	33.242			
8,400.0	8,287.6	8,298.7	8,287.6	25.5	19.1	-164.00	158.9	-155.0	1,270.2	1,229.2	38.49	31.447			
8,500.0	8,385.6	8,396.7	8,385.6	26.3	20.4	-164.41	158.9	-155.0	1,286.7	1,241.4	40.83	29.640			
8,600.0	8,483.6	8,494.7	8,483.6	27.2	21.8	-164.82	158.9	-155.0	1,303.2	1,253.0	43.38	27.902			
8,700.0	8,581.6	8,592.7	8,581.6	28.2	23.2	-165.21	158.9	-155.0	1,319.7	1,264.2	46.09	26.257			
8,800.0	8,679.6	8,690.7	8,679.6	29.3	24.7	-165.58	158.9	-155.0	1,336.2	1,274.9	48.96	24.721			
8,900.0	8,777.6	8,788.7	8,777.6	30.4	26.3	-166.00	158.9	-155.0	1,352.7	1,285.3	51.94	23.301			
9,000.0	8,875.6	8,886.7	8,875.6	31.7	27.9	-166.41	158.9	-155.0	1,369.2	1,295.3	55.03	21.995			
9,100.0	8,973.6	8,984.7	8,973.6	33.0	29.5	-166.82	158.9	-155.0	1,385.7	1,305.0	58.20	20.796			
9,200.0	9,071.6	9,082.7	9,071.6	34.4	31.2	-167.21	158.9	-155.0	1,402.2	1,314.4	61.44	19.698			
9,300.0	9,169.6	9,180.7	9,169.6	35.8	32.9	-167.58	158.9	-155.0	1,418.7	1,323.5	64.75	18.692			
9,400.0	9,267.6	9,278.7	9,267.6	37.3	34.6	-168.00	158.9	-155.0	1,435.2	1,332.2	68.11	17.770			
9,500.0	9,365.6	9,376.7	9,365.6	38.8	36.3	-168.41	158.9	-155.0	1,451.7	1,340.6	71.51	16.924			
9,600.0	9,463.6	9,474.7	9,463.6	40.4	38.1	-168.82	158.9	-155.0	1,468.2	1,348.7	74.96	16.147			
9,700.0	9,561.6	9,572.7	9,561.6	41.9	39.8	-169.21	158.9	-155.0	1,484.7	1,356.6	78.43	15.431			
9,800.0	9,659.6	9,670.7	9,659.6	43.5	41.6	-169.58	158.9	-155.0	1,501.2	1,364.2	81.94	14.771			
9,900.0	9,757.6	9,768.7	9,757.6	45.2	43.4	-170.00	158.9	-155.0	1,517.7	1,371.6	85.47	14.160			



<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 1 Prelim													Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int. 800-MWD+AfterInt. 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning	
		Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)				
10,000.0	7,903.5	9,924.7	7,903.5	46.8	45.2	90.00	-2,032.8	600.8	1,210.3	1,121.3	89.03	13.595		
10,100.0	7,903.5	10,024.7	7,903.5	48.5	47.0	90.00	-2,127.4	633.4	1,210.3	1,117.7	92.60	13.070		
10,200.0	7,903.5	10,124.7	7,903.5	50.2	48.8	90.00	-2,221.9	666.0	1,210.3	1,114.1	96.20	12.581		
10,300.0	7,903.5	10,224.7	7,903.5	51.9	50.6	90.00	-2,316.4	698.6	1,210.3	1,110.5	99.81	12.126		
10,400.0	7,903.5	10,324.7	7,903.5	53.6	52.4	90.00	-2,411.0	731.2	1,210.3	1,106.9	103.43	11.701		
10,500.0	7,903.5	10,424.7	7,903.5	55.3	54.3	90.00	-2,505.5	763.8	1,210.3	1,103.2	107.07	11.304		
10,600.0	7,903.5	10,524.7	7,903.5	57.1	56.1	90.00	-2,600.0	796.4	1,210.3	1,099.6	110.72	10.931		
10,700.0	7,903.5	10,624.7	7,903.5	58.8	57.9	90.00	-2,694.6	829.0	1,210.3	1,095.9	114.38	10.582		
10,800.0	7,903.5	10,724.7	7,903.5	60.6	59.8	90.00	-2,789.1	861.6	1,210.3	1,092.3	118.05	10.253		
10,900.0	7,903.5	10,824.7	7,903.5	62.3	61.6	90.00	-2,883.7	894.2	1,210.3	1,088.6	121.72	9.943		
11,000.0	7,903.5	10,924.7	7,903.5	64.1	63.5	90.00	-2,978.2	926.8	1,210.3	1,084.9	125.41	9.651		
11,100.0	7,903.5	11,024.7	7,903.5	65.9	65.3	90.00	-3,072.7	959.4	1,210.3	1,081.2	129.10	9.375		
11,200.0	7,903.5	11,124.7	7,903.5	67.7	67.2	90.00	-3,167.2	992.0	1,210.3	1,077.5	132.80	9.114		
11,300.0	7,903.5	11,224.7	7,903.5	69.5	69.1	90.00	-3,261.8	1,024.6	1,210.3	1,073.8	136.51	8.867		
11,400.0	7,903.5	11,324.7	7,903.5	71.3	70.9	90.00	-3,356.3	1,057.2	1,210.3	1,070.1	140.22	8.632		
11,500.0	7,903.5	11,424.7	7,903.5	73.1	72.8	90.00	-3,450.9	1,089.8	1,210.3	1,066.4	143.93	8.409		
11,600.0	7,903.5	11,524.7	7,903.5	74.9	74.6	90.00	-3,545.4	1,122.4	1,210.3	1,062.7	147.65	8.197		
11,700.0	7,903.5	11,624.7	7,903.5	76.7	76.5	90.00	-3,639.9	1,155.0	1,210.3	1,059.0	151.38	7.995		
11,800.0	7,903.5	11,724.7	7,903.5	78.5	78.4	90.00	-3,734.5	1,187.6	1,210.3	1,055.2	155.11	7.803		
11,900.0	7,903.5	11,824.7	7,903.5	80.3	80.3	90.00	-3,829.0	1,220.2	1,210.3	1,051.5	158.84	7.620		
12,000.0	7,903.5	11,924.7	7,903.5	82.2	82.1	90.00	-3,923.6	1,252.8	1,210.3	1,047.8	162.58	7.445		
12,100.0	7,903.5	12,024.7	7,903.5	84.0	84.0	90.00	-4,018.1	1,285.4	1,210.4	1,044.0	166.32	7.277		
12,200.0	7,903.5	12,124.7	7,903.5	85.8	85.9	90.00	-4,112.6	1,318.0	1,210.4	1,040.3	170.06	7.117		
12,300.0	7,903.5	12,224.7	7,903.5	87.7	87.8	90.00	-4,207.2	1,350.6	1,210.4	1,036.6	173.81	6.964		
12,400.0	7,903.5	12,324.7	7,903.5	89.5	89.6	90.00	-4,301.7	1,383.2	1,210.4	1,032.8	177.55	6.817		
12,500.0	7,903.5	12,424.7	7,903.5	91.4	91.5	90.00	-4,396.2	1,415.8	1,210.4	1,029.1	181.31	6.676		
12,600.0	7,903.5	12,524.7	7,903.5	93.2	93.4	90.00	-4,490.8	1,448.4	1,210.4	1,025.3	185.06	6.540		
12,700.0	7,903.5	12,624.7	7,903.5	95.0	95.3	90.00	-4,585.3	1,481.0	1,210.4	1,021.6	188.82	6.410		
12,800.0	7,903.5	12,724.7	7,903.5	96.9	97.2	90.00	-4,679.9	1,513.6	1,210.4	1,017.8	192.57	6.285		
12,900.0	7,903.5	12,824.7	7,903.5	98.7	99.0	90.00	-4,774.4	1,546.2	1,210.4	1,014.0	196.33	6.165		
13,000.0	7,903.5	12,924.7	7,903.5	100.6	100.9	90.00	-4,868.9	1,578.8	1,210.4	1,010.3	200.09	6.049		
13,100.0	7,903.5	13,024.7	7,903.5	102.5	102.8	90.00	-4,963.5	1,611.4	1,210.4	1,006.5	203.86	5.937		
13,200.0	7,903.5	13,124.7	7,903.5	104.3	104.7	90.00	-5,058.0	1,644.0	1,210.4	1,002.8	207.62	5.830		
13,300.0	7,903.5	13,224.7	7,903.5	106.2	106.6	90.00	-5,152.5	1,676.5	1,210.4	999.0	211.39	5.726		
13,400.0	7,903.5	13,324.7	7,903.5	108.0	108.5	90.00	-5,247.1	1,709.2	1,210.4	995.2	215.16	5.626		
13,500.0	7,903.5	13,424.7	7,903.5	109.9	110.4	90.00	-5,341.6	1,741.8	1,210.4	991.5	218.93	5.529		
13,600.0	7,903.5	13,524.7	7,903.5	111.8	112.2	90.00	-5,436.2	1,774.4	1,210.4	987.7	222.70	5.435		
13,700.0	7,903.5	13,624.7	7,903.5	113.6	114.1	90.00	-5,530.7	1,807.0	1,210.4	983.9	226.47	5.345		
13,800.0	7,903.5	13,724.7	7,903.5	115.5	116.0	90.00	-5,625.2	1,839.5	1,210.4	980.1	230.24	5.257		
13,900.0	7,903.5	13,824.7	7,903.5	117.4	117.9	90.00	-5,719.8	1,872.1	1,210.4	976.4	234.02	5.172		
14,000.0	7,903.5	13,924.7	7,903.5	119.2	119.8	90.00	-5,814.3	1,904.7	1,210.4	972.6	237.80	5.090		
14,100.0	7,903.5	14,024.7	7,903.5	121.1	121.7	90.00	-5,908.8	1,937.3	1,210.4	968.8	241.57	5.011		
14,200.0	7,903.5	14,124.7	7,903.5	123.0	123.6	90.00	-6,003.4	1,969.9	1,210.4	965.1	245.35	4.933		
14,300.0	7,903.5	14,224.7	7,903.5	124.8	125.5	90.00	-6,097.9	2,002.5	1,210.4	961.3	249.13	4.859		
14,400.0	7,903.5	14,324.7	7,903.5	126.7	127.4	90.00	-6,192.5	2,035.1	1,210.4	957.5	252.91	4.786		
14,500.0	7,903.5	14,424.7	7,903.5	128.6	129.3	90.00	-6,287.0	2,067.7	1,210.4	953.7	256.69	4.715		
14,600.0	7,903.5	14,524.7	7,903.5	130.5	131.2	90.00	-6,381.5	2,100.3	1,210.4	949.9	260.47	4.647		
14,700.0	7,903.5	14,624.7	7,903.5	132.3	133.0	90.00	-6,476.1	2,132.9	1,210.4	946.2	264.25	4.581		
14,800.0	7,903.5	14,724.7	7,903.5	134.2	134.9	90.00	-6,570.6	2,165.5	1,210.4	942.4	268.04	4.516		
14,900.0	7,903.5	14,824.7	7,903.5	136.1	136.8	90.00	-6,665.1	2,198.1	1,210.4	938.6	271.82	4.453		
15,000.0	7,903.5	14,924.7	7,903.5	138.0	138.7	90.00	-6,759.7	2,230.7	1,210.4	934.8	275.60	4.392		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company: Arsenal Resources  
 Project: Taylor County, WV  
 Reference Site: Johnson TFP40  
 Site Error: 0.0 usft  
 Reference Well: 204  
 Well Error: 0.0 usft  
 Reference Wellbore: Orig  
 Reference Design: DEP Plan 6

Local Co-ordinate Reference: Well 204 - Slot 204  
 TVD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 MD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Output errors are at: 2.00 sigma  
 Database: Northeast  
 Offset TVD Reference: Offset Datum

Offset Design Johnson TFP40 - 203 - Orig - SDI Plan I Prelim													Offset Site Error:	0.0 usft
Survey Program: 0 MWD+HRGM+Int, 300-MWD+Attermt, 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	Offset Wellbore Centre +E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
15,100.0	7,903.5	15,024.7	7,903.5	139.8	140.6	90.00	-6,654.2	2,263.3	1,210.4	931.0	279.39	1.332		
15,200.0	7,903.5	15,124.7	7,903.5	141.7	142.5	90.00	-6,948.8	2,295.0	1,210.4	927.3	283.18	1.274		
15,300.0	7,903.5	15,224.7	7,903.5	143.6	144.4	90.00	-7,043.3	2,328.5	1,210.4	923.5	286.96	1.218		
15,400.0	7,903.5	15,324.7	7,903.5	145.5	146.3	90.00	-7,137.8	2,361.1	1,210.4	919.7	290.75	1.163		
15,500.0	7,903.5	15,424.7	7,903.5	147.4	148.2	90.00	-7,232.4	2,393.7	1,210.4	915.9	294.54	1.110		
15,600.0	7,903.5	15,524.7	7,903.5	149.2	150.1	90.00	-7,326.9	2,426.3	1,210.4	912.1	298.32	1.057		
15,700.0	7,903.5	15,624.7	7,903.5	151.1	152.0	90.00	-7,421.4	2,458.9	1,210.4	908.3	302.11	1.007		
15,800.0	7,903.5	15,724.7	7,903.5	153.0	153.9	90.00	-7,516.0	2,491.5	1,210.4	904.5	305.90	0.957		
15,900.0	7,903.5	15,824.7	7,903.5	154.9	155.8	90.00	-7,610.5	2,524.1	1,210.4	900.8	309.69	0.909		
16,000.0	7,903.5	15,924.7	7,903.5	156.8	157.7	90.00	-7,705.1	2,556.7	1,210.4	897.0	313.48	0.861		
16,100.0	7,903.5	16,024.7	7,903.5	158.7	159.6	90.00	-7,799.6	2,589.3	1,210.4	893.2	317.27	0.815		
16,200.0	7,903.5	16,124.7	7,903.5	160.5	161.5	90.00	-7,894.1	2,621.9	1,210.4	889.4	321.06	0.770		
16,300.0	7,903.5	16,224.7	7,903.5	162.4	163.4	90.00	-7,988.7	2,654.5	1,210.5	885.6	324.85	0.726		
16,400.0	7,903.5	16,324.7	7,903.5	164.3	165.3	90.00	-8,083.2	2,687.1	1,210.5	881.8	328.65	0.683		
16,500.0	7,903.5	16,424.7	7,903.5	166.2	167.2	90.00	-8,177.7	2,719.7	1,210.5	878.0	332.44	0.641		
16,600.0	7,903.5	16,524.7	7,903.5	168.1	169.1	90.00	-8,272.3	2,752.3	1,210.5	874.2	336.23	0.600		
16,700.0	7,903.5	16,624.7	7,903.5	170.0	171.0	90.00	-8,366.8	2,784.9	1,210.5	870.4	340.02	0.560		
16,800.0	7,903.5	16,724.7	7,903.5	171.9	172.9	90.00	-8,461.4	2,817.5	1,210.5	866.6	343.82	0.521		
16,900.0	7,903.5	16,824.7	7,903.5	173.8	174.8	90.00	-8,555.9	2,850.1	1,210.5	862.8	347.61	0.482		
17,000.0	7,903.5	16,924.7	7,903.5	175.6	176.7	90.00	-8,650.4	2,882.7	1,210.5	859.1	351.40	0.446		
17,100.0	7,903.5	17,024.7	7,903.5	177.5	178.5	90.00	-8,745.0	2,915.3	1,210.5	855.3	355.20	0.408		
17,200.0	7,903.5	17,124.7	7,903.5	179.4	180.4	90.00	-8,839.5	2,947.9	1,210.5	851.5	358.99	0.372		
17,300.0	7,903.5	17,224.7	7,903.5	181.3	182.3	90.00	-8,934.0	2,980.5	1,210.5	847.7	362.79	0.337		
17,400.0	7,903.5	17,324.7	7,903.5	183.2	184.2	90.00	-9,028.5	3,013.1	1,210.5	843.9	366.58	0.302		
17,500.0	7,903.5	17,424.7	7,903.5	185.1	186.1	90.00	-9,123.1	3,045.7	1,210.5	840.1	370.38	0.268		
17,600.0	7,903.5	17,524.7	7,903.5	187.0	188.0	90.00	-9,217.7	3,078.3	1,210.5	836.3	374.17	0.235		
17,700.0	7,903.5	17,624.7	7,903.5	188.9	189.9	90.00	-9,312.2	3,110.9	1,210.5	832.5	377.97	0.203		
17,800.0	7,903.5	17,724.7	7,903.5	190.8	191.8	90.00	-9,406.7	3,143.5	1,210.5	828.7	381.77	0.171		
17,900.0	7,903.5	17,824.7	7,903.5	192.7	193.7	90.00	-9,501.3	3,176.1	1,210.5	824.9	385.56	0.140		
18,000.0	7,903.5	17,924.7	7,903.5	194.6	195.6	90.00	-9,595.8	3,208.7	1,210.5	821.1	389.36	0.109		
18,100.0	7,903.5	18,024.7	7,903.5	196.4	197.5	90.00	-9,690.3	3,241.3	1,210.5	817.3	393.16	0.079		
18,200.0	7,903.5	18,124.7	7,903.5	198.3	199.4	90.00	-9,784.9	3,273.9	1,210.5	813.5	396.95	0.049		
18,300.0	7,903.5	18,224.7	7,903.5	200.2	201.3	90.00	-9,879.4	3,306.5	1,210.5	809.7	400.75	0.021		
18,400.0	7,903.5	18,324.7	7,903.5	202.1	203.2	90.00	-9,974.0	3,339.1	1,210.5	806.0	404.55	0.000		
18,500.0	7,903.5	18,424.7	7,903.5	204.0	205.1	90.00	-10,068.5	3,371.7	1,210.5	802.2	408.35	0.000		
18,600.0	7,903.5	18,524.7	7,903.5	205.9	207.0	90.00	-10,163.0	3,404.3	1,210.5	798.4	412.14	0.000		
18,700.0	7,903.5	18,624.7	7,903.5	207.8	208.9	90.00	-10,257.6	3,436.9	1,210.5	794.6	415.94	0.000		
18,800.0	7,903.5	18,724.7	7,903.5	209.7	210.8	90.00	-10,352.1	3,469.5	1,210.5	790.8	419.74	0.000		
18,900.0	7,903.5	18,824.7	7,903.5	211.6	212.7	90.00	-10,446.6	3,502.1	1,210.5	787.0	423.54	0.000		
19,000.0	7,903.5	18,924.7	7,903.5	213.5	214.6	90.00	-10,541.2	3,534.7	1,210.5	783.2	427.34	0.000		
19,100.0	7,903.5	19,024.7	7,903.5	215.4	216.5	90.00	-10,635.7	3,567.3	1,210.5	779.4	431.14	0.000		
19,200.0	7,903.5	19,124.7	7,903.5	217.3	218.4	90.00	-10,730.3	3,599.9	1,210.5	775.6	434.94	0.000		
19,300.0	7,903.5	19,224.7	7,903.5	219.2	220.3	90.00	-10,824.8	3,632.5	1,210.5	771.8	438.74	0.000		
19,400.0	7,903.5	19,324.7	7,903.5	221.1	222.2	90.00	-10,919.3	3,665.1	1,210.5	768.0	442.54	0.000		
19,500.0	7,903.5	19,424.7	7,903.5	222.9	224.1	90.00	-11,013.9	3,697.7	1,210.5	764.2	446.34	0.000		
19,600.0	7,903.5	19,524.7	7,903.5	224.8	226.0	90.00	-11,108.4	3,730.3	1,210.5	760.4	450.14	0.000		
19,700.0	7,903.5	19,624.7	7,903.5	226.7	227.9	90.00	-11,202.9	3,762.9	1,210.5	756.6	453.94	0.000		
19,800.0	7,903.5	19,724.7	7,903.5	228.6	229.8	90.00	-11,297.5	3,795.5	1,210.5	752.8	457.74	0.000		
19,900.0	7,903.5	19,824.7	7,903.5	230.5	231.7	90.00	-11,392.0	3,828.1	1,210.5	749.0	461.54	0.000		
20,000.0	7,903.5	19,924.7	7,903.5	232.4	233.6	90.00	-11,486.5	3,860.7	1,210.5	745.2	465.34	0.000		

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

**Company:** Arsenal Resources  
**Project:** Taylor County, WV  
**Reference Site:** Johnson TFP40  
**Site Error:** 0.0 usft  
**Reference Well:** 204  
**Well Error:** 0.0 usft  
**Reference Wellbore:** Orig.  
**Reference Design:** DEP Plan 6

**Local Co-ordinate Reference:** Well 204 - Slot 204  
**TVD Reference:** GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
**MD Reference:** GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at:** 2.00 sigma  
**Database:** Northeast  
**Offset TVD Reference:** Offset Datum

**Offset Design** Johnson TFP40 - 203 - Orig - SDI Plan 1 Prelim

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD

Offset Site Error: 0.0 usft

Offset Well Error: 0.0 usft

Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance				Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)		Minimum Separation (usft)
20,100.0	7,903.5	20,024.7	7,903.5	234.3	235.5	90.00	-11,581.1	3,893.3	1,210.5	741.4	469.14	2.580
20,200.0	7,903.5	20,124.7	7,903.5	236.2	237.4	90.00	-11,675.6	3,925.9	1,210.5	737.6	472.94	2.560
20,300.0	7,903.5	20,224.7	7,903.5	238.1	239.3	90.00	-11,770.2	3,958.5	1,210.5	733.8	476.74	2.539
20,400.0	7,903.5	20,324.7	7,903.5	240.0	241.2	90.00	-11,864.7	3,991.1	1,210.5	730.0	480.54	2.519
20,500.0	7,903.5	20,424.7	7,903.5	241.9	243.1	90.00	-11,959.2	4,023.7	1,210.6	726.2	484.34	2.499
20,600.0	7,903.5	20,524.7	7,903.5	243.8	245.0	90.00	-12,053.8	4,056.3	1,210.6	722.4	488.14	2.480
20,700.0	7,903.5	20,624.7	7,903.5	245.7	246.9	90.00	-12,148.3	4,088.9	1,210.6	718.6	491.94	2.461
20,800.0	7,903.5	20,724.7	7,903.5	247.6	248.8	90.00	-12,242.9	4,121.5	1,210.6	714.8	495.74	2.442
20,900.0	7,903.5	20,824.7	7,903.5	249.5	250.8	90.00	-12,337.4	4,154.1	1,210.6	711.0	499.55	2.423
21,000.0	7,903.5	20,924.7	7,903.5	251.4	252.7	90.00	-12,431.9	4,186.7	1,210.6	707.2	503.35	2.405
21,100.0	7,903.5	21,024.7	7,903.5	253.3	254.6	90.00	-12,526.5	4,219.3	1,210.6	703.4	507.15	2.387
21,200.0	7,903.5	21,124.7	7,903.5	255.2	256.5	90.00	-12,621.0	4,251.9	1,210.6	699.6	510.95	2.369
21,300.0	7,903.5	21,224.7	7,903.5	257.1	258.4	90.00	-12,715.5	4,284.5	1,210.6	695.8	514.75	2.352
21,400.0	7,903.5	21,324.7	7,903.5	259.0	260.3	90.00	-12,810.1	4,317.1	1,210.6	692.0	518.55	2.335
21,500.0	7,903.5	21,424.7	7,903.5	260.9	262.2	90.00	-12,904.6	4,349.7	1,210.6	688.2	522.36	2.318
21,600.0	7,903.5	21,524.7	7,903.5	262.8	264.1	90.00	-12,999.2	4,382.3	1,210.6	684.4	526.16	2.301
21,700.0	7,903.5	21,624.7	7,903.5	264.7	266.0	90.00	-13,093.7	4,414.9	1,210.6	680.6	529.96	2.284
21,800.0	7,903.5	21,724.7	7,903.5	266.6	267.9	90.00	-13,188.2	4,447.5	1,210.6	676.8	533.76	2.268
21,900.0	7,903.5	21,824.7	7,903.5	268.5	269.8	90.00	-13,282.8	4,480.1	1,210.6	673.0	537.56	2.252
22,000.0	7,903.5	21,924.7	7,903.5	270.4	271.7	90.00	-13,377.3	4,512.7	1,210.6	669.2	541.37	2.236
22,100.0	7,903.5	22,024.7	7,903.5	272.3	273.6	90.00	-13,471.8	4,545.2	1,210.6	665.4	545.17	2.221
22,200.0	7,903.5	22,124.7	7,903.5	274.2	275.5	90.00	-13,566.4	4,577.8	1,210.6	661.6	548.97	2.205
22,300.0	7,903.5	22,224.7	7,903.5	276.1	277.4	90.00	-13,660.9	4,610.4	1,210.6	657.8	552.77	2.190
22,400.0	7,903.5	22,324.7	7,903.5	278.0	279.3	90.00	-13,755.5	4,643.0	1,210.6	654.0	556.58	2.175
22,500.0	7,903.5	22,424.7	7,903.5	279.9	281.2	90.00	-13,850.0	4,675.6	1,210.6	650.2	560.38	2.160
22,600.0	7,903.5	22,524.7	7,903.5	281.8	283.1	90.00	-13,944.5	4,708.2	1,210.6	646.4	564.18	2.146
22,700.0	7,903.5	22,624.7	7,903.5	283.7	285.0	90.00	-14,039.1	4,740.8	1,210.6	642.6	567.99	2.131
22,800.0	7,903.5	22,724.7	7,903.5	285.6	286.9	90.00	-14,133.6	4,773.4	1,210.6	638.8	571.79	2.117
22,900.0	7,903.5	22,824.7	7,903.5	287.4	288.8	90.00	-14,228.1	4,806.0	1,210.6	635.0	575.59	2.103
23,000.0	7,903.5	22,924.7	7,903.5	289.3	290.7	90.00	-14,322.7	4,838.6	1,210.6	631.2	579.39	2.089
23,100.0	7,903.5	23,024.7	7,903.5	291.2	292.6	90.00	-14,417.2	4,871.2	1,210.6	627.4	583.20	2.076
23,200.0	7,903.5	23,124.7	7,903.5	293.1	294.5	90.00	-14,511.7	4,903.8	1,210.6	623.6	587.00	2.062
23,300.0	7,903.5	23,224.7	7,903.5	295.0	296.4	90.00	-14,606.3	4,936.4	1,210.6	619.8	590.80	2.049
23,400.0	7,903.5	23,324.7	7,903.5	296.9	298.3	90.00	-14,700.8	4,969.0	1,210.6	616.0	594.61	2.036
23,500.0	7,903.5	23,424.7	7,903.5	298.8	300.2	90.00	-14,795.4	5,001.6	1,210.6	612.2	598.41	2.023
23,600.0	7,903.5	23,524.7	7,903.5	300.7	302.1	90.00	-14,889.9	5,034.2	1,210.6	608.4	602.22	2.010
23,700.0	7,903.5	23,624.7	7,903.5	302.6	304.0	90.00	-14,984.4	5,066.8	1,210.6	604.6	606.02	1.998
23,800.0	7,903.5	23,724.7	7,903.5	304.5	305.9	90.00	-15,079.0	5,099.4	1,210.6	600.8	609.82	1.985
23,900.0	7,903.5	23,824.7	7,903.5	306.4	307.8	90.00	-15,173.5	5,132.0	1,210.6	597.0	613.63	1.973
24,000.0	7,903.5	23,924.7	7,903.5	308.3	309.7	90.00	-15,268.0	5,164.6	1,210.6	593.2	617.43	1.961
24,100.0	7,903.5	24,024.7	7,903.5	310.2	311.6	90.00	-15,362.6	5,197.2	1,210.6	589.4	621.23	1.949
24,200.0	7,903.5	24,124.7	7,903.5	312.1	313.5	90.00	-15,457.1	5,229.8	1,210.6	585.6	625.04	1.937
24,300.0	7,903.5	24,224.7	7,903.5	314.0	315.4	90.00	-15,551.7	5,262.4	1,210.6	581.8	628.84	1.925
24,400.0	7,903.5	24,324.7	7,903.5	315.9	317.3	90.00	-15,646.2	5,295.0	1,210.6	578.0	632.65	1.914
24,500.0	7,903.5	24,424.7	7,903.5	317.8	319.2	90.00	-15,740.7	5,327.6	1,210.6	574.2	636.45	1.902
24,600.0	7,903.5	24,524.7	7,903.5	319.7	321.1	90.00	-15,835.3	5,360.2	1,210.6	570.4	640.25	1.891
24,700.0	7,903.5	24,624.7	7,903.5	321.6	323.0	90.00	-15,929.8	5,392.8	1,210.7	566.6	644.06	1.880
24,800.0	7,903.5	24,724.7	7,903.5	323.5	324.9	90.00	-16,024.3	5,425.4	1,210.7	562.8	647.86	1.869
24,900.0	7,903.5	24,824.7	7,903.5	325.4	326.8	90.00	-16,118.9	5,458.0	1,210.7	559.0	651.66	1.858
25,000.0	7,903.5	24,924.7	7,903.5	327.3	328.7	90.00	-16,213.4	5,490.6	1,210.7	555.2	655.47	1.847
25,100.0	7,903.5	25,024.7	7,903.5	329.2	330.6	90.00	-16,308.0	5,523.2	1,210.7	551.4	659.27	1.836

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 1 Prelim														Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int 800-MWD+AfterInt, 2600-SDI MWD														Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
25,200.0	7,903.5	25,124.7	7,903.5	331.1	332.5	90.00	-16,402.5	5,555.8	1,210.7	547.6	663.08	1.826			
25,300.0	7,903.5	25,224.7	7,903.5	333.0	334.4	90.00	-16,497.0	5,588.4	1,210.7	543.8	666.88	1.815			
25,400.0	7,903.5	25,324.7	7,903.5	334.9	336.4	90.00	-16,591.6	5,621.0	1,210.7	540.0	670.69	1.805			
25,500.0	7,903.5	25,424.7	7,903.5	336.8	338.3	90.00	-16,686.1	5,653.6	1,210.7	536.2	674.49	1.795			
25,600.0	7,903.5	25,524.7	7,903.5	338.7	340.2	90.00	-16,780.6	5,686.2	1,210.7	532.4	678.29	1.785			
25,700.0	7,903.5	25,624.7	7,903.5	340.6	342.1	90.00	-16,875.2	5,718.8	1,210.7	528.6	682.10	1.775			
25,800.0	7,903.5	25,724.7	7,903.5	342.5	344.0	90.00	-16,969.7	5,751.4	1,210.7	524.8	685.90	1.765			
25,900.0	7,903.5	25,824.7	7,903.5	344.4	345.9	90.00	-17,064.3	5,784.0	1,210.7	521.0	689.71	1.755			
26,000.0	7,903.5	25,924.7	7,903.5	346.3	347.8	90.00	-17,158.8	5,816.6	1,210.7	517.2	693.51	1.746			
26,100.0	7,903.5	26,024.7	7,903.5	348.3	349.7	90.00	-17,253.3	5,849.2	1,210.7	513.4	697.31	1.736			
26,200.0	7,903.5	26,124.7	7,903.5	350.2	351.6	90.00	-17,347.9	5,881.8	1,210.7	509.6	701.12	1.727			
26,300.0	7,903.5	26,224.7	7,903.5	352.1	353.5	90.00	-17,442.4	5,914.4	1,210.7	505.8	704.92	1.717			
26,400.0	7,903.5	26,324.7	7,903.5	354.0	355.4	90.00	-17,536.9	5,947.0	1,210.7	502.0	708.73	1.708			
26,500.0	7,903.5	26,424.7	7,903.5	355.9	357.3	90.00	-17,631.5	5,979.6	1,210.7	498.2	712.53	1.699			
26,600.0	7,903.5	26,524.7	7,903.5	357.8	359.2	90.00	-17,726.0	6,012.2	1,210.7	494.4	716.34	1.690			
26,700.0	7,903.5	26,624.7	7,903.5	359.7	361.1	90.00	-17,820.6	6,044.8	1,210.7	490.6	720.14	1.681			
26,800.0	7,903.5	26,724.7	7,903.5	361.6	363.0	90.00	-17,915.1	6,077.4	1,210.7	486.8	723.95	1.672			
26,900.0	7,903.5	26,824.7	7,903.5	363.5	364.9	90.00	-18,009.6	6,110.0	1,210.7	483.0	727.75	1.664			
27,000.0	7,903.5	26,924.7	7,903.5	365.4	366.8	90.00	-18,104.2	6,142.6	1,210.7	479.1	731.55	1.655			
27,100.0	7,903.5	27,024.7	7,903.5	367.3	368.7	90.00	-18,198.7	6,175.2	1,210.7	475.3	735.36	1.646			
27,200.0	7,903.5	27,124.7	7,903.5	369.2	370.6	90.00	-18,293.2	6,207.8	1,210.7	471.5	739.16	1.638			
27,300.0	7,903.5	27,224.7	7,903.5	371.1	372.5	90.00	-18,387.8	6,240.4	1,210.7	467.7	742.97	1.630			
27,400.0	7,903.5	27,324.7	7,903.5	373.0	374.4	90.00	-18,482.3	6,273.0	1,210.7	463.9	746.77	1.621			
27,500.0	7,903.5	27,424.7	7,903.5	374.9	376.3	90.00	-18,576.9	6,305.6	1,210.7	460.1	750.58	1.613			
27,600.0	7,903.5	27,524.7	7,903.5	376.8	378.2	90.00	-18,671.4	6,338.2	1,210.7	456.3	754.38	1.605			
27,700.0	7,903.5	27,624.7	7,903.5	378.7	380.1	90.00	-18,765.9	6,370.8	1,210.7	452.5	758.19	1.597			
27,800.0	7,903.5	27,724.7	7,903.5	380.6	382.0	90.00	-18,860.5	6,403.4	1,210.7	448.7	761.99	1.589			
27,900.0	7,903.5	27,824.7	7,903.5	382.5	383.9	90.00	-18,955.0	6,436.0	1,210.7	444.9	765.79	1.581			
28,000.0	7,903.5	27,924.7	7,903.5	384.4	385.8	90.00	-19,049.5	6,468.6	1,210.7	441.1	769.60	1.573			
28,100.0	7,903.5	28,024.7	7,903.5	386.3	387.7	90.00	-19,144.1	6,501.2	1,210.7	437.3	773.40	1.565			
28,200.0	7,903.5	28,124.7	7,903.5	388.2	389.6	90.00	-19,238.6	6,533.8	1,210.7	433.5	777.21	1.558			
28,300.0	7,903.5	28,224.7	7,903.5	390.1	391.5	90.00	-19,333.2	6,566.4	1,210.7	429.7	781.01	1.550			
28,400.0	7,903.5	28,324.7	7,903.5	392.0	393.4	90.00	-19,427.7	6,599.0	1,210.7	425.9	784.82	1.543			
28,500.0	7,903.5	28,424.7	7,903.5	393.9	395.3	90.00	-19,522.2	6,631.6	1,210.7	422.1	788.62	1.535			
28,600.0	7,903.5	28,524.7	7,903.5	395.8	397.3	90.00	-19,616.8	6,664.2	1,210.7	418.3	792.43	1.528			
28,700.0	7,903.5	28,624.7	7,903.5	397.7	399.2	90.00	-19,711.3	6,696.8	1,210.7	414.5	796.23	1.521			
28,800.0	7,903.5	28,724.7	7,903.5	399.6	401.1	90.00	-19,805.8	6,729.4	1,210.7	410.7	800.03	1.513			
28,900.0	7,903.5	28,824.7	7,903.5	401.5	403.0	90.00	-19,900.4	6,762.0	1,210.7	406.9	803.84	1.506			
29,000.0	7,903.5	28,924.7	7,903.5	403.4	404.9	90.00	-19,994.9	6,794.6	1,210.8	403.1	807.64	1.499 Level 3			
29,100.0	7,903.5	29,024.7	7,903.5	405.3	406.8	90.00	-20,089.5	6,827.2	1,210.8	399.3	811.45	1.492 Level 3			
29,200.0	7,903.5	29,124.7	7,903.5	407.2	408.7	90.00	-20,184.0	6,859.8	1,210.8	395.5	815.25	1.485 Level 3			
29,300.0	7,903.5	29,224.7	7,903.5	409.1	410.6	90.00	-20,278.6	6,892.4	1,210.8	391.7	819.05	1.485 Level 3			
29,400.0	7,903.5	29,324.7	7,903.5	411.0	412.5	90.00	-20,373.1	6,925.0	1,211.0	387.9	822.85	1.482 Level 3, SF			
29,500.0	7,903.5	29,424.7	7,903.5	412.9	414.4	90.00	-20,467.7	6,957.6	1,211.2	384.1	826.65	1.516			
29,553.7	7,903.5	29,499.3	7,903.5	413.9	415.4	90.00	-20,512.3	6,990.2	1,231.6	455.9	775.69	1.588			

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 205 - Orig. - DEP Plan 5													Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	15.0	0.0	15.0					
100.0	100.0	100.0	100.0	0.3	0.3	0.00	15.0	0.0	15.0	14.5	0.52	28.660		
200.0	200.0	200.0	200.0	0.6	0.6	0.00	15.0	0.0	15.0	13.8	1.24	12.094		
300.0	300.0	300.0	300.0	1.0	1.0	0.00	15.0	0.0	15.0	13.0	1.96	7.664		
400.0	400.0	400.0	400.0	1.3	1.3	0.00	15.0	0.0	15.0	12.3	2.67	5.609		
500.0	500.0	500.0	500.0	1.7	1.7	0.00	15.0	0.0	15.0	11.6	3.39	4.423		
600.0	600.0	600.0	600.0	2.1	2.1	0.00	15.0	0.0	15.0	10.9	4.11	3.651		
700.0	700.0	700.0	700.0	2.4	2.4	0.00	15.0	0.0	15.0	10.2	4.83	3.109		
800.0	800.0	800.0	800.0	2.8	2.8	0.00	15.0	0.0	15.0	9.5	5.54	2.707 CC, ES		
900.0	900.0	899.5	899.5	3.1	3.1	-80.38	16.6	0.7	16.2	10.0	6.25	2.594		
1,000.0	999.8	998.9	998.7	3.5	3.5	-87.94	21.3	2.9	20.1	13.1	6.95	2.892		
1,100.0	1,099.6	1,098.0	1,097.5	3.8	3.8	-91.91	29.0	6.5	26.9	19.3	7.65	3.520		
1,200.0	1,199.4	1,197.6	1,196.6	4.2	4.2	-92.31	38.5	10.9	35.2	26.8	8.37	4.204		
1,300.0	1,299.1	1,297.3	1,295.7	4.5	4.6	-92.55	47.9	15.3	43.4	34.3	9.09	4.778		
1,400.0	1,398.9	1,397.0	1,394.8	4.9	4.9	-92.72	57.4	19.8	51.7	41.9	9.81	5.266		
1,500.0	1,498.6	1,496.6	1,493.9	5.3	5.3	-92.84	66.8	24.2	59.9	49.4	10.54	5.685		
1,600.0	1,598.4	1,596.3	1,593.0	5.6	5.7	-92.93	76.2	28.6	68.2	56.9	11.27	6.049		
1,700.0	1,698.1	1,695.9	1,692.1	6.0	6.1	-93.00	85.7	33.0	76.4	64.4	12.00	6.368		
1,800.0	1,797.9	1,795.6	1,791.2	6.4	6.4	-93.06	95.1	37.4	84.7	71.9	12.74	6.649		
1,900.0	1,897.6	1,895.2	1,890.3	6.7	6.8	-93.11	104.6	41.8	92.9	79.5	13.47	6.899		
2,000.0	1,997.4	1,994.9	1,989.5	7.1	7.2	-93.15	114.0	46.2	101.2	87.0	14.21	7.122		
2,100.0	2,097.2	2,094.6	2,088.6	7.5	7.6	-93.18	123.4	50.6	109.4	94.5	14.95	7.323		
2,200.0	2,196.9	2,194.2	2,187.7	7.8	7.9	-93.21	132.9	55.0	117.7	102.0	15.68	7.505		
2,300.0	2,296.7	2,293.9	2,286.8	8.2	8.3	-93.24	142.3	59.4	126.0	109.5	16.42	7.670		
2,400.0	2,396.4	2,393.5	2,385.9	8.6	8.7	-93.26	151.8	63.8	134.2	117.0	17.16	7.821		
2,500.0	2,496.2	2,493.2	2,485.0	8.9	9.1	-93.28	161.2	68.2	142.5	124.6	17.90	7.959		
2,600.0	2,595.9	2,592.9	2,584.1	9.1	9.3	-93.30	170.6	72.6	150.7	132.4	18.28	8.245		
2,700.0	2,695.6	2,693.3	2,684.0	9.1	9.3	-93.30	180.3	78.3	158.9	140.5	18.34	8.661		
2,800.0	2,794.8	2,794.1	2,783.8	9.2	9.3	-93.31	190.3	87.4	166.5	148.2	18.38	9.059		
2,900.0	2,893.6	2,894.9	2,883.3	9.2	9.4	-93.34	200.7	100.1	173.8	155.3	18.46	9.416		
3,000.0	2,992.0	2,995.9	2,982.3	9.3	9.4	-93.18	211.5	116.2	180.6	162.0	18.57	9.722		
3,100.0	3,090.3	3,096.7	3,080.7	9.3	9.5	-92.04	222.6	135.9	186.7	168.0	18.72	9.974		
3,200.0	3,188.6	3,197.3	3,177.9	9.4	9.6	-89.94	233.9	158.9	192.5	173.6	18.92	10.173		
3,300.0	3,286.9	3,297.3	3,273.7	9.5	9.8	-86.97	245.5	185.2	198.2	179.0	19.17	10.339		
3,400.0	3,385.3	3,396.6	3,367.8	9.7	10.0	-83.23	257.3	214.5	204.3	184.9	19.46	10.501		
3,500.0	3,483.6	3,494.8	3,459.8	9.8	10.3	-78.84	269.2	246.8	211.5	191.7	19.77	10.694		
3,600.0	3,581.9	3,591.8	3,549.5	9.9	10.6	-73.95	281.2	281.7	220.3	200.2	20.10	10.961		
3,700.0	3,680.2	3,688.3	3,637.6	10.1	11.0	-68.80	293.4	319.1	231.3	210.9	20.41	11.335		
3,800.0	3,778.6	3,785.4	3,726.0	10.3	11.5	-63.99	305.6	357.2	244.3	223.6	20.72	11.790		
3,900.0	3,876.9	3,882.4	3,814.5	10.5	12.0	-59.67	317.9	395.2	258.9	237.8	21.03	12.309		
4,000.0	3,975.2	3,979.5	3,902.9	10.7	12.5	-55.82	330.1	433.3	274.8	253.4	21.34	12.878		
4,100.0	4,073.5	4,076.6	3,991.4	10.9	13.1	-44.41	342.4	471.4	291.0	269.4	21.62	13.458		
4,200.0	4,171.7	4,173.8	4,079.9	11.1	13.7	-30.95	354.6	509.5	305.7	283.8	21.84	13.993		
4,300.0	4,269.8	4,270.9	4,168.4	11.3	14.3	-22.85	366.9	547.6	319.2	297.2	22.02	14.499		
4,400.0	4,367.8	4,368.0	4,256.9	11.6	14.9	-19.52	379.2	585.7	333.6	311.4	22.18	15.040		
4,500.0	4,465.8	4,465.0	4,345.3	11.9	15.6	-16.46	391.4	623.8	349.1	326.7	22.35	15.621		
4,600.0	4,563.8	4,562.1	4,433.8	12.1	16.3	-13.66	403.7	661.9	365.5	343.0	22.52	16.232		
4,700.0	4,661.7	4,659.2	4,522.2	12.4	17.0	-11.10	415.9	699.9	382.6	360.0	22.69	16.862		
4,800.0	4,759.7	4,758.3	4,610.7	12.7	17.7	-8.76	428.2	738.0	400.5	377.6	22.88	17.502		
4,900.0	4,857.7	4,853.4	4,699.2	13.0	18.4	-6.52	440.4	776.1	419.0	395.9	23.09	18.145		
5,000.0	4,955.7	4,950.5	4,787.6	13.3	19.1	-4.65	452.7	814.2	438.0	414.7	23.32	18.786		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company: Arsenal Resources  
 Project: Taylor County, WV  
 Reference Site: Johnson TFP40  
 Site Error: 0.0 usft  
 Reference Well: 204  
 Well Error: 0.0 usft  
 Reference Wellbore: Orig  
 Reference Design: DEP Plan 6

Local Co-ordinate Reference: Well 204 - Slot 204  
 TVD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 MD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Output errors are at: 2.00 sigma  
 Database: Northeast  
 Offset TVD Reference: Offset Datum

Offset Design Johnson TFP40 - 205 - Orig - DEP Plan 5													Offset Site Error:	0.0 usft
Survey Program: O-MWD+HRGM+Hr / 800-MWD+ANOM / 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference	Offset	Semi Major Axis		Distance									Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.0	5,053.7	5,047.6	4,876.1	13.6	19.9	-2.85	464.9	852.3	457.5	434.0	23.56	19.418		
5,200.0	5,151.7	5,144.7	4,964.6	13.9	20.6	-1.19	477.2	890.3	477.4	453.6	23.82	20.038		
5,300.0	5,249.7	5,241.7	5,053.0	14.3	21.4	0.33	489.4	928.4	497.7	473.6	24.11	20.643		
5,400.0	5,347.7	5,338.8	5,141.5	14.6	22.1	1.74	501.7	966.5	518.2	493.8	24.41	21.230		
5,500.0	5,445.7	5,435.8	5,229.9	14.9	22.8	3.04	513.9	1,004.6	539.1	514.3	24.73	21.798		
5,600.0	5,543.7	5,533.0	5,318.4	15.3	23.6	4.24	526.2	1,042.7	560.2	535.1	25.07	22.344		
5,700.0	5,641.7	5,630.1	5,408.9	15.6	24.4	5.36	538.5	1,080.8	581.5	555.1	25.43	22.868		
5,800.0	5,739.7	5,727.2	5,495.3	16.0	25.2	6.40	550.7	1,118.8	603.0	577.2	25.80	23.370		
5,900.0	5,837.7	5,824.3	5,583.8	16.3	26.0	7.36	563.0	1,156.9	624.7	598.5	26.19	23.851		
6,000.0	5,935.6	5,921.3	5,672.2	16.7	26.8	8.27	575.2	1,195.0	646.6	620.0	26.60	24.309		
6,100.0	6,033.6	6,018.4	5,760.7	17.0	27.6	9.11	587.5	1,233.1	668.6	641.5	27.02	24.744		
6,200.0	6,131.5	6,115.5	5,849.2	17.4	28.4	9.90	599.7	1,271.2	690.7	663.2	27.45	25.158		
6,300.0	6,229.5	6,212.6	5,937.6	17.8	29.1	10.65	612.0	1,309.3	712.9	685.0	27.90	25.552		
6,400.0	6,327.5	6,309.7	6,026.1	18.2	29.9	11.34	624.2	1,347.3	735.3	706.9	28.36	25.927		
6,500.0	6,425.5	6,406.8	6,114.5	18.5	30.7	12.00	636.5	1,385.4	757.5	728.9	28.83	26.282		
6,600.0	6,523.5	6,503.9	6,203.0	18.9	31.5	12.62	648.7	1,423.5	780.3	751.0	29.32	26.618		
6,700.0	6,621.5	6,600.9	6,291.5	19.3	32.3	13.20	661.0	1,461.6	802.9	773.1	29.81	26.936		
6,800.0	6,719.5	6,698.0	6,379.9	19.7	33.2	13.75	673.2	1,499.7	825.6	795.3	30.31	27.237		
6,900.0	6,817.5	6,795.1	6,468.4	20.1	34.0	14.28	685.5	1,537.8	848.4	817.5	30.83	27.523		
7,000.0	6,915.5	6,892.2	6,556.8	20.4	34.8	14.77	697.8	1,575.8	871.2	839.9	31.35	27.794		
7,100.0	7,013.5	6,989.3	6,645.3	20.8	35.6	15.24	710.0	1,613.9	894.1	862.3	31.88	28.050		
7,200.0	7,111.5	7,085.4	6,733.9	21.2	36.4	15.69	722.3	1,652.0	917.1	884.7	32.41	28.293		
7,300.0	7,209.5	7,183.5	6,822.2	21.6	37.2	16.12	734.5	1,690.1	940.1	907.1	32.96	28.522		
7,400.0	7,307.5	7,280.7	6,910.8	22.0	38.0	-12.48	746.8	1,728.2	963.1	929.5	33.49	28.763		
7,500.0	7,404.9	7,377.2	6,998.8	22.3	38.8	-43.74	759.0	1,766.1	986.0	952.0	33.95	29.041		
7,600.0	7,499.1	7,470.8	7,086.0	22.6	39.6	-58.18	770.8	1,802.8	1,008.6	974.2	34.43	29.293		
7,700.0	7,597.9	7,559.2	7,174.5	22.8	40.4	-65.59	781.9	1,837.5	1,031.6	996.6	35.06	29.427		
7,800.0	7,695.9	7,640.1	7,263.3	23.0	41.0	-70.00	792.1	1,869.2	1,055.1	1,020.0	35.61	29.327		
7,900.0	7,793.5	7,711.6	7,353.4	23.3	41.6	-72.68	802.2	1,899.2	1,069.0	1,045.6	37.46	28.914		
8,000.0	7,890.7	7,795.9	7,381.1	23.6	42.3	-74.99	809.4	1,921.5	1,113.4	1,073.8	39.63	28.093		
8,100.0	7,848.0	7,821.6	7,492.3	23.9	43.3	-77.99	802.8	1,987.0	1,145.4	1,103.1	42.34	27.050		
8,200.0	7,881.2	8,100.2	7,639.4	24.4	44.5	-82.01	753.4	2,074.4	1,176.9	1,132.1	44.79	26.272		
8,300.0	7,899.7	8,390.3	7,821.2	24.9	45.3	-87.38	584.4	2,219.7	1,202.3	1,157.1	45.22	26.589		
8,400.0	7,903.5	8,753.2	7,903.5	25.5	48.0	-90.00	389.8	2,387.8	1,210.6	1,186.9	43.63	27.743		
8,500.0	7,903.5	8,853.2	7,903.5	26.3	48.5	-90.00	174.5	2,400.4	1,210.6	1,164.6	45.93	26.355		
8,600.0	7,903.5	8,953.2	7,903.5	27.2	49.0	-90.00	80.0	2,433.0	1,210.6	1,162.8	47.81	25.319		
8,700.0	7,903.5	9,053.2	7,903.5	28.2	49.0	-90.00	-14.6	2,465.6	1,210.6	1,160.3	50.34	24.050		
8,800.0	7,903.5	9,153.2	7,903.5	29.3	50.3	-90.00	-109.1	2,498.2	1,210.6	1,157.6	52.95	22.864		
8,900.0	7,903.5	9,253.2	7,903.5	30.4	51.0	-90.00	-203.6	2,530.6	1,210.6	1,154.9	55.89	21.739		
9,000.0	7,903.5	9,353.2	7,903.5	31.7	51.8	-90.00	-298.2	2,563.4	1,210.6	1,152.1	58.54	20.678		
9,100.0	7,903.5	9,453.2	7,903.5	33.0	52.6	-90.00	-392.7	2,596.0	1,210.6	1,149.1	61.50	19.684		
9,200.0	7,903.5	9,553.2	7,903.5	34.4	53.5	-90.00	-487.2	2,628.6	1,210.6	1,146.1	64.55	18.756		
9,300.0	7,903.5	9,653.2	7,903.5	35.8	54.4	-90.00	-581.8	2,661.2	1,210.6	1,143.0	67.67	17.891		
9,400.0	7,903.5	9,753.2	7,903.5	37.3	55.4	-90.00	-676.3	2,693.8	1,210.6	1,139.8	70.85	17.086		
9,500.0	7,903.5	9,853.2	7,903.5	38.8	56.5	-90.00	-770.8	2,726.4	1,210.6	1,136.5	74.10	16.338		
9,600.0	7,903.5	9,953.2	7,903.5	40.4	57.6	-90.00	-865.4	2,759.1	1,210.6	1,133.2	77.40	15.642		
9,700.0	7,903.5	10,053.2	7,903.5	41.9	58.7	-90.00	-959.9	2,791.7	1,210.6	1,129.9	80.74	14.995		
9,800.0	7,903.5	10,153.2	7,903.5	43.5	59.9	-90.00	-1,054.5	2,824.3	1,210.6	1,126.5	84.12	14.392		
9,900.0	7,903.5	10,253.2	7,903.5	45.2	61.1	-90.00	-1,149.0	2,856.9	1,210.7	1,123.1	87.54	13.831		
10,000.0	7,903.5	10,353.2	7,903.5	46.8	62.3	-90.00	-1,243.5	2,889.5	1,210.7	1,119.7	90.98	13.307		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

**Company:** Arsenal Resources  
**Project:** Taylor County, WV  
**Reference Site:** Johnson TFP40  
**Site Error:** 0.0 usft  
**Reference Well:** 204  
**Well Error:** 0.0 usft  
**Reference Wellbore:** Orig.  
**Reference Design:** DEP Plan 6

**Local Co-ordinate Reference:** Well 204 - Slot 204  
**TVD Reference:** GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
**MD Reference:** GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at:** 2.00 sigma  
**Database:** Northeast  
**Offset TVD Reference:** Offset Datum

**Offset Design** Johnson TFP40 - 205 - Orig. - DEP Plan 5

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2800-SDI MWD

Offset Site Error: 0.0 usft  
Offset Well Error: 0.0 usft

Reference		Offset		Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
10,100.0	7,903.5	10,453.2	7,903.5	48.5	63.6	-90.00	-1,338.1	2,922.1	1,210.7	1,116.2	94.46	12.817	
10,200.0	7,903.5	10,553.2	7,903.5	50.2	64.9	-90.00	-1,432.6	2,954.7	1,210.7	1,112.7	97.95	12.360	
10,300.0	7,903.5	10,653.2	7,903.5	51.9	66.3	-90.00	-1,527.1	2,987.3	1,210.7	1,109.2	101.47	11.931	
10,400.0	7,903.5	10,753.2	7,903.5	53.6	67.7	-90.00	-1,621.7	3,019.9	1,210.7	1,105.7	105.02	11.529	
10,500.0	7,903.5	10,853.2	7,903.5	55.3	69.1	-90.00	-1,716.2	3,052.5	1,210.7	1,102.1	108.57	11.151	
10,600.0	7,903.5	10,953.2	7,903.5	57.1	70.5	-90.00	-1,810.7	3,085.1	1,210.7	1,098.5	112.15	10.795	
10,700.0	7,903.5	11,053.2	7,903.5	58.8	72.0	-90.00	-1,905.3	3,117.7	1,210.7	1,095.0	115.74	10.461	
10,800.0	7,903.5	11,153.2	7,903.5	60.6	73.4	-90.00	-1,999.8	3,150.3	1,210.7	1,091.4	119.34	10.145	
10,900.0	7,903.5	11,253.2	7,903.5	62.3	74.9	-90.00	-2,094.3	3,182.9	1,210.7	1,087.8	122.96	9.847	
11,000.0	7,903.5	11,353.2	7,903.5	64.1	76.5	-90.00	-2,188.9	3,215.5	1,210.7	1,084.1	126.58	9.565	
11,100.0	7,903.5	11,453.2	7,903.5	65.9	78.0	-90.00	-2,283.4	3,248.1	1,210.7	1,080.5	130.22	9.298	
11,200.0	7,903.5	11,553.2	7,903.5	67.7	79.5	-90.00	-2,377.9	3,280.8	1,210.7	1,076.9	133.87	9.044	
11,300.0	7,903.5	11,653.2	7,903.5	69.5	81.1	-90.00	-2,472.5	3,313.4	1,210.7	1,073.2	137.52	8.804	
11,400.0	7,903.5	11,753.2	7,903.5	71.3	82.7	-90.00	-2,567.0	3,346.0	1,210.7	1,069.6	141.18	8.576	
11,500.0	7,903.5	11,853.2	7,903.5	73.1	84.3	-90.00	-2,661.5	3,378.6	1,210.7	1,065.9	144.85	8.358	
11,600.0	7,903.5	11,953.2	7,903.5	74.9	85.9	-90.00	-2,756.1	3,411.2	1,210.7	1,062.2	148.53	8.152	
11,700.0	7,903.5	12,053.2	7,903.5	76.7	87.5	-90.00	-2,850.6	3,443.8	1,210.8	1,058.5	152.21	7.954	
11,800.0	7,903.5	12,153.2	7,903.5	78.5	89.2	-90.00	-2,945.1	3,476.4	1,210.8	1,054.9	155.90	7.766	
11,900.0	7,903.5	12,253.2	7,903.5	80.3	90.8	-90.00	-3,039.7	3,509.0	1,210.8	1,051.2	159.60	7.586	
12,000.0	7,903.5	12,353.2	7,903.5	82.2	92.5	-90.00	-3,134.2	3,541.6	1,210.8	1,047.5	163.30	7.415	
12,100.0	7,903.5	12,453.2	7,903.5	84.0	94.1	-90.00	-3,228.8	3,574.2	1,210.8	1,043.8	167.00	7.250	
12,200.0	7,903.5	12,553.2	7,903.5	85.8	95.8	-90.00	-3,323.3	3,606.8	1,210.8	1,040.1	170.71	7.093	
12,300.0	7,903.5	12,653.2	7,903.5	87.7	97.5	-90.00	-3,417.8	3,639.4	1,210.8	1,036.4	174.42	6.942	
12,400.0	7,903.5	12,753.2	7,903.5	89.5	99.2	-90.00	-3,512.4	3,672.0	1,210.8	1,032.7	178.14	6.797	
12,500.0	7,903.5	12,853.2	7,903.5	91.4	100.9	-90.00	-3,606.9	3,704.6	1,210.8	1,028.9	181.86	6.658	
12,600.0	7,903.5	12,953.2	7,903.5	93.2	102.6	-90.00	-3,701.4	3,737.2	1,210.8	1,025.2	185.58	6.524	
12,700.0	7,903.5	13,053.2	7,903.5	95.0	104.3	-90.00	-3,796.0	3,769.8	1,210.8	1,021.5	189.31	6.396	
12,800.0	7,903.5	13,153.2	7,903.5	96.9	106.1	-90.00	-3,890.5	3,802.5	1,210.8	1,017.8	193.04	6.272	
12,900.0	7,903.5	13,253.2	7,903.5	98.7	107.8	-90.00	-3,985.0	3,835.1	1,210.8	1,014.0	196.77	6.153	
13,000.0	7,903.5	13,353.2	7,903.5	100.6	109.5	-90.00	-4,079.6	3,867.7	1,210.8	1,010.3	200.51	6.039	
13,100.0	7,903.5	13,453.2	7,903.5	102.5	111.3	-90.00	-4,174.1	3,900.3	1,210.8	1,006.6	204.25	5.928	
13,200.0	7,903.5	13,553.2	7,903.5	104.3	113.0	-90.00	-4,268.6	3,932.9	1,210.8	1,002.8	207.99	5.822	
13,300.0	7,903.5	13,653.2	7,903.5	106.2	114.8	-90.00	-4,363.2	3,965.5	1,210.8	999.1	211.73	5.719	
13,400.0	7,903.5	13,753.2	7,903.5	108.0	116.5	-90.00	-4,457.7	3,998.1	1,210.8	995.4	215.48	5.619	
13,500.0	7,903.5	13,853.2	7,903.5	109.9	118.3	-90.00	-4,552.2	4,030.7	1,210.9	991.6	219.22	5.523	
13,600.0	7,903.5	13,953.2	7,903.5	111.8	120.1	-90.00	-4,646.8	4,063.3	1,210.9	987.9	222.97	5.431	
13,700.0	7,903.5	14,053.2	7,903.5	113.6	121.8	-90.00	-4,741.3	4,095.9	1,210.9	984.1	226.72	5.341	
13,800.0	7,903.5	14,153.2	7,903.5	115.5	123.6	-90.00	-4,835.8	4,128.5	1,210.9	980.4	230.48	5.254	
13,900.0	7,903.5	14,253.2	7,903.5	117.4	125.4	-90.00	-4,930.4	4,161.1	1,210.9	976.6	234.23	5.170	
14,000.0	7,903.5	14,353.2	7,903.5	119.2	127.2	-90.00	-5,024.9	4,193.7	1,210.9	972.9	237.99	5.088	
14,100.0	7,903.5	14,453.2	7,903.5	121.1	128.9	-90.00	-5,119.4	4,226.3	1,210.9	969.1	241.75	5.009	
14,200.0	7,903.5	14,553.2	7,903.5	123.0	130.7	-90.00	-5,214.0	4,258.9	1,210.9	965.4	245.50	4.932	
14,300.0	7,903.5	14,653.2	7,903.5	124.8	132.5	-90.00	-5,308.5	4,291.5	1,210.9	961.6	249.26	4.858	
14,400.0	7,903.5	14,753.2	7,903.5	126.7	134.3	-90.00	-5,403.1	4,324.2	1,210.9	957.9	253.03	4.786	
14,500.0	7,903.5	14,853.2	7,903.5	128.6	136.1	-90.00	-5,497.6	4,356.8	1,210.9	954.1	256.79	4.716	
14,600.0	7,903.5	14,953.2	7,903.5	130.5	137.9	-90.00	-5,592.1	4,389.4	1,210.9	950.4	260.55	4.647	
14,700.0	7,903.5	15,053.2	7,903.5	132.3	139.7	-90.00	-5,686.7	4,422.0	1,210.9	946.6	264.32	4.581	
14,800.0	7,903.5	15,153.2	7,903.5	134.2	141.5	-90.00	-5,781.2	4,454.6	1,210.9	942.8	268.08	4.517	
14,900.0	7,903.5	15,253.2	7,903.5	136.1	143.4	-90.00	-5,875.7	4,487.2	1,210.9	939.1	271.85	4.454	
15,000.0	7,903.5	15,353.2	7,903.5	138.0	145.2	-90.00	-5,970.3	4,519.8	1,210.9	935.3	275.62	4.394	
15,100.0	7,903.5	15,453.2	7,903.5	139.8	147.0	-90.00	-6,064.8	4,552.4	1,210.9	931.6	279.39	4.334	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company: Arsenal Resources  
 Project: Taylor County, WV  
 Reference Site: Johnson TFP40  
 Site Error: 0.0 usft  
 Reference Well: 204  
 Well Error: 0.0 usft  
 Reference Wellbore: Orig.  
 Reference Design: DEP Plan 6

Local Co-ordinate Reference: Well 204 - Slot 204  
 TVD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 MD Reference: GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Output errors are at: 2.00 sigma  
 Database: Northeast  
 Offset TVD Reference: Offset Datum

**Offset Design** Johnson TFP40 - 205 - Orig. - DEP Plan 5

Survey Program: 0-MWD+HRGM+Int. 800-MWD+AfterInl. 2600-SDI MWD

Offset Site Error: 0.0 usft  
 Offset Well Error: 0.0 usft

Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis		Highside Toolface (°)	Offset Wellbore Centre		Distance			Separation Factor	Warning
				Reference (usft)	Offset (usft)		+N/S (usft)	+E/W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		
15,200.0	7,903.5	15,553.2	7,903.5	141.7	148.8	-90.00	-6,159.3	4,585.0	1,210.9	927.8	283.16	4.277	
15,300.0	7,903.5	15,653.2	7,903.5	143.6	150.6	-90.00	-6,253.9	4,617.6	1,211.0	924.0	286.93	4.220	
15,400.0	7,903.5	15,753.2	7,903.5	145.5	152.4	-90.00	-6,348.4	4,650.2	1,211.0	920.3	290.70	4.166	
15,500.0	7,903.5	15,853.2	7,903.5	147.4	154.3	-90.00	-6,442.9	4,682.8	1,211.0	916.5	294.47	4.112	
15,600.0	7,903.5	15,953.2	7,903.5	149.2	156.1	-90.00	-6,537.5	4,715.4	1,211.0	912.7	298.25	4.060	
15,700.0	7,903.5	16,053.2	7,903.5	151.1	157.9	-90.00	-6,632.0	4,748.0	1,211.0	909.0	302.02	4.010	
15,800.0	7,903.5	16,153.2	7,903.5	153.0	159.8	-90.00	-6,726.5	4,780.6	1,211.0	905.2	305.80	3.960	
15,900.0	7,903.5	16,253.2	7,903.5	154.9	161.6	-90.00	-6,821.1	4,813.2	1,211.0	901.4	309.57	3.912	
16,000.0	7,903.5	16,353.2	7,903.5	156.8	163.4	-90.00	-6,915.6	4,845.9	1,211.0	897.6	313.35	3.865	
16,100.0	7,903.5	16,453.2	7,903.5	158.7	165.3	-90.00	-7,010.1	4,878.5	1,211.0	893.9	317.12	3.819	
16,200.0	7,903.5	16,553.2	7,903.5	160.5	167.1	-90.00	-7,104.7	4,911.1	1,211.0	890.1	320.90	3.774	
16,300.0	7,903.5	16,653.2	7,903.5	162.4	168.9	-90.00	-7,199.2	4,943.7	1,211.0	886.3	324.68	3.730	
16,400.0	7,903.5	16,753.2	7,903.5	164.3	170.8	-90.00	-7,293.7	4,976.3	1,211.0	882.6	328.46	3.687	
16,500.0	7,903.5	16,853.2	7,903.5	166.2	172.6	-90.00	-7,388.3	5,008.9	1,211.0	878.8	332.24	3.645	
16,600.0	7,903.5	16,953.2	7,903.5	168.1	174.5	-90.00	-7,482.8	5,041.5	1,211.0	875.0	336.02	3.604	
16,700.0	7,903.5	17,053.2	7,903.5	170.0	176.3	-90.00	-7,577.4	5,074.1	1,211.0	871.2	339.80	3.564	
16,800.0	7,903.5	17,153.2	7,903.5	171.9	178.1	-90.00	-7,671.9	5,106.7	1,211.0	867.5	343.58	3.525	
16,900.0	7,903.5	17,253.2	7,903.5	173.8	180.0	-90.00	-7,766.4	5,139.3	1,211.0	863.7	347.36	3.486	
17,000.0	7,903.5	17,353.2	7,903.5	175.6	181.8	-90.00	-7,861.0	5,171.9	1,211.0	859.9	351.14	3.449	
17,100.0	7,903.5	17,453.2	7,903.5	177.5	183.7	-90.00	-7,955.5	5,204.5	1,211.0	856.1	354.92	3.412	
17,200.0	7,903.5	17,553.2	7,903.5	179.4	185.5	-90.00	-8,050.0	5,237.1	1,211.1	852.4	358.70	3.376	
17,300.0	7,903.5	17,653.2	7,903.5	181.3	187.4	-90.00	-8,144.6	5,269.7	1,211.1	848.6	362.49	3.341	
17,400.0	7,903.5	17,753.2	7,903.5	183.2	189.2	-90.00	-8,239.1	5,302.3	1,211.1	844.8	366.27	3.306	
17,500.0	7,903.5	17,853.2	7,903.5	185.1	191.1	-90.00	-8,333.6	5,334.9	1,211.1	841.0	370.05	3.273	
17,600.0	7,903.5	17,953.2	7,903.5	187.0	193.0	-90.00	-8,428.2	5,367.6	1,211.1	837.2	373.83	3.240	
17,700.0	7,903.5	18,053.2	7,903.5	188.9	194.8	-90.00	-8,522.7	5,400.2	1,211.1	833.5	377.62	3.207	
17,800.0	7,903.5	18,153.2	7,903.5	190.8	196.7	-90.00	-8,617.2	5,432.8	1,211.1	829.7	381.40	3.175	
17,900.0	7,903.5	18,253.2	7,903.5	192.7	198.5	-90.00	-8,711.8	5,465.4	1,211.1	825.9	385.19	3.144	
18,000.0	7,903.5	18,353.2	7,903.5	194.5	200.4	-90.00	-8,806.3	5,498.0	1,211.1	822.1	388.97	3.114	
18,100.0	7,903.5	18,453.2	7,903.5	196.4	202.2	-90.00	-8,900.8	5,530.6	1,211.1	818.3	392.76	3.084	
18,200.0	7,903.5	18,553.2	7,903.5	198.3	204.1	-90.00	-8,995.4	5,563.2	1,211.1	814.6	396.54	3.054	
18,300.0	7,903.5	18,653.2	7,903.5	200.2	206.0	-90.00	-9,089.9	5,595.8	1,211.1	810.8	400.33	3.025	
18,400.0	7,903.5	18,753.2	7,903.5	202.1	207.8	-90.00	-9,184.4	5,628.4	1,211.1	807.0	404.11	2.997	
18,500.0	7,903.5	18,853.2	7,903.5	204.0	209.7	-90.00	-9,279.0	5,661.0	1,211.1	803.2	407.90	2.969	
18,600.0	7,903.5	18,953.2	7,903.5	205.9	211.5	-90.00	-9,373.5	5,693.6	1,211.1	799.4	411.69	2.942	
18,700.0	7,903.5	19,053.2	7,903.5	207.8	213.4	-90.00	-9,468.1	5,726.2	1,211.1	795.7	415.47	2.915	
18,800.0	7,903.5	19,153.2	7,903.5	209.7	215.3	-90.00	-9,562.6	5,758.8	1,211.1	791.9	419.26	2.889	
18,900.0	7,903.5	19,253.2	7,903.5	211.6	217.1	-90.00	-9,657.1	5,791.4	1,211.1	788.1	423.05	2.863	
19,000.0	7,903.5	19,353.2	7,903.5	213.5	219.0	-90.00	-9,751.7	5,824.0	1,211.2	784.3	426.84	2.838	
19,100.0	7,903.5	19,453.2	7,903.5	215.4	220.9	-90.00	-9,846.2	5,856.6	1,211.2	780.5	430.62	2.813	
19,200.0	7,903.5	19,553.2	7,903.5	217.3	222.7	-90.00	-9,940.7	5,889.3	1,211.2	776.8	434.41	2.788	
19,300.0	7,903.5	19,653.2	7,903.5	219.2	224.6	-90.00	-10,035.3	5,921.9	1,211.2	773.0	438.20	2.764	
19,400.0	7,903.5	19,753.2	7,903.5	221.1	226.5	-90.00	-10,129.8	5,954.5	1,211.2	769.2	441.99	2.740	
19,500.0	7,903.5	19,853.2	7,903.5	222.9	228.3	-90.00	-10,224.3	5,987.1	1,211.2	765.4	445.77	2.717	
19,600.0	7,903.5	19,953.2	7,903.5	224.8	230.2	-90.00	-10,318.9	6,019.7	1,211.2	761.6	449.56	2.694	
19,700.0	7,903.5	20,053.2	7,903.5	226.7	232.1	-90.00	-10,413.4	6,052.3	1,211.2	757.8	453.35	2.672	
19,800.0	7,903.5	20,153.2	7,903.5	228.6	234.0	-90.00	-10,507.9	6,084.9	1,211.2	754.1	457.14	2.650	
19,900.0	7,903.5	20,253.2	7,903.5	230.5	235.8	-90.00	-10,602.5	6,117.5	1,211.2	750.3	460.93	2.628	
20,000.0	7,903.5	20,353.2	7,903.5	232.4	237.7	-90.00	-10,697.0	6,150.1	1,211.2	746.5	464.72	2.606	
20,100.0	7,903.5	20,453.2	7,903.5	234.3	239.6	-90.00	-10,791.5	6,182.7	1,211.2	742.7	468.51	2.585	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 205 - Orig. - DEP Plan 5													Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
20,200.0	7,903.5	20,553.2	7,903.5	236.2	241.4	-90.00	-10,886.1	6,215.3	1,211.2	738.9	472.29	2.565		
20,300.0	7,903.5	20,653.2	7,903.5	238.1	243.3	-90.00	-10,980.6	6,247.9	1,211.2	735.1	476.08	2.544		
20,400.0	7,903.5	20,753.2	7,903.5	240.0	245.2	-90.00	-11,075.1	6,280.5	1,211.2	731.4	479.87	2.524		
20,500.0	7,903.5	20,853.2	7,903.5	241.9	247.1	-90.00	-11,169.7	6,313.1	1,211.2	727.6	483.66	2.504		
20,600.0	7,903.5	20,953.2	7,903.5	243.8	248.9	-90.00	-11,264.2	6,345.7	1,211.2	723.8	487.45	2.485		
20,700.0	7,903.5	21,053.2	7,903.5	245.7	250.8	-90.00	-11,358.7	6,378.3	1,211.2	720.0	491.24	2.466		
20,800.0	7,903.5	21,153.2	7,903.5	247.6	252.7	-90.00	-11,453.3	6,410.9	1,211.3	716.2	495.03	2.447		
20,900.0	7,903.5	21,253.2	7,903.5	249.5	254.6	-90.00	-11,547.8	6,443.6	1,211.3	712.4	498.82	2.428		
21,000.0	7,903.5	21,353.2	7,903.5	251.4	256.5	-90.00	-11,642.4	6,476.2	1,211.3	708.7	502.61	2.410		
21,100.0	7,903.5	21,453.2	7,903.5	253.3	258.3	-90.00	-11,736.9	6,508.8	1,211.3	704.9	506.40	2.392		
21,200.0	7,903.5	21,553.2	7,903.5	255.2	260.2	-90.00	-11,831.4	6,541.4	1,211.3	701.1	510.19	2.374		
21,300.0	7,903.5	21,653.2	7,903.5	257.1	262.1	-90.00	-11,926.0	6,574.0	1,211.3	697.3	513.98	2.357		
21,400.0	7,903.5	21,753.2	7,903.5	259.0	264.0	-90.00	-12,020.5	6,606.6	1,211.3	693.5	517.77	2.339		
21,500.0	7,903.5	21,853.2	7,903.5	260.9	265.8	-90.00	-12,115.0	6,639.2	1,211.3	689.7	521.56	2.322		
21,600.0	7,903.5	21,953.2	7,903.5	262.8	267.7	-90.00	-12,209.6	6,671.8	1,211.3	685.9	525.35	2.306		
21,700.0	7,903.5	22,053.2	7,903.5	264.7	269.6	-90.00	-12,304.1	6,704.4	1,211.3	682.2	529.14	2.289		
21,800.0	7,903.5	22,153.2	7,903.5	266.6	271.5	-90.00	-12,398.6	6,737.0	1,211.3	678.4	532.93	2.273		
21,900.0	7,903.5	22,253.2	7,903.5	268.5	273.4	-90.00	-12,493.2	6,769.6	1,211.3	674.6	536.72	2.257		
22,000.0	7,903.5	22,353.2	7,903.5	270.4	275.2	-90.00	-12,587.7	6,802.2	1,211.3	670.8	540.51	2.241		
22,100.0	7,903.5	22,453.2	7,903.5	272.3	277.1	-90.00	-12,682.2	6,834.8	1,211.3	667.0	544.30	2.225		
22,200.0	7,903.5	22,553.2	7,903.5	274.2	279.0	-90.00	-12,776.8	6,867.4	1,211.3	663.2	548.09	2.210		
22,300.0	7,903.5	22,653.2	7,903.5	276.1	280.9	-90.00	-12,871.3	6,900.0	1,211.3	659.5	551.88	2.195		
22,400.0	7,903.5	22,753.2	7,903.5	278.0	282.8	-90.00	-12,965.8	6,932.6	1,211.3	655.7	555.67	2.180		
22,500.0	7,903.5	22,853.2	7,903.5	279.9	284.7	-90.00	-13,060.4	6,965.3	1,211.3	651.9	559.46	2.165		
22,600.0	7,903.5	22,953.2	7,903.5	281.8	286.5	-90.00	-13,154.9	6,997.9	1,211.3	648.1	563.25	2.151		
22,700.0	7,903.5	23,053.2	7,903.5	283.7	288.4	-90.00	-13,249.4	7,030.5	1,211.4	644.3	567.04	2.136		
22,800.0	7,903.5	23,153.2	7,903.5	285.6	290.3	-90.00	-13,344.0	7,063.1	1,211.4	640.5	570.83	2.122		
22,900.0	7,903.5	23,253.2	7,903.5	287.4	292.2	-90.00	-13,438.5	7,095.7	1,211.4	636.7	574.62	2.108		
23,000.0	7,903.5	23,353.2	7,903.5	289.3	294.1	-90.00	-13,533.0	7,128.3	1,211.4	633.0	578.41	2.094		
23,100.0	7,903.5	23,453.2	7,903.5	291.2	296.0	-90.00	-13,627.6	7,160.9	1,211.4	629.2	582.20	2.081		
23,200.0	7,903.5	23,553.2	7,903.5	293.1	297.8	-90.00	-13,722.1	7,193.5	1,211.4	625.4	585.99	2.067		
23,300.0	7,903.5	23,653.2	7,903.5	295.0	299.7	-90.00	-13,816.7	7,226.1	1,211.4	621.6	589.78	2.054		
23,400.0	7,903.5	23,753.2	7,903.5	296.9	301.6	-90.00	-13,911.2	7,258.7	1,211.4	617.8	593.57	2.041		
23,500.0	7,903.5	23,853.2	7,903.5	298.8	303.5	-90.00	-14,005.7	7,291.3	1,211.4	614.0	597.36	2.028		
23,600.0	7,903.5	23,953.2	7,903.5	300.7	305.4	-90.00	-14,100.3	7,323.9	1,211.4	610.3	601.15	2.015		
23,700.0	7,903.5	24,053.2	7,903.5	302.6	307.3	-90.00	-14,194.8	7,356.5	1,211.4	606.5	604.94	2.003		
23,800.0	7,903.5	24,153.2	7,903.5	304.5	309.1	-90.00	-14,289.3	7,389.1	1,211.4	602.7	608.73	1.990		
23,900.0	7,903.5	24,253.2	7,903.5	306.4	311.0	-90.00	-14,383.9	7,421.7	1,211.4	598.9	612.52	1.978		
24,000.0	7,903.5	24,353.2	7,903.5	308.3	312.9	-90.00	-14,478.4	7,454.3	1,211.4	595.1	616.31	1.965		
24,100.0	7,903.5	24,453.2	7,903.5	310.2	314.8	-90.00	-14,572.9	7,487.0	1,211.4	591.3	620.10	1.954		
24,200.0	7,903.5	24,553.2	7,903.5	312.1	316.7	-90.00	-14,667.5	7,519.6	1,211.4	587.5	623.89	1.942		
24,300.0	7,903.5	24,653.2	7,903.5	314.0	318.6	-90.00	-14,762.0	7,552.2	1,211.4	583.8	627.68	1.930		
24,400.0	7,903.5	24,753.2	7,903.5	315.9	320.5	-90.00	-14,856.5	7,584.8	1,211.4	580.0	631.47	1.918		
24,500.0	7,903.5	24,853.2	7,903.5	317.8	322.4	-90.00	-14,951.1	7,617.4	1,211.5	576.2	635.26	1.907		
24,600.0	7,903.5	24,953.2	7,903.5	319.7	324.2	-90.00	-15,045.6	7,650.0	1,211.5	572.4	639.04	1.896		
24,700.0	7,903.5	25,053.2	7,903.5	321.6	326.1	-90.00	-15,140.1	7,682.6	1,211.5	568.6	642.83	1.885		
24,800.0	7,903.5	25,153.2	7,903.5	323.5	328.0	-90.00	-15,234.7	7,715.2	1,211.5	564.8	646.62	1.874		
24,900.0	7,903.5	25,253.2	7,903.5	325.4	329.9	-90.00	-15,329.2	7,747.8	1,211.5	561.1	650.41	1.863		
25,000.0	7,903.5	25,353.2	7,903.5	327.3	331.8	-90.00	-15,423.7	7,780.4	1,211.5	557.3	654.20	1.852		
25,100.0	7,903.5	25,453.2	7,903.5	329.2	333.7	-90.00	-15,518.3	7,813.0	1,211.5	553.5	657.99	1.841		
25,200.0	7,903.5	25,553.2	7,903.5	331.1	335.6	-90.00	-15,612.8	7,845.6	1,211.5	549.7	661.78	1.831		

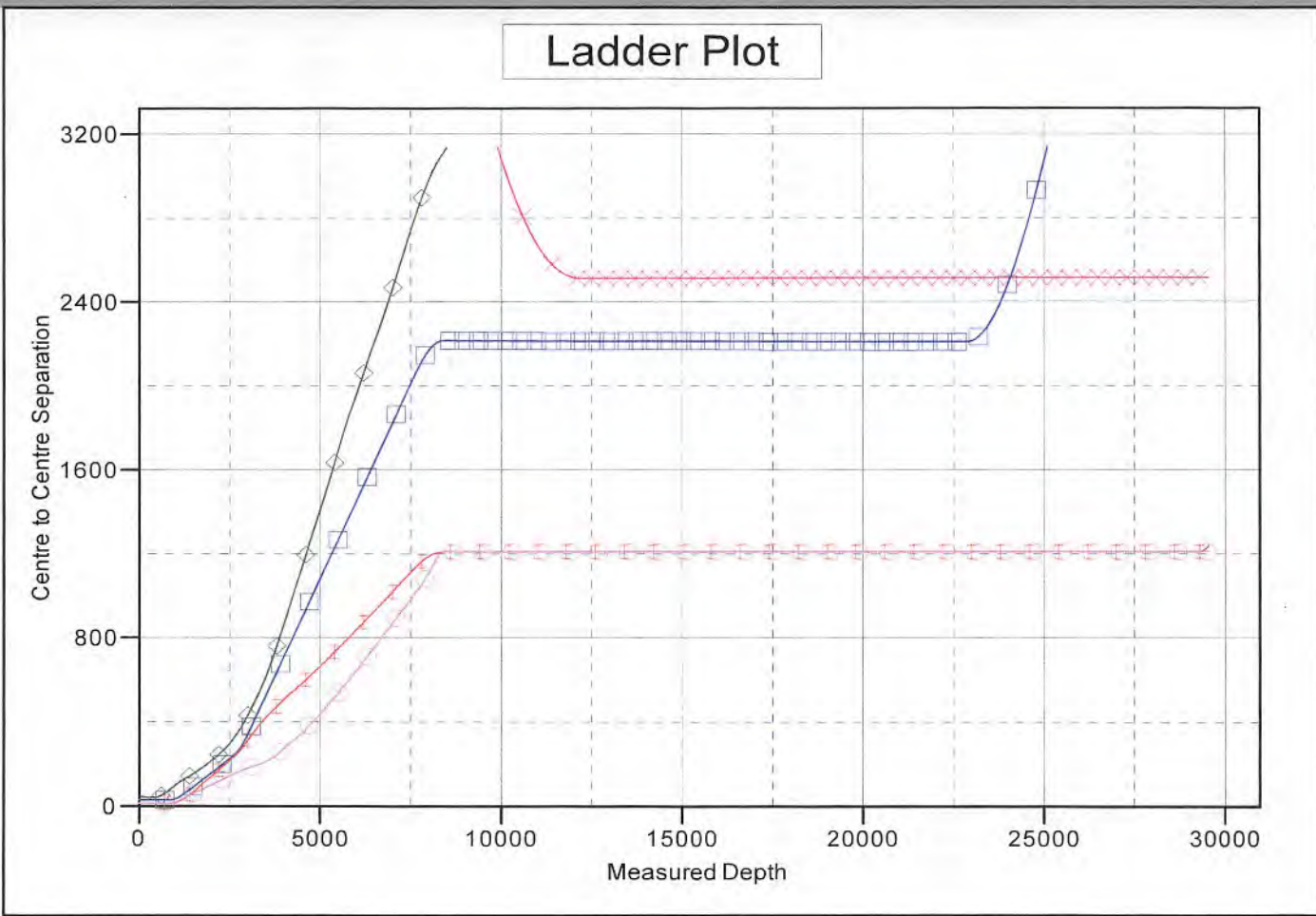
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Johnson TFP40 - 205 - Orig. - DEP Plan 5													Offset Site Error:	0.0 usft
Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD													Offset Well Error:	0.0 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N-S (usft)	+E-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
25,300.0	7,903.5	25,653.2	7,903.5	333.0	337.5	-90.00	-15,707.4	7,878.2	1,211.5	545.9	665.56	1.820		
25,400.0	7,903.5	25,753.2	7,903.5	334.9	339.4	-90.00	-15,801.9	7,910.8	1,211.5	542.2	669.35	1.810		
25,500.0	7,903.5	25,853.2	7,903.5	336.8	341.2	-90.00	-15,896.4	7,943.4	1,211.5	538.4	673.14	1.800		
25,600.0	7,903.5	25,953.2	7,903.5	338.7	343.1	-90.00	-15,991.0	7,976.0	1,211.5	534.6	676.93	1.790		
25,700.0	7,903.5	26,053.2	7,903.5	340.6	345.0	-90.00	-16,085.5	8,008.7	1,211.5	530.8	680.71	1.780		
25,800.0	7,903.5	26,153.2	7,903.5	342.5	346.9	-90.00	-16,180.0	8,041.3	1,211.5	527.0	684.50	1.770		
25,900.0	7,903.5	26,253.2	7,903.5	344.4	348.8	-90.00	-16,274.6	8,073.9	1,211.5	523.2	688.29	1.760		
26,000.0	7,903.5	26,353.2	7,903.5	346.3	350.7	-90.00	-16,369.1	8,106.5	1,211.5	519.5	692.07	1.751		
26,100.0	7,903.5	26,453.2	7,903.5	348.3	352.6	-90.00	-16,463.6	8,139.1	1,211.5	515.7	695.86	1.741		
26,200.0	7,903.5	26,553.2	7,903.5	350.2	354.5	-90.00	-16,558.2	8,171.7	1,211.5	511.9	699.65	1.732		
26,300.0	7,903.5	26,653.2	7,903.5	352.1	356.4	-90.00	-16,652.7	8,204.3	1,211.6	508.1	703.43	1.722		
26,400.0	7,903.5	26,753.2	7,903.5	354.0	358.3	-90.00	-16,747.2	8,236.9	1,211.6	504.3	707.22	1.713		
26,500.0	7,903.5	26,853.2	7,903.5	355.9	360.1	-90.00	-16,841.8	8,269.5	1,211.6	500.6	711.00	1.704		
26,600.0	7,903.5	26,953.2	7,903.5	357.8	362.0	-90.00	-16,936.3	8,302.1	1,211.6	496.8	714.79	1.695		
26,700.0	7,903.5	27,053.2	7,903.5	359.7	363.9	-90.00	-17,030.8	8,334.7	1,211.6	493.0	718.58	1.686		
26,800.0	7,903.5	27,153.2	7,903.5	361.6	365.8	-90.00	-17,125.4	8,367.3	1,211.6	489.2	722.36	1.677		
26,900.0	7,903.5	27,253.2	7,903.5	363.5	367.7	-90.00	-17,219.9	8,399.9	1,211.6	485.4	726.15	1.669		
27,000.0	7,903.5	27,353.2	7,903.5	365.4	369.6	-90.00	-17,314.4	8,432.5	1,211.6	481.7	729.93	1.660		
27,100.0	7,903.5	27,453.2	7,903.5	367.3	371.5	-90.00	-17,409.0	8,465.1	1,211.6	477.9	733.71	1.651		
27,200.0	7,903.5	27,553.2	7,903.5	369.2	373.4	-90.00	-17,503.5	8,497.7	1,211.6	474.1	737.50	1.643		
27,300.0	7,903.5	27,653.2	7,903.5	371.1	375.3	-90.00	-17,598.0	8,530.4	1,211.6	470.3	741.28	1.634		
27,400.0	7,903.5	27,753.2	7,903.5	373.0	377.2	-90.00	-17,692.6	8,563.0	1,211.6	466.5	745.07	1.626		
27,500.0	7,903.5	27,853.2	7,903.5	374.9	379.1	-90.00	-17,787.1	8,595.6	1,211.6	462.8	748.85	1.618		
27,600.0	7,903.5	27,953.2	7,903.5	376.8	381.0	-90.00	-17,881.7	8,628.2	1,211.6	459.0	752.63	1.610		
27,700.0	7,903.5	28,053.2	7,903.5	378.7	382.8	-90.00	-17,976.2	8,660.8	1,211.6	455.2	756.41	1.602		
27,800.0	7,903.5	28,153.2	7,903.5	380.6	384.7	-90.00	-18,070.7	8,693.4	1,211.6	451.4	760.20	1.594		
27,900.0	7,903.5	28,253.2	7,903.5	382.5	386.6	-90.00	-18,165.3	8,726.0	1,211.6	447.7	763.98	1.586		
28,000.0	7,903.5	28,353.2	7,903.5	384.4	388.5	-90.00	-18,259.8	8,758.6	1,211.6	443.9	767.76	1.578		
28,100.0	7,903.5	28,453.2	7,903.5	386.3	390.4	-90.00	-18,354.3	8,791.2	1,211.7	440.1	771.54	1.570		
28,200.0	7,903.5	28,553.2	7,903.5	388.2	392.3	-90.00	-18,448.9	8,823.8	1,211.7	436.3	775.32	1.563		
28,300.0	7,903.5	28,653.2	7,903.5	390.1	394.2	-90.00	-18,543.4	8,856.4	1,211.7	432.6	779.10	1.555		
28,400.0	7,903.5	28,753.2	7,903.5	392.0	396.1	-90.00	-18,637.9	8,889.0	1,211.7	428.8	782.88	1.548		
28,500.0	7,903.5	28,853.2	7,903.5	393.9	398.0	-90.00	-18,732.5	8,921.6	1,211.7	425.0	786.66	1.540		
28,600.0	7,903.5	28,953.2	7,903.5	395.8	399.9	-90.00	-18,827.0	8,954.2	1,211.7	421.2	790.44	1.533		
28,700.0	7,903.5	29,053.2	7,903.5	397.7	401.8	-90.00	-18,921.5	8,986.8	1,211.7	417.5	794.22	1.526		
28,800.0	7,903.5	29,153.2	7,903.5	399.6	403.7	-90.00	-19,016.1	9,019.4	1,211.7	413.7	798.00	1.518		
28,900.0	7,903.5	29,253.2	7,903.5	401.5	405.6	-90.00	-19,110.6	9,052.1	1,211.7	409.9	801.77	1.511		
29,000.0	7,903.5	29,353.2	7,903.5	403.4	407.5	-90.00	-19,205.1	9,084.7	1,211.7	406.1	805.55	1.504		
29,100.0	7,903.5	29,453.2	7,903.5	405.3	409.4	-90.00	-19,299.7	9,117.3	1,211.7	402.4	809.33	1.497 Level 3		
29,200.0	7,903.5	29,553.2	7,903.5	407.2	411.3	-90.00	-19,394.2	9,149.9	1,211.7	398.6	813.10	1.490 Level 3		
29,300.0	7,903.5	29,653.2	7,903.5	409.1	413.1	-90.00	-19,488.7	9,182.5	1,211.7	394.8	816.88	1.483 Level 3		
29,400.0	7,903.5	29,753.2	7,903.5	411.0	415.0	-90.00	-19,583.3	9,215.1	1,211.7	391.1	820.66	1.477 Level 3		
29,500.0	7,903.5	29,853.2	7,903.5	412.9	416.9	-90.00	-19,677.8	9,247.7	1,211.7	387.3	824.43	1.470 Level 3		
29,553.7	7,903.5	29,906.9	7,903.5	413.8	418.0	-90.00	-19,728.6	9,265.2	1,211.7	385.3	826.46	1.466 Level 3, SF		

<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to GL 1332.5' & 27' KB @ 1359.5usft (O)      Coordinates are relative to: 204 - Slot 204  
 Offset Depths are relative to Offset Datum      Coordinate System is US State Plane 1983, West Virginia Northern Zone  
 Central Meridian is -79.5000000      Grid Convergence at Surface is: -0.43°



**LEGEND**

201, Orig., DEP Plan 4 V0	202, Orig., SDI Plan 2 V0	205, Orig., DEP Plan 5 V0
201, Orig., 201 As Drilled V0	203, Orig., SDI Plan 1 Prelim V0	

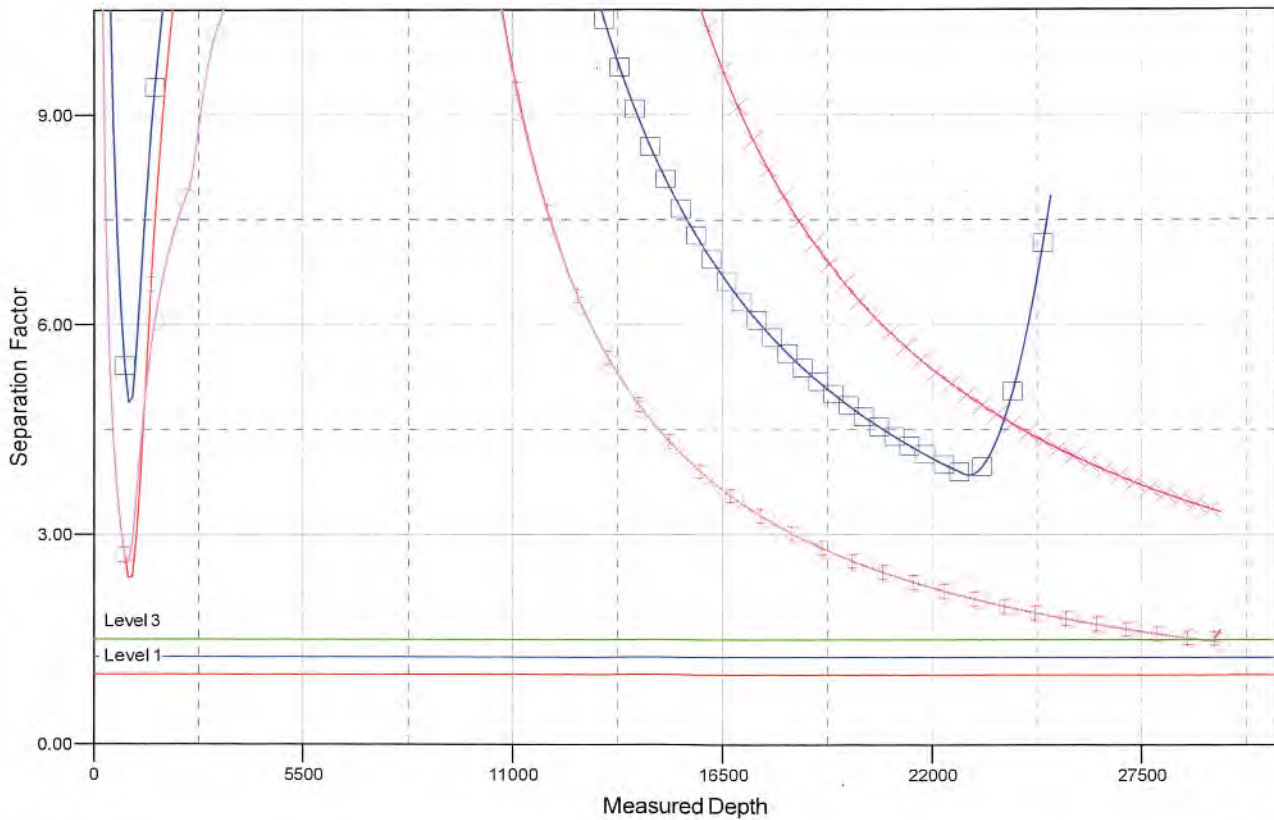
<b>Company:</b>	Arsenal Resources	<b>Local Co-ordinate Reference:</b>	Well 204 - Slot 204
<b>Project:</b>	Taylor County, WV	<b>TVD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Reference Site:</b>	Johnson TFP40	<b>MD Reference:</b>	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
<b>Site Error:</b>	0.0 usft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	204	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0 usft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	Orig.	<b>Database:</b>	Northeast
<b>Reference Design:</b>	DEP Plan 6	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to GL 1332.5' & 27' KB @ 1359.5usft (O)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -79.5000000

Coordinates are relative to: 204 - Slot 204  
 Coordinate System is US State Plane 1983, West Virginia Northern Zone  
 Grid Convergence at Surface is: -0.43°

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OCT 11 2022

### Separation Factor Plot



#### LEGEND

- ✖ 201, Orig., DEP Plan 4 V0
- ⊠ 202, Orig., SDI Plan 2 V0
- ⊠ 205, Orig., DEP Plan 5 V0
- ◆ 201, Orig., 201 As Drilled V0
- ✖ 203, Orig., SDI Plan 1 Prelim V0

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SURFACE HOLE SURVEYED 39° 17' 30" (NAD27)  
 BOTTOM HOLE SURVEYED 39° 12' 30" (NAD27)

Latitude: (NAD27)

822'

4,351'

(NAD83-WVN) US SURVEY FT.

TOP HOLE  
 N) 277016.722  
 E) 1779051.662

LANDING POINT  
 N) 276919.020  
 E) 1780265.380

BOTTOM HOLE  
 N) 256893.040  
 E) 1787171.350

(NAD83-LAT/LONG) DECIMAL

TOP HOLE  
 N) 39.258522  
 E) -80.169060

LANDING POINT  
 N) 39.258379  
 E) -80.164772

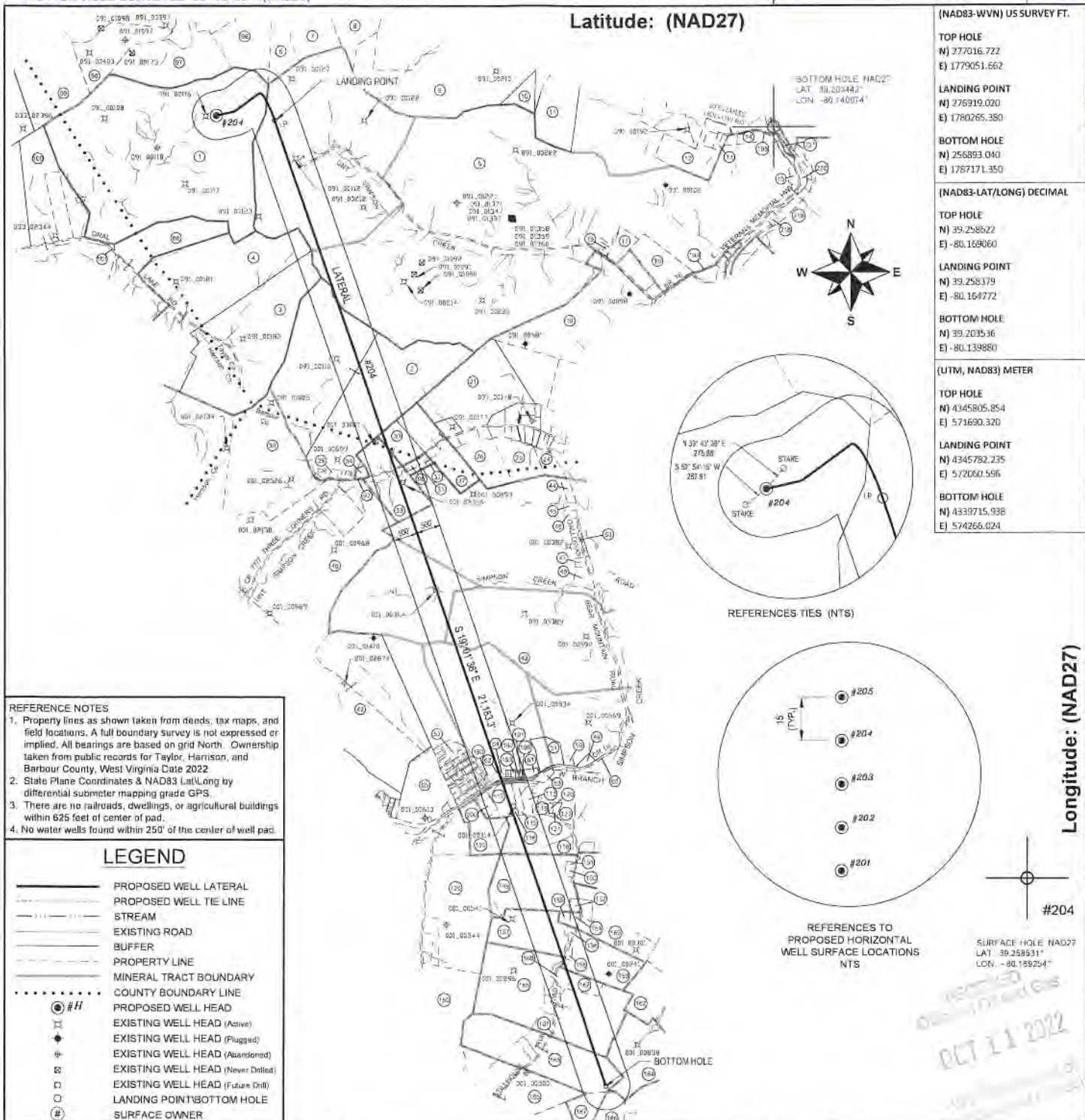
BOTTOM HOLE  
 N) 39.203536  
 E) -80.139880

(UTM, NAD83) METER

TOP HOLE  
 N) 4345805.854  
 E) 571690.320

LANDING POINT  
 N) 4345782.235  
 E) 572060.596

BOTTOM HOLE  
 N) 4339715.938  
 E) 574266.024

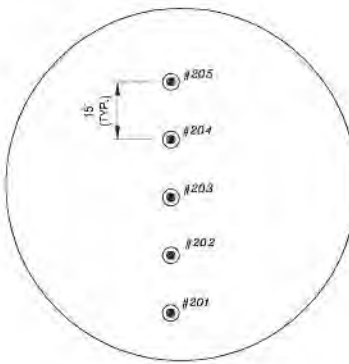
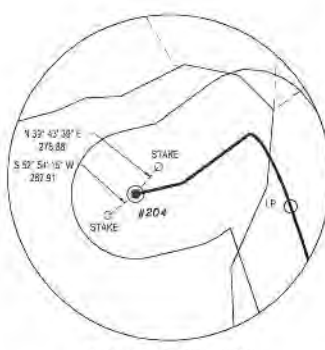


**REFERENCE NOTES**

- Property lines as shown taken from deeds, tax maps, and field locations. A full boundary survey is not expressed or implied. All bearings are based on grid North. Ownership taken from public records for Taylor, Harrison, and Barbour County, West Virginia Date 2022
- State Plane Coordinates & NAD83 Lat/Long by differential submeter mapping grade GPS.
- There are no railroads, dwellings, or agricultural buildings within 625 feet of center of pad.
- No water wells found within 250' of the center of well pad.

**LEGEND**

- PROPOSED WELL LATERAL
- PROPOSED WELL TIE LINE
- STREAM
- EXISTING ROAD
- BUFFER
- PROPERTY LINE
- MINERAL TRACT BOUNDARY
- COUNTY BOUNDARY LINE
- PROPOSED WELL HEAD
- EXISTING WELL HEAD (Active)
- EXISTING WELL HEAD (Plugged)
- EXISTING WELL HEAD (Abandoned)
- EXISTING WELL HEAD (Never Drilled)
- EXISTING WELL HEAD (Future Drill)
- LANDING POINT/BOTTOM HOLE
- SURFACE OWNER



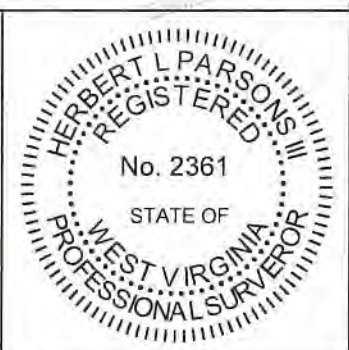
SURFACE HOLE NAD27  
 LAT 39.258531°  
 LONG -80.158254°

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 OCT 21 2022

FILE#: 22078-001  
 SHEET#: 1 of 3  
 SCALE: 1" = 3000'  
 TICK SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/200  
 PROVEN SOURCE OF ELEVATION: WV-RTN CORS STATION

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: *Herbert L. Parsons, III* 9/29/22  
 P.S. #2361: Herbert L. Parsons, III P.S.



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



DATE: SEPTEMBER 29, 2022  
 JOHNSON TFP-40  
 OPERATOR'S WELL #: # 204

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow  
 WATERSHED: SIMPSON CREEK  
 COUNTY / DISTRICT: TAYLOR CO. FLEMINGTON DISTRICT  
 SURFACE OWNER: RENEE JOHNSON  
 OIL & GAS ROYALTY OWNER: SEE WW-6A1

API WELL #: 47 091 01369  
 STATE COUNTY PERMIT  
 ELEVATION: 1,332.5  
 QUADRANGLE: ROSEMONT, WV  
 ACREAGE: 284 ±  
 ACREAGE: 284 ±

10/21/2022

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: TVD: 7,903.5' TMD: 29,553.7'

WELL OPERATOR: ARSENAL RESOURCES  
 ADDRESS: 6031 WALLACE ROAD EXTENSION # 300  
 CITY: WEXFORD STATE: PA ZIP: 15090

DESIGNATED AGENT: NATHAN SKEEN  
 ADDRESS: 633 MAIN STREET  
 CITY: BRIDGEPORT STATE: WV ZIP: 26330

BOTTOM HOLE SURVEYED 80° 07' 30" (NAD27)  
 SURFACE HOLE SURVEYED 80° 10' 00" (NAD27)

12,063'

Longitude: (NAD27)

1,674'

SURFACE PARCEL OWNER INFORMATION			ADJOINER PARCEL OWNER INFORMATION				
ID#	DEP#	PARCEL NUMBER	OWNER NAME	ID#	DEP#	PARCEL NUMBER	OWNER NAME
1	033	17-15-0331-0027-0000	JOHNSON RENEE	100	033	17-15-0351-0009-0000	JOHNSON RENEE
5	091	46-04-0011-0001-0000	CFS FARMS LIMITED LIABILITY CO	88	033	17-15-0351-0010-0000	JOHNSON RENEE
2	001	01-09-0009-0002-0000	STEWART FARM LLC	101			COUNTY ROUTE 17 ORAL LAKE ROAD
30	091	46-04-0011-0002-0000	PROBST PAUL				GCSTREAM LLC
33	001	01-09-0009-0007-0000	CROUSE STEPHEN DALE & MICHAEL LYNN	3	033	17-15-0351-0013-0000	GCSTREAM LLC
43	001	01-09-0009-0022-0000	WOLFE LARRY, ROBERT WOLFE & STANLEY WOLFE ET UXES, HWS	4	033	17-15-0351-0012-0000	GCSTREAM LLC
62	001	01-09-012A-0107-0001	DARR WILLIAM	99	091	46-04-0007-0008-0000	FRUM CLINTON A (HEIRS)
196	001	01-09-0012-0022-0000	DOBBS PATRICK JOHN & JOSEPH ALBERT II	96	091	46-04-0007-0009-0000	CEQUEL III COMMUNICATIONS
117	001	01-09-012A-0107-0001	REPERT FUELS INC	97	091	46-04-0007-0027-0000	CEQUEL III COMMUNICATIONS
116	001	01-09-0012-0021-0000	ZICKFOOSE BARBARA A	98	091	46-04-0008-0021-0000	MILLARD CARLYLE G
118	001	01-09-0012-0017-0000	MONTGOMERY MICHAEL J & BERTHA HWS	5	091	46-04-0008-0022-0000	GRIPPIN JAMES S & ELAINE M
149	001	01-09-0012-0051-0000	WBL SPE II LLC	7	091	46-04-0008-0023-0000	GRAY RANDALL & RITA
157	001	01-09-0012-0050-0002	KNAPP FRANCES C & JERREL F WS	9	091	46-04-0008-0029-0000	COALQUEST DEVELOPMENT LLC
159	001	01-09-0012-0050-0001	STREETS BRENDA K ET ALS	8	091	46-04-0008-0035-0000	MARKS BETTY P
168	001	01-09-0012-0050-0004	MCQUINE CLAYTON & CHARLOTTE WS	10	091	46-04-0008-0105-0000	BLOSSER PATRICK R ET AL ROBERT C & CLINTON D & SURV
167	001	01-09-0022-0009-0000	STREETS FRANKLIN D & BRENDA (WROS)	11	091	46-04-0008-0081-0000	SIMMONS HUNTER
166	001	01-09-0012-0050-0000	MARTIN ROBERT E	12	091	46-04-0008-0083-0000	PRAIT JANICE & CHARLENE MOORE & CURTIS & DAVID STEWART
165	001	01-09-0022-0006-0000	MARTIN ROBERT	*3	091	46-04-0008-0084-0000	PRAIT JANICE & CHARLENE MOORE & CURTIS & DAVID STEWART
				198			COUNTY ROUTE 310 STEWARTS HOLLOW ROAD
				14	091	46-04-0008-0090-0001	SANSEL FRANCES E
				199			STATE ROUTE 76 E VETERANS MEMORIAL HWY
				218	091	46-04-0008-0057-0000	BRAKE WILLIAM C & CRYSTAL R & SURV
				219	091	46-04-0009-0039-0000	BRAKE WILLIAM CLARK & CRYSTAL RANEAU & SURV
				220	091	46-04-0009-0035-0000	PRITT HOY LYNN & PATRICIA LYNN & SURV
				221	091	46-04-0009-0032-0000	MARTIN ROBERT E
				15	091	46-04-0009-0037-0001	GRISS DAVID & CATHY & SURV
				16	091	46-04-0011-0019-0000	SALTIS STEVEN A & NICOLE J & SURV
				17	091	46-04-0011-0017-0000	GRONAL JOHN R & KAITLYN N & SURV
				16	091	46-04-0011-0001-0001	ANDERSON DANIEL & KAREN & SURV
				19	091	46-04-0011-0017-0003	SIMPSON JOHN E
				21	091	46-04-0011-0005-0005	BECKWITH LUMBER COMPANY
				24	091	46-04-0011-0007-0005	SANFORD RICHARD LEE & PAMELA & SURV
				25	091	46-04-0011-0008-0000	RAVIS THOMAS E
				26	091	46-04-0011-0005-0001	RAVIS THOMAS E
				27	091	46-04-0011-0003-0000	PROBST PAUL
				39	001	01-09-0009-0001-0000	STEWART FARM LLC
				36	001	01-09-0009-0004-0000	STEWART FARM LLC
				34	001	01-09-0009-0006-0000	STEWART FARM LLC
				31	001	01-09-0009-0008-0000	CLEAVENGER LEONARD D
				50	001	01-09-0009-0008-0001	CLEAVENGER LEONARD D
				92			COUNTY ROUTE 771 BARBOUR CORNER
				32	001	01-09-0009-0008-0002	CLEAVENGER LEONARD D
				45	001	01-09-0009-0011-0000	SALTIS STEVE JR & AMY HWS
				46	001	01-09-0009-0012-0000	SALTIS STEVE JR & AMY HWS
				47	001	01-09-0009-0013-0000	MURPHY GEORGE H JR & TAMELA J HWS
				44	001	01-09-0009-0017-0001	MADON MICHAEL R & JUDITH L
				40	001	01-09-0009-0020-0000	SEESE ROBERT & BRENDA HWS
				48	001	01-09-0009-0022-0002	WOLFE MICHAEL B
				51	001	01-09-0009-0022-0003	KRIZNER FRANK A & RENEE B HWS
				42	001	01-09-0011-0001-0000	POLINO ENTERPRISES INC
				60			COUNTY ROUTE 106 BEAR MOUNTAIN ROAD
				61	001	01-09-0012-0004-0000	SWIGER ARGYLE C
				63			GALLOWAY STATE ROUTE 76
				46	001	01-09-0012-0004-0002	KNOTTS TERRY & DONETTA
				50	001	01-09-0012-0014-0000	MOSES JOHN A TRUST
				53	001	01-09-0012-0004-0003	FARRIS VERNIE & RUSSELL JOSEPH WROS
				191	001	01-09-0012-0004-0004	INGLER RUSSEL J
				107			COUNTY ROUTE 702 STILLHOUSE RUN ROAD
				113	001	01-09-0012-0018-0000	DOBBS PATRICK JOHN & JOSEPH ALBERT II
				115	001	01-09-0012-0020-0000	DOBBS PATRICK JOHN & JOSEPH ALBERT II
				200	001	01-09-0012-0020-0000	VUKOVICH ROBERT K & SHEILA MARE VUKOVICH & CAROL A SPEAR
				125	001	01-09-0012-0025-0000	VUKOVICH ROBERT K
				65	001	01-09-0012-0027-0000	WOLFE LARRY MICHAEL
				126	001	01-09-0012-0047-0000	SHAHAN OKEY C
				154	001	01-09-0012-0050-0003	DELANEY JESSE PAUL
				155	001	01-09-0012-0050-0005	DELANEY JESSE PAUL & BRANDIE L HWS
				158	001	01-09-0012-0050-0007	MIKE ROSS & WAGO OIL & GAS CO
				156	001	01-09-0012-0050-0008	KNAPP JERREL
				152	001	01-09-0012-0051-0001	KNAPP FRANCES C & JERREL F JR WRS
				150	001	01-09-0012-0051-0003	KNAPP JERREL F
				151	001	01-09-0012-0051-0005	KNAPP FRANCES C & JERREL F JR WS
				180	001	01-09-0012-0054-0000	MARTIN ROBERT E
				162	001	01-09-0012-0055-0000	CORDER WAYNE D & JEANETTE S, HWS
				169	001	01-09-0022-0004-0001	BAKER AARON & MARKEE WS
				164	001	01-09-0022-0007-0000	WARE SHIRLEY LIVING TRUST
				52	001		CLEAVENGER PLATT
				130	001	01-09-012A-0000-0000	ELMOND MUREL L (UE)
				64	001	01-09-012A-0001 thru 04 & 107	CRISS DAVID A
				185	001	01-09-0022-0005-0000	MARTIN ROBERT E
				186	001	01-04-0003-0020-0000	STOUT HARRY J H & HARLEN J
				187	001	01-04-0003-0047-0000	MARTIN ROBERT E
				192	001	01-09-012A-0005-0000	KITTLE FRANK G HRS ET AL
				193	001	01-09-012A-0006-0000	BARTLETT MICHAEL ALLEN SR
				119	001	01-09-012B-0043-0000	FARRIS RAYMOND E JR
				120	001	01-09-012B-0044-0000	FARRIS RAYMOND E JR & SHARON REED
				121	001	01-09-012B-0046-0000	MAYLE FLO ANN
				122	001	01-09-012B-0046-0000	CROSTON ELSWORTH J

**REFERENCE NOTES**

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- There are no railroads, dwellings, or agricultural buildings within 625 feet of center of pad.
- No water wells found within 250' of the center of well pad.

**LEGEND**

	PROPOSED WELL LATERAL
	PROPOSED WELL TIE LINE
	STREAM
	EXISTING ROAD
	BUFFER
	PROPERTY LINE
	MINERAL TRACT BOUNDARY
	COUNTY BOUNDARY LINE
	PROPOSED WELL HEAD
	EXISTING WELL HEAD (Active)
	EXISTING WELL HEAD (Plugged)
	EXISTING WELL HEAD (Abandoned)
	EXISTING WELL HEAD (Never Drilled)
	EXISTING WELL HEAD (Future Drill)
	LANDING POINT/BOTTOM HOLE
	SURFACE OWNER

FILE#: 22078-001  
 SHEET#: 2 of 3  
 SCALE: 1" = 3000'  
 TICK SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/200  
 PROVEN SOURCE OF ELEVATION: WV-RTN CORS STATION

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: *Herbert L. Parsons, III* 9/29/22  
 P.S. #2361: Herbert L. Parsons, III P.S.



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

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

WATERSHED: SIMPSON CREEK  
 COUNTY / DISTRICT: TAYLOR CO. FLEMINGTON DISTRICT  
 SURFACE OWNER: RENEE JOHNSON  
 OIL & GAS ROYALTY OWNER: SEE WW-6A1

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

WELL OPERATOR: ARSENAL RESOURCES  
 ADDRESS: 6031 WALLACE ROAD EXTENSION # 300  
 CITY: WEXFORD STATE: PA ZIP: 15090

DATE: SEPTEMBER 29, 2022

JOHNSON TFP-40  
 OPERATOR'S WELL #: # 204

API WELL #: 47 091 01369  
 STATE COUNTY PERMIT

ELEVATION: 1,332.5  
 QUADRANGLE: ROSEMONT, WV  
 ACREAGE: 284 ± 10/21/2022  
 ACREAGE: 284 ±

ESTIMATED DEPTH: TVD: 7,903.5' TMD: 29,553.7'

DESIGNATED AGENT: NATHAN SKEEN  
 ADDRESS: 633 MAIN STREET  
 CITY: BRIDGEPORT STATE: WV ZIP: 26330

SURFACE HOLE SURVEYED 39° 17' 30" (NAD27)  
 BOTTOM HOLE SURVEYED 39° 12' 30" (NAD27)

Latitude: (NAD27)

822'  
 4 351'

(NAD83-WVN) US SURVEY FT.

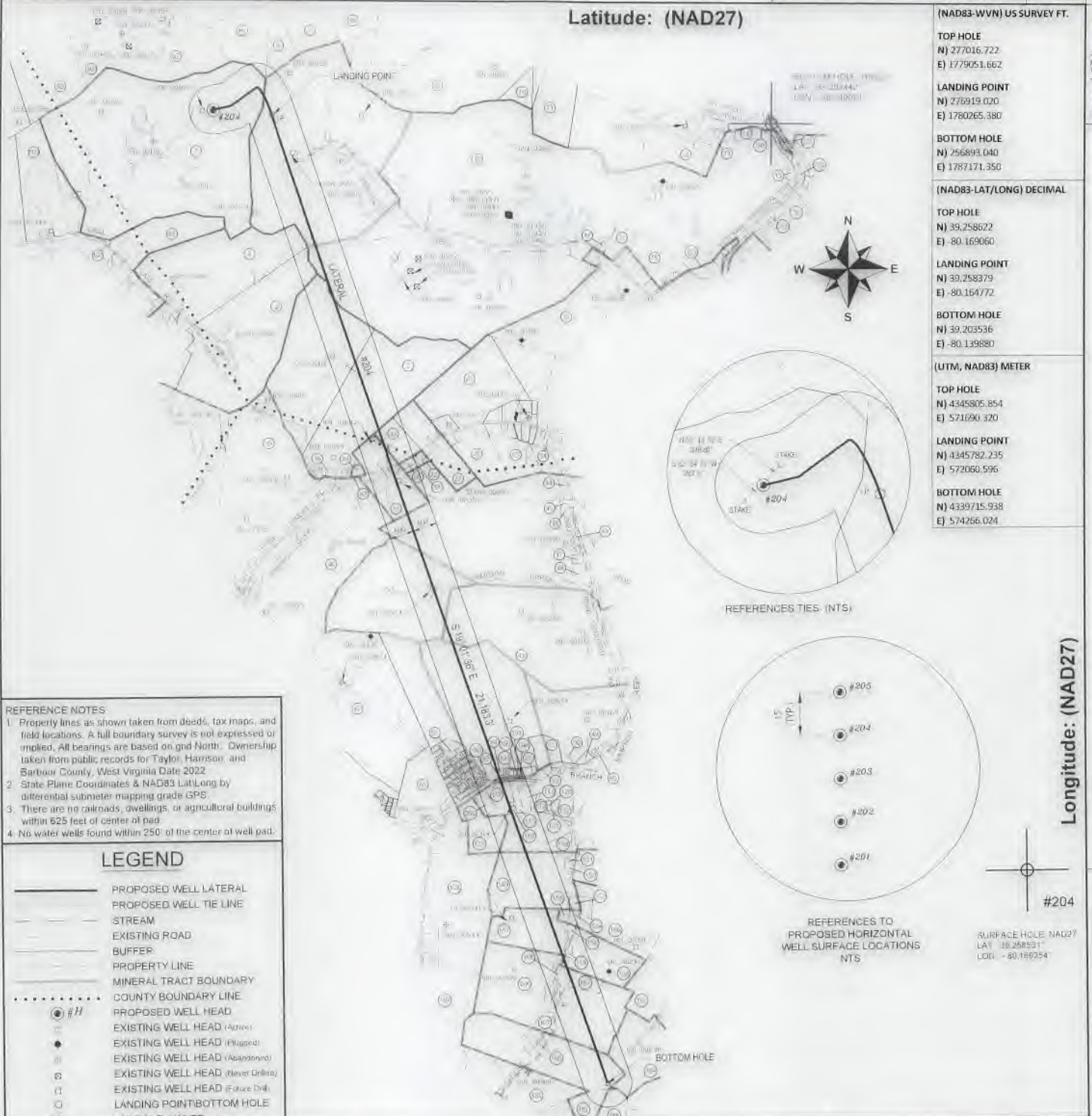
TOP HOLE  
 N) 277016.722  
 E) 1779051.662  
 LANDING POINT  
 N) 276919.020  
 E) 1780265.380  
 BOTTOM HOLE  
 N) 256893.040  
 E) 1787171.350

(NAD83-LAT/LONG) DECIMAL

TOP HOLE  
 N) 39.258622  
 E) -80.169060  
 LANDING POINT  
 N) 39.258379  
 E) -80.164772  
 BOTTOM HOLE  
 N) 39.203536  
 E) -80.139880

(UTM, NAD83) METER

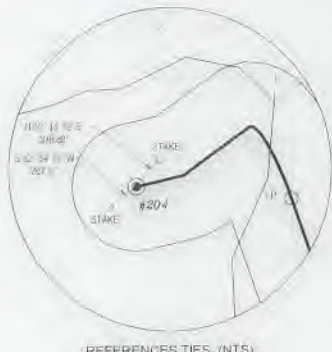
TOP HOLE  
 N) 4345805.854  
 E) 571690.320  
 LANDING POINT  
 N) 4345782.235  
 E) 572060.596  
 BOTTOM HOLE  
 N) 4339715.938  
 E) 574266.024



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	PROPOSED WELL TIE LINE
	STREAM
	EXISTING ROAD
	BUFFER
	PROPERTY LINE
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	EXISTING WELL HEAD (Never Drilled)
	EXISTING WELL HEAD (Future Drill)
	LANDING POINT/BOTTOM HOLE
	SURFACE OWNER



REFERENCES TIES (NTS)



REFERENCES TO PROPOSED HORIZONTAL WELL SURFACE LOCATIONS NTS



SURFACE HOLE NAD27  
 LAT 39.258531  
 LONG -80.169254

Longitude: (NAD27)

FILE#: 22078-001  
 SHEET#: 1 of 3  
 SCALE: 1" = 3000'  
 TICK SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY: 1/200  
 PROVEN SOURCE OF ELEVATION: WV-RTN CORS STATION

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 WVDEP  
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 601 57TH STREET  
 CHARLESTON, WV 25304



DATE: SEPTEMBER 29, 2022  
 JOHNSON TFP-40  
 OPERATOR'S WELL #: # 204 HOD  
 API WELL #: 47 091 01369  
 STATE COUNTY PERMIT

Well Type:  Oil  Waste Disposal  Production  Deep  
 Gas  Liquid Injection  Storage  Shallow  
 WATERSHED: SIMPSON CREEK  
 COUNTY / DISTRICT: TAYLOR CO. FLEMINGTON DISTRICT  
 SURFACE OWNER: RENEE JOHNSON  
 OIL & GAS ROYALTY OWNER: SEE WW-6A1

ELEVATION: 1,332.5  
 QUADRANGLE: ROSEMONT, WV  
 ACREAGE: 284 ±  
 ACREAGE: 284 ±

10/21/2022

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: TVD: 7,903.5' TMD: 29,553.7'  
 WELL OPERATOR: ARSENAL RESOURCES DESIGNATED AGENT: NATHAN SKEEN  
 ADDRESS: 6031 WALLACE ROAD EXTENSION # 300 ADDRESS: 633 MAIN STREET  
 CITY: WEXFORD STATE: PA ZIP: 15090 CITY: BRIDGEPORT STATE: WV ZIP: 26330

BOTTOM HOLE SURVEYED 80° 07' 30" (NAD27)  
 SURFACE HOLE SURVEYED 80° 10' 00" (NAD27)

SURFACE PARCEL OWNER INFORMATION			ADJOINER PARCEL OWNER INFORMATION				
ID#	DEP#	PARCEL NUMBER	OWNER NAME	ID#	DEP#	PARCEL NUMBER	OWNER NAME
1	035	17-15-0351-0027-0000	JOHNSON RENEE	100	033	17-15-0351-0029-0000	JOHNSON RENEE
5	091	46-04-0011-0001-0000	CFS FARMS LIMITED LIABILITY CO	99	033	17-15-0351-0010-0000	JOHNSON RENEE
2	001	01-09-0009-0002-0000	STEWART FARM LLC	101			COUNTY ROUTE 17 ORAL LAKE ROAD
30	091	46-04-0011-0002-0000	PROBST PAUL	3	033	17-15-0351-0013-0000	GODSTREAM LLC
33	001	01-09-0009-0007-0000	CROUSE STEPHEN DALE & MICHAEL LYNN	4	033	17-15-0351-0012-0000	GODSTREAM LLC
43	001	01-09-0009-0022-0000	WOLFE LARRY ROBERT WOLFE & STANLEY WOLFE ET UXES HWS	59	091	46-04-0007-0008-0000	FRUM CLINTON A (HEIRS)
62	001	01-09-012A-0107-0001	GARR WILLIAM	58	091	46-04-0007-0009-0000	CEQUEL III COMMUNICATIONS
196	001	01-09-0012-0022-0000	DOBBS PATRICK JOHN & JOSEPH ALBERT II	57	091	46-04-0007-0071-0000	CEQUEL III COMMUNICATIONS
117	001	01-09-0012-0023-0000	REPPER FUELS INC	96	091	46-04-0008-0021-0000	MILLARD CARLYLE G
116	001	01-09-0012-0021-0000	ZICKFOOSE BARBARA A	6	061	46-04-0008-0022-0000	GRIPPH JAMES S & ELAINE M
118	001	01-09-0012-0017-0000	MONTGOMERY MICHAEL J & BERTHA HWS	7	091	46-04-0008-0023-0000	GRAY RANDALL & RITA
149	001	01-09-0012-0051-0000	WBL SPE LLC	8	051	46-04-0008-0029-0000	COALQUEST DEVELOPMENT LLC
157	001	01-09-0012-0050-0002	KNAPP FRANCES C & JERREL F W/S	8	091	46-04-0008-0035-0000	MARKS BETTY F
159	001	01-09-0012-0050-0001	STREETS BRENDA K ET ALS	10	091	46-04-0008-0125-0000	BLOSSER PATRICK B ET AL ROBERT C & CLINTON D & SURV
160	001	01-09-0012-0060-0004	MCOUNE CLAYTON & CHARLOTTE WS	11	051	46-04-0008-0081-0000	SIMMONS HUNTER
167	001	01-09-0022-0009-0000	STREETS FRANKLIN D & BRENDA (WROS)	12	091	46-04-0008-0083-0000	PRATT JANICE & CHARLENE MOORE & CURTIS & DAVID STEWART
168	001	01-09-0012-0050-0000	MARTIN ROBERT E	13	091	46-04-0008-0084-0000	PRATT JANICE & CHARLENE MOORE & CURTIS & DAVID STEWART
169	001	01-09-0012-0008-0000	MARTIN ROBERT	198			COUNTY ROUTE 310 STEWARTS HOLLOW ROAD
				14	091	46-04-0008-0080-0001	SINSEL FRANCES E
				199			STATE ROUTE 76 E VETERANS MEMORIAL HWY
				218	091	46-04-0009-0057-0000	BRAKE WILLIAM C & CRYSTAL R & SURV
				219	091	46-04-0009-0039-0000	BRAKE WILLIAM CLARK & CRYSTAL RANEAU & SURV
				220	091	46-04-0009-0035-0000	PRITT HOY LYNN & PATRICIA LYNN & SURV
				221	091	46-04-0009-0032-0000	MARTIN ROBERT E
				15	091	46-04-0009-0037-0001	CRISS DAVID & CATHY & SURV
				16	091	46-04-0011-0019-0000	SALTIS STEVEN A & NICOLE J & SURV
				17	091	46-04-0011-0017-0000	GRONAU JOHN R & KAITLYN N & SURV
				18	091	46-04-0011-0001-0001	ANDERSON DANIEL & KAREN & SURV
				19	091	46-04-0011-0017-0003	SIMPSON JOHN E
				21	091	46-04-0011-0005-0005	BECKWITH LUMBER COMPANY
				24	091	46-04-0011-0007-0005	SANFORD RICHARD LEE & PAMELA & SURV
				25	091	46-04-0011-0006-0000	RAVIS THOMAS E
				26	091	46-04-0011-0005-0001	RAVIS THOMAS E
				27	091	46-04-0011-0003-0000	PROBST PAUL
				39	001	01-09-0009-0001-0000	STEWART FARM LLC
				36	001	01-09-0009-0004-0000	STEWART FARM LLC
				34	001	01-09-0009-0006-0000	STEWART FARM LLC
				31	001	01-09-0009-0008-0000	CLEAVENGER LEONARD D
				90	001	01-09-0009-0003-0001	CLEAVENGER LEONARD D
				92			COUNTY ROUTE 771 BARBOUR CORNER
				33	001	01-09-0009-0008-0002	CLEAVENGER LEONARD D
				45	001	01-09-0009-0011-0000	SALTIS STEVE JR & AMY HWS
				46	001	01-09-0009-0012-0000	SALTIS STEVE JR & AMY R HWS
				47	001	01-09-0009-0013-0000	MURPHY GEORGE H JR & TAMELA J HWS
				44	001	01-09-0009-0017-0001	MADDIX MICHAEL R & JUDITH J
				40	001	01-09-0009-0020-0000	SEESE ROBERT & BRENDA HWS
				48	001	01-09-0009-0022-0002	WOLFE MICHAEL B
				51	001	01-09-0009-0022-0003	KRIZNER FRANK A & RENEE B HWS
				42	001	01-09-0011-0001-0000	POLINO ENTERPRISES INC
				60			COUNTY ROUTE 176 BEAR MOUNTAIN ROAD
				61	001	01-09-0012-0004-0000	SWIGER ARGYLE C
				63			GALLOWAY STATE ROUTE 76
				49	001	01-09-0012-0004-0002	KNOTT'S TERRY & DONETTA
				50	001	01-09-0012-0014-0000	MOSES JOHN A TRUST
				53	001	01-09-0012-0004-0003	FARRIS VERNIE & RUSSELL JOSEPH WROS
				191	001	01-09-0012-0004-0004	TINGLER RUSSEL J
				107			COUNTY ROUTE 777 STILLHOUSE RUN ROAD
				113	001	01-09-0012-0018-0000	DOBBS PATRICK JOHN & JOSEPH ALBERT II
				115	001	01-09-0012-0020-0000	DOBBS PATRICK JOHN & JOSEPH ALBERT II
				200	001	01-09-0012-0024-0000	VUKOVICH ROBERT K & SHEILA MARE VUKOVICH & CAROL A SPEAR
				125	001	01-09-0012-0025-0000	VUKOVICH ROBERT K
				65	001	01-09-0012-0027-0000	WOLFE LARRY MICHAEL
				126	001	01-09-0012-0047-0000	SHAHAN OKEY C
				154	001	01-09-0012-0050-0003	DELANEY JESSE PAUL
				155	001	01-09-0012-0050-0005	DELANEY JESSE PAUL & BRANDIE L HWS
				158	001	01-09-0012-0050-0007	MIKE ROSS & WACO OIL & GAS CO
				156	001	01-09-0012-0050-0008	KNAPP JERREL
				162	001	01-09-0012-0051-0001	KNAPP FRANCES C & JERREL F JR WRS
				160	001	01-09-0012-0051-0003	KNAPP JERREL F
				161	001	01-09-0012-0051-0005	KNAPP FRANCES C & JERREL F JR WS
				160	001	01-09-0012-0054-0000	MARTIN ROBERT E
				162	001	01-09-0012-0055-0000	CORDER WAYNE D & JEANETTE S HWS
				169	001	01-09-0022-0004-0001	BAKER AARON & MARKEE WS
				164	001	01-09-0022-0007-0000	WARE SHIRLEY LIVING TRUST
				52	001	PLAN OF LOTS	CLEAVENGER PLATT
				190	001	01-09-012A-0080-0000	ELMOND MUREL L (W/F)
				64	001	01-09-012A-0081 thru 94 & 107	CRISS DAVID A
				185	001	01-09-0022-0005-0000	MARTIN ROBERT E
				186	001	01-04-0003-0020-0000	STOUT HARRY J II & HARLEN J
				187	001	01-04-0003-0047-0000	MARTIN ROBERT E
				192	001	01-09-012A-0085-0000	KITTLE FRANK G HRS ET AL
				193	001	01-09-012A-0086-0000	BARTLETT MICHAEL ALLEN SR
				116	001	01-09-012B-0043-0000	FARRIS RAYMOND E JR
				120	001	01-09-012B-0044-0000	FARRIS RAYMOND E JR & SHARON REED
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	BUFFER
	PROPERTY LINE
	MINERAL TRACT BOUNDARY
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	PROPOSED WELL HEAD
	EXISTING WELL HEAD (Artesian)
	EXISTING WELL HEAD (Pneumatic)
	EXISTING WELL HEAD (Mudstone)
	EXISTING WELL HEAD (Never Filled)
	EXISTING WELL HEAD (Future Drill)
	LANDING POINT/BOTTOM HOLE
	SURFACE OWNER

FILE#: 22078-001  
 SHEET#: 2 of 3  
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 CITY: BRIDGEPORT STATE: WV ZIP: 26330



## Attachment to WW-6A1, Johnson 204

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
1 (00006031)	BLANCH WATSON(WIDOW) DEZZIE BUTTS & TERRY H BUTTS(HER HUSBAND) DULCIE STARKEY(WIDOW) MARTHA ROBERTS(WIDOW) GAIL WILSON(WIDOW) MARY BARTLETT(WIDOW) JAMES BARTLETT & ELSA BARTLETT(HIS WIFE) ERNESTINE WHITE & JOHN WHITE(HER HUSBAND) LEOMA CHANDLER(WIDOW) AND ELLENOR WHITMAN & PAUL WHITMAN (HER HUSBAND)	Union Drilling Inc	12.50%	32/220 and 1030/412	284
	Union Drilling Inc	Equitable Resources Exploration		1189/1209	
	Equitable Resources Exploration	Equitable Resources Energy Co		1199/642	
	Equitable Resources Energy Co	Enervest East LMTD Partnership		22/181	
	Enervest East LMTD Partnership	The Houston Exploration Co		1359/820	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		1367/1084	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		1467/119	
2 (00008235)	John F Stewart	Petro-Lewis Corporation	12.50%	33/250 and 75/154	200
	Petro-Lewis Corporation	Partnership Properties Co		77/226	
	Partnership Properties Co	Eastern American Energy Corporation		95/112	
	Eastern American Energy Corporation	Energy Corporation of America		438/429	
	Energy Corporation of America	Greylock Production LLC		178/401	
	Greylock Production, LLC	Mar Key, LLC		179/96	
5 P/O (00005213)	Chester Sinsel and Frances Sinsel his wife	Union Drilling Inc AND Allerton Miller	12.50%	35/488	1,080
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		9/427	
	Equitable Resources Exploration	Equitable Resources Energy		10/079	
	Equitable Resources Energy Co	Enervest East LP		250/359	

RECEIVED  
 OCT 11 2022  
 OCT 11 2022  
 OCT 11 2022

**Attachment to WW-6A1, Johnson 204**

<b>Letter Designation/Number Designation on Plat</b>	<b>Grantor, Lessor, Assignor, etc.</b>	<b>Grantee, Lessee, Assignee, etc.</b>	<b>Royalty</b>	<b>Book/Page</b>	<b>Acreage</b>
	Enervest East LP	The Houston Exploration Co		27/99	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		27/426	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		16/637 also 447/129	
5 P/O (00006028)	A Brooks Fleming and Winnie Fleming his wife and Georgia L Fleming, widow	Union Drilling Inc AND Allerton Miller	12.50%	33/79	890
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		9/427	
	Equitable Resources Exploration	Equitable Resources Energy		10/079	
	Equitable Resources Energy Co	Enervest East LP		250/359	
	Enervest East LP	The Houston Exploration Co		27/99	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		27/426	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	
30 (00008900)	Paul Propst	Mar Key, LLC	13.00%	70/280	34.71
33 (00003816)	Orlan and Dora Crouse Jr and Helen Galigand and Jeffrey and Lesa Burton	Petroleum Development Corp	12.50%	110/525	30.5
	Petroleum Development Corporation	PDC Mountaineer, LLC		1440/364	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
43 P/O (00005950)	Lillian Wilson Post	Cumberland and Allegheny Gas Company	12.50%	40/242	400
	Cumberland and Allegheny Gas Company	Union Drilling Inc AND Allerton Miller		46/347	
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy		328/127	
	Equitable Resources Energy Co	Fuel Resources Production & Development		116/81	
	Fuel Resources Production & Development	The Houston Exploration Co		383/187	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		404/381	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	

OCT 11 1922  
 UNITED STATES DEPARTMENT OF THE INTERIOR  
 BUREAU OF LAND MANAGEMENT  
 DENVER, COLORADO



**Attachment to WW-6A1, Johnson 204**

<b>Letter Designation/Number Designation on Plat</b>	<b>Grantor, Lessor, Assignor, etc.</b>	<b>Grantee, Lessee, Assignee, etc.</b>	<b>Royalty</b>	<b>Book/Page</b>	<b>Acreage</b>
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		447/523	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	
196, 117, 116, 118 (00005895)	GEORGE C LAW SINGLE, GUY M LAW AND LURA M LAW, HIS WIFE EDISON O LAW AND BETSY LAW, HIS WIFE; ZELLA W BOND AND B R BOND, HER HUSBAND, THORNE A HELMICK SINGLE; ORIS L HELMICK AND WANDA HELMICK, HIS WIFE	Cumberland and Allegheny Gas Company	12.5	40/240	313
	Cumberland and Allegheny Gas Company	Union Drilling Inc AND Allerton Miller		46/347	
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy		328/127	
	Equitable Resources Energy Co	Enervest East Limited Partnership		129/524	
	ENERVEST EAST LIMITED PARTNERSHP	The Houston Exploration Co		138/001	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		404/381	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	
149 (00005696)	MABEL CLEAVENGER	Cumberland and Allegheny Gas Company	12.5	46/405	100
	Cumberland and Allegheny Gas Company	Union Drilling Inc AND Allerton Miller		46/347	
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy		328/171	
	Equitable Resources Energy Co	Fuel Resources Production & Development		116/81	
	Equitable Resources Energy Co	Enervest East Limited Partnership		129/524	
	Enervest East Limited Partnership	The Houston Exploration Company		138/1	
	Fuel Resources Production & Development	The Houston Exploration Company		136/162	

**Attachment to WW-6A1, Johnson 204**

<b>Letter Designation/Number Designation on Plat</b>	<b>Grantor, Lessor, Assignor, etc.</b>	<b>Grantee, Lessee, Assignee, etc.</b>	<b>Royalty</b>	<b>Book/Page</b>	<b>Acreage</b>
	The Houston Exploration Company	Seneca-Upshur Petroleum LLC		447/523	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	
157, 159 (00005909)	CHARLES BANISH AND BONNIE BANISH, HIS WIFE	Cumberland and Allegheny Gas Company	12.5	46/401	55
	Cumberland and Allegheny Gas Company	Union Drilling Inc AND Allerton Miller		46/347	
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy		328/171	
	Equitable Resources Energy Co	Fuel Resources Production & Development		116/81	
	Equitable Resources Energy Co	Enervest East Limited Partnership		129/524	
	Fuel Resources Production & Development	The Houston Exploration Company		136/162	
	Enervest East Limited Partnership	The Houston Exploration Company		138/1	
	The Houston Exploration Company	Seneca-Upshur Petroleum LLC		139/48	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	
168, 167, 166 (00005722)	WILLIAM B SMITH AND CLARA SMITH, HIS WIFE	Union Drilling Inc AND Allerton Miller	12.5	47/449	102
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy		328/171	
	Equitable Resources Energy Co	Fuel Resources Production & Development		116/81	
	Equitable Resources Energy Co	Enervest East Limited Partnership		129/524	
	Fuel Resources Production & Development	The Houston Exploration Company		136/162	

OCT 11 2022  
 WMS Development of  
 Energy and Infrastructure

**Attachment to WW-6A1, Johnson 204**

<b>Letter Designation/Number Designation on Plat</b>	<b>Grantor, Lessor, Assignor, etc.</b>	<b>Grantee, Lessee, Assignee, etc.</b>	<b>Royalty</b>	<b>Book/Page</b>	<b>Acreage</b>
	Enervest East Limited Partnership	The Houston Exploration Company		138/1	
	The Houston Exploration Company	Seneca-Upshur Petroleum LLC		139/48	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	
165 (00005721)	William B Smith and Clara Smith	Union Drilling Inc and Allerton Miller	12.5	47/425	46
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy Company		328/171	
	Equitable Resources Energy Company	Fuel Resources Production & Development		116/81	
	Equitable Resources Energy Company	Enervest East Limited Partnership		129/524	
	Enervest East Limited Partnership	The Houston Exploration Co		138/1	
	Fuel Resources Production & Development	The Houston Exploration Co		383/187	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		404/381	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		447/129	

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 Office of the Civil Gas  
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 V&E Department of  
 Environmental Regulation



October 12, 2022

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
ATTN: Taylor Brewer  
601 57th Street SE  
Charleston, WV 25304

**RE: Johnson TFP 40 204, API# 47-091-01369 – Expedited Modification due to well extension**

Dear Mr. Brewer,

Enclosed please find the modification for the Johnson TFP 40 204, (API# 47-091-01369). This permit is being modified due to extending the wellbore lateral length. The wellhead locations remain the same as the current permit. This well was permitted to 28,423 feet. The modification request is to increase the total measured depth to 29,554 feet. Additional leases under the additional section are shown on the revised WW-6A1.

Included are the following updated forms:

- Plat
- WW-6B
- Wellbore Schematic
- WW-6A1, Lease Information
- Area of Review Report
- Site Safety Plan
- Notification of Application

Should you have any questions or need any additional information, please feel free to contact me by phone or email.

Sincerely,

A handwritten signature in blue ink, appearing to read 'D Boyer'.

Dave Boyer  
Director of Geology & Development Planning  
(c) 724-759-0088  
(e) dboyer@arsenalresources.com

RECEIVED  
Office of Oil and Gas

OCT 14 2022

WV DEPARTMENT OF ENVIRONMENTAL PROTECTION



Stansberry, Wade A &lt;wade.a.stansberry@wv.gov&gt;

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**Expedited Modification Horizontal H6A Well Work Permits API: (47-091-01369 & 47-091-01370)**

1 message

**Stansberry, Wade A** <wade.a.stansberry@wv.gov>

Tue, Oct 18, 2022 at 7:48 AM

To: Ross Schweitzer &lt;rschweitzer@arsenalresources.com&gt;, Dave Boyer &lt;Dboyer@arsenalresources.com&gt;, C Kinsey &lt;ckinsey@wvassessor.com&gt;, "Greynolds, Kenneth L" &lt;kenneth.l.greynolds@wv.gov&gt;, "Blevins, Cragin" &lt;cragin.blevins@wv.gov&gt;

I have attached a copy of the newly issued well [permit](#) numbers:



**47-091-01369 - JOHNSON TFP 40 204****47-091-01370 - JOHNSON TFP 40 205**

These will serve as your copy.

Thank you,

**Wade A. Stansberry****Environmental Resource Specialist 3****West Virginia Department of Environmental Protection****Office of Oil & Gas****601 57th St. SE****Charleston, WV 25304****(304) 926-0499 ext. 41115****(304) 926-0452 fax****[Wade.A.Stansberry@wv.gov](mailto:Wade.A.Stansberry@wv.gov)**

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**2 attachments** **47-091-01369 - mod.pdf**  
9079K **47-091-01370 - mod.pdf**  
8293K**10/21/2022**