west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Monday, November 7, 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-40 201
47-091-01367-00-00

Sidetrack with updated leases

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

Operator's Well Number: JOHNSON TFP-40 201
Farm Name: RENEE JOHNSON
U.S. WELL NUMBER: 47-091-01367-00-00
Horizontal 6A New Drill
Date Modification Issued: 11/07/2022

WW-6B
(04/15)

API NO. 47- 091 - 01367 MOD 2
OPERATOR WELL NO. Johnson TFP 40 201
Well Pad Name: Johnson TFP 40

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: Johnson TFP 40 201 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 X Oil _____ Underground Storage _____
Other _____
(b)If Gas Shallow X Deep _____
Horizontal X

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- 7,824.5ft, Bottom- 7,916.5ft, Anticipated Thickness- 92ft, 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: 26,586 ft

11) Proposed Horizontal Leg Length: 17,846 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-876.5'

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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WV Department of
Environmental Protection

API NO. 47- 091 - 01367
OPERATOR WELL NO. Johnson TFP 40 201
Well Pad Name: Johnson TFP 40

18) **CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	24	Used		94	120	120	CTS
Fresh Water	13.375	New	J-55	54.5	754	754	CTS
Coal							
Intermediate	9.625	New	J-55	40	2132	2132	CTS
Production	5.5	New	P-110	20	26,586	26,586	TOC @ 1,950
Tubing							
Liners							

Conductor, Fresh Water, and Intermediate Casing is existing in the well.

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: 2022.10.24 13:15:46 -04'00'

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	24	36			0	Class A 3% CaCl2	1.2
Fresh Water	13.375	17.5	0.38	2,730	900	Class A 3% CaCl2	1.2
Coal							
Intermediate	9.625	12.25	0.395	3,950	1,500	Class A 3% CaCl2	1.29
Production	5.5	8.5-8.75	0.361	15,920	11,500	Class A/L Poz	1.29/1.34
Tubing					5,000		
Liners					N/A		

Conductor, Fresh Water, and Intermediate Casing has been cemented in place with Class A cement.

PACKERS

Kind:				
Sizes:				
Depths Set:				

API NO. 47- 091 - 01367
OPERATOR WELL NO. Johnson TFP 40 201
Well Pad Name: Johnson TFP 40

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 ½" 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- ¼" intermediate hole to the programmed depth, run 9- 5/8" casing and cement to surface. The rig with then continue to drill an 8- ¾" hole to a designed pilot hole depth, then trip out of hole to run wireline logs. A cement kick-off plug will then be set from bottom of the pilot hole to the designed KOP. We will then drill off the cement plug and start drilling the curve and lateral section to the programmed total measured depth, run 5 ½" 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.

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

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 ½" – 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/L cement and no greater than 3% CaCl (calcium chloride). The 9 5/8" casing will be cemented to surface with Class A/L cement, & no greater than 3% calcium chloride. The 5 1/2" production string will be cemented back to 1950' (+/- 150' above the casing shoe for the 9 5/8") with Class A/L 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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Harold D. Ward, Cabinet Secretary
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BEFORE THE OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
STATE OF WEST VIRGINIA

IN THE MATTER OF A VARIANCE FROM	)	
LEGISLATIVE RULE 35CSR4	)	**ORDER NO. 2022-14**
SECTION 11.5 AND LEGISLATIVE RULE	)	
35CSR8 SECTION 9.2.h.8.,	)	
RELATING TO THE CEMENTING	)	
OF OIL AND GAS WELLS	)	

REPORT OF THE OFFICE

In response to industry requests, the West Virginia Department of Environmental Protection, Office of Oil and Gas has reviewed the proposed use of American Petroleum Institute (API) Class L cement to be used in place of API Class A cement for well construction.

FINDINGS OF FACT

1. On July 14, 2022, Northeast Natural Energy (NNE) submitted a variance request from Legislative Rule 35CSR8 Section 9.2.h.8., for the use of API Class L cement in place of API Class A cement, relating to the construction of horizontal wells.

2. Laboratory analysis submitted by NNE on July 14, 2022, indicates API Class L cement is comparable to API Class A cement and thereby satisfies the requirements of the West Virginia Code.

3. Contemporaneously, the Chief of the Office of Oil and Gas also chose to consider a variance to Legislative Rule 35CSR4 Section 11.5., for the use of API Class L cement in place of API Class A cement, relating to the construction of vertical wells.

4. On August 18, 2022, the Office of Oil and Gas provided public notice of acceptance of public comments on the variance consideration. During the 20-day public comment period, no comments were received.

CONCLUSIONS OF LAW

Pursuant to Article 6 and Article 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to Legislative Rule 35CSR4, Section 18 and Legislative Rule 35CSR8, Section 14, the Chief of the Office of Oil and Gas may grant a variance from any requirement of these rules.

ORDER

It is ordered that the Class L cement product approved and monogramed by API is approved for use in place of API Class A cement for well construction subject to the provisions of Legislative Rule 35CSR4 and Legislative Rule 35CSR8.

Dated this, the 13th day of September, 2022.

IN THE NAME OF THE STATE OF WEST VIRGINIA

OFFICE OF OIL AND GAS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OF THE STATE OF WEST VIRGINIA

James Martin, Chief
Office of Oil and Gas

ARSENAL™
RESOURCES

Arsenal Resources

Taylor County, WV
Johnson TFP40
201

ST01

Plan: 201_ST01

Standard Planning Report

18 October, 2022

RECEIVED
Office of Oil and Gas
OCT 27 2022
WV Department of
Environmental Protection

Scientific Drilling

Database:	Northeast	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

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

Well	201					
Well Position	**+N/-S**	0.1 usft	**Northing:**	276,971.72 usft	**Latitude:**	39.2584993
	+E/-W	-0.2 usft	**Easting:**	1,779,051.66 usft	**Longitude:**	-80.1690595
Position Uncertainty		0.0 usft	**Wellhead Elevation:**		**Ground Level:**	1,332.5 usft

Wellbore	ST01			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	HDGM2022	10/12/2022	-9.53	65.70	51,541.80000000

Design	201_ST01				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	4,000.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	160.97	

Plan Sections

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
4,000.0	23.17	266.34	3,924.8	-200.2	-514.0	0.00	0.00	0.00	0.00	
4,030.0	23.20	269.38	3,952.3	-200.6	-525.8	4.00	0.10	10.16	90.00	
4,112.7	24.00	273.00	4,028.1	-199.9	-558.8	2.00	0.97	4.37	62.69	
4,629.2	24.00	273.00	4,500.0	-188.9	-768.6	0.00	0.00	0.00	0.00	
4,913.8	24.00	266.00	4,760.0	-189.9	-884.2	1.00	0.00	-2.46	-93.20	
7,146.8	24.00	266.00	6,800.0	-253.3	-1,790.2	0.00	0.00	0.00	0.00	
7,548.9	24.17	213.16	7,171.2	-328.7	-1,918.3	5.20	0.04	-13.14	-113.97	
7,797.4	24.17	213.16	7,397.9	-413.9	-1,973.9	0.00	0.00	0.00	0.00	
8,740.7	90.00	160.97	7,903.5	-1,127.8	-1,917.4	8.00	6.98	-5.53	-54.71	Joh_TPF40_201-ST0
26,586.2	90.00	160.97	7,903.5	-17,997.6	3,902.5	0.00	0.00	0.00	0.00	Joh_TPF40_201-ST0

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Site:	Johnson TFP40	**North Reference:**	Grid
Well:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

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
175.0	1.01	337.79	175.0	1.4	-0.6	-1.5	0.58	0.58	0.00
303.0	1.32	324.21	303.0	3.7	-1.9	-4.1	0.32	0.24	-10.61
398.0	1.78	254.97	397.9	4.2	-3.9	-5.2	1.90	0.48	-72.88
493.0	2.88	218.60	492.9	1.9	-6.9	-4.1	1.88	1.16	-38.28
588.0	4.99	185.38	587.6	-4.1	-8.7	1.0	3.18	2.22	-34.97
683.0	6.77	176.89	682.1	-13.8	-8.8	10.1	2.08	1.87	-8.94
714.0	7.62	173.16	712.9	-17.6	-8.5	13.9	3.13	2.74	-12.03
873.0	7.62	173.20	870.5	-38.6	-6.0	34.5	0.00	0.00	0.03
968.0	6.24	173.34	964.8	-49.9	-4.6	45.7	1.45	-1.45	0.15
1,063.0	5.05	187.54	1,059.3	-59.2	-4.6	54.5	1.92	-1.25	14.95
1,158.0	4.62	207.47	1,154.0	-66.8	-6.9	60.9	1.82	-0.45	20.98
1,253.0	4.46	227.57	1,248.7	-72.6	-11.4	65.0	1.67	-0.17	21.16
1,348.0	4.88	244.04	1,343.4	-76.9	-17.7	66.9	1.47	0.44	17.34
1,443.0	5.03	240.85	1,438.0	-80.7	-25.0	68.1	0.33	0.16	-3.36
1,538.0	4.80	250.72	1,532.7	-84.0	-32.4	68.9	0.92	-0.24	10.39
1,633.0	5.46	257.31	1,627.3	-86.3	-40.6	68.4	0.93	0.69	6.94
1,728.0	6.05	254.15	1,721.8	-88.7	-49.8	67.6	0.70	0.62	-3.33
1,823.0	4.92	248.95	1,816.4	-91.5	-58.4	67.5	1.30	-1.19	-5.47
1,918.0	4.76	245.07	1,911.1	-94.7	-65.8	68.0	0.38	-0.17	-4.08
2,013.0	5.00	239.74	2,005.7	-98.4	-72.9	69.3	0.54	0.25	-5.61
2,092.0	5.03	236.31	2,084.4	-102.1	-78.8	70.8	0.38	0.04	-4.34
2,205.0	5.68	228.45	2,196.9	-108.5	-87.1	74.2	0.87	0.58	-6.96
2,300.0	6.11	220.63	2,291.4	-115.5	-93.9	78.6	0.96	0.45	-8.23
2,395.0	7.76	228.90	2,385.7	-123.5	-102.0	83.5	2.03	1.74	8.71
2,490.0	9.35	232.98	2,479.7	-132.4	-113.0	88.3	1.79	1.67	4.29
2,585.0	9.66	240.42	2,573.4	-141.0	-126.1	92.2	1.33	0.33	7.83
2,680.0	9.61	245.85	2,667.0	-148.2	-140.3	94.3	0.96	-0.05	5.72
2,775.0	9.70	252.52	2,760.7	-153.8	-155.2	94.8	1.18	0.09	7.02
2,870.0	9.80	255.17	2,854.3	-158.3	-170.6	94.0	0.48	0.11	2.79
2,965.0	10.10	255.06	2,947.9	-162.5	-186.5	92.8	0.32	0.32	-0.12
3,060.0	10.51	261.70	3,041.4	-165.9	-203.1	90.6	1.32	0.43	6.99
3,155.0	12.17	260.00	3,134.5	-168.9	-221.5	87.4	1.78	1.75	-1.79
3,250.0	14.30	260.55	3,227.0	-172.6	-243.0	83.9	2.25	2.24	0.58
3,345.0	17.01	261.17	3,318.4	-176.6	-268.3	79.5	2.86	2.85	0.65
3,440.0	19.95	262.78	3,408.5	-180.8	-298.1	73.7	3.14	3.09	1.69
3,535.0	21.82	263.29	3,497.3	-184.9	-331.7	66.6	1.98	1.97	0.54
3,630.0	22.57	263.34	3,585.2	-189.1	-367.3	58.9	0.79	0.79	0.05
3,725.0	23.10	264.78	3,672.8	-192.9	-404.0	50.6	0.81	0.56	1.52
3,820.0	24.12	266.08	3,759.9	-195.9	-441.9	41.1	1.21	1.07	1.37
3,915.0	23.59	266.98	3,846.7	-198.2	-480.3	30.8	0.68	-0.56	0.95
4,000.0	23.17	266.34	3,924.8	-200.2	-514.0	21.7	0.58	-0.49	-0.76
ST01 Tie In/ Hold 90° TF									
4,030.0	23.20	269.38	3,952.3	-200.6	-525.8	18.2	4.00	0.10	10.16
Hold 63° TF									
4,100.0	23.87	272.46	4,016.5	-200.2	-553.7	8.7	2.00	0.96	4.39
4,112.7	24.00	273.00	4,028.1	-199.9	-558.8	6.8	2.00	1.01	4.25
Hold Tang. Dir. 273° Az									
4,200.0	24.00	273.00	4,107.9	-198.1	-594.3	-6.5	0.00	0.00	0.00
4,300.0	24.00	273.00	4,199.2	-195.9	-634.9	-21.8	0.00	0.00	0.00
4,400.0	24.00	273.00	4,290.6	-193.8	-675.5	-37.1	0.00	0.00	0.00
4,500.0	24.00	273.00	4,381.9	-191.7	-716.2	-52.3	0.00	0.00	0.00

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Site:	Johnson TFP40	**North Reference:**	Grid
Well:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

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)
4,600.0	24.00	273.00	4,473.3	-189.5	-756.8	-67.6	0.00	0.00	0.00
4,629.2	24.00	273.00	4,500.0	-188.9	-768.6	-72.0	0.00	0.00	0.00
Turn Tang									
4,700.0	23.97	271.26	4,564.7	-187.9	-797.4	-82.4	1.00	-0.04	-2.46
4,800.0	23.96	268.80	4,656.0	-187.8	-838.0	-95.7	1.00	-0.01	-2.46
4,900.0	23.99	266.34	4,747.4	-189.6	-878.6	-107.3	1.00	0.03	-2.46
4,913.8	24.00	266.00	4,760.0	-189.9	-884.2	-108.8	1.00	0.05	-2.46
Hold									
5,000.0	24.00	266.00	4,838.8	-192.4	-919.2	-117.8	0.00	0.00	0.00
5,100.0	24.00	266.00	4,930.1	-195.2	-959.7	-128.4	0.00	0.00	0.00
5,200.0	24.00	266.00	5,021.5	-198.1	-1,000.3	-138.9	0.00	0.00	0.00
5,300.0	24.00	266.00	5,112.8	-200.9	-1,040.9	-149.5	0.00	0.00	0.00
5,400.0	24.00	266.00	5,204.2	-203.7	-1,081.5	-160.0	0.00	0.00	0.00
5,500.0	24.00	266.00	5,295.5	-206.6	-1,122.0	-170.6	0.00	0.00	0.00
5,600.0	24.00	266.00	5,386.9	-209.4	-1,162.6	-181.1	0.00	0.00	0.00
5,700.0	24.00	266.00	5,478.2	-212.2	-1,203.2	-191.7	0.00	0.00	0.00
5,800.0	24.00	266.00	5,569.6	-215.1	-1,243.8	-202.2	0.00	0.00	0.00
5,900.0	24.00	266.00	5,661.0	-217.9	-1,284.3	-212.8	0.00	0.00	0.00
6,000.0	24.00	266.00	5,752.3	-220.8	-1,324.9	-223.3	0.00	0.00	0.00
6,100.0	24.00	266.00	5,843.7	-223.6	-1,365.5	-233.9	0.00	0.00	0.00
6,200.0	24.00	266.00	5,935.0	-226.4	-1,406.1	-244.4	0.00	0.00	0.00
6,300.0	24.00	266.00	6,026.4	-229.3	-1,446.6	-255.0	0.00	0.00	0.00
6,400.0	24.00	266.00	6,117.7	-232.1	-1,487.2	-265.5	0.00	0.00	0.00
6,500.0	24.00	266.00	6,209.1	-234.9	-1,527.8	-276.1	0.00	0.00	0.00
6,600.0	24.00	266.00	6,300.4	-237.8	-1,568.4	-286.6	0.00	0.00	0.00
6,700.0	24.00	266.00	6,391.8	-240.6	-1,608.9	-297.2	0.00	0.00	0.00
6,800.0	24.00	266.00	6,483.1	-243.4	-1,649.5	-307.7	0.00	0.00	0.00
6,900.0	24.00	266.00	6,574.5	-246.3	-1,690.1	-318.2	0.00	0.00	0.00
7,000.0	24.00	266.00	6,665.9	-249.1	-1,730.7	-328.8	0.00	0.00	0.00
7,100.0	24.00	266.00	6,757.2	-252.0	-1,771.2	-339.3	0.00	0.00	0.00
7,146.8	24.00	266.00	6,800.0	-253.3	-1,790.2	-344.3	0.00	0.00	0.00
Turn Tang									
7,200.0	23.01	259.52	6,848.8	-255.9	-1,811.2	-348.6	5.20	-1.87	-12.19
7,300.0	21.93	246.17	6,941.2	-267.0	-1,847.6	-350.0	5.20	-1.08	-13.35
7,400.0	22.00	232.23	7,034.0	-286.1	-1,879.5	-342.4	5.20	0.07	-13.94
7,500.0	23.21	219.03	7,126.4	-312.9	-1,906.7	-325.9	5.20	1.21	-13.20
7,548.9	24.17	213.16	7,171.2	-328.7	-1,918.3	-314.7	5.20	1.96	-12.00
Hold									
7,600.0	24.17	213.16	7,217.8	-346.3	-1,929.7	-301.9	0.00	0.00	0.00
7,700.0	24.17	213.16	7,309.0	-380.5	-1,952.1	-276.8	0.00	0.00	0.00
7,797.4	24.17	213.16	7,397.9	-413.9	-1,973.9	-252.3	0.00	0.00	0.00
Curve KOP 8°/100									
7,800.0	24.29	212.76	7,400.3	-414.8	-1,974.5	-251.7	8.00	4.64	-15.87
7,850.0	26.81	205.54	7,445.4	-433.7	-1,984.9	-237.3	8.00	5.03	-14.44
7,900.0	29.63	199.54	7,489.4	-455.5	-1,993.9	-219.5	8.00	5.65	-12.00
7,950.0	32.68	194.53	7,532.2	-480.2	-2,001.5	-198.6	8.00	6.10	-10.02
8,000.0	35.90	190.30	7,573.5	-507.7	-2,007.5	-174.6	8.00	6.43	-8.45
8,050.0	39.24	186.70	7,613.2	-537.9	-2,011.9	-147.5	8.00	6.69	-7.21
8,100.0	42.68	183.58	7,650.9	-570.5	-2,014.9	-117.6	8.00	6.88	-6.23
8,150.0	46.20	180.85	7,686.6	-605.5	-2,016.2	-85.0	8.00	7.03	-5.46
8,200.0	49.77	178.43	7,720.1	-642.6	-2,015.9	-49.8	8.00	7.14	-4.85

Database:	Northeast	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

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	53.39	176.25	7,751.2	-681.7	-2,014.1	-12.2	8.00	7.23	-4.36
8,300.0	57.04	174.26	7,779.7	-722.6	-2,010.7	27.5	8.00	7.31	-3.97
8,350.0	60.72	172.44	7,805.5	-765.1	-2,005.7	69.3	8.00	7.36	-3.65
8,400.0	64.43	170.74	7,828.5	-809.0	-1,999.2	113.0	8.00	7.41	-3.40
8,450.0	68.15	169.14	7,848.6	-854.1	-1,991.2	158.2	8.00	7.45	-3.19
8,500.0	71.89	167.63	7,865.7	-900.1	-1,981.7	204.8	8.00	7.48	-3.03
8,550.0	75.64	166.18	7,879.7	-946.9	-1,970.8	252.5	8.00	7.50	-2.90
8,600.0	79.40	164.77	7,890.5	-994.1	-1,958.6	301.2	8.00	7.52	-2.81
8,650.0	83.16	163.40	7,898.1	-1,041.6	-1,945.1	350.5	8.00	7.53	-2.74
8,700.0	86.93	162.06	7,902.4	-1,089.2	-1,930.3	400.3	8.00	7.54	-2.70
8,740.7	90.00	160.97	7,903.5	-1,127.8	-1,917.4	441.0	8.00	7.54	-2.68
LP @ 90° Inc/ 160.97° Az/ 8740.7' MD/ TVD 7903.5'									
8,800.0	90.00	160.97	7,903.5	-1,183.8	-1,898.0	500.3	0.00	0.00	0.00
8,900.0	90.00	160.97	7,903.5	-1,278.4	-1,865.4	600.3	0.00	0.00	0.00
9,000.0	90.00	160.97	7,903.5	-1,372.9	-1,832.8	700.3	0.00	0.00	0.00
9,100.0	90.00	160.97	7,903.5	-1,467.4	-1,800.2	800.3	0.00	0.00	0.00
9,200.0	90.00	160.97	7,903.5	-1,562.0	-1,767.6	900.3	0.00	0.00	0.00
9,300.0	90.00	160.97	7,903.5	-1,656.5	-1,735.0	1,000.3	0.00	0.00	0.00
9,400.0	90.00	160.97	7,903.5	-1,751.0	-1,702.4	1,100.3	0.00	0.00	0.00
9,500.0	90.00	160.97	7,903.5	-1,845.6	-1,669.7	1,200.3	0.00	0.00	0.00
9,600.0	90.00	160.97	7,903.5	-1,940.1	-1,637.1	1,300.3	0.00	0.00	0.00
9,700.0	90.00	160.97	7,903.5	-2,034.6	-1,604.5	1,400.3	0.00	0.00	0.00
9,800.0	90.00	160.97	7,903.5	-2,129.2	-1,571.9	1,500.3	0.00	0.00	0.00
9,900.0	90.00	160.97	7,903.5	-2,223.7	-1,539.3	1,600.3	0.00	0.00	0.00
10,000.0	90.00	160.97	7,903.5	-2,318.2	-1,506.7	1,700.3	0.00	0.00	0.00
10,100.0	90.00	160.97	7,903.5	-2,412.8	-1,474.1	1,800.3	0.00	0.00	0.00
10,200.0	90.00	160.97	7,903.5	-2,507.3	-1,441.5	1,900.3	0.00	0.00	0.00
10,300.0	90.00	160.97	7,903.5	-2,601.8	-1,408.8	2,000.3	0.00	0.00	0.00
10,400.0	90.00	160.97	7,903.5	-2,696.4	-1,376.2	2,100.3	0.00	0.00	0.00
10,500.0	90.00	160.97	7,903.5	-2,790.9	-1,343.6	2,200.3	0.00	0.00	0.00
10,600.0	90.00	160.97	7,903.5	-2,885.4	-1,311.0	2,300.3	0.00	0.00	0.00
10,700.0	90.00	160.97	7,903.5	-2,979.9	-1,278.4	2,400.3	0.00	0.00	0.00
10,800.0	90.00	160.97	7,903.5	-3,074.5	-1,245.8	2,500.3	0.00	0.00	0.00
10,900.0	90.00	160.97	7,903.5	-3,169.0	-1,213.2	2,600.3	0.00	0.00	0.00
11,000.0	90.00	160.97	7,903.5	-3,263.5	-1,180.6	2,700.3	0.00	0.00	0.00
11,100.0	90.00	160.97	7,903.5	-3,358.1	-1,147.9	2,800.3	0.00	0.00	0.00
11,200.0	90.00	160.97	7,903.5	-3,452.6	-1,115.3	2,900.3	0.00	0.00	0.00
11,300.0	90.00	160.97	7,903.5	-3,547.1	-1,082.7	3,000.3	0.00	0.00	0.00
11,400.0	90.00	160.97	7,903.5	-3,641.7	-1,050.1	3,100.3	0.00	0.00	0.00
11,500.0	90.00	160.97	7,903.5	-3,736.2	-1,017.5	3,200.3	0.00	0.00	0.00
11,600.0	90.00	160.97	7,903.5	-3,830.7	-984.9	3,300.3	0.00	0.00	0.00
11,700.0	90.00	160.97	7,903.5	-3,925.3	-952.3	3,400.3	0.00	0.00	0.00
11,800.0	90.00	160.97	7,903.5	-4,019.8	-919.7	3,500.3	0.00	0.00	0.00
11,900.0	90.00	160.97	7,903.5	-4,114.3	-887.0	3,600.3	0.00	0.00	0.00
12,000.0	90.00	160.97	7,903.5	-4,208.9	-854.4	3,700.3	0.00	0.00	0.00
12,100.0	90.00	160.97	7,903.5	-4,303.4	-821.8	3,800.3	0.00	0.00	0.00
12,200.0	90.00	160.97	7,903.5	-4,397.9	-789.2	3,900.3	0.00	0.00	0.00
12,300.0	90.00	160.97	7,903.5	-4,492.5	-756.6	4,000.3	0.00	0.00	0.00
12,400.0	90.00	160.97	7,903.5	-4,587.0	-724.0	4,100.3	0.00	0.00	0.00
12,500.0	90.00	160.97	7,903.5	-4,681.5	-691.4	4,200.3	0.00	0.00	0.00
12,600.0	90.00	160.97	7,903.5	-4,776.1	-658.8	4,300.3	0.00	0.00	0.00
12,700.0	90.00	160.97	7,903.5	-4,870.6	-626.1	4,400.3	0.00	0.00	0.00

Database:	Northeast	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

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)
12,800.0	90.00	160.97	7,903.5	-4,965.1	-593.5	4,500.3	0.00	0.00	0.00
12,900.0	90.00	160.97	7,903.5	-5,059.7	-560.9	4,600.3	0.00	0.00	0.00
13,000.0	90.00	160.97	7,903.5	-5,154.2	-528.3	4,700.3	0.00	0.00	0.00
13,100.0	90.00	160.97	7,903.5	-5,248.7	-495.7	4,800.3	0.00	0.00	0.00
13,200.0	90.00	160.97	7,903.5	-5,343.3	-463.1	4,900.3	0.00	0.00	0.00
13,300.0	90.00	160.97	7,903.5	-5,437.8	-430.5	5,000.3	0.00	0.00	0.00
13,400.0	90.00	160.97	7,903.5	-5,532.3	-397.9	5,100.3	0.00	0.00	0.00
13,500.0	90.00	160.97	7,903.5	-5,626.9	-365.2	5,200.3	0.00	0.00	0.00
13,600.0	90.00	160.97	7,903.5	-5,721.4	-332.6	5,300.3	0.00	0.00	0.00
13,700.0	90.00	160.97	7,903.5	-5,815.9	-300.0	5,400.3	0.00	0.00	0.00
13,800.0	90.00	160.97	7,903.5	-5,910.5	-267.4	5,500.3	0.00	0.00	0.00
13,900.0	90.00	160.97	7,903.5	-6,005.0	-234.8	5,600.3	0.00	0.00	0.00
14,000.0	90.00	160.97	7,903.5	-6,099.5	-202.2	5,700.3	0.00	0.00	0.00
14,100.0	90.00	160.97	7,903.5	-6,194.1	-169.6	5,800.3	0.00	0.00	0.00
14,200.0	90.00	160.97	7,903.5	-6,288.6	-137.0	5,900.3	0.00	0.00	0.00
14,300.0	90.00	160.97	7,903.5	-6,383.1	-104.4	6,000.3	0.00	0.00	0.00
14,400.0	90.00	160.97	7,903.5	-6,477.7	-71.7	6,100.3	0.00	0.00	0.00
14,500.0	90.00	160.97	7,903.5	-6,572.2	-39.1	6,200.3	0.00	0.00	0.00
14,600.0	90.00	160.97	7,903.5	-6,666.7	-6.5	6,300.3	0.00	0.00	0.00
14,700.0	90.00	160.97	7,903.5	-6,761.3	26.1	6,400.3	0.00	0.00	0.00
14,800.0	90.00	160.97	7,903.5	-6,855.8	58.7	6,500.3	0.00	0.00	0.00
14,900.0	90.00	160.97	7,903.5	-6,950.3	91.3	6,600.3	0.00	0.00	0.00
15,000.0	90.00	160.97	7,903.5	-7,044.9	123.9	6,700.3	0.00	0.00	0.00
15,100.0	90.00	160.97	7,903.5	-7,139.4	156.5	6,800.3	0.00	0.00	0.00
15,200.0	90.00	160.97	7,903.5	-7,233.9	189.2	6,900.3	0.00	0.00	0.00
15,300.0	90.00	160.97	7,903.5	-7,328.5	221.8	7,000.3	0.00	0.00	0.00
15,400.0	90.00	160.97	7,903.5	-7,423.0	254.4	7,100.3	0.00	0.00	0.00
15,500.0	90.00	160.97	7,903.5	-7,517.5	287.0	7,200.3	0.00	0.00	0.00
15,600.0	90.00	160.97	7,903.5	-7,612.1	319.6	7,300.3	0.00	0.00	0.00
15,700.0	90.00	160.97	7,903.5	-7,706.6	352.2	7,400.3	0.00	0.00	0.00
15,800.0	90.00	160.97	7,903.5	-7,801.1	384.8	7,500.3	0.00	0.00	0.00
15,900.0	90.00	160.97	7,903.5	-7,895.7	417.4	7,600.3	0.00	0.00	0.00
16,000.0	90.00	160.97	7,903.5	-7,990.2	450.1	7,700.3	0.00	0.00	0.00
16,100.0	90.00	160.97	7,903.5	-8,084.7	482.7	7,800.3	0.00	0.00	0.00
16,200.0	90.00	160.97	7,903.5	-8,179.3	515.3	7,900.3	0.00	0.00	0.00
16,300.0	90.00	160.97	7,903.5	-8,273.8	547.9	8,000.3	0.00	0.00	0.00
16,400.0	90.00	160.97	7,903.5	-8,368.3	580.5	8,100.3	0.00	0.00	0.00
16,500.0	90.00	160.97	7,903.5	-8,462.8	613.1	8,200.3	0.00	0.00	0.00
16,600.0	90.00	160.97	7,903.5	-8,557.4	645.7	8,300.3	0.00	0.00	0.00
16,700.0	90.00	160.97	7,903.5	-8,651.9	678.3	8,400.3	0.00	0.00	0.00
16,800.0	90.00	160.97	7,903.5	-8,746.4	711.0	8,500.3	0.00	0.00	0.00
16,900.0	90.00	160.97	7,903.5	-8,841.0	743.6	8,600.3	0.00	0.00	0.00
17,000.0	90.00	160.97	7,903.5	-8,935.5	776.2	8,700.3	0.00	0.00	0.00
17,100.0	90.00	160.97	7,903.5	-9,030.0	808.8	8,800.3	0.00	0.00	0.00
17,200.0	90.00	160.97	7,903.5	-9,124.6	841.4	8,900.3	0.00	0.00	0.00
17,300.0	90.00	160.97	7,903.5	-9,219.1	874.0	9,000.3	0.00	0.00	0.00
17,400.0	90.00	160.97	7,903.5	-9,313.6	906.6	9,100.3	0.00	0.00	0.00
17,500.0	90.00	160.97	7,903.5	-9,408.2	939.2	9,200.3	0.00	0.00	0.00
17,600.0	90.00	160.97	7,903.5	-9,502.7	971.9	9,300.3	0.00	0.00	0.00
17,700.0	90.00	160.97	7,903.5	-9,597.2	1,004.5	9,400.3	0.00	0.00	0.00
17,800.0	90.00	160.97	7,903.5	-9,691.8	1,037.1	9,500.3	0.00	0.00	0.00
17,900.0	90.00	160.97	7,903.5	-9,786.3	1,069.7	9,600.3	0.00	0.00	0.00

Database:	Northeast	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

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)
18,000.0	90.00	160.97	7,903.5	-9,880.8	1,102.3	9,700.3	0.00	0.00	0.00
18,100.0	90.00	160.97	7,903.5	-9,975.4	1,134.9	9,800.3	0.00	0.00	0.00
18,200.0	90.00	160.97	7,903.5	-10,069.9	1,167.5	9,900.3	0.00	0.00	0.00
18,300.0	90.00	160.97	7,903.5	-10,164.4	1,200.1	10,000.3	0.00	0.00	0.00
18,400.0	90.00	160.97	7,903.5	-10,259.0	1,232.8	10,100.3	0.00	0.00	0.00
18,500.0	90.00	160.97	7,903.5	-10,353.5	1,265.4	10,200.3	0.00	0.00	0.00
18,600.0	90.00	160.97	7,903.5	-10,448.0	1,298.0	10,300.3	0.00	0.00	0.00
18,700.0	90.00	160.97	7,903.5	-10,542.6	1,330.6	10,400.3	0.00	0.00	0.00
18,800.0	90.00	160.97	7,903.5	-10,637.1	1,363.2	10,500.3	0.00	0.00	0.00
18,900.0	90.00	160.97	7,903.5	-10,731.6	1,395.8	10,600.3	0.00	0.00	0.00
19,000.0	90.00	160.97	7,903.5	-10,826.2	1,428.4	10,700.3	0.00	0.00	0.00
19,100.0	90.00	160.97	7,903.5	-10,920.7	1,461.0	10,800.3	0.00	0.00	0.00
19,200.0	90.00	160.97	7,903.5	-11,015.2	1,493.6	10,900.3	0.00	0.00	0.00
19,300.0	90.00	160.97	7,903.5	-11,109.8	1,526.3	11,000.3	0.00	0.00	0.00
19,400.0	90.00	160.97	7,903.5	-11,204.3	1,558.9	11,100.3	0.00	0.00	0.00
19,500.0	90.00	160.97	7,903.5	-11,298.8	1,591.5	11,200.3	0.00	0.00	0.00
19,600.0	90.00	160.97	7,903.5	-11,393.4	1,624.1	11,300.3	0.00	0.00	0.00
19,700.0	90.00	160.97	7,903.5	-11,487.9	1,656.7	11,400.3	0.00	0.00	0.00
19,800.0	90.00	160.97	7,903.5	-11,582.4	1,689.3	11,500.3	0.00	0.00	0.00
19,900.0	90.00	160.97	7,903.5	-11,677.0	1,721.9	11,600.3	0.00	0.00	0.00
20,000.0	90.00	160.97	7,903.5	-11,771.5	1,754.5	11,700.3	0.00	0.00	0.00
20,100.0	90.00	160.97	7,903.5	-11,866.0	1,787.2	11,800.3	0.00	0.00	0.00
20,200.0	90.00	160.97	7,903.5	-11,960.6	1,819.8	11,900.3	0.00	0.00	0.00
20,300.0	90.00	160.97	7,903.5	-12,055.1	1,852.4	12,000.3	0.00	0.00	0.00
20,400.0	90.00	160.97	7,903.5	-12,149.6	1,885.0	12,100.3	0.00	0.00	0.00
20,500.0	90.00	160.97	7,903.5	-12,244.2	1,917.6	12,200.3	0.00	0.00	0.00
20,600.0	90.00	160.97	7,903.5	-12,338.7	1,950.2	12,300.3	0.00	0.00	0.00
20,700.0	90.00	160.97	7,903.5	-12,433.2	1,982.8	12,400.3	0.00	0.00	0.00
20,800.0	90.00	160.97	7,903.5	-12,527.8	2,015.4	12,500.3	0.00	0.00	0.00
20,900.0	90.00	160.97	7,903.5	-12,622.3	2,048.1	12,600.3	0.00	0.00	0.00
21,000.0	90.00	160.97	7,903.5	-12,716.8	2,080.7	12,700.3	0.00	0.00	0.00
21,100.0	90.00	160.97	7,903.5	-12,811.4	2,113.3	12,800.3	0.00	0.00	0.00
21,200.0	90.00	160.97	7,903.5	-12,905.9	2,145.9	12,900.3	0.00	0.00	0.00
21,300.0	90.00	160.97	7,903.5	-13,000.4	2,178.5	13,000.3	0.00	0.00	0.00
21,400.0	90.00	160.97	7,903.5	-13,095.0	2,211.1	13,100.3	0.00	0.00	0.00
21,500.0	90.00	160.97	7,903.5	-13,189.5	2,243.7	13,200.3	0.00	0.00	0.00
21,600.0	90.00	160.97	7,903.5	-13,284.0	2,276.3	13,300.3	0.00	0.00	0.00
21,700.0	90.00	160.97	7,903.5	-13,378.6	2,309.0	13,400.3	0.00	0.00	0.00
21,800.0	90.00	160.97	7,903.5	-13,473.1	2,341.6	13,500.3	0.00	0.00	0.00
21,900.0	90.00	160.97	7,903.5	-13,567.6	2,374.2	13,600.3	0.00	0.00	0.00
22,000.0	90.00	160.97	7,903.5	-13,662.2	2,406.8	13,700.3	0.00	0.00	0.00
22,100.0	90.00	160.97	7,903.5	-13,756.7	2,439.4	13,800.3	0.00	0.00	0.00
22,200.0	90.00	160.97	7,903.5	-13,851.2	2,472.0	13,900.3	0.00	0.00	0.00
22,300.0	90.00	160.97	7,903.5	-13,945.7	2,504.6	14,000.3	0.00	0.00	0.00
22,400.0	90.00	160.97	7,903.5	-14,040.3	2,537.2	14,100.3	0.00	0.00	0.00
22,500.0	90.00	160.97	7,903.5	-14,134.8	2,569.9	14,200.3	0.00	0.00	0.00
22,600.0	90.00	160.97	7,903.5	-14,229.3	2,602.5	14,300.3	0.00	0.00	0.00
22,700.0	90.00	160.97	7,903.5	-14,323.9	2,635.1	14,400.3	0.00	0.00	0.00
22,800.0	90.00	160.97	7,903.5	-14,418.4	2,667.7	14,500.3	0.00	0.00	0.00
22,900.0	90.00	160.97	7,903.5	-14,512.9	2,700.3	14,600.3	0.00	0.00	0.00
23,000.0	90.00	160.97	7,903.5	-14,607.5	2,732.9	14,700.3	0.00	0.00	0.00
23,100.0	90.00	160.97	7,903.5	-14,702.0	2,765.5	14,800.3	0.00	0.00	0.00

Database:	Northeast	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

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)
23,200.0	90.00	160.97	7,903.5	-14,796.5	2,798.1	14,900.3	0.00	0.00	0.00
23,300.0	90.00	160.97	7,903.5	-14,891.1	2,830.8	15,000.3	0.00	0.00	0.00
23,400.0	90.00	160.97	7,903.5	-14,985.6	2,863.4	15,100.3	0.00	0.00	0.00
23,500.0	90.00	160.97	7,903.5	-15,080.1	2,896.0	15,200.3	0.00	0.00	0.00
23,600.0	90.00	160.97	7,903.5	-15,174.7	2,928.6	15,300.3	0.00	0.00	0.00
23,700.0	90.00	160.97	7,903.5	-15,269.2	2,961.2	15,400.3	0.00	0.00	0.00
23,800.0	90.00	160.97	7,903.5	-15,363.7	2,993.8	15,500.3	0.00	0.00	0.00
23,900.0	90.00	160.97	7,903.5	-15,458.3	3,026.4	15,600.3	0.00	0.00	0.00
24,000.0	90.00	160.97	7,903.5	-15,552.8	3,059.0	15,700.3	0.00	0.00	0.00
24,100.0	90.00	160.97	7,903.5	-15,647.3	3,091.7	15,800.3	0.00	0.00	0.00
24,200.0	90.00	160.97	7,903.5	-15,741.9	3,124.3	15,900.3	0.00	0.00	0.00
24,300.0	90.00	160.97	7,903.5	-15,836.4	3,156.9	16,000.3	0.00	0.00	0.00
24,400.0	90.00	160.97	7,903.5	-15,930.9	3,189.5	16,100.3	0.00	0.00	0.00
24,500.0	90.00	160.97	7,903.5	-16,025.5	3,222.1	16,200.3	0.00	0.00	0.00
24,600.0	90.00	160.97	7,903.5	-16,120.0	3,254.7	16,300.3	0.00	0.00	0.00
24,700.0	90.00	160.97	7,903.5	-16,214.5	3,287.3	16,400.3	0.00	0.00	0.00
24,800.0	90.00	160.97	7,903.5	-16,309.1	3,319.9	16,500.3	0.00	0.00	0.00
24,900.0	90.00	160.97	7,903.5	-16,403.6	3,352.5	16,600.3	0.00	0.00	0.00
25,000.0	90.00	160.97	7,903.5	-16,498.1	3,385.2	16,700.3	0.00	0.00	0.00
25,100.0	90.00	160.97	7,903.5	-16,592.7	3,417.8	16,800.3	0.00	0.00	0.00
25,200.0	90.00	160.97	7,903.5	-16,687.2	3,450.4	16,900.3	0.00	0.00	0.00
25,300.0	90.00	160.97	7,903.5	-16,781.7	3,483.0	17,000.3	0.00	0.00	0.00
25,400.0	90.00	160.97	7,903.5	-16,876.3	3,515.6	17,100.3	0.00	0.00	0.00
25,500.0	90.00	160.97	7,903.5	-16,970.8	3,548.2	17,200.3	0.00	0.00	0.00
25,600.0	90.00	160.97	7,903.5	-17,065.3	3,580.8	17,300.3	0.00	0.00	0.00
25,700.0	90.00	160.97	7,903.5	-17,159.9	3,613.4	17,400.3	0.00	0.00	0.00
25,800.0	90.00	160.97	7,903.5	-17,254.4	3,646.1	17,500.3	0.00	0.00	0.00
25,900.0	90.00	160.97	7,903.5	-17,348.9	3,678.7	17,600.3	0.00	0.00	0.00
26,000.0	90.00	160.97	7,903.5	-17,443.5	3,711.3	17,700.3	0.00	0.00	0.00
26,100.0	90.00	160.97	7,903.5	-17,538.0	3,743.9	17,800.3	0.00	0.00	0.00
26,200.0	90.00	160.97	7,903.5	-17,632.5	3,776.5	17,900.3	0.00	0.00	0.00
26,300.0	90.00	160.97	7,903.5	-17,727.1	3,809.1	18,000.3	0.00	0.00	0.00
26,400.0	90.00	160.97	7,903.5	-17,821.6	3,841.7	18,100.3	0.00	0.00	0.00
26,500.0	90.00	160.97	7,903.5	-17,916.1	3,874.3	18,200.3	0.00	0.00	0.00
26,586.0	90.00	160.97	7,903.5	-17,997.4	3,902.4	18,286.3	0.00	0.00	0.00
TD @ 90° Inc/ 160.97° Az/ 26586.2' MD/ TVD 7903.5'									
26,586.2	90.00	160.97	7,903.5	-17,997.6	3,902.5	18,286.5	0.00	0.00	0.00

Database:	Northeast	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	ST01		
Design:	201_ST01		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Joh_TPF40_201-ST01_ - plan hits target center - Point	0.00	0.00	3,924.8	-200.2	-514.0	276,771.53	1,778,537.70	39.2579391	-80.1708693
Joh_TPF40_201-ST01_ - plan hits target center - Point	0.00	360.00	7,903.5	-1,127.8	-1,917.4	275,843.92	1,777,134.31	39.2553635	-80.1758007
Joh_TPF40_201-ST01_ - plan hits target center - Point	0.00	360.00	7,903.5	-17,997.6	3,902.5	258,974.10	1,782,954.12	39.2091661	-80.1548148

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
8,051.7	7,614.5	Tully @ 7614.5' TVD		0.00	160.95
8,386.3	7,822.5	Marcellus @ 7822.5' TVD		0.00	160.95
8,575.0	7,885.5	Lower Marcellus @ 7885.5.5' TVD		0.00	160.95

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,000.0	3,924.8	-200.2	-514.0	ST01 Tie In/ Hold 90° TF
4,030.0	3,952.3	-200.6	-525.8	Hold 63° TF
4,112.7	4,028.1	-199.9	-558.8	Hold Tang. Dir. 273° Az
4,629.2	4,500.0	-188.9	-768.6	Turn Tang
4,913.8	4,760.0	-189.9	-884.2	Hold
7,146.8	6,800.0	-253.3	-1,790.2	Turn Tang
7,548.9	7,171.2	-328.7	-1,918.3	Hold
7,797.4	7,397.9	-413.9	-1,973.9	Curve KOP 8°/100
8,740.7	7,903.5	-1,127.8	-1,917.4	LP @ 90° Inc/ 160.97° Az/ 8740.7' MD/ TVD 7903.5'
26,586.0	7,903.5	-17,997.4	3,902.4	TD @ 90° Inc/ 160.97° Az/ 26586.2' MD/ TVD 7903.5'

Well Location Plat
Page 4 Cross Section

Seneca Resources Company, LLC Applicant / Well Operator Name	DEP ID#	Johnson TFP40 Taylor County, WV GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)	Well # 201-ST01

ARSENAL RESOURCES

WELL PLAN

Operator Name: **Arsenal Resources**

Well/Farm Name: **Johnson TFP40**

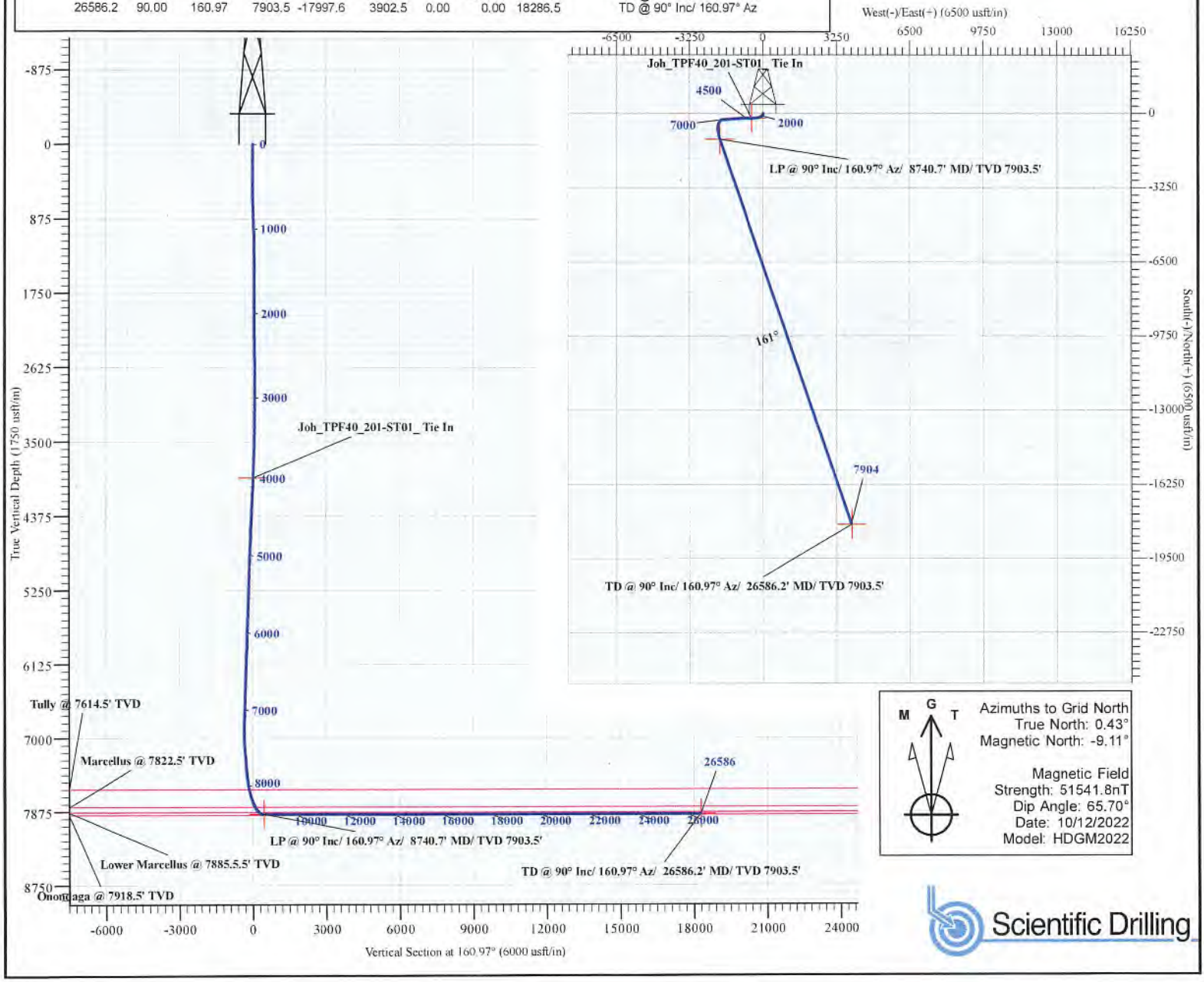
DEP Use Only	Permit #

NOTES:

Name	TVD	Latitude	Longitude	TMD
Joh_TPF40_201-ST01_ Tie In	3924.8	39.2579391	-80.1708693	4000
Joh_TPF40_201-ST01_LP	7903.5	39.2553635	-80.1758007	8740.7
Joh_TPF40_201-ST01_PBHL	7903.5	39.2091660	-80.1548148	26586.2

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
4000.0	23.17	266.34	3924.8	-200.2	-514.0	0.00	0.00	21.7	ST01 Tie In/ Hold 90° TF
4030.0	23.20	269.38	3952.3	-200.6	-525.8	4.00	90.00	18.2	Hold 63° TF
4112.7	24.00	273.00	4028.1	-199.9	-558.8	2.00	62.69	6.8	Hold Tang. Dir. 273° Az
4629.2	24.00	273.00	4500.0	-188.9	-768.6	0.00	0.00	-72.0	Turn Tang
4913.8	24.00	266.00	4760.0	-189.9	-884.2	1.00	-93.20	-108.8	Hold
7146.8	24.00	266.00	6800.0	-253.3	-1790.2	0.00	0.00	-344.3	Turn Tang
7548.9	24.17	213.16	7171.2	-328.7	-1918.3	5.20	-113.97	-314.7	Hold
7797.4	24.17	213.16	7397.9	-413.9	-1973.9	0.00	0.00	-252.3	Curve KOP 8°/100
8740.7	90.00	160.97	7903.5	-1127.8	-1917.4	8.00	-54.71	441.0	LP @ 90° Inc/ 160.97° Az
26586.2	90.00	160.97	7903.5	-17997.6	3902.5	0.00	0.00	18286.5	TD @ 90° Inc/ 160.97° Az



Scientific Drilling

ARSENAL™
RESOURCES

Arsenal Resources

Taylor County, WV
Johnson TFP40
201

ST01
201_ST01

Anticollision Report

18 October, 2022

Scientific Drilling

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Reference	201_ST01		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0usft	**Error Model:**	ISCWSA
Depth Range:	4,000.0 to 26,600.0usft	**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** 10/18/2022

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
175.0	714.0	Survey #1 SDI MWD (Orig.)	SDI MWD	SDI MWD - Standard ver 1.0.1
873.0	2,092.0	Survey #2 SDI MWD (Orig.)	SDI MWD	SDI MWD - Standard ver 1.0.1
2,205.0	3,345.0	Survey #3 SDI MWD (Orig.)	SDI MWD	SDI MWD - Standard ver 1.0.1
3,440.0	4,000.0	Survey #4 Schlum MWD (Orig.)	MWD	MWD - Standard
4,000.0	26,586.2	201_ST01 (ST01)	MWD	MWD - Standard

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Johnson TFP40						
201 - Orig. - 201 As Drilled	4,300.0	4,299.7	13.8	10.3	3.945	CC
201 - Orig. - 201 As Drilled	22,200.0	21,955.0	97.1	-193.0	0.335	Level 1, ES, SF
202 - Orig. - 202 As Drilled	4,000.0	3,980.8	221.8	204.3	12.682	CC, ES
202 - Orig. - 202 As Drilled	23,200.0	22,631.7	1,071.9	524.3	1.958	SF
203 - Orig. - SDI Plan 2	4,000.0	3,935.9	540.5	523.8	32.374	CC, ES
203 - Orig. - SDI Plan 2	26,500.0	25,902.7	2,100.4	1,399.8	2.998	SF
204 - Orig. - DEP Plan 6	4,000.0	3,784.4	895.0	880.5	61.472	CC, ES, SF
205 - Orig. - DEP Plan 5	4,000.0	3,576.6	1,025.0	1,010.6	71.312	CC, ES, SF

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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,010.0	3,934.0	4,010.0	3,934.0	0.0	0.1	-111.73	-200.4	-517.9	0.0	0.0	0.05	0.575	Level 1
4,100.0	4,016.5	4,099.9	4,016.8	0.5	0.6	-109.74	-203.0	-552.8	3.0	1.9	1.12	2.700	
4,200.0	4,107.9	4,199.8	4,108.9	1.1	1.3	-115.03	-206.0	-591.2	8.6	6.3	2.29	3.740	
4,300.0	4,199.2	4,299.7	4,201.1	1.7	2.0	-116.13	-208.6	-629.7	13.8	10.3	3.50	3.945	CC
4,400.0	4,290.6	4,399.6	4,293.4	2.3	2.7	-118.73	-210.8	-667.8	18.9	14.2	4.65	4.055	
4,500.0	4,381.9	4,499.2	4,385.6	2.9	3.4	-120.99	-213.1	-705.2	24.4	18.6	5.76	4.229	
4,600.0	4,473.3	4,598.1	4,477.2	3.6	4.1	-120.02	-218.2	-742.4	32.3	25.3	7.02	4.596	
4,700.0	4,564.7	4,698.4	4,569.5	4.3	4.8	-115.82	-224.8	-781.0	40.7	32.2	8.50	4.787	
4,800.0	4,656.0	4,800.6	4,662.4	5.0	5.6	-110.33	-228.1	-823.5	43.2	33.1	10.11	4.276	
4,900.0	4,747.4	4,900.8	4,752.0	5.7	6.5	-102.67	-228.8	-868.3	40.8	29.0	11.88	3.438	
4,962.4	4,804.4	4,962.1	4,806.9	6.1	7.0	-98.76	-230.4	-895.7	40.1	27.1	13.00	3.083	
5,000.0	4,838.8	4,999.4	4,840.3	6.4	7.3	-96.70	-231.9	-912.0	40.2	26.5	13.64	2.945	
5,100.0	4,930.1	5,099.4	4,930.9	7.2	8.1	-93.76	-236.7	-954.2	41.8	26.6	15.27	2.740	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,200.0	5,021.5	5,200.2	5,023.1	7.9	8.9	-94.26	-239.0	-994.8	41.3	24.5	16.80	2.461	
5,260.9	5,077.1	5,260.8	5,079.5	8.4	9.3	-98.31	-239.8	-1,016.8	40.9	23.4	17.53	2.334	
5,300.0	5,112.8	5,299.1	5,115.7	8.7	9.6	-102.66	-240.5	-1,029.5	41.3	23.6	17.71	2.332	
5,400.0	5,204.2	5,397.4	5,209.6	9.5	10.1	-116.82	-243.5	-1,058.2	46.4	29.5	16.88	2.749	
5,500.0	5,295.5	5,497.1	5,304.8	10.3	10.7	-126.82	-247.7	-1,087.6	54.4	38.3	16.09	3.382	
5,600.0	5,386.9	5,597.7	5,399.4	11.1	11.4	-130.55	-253.4	-1,121.2	61.7	45.2	16.51	3.735	
5,700.0	5,478.2	5,699.3	5,493.8	11.9	12.1	-131.23	-259.7	-1,158.3	67.2	49.5	17.64	3.807	
5,800.0	5,569.6	5,798.8	5,586.9	12.7	12.8	-134.65	-262.2	-1,193.5	71.0	53.3	17.74	4.003	
5,900.0	5,661.0	5,895.8	5,678.6	13.5	13.4	-139.30	-264.2	-1,224.7	77.5	60.3	17.20	4.506	
6,000.0	5,752.3	5,993.6	5,771.9	14.3	14.0	-143.18	-268.1	-1,253.9	87.5	70.6	16.93	5.171	
6,100.0	5,843.7	6,095.5	5,868.5	15.1	14.6	-145.00	-273.9	-1,285.8	97.5	79.9	17.54	5.556	
6,200.0	5,935.0	6,197.5	5,963.7	16.0	15.3	-144.58	-281.3	-1,321.5	104.8	86.0	18.83	5.568	
6,300.0	6,026.4	6,305.5	6,062.3	16.8	16.2	-143.04	-287.8	-1,365.2	106.5	85.8	20.68	5.150	
6,363.6	6,084.5	6,367.7	6,118.8	17.3	16.7	-142.53	-290.1	-1,391.2	106.1	84.7	21.41	4.955	
6,400.0	6,117.7	6,403.0	6,151.0	17.6	17.0	-142.62	-291.0	-1,405.3	106.3	84.6	21.67	4.903	
6,404.4	6,121.8	6,407.3	6,155.0	17.7	17.0	-142.64	-291.1	-1,407.0	106.3	84.6	21.70	4.900	
6,500.0	6,209.1	6,500.5	6,241.6	18.4	17.7	-144.04	-293.1	-1,441.4	109.1	87.2	21.95	4.971	
6,600.0	6,300.4	6,602.7	6,335.9	19.3	18.5	-144.83	-295.7	-1,480.6	110.9	88.3	22.64	4.900	
6,604.4	6,304.5	6,607.1	6,340.0	19.3	18.5	-144.85	-295.8	-1,482.4	111.0	88.3	22.67	4.896	
6,700.0	6,391.8	6,702.7	6,428.0	20.1	19.3	-145.41	-298.3	-1,519.5	112.4	89.1	23.30	4.825	
6,704.4	6,395.9	6,707.1	6,432.1	20.2	19.3	-145.44	-298.4	-1,521.2	112.5	89.2	23.33	4.822	
6,800.0	6,483.1	6,803.7	6,520.9	21.0	20.1	-145.96	-300.8	-1,559.1	113.5	89.5	23.99	4.731	
6,900.0	6,574.5	6,906.5	6,614.6	21.8	20.9	-145.87	-303.6	-1,601.4	112.9	87.9	25.00	4.518	
7,000.0	6,665.9	7,005.4	6,703.6	22.7	21.8	-144.64	-307.5	-1,644.1	111.0	84.6	26.35	4.212	
7,037.3	6,699.9	7,041.7	6,736.3	23.0	22.1	-143.80	-309.8	-1,659.7	110.8	83.8	27.04	4.098	
7,100.0	6,757.2	7,102.4	6,791.0	23.5	22.7	-141.96	-314.8	-1,685.7	111.4	82.9	28.45	3.915	
7,104.4	6,761.3	7,106.7	6,794.9	23.5	22.7	-141.56	-315.2	-1,687.5	111.5	82.9	28.56	3.902	
7,200.0	6,848.8	7,201.7	6,880.4	24.3	23.5	-132.73	-324.7	-1,727.7	112.7	81.6	31.11	3.622	
7,300.0	6,941.2	7,292.7	6,962.7	25.0	24.3	-118.31	-336.6	-1,764.7	110.3	77.9	32.44	3.401	
7,358.7	6,995.7	7,343.9	7,009.4	25.4	24.7	-109.60	-346.7	-1,783.1	109.6	77.0	32.69	3.354	
7,400.0	7,034.0	7,379.5	7,042.1	25.6	24.9	-103.80	-355.2	-1,794.3	110.0	77.5	32.49	3.386	
7,500.0	7,126.4	7,469.1	7,124.9	26.2	25.4	-91.40	-380.9	-1,817.0	112.6	80.8	31.81	3.541	
7,600.0	7,217.8	7,560.5	7,208.5	26.6	25.9	-86.33	-412.7	-1,835.2	115.9	84.9	31.03	3.735	
7,700.0	7,309.0	7,653.6	7,292.0	27.1	26.3	-85.44	-450.9	-1,850.3	124.9	93.3	31.68	3.944	
7,800.0	7,400.3	7,747.3	7,374.5	27.7	26.7	-83.22	-493.4	-1,863.6	138.4	105.0	33.36	4.148	
7,900.0	7,489.4	7,835.2	7,447.8	28.1	27.1	-68.16	-540.0	-1,876.5	150.6	116.8	33.78	4.459	
8,000.0	7,573.5	7,916.0	7,508.6	28.5	27.5	-56.70	-592.0	-1,886.9	160.8	129.0	31.87	5.046	
8,100.0	7,650.9	7,992.6	7,557.6	28.9	27.9	-47.08	-650.3	-1,894.6	171.8	143.6	28.23	6.088	
8,200.0	7,720.1	8,071.0	7,598.6	29.2	28.4	-38.46	-716.8	-1,900.5	183.3	158.7	24.58	7.458	
8,300.0	7,779.7	8,144.7	7,628.7	29.5	28.9	-31.09	-784.0	-1,904.1	194.7	175.6	19.10	10.196	
8,400.0	7,828.5	8,218.6	7,651.2	29.8	29.4	-24.82	-854.3	-1,904.8	205.9	192.7	13.23	15.568	
8,500.0	7,865.7	8,298.6	7,668.7	30.1	29.9	-19.78	-932.2	-1,900.1	215.7	204.4	11.32	19.054	
8,521.2	7,872.1	8,317.4	7,672.1	30.2	30.0	-18.69	-950.7	-1,898.9	217.0	205.6	11.42	18.998	
8,600.0	7,890.5	8,387.1	7,683.1	30.4	30.5	-14.68	-1,019.3	-1,894.3	218.6	205.6	13.03	16.777	
8,679.6	7,901.0	8,458.5	7,693.0	30.6	31.0	-11.38	-1,089.5	-1,885.9	215.0	201.1	13.88	15.493	
8,700.0	7,902.4	8,476.4	7,695.3	30.7	31.1	-10.77	-1,107.0	-1,882.8	213.2	199.2	14.01	15.218	
8,781.0	7,905.0	8,546.0	7,703.7	31.0	31.5	-10.00	-1,173.6	-1,864.6	205.4	191.4	14.00	14.676	
8,800.0	7,903.5	8,566.1	7,705.9	31.1	31.6	-10.11	-1,192.3	-1,857.8	201.8	187.5	14.25	14.157	
8,880.7	7,903.5	8,641.5	7,713.8	31.4	31.8	-11.74	-1,261.7	-1,829.5	194.3	180.4	13.95	13.933	
8,900.0	7,903.5	8,660.8	7,715.7	31.5	31.9	-12.35	-1,279.3	-1,821.6	192.8	178.9	13.90	13.872	
8,980.8	7,903.5	8,741.2	7,723.8	31.9	32.2	-15.00	-1,352.3	-1,788.9	186.6	172.8	13.75	13.575	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
9,000.0	7,903.5	8,760.1	7,725.7	32.0	32.3	-15.65	-1,369.5	-1,781.3	185.2	171.5	13.71	13.510	
9,080.3	7,903.5	8,838.4	7,733.4	32.5	32.6	-18.44	-1,440.6	-1,749.4	179.6	166.1	13.54	13.269	
9,100.0	7,903.5	8,855.9	7,735.0	32.6	32.7	-19.08	-1,456.5	-1,742.3	178.5	165.2	13.32	13.404	
9,178.2	7,903.5	8,926.0	7,739.1	33.2	33.1	-21.59	-1,520.1	-1,713.2	176.8	164.0	12.75	13.865	
9,200.0	7,903.5	8,947.6	7,739.9	33.3	33.2	-22.33	-1,539.8	-1,704.2	176.8	163.9	12.89	13.715	
9,279.4	7,903.5	9,028.6	7,743.1	34.0	33.7	-24.78	-1,613.7	-1,671.4	176.7	162.7	13.96	12.662	
9,300.0	7,903.5	9,049.4	7,743.9	34.1	33.8	-25.34	-1,632.9	-1,663.2	176.6	162.3	14.25	12.389	
9,379.5	7,903.5	9,129.8	7,747.2	34.8	34.4	-27.30	-1,707.0	-1,632.2	175.9	160.3	15.57	11.299	
9,400.0	7,903.5	9,150.4	7,748.0	35.0	34.5	-27.77	-1,726.0	-1,624.4	175.7	159.8	15.90	11.051	
9,479.5	7,903.5	9,230.4	7,751.4	35.8	35.1	-29.63	-1,799.9	-1,594.0	174.9	157.6	17.38	10.068	
9,500.0	7,903.5	9,251.4	7,752.4	36.0	35.3	-30.12	-1,819.4	-1,586.1	174.7	156.8	17.85	9.784	
9,579.7	7,903.5	9,331.9	7,756.7	36.8	36.0	-32.01	-1,893.9	-1,556.0	173.2	153.6	19.59	8.840	
9,600.0	7,903.5	9,351.7	7,757.7	37.0	36.1	-32.49	-1,912.2	-1,548.5	172.8	152.9	19.94	8.667	
9,679.2	7,903.5	9,429.2	7,761.3	37.9	36.8	-34.32	-1,983.9	-1,519.4	172.1	150.7	21.41	8.040	
9,700.0	7,903.5	9,449.5	7,762.1	38.1	37.0	-34.77	-2,002.7	-1,511.7	172.1	150.3	21.81	7.890	
9,723.4	7,903.5	9,472.4	7,763.0	38.4	37.3	-35.25	-2,023.9	-1,503.1	172.1	149.8	22.28	7.725	
9,800.0	7,903.5	9,548.3	7,765.3	39.3	38.0	-36.79	-2,094.3	-1,474.6	172.6	148.5	24.02	7.182	
9,823.4	7,903.5	9,571.6	7,766.1	39.6	38.2	-37.28	-2,115.8	-1,465.8	172.7	148.1	24.60	7.022	
9,900.0	7,903.5	9,648.7	7,768.1	40.5	39.0	-38.63	-2,187.4	-1,437.4	173.3	146.7	26.62	6.510	
9,923.3	7,903.5	9,672.2	7,768.4	40.8	39.3	-38.85	-2,209.4	-1,429.1	173.5	146.2	27.24	6.367	
10,000.0	7,903.5	9,748.7	7,769.0	41.8	40.1	-39.34	-2,281.2	-1,402.9	173.9	144.8	29.02	5.991	
10,023.2	7,903.5	9,771.7	7,769.2	42.1	40.4	-39.49	-2,302.8	-1,394.9	174.0	144.5	29.55	5.890	
10,100.0	7,903.5	9,848.4	7,770.0	43.1	41.3	-40.12	-2,374.7	-1,368.2	174.6	143.2	31.41	5.560	
10,123.4	7,903.5	9,871.7	7,770.3	43.5	41.6	-40.36	-2,396.5	-1,359.9	174.8	142.8	32.00	5.464	
10,200.0	7,903.5	9,949.6	7,771.6	44.5	42.5	-41.19	-2,469.4	-1,332.5	175.2	141.0	34.25	5.116	
10,279.2	7,903.5	10,029.7	7,773.2	45.6	43.5	-41.94	-2,544.6	-1,304.8	175.1	138.6	36.49	4.800	
10,300.0	7,903.5	10,050.8	7,773.6	45.9	43.7	-42.09	-2,564.4	-1,297.7	175.0	138.0	37.05	4.724	
10,379.3	7,903.5	10,130.7	7,775.0	47.1	44.7	-42.56	-2,639.7	-1,270.9	174.5	135.4	39.14	4.458	
10,400.0	7,903.5	10,151.6	7,775.3	47.4	45.0	-42.66	-2,659.4	-1,264.0	174.3	134.6	39.68	4.393	
10,479.1	7,903.5	10,230.0	7,776.6	48.6	46.0	-43.07	-2,733.3	-1,238.0	173.7	132.3	41.39	4.196	
10,500.0	7,903.5	10,250.6	7,777.0	48.9	46.3	-43.22	-2,752.7	-1,231.0	173.6	131.8	41.84	4.149	
10,579.1	7,903.5	10,329.9	7,778.3	50.1	47.4	-43.73	-2,827.4	-1,204.3	173.3	129.4	43.87	3.950	
10,600.0	7,903.5	10,350.9	7,778.6	50.4	47.7	-43.85	-2,847.1	-1,197.3	173.2	128.8	44.40	3.900	
10,679.4	7,903.5	10,431.4	7,779.8	51.6	48.8	-44.19	-2,923.1	-1,170.8	172.5	125.9	46.60	3.703	
10,700.0	7,903.5	10,452.2	7,780.1	51.9	49.1	-44.25	-2,942.8	-1,164.0	172.3	125.1	47.13	3.655	
10,779.5	7,903.5	10,532.2	7,781.3	53.2	50.2	-44.42	-3,018.6	-1,138.4	171.1	122.1	49.07	3.487	
10,800.0	7,903.5	10,552.6	7,781.6	53.5	50.5	-44.44	-3,037.9	-1,131.9	170.8	121.3	49.46	3.453	
10,879.1	7,903.5	10,630.4	7,782.5	54.7	51.6	-44.59	-3,111.6	-1,106.8	169.9	119.0	50.86	3.341	
10,900.0	7,903.5	10,651.1	7,782.7	55.1	51.9	-44.63	-3,131.1	-1,100.1	169.8	118.5	51.28	3.310	
10,978.9	7,903.5	10,729.0	7,783.1	56.3	53.1	-44.68	-3,204.8	-1,074.8	169.4	116.7	52.71	3.214	
11,000.0	7,903.5	10,750.2	7,783.1	56.7	53.4	-44.67	-3,224.9	-1,068.0	169.3	116.1	53.20	3.183	
11,023.1	7,903.5	10,772.9	7,783.0	57.1	53.8	-44.64	-3,246.4	-1,060.6	169.3	115.7	53.59	3.160	
11,100.0	7,903.5	10,849.4	7,782.5	58.3	54.9	-44.48	-3,318.7	-1,035.8	169.6	114.6	55.03	3.083	
11,123.3	7,903.5	10,872.9	7,782.3	58.7	55.3	-44.42	-3,341.0	-1,028.2	169.7	114.1	55.58	3.053	
11,200.0	7,903.5	10,949.8	7,781.8	59.9	56.4	-44.21	-3,413.8	-1,003.5	169.7	112.6	57.11	2.972	
11,222.9	7,903.5	10,972.4	7,781.6	60.3	56.8	-44.11	-3,435.2	-996.3	169.8	112.3	57.44	2.956	
11,300.0	7,903.5	11,048.8	7,780.3	61.6	57.9	-43.66	-3,507.7	-972.0	170.2	111.6	58.62	2.904	
11,323.0	7,903.5	11,071.9	7,779.9	62.0	58.3	-43.51	-3,529.5	-964.7	170.4	111.4	59.02	2.887	
11,400.0	7,903.5	11,149.4	7,778.5	63.3	59.5	-43.00	-3,603.1	-940.1	170.9	110.4	60.48	2.825	
11,484.4	7,903.5	11,234.5	7,776.9	64.7	60.8	-42.22	-3,684.0	-914.0	170.9	109.1	61.87	2.763	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,500.0	7,903.5	11,250.0	7,776.6	65.0	61.0	-42.08	-3,698.8	-909.2	170.9	108.9	62.07	2.754	
11,523.1	7,903.5	11,273.0	7,776.2	65.3	61.4	-41.89	-3,720.7	-902.1	171.0	108.6	62.38	2.740	
11,600.0	7,903.5	11,350.0	7,775.1	66.7	62.5	-41.37	-3,793.7	-878.1	171.1	107.5	63.59	2.690	
11,678.8	7,903.5	11,429.2	7,774.3	68.0	63.7	-40.94	-3,868.9	-853.2	171.0	106.1	64.95	2.634	
11,700.0	7,903.5	11,450.4	7,774.1	68.4	64.1	-40.85	-3,889.1	-846.4	171.0	105.7	65.33	2.618	
11,779.2	7,903.5	11,530.8	7,774.0	69.7	65.3	-40.65	-3,965.3	-820.9	170.7	103.6	67.05	2.546	
11,800.0	7,903.5	11,552.2	7,774.1	70.1	65.6	-40.63	-3,985.5	-814.1	170.5	102.9	67.58	2.523	
11,879.4	7,903.5	11,632.2	7,775.2	71.4	66.9	-40.69	-4,061.4	-788.6	169.3	100.0	69.24	2.444	
11,900.0	7,903.5	11,652.7	7,775.4	71.8	67.2	-40.70	-4,080.8	-782.1	168.9	99.3	69.60	2.427	
11,979.4	7,903.5	11,732.0	7,776.4	73.2	68.5	-40.71	-4,156.0	-756.9	167.8	96.7	71.02	2.362	
12,000.0	7,903.5	11,752.6	7,776.6	73.5	68.8	-40.72	-4,175.6	-750.4	167.5	96.1	71.40	2.345	
12,079.8	7,903.5	11,834.3	7,777.9	74.9	70.1	-40.80	-4,253.1	-724.5	165.9	92.5	73.41	2.260	
12,100.0	7,903.5	11,855.1	7,778.5	75.3	70.4	-40.85	-4,272.8	-718.0	165.4	91.4	73.97	2.236	
12,180.0	7,903.5	11,935.5	7,780.9	76.7	71.7	-41.13	-4,349.1	-692.8	162.8	87.2	75.57	2.154	
12,200.0	7,903.5	11,955.4	7,781.6	77.0	72.0	-41.21	-4,368.0	-686.6	162.2	86.2	75.94	2.136	
12,279.7	7,903.5	12,033.7	7,784.2	78.4	73.2	-41.77	-4,442.1	-661.3	159.9	82.8	77.17	2.073	
12,300.0	7,903.5	12,053.5	7,785.0	78.8	73.6	-42.00	-4,460.8	-654.7	159.5	82.0	77.54	2.057	
12,379.9	7,903.5	12,133.8	7,788.0	80.2	74.9	-42.94	-4,536.3	-627.8	157.8	78.1	79.68	1.980	
12,400.0	7,903.5	12,154.1	7,788.7	80.5	75.2	-43.14	-4,555.4	-621.1	157.3	77.1	80.20	1.962	
12,479.7	7,903.5	12,233.4	7,791.0	81.9	76.5	-43.66	-4,630.4	-595.4	155.6	73.8	81.72	1.904	
12,500.0	7,903.5	12,253.5	7,791.4	82.3	76.8	-43.71	-4,649.5	-589.0	155.1	73.1	82.04	1.891	
12,579.4	7,903.5	12,332.3	7,792.6	83.7	78.1	-43.79	-4,724.3	-564.1	153.7	70.6	83.14	1.849	
12,600.0	7,903.5	12,352.7	7,792.8	84.1	78.5	-43.79	-4,743.6	-557.7	153.4	70.0	83.39	1.839	
12,679.2	7,903.5	12,430.8	7,793.4	85.5	79.8	-43.75	-4,817.7	-532.9	152.5	68.2	84.27	1.809	
12,700.0	7,903.5	12,451.7	7,793.5	85.8	80.1	-43.74	-4,837.5	-526.2	152.3	67.7	84.63	1.800	
12,779.4	7,903.5	12,532.0	7,793.8	87.3	81.5	-43.55	-4,913.7	-501.0	151.4	65.3	86.08	1.759	
12,800.0	7,903.5	12,553.4	7,793.9	87.6	81.8	-43.45	-4,934.1	-494.4	151.1	64.4	86.66	1.743	
12,880.0	7,903.5	12,636.0	7,794.3	89.1	83.2	-42.64	-5,013.2	-470.6	148.6	60.5	88.13	1.686	
12,900.0	7,903.5	12,655.4	7,794.3	89.4	83.5	-42.40	-5,031.7	-465.1	147.9	60.0	87.93	1.682	
12,979.3	7,903.5	12,732.4	7,794.5	90.8	84.8	-41.70	-5,105.4	-442.4	146.0	58.4	87.59	1.667	
13,000.0	7,903.5	12,753.2	7,794.5	91.2	85.1	-41.55	-5,125.2	-436.2	145.7	57.9	87.80	1.659	
13,079.4	7,903.5	12,832.7	7,794.7	92.6	86.4	-40.99	-5,201.0	-412.2	144.2	55.5	88.63	1.627	
13,100.0	7,903.5	12,853.2	7,794.8	93.0	86.8	-40.85	-5,220.5	-405.9	143.8	54.9	88.86	1.618	
13,179.2	7,903.5	12,932.0	7,795.0	94.4	88.1	-40.39	-5,295.6	-381.9	142.4	52.8	89.63	1.589	
13,200.0	7,903.5	12,952.5	7,795.1	94.8	88.4	-40.28	-5,315.1	-375.6	142.2	52.4	89.80	1.583	
13,279.1	7,903.5	13,031.1	7,794.9	96.2	89.7	-39.80	-5,389.8	-351.3	141.3	50.8	90.53	1.561	
13,300.0	7,903.5	13,052.1	7,794.9	96.6	90.1	-39.66	-5,409.8	-344.9	141.1	50.3	90.80	1.554	
13,379.2	7,903.5	13,132.1	7,794.5	98.1	91.4	-38.95	-5,486.0	-320.7	140.2	48.3	91.83	1.526	
13,400.0	7,903.5	13,153.2	7,794.3	98.4	91.8	-38.64	-5,506.2	-314.5	139.8	47.7	92.08	1.518	
13,480.5	7,903.5	13,231.3	7,793.2	99.9	93.1	-37.20	-5,581.1	-292.4	138.5	47.3	91.28	1.518	
13,500.0	7,903.5	13,249.2	7,792.9	100.3	93.4	-37.05	-5,598.1	-286.8	138.6	47.8	90.86	1.526	
13,522.0	7,903.5	13,269.5	7,792.5	100.7	93.8	-37.01	-5,617.2	-280.1	139.0	48.6	90.47	1.537	
13,600.0	7,903.5	13,345.5	7,791.3	102.1	95.0	-37.67	-5,688.1	-252.5	141.8	50.2	91.62	1.548	
13,622.5	7,903.5	13,368.0	7,791.0	102.5	95.4	-37.93	-5,709.0	-244.2	142.7	50.4	92.33	1.545	
13,700.0	7,903.5	13,446.3	7,790.4	103.9	96.7	-38.90	-5,781.7	-215.3	145.4	50.3	95.09	1.529	
13,722.6	7,903.5	13,469.2	7,790.3	104.3	97.1	-39.19	-5,803.0	-206.8	146.2	50.2	95.93	1.524	
13,800.0	7,903.5	13,546.7	7,790.2	105.8	98.4	-40.21	-5,875.1	-178.3	148.4	50.1	98.35	1.509	
13,822.8	7,903.5	13,569.5	7,790.2	106.2	98.7	-40.52	-5,896.3	-169.9	149.1	50.0	99.05	1.505	
13,900.0	7,903.5	13,648.2	7,790.3	107.6	100.1	-41.42	-5,969.7	-141.3	151.0	49.0	102.06	1.480	Level 3
13,923.0	7,903.5	13,671.8	7,790.3	108.0	100.5	-41.59	-5,991.7	-133.1	151.4	48.5	102.90	1.472	Level 3
14,000.0	7,903.5	13,749.2	7,790.2	109.5	101.8	-42.03	-6,064.3	-106.3	152.5	47.6	104.93	1.454	Level 3

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,023.0	7,903.5	13,772.2	7,790.2	109.9	102.2	-42.15	-6,086.0	-98.4	152.8	47.3	105.50	1.449	Level 3
14,100.0	7,903.5	13,849.2	7,790.1	111.3	103.5	-42.51	-6,158.3	-72.0	153.8	46.6	107.23	1.435	Level 3
14,122.8	7,903.5	13,872.0	7,790.1	111.7	103.9	-42.62	-6,179.7	-64.2	154.1	46.4	107.72	1.431	Level 3
14,200.0	7,903.5	13,948.7	7,789.8	113.2	105.2	-42.93	-6,251.7	-37.8	155.3	46.0	109.26	1.421	Level 3
14,222.8	7,903.5	13,971.5	7,789.7	113.6	105.6	-43.01	-6,273.2	-30.0	155.6	45.9	109.75	1.418	Level 3
14,300.0	7,903.5	14,048.8	7,789.3	115.0	106.9	-43.28	-6,345.7	-3.5	156.9	45.3	111.53	1.407	Level 3
14,323.1	7,903.5	14,072.3	7,789.2	115.4	107.3	-43.36	-6,367.8	4.5	157.2	45.0	112.21	1.401	Level 3
14,400.0	7,903.5	14,150.5	7,789.0	116.9	108.7	-43.50	-6,441.5	30.8	157.9	43.5	114.39	1.381	Level 3
14,479.1	7,903.5	14,230.8	7,789.1	118.3	110.1	-43.63	-6,517.3	57.2	158.0	41.6	116.44	1.357	Level 3
14,500.0	7,903.5	14,252.0	7,789.3	118.7	110.4	-43.69	-6,537.4	64.2	157.9	40.9	117.00	1.350	Level 3
14,579.4	7,903.5	14,332.8	7,790.0	120.2	111.8	-43.77	-6,613.8	90.2	157.2	38.2	118.95	1.321	Level 3
14,600.0	7,903.5	14,353.4	7,790.2	120.6	112.2	-43.75	-6,633.4	96.7	156.9	37.6	119.23	1.316	Level 3
14,679.2	7,903.5	14,432.4	7,790.6	122.1	113.5	-43.56	-6,708.4	121.4	155.8	35.8	120.03	1.298	Level 3
14,700.0	7,903.5	14,453.0	7,790.6	122.5	113.9	-43.48	-6,727.9	127.9	155.6	35.4	120.17	1.295	Level 3
14,779.0	7,903.5	14,531.2	7,790.6	123.9	115.3	-43.22	-6,802.3	152.5	154.9	34.2	120.71	1.284	Level 3
14,800.0	7,903.5	14,552.2	7,790.6	124.3	115.6	-43.15	-6,822.1	159.1	154.8	33.8	120.98	1.280	Level 3
14,879.0	7,903.5	14,631.2	7,790.5	125.8	117.0	-42.91	-6,897.1	184.1	154.3	32.4	121.93	1.266	Level 3
14,900.0	7,903.5	14,652.4	7,790.4	126.2	117.4	-42.85	-6,917.2	190.8	154.2	31.9	122.27	1.261	Level 3
14,979.2	7,903.5	14,732.2	7,790.6	127.7	118.7	-42.66	-6,992.9	216.0	153.5	29.9	123.59	1.242	Level 2
15,000.0	7,903.5	14,753.0	7,790.7	128.1	119.1	-42.62	-7,012.6	222.6	153.3	29.4	123.87	1.237	Level 2
15,079.3	7,903.5	14,832.3	7,791.2	129.6	120.5	-42.50	-7,087.9	247.7	152.3	27.4	124.94	1.219	Level 2
15,100.0	7,903.5	14,853.0	7,791.3	130.0	120.8	-42.47	-7,107.5	254.2	152.1	26.9	125.19	1.215	Level 2
15,179.2	7,903.5	14,932.0	7,791.7	131.4	122.2	-42.33	-7,182.5	279.1	151.2	25.2	126.06	1.200	Level 2
15,200.0	7,903.5	14,952.8	7,791.8	131.8	122.6	-42.28	-7,202.2	285.7	151.0	24.7	126.34	1.195	Level 2
15,279.1	7,903.5	15,031.8	7,792.0	133.3	124.0	-42.10	-7,277.2	310.7	150.3	23.0	127.29	1.181	Level 2
15,300.0	7,903.5	15,052.7	7,792.0	133.7	124.3	-42.06	-7,297.0	317.3	150.1	22.6	127.56	1.177	Level 2
15,379.1	7,903.5	15,131.8	7,792.3	135.2	125.7	-41.88	-7,372.0	342.3	149.3	20.8	128.54	1.162	Level 2
15,400.0	7,903.5	15,152.6	7,792.4	135.6	126.1	-41.83	-7,391.7	348.8	149.2	20.4	128.73	1.159	Level 2
15,479.1	7,903.5	15,231.8	7,792.5	137.1	127.4	-41.63	-7,466.9	373.9	148.5	18.8	129.72	1.145	Level 2
15,500.0	7,903.5	15,252.9	7,792.6	137.5	127.8	-41.58	-7,486.9	380.6	148.3	18.2	130.15	1.140	Level 2
15,579.2	7,903.5	15,332.3	7,793.0	138.9	129.2	-41.42	-7,562.3	405.6	147.4	16.1	131.27	1.123	Level 2
15,600.0	7,903.5	15,353.0	7,793.1	139.3	129.5	-41.38	-7,581.9	412.1	147.2	15.8	131.40	1.120	Level 2
15,679.1	7,903.5	15,431.8	7,793.5	140.8	130.9	-41.28	-7,656.7	437.1	146.3	14.0	132.31	1.106	Level 2
15,700.0	7,903.5	15,452.6	7,793.6	141.2	131.3	-41.26	-7,676.3	443.7	146.2	13.6	132.53	1.103	Level 2
15,779.1	7,903.5	15,531.5	7,793.9	142.7	132.7	-41.14	-7,751.2	468.9	145.5	12.1	133.49	1.090	Level 2
15,800.0	7,903.5	15,552.4	7,794.0	143.1	133.1	-41.11	-7,771.0	475.5	145.4	11.6	133.73	1.087	Level 2
15,879.2	7,903.5	15,631.8	7,794.3	144.6	134.4	-40.99	-7,846.2	500.8	144.7	9.8	134.98	1.072	Level 2
15,900.0	7,903.5	15,652.7	7,794.4	145.0	134.8	-40.96	-7,866.1	507.5	144.5	9.1	135.43	1.067	Level 2
15,979.2	7,903.5	15,732.1	7,794.9	146.5	136.2	-40.92	-7,941.3	532.8	143.7	7.1	136.58	1.052	Level 2
16,000.0	7,903.5	15,752.9	7,795.0	146.9	136.6	-40.88	-7,961.0	539.3	143.5	6.7	136.85	1.049	Level 2
16,079.1	7,903.5	15,831.8	7,795.3	148.4	138.0	-40.66	-8,035.9	564.2	142.7	5.1	137.55	1.037	Level 2
16,100.0	7,903.5	15,852.6	7,795.3	148.7	138.3	-40.59	-8,055.7	570.7	142.5	4.7	137.80	1.034	Level 2
16,179.1	7,903.5	15,931.6	7,795.4	150.2	139.7	-40.32	-8,130.6	595.6	141.8	3.2	138.60	1.023	Level 2
16,200.0	7,903.5	15,952.5	7,795.4	150.6	140.1	-40.25	-8,150.5	602.2	141.7	2.9	138.81	1.021	Level 2
16,279.1	7,903.5	16,031.7	7,795.3	152.1	141.5	-39.91	-8,225.7	627.0	141.0	1.3	139.74	1.009	Level 2
16,300.0	7,903.5	16,052.7	7,795.3	152.5	141.9	-39.79	-8,245.6	633.5	140.8	0.8	140.00	1.006	Level 2
16,379.2	7,903.5	16,132.1	7,795.3	154.0	143.3	-39.40	-8,321.1	658.2	140.0	-0.9	140.96	0.993	Level 1
16,400.0	7,903.5	16,152.9	7,795.4	154.4	143.6	-39.33	-8,340.9	664.7	139.8	-1.2	140.97	0.992	Level 1
16,479.0	7,903.5	16,231.3	7,795.6	155.9	145.0	-39.10	-8,415.2	689.5	139.1	-2.4	141.49	0.983	Level 1
16,500.0	7,903.5	16,252.3	7,795.6	156.3	145.4	-39.06	-8,435.1	696.2	139.0	-3.1	142.07	0.978	Level 1

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
16,579.1	7,903.5	16,331.6	7,795.8	157.8	146.8	-38.88	-8,510.3	721.4	138.4	-4.7	143.12	0.967	Level 1
16,600.0	7,903.5	16,352.7	7,795.8	158.2	147.1	-38.83	-8,530.4	728.1	138.2	-5.2	143.38	0.964	Level 1
16,679.3	7,903.5	16,432.8	7,796.3	159.7	148.5	-38.64	-8,606.4	753.3	137.2	-7.8	145.05	0.946	Level 1
16,700.0	7,903.5	16,453.4	7,796.5	160.1	148.9	-38.60	-8,625.9	759.7	136.9	-8.2	145.08	0.944	Level 1
16,779.2	7,903.5	16,532.1	7,797.2	161.6	150.3	-38.57	-8,700.6	784.8	135.9	-9.8	145.68	0.933	Level 1
16,800.0	7,903.5	16,552.9	7,797.4	162.0	150.6	-38.59	-8,720.2	791.4	135.7	-10.3	145.97	0.930	Level 1
16,879.3	7,903.5	16,632.3	7,798.2	163.5	152.0	-38.70	-8,795.4	817.0	134.9	-12.6	147.46	0.915	Level 1
16,900.0	7,903.5	16,653.3	7,798.5	163.9	152.4	-38.72	-8,815.3	823.8	134.6	-13.9	148.48	0.907	Level 1
16,979.5	7,903.5	16,733.6	7,799.7	165.4	153.8	-38.76	-8,891.4	849.2	133.2	-17.1	150.33	0.886	Level 1
17,000.0	7,903.5	16,754.0	7,800.0	165.7	154.2	-38.76	-8,910.8	855.6	132.8	-17.8	150.57	0.882	Level 1
17,079.3	7,903.5	16,832.8	7,801.1	167.2	155.5	-38.75	-8,985.6	880.4	131.3	-19.5	150.85	0.871	Level 1
17,100.0	7,903.5	16,853.2	7,801.3	167.6	155.9	-38.77	-9,005.0	886.9	131.0	-20.1	151.12	0.867	Level 1
17,179.2	7,903.5	16,931.9	7,802.2	169.1	157.3	-38.97	-9,079.4	912.4	130.2	-21.5	151.73	0.858	Level 1
17,200.0	7,903.5	16,952.8	7,802.5	169.5	157.7	-39.02	-9,099.1	919.2	130.0	-22.3	152.32	0.854	Level 1
17,279.3	7,903.5	17,032.2	7,803.4	171.0	159.1	-39.18	-9,174.3	944.9	129.2	-24.6	153.73	0.840	Level 1
17,300.0	7,903.5	17,052.9	7,803.6	171.4	159.4	-39.21	-9,193.9	951.5	128.9	-25.2	154.11	0.837	Level 1
17,379.3	7,903.5	17,132.5	7,804.5	172.9	160.8	-39.33	-9,269.3	977.1	128.0	-27.9	155.92	0.821	Level 1
17,400.0	7,903.5	17,153.3	7,804.8	173.3	161.2	-39.34	-9,289.0	983.7	127.7	-28.5	156.16	0.818	Level 1
17,479.4	7,903.5	17,232.9	7,805.7	174.8	162.6	-39.33	-9,364.5	1,008.9	126.5	-30.8	157.25	0.804	Level 1
17,500.0	7,903.5	17,253.6	7,805.9	175.2	163.0	-39.32	-9,384.1	1,015.5	126.1	-31.3	157.42	0.801	Level 1
17,579.2	7,903.5	17,332.0	7,806.9	176.7	164.3	-39.41	-9,458.4	1,040.5	125.0	-33.5	158.43	0.789	Level 1
17,600.0	7,903.5	17,352.5	7,807.2	177.1	164.7	-39.49	-9,477.8	1,047.2	124.8	-33.3	158.05	0.789	Level 1
17,679.1	7,903.5	17,431.2	7,808.3	178.6	166.1	-40.04	-9,551.9	1,073.5	124.4	-34.9	159.29	0.781	Level 1
17,700.0	7,903.5	17,452.0	7,808.6	179.0	166.5	-40.21	-9,571.6	1,080.5	124.3	-35.7	159.95	0.777	Level 1
17,779.2	7,903.5	17,531.3	7,809.9	180.5	167.9	-40.98	-9,646.1	1,107.3	123.9	-37.6	161.52	0.767	Level 1
17,800.0	7,903.5	17,552.1	7,810.3	180.9	168.2	-41.20	-9,665.7	1,114.4	123.8	-38.5	162.31	0.763	Level 1
17,879.3	7,903.5	17,631.8	7,811.9	182.4	169.6	-42.06	-9,740.7	1,141.4	123.4	-41.9	165.25	0.747	Level 1
17,900.0	7,903.5	17,652.6	7,812.3	182.8	170.0	-42.28	-9,760.2	1,148.4	123.2	-42.9	166.12	0.742	Level 1
17,979.2	7,903.5	17,731.3	7,813.8	184.3	171.4	-43.04	-9,834.3	1,174.9	122.7	-44.3	167.03	0.735	Level 1
18,000.0	7,903.5	17,752.0	7,814.1	184.7	171.8	-43.21	-9,853.9	1,181.8	122.6	-44.8	167.42	0.733	Level 1
18,079.1	7,903.5	17,831.1	7,815.3	186.2	173.2	-43.88	-9,928.3	1,208.4	122.4	-46.7	169.06	0.724	Level 1
18,100.0	7,903.5	17,852.0	7,815.6	186.6	173.5	-44.06	-9,948.0	1,215.5	122.3	-47.7	170.06	0.719	Level 1
18,179.2	7,903.5	17,931.5	7,816.8	188.1	174.9	-44.70	-10,022.9	1,242.1	122.0	-50.4	172.45	0.708	Level 1
18,200.0	7,903.5	17,952.2	7,817.1	188.5	175.3	-44.85	-10,042.4	1,249.0	121.9	-51.2	173.10	0.704	Level 1
18,279.0	7,903.5	18,030.8	7,818.0	190.0	176.7	-45.37	-10,116.5	1,275.2	121.7	-52.4	174.04	0.699	Level 1
18,300.0	7,903.5	18,051.8	7,818.3	190.4	177.1	-45.50	-10,136.3	1,282.2	121.6	-53.1	174.69	0.696	Level 1
18,379.1	7,903.5	18,130.9	7,819.3	191.9	178.5	-46.13	-10,210.8	1,308.8	121.5	-55.2	176.67	0.688	Level 1
18,400.0	7,903.5	18,151.9	7,819.6	192.3	178.9	-46.32	-10,230.5	1,315.9	121.5	-55.5	177.01	0.686	Level 1
18,479.1	7,903.5	18,231.1	7,820.8	193.8	180.3	-47.03	-10,305.2	1,342.6	121.3	-58.2	179.50	0.676	Level 1
18,500.0	7,903.5	18,252.0	7,821.1	194.2	180.6	-47.20	-10,324.8	1,349.6	121.2	-59.3	180.54	0.671	Level 1
18,579.1	7,903.5	18,331.0	7,822.1	195.7	182.0	-47.77	-10,399.2	1,375.9	121.0	-61.2	182.19	0.664	Level 1
18,600.0	7,903.5	18,351.8	7,822.4	196.1	182.4	-47.90	-10,418.8	1,382.9	121.0	-61.8	182.76	0.662	Level 1
18,623.3	7,903.5	18,374.9	7,822.6	196.5	182.8	-48.06	-10,440.7	1,390.6	121.0	-61.6	182.57	0.663	Level 1
18,700.0	7,903.5	18,451.3	7,823.4	198.0	184.2	-48.61	-10,512.5	1,416.4	121.2	-63.0	184.19	0.658	Level 1
18,723.3	7,903.5	18,474.5	7,823.6	198.4	184.6	-48.78	-10,534.4	1,424.2	121.3	-63.4	184.70	0.657	Level 1
18,800.0	7,903.5	18,551.1	7,824.3	199.9	186.0	-49.37	-10,606.4	1,450.2	121.6	-65.1	186.70	0.651	Level 1
18,823.4	7,903.5	18,574.4	7,824.6	200.3	186.4	-49.57	-10,628.3	1,458.2	121.7	-65.2	186.97	0.651	Level 1
18,900.0	7,903.5	18,651.6	7,825.4	201.8	187.7	-50.21	-10,700.9	1,484.4	122.1	-67.6	189.68	0.644	Level 1
18,979.1	7,903.5	18,731.1	7,826.2	203.3	189.1	-50.68	-10,775.9	1,510.9	121.9	-71.3	193.27	0.631	Level 1
19,000.0	7,903.5	18,751.9	7,826.5	203.7	189.5	-50.81	-10,795.5	1,517.8	121.9	-71.7	193.57	0.630	Level 1
19,079.0	7,903.5	18,830.7	7,827.4	205.2	190.9	-51.32	-10,869.8	1,544.1	121.8	-73.5	195.35	0.624	Level 1

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,100.0	7,903.5	18,851.8	7,827.6	205.6	191.3	-51.46	-10,889.6	1,551.1	121.8	-74.3	196.11	0.621	Level 1
19,149.9	7,903.5	18,901.6	7,828.1	206.5	192.2	-51.74	-10,936.6	1,567.7	121.8	-75.0	196.83	0.619	Level 1
19,200.0	7,903.5	18,951.5	7,828.4	207.5	193.1	-51.93	-10,983.8	1,584.3	121.9	-75.8	197.70	0.616	Level 1
19,223.1	7,903.5	18,974.6	7,828.4	207.9	193.5	-51.98	-11,005.5	1,591.9	121.9	-75.9	197.83	0.616	Level 1
19,300.0	7,903.5	19,051.0	7,828.5	209.4	194.9	-52.17	-11,077.6	1,617.3	122.2	-76.2	198.44	0.616	Level 1
19,323.1	7,903.5	19,074.0	7,828.6	209.8	195.3	-52.29	-11,099.2	1,625.0	122.4	-76.3	198.69	0.616	Level 1
19,400.0	7,903.5	19,151.1	7,829.0	211.3	196.6	-52.70	-11,171.8	1,651.1	122.9	-78.1	201.06	0.611	Level 1
19,423.2	7,903.5	19,174.3	7,829.1	211.7	197.1	-52.80	-11,193.7	1,658.9	123.0	-78.9	201.97	0.609	Level 1
19,500.0	7,903.5	19,251.0	7,829.6	213.2	198.4	-53.23	-11,265.9	1,684.7	123.5	-80.8	204.27	0.604	Level 1
19,523.0	7,903.5	19,274.0	7,829.8	213.6	198.8	-53.40	-11,287.5	1,692.5	123.6	-80.8	204.39	0.605	Level 1
19,600.0	7,903.5	19,350.3	7,830.5	215.1	200.2	-54.04	-11,359.1	1,718.7	124.3	-80.3	204.61	0.608	Level 1
19,623.2	7,903.5	19,373.5	7,830.7	215.5	200.6	-54.26	-11,380.9	1,726.8	124.6	-80.4	204.95	0.608	Level 1
19,700.0	7,903.5	19,451.4	7,831.6	217.0	202.0	-54.93	-11,454.1	1,753.4	125.2	-86.2	211.36	0.592	Level 1
19,723.5	7,903.5	19,475.0	7,831.9	217.4	202.4	-55.11	-11,476.3	1,761.4	125.3	-87.0	212.28	0.590	Level 1
19,800.0	7,903.5	19,551.6	7,832.9	218.9	203.8	-55.76	-11,548.4	1,787.3	125.4	-89.5	214.88	0.584	Level 1
19,879.6	7,903.5	19,632.8	7,834.1	220.4	205.2	-56.31	-11,625.0	1,814.1	125.1	-95.8	220.90	0.566	Level 1
19,900.0	7,903.5	19,653.5	7,834.4	220.8	205.6	-56.39	-11,644.7	1,820.7	124.8	-97.8	222.60	0.561	Level 1
19,979.7	7,903.5	19,733.3	7,835.5	222.3	207.0	-56.67	-11,720.3	1,846.2	123.7	-102.3	226.00	0.547	Level 1
20,000.0	7,903.5	19,753.7	7,835.8	222.7	207.3	-56.74	-11,739.6	1,852.7	123.4	-102.1	225.52	0.547	Level 1
20,079.7	7,903.5	19,833.5	7,837.0	224.2	208.8	-57.00	-11,815.3	1,878.0	122.2	-106.0	228.19	0.535	Level 1
20,100.0	7,903.5	19,853.6	7,837.3	224.6	209.1	-57.07	-11,834.4	1,884.4	121.8	-106.3	228.18	0.534	Level 1
20,179.2	7,903.5	19,931.8	7,838.1	226.1	210.5	-57.29	-11,908.4	1,909.5	121.0	-104.6	225.66	0.536	Level 1
20,200.0	7,903.5	19,952.3	7,838.3	226.5	210.9	-57.35	-11,927.7	1,916.1	120.9	-103.8	224.75	0.538	Level 1
20,223.0	7,903.5	19,974.8	7,838.4	226.9	211.3	-57.42	-11,949.1	1,923.6	120.9	-102.9	223.75	0.540	Level 1
20,300.0	7,903.5	20,050.7	7,838.8	228.4	212.6	-57.74	-12,020.6	1,949.0	121.3	-100.7	222.02	0.546	Level 1
20,323.0	7,903.5	20,073.6	7,838.9	228.8	213.0	-57.87	-12,042.1	1,956.8	121.5	-100.7	222.18	0.547	Level 1
20,400.0	7,903.5	20,151.3	7,839.3	230.3	214.4	-58.33	-12,115.1	1,983.3	122.3	-104.7	227.01	0.539	Level 1
20,479.7	7,903.5	20,233.6	7,839.8	231.8	215.9	-58.41	-12,193.1	2,009.6	121.7	-115.7	237.42	0.513	Level 1
20,500.0	7,903.5	20,253.7	7,839.9	232.2	216.2	-58.40	-12,212.2	2,015.9	121.4	-116.4	237.80	0.510	Level 1
20,579.6	7,903.5	20,333.0	7,840.6	233.7	217.6	-58.49	-12,287.4	2,041.0	120.3	-118.3	238.58	0.504	Level 1
20,600.0	7,903.5	20,353.5	7,840.8	234.1	218.0	-58.51	-12,306.9	2,047.5	120.0	-119.0	239.08	0.502	Level 1
20,679.5	7,903.5	20,432.9	7,841.4	235.6	219.4	-58.52	-12,382.2	2,072.5	118.9	-121.3	240.15	0.495	Level 1
20,700.0	7,903.5	20,453.2	7,841.5	236.0	219.8	-58.52	-12,401.4	2,078.9	118.7	-121.5	240.12	0.494	Level 1
20,779.2	7,903.5	20,531.7	7,841.9	237.5	221.2	-58.56	-12,475.8	2,104.1	118.1	-120.2	238.36	0.496	Level 1
20,800.0	7,903.5	20,552.6	7,842.0	237.9	221.5	-58.58	-12,495.6	2,110.9	118.0	-121.4	239.39	0.493	Level 1
20,879.3	7,903.5	20,632.1	7,842.5	239.4	223.0	-58.68	-12,570.8	2,136.4	117.4	-123.9	241.35	0.487	Level 1
20,900.0	7,903.5	20,652.7	7,842.6	239.8	223.3	-58.72	-12,590.4	2,143.1	117.3	-124.5	241.81	0.485	Level 1
20,979.4	7,903.5	20,732.2	7,843.2	241.3	224.7	-58.92	-12,665.6	2,168.7	116.7	-127.9	244.62	0.477	Level 1
21,000.0	7,903.5	20,752.9	7,843.4	241.7	225.1	-58.98	-12,685.2	2,175.4	116.5	-128.3	244.87	0.476	Level 1
21,079.6	7,903.5	20,832.9	7,844.3	243.2	226.5	-59.22	-12,760.9	2,201.1	115.7	-132.0	247.76	0.467	Level 1
21,100.0	7,903.5	20,853.4	7,844.5	243.6	226.9	-59.27	-12,780.4	2,207.6	115.5	-133.0	248.49	0.465	Level 1
21,179.5	7,903.5	20,932.7	7,845.2	245.1	228.3	-59.40	-12,855.6	2,232.7	114.4	-134.5	248.93	0.460	Level 1
21,200.0	7,903.5	20,953.0	7,845.4	245.5	228.6	-59.43	-12,874.8	2,239.2	114.2	-134.4	248.60	0.460	Level 1
21,279.2	7,903.5	21,031.8	7,845.8	247.0	230.0	-59.52	-12,949.5	2,264.5	113.7	-135.4	249.07	0.456	Level 1
21,300.0	7,903.5	21,052.5	7,845.9	247.4	230.4	-59.54	-12,969.1	2,271.2	113.5	-135.9	249.39	0.455	Level 1
21,379.1	7,903.5	21,131.4	7,846.3	248.9	231.8	-59.63	-13,043.7	2,296.7	113.2	-137.5	250.71	0.451	Level 1
21,400.0	7,903.5	21,152.2	7,846.3	249.3	232.2	-59.65	-13,063.4	2,303.5	113.1	-136.8	249.97	0.453	Level 1
21,479.2	7,903.5	21,231.8	7,846.8	250.8	233.6	-59.82	-13,138.6	2,329.4	112.8	-139.8	252.67	0.447	Level 1
21,500.0	7,903.5	21,252.7	7,847.0	251.2	234.0	-59.91	-13,158.4	2,336.2	112.7	-141.4	254.11	0.444	Level 1
21,580.1	7,903.5	21,333.9	7,848.6	252.8	235.4	-60.58	-13,235.2	2,362.5	111.8	-150.5	262.34	0.426	Level 1

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
21,600.0	7,903.5	21,354.2	7,849.2	253.1	235.8	-60.86	-13,254.4	2,369.1	111.5	-152.9	264.32	0.422	Level 1
21,660.9	7,903.5	21,435.7	7,852.4	254.7	237.2	-62.18	-13,331.5	2,395.2	109.6	-162.1	271.68	0.403	Level 1
21,700.0	7,903.5	21,455.0	7,853.2	255.0	237.6	-62.52	-13,349.8	2,401.4	109.1	-164.1	273.18	0.399	Level 1
21,781.2	7,903.5	21,536.4	7,856.6	256.6	239.0	-63.93	-13,426.9	2,427.1	106.8	-171.5	278.35	0.384	Level 1
21,800.0	7,903.5	21,555.2	7,857.3	256.9	239.3	-64.24	-13,444.8	2,433.0	106.3	-172.9	279.15	0.381	Level 1
21,861.3	7,903.5	21,636.6	7,860.7	258.5	240.8	-65.64	-13,522.0	2,458.5	103.9	-180.0	283.90	0.366	Level 1
21,900.0	7,903.5	21,655.1	7,861.4	258.8	241.1	-65.95	-13,539.6	2,464.3	103.3	-179.7	283.00	0.365	Level 1
21,980.4	7,903.5	21,734.5	7,863.4	260.4	242.5	-66.74	-13,614.9	2,489.1	101.5	-176.2	277.70	0.365	Level 1
22,000.0	7,903.5	21,754.0	7,863.7	260.8	242.9	-66.82	-13,633.5	2,495.2	101.2	-177.0	278.18	0.364	Level 1
22,080.3	7,903.5	21,834.1	7,865.2	262.3	244.3	-67.47	-13,709.5	2,520.7	99.9	-176.8	276.71	0.361	Level 1
22,100.0	7,903.5	21,854.1	7,865.6	262.7	244.6	-67.64	-13,728.4	2,527.0	99.6	-181.2	280.75	0.355	Level 1
22,180.7	7,903.5	21,935.8	7,866.1	264.2	246.1	-67.48	-13,806.2	2,551.8	97.6	-192.5	290.16	0.336	Level 1
22,200.0	7,903.5	21,955.0	7,866.0	264.6	246.4	-67.25	-13,824.5	2,557.5	97.1	-193.0	290.11	0.335	Level 1, ES, SF
22,279.2	7,903.5	22,033.3	7,864.0	266.1	247.8	-65.48	-13,899.5	2,580.2	95.1	-187.0	282.12	0.337	Level 1
22,300.0	7,903.5	22,053.3	7,863.3	266.5	248.2	-64.91	-13,918.5	2,586.1	94.8	-178.6	273.47	0.347	Level 1
22,321.0	7,903.5	22,073.5	7,862.5	266.9	248.5	-64.34	-13,937.8	2,592.2	94.7	-171.1	265.86	0.356	Level 1
22,400.0	7,903.5	22,149.7	7,859.0	268.4	249.9	-62.35	-14,009.8	2,616.7	96.0	-147.0	243.02	0.395	Level 1
22,420.0	7,903.5	22,169.0	7,858.1	268.8	250.2	-61.96	-14,028.0	2,623.2	96.7	-142.4	239.04	0.404	Level 1
22,500.0	7,903.5	22,247.9	7,854.8	270.3	251.7	-60.92	-14,101.8	2,651.1	100.3	-132.4	232.73	0.431	Level 1
22,520.9	7,903.5	22,268.9	7,854.1	270.7	252.0	-60.77	-14,121.4	2,658.6	101.3	-133.8	235.10	0.431	Level 1
22,600.0	7,903.5	22,349.0	7,852.1	272.2	253.5	-60.54	-14,196.1	2,687.3	104.6	-141.9	246.49	0.424	Level 1
22,621.8	7,903.5	22,371.2	7,851.7	272.6	253.9	-60.50	-14,216.9	2,695.1	105.3	-145.0	250.29	0.421	Level 1
22,700.0	7,903.5	22,449.6	7,850.7	274.1	255.3	-60.55	-14,290.3	2,722.5	107.5	-146.5	254.00	0.423	Level 1
22,722.1	7,903.5	22,471.4	7,850.6	274.5	255.6	-60.73	-14,310.7	2,730.3	108.2	-145.7	253.95	0.426	Level 1
22,800.0	7,903.5	22,550.6	7,851.0	276.0	257.1	-61.60	-14,384.6	2,758.8	110.5	-153.4	263.85	0.419	Level 1
22,823.0	7,903.5	22,574.3	7,851.0	276.4	257.5	-61.75	-14,406.8	2,767.0	110.9	-160.1	271.00	0.409	Level 1
22,900.0	7,903.5	22,652.0	7,851.2	277.9	258.9	-62.05	-14,480.0	2,793.2	111.6	-165.8	277.41	0.402	Level 1
22,922.6	7,903.5	22,674.7	7,851.3	278.3	259.3	-62.14	-14,501.4	2,800.9	111.8	-166.0	277.82	0.402	Level 1
23,000.0	7,903.5	22,751.0	7,851.4	279.8	260.6	-62.43	-14,573.1	2,826.7	112.7	-159.8	272.49	0.413	Level 1
23,022.4	7,903.5	22,773.0	7,851.3	280.2	261.0	-62.50	-14,593.8	2,834.3	113.1	-155.8	268.92	0.421	Level 1
23,100.0	7,903.5	22,851.6	7,851.2	281.7	262.4	-62.81	-14,667.5	2,861.3	114.4	-165.0	279.42	0.410	Level 1
23,122.7	7,903.5	22,874.6	7,851.3	282.2	262.8	-62.92	-14,689.2	2,869.1	114.7	-168.3	282.94	0.405	Level 1
23,200.0	7,903.5	22,951.1	7,851.6	283.6	264.2	-63.30	-14,761.2	2,895.2	115.6	-163.2	278.77	0.415	Level 1
23,222.8	7,903.5	22,973.7	7,851.6	284.1	264.6	-63.40	-14,782.4	2,902.9	116.0	-161.5	277.52	0.418	Level 1
23,300.0	7,903.5	23,052.1	7,851.8	285.5	266.0	-63.75	-14,856.1	2,929.6	116.9	-171.0	287.91	0.406	Level 1
23,379.5	7,903.5	23,133.4	7,852.2	287.1	267.5	-63.95	-14,932.9	2,956.3	116.9	-186.9	303.83	0.385	Level 1
23,400.0	7,903.5	23,154.4	7,852.2	287.4	267.8	-63.91	-14,952.8	2,962.9	116.7	-190.1	306.84	0.380	Level 1
23,479.0	7,903.5	23,232.4	7,852.1	289.0	269.2	-63.68	-15,026.8	2,987.6	116.0	-186.4	302.40	0.384	Level 1
23,500.0	7,903.5	23,253.1	7,852.0	289.4	269.6	-63.64	-15,046.4	2,994.2	115.9	-183.1	299.04	0.388	Level 1
23,523.1	7,903.5	23,276.0	7,851.9	289.8	270.0	-63.59	-15,068.1	3,001.7	115.9	-183.7	299.62	0.387	Level 1
23,600.0	7,903.5	23,352.6	7,851.5	291.3	271.4	-63.37	-15,140.5	3,026.5	116.0	-183.2	299.22	0.388	Level 1
23,622.5	7,903.5	23,374.9	7,851.3	291.7	271.8	-63.29	-15,161.5	3,033.8	116.1	-181.0	297.14	0.391	Level 1
23,700.0	7,903.5	23,451.5	7,850.6	293.2	273.1	-63.09	-15,233.9	3,059.2	116.9	-175.9	292.73	0.399	Level 1
23,722.9	7,903.5	23,474.6	7,850.4	293.6	273.5	-63.04	-15,255.7	3,067.0	117.1	-177.0	294.16	0.398	Level 1
23,800.0	7,903.5	23,552.3	7,849.7	295.1	274.9	-62.80	-15,329.0	3,092.5	117.7	-182.3	299.92	0.392	Level 1
23,822.6	7,903.5	23,574.8	7,849.5	295.5	275.3	-62.73	-15,350.2	3,099.9	117.8	-181.9	299.71	0.393	Level 1
23,900.0	7,903.5	23,651.7	7,848.7	297.0	276.7	-62.47	-15,422.8	3,125.3	118.5	-178.9	297.42	0.398	Level 1
23,922.6	7,903.5	23,674.2	7,848.5	297.4	277.1	-62.39	-15,444.1	3,132.8	118.7	-178.7	297.47	0.399	Level 1
24,000.0	7,903.5	23,751.8	7,847.6	298.9	278.5	-62.13	-15,517.2	3,158.6	119.6	-179.8	299.42	0.399	Level 1
24,022.9	7,903.5	23,774.9	7,847.3	299.3	278.9	-62.02	-15,539.0	3,166.2	119.8	-181.7	301.55	0.397	Level 1
24,100.0	7,903.5	23,852.5	7,846.1	300.8	280.3	-61.50	-15,612.5	3,191.4	120.2	-186.8	307.01	0.392	Level 1

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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 Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
24,123.0	7,903.5	23,875.7	7,845.8	301.2	280.7	-61.35	-15,634.3	3,198.9	120.3	-187.2	307.50	0.391	Level 1
24,200.0	7,903.5	23,952.5	7,845.2	302.7	282.1	-61.05	-15,707.0	3,223.8	120.5	-186.6	307.07	0.392	Level 1
24,222.8	7,903.5	23,975.1	7,845.1	303.1	282.5	-61.04	-15,728.3	3,231.2	120.6	-185.7	306.35	0.394	Level 1
24,300.0	7,903.5	24,052.0	7,844.9	304.6	283.9	-61.10	-15,800.9	3,256.9	121.3	-185.9	307.19	0.395	Level 1
24,322.4	7,903.5	24,074.5	7,844.5	305.0	284.3	-60.93	-15,822.1	3,264.2	121.4	-186.8	308.28	0.394	Level 1
24,400.0	7,903.5	24,151.4	7,841.9	306.5	285.6	-59.72	-15,895.0	3,288.6	122.1	-181.1	303.20	0.403	Level 1
24,421.8	7,903.5	24,172.8	7,841.2	306.9	286.0	-59.40	-15,915.3	3,295.5	122.4	-178.7	301.14	0.406	Level 1
24,500.0	7,903.5	24,250.6	7,838.7	308.4	287.4	-58.47	-15,988.7	3,321.2	124.0	-175.9	299.87	0.413	Level 1
24,522.0	7,903.5	24,272.7	7,838.1	308.8	287.8	-58.26	-16,009.5	3,328.5	124.4	-177.2	301.60	0.412	Level 1
24,600.0	7,903.5	24,350.0	7,836.1	310.3	289.2	-57.67	-16,082.3	3,354.3	126.0	-171.3	297.26	0.424	Level 1
24,621.7	7,903.5	24,371.3	7,835.6	310.8	289.6	-57.53	-16,102.4	3,361.6	126.6	-168.2	294.77	0.429	Level 1
24,700.0	7,903.5	24,450.0	7,833.4	312.2	291.0	-57.03	-16,176.3	3,388.4	128.8	-170.4	299.16	0.431	Level 1
24,722.3	7,903.5	24,472.5	7,832.8	312.7	291.4	-56.87	-16,197.5	3,396.0	129.3	-170.7	300.03	0.431	Level 1
24,800.0	7,903.5	24,551.3	7,830.6	314.2	292.8	-56.14	-16,271.8	3,422.0	130.8	-175.3	306.12	0.427	Level 1
24,822.8	7,903.5	24,574.3	7,829.9	314.6	293.2	-55.86	-16,293.6	3,429.4	131.1	-175.6	306.69	0.427	Level 1
24,900.0	7,903.5	24,653.0	7,827.5	316.1	294.6	-54.73	-16,368.3	3,454.1	131.7	-178.9	310.60	0.424	Level 1
24,930.1	7,903.5	24,683.5	7,826.6	316.6	295.1	-54.26	-16,397.2	3,463.4	131.7	-178.8	310.46	0.424	Level 1
25,000.0	7,903.5	24,750.6	7,823.9	318.0	296.3	-53.05	-16,461.0	3,484.3	132.4	-167.9	300.32	0.441	Level 1
25,022.1	7,903.5	24,773.0	7,822.8	318.4	296.7	-52.60	-16,482.2	3,491.4	132.9	-166.7	299.66	0.444	Level 1
25,100.0	7,903.5	24,851.4	7,819.6	319.9	298.1	-51.46	-16,556.4	3,516.6	134.6	-165.9	300.50	0.448	Level 1
25,123.3	7,903.5	24,875.2	7,819.1	320.3	298.5	-51.30	-16,578.9	3,524.4	134.9	-167.4	302.34	0.446	Level 1
25,200.0	7,903.5	24,954.1	7,818.1	321.8	299.9	-50.81	-16,653.6	3,549.6	135.2	-173.5	308.72	0.438	Level 1
25,279.2	7,903.5	25,034.1	7,817.3	323.3	301.4	-50.12	-16,729.7	3,574.2	134.5	-175.6	310.14	0.434	Level 1
25,300.0	7,903.5	25,055.1	7,817.0	323.7	301.7	-49.88	-16,749.7	3,580.6	134.3	-175.9	310.18	0.433	Level 1
25,382.6	7,903.5	25,136.1	7,815.6	325.3	303.2	-48.92	-16,826.9	3,605.3	133.6	-171.2	304.94	0.439	Level 1
25,400.0	7,903.5	25,153.0	7,815.3	325.6	303.5	-48.74	-16,842.9	3,610.5	133.8	-170.2	303.96	0.440	Level 1
25,422.6	7,903.5	25,175.4	7,814.8	326.0	303.9	-48.50	-16,864.2	3,617.5	133.9	-169.3	303.17	0.442	Level 1
25,500.0	7,903.5	25,251.5	7,812.9	327.5	305.2	-47.74	-16,936.4	3,641.8	134.7	-164.4	299.12	0.450	Level 1
25,522.4	7,903.5	25,273.8	7,812.3	327.9	305.6	-47.52	-16,957.4	3,648.9	135.0	-163.8	298.85	0.452	Level 1
25,600.0	7,903.5	25,351.1	7,809.9	329.4	307.0	-46.65	-17,030.6	3,673.8	136.4	-161.1	297.46	0.459	Level 1
25,622.8	7,903.5	25,374.2	7,809.2	329.9	307.4	-46.39	-17,052.5	3,681.2	136.8	-161.6	298.37	0.458	Level 1
25,700.0	7,903.5	25,452.7	7,807.3	331.3	308.8	-45.68	-17,126.8	3,706.3	137.7	-163.7	301.38	0.457	Level 1
25,778.8	7,903.5	25,533.2	7,805.7	332.8	310.3	-44.77	-17,203.4	3,731.1	137.8	-166.2	303.95	0.453	Level 1
25,800.0	7,903.5	25,553.9	7,805.2	333.2	310.6	-44.48	-17,223.1	3,737.3	137.7	-165.1	302.86	0.455	Level 1
25,822.7	7,903.5	25,576.1	7,804.7	333.7	311.0	-44.17	-17,244.2	3,744.1	137.7	-163.7	301.46	0.457	Level 1
25,900.0	7,903.5	25,652.2	7,802.6	335.2	312.4	-43.14	-17,316.6	3,767.6	138.3	-159.1	297.44	0.465	Level 1
25,922.6	7,903.5	25,674.7	7,801.9	335.6	312.8	-42.85	-17,338.0	3,774.6	138.6	-158.7	297.28	0.466	Level 1
26,000.0	7,903.5	25,752.0	7,799.5	337.1	314.1	-41.86	-17,411.4	3,798.8	139.6	-157.2	296.83	0.470	Level 1
26,022.7	7,903.5	25,774.9	7,798.8	337.5	314.6	-41.57	-17,433.1	3,805.9	139.9	-157.0	296.87	0.471	Level 1
26,100.0	7,903.5	25,852.3	7,796.6	339.0	315.9	-40.58	-17,506.6	3,829.9	140.8	-155.1	295.87	0.476	Level 1
26,122.6	7,903.5	25,874.8	7,796.0	339.4	316.3	-40.30	-17,528.0	3,836.9	141.0	-154.5	295.50	0.477	Level 1
26,200.0	7,903.5	25,951.4	7,793.8	340.9	317.7	-39.46	-17,600.7	3,861.0	142.1	-151.6	293.65	0.484	Level 1
26,222.5	7,903.5	25,973.4	7,793.2	341.3	318.1	-39.29	-17,621.5	3,868.2	142.5	-150.5	293.05	0.486	Level 1
26,300.0	7,903.5	26,050.9	7,791.4	342.8	319.5	-39.01	-17,694.6	3,894.0	144.3	-149.5	293.82	0.491	Level 1
26,322.8	7,903.5	26,074.0	7,791.0	343.2	319.9	-38.99	-17,716.3	3,901.8	144.8	-150.0	294.79	0.491	Level 1
26,400.0	7,903.5	26,151.2	7,789.9	344.7	321.3	-38.99	-17,789.0	3,927.7	146.1	-150.0	296.13	0.493	Level 1
26,422.5	7,903.5	26,173.5	7,789.5	345.1	321.7	-38.95	-17,810.0	3,935.2	146.6	-149.6	296.21	0.495	Level 1
26,500.0	7,903.5	26,250.4	7,787.8	346.6	323.0	-38.70	-17,882.5	3,960.8	148.3	-147.9	296.18	0.501	Level 1

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - 202 As Drilled — Offset Site Error: 0.0 usft

Survey Program: 27-MWD+HRGM+Int, 493-MWD+AfterInt, 2210-SDI MWD, 6835-MWD — Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,000.0	3,924.8	3,980.8	3,949.3	10.1	11.1	125.18	-12.6	-398.3	221.8	204.3	17.49	12.682	CC, ES
4,100.0	4,016.5	4,079.5	4,045.8	10.6	11.3	123.46	-12.7	-419.0	232.7	215.2	17.51	13.291	
4,200.0	4,107.9	4,176.0	4,140.5	11.2	11.6	127.52	-14.0	-437.6	243.9	226.5	17.39	14.024	
4,300.0	4,199.2	4,272.4	4,235.1	11.7	11.8	131.55	-14.5	-456.3	257.1	239.8	17.34	14.829	
4,400.0	4,290.6	4,369.5	4,330.2	12.3	12.1	134.92	-13.8	-475.9	271.7	254.3	17.38	15.632	
4,500.0	4,381.9	4,471.0	4,429.5	12.9	12.4	138.03	-13.2	-496.8	286.8	269.3	17.47	16.412	
4,600.0	4,473.3	4,576.4	4,532.2	13.6	12.7	140.78	-13.2	-520.6	300.5	282.9	17.63	17.046	
4,700.0	4,564.7	4,668.6	4,621.9	14.2	13.0	144.70	-14.0	-541.6	314.6	296.8	17.80	17.675	
4,800.0	4,656.0	4,763.6	4,714.8	14.9	13.3	149.15	-14.7	-561.2	331.7	313.7	17.97	18.463	
4,900.0	4,747.4	4,870.6	4,819.3	15.6	13.7	153.29	-15.6	-584.3	349.3	331.1	18.21	19.184	
5,000.0	4,838.8	4,958.9	4,905.6	16.3	14.0	154.82	-16.6	-603.4	367.5	349.0	18.51	19.859	
5,100.0	4,930.1	5,055.6	5,000.3	17.1	14.3	156.16	-17.8	-622.5	387.4	368.7	18.76	20.629	
5,200.0	5,021.5	5,159.5	5,102.1	17.8	14.6	157.60	-20.5	-643.3	406.8	387.8	19.05	21.360	
5,300.0	5,112.8	5,251.0	5,191.7	18.6	14.9	158.79	-22.9	-661.4	426.5	407.2	19.33	22.059	
5,400.0	5,204.2	5,347.6	5,286.5	19.4	15.2	159.89	-24.9	-680.0	447.2	427.5	19.65	22.759	
5,500.0	5,295.5	5,445.2	5,382.3	20.1	15.5	160.94	-27.2	-698.7	467.9	448.0	19.97	23.428	
5,600.0	5,386.9	5,536.0	5,471.5	20.9	15.8	161.92	-29.7	-715.3	489.5	469.2	20.29	24.122	
5,700.0	5,478.2	5,631.8	5,565.8	21.7	16.1	162.92	-32.5	-731.9	512.0	491.3	20.62	24.833	
5,800.0	5,569.6	5,736.7	5,669.0	22.5	16.4	163.93	-35.8	-750.6	534.1	513.1	20.97	25.471	
5,900.0	5,661.0	5,842.9	5,773.1	23.4	16.8	164.90	-40.2	-771.4	554.3	533.0	21.34	25.981	
6,000.0	5,752.3	5,927.3	5,855.9	24.2	17.1	165.63	-43.6	-787.3	575.4	553.7	21.70	26.519	
6,100.0	5,843.7	6,011.0	5,938.4	25.0	17.3	166.25	-45.8	-801.2	599.2	577.1	22.07	27.154	
6,200.0	5,935.0	6,095.0	6,021.4	25.8	17.6	166.84	-47.5	-813.3	625.2	602.7	22.43	27.868	
6,300.0	6,026.4	6,195.6	6,121.1	26.6	17.9	167.56	-50.1	-827.3	651.6	628.8	22.84	28.534	
6,400.0	6,117.7	6,295.7	6,220.1	27.5	18.2	168.17	-52.4	-842.1	677.5	654.2	23.27	29.118	
6,500.0	6,209.1	6,387.6	6,310.9	28.3	18.4	168.71	-54.8	-855.5	703.4	679.7	23.68	29.707	
6,600.0	6,300.4	6,470.0	6,392.5	29.1	18.6	169.20	-57.0	-866.5	730.6	706.6	24.06	30.369	
6,700.0	6,391.8	6,558.5	6,480.4	30.0	18.9	169.71	-59.4	-876.9	759.4	734.9	24.45	31.053	
6,800.0	6,483.1	6,630.5	6,552.0	30.8	19.0	170.22	-62.5	-883.9	789.7	764.9	24.77	31.882	
6,900.0	6,574.5	6,693.7	6,615.0	31.6	19.1	170.70	-65.5	-887.7	823.5	798.5	25.03	32.903	
7,000.0	6,665.9	6,751.9	6,673.1	32.5	19.2	171.16	-68.3	-888.8	861.1	835.8	25.23	34.125	
7,100.0	6,757.2	6,811.3	6,732.4	33.3	19.3	171.64	-71.4	-887.5	902.3	876.9	25.39	35.532	
7,200.0	6,848.8	7,143.0	7,059.7	34.2	19.7	179.43	-82.8	-925.4	926.9	900.5	26.38	35.138	
7,300.0	6,941.2	7,228.8	7,142.2	34.8	19.8	-166.75	-100.1	-941.2	943.3	916.7	26.60	35.467	
7,400.0	7,034.0	7,440.3	7,336.6	35.5	20.4	-151.33	-170.2	-984.6	951.8	924.9	26.87	35.416	
7,404.4	7,038.2	7,448.2	7,343.4	35.5	20.5	-150.65	-173.7	-986.4	951.8	924.9	26.89	35.391	
7,500.0	7,126.4	7,478.8	7,369.6	36.0	20.6	-138.48	-188.5	-992.0	954.7	927.4	27.20	35.094	
7,600.0	7,217.8	7,532.0	7,413.6	36.6	20.7	-132.19	-217.7	-997.6	961.1	933.6	27.49	34.963	
7,700.0	7,309.0	7,562.1	7,437.6	37.1	20.8	-131.63	-235.9	-998.5	973.0	945.4	27.65	35.187	
7,800.0	7,400.3	7,627.0	7,486.4	37.7	20.9	-129.73	-278.5	-996.3	991.4	963.4	28.03	35.376	
7,900.0	7,489.4	7,627.0	7,486.4	38.1	20.9	-116.20	-278.5	-996.3	1,013.3	985.5	27.74	36.527	
8,000.0	7,573.5	7,681.5	7,524.9	38.6	21.0	-105.67	-316.5	-989.5	1,036.9	1,008.9	27.93	37.128	
8,100.0	7,650.9	7,722.0	7,552.2	39.0	21.1	-98.16	-345.3	-981.6	1,062.1	1,034.2	27.91	38.051	
8,200.0	7,720.1	7,882.5	7,647.3	39.3	21.3	-91.98	-469.9	-948.6	1,083.7	1,053.8	29.89	36.253	
8,300.0	7,779.7	8,024.2	7,707.3	39.7	21.9	-87.30	-596.5	-928.3	1,092.1	1,059.6	32.55	33.548	
8,400.0	7,828.5	8,102.0	7,729.6	39.9	22.4	-84.48	-670.1	-917.0	1,095.5	1,061.7	33.80	32.410	
8,416.6	7,835.5	8,102.0	7,729.6	40.0	22.4	-84.24	-670.1	-917.0	1,095.7	1,062.1	33.60	32.608	
8,500.0	7,865.7	8,138.4	7,737.3	40.2	22.6	-82.97	-705.0	-910.6	1,096.3	1,062.6	33.76	32.471	
8,573.2	7,885.1	8,169.4	7,742.8	40.4	22.8	-82.27	-734.9	-903.9	1,096.2	1,062.3	33.93	32.310	
8,600.0	7,890.5	8,197.0	7,746.9	40.5	23.0	-82.07	-761.3	-897.0	1,096.3	1,061.8	34.50	31.779	
8,683.1	7,901.3	8,225.5	7,750.0	40.7	23.2	-81.90	-788.5	-889.4	1,094.6	1,060.0	34.56	31.669	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - 202 As Drilled — **Offset Site Error:** 0.0 usft

Survey Program: 27-MWD+HRGM+Int, 493-MWD+AfterInt, 2210-SDI MWD, 6835-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,700.0	7,902.4	8,236.2	7,750.9	40.7	23.2	-81.92	-798.7	-886.4	1,094.0	1,059.3	34.73	31.498	
8,784.4	7,905.0	8,292.0	7,753.1	40.9	23.6	-81.98	-852.2	-870.4	1,091.4	1,055.7	35.72	30.558	
8,800.0	7,903.5	8,292.0	7,753.1	41.0	23.6	-82.07	-852.2	-870.4	1,090.3	1,054.7	35.58	30.645	
8,877.6	7,903.5	8,348.0	7,753.4	41.2	24.0	-82.08	-905.3	-852.9	1,089.2	1,052.6	36.62	29.744	
8,900.0	7,903.5	8,362.0	7,753.6	41.3	24.1	-82.09	-918.6	-848.2	1,089.3	1,052.4	36.84	29.567	
9,000.0	7,903.5	8,446.6	7,755.0	41.7	24.8	-82.18	-997.9	-818.9	1,091.2	1,052.5	38.68	28.210	
9,100.0	7,903.5	8,553.7	7,756.4	42.2	25.8	-82.26	-1,098.4	-781.8	1,093.1	1,051.6	41.50	26.338	
9,200.0	7,903.5	8,621.6	7,757.5	42.7	26.4	-82.33	-1,162.0	-758.0	1,095.7	1,052.8	42.89	25.546	
9,300.0	7,903.5	8,767.0	7,765.2	43.3	27.9	-82.78	-1,296.6	-703.8	1,100.9	1,053.4	47.54	23.156	
9,330.9	7,903.5	8,801.8	7,766.9	43.5	28.4	-82.87	-1,329.5	-692.5	1,100.6	1,052.0	48.65	22.624	
9,400.0	7,903.5	8,862.0	7,768.7	44.0	29.1	-82.97	-1,386.0	-671.9	1,101.4	1,051.1	50.31	21.893	
9,500.0	7,903.5	8,932.5	7,771.4	44.8	30.0	-83.12	-1,451.8	-646.7	1,104.2	1,052.2	51.99	21.240	
9,600.0	7,903.5	9,047.3	7,779.8	45.6	31.4	-83.58	-1,558.6	-605.7	1,106.6	1,050.9	55.72	19.860	
9,700.0	7,903.5	9,146.0	7,785.3	46.5	32.7	-83.88	-1,651.0	-571.2	1,108.5	1,049.7	58.86	18.834	
9,722.3	7,903.5	9,168.8	7,785.6	46.7	33.0	-83.90	-1,672.3	-563.2	1,109.1	1,049.5	59.62	18.603	
9,800.0	7,903.5	9,263.6	7,784.9	47.5	34.4	-83.87	-1,761.7	-531.9	1,109.4	1,046.3	63.02	17.605	
9,900.0	7,903.5	9,336.0	7,784.8	48.6	35.5	-83.87	-1,829.4	-506.0	1,112.3	1,047.5	64.88	17.144	
10,000.0	7,903.5	9,526.0	7,789.9	49.7	38.2	-84.13	-2,008.6	-443.6	1,113.1	1,040.4	72.75	15.300	
10,085.7	7,903.5	9,584.1	7,789.5	50.7	39.1	-84.10	-2,064.3	-427.3	1,109.4	1,035.1	74.24	14.942	
10,100.0	7,903.5	9,591.6	7,789.4	50.8	39.2	-84.10	-2,071.5	-425.0	1,109.1	1,034.7	74.37	14.912	
10,148.9	7,903.5	9,621.0	7,789.0	51.4	39.7	-84.07	-2,099.3	-415.6	1,108.7	1,033.7	75.00	14.783	
10,200.0	7,903.5	9,655.3	7,788.7	52.1	40.2	-84.06	-2,131.6	-404.1	1,109.2	1,033.4	75.83	14.628	
10,300.0	7,903.5	9,757.5	7,790.1	53.3	41.8	-84.14	-2,227.4	-368.4	1,111.5	1,032.2	79.36	14.006	
10,373.7	7,903.5	9,845.8	7,790.6	54.3	43.2	-84.17	-2,310.8	-339.7	1,111.3	1,028.6	82.72	13.434	
10,400.0	7,903.5	9,865.7	7,790.7	54.7	43.5	-84.17	-2,329.7	-333.1	1,111.4	1,028.1	83.28	13.345	
10,500.0	7,903.5	9,962.7	7,791.7	56.0	45.0	-84.23	-2,421.0	-300.3	1,112.6	1,026.2	86.48	12.866	
10,522.6	7,903.5	9,990.1	7,792.1	56.3	45.5	-84.25	-2,446.8	-291.1	1,112.8	1,025.2	87.54	12.711	
10,600.0	7,903.5	10,067.1	7,793.5	57.4	46.7	-84.33	-2,519.4	-265.6	1,113.0	1,022.8	90.21	12.338	
10,679.8	7,903.5	10,155.9	7,794.9	58.6	48.2	-84.40	-2,603.2	-236.3	1,113.2	1,019.7	93.53	11.903	
10,700.0	7,903.5	10,180.2	7,795.2	58.9	48.6	-84.41	-2,626.2	-228.5	1,113.1	1,018.7	94.47	11.783	
10,765.9	7,903.5	10,238.1	7,795.7	59.8	49.5	-84.44	-2,681.0	-209.9	1,112.8	1,016.5	96.35	11.550	
10,800.0	7,903.5	10,266.3	7,796.1	60.3	50.0	-84.46	-2,707.7	-200.6	1,112.9	1,015.7	97.22	11.447	
10,819.6	7,903.5	10,286.0	7,796.4	60.6	50.3	-84.48	-2,726.2	-194.0	1,113.0	1,015.1	97.92	11.367	
10,900.0	7,903.5	10,358.2	7,797.2	61.8	51.5	-84.52	-2,794.2	-169.6	1,113.9	1,013.6	100.31	11.105	
10,920.7	7,903.5	10,377.8	7,797.3	62.1	51.8	-84.53	-2,812.6	-163.0	1,114.2	1,013.2	100.99	11.033	
11,000.0	7,903.5	10,466.7	7,797.6	63.3	53.3	-84.55	-2,896.4	-133.2	1,114.9	1,010.6	104.34	10.685	
11,018.8	7,903.5	10,484.6	7,797.8	63.6	53.6	-84.56	-2,913.3	-127.2	1,115.0	1,010.1	104.96	10.623	
11,100.0	7,903.5	10,551.1	7,798.6	64.9	54.7	-84.61	-2,975.8	-104.7	1,116.0	1,009.0	106.97	10.433	
11,200.0	7,903.5	10,667.8	7,800.6	66.5	56.6	-84.72	-3,085.4	-64.9	1,117.5	1,006.0	111.51	10.022	
11,218.9	7,903.5	10,683.6	7,800.9	66.8	56.9	-84.73	-3,100.4	-59.6	1,117.6	1,005.6	112.02	9.978	
11,300.0	7,903.5	10,754.3	7,802.1	68.1	58.1	-84.80	-3,166.9	-35.7	1,118.6	1,004.3	114.31	9.785	
11,381.6	7,903.5	10,866.6	7,803.8	69.4	60.0	-84.88	-3,273.0	1.2	1,118.6	999.6	119.03	9.398	
11,400.0	7,903.5	10,881.3	7,804.0	69.7	60.3	-84.89	-3,286.9	5.9	1,118.4	999.0	119.48	9.361	
11,445.8	7,903.5	10,918.1	7,804.6	70.4	60.9	-84.93	-3,321.7	17.8	1,118.2	997.6	120.61	9.272	
11,500.0	7,903.5	10,972.6	7,805.9	71.3	61.8	-85.00	-3,373.1	35.9	1,118.4	995.8	122.59	9.124	
11,585.9	7,903.5	11,083.0	7,806.5	72.7	63.7	-85.02	-3,478.0	70.2	1,117.0	989.9	127.09	8.789	
11,600.0	7,903.5	11,096.5	7,806.5	73.0	64.0	-85.01	-3,490.8	74.4	1,116.7	989.1	127.56	8.754	
11,684.3	7,903.5	11,176.9	7,806.2	74.4	65.3	-84.99	-3,567.3	99.0	1,115.0	984.6	130.37	8.553	
11,700.0	7,903.5	11,191.8	7,806.2	74.6	65.6	-84.99	-3,581.5	103.6	1,114.7	983.8	130.88	8.517	
11,783.4	7,903.5	11,272.1	7,807.0	76.0	66.9	-85.03	-3,657.8	128.7	1,113.4	979.7	133.69	8.328	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - 202 As Drilled — Offset Site Error: 0.0 usft

Survey Program: 27-MWD+HRGM+Int, 493-MWD+AfterInt, 2210-SDI MWD, 6835-MWD — Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,800.0	7,903.5	11,288.3	7,807.3	76.3	67.2	-85.04	-3,673.2	133.8	1,113.2	978.9	134.26	8.291	
11,883.0	7,903.5	11,369.6	7,808.9	77.7	68.6	-85.12	-3,750.4	159.4	1,112.0	974.9	137.16	8.108	
11,900.0	7,903.5	11,386.3	7,809.2	78.0	68.9	-85.13	-3,766.2	164.7	1,111.8	974.1	137.76	8.071	
11,983.3	7,903.5	11,471.0	7,810.5	79.4	70.4	-85.19	-3,846.6	191.4	1,110.8	969.9	140.87	7.885	
12,000.0	7,903.5	11,488.4	7,810.7	79.7	70.7	-85.21	-3,863.1	196.8	1,110.5	969.0	141.52	7.847	
12,084.8	7,903.5	11,578.1	7,811.6	81.1	72.3	-85.25	-3,948.3	224.7	1,109.2	964.2	144.91	7.654	
12,100.0	7,903.5	11,594.2	7,811.7	81.4	72.5	-85.25	-3,963.6	229.7	1,108.9	963.3	145.52	7.620	
12,185.7	7,903.5	11,682.0	7,812.2	82.9	74.1	-85.27	-4,047.2	256.7	1,107.1	958.3	148.78	7.441	
12,200.0	7,903.5	11,696.6	7,812.3	83.1	74.3	-85.27	-4,061.1	261.1	1,106.8	957.5	149.31	7.412	
12,285.8	7,903.5	11,782.5	7,812.9	84.6	75.8	-85.29	-4,142.9	287.4	1,104.9	952.5	152.42	7.249	
12,300.0	7,903.5	11,796.7	7,813.0	84.8	76.1	-85.30	-4,156.5	291.7	1,104.6	951.6	152.93	7.223	
12,384.2	7,903.5	11,874.5	7,813.7	86.3	77.4	-85.33	-4,230.4	315.7	1,103.0	947.4	155.59	7.089	
12,400.0	7,903.5	11,889.1	7,813.8	86.6	77.6	-85.33	-4,244.3	320.3	1,102.7	946.6	156.08	7.065	
12,485.2	7,903.5	11,965.2	7,815.0	88.1	79.3	-85.39	-4,335.7	349.9	1,101.1	941.3	159.81	6.890	
12,500.0	7,903.5	11,991.0	7,815.1	88.3	79.4	-85.39	-4,341.2	351.7	1,100.7	940.9	159.81	6.888	
12,581.4	7,903.5	12,059.3	7,816.2	89.8	80.6	-85.45	-4,406.1	373.1	1,099.6	937.6	161.97	6.789	
12,600.0	7,903.5	12,073.3	7,816.5	90.1	80.8	-85.46	-4,419.3	377.6	1,099.5	937.1	162.35	6.772	
12,621.8	7,903.5	12,090.8	7,816.8	90.5	81.1	-85.48	-4,435.8	383.4	1,099.5	936.7	162.88	6.751	
12,700.0	7,903.5	12,168.6	7,817.1	91.8	82.5	-85.50	-4,509.3	409.0	1,099.8	934.1	165.72	6.637	
12,785.9	7,903.5	12,285.3	7,816.7	93.4	84.5	-85.47	-4,620.0	445.8	1,098.8	928.1	170.69	6.438	
12,800.0	7,903.5	12,297.6	7,816.8	93.6	84.7	-85.47	-4,631.7	449.5	1,098.5	927.4	171.09	6.421	
12,884.4	7,903.5	12,372.1	7,816.8	95.1	86.0	-85.47	-4,702.6	472.6	1,097.0	923.5	173.53	6.321	
12,900.0	7,903.5	12,393.2	7,816.7	95.4	86.4	-85.46	-4,722.6	479.1	1,096.7	922.3	174.43	6.287	
12,988.4	7,903.5	12,494.1	7,815.9	97.0	88.1	-85.41	-4,819.0	509.2	1,094.1	915.7	178.38	6.134	
13,000.0	7,903.5	12,503.8	7,815.9	97.2	88.3	-85.40	-4,828.2	512.1	1,093.8	915.1	178.68	6.121	
13,083.9	7,903.5	12,572.8	7,816.5	98.7	89.5	-85.43	-4,893.9	533.2	1,091.9	911.1	180.85	6.038	
13,100.0	7,903.5	12,585.6	7,816.7	99.0	89.7	-85.44	-4,906.0	537.2	1,091.7	910.5	181.23	6.024	
13,160.9	7,903.5	12,633.6	7,817.4	100.0	90.6	-85.47	-4,951.5	552.6	1,091.4	908.8	182.62	5.976	
13,200.0	7,903.5	12,665.8	7,817.9	100.7	91.1	-85.50	-4,981.8	563.3	1,091.5	907.9	183.62	5.944	
13,300.0	7,903.5	12,759.2	7,819.1	102.5	92.8	-85.57	-5,069.8	594.9	1,092.6	905.8	186.86	5.847	
13,383.3	7,903.5	12,868.3	7,820.0	104.0	94.7	-85.61	-5,173.1	630.0	1,092.1	900.5	191.59	5.700	
13,400.0	7,903.5	12,882.0	7,820.1	104.3	94.9	-85.62	-5,186.1	634.4	1,092.0	899.9	192.01	5.687	
13,450.9	7,903.5	12,923.7	7,820.5	105.3	95.7	-85.64	-5,225.5	647.8	1,091.7	898.5	193.28	5.648	
13,500.0	7,903.5	12,966.1	7,821.1	106.1	96.4	-85.67	-5,265.5	661.8	1,091.9	897.3	194.65	5.610	
13,600.0	7,903.5	13,057.9	7,822.3	108.0	98.0	-85.74	-5,351.9	692.8	1,093.0	895.2	197.79	5.526	
13,700.0	7,903.5	13,157.9	7,822.6	109.8	99.8	-85.76	-5,446.0	726.7	1,094.4	892.9	201.47	5.432	
13,800.0	7,903.5	13,252.8	7,823.1	111.6	101.5	-85.79	-5,535.2	758.9	1,095.8	891.0	204.77	5.351	
13,900.0	7,903.5	13,349.0	7,822.9	113.4	103.1	-85.79	-5,625.4	792.6	1,098.2	890.1	208.15	5.276	
13,923.4	7,903.5	13,384.3	7,823.1	113.8	103.8	-85.80	-5,658.5	804.6	1,098.6	888.8	209.82	5.236	
14,000.0	7,903.5	13,471.1	7,824.2	115.2	105.3	-85.86	-5,740.5	833.3	1,098.8	885.5	213.31	5.151	
14,021.9	7,903.5	13,493.1	7,824.4	115.6	105.6	-85.87	-5,761.3	840.5	1,098.9	884.8	214.12	5.132	
14,100.0	7,903.5	13,567.1	7,824.5	117.1	107.0	-85.88	-5,831.1	864.9	1,099.1	882.4	216.71	5.072	
14,122.0	7,903.5	13,587.6	7,824.4	117.5	107.3	-85.87	-5,850.5	871.7	1,099.2	881.8	217.42	5.056	
14,200.0	7,903.5	13,673.9	7,823.9	118.9	108.8	-85.85	-5,932.0	900.1	1,099.6	878.7	220.81	4.980	
14,250.4	7,903.5	13,723.2	7,824.0	119.8	109.7	-85.85	-5,978.6	916.1	1,099.4	876.9	222.57	4.940	
14,300.0	7,903.5	13,765.0	7,824.2	120.7	110.4	-85.87	-6,018.1	929.9	1,099.6	875.8	223.86	4.912	
14,400.0	7,903.5	13,863.1	7,825.3	122.5	112.1	-85.93	-6,110.4	962.9	1,100.6	873.2	227.39	4.840	
14,500.0	7,903.5	13,950.6	7,826.9	124.4	113.7	-86.01	-6,192.7	992.5	1,101.9	871.7	230.19	4.787	
14,600.0	7,903.5	14,044.7	7,827.8	126.2	115.3	-86.07	-6,280.8	1,025.5	1,104.4	871.0	233.47	4.731	
14,700.0	7,903.5	14,167.8	7,826.8	128.1	117.5	-86.02	-6,396.8	1,066.8	1,105.3	866.6	238.74	4.630	
14,741.3	7,903.5	14,214.2	7,827.0	128.8	118.3	-86.03	-6,440.8	1,081.7	1,105.1	864.5	240.60	4.593	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - 202 As Drilled — **Offset Site Error:** 0.0 usft

Survey Program: 27-MWD+HRGM+Int, 493-MWD+AfterInt, 2210-SDI MWD, 6835-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
14,800.0	7,903.5	14,269.0	7,826.8	129.9	119.3	-86.02	-6,492.4	1,100.1	1,105.6	863.2	242.47	4.560	
14,900.0	7,903.5	14,380.2	7,826.3	131.8	121.3	-86.00	-6,597.2	1,137.1	1,106.5	859.6	246.86	4.482	
15,000.0	7,903.5	14,444.0	7,826.4	133.6	122.4	-86.01	-6,657.2	1,158.9	1,107.8	859.8	248.00	4.467	
15,100.0	7,903.5	14,564.3	7,827.5	135.5	124.5	-86.08	-6,770.1	1,200.5	1,110.0	856.8	253.16	4.385	
15,200.0	7,903.5	14,648.0	7,828.2	137.3	126.0	-86.12	-6,848.6	1,229.3	1,111.8	856.1	255.67	4.349	
15,300.0	7,903.5	14,759.5	7,829.1	139.2	128.0	-86.17	-6,953.4	1,267.5	1,113.5	853.3	260.20	4.279	
15,400.0	7,903.5	14,862.4	7,829.9	141.0	129.8	-86.21	-7,050.1	1,302.5	1,114.9	850.8	264.09	4.222	
15,485.0	7,903.5	14,974.4	7,830.2	142.6	131.8	-86.23	-7,156.2	1,338.5	1,114.4	845.4	269.03	4.142	
15,500.0	7,903.5	14,991.2	7,830.2	142.9	132.1	-86.23	-7,172.2	1,343.7	1,114.2	844.5	269.69	4.131	
15,586.3	7,903.5	15,080.5	7,829.9	144.5	133.6	-86.20	-7,257.2	1,371.2	1,112.5	839.5	273.03	4.075	
15,600.0	7,903.5	15,093.9	7,829.9	144.7	133.9	-86.21	-7,269.9	1,375.4	1,112.3	838.8	273.51	4.067	
15,683.1	7,903.5	15,167.1	7,830.4	146.3	135.2	-86.23	-7,339.5	1,398.2	1,111.0	835.0	275.93	4.026	
15,700.0	7,903.5	15,181.0	7,830.6	146.6	135.4	-86.23	-7,352.6	1,402.6	1,110.8	834.5	276.35	4.020	
15,744.9	7,903.5	15,218.0	7,831.0	147.4	136.1	-86.26	-7,387.6	1,414.6	1,110.7	833.2	277.46	4.003	
15,800.0	7,903.5	15,269.6	7,831.3	148.5	137.0	-86.27	-7,436.4	1,431.5	1,110.7	831.5	279.26	3.977	
15,820.7	7,903.5	15,289.0	7,831.2	148.8	137.3	-86.27	-7,454.7	1,437.9	1,110.8	830.9	279.93	3.968	
15,900.0	7,903.5	15,367.6	7,830.4	150.3	138.7	-86.23	-7,528.9	1,463.9	1,111.2	828.5	282.77	3.930	
15,921.8	7,903.5	15,389.7	7,830.4	150.7	139.1	-86.23	-7,549.7	1,471.2	1,111.3	827.7	283.60	3.919	
16,000.0	7,903.5	15,469.8	7,830.7	152.2	140.5	-86.24	-7,625.3	1,497.6	1,111.6	825.1	286.58	3.879	
16,080.2	7,903.5	15,556.6	7,831.6	153.7	142.0	-86.29	-7,707.3	1,526.0	1,111.7	821.7	289.98	3.834	
16,100.0	7,903.5	15,578.8	7,832.0	154.0	142.4	-86.31	-7,728.4	1,533.2	1,111.6	820.8	290.88	3.822	
16,147.2	7,903.5	15,620.3	7,832.9	154.9	143.2	-86.36	-7,767.6	1,546.6	1,111.4	819.2	292.23	3.803	
16,200.0	7,903.5	15,659.4	7,833.8	155.9	143.9	-86.40	-7,804.5	1,559.6	1,111.7	818.5	293.19	3.792	
16,300.0	7,903.5	15,775.5	7,835.3	157.8	145.9	-86.48	-7,913.7	1,598.9	1,113.1	815.0	298.07	3.734	
16,368.1	7,903.5	15,841.3	7,835.2	159.0	147.1	-86.48	-7,975.9	1,620.2	1,112.9	812.5	300.41	3.705	
16,400.0	7,903.5	15,869.9	7,835.4	159.6	147.6	-86.49	-8,003.0	1,629.6	1,112.9	811.6	301.36	3.693	
16,423.3	7,903.5	15,892.5	7,835.8	160.1	148.0	-86.51	-8,024.3	1,637.0	1,113.0	810.8	302.18	3.683	
16,500.0	7,903.5	15,975.0	7,836.1	161.5	149.5	-86.53	-8,102.2	1,664.0	1,113.1	807.7	305.41	3.645	
16,588.8	7,903.5	16,089.6	7,836.6	163.2	151.5	-86.55	-8,211.2	1,699.6	1,111.5	801.1	310.37	3.581	
16,600.0	7,903.5	16,098.2	7,836.7	163.4	151.7	-86.55	-8,219.4	1,702.2	1,111.2	800.6	310.63	3.577	
16,682.1	7,903.5	16,167.0	7,837.6	164.9	152.9	-86.60	-8,284.7	1,723.8	1,110.1	797.3	312.78	3.549	
16,700.0	7,903.5	16,178.2	7,837.7	165.3	153.1	-86.60	-8,295.3	1,727.4	1,110.0	797.0	312.99	3.546	
16,781.7	7,903.5	16,259.4	7,838.4	166.8	154.5	-86.64	-8,372.2	1,753.6	1,109.6	793.6	315.98	3.512	
16,800.0	7,903.5	16,282.1	7,838.5	167.1	154.9	-86.64	-8,393.6	1,760.8	1,109.5	792.5	316.95	3.500	
16,886.9	7,903.5	16,380.0	7,839.0	168.8	156.7	-86.66	-8,486.7	1,791.3	1,108.0	787.1	320.90	3.453	
16,900.0	7,903.5	16,390.9	7,839.1	169.0	156.9	-86.66	-8,497.1	1,794.7	1,107.8	786.6	321.23	3.449	
16,980.5	7,903.5	16,451.0	7,839.5	170.5	157.9	-86.68	-8,554.1	1,813.7	1,107.0	784.3	322.77	3.430	
17,000.0	7,903.5	16,472.9	7,839.7	170.9	158.3	-86.69	-8,574.8	1,820.8	1,107.0	783.3	323.67	3.420	
17,100.0	7,903.5	16,557.7	7,841.2	172.8	159.8	-86.78	-8,654.6	1,849.3	1,107.9	781.7	326.24	3.396	
17,187.7	7,903.5	16,680.6	7,844.3	174.4	162.0	-86.94	-8,770.9	1,889.1	1,107.5	775.4	332.07	3.335	
17,200.0	7,903.5	16,695.1	7,844.6	174.6	162.3	-86.95	-8,784.7	1,893.5	1,107.3	774.6	332.68	3.328	
17,286.8	7,903.5	16,776.3	7,846.0	176.3	163.7	-87.02	-8,861.9	1,918.5	1,105.4	769.9	335.53	3.295	
17,300.0	7,903.5	16,786.6	7,846.3	176.5	163.9	-87.04	-8,871.7	1,921.7	1,105.3	769.4	335.82	3.291	
17,356.6	7,903.5	16,830.0	7,848.0	177.6	164.7	-87.12	-8,912.8	1,935.7	1,104.9	767.9	337.00	3.279	
17,400.0	7,903.5	16,865.3	7,849.4	178.4	165.3	-87.19	-8,946.0	1,947.3	1,105.0	767.0	338.02	3.269	
17,500.0	7,903.5	16,963.2	7,851.7	180.3	167.1	-87.32	-9,038.1	1,980.7	1,106.5	764.9	341.60	3.239	
17,595.5	7,903.5	17,106.1	7,852.9	182.1	169.6	-87.38	-9,173.7	2,025.7	1,105.3	756.9	348.41	3.172	
17,600.0	7,903.5	17,112.8	7,852.9	182.1	169.7	-87.38	-9,180.1	2,027.6	1,105.1	756.4	348.70	3.169	
17,682.3	7,903.5	17,161.9	7,853.0	183.7	170.6	-87.38	-9,226.8	2,042.6	1,103.4	753.8	349.56	3.157	
17,700.0	7,903.5	17,172.3	7,853.1	184.0	170.8	-87.38	-9,236.7	2,046.0	1,103.4	753.7	349.67	3.155	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - 202 As Drilled — Offset Site Error: 0.0 usft

Survey Program: 27-MWD+HRGM+Int, 493-MWD+AfterInt, 2210-SDI MWD, 6835-MWD — Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
17,800.0	7,903.5	17,278.2	7,854.4	185.9	172.7	-87.45	-9,336.4	2,081.7	1,104.5	750.7	353.83	3.122	
17,888.7	7,903.5	17,380.3	7,854.3	187.6	174.5	-87.44	-9,433.3	2,113.6	1,103.2	745.2	358.03	3.081	
17,900.0	7,903.5	17,391.9	7,854.3	187.8	174.7	-87.44	-9,444.3	2,117.2	1,103.0	744.6	358.47	3.077	
17,989.9	7,903.5	17,485.4	7,854.5	189.5	176.4	-87.45	-9,533.3	2,146.1	1,101.4	739.4	362.02	3.042	
18,000.0	7,903.5	17,496.3	7,854.5	189.7	176.5	-87.45	-9,543.7	2,149.5	1,101.2	738.8	362.44	3.038	
18,093.9	7,903.5	17,599.7	7,855.3	191.4	178.4	-87.48	-9,642.3	2,180.6	1,098.7	732.2	366.51	2.998	
18,100.0	7,903.5	17,604.7	7,855.3	191.6	178.5	-87.49	-9,647.0	2,182.1	1,098.5	731.8	366.66	2.996	
18,186.2	7,903.5	17,683.0	7,856.1	193.2	179.8	-87.52	-9,721.5	2,206.2	1,096.7	727.4	369.32	2.970	
18,200.0	7,903.5	17,683.0	7,856.1	193.4	179.8	-87.52	-9,721.5	2,206.2	1,096.5	727.7	368.86	2.973	
18,271.6	7,903.5	17,745.2	7,857.1	194.8	180.9	-87.57	-9,780.4	2,226.1	1,096.1	725.3	370.81	2.956	
18,300.0	7,903.5	17,768.7	7,857.7	195.3	181.4	-87.61	-9,802.7	2,233.9	1,096.2	724.7	371.49	2.951	
18,400.0	7,903.5	17,868.5	7,860.1	197.2	183.1	-87.73	-9,896.8	2,267.0	1,096.7	721.5	375.21	2.923	
18,480.0	7,903.5	17,954.9	7,860.6	198.7	184.7	-87.76	-9,978.4	2,295.4	1,096.9	718.2	378.69	2.896	
18,500.0	7,903.5	17,977.3	7,860.6	199.1	185.1	-87.76	-9,999.5	2,302.6	1,096.8	717.2	379.61	2.889	
18,588.9	7,903.5	18,079.6	7,861.4	200.8	186.9	-87.80	-10,096.6	2,335.1	1,096.0	712.1	383.88	2.855	
18,600.0	7,903.5	18,092.3	7,861.5	201.0	187.1	-87.80	-10,108.6	2,339.0	1,095.8	711.4	384.40	2.851	
18,691.6	7,903.5	18,187.9	7,861.4	202.7	188.8	-87.79	-10,199.6	2,368.3	1,093.8	705.8	388.04	2.819	
18,700.0	7,903.5	18,195.3	7,861.4	202.9	189.0	-87.79	-10,206.7	2,370.6	1,093.7	705.4	388.28	2.817	
18,786.7	7,903.5	18,273.0	7,861.8	204.5	190.4	-87.81	-10,280.5	2,394.8	1,092.3	701.5	390.85	2.795	
18,800.0	7,903.5	18,285.3	7,862.0	204.8	190.6	-87.82	-10,292.1	2,398.7	1,092.2	700.9	391.27	2.791	
18,883.8	7,903.5	18,364.2	7,863.5	206.3	192.0	-87.90	-10,366.9	2,423.9	1,091.5	697.5	394.02	2.770	
18,900.0	7,903.5	18,380.6	7,863.9	206.6	192.3	-87.92	-10,382.5	2,429.1	1,091.4	696.8	394.64	2.766	
18,983.8	7,903.5	18,464.2	7,865.1	208.2	193.8	-87.98	-10,461.6	2,455.9	1,090.9	693.1	397.74	2.743	
19,000.0	7,903.5	18,479.8	7,865.3	208.5	194.1	-87.99	-10,476.4	2,460.9	1,090.8	692.5	398.30	2.739	
19,083.1	7,903.5	18,562.2	7,866.9	210.1	195.5	-88.07	-10,554.4	2,487.5	1,090.4	689.1	401.34	2.717	
19,100.0	7,903.5	18,580.0	7,867.2	210.4	195.9	-88.09	-10,571.3	2,493.2	1,090.3	688.3	402.04	2.712	
19,184.3	7,903.5	18,664.4	7,868.9	212.0	197.4	-88.18	-10,651.2	2,520.2	1,089.7	684.5	405.19	2.689	
19,200.0	7,903.5	18,678.9	7,869.3	212.3	197.6	-88.20	-10,664.9	2,524.9	1,089.7	684.0	405.68	2.686	
19,261.9	7,903.5	18,735.4	7,870.9	213.5	198.6	-88.29	-10,718.3	2,543.2	1,089.5	681.9	407.57	2.673	
19,300.0	7,903.5	18,768.5	7,871.9	214.2	199.2	-88.34	-10,749.5	2,554.1	1,089.6	681.0	408.57	2.667	
19,400.0	7,903.5	18,860.0	7,874.1	216.1	200.9	-88.45	-10,835.7	2,584.9	1,090.6	679.0	411.56	2.650	
19,500.0	7,903.5	18,962.1	7,875.2	218.0	202.7	-88.52	-10,931.7	2,619.4	1,091.9	676.4	415.46	2.628	
19,600.0	7,903.5	19,055.6	7,877.4	219.9	204.3	-88.63	-11,019.8	2,650.9	1,093.0	674.4	418.59	2.611	
19,700.0	7,903.5	19,180.2	7,882.8	221.8	206.6	-88.91	-11,136.8	2,693.4	1,094.7	670.2	424.48	2.579	
19,800.0	7,903.5	19,294.0	7,885.2	223.7	208.6	-89.04	-11,244.9	2,728.9	1,093.1	663.9	429.25	2.547	
19,898.5	7,903.5	19,390.0	7,885.8	225.5	210.3	-89.07	-11,336.2	2,758.6	1,091.4	658.7	432.72	2.522	
19,900.0	7,903.5	19,390.0	7,885.8	225.5	210.3	-89.07	-11,336.2	2,758.6	1,091.4	658.7	432.66	2.523	
19,994.6	7,903.5	19,479.6	7,886.9	227.3	211.9	-89.13	-11,421.2	2,786.7	1,090.1	654.4	435.78	2.502	
20,000.0	7,903.5	19,485.0	7,886.9	227.4	212.0	-89.13	-11,426.4	2,788.4	1,090.1	654.1	435.99	2.500	
20,094.0	7,903.5	19,578.5	7,887.7	229.2	213.7	-89.17	-11,515.0	2,818.1	1,089.2	649.8	439.43	2.479	
20,100.0	7,903.5	19,584.6	7,887.7	229.3	213.8	-89.17	-11,520.8	2,820.0	1,089.1	649.5	439.66	2.477	
20,198.6	7,903.5	19,686.6	7,888.3	231.2	215.6	-89.20	-11,617.6	2,852.2	1,088.0	644.5	443.56	2.453	
20,200.0	7,903.5	19,688.0	7,888.3	231.2	215.6	-89.20	-11,619.0	2,852.7	1,088.0	644.4	443.61	2.453	
20,299.0	7,903.5	19,787.1	7,888.6	233.1	217.4	-89.21	-11,713.0	2,883.7	1,086.7	639.4	447.26	2.430	
20,300.0	7,903.5	19,788.1	7,888.6	233.1	217.4	-89.21	-11,713.9	2,884.0	1,086.7	639.4	447.30	2.429	
20,391.4	7,903.5	19,872.9	7,889.6	234.9	218.9	-89.27	-11,794.4	2,910.9	1,085.8	635.6	450.16	2.412	
20,400.0	7,903.5	19,880.3	7,889.7	235.0	219.1	-89.27	-11,801.5	2,913.3	1,085.7	635.3	450.38	2.411	
20,447.9	7,903.5	19,922.0	7,890.5	235.9	219.8	-89.31	-11,840.9	2,926.8	1,085.6	633.9	451.63	2.404	
20,500.0	7,903.5	19,969.5	7,891.1	236.9	220.6	-89.35	-11,885.8	2,942.4	1,085.7	632.6	453.16	2.396	
20,589.5	7,903.5	20,068.5	7,892.5	238.6	222.4	-89.42	-11,979.3	2,974.6	1,085.7	628.4	457.28	2.374	
20,600.0	7,903.5	20,079.0	7,892.7	238.8	222.6	-89.43	-11,989.2	2,978.0	1,085.6	627.9	457.66	2.372	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - 202 As Drilled — **Offset Site Error:** 0.0 usft

Survey Program: 27-MWD+HRGM+Int, 493-MWD+Afterint, 2210-SDI MWD, 6835-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
20,693.0	7,903.5	20,173.2	7,893.4	240.6	224.3	-89.47	-12,078.4	3,008.3	1,085.2	624.0	461.20	2.353	
20,700.0	7,903.5	20,180.5	7,893.4	240.7	224.4	-89.47	-12,085.4	3,010.7	1,085.1	623.7	461.48	2.351	
20,800.0	7,903.5	20,285.0	7,894.0	242.6	226.2	-89.50	-12,184.4	3,043.9	1,084.3	618.8	465.54	2.329	
20,900.0	7,903.5	20,386.2	7,894.2	244.5	228.0	-89.51	-12,280.4	3,075.9	1,083.2	613.9	469.32	2.308	
21,000.0	7,903.5	20,488.1	7,894.9	246.4	229.9	-89.55	-12,377.2	3,108.0	1,082.1	608.9	473.17	2.287	
21,100.0	7,903.5	20,586.1	7,894.8	248.3	231.6	-89.54	-12,470.2	3,138.8	1,080.8	604.1	476.70	2.267	
21,197.7	7,903.5	20,678.9	7,895.4	250.1	233.3	-89.57	-12,558.2	3,168.3	1,079.9	600.0	479.90	2.250	
21,200.0	7,903.5	20,681.1	7,895.4	250.2	233.3	-89.57	-12,560.3	3,169.0	1,079.9	599.9	479.98	2.250	
21,300.0	7,903.5	20,783.7	7,895.4	252.1	235.1	-89.57	-12,657.4	3,201.8	1,079.3	595.4	483.89	2.230	
21,400.0	7,903.5	20,887.0	7,895.2	254.0	237.0	-89.56	-12,755.5	3,234.4	1,078.2	590.3	487.85	2.210	
21,500.0	7,903.5	20,982.7	7,895.3	255.9	238.7	-89.57	-12,846.3	3,264.7	1,077.1	586.0	491.17	2.193	
21,569.6	7,903.5	21,043.8	7,895.6	257.2	239.8	-89.58	-12,904.1	3,284.3	1,076.8	583.8	492.97	2.184	
21,600.0	7,903.5	21,069.5	7,895.7	257.8	240.2	-89.59	-12,928.4	3,292.8	1,076.9	583.2	493.66	2.181	
21,700.0	7,903.5	21,159.1	7,896.0	259.7	241.8	-89.60	-13,012.7	3,322.8	1,077.9	581.6	496.30	2.172	
21,800.0	7,903.5	21,265.6	7,896.3	261.6	243.7	-89.62	-13,112.9	3,358.9	1,079.3	578.6	500.66	2.156	
21,900.0	7,903.5	21,369.8	7,896.5	263.5	245.6	-89.63	-13,211.3	3,393.4	1,079.8	575.0	504.77	2.139	
22,000.0	7,903.5	21,478.7	7,897.0	265.4	247.5	-89.66	-13,314.3	3,429.0	1,079.8	570.5	509.29	2.120	
22,100.0	7,903.5	21,590.2	7,896.0	267.3	249.5	-89.60	-13,420.0	3,464.3	1,078.9	564.9	513.97	2.099	
22,200.0	7,903.5	21,700.0	7,894.4	269.2	251.5	-89.52	-13,524.5	3,498.1	1,076.9	558.5	518.39	2.077	
22,300.0	7,903.5	21,809.8	7,892.9	271.1	253.4	-89.43	-13,629.1	3,531.1	1,074.2	551.5	522.75	2.055	
22,400.0	7,903.5	21,920.9	7,890.7	273.0	255.4	-89.31	-13,735.6	3,562.9	1,070.0	542.9	527.10	2.030	
22,500.0	7,903.5	22,014.8	7,890.5	274.9	257.1	-89.30	-13,825.6	3,589.9	1,065.9	535.5	530.40	2.010	
22,600.0	7,903.5	22,098.2	7,890.3	276.8	258.6	-89.29	-13,905.2	3,614.5	1,062.7	529.8	532.89	1.994	
22,684.4	7,903.5	22,160.8	7,889.9	278.4	259.7	-89.26	-13,964.7	3,634.2	1,061.7	527.7	534.04	1.988	
22,700.0	7,903.5	22,175.5	7,889.7	278.7	259.9	-89.25	-13,978.5	3,639.0	1,061.7	527.2	534.52	1.986	
22,714.9	7,903.5	22,189.5	7,889.5	278.9	260.2	-89.24	-13,991.8	3,643.5	1,061.7	526.7	534.97	1.985	
22,800.0	7,903.5	22,269.2	7,888.0	280.6	261.6	-89.17	-14,067.0	3,669.7	1,061.9	524.4	537.52	1.976	
22,900.0	7,903.5	22,360.9	7,887.1	282.5	263.2	-89.11	-14,153.4	3,700.3	1,062.8	522.5	540.26	1.967	
23,000.0	7,903.5	22,442.0	7,885.9	284.4	264.7	-89.05	-14,229.6	3,728.2	1,064.7	523.1	541.59	1.966	
23,100.0	7,903.5	22,537.0	7,884.1	286.3	266.4	-88.96	-14,318.4	3,762.0	1,067.9	523.3	544.58	1.961	
23,200.0	7,903.5	22,631.7	7,883.0	288.2	268.1	-88.90	-14,406.6	3,796.4	1,071.9	524.3	547.54	1.958 SF	
23,300.0	7,903.5	22,700.0	7,882.2	290.1	269.3	-88.86	-14,470.2	3,821.2	1,076.4	530.1	546.26	1.970	
23,400.0	7,903.5	22,700.0	7,882.2	292.0	269.3	-88.86	-14,470.2	3,821.2	1,087.9	559.0	528.90	2.057	
23,500.0	7,903.5	22,700.0	7,882.2	293.9	269.3	-88.86	-14,470.2	3,821.2	1,108.4	603.1	505.31	2.193	
23,600.0	7,903.5	22,700.0	7,882.2	295.8	269.3	-88.86	-14,470.2	3,821.2	1,137.3	659.3	478.04	2.379	
23,700.0	7,903.5	22,700.0	7,882.2	297.7	269.3	-88.86	-14,470.2	3,821.2	1,174.1	724.8	449.30	2.613	
23,800.0	7,903.5	22,700.0	7,882.2	299.6	269.3	-88.86	-14,470.2	3,821.2	1,218.0	797.3	420.66	2.895	
23,900.0	7,903.5	22,700.0	7,882.2	301.5	269.3	-88.86	-14,470.2	3,821.2	1,268.2	875.1	393.15	3.226	
24,000.0	7,903.5	22,700.0	7,882.2	303.4	269.3	-88.86	-14,470.2	3,821.2	1,324.1	956.8	367.31	3.605	
24,100.0	7,903.5	22,700.0	7,882.2	305.3	269.3	-88.86	-14,470.2	3,821.2	1,385.0	1,041.6	343.40	4.033	
24,200.0	7,903.5	22,700.0	7,882.2	307.2	269.3	-88.86	-14,470.2	3,821.2	1,450.3	1,128.8	321.49	4.511	
24,300.0	7,903.5	22,700.0	7,882.2	309.1	269.3	-88.86	-14,470.2	3,821.2	1,519.3	1,217.8	301.53	5.039	
24,400.0	7,903.5	22,700.0	7,882.2	311.0	269.3	-88.86	-14,470.2	3,821.2	1,591.6	1,308.2	283.39	5.616	
24,500.0	7,903.5	22,700.0	7,882.2	312.9	269.3	-88.86	-14,470.2	3,821.2	1,666.8	1,399.9	266.94	6.244	
24,600.0	7,903.5	22,700.0	7,882.2	314.8	269.3	-88.86	-14,470.2	3,821.2	1,744.5	1,492.4	252.02	6.922	
24,700.0	7,903.5	22,700.0	7,882.2	316.7	269.3	-88.86	-14,470.2	3,821.2	1,824.3	1,585.8	238.48	7.650	
24,800.0	7,903.5	22,700.0	7,882.2	318.6	269.3	-88.86	-14,470.2	3,821.2	1,906.1	1,679.9	226.19	8.427	
24,900.0	7,903.5	22,700.0	7,882.2	320.5	269.3	-88.86	-14,470.2	3,821.2	1,989.5	1,774.5	215.01	9.253	
25,000.0	7,903.5	22,700.0	7,882.2	322.4	269.3	-88.86	-14,470.2	3,821.2	2,074.4	1,869.6	204.82	10.128	
25,100.0	7,903.5	22,700.0	7,882.2	324.3	269.3	-88.86	-14,470.2	3,821.2	2,160.6	1,965.0	195.52	11.050	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 202 - Orig. - 202 As Drilled — **Offset Site Error:** 0.0 usft

Survey Program: 27-MWD+HRGM+Int, 493-MWD+AfterInt, 2210-SDI MWD, 6835-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
25,200.0	7,903.5	22,700.0	7,882.2	326.2	269.3	-88.86	-14,470.2	3,821.2	2,247.9	2,060.9	187.02	12.020	
25,300.0	7,903.5	22,700.0	7,882.2	328.1	269.3	-88.86	-14,470.2	3,821.2	2,336.2	2,157.0	179.23	13.035	
25,400.0	7,903.5	22,700.0	7,882.2	330.0	269.3	-88.86	-14,470.2	3,821.2	2,425.5	2,253.4	172.08	14.095	

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — Offset Site Error: 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,000.0	3,924.8	3,935.9	3,924.8	10.1	10.1	132.87	203.9	-155.0	540.5	523.8	16.70	32.374	CC, ES
4,100.0	4,016.5	4,027.6	4,016.5	10.6	10.1	129.62	203.9	-155.0	567.7	550.9	16.77	33.850	
4,200.0	4,107.9	4,119.0	4,107.9	11.2	10.2	131.96	203.9	-155.0	595.5	578.6	16.85	35.344	
4,300.0	4,199.2	4,210.3	4,199.2	11.7	10.2	134.62	203.9	-155.0	624.7	607.7	16.96	36.840	
4,400.0	4,290.6	4,301.7	4,290.6	12.3	10.3	137.05	203.9	-155.0	655.1	638.0	17.09	38.324	
4,500.0	4,381.9	4,393.0	4,381.9	12.9	10.4	139.28	203.9	-155.0	686.6	669.3	17.26	39.787	
4,600.0	4,473.3	4,484.4	4,473.3	13.6	10.4	141.32	203.9	-155.0	719.0	701.6	17.44	41.222	
4,700.0	4,564.7	4,575.8	4,564.7	14.2	10.5	144.98	203.9	-155.0	752.5	734.8	17.64	42.654	
4,800.0	4,656.0	4,667.1	4,656.0	14.9	10.6	149.14	203.9	-155.0	787.4	769.6	17.85	44.120	
4,900.0	4,747.4	4,758.5	4,747.4	15.6	10.7	153.09	203.9	-155.0	823.7	805.6	18.07	45.580	
5,000.0	4,838.8	4,849.9	4,838.8	16.3	10.8	154.64	203.9	-155.0	860.8	842.5	18.31	47.005	
5,100.0	4,930.1	4,941.2	4,930.1	17.1	10.9	155.74	203.9	-155.0	898.3	879.7	18.57	48.362	
5,200.0	5,021.5	5,032.6	5,021.5	17.8	10.9	156.75	203.9	-155.0	936.1	917.2	18.85	49.651	
5,300.0	5,112.8	5,123.9	5,112.8	18.6	11.0	157.68	203.9	-155.0	974.0	954.9	19.14	50.902	
5,400.0	5,204.2	5,215.3	5,204.2	19.4	11.1	158.55	203.9	-155.0	1,012.2	992.8	19.43	52.085	
5,500.0	5,295.5	5,306.6	5,295.5	20.1	11.2	159.35	203.9	-155.0	1,050.6	1,030.8	19.74	53.212	
5,600.0	5,386.9	5,398.0	5,386.9	20.9	11.3	160.10	203.9	-155.0	1,089.1	1,069.1	20.07	54.276	
5,700.0	5,478.2	5,489.3	5,478.2	21.7	11.4	160.79	203.9	-155.0	1,127.8	1,107.4	20.40	55.288	
5,800.0	5,569.6	5,580.7	5,569.6	22.5	11.6	161.45	203.9	-155.0	1,166.6	1,145.9	20.74	56.249	
5,900.0	5,661.0	5,672.1	5,661.0	23.4	11.7	162.06	203.9	-155.0	1,205.6	1,184.5	21.09	57.162	
6,000.0	5,752.3	5,763.4	5,752.3	24.2	11.8	162.63	203.9	-155.0	1,244.6	1,223.2	21.45	58.028	
6,100.0	5,843.7	5,854.8	5,843.7	25.0	11.9	163.17	203.9	-155.0	1,283.8	1,262.0	21.81	58.849	
6,200.0	5,935.0	5,946.1	5,935.0	25.8	12.0	163.67	203.9	-155.0	1,323.0	1,300.9	22.19	59.629	
6,300.0	6,026.4	6,037.5	6,026.4	26.6	12.1	164.15	203.9	-155.0	1,362.4	1,339.8	22.57	60.367	
6,400.0	6,117.7	6,128.8	6,117.7	27.5	12.3	164.60	203.9	-155.0	1,401.8	1,378.8	22.95	61.067	
6,500.0	6,209.1	6,220.2	6,209.1	28.3	12.4	165.03	203.9	-155.0	1,441.3	1,417.9	23.35	61.731	
6,600.0	6,300.4	6,311.5	6,300.4	29.1	12.5	165.43	203.9	-155.0	1,480.8	1,457.1	23.75	62.359	
6,700.0	6,391.8	6,402.9	6,391.8	30.0	12.7	165.82	203.9	-155.0	1,520.4	1,496.3	24.15	62.955	
6,800.0	6,483.1	6,494.2	6,483.1	30.8	12.8	166.18	203.9	-155.0	1,560.1	1,535.5	24.56	63.519	
6,900.0	6,574.5	6,585.6	6,574.5	31.6	12.9	166.53	203.9	-155.0	1,599.8	1,574.8	24.98	64.054	
7,000.0	6,665.9	6,677.0	6,665.9	32.5	13.1	166.86	203.9	-155.0	1,639.5	1,614.1	25.40	64.560	
7,100.0	6,757.2	6,768.3	6,757.2	33.3	13.2	167.17	203.9	-155.0	1,679.3	1,653.5	25.82	65.040	
7,200.0	6,848.8	6,859.9	6,848.8	34.2	13.3	174.53	203.9	-155.0	1,718.9	1,692.7	26.20	65.617	
7,300.0	6,941.2	6,952.3	6,941.2	34.8	13.3	-171.08	203.9	-155.0	1,756.9	1,730.4	26.49	66.325	
7,400.0	7,034.0	7,043.5	7,032.4	35.5	13.3	-156.53	203.8	-154.9	1,792.8	1,766.0	26.74	67.046	
7,500.0	7,126.4	7,126.7	7,115.3	36.0	13.3	-142.90	198.3	-153.0	1,826.7	1,799.8	26.93	67.834	
7,600.0	7,217.8	7,211.5	7,198.7	36.6	13.3	-136.95	183.9	-148.1	1,859.0	1,831.9	27.06	68.696	
7,700.0	7,309.0	7,296.9	7,280.5	37.1	13.3	-136.93	160.8	-140.1	1,891.4	1,864.2	27.15	69.661	
7,800.0	7,400.3	7,380.8	7,357.7	37.7	13.4	-136.18	129.8	-129.4	1,924.3	1,897.0	27.25	70.623	
7,900.0	7,489.4	7,463.0	7,429.4	38.1	13.4	-121.30	91.9	-116.3	1,956.7	1,929.3	27.39	71.443	
8,000.0	7,573.5	7,544.2	7,495.4	38.6	13.6	-110.74	47.2	-100.9	1,987.2	1,959.6	27.61	71.979	
8,100.0	7,650.9	7,625.2	7,555.4	39.0	13.8	-103.07	-4.2	-83.2	2,015.2	1,987.3	27.96	72.073	
8,200.0	7,720.1	7,706.3	7,609.0	39.3	14.1	-97.40	-61.6	-63.4	2,040.2	2,011.7	28.49	71.607	
8,300.0	7,779.7	7,787.6	7,655.5	39.7	14.6	-93.19	-124.7	-41.7	2,061.6	2,032.3	29.25	70.485	
8,400.0	7,828.5	7,869.3	7,694.3	39.9	15.2	-90.11	-192.5	-18.3	2,079.0	2,048.7	30.26	68.694	
8,500.0	7,865.7	7,950.0	7,724.4	40.2	15.9	-87.98	-263.3	6.2	2,092.2	2,060.6	31.53	66.351	
8,600.0	7,890.5	8,033.9	7,746.5	40.5	16.8	-86.67	-339.8	32.5	2,100.8	2,067.7	33.13	63.418	
8,700.0	7,902.4	8,116.9	7,758.9	40.7	17.8	-86.14	-417.3	59.2	2,104.8	2,069.8	34.96	60.208	
8,779.8	7,905.0	8,184.6	7,762.1	40.9	18.7	-86.11	-481.3	81.3	2,105.6	2,069.0	36.59	57.552	
8,800.0	7,903.5	8,204.8	7,762.2	41.0	19.0	-86.15	-500.3	87.9	2,105.0	2,067.9	37.07	56.781	
8,879.2	7,903.5	8,284.0	7,762.9	41.2	20.1	-86.17	-575.2	113.7	2,104.9	2,065.9	39.06	53.894	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
8,900.0	7,903.5	8,304.8	7,763.1	41.3	20.4	-86.18	-594.9	120.5	2,104.9	2,065.3	39.58	53.178	
8,979.2	7,903.5	8,384.0	7,763.8	41.6	21.5	-86.19	-669.8	146.3	2,104.8	2,063.1	41.72	50.450	
9,000.0	7,903.5	8,404.8	7,764.0	41.7	21.9	-86.20	-689.4	153.1	2,104.8	2,062.5	42.29	49.774	
9,079.2	7,903.5	8,484.0	7,764.7	42.1	23.1	-86.22	-764.3	178.9	2,104.8	2,060.2	44.56	47.239	
9,100.0	7,903.5	8,504.8	7,764.9	42.2	23.4	-86.22	-783.9	185.7	2,104.8	2,059.6	45.15	46.613	
9,179.2	7,903.5	8,584.0	7,765.6	42.6	24.7	-86.24	-858.8	211.5	2,104.7	2,057.2	47.53	44.283	
9,200.0	7,903.5	8,604.8	7,765.7	42.7	25.0	-86.25	-878.5	218.3	2,104.7	2,056.5	48.15	43.709	
9,279.2	7,903.5	8,684.0	7,766.4	43.2	26.3	-86.27	-953.4	244.1	2,104.6	2,054.0	50.61	41.581	
9,300.0	7,903.5	8,704.8	7,766.6	43.3	26.6	-86.27	-973.0	250.9	2,104.6	2,053.4	51.26	41.056	
9,379.2	7,903.5	8,784.0	7,767.3	43.9	27.9	-86.29	-1,047.9	276.7	2,104.6	2,050.8	53.80	39.121	
9,400.0	7,903.5	8,804.8	7,767.5	44.0	28.3	-86.29	-1,067.5	283.5	2,104.5	2,050.1	54.46	38.643	
9,479.2	7,903.5	8,884.0	7,768.2	44.6	29.6	-86.31	-1,142.4	309.3	2,104.5	2,047.4	57.06	36.883	
9,500.0	7,903.5	8,904.8	7,768.4	44.8	30.0	-86.32	-1,162.1	316.1	2,104.5	2,046.7	57.74	36.448	
9,579.2	7,903.5	8,984.0	7,769.0	45.4	31.4	-86.34	-1,237.0	341.9	2,104.4	2,044.0	60.39	34.849	
9,600.0	7,903.5	9,004.8	7,769.2	45.6	31.7	-86.34	-1,256.6	348.7	2,104.4	2,043.3	61.08	34.453	
9,679.2	7,903.5	9,084.0	7,769.9	46.3	33.1	-86.36	-1,331.5	374.5	2,104.4	2,040.6	63.77	32.999	
9,700.0	7,903.5	9,104.8	7,770.1	46.5	33.5	-86.37	-1,351.1	381.2	2,104.3	2,039.9	64.47	32.638	
9,779.2	7,903.5	9,184.0	7,770.8	47.3	34.8	-86.38	-1,426.0	407.1	2,104.3	2,037.1	67.20	31.313	
9,800.0	7,903.5	9,204.8	7,771.0	47.5	35.2	-86.39	-1,445.6	413.8	2,104.3	2,036.4	67.91	30.984	
9,879.2	7,903.5	9,284.0	7,771.7	48.3	36.6	-86.41	-1,520.5	439.7	2,104.2	2,033.5	70.67	29.774	
9,900.0	7,903.5	9,304.8	7,771.8	48.6	37.0	-86.41	-1,540.2	446.4	2,104.2	2,032.8	71.40	29.472	
9,979.2	7,903.5	9,384.0	7,772.5	49.4	38.4	-86.43	-1,615.1	472.3	2,104.1	2,030.0	74.18	28.365	
10,000.0	7,903.5	9,404.8	7,772.7	49.7	38.8	-86.44	-1,634.7	479.0	2,104.1	2,029.2	74.91	28.089	
10,079.2	7,903.5	9,484.0	7,773.4	50.6	40.2	-86.46	-1,709.6	504.9	2,104.1	2,026.4	77.72	27.073	
10,100.0	7,903.5	9,504.8	7,773.6	50.8	40.6	-86.46	-1,729.2	511.6	2,104.1	2,025.6	78.46	26.819	
10,179.2	7,903.5	9,584.0	7,774.3	51.8	42.0	-86.48	-1,804.1	537.5	2,104.0	2,022.7	81.28	25.885	
10,200.0	7,903.5	9,604.8	7,774.5	52.1	42.4	-86.48	-1,823.8	544.2	2,104.0	2,022.0	82.02	25.651	
10,279.2	7,903.5	9,684.0	7,775.2	53.1	43.8	-86.50	-1,898.7	570.1	2,103.9	2,019.1	84.87	24.790	
10,300.0	7,903.5	9,704.8	7,775.3	53.3	44.2	-86.51	-1,918.3	576.8	2,103.9	2,018.3	85.62	24.574	
10,379.2	7,903.5	9,784.0	7,776.0	54.4	45.7	-86.53	-1,993.2	602.7	2,103.9	2,015.4	88.48	23.778	
10,400.0	7,903.5	9,804.8	7,776.2	54.7	46.0	-86.53	-2,012.8	609.4	2,103.9	2,014.6	89.23	23.579	
10,479.2	7,903.5	9,884.0	7,776.9	55.7	47.5	-86.55	-2,087.7	635.3	2,103.8	2,011.7	92.10	22.842	
10,500.0	7,903.5	9,904.7	7,777.1	56.0	47.9	-86.55	-2,107.4	642.0	2,103.8	2,010.9	92.86	22.656	
10,579.2	7,903.5	9,984.0	7,777.8	57.1	49.3	-86.57	-2,182.3	667.8	2,103.7	2,008.0	95.74	21.972	
10,600.0	7,903.5	10,004.7	7,777.9	57.4	49.7	-86.58	-2,201.9	674.6	2,103.7	2,007.2	96.50	21.800	
10,679.2	7,903.5	10,084.0	7,778.6	58.6	51.2	-86.60	-2,276.8	700.4	2,103.7	2,004.3	99.40	21.164	
10,700.0	7,903.5	10,104.7	7,778.8	58.9	51.6	-86.60	-2,296.4	707.2	2,103.7	2,003.5	100.16	21.003	
10,779.2	7,903.5	10,184.0	7,779.5	60.0	53.0	-86.62	-2,371.3	733.0	2,103.6	2,000.5	103.07	20.410	
10,800.0	7,903.5	10,204.7	7,779.7	60.3	53.4	-86.63	-2,390.9	739.8	2,103.6	1,999.8	103.83	20.260	
10,879.2	7,903.5	10,284.0	7,780.4	61.5	54.9	-86.64	-2,465.9	765.6	2,103.5	1,996.8	106.75	19.706	
10,900.0	7,903.5	10,304.7	7,780.6	61.8	55.3	-86.65	-2,485.5	772.4	2,103.5	1,996.0	107.51	19.566	
10,979.2	7,903.5	10,384.0	7,781.3	63.0	56.7	-86.67	-2,560.4	798.2	2,103.5	1,993.0	110.44	19.047	
11,000.0	7,903.5	10,404.7	7,781.4	63.3	57.1	-86.67	-2,580.0	805.0	2,103.5	1,992.3	111.20	18.916	
11,079.2	7,903.5	10,484.0	7,782.1	64.6	58.6	-86.69	-2,654.9	830.8	2,103.4	1,989.3	114.14	18.429	
11,100.0	7,903.5	10,504.7	7,782.3	64.9	59.0	-86.70	-2,674.5	837.6	2,103.4	1,988.5	114.90	18.306	
11,179.2	7,903.5	10,584.0	7,783.0	66.1	60.5	-86.72	-2,749.5	863.4	2,103.3	1,985.5	117.84	17.849	
11,200.0	7,903.5	10,604.7	7,783.2	66.5	60.9	-86.72	-2,769.1	870.2	2,103.3	1,984.7	118.61	17.733	
11,279.2	7,903.5	10,684.0	7,783.9	67.7	62.3	-86.74	-2,844.0	896.0	2,103.3	1,981.7	121.56	17.303	
11,300.0	7,903.5	10,704.7	7,784.1	68.1	62.7	-86.74	-2,863.6	902.8	2,103.3	1,980.9	122.33	17.194	
11,379.3	7,903.5	10,784.0	7,784.7	69.3	64.2	-86.76	-2,938.5	928.6	2,103.2	1,977.9	125.28	16.788	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — Offset Site Error: 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
11,400.0	7,903.5	10,804.7	7,784.9	69.7	64.6	-86.77	-2,958.1	935.4	2,103.2	1,977.2	126.05	16.685	
11,479.3	7,903.5	10,884.0	7,785.6	71.0	66.1	-86.79	-3,033.0	961.2	2,103.2	1,974.1	129.01	16.302	
11,500.0	7,903.5	10,904.7	7,785.8	71.3	66.5	-86.79	-3,052.7	968.0	2,103.1	1,973.4	129.78	16.205	
11,579.3	7,903.5	10,984.0	7,786.5	72.6	68.0	-86.81	-3,127.6	993.8	2,103.1	1,970.4	132.74	15.843	
11,600.0	7,903.5	11,004.7	7,786.7	73.0	68.4	-86.82	-3,147.2	1,000.6	2,103.1	1,969.6	133.52	15.751	
11,679.3	7,903.5	11,084.0	7,787.4	74.3	69.8	-86.83	-3,222.1	1,026.4	2,103.0	1,966.5	136.48	15.409	
11,700.0	7,903.5	11,104.7	7,787.5	74.6	70.2	-86.84	-3,241.7	1,033.2	2,103.0	1,965.8	137.26	15.322	
11,779.3	7,903.5	11,184.0	7,788.2	75.9	71.7	-86.86	-3,316.6	1,059.0	2,103.0	1,962.7	140.23	14.997	
11,800.0	7,903.5	11,204.7	7,788.4	76.3	72.1	-86.86	-3,336.2	1,065.8	2,103.0	1,962.0	141.00	14.914	
11,879.3	7,903.5	11,284.0	7,789.1	77.6	73.6	-86.88	-3,411.2	1,091.6	2,102.9	1,958.9	143.98	14.606	
11,900.0	7,903.5	11,304.7	7,789.3	78.0	74.0	-86.89	-3,430.8	1,098.4	2,102.9	1,958.1	144.75	14.528	
11,979.3	7,903.5	11,383.9	7,790.0	79.3	75.5	-86.91	-3,505.7	1,124.2	2,102.8	1,955.1	147.73	14.235	
12,000.0	7,903.5	11,404.7	7,790.2	79.7	75.9	-86.91	-3,525.3	1,131.0	2,102.8	1,954.3	148.51	14.160	
12,079.3	7,903.5	11,483.9	7,790.9	81.0	77.4	-86.93	-3,600.2	1,156.8	2,102.8	1,951.3	151.49	13.881	
12,100.0	7,903.5	11,504.7	7,791.0	81.4	77.8	-86.93	-3,619.8	1,163.6	2,102.8	1,950.5	152.26	13.810	
12,179.3	7,903.5	11,583.9	7,791.7	82.8	79.3	-86.95	-3,694.8	1,189.4	2,102.7	1,947.5	155.25	13.544	
12,200.0	7,903.5	11,604.7	7,791.9	83.1	79.7	-86.96	-3,714.4	1,196.2	2,102.7	1,946.7	156.02	13.477	
12,279.3	7,903.5	11,683.9	7,792.6	84.5	81.1	-86.98	-3,789.3	1,222.0	2,102.7	1,943.7	159.01	13.223	
12,300.0	7,903.5	11,704.7	7,792.8	84.8	81.5	-86.98	-3,808.9	1,228.8	2,102.6	1,942.9	159.79	13.159	
12,379.3	7,903.5	11,783.9	7,793.5	86.2	83.0	-87.00	-3,883.8	1,254.6	2,102.6	1,939.8	162.78	12.917	
12,400.0	7,903.5	11,804.7	7,793.7	86.6	83.4	-87.01	-3,903.4	1,261.3	2,102.6	1,939.0	163.56	12.855	
12,479.3	7,903.5	11,883.9	7,794.3	88.0	84.9	-87.02	-3,978.4	1,287.2	2,102.5	1,936.0	166.55	12.624	
12,500.0	7,903.5	11,904.7	7,794.5	88.3	85.3	-87.03	-3,998.0	1,293.9	2,102.5	1,935.2	167.33	12.565	
12,579.3	7,903.5	11,983.9	7,795.2	89.7	86.8	-87.05	-4,072.9	1,319.8	2,102.5	1,932.2	170.32	12.344	
12,600.0	7,903.5	12,004.7	7,795.4	90.1	87.2	-87.05	-4,092.5	1,326.5	2,102.5	1,931.4	171.10	12.288	
12,679.3	7,903.5	12,083.9	7,796.1	91.5	88.7	-87.07	-4,167.4	1,352.4	2,102.4	1,928.3	174.10	12.076	
12,700.0	7,903.5	12,104.7	7,796.3	91.8	89.1	-87.08	-4,187.0	1,359.1	2,102.4	1,927.5	174.88	12.022	
12,779.3	7,903.5	12,183.9	7,797.0	93.2	90.6	-87.10	-4,262.0	1,385.0	2,102.4	1,924.5	177.88	11.819	
12,800.0	7,903.5	12,204.7	7,797.1	93.6	91.0	-87.10	-4,281.6	1,391.7	2,102.4	1,923.7	178.66	11.768	
12,879.3	7,903.5	12,283.9	7,797.8	95.0	92.5	-87.12	-4,356.5	1,417.6	2,102.3	1,920.6	181.66	11.573	
12,900.0	7,903.5	12,304.7	7,798.0	95.4	92.9	-87.12	-4,376.1	1,424.3	2,102.3	1,919.9	182.44	11.523	
12,979.3	7,903.5	12,383.9	7,798.7	96.8	94.4	-87.14	-4,451.0	1,450.2	2,102.2	1,916.8	185.44	11.336	
13,000.0	7,903.5	12,404.7	7,798.9	97.2	94.8	-87.15	-4,470.6	1,456.9	2,102.2	1,916.0	186.22	11.289	
13,079.3	7,903.5	12,483.9	7,799.6	98.6	96.3	-87.17	-4,545.5	1,482.8	2,102.2	1,913.0	189.23	11.109	
13,100.0	7,903.5	12,504.6	7,799.8	99.0	96.7	-87.17	-4,565.1	1,489.5	2,102.2	1,912.2	190.00	11.064	
13,179.3	7,903.5	12,583.9	7,800.5	100.4	98.2	-87.19	-4,640.1	1,515.4	2,102.1	1,909.1	192.99	10.892	
13,200.0	7,903.5	12,604.6	7,800.6	100.7	98.6	-87.20	-4,659.7	1,522.1	2,102.1	1,908.3	193.79	10.847	
13,279.3	7,903.5	12,683.9	7,801.3	102.2	100.1	-87.21	-4,734.6	1,548.0	2,102.1	1,905.3	196.79	10.682	
13,300.0	7,903.5	12,704.6	7,801.5	102.5	100.5	-87.22	-4,754.2	1,554.7	2,102.1	1,904.5	197.58	10.639	
13,379.3	7,903.5	12,783.9	7,802.2	104.0	102.0	-87.24	-4,829.1	1,580.6	2,102.0	1,901.4	200.58	10.480	
13,400.0	7,903.5	12,804.6	7,802.4	104.3	102.4	-87.24	-4,848.7	1,587.3	2,102.0	1,900.6	201.37	10.439	
13,479.3	7,903.5	12,883.9	7,803.1	105.8	103.9	-87.26	-4,923.7	1,613.2	2,102.0	1,897.6	204.37	10.285	
13,500.0	7,903.5	12,904.6	7,803.3	106.1	104.3	-87.27	-4,943.3	1,619.9	2,102.0	1,896.8	205.16	10.245	
13,579.3	7,903.5	12,983.9	7,803.9	107.6	105.8	-87.29	-5,018.2	1,645.7	2,101.9	1,893.7	208.16	10.097	
13,600.0	7,903.5	13,004.6	7,804.1	108.0	106.2	-87.29	-5,037.8	1,652.5	2,101.9	1,892.9	208.95	10.059	
13,679.3	7,903.5	13,083.9	7,804.8	109.4	107.7	-87.31	-5,112.7	1,678.3	2,101.9	1,889.9	211.96	9.916	
13,700.0	7,903.5	13,104.6	7,805.0	109.8	108.1	-87.31	-5,132.3	1,685.1	2,101.8	1,889.1	212.75	9.880	
13,779.3	7,903.5	13,183.9	7,805.7	111.2	109.6	-87.33	-5,207.3	1,710.9	2,101.8	1,886.0	215.75	9.742	
13,800.0	7,903.5	13,204.6	7,805.9	111.6	110.0	-87.34	-5,226.9	1,717.7	2,101.8	1,885.2	216.54	9.706	
13,879.3	7,903.5	13,283.9	7,806.6	113.0	111.5	-87.36	-5,301.8	1,743.5	2,101.7	1,882.2	219.55	9.573	
13,900.0	7,903.5	13,304.6	7,806.7	113.4	111.9	-87.36	-5,321.4	1,750.3	2,101.7	1,881.4	220.34	9.539	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
13,979.3	7,903.5	13,383.9	7,807.4	114.8	113.4	-87.38	-5,396.3	1,776.1	2,101.7	1,878.3	223.35	9.410	
14,000.0	7,903.5	13,404.6	7,807.6	115.2	113.8	-87.39	-5,415.9	1,782.9	2,101.7	1,877.5	224.14	9.377	
14,079.3	7,903.5	13,483.9	7,808.3	116.7	115.3	-87.40	-5,490.9	1,808.7	2,101.6	1,874.5	227.15	9.252	
14,100.0	7,903.5	13,504.6	7,808.5	117.1	115.7	-87.41	-5,510.4	1,815.5	2,101.6	1,873.7	227.94	9.220	
14,179.3	7,903.5	13,583.9	7,809.2	118.5	117.2	-87.43	-5,585.4	1,841.3	2,101.6	1,870.6	230.95	9.100	
14,200.0	7,903.5	13,604.6	7,809.4	118.9	117.6	-87.43	-5,605.0	1,848.1	2,101.6	1,869.8	231.74	9.069	
14,279.3	7,903.5	13,683.9	7,810.1	120.3	119.1	-87.45	-5,679.9	1,873.9	2,101.5	1,866.8	234.75	8.952	
14,300.0	7,903.5	13,704.6	7,810.2	120.7	119.5	-87.46	-5,699.5	1,880.7	2,101.5	1,866.0	235.54	8.922	
14,379.3	7,903.5	13,783.9	7,810.9	122.2	121.0	-87.48	-5,774.5	1,906.5	2,101.5	1,862.9	238.55	8.809	
14,400.0	7,903.5	13,804.6	7,811.1	122.5	121.4	-87.48	-5,794.0	1,913.3	2,101.5	1,862.1	239.34	8.780	
14,479.3	7,903.5	13,883.9	7,811.8	124.0	122.9	-87.50	-5,869.0	1,939.1	2,101.4	1,859.1	242.36	8.671	
14,500.0	7,903.5	13,904.6	7,812.0	124.4	123.3	-87.50	-5,888.6	1,945.9	2,101.4	1,858.3	243.15	8.643	
14,579.3	7,903.5	13,983.9	7,812.7	125.8	124.8	-87.52	-5,963.5	1,971.7	2,101.4	1,855.2	246.16	8.537	
14,600.0	7,903.5	14,004.6	7,812.9	126.2	125.2	-87.53	-5,983.1	1,978.5	2,101.4	1,854.4	246.95	8.509	
14,679.3	7,903.5	14,083.9	7,813.5	127.7	126.7	-87.55	-6,058.1	2,004.3	2,101.3	1,851.4	249.97	8.406	
14,700.0	7,903.5	14,104.6	7,813.7	128.1	127.1	-87.55	-6,077.6	2,011.1	2,101.3	1,850.6	250.76	8.380	
14,779.3	7,903.5	14,183.9	7,814.4	129.5	128.6	-87.57	-6,152.6	2,036.9	2,101.3	1,847.5	253.77	8.280	
14,800.0	7,903.5	14,204.6	7,814.6	129.9	129.0	-87.58	-6,172.2	2,043.7	2,101.3	1,846.7	254.56	8.254	
14,879.3	7,903.5	14,283.9	7,815.3	131.4	130.5	-87.59	-6,247.1	2,069.5	2,101.2	1,843.6	257.58	8.157	
14,900.0	7,903.5	14,304.6	7,815.5	131.8	130.9	-87.60	-6,266.7	2,076.3	2,101.2	1,842.8	258.37	8.133	
14,979.3	7,903.5	14,383.9	7,816.2	133.2	132.4	-87.62	-6,341.6	2,102.1	2,101.2	1,839.8	261.39	8.038	
15,000.0	7,903.5	14,404.6	7,816.3	133.6	132.8	-87.62	-6,361.2	2,108.9	2,101.2	1,839.0	262.18	8.014	
15,079.3	7,903.5	14,483.9	7,817.0	135.1	134.3	-87.64	-6,436.2	2,134.7	2,101.1	1,835.9	265.20	7.923	
15,100.0	7,903.5	14,504.6	7,817.2	135.5	134.7	-87.65	-6,455.7	2,141.4	2,101.1	1,835.1	265.99	7.899	
15,179.3	7,903.5	14,583.9	7,817.9	136.9	136.2	-87.67	-6,530.7	2,167.3	2,101.1	1,832.1	269.01	7.810	
15,200.0	7,903.5	14,604.6	7,818.1	137.3	136.6	-87.67	-6,550.3	2,174.0	2,101.1	1,831.3	269.80	7.788	
15,279.3	7,903.5	14,683.9	7,818.8	138.8	138.1	-87.69	-6,625.2	2,199.9	2,101.0	1,828.2	272.82	7.701	
15,300.0	7,903.5	14,704.6	7,819.0	139.2	138.5	-87.69	-6,644.8	2,206.6	2,101.0	1,827.4	273.61	7.679	
15,379.3	7,903.5	14,783.9	7,819.7	140.6	140.0	-87.71	-6,719.8	2,232.5	2,101.0	1,824.3	276.63	7.595	
15,400.0	7,903.5	14,804.6	7,819.8	141.0	140.4	-87.72	-6,739.3	2,239.2	2,101.0	1,823.5	277.42	7.573	
15,479.3	7,903.5	14,883.9	7,820.5	142.5	141.9	-87.74	-6,814.3	2,265.1	2,100.9	1,820.5	280.44	7.491	
15,500.0	7,903.5	14,904.6	7,820.7	142.9	142.3	-87.74	-6,833.9	2,271.8	2,100.9	1,819.7	281.23	7.470	
15,579.3	7,903.5	14,983.9	7,821.4	144.3	143.9	-87.76	-6,908.8	2,297.7	2,100.9	1,816.6	284.25	7.391	
15,600.0	7,903.5	15,004.6	7,821.6	144.7	144.2	-87.77	-6,928.4	2,304.4	2,100.9	1,815.8	285.04	7.370	
15,679.3	7,903.5	15,083.9	7,822.3	146.2	145.8	-87.78	-7,003.4	2,330.3	2,100.8	1,812.8	288.07	7.293	
15,700.0	7,903.5	15,104.6	7,822.5	146.6	146.2	-87.79	-7,022.9	2,337.0	2,100.8	1,812.0	288.85	7.273	
15,779.3	7,903.5	15,183.9	7,823.1	148.1	147.7	-87.81	-7,097.9	2,362.9	2,100.8	1,808.9	291.88	7.197	
15,800.0	7,903.5	15,204.5	7,823.3	148.5	148.1	-87.81	-7,117.5	2,369.6	2,100.8	1,808.1	292.67	7.178	
15,879.3	7,903.5	15,283.9	7,824.0	149.9	149.6	-87.83	-7,192.4	2,395.5	2,100.7	1,805.0	295.69	7.104	
15,900.0	7,903.5	15,304.5	7,824.2	150.3	150.0	-87.84	-7,212.0	2,402.2	2,100.7	1,804.2	296.48	7.085	
15,979.3	7,903.5	15,383.9	7,824.9	151.8	151.5	-87.86	-7,287.0	2,428.1	2,100.7	1,801.2	299.51	7.014	
16,000.0	7,903.5	15,404.5	7,825.1	152.2	151.9	-87.86	-7,306.5	2,434.8	2,100.7	1,800.4	300.30	6.995	
16,079.3	7,903.5	15,483.9	7,825.8	153.7	153.4	-87.88	-7,381.5	2,460.7	2,100.6	1,797.3	303.32	6.925	
16,100.0	7,903.5	15,504.5	7,825.9	154.0	153.8	-87.88	-7,401.0	2,467.4	2,100.6	1,796.5	304.11	6.907	
16,179.3	7,903.5	15,583.9	7,826.6	155.5	155.3	-87.90	-7,476.0	2,493.3	2,100.6	1,793.4	307.14	6.839	
16,200.0	7,903.5	15,604.5	7,826.8	155.9	155.7	-87.91	-7,495.6	2,500.0	2,100.5	1,792.7	307.93	6.822	
16,279.3	7,903.5	15,683.9	7,827.5	157.4	157.2	-87.93	-7,570.6	2,525.9	2,100.5	1,789.6	310.95	6.755	
16,300.0	7,903.5	15,704.5	7,827.7	157.8	157.6	-87.93	-7,590.1	2,532.6	2,100.5	1,788.8	311.74	6.738	
16,379.3	7,903.5	15,783.9	7,828.4	159.3	159.1	-87.95	-7,665.1	2,558.5	2,100.5	1,785.7	314.77	6.673	
16,400.0	7,903.5	15,804.5	7,828.6	159.6	159.5	-87.96	-7,684.6	2,565.2	2,100.5	1,784.9	315.56	6.656	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — Offset Site Error: 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
16,479.3	7,903.5	15,883.9	7,829.3	161.1	161.0	-87.97	-7,759.6	2,591.1	2,100.4	1,781.9	318.59	6.593	
16,500.0	7,903.5	15,904.5	7,829.4	161.5	161.4	-87.98	-7,779.2	2,597.8	2,100.4	1,781.1	319.38	6.577	
16,579.3	7,903.5	15,983.8	7,830.1	163.0	162.9	-88.00	-7,854.2	2,623.7	2,100.4	1,778.0	322.40	6.515	
16,600.0	7,903.5	16,004.5	7,830.3	163.4	163.3	-88.00	-7,873.7	2,630.4	2,100.4	1,777.2	323.19	6.499	
16,679.3	7,903.5	16,083.8	7,831.0	164.9	164.8	-88.02	-7,948.7	2,656.3	2,100.4	1,774.1	326.22	6.438	
16,700.0	7,903.5	16,104.5	7,831.2	165.3	165.2	-88.03	-7,968.2	2,663.0	2,100.4	1,773.3	327.01	6.423	
16,779.3	7,903.5	16,183.8	7,831.9	166.7	166.7	-88.05	-8,043.2	2,688.8	2,100.3	1,770.3	330.04	6.364	
16,800.0	7,903.5	16,204.5	7,832.1	167.1	167.1	-88.05	-8,062.8	2,695.6	2,100.3	1,769.5	330.83	6.349	
16,879.3	7,903.5	16,283.8	7,832.7	168.6	168.7	-88.07	-8,137.8	2,721.4	2,100.3	1,766.4	333.86	6.291	
16,900.0	7,903.5	16,304.5	7,832.9	169.0	169.0	-88.07	-8,157.3	2,728.2	2,100.3	1,765.6	334.65	6.276	
16,979.3	7,903.5	16,383.8	7,833.6	170.5	170.6	-88.09	-8,232.3	2,754.0	2,100.2	1,762.6	337.68	6.220	
17,000.0	7,903.5	16,404.5	7,833.8	170.9	171.0	-88.10	-8,251.8	2,760.8	2,100.2	1,761.8	338.47	6.205	
17,079.3	7,903.5	16,483.8	7,834.5	172.4	172.5	-88.12	-8,326.8	2,786.6	2,100.2	1,758.7	341.50	6.150	
17,100.0	7,903.5	16,504.5	7,834.7	172.8	172.9	-88.12	-8,346.3	2,793.4	2,100.2	1,757.9	342.29	6.136	
17,179.3	7,903.5	16,583.8	7,835.4	174.2	174.4	-88.14	-8,421.4	2,819.2	2,100.1	1,754.8	345.32	6.082	
17,200.0	7,903.5	16,604.5	7,835.5	174.6	174.8	-88.15	-8,440.9	2,826.0	2,100.1	1,754.0	346.10	6.068	
17,279.4	7,903.5	16,683.8	7,836.2	176.1	176.3	-88.16	-8,515.9	2,851.8	2,100.1	1,751.0	349.14	6.015	
17,300.0	7,903.5	16,704.5	7,836.4	176.5	176.7	-88.17	-8,535.4	2,858.6	2,100.1	1,750.2	349.92	6.002	
17,379.4	7,903.5	16,783.8	7,837.1	178.0	178.2	-88.19	-8,610.4	2,884.4	2,100.1	1,747.1	352.96	5.950	
17,400.0	7,903.5	16,804.5	7,837.3	178.4	178.6	-88.19	-8,629.9	2,891.2	2,100.0	1,746.3	353.74	5.937	
17,479.4	7,903.5	16,883.8	7,838.0	179.9	180.1	-88.21	-8,705.0	2,917.0	2,100.0	1,743.2	356.78	5.886	
17,500.0	7,903.5	16,904.5	7,838.2	180.3	180.5	-88.22	-8,724.5	2,923.8	2,100.0	1,742.4	357.56	5.873	
17,579.4	7,903.5	16,983.8	7,838.9	181.8	182.0	-88.24	-8,799.5	2,949.6	2,100.0	1,739.4	360.60	5.824	
17,600.0	7,903.5	17,004.5	7,839.0	182.1	182.4	-88.24	-8,819.0	2,956.4	2,100.0	1,738.6	361.39	5.811	
17,679.4	7,903.5	17,083.8	7,839.7	183.6	183.9	-88.26	-8,894.0	2,982.2	2,099.9	1,735.5	364.42	5.762	
17,700.0	7,903.5	17,104.5	7,839.9	184.0	184.3	-88.26	-8,913.5	2,989.0	2,099.9	1,734.7	365.21	5.750	
17,779.4	7,903.5	17,183.8	7,840.6	185.5	185.8	-88.28	-8,988.6	3,014.8	2,099.9	1,731.7	368.24	5.703	
17,800.0	7,903.5	17,204.5	7,840.8	185.9	186.2	-88.29	-9,008.1	3,021.5	2,099.9	1,730.9	369.03	5.690	
17,879.4	7,903.5	17,283.8	7,841.5	187.4	187.7	-88.31	-9,083.1	3,047.4	2,099.9	1,727.8	372.06	5.644	
17,900.0	7,903.5	17,304.5	7,841.7	187.8	188.1	-88.31	-9,102.6	3,054.1	2,099.8	1,727.0	372.85	5.632	
17,979.4	7,903.5	17,383.8	7,842.3	189.3	189.7	-88.33	-9,177.6	3,080.0	2,099.8	1,723.9	375.88	5.586	
18,000.0	7,903.5	17,404.5	7,842.5	189.7	190.1	-88.34	-9,197.1	3,086.7	2,099.8	1,723.1	376.67	5.575	
18,079.4	7,903.5	17,483.8	7,843.2	191.2	191.6	-88.35	-9,272.2	3,112.6	2,099.8	1,720.1	379.71	5.530	
18,100.0	7,903.5	17,504.5	7,843.4	191.6	192.0	-88.36	-9,291.7	3,119.3	2,099.8	1,719.3	380.49	5.519	
18,179.4	7,903.5	17,583.8	7,844.1	193.1	193.5	-88.38	-9,366.7	3,145.2	2,099.7	1,716.2	383.53	5.475	
18,200.0	7,903.5	17,604.5	7,844.3	193.4	193.9	-88.38	-9,386.2	3,151.9	2,099.7	1,715.4	384.32	5.464	
18,279.4	7,903.5	17,683.8	7,845.0	194.9	195.4	-88.40	-9,461.2	3,177.8	2,099.7	1,712.3	387.35	5.421	
18,300.0	7,903.5	17,704.5	7,845.1	195.3	195.8	-88.41	-9,480.7	3,184.5	2,099.7	1,711.5	388.14	5.410	
18,379.4	7,903.5	17,783.8	7,845.8	196.8	197.3	-88.43	-9,555.8	3,210.4	2,099.7	1,708.5	391.17	5.368	
18,400.0	7,903.5	17,804.4	7,846.0	197.2	197.7	-88.43	-9,575.2	3,217.1	2,099.7	1,707.7	391.96	5.357	
18,479.4	7,903.5	17,883.8	7,846.7	198.7	199.2	-88.45	-9,650.3	3,243.0	2,099.6	1,704.6	395.00	5.316	
18,500.0	7,903.5	17,904.4	7,846.9	199.1	199.6	-88.45	-9,669.8	3,249.7	2,099.6	1,703.8	395.79	5.305	
18,579.4	7,903.5	17,983.8	7,847.6	200.6	201.1	-88.47	-9,744.8	3,275.6	2,099.6	1,700.8	398.82	5.264	
18,600.0	7,903.5	18,004.4	7,847.8	201.0	201.5	-88.48	-9,764.3	3,282.3	2,099.6	1,700.0	399.61	5.254	
18,679.4	7,903.5	18,083.8	7,848.5	202.5	203.0	-88.50	-9,839.4	3,308.2	2,099.5	1,696.9	402.64	5.214	
18,700.0	7,903.5	18,104.4	7,848.6	202.9	203.4	-88.50	-9,858.8	3,314.9	2,099.5	1,696.1	403.43	5.204	
18,779.4	7,903.5	18,183.8	7,849.3	204.4	204.9	-88.52	-9,933.9	3,340.8	2,099.5	1,693.0	406.47	5.165	
18,800.0	7,903.5	18,204.4	7,849.5	204.8	205.3	-88.53	-9,953.4	3,347.5	2,099.5	1,692.2	407.26	5.155	
18,879.4	7,903.5	18,283.8	7,850.2	206.3	206.9	-88.55	-10,028.4	3,373.4	2,099.5	1,689.2	410.29	5.117	
18,900.0	7,903.5	18,304.4	7,850.4	206.6	207.2	-88.55	-10,047.9	3,380.1	2,099.5	1,688.4	411.08	5.107	
18,979.4	7,903.5	18,383.8	7,851.1	208.1	208.8	-88.57	-10,123.0	3,406.0	2,099.4	1,685.3	414.12	5.070	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 600-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
19,000.0	7,903.5	18,404.4	7,851.2	208.5	209.2	-88.57	-10,142.4	3,412.7	2,099.4	1,684.5	414.90	5.060	
19,079.4	7,903.5	18,483.8	7,851.9	210.0	210.7	-88.59	-10,217.5	3,438.6	2,099.4	1,681.5	417.94	5.023	
19,100.0	7,903.5	18,504.4	7,852.1	210.4	211.1	-88.60	-10,237.0	3,445.3	2,099.4	1,680.7	418.73	5.014	
19,179.4	7,903.5	18,583.8	7,852.8	211.9	212.6	-88.62	-10,312.0	3,471.2	2,099.4	1,677.6	421.77	4.978	
19,200.0	7,903.5	18,604.4	7,853.0	212.3	213.0	-88.62	-10,331.5	3,477.9	2,099.4	1,676.8	422.55	4.968	
19,279.4	7,903.5	18,683.8	7,853.7	213.8	214.5	-88.64	-10,406.6	3,503.8	2,099.3	1,673.7	425.59	4.933	
19,300.0	7,903.5	18,704.4	7,853.9	214.2	214.9	-88.65	-10,426.0	3,510.5	2,099.3	1,672.9	426.38	4.924	
19,379.4	7,903.5	18,783.8	7,854.6	215.7	216.4	-88.66	-10,501.1	3,536.4	2,099.3	1,669.9	429.42	4.889	
19,400.0	7,903.5	18,804.4	7,854.7	216.1	216.8	-88.67	-10,520.5	3,543.1	2,099.3	1,669.1	430.20	4.880	
19,479.4	7,903.5	18,883.9	7,855.4	217.6	218.3	-88.69	-10,595.6	3,569.0	2,099.3	1,666.0	433.24	4.845	
19,500.0	7,903.5	18,904.4	7,855.6	218.0	218.7	-88.69	-10,615.1	3,575.7	2,099.3	1,665.2	434.03	4.837	
19,579.5	7,903.5	18,983.9	7,856.3	219.5	220.2	-88.71	-10,690.2	3,601.6	2,099.2	1,662.2	437.07	4.803	
19,600.0	7,903.5	19,004.4	7,856.5	219.9	220.6	-88.72	-10,709.6	3,608.3	2,099.2	1,661.4	437.85	4.794	
19,679.5	7,903.5	19,083.9	7,857.2	221.4	222.1	-88.74	-10,784.7	3,634.2	2,099.2	1,658.3	440.89	4.761	
19,700.0	7,903.5	19,104.4	7,857.4	221.8	222.5	-88.74	-10,804.1	3,640.9	2,099.2	1,657.5	441.68	4.753	
19,779.5	7,903.5	19,183.9	7,858.1	223.3	224.1	-88.76	-10,879.3	3,666.8	2,099.2	1,654.4	444.72	4.720	
19,800.0	7,903.5	19,204.4	7,858.2	223.7	224.4	-88.76	-10,898.7	3,673.5	2,099.2	1,653.6	445.51	4.712	
19,879.5	7,903.5	19,283.9	7,858.9	225.2	226.0	-88.78	-10,973.8	3,699.4	2,099.1	1,650.6	448.55	4.680	
19,900.0	7,903.5	19,304.4	7,859.1	225.5	226.4	-88.79	-10,993.2	3,706.1	2,099.1	1,649.8	449.33	4.672	
19,979.5	7,903.5	19,383.9	7,859.8	227.1	227.9	-88.81	-11,068.3	3,732.0	2,099.1	1,646.7	452.37	4.640	
20,000.0	7,903.5	19,404.4	7,860.0	227.4	228.3	-88.81	-11,087.7	3,738.7	2,099.1	1,645.9	453.16	4.632	
20,079.5	7,903.5	19,483.9	7,860.7	228.9	229.8	-88.83	-11,162.9	3,764.6	2,099.1	1,642.9	456.20	4.601	
20,100.0	7,903.5	19,504.4	7,860.8	229.3	230.2	-88.84	-11,182.3	3,771.3	2,099.1	1,642.1	456.98	4.593	
20,179.5	7,903.5	19,583.9	7,861.5	230.8	231.7	-88.85	-11,257.4	3,797.2	2,099.0	1,639.0	460.02	4.563	
20,200.0	7,903.5	19,604.4	7,861.7	231.2	232.1	-88.86	-11,276.8	3,803.9	2,099.0	1,638.2	460.81	4.555	
20,279.5	7,903.5	19,683.9	7,862.4	232.7	233.6	-88.88	-11,351.9	3,829.8	2,099.0	1,635.1	463.85	4.525	
20,300.0	7,903.5	19,704.4	7,862.6	233.1	234.0	-88.88	-11,371.3	3,836.5	2,099.0	1,634.4	464.64	4.518	
20,379.5	7,903.5	19,783.9	7,863.3	234.6	235.5	-88.90	-11,446.5	3,862.4	2,099.0	1,631.3	467.68	4.488	
20,400.0	7,903.5	19,804.4	7,863.5	235.0	235.9	-88.91	-11,465.8	3,869.1	2,099.0	1,630.5	468.46	4.481	
20,479.5	7,903.5	19,883.9	7,864.2	236.5	237.4	-88.93	-11,541.0	3,895.0	2,098.9	1,627.4	471.50	4.452	
20,500.0	7,903.5	19,904.4	7,864.3	236.9	237.8	-88.93	-11,560.4	3,901.6	2,098.9	1,626.6	472.29	4.444	
20,579.5	7,903.5	19,983.9	7,865.0	238.4	239.4	-88.95	-11,635.6	3,927.6	2,098.9	1,623.6	475.33	4.416	
20,600.0	7,903.5	20,004.4	7,865.2	238.8	239.7	-88.95	-11,654.9	3,934.2	2,098.9	1,622.8	476.12	4.408	
20,679.5	7,903.5	20,083.9	7,865.9	240.3	241.3	-88.97	-11,730.1	3,960.2	2,098.9	1,619.7	479.16	4.380	
20,700.0	7,903.5	20,104.4	7,866.1	240.7	241.7	-88.98	-11,749.4	3,966.8	2,098.9	1,618.9	479.94	4.373	
20,779.5	7,903.5	20,183.9	7,866.8	242.2	243.2	-89.00	-11,824.6	3,992.8	2,098.8	1,615.9	482.99	4.346	
20,800.0	7,903.5	20,204.4	7,867.0	242.6	243.6	-89.00	-11,844.0	3,999.4	2,098.8	1,615.1	483.77	4.339	
20,879.6	7,903.5	20,283.9	7,867.7	244.1	245.1	-89.02	-11,919.2	4,025.4	2,098.8	1,612.0	486.81	4.311	
20,900.0	7,903.5	20,304.4	7,867.8	244.5	245.5	-89.03	-11,938.5	4,032.0	2,098.8	1,611.2	487.60	4.304	
20,979.6	7,903.5	20,383.9	7,868.5	246.0	247.0	-89.05	-12,013.7	4,058.0	2,098.8	1,608.1	490.64	4.278	
21,000.0	7,903.5	20,404.3	7,868.7	246.4	247.4	-89.05	-12,033.0	4,064.6	2,098.8	1,607.4	491.42	4.271	
21,079.6	7,903.5	20,483.9	7,869.4	247.9	248.9	-89.07	-12,108.3	4,090.6	2,098.8	1,604.3	494.47	4.244	
21,100.0	7,903.5	20,504.3	7,869.6	248.3	249.3	-89.07	-12,127.6	4,097.2	2,098.8	1,603.5	495.25	4.238	
21,179.6	7,903.5	20,583.9	7,870.3	249.8	250.8	-89.09	-12,202.8	4,123.2	2,098.7	1,600.4	498.30	4.212	
21,200.0	7,903.5	20,604.3	7,870.4	250.2	251.2	-89.10	-12,222.1	4,129.8	2,098.7	1,599.6	499.08	4.205	
21,279.6	7,903.5	20,683.9	7,871.1	251.7	252.7	-89.12	-12,297.3	4,155.8	2,098.7	1,596.6	502.12	4.180	
21,300.0	7,903.5	20,704.3	7,871.3	252.1	253.1	-89.12	-12,316.6	4,162.4	2,098.7	1,595.8	502.90	4.173	
21,379.6	7,903.5	20,783.9	7,872.0	253.6	254.6	-89.14	-12,391.9	4,188.4	2,098.7	1,592.7	505.95	4.148	
21,400.0	7,903.5	20,804.3	7,872.2	254.0	255.0	-89.15	-12,411.1	4,195.0	2,098.7	1,591.9	506.73	4.142	
21,479.6	7,903.5	20,884.0	7,872.9	255.5	256.6	-89.16	-12,486.4	4,221.0	2,098.6	1,588.9	509.78	4.117	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — Offset Site Error: 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — Offset Well Error: 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
21,500.0	7,903.5	20,904.3	7,873.1	255.9	257.0	-89.17	-12,505.7	4,227.6	2,098.6	1,588.1	510.56	4.110	
21,579.6	7,903.5	20,984.0	7,873.8	257.4	258.5	-89.19	-12,581.0	4,253.6	2,098.6	1,585.0	513.61	4.086	
21,600.0	7,903.5	21,004.3	7,873.9	257.8	258.9	-89.19	-12,600.2	4,260.2	2,098.6	1,584.2	514.39	4.080	
21,679.7	7,903.5	21,084.0	7,874.6	259.3	260.4	-89.21	-12,675.5	4,286.2	2,098.6	1,581.2	517.44	4.056	
21,700.0	7,903.5	21,104.3	7,874.8	259.7	260.8	-89.22	-12,694.7	4,292.8	2,098.6	1,580.4	518.21	4.050	
21,779.7	7,903.5	21,184.0	7,875.5	261.2	262.3	-89.24	-12,770.1	4,318.8	2,098.6	1,577.3	521.26	4.026	
21,800.0	7,903.5	21,204.3	7,875.7	261.6	262.7	-89.24	-12,789.3	4,325.4	2,098.6	1,576.5	522.04	4.020	
21,879.7	7,903.5	21,284.0	7,876.4	263.1	264.2	-89.26	-12,864.6	4,351.4	2,098.5	1,573.4	525.09	3.997	
21,900.0	7,903.5	21,304.3	7,876.6	263.5	264.6	-89.26	-12,883.8	4,358.0	2,098.5	1,572.7	525.87	3.991	
21,979.7	7,903.5	21,384.0	7,877.3	265.0	266.1	-89.28	-12,959.2	4,384.0	2,098.5	1,569.6	528.92	3.968	
22,000.0	7,903.5	21,404.3	7,877.4	265.4	266.5	-89.29	-12,978.3	4,390.6	2,098.5	1,568.8	529.70	3.962	
22,079.7	7,903.5	21,484.0	7,878.1	266.9	268.0	-89.31	-13,053.7	4,416.6	2,098.5	1,565.7	532.75	3.939	
22,100.0	7,903.5	21,504.3	7,878.3	267.3	268.4	-89.31	-13,072.9	4,423.2	2,098.5	1,565.0	533.53	3.933	
22,179.8	7,903.5	21,584.1	7,879.0	268.8	270.0	-89.33	-13,148.3	4,449.2	2,098.5	1,561.9	536.58	3.911	
22,200.0	7,903.5	21,604.3	7,879.2	269.2	270.3	-89.34	-13,167.4	4,455.8	2,098.5	1,561.1	537.35	3.905	
22,279.8	7,903.5	21,684.1	7,879.9	270.7	271.9	-89.35	-13,242.8	4,481.8	2,098.4	1,558.0	540.41	3.883	
22,300.0	7,903.5	21,704.3	7,880.0	271.1	272.3	-89.36	-13,261.9	4,488.4	2,098.4	1,557.3	541.18	3.878	
22,379.8	7,903.5	21,784.1	7,880.7	272.6	273.8	-89.38	-13,337.4	4,514.4	2,098.4	1,554.2	544.24	3.856	
22,400.0	7,903.5	21,804.3	7,880.9	273.0	274.2	-89.38	-13,356.4	4,521.0	2,098.4	1,553.4	545.01	3.850	
22,479.8	7,903.5	21,884.1	7,881.6	274.5	275.7	-89.40	-13,431.9	4,547.0	2,098.4	1,550.3	548.07	3.829	
22,500.0	7,903.5	21,904.3	7,881.8	274.9	276.1	-89.41	-13,451.0	4,553.6	2,098.4	1,549.6	548.84	3.823	
22,579.9	7,903.5	21,984.1	7,882.5	276.4	277.6	-89.43	-13,526.5	4,579.6	2,098.4	1,546.5	551.89	3.802	
22,600.0	7,903.5	22,004.3	7,882.7	276.8	278.0	-89.43	-13,545.5	4,586.2	2,098.4	1,545.7	552.67	3.797	
22,666.7	7,903.5	22,070.5	7,882.8	278.0	279.3	-89.43	-13,608.1	4,607.7	2,098.4	1,543.2	555.20	3.779	
22,700.0	7,903.5	22,103.5	7,882.3	278.7	279.9	-89.42	-13,639.3	4,618.5	2,098.4	1,541.9	556.46	3.771	
22,722.1	7,903.5	22,125.6	7,881.8	279.1	280.3	-89.41	-13,660.2	4,625.7	2,098.4	1,541.1	557.30	3.765	
22,800.0	7,903.5	22,203.5	7,880.2	280.6	281.8	-89.36	-13,733.8	4,651.1	2,098.4	1,538.1	560.27	3.745	
22,822.1	7,903.5	22,225.6	7,879.7	281.0	282.2	-89.35	-13,754.7	4,658.3	2,098.4	1,537.3	561.11	3.740	
22,900.0	7,903.5	22,303.5	7,878.1	282.5	283.7	-89.31	-13,828.3	4,683.7	2,098.4	1,534.3	564.07	3.720	
22,922.2	7,903.5	22,325.6	7,877.6	282.9	284.1	-89.29	-13,849.2	4,690.9	2,098.4	1,533.5	564.92	3.715	
23,000.0	7,903.5	22,403.4	7,876.0	284.4	285.6	-89.25	-13,922.8	4,716.3	2,098.4	1,530.5	567.88	3.695	
23,022.2	7,903.5	22,425.7	7,875.5	284.8	286.0	-89.24	-13,943.8	4,723.5	2,098.4	1,529.7	568.73	3.690	
23,100.0	7,903.5	22,503.4	7,873.9	286.3	287.5	-89.19	-14,017.3	4,748.9	2,098.4	1,526.7	571.69	3.671	
23,122.3	7,903.5	22,525.7	7,873.4	286.7	288.0	-89.18	-14,038.3	4,756.1	2,098.4	1,525.9	572.54	3.665	
23,200.0	7,903.5	22,603.4	7,871.8	288.2	289.4	-89.13	-14,111.8	4,781.5	2,098.5	1,523.0	575.50	3.646	
23,222.3	7,903.5	22,625.7	7,871.3	288.6	289.9	-89.12	-14,132.8	4,788.7	2,098.5	1,522.1	576.35	3.641	
23,300.0	7,903.5	22,703.4	7,869.7	290.1	291.4	-89.08	-14,206.3	4,814.1	2,098.5	1,519.2	579.31	3.622	
23,322.3	7,903.5	22,725.7	7,869.2	290.5	291.8	-89.06	-14,227.3	4,821.3	2,098.5	1,518.3	580.16	3.617	
23,400.0	7,903.5	22,803.3	7,867.6	292.0	293.3	-89.02	-14,300.7	4,846.7	2,098.5	1,515.4	583.11	3.599	
23,422.3	7,903.5	22,825.7	7,867.1	292.4	293.7	-89.01	-14,321.9	4,853.9	2,098.5	1,514.6	583.96	3.594	
23,500.0	7,903.5	22,903.3	7,865.5	293.9	295.2	-88.96	-14,395.2	4,879.2	2,098.5	1,511.6	586.92	3.576	
23,522.4	7,903.5	22,925.7	7,865.0	294.3	295.6	-88.95	-14,416.4	4,886.5	2,098.6	1,510.8	587.77	3.570	
23,600.0	7,903.5	23,003.3	7,863.4	295.8	297.1	-88.91	-14,489.7	4,911.8	2,098.6	1,507.9	590.72	3.553	
23,622.4	7,903.5	23,025.7	7,863.0	296.2	297.5	-88.89	-14,510.9	4,919.1	2,098.6	1,507.0	591.57	3.547	
23,700.0	7,903.5	23,103.3	7,861.3	297.7	299.0	-88.85	-14,584.2	4,944.4	2,098.6	1,504.1	594.53	3.530	
23,722.4	7,903.5	23,125.7	7,860.9	298.1	299.4	-88.84	-14,605.4	4,951.7	2,098.6	1,503.2	595.38	3.525	
23,800.0	7,903.5	23,203.3	7,859.2	299.6	300.9	-88.79	-14,678.7	4,977.0	2,098.7	1,500.3	598.33	3.508	
23,822.4	7,903.5	23,225.7	7,858.8	300.0	301.3	-88.78	-14,699.9	4,984.3	2,098.7	1,499.5	599.18	3.503	
23,900.0	7,903.5	23,303.2	7,857.1	301.5	302.8	-88.73	-14,773.2	5,009.6	2,098.7	1,496.6	602.13	3.485	
23,922.4	7,903.5	23,325.6	7,856.7	301.9	303.3	-88.72	-14,794.4	5,016.9	2,098.7	1,495.7	602.98	3.481	
24,000.0	7,903.5	23,403.2	7,855.0	303.4	304.7	-88.68	-14,867.7	5,042.2	2,098.7	1,492.8	605.93	3.464	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 203 - Orig. - SDI Plan 2 — **Offset Site Error:** 0.0 usft

Survey Program: 0-MWD+HRGM+Int, 800-MWD+AfterInt, 2600-SDI MWD, 6900-MWD — **Offset Well Error:** 0.0 usft

Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
24,022.4	7,903.5	23,425.6	7,854.6	303.8	305.2	-88.66	-14,888.9	5,049.5	2,098.7	1,492.0	606.78	3.459	
24,100.0	7,903.5	23,503.2	7,853.0	305.3	306.7	-88.62	-14,962.2	5,074.8	2,098.8	1,489.0	609.73	3.442	
24,122.4	7,903.5	23,525.6	7,852.5	305.7	307.1	-88.61	-14,983.4	5,082.1	2,098.8	1,488.2	610.58	3.437	
24,200.0	7,903.5	23,603.2	7,850.9	307.2	308.6	-88.56	-15,056.7	5,107.4	2,098.8	1,485.3	613.53	3.421	
24,222.4	7,903.5	23,625.6	7,850.4	307.6	309.0	-88.55	-15,077.9	5,114.7	2,098.8	1,484.4	614.38	3.416	
24,300.0	7,903.5	23,703.1	7,848.8	309.1	310.5	-88.51	-15,151.2	5,140.0	2,098.9	1,481.5	617.33	3.400	
24,322.5	7,903.5	23,725.6	7,848.3	309.5	310.9	-88.49	-15,172.4	5,147.3	2,098.9	1,480.7	618.18	3.395	
24,400.0	7,903.5	23,803.1	7,846.7	311.0	312.4	-88.45	-15,245.7	5,172.6	2,098.9	1,477.8	621.13	3.379	
24,422.5	7,903.5	23,825.6	7,846.2	311.4	312.8	-88.44	-15,266.9	5,179.9	2,098.9	1,477.0	621.98	3.375	
24,500.0	7,903.5	23,903.1	7,844.6	312.9	314.3	-88.39	-15,340.2	5,205.2	2,099.0	1,474.0	624.92	3.359	
24,522.5	7,903.5	23,925.6	7,844.1	313.3	314.7	-88.38	-15,361.4	5,212.5	2,099.0	1,473.2	625.77	3.354	
24,600.0	7,903.5	24,003.1	7,842.5	314.8	316.2	-88.33	-15,434.7	5,237.8	2,099.0	1,470.3	628.72	3.339	
24,622.5	7,903.5	24,025.6	7,842.0	315.2	316.6	-88.32	-15,455.9	5,245.1	2,099.0	1,469.5	629.57	3.334	
24,700.0	7,903.5	24,103.1	7,840.4	316.7	318.1	-88.28	-15,529.2	5,270.4	2,099.1	1,466.6	632.51	3.319	
24,722.5	7,903.5	24,125.5	7,839.9	317.1	318.6	-88.26	-15,550.4	5,277.7	2,099.1	1,465.7	633.36	3.314	
24,800.0	7,903.5	24,203.0	7,838.3	318.6	320.0	-88.22	-15,623.7	5,302.9	2,099.1	1,462.8	636.30	3.299	
24,822.5	7,903.5	24,225.5	7,837.8	319.0	320.5	-88.21	-15,644.9	5,310.3	2,099.1	1,462.0	637.16	3.295	
24,900.0	7,903.5	24,303.0	7,836.2	320.5	322.0	-88.16	-15,718.1	5,335.5	2,099.2	1,459.1	640.10	3.280	
24,922.5	7,903.5	24,325.5	7,835.7	320.9	322.4	-88.15	-15,739.4	5,342.9	2,099.2	1,458.3	640.95	3.275	
25,000.0	7,903.5	24,403.0	7,834.1	322.4	323.9	-88.11	-15,812.6	5,368.1	2,099.3	1,455.4	643.89	3.260	
25,022.5	7,903.5	24,425.5	7,833.6	322.8	324.3	-88.09	-15,833.9	5,375.5	2,099.3	1,454.5	644.74	3.256	
25,100.0	7,903.5	24,503.0	7,832.0	324.3	325.8	-88.05	-15,907.1	5,400.7	2,099.3	1,451.6	647.68	3.241	
25,122.5	7,903.5	24,525.5	7,831.5	324.7	326.2	-88.04	-15,928.4	5,408.1	2,099.3	1,450.8	648.53	3.237	
25,200.0	7,903.5	24,603.0	7,829.9	326.2	327.7	-87.99	-16,001.6	5,433.3	2,099.4	1,447.9	651.46	3.223	
25,222.5	7,903.5	24,625.5	7,829.4	326.6	328.1	-87.98	-16,022.9	5,440.7	2,099.4	1,447.1	652.32	3.218	
25,300.0	7,903.5	24,702.9	7,827.8	328.1	329.6	-87.93	-16,096.1	5,465.9	2,099.5	1,444.2	655.25	3.204	
25,322.5	7,903.5	24,725.5	7,827.4	328.5	330.0	-87.92	-16,117.4	5,473.2	2,099.5	1,443.4	656.10	3.200	
25,400.0	7,903.5	24,802.9	7,825.7	330.0	331.5	-87.88	-16,190.6	5,498.5	2,099.5	1,440.5	659.04	3.186	
25,422.5	7,903.5	24,825.4	7,825.3	330.5	332.0	-87.86	-16,211.9	5,505.8	2,099.5	1,439.7	659.89	3.182	
25,500.0	7,903.5	24,902.9	7,823.6	331.9	333.4	-87.82	-16,285.1	5,531.1	2,099.6	1,436.8	662.82	3.168	
25,522.5	7,903.5	24,925.4	7,823.2	332.4	333.9	-87.81	-16,306.4	5,538.4	2,099.6	1,435.9	663.68	3.164	
25,600.0	7,903.5	25,002.9	7,821.5	333.8	335.3	-87.76	-16,379.6	5,563.7	2,099.7	1,433.1	666.61	3.150	
25,622.5	7,903.5	25,025.4	7,821.1	334.3	335.8	-87.75	-16,400.9	5,571.0	2,099.7	1,432.2	667.46	3.146	
25,700.0	7,903.5	25,102.8	7,819.4	335.7	337.3	-87.71	-16,474.1	5,596.3	2,099.7	1,429.4	670.39	3.132	
25,722.5	7,903.5	25,125.4	7,819.0	336.2	337.7	-87.69	-16,495.4	5,603.6	2,099.8	1,428.5	671.24	3.128	
25,800.0	7,903.5	25,202.8	7,817.4	337.6	339.2	-87.65	-16,568.6	5,628.9	2,099.8	1,425.7	674.17	3.115	
25,822.5	7,903.5	25,225.4	7,816.9	338.1	339.6	-87.64	-16,589.9	5,636.2	2,099.8	1,424.8	675.02	3.111	
25,900.0	7,903.5	25,302.8	7,815.3	339.5	341.1	-87.59	-16,663.1	5,661.5	2,099.9	1,422.0	677.95	3.097	
25,922.6	7,903.5	25,325.3	7,814.8	340.0	341.5	-87.58	-16,684.4	5,668.8	2,099.9	1,421.1	678.80	3.094	
26,000.0	7,903.5	25,402.8	7,813.2	341.5	343.0	-87.53	-16,757.6	5,694.1	2,100.0	1,418.3	681.73	3.080	
26,022.6	7,903.5	25,425.3	7,812.7	341.9	343.4	-87.52	-16,778.9	5,701.4	2,100.0	1,417.4	682.58	3.077	
26,100.0	7,903.5	25,502.8	7,811.1	343.4	344.9	-87.48	-16,852.1	5,726.6	2,100.1	1,414.6	685.51	3.064	
26,122.6	7,903.5	25,525.3	7,810.6	343.8	345.3	-87.46	-16,873.4	5,734.0	2,100.1	1,413.7	686.36	3.060	
26,200.0	7,903.5	25,602.7	7,809.0	345.3	346.8	-87.42	-16,946.6	5,759.2	2,100.2	1,410.9	689.28	3.047	
26,222.6	7,903.5	25,625.3	7,808.5	345.7	347.3	-87.41	-16,967.9	5,766.6	2,100.2	1,410.0	690.14	3.043	
26,300.0	7,903.5	25,702.7	7,806.9	347.2	348.7	-87.36	-17,041.1	5,791.8	2,100.3	1,407.2	693.06	3.030	
26,322.6	7,903.5	25,725.3	7,806.4	347.6	349.2	-87.35	-17,062.4	5,799.2	2,100.3	1,406.4	693.91	3.027	
26,400.0	7,903.5	25,802.7	7,804.8	349.1	350.6	-87.31	-17,135.5	5,824.4	2,100.3	1,403.5	696.83	3.014	
26,422.6	7,903.5	25,825.3	7,804.3	349.5	351.1	-87.29	-17,156.9	5,831.8	2,100.4	1,402.7	697.68	3.010	
26,500.0	7,903.5	25,902.7	7,802.7	351.0	352.6	-87.25	-17,230.0	5,857.0	2,100.4	1,399.8	700.60	2.998 SF	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
Project:	Taylor County, WV	**TVD Reference:**	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
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Site Error:	0.0 usft	**North Reference:**	Grid
Reference Well:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	Offset Datum

Offset Design Johnson TFP40 - 204 - Orig. - DEP Plan 6 — **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)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,000.0	3,924.8	3,784.4	3,763.2	10.1	10.3	159.64	116.0	307.6	895.0	880.5	14.56	61.472	CC, ES, SF
4,100.0	4,016.5	3,867.5	3,845.0	10.6	10.4	153.58	119.4	322.4	948.2	933.5	14.71	64.478	
4,200.0	4,107.9	3,950.2	3,926.3	11.2	10.6	154.11	122.8	337.1	1,001.7	986.9	14.83	67.549	
4,300.0	4,199.2	4,032.6	4,007.3	11.7	10.8	155.16	126.2	351.7	1,055.5	1,040.5	14.98	70.471	
4,400.0	4,290.6	4,112.4	4,085.7	12.3	10.9	156.01	130.8	365.6	1,109.6	1,094.5	15.14	73.277	
4,500.0	4,381.9	4,192.6	4,164.5	12.9	11.1	156.67	137.6	379.1	1,164.2	1,148.8	15.33	75.933	
4,600.0	4,473.3	4,273.9	4,244.2	13.6	11.3	157.15	146.6	392.3	1,219.0	1,203.4	15.55	78.392	
4,700.0	4,564.7	4,357.0	4,325.7	14.2	11.5	159.57	156.3	405.7	1,274.0	1,258.2	15.80	80.640	
4,800.0	4,656.0	4,440.1	4,407.0	14.9	11.7	162.74	166.1	419.1	1,329.5	1,313.4	16.06	82.777	
4,900.0	4,747.4	4,522.9	4,488.2	15.6	11.9	165.81	175.8	432.4	1,385.4	1,369.1	16.34	84.790	
5,000.0	4,838.8	4,605.5	4,569.1	16.3	12.1	166.33	185.5	445.7	1,441.7	1,425.0	16.64	86.642	
5,100.0	4,930.1	4,688.2	4,650.1	17.1	12.4	166.43	195.3	459.0	1,497.9	1,481.0	16.96	88.330	
5,200.0	5,021.5	4,770.8	4,731.1	17.8	12.6	166.53	205.0	472.3	1,554.2	1,536.9	17.29	89.875	
5,300.0	5,112.8	4,853.5	4,812.1	18.6	12.9	166.62	214.7	485.6	1,610.4	1,592.8	17.64	91.289	
5,400.0	5,204.2	4,936.1	4,893.1	19.4	13.1	166.71	224.4	499.0	1,666.7	1,648.7	18.00	92.582	
5,500.0	5,295.5	5,018.8	4,974.1	20.1	13.4	166.79	234.1	512.3	1,722.9	1,704.5	18.38	93.762	
5,600.0	5,386.9	5,101.4	5,055.1	20.9	13.6	166.86	243.8	525.6	1,779.2	1,760.4	18.76	94.838	
5,700.0	5,478.2	5,184.1	5,136.1	21.7	13.9	166.93	253.6	538.9	1,835.4	1,816.3	19.16	95.814	
5,800.0	5,569.6	5,266.7	5,217.1	22.5	14.1	167.00	263.3	552.2	1,891.7	1,872.1	19.56	96.703	
5,900.0	5,661.0	5,349.4	5,298.1	23.4	14.4	167.06	273.0	565.5	1,948.0	1,928.0	19.98	97.511	
6,000.0	5,752.3	5,432.0	5,379.1	24.2	14.7	167.12	282.7	578.8	2,004.2	1,983.8	20.40	98.246	
6,100.0	5,843.7	5,514.7	5,460.1	25.0	15.0	167.17	292.4	592.1	2,060.5	2,039.7	20.83	98.914	
6,200.0	5,935.0	5,597.4	5,541.1	25.8	15.3	167.22	302.1	605.4	2,116.8	2,095.5	21.27	99.519	
6,300.0	6,026.4	5,680.0	5,622.1	26.6	15.5	167.27	311.8	618.7	2,173.0	2,151.3	21.72	100.065	
6,400.0	6,117.7	5,762.7	5,703.1	27.5	15.8	167.32	321.6	632.0	2,229.3	2,207.1	22.17	100.560	
6,500.0	6,209.1	5,845.3	5,784.1	28.3	16.1	167.37	331.3	645.4	2,285.6	2,262.9	22.63	101.009	
6,600.0	6,300.4	5,928.0	5,865.1	29.1	16.4	167.41	341.0	658.7	2,341.8	2,318.7	23.09	101.414	
6,700.0	6,391.8	6,010.6	5,946.1	30.0	16.7	167.45	350.7	672.0	2,398.1	2,374.5	23.56	101.780	
6,800.0	6,483.1	6,093.3	6,027.0	30.8	17.0	167.49	360.4	685.3	2,454.4	2,430.3	24.04	102.109	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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

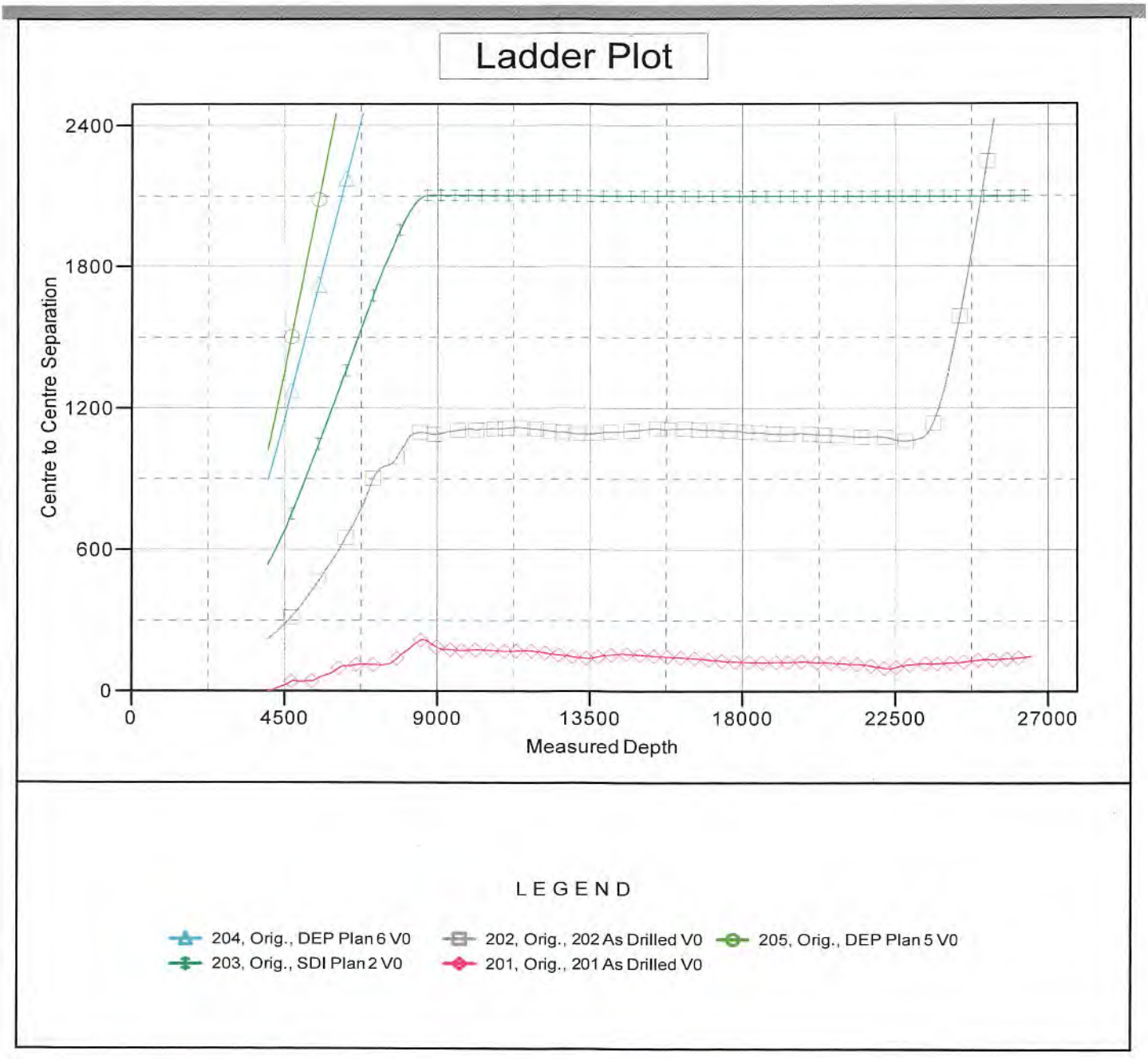
Reference Measured Depth (usft)	Reference Vertical Depth (usft)	Offset Measured Depth (usft)	Offset Vertical Depth (usft)	Semi Major Axis Reference (usft)	Semi Major Axis Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	Offset Wellbore Centre +E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
4,000.0	3,924.8	3,576.6	3,535.5	10.1	10.5	141.86	324.3	276.0	1,025.0	1,010.6	14.37	71.312	CC, ES, SF
4,100.0	4,016.5	3,628.5	3,583.1	10.6	10.7	135.64	330.8	295.7	1,091.4	1,077.0	14.43	75.617	
4,200.0	4,107.9	3,690.8	3,639.9	11.2	11.0	136.63	338.7	320.1	1,159.0	1,144.4	14.55	79.646	
4,300.0	4,199.2	3,758.4	3,701.5	11.7	11.3	138.32	347.2	346.6	1,227.2	1,212.5	14.73	83.296	
4,400.0	4,290.6	3,826.0	3,763.0	12.3	11.7	139.86	355.8	373.1	1,296.1	1,281.2	14.94	86.754	
4,500.0	4,381.9	3,893.5	3,824.6	12.9	12.0	141.25	364.3	399.6	1,365.5	1,350.3	15.17	90.010	
4,600.0	4,473.3	3,961.1	3,886.2	13.6	12.4	142.53	372.8	426.1	1,435.3	1,419.9	15.42	93.053	
4,700.0	4,564.7	4,028.6	3,947.7	14.2	12.8	145.86	381.3	452.6	1,505.7	1,490.0	15.69	95.958	
4,800.0	4,656.0	4,096.0	4,009.0	14.9	13.2	149.97	389.8	479.0	1,577.0	1,561.0	15.96	98.798	
4,900.0	4,747.4	4,163.1	4,070.2	15.6	13.6	153.98	398.3	505.3	1,649.1	1,632.8	16.24	101.517	
5,000.0	4,838.8	4,230.1	4,131.2	16.3	14.0	155.16	406.8	531.6	1,721.7	1,705.2	16.54	104.119	
5,100.0	4,930.1	4,297.0	4,192.2	17.1	14.5	155.85	415.2	557.9	1,794.5	1,777.7	16.84	106.561	
5,200.0	5,021.5	4,364.0	4,253.2	17.8	14.9	156.48	423.7	584.1	1,867.4	1,850.2	17.16	108.836	
5,300.0	5,112.8	4,431.0	4,314.3	18.6	15.4	157.07	432.1	610.4	1,940.4	1,922.9	17.48	110.975	
5,400.0	5,204.2	4,497.9	4,375.3	19.4	15.8	157.62	440.6	636.7	2,013.5	1,995.7	17.82	112.983	
5,500.0	5,295.5	4,564.9	4,436.3	20.1	16.3	158.13	449.0	662.9	2,086.7	2,068.5	18.17	114.849	
5,600.0	5,386.9	4,631.8	4,497.3	20.9	16.8	158.61	457.5	689.2	2,159.9	2,141.4	18.52	116.599	
5,700.0	5,478.2	4,698.8	4,558.3	21.7	17.3	159.05	465.9	715.5	2,233.2	2,214.4	18.89	118.221	
5,800.0	5,569.6	4,765.8	4,619.3	22.5	17.7	159.47	474.4	741.7	2,306.6	2,287.4	19.27	119.714	
5,900.0	5,661.0	4,832.7	4,680.4	23.4	18.2	159.87	482.8	768.0	2,380.1	2,360.4	19.65	121.110	
6,000.0	5,752.3	4,899.7	4,741.4	24.2	18.7	160.24	491.3	794.3	2,453.6	2,433.5	20.04	122.415	

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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
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:	201	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0 usft	**Output errors are at**	2.00 sigma
Reference Wellbore	ST01	**Database:**	Northeast
Reference Design:	201_ST01	**Offset TVD Reference:**	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: 201
Coordinate System is US State Plane 1983, West Virginia Northern Zone
Grid Convergence at Surface is: -0.43°



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

Company:	Arsenal Resources	**Local Co-ordinate Reference:**	Well 201
Project:	Taylor County, WV	**TVD Reference:**	GL 1332.5' & 27' KB @ 1359.5usft (Original Well Elev)
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Reference Wellbore	ST01	**Database:**	Northeast
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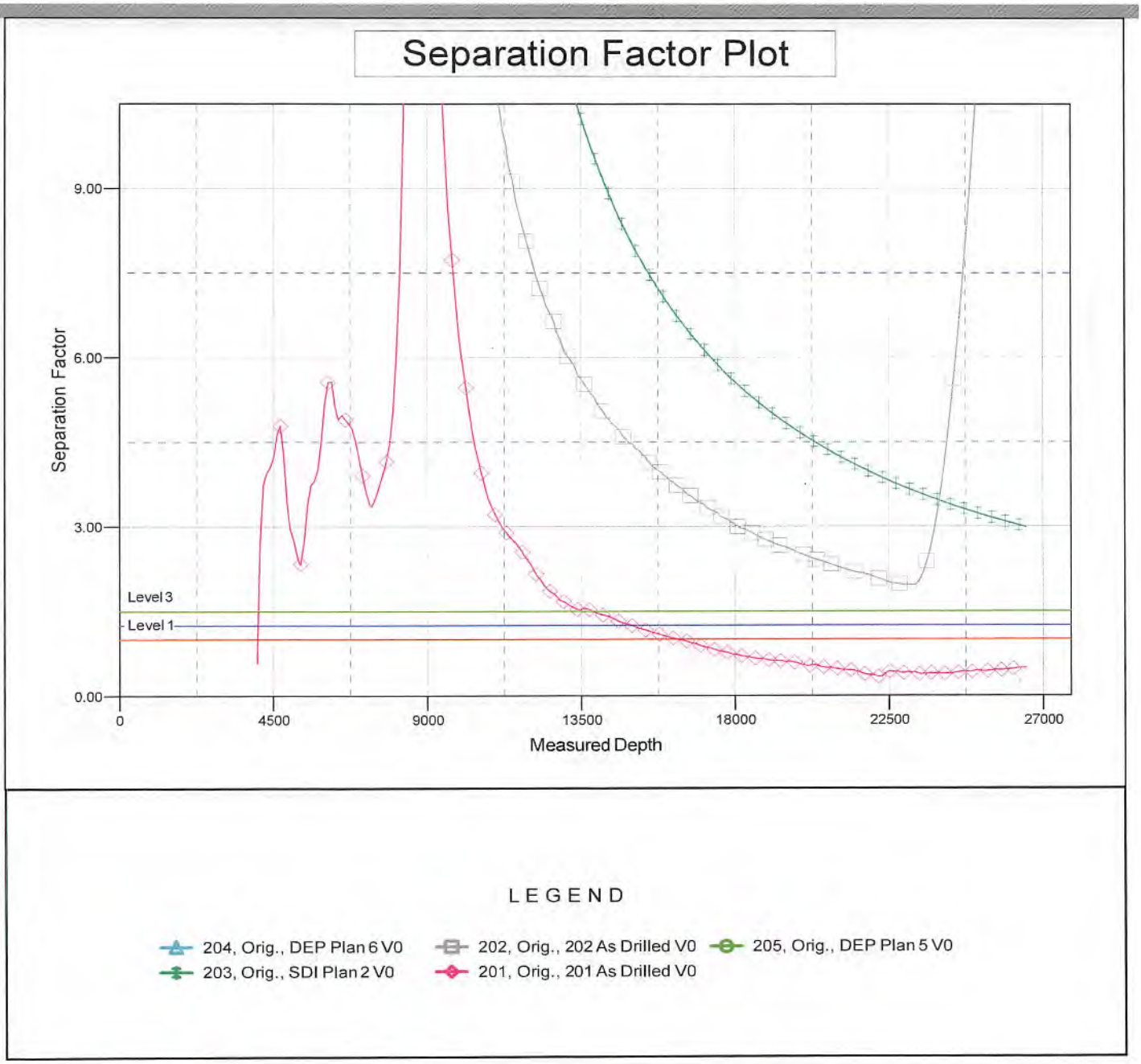
Reference Depths are relative to GL 1332.5' & 27' KB @ 1359.5usft (O
Offset Depths are relative to Offset Datum
Central Meridian is -79.5000000

Coordinates are relative to: 201
Coordinate System is US State Plane 1983, West Virginia Northern Zone
Grid Convergence at Surface is: -0.43°



Area of Review Report - __Johnson TFP 40 _____ Pad, ____201___ Lateral, _____Taylor, Barbour_____County, WV

Well Name	API Number	Operator Name / Address	Well Type	Latitude	Longitude	Total Depth	Perforated Formation(s)	Producing Zones not Perforated
Walter B Goodwin #2	091-00116	Union Drilling Inc.	Existing	39.25858	-80.169849	4560	Benson	NA
Goodwin 4	091-00118	Diversified Production LLC	Existing	39.256779	-80.173388	2480	Big Injun(Grnbr), Fifth	NA
Goff-Arnold #1	091-00181	Greylock Conventional LLC	Existing	39.249118	-80.171944	4600	Benson	NA
Charles Compton #3	001-02134	Alliance Petroleum Corp	Existing	39.239652	-80.168152	4829	Keener, Big Injun, Fourth, Benson	NA
John F Steward #1	001-02158	Diversified Production LLC	Existing	39.235591	-80.166388	5083	Benson, Bluestone Crk	NA
J/M Mosesso 32	001-00969	Diversified Production LLC	Existing	39.230265	-80.164906	4722	Big Injun, Riley, Benson	NA
Polino Enterprises Inc Coalquest 13	001-02876	Summit Appalachia Operating Company LLC	Existing	39.226745	-80.161163	1186	Lower Kittanning Coal	NA
Polino Enterprises Inc Coalquest 11A	001-02879	Summit Appalachia Operating Company LLC	Existing	39.225878	-80.160416	1014	Lower Kittanning Coal	NA
Polino Enterprises Inc Coalquest 12	001-02875	Summit Appalachia Operating Company LLC	Existing	39.22486	-80.160975	960	Lower Kittanning Coal	NA
O & A Goodwin 1	001-00553	Diversified Production LLC	Existing	39.215094	-80.156066	4718	Riley, Benson	NA

ARSENAL RESOURCES

SITE SAFETY PLAN

JOHNSON TFP40 PAD, WELL #201

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: 2022.10.24 13:14:39 -04'00'

JOHNSON TFP40 Well Pad #201
Site Safety Plan Table of Contents

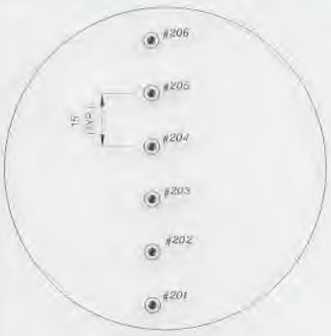
SURFACE HOLE SURVEYED 39° 17' 30" (NAD27)
BOTTOM HOLE SURVEYED 39° 15' 00" (NAD27)

822'
8,552'
12,108'
14,812'

Latitude: (NAD27)

Longitude: (NAD27)

N
W E
S



REFERENCES TO
PROPOSED HORIZONTAL
WELL SURFACE LOCATIONS
NTS

REFERENCES TIES (NTS)

(NAD83-WVN) US SURVEY FT.	
TOP HOLE	
N) 276971.693	
E) 1779051.687	
LANDING POINT	
N) 275843.930	
E) 1777134.310	
BOTTOM HOLE	
N) 258974.110	
E) 1782954.120	

(NAD83-LAT/LONG) DECIMAL	
TOP HOLE	
N) 39.258499	
E) -80.169059	
LANDING POINT	
N) 39.255364	
E) -80.175801	
BOTTOM HOLE	
N) 39.209166	
E) -80.154815	

(UTM, NAD83) METER	
TOP HOLE	
N) 4345792.135	
E) 571690.556	
LANDING POINT	
N) 4345438.829	
E) 571112.107	
BOTTOM HOLE	
N) 4340328.624	
E) 572970.639	

REFERENCE NOTES
1. 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.
2. State Plane Coordinates & NAD83 Lat/Long by differential submeter mapping grade GPS.
3. There are no railroads, dwellings, or agricultural buildings within 625 feet of center of pad.
4. 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
- #H 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#: 1 of 3
SCALE: 1" = 4000'
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: 10/21/2022
P.S. #2361: Herbert L. Parsons, III P.S.

HERBERT L PARSONS III
REGISTERED
No. 2361
STATE OF
WEST VIRGINIA
PROFESSIONAL SURVEYOR

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

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

DATE: OCTOBER 21, 2022
JOHNSON TFP-40
OPERATOR'S WELL #: # 201 MOD 2

API WELL #: 47 (STATE) 091 (COUNTY) 01367 (PERMIT)

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

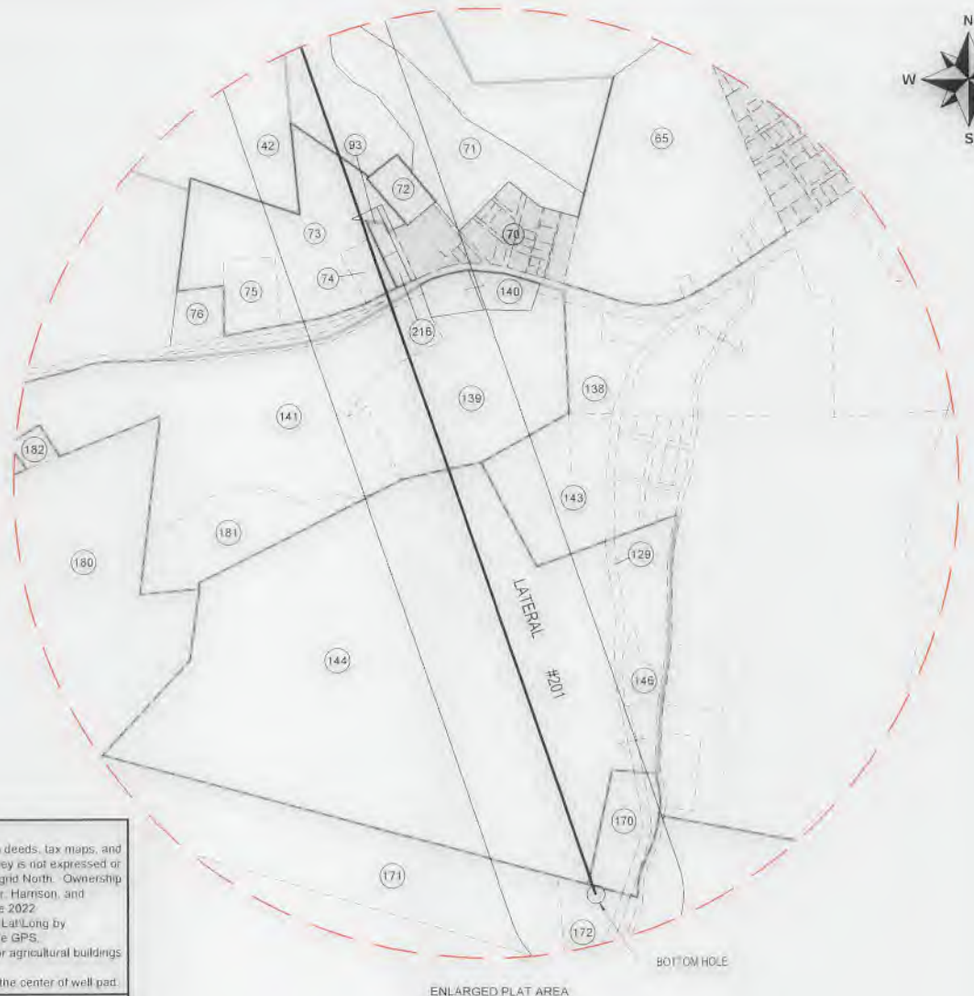
WATERSHED: SIMPSON CREEK
ELEVATION: 1,332.5
COUNTY / DISTRICT: TAYLOR CO. FLEMINGTON DISTRICT
QUADRANGLE: ROSEMONT, WV
SURFACE OWNER: RENEE JOHNSON
ACREAGE: 284 ±
OIL & GAS ROYALTY OWNER: SEE WW-6A1
ACREAGE: 284 ±

☒ 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: 26,586.2'

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



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- 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" = 1000'
TICK SCALE: 1" = 2000'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE OF ELEVATION: WV-RTN CORS STATION

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Signed: 10/21/2022
P.S. #2361: Herbert L. Parsons, III P.S.

HERBERT L PARSONS III REGISTERED No. 2361 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

DATE: OCTOBER 21, 2022
JOHNSON TFP-40
OPERATOR'S WELL #: # 201 MOD2

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SURFACE PARCEL OWNER INFORMATION

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88	033	17-15-0351-0010-0000	JOHNSON RENEE
4	033	17-15-0351-0012-0000	GCSTREAM LLC
3	033	17-15-0351-0013-0000	GCSTREAM LLC
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97	091	46-04-0007-0027-0000	CEQUEL III COMMUNICATIONS
98	091	46-04-0007-0009-0000	CEQUEL III COMMUNICATIONS
99	091	46-04-0007-0008-0000	FRUM CLINTON A (HEIRS)
100	033	17-15-0351-0009-0000	JOHNSON RENEE
129	001	01-09-0022-0004-0000	MARPLE JAMES D & GENA F DOWELL WS
138	001	01-09-0012-0035-0000	TR PENTECOSTAL CHURCH OF GOD C/O EDWARD L BARKLEY SR
140	001	01-09-0012-0040-0001	ZBOSNIK DENNIS KEITH
143	001	01-09-0012-0037-0000	LIPSCOMB ANNA G MCCORD
171	001	01-09-0012-0046-0000	SHAHAN OKEY C
180	001	01-09-0011-0006-0000	BEAR MOUNTAIN COAL CO KEYBANK N.A.-TRUST REAL ESTATE
181	001	01-09-0012-0045-0000	LYONS MORGAN H&HILDA S REV DECLARATION TRST 6-30-98 ET AL
182	001	01-09-0012-0044-0000	ZBOSNIK DENNIS ALBIN
183	001	01-09-012D-0031-0000	KENNEDY DEBBIE J
216	001	01-09-012C-0001-0000	LEHMAN DIANA LYNN
217	033	17-15-0351-0008-0000	WARDER ORAN LEE & JANICE L

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FILE#: 22078-001
SHEET#: 3 of 3
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Signed: Herbert L Parsons III 10/21/2022
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DESIGNATED AGENT: NATHAN SKEEN
ADDRESS: 633 MAIN STREET
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SURFACE HOLE SURVEYED 39° 17' 30" (NAD27)
BOTTOM HOLE SURVEYED 39° 15' 00" (NAD27)

8,652'

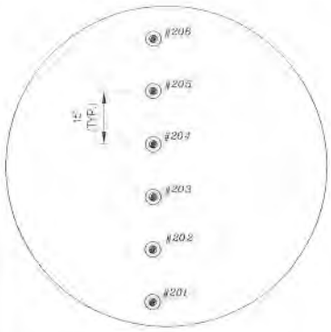
822'

12,108'

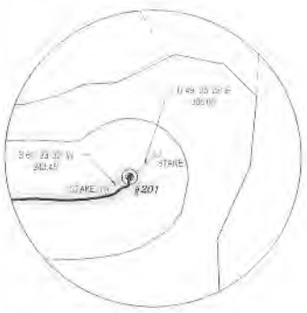
14,812'

Latitude: (NAD27)

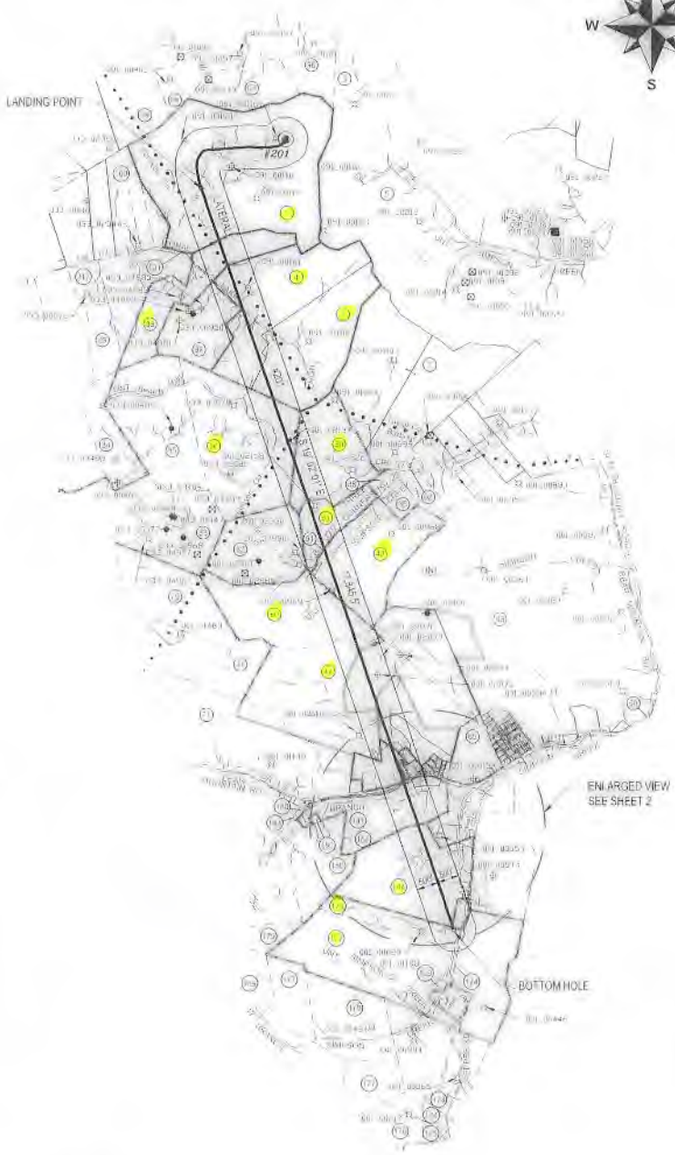
Longitude: (NAD27)



REFERENCES TO PROPOSED HORIZONTAL WELL SURFACE LOCATIONS
NTS



REFERENCES TIES (NTS)



(NAD83-WVN) US SURVEY FT.	
TOP HOLE	
N) 276971.693	
E) 1779051.687	
LANDING POINT	
N) 275843.930	
E) 1777134.310	
BOTTOM HOLE	
N) 258974.110	
E) 1782954.120	

(NAD83-LAT/LONG) DECIMAL	
TOP HOLE	
N) 39.258499	
E) -80.169069	
LANDING POINT	
N) 39.255964	
E) -80.175801	
BOTTOM HOLE	
N) 39.209166	
E) -80.154815	

(UTM, NAD83) METER	
TOP HOLE	
N) 4345792.135	
E) 571690.556	
LANDING POINT	
N) 4345438.829	
E) 571112.107	
BOTTOM HOLE	
N) 4340328.624	
E) 572970.639	

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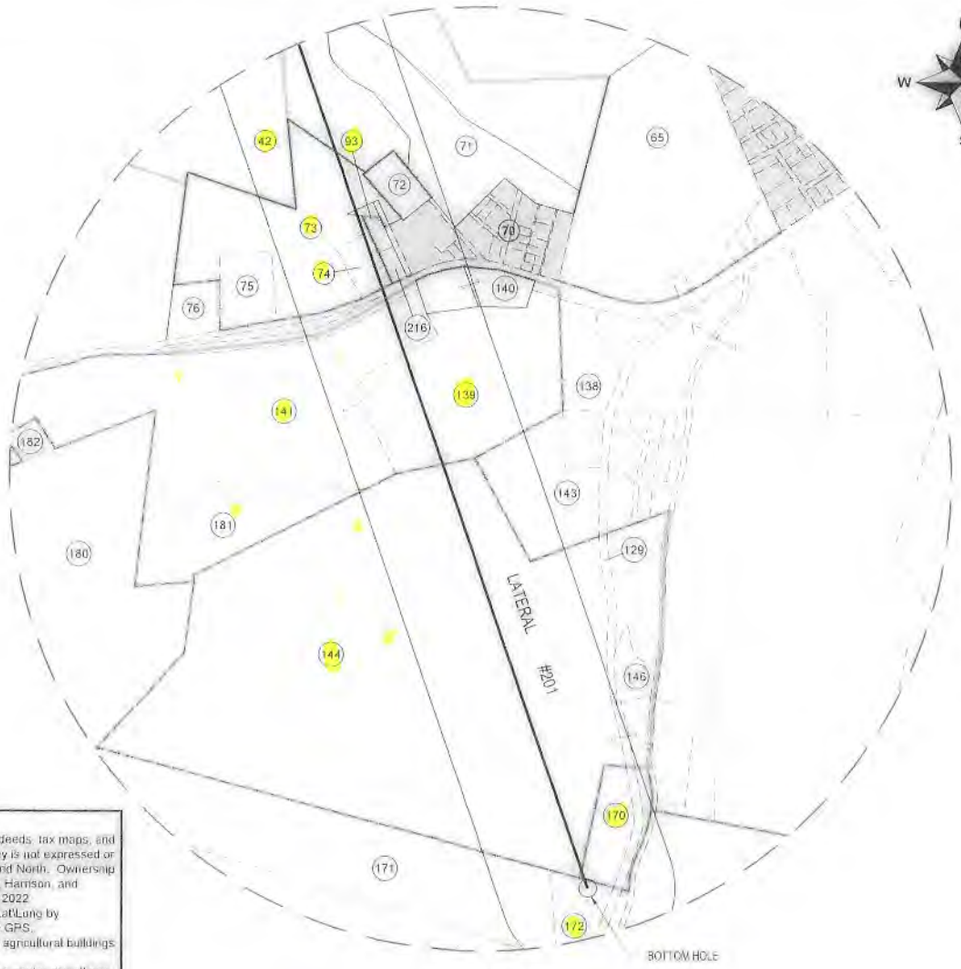

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97	091	46-04-0007-0027-0000	CEQUEL III COMMUNICATIONS
98	091	46-04-0007-0009-0000	CEQUEL III COMMUNICATIONS
99	091	46-04-0007-0008-0000	FRUM CLINTON A (HEIRS)
100	033	17-15-0351-0009-0000	JOHNSON RENEE
129	001	01-09-0022-0004-0000	MARPLE JAMES D & GENA F DOWELL WS
138	001	01-09-0012-0035-0000	TR PENTECOSTAL CHURCH OF GOD C/O EDWARD L BARKLEY SR
140	001	01-09-0012-0040-0001	ZBOSNIK DENNIS KEITH
143	001	01-09-0012-0037-0000	LIPSCOMB ANNA G MCCORD
171	001	01-09-0012-0048-0000	SHAHAN OKEY C
180	001	01-09-0011-0006-0000	BEAR MOUNTAIN COAL CO KEYBANK N.A.-TRUST REAL ESTATE
181	001	01-09-0012-0045-0000	LYONS MORGAN H&HILDA S REV DECLARATION TRST 6-30-98 ET AL
182	001	01-09-0012-0044-0000	ZBOSNIK DENNIS ALBIN
183	001	01-09-012D-0091-0000	KENNEDY DEBBIE J
216	001	01-09-012C-0001-0000	LEHMAN DIANA LYNN
217	033	17-15-0351-0008-0000	WARDER ORAN LEE & JANICE L

REFERENCE NOTES
1. 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
2. State Plane Coordinates & NAD83 Lat\Long by differential submeter mapping grade GPS.
3. There are no railroads, dwellings, or agricultural buildings within 625 feet of center of pad.
4. 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
- #H 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#: 3 of 3
SCALE: 1" = 4000'
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 10/21/2022
P.S. #2361: Herbert L. Parsons, III P.S.

HERBERT L PARSONS III REGISTERED No. 2361 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

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

DATE: OCTOBER 21, 2022
JOHNSON TFP-40
OPERATOR'S WELL #: # 201 MOD 2

API WELL #: 47 (STATE) 091 (COUNTY) 01367 (PERMIT)

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

WATERSHED: SIMPSON CREEK
ELEVATION: 1,332.5
COUNTY / DISTRICT: TAYLOR CO. FLEMINGTON DISTRICT
QUADRANGLE: ROSEMONT, WV
SURFACE OWNER: RENEE JOHNSON
ACREAGE: 284 ±
OIL & GAS ROYALTY OWNER: SEE WW-6A1
ACREAGE: 284 ±

☒ 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: 26,586.2'

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

Attachment to WW-6A1, Johnson 201

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) LEONA CHANDLER(WIDOW) AND	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		16/637 also 447/129	
88 (00006674)	Debra A Mulneix	Mar Key LLC	15.00%	1561/464	85
88 (00006675)	Phyllis G Steele	Mar Key LLC	15.00%	1561/454	85
88 (00006676)	Alice L Donley	Mar Key LLC	15.00%	1561/451	85
88 (00006677)	James R Collins Jr by REBECCA COLLINS BISER, ACTING IN HER CAPACITY AS ATTORNEY IN FACT	Mar Key LLC	15.00%	1561/490	85
88 (00006697)	Gale M Steele	Mar Key LLC	15.00%	1568/76	85
88 (00007736)	MARLENE B STEELE, WIDOW, BY DAVID E BOWEN AND CHERYL L BOWEN AS ATTORNEYS-IN-FACT	Mar Key LLC	15.00%	1585/239	85
88 (00007761)	George F Jack Jr	Mar Key LLC	15.00%	1598/842	85
88 00007766	CHARLES H ROBERTS	MAR KEY LLC	15.00%	1596/493	85.1375

Attachment to WW-6A1, Johnson 201

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
88 00007864	MIKE ROSS INC & WACO OIL & GAS INC	MAR KEY LLC	15.00%	1599/315	85.1375
88 00007990	CHAD W JOHNSON	MAR KEY LLC	14.00%	1604/287	85.1375
4 AND 3 00008218	H DOTSON CATHER AND DIANA CATHER HIS WIFE	NRM Petroleum Corporation	12.50%	1076/548 34/218	225
	NRM Petroleum Corporation	Eastern American Energy Corporation		1248/378	
	Eastern American Energy Corporation	Energy Corporation of America		1441/1003	
	Energy Corporation of America	Greylock Production, LLC		36/618	
	Greylock Production, LLC	Mar Key, LLC		1607/855	
4 AND 3 00008217	LAURA GOFF DAVIS HAROLD DOTSON CATHER AND DIANE GOFF CATHER HIS WIFE	NRM Petroleum Corporation	12.50%	1076/550 34/220	225
	NRM Petroleum Corporation	Eastern American Energy Corporation		1248/378	
	Eastern American Energy Corporation	Energy Corporation of America		1441/1003	
	Energy Corporation of America	Greylock Production, LLC		36/618	
	Greylock Production, LLC	Mar Key, LLC		1607/855	
86 (00003555)	Lyda Drainer	Union Carbide Corporation	12.50%	853/91	380
	Cresslenn Oil Company	Union Carbide Corporation		897/286	
	Delta Producing Corporation	Creslenn Oil Company		925/629	
	Petroleum Corporation of America	Delta Producing Corporation		977/168	
	Petroleum Development Corporation	Petroleum Corporation of America		977/153	
	PDC Mountaineer, LLC	Petroleum Development Corporation		1440/364	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
39 (00003422)	John E Lough and Elda D Lough	Petroleum Development Corporation	12.50%	111/114	75

Attachment to WW-6A1, Johnson 201

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
	PDC Mountaineer, LLC	Petroleum Development Corporation		150/444	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
39 (00003421)	L L MOSS AND MARY MARGARET MOSS	Petroleum Development Corporation	12.50%	111/88	75
	PDC Mountaineer, LLC	Petroleum Development Corporation		150/444	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
81 (00003868)	HOLLIE STEWART AND BLANCHE M STEWART HIS WIFE FRANKLIN D STEWART AND SHIRLEY P STEWART HIS WIFE	Petroleum Development Corporation	12.50%	99/252	37.58
	PDC Mountaineer, LLC	Petroleum Development Corporation		150/444	
	PDC Mountaineer, LLC	River Ridge Energy, LLC		59/1263	
40 (00005898)	John A Mosesso and Mary K Mosesso	Union Drilling Inc	12.50%	79/55	98
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy Co		328/171	
	Equitable Resources Energy Co	Enervest East LMTD Partnership		129/524	
	Enervest East LMTD Partnership	The Houston Exploration Co		138/1	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		404/381	
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		16/637 also 447/129	
80 (00008219)	Hal S Raper Jr and Cathy C Raper	Mar Key, LLC	12.50%	181/173	227.563
42 (00005891)	John A Mosesso, Raymond and Kathryn Chess	Allerton Miller	12.50%	49/227	250
	Allerton Miller	Union Drilling Inc		98/11	
	Union Drilling Inc	Equitable Resources Exploration		325/219	
	Equitable Resources Exploration	Equitable Resources Energy Co		328/171	
	Equitable Resources Energy Co	Enervest East LMTD Partnership		129/524	
	Enervest East LMTD Partnership	The Houston Exploration Co		138/1	
	The Houston Exploration Co	Seneca Upshur Petroleum Inc		404/381	

Attachment to WW-6A1, Johnson 201

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
	Seneca-Upshur Petroleum, Inc.	Seneca-Upshur Petroleum LLC		16/637 also 447/129	
73 74 (00008815)	LINDA KAMINSKI	Mar Key, LLC	12.50%	182/338	16
73, 74 (00008911)	THOMAS HUNT JR, A SINGLE MAN	Mar Key, LLC	12.50%	184/432	17.221
73, 74 (00008916)	FELICIA DAWN ANNESE	Mar Key, LLC	12.50%	184/621	18.521
73, 74 (00008917)	FLEASE ANNESE JR	Mar Key, LLC	12.50%	184/623	18.521
73, 74 (00008923)	STEPHEN A SMOOT	Mar Key, LLC	12.50%	184/635	18.521
73, 74 (00008925)	JASON MICHAEL SMOOT	Mar Key, LLC	12.50%	184/633	18.521
93 (00008808)	JAMES L LEE	MAR KEY LLC	15.00%	182/335	57.67
141 (00008905)	DENNIS ALBIN ZBOSNIK, A MARRIED MAN DEALING IN HIS OWN RIGHT	MAR KEY	12.5	184/428	51.89
139 (00008582)	DENNIS ALBIN ZBOSNIK, MARRIED AND DOING BUSINESS IN HIS SOLE AND SEPARATE RIGHT	MAR KEY	12.5	181/512	3.918
144 (00005943)	O B GOODWIN AND ADA GOODWIN HIS WIFE	CUMBERLAND AND ALLEGHENY GAS	12.5	46/417	119
	CUMBERLAND AND ALLEGHENY GAS	UNION DRILLING INC & 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 COMPANY		328/171	
	EQUITABLE RESOURCES ENERGY COMPANY	FUEL RESOURCES PRODUCTION & DEVELOPMENT		116/81	

Attachment to WW-6A1, Johnson 201

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
	FUEL RESOURCES PRODUCTION & DEVELOPMENT	THE HOUSTON EXPLORATION COMPANY		136/162	
	EQUITABLE RESOURCES ENERGY COMPANY	ENERVEST EAST LIMITED PARTNERSHIP		129/524	
	ENERVEST EAST LIMITED PARTNERSHIP	THE HOUSTON EXPLORATION COMPANY		138/1	
	HOUSTON EXPLORATION COMPANY	SENECA-UPSHUR PETROLEUM INC		139/48	
	SENECA-UPSHUR PETROLEUM INC	SENECA-UPSHUR PETROLEUM LLC		447/129	
170 (00008903)	DELORES FOSTER	MAR KEY LLC	12.5	184/434	3.09
172 (00005843)	PHYLLIS D WILLIAMSON AND STANLEY B DANIELS BY HALLIE E WRIGHT THEIR ATTORNEY IN FACT	CONSOLIDATED GAS SUPPLY CORP	12.5	68/343	37
	CONSOLIDATED GAS SUPPLY CORP	UNION DRILLING INC		71/213	
	UNION DRILLING INC	EQUITABLE RESOURCES EXPLORATION		325/219	
	EQUITABLE RESOURCES EXPLORATION	EQUITABLE RESOURCES ENERGY COMPANY		328/171	
	EQUITABLE RESOURCES ENERGY CO	FUEL RESOURCES PRODUCTION AND DEVELOPMENT CO		116/81	
	FUEL RESOURCES PRODUCTION AND DEVELOPMENT CO	THE HOUSTON EXPLORATION COMPANY		136/162	
	THE HOUSTON EXPLORATION COMPANY	SENECA-UPSHUR PETROLEUM INC		139/48	
	SENECA-UPSHUR INC	SENECA-UPSHUR LLC		447/129	
172 (00005857)	VIVIAN GRUBBS WIDOW, MAXINE BENNETT AND T N BENNETT HER HUSBAND; CLARICE C KONSTANT AND ANTHONY J KONSTANT HER HUSBAND; EDMUND J MATKO AND BEATRICE E MATKO HIS WIFE; ROBERT MCDANIEL AND DOLORES MCDANIEL HIS WIFE	CONSOLIDATED GAS SUPPLY CORP	12.5	68/321	31
	CONSOLIDATED GAS SUPPLY CORP	UNION DRILLING INC		71/213	

Attachment to WW-6A1, Johnson 201

Letter Designation/Number Designation on Plat	Grantor, Lessor, Assignor, etc.	Grantee, Lessee, Assignee, etc.	Royalty	Book/Page	Acreage
	UNION DRILLING INC	EQUITABLE RESOURCES EXPLORATION		325/219	
	EQUITABLE RESOURCES EXPLORATION	EQUITABLE RESOURCES ENERGY COMPANY		328/171	
	EQUITABLE RESOURCES ENERGY CO	FUEL RESOURCES PRODUCTION AND DEVELOPMENT CO		116/81	
	FUEL RESOURCES PRODUCTION AND DEVELOPMENT CO	THE HOUSTON EXPLORATION COMPANY		136/162	
	THE HOUSTON EXPLORATION COMPANY	SENECA-UPSHUR PETROLEUM INC		139/48	
	SENECA-UPSHUR INC	SENECA-UPSHUR LLC		447/129	

ARSENAL RESOURCES

People Powered. Asset Strong.

October 24, 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 40 201, API# 47-091-01367 – Expedited Modification to sidetrack the lateral

Dear Mr. Brewer,

Enclosed please find the modification for the Johnson TFP 40 201, (API# 47-091-01367). This permit is being modified to drill a sidetrack from the existing permitted lateral and change the class of cement in the lateral section only. The wellhead location remains the same as the current permit. The conductor, fresh water, and intermediate casing strings are cemented in place with class A cement. To avoid the existing lateral, the modification includes a shift 100 feet west. Leases under the lateral 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

Ck# 200125
Amt $5150
Date 10/13/22

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

RECEIVED
Office of Oil and Gas
OCT 27 2022
WV Department of
Environmental Protection

Sincerely,

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

6031 Wallace Road Ext, Suite 101
Wexford, PA 15090
P: 724-940-1100
F: 800-428-0981
www.arsenalresources.com

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

Expedited Modification Horizontal H6A Well Work Permit API : (47-091-01367)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov> Mon, Nov 7, 2022 at 11:13 AM
To: Ross Schweitzer <rschweitzer@arsenalresources.com>, Dave Boyer <Dboyer@arsenalresources.com>, C Kinsey <ckinsey@wvassessor.com>, "Greynolds, Kenneth L" <kenneth.l.greynolds@wv.gov>

I have attached a copy of the newly issued well permit numbers:

47-091-01367 - JOHNSTON TFP-40 201

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

3 attachments

- **47-091-01367 - mod.pdf** 6445K
- **91-01367 SSP mod.pdf** 2026K
- **IR-26 Blank.pdf** 169K