



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY	
Auth No. 1564366	APS No. # 1128977
Site No. 789933	PF No. 880860
Client No. 141142	SF No. 1436628

RECEIVED
3/31/2026

ALT SITE ID: WLPAD - BIRD RUN
APPLICATION FOR INACTIVE WELL STATUS

Well Operator RangeResources-Appalachia, LLC		DEP Client ID No. 141142	Well Permit or Registration No. 37-125-29195	
Address 3000 Town Center Blvd.			Well Farm Name Bird Run 10938	Well No. 3H
City Canonsburg		State PA	Zip Code 15317	County Washington
Telephone No. 724/743-6700		Fax No. 724/743-6790	Bond Instrument No. 6855	Municipality Chartiers Twp
Is this an application for annual extension of inactive status? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Check here if this application is being submitted for conditional inactive status in association with longwall mining: <input type="checkbox"/>				

Condition of the Well
Describe in detail how the condition of the well satisfies the criteria for approval of inactive status. See 25 Pa. Code §§ 78/78a.102(i), (2)(i) or (ii) and (3). Use additional sheets if necessary. If available, attach well records, driller's logs, and other information describing well casing, cement, equipment, and any other pertinent information. Note that if this application is being submitted in conformance with DEP Technical Guidance Document 800-0810-004 *Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells*, the Well Record/Completion Report may be referenced for all well construction information, and all tubing and annular pressures should be at 0 prior to adjacent longwall mining encroaching within 1,500 feet of the well location. Finally, all annuli should be open to the atmosphere and the inactivation procedure may be referenced under the section titled "Other information about the well's condition."

Well Type: Gas Oil Combination Oil & Gas Injection Storage Disposal

Casing Diameters: 18.625"	Casing Lengths: 201'	Type and amount of cement (sacks) used for surface casing: Class L, 405 (sacks)
13.375"	277'	Tubing or Production Casing Pressure (current): 0 (psi)
9.625"	1648'	If an oil well, state the depth to fluid in the surface casing:
		Annulus Pressure (current - between tubing or production casing and surface casing): 0 (psi)
Tubing or production casing diameter: 5.5"	Tubing or production casing length: 19943'	Are all annuli open to atmosphere? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Other information about the well's condition:
N/A

Future Use of the Well
Describe a viable plan in accordance with 25 Pa. Code §78/78a.102(4) explaining the intended use of the well within a reasonable time. Provide the information requested below and any other information necessary for DEP to make a determination on inactive status for this well. Note that if this application is being submitted in conformance with DEP Technical Guidance Document 800-0810-004 *Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells*, the following text may be entered under the section regarding the future plan for the well: "Return well to production subsequent to final panel extraction when mining is at least 1,500 feet beyond well in chain pillar, as per re-entry procedure and TGD."

Provide certification that one of the following applies (check one):
 Significant reserves remain in place and I plan to return the well to production.
Provide estimate of reserves: MMcf: Bbls:
The well will be used for: Disposal Storage Observation Injection - Recovery Other (describe)
This well will be returned to use in: Month: August Year: 2026

State your plan for future use of the well.
Range Resources-Appalachia, LLC certifies this well is of future utility. The well is drilled to TD and is awaiting completions operations currently scheduled for June 2026.

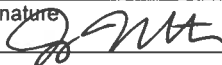
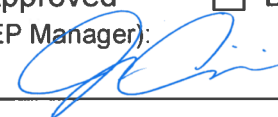
Conditional Inactive Status Checklist	For unconventional wells drilled in anticipated chain pillar locations that are being temporarily inactivated to accommodate planned, adjacent longwall mining, please provide the items included in the checklist below in addition to this application. More specific information about these items is detailed in DEP Technical Guidance Document 800-0810-004 <i>Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells</i> .
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Please include the following items with the inactive status application:

- Temporary Well Inactivation Procedure
 Temporary Inactivation Well Schematic
 General Specifications for Cements/Gels
 Current Well Record and Completion Report
 Well Location Plat
 Electrical/Mechanical Well Logs
 Graphical Production History Summary
 Well Re-entry Procedure
 Post-mining Well Long-term Monitoring Procedure

Provide additional details, if necessary.

N/A

Signature of Applicant (Well Operator)		DEP USE ONLY	
Signature: <u></u> Date: <u>3-31-2026</u>	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied	Date	
Print or type signer's name and title: <u>JEREMY MATINKO VP-ENV. COMP.</u>	by (DEP Manager): <u></u>	<u>5/5/2026</u>	

Form



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY	
Site ID	Client Id
Primary Facility Id	Sub Facility Id

Well Record
(Unconventional Operators Only)

WELL INFORMATION

Well Operator Range Resources - Appalachia, LLC		DEP ID# 141142	US Well No. (API No.) 37-125-29195-00-00		Farm Name BIRD RUN 10938	Well # 3H
Address 3000 Town Center Blvd			Latitude (DD) 40.243373	NAD 83	Project Number	Serial #
			Longitude (DD) -80.235106			
City Canonsburg	State PA	Zip 15317-5839	Municipality Chartiers		County Washington	
Phone 724-743-6700	email jhinson@rangeresources.com		Borrow Pit	USGS 7.5 min. quadrangle map Washington East	Section 1	

Check the appropriate Submission: Original Well Record Amended Well Record

Well Type <input checked="" type="checkbox"/> Gas	Wellbore Conditioning: See Attached
Well Orientation <input type="checkbox"/> Vertical <input checked="" type="checkbox"/> Deviated from Vertical (Top & Side views & Deviation Survey must be attached)	
Drill Method(s) <input checked="" type="checkbox"/> Rotary - Air 6353' <input checked="" type="checkbox"/> Rotary - Mud 19960' <input type="checkbox"/> Cable Tool <input type="checkbox"/> Other	
Drilling Started 02/06/2025	Surface Elev. 1261 ft.
Drilling Complete 04/21/2025	True Vertical Depth 6629 ft.
Date Well Completed 04/23/2025	Total Measured Depth 19960 ft.
	GW Depth - None observed
	Depth of DFGW - None observed
	DFGW decided by: 6

CEMENT

Cement returned on surface casing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, provide depth to top of cement and method used to determine:
Cement returned on coal protective casing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, provide depth to top of cement and method used to determine: <input type="checkbox"/> NA
Cement returned on intermediate casing? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If No, provide depth to top of cement and method used to determine: <input type="checkbox"/> NA

Casing String	Type/Class of Cement (Lead/Tail)	Slurry Temp F°	Amount of Cement (sacks) (Lead/Tail/Total)	WOC hrs	Wt ppg	Yield #/ft ³ /sacks	Gas Migration Controls Used
Conductor	Portland	-	108 / 0 / 108	24			What controls were used if any (additives/ hardware. Specify type and depth applicable). See Attached - page 6
Surface	Class L	63°	405 / 0 / 405	8	15.6	1.15	
Coal Protective	Class L	62°	255 / 0 / 255	8	15.7	1.24	
Intermediate	Class L	61°	605 / 0 / 605	8	15.7	1.23	
Production	Class A	81°	0 / 3165 / 3165	8	15.0	1.29	
If additional strings attach form(s)			Total: 4538				

CASING AND TUBING

Hole Size	Pipe Size	Wt. #/ft.	Grade Casing / Tubing Type	Thread / Weld - New/Used	Amount in Well (ft.)	CO	R	Hardware - Baskets / Packer / Centralizers (Total/String)	Date Run	
								Type	Size	Depth
32"	26"	85.68#	Line Pipe	W/N	41	US	Y			02/06/2025
24"	18.625"	87.5#	J-55	T (BTC) - N	201	UK	Y	See Attached		03/05/2025
17.5"	13.375"	54.5#	J-55	T (BTC) - N	277	CA	Y	See Attached		03/06/2025
12.25"	9.625"	40.0#	J-55	T (LTC) - N	1648	CA	Y	See Attached		03/07/2025
8.75" & 8.625" & 8.5"	5.5"	20.0#	HP P-110	T (GBCD) - N	19943	US	Y	See Attached		04/22/2025

PLUG-BACK/WELLBORE ALTERATION

Fill Material & Plugs	Depth		Date	Casing & Tubing		
	From	To		Size	Pulled	Left

LOG OF FORMATIONS

US Well No. (API No.): 37-125-29195-00-00

(If you will need more space than this page, please photocopy the blank form before filling it in.)

Formation Name or Lithology	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Fill	0	49				Mudlog
Silt/Lime/Sand	49	109				Mudlog
Silt/Sand	109	234				Mudlog
Pittsburgh Coal (open mine)	234	240				Mudlog
Siltstone/Shale	240	419				Mudlog
Murphy Sand	419	539				Mudlog
Red Rock	539	540				Mudlog
Siltstone/Shale	540	602				Mudlog
Bakerstown	602	731				Mudlog
Big Dunkard	731	769				Mudlog
Siltstone/Shale	769	804				Mudlog
Upper Freeport	804	805				Mudlog
Silt/Sand	805	871				Mudlog
Lower Freeport	871	872				Mudlog
Silt/Sand	872	911				Mudlog
1st Gas Sand	911	939				Mudlog
Silt/Sand	939	982				Mudlog
Middle Kittanning	982	983				Mudlog
Silt/Sand	983	1023				Mudlog
Lower Kittanning	1023	1024				Mudlog
Silt/Sand	1024	1031				Mudlog
1st Salt Sand	1031	1089	1080			Mudlog
Silt/Sand	1089	1101				Mudlog
Clarion	1101	1102				Mudlog
Silt/Sand	1102	1175				Mudlog
2nd Salt Sand	1175	1199				Mudlog
Silt/Sand/Lime	1199	1339				Mudlog


Continued on next page

If no show of oil, gas or water, explain why: No show of water on Mudlog or MWD log

WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)

Casing Source	Cementing Company	Hardware Supplier	Logging Company
See Attachment	Name See Attachment	See Attachment	See Attachment
	Address		
	City - State - Zip		
	Phone		

I do hereby certify to the best of my knowledge, information and belief that the well identified on this Well Record has been properly cased and cemented in accordance with the requirements of 25 Pa. Code Chapter 78a and any conditions contained in the permit for this well. In addition, I do hereby certify that any casing which is attached to a blow-out preventer with a pressure rating greater than 3,000 psi has passed a pressure test in accordance with 25 Pa. Code §78a.84(f). I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Driller		Well Operator's Signature		DEP USE ONLY	
Name See Attachment	Rig	 Printed Name / Title: Jon Hinson / Sr. Drilling Engineer		Reviewed by:	
Address				Comments:	
City - State - Zip					
Phone					
		Date: 05/19/2025			

LOG OF FORMATIONS

US Well No. (API No.): 37-125-29195-00-00

(If you will need more space than this page, please photocopy the blank form before filling it in.)


Formation Name or Lithology	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Big Lime	1339	1380				Mudlog
Big Injun	1380	1544				Mudlog
Silt	1544	1609				Mudlog
Squaw Sand	1609	1671				Mudlog
Silt/Sand	1671	1853				Mudlog
Murrysville	1853	1912				Mudlog
Silt/Sand	1912	2018				Mudlog
Gantz	2018	2041				Mudlog
100 Ft Sand	2041	2089				Mudlog
Sand/Silt	2089	2174				Mudlog
Nineveh	2174	2232				Mudlog
Gordon Stray	2232	2245				Mudlog
Gordon	2245	2283				Mudlog
Upper Fifth Sand	2283	2299				Mudlog
Silt/Sand	2299	2329				Mudlog
Lower Fifth Sand	2329	2396				Mudlog
Bayard	2396	2419				Mudlog
Silt/Sand	2419	2426				Mudlog
Bayard Stray	2426	2444				Mudlog
Silt/Sand	2444	2872				Mudlog
Lower Warren	2872	2974				Mudlog
Siltstone/Shale	2974	3170				Mudlog
Upper Speechley	3170	3272				Mudlog
Silt/Shale	3272	4594				Mudlog
5th Elk	4594	4599				Mudlog
Silt/Sand/Shale	4599	4932				Mudlog
Lower Huron	4932	5199				Mudlog

If no show of oil, gas or water, explain why: No show of water on Mudlog or MWD log

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	Address		
	City - State - Zip		
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Driller		Well Operator's Signature		DEP USE ONLY	
Name See Attachment	Rig	 Printed Name / Title: Jon Hinson / Sr. Drilling Engineer Date: 05/19/2025		Reviewed by:	
Address				Comments:	
City - State - Zip					
Phone					

LOG OF FORMATIONS

US Well No. (API No.): 37-125-29195-00-00

(If you will need more space than this page, please photocopy the blank form before filling it in.)


Formation Name or Lithology	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Silt/Shale	5199	6139				Mudlog
Rhinestreet	6139	6343	6139			Mudlog
Cashaqua	6343	6439				Mudlog
Middlesex	6439	6494	6439			Mudlog
Genesee	6494	6588				MWD
Burket	6588	6634	6588			MWD
Tully	6634	6681				MWD
Mahantango	6681	6827	6681			MWD
Marcellus	6827	19960	6827			MWD
Driller's TD		19960				Driller's Log

If no show of oil, gas or water, explain why: No show of water on Mudlog or MWD log

WELL SERVICE COMPANIES (Provide the name, address, and telephone number of all well service companies involved.)

Casing Source	Cementing Company	Hardware Supplier	Logging Company
See Attachment	Name See Attachment	See Attachment	See Attachment
	Address		
	City - State - Zip		
	Phone		

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Driller		Well Operator's Signature		DEP USE ONLY	
Name See Attachment	Rig	 Printed Name / Title: Jon Hinson / Sr. Drilling Engineer		Reviewed by:	
Address				Comments:	
City - State- Zip					
Phone					
		Date: 05/19/2025			



API# 37-125-29195-00-00

Well Service Companies

CASING SOURCE:

B&L Pipeco
20465 State Highway 249, Suite 200
Houston, TX 77070
1-800-927-4732
Surface, Coal Protective, Intermediate, and Production

CEMENTING COMPANY:

NexTier Completion Solutions
3990 Rogerdale Road
Houston, TX 77042
713-325-6000
Surface, Coal Protective, Intermediate

Schlumberger Technology Corporation
PO Box 732149
Dallas, TX 75373-2149
NAMremittance@slb.com
Production

DRILLER:

Falcon Drilling – Falcon Rig 26
102 Broadway Street Suite 300
Carnegie, PA 15106
740-349-8131
From 0' to 6,353'

Patterson UTI Drilling Co. LLC - 876
10713 W. Sam Houston Parkway N, Suite 800
Houston, Texas 77064
Fax: 281-766-7176
From 6,353' to 19,960'

LOGGING COMPANY:

Schlumberger Technology Corporation
PO Box 732149
Dallas, TX 75373-2149
NAMremittance@slb.com

Total Directional Services, LLC
PO Box 831
Windsor, CO 80550
970-686-8893

Baker Hughes
PO Box 30105
Dallas, TX 75303-1057
724-743-9212

Computerized Mudlogging Service, LLC
324 Deer Creek Drive
Struthers, OH 44471
330-397-5710

Edge Finance, LLC
33502 TX-249
Pinehurst, TX 77362
713-504-1094



API# 37-125-29195-00-00

Hardware Supplier Company List

CENTRALIZERS:

Summit Casing Equipment
6575 Corporation Parkway
Fort Worth, TX 76126
(877) 860-0969
www.summitcasing.com
Surface, Coal Protective, Intermediate, Production

CENTRALIZER TYPES:

18-5/8" x 22" – Welded Steel Bow Spring
13-3/8" x 17 1/2" – Welded Steel Bow Spring
9-5/8" x 12 1/4" – Welded Steel Bow Spring
5 1/2" x 8.0" – Solid Body Composite

TOE SLEEVES:

RSI CT HPHT Toe/Frac Sleeve
Halliburton
1000 Noble Energy Drive, Suite 400
Canonsburg, PA 15317-5817
724-743-8188
halliburton.com

FLOAT SHOE/LANDING COLLAR:

Hybrid Double Valve Float Shoe & Landing Collar
Innovex Downhole Solutions
1848 Old Route 33
Weston, WV 26452
304-841-0821
www.InnovexDownhole.com

FLOTATION DEVICE:

NCS AirLock Flotation Sub
NCS Multistage
19450 State Highway 249 Suite 200
Houston, TX 77070
281-453-2222



API# 37-125-29195-00-00

DFGW decided by: 6 – Geologist’s determination – none observed

Wellbore Conditioning Attachment

Surface:

Pump 108 bbl of Fresh water to break circulation.

Coal Protective:

Pump 97 bbl of fresh water to gain circulation.

Intermediate:

Pump 75 bbl of fresh water.

Production:

Circulate 2 bottoms up at 8.0 bpm. *Spacer details in Cement and Gas Migration Controls Attachment below.*

Cement and Gas Migration Controls Attachment

Surface:

Mix and pump 83 bbl (405 sacks) Class L cement. Displaced cement with 53 bbl of fresh water. Circulated 18 bbl of cement to surface. Float held with 0.5 bbl flow back to truck. Water temperature 56°F, slurry temperature 63°F.

Coal Protective:

Mix and pump 56 bbl (255 sacks) Class L cement. Displace with 38 bbl of fresh water. Circulated 13 bbl of cement to surface. Mix water temperature 49°F, slurry temperature 61°F, pH 7.

Intermediate:

Mix and pump 132 bbl (605 sacks) Class L gas block cement. Drop plug and displace with 119 bbl of fresh water. Plug landed at 750 psi, bumped to 1,300 psi, floats held with 0.5 bbl back to truck. 33 bbl of cement returned to surface. Water temperature 48°F, slurry temperature 62°F, pH 7.

Production:

Schlumberger pumped 85 bbl of 13.5 ppg MudPush Express with Surfactant, 148 bbl of 13.5 ppg MudPush Express without surfactant, and 732 bbl 15.0 ppg Tail Cement (3,165 sacks). Displaced plug with 435 bbl of fresh water. Landed plug at 4.5 bpm and 2,750 psi, bumped pressure to 3,250 psi. Held pressure for 5 minutes, checked floats, released pressure, 5 bbl returned to surface. Floats held. Maintained circulation throughout job. 128 bbl spacer returned to surface. Mix water temperature 69° F, slurry temperature 81° F.



API# 37-125-29195-00-00

Casing and Tubing Attachment: Hardware

Surface:

Run 5 joints of 18 5/8" 87.5# J-55 BTC casing set at 201'. Top of float shoe set at 198'. Ran 5 bow spring centralizers every joint from 157' to 25'.

Coal Protective:

Run 7 full joints 13 3/8" 54.5# J-55 BTC casing set at 277'. Top of float shoe set at 275'. Cement baskets set at 229' and 224'. Ran 6 bow spring centralizers every joint from 234' to 27'.

Intermediate:

Run 39 joints of 9 5/8" 40.0# J-55 LTC casing set at 1,648'. Top of float shoe set at 1,646'. Float collar set at 1,560'. Ran 20 bow spring centralizers every other joint from 1,604 to 28'.

Production:

Run 451 joints of 5 1/2" 20.0# HP P-110 GBCD casing set at 19,943'. Top of float shoe set at 19,939'. (2) centralized pup joints set at 19,907 and 19,872'. Toe sleeves set at 19,903' and 19,868'. Marker joints set at 17,928', and 6,247'. Floatation device set at 8,935'. Ran 346 - 8.0" Solid Body Composite centralizer every full-length joint from 19,824' to 4,621'. Ran a total of 348 centralizers.



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Pennsylvania SP, Southern Zone (3702), US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Edsaryar
Scale	0.999966	Report Generated	4/22/2025 at 11:31:24 AM
Convergence at slot	1.61° West	Database	WA_MPL_EASTERNUS_Defn

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-21.67	-42.70	1274858.33	341275.11	40°14'36.1440"N	80°14'6.3826"W
Facility Reference Pt			1274901.03	341296.78	40°14'36.3700"N	80°14'5.8400"W
Field Reference Pt			0.00	0.00	39°07'14.8609"N	84°41'37.2884"W

WELLPATH DATUM

Calculation method	Minimum curvature	Patterson 876 (RKB) to Facility Vertical Datum	1287.00ft
Horizontal Reference Pt	Slot	Patterson 876 (RKB) to Mean Sea Level	1287.00ft
Vertical Reference Pt	Patterson 876 (RKB)	Patterson 876 (RKB) to Ground Level at Slot (Slot #03)	26.00ft
MD Reference Pt	Patterson 876 (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	322.01°



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986'

Page 2 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

WELLPATH DATA (222 stations) † = interpolated, ‡ = extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
0.00H	0.000	78.420	0.00	0.00	0.00	0.00	1274858.33	341275.11	40°14'36.1440"N	80°14'6.3826"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	78.420	26.00	0.00	0.00	0.00	1274858.33	341275.11	40°14'36.1440"N	80°14'6.3826"W	0.00	0.000	0.00	0.00	0.00
65.00	0.460	78.420	65.00	-0.07	0.03	0.15	1274858.48	341275.14	40°14'36.1444"N	80°14'6.3806"W	0.16	78.420	1.18	1.18	0.00
115.00	0.650	123.650	115.00	-0.43	-0.09	0.59	1274858.92	341275.02	40°14'36.1434"N	80°14'6.3750"W	0.59	98.294	0.92	0.88	90.46
165.00	0.990	141.880	164.99	-1.13	-0.58	1.09	1274859.42	341274.53	40°14'36.1386"N	80°14'6.3683"W	1.23	118.143	0.85	0.68	36.46
215.00	0.780	136.150	214.99	-1.90	-1.17	1.59	1274859.92	341273.94	40°14'36.1329"N	80°14'6.3617"W	1.97	126.272	0.46	-0.42	-11.46
265.00	0.950	126.670	264.98	-2.64	-1.66	2.16	1274860.49	341273.45	40°14'36.1282"N	80°14'6.3541"W	2.72	127.560	0.44	0.34	-18.96
333.00	0.850	132.770	332.97	-3.68	-2.34	2.98	1274861.31	341272.77	40°14'36.1218"N	80°14'6.3433"W	3.79	128.120	0.20	-0.15	8.97
422.00	0.800	133.380	421.96	-4.95	-3.21	3.92	1274862.25	341271.90	40°14'36.1134"N	80°14'6.3309"W	5.07	129.369	0.06	-0.06	0.69
510.00	0.800	148.800	509.95	-6.16	-4.16	4.68	1274863.01	341270.95	40°14'36.1042"N	80°14'6.3207"W	6.27	131.632	0.24	0.00	17.52
598.00	0.790	147.480	597.95	-7.38	-5.20	5.33	1274863.66	341269.91	40°14'36.0942"N	80°14'6.3120"W	7.44	134.304	0.02	-0.01	-1.50
686.00	0.470	156.300	685.94	-8.33	-6.04	5.80	1274864.13	341269.07	40°14'36.0860"N	80°14'6.3057"W	8.37	136.175	0.38	-0.36	10.02
774.00	0.580	152.660	773.94	-9.12	-6.77	6.15	1274864.48	341268.34	40°14'36.0789"N	80°14'6.3009"W	9.14	137.746	0.13	0.12	-4.14
862.00	0.560	160.620	861.93	-9.96	-7.57	6.50	1274864.83	341267.54	40°14'36.0711"N	80°14'6.2961"W	9.97	139.365	0.09	-0.02	9.05
950.00	0.500	162.810	949.93	-10.73	-8.34	6.75	1274865.08	341266.77	40°14'36.0635"N	80°14'6.2925"W	10.73	141.013	0.07	-0.07	2.49
1038.00	0.510	152.860	1037.93	-11.47	-9.06	7.04	1274865.37	341266.05	40°14'36.0565"N	80°14'6.2885"W	11.47	142.127	0.10	0.01	-11.31
1126.00	0.540	161.950	1125.92	-12.25	-9.80	7.35	1274865.68	341265.31	40°14'36.0493"N	80°14'6.2843"W	12.25	143.126	0.10	0.03	10.33
1215.00	0.250	154.340	1214.92	-12.83	-10.37	7.56	1274865.89	341264.74	40°14'36.0437"N	80°14'6.2813"W	12.84	143.898	0.33	-0.33	-8.55
1303.00	0.150	213.800	1302.92	-13.06	-10.64	7.58	1274865.91	341264.47	40°14'36.0410"N	80°14'6.2810"W	13.07	144.525	0.25	-0.11	67.57
1390.00	0.260	357.660	1389.92	-12.93	-10.54	7.51	1274865.84	341264.57	40°14'36.0420"N	80°14'6.2819"W	12.94	144.519	0.45	0.13	165.36
1479.00	0.270	30.720	1478.92	-12.69	-10.16	7.61	1274865.94	341264.95	40°14'36.0458"N	80°14'6.2808"W	12.69	143.154	0.17	0.01	37.15
1567.00	0.300	75.200	1566.92	-12.71	-9.92	7.94	1274866.27	341265.19	40°14'36.0483"N	80°14'6.2766"W	12.71	141.327	0.25	0.03	50.55
1589.00	0.320	69.810	1588.92	-12.75	-9.88	8.05	1274866.38	341265.23	40°14'36.0486"N	80°14'6.2752"W	12.75	140.828	0.16	0.09	-24.50
1703.00	0.560	90.080	1702.91	-13.19	-9.78	8.91	1274867.24	341265.34	40°14'36.0500"N	80°14'6.2642"W	13.23	137.654	0.25	0.21	17.78
1747.00	0.570	76.700	1746.91	-13.41	-9.73	9.34	1274867.67	341265.39	40°14'36.0506"N	80°14'6.2587"W	13.48	136.166	0.30	0.02	-30.41
1835.00	2.190	287.420	1834.89	-12.21	-9.12	8.16	1274866.49	341265.99	40°14'36.0562"N	80°14'6.2741"W	12.24	138.187	3.06	1.84	-169.64
1923.00	3.010	284.680	1922.80	-8.99	-8.03	4.32	1274862.65	341267.08	40°14'36.0659"N	80°14'6.3240"W	9.12	151.730	0.94	0.93	-3.11
2002.00	2.830	278.890	2001.70	-5.92	-7.21	0.39	1274858.72	341267.91	40°14'36.0730"N	80°14'6.3750"W	7.22	176.933	0.44	-0.23	-7.33
2090.00	2.900	280.730	2089.59	-2.66	-6.45	-3.95	1274854.38	341268.66	40°14'36.0792"N	80°14'6.4311"W	7.57	211.447	0.13	0.08	2.09
2178.00	2.850	277.370	2177.48	0.57	-5.76	-8.30	1274850.03	341269.35	40°14'36.0848"N	80°14'6.4875"W	10.11	235.255	0.20	-0.06	-3.82



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986'

Page 3 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

WELLPATH DATA (222 stations)

MD (ft)	Inclination (°)	Azimuth (°)	TVD (ft)	Vert Sect (ft)	North (ft)	East (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude	Closure Dist (ft)	Closure Dir (°)	DLS (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
2266.00	2.470	273.720	2265.38	3.39	-5.36	-12.37	1274845.96	341269.75	40°14'36.0877"N	80°14'8.5401"W	13.48	246.581	0.47	-0.43	-4.15
2355.00	2.570	273.490	2354.30	5.99	-5.11	-16.27	1274842.06	341270.00	40°14'36.0890"N	80°14'8.5905"W	17.06	252.565	0.11	0.11	-0.26
2444.00	2.420	272.920	2443.21	8.54	-4.89	-20.14	1274838.19	341270.22	40°14'36.0901"N	80°14'8.6404"W	20.73	256.344	0.17	-0.17	-0.64
2532.00	2.260	262.630	2531.14	10.64	-5.02	-23.72	1274834.61	341270.09	40°14'36.0878"N	80°14'8.6865"W	24.24	258.046	0.51	-0.18	-11.69
2620.00	2.630	258.830	2619.06	12.44	-5.63	-27.42	1274830.91	341269.48	40°14'36.0808"N	80°14'8.7340"W	27.99	258.387	0.46	0.42	-4.32
2708.00	4.820	251.220	2706.87	14.56	-7.22	-32.90	1274825.43	341267.89	40°14'36.0636"N	80°14'8.8041"W	33.68	257.629	2.55	2.48	-8.65
2796.00	6.630	241.680	2794.43	16.63	-10.82	-40.87	1274817.46	341264.29	40°14'36.0258"N	80°14'8.9055"W	42.28	255.177	2.32	2.06	-10.84
2884.00	8.780	238.480	2881.63	18.24	-16.74	-51.07	1274807.26	341258.37	40°14'35.9645"N	80°14'7.0348"W	53.74	251.853	2.49	2.44	-3.64
2973.00	9.470	236.920	2969.50	19.64	-24.29	-63.00	1274795.34	341250.82	40°14'35.8866"N	80°14'7.1858"W	67.52	248.918	0.82	0.78	-1.79
3060.00	10.050	232.510	3055.24	20.31	-32.81	-75.02	1274783.32	341242.30	40°14'35.7990"N	80°14'7.3377"W	81.88	246.375	1.09	0.67	-5.07
3149.00	12.730	231.310	3142.48	20.26	-43.67	-88.84	1274769.50	341231.44	40°14'35.6880"N	80°14'7.5119"W	98.99	243.821	3.02	3.01	-1.35
3237.00	13.620	229.250	3228.17	19.64	-56.50	-104.25	1274754.08	341218.62	40°14'35.5570"N	80°14'7.7059"W	118.58	241.546	1.14	1.01	-2.34
3325.00	16.440	223.900	3313.15	17.39	-72.24	-120.74	1274737.59	341202.88	40°14'35.3969"N	80°14'7.9128"W	140.70	239.109	3.57	3.20	-6.08
3404.00	17.040	221.050	3388.81	13.61	-89.02	-136.09	1274722.24	341186.09	40°14'35.2269"N	80°14'8.1046"W	162.62	236.811	1.29	0.76	-3.61
3492.00	16.150	217.120	3473.14	8.01	-108.50	-151.95	1274706.39	341166.61	40°14'35.0300"N	80°14'8.3019"W	186.71	234.470	1.63	-1.01	-4.47
3580.00	16.050	212.210	3557.69	0.75	-128.56	-165.82	1274692.52	341146.56	40°14'34.8280"N	80°14'8.4734"W	209.82	232.214	1.55	-0.11	-5.58
3668.00	13.570	212.740	3642.76	-6.78	-147.54	-177.89	1274680.45	341127.58	40°14'34.6372"N	80°14'8.6221"W	231.11	230.329	2.82	-2.82	0.60
3756.00	11.640	220.010	3728.64	-12.03	-163.02	-189.18	1274669.16	341112.09	40°14'34.4811"N	80°14'8.7621"W	249.73	229.248	2.84	-2.19	8.26
3844.00	12.050	216.090	3814.77	-16.40	-177.24	-200.30	1274658.04	341097.87	40°14'34.3375"N	80°14'8.9002"W	267.46	228.495	1.03	0.47	-4.45
3932.00	12.130	221.970	3900.82	-20.53	-191.54	-211.89	1274646.44	341083.58	40°14'34.1931"N	80°14'9.0445"W	285.64	227.888	1.40	0.09	6.88
4021.00	12.520	229.190	3987.78	-22.64	-204.80	-225.45	1274632.89	341070.32	40°14'34.0583"N	80°14'9.2144"W	304.58	227.748	1.78	0.44	8.11
4109.00	13.100	228.590	4073.59	-23.70	-217.63	-240.15	1274618.19	341057.49	40°14'33.9275"N	80°14'9.3992"W	324.09	227.816	0.68	0.66	-0.68
4197.00	12.010	235.730	4159.49	-23.70	-229.38	-255.20	1274603.14	341045.74	40°14'33.8072"N	80°14'9.5889"W	343.13	228.049	2.15	-1.24	-3.35
4286.00	12.480	232.750	4246.46	-22.98	-240.42	-270.50	1274587.84	341034.70	40°14'33.6940"N	80°14'9.7822"W	361.90	228.370	0.88	0.53	-3.35
4374.00	13.040	228.380	4332.29	-23.48	-252.77	-285.49	1274572.85	341022.95	40°14'33.5678"N	80°14'9.9710"W	381.31	228.479	1.27	0.64	-4.97
4453.00	13.400	225.480	4409.20	-25.09	-265.11	-298.68	1274559.66	341010.01	40°14'33.4423"N	80°14'10.1365"W	399.37	228.408	0.96	0.46	-3.67
4541.00	12.590	233.840	4494.95	-25.94	-277.92	-313.70	1274544.64	340997.20	40°14'33.3115"N	80°14'10.3254"W	419.10	228.461	2.32	-0.92	9.50
4629.00	12.710	230.420	4580.82	-25.90	-289.74	-328.90	1274529.44	340985.38	40°14'33.1905"N	80°14'10.5171"W	438.32	228.622	0.86	0.14	-3.89
4717.00	12.840	226.590	4666.64	-27.10	-302.63	-343.47	1274514.87	340972.49	40°14'33.0591"N	80°14'10.7002"W	457.77	228.617	0.97	0.15	-4.35
4805.00	13.110	222.750	4752.39	-29.63	-316.68	-357.35	1274501.00	340958.44	40°14'32.9216"N	80°14'10.8740"W	477.47	228.453	1.03	0.31	-4.36



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986'

Page 4 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

WELLPATH DATA (222 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
4893.00	14.300	228.490	4837.89	-31.90	-331.21	-372.26	1274486.08	340943.91	40°14'32.7688"N	80°14'11.0510"W	498.28	228.340	2.05	1.35	6.52
4981.00	14.650	224.380	4923.10	-34.04	-346.37	-388.18	1274470.16	340928.75	40°14'32.6146"N	80°14'11.2607"W	520.25	228.258	1.23	0.40	-4.67
5070.00	15.060	222.350	5009.13	-37.48	-362.96	-403.84	1274454.50	340912.17	40°14'32.4464"N	80°14'11.4565"W	542.98	228.052	0.74	0.46	-2.28
5158.00	14.420	227.890	5094.23	-40.18	-378.76	-419.68	1274438.67	340896.37	40°14'32.2860"N	80°14'11.6549"W	565.32	227.934	1.76	-0.73	6.30
5246.00	14.730	225.170	5179.40	-42.30	-393.99	-435.74	1274422.61	340881.13	40°14'32.1310"N	80°14'11.8564"W	587.45	227.880	0.85	0.35	-3.09
5334.00	12.790	230.380	5264.88	-43.91	-408.09	-451.18	1274407.17	340867.03	40°14'31.9874"N	80°14'12.0503"W	608.36	227.871	2.61	-2.20	5.92
5422.00	13.060	227.000	5350.55	-45.06	-421.08	-465.95	1274392.39	340854.04	40°14'31.8550"N	80°14'12.2360"W	628.03	227.896	0.91	0.31	-3.84
5498.00	13.250	224.280	5424.65	-46.98	-433.18	-478.31	1274380.03	340841.95	40°14'31.7321"N	80°14'12.3910"W	645.31	227.835	0.85	0.25	-3.58
5589.00	12.150	232.090	5513.43	-48.37	-446.53	-493.15	1274365.20	340828.60	40°14'31.5961"N	80°14'12.5774"W	665.27	227.841	2.24	-1.21	8.58
5677.00	12.160	228.060	5599.46	-48.99	-458.41	-507.35	1274351.00	340816.71	40°14'31.4747"N	80°14'12.7561"W	683.78	227.901	0.96	0.01	-4.58
5765.00	12.280	222.790	5685.47	-51.13	-471.47	-520.60	1274337.74	340803.65	40°14'31.3420"N	80°14'12.9222"W	702.37	227.835	1.27	0.14	-5.99
5853.00	12.470	226.560	5771.43	-53.53	-484.87	-533.86	1274324.49	340790.25	40°14'31.2060"N	80°14'13.0882"W	721.19	227.753	0.94	0.22	4.28
5941.00	12.810	255.280	5857.38	-50.58	-493.90	-550.21	1274308.14	340781.23	40°14'31.1123"N	80°14'13.2957"W	739.37	228.087	7.08	0.39	32.64
6029.00	16.530	273.040	5942.54	-38.50	-495.71	-572.17	1274286.18	340779.42	40°14'31.0882"N	80°14'13.5780"W	757.04	229.095	6.59	4.23	20.18
6117.00	15.680	284.070	6027.10	-20.90	-492.16	-596.21	1274262.14	340782.97	40°14'31.1167"N	80°14'13.8892"W	773.10	230.461	3.60	-0.97	12.53
6205.00	18.060	302.950	6111.37	1.39	-481.84	-619.21	1274239.14	340793.29	40°14'31.2122"N	80°14'14.5027"W	784.59	232.112	6.75	2.70	21.45
6294.00	21.720	312.280	6195.07	30.68	-463.24	-642.98	1274215.37	340811.88	40°14'31.3893"N	80°14'14.5027"W	792.48	234.229	5.43	4.11	10.48
6396.00	26.950	314.270	6287.98	72.22	-434.39	-673.52	1274184.83	340840.73	40°14'31.6658"N	80°14'14.9068"W	801.45	237.180	5.19	5.13	1.95
6491.00	32.810	316.960	6370.32	119.23	-400.52	-706.53	1274151.82	340874.60	40°14'32.4176"N	80°14'15.3446"W	812.16	240.452	6.33	6.17	2.83
6587.00	42.490	320.830	6446.25	177.70	-356.26	-744.86	1274113.50	340918.86	40°14'32.4176"N	80°14'15.8547"W	825.68	244.438	10.38	10.08	4.03
6682.00	49.440	320.730	6512.24	245.94	-303.39	-788.02	1274070.34	340971.73	40°14'32.9279"N	80°14'16.4303"W	844.41	248.943	7.32	7.32	-0.11
6776.00	56.900	319.920	6568.55	321.09	-245.54	-836.04	1274022.32	341029.58	40°14'33.4860"N	80°14'17.0703"W	871.35	253.633	7.97	7.94	-0.86
6872.00	68.330	322.500	6612.64	406.18	-179.15	-889.27	1273969.09	341095.97	40°14'34.1270"N	80°14'17.7806"W	907.14	258.610	12.14	11.91	2.69
6966.00	79.390	324.020	6638.73	496.30	-106.89	-943.17	1273915.19	341168.23	40°14'34.8258"N	80°14'18.5016"W	949.21	263.534	11.87	11.77	1.62
7061.00	87.550	323.100	6649.52	590.57	-31.03	-999.19	1273859.18	341244.09	40°14'35.5595"N	80°14'19.2513"W	999.67	268.222	8.64	8.59	-0.97
7156.00	89.950	323.670	6651.60	685.52	45.20	-1055.83	1273802.54	341320.31	40°14'36.2968"N	80°14'20.0091"W	1056.80	272.452	2.60	2.53	0.60
7250.00	90.140	323.730	6651.52	779.48	120.96	-1111.48	1273746.89	341396.07	40°14'37.0296"N	80°14'20.7540"W	1118.04	276.211	0.21	0.20	0.06
7346.00	89.640	322.950	6651.71	875.45	197.97	-1168.80	1273689.57	341473.07	40°14'37.7743"N	80°14'21.5208"W	1185.45	279.613	0.97	0.97	-0.81
7441.00	89.800	320.560	6652.17	970.44	272.57	-1227.60	1273630.77	341547.67	40°14'38.4949"N	80°14'22.3060"W	1257.50	282.519	2.52	0.17	-2.52
7535.00	90.080	323.750	6652.27	1064.43	346.79	-1285.27	1273573.11	341621.89	40°14'39.2120"N	80°14'23.0763"W	1331.23	285.100	3.41	0.30	3.39



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986'

Page 5 of 11



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Field	Washington	API	37-125-29195-0000
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WELLPATH DATA (222 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
7630.00	89.990	323.530	6652.21	1159.39	423.30	-1341.59	1273516.79	341698.39	40°14'39.3520"N	80°14'23.8301"W	1406.78	287.512	0.25	-0.09	-0.23
7724.00	89.950	322.870	6652.26	1253.37	498.57	-1397.90	1273460.49	341773.66	40°14'40.8798"N	80°14'24.5833"W	1484.14	289.629	0.70	-0.04	-0.70
7819.00	89.890	322.590	6652.39	1348.36	574.17	-1455.42	1273402.96	341849.26	40°14'41.4105"N	80°14'25.3524"W	1564.59	291.529	0.30	-0.06	-0.29
7912.00	90.020	322.580	6652.47	1441.35	648.03	-1511.93	1273346.45	341923.12	40°14'42.1244"N	80°14'26.1076"W	1644.95	293.201	0.14	0.14	-0.01
8007.00	89.310	322.090	6653.02	1536.35	723.23	-1569.98	1273288.41	341998.92	40°14'42.8511"N	80°14'26.8632"W	1728.55	294.734	0.91	-0.75	-0.52
8102.00	89.400	322.450	6654.09	1631.34	798.36	-1628.11	1273230.28	342073.44	40°14'43.5770"N	80°14'27.6599"W	1813.32	296.122	0.39	0.09	0.38
8197.00	89.770	322.330	6654.78	1726.34	873.62	-1686.08	1273172.31	342148.70	40°14'44.3042"N	80°14'28.4346"W	1898.97	297.390	0.41	0.39	-0.13
8292.00	89.960	322.380	6655.00	1821.34	948.84	-1744.11	1273114.29	342223.92	40°14'45.0311"N	80°14'29.2100"W	1985.50	298.547	0.21	0.20	0.05
8386.00	92.230	325.320	6653.21	1915.25	1024.71	-1799.54	1273058.86	342299.79	40°14'45.7651"N	80°14'29.9521"W	2070.84	299.659	3.95	2.41	3.13
8481.00	91.310	322.560	6650.27	2010.15	1101.47	-1855.43	1273002.97	342376.54	40°14'46.5077"N	80°14'30.7005"W	2157.74	300.695	3.06	-0.97	-2.91
8576.00	91.460	322.530	6647.98	2105.11	1176.86	-1913.18	1272945.22	342451.93	40°14'47.2363"N	80°14'31.4725"W	2246.17	301.597	0.16	0.16	-0.03
8671.00	91.920	324.740	6645.17	2200.03	1253.32	-1969.48	1272888.92	342528.39	40°14'47.9759"N	80°14'32.2261"W	2334.45	302.471	2.38	0.48	2.33
8766.00	92.040	329.970	6641.89	2294.53	1333.24	-2020.68	1272837.72	342608.30	40°14'48.7511"N	80°14'32.9151"W	2420.88	303.417	5.50	0.13	5.51
8861.00	91.710	326.500	6638.78	2388.90	1413.95	-2070.66	1272787.75	342689.01	40°14'49.5344"N	80°14'33.5888"W	2507.36	304.327	3.67	-0.35	-3.65
8956.00	91.550	320.920	6636.08	2483.78	1490.46	-2126.84	1272731.57	342765.52	40°14'50.2745"N	80°14'34.3409"W	2597.10	305.022	5.87	-0.17	-5.87
9051.00	91.680	321.400	6633.40	2578.73	1564.43	-2186.39	1272672.01	342839.48	40°14'50.9885"N	80°14'35.1355"W	2688.45	305.585	0.52	0.14	0.51
9146.00	91.610	321.580	6630.67	2673.69	1638.74	-2245.52	1272612.89	342913.79	40°14'51.7061"N	80°14'35.9248"W	2779.90	306.121	0.20	-0.07	0.19
9241.00	91.280	320.180	6628.28	2768.64	1712.41	-2305.44	1272552.97	342987.46	40°14'52.4171"N	80°14'36.7241"W	2871.83	306.604	1.51	-0.35	-1.47
9336.00	91.580	320.660	6625.91	2863.57	1785.61	-2365.95	1272492.46	343060.66	40°14'53.1233"N	80°14'37.5308"W	2964.14	307.042	0.60	0.32	0.51
9431.00	90.940	320.370	6623.82	2958.52	1858.91	-2426.35	1272432.07	343133.96	40°14'53.8305"N	80°14'38.3360"W	3056.58	307.457	0.74	-0.67	-0.31
9526.00	90.940	320.550	6622.26	3053.47	1932.17	-2486.82	1272371.60	343207.21	40°14'54.5372"N	80°14'39.1422"W	3149.21	307.846	0.19	0.00	0.19
9620.00	90.940	320.570	6620.72	3147.43	2004.75	-2546.52	1272311.90	343279.79	40°14'55.2375"N	80°14'39.9384"W	3240.96	308.212	0.02	0.00	0.02
9715.00	90.880	320.760	6619.21	3242.39	2078.22	-2606.73	1272251.69	343353.25	40°14'55.9465"N	80°14'40.7413"W	3333.77	308.564	0.21	-0.06	0.20
9810.00	90.870	320.500	6617.76	3337.35	2151.65	-2666.99	1272191.44	343426.68	40°14'56.6550"N	80°14'41.5448"W	3426.72	308.896	0.27	-0.01	-0.27
9904.00	91.090	320.530	6616.15	3431.30	2224.19	-2726.75	1272131.68	343499.22	40°14'57.3548"N	80°14'42.3417"W	3518.83	309.204	0.24	0.23	0.03
9999.00	90.870	320.440	6614.52	3526.26	2297.47	-2787.19	1272071.24	343572.49	40°14'58.0618"N	80°14'43.1475"W	3612.03	309.499	0.25	-0.23	-0.08
10094.00	90.810	320.520	6613.13	3621.21	2370.74	-2847.63	1272010.80	343645.77	40°14'58.7687"N	80°14'43.9535"W	3705.33	309.778	0.11	-0.06	0.08
10189.00	90.900	320.430	6611.71	3716.17	2444.01	-2908.09	1271950.35	343719.03	40°14'59.4756"N	80°14'44.7595"W	3798.71	310.044	0.13	0.09	-0.09
10284.00	90.900	320.730	6610.22	3811.13	2517.39	-2968.40	1271890.03	343792.41	40°15'0.1836"N	80°14'45.5639"W	3892.13	310.300	0.32	0.00	0.32
10379.00	91.090	320.660	6608.57	3906.09	2590.89	-3028.57	1271829.87	343865.91	40°15'0.9928"N	80°14'46.3663"W	3985.59	310.546	0.21	0.20	-0.07



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986'

Page 6 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

WELLPATH DATA (222 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
10474.00	90.940	319.670	6606.89	4001.02	2663.83	-3089.42	1271769.02	343938.84	40°15'1.5963"N	80°14'47.1773"W	4079.27	310.769	1.05	-0.16	-1.04
10569.00	93.090	321.090	6603.55	4095.92	2736.95	-3149.96	1271708.49	344011.97	40°15'2.3017"N	80°14'47.9844"W	4172.90	310.987	2.71	2.26	1.49
10663.00	93.460	321.170	6598.18	4189.75	2810.02	-3208.85	1271649.60	344085.03	40°15'3.0070"N	80°14'48.7703"W	4265.32	311.209	0.40	0.39	0.09
10758.00	94.140	320.400	6591.88	4284.52	2883.46	-3268.78	1271589.67	344158.47	40°15'3.7157"N	80°14'49.5697"W	4358.81	311.416	1.08	0.72	-0.81
10853.00	92.070	320.320	6586.74	4379.34	2956.51	-3329.29	1271529.16	344231.51	40°15'4.4204"N	80°14'50.3764"W	4452.54	311.606	2.18	-2.18	-0.08
10948.00	90.970	316.980	6584.22	4474.12	3027.78	-3392.02	1271466.43	344302.79	40°15'5.1069"N	80°14'51.2111"W	4546.79	311.753	3.70	-1.16	-3.52
11043.00	90.930	316.090	6582.64	4568.68	3096.73	-3457.37	1271401.09	344371.72	40°15'5.7696"N	80°14'52.0787"W	4641.45	311.850	0.94	-0.04	-0.94
11138.00	91.240	318.150	6580.84	4663.91	3166.32	-3521.99	1271336.46	344441.32	40°15'6.4391"N	80°14'52.9373"W	4736.04	311.956	2.19	0.33	2.17
11233.00	91.090	315.210	6578.91	4757.87	3235.42	-3587.15	1271271.31	344511.41	40°15'7.1034"N	80°14'53.8025"W	4830.69	312.049	3.10	-0.16	-3.09
11328.00	91.180	320.910	6577.03	4852.58	3306.04	-3650.61	1271207.86	344581.03	40°15'7.7832"N	80°14'54.6463"W	4925.12	312.164	6.00	0.09	6.00
11423.00	90.990	325.210	6575.14	4947.53	3381.94	-3707.67	1271150.79	344656.92	40°15'8.5170"N	80°14'55.4097"W	5018.40	312.369	4.53	-0.09	4.53
11518.00	90.990	324.920	6573.42	5042.38	3459.80	-3762.07	1271096.40	344734.79	40°15'9.2709"N	80°14'56.1393"W	5111.10	312.603	0.32	-0.11	-0.31
11613.00	90.900	324.390	6571.85	5137.26	3537.28	-3817.02	1271041.45	344812.27	40°15'10.0209"N	80°14'56.8760"W	5204.04	312.822	0.57	-0.09	-0.56
11708.00	90.190	322.700	6570.95	5232.22	3613.69	-3873.46	1270985.01	344888.67	40°15'10.7598"N	80°14'57.6316"W	5297.40	313.013	1.93	-0.75	-1.78
11803.00	90.320	322.550	6570.53	5327.21	3689.18	-3931.13	1270927.35	344964.16	40°15'11.4894"N	80°14'58.4026"W	5391.09	313.181	0.21	0.14	-0.16
11898.00	90.100	322.060	6570.18	5422.21	3764.35	-3989.21	1270869.26	345039.33	40°15'12.2157"N	80°14'59.1789"W	5484.90	313.339	0.57	-0.23	-0.52
11993.00	90.630	322.840	6569.57	5517.21	3839.57	-4047.24	1270811.23	345114.54	40°15'12.9425"N	80°14'59.9545"W	5578.75	313.492	0.83	0.56	0.61
12088.00	90.470	322.740	6568.66	5612.20	3915.12	-4104.82	1270753.66	345190.09	40°15'13.6727"N	80°15'0.7244"W	5672.54	313.645	0.20	-0.17	0.11
12183.00	90.130	322.150	6568.16	5707.19	3990.43	-4162.73	1270695.75	345265.40	40°15'14.4004"N	80°15'1.4984"W	5766.44	313.789	0.72	-0.36	-0.62
12278.00	90.410	322.670	6567.72	5802.19	4065.71	-4220.67	1270637.81	345340.67	40°15'15.1276"N	80°15'2.2730"W	5860.38	313.929	0.62	0.29	0.55
12373.00	90.500	322.660	6566.96	5897.18	4141.24	-4278.29	1270580.20	345416.20	40°15'15.8578"N	80°15'3.0434"W	5954.30	314.067	0.10	0.09	-0.01
12467.00	89.920	321.830	6566.62	5991.18	4215.56	-4335.84	1270522.64	345490.52	40°15'16.5758"N	80°15'3.8125"W	6047.35	314.194	1.08	-0.62	-0.88
12562.00	90.500	322.570	6566.27	6086.17	4290.63	-4394.07	1270464.42	345565.58	40°15'17.3010"N	80°15'4.5906"W	6141.44	314.318	0.99	0.61	0.78
12657.00	90.720	323.170	6565.26	6181.16	4366.36	-4451.41	1270407.08	345641.31	40°15'18.0330"N	80°15'5.3576"W	6235.39	314.447	0.67	0.23	0.63
12752.00	91.090	323.150	6563.76	6276.13	4442.38	-4508.36	1270350.13	345717.33	40°15'18.7680"N	80°15'6.1196"W	6329.30	314.578	0.39	0.39	-0.02
12847.00	90.840	322.700	6562.16	6371.10	4518.17	-4565.62	1270292.87	345793.11	40°15'19.5006"N	80°15'6.8856"W	6423.30	314.701	0.54	-0.26	-0.47
12942.00	90.750	322.230	6560.84	6466.09	4593.49	-4623.50	1270235.00	345868.44	40°15'20.2284"N	80°15'7.6927"W	6517.43	314.813	0.50	-0.09	-0.49
13037.00	91.670	322.770	6558.83	6561.06	4668.84	-4681.32	1270177.18	345943.78	40°15'20.9565"N	80°15'8.4922"W	6611.57	314.924	1.12	0.97	0.57
13132.00	91.330	319.990	6556.35	6656.01	4743.03	-4740.58	1270117.92	346017.97	40°15'21.6728"N	80°15'9.2234"W	6705.93	315.015	2.95	-0.36	-2.93
13227.00	91.240	323.590	6554.21	6750.97	4817.65	-4799.32	1270059.18	346092.58	40°15'22.3934"N	80°15'10.0080"W	6800.24	315.109	3.79	-0.09	3.79



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986'

Page 7 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

WELLPATH DATA (222 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [1/100ft]	Build Rate [1/100ft]	Turn Rate [1/100ft]
13322.00	91.300	324.030	6552.11	6845.90	4894.30	-4855.40	1270003.10	346169.23	40°15'23.1349"N	80°15'10.7590"W	6894.14	315.229	0.47	0.06	0.46
13417.00	91.490	324.060	6549.80	6940.81	4971.18	-4911.16	1269947.34	346246.11	40°15'23.8786"N	80°15'11.5061"W	6988.00	315.348	0.20	0.20	0.03
13512.00	89.520	323.460	6548.96	7035.76	5047.79	-4967.32	1269891.19	346322.72	40°15'24.6197"N	80°15'12.2581"W	7081.98	315.460	2.17	-2.07	-0.63
13607.00	90.320	324.950	6549.09	7130.69	5124.85	-5022.88	1269835.63	346399.77	40°15'25.3653"N	80°15'13.0026"W	7175.89	315.576	1.78	0.84	1.57
13701.00	90.290	323.500	6548.59	7224.61	5201.11	-5077.83	1269780.68	346476.03	40°15'26.1032"N	80°15'13.7390"W	7268.83	315.687	1.54	-0.03	-1.54
13796.00	90.500	322.720	6547.94	7319.59	5277.08	-5134.86	1269723.66	346552.00	40°15'26.8377"N	80°15'14.5020"W	7363.04	315.783	0.85	0.22	-0.82
13891.00	90.780	323.020	6546.87	7414.58	5352.82	-5192.20	1269666.32	346627.74	40°15'27.5697"N	80°15'15.2690"W	7457.32	315.873	0.43	0.29	0.32
13986.00	90.690	323.050	6545.66	7509.55	5428.72	-5249.32	1269609.20	346703.63	40°15'28.3035"N	80°15'16.0332"W	7551.58	315.963	0.10	0.10	0.03
14081.00	90.620	322.830	6544.57	7604.54	5504.52	-5306.57	1269551.95	346779.44	40°15'29.0362"N	80°15'16.7991"W	7645.88	316.049	0.24	-0.07	-0.23
14176.00	91.150	323.200	6543.10	7699.51	5580.40	-5363.71	1269494.81	346855.31	40°15'29.7697"N	80°15'17.5636"W	7740.17	316.134	0.68	0.56	0.39
14271.00	90.620	323.320	6541.64	7794.47	5656.52	-5420.53	1269437.99	346931.43	40°15'30.5057"N	80°15'18.3240"W	7834.44	316.220	0.57	-0.56	0.13
14366.00	91.270	321.730	6540.07	7889.45	5731.90	-5478.32	1269380.20	347006.80	40°15'31.2341"N	80°15'19.0967"W	7928.85	316.296	1.81	0.68	-1.67
14461.00	91.270	321.510	6537.96	7984.43	5806.35	-5537.29	1269321.24	347081.25	40°15'31.9530"N	80°15'19.8842"W	8023.42	316.359	0.23	0.00	-0.23
14556.00	91.520	321.910	6535.65	8079.40	5880.90	-5596.14	1269262.39	347155.79	40°15'32.6728"N	80°15'20.6703"W	8117.99	316.421	0.50	0.26	0.42
14651.00	91.610	321.830	6533.06	8174.36	5955.60	-5654.78	1269203.76	347230.49	40°15'33.3943"N	80°15'21.4536"W	8212.53	316.484	0.13	0.09	-0.08
14746.00	91.670	322.100	6530.34	8269.32	6030.39	-5713.29	1269145.25	347305.28	40°15'34.1167"N	80°15'22.2354"W	8307.06	316.547	0.29	0.06	0.28
14841.00	90.530	321.930	6528.48	8364.30	6105.25	-5771.74	1269086.80	347380.14	40°15'34.8397"N	80°15'23.0165"W	8401.61	316.608	1.21	-1.20	-0.18
14936.00	90.720	322.110	6527.48	8459.30	6180.13	-5830.20	1269028.34	347455.02	40°15'35.5630"N	80°15'23.7976"W	8495.19	316.669	0.28	0.20	0.19
15031.00	90.990	321.790	6526.06	8554.29	6254.93	-5888.75	1268969.80	347529.81	40°15'36.2854"N	80°15'24.5799"W	8590.78	316.727	0.44	0.28	-0.34
15127.00	91.050	321.370	6524.35	8650.27	6330.13	-5948.39	1268910.15	347605.01	40°15'37.0115"N	80°15'25.3765"W	8686.42	316.781	0.44	0.06	-0.44
15222.00	90.470	321.780	6523.09	8745.26	6404.55	-6007.43	1268851.12	347679.43	40°15'37.7301"N	80°15'26.1649"W	8781.09	316.833	0.75	-0.61	0.43
15317.00	90.380	321.620	6522.39	8840.25	6479.10	-6066.31	1268792.24	347753.98	40°15'38.4500"N	80°15'26.9513"W	8875.74	316.885	0.19	-0.09	-0.17
15412.00	90.720	321.770	6521.47	8935.25	6553.65	-6125.19	1268733.36	347828.52	40°15'39.1698"N	80°15'27.7379"W	8970.41	316.935	0.39	0.36	0.16
15507.00	90.870	321.580	6520.16	9030.24	6628.17	-6184.10	1268674.46	347903.04	40°15'41.3529"N	80°15'28.5247"W	9065.08	316.985	0.25	0.16	-0.20
15602.00	91.640	324.000	6518.07	9125.20	6703.80	-6241.53	1268617.03	347978.67	40°15'40.8204"N	80°15'29.2929"W	9159.56	317.045	2.67	0.81	2.55
15697.00	90.750	321.870	6516.09	9220.16	6779.59	-6298.77	1268559.79	348054.45	40°15'40.0587"N	80°15'30.0587"W	9254.04	317.105	2.43	-0.94	-2.24
15792.00	91.950	322.040	6513.85	9315.13	6854.38	-6357.30	1268501.26	348129.24	40°15'42.0753"N	80°15'30.8408"W	9348.68	317.155	1.28	1.26	0.18
15887.00	90.840	321.750	6511.54	9410.10	6929.11	-6415.91	1268442.66	348203.97	40°15'42.7970"N	80°15'31.6238"W	9443.33	317.202	1.21	-1.17	-0.31
15982.00	90.690	321.620	6510.27	9505.09	7003.64	-6474.80	1268383.76	348278.50	40°15'43.5167"N	80°15'32.4105"W	9538.03	317.247	0.21	-0.16	-0.14
16077.00	90.650	322.020	6509.16	9600.08	7078.31	-6533.52	1268325.05	348353.17	40°15'44.2378"N	80°15'33.1950"W	9632.72	317.292	0.42	-0.04	0.42



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986
Page 8 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

WELLPATH DATA (222 stations)

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [F/100ft]	Build Rate [F/100ft]	Turn Rate [F/100ft]
16172.00	90.900	321.970	6507.88	9695.07	7153.16	-6592.01	1268206.56	348428.01	40°15'44.9607"N	80°15'33.9765"W	9727.40	317.338	0.27	0.26	-0.05
16267.00	90.810	321.850	6506.46	9790.06	7227.92	-6650.60	1268207.96	348502.77	40°15'45.6828"N	80°15'34.7595"W	9822.09	317.382	0.16	-0.09	-0.13
16362.00	90.750	321.940	6505.17	9885.05	7302.67	-6709.22	1268149.35	348577.52	40°15'46.4046"N	80°15'35.5428"W	9916.79	317.425	0.11	-0.06	0.09
16456.00	90.220	321.900	6504.37	9979.05	7376.35	-6767.58	1268090.99	348651.20	40°15'47.1161"N	80°15'36.3223"W	10010.53	317.465	0.88	-0.56	-0.68
16551.00	90.440	321.940	6503.82	10074.04	7450.82	-6826.57	1268032.01	348725.67	40°15'47.8351"N	80°15'37.1101"W	10105.28	317.504	0.71	0.23	0.67
16645.00	90.530	321.700	6503.03	10168.04	7524.71	-6884.67	1267973.91	348799.55	40°15'48.5487"N	80°15'37.8863"W	10199.02	317.543	0.27	0.10	-0.26
16740.00	90.870	322.000	6501.87	10263.03	7599.41	-6943.35	1267915.23	348874.25	40°15'49.2701"N	80°15'38.6704"W	10293.74	317.583	0.48	0.36	0.32
16834.00	90.690	321.800	6500.59	10357.02	7673.38	-7001.34	1267857.24	348948.21	40°15'49.9844"N	80°15'39.4453"W	10387.47	317.622	0.29	-0.19	-0.21
16929.00	90.720	321.570	6499.42	10452.01	7747.91	-7060.24	1267798.35	349022.74	40°15'50.7041"N	80°15'40.2320"W	10482.23	317.659	0.24	0.03	-0.24
17023.00	90.900	321.760	6498.09	10546.00	7821.64	-7118.54	1267740.05	349096.47	40°15'51.4160"N	80°15'41.0108"W	10575.99	317.694	0.28	0.19	0.20
17118.00	91.330	321.740	6496.24	10640.98	7896.23	-7177.34	1267681.25	349171.05	40°15'52.1363"N	80°15'41.7964"W	10670.74	317.730	0.45	0.45	-0.02
17212.00	91.210	321.740	6494.16	10734.96	7970.02	-7235.53	1267623.06	349244.84	40°15'52.8488"N	80°15'42.5738"W	10764.48	317.765	0.13	-0.13	0.00
17307.00	90.650	322.010	6492.62	10829.95	8044.74	-7294.17	1267564.42	349319.56	40°15'53.5704"N	80°15'43.3574"W	10859.23	317.801	0.65	-0.59	0.28
17402.00	90.750	321.860	6491.46	10924.94	8119.53	-7352.74	1267505.85	349394.35	40°15'54.2927"N	80°15'44.1400"W	10953.98	317.837	0.19	0.11	-0.16
17496.00	90.220	321.570	6490.66	11018.93	8193.31	-7410.98	1267447.62	349468.13	40°15'55.0052"N	80°15'44.9180"W	11047.76	317.870	0.64	-0.56	-0.31
17591.00	90.750	321.750	6489.86	11113.93	8267.82	-7469.91	1267388.69	349542.63	40°15'55.7246"N	80°15'45.7052"W	11142.55	317.902	0.59	0.56	0.19
17686.00	90.840	321.860	6488.54	11208.92	8342.48	-7528.65	1267329.95	349617.29	40°15'56.4455"N	80°15'46.4900"W	11237.32	317.935	0.15	0.09	0.12
17780.00	91.980	322.460	6486.22	11302.89	8416.69	-7586.29	1267272.31	349691.49	40°15'57.1623"N	80°15'47.2606"W	11331.04	317.970	1.37	1.21	0.64
17875.00	90.990	321.850	6483.76	11397.85	8491.68	-7644.56	1267214.05	349766.48	40°15'57.8867"N	80°15'48.0394"W	11425.75	318.005	1.22	-1.04	-0.64
17970.00	91.020	321.610	6482.10	11492.84	8566.25	-7703.39	1267155.22	349841.05	40°15'58.6068"N	80°15'48.8254"W	11520.54	318.036	0.25	0.03	-0.25
18065.00	90.280	321.440	6481.02	11587.83	8640.62	-7762.49	1267096.12	349915.42	40°15'59.3248"N	80°15'49.6148"W	11615.36	318.064	0.80	-0.78	-0.18
18160.00	90.780	321.430	6480.14	11682.82	8714.90	-7821.71	1267036.90	349989.69	40°16'00.0418"N	80°15'50.4057"W	11710.19	318.092	0.53	0.53	-0.01
18254.00	90.900	321.760	6478.76	11776.81	8788.55	-7880.10	1266978.51	350063.35	40°16'00.7529"N	80°15'51.1866"W	11804.01	318.120	0.37	0.13	0.35
18349.00	90.930	321.640	6477.25	11871.79	8863.10	-7938.97	1266919.65	350137.89	40°16'01.4727"N	80°15'51.9722"W	11898.81	318.148	0.13	0.03	-0.13
18444.00	90.990	321.950	6475.65	11966.78	8937.74	-7997.72	1266860.90	350212.53	40°16'02.1935"N	80°15'52.7571"W	11993.61	318.177	0.33	0.06	0.33
18539.00	91.150	321.720	6473.88	12061.76	9012.42	-8056.41	1266802.21	350287.20	40°16'02.9146"N	80°15'53.5414"W	12088.40	318.206	0.29	0.17	-0.24
18634.00	90.620	321.850	6472.41	12156.75	9087.05	-8115.17	1266743.45	350361.83	40°16'03.6353"N	80°15'54.3265"W	12183.20	318.234	0.57	-0.56	0.14
18728.00	90.590	321.250	6471.42	12250.74	9160.66	-8173.62	1266685.00	350435.44	40°16'04.3460"N	80°15'55.1072"W	12277.04	318.259	0.64	-0.03	-0.64
18823.00	90.620	321.300	6470.42	12345.73	9234.77	-8233.05	1266625.58	350509.55	40°16'05.0613"N	80°15'55.9008"W	12371.91	318.282	0.06	0.03	0.05
18918.00	90.380	321.190	6469.59	12440.72	9308.85	-8292.51	1266566.11	350583.63	40°16'05.7763"N	80°15'56.6948"W	12466.78	318.305	0.28	-0.25	-0.12



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986

Page 9 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

WELLPATH DATA (222 stations) † = interpolated, ‡ = extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Closure Dist [ft]	Closure Dir [°]	DLS [°/100ft]	Build Rate [°/100ft]	Turn Rate [°/100ft]
19013.00	91.300	320.930	6468.19	12535.69	9382.73	-8352.21	1266506.42	350657.51	40°16'6.4893"N	80°15'57.4918"W	12561.66	318.326	1.01	0.97	-0.27
19107.00	91.180	321.920	6466.16	12629.66	9456.20	-8410.81	1266447.82	350730.97	40°16'7.1986"N	80°15'58.2744"W	12655.50	318.349	1.06	-0.13	1.05
19202.00	90.620	321.520	6464.67	12724.65	9530.77	-8469.66	1266388.98	350805.54	40°16'7.9185"N	80°15'59.0607"W	12750.32	318.374	0.72	-0.59	-0.42
19297.00	90.590	321.860	6463.67	12819.64	9605.31	-8528.55	1266330.09	350880.07	40°16'8.6383"N	80°15'59.8474"W	12845.16	318.398	0.36	-0.03	0.36
19392.00	90.410	321.200	6462.84	12914.64	9679.68	-8567.64	1266270.99	350954.45	40°16'9.3563"N	80°16'0.6369"W	12940.01	318.421	0.72	-0.19	-0.69
19487.00	90.560	321.340	6462.03	13009.62	9753.79	-8647.08	1266211.56	351028.55	40°16'10.0716"N	80°16'1.4305"W	13034.89	318.442	0.22	0.16	0.15
19582.00	90.720	321.700	6460.97	13104.61	9828.15	-8706.19	1266152.46	351102.91	40°16'10.7895"N	80°16'2.2201"W	13129.75	318.464	0.41	0.17	0.38
19676.00	90.750	322.060	6459.76	13198.61	9902.10	-8764.21	1266094.44	351176.85	40°16'11.5036"N	80°16'2.9955"W	13223.58	318.488	0.38	0.03	0.38
19771.00	90.720	321.320	6458.55	13293.60	9976.64	-8823.10	1266035.55	351251.39	40°16'12.2232"N	80°16'3.7823"W	13318.42	318.511	0.78	-0.03	-0.78
19866.00	90.650	321.990	6457.41	13388.59	10051.14	-8882.03	1265976.62	351325.99	40°16'12.9425"N	80°16'4.5696"W	13413.27	318.533	0.71	-0.07	0.71
19961.00	90.750	322.020	6456.25	13483.58	10126.00	-8940.51	1265918.14	351400.74	40°16'13.6655"N	80°16'5.3513"W	13508.09	318.558	0.11	0.11	0.03
19986.00‡	90.750	322.020	6455.92	13508.58	10145.70	-8955.89	1265902.76	351420.45	40°16'13.8558"N	80°16'5.5569"W	13533.04	318.564	0.00	0.00	0.00

HOLE & CASING SECTIONS - Ref Wellbore: BIRD RUN 10938 3H AWB Ref Wellpath: BIRD RUN 10938 3H AWP Proj: 19986

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
26in Conductor	26.00	67.00	41.00	26.00	67.00	0.00	0.00	0.03	0.17
24in Open Hole	67.00	240.00	173.00	67.00	239.98	0.03	0.17	-1.41	1.85
18.625in Casing Surface	26.00	220.00	194.00	26.00	219.99	0.00	0.00	-1.22	1.64
17.5in Open Hole	240.00	316.00	76.00	239.98	315.97	-1.41	1.85	-2.17	2.79
13.375in Casing	26.00	296.00	270.00	26.00	295.98	0.00	0.00	-1.97	2.55
12.25in Casing Intermediate	316.00	1694.00	1378.00	315.97	1693.91	-2.17	2.79	-9.78	8.82
9.625in Casing Intermediate	26.00	1674.00	1648.00	26.00	1673.91	0.00	0.00	-9.78	8.64
8.75in Open Hole	1694.00	6376.00	4682.00	1693.91	6270.07	-9.78	8.82	-440.59	-667.13
8.5in Open Hole	6376.00	19986.00	13610.00	6270.07	6455.92	-440.59	-667.13	10145.70	-8955.89
5.5in Casing Production	26.00	19986.00	19960.00	26.00	6455.92	0.00	0.00	10145.70	-8955.89



Actual Wellpath Report

BIRD RUN 10938 3H AWP Proj: 19986'

Page 10 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
BIRD RUN 10938 3H BHL Rev-4	6513.16	10151.55	-8950.07	1265908.58	351426.29	40°16'13.9152"N	80°16'5.4840"W	point
BIRD RUN 10938 3H LP Rev-4	6648.00	5.83	-1026.66	1273831.71	341280.94	40°14'35.9160"N	80°14'19.6188"W	point

WELLPATH COMPOSITION - Ref Wellbore: BIRD RUN 10938 3H AWB Ref Wellpath: BIRD RUN 10938 3H AWP Proj: 19986'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	265.00	Gyrodatta 2015 - GC+WIR+DPIPE	01 - Gyrodatta MS Gyro <17-1/2"> (50'-250')	BIRD RUN 10938 3H AWB	3/14/2025
265.00	1589.00	OWSG MWD rev2 + IFR1 + Sag Correction	02 - Total MWD+SuperiorQC IFR1+Sag <12-1/4"> (250')(318'-1574')	BIRD RUN 10938 3H AWB	3/14/2025
1589.00	2355.00	OWSG MWD rev2 + IFR1 + Sag Correction	03 - Total MWD+SuperiorQC IFR1+Sag <8-3/4"> (1574')(1688'-2340')	BIRD RUN 10938 3H AWB	3/14/2025
2355.00	6294.00	OWSG MWD rev2 + IFR1 + Sag + Multi-Station Correction	04 - Total MWD+SuperiorQC IFR1+Sag+FDIR <8-3/4"> (2340')(2429'-6279')	BIRD RUN 10938 3H AWB	3/14/2025
6294.00	19986.00	OWSG MWD rev2 + IFR1 + Sag + Multi-Station Correction	05 - BH Lucida+SuperiorQC IFR1+Sag+FDIR <8-1/2"> (6294')(6396'-19961')	BIRD RUN 10938 3H AWB	4/14/2025



Actual Wellpath Report
 BIRD RUN 10938 3H AWP Proj: 19986'
 Page 11 of 11



REFERENCE WELLPATH IDENTIFICATION			
Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 3H
Field	Washington	API	37-125-29195-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 3H AWB
Slot	Slot #03		

COMMENTS
<p>Wellpath general comments API: 37-125-29195-0000 BH Job #: 112639170 Rig: Patterson 876 Duration: 4/17/2025-4/21/2025 Gyrodatta MS Gyro <17-1/2"> (50'-250') Total MWD+SuperiorQC IFR1+Sag <12-1/4"> (250')(318'-1574') Total MWD+SuperiorQC IFR1+Sag <8-3/4"> (1574')(1688'-2340') Total MWD+SuperiorQC IFR1+Sag+FDIR <8-3/4"> (2340')(2429'-6279') BH Lucida+SuperiorQC IFR1+Sag+FDIR <8-1/2"> (6294')(6396'-19961') Projected MD at TD: 19986'</p>

Teresa Matinko

From: Jason Hicks
Sent: Monday, May 19, 2025 12:23 PM
To: Teresa Matinko
Cc: Laura Rusmisel; Melissa Shaughnessy; Leagha Courtney
Subject: Well Record - BIRD RUN 3H
Attachments: WR BIRD RUN 10938 3H Final.pdf

Good Afternoon,

The well record for the **BIRD RUN 3H** is attached and has been submitted to the DEP via Greenport today; eSubmission confirmation below:



Josh Shapiro, Governor

eSubmission

Submission details:

Submission: Well Record (Unconventional - non-vertical well)

Submitted: 5/19/2025 12:20:27 PM

Status: Submitted

County: Washington

Municipality: Chartiers Township

Region: EP DOGO SWDO Dstr Off

Primary_Facility_Id: 880860

WellAPI: 125-29195

User: HICKSJN

Operator: 60915 - RANGE RESOURCES APPALACHIA LLC

Files attached:

File	Document_Type	Description
WR BIRD RUN 10938 3H Final.pdf	Well Record (Unconventional)	

Thank you,

Jason Hicks

Drilling Engineering Tech II

Office: 724.743.5232 -- Cell: 724.993.7173

Email: jhicks@rangeresources.com

Range Resources-Appalachia, LLC
3000 Town Center Boulevard
Canonsburg, PA 15317

