



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

DEP USE ONLY	
Auth No. 1564371	APS No # 1128612
Site No. 789933	PF No. 880728
Client No. 141142	SF No. 1436286

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. 37-125-29190	
Address 3000 Town Center Blvd.			Well Farm Name Bird Run 10938	Well No. 14H
City Canonsburg	State PA	Zip Code 15317	County Washington	Municipality Chartiers Twp
Telephone No. 724/743-6700	Fax No. 724/743-6790	Bond Instrument No. 6855	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 <i>Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells</i> , 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."
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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, 489 (sacks)
13.375"	276'	Tubing or Production Casing Pressure (current): 0 (psi)
9.625"	1650'	If an oil well, state the depth to fluid in the surface casing:
Tubing or production casing diameter: 5.5"	Tubing or production casing length: 17574'	Annulus Pressure (current - between tubing or production casing and surface casing): 0(psi)
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 <i>Guidelines for Chain Pillar Development and Longwall Mining Adjacent to Unconventional Wells</i> , 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."
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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.


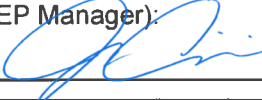
Conditional Inactive Status Checklist	For unconventional wells drilled in anticipated chain pillar locations that are being temporarily inactivated to accommodate planned, adjacent longwall mining, please provide the items included in the checklist below in addition to this application. More specific 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:  Date: <u>3/31/2026</u>	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Denied	by (DEP Manager):  Date: <u>5/5/2026</u>	Date: _____
Print or type signer's name and title: <u>JEREMY MATINKO VP-ENV. COMP.</u>			



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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.) 37-125-29190-00-00	Farm Name BIRD RUN 10938	Well # 14H
Address 3000 Town Center Blvd		Latitude (DD) 40.243210 Longitude (DD) -80.235124	Project Number	Serial #
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 6740' <input checked="" type="checkbox"/> Rotary - Mud 17594' <input type="checkbox"/> Cable Tool ' <input type="checkbox"/> Other '	
Drilling Started 02/05/2025	Surface Elev. 1261 ft.
Drilling Complete 04/03/2025	True Vertical Depth 6745 ft.
Date Well Completed 04/06/2025	Total Measured Depth 17594 ft.
	GW Depth - None observed
	Depth of DFGW - None observed
	DFGW decided by: 6

CEMENT

Cement returned on surface casing? Yes No
 Cement returned on coal protective casing? Yes No
 Cement returned on intermediate casing? Yes No

If No, provide depth to top of cement and method used to determine: NA

Casing String	Type/Class of Cement (Lead/Tail)	Slurry Temp F°	Amount of Cement (sacks) (Lead/Tail/Total)	WOC hrs	Wt ppg	Yield #/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	57°	489 / 0 / 489	8	15.6	1.15		
Coal Protective	Class L	65°	469 / 0 / 469	8	15.7	1.24		
Intermediate	Class L	57°	620 / 0 / 620	8	15.7	1.23		
Production	Class A	91°	0 / 2629 / 2629	8	15.0	1.29		
If additional strings attach form(s)			Total: 4315					

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				02/05/2025
24"	18.625"	87.5#	J-55	T (BTC) - N	201	UK	Y	See Attached			02/11/2025
17.5"	13.375"	54.5#	J-55	T (BTC) - N	276	US	Y	See Attached			02/12/2025
12.25"	9.625"	40.0#	J-55	T (LTC) - N	1650	US	Y	See Attached			02/14/2025
8.75" & 8.625" & 8.5"	5.5"	20.0#	HP P-110	T (GBCD) - N	17574	US	Y	See Attached			04/06/2025

PLUG-BACK/WELLBORE ALTERATION

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

LOG OF FORMATIONS

US Well No. (API No.): 37-125-29190-00-00

(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

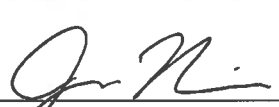
Continued on next page

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 Date: 05/02/2025		Reviewed by:	
Address				Comments:	
City - State- Zip					
Phone					

LOG OF FORMATIONS

US Well No. (API No.): 37-125-29190-00-00

(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

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Name See Attachment	Rig	 Printed Name / Title: Jon Hinson / Sr. Drilling Engineer Date: 05/02/2025		Reviewed by:	
Address				Comments:	
City - State- Zip					
Phone					

LOG OF FORMATIONS

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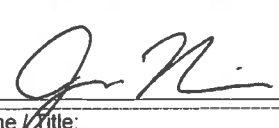
Formation Name or Lithology	Top (feet)	Bottom (feet)	Gas at (feet)	Oil at (feet)	Water at (fresh / brine; ft.)	Source of Data
Silt/Shale	5199	6522				Mudlog
Rhinestreet	6522	6729	6522			Mudlog
Cashaqua	6729	6847				MWD
Middlesex	6847	6918	6847			MWD
Genesee	6918	7001				MWD
Burket	7001	7048	7001			MWD
Tully	7048	7110				MWD
Mahantango	7110	7233	7110			MWD
Marcellus	7233	17594	7233			MWD
Driller's TD		17594				Driller's Log

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

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See Attachment	Name See Attachment	See Attachment	See Attachment
	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: 05/02/2025		Reviewed by:	
Address				Comments:	
City - State - Zip					
Phone					



API# 37-125-29190-00-00

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 6,740'

Patterson UTI Drilling Co. LLC - 876
10713 W. Sam Houston Parkway N, Suite 800
Houston, Texas 77064
Fax: 281-766-7176
From 6,740' to 17,594'

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



RANGE RESOURCES®

API# 37-125-29190-00-00

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



RANGE RESOURCES®

API# 37-125-29190-00-00

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

Wellbore Conditioning Attachment

Surface:

Pump 110 bbl of fresh water to break circulation (circulated 25 bbl early), 25 bbl gel spacer, 10 bbl defoamer.

Coal Protective:

Pump 110 bbl water, hole did not circulate. Run wire line, tag water at 220'. Pump 10 bbl fresh water, run wireline and tag water at 220'.

Intermediate:

Pump 134 bbls of polished water to clear the pipe, 25 bbls Gel (500#) bentonite.

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 88 bbl (489 sacks) of 15.6 ppg cement. Displaced cement with 50 bbl of fresh water. Circulated 20 bbl of cement to surface. Water temperature 40°F, slurry temperature 57°F. Float held with 0.5 bbl flow back to truck.

Coal Protective:

Mix and pump 22 bbl (100 sacks) of 16.0 ppg cement. Run wire line and tag cement @ 220'. Mix and pump 5 bbl (28 sacks) of 15.7 ppg cement down back side, wait 1 hr. Mix and pump 5 bbl (28 sacks) 15.7 ppg cement down back side, wait 1 hr. Mix and pump 25 bbl (113 sacks) 15.7 ppg cement down backside, wait 1hr. Mix and pump 15bbl (68 sacks) down backside – 5 bbl back to surface. Total 72 bbl cement/ 469 sacks.

Intermediate:

Mix and pump 135 bbl (620 sacks) of Class A cement. Displaced with 120 bbl water. Circulated 30 bbl of cement to surface. Floats held. Returned 1 bbl to truck. Maintained circulation throughout job. Water temperature 44°F, slurry temperature 57°F.

Production:

Schlumberger pumped 75bbl of 13.5 ppg MudPush Express with Surfactant, 180 bbl of 13.5 ppg MudPush Express without surfactant, and 590 bbl 15.0 ppg Tail Cement (604bbl / 2629 sacks). Displaced plug with 395 bbl of fresh water. Landed plug at 3.9bpm and 2,646 psi, bumped pressure to 3208 psi. Held pressure for 5 minutes, checked floats, released pressure, 4.5 bbl returned to surface. Floats held. Maintained circulation throughout job, 81 bbl spacer returned to surface. Water temperature 81° F, slurry temperature 91° F.



API# 37-125-29190-00-00

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 199'. Ran 5 bow spring centralizers every joint from 158' to 25'.

Coal Protective:

Run 7 full joints 13 3/8" 54.5# J-55 BTC casing set at 276'. Top of float shoe set at 274'. Cement baskets set at 228' and 223'. Ran 6 bow spring centralizers every joint from 232' to 25'.

Intermediate:

Run 39 joints of 9 5/8" 40.0# J-55 LTC casing set at 1,650'. Top of float shoe set at 1,648'. Float collar set at 1,561'. Ran 20 bow spring centralizers every other joint from 1,605 to 26'. Ran a total of 37 centralizers.

Production:

Run 397 joints of 5 1/2" 20.0# HP P-110 GBCD casing set at 17,574'. Top of float shoe set at 17,570'. (2) centralized pup joints set at 17,538 and 17,503'. Toe sleeves set at 17,534' and 17,499'. Marker joints set at 15,609', and 6,727'. Flootation device set at 7,710'. Ran 288 - 8.0" Solid Body Composite centralizer every full-length joint from 17,454' to 4,826'. Ran a total of 290 centralizers.

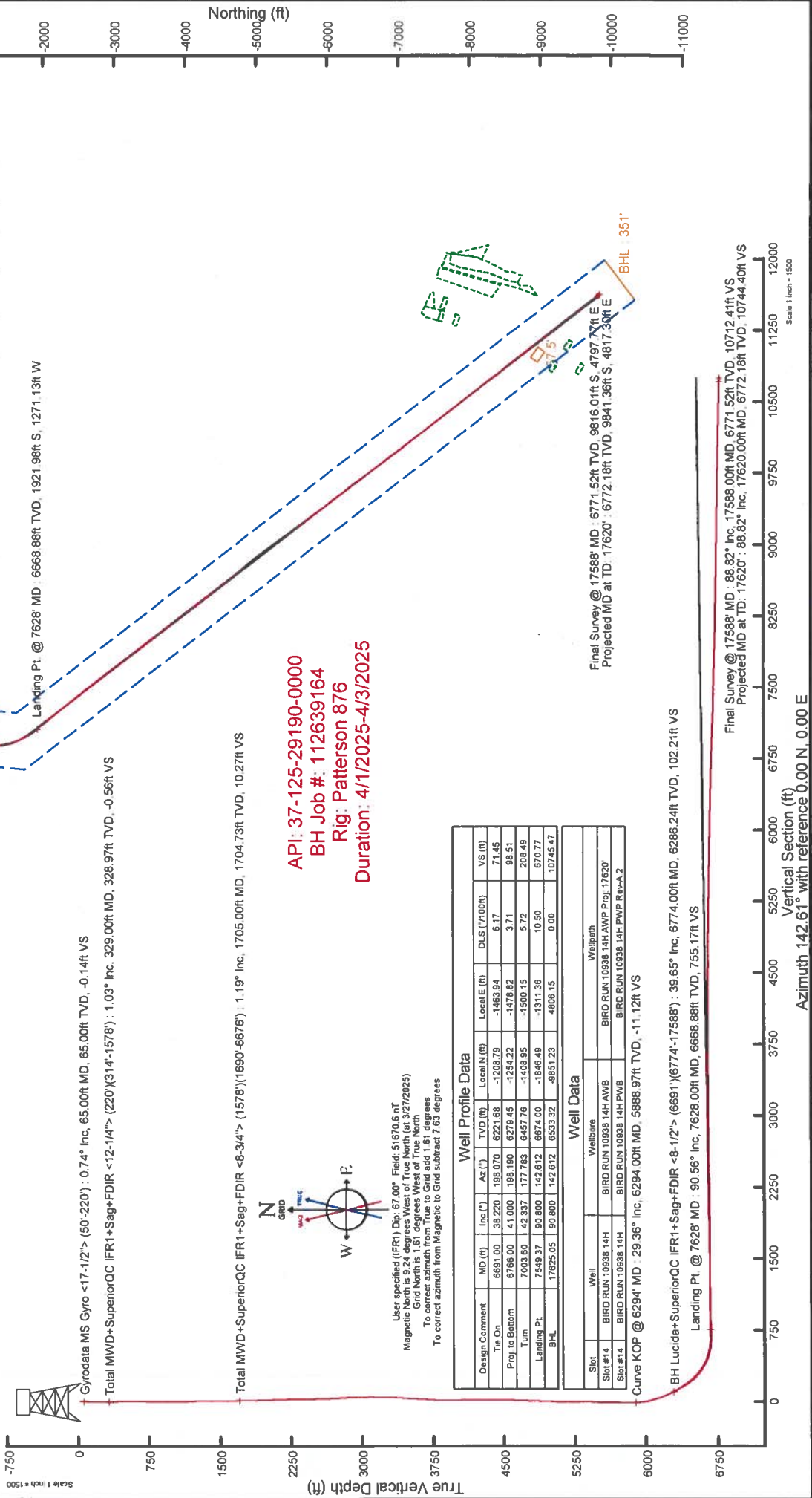
RANGE RESOURCES APPALACHIA, LLC

Location: Washington County, PA
 Field: Washington
 Facility: BIRD RUN 10938 Pad

Slot: Slot #14
 Well: BIRD RUN 10938 14H
 Wellbore: BIRD RUN 10938 14H PWB

Grid System: NAD83 / Lambert Conformal Conic Projection (NAD83) US Feet
North Reference: Grid North
Scale: True distance
Coordinates are in feet, referenced to Slot
Depths are in feet
Created by: Wellbore on 2025-04-03, Database: WA_WB_ELASTICUS_DWH

Location Information			
Facility Name	Grid East (US ft)	Grid North (US ft)	Longitude
BIRD RUN 10938 Pad	1274901.031	341286.783	80°14'36.3700"N
Local N (ft)	Local E (ft)	Grid North (US ft)	Longitude
Slot #14	-81.05	341215.740	80°14'35.5557"N
Patterson 876 (RKB) to Ground level (At Slot: Slot #14)	-49.30	1274851.730	26ft
Mean Sea Level to Ground level (At Slot: Slot #14)			-128.1ft
Patterson 876 (RKB) to Mean Sea Level			128.7ft



API: 37-125-29190-0000
 BH Job #: 112639164
 Rig: Patterson 876
 Duration: 4/1/2025-4/3/2025

User specified (IFR1) Dip: 67.00° Field: 51670.6 mT
 Magnetic North is 9.24 degrees West of True North (at 3/27/2025)
 Grid North is 1.61 degrees West of True North
 To correct azimuth from True to Grid add 1.61 degrees
 To correct azimuth from Magnetic to Grid subtract 7.63 degrees

Well Profile Data								
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local E (ft)	Local N (ft)	DLS (7/100th)	VS (ft)
Tie On	6691.00	38.220	198.070	6921.68	-1208.79	-1463.94	6.17	71.45
Proj to Bottom	6768.00	41.000	198.190	6978.45	-1254.22	-1478.82	3.71	98.51
Turn	7003.60	42.337	177.783	6457.76	-1408.95	-1500.15	5.72	208.49
Landing Pt.	7549.37	90.800	142.612	6674.00	-1848.49	-1311.36	10.50	670.77
BHL	17625.05	90.800	142.612	6533.32	-8951.23	-4806.15	0.00	10745.47

Well Data			
Slot	Well	Wellbore	Wellpath
Slot #14	BIRD RUN 10938 14H	BIRD RUN 10938 14H AWB	BIRD RUN 10938 14H PWB
Slot #14	BIRD RUN 10938 14H	BIRD RUN 10938 14H PWB	BIRD RUN 10938 14H PWB Rev A.2

Curve KOP @ 6294' MD : 29.36° Inc, 6294.00ft MD, 5868.97ft TVD, -11.12ft VS
 BH Lucida+SuperiorQC IFR1+Sag+FDIR <-8-1/2'> : (6691°)(6774-17588) : 39.65° Inc, 6774.00ft MD, 6286.24ft TVD, 102.21ft VS
 Landing Pt @ 7628' MD : 90.56° Inc, 7628.00ft MD, 6668.88ft TVD, 755.17ft VS
 Final Survey @ 17588' MD : 88.82° Inc, 17588.00ft MD, 6771.52ft TVD, 10712.41ft VS
 Projected MD at TD: 17620' : 88.82° Inc, 17620.00ft MD, 6772.18ft TVD, 10744.40ft VS

Scale 1 inch = 1500

Vertical Section (ft)

Azimuth 142.61° with reference 0.00 N, 0.00 E



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

Page 1 of 11



REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Pennsylvania SP, Southern Zone (3702), US feet	Software System	WellArchitect® 6.0
North Reference	Grid	User	Edsanyar
Scale	0.999966	Report Generated	4/5/2025 at 4:44:27 PM
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	-81.05	-49.30	1274851.73	341215.74	40°14'35.5557"N	80°14'6.4461"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 #14)	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	142.61°



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

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REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH DATA (198 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]
0.00†	0.000	19.470	0.00	0.00	0.00	0.00	1274851.73	341215.74	40°14'35.5557"N	80°14'6.4461"W	0.00	0.000	0.00	0.00	0.00
26.00	0.000	19.470	26.00	0.00	0.00	0.00	1274851.73	341215.74	40°14'35.5557"N	80°14'6.4461"W	0.00	0.000	0.00	0.00	0.00
65.00	0.740	19.470	65.00	-0.14	0.24	0.08	1274851.81	341215.98	40°14'35.5581"N	80°14'6.4451"W	0.25	19.470	1.90	1.90	0.00
115.00	0.820	25.420	114.99	-0.48	0.87	0.35	1274852.08	341216.60	40°14'35.5644"N	80°14'6.4420"W	0.93	21.752	0.23	0.16	11.90
165.00	0.800	42.620	164.99	-0.70	1.45	0.74	1274852.47	341217.18	40°14'35.5702"N	80°14'6.4372"W	1.62	26.963	0.49	-0.04	34.40
215.00	0.920	56.320	214.98	-0.74	1.92	1.31	1274853.04	341217.66	40°14'35.5751"N	80°14'6.4300"W	2.33	34.151	0.47	0.24	27.40
235.00	0.950	59.880	234.98	-0.70	2.10	1.58	1274853.31	341217.84	40°14'35.5769"N	80°14'6.4265"W	2.63	37.044	0.33	0.15	17.80
329.00	1.030	55.570	328.97	-0.56	2.97	2.95	1274854.09	341218.71	40°14'35.5858"N	80°14'6.4091"W	4.19	44.883	0.12	0.09	-4.59
418.00	1.040	67.540	417.95	-0.31	3.73	4.36	1274856.09	341219.47	40°14'35.5937"N	80°14'6.3913"W	5.74	49.479	0.24	0.01	13.45
506.00	1.030	71.020	505.94	0.14	4.29	5.85	1274857.58	341220.03	40°14'35.5997"N	80°14'6.3723"W	7.25	53.734	0.07	-0.01	3.95
594.00	1.120	67.110	593.92	0.61	4.88	7.39	1274859.12	341220.62	40°14'35.6060"N	80°14'6.3527"W	8.85	56.544	0.13	0.10	-4.44
682.00	1.110	68.100	681.91	1.05	5.53	8.97	1274860.70	341221.27	40°14'35.6129"N	80°14'6.3325"W	10.54	58.330	0.02	-0.01	1.12
770.00	1.020	70.010	769.89	1.51	6.12	10.50	1274862.23	341221.86	40°14'35.6191"N	80°14'6.3130"W	12.15	59.760	0.11	-0.10	2.17
858.00	1.030	74.150	857.88	2.04	6.60	11.99	1274863.72	341222.34	40°14'35.6243"N	80°14'6.2939"W	13.69	61.166	0.08	0.01	4.70
946.00	0.960	70.560	945.86	2.55	7.06	13.45	1274865.18	341222.80	40°14'35.6292"N	80°14'6.2753"W	15.19	62.291	0.11	-0.08	-4.08
1034.00	1.020	72.110	1033.85	3.04	7.55	14.89	1274866.62	341223.29	40°14'35.6344"N	80°14'6.2569"W	16.69	63.113	0.07	0.07	1.76
1122.00	1.000	79.080	1121.84	3.65	7.94	16.39	1274868.12	341223.68	40°14'35.6387"N	80°14'6.2377"W	18.21	64.163	0.14	-0.02	7.92
1210.00	1.110	84.880	1209.82	4.44	8.16	17.99	1274869.72	341223.90	40°14'35.6413"N	80°14'6.2172"W	19.75	65.611	0.17	0.12	6.59
1298.00	1.110	79.880	1297.81	5.29	8.38	19.68	1274871.41	341224.12	40°14'35.6440"N	80°14'6.1955"W	21.39	66.927	0.11	0.00	-5.68
1386.00	1.010	87.570	1385.79	6.12	8.57	21.29	1274873.02	341224.31	40°14'35.6463"N	80°14'6.1747"W	22.95	68.087	0.20	-0.11	8.74
1475.00	1.080	83.020	1474.78	7.00	8.70	22.91	1274874.64	341224.44	40°14'35.6480"N	80°14'6.1540"W	24.51	69.204	0.12	0.08	-5.11
1563.00	1.230	100.240	1562.76	8.12	8.63	24.66	1274876.39	341224.37	40°14'35.6479"N	80°14'6.1313"W	26.13	70.706	0.43	0.17	19.57
1593.00	1.190	94.040	1592.75	8.56	8.55	25.29	1274877.02	341224.29	40°14'35.6473"N	80°14'6.1232"W	26.70	71.312	0.46	-0.13	-20.67
1705.00	1.190	106.820	1704.73	10.27	8.14	27.56	1274879.29	341223.88	40°14'35.6438"N	80°14'6.0938"W	28.74	73.555	0.24	0.00	11.41
1749.00	0.990	105.540	1748.72	10.95	7.90	28.37	1274880.10	341223.64	40°14'35.6417"N	80°14'6.0833"W	29.45	74.434	0.46	-0.45	-2.91
1837.00	1.820	180.150	1836.70	12.66	6.30	29.10	1274880.83	341222.04	40°14'35.6261"N	80°14'6.0734"W	29.77	77.781	2.08	0.94	84.78
1925.00	3.060	189.460	1924.62	15.38	2.59	28.71	1274880.44	341218.33	40°14'35.5893"N	80°14'6.0770"W	28.82	84.852	1.47	1.41	10.58
2004.00	4.410	211.560	2003.45	17.91	-2.08	26.77	1274878.50	341213.66	40°14'35.5426"N	80°14'6.1003"W	26.85	94.447	2.47	1.71	27.97
2092.00	4.440	205.150	2091.19	20.70	-8.05	23.55	1274875.28	341207.69	40°14'35.4828"N	80°14'6.1396"W	24.89	108.867	0.56	0.03	-7.28
2180.00	4.540	207.410	2178.92	23.75	-14.22	20.50	1274872.23	341201.52	40°14'35.4209"N	80°14'6.1767"W	24.95	124.753	0.23	0.11	2.57



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

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REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH DATA (198 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]
2268.00	6.600	221.000	2266.50	26.25	-21.13	15.58	1274867.31	341194.61	40°14'35.3513"N	80°14'6.2376"W	26.25	143.603	2.76	2.34	15.44
2357.00	8.910	227.130	2354.68	27.94	-29.68	7.17	1274858.90	341186.06	40°14'35.2845"N	80°14'6.3429"W	30.54	166.419	2.75	2.60	6.83
2445.00	10.900	230.350	2441.37	28.92	-39.63	-4.23	1274847.50	341176.11	40°14'35.1631"N	80°14'6.4863"W	39.86	186.095	2.35	2.28	3.66
2533.00	10.620	227.260	2527.82	30.00	-50.44	-16.59	1274835.14	341165.30	40°14'35.0528"N	80°14'6.6417"W	53.10	198.209	0.73	-0.32	-3.51
2621.00	12.460	222.340	2614.04	32.45	-62.96	-28.94	1274822.79	341152.78	40°14'34.9257"N	80°14'6.7964"W	69.30	204.688	2.37	2.09	-5.59
2710.00	14.110	219.830	2700.66	36.56	-78.39	-42.36	1274809.37	341137.35	40°14'34.7696"N	80°14'6.9637"W	89.11	208.385	1.96	1.85	-2.82
2798.00	16.130	221.580	2785.61	41.27	-95.78	-75.35	1274794.39	341119.97	40°14'34.5937"N	80°14'7.1506"W	111.63	210.911	2.35	2.30	1.99
2886.00	18.540	225.070	2869.61	45.45	-114.80	-75.37	1274763.37	341100.94	40°14'34.4007"N	80°14'7.3760"W	137.33	213.284	2.98	2.74	3.97
2964.00	20.290	228.760	2943.17	47.99	-132.48	-94.32	1274757.42	341083.26	40°14'34.2209"N	80°14'7.6138"W	162.62	215.448	2.74	2.24	4.73
3052.00	22.820	231.470	3025.01	49.35	-153.17	-119.14	1274732.59	341062.57	40°14'34.0096"N	80°14'7.9264"W	194.05	217.877	3.09	2.88	3.08
3140.00	25.280	232.910	3105.37	49.59	-175.14	-147.49	1274704.25	341040.61	40°14'33.7847"N	80°14'8.2837"W	228.97	220.101	2.87	2.80	1.64
3229.00	25.650	233.850	3185.72	49.07	-197.96	-178.20	1274673.54	341017.79	40°14'33.5507"N	80°14'8.6714"W	266.35	221.993	0.62	0.42	1.06
3317.00	26.680	235.380	3264.70	47.71	-220.42	-209.84	1274641.90	340995.33	40°14'33.3200"N	80°14'9.0710"W	304.33	223.591	1.40	1.17	1.74
3405.00	28.680	238.070	3342.63	44.74	-242.82	-244.02	1274607.72	340972.93	40°14'33.0893"N	80°14'9.5036"W	344.25	225.142	2.68	2.27	3.06
3493.00	29.870	240.360	3419.39	39.78	-264.82	-280.99	1274570.75	340950.93	40°14'32.8616"N	80°14'9.9721"W	386.12	226.697	1.86	1.35	2.60
3581.00	30.560	238.740	3495.44	34.43	-287.27	-319.16	1274532.58	340928.48	40°14'32.6293"N	80°14'10.4560"W	429.41	228.011	1.21	0.78	-1.84
3669.00	31.070	237.080	3571.02	30.28	-311.22	-357.35	1274494.39	340904.53	40°14'32.3821"N	80°14'10.9395"W	473.88	228.947	1.13	0.58	-1.89
3757.00	29.290	237.630	3647.09	26.62	-335.09	-394.60	1274457.15	340880.66	40°14'32.1360"N	80°14'11.4110"W	517.68	229.662	2.05	-2.02	0.63
3845.00	28.190	238.950	3724.24	22.44	-357.34	-430.59	1274421.16	340858.42	40°14'31.9062"N	80°14'11.8668"W	559.55	230.311	1.44	-1.25	1.50
3934.00	27.010	237.360	3803.12	18.45	-379.08	-465.62	1274386.13	340836.67	40°14'31.6817"N	80°14'12.3105"W	600.42	230.849	1.56	-1.33	-1.79
4022.00	25.310	235.380	3882.10	15.88	-400.55	-497.93	1274353.82	340815.21	40°14'31.4606"N	80°14'12.7191"W	639.04	231.186	2.17	-1.93	-2.25
4110.00	25.200	232.840	3961.69	14.90	-422.55	-528.34	1274323.41	340793.21	40°14'31.2348"N	80°14'13.1032"W	676.53	231.348	1.24	-0.13	-2.89
4277.00	24.950	230.740	4041.40	15.43	-445.61	-557.64	1274294.11	340770.14	40°14'30.9989"N	80°14'13.4725"W	713.81	231.371	1.05	-0.28	-2.39
4365.00	26.280	230.600	4112.63	16.59	-467.26	-584.06	1274267.70	340748.50	40°14'30.7777"N	80°14'13.8051"W	747.96	231.339	1.69	1.68	-0.18
4453.00	27.790	230.780	4191.02	17.93	-492.60	-615.00	1274236.75	340723.16	40°14'30.5188"N	80°14'14.1949"W	787.96	231.306	1.72	1.72	0.20
4541.00	28.820	231.110	4268.49	19.14	-518.89	-647.41	1274204.35	340696.87	40°14'30.2501"N	80°14'14.6030"W	829.69	231.288	1.18	1.17	0.38
4630.00	28.500	232.960	4345.71	19.56	-544.85	-680.68	1274171.08	340670.91	40°14'29.9844"N	80°14'15.0224"W	871.88	231.324	1.07	-0.36	2.10
4718.00	28.450	235.360	4423.95	18.42	-569.69	-715.07	1274136.69	340646.07	40°14'29.7294"N	80°14'15.4567"W	914.26	231.456	1.29	-0.06	2.70
4805.00	28.340	235.220	4501.36	16.46	-593.52	-749.47	1274102.29	340622.24	40°14'29.4844"N	80°14'15.8915"W	956.02	231.624	0.15	-0.12	-0.16
	27.990	233.850	4578.06	15.08	-617.34	-782.91	1274068.84	340598.42	40°14'29.2398"N	80°14'16.3139"W	997.03	231.744	0.85	-0.40	-1.57



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

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REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH DATA (198 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	28.300	236.580	4655.66	13.19	-641.01	-817.00	1274034.76	340574.75	40°14'28.9965"N	80°14'16.7447"W	1038.45	231.882	1.51	0.35	3.10
4982.00	28.290	237.190	4734.02	10.04	-664.06	-852.33	1273999.43	340551.70	40°14'28.7590"N	80°14'17.1918"W	1080.49	232.078	0.33	-0.01	0.69
5070.00	28.630	236.400	4811.39	6.98	-687.03	-887.42	1273964.34	340528.74	40°14'28.5224"N	80°14'17.6357"W	1122.29	232.254	0.58	0.39	-0.90
5158.00	29.070	237.870	4888.47	3.63	-710.07	-923.09	1273928.68	340505.70	40°14'28.2849"N	80°14'18.0871"W	1164.60	232.431	0.95	0.50	1.67
5246.00	28.820	235.210	4965.48	0.71	-733.54	-958.61	1273893.15	340482.23	40°14'28.0431"N	80°14'18.5366"W	1207.07	232.576	1.49	-0.28	-3.02
5334.00	28.840	234.340	5042.57	-0.90	-758.01	-993.28	1273858.49	340457.75	40°14'27.7917"N	80°14'18.9744"W	1249.47	232.651	0.48	0.02	-0.99
5422.00	29.520	236.000	5119.41	-2.82	-782.51	-1028.49	1273823.27	340433.26	40°14'27.5399"N	80°14'19.4195"W	1292.33	232.735	1.20	0.77	1.89
5511.00	28.950	233.780	5197.07	-4.56	-807.50	-1064.05	1273787.72	340408.27	40°14'27.2832"N	80°14'19.8687"W	1335.76	232.805	1.38	-0.64	-2.49
5590.00	25.160	232.920	5267.41	-5.04	-828.93	-1092.88	1273758.88	340386.84	40°14'27.0634"N	80°14'20.2326"W	1371.69	232.820	4.82	-4.80	-1.09
5678.00	24.830	231.900	5347.17	-4.91	-851.61	-1122.35	1273729.42	340364.16	40°14'26.8312"N	80°14'20.6041"W	1408.87	232.810	0.62	-0.38	-1.16
5765.00	27.440	233.960	5425.27	-5.16	-874.68	-1152.94	1273698.83	340341.09	40°14'26.5948"N	80°14'20.9901"W	1447.18	232.814	3.18	3.00	2.37
5853.00	29.010	233.280	5502.81	-5.88	-899.37	-1186.44	1273665.33	340316.40	40°14'26.3416"N	80°14'21.4129"W	1488.79	232.836	1.82	1.78	-0.77
5941.00	28.160	234.130	5580.08	-6.68	-924.30	-1220.37	1273631.40	340291.48	40°14'26.0859"N	80°14'21.8412"W	1530.89	232.860	1.07	-0.97	0.97
6030.00	28.130	236.750	5658.56	-8.75	-948.11	-1254.94	1273596.84	340267.67	40°14'25.8286"N	80°14'22.2781"W	1572.82	232.929	1.39	-0.03	2.94
6117.00	29.150	234.260	5734.92	-10.85	-971.73	-1289.29	1273562.49	340244.05	40°14'25.5982"N	80°14'22.7123"W	1614.47	232.995	1.80	1.17	-2.86
6206.00	29.750	231.840	5812.42	-11.17	-998.03	-1324.25	1273527.53	340217.74	40°14'25.3286"N	80°14'23.1534"W	1658.22	232.996	1.50	0.67	-2.72
6294.00	29.360	233.250	5888.97	-11.12	-1024.43	-1358.70	1273493.08	340191.34	40°14'25.0582"N	80°14'23.5879"W	1701.63	232.984	0.91	-0.44	1.60
6382.00	29.430	221.690	5965.70	-7.26	-1053.51	-1390.39	1273461.39	340162.27	40°14'24.7622"N	80°14'23.9858"W	1744.44	232.849	6.44	0.08	-13.14
6471.00	32.960	206.010	6041.95	7.75	-1091.67	-1415.60	1273436.18	340124.11	40°14'24.3782"N	80°14'24.2969"W	1787.64	232.362	9.92	3.97	-17.62
6559.00	34.970	203.240	6114.93	30.84	-1136.36	-1436.05	1273415.73	340079.42	40°14'23.9310"N	80°14'24.5442"W	1831.28	231.645	2.88	2.28	-3.15
6647.00	36.010	200.690	6186.59	56.89	-1183.74	-1455.15	1273396.64	340032.04	40°14'23.4577"N	80°14'24.7731"W	1875.82	230.872	2.06	1.18	-2.90
6691.00	38.220	198.070	6221.68	71.45	-1208.79	-1463.94	1273387.84	340007.00	40°14'23.2079"N	80°14'24.8773"W	1898.49	230.453	6.17	5.02	-5.95
6774.00	39.650	194.890	6286.24	102.21	-1258.79	-1478.71	1273373.07	339956.99	40°14'22.7098"N	80°14'25.0496"W	1941.94	229.593	2.96	1.72	-3.83
6869.00	40.990	186.090	6358.73	143.40	-1319.12	-1489.81	1273361.97	339896.67	40°14'22.1087"N	80°14'25.1707"W	1989.88	228.477	6.15	1.41	-9.26
6964.00	42.360	177.270	6429.75	192.38	-1382.13	-1491.60	1273360.19	339833.66	40°14'21.4879"N	80°14'25.1708"W	2033.50	227.182	6.34	1.44	-9.28
7058.00	47.770	170.850	6496.15	249.15	-1448.20	-1484.54	1273381.24	339767.59	40°14'20.8372"N	80°14'25.0559"W	2073.92	225.710	7.51	5.76	-6.83
7153.00	53.840	166.780	6556.18	315.21	-1520.34	-1470.16	1273381.62	339695.45	40°14'20.1286"N	80°14'24.8443"W	2114.91	224.039	7.20	6.39	-4.28
7248.00	64.630	162.260	6604.72	390.87	-1598.82	-1448.24	1273403.54	339616.98	40°14'19.3595"N	80°14'24.5332"W	2157.23	222.111	12.07	11.36	-4.76
7343.00	73.300	156.600	6638.81	475.66	-1681.67	-1417.01	1273434.77	339534.13	40°14'18.5498"N	80°14'24.1006"W	2199.08	220.118	10.68	9.13	-5.96
7438.00	81.140	152.000	6659.82	566.29	-1765.03	-1376.83	1273474.95	339450.77	40°14'17.7375"N	80°14'23.5523"W	2238.53	217.956	9.51	8.25	-4.84



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

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REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH DATA (198 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]
7533.00	88.680	146.020	6668.25	660.22	-1846.04	-1328.14	1273523.64	339369.76	40°14'16.9509"N	80°14'22.8953"W	2274.17	215.733	10.11	7.94	-6.29
7628.00	90.560	140.190	6668.88	755.17	-1921.98	-1271.13	1273580.64	339293.83	40°14'16.2167"N	80°14'22.1329"W	2304.30	213.479	6.45	1.98	-6.14
7723.00	90.650	141.370	6667.88	850.12	-1995.57	-1211.07	1273640.70	339220.24	40°14'15.5065"N	80°14'21.3320"W	2334.31	211.253	1.25	0.09	1.24
7818.00	90.750	140.610	6668.71	945.07	-2069.38	-1151.28	1273700.49	339146.43	40°14'14.7940"N	80°14'20.5345"W	2368.08	209.089	0.81	0.11	-0.80
7913.00	90.590	140.650	6665.60	1040.01	-2142.82	-1091.02	1273760.75	339073.00	40°14'14.0854"N	80°14'19.7311"W	2404.58	206.983	0.17	-0.17	0.04
8008.00	90.220	140.630	6664.93	1134.95	-2216.27	-1030.77	1273820.99	338999.55	40°14'13.3766"N	80°14'18.9279"W	2444.25	204.943	0.39	-0.39	-0.02
8103.00	90.130	141.790	6664.64	1229.92	-2290.32	-971.26	1273880.50	338925.51	40°14'12.6618"N	80°14'18.1340"W	2487.75	202.980	1.22	-0.09	1.22
8197.00	90.130	141.660	6664.43	1323.91	-2364.11	-913.03	1273938.73	338851.71	40°14'11.9490"N	80°14'17.3567"W	2534.29	201.117	0.14	0.00	-0.14
8292.00	90.160	141.600	6664.19	1418.89	-2438.59	-854.06	1273997.70	338777.24	40°14'11.2297"N	80°14'16.5695"W	2583.83	199.302	0.07	0.03	-0.06
8387.00	90.100	141.510	6663.97	1513.88	-2513.00	-795.00	1274056.76	338702.83	40°14'10.5112"N	80°14'15.7812"W	2635.75	197.555	0.11	-0.06	-0.09
8482.00	90.010	141.650	6663.88	1608.86	-2587.43	-735.96	1274115.79	338628.41	40°14'9.7924"N	80°14'14.9932"W	2690.06	195.878	0.18	-0.09	0.15
8577.00	90.100	142.610	6663.79	1703.86	-2662.42	-677.64	1274174.11	338553.42	40°14'9.0679"N	80°14'14.2144"W	2747.30	194.280	1.01	0.09	1.01
8672.00	90.600	142.550	6663.21	1798.85	-2737.87	-619.92	1274231.83	338477.97	40°14'8.3387"N	80°14'13.4429"W	2807.17	192.758	0.53	0.00	-0.06
8767.00	90.600	142.620	6662.22	1893.85	-2813.32	-562.20	1274289.55	338402.52	40°14'7.6094"N	80°14'12.6716"W	2868.94	191.301	0.07	0.00	0.07
8862.00	90.630	142.500	6661.20	1988.84	-2888.74	-504.45	1274347.30	338327.10	40°14'6.8804"N	80°14'11.9999"W	2932.46	189.905	0.13	0.03	-0.13
8957.00	90.630	142.410	6660.15	2083.84	-2964.06	-446.56	1274405.18	338251.79	40°14'5.1526"N	80°14'11.1265"W	2997.51	188.568	0.09	0.00	-0.09
9052.00	90.690	142.580	6659.06	2178.83	-3039.42	-388.73	1274463.02	338176.43	40°14'5.4242"N	80°14'10.3537"W	3064.18	187.288	0.19	0.00	0.18
9147.00	90.690	142.430	6657.91	2273.82	-3114.79	-330.91	1274520.83	338101.07	40°14'4.6958"N	80°14'9.5811"W	3132.31	186.064	0.16	0.00	-0.16
9242.00	90.600	142.470	6656.84	2368.82	-3190.10	-273.01	1274578.73	338025.75	40°14'3.9660"N	80°14'8.8076"W	3201.76	184.892	0.10	-0.09	0.04
9337.00	90.570	142.550	6655.87	2463.81	-3265.47	-215.20	1274636.54	337950.38	40°14'3.2395"N	80°14'8.0350"W	3272.56	183.770	0.09	-0.03	0.08
9432.00	90.690	142.710	6654.83	2558.81	-3340.97	-157.54	1274694.20	337874.89	40°14'2.5098"N	80°14'7.2645"W	3344.68	182.700	0.21	0.13	0.17
9527.00	90.720	142.690	6653.66	2653.80	-3416.53	-99.97	1274751.76	337799.33	40°14'1.7794"N	80°14'6.4952"W	3418.00	181.676	0.04	0.03	-0.02
9621.00	90.410	142.360	6652.73	2747.79	-3491.13	-42.79	1274808.95	337724.74	40°14'1.0584"N	80°14'5.7310"W	3491.39	180.702	0.48	-0.33	-0.35
9716.00	90.540	142.650	6651.95	2842.79	-3566.50	15.04	1274866.77	337649.37	40°14'0.3300"N	80°14'4.9584"W	3566.53	179.758	0.33	0.14	0.31
9812.00	90.540	142.530	6651.04	2938.79	-3642.75	73.36	1274925.08	337573.12	40°13'59.5930"N	80°14'4.1791"W	3643.49	178.846	0.12	0.00	-0.13
9906.00	90.410	142.230	6650.26	3032.78	-3717.20	130.73	1274982.46	337498.67	40°13'58.8735"N	80°14'3.4126"W	3719.50	177.986	0.35	-0.14	-0.32
10001.00	90.480	142.380	6649.52	3127.78	-3792.37	188.82	1275040.54	337423.50	40°13'58.1471"N	80°14'2.6367"W	3797.07	177.150	0.17	0.07	0.16
10096.00	90.570	142.340	6648.65	3222.77	-3867.60	246.83	1275098.56	337348.28	40°13'57.4202"N	80°14'1.8617"W	3875.47	176.340	0.10	0.09	-0.04
10191.00	90.600	142.420	6647.68	3317.77	-3942.84	304.82	1275156.54	337273.04	40°13'56.6931"N	80°14'1.0871"W	3954.61	175.579	0.09	0.03	0.08
10286.00	90.570	142.590	6646.71	3412.76	-4018.21	362.64	1275214.36	337197.67	40°13'55.9646"N	80°14'0.3145"W	4034.54	174.843	0.18	-0.03	0.18



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

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REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH DATA (198 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]
10381.00	90.600	142.480	6645.74	3507.76	-4093.61	420.43	1275272.14	337122.28	40°13'55.2359"N	80°13'59.5425"W	4115.14	174.136	0.12	0.03	-0.12
10476.00	90.750	143.170	6644.82	3602.75	-4169.30	477.83	1275329.54	337046.59	40°13'54.5042"N	80°13'58.7753"W	4196.59	173.482	0.74	0.16	0.73
10571.00	90.600	142.440	6643.50	3697.74	-4244.97	535.25	1275386.96	336970.92	40°13'53.7727"N	80°13'58.0077"W	4278.58	172.813	0.78	-0.16	-0.77
10666.00	89.860	142.470	6643.12	3792.74	-4320.29	595.14	1275444.85	336895.60	40°13'53.0447"N	80°13'57.2343"W	4360.82	172.183	0.78	-0.78	0.03
10761.00	89.770	142.540	6643.43	3887.74	-4395.66	650.97	1275502.68	336820.23	40°13'52.3162"N	80°13'56.4617"W	4443.60	171.576	0.12	-0.09	0.07
10855.00	89.890	142.640	6643.71	3981.74	-4470.33	708.08	1275559.78	336745.57	40°13'51.5946"N	80°13'55.6987"W	4526.06	170.999	0.17	0.13	0.11
10950.00	89.890	142.510	6643.89	4076.74	-4545.77	765.81	1275617.51	336670.13	40°13'50.8653"N	80°13'54.9273"W	4609.83	170.437	0.14	0.00	-0.14
11045.00	89.920	142.670	6644.05	4171.74	-4621.23	823.52	1275675.22	336594.67	40°13'50.1360"N	80°13'54.1561"W	4694.04	169.896	0.17	0.03	0.17
11140.00	89.460	142.350	6644.56	4266.74	-4696.61	881.34	1275733.04	336519.30	40°13'49.4075"N	80°13'53.3837"W	4778.59	169.372	0.59	-0.48	-0.34
11235.00	89.650	142.450	6645.30	4361.73	-4771.87	939.30	1275791.00	336444.04	40°13'48.6801"N	80°13'52.6094"W	4863.44	168.864	0.23	0.20	0.11
11331.00	89.490	137.300	6646.02	4457.59	-4845.25	1001.15	1275852.84	336370.66	40°13'47.9724"N	80°13'51.7858"W	4947.60	168.326	5.37	-0.17	-5.36
11425.00	89.550	139.680	6646.81	4551.33	-4915.64	1063.44	1275915.13	336300.28	40°13'47.2945"N	80°13'50.9575"W	5029.35	167.793	2.53	0.06	2.53
11521.00	89.000	142.540	6648.02	4647.28	-4990.34	1123.70	1275975.39	336225.58	40°13'46.5732"N	80°13'50.1538"W	5115.29	167.310	3.03	-0.57	2.98
11616.00	89.280	143.900	6649.45	4742.27	-5066.42	1180.57	1276032.26	336149.50	40°13'45.8375"N	80°13'49.3933"W	5202.15	166.883	1.46	0.29	1.43
11710.00	89.250	143.700	6650.86	4836.24	-5142.27	1236.09	1276087.77	336073.65	40°13'45.1037"N	80°13'48.6504"W	5288.75	166.484	0.22	-0.03	-0.21
11806.00	89.180	143.710	6651.97	4932.21	-5219.64	1292.91	1276144.59	335996.29	40°13'44.3552"N	80°13'47.8901"W	5377.38	166.088	0.07	-0.07	0.01
11901.00	89.460	144.530	6653.10	5027.17	-5296.61	1348.58	1276200.26	335919.33	40°13'43.6104"N	80°13'47.1447"W	5465.59	165.715	0.91	0.29	0.86
11996.00	89.120	143.570	6654.28	5122.13	-5373.50	1404.35	1276256.03	335842.43	40°13'42.8662"N	80°13'46.3981"W	5553.98	165.354	1.07	-0.36	-1.01
12091.00	89.150	143.600	6655.71	5217.11	-5449.95	1460.74	1276312.41	335765.99	40°13'42.1268"N	80°13'45.6438"W	5642.31	164.996	0.04	0.03	0.03
12186.00	89.250	143.720	6657.04	5312.08	-5526.46	1517.03	1276368.70	335689.48	40°13'41.3866"N	80°13'44.8906"W	5730.89	164.650	0.16	0.11	0.13
12281.00	89.250	143.610	6658.28	5407.06	-5602.98	1573.31	1276424.98	335612.96	40°13'40.6463"N	80°13'44.1376"W	5819.68	164.315	0.12	0.00	-0.12
12376.00	89.060	143.690	6659.68	5502.03	-5679.49	1629.61	1276481.28	335536.45	40°13'39.9062"N	80°13'43.8433"W	5908.66	163.990	0.22	-0.20	0.08
12471.00	89.970	143.570	6661.31	5597.00	-5755.97	1685.94	1276537.61	335459.97	40°13'39.1663"N	80°13'42.6308"W	5997.80	163.675	0.16	-0.09	-0.13
12566.00	89.000	143.640	6663.00	5691.97	-5832.43	1742.30	1276593.96	335383.52	40°13'38.4267"N	80°13'41.8768"W	6087.10	163.368	0.08	0.03	0.07
12661.00	89.150	143.510	6664.53	5786.95	-5908.86	1798.70	1276650.36	335307.09	40°13'37.6873"N	80°13'41.1223"W	6176.56	163.069	0.21	0.16	-0.14
12756.00	89.000	142.670	6666.06	5881.93	-5984.81	1855.74	1276707.41	335231.14	40°13'36.9529"N	80°13'40.3596"W	6265.92	162.773	0.90	-0.16	-0.88
12851.00	89.120	142.910	6667.52	5976.92	-6060.46	1913.18	1276764.85	335155.50	40°13'36.2216"N	80°13'39.5920"W	6355.27	162.480	0.28	0.13	0.25
12946.00	89.030	143.500	6669.16	6071.90	-6136.52	1970.08	1276821.74	335079.44	40°13'35.4860"N	80°13'38.8313"W	6445.01	162.201	0.63	-0.09	0.62
13041.00	88.910	140.230	6670.86	6166.86	-6211.23	2028.72	1276880.38	335004.74	40°13'34.7643"N	80°13'38.0485"W	6534.14	161.912	3.44	-0.13	-3.44
13136.00	88.630	141.140	6672.90	6261.79	-6284.71	2088.90	1276940.55	334931.26	40°13'34.0552"N	80°13'37.2464"W	6622.77	161.614	1.00	-0.29	0.96

REFERENCE WELLPATH IDENTIFICATION

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Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH DATA (198 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]
13231.00	88.600	143.520	6675.20	6356.75	-6359.88	2146.93	1276998.59	334896.09	40°13'33.3287"N	80°13'36.4713"W	6712.48	161.347	2.50	-0.03	2.51
13326.00	88.690	143.640	6677.45	6451.71	-6436.30	2203.32	1277054.97	334779.67	40°13'32.5894"N	80°13'35.7171"W	6802.98	161.103	0.16	0.09	0.13
13421.00	88.690	143.500	6679.62	6546.67	-6512.72	2259.72	1277111.37	334703.26	40°13'31.8502"N	80°13'34.9628"W	6893.61	160.865	0.15	0.00	-0.15
13516.00	88.600	143.470	6681.87	6641.63	-6589.05	2316.23	1277167.88	334626.93	40°13'31.1199"N	80°13'34.2067"W	6984.30	160.632	0.10	-0.09	-0.03
13611.00	88.540	143.530	6684.24	6736.59	-6685.39	2372.72	1277224.37	334550.59	40°13'30.3734"N	80°13'33.4512"W	7075.11	160.405	0.09	-0.06	0.06
13705.00	87.920	143.420	6687.14	6830.54	-6740.89	2428.64	1277336.80	334398.80	40°13'29.6431"N	80°13'32.7032"W	7165.05	160.187	0.67	-0.66	-0.12
13800.00	88.110	143.520	6690.43	6925.47	-6817.18	2485.16	1277398.41	334398.80	40°13'28.9051"N	80°13'31.9474"W	7256.03	159.971	0.23	0.20	0.11
13894.00	88.230	142.370	6693.43	7019.42	-6892.16	2541.77	1277398.41	334323.83	40°13'28.1802"N	80°13'31.1907"W	7345.91	159.756	1.23	0.13	-1.22
13989.00	87.580	142.450	6696.90	7114.35	-6967.39	2599.68	1277451.32	334248.61	40°13'27.4831"N	80°13'30.4172"W	7436.59	159.538	0.69	-0.68	0.08
14083.00	87.620	142.570	6700.84	7208.27	-7041.91	2656.84	1277508.48	334174.09	40°13'26.7328"N	80°13'29.6537"W	7526.44	159.329	0.13	0.04	0.13
14178.00	87.580	142.340	6704.82	7303.19	-7117.16	2714.68	1277566.31	334098.83	40°13'26.0055"N	80°13'28.8811"W	7617.32	159.122	0.25	-0.04	-0.24
14272.00	88.380	142.330	6708.13	7397.13	-7191.53	2772.08	1277623.71	334024.47	40°13'25.2868"N	80°13'28.1146"W	7707.30	158.920	0.85	0.85	-0.01
14367.00	88.350	142.430	6710.84	7492.09	-7266.74	2830.05	1277681.68	333949.26	40°13'24.5599"N	80°13'27.3404"W	7798.38	158.721	0.11	-0.03	0.11
14462.00	88.420	142.340	6713.52	7587.05	-7341.96	2888.01	1277739.64	333874.04	40°13'23.8328"N	80°13'26.5663"W	7889.55	158.527	0.12	0.07	-0.09
14556.00	88.420	142.560	6716.11	7681.01	-7416.46	2945.28	1277796.90	333799.55	40°13'23.1128"N	80°13'25.8014"W	7979.88	158.341	0.23	0.00	0.23
14651.00	88.600	142.410	6718.58	7775.98	-7491.79	3003.11	1277854.73	333724.22	40°13'22.3947"N	80°13'25.0290"W	8071.28	158.156	0.25	0.19	-0.16
14745.00	88.510	142.300	6720.95	7869.95	-7566.20	3060.50	1277912.12	333649.82	40°13'21.6656"N	80°13'24.2625"W	8161.74	157.977	0.15	-0.10	-0.12
14840.00	88.420	142.280	6723.50	7964.91	-7641.32	3118.59	1277970.21	333574.69	40°13'20.9396"N	80°13'23.4868"W	8253.21	157.799	0.10	-0.09	-0.02
14935.00	88.510	142.460	6726.04	8059.88	-7716.54	3176.57	1278028.19	333499.48	40°13'20.2127"N	80°13'22.7125"W	8344.79	157.625	0.21	0.09	0.19
15029.00	89.220	142.170	6727.90	8153.86	-7790.91	3234.03	1278085.64	333425.11	40°13'19.4939"N	80°13'21.9453"W	8435.47	157.457	0.82	0.76	-0.31
15124.00	89.000	142.120	6729.38	8248.84	-7865.91	3292.32	1278143.93	333350.11	40°13'18.7692"N	80°13'21.1671"W	8527.13	157.288	0.24	-0.23	-0.05
15219.00	89.000	142.090	6731.04	8343.83	-7940.87	3350.66	1278202.27	333275.16	40°13'18.0449"N	80°13'20.3882"W	8618.83	157.123	0.03	0.00	-0.03
15314.00	89.030	142.370	6732.67	8438.81	-8015.95	3408.84	1278260.44	333200.08	40°13'17.3193"N	80°13'19.6114"W	8710.66	156.962	0.30	0.03	0.29
15408.00	89.000	142.410	6734.29	8532.80	-8090.40	3466.20	1278317.80	333125.63	40°13'16.5997"N	80°13'18.8454"W	8801.66	156.808	0.05	-0.03	0.04
15504.00	88.970	142.310	6735.99	8628.78	-8166.41	3524.81	1278376.42	333049.62	40°13'15.8651"N	80°13'18.0626"W	8894.64	156.654	0.11	-0.03	-0.10
15599.00	89.000	142.230	6737.67	8723.76	-8241.54	3582.94	1278434.54	332974.50	40°13'15.1391"N	80°13'17.2865"W	8986.68	156.503	0.09	0.03	-0.08
15693.00	89.150	142.350	6739.19	8817.75	-8315.89	3640.43	1278492.03	332900.15	40°13'14.4205"N	80°13'16.5189"W	9077.82	156.358	0.20	0.16	0.13
15788.00	89.220	142.180	6740.54	8912.74	-8391.01	3698.56	1278550.16	332825.03	40°13'13.6945"N	80°13'15.7428"W	9169.98	156.213	0.19	0.07	-0.18
15882.00	89.340	142.350	6741.72	9006.73	-8465.35	3756.09	1278607.68	332750.70	40°13'12.9761"N	80°13'14.9746"W	9261.23	156.073	0.22	0.13	0.18
15977.00	89.220	142.350	6742.91	9101.72	-8540.56	3814.11	1278665.70	332675.49	40°13'12.2492"N	80°13'14.1997"W	9353.53	155.935	0.13	-0.13	0.00



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

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REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH DATA (198 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]
16072.00	89.250	142.270	6744.18	9196.71	-8615.73	3872.19	1278723.78	332600.32	40°13'11.5228"N	80°13'13.4243"W	9445.88	155.799	0.09	0.03	-0.08
16167.00	89.180	142.130	6745.48	9291.70	-8690.79	3930.41	1278782.00	332525.27	40°13'10.7974"N	80°13'12.6470"W	9538.23	155.665	0.16	-0.07	-0.15
16262.00	89.310	142.290	6746.74	9386.69	-8765.85	3988.62	1278840.20	332450.20	40°13'10.0720"N	80°13'11.8698"W	9630.64	155.534	0.22	0.14	0.17
16357.00	89.370	142.310	6747.83	9481.68	-8841.02	4046.71	1278898.29	332375.04	40°13'9.3456"N	80°13'11.0942"W	9723.14	155.405	0.07	0.06	0.02
16451.00	89.340	142.410	6748.89	9575.67	-8915.45	4104.11	1278955.69	332300.61	40°13'8.6262"N	80°13'10.3277"W	9814.73	155.282	0.11	-0.03	0.11
16546.00	89.250	141.400	6750.06	9670.66	-8990.20	4162.72	1279014.30	332225.86	40°13'7.9040"N	80°13'9.5455"W	9907.17	155.155	1.07	-0.09	-1.06
16641.00	88.880	142.270	6751.61	9765.64	-9064.88	4221.41	1279072.99	332151.18	40°13'7.1825"N	80°13'8.7623"W	9999.62	155.029	1.00	-0.39	0.92
16736.00	88.820	142.340	6753.51	9860.62	-9140.04	4279.49	1279131.06	332076.03	40°13'6.4561"N	80°13'7.9868"W	10092.29	154.910	0.10	-0.06	0.07
16831.00	88.750	142.310	6755.53	9955.59	-9215.22	4337.54	1279189.11	332000.86	40°13'5.7296"N	80°13'7.2117"W	10185.01	154.794	0.08	-0.07	-0.03
16926.00	88.750	142.390	6757.60	10050.57	-9290.41	4395.55	1279247.13	331925.66	40°13'5.0028"N	80°13'6.4371"W	10277.78	154.680	0.08	0.00	0.08
17020.00	88.750	142.720	6759.65	10144.55	-9365.03	4452.69	1279304.26	331851.05	40°13'4.2815"N	80°13'5.6739"W	10369.68	154.571	0.35	0.00	0.35
17115.00	88.820	143.400	6761.67	10239.52	-9440.94	4509.77	1279361.34	331775.14	40°13'4.5474"N	80°13'4.9111"W	10462.76	154.467	0.72	0.07	0.72
17209.00	88.790	142.610	6763.63	10333.50	-9516.00	4566.32	1279417.89	331700.08	40°13'2.8216"N	80°13'4.1554"W	10554.88	154.366	0.84	-0.03	-0.84
17304.00	88.850	142.350	6765.58	10428.48	-9591.33	4624.17	1279475.73	331624.75	40°13'2.0934"N	80°13'3.3828"W	10647.84	154.260	0.28	0.06	-0.27
17399.00	88.750	142.190	6767.57	10523.46	-9666.45	4682.29	1279533.85	331549.64	40°13'1.3674"N	80°13'2.6069"W	10740.77	154.155	0.20	-0.11	-0.17
17494.00	88.820	142.370	6769.59	10618.43	-9741.58	4740.40	1279591.96	331474.51	40°13'0.6413"N	80°13'1.8311"W	10833.73	154.052	0.20	0.07	0.19
17588.00	88.820	142.380	6771.52	10712.41	-9816.01	4797.77	1279649.33	331400.08	40°12'59.9219"N	80°13'1.0650"W	10925.78	153.952	0.01	0.00	0.01
17620.00	88.820	142.380	6772.18	10744.40	-9841.36	4817.30	1279668.86	331374.74	40°12'59.6770"N	80°13'0.8042"W	10957.13	153.918	0.00	0.00	0.00

REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

HOLE & CASING SECTIONS - Ref Wellbore: BIRD RUN 10938 14H AWB Ref Wellpath: BIRD RUN 10938 14H AWP Proj: 17620'

String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	End N/S [ft]	Start EW [ft]	End EW [ft]
26in Conductor	26.00	67.00	41.00	26.00	67.00	0.00	0.26	0.00	0.09
24in Open Hole	67.00	245.00	178.00	67.00	244.98	0.26	2.18	0.09	1.73
18.625in Casing Surface	26.00	225.00	199.00	26.00	224.98	0.00	2.01	0.00	1.44
17.5in Open Hole	245.00	316.00	71.00	244.98	315.97	2.18	2.83	1.73	2.76
13.375in Casing	26.00	296.00	270.00	26.00	295.97	0.00	2.64	0.00	2.47
12.25in Open Hole	316.00	1696.00	1380.00	315.97	1695.73	2.83	8.19	2.76	27.38
9.625in Casing Intermediate	26.00	1676.00	1650.00	26.00	1675.73	0.00	8.29	0.00	26.98
8.75in Open Hole	1696.00	6766.00	5070.00	1695.73	6280.08	8.19	-1253.87	27.38	-1477.39
8.5in Open Hole	6766.00	17620.00	10854.00	6280.08	6772.18	-1253.87	-9841.36	-1477.39	4817.30
5.5in Casing Production	26.00	17620.00	17594.00	26.00	6772.18	0.00	-9841.36	0.00	4817.30

TARGETS

Name	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
BIRD RUN 10938 14H BHL Rev-2	6533.32	-9851.23	4806.15	1279657.70	331364.87	40°12'59.5764"N	80°13'0.9444"W	point
BIRD RUN 10938 14H LP Rev-2	6674.00	-1846.49	-1311.36	1273540.42	339369.32	40°14'16.9512"N	80°14'22.6788"W	point



Actual Wellpath Report

BIRD RUN 10938 14H AWP Proj: 17620'

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REFERENCE WELLPATH IDENTIFICATION

Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

WELLPATH COMPOSITION - Ref Wellbore: BIRD RUN 10938 14H AWB Ref Wellpath: BIRD RUN 10938 14H AWP Proj: 17620'

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore	Survey Date
26.00	235.00	Gyrodata 2015 - GC+WIR+DPIPE	01 Gyrodata MS Gyro <17'-1/2"> (50'-220')	BIRD RUN 10938 14H AWB	3/14/2025
235.00	1593.00	OWSG MWD rev2 + IFR1 + Sag + Multi-Station Correction	02 Total MWD+SuperiorQC IFR1+Sag+FDIR <12'-1/4"> (220')(314'-1578')	BIRD RUN 10938 14H AWB	3/14/2025
1593.00	6691.00	OWSG MWD rev2 + IFR1 + Sag + Multi-Station Correction	03 Total MWD+SuperiorQC IFR1+Sag+FDIR <8'-3/4"> (1578')(1690'-6676')	BIRD RUN 10938 14H AWB	3/14/2025
6691.00	17620.00	OWSG MWD rev2 + IFR1 + Sag + Multi-Station Correction	04 BH Lucida+SuperiorQC IFR1+Sag+FDIR <8'-1/2"> (6691')(6774'-17588')	BIRD RUN 10938 14H AWB	3/28/2025



REFERENCE WELLPATH IDENTIFICATION			
Operator	RANGE RESOURCES APPALACHIA, LLC	Well	BIRD RUN 10938 14H
Field	Washington	API	37-125-29190-0000
Facility	BIRD RUN 10938 Pad	Wellbore	BIRD RUN 10938 14H AWB
Slot	Slot #14		

COMMENTS
<p>Wellpath general comments API: 37-125-29190-0000 BH Job #: 112639164 Rig: Patterson 876 Duration: 4/1/2025-4/3/2025 Gyrodata MS Gyro <17-1/2"> (50'-220') Total MWD+SuperiorQC IFR1+Sag+FDIR <12-1/4"> (220')(314'-1578') Total MWD+SuperiorQC IFR1+Sag+FDIR <8-3/4"> (1578')(1690'-6676') BH Lucida+SuperiorQC IFR1+Sag+FDIR <8-1/2"> (6691')(6774'-17588') Projected MD at TD: 17620'</p>