

# HRM RESOURCES

Location: COLORADO Slot: SLOT#13 ALMA 1S-66-2524-13NH (287°FSL & 1874°FEL, SEC.25)  
Field: ADAMS COUNTY Well: ALMA 1S-66-2524-13NH  
Facility: SEC.25-T01S-R66W Wellbore: ALMA 1S-66-2524-13NH PWB

Plot reference wellpath is ALMA 1S-66-2524-13NH PWP (REV-A.0)	Grid System: NAD83 / Lambert Colorado SP, Northern Zone (5911, US feet)
True vertical depths are referenced to RIG (RKB)	* - Wellpath was transformed from a different geodetic datum
Measured depths are referenced to RIG (RKB)	North Reference: True north
RIG (RKB) to Mean Sea Level: 5195 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: SLOT#13 ALMA 1S-66-2524-13NH (287°FSL & 1874°FEL, SEC.25): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: Ingersoll on 2016-10-14
	Database: WA, DEN, Denver, Datto

## Location Information

Facility Name			Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.25-T01S-R66W			3218416.711	1218223.151	39°55'47.172"N	104°43'16.176"W
Slot	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SLOT#13 ALMA 1S-66-2524-13NH (287°FSL & 1874°FEL, SEC. 25)	47.36	-30.85	3218386.280	1218175.526	39°55'46.704"N	104°43'16.572"W
RIG (RKB) to Mud line (At Slot: SLOT#13 ALMA 1S-66-2524-13NH (287°FSL & 1874°FEL, SEC.25))						5195R
Mean Sea Level to Mud line (At Slot: SLOT#13 ALMA 1S-66-2524-13NH (287°FSL & 1874°FEL, SEC.25))						0ft
RIG (RKB) to Mean Sea Level						5195R

## Well Profile Data

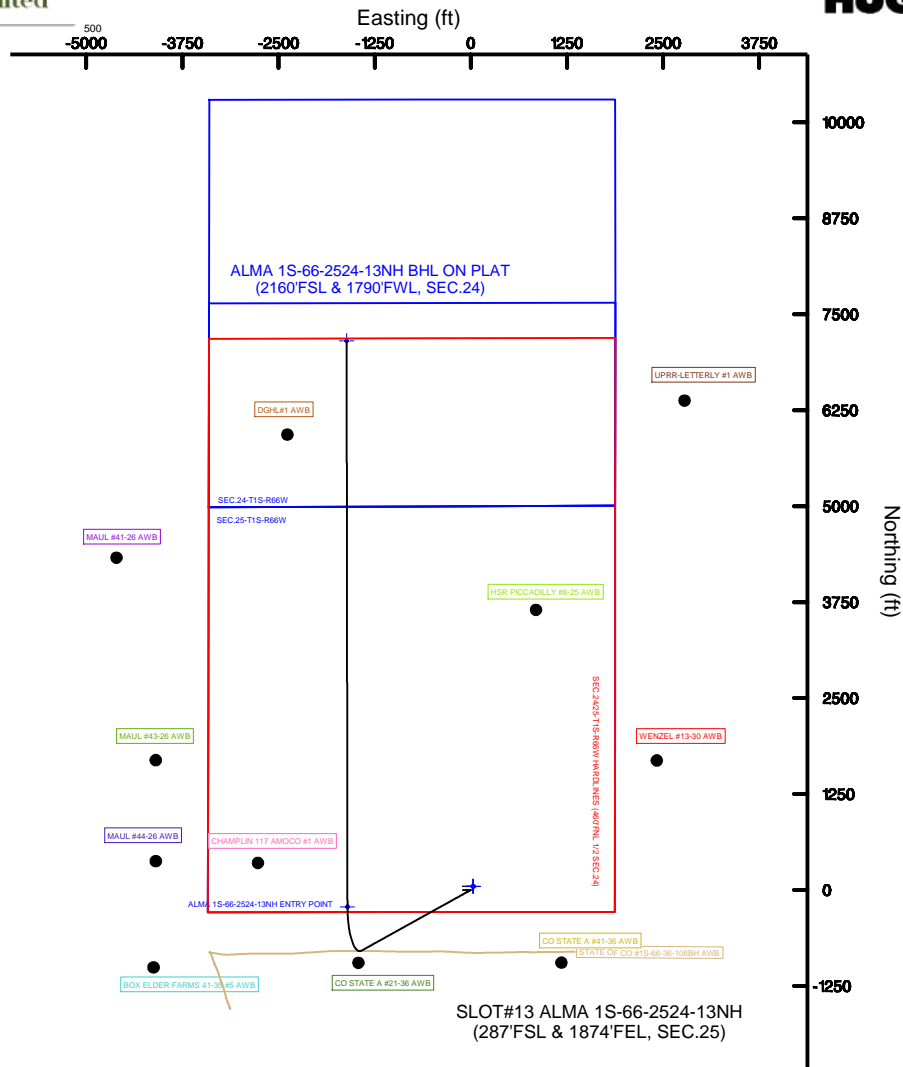
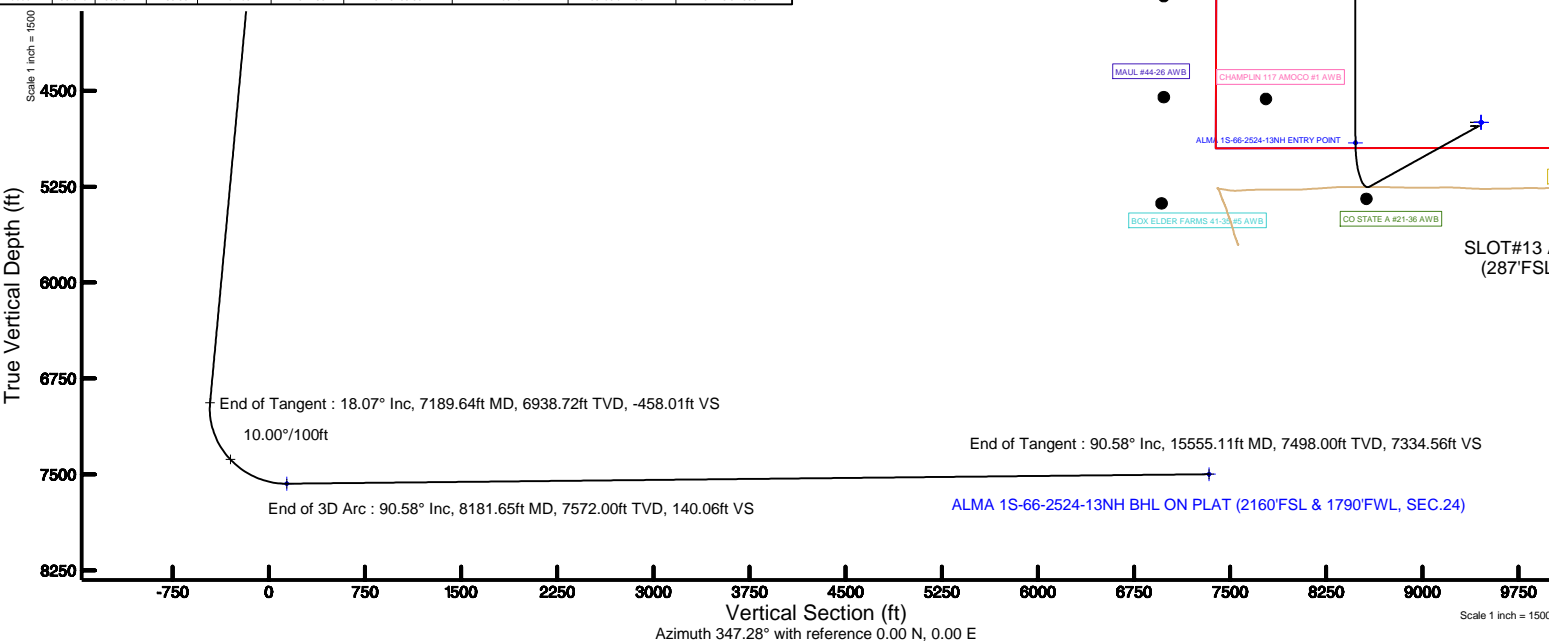
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	14.00	0.000	240.917	14.00	0.00	0.00	0.00	0.00
End of Tangent	1500.00	0.000	240.917	1500.00	0.00	0.00	0.00	0.00
End of Build	2403.41	18.068	240.917	2388.51	-68.67	-123.46	2.00	-39.80
End of Tangent	7189.64	18.068	240.917	6938.72	-790.22	-1420.74	0.00	-458.01
End of 3D Arc	8181.65	90.575	359.917	7572.00	-218.52	-1604.19	10.00	140.06
End of Tangent	15555.11	90.575	359.917	7498.00	7154.56	-1614.93	0.00	7334.56

## Targets

Name	MD (ft)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
SEC.24-T1S-R66W		0.00	47.36	30.85	3218416.711	1218223.151	39°55'47.172"N	104°43'16.176"W
SEC.24-T1S-R66W SOUTH 1/2 SECTION		0.00	47.36	30.85	3218416.711	1218223.151	39°55'47.172"N	104°43'16.176"W
SEC.25-T1S-R66W		0.00	47.36	30.85	3218416.711	1218223.151	39°55'47.172"N	104°43'16.176"W
ALMA 1S-66-2524-13NH BHL ON PLAT (2160°FSL & 1790°FEL, SEC.24)	15555.11	7498.00	7154.56	-1614.93	3218708.63	1225315.42	39°56'57.408"N	104°43'37.308"W
ALMA 1S-66-2524-13NH ENTRY POINT	8181.65	7572.00	-218.52	-1604.19	3218794.11	1217942.84	39°55'44.544"N	104°43'37.164"W
SEC.24-25-T1S-R66W PARADE LINES (400'NL, 1/2 SEC.24)		7800.00	47.36	30.85	3218416.711	1218223.151	39°55'47.172"N	104°43'16.176"W

## Bottom Hole Location

MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	Grid East (US ft)	Grid North (US ft)	Latitude	Longitude
15555.11	90.575	359.917	7498.00	7154.56	-1614.93	3218708.63	1225315.42	39°56'57.408"N	104°43'37.308"W



BGGM (1900.0 to 2018.0) Dip: 66.55° Field: 52266.2 nT  
Magnetic North is 8.40 degrees East of True North (at 10/7/2016)  
To correct azimuth from Magnetic to True add 8.40 degrees



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# Planned Wellpath Report

ALMA 1S-66-2524-13NH PWP (REV-A.0)

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HRM RESOURCES	Slot	SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25)
Area	COLORADO	Well	ALMA 1S-66-2524-13NH
Field	ADAMS COUNTY	Wellbore	ALMA 1S-66-2524-13NH PWB
Facility	SEC.25-T01S-R66W		

## REPORT SETUP INFORMATION

Projection System	NAD83 / Lambert Colorado SP, Northern Zone (501), US feet	Software System	WellArchitect® 5.0
North Reference	True	User	Ingmjmr
Scale	0.999972	Report Generated	10/17/2016 at 8:41:25 AM
Convergence at slot	0.51° East	Database/Source file	WA_DEN_Denver_Defn/ALMA_1S-66-2524-13NH_PWP_REV-A.0_.xml

## WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-47.36	-30.85	3218386.28	1218175.53	39°55'46.704"N	104°43'16.572"W
Facility Reference Pt			3218416.71	1218223.15	39°55'47.172"N	104°43'16.176"W
Field Reference Pt			3218416.71	1218223.15	39°55'47.172"N	104°43'16.176"W

## WELLPATH DATUM

Calculation method	Minimum curvature	RIG (RKB) to Facility Vertical Datum	5195.00ft
Horizontal Reference Pt	Slot	RIG (RKB) to Mean Sea Level	5195.00ft
Vertical Reference Pt	RIG (RKB)	RIG (RKB) to Mud Line at Slot (SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25))	5195.00ft
MD Reference Pt	RIG (RKB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	347.28°



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ALMA 1S-66-2524-13NH PWP (REV-A.0)

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HRM RESOURCES	Slot	SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25)
Area	COLORADO	Well	ALMA 1S-66-2524-13NH
Field	ADAMS COUNTY	Wellbore	ALMA 1S-66-2524-13NH PWB
Facility	SEC.25-T01S-R66W		

## WELLPATH DATA (162 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00†	0.000	240.917	0.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
14.00	0.000	240.917	14.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	Tie On
114.00†	0.000	240.917	114.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
214.00†	0.000	240.917	214.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
314.00†	0.000	240.917	314.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
414.00†	0.000	240.917	414.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
514.00†	0.000	240.917	514.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
614.00†	0.000	240.917	614.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
714.00†	0.000	240.917	714.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
814.00†	0.000	240.917	814.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
914.00†	0.000	240.917	914.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
1014.00†	0.000	240.917	1014.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
1114.00†	0.000	240.917	1114.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
1214.00†	0.000	240.917	1214.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
1314.00†	0.000	240.917	1314.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
1414.00†	0.000	240.917	1414.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	
1500.00	0.000	240.917	1500.00	0.00	0.00	0.00	39°55'46.704"N	104°43'16.572"W	0.00	End of Tangent
1514.00†	0.280	240.917	1514.00	-0.01	-0.02	-0.03	39°55'46.704"N	104°43'16.572"W	2.00	
1614.00†	2.280	240.917	1613.97	-0.64	-1.10	-1.98	39°55'46.693"N	104°43'16.597"W	2.00	
1714.00†	4.280	240.917	1713.80	-2.25	-3.88	-6.98	39°55'46.666"N	104°43'16.662"W	2.00	
1814.00†	6.280	240.917	1813.37	-4.84	-8.36	-15.02	39°55'46.621"N	104°43'16.765"W	2.00	
1914.00†	8.280	240.917	1912.56	-8.41	-14.52	-26.10	39°55'46.561"N	104°43'16.907"W	2.00	
2014.00†	10.280	240.917	2011.25	-12.96	-22.35	-40.19	39°55'46.483"N	104°43'17.088"W	2.00	
2114.00†	12.280	240.917	2109.31	-18.47	-31.86	-57.28	39°55'46.389"N	104°43'17.307"W	2.00	
2214.00†	14.280	240.917	2206.63	-24.94	-43.03	-77.36	39°55'46.279"N	104°43'17.565"W	2.00	
2314.00†	16.280	240.917	2303.09	-32.36	-55.84	-100.39	39°55'46.152"N	104°43'17.861"W	2.00	
2403.41	18.068	240.917	2388.51	-39.80	-68.67	-123.46	39°55'46.025"N	104°43'18.157"W	2.00	End of Build
2414.00†	18.068	240.917	2398.58	-40.72	-70.26	-126.33	39°55'46.010"N	104°43'18.194"W	0.00	
2514.00†	18.068	240.917	2493.65	-49.46	-85.34	-153.43	39°55'45.861"N	104°43'18.542"W	0.00	
2614.00†	18.068	240.917	2588.72	-58.20	-100.42	-180.54	39°55'45.712"N	104°43'18.889"W	0.00	
2714.00†	18.068	240.917	2683.79	-66.94	-115.49	-207.64	39°55'45.563"N	104°43'19.237"W	0.00	
2814.00†	18.068	240.917	2778.85	-75.68	-130.57	-234.74	39°55'45.414"N	104°43'19.585"W	0.00	
2914.00†	18.068	240.917	2873.92	-84.41	-145.64	-261.85	39°55'45.265"N	104°43'19.933"W	0.00	
3014.00†	18.068	240.917	2968.99	-93.15	-160.72	-288.95	39°55'45.116"N	104°43'20.281"W	0.00	
3114.00†	18.068	240.917	3064.06	-101.89	-175.79	-316.06	39°55'44.967"N	104°43'20.629"W	0.00	
3214.00†	18.068	240.917	3159.13	-110.63	-190.87	-343.16	39°55'44.818"N	104°43'20.977"W	0.00	
3314.00†	18.068	240.917	3254.20	-119.36	-205.94	-370.27	39°55'44.669"N	104°43'21.325"W	0.00	
3414.00†	18.068	240.917	3349.27	-128.10	-221.02	-397.37	39°55'44.520"N	104°43'21.673"W	0.00	
3514.00†	18.068	240.917	3444.34	-136.84	-236.10	-424.48	39°55'44.371"N	104°43'22.021"W	0.00	
3614.00†	18.068	240.917	3539.40	-145.58	-251.17	-451.58	39°55'44.222"N	104°43'22.369"W	0.00	
3714.00†	18.068	240.917	3634.47	-154.32	-266.25	-478.68	39°55'44.073"N	104°43'22.717"W	0.00	
3814.00†	18.068	240.917	3729.54	-163.05	-281.32	-505.79	39°55'43.924"N	104°43'23.064"W	0.00	
3914.00†	18.068	240.917	3824.61	-171.79	-296.40	-532.89	39°55'43.775"N	104°43'23.412"W	0.00	
4014.00†	18.068	240.917	3919.68	-180.53	-311.47	-560.00	39°55'43.626"N	104°43'23.760"W	0.00	
4114.00†	18.068	240.917	4014.75	-189.27	-326.55	-587.10	39°55'43.477"N	104°43'24.108"W	0.00	



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# Planned Wellpath Report

ALMA 1S-66-2524-13NH PWP (REV-A.0)

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HRM RESOURCES	Slot	SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25)
Area	COLORADO	Well	ALMA 1S-66-2524-13NH
Field	ADAMS COUNTY	Wellbore	ALMA 1S-66-2524-13NH PWB
Facility	SEC.25-T01S-R66W		

## WELLPATH DATA (162 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4214.00†	18.068	240.917	4109.82	-198.00	-341.63	-614.21	39°55'43.328"N	104°43'24.456"W	0.00	
4314.00†	18.068	240.917	4204.89	-206.74	-356.70	-641.31	39°55'43.179"N	104°43'24.804"W	0.00	
4414.00†	18.068	240.917	4299.95	-215.48	-371.78	-668.42	39°55'43.030"N	104°43'25.152"W	0.00	
4514.00†	18.068	240.917	4395.02	-224.22	-386.85	-695.52	39°55'42.881"N	104°43'25.500"W	0.00	
4614.00†	18.068	240.917	4490.09	-232.96	-401.93	-722.62	39°55'42.732"N	104°43'25.848"W	0.00	
4714.00†	18.068	240.917	4585.16	-241.69	-417.00	-749.73	39°55'42.583"N	104°43'26.196"W	0.00	
4814.00†	18.068	240.917	4680.23	-250.43	-432.08	-776.83	39°55'42.434"N	104°43'26.544"W	0.00	
4914.00†	18.068	240.917	4775.30	-259.17	-447.15	-803.94	39°55'42.285"N	104°43'26.892"W	0.00	
5014.00†	18.068	240.917	4870.37	-267.91	-462.23	-831.04	39°55'42.136"N	104°43'27.239"W	0.00	
5114.00†	18.068	240.917	4965.44	-276.64	-477.31	-858.15	39°55'41.987"N	104°43'27.587"W	0.00	
5214.00†	18.068	240.917	5060.50	-285.38	-492.38	-885.25	39°55'41.838"N	104°43'27.935"W	0.00	
5314.00†	18.068	240.917	5155.57	-294.12	-507.46	-912.36	39°55'41.689"N	104°43'28.283"W	0.00	
5414.00†	18.068	240.917	5250.64	-302.86	-522.53	-939.46	39°55'41.540"N	104°43'28.631"W	0.00	
5514.00†	18.068	240.917	5345.71	-311.60	-537.61	-966.56	39°55'41.391"N	104°43'28.979"W	0.00	
5614.00†	18.068	240.917	5440.78	-320.33	-552.68	-993.67	39°55'41.242"N	104°43'29.327"W	0.00	
5714.00†	18.068	240.917	5535.85	-329.07	-567.76	-1020.77	39°55'41.093"N	104°43'29.675"W	0.00	
5814.00†	18.068	240.917	5630.92	-337.81	-582.84	-1047.88	39°55'40.944"N	104°43'30.023"W	0.00	
5914.00†	18.068	240.917	5725.99	-346.55	-597.91	-1074.98	39°55'40.795"N	104°43'30.371"W	0.00	
6014.00†	18.068	240.917	5821.06	-355.28	-612.99	-1102.09	39°55'40.646"N	104°43'30.719"W	0.00	
6114.00†	18.068	240.917	5916.12	-364.02	-628.06	-1129.19	39°55'40.497"N	104°43'31.066"W	0.00	
6214.00†	18.068	240.917	6011.19	-372.76	-643.14	-1156.30	39°55'40.348"N	104°43'31.414"W	0.00	
6314.00†	18.068	240.917	6106.26	-381.50	-658.21	-1183.40	39°55'40.199"N	104°43'31.762"W	0.00	
6414.00†	18.068	240.917	6201.33	-390.24	-673.29	-1210.50	39°55'40.050"N	104°43'32.110"W	0.00	
6514.00†	18.068	240.917	6296.40	-398.97	-688.36	-1237.61	39°55'39.901"N	104°43'32.458"W	0.00	
6614.00†	18.068	240.917	6391.47	-407.71	-703.44	-1264.71	39°55'39.752"N	104°43'32.806"W	0.00	
6714.00†	18.068	240.917	6486.54	-416.45	-718.52	-1291.82	39°55'39.603"N	104°43'33.154"W	0.00	
6814.00†	18.068	240.917	6581.61	-425.19	-733.59	-1318.92	39°55'39.454"N	104°43'33.502"W	0.00	
6914.00†	18.068	240.917	6676.67	-433.92	-748.67	-1346.03	39°55'39.305"N	104°43'33.850"W	0.00	
7014.00†	18.068	240.917	6771.74	-442.66	-763.74	-1373.13	39°55'39.156"N	104°43'34.198"W	0.00	
7114.00†	18.068	240.917	6866.81	-451.40	-778.82	-1400.24	39°55'39.007"N	104°43'34.546"W	0.00	
7189.64	18.068	240.917	6938.72	-458.01	-790.22	-1420.74	39°55'38.894"N	104°43'34.809"W	0.00	End of Tangent
7214.00†	17.071	248.287	6961.95	-459.63	-793.38	-1427.36	39°55'38.863"N	104°43'34.894"W	10.00	
7314.00†	16.392	283.456	7057.96	-455.69	-795.53	-1454.79	39°55'38.842"N	104°43'35.246"W	10.00	
7414.00†	20.994	311.616	7152.85	-434.86	-780.31	-1481.97	39°55'38.992"N	104°43'35.595"W	10.00	
7514.00†	28.416	327.869	7243.73	-397.77	-748.19	-1508.09	39°55'39.310"N	104°43'35.930"W	10.00	
7614.00†	36.995	337.461	7327.86	-345.55	-700.13	-1532.34	39°55'39.785"N	104°43'36.241"W	10.00	
7714.00†	46.085	343.780	7402.66	-279.79	-637.59	-1553.99	39°55'40.403"N	104°43'36.519"W	10.00	
7814.00†	55.429	348.394	7465.87	-202.48	-562.49	-1572.38	39°55'41.145"N	104°43'36.755"W	10.00	
7914.00†	64.912	352.063	7515.57	-115.97	-477.09	-1586.95	39°55'41.989"N	104°43'36.942"W	10.00	
8014.00†	74.472	355.198	7550.24	-22.89	-384.00	-1597.26	39°55'42.909"N	104°43'37.075"W	10.00	
8114.00†	84.071	358.052	7568.84	73.93	-286.04	-1603.00	39°55'43.877"N	104°43'37.149"W	10.00	
8181.65	90.575	359.917	7572.00†	140.06	-218.52	-1604.19	39°55'44.544"N	104°43'37.164"W	10.00	End of 3D Arc
8214.00†	90.575	359.917	7571.68	171.62	-186.17	-1604.24	39°55'44.864"N	104°43'37.165"W	0.00	
8314.00†	90.575	359.917	7570.67	269.20	-86.17	-1604.39	39°55'45.852"N	104°43'37.167"W	0.00	
8414.00†	90.575	359.917	7569.67	366.77	13.82	-1604.53	39°55'46.840"N	104°43'37.169"W	0.00	



Resources Limited

# Planned Wellpath Report

ALMA 1S-66-2524-13NH PWP (REV-A.0)

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HRM RESOURCES	Slot	SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25)
Area	COLORADO	Well	ALMA 1S-66-2524-13NH
Field	ADAMS COUNTY	Wellbore	ALMA 1S-66-2524-13NH PWB
Facility	SEC.25-T01S-R66W		

## WELLPATH DATA (162 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8514.00†	90.575	359.917	7568.66	464.34	113.82	-1604.68	39°55'47.828"N	104°43'37.170"W	0.00	
8614.00†	90.575	359.917	7567.66	561.92	213.81	-1604.82	39°55'48.816"N	104°43'37.172"W	0.00	
8714.00†	90.575	359.917	7566.66	659.49	313.81	-1604.97	39°55'49.805"N	104°43'37.174"W	0.00	
8814.00†	90.575	359.917	7565.65	757.06	413.80	-1605.11	39°55'50.793"N	104°43'37.176"W	0.00	
8914.00†	90.575	359.917	7564.65	854.64	513.80	-1605.26	39°55'51.781"N	104°43'37.178"W	0.00	
9014.00†	90.575	359.917	7563.65	952.21	613.79	-1605.41	39°55'52.769"N	104°43'37.180"W	0.00	
9114.00†	90.575	359.917	7562.64	1049.78	713.79	-1605.55	39°55'53.757"N	104°43'37.182"W	0.00	
9214.00†	90.575	359.917	7561.64	1147.35	813.78	-1605.70	39°55'54.746"N	104°43'37.184"W	0.00	
9314.00†	90.575	359.917	7560.64	1244.93	913.78	-1605.84	39°55'55.734"N	104°43'37.186"W	0.00	
9414.00†	90.575	359.917	7559.63	1342.50	1013.77	-1605.99	39°55'56.722"N	104°43'37.188"W	0.00	
9514.00†	90.575	359.917	7558.63	1440.07	1113.77	-1606.13	39°55'57.710"N	104°43'37.190"W	0.00	
9614.00†	90.575	359.917	7557.62	1537.65	1213.76	-1606.28	39°55'58.698"N	104°43'37.192"W	0.00	
9714.00†	90.575	359.917	7556.62	1635.22	1313.76	-1606.43	39°55'59.687"N	104°43'37.194"W	0.00	
9814.00†	90.575	359.917	7555.62	1732.79	1413.75	-1606.57	39°56'00.675"N	104°43'37.196"W	0.00	
9914.00†	90.575	359.917	7554.61	1830.36	1513.74	-1606.72	39°56'01.663"N	104°43'37.198"W	0.00	
10014.00†	90.575	359.917	7553.61	1927.94	1613.74	-1606.86	39°56'02.651"N	104°43'37.200"W	0.00	
10114.00†	90.575	359.917	7552.61	2025.51	1713.73	-1607.01	39°56'03.639"N	104°43'37.202"W	0.00	
10214.00†	90.575	359.917	7551.60	2123.08	1813.73	-1607.15	39°56'04.628"N	104°43'37.204"W	0.00	
10314.00†	90.575	359.917	7550.60	2220.66	1913.72	-1607.30	39°56'05.616"N	104°43'37.206"W	0.00	
10414.00†	90.575	359.917	7549.60	2318.23	2013.72	-1607.44	39°56'06.604"N	104°43'37.208"W	0.00	
10514.00†	90.575	359.917	7548.59	2415.80	2113.71	-1607.59	39°56'07.592"N	104°43'37.210"W	0.00	
10614.00†	90.575	359.917	7547.59	2513.38	2213.71	-1607.74	39°56'08.580"N	104°43'37.211"W	0.00	
10714.00†	90.575	359.917	7546.59	2610.95	2313.70	-1607.88	39°56'09.569"N	104°43'37.213"W	0.00	
10814.00†	90.575	359.917	7545.58	2708.52	2413.70	-1608.03	39°56'10.557"N	104°43'37.215"W	0.00	
10914.00†	90.575	359.917	7544.58	2806.09	2513.69	-1608.17	39°56'11.545"N	104°43'37.217"W	0.00	
11014.00†	90.575	359.917	7543.57	2903.67	2613.69	-1608.32	39°56'12.533"N	104°43'37.219"W	0.00	
11114.00†	90.575	359.917	7542.57	3001.24	2713.68	-1608.46	39°56'13.521"N	104°43'37.221"W	0.00	
11214.00†	90.575	359.917	7541.57	3098.81	2813.68	-1608.61	39°56'14.509"N	104°43'37.223"W	0.00	
11314.00†	90.575	359.917	7540.56	3196.39	2913.67	-1608.76	39°56'15.498"N	104°43'37.225"W	0.00	
11414.00†	90.575	359.917	7539.56	3293.96	3013.67	-1608.90	39°56'16.486"N	104°43'37.227"W	0.00	
11514.00†	90.575	359.917	7538.56	3391.53	3113.66	-1609.05	39°56'17.474"N	104°43'37.229"W	0.00	
11614.00†	90.575	359.917	7537.55	3489.10	3213.66	-1609.19	39°56'18.462"N	104°43'37.231"W	0.00	
11714.00†	90.575	359.917	7536.55	3586.68	3313.65	-1609.34	39°56'19.450"N	104°43'37.233"W	0.00	
11814.00†	90.575	359.917	7535.55	3684.25	3413.65	-1609.48	39°56'20.439"N	104°43'37.235"W	0.00	
11914.00†	90.575	359.917	7534.54	3781.82	3513.64	-1609.63	39°56'21.427"N	104°43'37.237"W	0.00	
12014.00†	90.575	359.917	7533.54	3879.40	3613.64	-1609.78	39°56'22.415"N	104°43'37.239"W	0.00	
12114.00†	90.575	359.917	7532.53	3976.97	3713.63	-1609.92	39°56'23.403"N	104°43'37.241"W	0.00	
12214.00†	90.575	359.917	7531.53	4074.54	3813.63	-1610.07	39°56'24.391"N	104°43'37.243"W	0.00	
12314.00†	90.575	359.917	7530.53	4172.12	3913.62	-1610.21	39°56'25.380"N	104°43'37.245"W	0.00	
12414.00†	90.575	359.917	7529.52	4269.69	4013.62	-1610.36	39°56'26.368"N	104°43'37.247"W	0.00	
12514.00†	90.575	359.917	7528.52	4367.26	4113.61	-1610.50	39°56'27.356"N	104°43'37.249"W	0.00	
12614.00†	90.575	359.917	7527.52	4464.83	4213.61	-1610.65	39°56'28.344"N	104°43'37.251"W	0.00	
12714.00†	90.575	359.917	7526.51	4562.41	4313.60	-1610.79	39°56'29.332"N	104°43'37.253"W	0.00	
12814.00†	90.575	359.917	7525.51	4659.98	4413.60	-1610.94	39°56'30.321"N	104°43'37.254"W	0.00	
12914.00†	90.575	359.917	7524.51	4757.55	4513.59	-1611.09	39°56'31.309"N	104°43'37.256"W	0.00	





Resources Limited

# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HRM RESOURCES	Slot	SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25)
Area	COLORADO	Well	ALMA 1S-66-2524-13NH
Field	ADAMS COUNTY	Wellbore	ALMA 1S-66-2524-13NH PWB
Facility	SEC.25-T01S-R66W		

## WELLPATH DATA (162 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13014.00†	90.575	359.917	7523.50	4855.13	4613.59	-1611.23	39°56'32.297"N	104°43'37.258"W	0.00	
13114.00†	90.575	359.917	7522.50	4952.70	4713.58	-1611.38	39°56'33.285"N	104°43'37.260"W	0.00	
13214.00†	90.575	359.917	7521.50	5050.27	4813.58	-1611.52	39°56'34.273"N	104°43'37.262"W	0.00	
13314.00†	90.575	359.917	7520.49	5147.85	4913.57	-1611.67	39°56'35.262"N	104°43'37.264"W	0.00	
13414.00†	90.575	359.917	7519.49	5245.42	5013.56	-1611.81	39°56'36.250"N	104°43'37.266"W	0.00	
13514.00†	90.575	359.917	7518.48	5342.99	5113.56	-1611.96	39°56'37.238"N	104°43'37.268"W	0.00	
13614.00†	90.575	359.917	7517.48	5440.56	5213.55	-1612.11	39°56'38.226"N	104°43'37.270"W	0.00	
13714.00†	90.575	359.917	7516.48	5538.14	5313.55	-1612.25	39°56'39.214"N	104°43'37.272"W	0.00	
13814.00†	90.575	359.917	7515.47	5635.71	5413.54	-1612.40	39°56'40.202"N	104°43'37.274"W	0.00	
13914.00†	90.575	359.917	7514.47	5733.28	5513.54	-1612.54	39°56'41.191"N	104°43'37.276"W	0.00	
14014.00†	90.575	359.917	7513.47	5830.86	5613.53	-1612.69	39°56'42.179"N	104°43'37.278"W	0.00	
14114.00†	90.575	359.917	7512.46	5928.43	5713.53	-1612.83	39°56'43.167"N	104°43'37.280"W	0.00	
14214.00†	90.575	359.917	7511.46	6026.00	5813.52	-1612.98	39°56'44.155"N	104°43'37.282"W	0.00	
14314.00†	90.575	359.917	7510.46	6123.57	5913.52	-1613.12	39°56'45.143"N	104°43'37.284"W	0.00	
14414.00†	90.575	359.917	7509.45	6221.15	6013.51	-1613.27	39°56'46.132"N	104°43'37.286"W	0.00	
14514.00†	90.575	359.917	7508.45	6318.72	6113.51	-1613.42	39°56'47.120"N	104°43'37.288"W	0.00	
14614.00†	90.575	359.917	7507.44	6416.29	6213.50	-1613.56	39°56'48.108"N	104°43'37.290"W	0.00	
14714.00†	90.575	359.917	7506.44	6513.87	6313.50	-1613.71	39°56'49.096"N	104°43'37.292"W	0.00	
14814.00†	90.575	359.917	7505.44	6611.44	6413.49	-1613.85	39°56'50.084"N	104°43'37.294"W	0.00	
14914.00†	90.575	359.917	7504.43	6709.01	6513.49	-1614.00	39°56'51.073"N	104°43'37.295"W	0.00	
15014.00†	90.575	359.917	7503.43	6806.59	6613.48	-1614.14	39°56'52.061"N	104°43'37.297"W	0.00	
15114.00†	90.575	359.917	7502.43	6904.16	6713.48	-1614.29	39°56'53.049"N	104°43'37.299"W	0.00	
15214.00†	90.575	359.917	7501.42	7001.73	6813.47	-1614.44	39°56'54.037"N	104°43'37.301"W	0.00	
15314.00†	90.575	359.917	7500.42	7099.30	6913.47	-1614.58	39°56'55.025"N	104°43'37.303"W	0.00	
15414.00†	90.575	359.917	7499.42	7196.88	7013.46	-1614.73	39°56'56.014"N	104°43'37.305"W	0.00	
15514.00†	90.575	359.917	7498.41	7294.45	7113.46	-1614.87	39°56'57.002"N	104°43'37.307"W	0.00	
15555.11	90.575	359.917	7498.00 <sup>2</sup>	7334.56	7154.56	-1614.93	39°56'57.408"N	104°43'37.308"W	0.00	End of Tangent



Resources Limited

# Planned Wellpath Report

ALMA 1S-66-2524-13NH PWP (REV-A.0)

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HRM RESOURCES	Slot	SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25)
Area	COLORADO	Well	ALMA 1S-66-2524-13NH
Field	ADAMS COUNTY	Wellbore	ALMA 1S-66-2524-13NH PWB
Facility	SEC.25-T01S-R66W		

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
SEC.24-T1S-R66W		0.00	47.36	30.85	3218416.71	1218223.15	39°55'47.172"N	104°43'16.176"W	polygon
SEC.24-T1S-R66W SOUTH 1/2 SECTION		0.00	47.36	30.85	3218416.71	1218223.15	39°55'47.172"N	104°43'16.176"W	polygon
SEC.25-T1S-R66W		0.00	47.36	30.85	3218416.71	1218223.15	39°55'47.172"N	104°43'16.176"W	polygon
2) ALMA 1S-66-2524-13NH BHL ON PLAT (2160'FSL & 1790'FWL, SEC.24)	15555.11	7498.00	7154.56	-1614.93	3216708.63	1225315.42	39°56'57.408"N	104°43'37.308"W	point
1) ALMA 1S-66-2524-13NH ENTRY POINT	8181.65	7572.00	-218.52	-1604.19	3216784.11	1217942.94	39°55'44.544"N	104°43'37.164"W	point
SEC.24/25-T1S-R66W HARDLINES (460'FNL 1/2 SEC.24)		7800.00	47.36	30.85	3218416.71	1218223.15	39°55'47.172"N	104°43'16.176"W	polygon

## SURVEY PROGRAM -

Ref Wellbore: ALMA 1S-66-2524-13NH PWB Ref Wellpath: ALMA 1S-66-2524-13NH PWP (REV-A.0)

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
14.00	15590.28	Custom BHI AutoTrak Curve (Axial Corr, Short spacing) (Rockies 0.03Gt model)		ALMA 1S-66-2524-13NH PWB



Resources Limited

# Planned Wellpath Report

ALMA 1S-66-2524-13NH PWP (REV-A.0)

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## REFERENCE WELLPATH IDENTIFICATION

Operator	HRM RESOURCES	Slot	SLOT#13 ALMA 1S-66-2524-13NH (287'FSL & 1874'FEL, SEC.25)
Area	COLORADO	Well	ALMA 1S-66-2524-13NH
Field	ADAMS COUNTY	Wellbore	ALMA 1S-66-2524-13NH PWB
Facility	SEC.25-T01S-R66W		

## DESIGN COMMENTS

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Comment
14.00	0.000	240.917	14.00	Tie On
1500.00	0.000	240.917	1500.00	End of Tangent
2403.41	18.068	240.917	2388.51	End of Build
7189.64	18.068	240.917	6938.72	End of Tangent
8181.65	90.575	359.917	7572.00	End of 3D Arc
15555.11	90.575	359.917	7498.00	End of Tangent