



Directional Survey Certification

2948 I-70 Business Loop
Grand Junction, CO 81504
(970)-245-9447 Fax (970)-245-9454

Operator	TEP Rocky Mountain, LLC.
Well Name & No.	PA 533-26
County & State	Garfield County, CO
SDI Job No.	OP.010841
Rig	H&P 271

I, Mel Mireles Jr., having personal knowledge of all the facts, hereby certify that the attached directional survey run from a measured depth of 154 feet to a measured depth of 8,475 feet is true and correct as determined from all available records.

A handwritten signature in black ink, appearing to read 'Mel Mireles Jr.', written over a horizontal line.

Signature

05-Jul-18

Date

Mel Mireles Jr.

Grand Junction Assistant Well Planner
Scientific Drilling - Colorado District

Company:	TEP Rocky Mountain LLC	Local Co-ordinate Reference:	Well PA 533-26 - Slot PA 533-26 (B7)
Project:	Garfield County, CO NAD83	TVD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Site:	PA 23-26 Pad	MD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Well:	PA 533-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

Project	Garfield County, CO NAD83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		PA 23-26 Pad			
Site Position:		Northing:	1,614,399.90 usft	Latitude:	39.4943598
From:	Map	Easting:	2,303,951.10 usft	Longitude:	-107.9667508
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	-1.56 °

Well	PA 533-26 - Slot PA 533-26 (B7), B7					
Well Position	+N/-S	0.00 usft	Northing:	1,614,389.70 usft	Latitude:	39.4943307
	+E/-W	0.00 usft	Easting:	2,303,936.20 usft	Longitude:	-107.9668026
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,637.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/12/2018	9.37	65.77	51,619

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	134.56	

Survey Program	Date	7/5/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
154.00	581.00	Survey #1 - Gyro MWD Survey (OH)	Gyro MWD 105	Gyro MWD Error Model Ver 1.0.5	
653.00	1,052.00	Survey #2 - Surface MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	
1,171.00	8,475.00	Survey #3 - Production MWD Survey (OH)	MWD+HDGM	OWSG MWD + HDGM	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
154.00	0.18	113.55	154.00	-0.10	0.22	0.23	0.12	0.12	0.00	
First SDI Gyro MWD Survey										
215.00	0.79	168.05	215.00	-0.55	0.40	0.67	1.15	1.00	89.34	
306.00	1.32	172.00	305.98	-2.20	0.67	2.02	0.59	0.58	4.34	
398.00	1.85	162.25	397.95	-4.66	1.27	4.18	0.64	0.58	-10.60	
490.00	2.73	153.02	489.87	-8.03	2.72	7.57	1.03	0.96	-10.03	
581.00	3.70	163.74	580.73	-12.78	4.52	12.19	1.25	1.07	11.78	

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Site:	PA 23-26 Pad	MD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Well:	PA 533-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
Last SDI Gyro MWD Survey									
653.00	5.14	153.65	652.51	-17.90	6.61	17.27	2.27	2.00	-14.01
First SDI Surface MWD Survey									
745.00	7.21	138.44	743.98	-25.91	12.27	26.92	2.85	2.25	-16.53
836.00	9.38	130.13	834.03	-34.97	21.73	40.02	2.72	2.38	-9.13
931.00	11.32	123.24	927.48	-45.07	35.45	56.88	2.42	2.04	-7.25
1,025.00	13.16	116.27	1,019.34	-54.86	52.76	76.09	2.51	1.96	-7.41
1,052.00	13.81	114.58	1,045.60	-57.56	58.45	82.03	2.82	2.41	-6.26
Last SDI Surface MWD Survey									
1,171.00	15.41	111.43	1,160.75	-69.25	86.08	109.92	1.50	1.34	-2.65
First SDI Production MWD Survey									
1,265.00	17.21	114.05	1,250.97	-79.48	110.41	134.44	2.07	1.91	2.79
1,359.00	17.47	115.87	1,340.69	-91.31	135.80	160.82	0.64	0.28	1.94
1,454.00	18.01	113.08	1,431.18	-103.28	162.15	188.00	1.06	0.57	-2.94
1,548.00	18.38	108.85	1,520.48	-113.77	189.54	214.87	1.46	0.39	-4.50
1,642.00	17.53	107.63	1,609.90	-122.85	217.06	240.85	0.99	-0.90	-1.30
1,736.00	16.66	107.11	1,699.75	-131.10	243.43	265.43	0.94	-0.93	-0.55
1,831.00	15.53	105.99	1,791.02	-138.61	268.67	288.68	1.23	-1.19	-1.18
1,926.00	16.71	109.70	1,882.29	-146.72	293.76	312.24	1.65	1.24	3.91
2,020.00	15.83	108.35	1,972.52	-155.31	318.65	336.01	1.02	-0.94	-1.44
2,114.00	16.92	112.93	2,062.71	-164.67	343.42	360.22	1.80	1.16	4.87
2,208.00	16.37	112.86	2,152.78	-175.15	368.22	385.25	0.59	-0.59	-0.07
2,303.00	15.63	111.56	2,244.09	-185.05	392.46	409.47	0.87	-0.78	-1.37
2,397.00	17.48	112.30	2,334.19	-195.06	417.30	434.19	1.98	1.97	0.79
2,492.00	18.29	108.24	2,424.61	-205.14	444.66	460.76	1.56	0.85	-4.27
2,586.00	17.21	107.20	2,514.13	-213.87	471.95	486.33	1.20	-1.15	-1.11
2,681.00	18.16	107.61	2,604.64	-222.51	499.49	512.00	1.01	1.00	0.43
2,775.00	17.10	106.92	2,694.22	-230.96	526.68	537.31	1.15	-1.13	-0.73
2,869.00	17.57	109.89	2,783.96	-239.81	553.24	562.44	1.07	0.50	3.16
2,963.00	16.47	110.07	2,873.84	-249.21	579.10	587.46	1.17	-1.17	0.19
3,058.00	17.58	111.23	2,964.67	-259.03	605.12	612.89	1.22	1.17	1.22
3,152.00	16.60	111.66	3,054.52	-269.13	630.83	638.29	1.05	-1.04	0.46
3,247.00	17.30	110.75	3,145.39	-279.14	656.65	663.72	0.79	0.74	-0.96
3,341.00	16.43	111.46	3,235.35	-288.95	682.10	688.73	0.95	-0.93	0.76
3,435.00	15.98	112.81	3,325.62	-298.83	706.40	712.98	0.62	-0.48	1.44
3,529.00	17.37	112.37	3,415.66	-309.19	731.30	737.99	1.48	1.48	-0.47
3,624.00	17.93	113.48	3,506.19	-320.41	757.83	764.76	0.69	0.59	1.17
3,718.00	17.64	114.12	3,595.70	-332.00	784.10	791.61	0.37	-0.31	0.68
3,812.00	16.20	115.57	3,685.63	-343.48	808.93	817.35	1.60	-1.53	1.54
3,906.00	17.53	110.59	3,775.59	-354.12	834.01	842.69	2.09	1.41	-5.30
4,001.00	17.61	110.04	3,866.15	-364.08	860.90	868.84	0.19	0.08	-0.58
4,095.00	16.82	110.55	3,955.94	-373.72	887.00	894.20	0.86	-0.84	0.54
4,190.00	16.64	110.68	4,046.92	-383.35	912.59	919.19	0.19	-0.19	0.14
4,284.00	16.26	112.37	4,137.07	-393.11	937.35	943.68	0.65	-0.40	1.80

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Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
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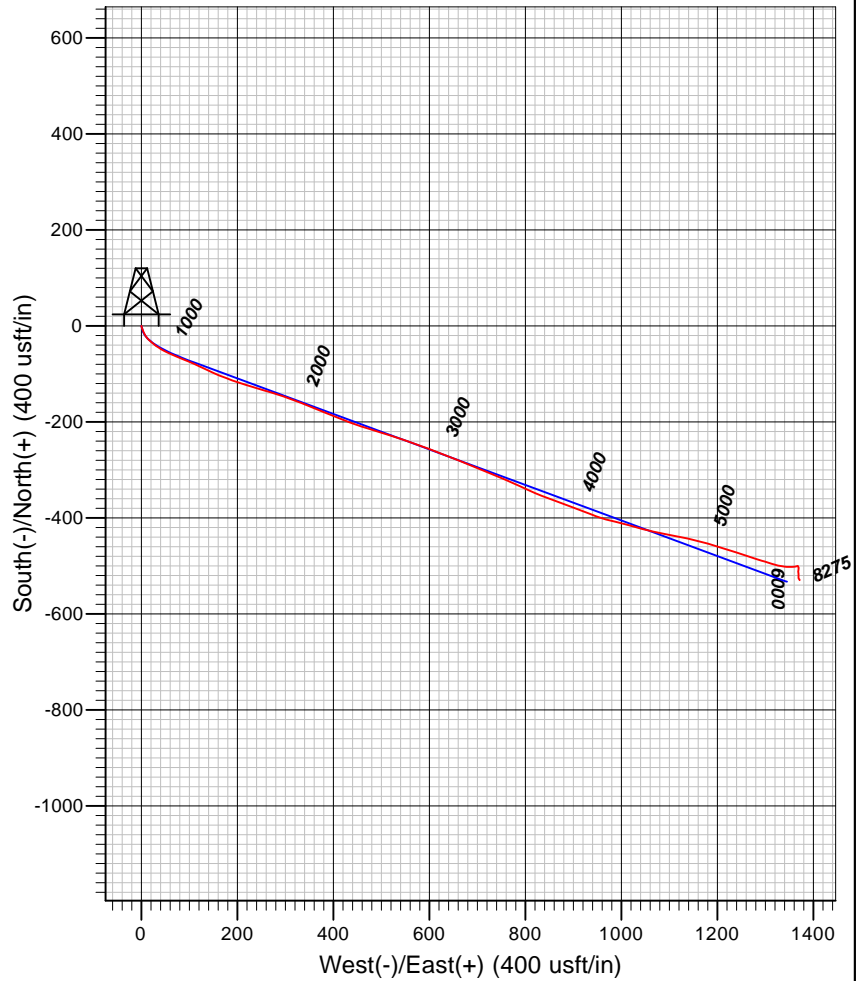
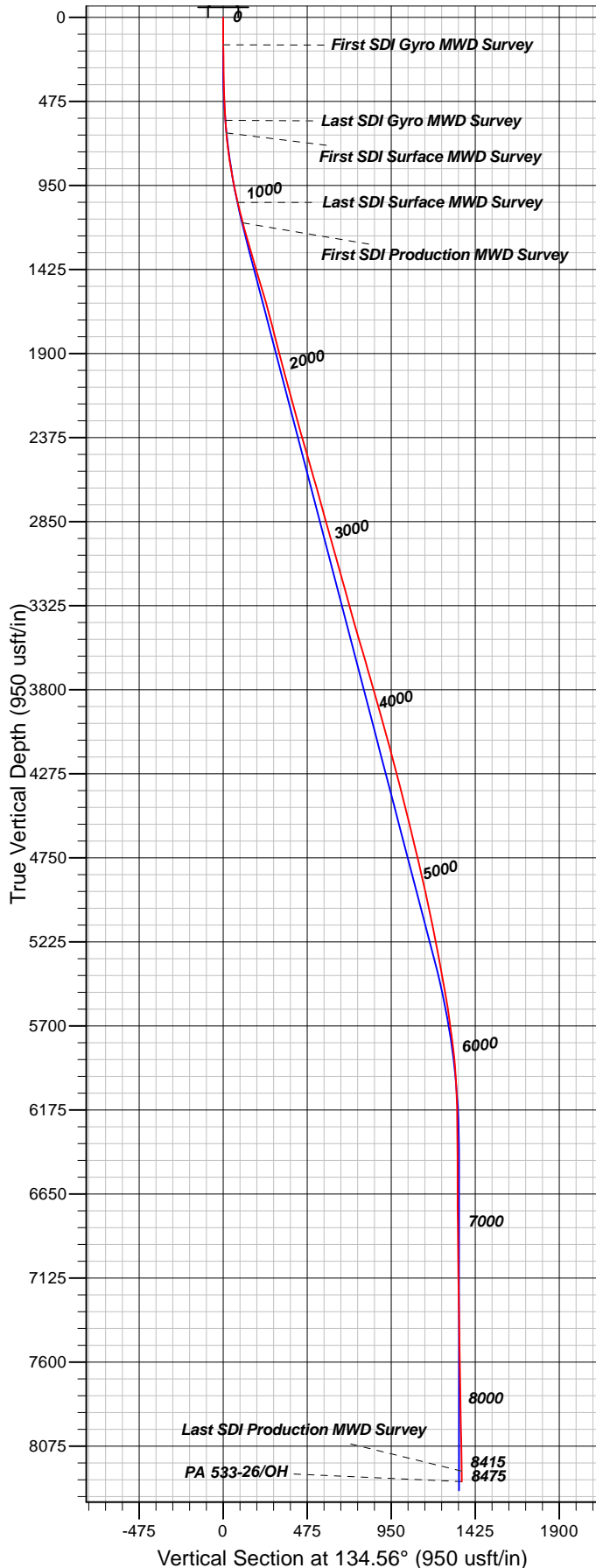
Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,398.00	16.73	104.71	4,246.39	-403.35	967.99	972.69	1.95	0.41	-6.72	
4,472.00	17.28	103.86	4,317.16	-408.69	988.96	991.38	0.82	0.74	-1.15	
4,567.00	16.44	104.44	4,408.07	-415.42	1,015.68	1,015.14	0.90	-0.88	0.61	
4,676.00	15.30	105.88	4,512.92	-423.21	1,044.45	1,041.10	1.11	-1.05	1.32	
4,756.00	16.11	102.28	4,589.93	-428.45	1,065.44	1,059.74	1.58	1.01	-4.50	
4,851.00	16.16	101.75	4,681.19	-433.95	1,091.27	1,081.99	0.16	0.05	-0.56	
4,945.00	15.44	101.34	4,771.64	-439.07	1,116.34	1,103.45	0.78	-0.77	-0.44	
5,039.00	15.46	102.17	4,862.24	-444.18	1,140.86	1,124.50	0.24	0.02	0.88	
5,133.00	14.69	103.67	4,953.01	-449.63	1,164.69	1,145.31	0.92	-0.82	1.60	
5,228.00	13.17	105.77	5,045.21	-455.42	1,186.81	1,165.13	1.69	-1.60	2.21	
5,322.00	12.65	107.37	5,136.83	-461.41	1,206.94	1,183.67	0.67	-0.55	1.70	
5,416.00	12.76	108.75	5,228.53	-467.81	1,226.59	1,202.17	0.34	0.12	1.47	
5,511.00	11.22	109.89	5,321.46	-474.33	1,245.22	1,220.01	1.64	-1.62	1.20	
5,606.00	12.22	106.74	5,414.48	-480.37	1,263.54	1,237.30	1.25	1.05	-3.32	
5,700.00	11.26	108.31	5,506.51	-486.12	1,281.78	1,254.33	1.08	-1.02	1.67	
5,794.00	9.27	105.36	5,599.00	-491.01	1,297.79	1,269.17	2.19	-2.12	-3.14	
5,889.00	9.05	108.01	5,692.79	-495.35	1,312.28	1,282.54	0.50	-0.23	2.79	
5,983.00	8.74	103.35	5,785.66	-499.28	1,326.25	1,295.26	0.83	-0.33	-4.96	
6,077.00	7.08	96.28	5,878.77	-501.56	1,338.96	1,305.91	2.04	-1.77	-7.52	
6,171.00	5.19	90.31	5,972.22	-502.22	1,348.97	1,313.51	2.12	-2.01	-6.35	
6,265.00	3.39	88.31	6,065.96	-502.16	1,356.00	1,318.47	1.92	-1.91	-2.13	
6,360.00	1.52	78.62	6,160.87	-501.83	1,360.05	1,321.12	2.01	-1.97	-10.20	
6,454.00	1.72	79.35	6,254.83	-501.32	1,362.66	1,322.62	0.21	0.21	0.78	
6,548.00	1.69	80.00	6,348.79	-500.82	1,365.41	1,324.23	0.04	-0.03	0.69	
6,643.00	0.09	35.21	6,443.77	-500.52	1,366.83	1,325.03	1.71	-1.68	-47.15	
6,737.00	0.38	59.62	6,537.77	-500.30	1,367.14	1,325.10	0.32	0.31	25.97	
6,831.00	0.15	130.28	6,631.77	-500.22	1,367.50	1,325.30	0.38	-0.24	75.17	
6,926.00	0.12	147.19	6,726.77	-500.39	1,367.65	1,325.53	0.05	-0.03	17.80	
7,020.00	0.55	156.29	6,820.77	-500.88	1,367.89	1,326.04	0.46	0.46	9.68	
7,115.00	0.64	167.12	6,915.76	-501.82	1,368.19	1,326.91	0.15	0.09	11.40	
7,209.00	1.48	150.00	7,009.75	-503.38	1,368.91	1,328.52	0.95	0.89	-18.21	
7,303.00	0.81	196.22	7,103.73	-505.07	1,369.33	1,330.01	1.16	-0.71	49.17	
7,398.00	0.81	181.05	7,198.72	-506.39	1,369.13	1,330.79	0.23	0.00	-15.97	
7,492.00	0.97	195.61	7,292.71	-507.82	1,368.91	1,331.63	0.29	0.17	15.49	
7,586.00	1.39	190.09	7,386.69	-509.71	1,368.49	1,332.66	0.46	0.45	-5.87	
7,681.00	1.45	172.11	7,481.66	-512.03	1,368.46	1,334.27	0.47	0.06	-18.93	
7,775.00	1.44	169.39	7,575.63	-514.37	1,368.84	1,336.18	0.07	-0.01	-2.89	
7,869.00	1.97	179.78	7,669.59	-517.15	1,369.06	1,338.29	0.65	0.56	11.05	
7,964.00	1.58	185.15	7,764.54	-520.08	1,368.95	1,340.27	0.45	-0.41	5.65	
8,058.00	1.47	170.86	7,858.51	-522.56	1,369.03	1,342.07	0.42	-0.12	-15.20	
8,153.00	1.33	187.49	7,953.48	-524.86	1,369.08	1,343.71	0.45	-0.15	17.51	
8,247.00	0.97	149.39	8,047.46	-526.63	1,369.34	1,345.14	0.88	-0.38	-40.53	
8,341.00	1.03	141.06	8,141.45	-527.97	1,370.27	1,346.75	0.17	0.06	-8.86	

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Site:	PA 23-26 Pad	MD Reference:	GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
Well:	PA 533-26	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Grand Junction District

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,415.00	0.97	156.33	8,215.44	-529.06	1,370.94	1,347.99	0.37	-0.08	20.64	
Last SDI Production MWD Survey										
8,475.00	0.97	156.33	8,275.43	-529.99	1,371.35	1,348.93	0.00	0.00	0.00	
Projection to TD - PBHL(PA 533-26)										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
154.00	154.00	-0.10	0.22	First SDI Gyro MWD Survey	
581.00	580.73	-12.78	4.52	Last SDI Gyro MWD Survey	
653.00	652.51	-17.90	6.61	First SDI Surface MWD Survey	
1,052.00	1,045.60	-57.56	58.45	Last SDI Surface MWD Survey	
1,171.00	1,160.75	-69.25	86.08	First SDI Production MWD Survey	
8,415.00	8,215.44	-529.06	1,370.94	Last SDI Production MWD Survey	
8,475.00	8,275.43	-529.99	1,371.35	Projection to TD	

Checked By: _____ Approved By: _____ Date: _____



Well Details: PA 533-26

TVD Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271) and Level: 5637.00
 +N/-S +E/-W Northing Easting Latitude Longitude Slot
 0.00 0.00 1614389.70 2303936.20 39.4943307 -107.9668025PA 533-26 (B7)

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well PA 533-26 - Slot PA 533-26 (B7), True North
 Vertical (TVD) Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
 Section (VS) Reference: Slot - PA 533-26 (B7)(0.00N, 0.00E)
 Measured Depth Reference: GL 5637' & RKB 24' @ 5661.00usft (H&P 271)
 Calculation Method: Minimum Curvature

PROJECT DETAILS: Garfield County, CO NAD83

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Central Zone

System Datum: Mean Sea Level

Plan: OH

10:04, July 05 2018
 Created By: Mel Mireles Jr.