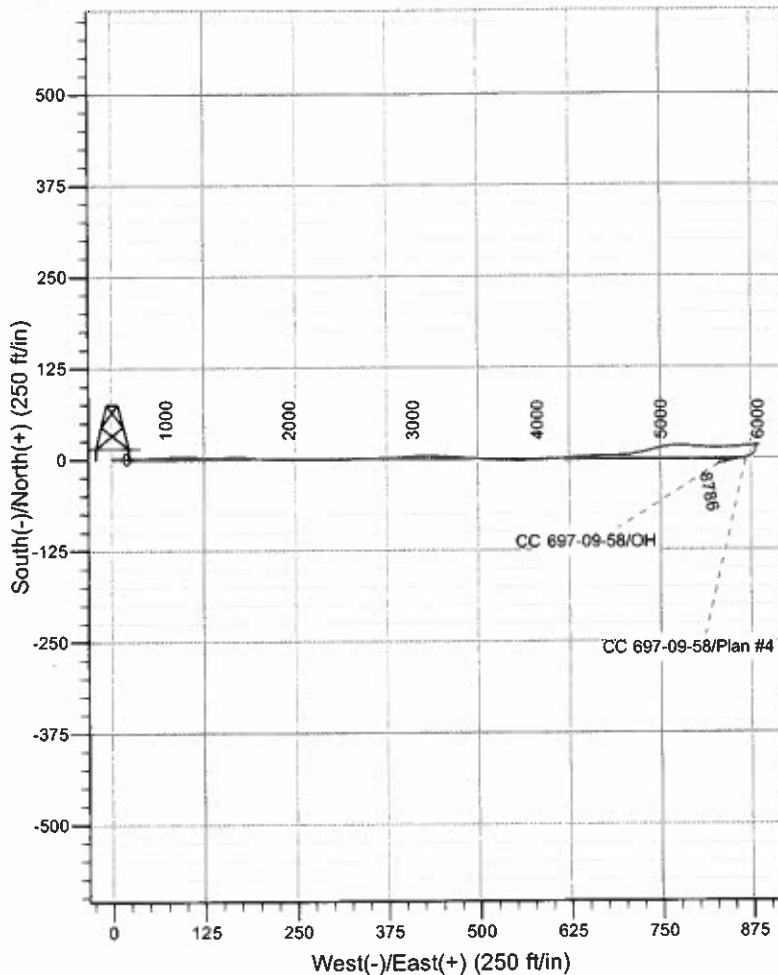
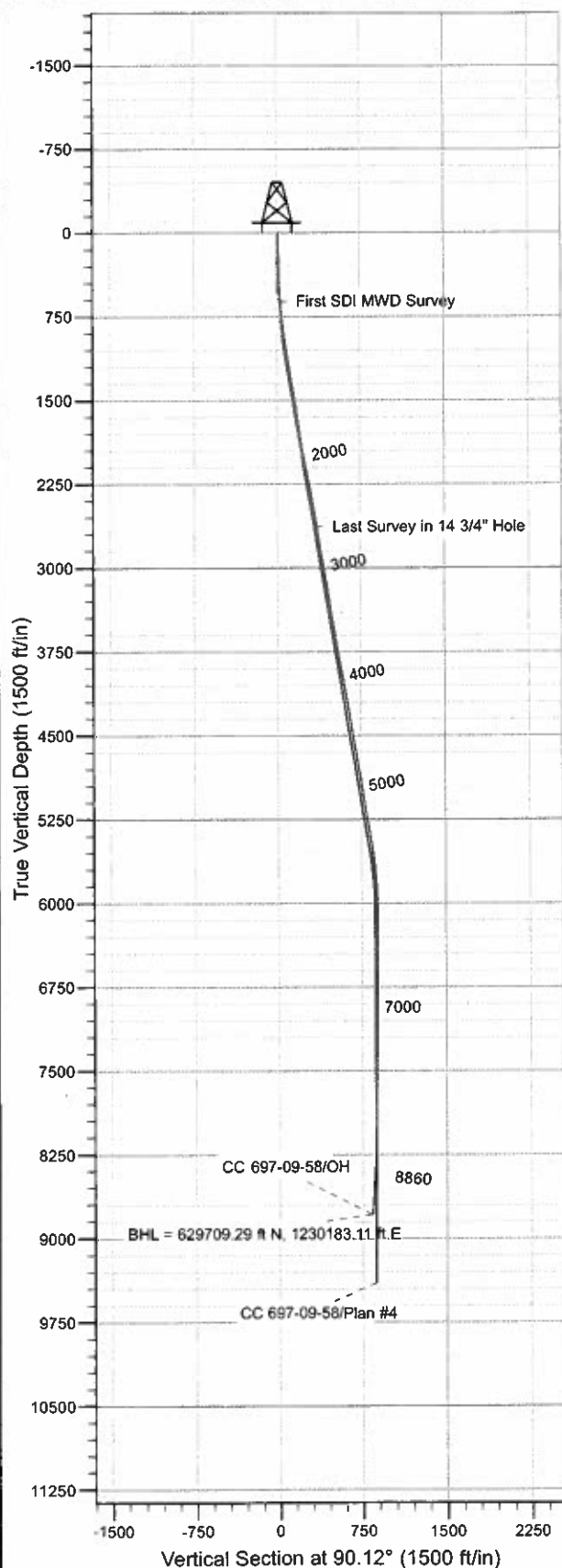




Scientific Drilling

Project: Garfield County, CO NAD27
Site: Cascade Creek 609-14 Pad
Well: CC 697-09-58
Wellbore: OH
Design: OH

OXY USA RMAT



WELL DETAILS: CC 697-09-58

Ground Level: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)	
North	East
0.00	0.00
629742.46	1229353.75
Latitude 39° 31' 50.303 N Longitude 108° 13' 57.117 W J	

REFERENCE INFORMATION

Co-ordinate (N/E) Reference: Well CC 697-09-58 - Slot J, True North
Vertical (TVD) Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Section (VS) Reference: Slot - J(0.00N, 0.00E)
Measured Depth Reference: GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Calculation Method: Minimum Curvature
Local North: True
Location: Sec 9 T6S R97W

PROJECT DETAILS: Garfield County, CO NAD27

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: Colorado Central 502

Design: OH (CC 697-09-58/OH)

Created By: Julie Cruse Date: 2010-08-16



Scientific Drilling

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 609-14 Pad
CC 697-09-58 - Slot J**

OH

Design: OH

Standard Survey Report

16 August, 2010



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-58 - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Site:	Cascade Creek 609-14 Pad	MD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Well:	CC 697-09-58	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

Project	Garfield County, CO NAD27		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Colorado Central 502		

Site	Cascade Creek 609-14 Pad, Sec 9 T6S R97W		
Site Position:		Northing:	629,789.23 usft
From:	Map	Easting:	1,229,350.88 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in
		Latitude:	39° 31' 50.765 N
		Longitude:	108° 13' 57.172 W
		Grid Convergence:	-1.72 °

Well	CC 697-09-58 - Slot J, 177' FSL 273' FEL		
Well Position	+N/-S	0.00 ft	Northing: 629,742.46 usft
	+E/-W	0.00 ft	Easting: 1,229,353.75 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft
		Latitude:	39° 31' 50.303 N
		Longitude:	108° 13' 57.117 W
		Ground Level:	8,393.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2010-06-17	10.59	65.75	52,318

Design	OH				
Audit Notes:		Phase:	ACTUAL	Tie On Depth:	0.00
Version:	1.0				
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	90.12	

Survey Program	Date	2010-08-16			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
92.00	553.00	Survey #1 - Surface Gyro (OH)	Standard Keeper 103	Standard Wireline Keeper ver 1.0.3	
617.00	2,660.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,883.00	8,860.00	Survey #3 - Production (OH)	MWD-SDI	MWD - Standard ISCWSA	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
92.00	1.23	71.16	91.99	0.32	0.93	0.93	1.34	1.34	9.37	
122.00	1.60	73.97	121.98	0.54	1.64	1.64	1.25	1.23	35.65	
153.00	1.82	85.02	152.97	0.70	2.55	2.55	1.28	0.71	15.00	
184.00	1.45	89.67	183.96	0.75	3.43	3.43	1.27	-1.19		
215.00	1.46	96.45	214.95	0.70	4.22	4.21	0.56	0.03	21.87	
245.00	1.45	89.07	244.94	0.67	4.97	4.97	0.63	-0.03	-24.60	
276.00	1.58	84.99	275.93	0.71	5.79	5.79	0.54	0.42	-13.16	
307.00	1.77	87.25	306.91	0.77	6.70	6.70	0.65	0.61	7.29	

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-58 - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Site:	Cascade Creek 609-14 Pad	MD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Well:	CC 697-09-58	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
338.00	2.24	92.47	337.89	0.77	7.78	7.78	1.63	1.52	16.84
368.00	2.41	91.55	367.87	0.73	9.00	8.99	0.58	0.57	-3.07
399.00	2.32	82.61	398.84	0.79	10.27	10.27	1.22	-0.29	-28.84
430.00	2.59	87.28	429.82	0.90	11.59	11.59	1.08	0.87	15.06
461.00	2.75	91.91	460.78	0.91	13.03	13.03	0.87	0.52	14.94
522.00	3.12	97.76	521.70	0.64	16.14	16.14	0.78	0.61	9.59
553.00	3.08	96.26	552.66	0.43	17.81	17.81	0.29	-0.13	-4.84
Last SDI Gyro Survey									
617.00	3.60	89.03	616.55	0.28	21.52	21.52	1.04	0.81	-11.30
First SDI MWD Survey									
709.00	5.02	87.65	708.29	0.49	28.43	28.43	1.55	1.54	-1.50
802.00	6.97	87.55	800.77	0.90	38.14	38.14	2.10	2.10	-0.11
895.00	7.23	88.65	893.06	1.28	49.63	49.62	0.32	0.28	1.18
987.00	8.03	87.06	984.24	1.75	61.83	61.83	0.90	0.87	-1.73
1,082.00	10.65	87.46	1,077.98	2.48	77.23	77.23	2.76	2.76	0.42
1,177.00	10.15	90.64	1,171.42	2.77	94.37	94.37	0.80	-0.53	3.35
1,271.00	8.50	92.98	1,264.17	2.32	109.59	109.59	1.80	-1.76	2.49
1,366.00	9.79	93.96	1,357.96	1.40	124.66	124.66	1.37	1.36	1.03
1,461.00	10.58	88.04	1,451.47	1.14	141.44	141.43	1.38	0.83	-6.23
1,555.00	9.54	87.37	1,544.02	1.79	157.84	157.84	1.11	-1.11	-0.71
1,650.00	7.83	90.27	1,637.93	2.12	172.18	172.17	1.86	-1.80	3.05
1,744.00	7.90	96.00	1,731.04	1.41	185.01	185.00	0.84	0.07	6.10
1,839.00	9.56	95.35	1,824.94	0.00	199.35	199.35	1.75	1.75	-0.68
1,934.00	10.60	92.00	1,918.47	-1.04	215.94	215.94	1.26	1.09	-3.53
2,029.00	10.41	90.98	2,011.88	-1.50	233.26	233.26	0.28	-0.20	-1.07
2,123.00	10.99	90.53	2,104.25	-1.72	250.71	250.71	0.62	0.62	-0.48
2,218.00	11.70	91.51	2,197.39	-2.06	269.39	269.39	0.77	0.75	1.03
2,313.00	10.27	88.87	2,290.65	-2.15	287.49	287.49	1.60	-1.51	-2.78
2,407.00	10.31	88.99	2,383.14	-1.84	304.28	304.28	0.05	0.04	0.13
2,502.00	10.19	88.30	2,476.62	-1.44	321.18	321.18	0.18	-0.13	-0.73
2,597.00	9.43	87.38	2,570.23	-0.83	337.35	337.35	0.82	-0.80	-0.97
2,660.00	8.78	87.52	2,632.44	-0.39	347.31	347.31	1.03	-1.03	0.22
Last Survey in 14 3/4" Hole									
2,883.00	9.96	88.61	2,852.46	0.82	383.59	383.59	0.54	0.53	0.49
First Survey in 8 3/4" Hole									
2,978.00	10.44	86.03	2,945.96	1.61	400.39	400.39	0.70	0.51	-2.72
3,073.00	9.60	86.42	3,039.51	2.70	416.89	416.88	0.89	-0.88	0.41
3,167.00	10.17	92.55	3,132.11	2.82	433.00	432.99	1.27	0.61	6.52
3,262.00	9.61	91.84	3,225.70	2.20	449.31	449.30	0.60	-0.59	-0.75
3,357.00	8.76	91.74	3,319.48	1.72	464.46	464.46	0.89	-0.89	-0.11
3,451.00	10.29	95.08	3,412.18	0.76	479.98	479.98	1.73	1.63	3.55
3,546.00	9.54	94.26	3,505.76	-0.58	496.28	496.28	0.80	-0.79	-0.86
3,641.00	8.60	95.63	3,599.57	-1.86	511.20	511.21	1.02	-0.99	1.44
3,736.00	10.25	90.76	3,693.29	-2.67	526.72	526.73	1.93	1.74	-5.13

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-58 - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Site:	Cascade Creek 609-14 Pad	MD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Well:	CC 697-09-58	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
3,830.00	9.79	90.88	3,785.86	-2.90	543.08	543.08	0.49	-0.49	0.13
3,925.00	10.62	91.35	3,879.35	-3.23	559.91	559.91	0.88	0.87	0.49
4,020.00	11.10	86.85	3,972.65	-2.93	577.79	577.79	1.03	0.51	-4.74
4,114.00	10.54	86.28	4,064.98	-1.88	595.40	595.41	0.61	-0.60	-0.61
4,209.00	10.37	85.57	4,158.40	-0.66	612.60	612.60	0.22	-0.18	-0.75
4,304.00	9.85	86.17	4,251.93	0.55	629.23	629.23	0.56	-0.55	0.63
4,398.00	9.58	87.57	4,344.58	1.42	645.07	645.06	0.38	-0.29	1.49
4,493.00	9.23	87.84	4,438.30	2.04	660.58	660.57	0.37	-0.37	0.28
4,588.00	9.06	89.77	4,532.10	2.36	675.67	675.67	0.37	-0.18	2.03
4,683.00	9.23	87.22	4,625.89	2.76	690.76	690.76	0.46	0.18	-2.68
4,778.00	10.82	84.41	4,719.44	3.99	707.25	707.24	1.75	1.67	-2.96
4,872.00	10.99	75.44	4,811.75	7.11	724.70	724.69	1.81	0.18	-9.54
4,967.00	9.94	74.74	4,905.16	11.54	741.38	741.35	1.11	-1.11	-0.74
5,061.00	8.62	82.04	4,997.94	14.65	756.18	756.15	1.88	-1.40	7.77
5,156.00	9.15	86.78	5,091.80	16.06	770.77	770.74	0.95	0.56	4.99
5,251.00	9.41	95.31	5,185.56	15.77	786.05	786.02	1.47	0.27	8.98
5,346.00	10.11	93.11	5,279.18	14.60	802.11	802.08	0.83	0.74	-2.32
5,440.00	9.94	93.11	5,371.75	13.71	818.45	818.42	0.18	-0.18	0.00
5,535.00	8.97	87.66	5,465.46	13.57	834.04	834.01	1.39	-1.02	-5.74
5,630.00	7.91	88.10	5,559.43	14.09	847.97	847.94	1.12	-1.12	0.46
5,724.00	6.42	84.85	5,652.69	14.77	859.67	859.64	1.64	-1.59	-3.46
5,819.00	5.01	84.06	5,747.22	15.68	869.08	869.05	1.49	-1.48	-0.83
5,914.00	3.52	88.45	5,841.95	16.19	876.13	876.09	1.60	-1.57	4.62
6,009.00	2.64	81.24	5,936.81	16.60	881.20	881.17	1.01	-0.93	-7.59
6,103.00	1.49	95.04	6,030.75	16.82	884.56	884.53	1.32	-1.22	14.68
6,198.00	0.35	286.64	6,125.74	16.79	885.51	885.48	1.93	-1.20	-177.26
6,293.00	0.62	281.20	6,220.74	16.98	884.73	884.70	0.29	0.28	-5.73
6,388.00	1.06	262.04	6,315.73	16.96	883.36	883.32	0.54	0.46	-20.17
6,482.00	0.62	267.22	6,409.72	16.81	881.99	881.95	0.47	-0.47	5.51
6,577.00	0.18	223.45	6,504.72	16.68	881.37	881.34	0.53	-0.46	-46.07
6,672.00	1.06	173.35	6,599.71	15.70	881.37	881.34	1.00	0.93	-52.74
6,766.00	1.41	198.05	6,693.69	13.73	881.11	881.08	0.67	0.37	26.28
6,861.00	1.32	170.19	6,788.66	11.54	880.94	880.91	0.70	-0.09	-29.33
6,956.00	1.67	190.14	6,883.63	9.10	880.88	880.86	0.65	0.37	21.00
7,051.00	0.44	197.00	6,978.61	7.39	880.53	880.51	1.30	-1.29	7.22
7,146.00	0.18	268.71	7,073.61	7.04	880.27	880.26	0.44	-0.27	75.48
7,240.00	1.06	221.69	7,167.60	6.39	879.55	879.53	1.01	0.94	-50.02
7,335.00	1.14	216.42	7,262.59	4.97	878.40	878.39	0.14	0.08	-5.55
7,430.00	1.76	227.76	7,357.56	3.23	876.76	876.75	0.72	0.65	11.94
7,525.00	1.14	233.29	7,452.53	1.68	874.92	874.92	0.67	-0.65	5.82
7,619.00	0.26	359.15	7,546.52	1.34	874.17	874.17	1.39	-0.94	133.89
7,714.00	1.23	276.45	7,641.51	1.67	873.15	873.15	1.29	1.02	-87.05
7,809.00	1.32	247.36	7,736.49	1.36	871.13	871.13	0.68	0.09	-30.62

Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-09-58 - Slot J
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Site:	Cascade Creek 609-14 Pad	MD Reference:	GL 8393' & RKB 30' @ 8423.00ft (H&P 330)
Well:	CC 697-09-58	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies-R5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,903.00	0.88	142.06	7,830.48	0.37	870.58	870.57	1.88	-0.47	-112.02
7,998.00	0.18	356.25	7,925.48	-0.05	871.01	871.01	1.09	-0.74	-153.48
8,093.00	0.88	276.45	8,020.47	0.18	870.28	870.28	0.91	0.74	-84.00
8,187.00	1.93	255.36	8,114.44	-0.14	868.03	868.03	1.23	1.12	-22.44
8,282.00	2.11	258.43	8,209.38	-0.90	864.77	864.77	0.22	0.19	3.23
8,377.00	2.81	261.24	8,304.30	-1.60	860.76	860.76	0.75	0.74	2.96
8,472.00	3.43	260.01	8,399.15	-2.45	855.66	855.66	0.66	0.65	-1.29
8,566.00	3.61	258.26	8,492.98	-3.54	849.99	849.99	0.22	0.19	-1.86
8,661.00	3.87	254.48	8,587.77	-5.00	843.97	843.98	0.38	0.27	-3.98
8,756.00	4.22	257.82	8,682.54	-6.60	837.47	837.48	0.44	0.37	3.52
Last SDI MWD Survey									
8,860.00	4.22	257.82	8,786.26	-8.21	829.98	830.00	0.00	0.00	0.00
Projection to TD - BHL = 629709.29 ft N, 1230183.11 ft E									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
553.00	552.66	0.43	17.81	Last SDI Gyro Survey
617.00	616.55	0.28	21.52	First SDI MWD Survey
2,660.00	2,632.44	-0.39	347.31	Last Survey in 14 3/4" Hole
2,883.00	2,852.46	0.82	383.59	First Survey in 8 3/4" Hole
8,756.00	8,682.54	-6.60	837.47	Last SDI MWD Survey
8,860.00	8,786.26	-8.21	829.98	Projection to TD
8,860.00	8,786.26	-8.21	829.98	BHL = 629709.29 ft N, 1230183.11 ft E

Checked By: _____	Approved By: _____	Date: _____
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