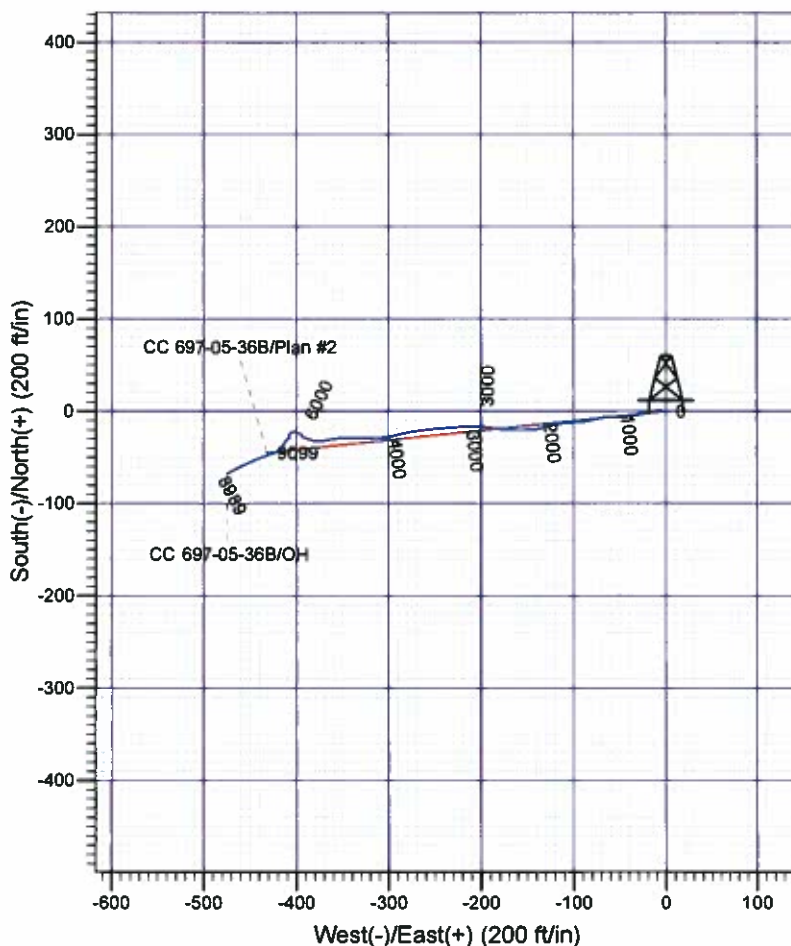
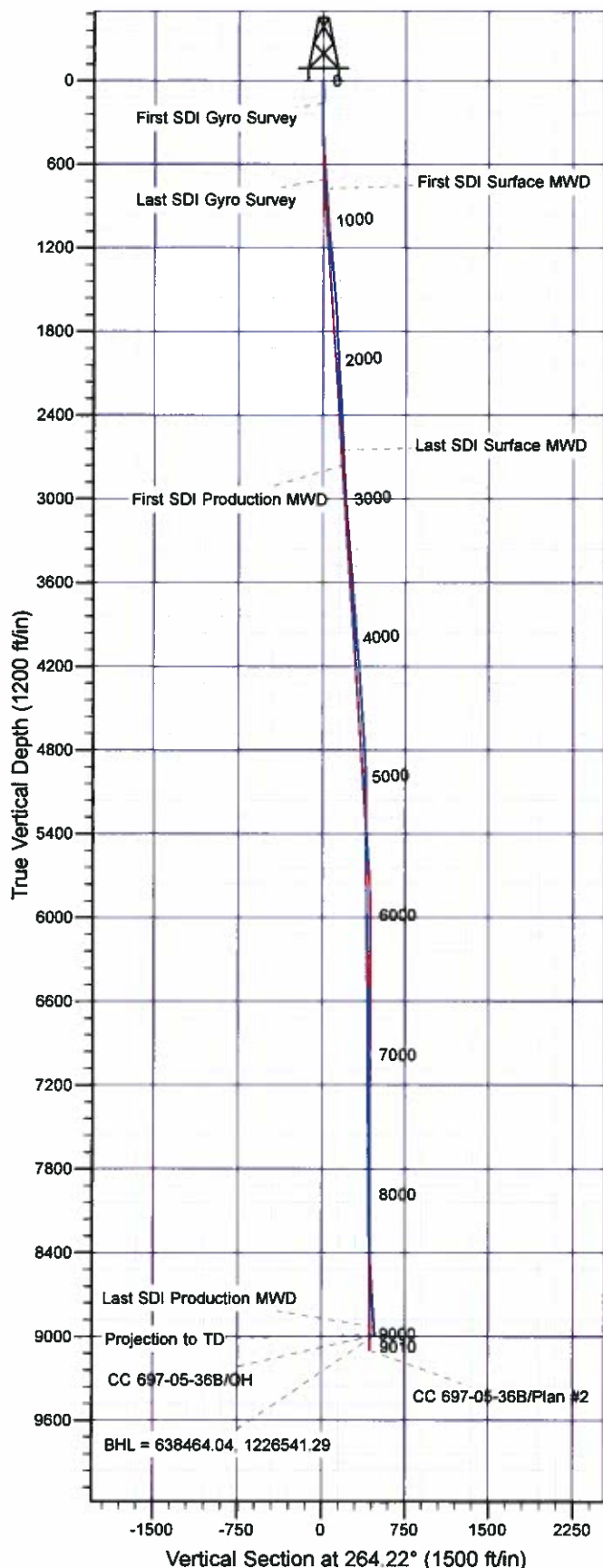




Scientific Drilling

Rocky Mountain Operations

Company: OXY USA RMAT
Project: Garfield County, CO NAD27
Site: Cascade Creek 697-06C Pad
Well: CC 697-05-36B
Wellbore: OH
Design: OH



Well Details: CC 697-05-36B

+N/-S	+E/-W	North	East	Latitude	Longitude	Slot
0.00	0.00	638517.26	1227017.56	39° 33' 16.296 N	108° 14' 30.299 W	G

REFERENCE INFORMATION

Co-ordinate (NE) Reference: Well CC 697-05-36B - Slot G, True North
Vertical (TVD) Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Section (VS) Reference: Slot - G(0.00N, 0.00E)
Measured Depth Reference: GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Calculation Method: Minimum Curvature

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

System Datum: Mean Sea Level

Plan: OH

10:16, February 29 2012
Created By: Janie Cooke

OXY USA RMAT

**Garfield County, CO NAD27
Cascade Creek 697-05C Pad
CC 697-05-36B - Slot G**

OH

Design: OH

Standard Survey Report

29 February, 2012



Scientific Drilling International, Inc.

Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-36B - Slot G
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-36B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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 697-05C Pad, Sec. 5 T6S R97W				
Site Position:		Northing:	637,463.43 usft	Latitude:	39° 33' 5.626 N
From:	Map	Easting:	1,226,150.07 usft	Longitude:	108° 14' 40.963 W
Position Uncertainty:	0.00 ft	Slot Radius:	0.000 in	Grid Convergence:	-1.73 °

Well	CC 697-05-36B - Slot G					
Well Position	+N/-S	0.00 ft	Northing:	638,517.26 usft	Latitude:	39° 33' 16.296 N
	+E/-W	0.00 ft	Easting:	1,227,017.56 usft	Longitude:	108° 14' 30.299 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	8,423.00 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	12/16/2010	10.51	65.77	52,312

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	264.22	

Survey Program	Date	02/29/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
164.00	705.00	Survey #1 - Gyro Survey (OH)	SDI Standard Keeper 103	SDI Standard Wireline Keeper ver 1.0.3	
775.00	2,657.00	Survey #2 - Surface MWD (OH)	MWD-SDI	MWD - Standard ISCWSA	
2,763.00	9,010.00	Survey #3 - Production MWD (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)	Build 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	
164.00	0.18	168.66	164.00	-0.25	0.05	-0.02	0.11	0.11	0.00	
First SDI Gyro Survey										
254.00	0.00	89.12	254.00	-0.39	0.08	-0.04	0.20	-0.20	0.00	
345.00	0.79	283.36	345.00	-0.25	-0.53	0.55	0.87	0.87	0.00	
435.00	2.55	283.10	434.95	0.35	-3.09	3.03	1.96	1.96	-0.29	
525.00	3.70	272.46	524.82	0.93	-7.94	7.80	1.43	1.28	-11.82	
614.00	4.84	254.36	613.58	0.04	-14.42	14.34	1.97	1.28	-20.34	
705.00	6.50	253.65	704.13	-2.44	-23.06	23.19	1.83	1.82	-0.78	

Scientific Drilling International, Inc.

Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-36B - Slot G
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-36B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)
Last SDI Gyro Survey									
775.00	5.54	259.57	773.74	-4.17	-30.19	30.45	1.63	-1.37	8.46
First SDI Surface MWD									
865.00	4.22	261.68	863.41	-5.44	-37.74	38.09	1.48	-1.47	2.34
955.00	4.13	260.89	953.17	-6.43	-44.21	44.64	0.12	-0.10	-0.88
1,050.00	6.07	274.25	1,047.80	-6.60	-52.60	53.00	2.38	2.04	14.06
1,145.00	7.30	266.42	1,142.15	-6.60	-63.63	63.98	1.61	1.29	-8.24
1,239.00	6.16	254.82	1,235.51	-8.30	-74.46	74.92	1.88	-1.21	-12.34
1,334.00	6.07	258.51	1,329.97	-10.63	-84.30	84.95	0.42	-0.09	3.88
1,428.00	5.54	266.34	1,423.49	-11.91	-93.70	94.43	1.01	-0.56	8.33
1,523.00	6.95	267.65	1,517.92	-12.44	-104.02	104.75	1.49	1.48	1.38
1,617.00	5.45	259.83	1,611.37	-13.46	-114.10	114.88	1.83	-1.60	-8.32
1,712.00	3.25	256.32	1,706.09	-14.90	-121.16	122.04	2.33	-2.32	-3.69
1,806.00	3.34	255.79	1,799.93	-16.20	-126.40	127.39	0.10	0.10	-0.56
1,901.00	3.96	256.40	1,894.74	-17.65	-132.27	133.38	0.65	0.65	0.64
1,996.00	4.40	253.33	1,989.49	-19.47	-138.95	140.21	0.52	0.46	-3.23
2,090.00	3.78	272.14	2,083.25	-20.38	-145.50	146.82	1.56	-0.66	20.01
2,185.00	3.78	269.50	2,178.05	-20.29	-151.76	153.04	0.18	0.00	-2.78
2,279.00	4.92	267.65	2,271.77	-20.49	-158.89	160.15	1.22	1.21	-1.97
2,373.00	4.92	272.84	2,365.43	-20.45	-166.94	168.15	0.47	0.00	5.52
2,468.00	3.25	277.23	2,460.18	-19.91	-173.68	174.81	1.79	-1.76	4.62
2,562.00	3.17	272.84	2,554.04	-19.45	-178.92	179.97	0.27	-0.09	-4.67
2,657.00	3.61	278.99	2,648.87	-18.85	-184.50	185.46	0.60	0.46	6.47
Last SDI Surface MWD									
2,763.00	3.43	281.86	2,754.67	-17.68	-190.90	191.71	0.24	-0.17	2.71
First SDI Production MWD									
2,857.00	3.36	274.71	2,848.50	-16.87	-196.40	197.10	0.46	-0.07	-7.61
2,952.00	3.78	271.87	2,943.32	-16.54	-202.30	202.94	0.48	0.44	-2.99
3,046.00	5.10	270.20	3,037.04	-16.43	-209.58	210.17	1.41	1.40	-1.78
3,141.00	5.63	265.46	3,131.62	-16.78	-218.45	219.02	0.73	0.56	-4.99
3,235.00	5.89	265.63	3,225.15	-17.51	-227.85	228.46	0.28	0.28	0.18
3,330.00	5.80	266.34	3,319.65	-18.19	-237.50	238.13	0.12	-0.09	0.75
3,425.00	5.72	265.63	3,414.17	-18.86	-247.01	247.66	0.11	-0.08	-0.75
3,519.00	5.98	263.00	3,507.68	-19.81	-256.54	257.23	0.40	0.28	-2.80
3,614.00	5.89	262.73	3,602.17	-21.03	-266.29	267.05	0.10	-0.09	-0.28
3,708.00	6.16	260.27	3,695.65	-22.49	-276.04	276.91	0.40	0.29	-2.62
3,803.00	5.98	257.20	3,790.12	-24.45	-285.89	286.90	0.39	-0.19	-3.23
3,897.00	5.72	253.77	3,883.63	-26.85	-295.17	296.37	0.46	-0.28	-3.65
3,992.00	6.24	266.07	3,978.12	-28.52	-304.86	306.19	1.45	0.55	12.95
4,086.00	6.16	268.53	4,071.57	-29.00	-315.00	316.32	0.30	-0.09	2.62
4,181.00	5.54	271.43	4,166.07	-29.02	-324.68	325.95	0.72	-0.65	3.05
4,275.00	5.45	270.99	4,259.64	-28.83	-333.68	334.89	0.11	-0.10	-0.47
4,369.00	5.28	270.73	4,353.23	-28.70	-342.47	343.82	0.18	-0.18	-0.28
4,464.00	5.28	264.67	4,447.83	-29.05	-351.19	352.33	0.59	0.00	-6.38

Scientific Drilling International, Inc.

Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-36B - Slot G
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 697-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-36B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)
4,559.00	4.92	258.78	4,542.45	-30.25	-359.54	380.76	0.67	-0.38	-6.20
4,653.00	4.75	261.33	4,636.12	-31.62	-367.34	368.66	0.29	-0.18	2.71
4,748.00	4.66	262.12	4,730.80	-32.74	-375.05	376.44	0.12	-0.09	0.83
4,843.00	3.69	292.09	4,825.56	-32.12	-381.71	383.00	2.48	-1.02	31.55
4,937.00	3.69	287.34	4,919.36	-30.08	-387.40	388.46	0.33	0.00	-5.05
5,032.00	2.55	290.24	5,014.22	-28.44	-392.30	393.17	1.21	-1.20	3.05
5,126.00	0.62	327.86	5,108.18	-27.28	-394.53	395.27	2.23	-2.05	40.02
5,221.00	0.62	5.04	5,203.17	-26.34	-394.76	395.41	0.42	0.00	39.14
5,315.00	0.35	347.90	5,297.17	-25.55	-394.78	395.34	0.32	-0.29	-18.23
5,410.00	0.44	308.08	5,392.17	-25.04	-395.12	395.64	0.30	0.09	-41.92
5,504.00	0.35	348.95	5,486.17	-24.53	-395.46	395.92	0.31	-0.10	43.48
5,599.00	0.53	269.59	5,581.17	-24.25	-395.96	396.39	0.61	0.19	-83.54
5,693.00	0.70	270.91	5,675.16	-24.25	-396.97	397.39	0.18	0.18	1.40
5,788.00	0.62	296.04	5,770.15	-24.01	-398.01	398.40	0.31	-0.08	28.45
5,882.00	0.70	285.41	5,864.15	-23.64	-399.02	399.37	0.16	0.09	-11.31
5,977.00	0.70	301.32	5,959.14	-23.18	-400.08	400.38	0.20	0.00	16.75
6,071.00	0.97	291.51	6,053.13	-22.59	-401.31	401.54	0.32	0.29	-10.44
6,166.00	1.32	269.59	6,148.11	-22.30	-403.15	403.34	0.58	0.37	-23.07
6,260.00	1.23	247.70	6,242.09	-22.69	-405.16	405.39	0.52	-0.10	-23.29
6,355.00	1.23	225.38	6,337.07	-23.80	-406.83	407.16	0.50	0.00	-23.49
6,449.00	0.79	191.19	6,431.05	-25.14	-407.68	408.14	0.77	-0.47	-36.37
6,544.00	0.79	187.67	6,526.04	-26.43	-407.89	408.48	0.05	0.00	-3.71
6,638.00	0.79	174.75	6,620.04	-27.72	-407.92	408.64	0.19	0.00	-13.74
6,732.00	0.70	208.77	6,714.03	-28.87	-408.14	408.97	0.47	-0.10	36.19
6,827.00	0.88	229.77	6,809.02	-29.85	-408.97	409.90	0.36	0.19	22.11
6,922.00	1.23	230.04	6,904.00	-30.98	-410.31	411.34	0.37	0.37	0.28
7,016.00	0.62	210.79	6,997.99	-32.06	-411.34	412.48	0.72	-0.65	-20.48
7,111.00	0.35	207.10	7,092.99	-32.76	-411.74	412.95	0.29	-0.28	-3.68
7,205.00	0.09	329.71	7,186.99	-32.95	-411.91	413.13	0.43	-0.28	130.44
7,300.00	0.44	212.72	7,281.99	-33.19	-412.14	413.39	0.51	0.37	-123.15
7,394.00	1.41	214.31	7,375.97	-34.45	-412.99	414.36	1.03	1.03	1.69
7,489.00	2.02	211.32	7,470.93	-36.85	-414.52	416.12	0.65	0.64	-3.15
7,583.00	0.97	190.84	7,564.90	-39.05	-415.53	417.35	1.24	-1.12	-21.79
7,678.00	0.88	223.09	7,659.88	-40.37	-416.18	418.13	0.55	-0.09	33.95
7,772.00	1.14	230.74	7,753.87	-41.49	-417.40	419.45	0.31	0.28	8.14
7,867.00	0.09	272.66	7,848.86	-42.08	-418.20	420.31	1.13	-1.11	44.13
7,961.00	0.35	98.90	7,942.86	-42.12	-417.99	420.11	0.47	0.28	-184.85
8,056.00	0.62	211.14	8,037.86	-42.61	-417.97	420.14	0.86	0.28	118.15
8,057.32	0.63	211.83	8,039.18	-42.62	-417.98	420.15	0.70	0.41	52.38
CC 697-05-36B Target									
8,150.00	1.14	239.27	8,131.85	-43.52	-419.04	421.29	0.70	0.56	29.61
8,245.00	1.85	250.69	8,226.82	-44.51	-421.30	423.64	0.81	0.75	12.02
8,339.00	2.99	258.16	8,320.73	-45.52	-425.13	427.55	1.26	1.21	7.95

Scientific Drilling International, Inc.

Survey Report



Company:	OXY USA RMAT	Local Co-ordinate Reference:	Well CC 697-05-36B - Slot G
Project:	Garfield County, CO NAD27	TVD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Site:	Cascade Creek 897-05C Pad	MD Reference:	GL 8423' & RKB 30' @ 8453.00ft (H&P 353)
Well:	CC 697-05-36B	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	Rockies Compass Server

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)
8,434.00	3.43	248.76	8,415.58	-47.05	-430.20	432.76	0.72	0.46	-9.89
8,528.00	3.78	247.09	8,509.40	-49.28	-435.68	438.43	0.39	0.37	-1.78
8,623.00	4.22	249.46	8,604.17	-51.72	-441.84	444.80	0.49	0.46	2.49
8,717.00	4.57	244.45	8,697.89	-54.55	-448.45	451.67	0.55	0.37	-5.33
8,812.00	5.36	244.63	8,792.53	-58.09	-455.88	459.41	0.83	0.83	0.19
8,952.00	6.42	242.17	8,931.79	-64.54	-468.71	472.83	0.78	0.76	-1.76
Last SDI Production MWD									
9,010.00	6.42	242.17	8,989.43	-67.57	-474.44	478.84	0.00	0.00	0.00
Projection to TD - BHL = 638464.04, 1226541.29									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
164.00	164.00	-0.25	0.05	First SDI Gyro Survey
705.00	704.13	-2.44	-23.06	Last SDI Gyro Survey
775.00	773.74	-4.17	-30.19	First SDI Surface MWD
2,657.00	2,648.87	-18.85	-184.50	Last SDI Surface MWD
2,783.00	2,754.67	-17.68	-190.90	First SDI Production MWD
8,952.00	8,931.79	-64.54	-468.71	Last SDI Production MWD
9,010.00	8,989.43	-67.57	-474.44	Projection to TD
9,010.00	8,989.43	-67.57	-474.44	BHL = 638464.04, 1226541.29

Checked By: _____ Approved By: _____ Date: _____