

PRODUCTIVITY AND BUILDUP TEST REPORT

On Well

PENN WEST WASKADA UNIT NO. 2 HZNTL

102/05-27-001-26W1/00

Lower Amaranth: 1020.0 – 1640.3 mKB MD

Test Date: September 14 – 23, 2011

Prepared for:

PENN WEST PETROLEUM LTD.

Prepared by:

FEKETE ASSOCIATES INC.

January 16, 2012

PENN WEST PETROLEUM LTD.
Suite 200, 207 – 9th Ave. S.W.
Calgary, Alberta
T2P 1K3

ATTENTION: TREVOR THOMPSON

**Re: PRODUCTIVITY & BUILDUP TEST REPORT
PENN WEST WASKADA UNIT NO. 2 HZNTL 102/05-27-001-26W1/00
Lower Amaranth: 1020.0 – 1640.3 mKB MD
Test Date: September 14 – 23, 2011**

An acoustic well sounder buildup test was conducted on the subject well to establish the current reservoir pressure, flow characteristics and productivity of the Lower Amaranth formation. The test data have been analyzed and the results are presented in this report.

The raw data, analysis and report PDF files are included in the CD attached to the original copy of this report.

If you should have any further questions or concerns, please do not hesitate to contact the undersigned or Reza Ali at 403.213-4200.

Sincerely,

FEKETE ASSOCIATES INC.

Frank Brunner, R.E.T.
Senior Technical Advisor, WellTest

FB/jf

REPORT DISTRIBUTION

Two (2) Copies of the Report to:

PENN WEST PETROLEUM LTD.

Calgary, Alberta

Attention: TREVOR THOMPSON

Summary of Results

PENN WEST WASKADA UNIT NO. 2 HZNTL 102/05-27-001-26W1/00
Lower Amaranth: 1020.0 – 1640.3 mKB MD
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TEST RESULTS

PRESSURE SUMMARY		Metric		Field	
Final Calculated Buildup Pressure (2011/09/23)	(p)	2963	kPaa	430	psia
Final Calculated Flowing Sandface Pressure (2011/09/14)	(p _{wfo})	2116	kPaa	307	psia

PRODUCTION AND DELIVERABILITY					
Final Oil Rate (2011/09/14)	(q _o)	2.0	m ³ /d	12.6	bbl/d
Final Water Rate (2011/09/14)	(q _w)	21.3	m ³ /d	134	bbl/d
Cumulative Oil Production (to 2011/09/14)		2243	m ³	14107	bbl
Maximum Oil Rate (based on final oil rate)	(q _{omax})	2.1	m ³ /d	13.2	bbl/d

Reservoir Characteristics– Hz Multi-stage Frac Model		Metric		Field	
Average Reservoir Pressure (History Match)	(p_R)	10647	kPaa	1544	psia
Horizontal Permeability	(k _{xy})	0.008	mD	0.008	md
Permeability in X Direction	(k _x)	0.013	mD	0.013	md
Permeability in Y Direction	(k _y)	0.005	mD	0.005	md
Net Vertical Pay	(h)	28	m	92	ft
Effective Horizontal Wellbore Length (assumed)	(L _e)	620	m	2034	ft
Number of Effective Fracs (assumed)		14		14	
Effective Fracture Half Length	(x _{fy})	21	m	69	ft
Fracture Conductivity	(F _{CD})	58		58	
Reservoir Length (assumed)	(X _e)	1600	m	5250	ft
Reservoir Width (assumed)	(Y _e)	400	m	1312	ft
Location of Well From X Axis (assumed)	(X _w)	800	m	2625	ft
Location of Well From Y Axis (assumed)	(Y _w)	200	m	656	ft

Discussion/ Conclusions

PENN WEST WASKADA UNIT NO. 2 HZNTL 102/05-27-001-26W1/00
Lower Amaranth: 1020.0 – 1640.3 mKB MD
Test Date: September 14 – 23, 2011

BACKGROUND AND TEST OVERVIEW

The subject well was spud January 3, 2010, and drilled vertically to about 595 mKB before starting to build angle. Drilling continued at a high angle until the Lower Amaranth formation was penetrated, and then, the lateral section of the wellbore was drilled out to a TD of 1660 mKB MD (909.16 mKB TVD). The 139.7 mm production casing string was landed at TD and cemented in place. The drilling rig was released on January 8, 2010.

Completion operations commenced on January 15, 2010 and the frac head was installed on the following day. On January 17, a mud motor was RIH on coiled tubing and tagged cement at 1578 mKB MD. Cement stringers were drilled to 1645 mKB MD while circulating the well clean with fresh water and the coiled tubing and mud motor were then POOH.

On January 18, a Mongoose frac tool assembly was RIH on 60.3 mm coiled tubing and positioned to perforate the Stage #1 interval. After rigging in frac equipment, the toe of the horizontal wellbore was jet perforated across the interval 1640.0 – 1640.3 mKB MD, frac'd (placing 5 tonnes of sand into the formation) and plugged back. This procedure was repeated 13 more times along the horizontal wellbore over the additional gross interval of 1020.0 – 1595.3 mKB MD. The details of the stimulation were not available at the time of this report.

Following the 14 stage fracture treatment, a retrievable WR plug was set at 485 mKB MD and pressure tested. The frac head was then removed and the wellhead was installed the following day.

On January 27, the WR plug was unset and retrieved. The following day, an N₂ assisted coiled tubing cleanout was conducted, tagging hard bottom at 1591 mKB MD. On January 29, the well was opened but did not flow. The well was left open to vent for about 1 hour before SDFN.

On February 2, a 73 mm production tubing string was RIH and landed at 924.7 mKB MD. Shortly thereafter, pump and rods were installed and pressure tested. The well was then secured.

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BACKGROUND AND TEST OVERVIEW (cont'd)

Commercial oil production commenced on March 4, 2010. Oil production peaked on April 29, at 12.3 m³/d (77 bbl/d) and then decreased slowly. The well produced intermittently until May 20, 2011 and was shut-in at an oil rate of 2.2 m³/d (14 bbl/d).

The well was left standing until August 9, 2011, when the pump and rods were pulled to surface. A new pump and rods were then installed and pressure tested. The well was placed back on production on August 12.

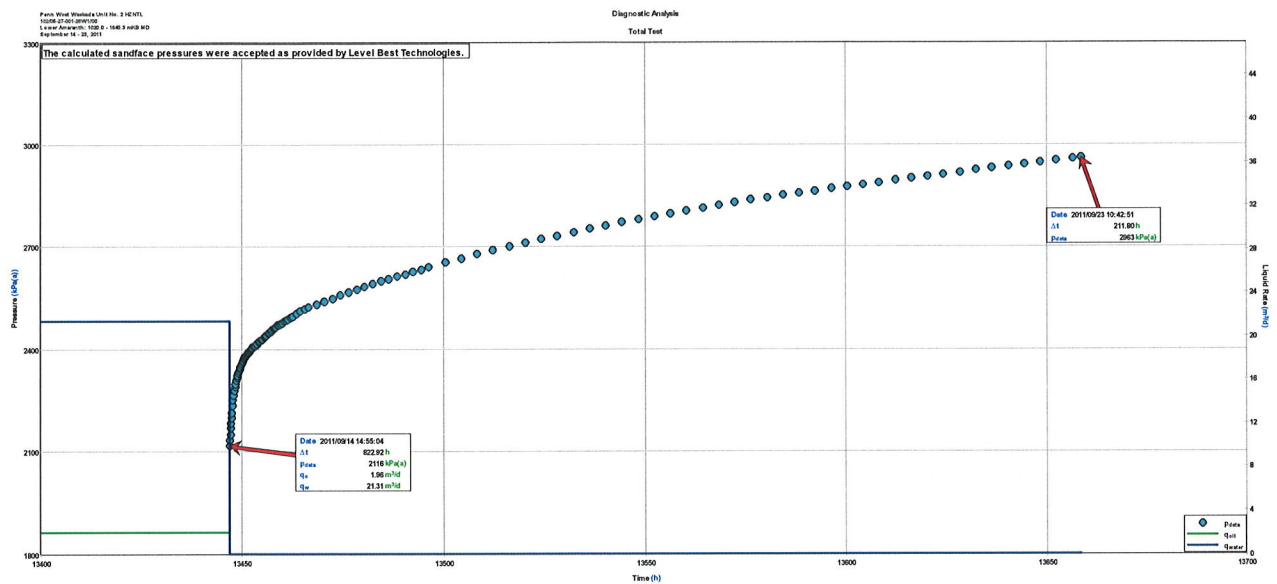
On September 14, an automated acoustic well sounder, c/w surface pressure recorder, was connected to the annulus and a buildup test was initiated. The well was shut-in at an oil rate of 2.0 m³/d (12 bbl/d) and a water rate of 21.3 m³/d (134 bbl/d). The subsequent automated sampling of fluid levels and corresponding casing pressures were collected until September 23 ($\Delta t = 212$ hours), when the AWS equipment was rigged out. The pressure calculations to MPP (910.4 mKB TVD), were conducted by the AWS service provider and have been accepted as presented.

To the time of shut-in, the well had produced a total of 2243 m³ of oil and 8439 m³ of water. Gas rates were not reported during the production period.

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BACKGROUND AND TEST OVERVIEW (cont'd)

The following plot illustrates the calculated bottomhole pressures and the oil and water rates measured prior to shut-in.



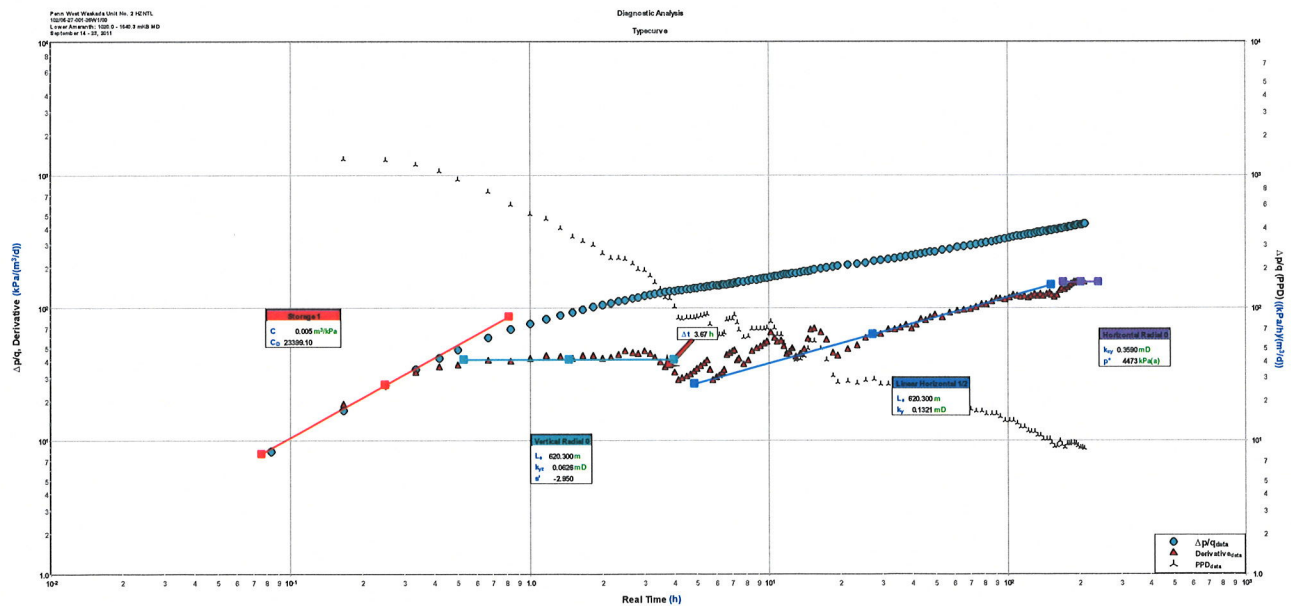
The properties of oil have been taken from the PVT data supplied by Penn West. A bubble point pressure of 4326 kPaa and a solution GOR of 43.3 m³/m³ were reported.

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Lower Amaranth: 1020.0 – 1640.3 mKB MD
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DIAGNOSTIC ANALYSIS

To identify the dominant flow regimes influencing the pressure buildup behavior during the test, a type-curve and pressure derivative plot was generated. Although multiple fractures likely impact the flow pattern, conventional horizontal well methodology is initially applied to the buildup trends to provide preliminary permeability and skin estimates to commence subsequent history matching. Therefore, any values shown on the following plot should be viewed as qualitative.

A review the plot (shown below) indicates wellbore storage followed by vertical radial flow (zero slope) within the initial 4 hours of shut-in. Following that, the derivative gradually transitions into a $\frac{1}{2}$ slope trend, indicating linear horizontal flow. The late-time derivative appears to be approaching a horizontal trend, however, horizontal radial flow is not likely fully developed. Therefore, a unique solution is not possible and any results presented here should be used with caution. The distortions in the middle-time and late-time pressure buildup data are related to wellbore effects (possibly phase segregation in the annulus).

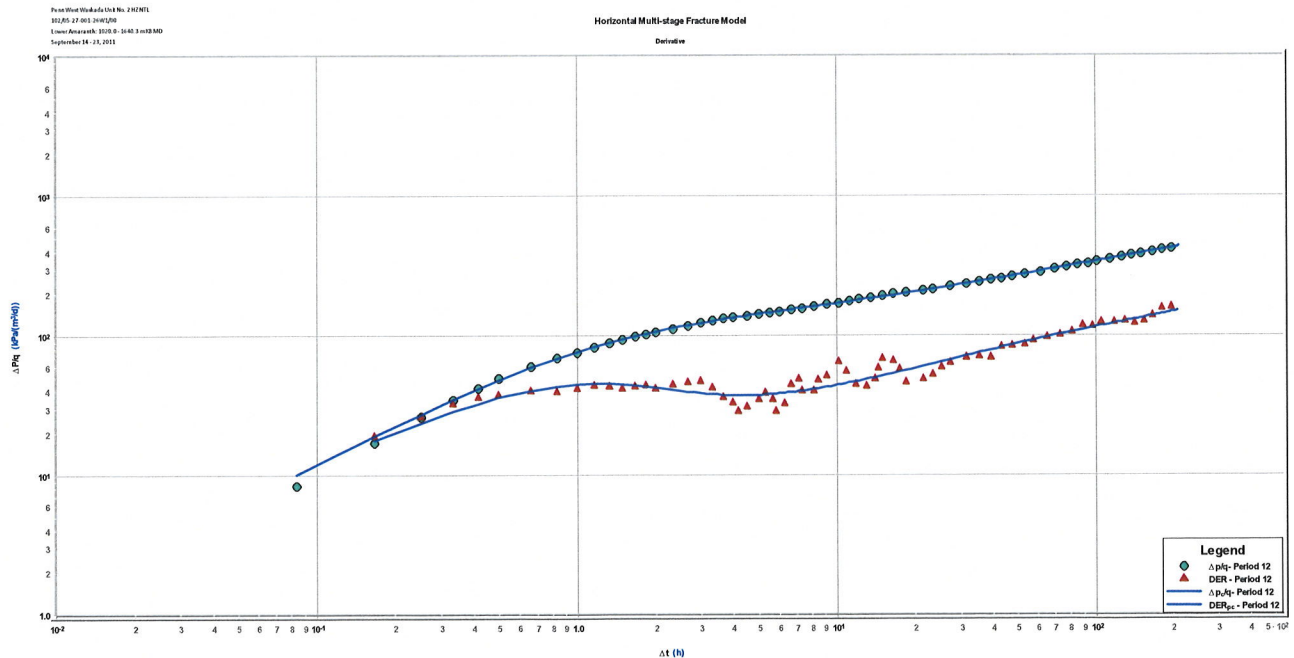


PENN WEST WASKADA UNIT NO. 2 HZNTL 102/05-27-001-26W1/00
Lower Amaranth: 1020.0 – 1640.3 mKB MD
Test Date: September 14 – 23, 2011

CONCLUSIONS

Pressure history matching was undertaken using a Horizontal Multi-stage Fracture Model. Assuming an effective horizontal wellbore length of 620 meters, a reasonable match to the observed pressure data was achieved with a horizontal permeability (k_{xy}) of 0.008 mD. Assuming each frac stage generated a single transverse fracture and each is equally effective, the effective fracture half-length is calculated to be 21 meters and the dimensionless fracture conductivity (F_{CD}) is estimated to be 58. It is noted the CTU cleanout (on January 28, 2010) could not get past 1591 mKB MD leaving some doubt as to whether or not the first 2 stages are contributing. Reducing the effective wellbore length and the number of contributing frac stages would result in a slightly improved permeability.

The drainage area could not be determined from the test, and a $\frac{1}{4}$ section drainage area (1600×400 m) is assumed. The following plot displays the match achieved with the type-curve and pressure derivative.



PENN WEST WASKADA UNIT NO. 2 HZNTL 102/05-27-001-26W1/00
Lower Amaranth: 1020.0 – 1640.3 mKB MD
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CONCLUSIONS (cont'd)

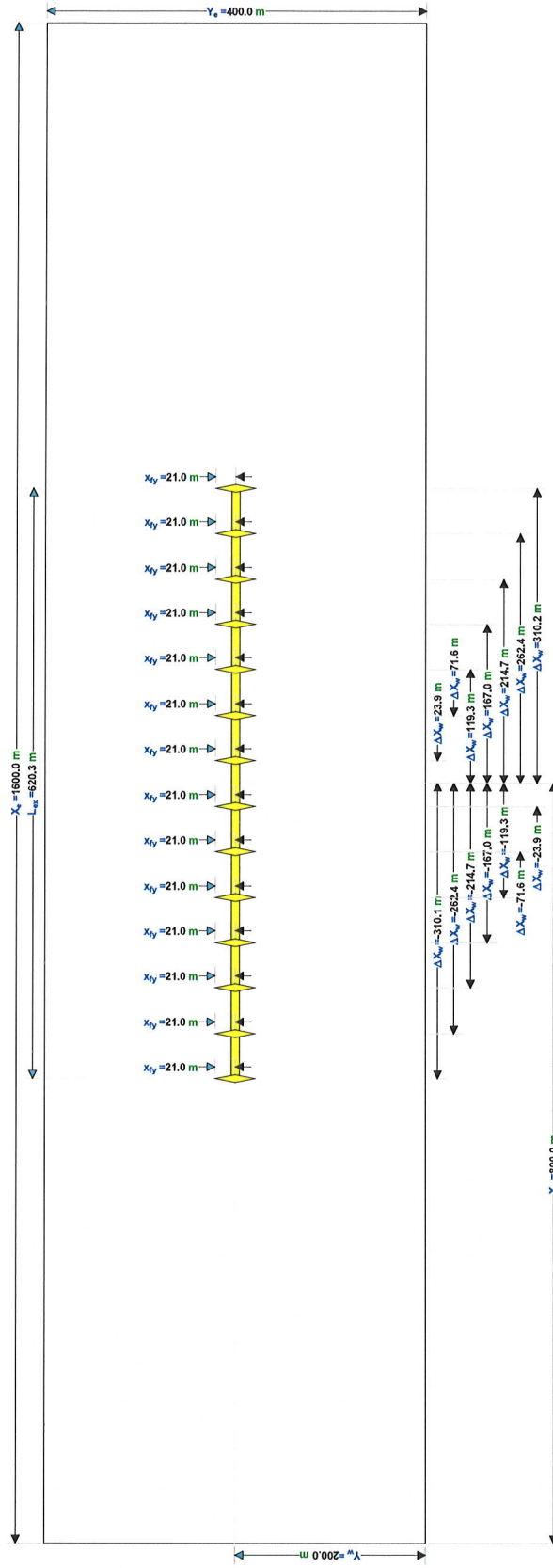
The final calculated bottomhole pressure on September 23, 2011 (after 212 hours of shut-in) was 2963 kPaa. Assuming a $\frac{1}{4}$ section drainage area, the Horizontal Multi-stage Fracture Model provides an estimated average reservoir pressure of 10647 kPaa.

Based on the final producing conditions on September 14, 2011 (2.0 m³/d at a bottomhole flowing pressure of 2116 kPaa), and a reservoir pressure of 10647 kPaa, an Inflow Performance Relationship (IPR) curve was generated. Assuming sandface flowing pressure could be lowered to zero, the maximum oil rate is estimated to be 2.1 m³/d, therefore, the well is producing at or near its maximum capability.

Models

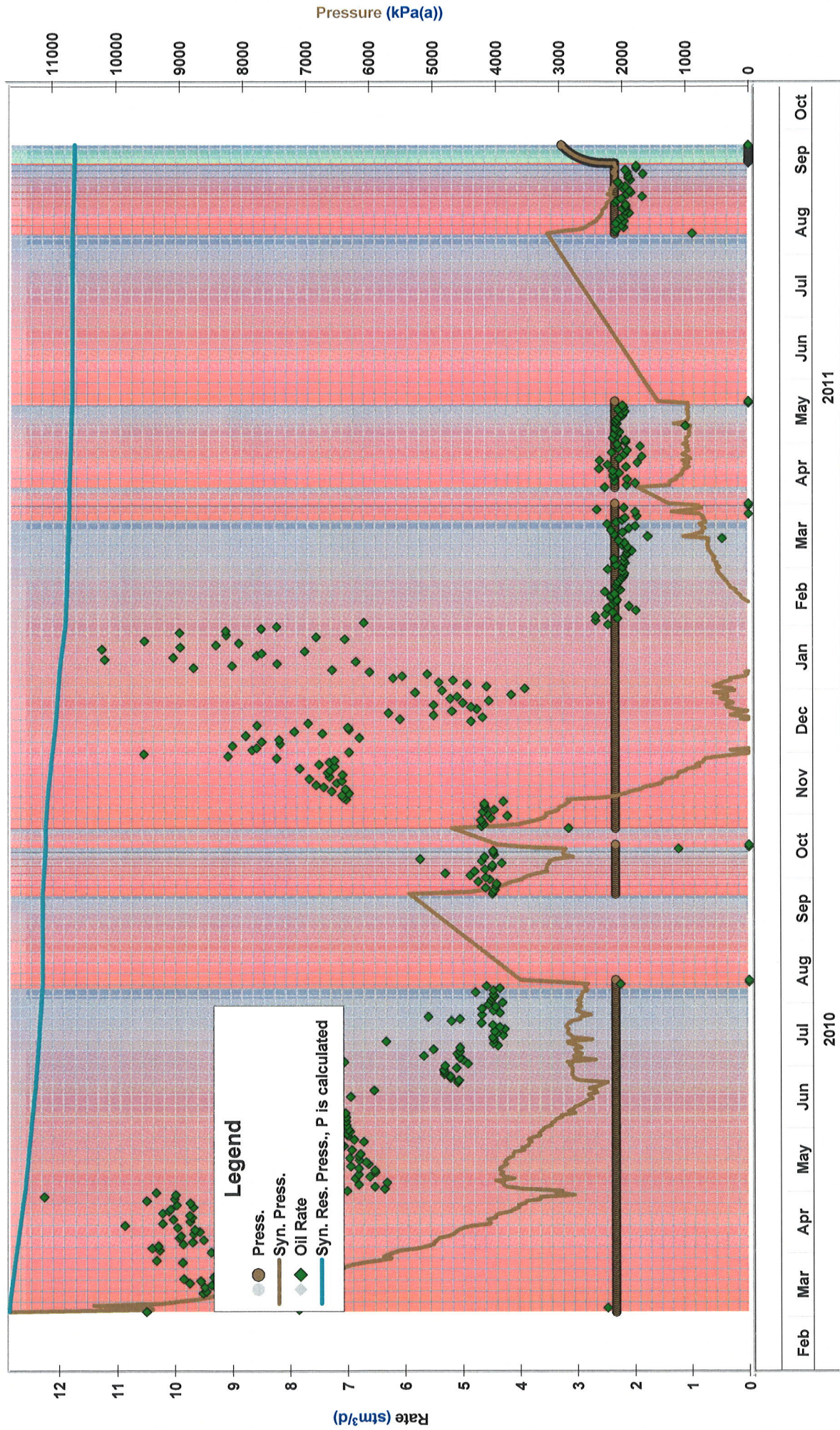
Horizontal Multi-stage Fracture Model

Schematic



Penn West Waskada Unit No. 2 HZNTL
 102/05-27-001-26W1/00
 Lower Amaranth: 1020.0 - 1640.3 mKB MD
 September 14 - 23, 2011

Horizontal Multi-stage Fracture Model Welltest History



Penn West Waskada Unit No. 2 HZN TL

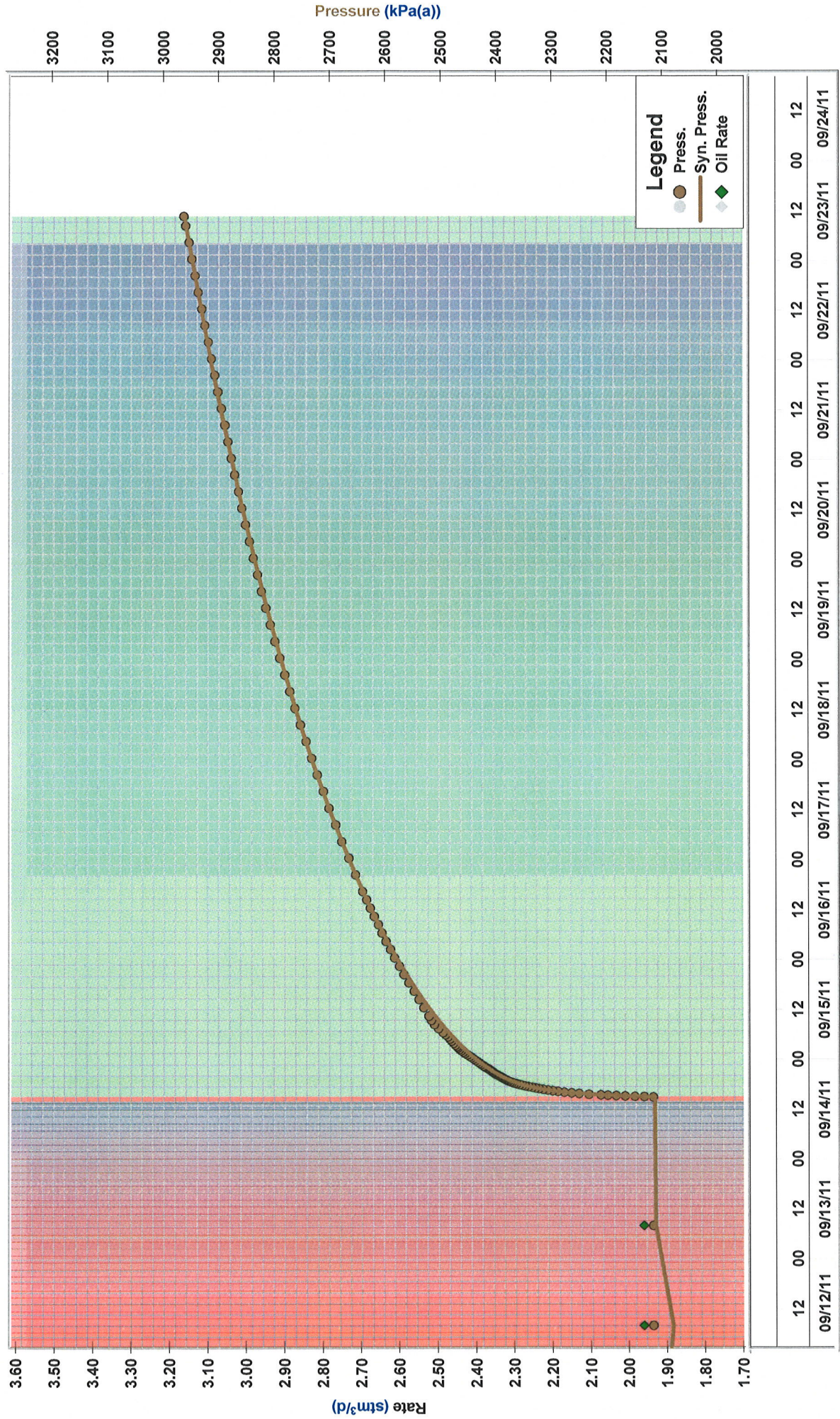
102/05-27-001-26W1/00

Lower Amaranth: 1020.0 - 1640.3 mKB MD

September 14 - 23, 2011

Horizontal Multi-stage Fracture Model

Welltest History



Penn West Waskada Unit No. 2 HZNNTL

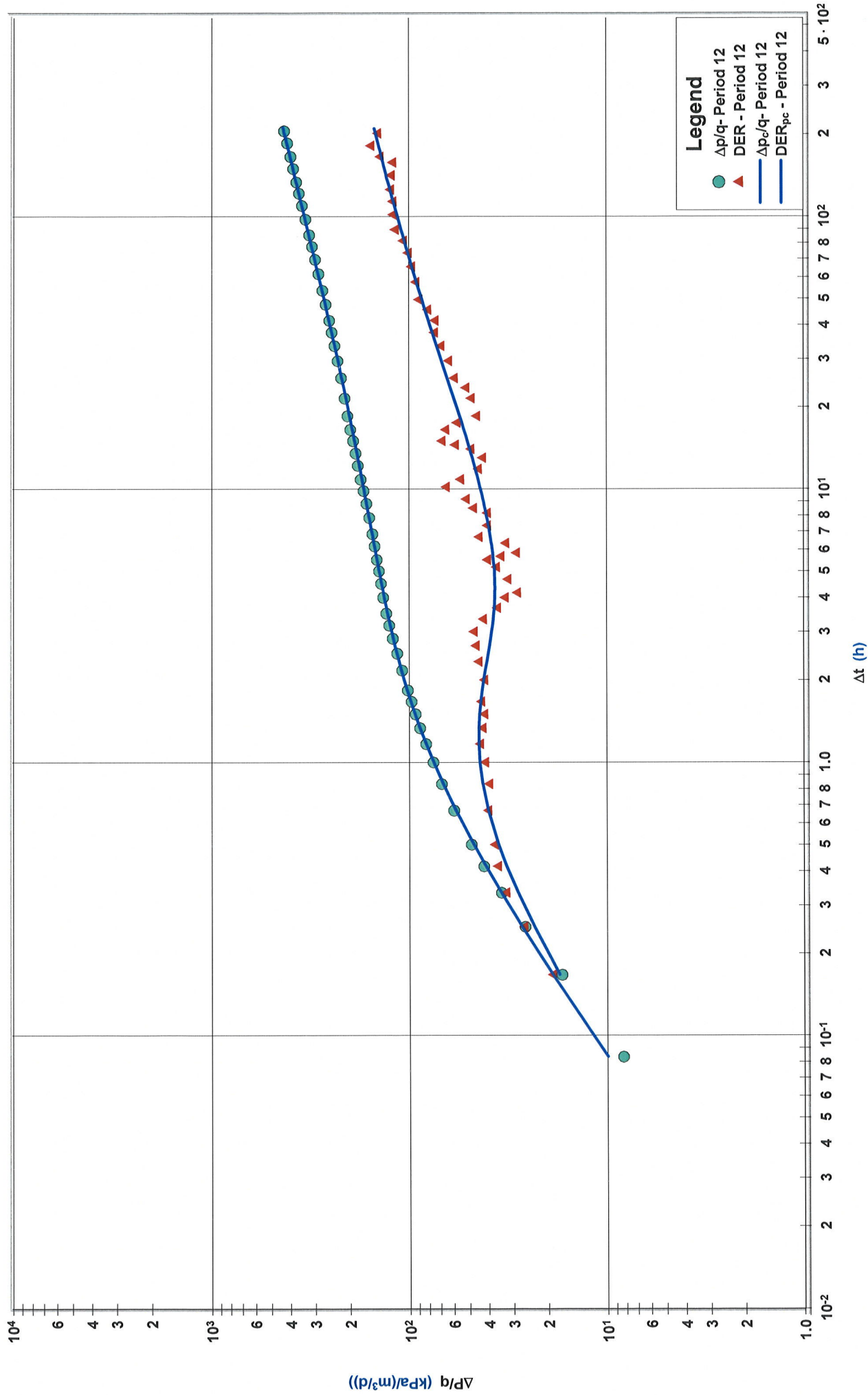
102/05-27-001-26W1/00

Lower Amaranth: 1020.0 - 1640.3 mKB MD

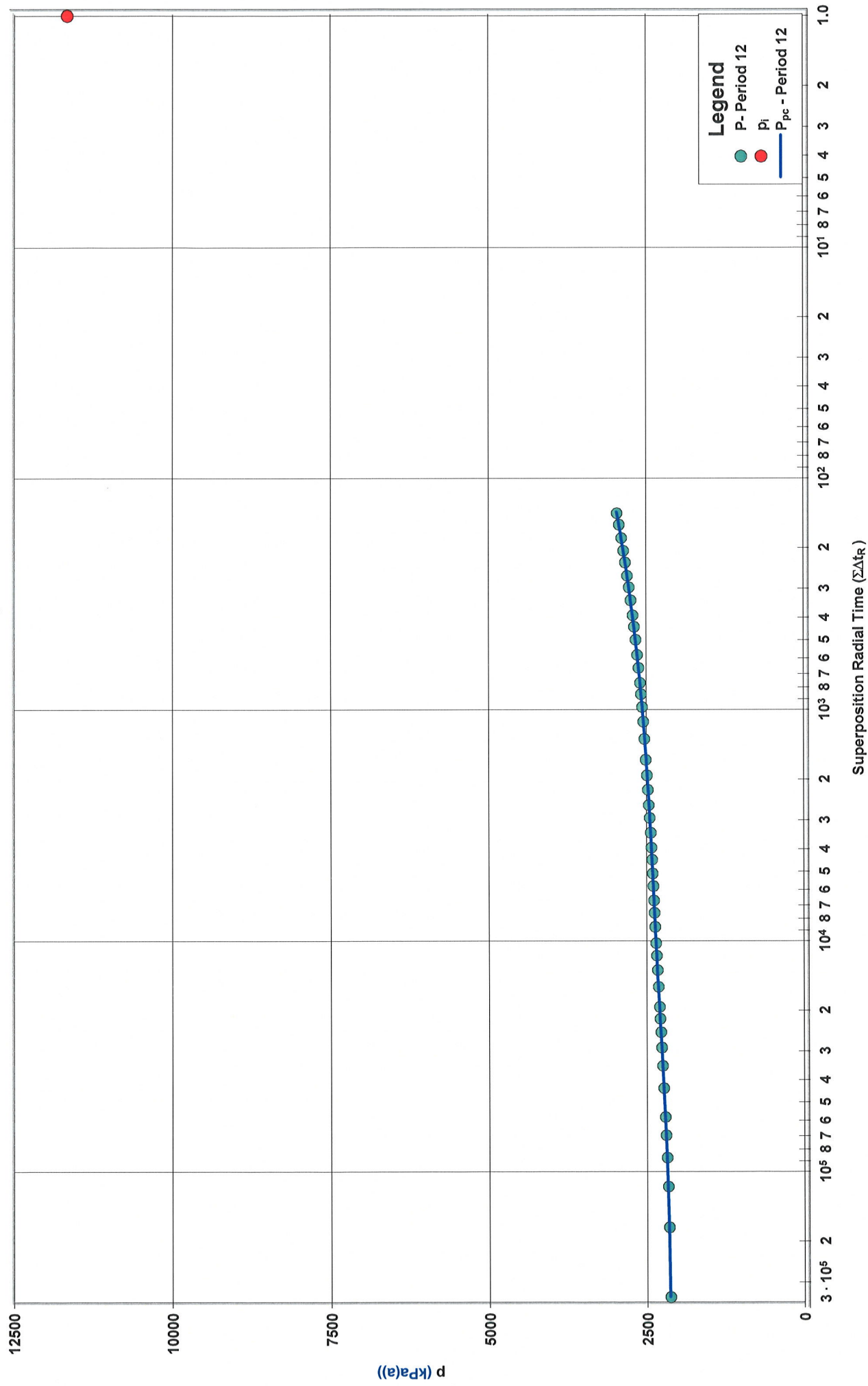
September 14 - 23, 2011

Horizontal Multi-stage Fracture Model

Derivative



Horizontal Multi-stage Fracture Model



Oil Model - Horizontal Multifrac Model

Penn West Waskada Unit No. 2 HZNTL
102/05-27-001-26W1/00
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Model Results

Permeability x-direction (k_x) 0.0130 mD
Permeability y-direction (k_y) 0.0050 mD
Horizontal to Vertical Permeability Ratio (k_h / k_v) 1.000
Number of Fractures (#Fracs) 14
Fracture Half Length (x_{fy}) 21.0 m
Dimensionless Fracture Conductivity (F_{CD}) 58.000

Reservoir Length (X_e) 1600.0 m
Reservoir Width (Y_e) 400.0 m
Well Location in X-direction (X_w) 800.0 m
Well Location in Y-direction (Y_w) 200.0 m
Effective Wellbore Length (L_e) 620.300 m

Reservoir Parameters

Reservoir Temperature (T_R) 50.0 °C
Dimensionless Storage 1 (C_{D1}) 1700.0
Dimensionless Storage 2 (C_{D2}) 1850.0
Dimensionless Storage Parameter (C_{pD}) 0.002

Net Pay (h) 28.0 m
Total Porosity (ϕ_t) 13.00 %
Wellbore Radius (r_w) 0.091 m
Drainage Area (A_D) 64.0 ha

Total Cumulative Production Oil (Cum_{oil}) 2.245 10³m³

Gas Saturation (S_g) 0.00 %
Oil Saturation (S_o) 50.00 %
Water Saturation (S_w) 50.00 %
Formation Compressibility (c_f) 6.3246e-07 1/kPa
Total Compressibility (c_t) 1.0609e-06 1/kPa
Gas Compressibility (c_g) 9.5604e-05 1/kPa
Water Compressibility (c_w) 4.3587e-07 1/kPa
Oil Compressibility (c_o) 4.2095e-07 1/kPa

Fluid Properties

Reservoir Temperature (T_{resv}) 50.0 °C
Reservoir Pressure (p_{resv}) 10000 kPa(a)
Oil Gravity (γ_o) 37.2 °API
Bubble Point Pressure (p_{bp}) 4326 kPa(a)
Oil Formation Volume Factor (B_o) 1.126
Oil Viscosity (μ_o) 1.5100 mPa.s
Oil Compressibility (c_o) 4.9100e-07 1/kPa
Solution Gas Ratio (R_s) 43.30 m³/m³
Oil Correlation Vasquez and Beggs
Oil Viscosity Correlation Beggs & Robinson

I.P.R.

Liquid IPR

Inflow Performance Relationship

Penn West Waskada Unit No. 2 HZNTL
102/05-27-001-26W1/00
Lower Amaranth: 1020.0 - 1640.3 mKB MD
September 14 - 23, 2011

Test Data

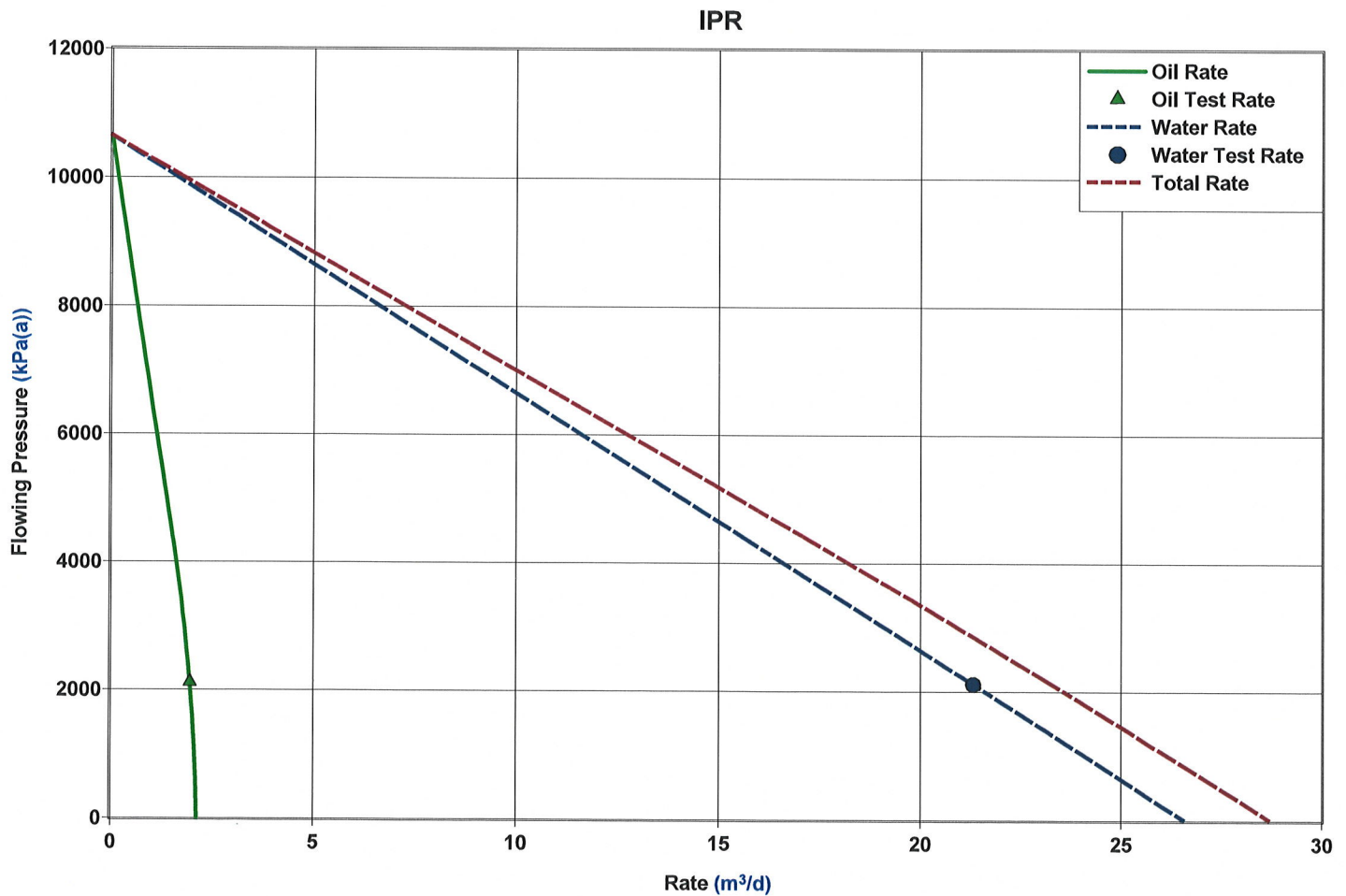
Bubble Point Pressure (p_{bp}) 4326 kPa(a)
Reservoir Pressure (p_R) 10647 kPa(a)
Test Pressure (p_{wf}) 2116 kPa(a)
Oil Test Rate (q_o) 2.0 m³/d
Water Test Rate (q_w) 21.3 m³/d

Results

Maximum Oil Rate ($q_{o(max)}$) 2.1 m³/d
Maximum Total Rate ($q_t(max)$) 28.7 m³/d
Maximum Water Rate ($q_{w(max)}$) 26.6 m³/d

Note * Test Point
** Bubble Point
Oil IPR based on Vogel's Equation
(Quadratic Curve Factor = 0.2)

Flowing Pressure	Oil Rate	Water Rate	Total Rate
kPa(a)	m ³ /d	m ³ /d	m ³ /d
0	2.1	26.6	28.7
1000	2.1	24.1	26.2
2000	2.0	21.6	23.6
2116*	2.0	21.3	23.3
3000	1.8	19.1	20.9
4000	1.6	16.6	18.2
4326**	1.5	15.8	17.3
5000	1.4	14.1	15.5
6000	1.1	11.6	12.7
7000	0.9	9.1	10.0
8000	0.6	6.6	7.3
9000	0.4	4.1	4.5
10000	0.2	1.6	1.8
10647	0.0	0.0	0.0



Wellbore

Well Name: Penn West Waskada Unit No. 2 HZNTL 5-27-1-26

Bottom Hole API/UWI 102/05-27-001-26W1	Surface Legal Location 07-27-001-26W1	License # 7151	Field Name WASKADA FIELD	Area WASKADA BUDGET AREA	State/Province Manitoba	Superintendent Area 14:SE SASKATCHEWAN SUP
Well Configuration Type HZ	Original KB Elevation (m) 468.70	Gr Elev (m) 464.10	KB-Grd (m) 4.60	KB-Casing Flange Distance (m) 4.20	KB-TH (m) 3.80	Working Interest (%) 100.00

Most Recent Job

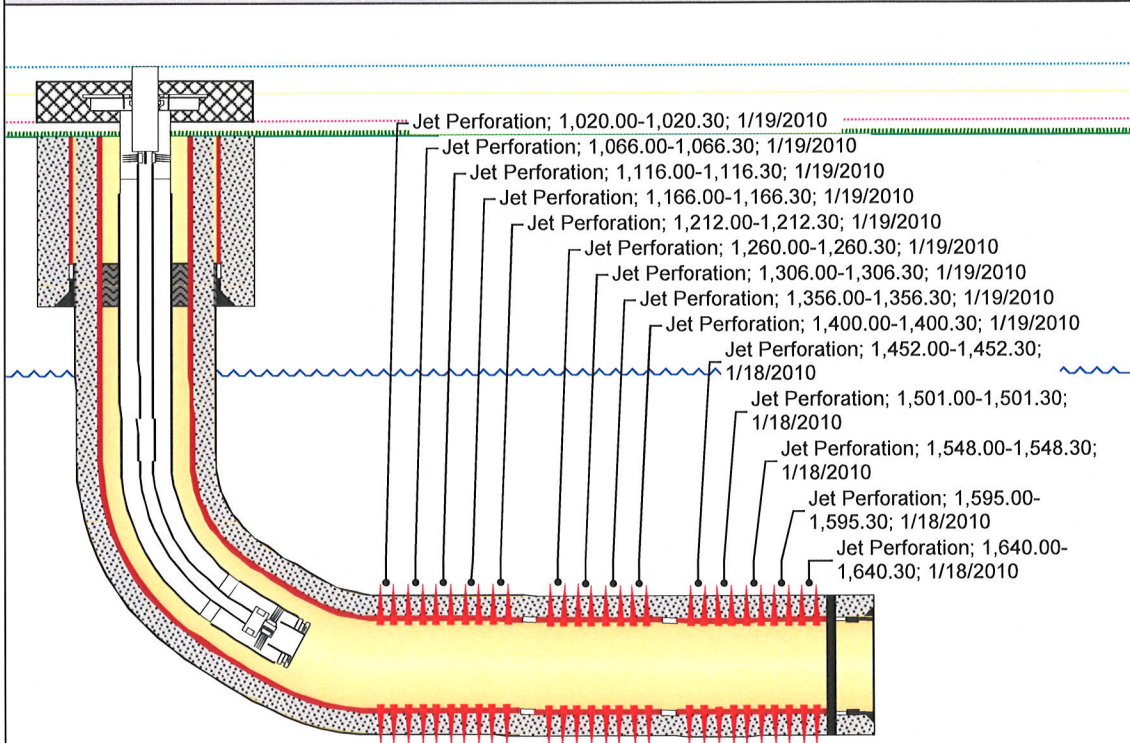
Job Type R&M - Art Lift/DH Repair	Start Date 8/9/2011	End Date 8/9/2011	Objective Tubing repair
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TD: 1,660.00

HZ - Original Hole, 11/2/2011 11:11:44 AM

Directional schematic (actual)

Formations



Note: Directional schematic does not correlate to other tracks.



MWD Survey Report for:

PENNWEST PETROLEUM LTD.

Waskada Unit No 2 Hzntl (7-27)
5-27-1-26 W-1

Job # 100065

Job Dates: January 04 – January 08, 2010

Well License #7151

Project: Waskada

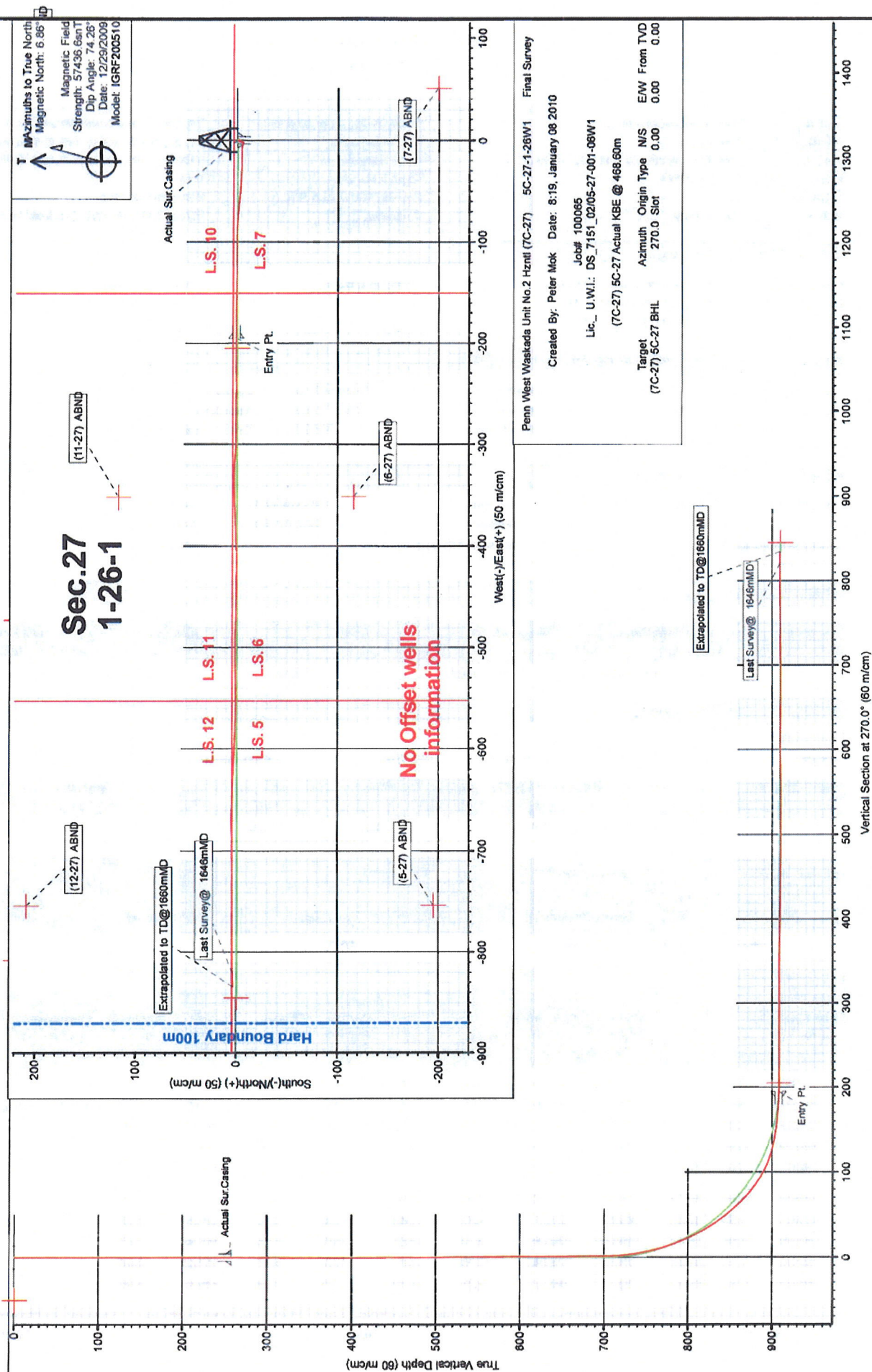
Site: Penn West Waskada Unit No.2 Hznrl (7C-27)

Well: 5C-27-1-26W1

Wellbore: Hz

UWI : 02/05-27-001-06W1

Final Survey



Cathedral Energy Services

Survey Report

Company:	Penn West Petroleum Ltd.	Local Co-ordinate Reference:	Site Penn West Waskada Unit No.2 Hzntrl (7C-27)
Project:	Waskada	TVD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Site:	Penn West Waskada Unit No.2 Hzntrl (7C-27)	MD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Well:	5C-27-1-26W1	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDM R5000 CATHEDRAL Multi Users

Project	Waskada	System Datum:	Mean Sea Level
Map System:	Universal Transverse Mercator		
Geo Datum:	North American Datum 1983		
Map Zone:	Zone 14N (102 W to 96 W)		

Site	Penn West Waskada Unit No.2 Hzntrl (7C-27)				
Site Position:		Northing:	5,436,499.33 m	Latitude:	49° 3' 57.83 N
From:	Map	Easting:	362,791.69 m	Longitude:	100° 52' 42.37 W
Position Uncertainty:	0.00 m	Slot Radius:	335.28 mm	Grid Convergence:	-1.42 °

Well	5C-27-1-26W1				
Well Position	+N-S	0.00 m	Northing:	5,436,499.33 m	Latitude: 49° 3' 57.83 N
	+E-W	0.00 m	Easting:	362,791.69 m	Longitude: 100° 52' 42.37 W
Position Uncertainty		0.00 m	Wellhead Elevation:	m	Ground Level: 464.00 m

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF200510	12/29/2009	6.86	74.26	57,437

Design	Final Survey				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction	
	(m)	(m)	(m)	(°)	
	0.00	0.00	0.00	270.0	

Survey Program	Date	1/8/2010			
From	To	Survey (Wellbore)	Tool Name	Description	
(m)	(m)				
258.00	1,660.00	Final Survey (Hz)	MWD		

Survey												
Measured	Inc.	Az.	Vertical	Sub Sea	+N-S	+E-W	Vertical	Closure	Closure	Dogleg	Formations /	
Depth	(°)	(°)	Depth	Depth	(m)	(m)	Section	Distance	Azimuth	Rate	Comments	
(m)			(m)	(m)			(m)	(m)	(°)	(°/30m)		
0.00	0.00	0.0	0.00	-468.60	0.00	0.00	0.00	0.00	0.00	0.00		
258.00	0.00	0.0	258.00	-210.60	0.00	0.00	0.00	0.00	0.00	0.00	Actual Sur.Casing	
278.46	1.00	153.6	278.46	-190.14	-0.16	0.08	-0.08	0.18	153.60	1.47		
384.56	0.10	191.0	384.55	-84.05	-1.08	0.47	-0.47	1.18	156.33	0.26		
488.83	0.60	262.5	488.82	20.22	-1.24	-0.09	0.09	1.24	183.93	0.17		
594.85	1.50	197.1	594.82	126.22	-2.64	-1.04	1.04	2.84	201.57	0.39		
689.86	1.30	182.5	689.81	221.21	-4.90	-1.46	1.46	5.12	196.54	0.13		
699.36	1.20	207.4	699.30	230.70	-5.10	-1.51	1.51	5.32	196.46	1.73		
705.00	1.58	248.0	704.94	236.34	-5.18	-1.61	1.61	5.43	197.22	5.47		
708.83	2.10	262.7	708.77	240.17	-5.21	-1.72	1.73	5.49	198.31	5.46		

Cathedral Energy Services

Survey Report

Company:	Penn West Petroleum Ltd.	Local Co-ordinate Reference:	Site Penn West Waskada Unit No.2 Hznll (7C-27)
Project:	Waskada	TVD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Site:	Penn West Waskada Unit No.2 Hznll (7C-27)	MD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Well:	5C-27-1-26W1	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDM R5000 CATHEDRAL Multi Users

Survey

Measured Depth (m)	Inc. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Formations / Comments
718.30	4.80	281.6	718.22	249.62	-5.15	-2.29	2.29	5.64	203.91	9.17	
727.82	7.70	285.5	727.69	259.09	-4.90	-3.29	3.29	5.90	213.86	9.23	
737.31	9.00	281.8	737.08	268.48	-4.58	-4.63	4.63	6.51	225.30	4.44	
746.81	11.60	284.2	746.42	277.82	-4.19	-6.28	6.28	7.55	236.27	8.32	
756.33	13.40	272.1	755.72	287.12	-3.92	-8.31	8.31	9.19	244.76	9.98	
765.83	14.90	268.4	764.93	296.33	-3.91	-10.63	10.64	11.33	249.80	5.53	
775.32	17.60	269.6	774.04	305.44	-3.96	-13.29	13.29	13.87	253.42	8.60	
784.81	19.90	268.9	783.02	314.42	-4.00	-16.34	16.34	16.82	256.25	7.31	
794.27	22.10	270.5	791.86	323.26	-4.01	-19.73	19.73	20.13	258.50	7.21	
803.74	24.60	271.6	800.55	331.95	-3.94	-23.48	23.48	23.81	260.47	8.04	
813.22	26.90	271.5	809.09	340.49	-3.83	-27.60	27.60	27.86	262.10	7.28	
823.17	29.20	270.1	817.87	349.27	-3.77	-32.28	32.28	32.50	263.34	7.21	
833.09	32.30	274.7	826.39	357.79	-3.55	-37.34	37.34	37.51	264.57	11.76	
842.46	35.10	274.1	834.19	365.59	-3.15	-42.52	42.52	42.64	265.76	9.03	
851.83	37.30	274.3	841.75	373.15	-2.74	-48.04	48.04	48.12	266.73	7.05	
861.20	39.90	275.2	849.07	380.47	-2.26	-53.87	53.87	53.91	267.60	8.52	
870.57	42.30	275.7	856.13	387.53	-1.67	-60.00	60.00	60.02	268.40	7.76	
879.94	45.00	275.4	862.91	394.31	-1.05	-66.43	66.43	66.44	269.10	8.67	
889.31	47.40	275.0	869.40	400.80	-0.44	-73.17	73.17	73.17	269.66	7.74	
898.68	50.90	273.3	875.52	406.92	0.07	-80.24	80.24	80.24	270.05	11.94	
908.06	55.40	271.2	881.15	412.55	0.37	-87.73	87.73	87.73	270.24	15.36	
917.43	59.70	271.4	886.17	417.57	0.54	-95.64	95.64	95.64	270.33	13.78	
926.80	63.30	269.7	890.65	422.05	0.62	-103.87	103.87	103.87	270.34	12.48	
936.17	67.70	269.9	894.53	425.93	0.59	-112.39	112.39	112.40	270.30	14.10	
945.54	72.50	269.1	897.72	429.12	0.51	-121.20	121.20	121.20	270.24	15.56	
954.92	77.00	270.4	900.19	431.59	0.48	-130.25	130.25	130.25	270.21	14.94	
964.29	78.30	270.4	902.19	433.59	0.54	-139.40	139.40	139.40	270.22	4.16	
973.66	80.40	270.6	903.92	435.32	0.62	-148.61	148.61	148.61	270.24	6.75	
983.04	83.70	269.9	905.22	436.62	0.66	-157.90	157.90	157.90	270.24	10.78	
992.41	84.80	271.2	906.16	437.56	0.75	-167.22	167.22	167.22	270.26	5.44	
1,001.78	85.00	270.5	906.99	438.39	0.89	-176.55	176.55	176.55	270.29	2.32	
1,011.15	87.80	268.6	907.58	438.98	0.82	-185.90	185.90	185.90	270.25	10.83	
1,020.50	90.19	269.9	907.74	439.14	0.69	-195.25	195.25	195.25	270.20	8.74	Entry Pt.
1,020.52	90.20	269.9	907.74	439.14	0.69	-195.27	195.27	195.27	270.20	8.74	
1,029.89	89.30	270.6	907.78	439.18	0.73	-204.64	204.64	204.64	270.21	3.65	
1,039.24	88.90	270.7	907.93	439.33	0.84	-213.99	213.99	213.99	270.22	1.32	
1,048.62	88.40	269.9	908.15	439.55	0.89	-223.36	223.36	223.36	270.23	3.02	
1,057.98	89.20	268.8	908.35	439.75	0.78	-232.72	232.72	232.72	270.19	4.36	
1,067.35	90.10	268.7	908.40	439.80	0.58	-242.09	242.09	242.09	270.14	2.90	
1,076.73	90.80	271.9	908.33	439.73	0.63	-251.47	251.47	251.47	270.14	10.48	
1,086.12	90.70	271.9	908.21	439.61	0.94	-260.85	260.85	260.85	270.21	0.32	
1,095.50	89.60	268.5	908.18	439.58	0.97	-270.23	270.23	270.23	270.21	11.43	

Cathedral Energy Services

Survey Report

Company:	Penn West Petroleum Ltd.	Local Co-ordinate Reference:	Site Penn West Waskada Unit No.2 Hzntrl (7C-27)
Project:	Waskada	TVD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Site:	Penn West Waskada Unit No.2 Hzntrl (7C-27)	MD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Well:	5C-27-1-26W1	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDM R5000 CATHEDRAL Multi Users

Survey

Measured Depth (m)	Inc. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Formations / Comments
1,104.87	89.80	269.5	908.23	439.63	0.81	-279.60	279.60	279.60	270.17	3.27	
1,114.25	89.80	269.3	908.26	439.66	0.71	-288.98	288.98	288.98	270.14	0.64	
1,123.63	90.70	273.3	908.22	439.62	0.92	-298.35	298.35	298.35	270.18	13.11	
1,133.01	90.60	273.9	908.12	439.52	1.51	-307.71	307.71	307.72	270.28	1.95	
1,142.38	89.70	273.6	908.09	439.49	2.12	-317.06	317.06	317.07	270.38	3.04	
1,151.75	89.40	271.2	908.17	439.57	2.52	-326.42	326.42	326.43	270.44	7.74	
1,161.13	89.40	268.8	908.26	439.66	2.52	-335.80	335.80	335.81	270.43	7.68	
1,170.51	90.10	270.2	908.30	439.70	2.43	-345.18	345.18	345.19	270.40	5.01	
1,179.89	89.60	268.4	908.33	439.73	2.32	-354.56	354.56	354.57	270.37	5.97	
1,189.26	89.10	266.4	908.44	439.84	1.89	-363.92	363.92	363.92	270.30	6.60	
1,198.64	89.30	267.0	908.57	439.97	1.35	-373.28	373.28	373.28	270.21	2.02	
1,208.02	89.50	268.8	908.66	440.06	1.01	-382.66	382.66	382.66	270.15	5.79	
1,217.40	89.00	268.3	908.79	440.19	0.77	-392.03	392.03	392.03	270.11	2.26	
1,226.78	88.60	266.4	908.98	440.38	0.34	-401.40	401.40	401.40	270.05	6.21	
1,236.16	89.50	268.7	909.14	440.54	-0.06	-410.77	410.77	410.77	269.99	7.90	
1,245.54	89.80	271.4	909.20	440.60	-0.05	-420.15	420.15	420.15	269.99	8.69	
1,254.92	89.40	271.0	909.26	440.66	0.14	-429.52	429.52	429.52	270.02	1.81	
1,264.29	88.80	269.5	909.41	440.81	0.18	-438.89	438.89	438.89	270.02	5.17	
1,273.66	88.60	271.0	909.62	441.02	0.23	-448.26	448.26	448.26	270.03	4.84	
1,283.03	88.30	270.8	909.88	441.28	0.37	-457.63	457.63	457.63	270.05	1.15	
1,292.40	89.50	270.5	910.06	441.46	0.48	-466.99	466.99	466.99	270.06	3.96	
1,301.78	89.60	272.1	910.13	441.53	0.69	-476.37	476.37	476.37	270.08	5.13	
1,311.16	89.70	271.9	910.19	441.59	1.02	-485.74	485.74	485.75	270.12	0.72	
1,320.54	89.10	271.4	910.28	441.68	1.29	-495.12	495.12	495.12	270.15	2.50	
1,329.91	90.00	268.6	910.36	441.76	1.29	-504.49	504.49	504.49	270.15	9.42	
1,339.28	90.60	270.6	910.31	441.71	1.22	-513.86	513.86	513.86	270.14	6.69	
1,348.66	90.20	269.7	910.24	441.64	1.25	-523.24	523.24	523.24	270.14	3.15	
1,358.03	89.70	266.8	910.25	441.65	0.96	-532.60	532.60	532.60	270.10	9.42	
1,367.41	90.20	269.4	910.26	441.66	0.65	-541.98	541.98	541.98	270.07	8.47	
1,376.78	90.20	270.1	910.23	441.63	0.61	-551.35	551.35	551.35	270.06	2.24	
1,386.15	90.60	271.6	910.16	441.56	0.75	-560.71	560.71	560.71	270.08	4.97	
1,395.65	90.90	272.3	910.04	441.44	1.07	-570.21	570.21	570.21	270.11	2.40	
1,405.12	90.50	270.4	909.92	441.32	1.30	-579.67	579.67	579.68	270.13	6.15	
1,414.60	90.90	273.0	909.81	441.21	1.58	-589.15	589.15	589.15	270.15	8.32	
1,424.06	90.70	273.3	909.67	441.07	2.10	-598.59	598.59	598.60	270.20	1.14	
1,433.54	89.30	273.3	909.67	441.07	2.64	-608.06	608.06	608.06	270.25	4.43	
1,443.02	89.20	272.3	909.80	441.20	3.11	-617.53	617.52	617.53	270.29	3.18	
1,452.50	89.30	271.3	909.92	441.32	3.40	-627.00	627.00	627.01	270.31	3.18	
1,462.02	89.60	272.7	910.01	441.41	3.74	-636.51	636.51	636.52	270.34	4.51	
1,471.50	90.00	273.2	910.05	441.45	4.22	-645.98	645.98	645.99	270.37	2.03	
1,480.99	90.00	270.5	910.05	441.45	4.53	-655.46	655.46	655.48	270.40	8.54	
1,490.47	90.80	271.9	909.98	441.38	4.73	-664.94	664.94	664.96	270.41	5.10	

Cathedral Energy Services

Survey Report

Company:	Penn West Petroleum Ltd.	Local Co-ordinate Reference:	Site Penn West Waskada Unit No.2 Hzntrl (7C-27)
Project:	Waskada	TVD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Site:	Penn West Waskada Unit No.2 Hzntrl (7C-27)	MD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Well:	5C-27-1-26W1	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDM R5000 CATHEDRAL Multi Users

Survey

Measured Depth (m)	Inc. (°)	Az. (°)	Vertical Depth (m)	Sub Sea Depth (m)	+N/-S (m)	+E/-W (m)	Vertical Section (m)	Closure Distance (m)	Closure Azimuth (°)	Dogleg Rate (°/30m)	Formations / Comments
1,499.98	90.60	268.5	909.86	441.26	4.76	-674.45	674.45	674.47	270.40	10.74	
1,509.54	90.00	268.0	909.81	441.21	4.47	-684.01	684.00	684.02	270.37	2.45	
1,519.02	89.80	270.4	909.83	441.23	4.34	-693.48	693.48	693.50	270.36	7.62	
1,528.52	89.90	270.0	909.86	441.26	4.37	-702.98	702.98	703.00	270.36	1.30	
1,538.01	90.10	270.7	909.86	441.26	4.43	-712.47	712.47	712.49	270.36	2.30	
1,547.52	90.20	270.5	909.83	441.23	4.53	-721.98	721.98	722.00	270.36	0.71	
1,557.02	90.40	269.6	909.78	441.18	4.54	-731.48	731.48	731.50	270.36	2.91	
1,566.47	90.20	269.7	909.73	441.13	4.48	-740.93	740.93	740.95	270.35	0.71	
1,575.96	90.20	269.4	909.70	441.10	4.40	-750.42	750.42	750.43	270.34	0.95	
1,585.46	90.40	270.2	909.65	441.05	4.37	-759.92	759.92	759.93	270.33	2.60	
1,594.93	90.40	269.7	909.58	440.98	4.36	-769.39	769.39	769.40	270.32	1.58	
1,604.43	90.30	268.2	909.52	440.92	4.19	-778.89	778.89	778.90	270.31	4.75	
1,613.93	90.70	269.9	909.44	440.84	4.03	-788.39	788.39	788.40	270.29	5.51	
1,623.40	90.80	271.2	909.32	440.72	4.12	-797.86	797.85	797.87	270.30	4.13	
1,632.85	90.30	268.1	909.23	440.63	4.06	-807.30	807.30	807.31	270.29	9.97	
1,642.31	90.40	269.0	909.17	440.57	3.82	-816.76	816.76	816.77	270.27	2.87	
1,646.00	90.00	268.5	909.16	440.56	3.74	-820.45	820.45	820.46	270.26	5.21	Last Survey@ 1646mMD
1,660.00	90.00	268.5	909.16	440.56	3.38	-834.44	834.44	834.45	270.23	0.00	Extrapolated to TD@1660mMD

Cathedral Energy Services

Survey Report

Company:	Penn West Petroleum Ltd.	Local Co-ordinate Reference:	Site Penn West Waskada Unit No.2 Hzntrl (7C-27)
Project:	Waskada	TVD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Site:	Penn West Waskada Unit No.2 Hzntrl (7C-27)	MD Reference:	(7C-27) 5C-27 Actual KBE @ 468.60m
Well:	5C-27-1-26W1	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	Final Survey	Database:	EDM R5000 CATHEDRAL Multi Users

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (m)	+N/-S (m)	+E/-W (m)	Northing (m)	Easting (m)	Latitude	Longitude
(7-27) ABND - survey misses target center by 205.48m at 0.00m MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-199.09	50.85	5,436,299.04	362,837.59	49° 3' 51.39 N	100° 52' 39.86 W
(7C-27) 5C-27 BHL - survey misses target center by 11.11m at 1660.00m MD (909.16 TVD, 3.38 N, -834.44 E) - Point	0.00	0.00	909.60	-0.16	-844.97	5,436,520.10	361,946.98	49° 3' 57.82 N	100° 53' 24.00 W
(7C-27) 5C-27 Landing F - survey misses target center by 0.77m at 1030.21m MD (907.79 TVD, 0.74 N, -204.96 E) - Point	0.00	0.00	907.60	-0.01	-204.97	5,436,504.40	362,586.78	49° 3' 57.83 N	100° 52' 52.47 W
(6-27) ABND - survey misses target center by 369.92m at 0.00m MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-115.87	-351.30	5,436,392.20	362,437.63	49° 3' 54.08 N	100° 52' 59.68 W
(5-27) ABND - survey misses target center by 778.26m at 0.00m MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	-194.65	-753.52	5,436,323.40	362,033.58	49° 3' 51.53 N	100° 53' 19.50 W
(12-27) ABND - survey misses target center by 782.24m at 0.00m MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	208.30	-754.00	5,436,726.24	362,043.08	49° 4' 4.57 N	100° 53' 19.52 W
(10-27) ABND - survey misses target center by 213.48m at 0.00m MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	207.40	50.58	5,436,705.41	362,847.39	49° 4' 4.55 N	100° 52' 39.88 W
(11-27) ABND - survey misses target center by 370.69m at 0.00m MD (0.00 TVD, 0.00 N, 0.00 E) - Point	0.00	0.00	0.00	117.35	-351.62	5,436,625.35	362,443.08	49° 4' 1.63 N	100° 52' 59.70 W

258.00	258.00	Actual Sur.Casing
1,020.50	907.74	Entry Pt.

Survey Annotations

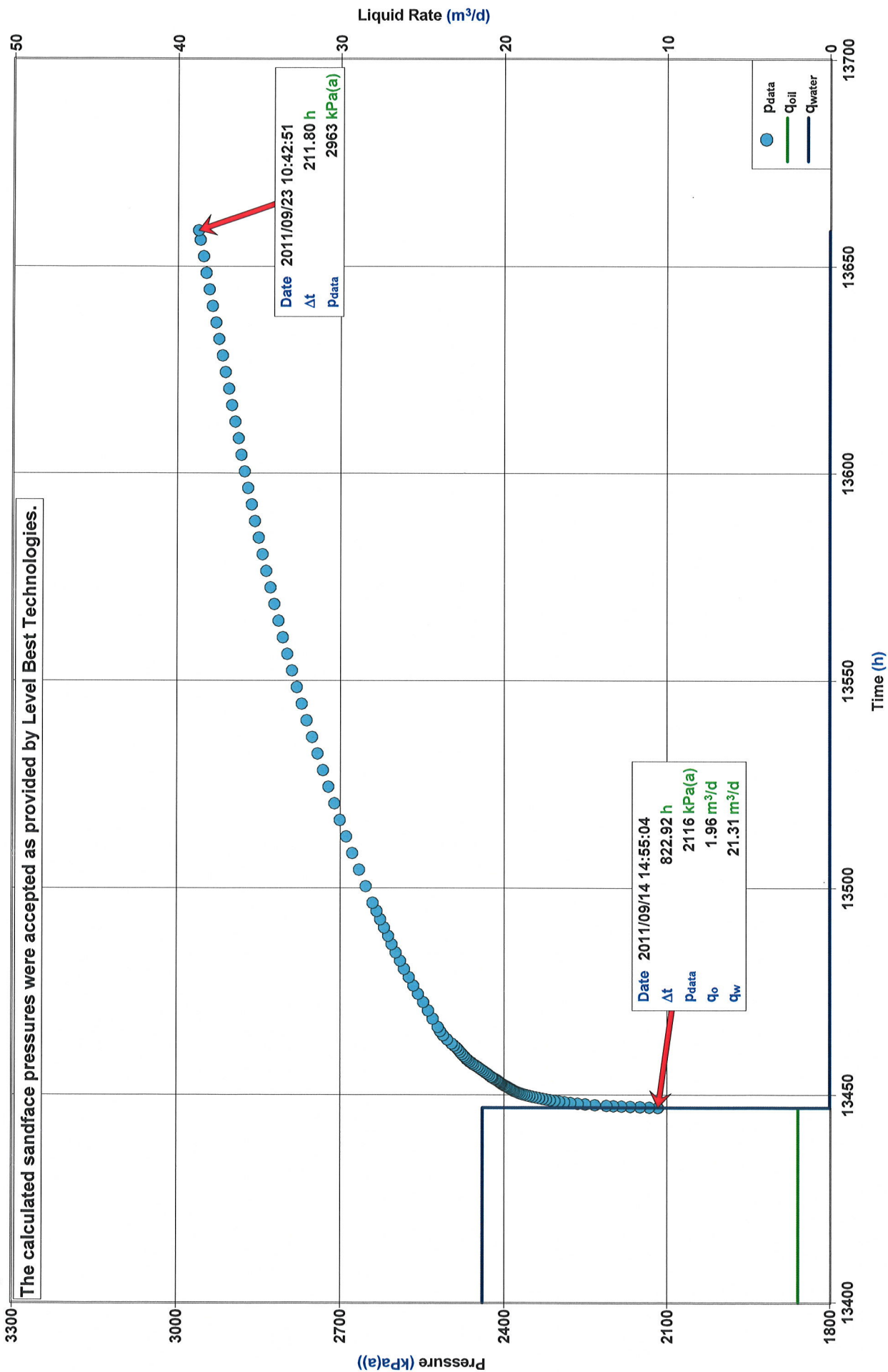
Measured Depth (m)	Vertical Depth (m)	Local Coordinates		Comment
		+N/-S (m)	+E/-W (m)	
1,646.00	909.16	3.74	-820.45	Last Survey@ 1646mMD
1,660.00	909.16	3.38	-834.44	Extrapolated to TD@1660mMD

Checked By: _____	Approved By: _____	Date: _____
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Diagnostics

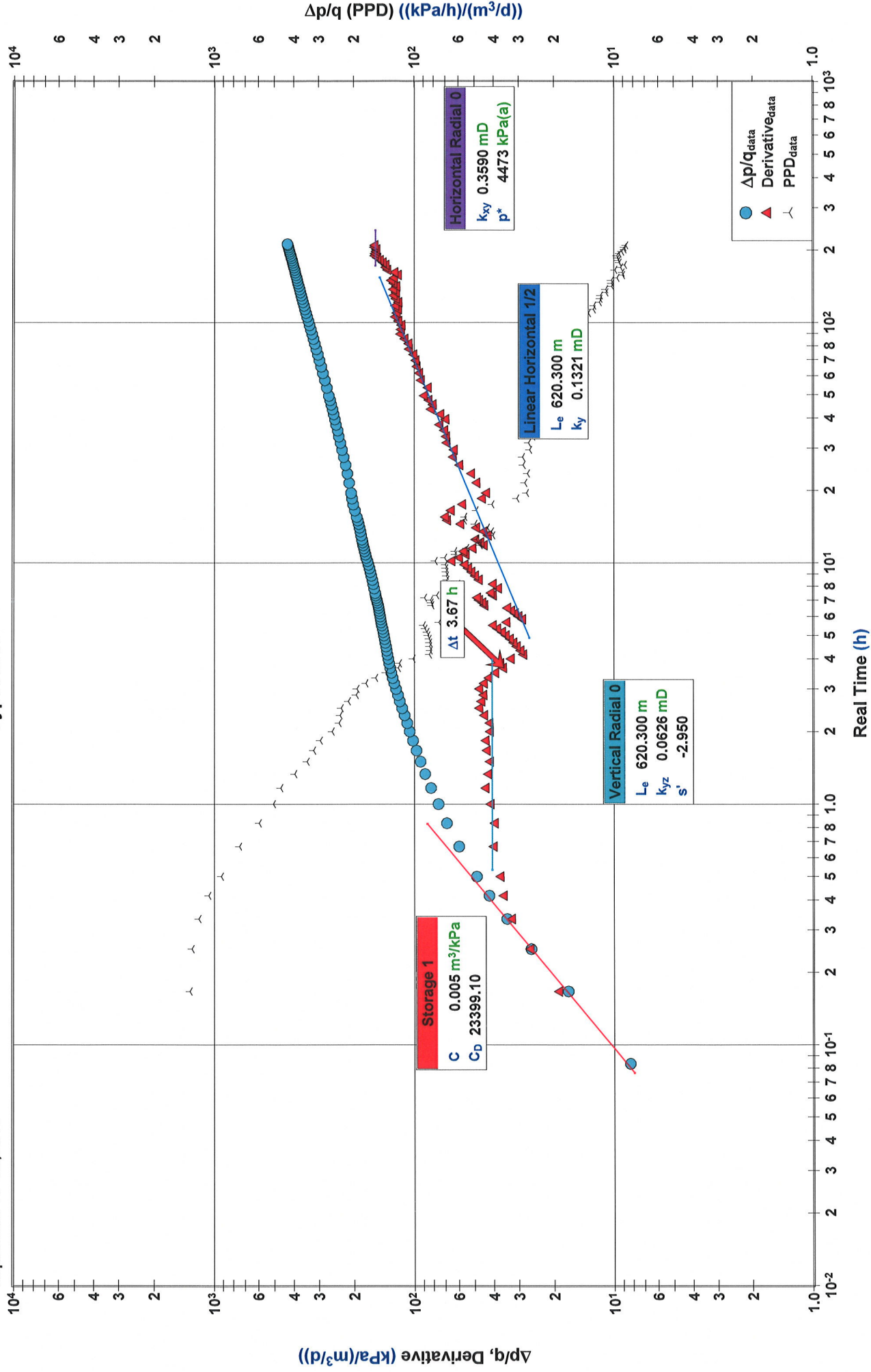
Penn West Waskada Unit No. 2 HZNTL
 102/05-27-001-26W1/00
 Lower Amaranth: 1020.0 - 1640.3 mKB MD
 September 14 - 23, 2011

Diagnostic Analysis Total Test



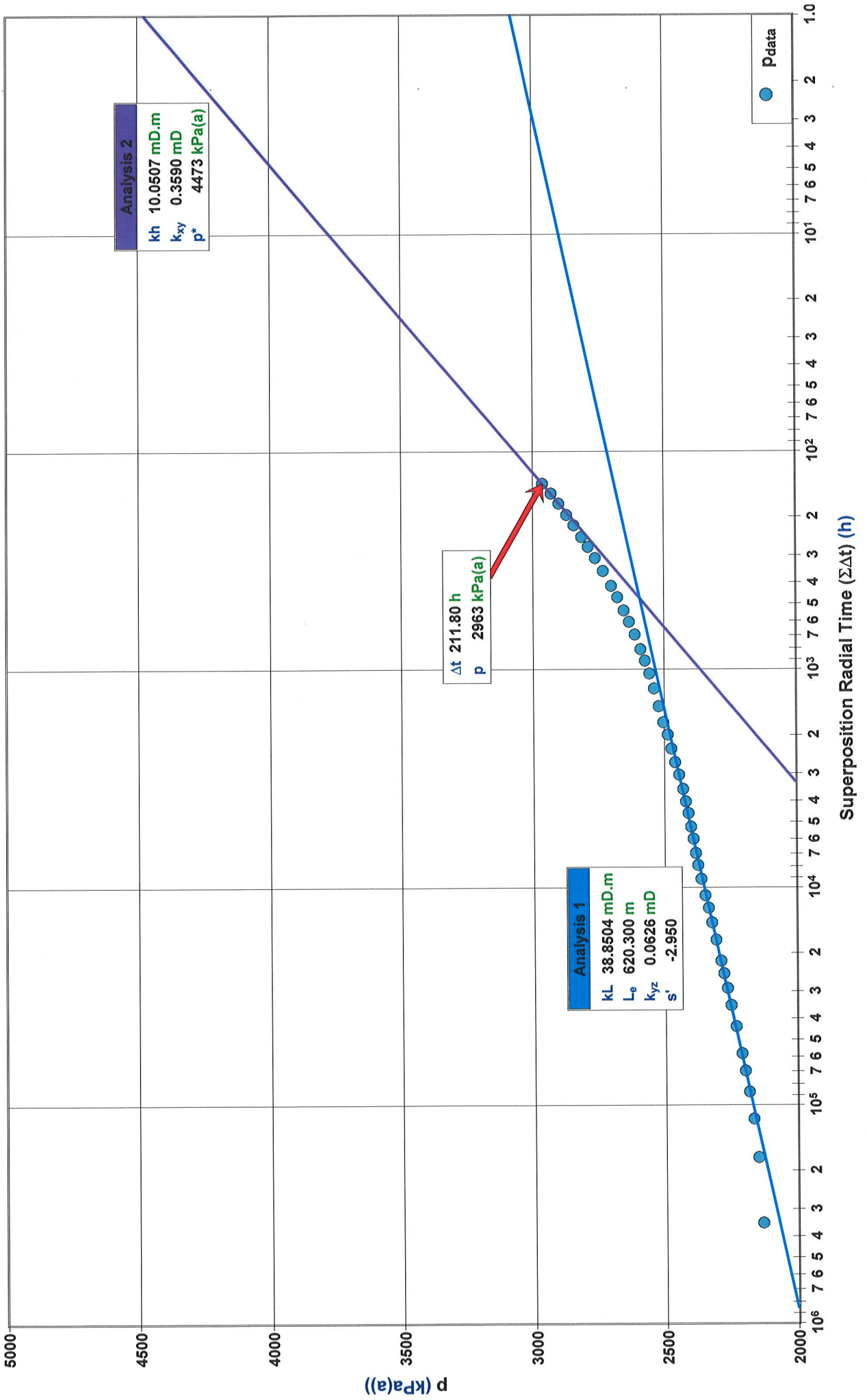
Penn West Waskada Unit No. 2 HZNTL
 102/05-27-001-26W1/00
 Lower Amaranth: 1020.0 - 1640.3 mKB MD
 September 14 - 23, 2011

Diagnostic Analysis Typecurve



Penn West Waskada Unit No. 2 HZNTL
 102/05-27-001-26W1/00
 Lower Amaranth: 1020.0 - 1640.3 mKB MD
 September 14 - 23, 2011

Diagnostic Analysis Radial



Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
1	2010/03/03 08:00:00	0.0000	0.0000		0.0	0.0
2	2010/03/04 08:00:00	24.0000	24.0000		10.5	39.3
3	2010/03/05 08:00:00	48.0000	48.0000		7.9	36.3
4	2010/03/06 08:00:00	72.0000	72.0000		2.5	14.9
5	2010/03/07 08:00:00	96.0000	96.0000		7.7	35.2
6	2010/03/08 08:00:00	120.0000	120.0000		7.6	33.9
7	2010/03/09 08:00:00	144.0000	144.0000		8.0	44.2
8	2010/03/10 08:00:00	168.0000	168.0000		8.0	33.4
9	2010/03/11 08:00:00	192.0000	192.0000		7.8	38.1
10	2010/03/12 08:00:00	216.0000	216.0000		7.8	34.2
11	2010/03/13 08:00:00	240.0000	240.0000		9.5	32.8
12	2010/03/14 08:00:00	264.0000	264.0000		9.5	36.0
13	2010/03/15 08:00:00	288.0000	288.0000		9.3	33.9
14	2010/03/16 08:00:00	312.0000	312.0000		9.5	36.1
15	2010/03/17 08:00:00	336.0000	336.0000		9.4	36.1
16	2010/03/18 08:00:00	360.0000	360.0000		9.8	36.5
17	2010/03/19 08:00:00	384.0000	384.0000		9.6	38.4
18	2010/03/20 08:00:00	408.0000	408.0000		9.9	42.4
19	2010/03/21 08:00:00	432.0000	432.0000		9.3	36.6
20	2010/03/22 08:00:00	456.0000	456.0000		8.8	32.3
21	2010/03/23 08:00:00	480.0000	480.0000		8.4	32.7
22	2010/03/24 08:00:00	504.0000	504.0000		9.0	37.5
23	2010/03/25 08:00:00	528.0000	528.0000		8.8	43.2
24	2010/03/26 08:00:00	552.0000	552.0000		8.9	42.3
25	2010/03/27 08:00:00	576.0000	576.0000		9.2	36.9
26	2010/03/28 08:00:00	600.0000	600.0000		9.9	39.9
27	2010/03/29 08:00:00	624.0000	624.0000		10.3	46.5
28	2010/03/30 08:00:00	648.0000	648.0000		9.1	40.4
29	2010/03/31 08:00:00	672.0000	672.0000		9.2	35.6
30	2010/04/01 08:00:00	696.0000	696.0000		9.3	35.8
31	2010/04/02 08:00:00	720.0000	720.0000		9.4	35.0
32	2010/04/03 08:00:00	744.0000	744.0000		10.3	34.7
33	2010/04/04 08:00:00	768.0000	768.0000		10.4	32.0
34	2010/04/05 08:00:00	792.0000	792.0000		10.3	31.9
35	2010/04/06 08:00:00	816.0000	816.0000		9.9	37.4
36	2010/04/07 08:00:00	840.0000	840.0000		9.7	37.5
37	2010/04/08 08:00:00	864.0000	864.0000		9.5	40.6
38	2010/04/09 08:00:00	888.0000	888.0000		9.9	35.7
39	2010/04/10 08:00:00	912.0000	912.0000		9.9	32.1
40	2010/04/11 08:00:00	936.0000	936.0000		9.7	37.7
41	2010/04/12 08:00:00	960.0000	960.0000		9.6	32.7
42	2010/04/13 08:00:00	984.0000	984.0000		9.7	33.3
43	2010/04/14 08:00:00	1008.0000	1008.0000		10.0	31.0
44	2010/04/15 08:00:00	1032.0000	1032.0000		10.9	36.4
45	2010/04/16 08:00:00	1056.0000	1056.0000		10.2	31.0
46	2010/04/17 08:00:00	1080.0000	1080.0000		9.7	30.2
47	2010/04/18 08:00:00	1104.0000	1104.0000		10.0	31.6
48	2010/04/19 08:00:00	1128.0000	1128.0000		9.7	32.9
49	2010/04/20 08:00:00	1152.0000	1152.0000		9.8	40.7
50	2010/04/21 08:00:00	1176.0000	1176.0000		10.2	39.7
51	2010/04/22 08:00:00	1200.0000	1200.0000		10.1	39.6
52	2010/04/23 08:00:00	1224.0000	1224.0000		10.1	42.0
53	2010/04/24 08:00:00	1248.0000	1248.0000		9.7	44.3
54	2010/04/25 08:00:00	1272.0000	1272.0000		10.0	40.4
55	2010/04/26 08:00:00	1296.0000	1296.0000		9.7	45.6
56	2010/04/27 08:00:00	1320.0000	1320.0000		10.5	38.9
57	2010/04/28 08:00:00	1344.0000	1344.0000		10.0	37.2
58	2010/04/29 08:00:00	1368.0000	1368.0000		12.3	38.4
59	2010/04/30 08:00:00	1392.0000	1392.0000		10.0	36.8
60	2010/05/01 08:00:00	1416.0000	1416.0000		10.3	35.4
61	2010/05/02 08:00:00	1440.0000	1440.0000		7.0	24.7
62	2010/05/03 08:00:00	1464.0000	1464.0000		6.4	26.5
63	2010/05/04 08:00:00	1488.0000	1488.0000		6.5	26.6
64	2010/05/05 08:00:00	1512.0000	1512.0000		6.8	26.6
65	2010/05/06 08:00:00	1536.0000	1536.0000		6.3	24.9
66	2010/05/07 08:00:00	1560.0000	1560.0000		7.9	23.7
67	2010/05/08 08:00:00	1584.0000	1584.0000		6.9	25.0
68	2010/05/09 08:00:00	1608.0000	1608.0000		6.6	24.9
69	2010/05/10 08:00:00	1632.0000	1632.0000		6.8	26.8
70	2010/05/11 08:00:00	1656.0000	1656.0000		6.5	25.4
71	2010/05/12 08:00:00	1680.0000	1680.0000		6.5	25.4
72	2010/05/13 08:00:00	1704.0000	1704.0000		6.8	25.1
73	2010/05/14 08:00:00	1728.0000	1728.0000		7.0	23.3
74	2010/05/15 08:00:00	1752.0000	1752.0000		6.6	24.7
75	2010/05/16 08:00:00	1776.0000	1776.0000		6.7	24.7
76	2010/05/17 08:00:00	1800.0000	1800.0000		6.8	26.3

Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
77	2010/05/18 08:00:00	1824.0000	1824.0000		7.0	26.9
78	2010/05/19 08:00:00	1848.0000	1848.0000		6.8	28.5
79	2010/05/20 08:00:00	1872.0000	1872.0000		6.8	27.0
80	2010/05/21 08:00:00	1896.0000	1896.0000		7.4	36.5
81	2010/05/22 08:00:00	1920.0000	1920.0000		6.9	27.9
82	2010/05/23 08:00:00	1944.0000	1944.0000		7.3	28.7
83	2010/05/24 08:00:00	1968.0000	1968.0000		7.1	26.9
84	2010/05/25 08:00:00	1992.0000	1992.0000		7.1	28.5
85	2010/05/26 08:00:00	2016.0000	2016.0000		6.7	26.2
86	2010/05/27 08:00:00	2040.0000	2040.0000		6.9	29.3
87	2010/05/28 08:00:00	2064.0000	2064.0000		7.3	27.1
88	2010/05/29 08:00:00	2088.0000	2088.0000		7.0	26.6
89	2010/05/30 08:00:00	2112.0000	2112.0000		7.0	28.9
90	2010/05/31 08:00:00	2136.0000	2136.0000		7.0	27.0
91	2010/06/01 08:00:00	2160.0000	2160.0000		7.0	26.7
92	2010/06/02 08:00:00	2184.0000	2184.0000		7.3	28.1
93	2010/06/03 08:00:00	2208.0000	2208.0000		7.0	28.5
94	2010/06/04 08:00:00	2232.0000	2232.0000		7.1	27.7
95	2010/06/05 08:00:00	2256.0000	2256.0000		7.0	28.0
96	2010/06/06 08:00:00	2280.0000	2280.0000		7.3	28.5
97	2010/06/07 08:00:00	2304.0000	2304.0000		7.0	27.6
98	2010/06/08 08:00:00	2328.0000	2328.0000		7.9	28.3
99	2010/06/09 08:00:00	2352.0000	2352.0000		7.0	27.9
100	2010/06/10 08:00:00	2376.0000	2376.0000		7.3	26.9
101	2010/06/11 08:00:00	2400.0000	2400.0000		7.2	28.3
102	2010/06/12 08:00:00	2424.0000	2424.0000		7.4	27.5
103	2010/06/13 08:00:00	2448.0000	2448.0000		7.5	29.0
104	2010/06/14 08:00:00	2472.0000	2472.0000		7.4	28.4
105	2010/06/15 08:00:00	2496.0000	2496.0000		7.7	22.8
106	2010/06/16 08:00:00	2520.0000	2520.0000		7.2	24.8
107	2010/06/17 08:00:00	2544.0000	2544.0000		7.0	27.3
108	2010/06/18 08:00:00	2568.0000	2568.0000		7.5	30.5
109	2010/06/19 08:00:00	2592.0000	2592.0000		7.2	26.5
110	2010/06/20 08:00:00	2616.0000	2616.0000		6.5	31.3
111	2010/06/21 08:00:00	2640.0000	2640.0000		7.2	26.1
112	2010/06/22 08:00:00	2664.0000	2664.0000		7.3	27.4
113	2010/06/23 08:00:00	2688.0000	2688.0000		7.5	27.4
114	2010/06/24 08:00:00	2712.0000	2712.0000		5.1	23.2
115	2010/06/25 08:00:00	2736.0000	2736.0000		5.1	23.3
116	2010/06/26 08:00:00	2760.0000	2760.0000		5.2	23.6
117	2010/06/27 08:00:00	2784.0000	2784.0000		5.2	23.3
118	2010/06/28 08:00:00	2808.0000	2808.0000		5.3	22.6
119	2010/06/29 08:00:00	2832.0000	2832.0000		5.3	23.4
120	2010/06/30 08:00:00	2856.0000	2856.0000		5.3	23.6
121	2010/07/01 08:00:00	2880.0000	2880.0000		5.1	23.9
122	2010/07/02 08:00:00	2904.0000	2904.0000		5.3	23.0
123	2010/07/03 08:00:00	2928.0000	2928.0000		4.9	21.9
124	2010/07/04 08:00:00	2952.0000	2952.0000		7.1	23.3
125	2010/07/05 08:00:00	2976.0000	2976.0000		5.0	23.2
126	2010/07/06 08:00:00	3000.0000	3000.0000		5.1	22.6
127	2010/07/07 08:00:00	3024.0000	3024.0000		5.7	22.9
128	2010/07/08 08:00:00	3048.0000	3048.0000		5.1	22.2
129	2010/07/09 08:00:00	3072.0000	3072.0000		5.1	23.9
130	2010/07/10 08:00:00	3096.0000	3096.0000		5.5	31.1
131	2010/07/11 08:00:00	3120.0000	3120.0000		5.1	22.1
132	2010/07/12 08:00:00	3144.0000	3144.0000		4.4	23.6
133	2010/07/13 08:00:00	3168.0000	3168.0000		4.5	23.6
134	2010/07/14 08:00:00	3192.0000	3192.0000		6.3	15.5
135	2010/07/15 08:00:00	3216.0000	3216.0000		4.5	22.5
136	2010/07/16 08:00:00	3240.0000	3240.0000		4.5	19.3
137	2010/07/17 08:00:00	3264.0000	3264.0000		4.3	20.9
138	2010/07/18 08:00:00	3288.0000	3288.0000		4.4	22.5
139	2010/07/19 08:00:00	3312.0000	3312.0000		4.5	19.9
140	2010/07/20 08:00:00	3336.0000	3336.0000		4.3	19.6
141	2010/07/21 08:00:00	3360.0000	3360.0000		4.4	21.7
142	2010/07/22 08:00:00	3384.0000	3384.0000		4.5	18.0
143	2010/07/23 08:00:00	3408.0000	3408.0000		4.7	23.0
144	2010/07/24 08:00:00	3432.0000	3432.0000		5.2	25.4
145	2010/07/25 08:00:00	3456.0000	3456.0000		5.1	23.7
146	2010/07/26 08:00:00	3480.0000	3480.0000		5.6	18.6
147	2010/07/27 08:00:00	3504.0000	3504.0000		4.7	31.7
148	2010/07/28 08:00:00	3528.0000	3528.0000		4.4	32.2
149	2010/07/29 08:00:00	3552.0000	3552.0000		4.5	22.7
150	2010/07/30 08:00:00	3576.0000	3576.0000		4.7	19.2
151	2010/07/31 08:00:00	3600.0000	3600.0000		4.4	20.1
152	2010/08/01 08:00:00	3624.0000	3624.0000		4.6	23.9

Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
153	2010/08/02 08:00:00	3648.0000	3648.0000		4.3	22.0
154	2010/08/03 08:00:00	3672.0000	3672.0000		4.5	23.6
155	2010/08/04 08:00:00	3696.0000	3696.0000		4.5	23.1
156	2010/08/05 08:00:00	3720.0000	3720.0000		4.5	23.4
157	2010/08/06 08:00:00	3744.0000	3744.0000		4.5	23.4
158	2010/08/07 08:00:00	3768.0000	3768.0000		4.8	25.8
159	2010/08/08 08:00:00	3792.0000	3792.0000		4.5	24.1
160	2010/08/09 08:00:00	3816.0000	3816.0000		4.4	23.1
161	2010/08/10 08:00:00	3840.0000	3840.0000		4.6	15.4
162	2010/08/11 08:00:00	3864.0000	3864.0000		2.2	11.5
163	2010/08/12 08:00:00	3888.0000	3888.0000		0.0	0.0
164	2010/09/23 08:00:00	4896.0000	4896.0000		0.0	0.0
165	2010/09/24 08:00:00	4920.0000	4920.0000		4.5	24.5
166	2010/09/25 08:00:00	4944.0000	4944.0000		4.5	31.7
167	2010/09/26 08:00:00	4968.0000	4968.0000		4.4	20.9
168	2010/09/27 08:00:00	4992.0000	4992.0000		4.6	22.8
169	2010/09/28 08:00:00	5016.0000	5016.0000		4.4	20.4
170	2010/09/29 08:00:00	5040.0000	5040.0000		4.4	22.1
171	2010/09/30 08:00:00	5064.0000	5064.0000		4.7	23.1
172	2010/10/01 08:00:00	5088.0000	5088.0000		4.5	15.2
173	2010/10/02 08:00:00	5112.0000	5112.0000		4.6	7.5
174	2010/10/03 08:00:00	5136.0000	5136.0000		4.9	13.3
175	2010/10/04 08:00:00	5160.0000	5160.0000		5.3	21.3
176	2010/10/05 08:00:00	5184.0000	5184.0000		4.8	23.2
177	2010/10/06 08:00:00	5208.0000	5208.0000		4.6	23.4
178	2010/10/07 08:00:00	5232.0000	5232.0000		4.5	22.4
179	2010/10/08 08:00:00	5256.0000	5256.0000		4.5	13.0
180	2010/10/09 08:00:00	5280.0000	5280.0000		4.3	18.1
181	2010/10/10 08:00:00	5304.0000	5304.0000		4.7	23.7
182	2010/10/11 08:00:00	5328.0000	5328.0000		5.7	20.8
183	2010/10/12 08:00:00	5352.0000	5352.0000		4.6	22.9
184	2010/10/13 08:00:00	5376.0000	5376.0000		4.5	23.4
185	2010/10/14 08:00:00	5400.0000	5400.0000		4.5	14.7
186	2010/10/15 08:00:00	5424.0000	5424.0000		4.5	19.5
187	2010/10/16 08:00:00	5448.0000	5448.0000		1.2	5.9
188	2010/10/17 08:00:00	5472.0000	5472.0000		0.0	0.0
189	2010/10/25 08:00:00	5664.0000	5664.0000		0.0	0.0
190	2010/10/26 08:00:00	5688.0000	5688.0000		3.2	15.8
191	2010/10/27 08:00:00	5712.0000	5712.0000		4.7	28.1
192	2010/10/28 08:00:00	5736.0000	5736.0000		4.6	27.4
193	2010/10/29 08:00:00	5760.0000	5760.0000		4.7	24.6
194	2010/10/30 08:00:00	5784.0000	5784.0000		4.7	23.0
195	2010/10/31 08:00:00	5808.0000	5808.0000		4.5	25.9
196	2010/11/01 08:00:00	5832.0000	5832.0000		4.2	28.6
197	2010/11/02 08:00:00	5856.0000	5856.0000		4.6	24.7
198	2010/11/03 08:00:00	5880.0000	5880.0000		4.7	24.6
199	2010/11/04 08:00:00	5904.0000	5904.0000		4.5	23.2
200	2010/11/05 08:00:00	5928.0000	5928.0000		4.6	24.1
201	2010/11/06 08:00:00	5952.0000	5952.0000		4.6	24.6
202	2010/11/07 08:00:00	5976.0000	5976.0000		4.6	23.4
203	2010/11/08 08:00:00	6000.0000	6000.0000		4.3	27.1
204	2010/11/09 08:00:00	6024.0000	6024.0000		7.0	25.3
205	2010/11/10 08:00:00	6048.0000	6048.0000		7.1	17.2
206	2010/11/11 08:00:00	6072.0000	6072.0000		7.1	24.1
207	2010/11/12 08:00:00	6096.0000	6096.0000		7.0	28.4
208	2010/11/13 08:00:00	6120.0000	6120.0000		7.3	24.3
209	2010/11/14 08:00:00	6144.0000	6144.0000		7.0	21.5
210	2010/11/15 08:00:00	6168.0000	6168.0000		7.4	25.3
211	2010/11/16 08:00:00	6192.0000	6192.0000		7.5	24.4
212	2010/11/17 08:00:00	6216.0000	6216.0000		7.2	13.5
213	2010/11/18 08:00:00	6240.0000	6240.0000		7.1	21.1
214	2010/11/19 08:00:00	6264.0000	6264.0000		7.7	23.3
215	2010/11/20 08:00:00	6288.0000	6288.0000		7.3	21.0
216	2010/11/21 08:00:00	6312.0000	6312.0000		7.1	17.3
217	2010/11/22 08:00:00	6336.0000	6336.0000		7.3	19.1
218	2010/11/23 08:00:00	6360.0000	6360.0000		7.3	24.4
219	2010/11/24 08:00:00	6384.0000	6384.0000		7.8	21.8
220	2010/11/25 08:00:00	6408.0000	6408.0000		7.2	26.5
221	2010/11/26 08:00:00	6432.0000	6432.0000		7.5	25.9
222	2010/11/27 08:00:00	6456.0000	6456.0000		7.3	24.7
223	2010/11/28 08:00:00	6480.0000	6480.0000		7.2	24.6
224	2010/11/29 08:00:00	6504.0000	6504.0000		8.2	22.3
225	2010/11/30 08:00:00	6528.0000	6528.0000		9.1	25.3
226	2010/12/01 08:00:00	6552.0000	6552.0000		10.5	27.2
227	2010/12/02 08:00:00	6576.0000	6576.0000		7.0	20.8
228	2010/12/03 08:00:00	6600.0000	6600.0000		8.7	19.6

Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
229	2010/12/04 08:00:00	6624.0000	6624.0000		8.6	22.2
230	2010/12/05 08:00:00	6648.0000	6648.0000		9.0	25.0
231	2010/12/06 08:00:00	6672.0000	6672.0000		8.2	21.2
232	2010/12/07 08:00:00	6696.0000	6696.0000		8.5	24.7
233	2010/12/08 08:00:00	6720.0000	6720.0000		8.2	23.9
234	2010/12/09 08:00:00	6744.0000	6744.0000		6.8	15.5
235	2010/12/10 08:00:00	6768.0000	6768.0000		8.8	14.6
236	2010/12/11 08:00:00	6792.0000	6792.0000		7.4	19.3
237	2010/12/12 08:00:00	6816.0000	6816.0000		7.9	16.7
238	2010/12/13 08:00:00	6840.0000	6840.0000		7.0	25.0
239	2010/12/14 08:00:00	6864.0000	6864.0000		7.0	25.0
240	2010/12/15 08:00:00	6888.0000	6888.0000		8.6	23.8
241	2010/12/16 08:00:00	6912.0000	6912.0000		7.7	24.3
242	2010/12/17 08:00:00	6936.0000	6936.0000		4.9	12.2
243	2010/12/18 08:00:00	6960.0000	6960.0000		6.1	13.3
244	2010/12/19 08:00:00	6984.0000	6984.0000		4.7	12.7
245	2010/12/20 08:00:00	7008.0000	7008.0000		5.5	12.8
246	2010/12/21 08:00:00	7032.0000	7032.0000		6.3	11.6
247	2010/12/22 08:00:00	7056.0000	7056.0000		5.2	13.0
248	2010/12/23 08:00:00	7080.0000	7080.0000		4.8	14.0
249	2010/12/24 08:00:00	7104.0000	7104.0000		4.9	12.4
250	2010/12/25 08:00:00	7128.0000	7128.0000		5.5	13.1
251	2010/12/26 08:00:00	7152.0000	7152.0000		5.0	12.2
252	2010/12/27 08:00:00	7176.0000	7176.0000		4.5	12.8
253	2010/12/28 08:00:00	7200.0000	7200.0000		5.2	12.8
254	2010/12/29 08:00:00	7224.0000	7224.0000		5.1	10.8
255	2010/12/30 08:00:00	7248.0000	7248.0000		4.2	12.0
256	2010/12/31 08:00:00	7272.0000	7272.0000		5.8	12.5
257	2011/01/01 08:00:00	7296.0000	7296.0000		5.3	12.1
258	2011/01/02 08:00:00	7320.0000	7320.0000		3.9	11.8
259	2011/01/03 08:00:00	7344.0000	7344.0000		4.6	13.5
260	2011/01/04 08:00:00	7368.0000	7368.0000		4.9	10.5
261	2011/01/05 08:00:00	7392.0000	7392.0000		5.4	7.1
262	2011/01/06 08:00:00	7416.0000	7416.0000		5.2	12.4
263	2011/01/07 08:00:00	7440.0000	7440.0000		6.2	12.9
264	2011/01/08 08:00:00	7464.0000	7464.0000		6.0	10.4
265	2011/01/09 08:00:00	7488.0000	7488.0000		5.6	11.7
266	2011/01/10 08:00:00	7512.0000	7512.0000		6.6	10.4
267	2011/01/11 08:00:00	7536.0000	7536.0000		7.3	10.8
268	2011/01/12 08:00:00	7560.0000	7560.0000		9.7	22.1
269	2011/01/13 08:00:00	7584.0000	7584.0000		9.0	16.5
270	2011/01/14 08:00:00	7608.0000	7608.0000		8.2	19.9
271	2011/01/15 08:00:00	7632.0000	7632.0000		6.9	16.3
272	2011/01/16 08:00:00	7656.0000	7656.0000		11.2	14.7
273	2011/01/17 08:00:00	7680.0000	7680.0000		10.0	18.4
274	2011/01/18 08:00:00	7704.0000	7704.0000		8.6	16.0
275	2011/01/19 08:00:00	7728.0000	7728.0000		8.5	17.0
276	2011/01/20 08:00:00	7752.0000	7752.0000		7.7	16.1
277	2011/01/21 08:00:00	7776.0000	7776.0000		11.3	16.9
278	2011/01/22 08:00:00	7800.0000	7800.0000		9.9	17.9
279	2011/01/23 08:00:00	7824.0000	7824.0000		9.3	14.7
280	2011/01/24 08:00:00	7848.0000	7848.0000		8.9	16.4
281	2011/01/25 08:00:00	7872.0000	7872.0000		10.5	17.6
282	2011/01/26 08:00:00	7896.0000	7896.0000		7.0	16.4
283	2011/01/27 08:00:00	7920.0000	7920.0000		7.5	15.1
284	2011/01/28 08:00:00	7944.0000	7944.0000		9.1	19.1
285	2011/01/29 08:00:00	7968.0000	7968.0000		9.9	12.8
286	2011/01/30 08:00:00	7992.0000	7992.0000		9.1	15.0
287	2011/01/31 08:00:00	8016.0000	8016.0000		8.5	15.3
288	2011/02/01 08:00:00	8040.0000	8040.0000		8.2	14.5
289	2011/02/02 08:00:00	8064.0000	8064.0000		2.5	6.1
290	2011/02/03 08:00:00	8088.0000	8088.0000		6.7	9.9
291	2011/02/04 08:00:00	8112.0000	8112.0000		2.7	3.3
292	2011/02/05 08:00:00	8136.0000	8136.0000		2.3	8.4
293	2011/02/06 08:00:00	8160.0000	8160.0000		2.7	8.3
294	2011/02/07 08:00:00	8184.0000	8184.0000		2.5	9.2
295	2011/02/08 08:00:00	8208.0000	8208.0000		2.4	12.2
296	2011/02/09 08:00:00	8232.0000	8232.0000		2.0	8.1
297	2011/02/10 08:00:00	8256.0000	8256.0000		2.5	8.7
298	2011/02/11 08:00:00	8280.0000	8280.0000		2.1	10.8
299	2011/02/12 08:00:00	8304.0000	8304.0000		2.4	10.8
300	2011/02/13 08:00:00	8328.0000	8328.0000		2.3	9.8
301	2011/02/14 08:00:00	8352.0000	8352.0000		2.3	10.1
302	2011/02/15 08:00:00	8376.0000	8376.0000		2.4	10.7
303	2011/02/16 08:00:00	8400.0000	8400.0000		2.4	7.9
304	2011/02/17 08:00:00	8424.0000	8424.0000		2.3	8.4

Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
305	2011/02/18 08:00:00	8448.0000	8448.0000		2.5	8.9
306	2011/02/19 08:00:00	8472.0000	8472.0000		2.2	7.8
307	2011/02/20 08:00:00	8496.0000	8496.0000		2.3	9.0
308	2011/02/21 08:00:00	8520.0000	8520.0000		2.3	8.9
309	2011/02/22 08:00:00	8544.0000	8544.0000		2.3	11.6
310	2011/02/23 08:00:00	8568.0000	8568.0000		2.3	11.0
311	2011/02/24 08:00:00	8592.0000	8592.0000		2.2	8.3
312	2011/02/25 08:00:00	8616.0000	8616.0000		2.2	9.7
313	2011/02/26 08:00:00	8640.0000	8640.0000		2.2	13.2
314	2011/02/27 08:00:00	8664.0000	8664.0000		2.2	11.4
315	2011/02/28 08:00:00	8688.0000	8688.0000		2.2	9.3
316	2011/03/01 08:00:00	8712.0000	8712.0000		2.5	10.5
317	2011/03/02 08:00:00	8736.0000	8736.0000		2.2	10.5
318	2011/03/03 08:00:00	8760.0000	8760.0000		2.3	11.6
319	2011/03/04 08:00:00	8784.0000	8784.0000		2.2	9.2
320	2011/03/05 08:00:00	8808.0000	8808.0000		2.2	11.0
321	2011/03/06 08:00:00	8832.0000	8832.0000		2.3	11.2
322	2011/03/07 08:00:00	8856.0000	8856.0000		2.2	10.0
323	2011/03/08 08:00:00	8880.0000	8880.0000		2.1	8.7
324	2011/03/09 08:00:00	8904.0000	8904.0000		2.1	9.9
325	2011/03/10 08:00:00	8928.0000	8928.0000		2.0	10.4
326	2011/03/11 08:00:00	8952.0000	8952.0000		2.1	11.7
327	2011/03/12 08:00:00	8976.0000	8976.0000		2.1	8.5
328	2011/03/13 08:00:00	9000.0000	9000.0000		2.2	11.0
329	2011/03/14 08:00:00	9024.0000	9024.0000		2.2	10.0
330	2011/03/15 08:00:00	9048.0000	9048.0000		2.3	9.6
331	2011/03/16 08:00:00	9072.0000	9072.0000		0.5	2.0
332	2011/03/17 08:00:00	9096.0000	9096.0000		1.8	11.8
333	2011/03/18 08:00:00	9120.0000	9120.0000		2.3	10.6
334	2011/03/19 08:00:00	9144.0000	9144.0000		2.2	9.7
335	2011/03/20 08:00:00	9168.0000	9168.0000		2.4	11.1
336	2011/03/21 08:00:00	9192.0000	9192.0000		2.1	10.7
337	2011/03/22 08:00:00	9216.0000	9216.0000		2.0	9.1
338	2011/03/23 08:00:00	9240.0000	9240.0000		2.5	10.2
339	2011/03/24 08:00:00	9264.0000	9264.0000		2.3	8.2
340	2011/03/25 08:00:00	9288.0000	9288.0000		2.2	7.4
341	2011/03/26 08:00:00	9312.0000	9312.0000		2.2	10.3
342	2011/03/27 08:00:00	9336.0000	9336.0000		2.0	9.6
343	2011/03/28 08:00:00	9360.0000	9360.0000		0.0	0.0
344	2011/03/29 08:00:00	9384.0000	9384.0000		2.0	10.1
345	2011/03/30 08:00:00	9408.0000	9408.0000		2.7	9.1
346	2011/03/31 08:00:00	9432.0000	9432.0000		2.2	11.1
347	2011/04/01 08:00:00	9456.0000	9456.0000		0.0	0.0
348	2011/04/09 08:00:00	9648.0000	9648.0000		0.0	0.0
349	2011/04/10 08:00:00	9672.0000	9672.0000		2.5	11.1
350	2011/04/11 08:00:00	9696.0000	9696.0000		2.1	9.8
351	2011/04/12 08:00:00	9720.0000	9720.0000		2.0	9.7
352	2011/04/13 08:00:00	9744.0000	9744.0000		2.3	9.3
353	2011/04/14 08:00:00	9768.0000	9768.0000		2.1	9.7
354	2011/04/15 08:00:00	9792.0000	9792.0000		2.4	13.8
355	2011/04/16 08:00:00	9816.0000	9816.0000		2.4	10.6
356	2011/04/17 08:00:00	9840.0000	9840.0000		2.3	10.3
357	2011/04/18 08:00:00	9864.0000	9864.0000		2.4	10.8
358	2011/04/19 08:00:00	9888.0000	9888.0000		2.6	9.6
359	2011/04/20 08:00:00	9912.0000	9912.0000		2.1	10.7
360	2011/04/21 08:00:00	9936.0000	9936.0000		2.5	9.8
361	2011/04/22 08:00:00	9960.0000	9960.0000		1.9	9.5
362	2011/04/23 08:00:00	9984.0000	9984.0000		2.6	11.3
363	2011/04/24 08:00:00	10008.0000	10008.0000		2.3	9.6
364	2011/04/25 08:00:00	10032.0000	10032.0000		1.9	10.9
365	2011/04/26 08:00:00	10056.0000	10056.0000		2.2	9.8
366	2011/04/27 08:00:00	10080.0000	10080.0000		2.4	10.1
367	2011/04/28 08:00:00	10104.0000	10104.0000		2.1	9.6
368	2011/04/29 08:00:00	10128.0000	10128.0000		2.3	10.2
369	2011/04/30 08:00:00	10152.0000	10152.0000		1.9	8.6
370	2011/05/01 08:00:00	10176.0000	10176.0000		2.3	10.4
371	2011/05/02 08:00:00	10200.0000	10200.0000		2.1	9.6
372	2011/05/03 08:00:00	10224.0000	10224.0000		2.1	10.6
373	2011/05/04 08:00:00	10248.0000	10248.0000		2.4	10.2
374	2011/05/05 08:00:00	10272.0000	10272.0000		2.3	12.6
375	2011/05/06 08:00:00	10296.0000	10296.0000		2.3	10.1
376	2011/05/07 08:00:00	10320.0000	10320.0000		2.2	10.4
377	2011/05/08 08:00:00	10344.0000	10344.0000		2.3	10.6
378	2011/05/09 08:00:00	10368.0000	10368.0000		2.3	10.7
379	2011/05/10 08:00:00	10392.0000	10392.0000		1.1	5.7
380	2011/05/11 08:00:00	10416.0000	10416.0000		2.3	10.3

Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
381	2011/05/12 08:00:00	10440.0000	10440.0000		2.3	10.8
382	2011/05/13 08:00:00	10464.0000	10464.0000		2.3	10.3
383	2011/05/14 08:00:00	10488.0000	10488.0000		2.3	11.0
384	2011/05/15 08:00:00	10512.0000	10512.0000		2.2	10.3
385	2011/05/16 08:00:00	10536.0000	10536.0000		2.2	10.4
386	2011/05/17 08:00:00	10560.0000	10560.0000		2.2	11.2
387	2011/05/18 08:00:00	10584.0000	10584.0000		2.3	10.8
388	2011/05/19 08:00:00	10608.0000	10608.0000		2.2	10.2
389	2011/05/20 08:00:00	10632.0000	10632.0000		2.2	10.8
390	2011/05/21 08:00:00	10656.0000	10656.0000		0.0	0.0
391	2011/08/11 08:00:00	12624.0000	12624.0000		0.0	0.0
392	2011/08/12 08:00:00	12648.0000	12648.0000		1.0	9.1
393	2011/08/13 08:00:00	12672.0000	12672.0000		2.3	11.6
394	2011/08/14 08:00:00	12696.0000	12696.0000		2.3	10.9
395	2011/08/15 08:00:00	12720.0000	12720.0000		2.2	11.2
396	2011/08/16 08:00:00	12744.0000	12744.0000		2.2	13.6
397	2011/08/17 08:00:00	12768.0000	12768.0000		2.3	11.2
398	2011/08/18 08:00:00	12792.0000	12792.0000		2.2	12.3
399	2011/08/19 08:00:00	12816.0000	12816.0000		2.2	11.1
400	2011/08/20 08:00:00	12840.0000	12840.0000		2.2	12.7
401	2011/08/21 08:00:00	12864.0000	12864.0000		2.1	10.9
402	2011/08/22 08:00:00	12888.0000	12888.0000		2.1	10.5
403	2011/08/23 08:00:00	12912.0000	12912.0000		2.1	9.9
404	2011/08/24 08:00:00	12936.0000	12936.0000		2.2	10.9
405	2011/08/25 08:00:00	12960.0000	12960.0000		2.1	10.2
406	2011/08/26 08:00:00	12984.0000	12984.0000		2.1	9.7
407	2011/08/27 08:00:00	13008.0000	13008.0000		2.3	10.5
408	2011/08/28 08:00:00	13032.0000	13032.0000		2.3	10.4
409	2011/08/29 08:00:00	13056.0000	13056.0000		2.2	13.1
410	2011/08/30 08:00:00	13080.0000	13080.0000		1.9	11.4
411	2011/08/31 08:00:00	13104.0000	13104.0000		2.1	13.2
412	2011/09/01 08:00:00	13128.0000	13128.0000		2.1	21.0
413	2011/09/02 08:00:00	13152.0000	13152.0000		2.1	15.9
414	2011/09/03 08:00:00	13176.0000	13176.0000		2.2	15.0
415	2011/09/04 08:00:00	13200.0000	13200.0000		2.1	16.7
416	2011/09/05 08:00:00	13224.0000	13224.0000		2.2	20.6
417	2011/09/06 08:00:00	13248.0000	13248.0000		2.3	15.6
418	2011/09/07 08:00:00	13272.0000	13272.0000		2.1	14.8
419	2011/09/08 08:00:00	13296.0000	13296.0000		2.1	14.2
420	2011/09/09 08:00:00	13320.0000	13320.0000		2.1	19.2
421	2011/09/10 08:00:00	13344.0000	13344.0000		1.8	24.8
422	2011/09/11 08:00:00	13368.0000	13368.0000		2.1	20.7
423	2011/09/12 08:00:00	13392.0000	13392.0000		2.1	19.9
424	2011/09/13 08:00:00	13416.0000	13416.0000		2.0	21.3
425	2011/09/14 14:55:04	13446.9178	13446.9178	2116.39	2.0	21.3
426	2011/09/14 15:00:04	13447.0011	13447.0011	2132.64	0.0	0.0
427	2011/09/14 15:05:04	13447.0844	13447.0844	2149.66		
428	2011/09/14 15:10:04	13447.1678	13447.1678	2167.47		
429	2011/09/14 15:15:04	13447.2511	13447.2511	2183.68		
430	2011/09/14 15:20:04	13447.3344	13447.3344	2198.95		
431	2011/09/14 15:25:04	13447.4178	13447.4178	2211.79		
432	2011/09/14 15:35:04	13447.5844	13447.5844	2233.28		
433	2011/09/14 15:45:04	13447.7511	13447.7511	2251.18		
434	2011/09/14 15:55:04	13447.9178	13447.9178	2264.69		
435	2011/09/14 16:05:04	13448.0844	13448.0844	2277.95		
436	2011/09/14 16:15:04	13448.2511	13448.2511	2289.29		
437	2011/09/14 16:25:04	13448.4178	13448.4178	2298.85		
438	2011/09/14 16:35:04	13448.5844	13448.5844	2307.42		
439	2011/09/14 16:45:04	13448.7511	13448.7511	2315.69		
440	2011/09/14 16:55:04	13448.9178	13448.9178	2323.01		
441	2011/09/14 17:05:04	13449.0844	13449.0844	2329.30		
442	2011/09/14 17:15:04	13449.2511	13449.2511	2335.56		
443	2011/09/14 17:25:04	13449.4178	13449.4178	2341.70		
444	2011/09/14 17:35:04	13449.5844	13449.5844	2347.79		
445	2011/09/14 17:45:04	13449.7511	13449.7511	2352.97		
446	2011/09/14 17:55:04	13449.9178	13449.9178	2358.09		
447	2011/09/14 18:05:04	13450.0844	13450.0844	2363.17		
448	2011/09/14 18:15:04	13450.2511	13450.2511	2367.31		
449	2011/09/14 18:25:04	13450.4178	13450.4178	2371.41		
450	2011/09/14 18:35:04	13450.5844	13450.5844	2374.62		
451	2011/09/14 18:45:04	13450.7511	13450.7511	2377.76		
452	2011/09/14 18:55:04	13450.9178	13450.9178	2380.88		
453	2011/09/14 19:05:04	13451.0844	13451.0844	2383.12		
454	2011/09/14 19:15:04	13451.2511	13451.2511	2385.31		
455	2011/09/14 19:25:04	13451.4178	13451.4178	2387.51		
456	2011/09/14 19:35:04	13451.5844	13451.5844	2389.73		

Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
457	2011/09/14 19:45:04	13451.7511	13451.7511	2391.93		
458	2011/09/14 19:55:04	13451.9178	13451.9178	2394.17		
459	2011/09/14 20:05:04	13452.0844	13452.0844	2396.44		
460	2011/09/14 20:15:04	13452.2511	13452.2511	2398.73		
461	2011/09/14 20:25:04	13452.4178	13452.4178	2401.10		
462	2011/09/14 20:35:04	13452.5844	13452.5844	2403.48		
463	2011/09/14 20:45:04	13452.7511	13452.7511	2405.07		
464	2011/09/14 20:55:04	13452.9178	13452.9178	2406.68		
465	2011/09/14 21:05:04	13453.0844	13453.0844	2408.32		
466	2011/09/14 21:15:04	13453.2511	13453.2511	2409.97		
467	2011/09/14 21:25:04	13453.4178	13453.4178	2411.66		
468	2011/09/14 21:35:04	13453.5844	13453.5844	2413.38		
469	2011/09/14 21:45:04	13453.7511	13453.7511	2415.97		
470	2011/09/14 21:55:04	13453.9178	13453.9178	2417.72		
471	2011/09/14 22:05:04	13454.0844	13454.0844	2420.34		
472	2011/09/14 22:15:04	13454.2511	13454.2511	2422.12		
473	2011/09/14 22:25:04	13454.4178	13454.4178	2423.91		
474	2011/09/14 22:45:04	13454.7511	13454.7511	2427.49		
475	2011/09/14 23:05:04	13455.0844	13455.0844	2430.24		
476	2011/09/14 23:25:04	13455.4178	13455.4178	2433.87		
477	2011/09/14 23:45:04	13455.7511	13455.7511	2437.49		
478	2011/09/15 00:05:04	13456.0844	13456.0844	2441.15		
479	2011/09/15 00:25:04	13456.4178	13456.4178	2444.81		
480	2011/09/15 00:45:04	13456.7511	13456.7511	2448.49		
481	2011/09/15 01:05:04	13457.0844	13457.0844	2452.19		
482	2011/09/15 01:25:04	13457.4178	13457.4178	2456.77		
483	2011/09/15 01:45:04	13457.7511	13457.7511	2459.62		
484	2011/09/15 02:05:04	13458.0844	13458.0844	2463.36		
485	2011/09/15 02:25:04	13458.4178	13458.4178	2466.23		
486	2011/09/15 02:45:04	13458.7511	13458.7511	2469.12		
487	2011/09/15 03:05:04	13459.0844	13459.0844	2471.17		
488	2011/09/15 03:25:04	13459.4178	13459.4178	2474.07		
489	2011/09/15 03:55:04	13459.9178	13459.9178	2477.21		
490	2011/09/15 04:25:04	13460.4178	13460.4178	2480.46		
491	2011/09/15 04:55:04	13460.9178	13460.9178	2483.69		
492	2011/09/15 05:25:04	13461.4178	13461.4178	2487.26		
493	2011/09/15 05:55:04	13461.9178	13461.9178	2491.54		
494	2011/09/15 06:25:04	13462.4178	13462.4178	2496.14		
495	2011/09/15 07:25:04	13463.4178	13463.4178	2504.21		
496	2011/09/15 08:25:04	13464.4178	13464.4178	2511.64		
497	2011/09/15 09:25:04	13465.4178	13465.4178	2517.11		
498	2011/09/15 10:25:04	13466.4178	13466.4178	2521.34		
499	2011/09/15 12:25:04	13468.4178	13468.4178	2530.45		
500	2011/09/15 14:25:04	13470.4178	13470.4178	2539.03		
501	2011/09/15 16:25:04	13472.4178	13472.4178	2547.62		
502	2011/09/15 18:25:04	13474.4178	13474.4178	2557.07		
503	2011/09/15 20:25:04	13476.4178	13476.4178	2565.78		
504	2011/09/15 22:25:04	13478.4178	13478.4178	2573.81		
505	2011/09/16 00:25:04	13480.4178	13480.4178	2582.74		
506	2011/09/16 02:25:04	13482.4178	13482.4178	2589.99		
507	2011/09/16 04:25:04	13484.4178	13484.4178	2598.18		
508	2011/09/16 06:25:04	13486.4178	13486.4178	2605.51		
509	2011/09/16 08:25:04	13488.4178	13488.4178	2611.94		
510	2011/09/16 10:25:04	13490.4178	13490.4178	2619.31		
511	2011/09/16 12:25:04	13492.4178	13492.4178	2626.66		
512	2011/09/16 14:25:04	13494.4178	13494.4178	2633.11		
513	2011/09/16 16:25:04	13496.4178	13496.4178	2640.43		
514	2011/09/16 20:25:04	13500.4178	13500.4178	2653.24		
515	2011/09/17 00:25:04	13504.4178	13504.4178	2665.19		
516	2011/09/17 04:25:04	13508.4178	13508.4178	2678.04		
517	2011/09/17 08:25:04	13512.4178	13512.4178	2689.02		
518	2011/09/17 12:25:04	13516.4178	13516.4178	2700.87		
519	2011/09/17 16:25:04	13520.4178	13520.4178	2710.93		
520	2011/09/17 20:25:04	13524.4178	13524.4178	2721.94		
521	2011/09/18 00:25:04	13528.4178	13528.4178	2732.02		
522	2011/09/18 04:25:04	13532.4178	13532.4178	2742.04		
523	2011/09/18 08:25:04	13536.4178	13536.4178	2752.05		
524	2011/09/18 12:25:04	13540.4178	13540.4178	2762.05		
525	2011/09/18 16:25:04	13544.4178	13544.4178	2771.11		
526	2011/09/18 20:25:04	13548.4178	13548.4178	2780.13		
527	2011/09/19 00:25:04	13552.4178	13552.4178	2789.10		
528	2011/09/19 04:25:04	13556.4178	13556.4178	2798.04		
529	2011/09/19 08:25:04	13560.4178	13560.4178	2806.08		
530	2011/09/19 12:25:04	13564.4178	13564.4178	2814.10		
531	2011/09/19 16:25:04	13568.4178	13568.4178	2822.05		
532	2011/09/19 20:25:04	13572.4178	13572.4178	2829.04		

Penn West Waskada Unit No. 2 HZNTL
 102/05-27-001-26W1/00
 Lower Amaranth: 1020.0 - 1640.3 mKB MD
 September 14 - 23, 2011

Pressure/Production Summary

Item	Date Clock Time	Time	Cumulative Time	Calculated Sandface Pressure	Oil Rate	Water Rate
	YYYY/MM/DD HH:mm:ss	h	h	kPa(a)	m ³ /d	m ³ /d
533	2011/09/20 00:25:04	13576.4178	13576.4178	2836.88		
534	2011/09/20 04:25:04	13580.4178	13580.4178	2843.80		
535	2011/09/20 08:25:04	13584.4178	13584.4178	2850.74		
536	2011/09/20 12:25:04	13588.4178	13588.4178	2857.71		
537	2011/09/20 16:25:04	13592.4178	13592.4178	2863.75		
538	2011/09/20 20:25:04	13596.4178	13596.4178	2870.73		
539	2011/09/21 00:25:04	13600.4178	13600.4178	2876.79		
540	2011/09/21 04:25:04	13604.4178	13604.4178	2882.96		
541	2011/09/21 08:25:04	13608.4178	13608.4178	2888.23		
542	2011/09/21 12:25:04	13612.4178	13612.4178	2894.47		
543	2011/09/21 16:25:04	13616.4178	13616.4178	2900.76		
544	2011/09/21 20:25:04	13620.4178	13620.4178	2906.18		
545	2011/09/22 00:25:04	13624.4178	13624.4178	2912.58		
546	2011/09/22 04:25:04	13628.4178	13628.4178	2918.11		
547	2011/09/22 08:25:04	13632.4178	13632.4178	2924.61		
548	2011/09/22 12:25:04	13636.4178	13636.4178	2930.25		
549	2011/09/22 16:25:04	13640.4178	13640.4178	2936.87		
550	2011/09/22 20:25:04	13644.4178	13644.4178	2942.62		
551	2011/09/23 00:25:04	13648.4178	13648.4178	2948.44		
552	2011/09/23 04:25:04	13652.4178	13652.4178	2953.40		
553	2011/09/23 08:25:04	13656.4178	13656.4178	2959.36		
554	2011/09/23 10:42:51	13658.7142	13658.7142	2962.53		

Reservoir Information

Well:	Waskada Unit No. 2 HZNTL	Location:	02/05-27-001-26W1/00
Operator:	Penn West Petroleum	Licensee:	Penn West Petroleum
Field:	Waskada MB	License:	7151 [2009/12/15]
Unit:	MB0329A02 UNKNOWN	Status:	Capable Of Oil Production [2010/03/04]

Cores

None Reported

Status History

2009/12/15 Location
 2010/01/04 Drilling Ahead
 2010/01/08 Waiting On Service Rig
 2010/01/18 Completing
 2010/03/04 Capable Of Oil Production
 2010/03/04 Capable Of Oil Production

Production

Pool: Waskada Lower Amaranth A Producing Form: Lower Amaranth

Note: Well is not currently producing; Last produced on 2011/05/31.

	Oil (m ³)	Gas (10 ³ m ³)	Water (m ³)	Time On (hrs)	Oil (m ³ /d)	Gas (10 ³ m ³ /d)	Water (m ³ /d)
March 2011	61.9	0.0	297.3	698	2.1	0.0	10.2
April 2011	47.4	0.0	209.3	502	2.3	0.0	10.0
May 2011	42.4	0.0	210.8	468	2.2	0.0	10.8
Cumulative	2124.6	0.0	7953.6	9055			

Subject: FW: penn west wells

From: Trevor Thompson [<mailto:Trevor.Thompson@pennwest.com>]

Sent: November-07-11 2:44 PM

To: Reza Ali

Subject: FW: penn west wells

Reza,

Use the following net pays for the wells

100/10-2-1-24W1 13.0m

100/5-3-1-24W1 16.3m

102/5-27-1-26W1 28.0m

Use Sw=50% and Porosity=13% for all wells.

Thank you,

Trevor

Penn West Exploration
Penn West Waskada Unit No.5 Hz 102/03-03-002-26W1/00
52134-2011-0649

SUMMARY OF PVT DATA

Reported Reservoir Conditions

Reservoir Pressure	7 398	kPa(g)
Reservoir Temperature	45.0	°C

Pressure-Volume Relations

Saturation Pressure	4 233	kPa(g)
Avg. Single-Phase Compressibility	9.71	E-7 v/v/kPa (34 474 to 4 233 kPa(g))
Thermal Exp. @ 34 474 kPa(g)	1.02398	V at 45.0 °C / V at 15.0 °C

Differential Vaporization Data
(at 4 233 kPa(g) and 45.0 °C)

Solution Gas/Oil Ratio	43.3	m ³ / m ³ of residual oil at 15.0 °C
Relative Oil Volume	1.151	m ³ / m ³ of residual oil at 15.0 °C
Density of Reservoir Fluid	788.5	kg/m ³

Reservoir Fluid Viscosity

1.53 mPa·s at 4 233 kPa(g) and 45.0 °C
--

Separator Test Results

Separator Conditions		Formation Volume Factor (A)	Total Solution Gas/Oil Ratio (B)	Tank Oil Gravity (°API at 15.6 °C)
kPa(g)	°C			
1 103	2.0	1.122	37.9	37.2

(A) Cubic metres of saturated oil per cubic metre of stock tank oil at 15.0 °C.

(B) Total standard cubic metres of gas per cubic metre of stock tank oil at 15.0 °C.

Penn West Exploration
Penn West Waskada Unit No.5 Hz 102/03-03-002-26W1/00
52134-2011-0649

VOLUMETRIC DATA
(at 45.0 °C)

Saturation Pressure (Psat)	4 233 kPa(g)
Density at Psat	788.5 kg/m ³
Thermal Exp. @ 34 474 kPa(g)	1.02398 V at 45.0 °C / V at 15.0 °C

AVERAGE SINGLE-PHASE COMPRESSIBILITIES

Pressure Range kPa(g)			Single-Phase Compressibility v/v/kPa
34 474	to	27 579	8.69 E -7
27 579	to	20 684	9.15 E -7
20 684	to	13 790	9.81 E -7
13 790	to	4 233	11.35 E -7

Penn West Exploration
Penn West Waskada Unit No.5 Hz 102/03-03-002-26W1/00
52134-2011-0649

RESERVOIR FLUID VISCOSITY
(at 45 °C)

Pressure kPa(g)	Oil Viscosity mPa·s	Gas Viscosity * mPa·s	Oil/Gas Viscosity Ratio
34 474	2.19		
27 579	2.04		
20 684	1.89		
13 790	1.74		
10 342	1.66		
7 398	1.60		
5 516	1.56		
4 233	1.53		
3 806	1.52	0.0118	129
3 103	1.54	0.0115	134
2 413	1.60	0.0113	142
1 724	1.72	0.0109	157
1 062	1.91	0.0105	182
717	2.07	0.0102	202
0	3.01		

* Gas Viscosity data calculated from correlation of Lee A.L., Gonzalez M.H., and Eakin B.E., "The Viscosity of Natural Gases", Journal of Petroleum Technology, August, 1966, pp. 997-1000.

Test Data

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production_date	prorated_oil	prorated_water	bbl/d
3/4/2010	65.99	247.41	
3/5/2010	49.38	228.28	
3/6/2010	15.6	93.98	
3/7/2010	48.19	221.17	
3/8/2010	47.93	213.31	
3/9/2010	50.2	277.85	
3/10/2010	50.01	209.79	
3/11/2010	49.19	239.61	
3/12/2010	49.07	215.39	
3/13/2010	59.89	206.58	
3/14/2010	59.51	226.65	
3/15/2010	58.25	213.06	
3/16/2010	59.7	227.21	
3/17/2010	58.94	227.09	
3/18/2010	61.33	229.85	
3/19/2010	60.14	241.37	
3/20/2010	61.96	266.65	
3/21/2010	58.69	230.3	
3/22/2010	55.23	202.87	
3/23/2010	52.53	205.64	
3/24/2010	56.49	235.64	
3/25/2010	55.1	271.81	
3/26/2010	55.99	266.34	
3/27/2010	58.12	232.37	
3/28/2010	62.09	250.74	
3/29/2010	64.92	292.57	
3/30/2010	57.24	254.01	
3/31/2010	58	224	
4/1/2010	58.31	225.2	
4/2/2010	59	220.29	
4/3/2010	64.6	217.97	
4/4/2010	65.42	201.3	
4/5/2010	64.73	200.73	
4/6/2010	62.02	235.52	
4/7/2010	61.02	235.58	
4/8/2010	59.82	255.46	
4/9/2010	62.46	224.38	
4/10/2010	62.28	201.61	
4/11/2010	60.89	237.15	
4/12/2010	60.26	205.64	
4/13/2010	60.77	209.41	
4/14/2010	62.65	195.01	
4/15/2010	68.38	229.16	
4/16/2010	64.29	195.07	
4/17/2010	61.27	189.97	
4/18/2010	63.09	198.91	
4/19/2010	61.08	207.21	
4/20/2010	61.33	256.02	
4/21/2010	64.29	249.92	
4/22/2010	63.6	249.29	
4/23/2010	63.41	264.14	
4/24/2010	60.95	278.92	
4/25/2010	62.72	254.14	
4/26/2010	61.27	286.6	
4/27/2010	65.99	244.64	
4/28/2010	62.97	234.13	
4/29/2010	77.12	241.43	
4/30/2010	62.84	231.62	
5/1/2010	64.98	222.43	
5/2/2010	44.1	155.19	
5/3/2010	40.01	166.7	
5/4/2010	41.08	167.08	
5/5/2010	42.84	167.01	
5/6/2010	39.76	156.76	
5/7/2010	49.38	149.02	

5/8/2010	43.22	157.51
5/9/2010	41.64	156.76
5/10/2010	42.84	168.4
5/11/2010	41.01	159.46
5/12/2010	41.08	159.72
5/13/2010	42.84	157.77
5/14/2010	43.72	146.44
5/15/2010	41.77	155.31
5/16/2010	42.02	155.31
5/17/2010	42.78	165.69
5/18/2010	43.84	169.4
5/19/2010	42.84	179.41
5/20/2010	42.65	169.78
5/21/2010	46.36	229.41
5/22/2010	43.59	175.44
5/23/2010	45.67	180.66
5/24/2010	44.47	169.28
5/25/2010	44.73	179.53
5/26/2010	42.27	165
5/27/2010	43.34	184.5
5/28/2010	46.11	170.35
5/29/2010	44.03	167.52
5/30/2010	44.1	181.73
5/31/2010	43.78	169.78
6/1/2010	43.97	168.02
6/2/2010	45.86	176.76
6/3/2010	44.16	179.15
6/4/2010	44.91	174.37
6/5/2010	44.22	175.95
6/6/2010	46.05	179.09
6/7/2010	44.22	173.37
6/8/2010	49.76	178.21
6/9/2010	44.29	175.5
6/10/2010	45.79	169.4
6/11/2010	45.29	178.15
6/12/2010	46.49	172.67
6/13/2010	46.86	182.3
6/14/2010	46.55	178.71
6/15/2010	48.12	143.17
6/16/2010	45.54	155.69
6/17/2010	43.72	171.73
6/18/2010	47.12	191.73
6/19/2010	44.98	166.45
6/20/2010	41.14	196.83
6/21/2010	45.1	164.06
6/22/2010	45.67	172.61
6/23/2010	46.86	172.3
6/24/2010	32.02	146.07
6/25/2010	31.89	146.51
6/26/2010	32.77	148.2
6/27/2010	32.84	146.76
6/28/2010	33.47	142.42
6/29/2010	33.47	146.95
6/30/2010	33.53	148.71
7/1/2010	32.14	150.59
7/2/2010	33.4	144.56
7/3/2010	30.89	137.95
7/4/2010	44.41	146.82
7/5/2010	31.45	146.13
7/6/2010	31.83	142.23
7/7/2010	35.73	144.18
7/8/2010	32.08	139.71
7/9/2010	31.77	150.41
7/10/2010	34.66	195.82
7/11/2010	31.77	139.02
7/12/2010	27.62	148.46

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7/13/2010	28.12	148.46
7/14/2010	39.82	97.57
7/15/2010	28.06	141.35
7/16/2010	28.18	121.66
7/17/2010	27.05	131.28
7/18/2010	27.74	141.66
7/19/2010	27.99	125.43
7/20/2010	26.86	123.36
7/21/2010	27.43	136.32
7/22/2010	28.18	113.29
7/23/2010	29.44	144.87
7/24/2010	32.71	159.9
7/25/2010	31.77	148.83
7/26/2010	35.23	116.75
7/27/2010	29.38	199.16
7/28/2010	27.43	202.62
7/29/2010	28.12	142.92
7/30/2010	29.38	121.03
7/31/2010	27.87	126.63
8/1/2010	28.68	150.34
8/2/2010	27.11	138.45
8/3/2010	28.37	148.52
8/4/2010	28.18	145.56
8/5/2010	27.99	147.26
8/6/2010	28.12	147.01
8/7/2010	30.07	162.17
8/8/2010	28.12	151.35
8/9/2010	27.43	145.18
8/10/2010	28.87	96.81
8/11/2010	14.15	72.03
8/12/2010	0	0
8/13/2010	0	0
8/14/2010	0	0
8/15/2010	0	0
8/16/2010	0	0
8/17/2010	0	0
8/18/2010	0	0
8/19/2010	0	0
8/20/2010	0	0
8/21/2010	0	0
8/22/2010	0	0
8/23/2010	0	0
8/24/2010	0	0
8/25/2010	0	0
8/26/2010	0	0
8/27/2010	0	0
8/28/2010	0	0
8/29/2010	0	0
8/30/2010	0	0
8/31/2010	0	0
9/1/2010	0	0
9/2/2010	0	0
9/3/2010	0	0
9/4/2010	0	0
9/5/2010	0	0
9/6/2010	0	0
9/7/2010	0	0
9/8/2010	0	0
9/9/2010	0	0
9/10/2010	0	0
9/11/2010	0	0
9/12/2010	0	0
9/13/2010	0	0
9/14/2010	0	0
9/15/2010	0	0
9/16/2010	0	0

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9/17/2010	0	0
9/18/2010	0	0
9/19/2010	0	0
9/20/2010	0	0
9/21/2010	0	0
9/22/2010	0	0
9/23/2010	0	0
9/24/2010	28.18	153.8
9/25/2010	28.12	199.41
9/26/2010	27.93	131.28
9/27/2010	28.94	143.49
9/28/2010	27.8	128.01
9/29/2010	27.74	139.27
9/30/2010	29.75	145.5
10/1/2010	28.5	95.43
10/2/2010	28.94	46.93
10/3/2010	30.63	83.54
10/4/2010	33.34	133.67
10/5/2010	30.13	145.63
10/6/2010	29	147.13
10/7/2010	28.24	141.1
10/8/2010	28.18	81.9
10/9/2010	27.17	113.92
10/10/2010	29.38	149.21
10/11/2010	36.11	130.78
10/12/2010	29.06	144.24
10/13/2010	27.99	147.07
10/14/2010	28.12	92.72
10/15/2010	28.12	122.54
10/16/2010	7.74	36.99
10/17/2010	0	0
10/18/2010	0	0
10/19/2010	0	0
10/20/2010	0	0
10/21/2010	0	0
10/22/2010	0	0
10/23/2010	0	0
10/24/2010	0	0
10/25/2010	0	0
10/26/2010	19.82	99.08
10/27/2010	29.38	177.01
10/28/2010	29.13	172.55
10/29/2010	29.31	154.68
10/30/2010	29.44	144.93
10/31/2010	28.37	162.86
11/1/2010	26.55	179.78
11/2/2010	28.75	155.06
11/3/2010	29.25	154.68
11/4/2010	27.99	145.75
11/5/2010	28.94	151.85
11/6/2010	29.06	154.43
11/7/2010	29.06	147.26
11/8/2010	26.99	170.54
11/9/2010	44.16	159.21
11/10/2010	44.47	108.07
11/11/2010	44.6	151.48
11/12/2010	43.84	178.9
11/13/2010	45.73	152.73
11/14/2010	44.22	135.18
11/15/2010	46.61	158.96
11/16/2010	47.43	153.55
11/17/2010	45.17	84.8
11/18/2010	44.6	132.48
11/19/2010	48.19	146.32
11/20/2010	45.98	132.1
11/21/2010	44.54	109.01

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11/22/2010	46.17	120.4
11/23/2010	45.92	153.55
11/24/2010	49.25	136.94
11/25/2010	45.42	166.38
11/26/2010	47.12	163.05
11/27/2010	45.98	155.44
11/28/2010	45.42	154.62
11/29/2010	51.77	140.28
11/30/2010	57.12	158.84
12/1/2010	66.3	171.04
12/2/2010	43.84	130.59
12/3/2010	54.48	123.23
12/4/2010	53.97	139.4
12/5/2010	56.61	157.07
12/6/2010	51.39	133.3
12/7/2010	53.41	155.44
12/8/2010	51.52	150.09
12/9/2010	42.71	97.5
12/10/2010	55.17	91.97
12/11/2010	46.74	121.16
12/12/2010	49.82	105.24
12/13/2010	43.84	156.95
12/14/2010	43.97	157.33
12/15/2010	53.91	149.59
12/16/2010	48.31	152.67
12/17/2010	30.51	76.56
12/18/2010	38.25	83.79
12/19/2010	29.25	79.83
12/20/2010	34.6	80.27
12/21/2010	39.5	72.66
12/22/2010	32.58	81.84
12/23/2010	29.88	88
12/24/2010	30.51	77.88
12/25/2010	34.6	82.66
12/26/2010	31.39	77
12/27/2010	28.56	80.39
12/28/2010	32.77	80.33
12/29/2010	32.02	67.62
12/30/2010	26.11	75.23
12/31/2010	36.61	78.44
1/1/2011	33.65	75.99
1/2/2011	24.6	74.1
1/3/2011	28.81	84.8
1/4/2011	30.95	66.24
1/5/2011	34.03	44.73
1/6/2011	32.46	77.81
1/7/2011	39	81.4
1/8/2011	37.99	65.42
1/9/2011	35.29	73.47
1/10/2011	41.58	65.3
1/11/2011	45.67	68.06
1/12/2011	60.89	138.77
1/13/2011	56.68	103.92
1/14/2011	51.71	124.87
1/15/2011	43.09	102.41
1/16/2011	70.58	92.72
1/17/2011	63.09	115.75
1/18/2011	53.97	100.71
1/19/2011	53.41	106.88
1/20/2011	48.69	101.53
1/21/2011	70.89	106.25
1/22/2011	62.34	112.54
1/23/2011	58.44	92.6
1/24/2011	55.92	103.42
1/25/2011	66.24	110.71
1/26/2011	44.29	103.23

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1/27/2011	47.43	94.99
1/28/2011	57.31	120.34
1/29/2011	62.4	80.58
1/30/2011	57.37	94.23
1/31/2011	53.47	96.37
2/1/2011	51.77	90.96
2/2/2011	15.47	38.25
2/3/2011	42.21	62.15
2/4/2011	16.8	20.76
2/5/2011	14.41	53.09
2/6/2011	16.8	52.21
2/7/2011	15.73	57.94
2/8/2011	14.91	76.74
2/9/2011	12.39	50.76
2/10/2011	15.54	54.48
2/11/2011	13.15	68
2/12/2011	14.91	68.19
2/13/2011	14.59	61.58
2/14/2011	14.47	63.53
2/15/2011	15.1	66.99
2/16/2011	15.1	49.63
2/17/2011	14.72	52.9
2/18/2011	15.79	55.92
2/19/2011	14.09	48.94
2/20/2011	14.41	56.36
2/21/2011	14.53	56.17
2/22/2011	14.41	73.1
2/23/2011	14.34	69.26
2/24/2011	14.03	52.27
2/25/2011	13.84	61.21
2/26/2011	13.71	83.03
2/27/2011	13.65	71.84
2/28/2011	13.84	58.25
3/1/2011	15.47	66.18
3/2/2011	13.84	66.24
3/3/2011	14.59	73.16
3/4/2011	13.59	57.68
3/5/2011	13.71	69.07
3/6/2011	14.78	70.2
3/7/2011	13.65	63.09
3/8/2011	13.4	54.79
3/9/2011	13.34	62.02
3/10/2011	12.83	65.42
3/11/2011	13.4	73.79
3/12/2011	13.34	53.66
3/13/2011	13.96	69.01
3/14/2011	13.65	62.97
3/15/2011	14.28	60.2
3/16/2011	2.89	12.46
3/17/2011	11.07	74.35
3/18/2011	14.78	66.81
3/19/2011	13.84	61.21
3/20/2011	15.1	69.7
3/21/2011	13.15	66.99
3/22/2011	12.46	57.37
3/23/2011	15.54	64.16
3/24/2011	14.53	51.65
3/25/2011	13.9	46.55
3/26/2011	13.59	64.67
3/27/2011	12.27	60.64
3/28/2011	0	0
3/29/2011	12.46	63.41
3/30/2011	16.67	57.18
3/31/2011	13.71	69.7
4/1/2011	0	0
4/2/2011	0	0

4/3/2011	0	0
4/4/2011	0	0
4/5/2011	0	0
4/6/2011	0	0
4/7/2011	0	0
4/8/2011	0	0
4/9/2011	0	0
4/10/2011	15.79	69.57
4/11/2011	13.4	61.52
4/12/2011	12.46	60.83
4/13/2011	14.72	58.75
4/14/2011	13.34	61.21
4/15/2011	14.85	86.68
4/16/2011	14.85	66.49
4/17/2011	14.22	64.92
4/18/2011	14.91	67.87
4/19/2011	16.42	60.14
4/20/2011	13.46	67.43
4/21/2011	15.47	61.4
4/22/2011	12.2	59.51
4/23/2011	16.36	70.83
4/24/2011	14.22	60.26
4/25/2011	11.7	68.31
4/26/2011	13.65	61.84
4/27/2011	15.03	63.66
4/28/2011	13.34	60.14
4/29/2011	14.28	64.04
4/30/2011	11.89	54.35
5/1/2011	14.41	65.48
5/2/2011	13.52	60.64
5/3/2011	13.52	66.74
5/4/2011	14.91	63.91
5/5/2011	14.41	79.07
5/6/2011	14.72	63.79
5/7/2011	14.15	65.3
5/8/2011	14.53	66.55
5/9/2011	14.66	67.5
5/10/2011	6.92	35.86
5/11/2011	14.47	64.73
5/12/2011	14.59	67.94
5/13/2011	14.47	64.67
5/14/2011	14.22	69.13
5/15/2011	13.84	64.6
5/16/2011	13.96	65.36
5/17/2011	13.59	70.26
5/18/2011	14.34	67.75
5/19/2011	13.71	63.85
5/20/2011	13.84	68.19
5/21/2011	0	0
5/22/2011	0	0
5/23/2011	0	0
5/24/2011	0	0
5/25/2011	0	0
5/26/2011	0	0
5/27/2011	0	0
5/28/2011	0	0
5/29/2011	0	0
5/30/2011	0	0
5/31/2011	0	0
6/1/2011	0	0
6/2/2011	0	0
6/3/2011	0	0
6/4/2011	0	0
6/5/2011	0	0
6/6/2011	0	0
6/7/2011	0	0

		102	05-27-001-26w1	Production.txt
6/8/2011	0	0		
6/9/2011	0	0		
6/10/2011	0	0		
6/11/2011	0	0		
6/12/2011	0	0		
6/13/2011	0	0		
6/14/2011	0	0		
6/15/2011	0	0		
6/16/2011	0	0		
6/17/2011	0	0		
6/18/2011	0	0		
6/19/2011	0	0		
6/20/2011	0	0		
6/21/2011	0	0		
6/22/2011	0	0		
6/23/2011	0	0		
6/24/2011	0	0		
6/25/2011	0	0		
6/26/2011	0	0		
6/27/2011	0	0		
6/28/2011	0	0		
6/29/2011	0	0		
6/30/2011	0	0		
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7/2/2011	0	0		
7/3/2011	0	0		
7/4/2011	0	0		
7/5/2011	0	0		
7/6/2011	0	0		
7/7/2011	0	0		
7/8/2011	0	0		
7/9/2011	0	0		
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7/11/2011	0	0		
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7/14/2011	0	0		
7/15/2011	0	0		
7/16/2011	0	0		
7/17/2011	0	0		
7/18/2011	0	0		
7/19/2011	0	0		
7/20/2011	0	0		
7/21/2011	0	0		
7/22/2011	0	0		
7/23/2011	0	0		
7/24/2011	0	0		
7/25/2011	0	0		
7/26/2011	0	0		
7/27/2011	0	0		
7/28/2011	0	0		
7/29/2011	0	0		
7/30/2011	0	0		
7/31/2011	0	0		
8/1/2011	0	0		
8/2/2011	0	0		
8/3/2011	0	0		
8/4/2011	0	0		
8/5/2011	0	0		
8/6/2011	0	0		
8/7/2011	0	0		
8/8/2011	0	0		
8/9/2011	0	0		
8/10/2011	0	0		
8/11/2011	0	0		
8/12/2011	6.16	57.43		

102 05-27-001-26w1 Production.txt

8/13/2011	14.59	73.1
8/14/2011	14.47	68.44
8/15/2011	13.71	70.64
8/16/2011	13.9	85.49
8/17/2011	14.53	70.64
8/18/2011	13.65	77.31
8/19/2011	14.09	69.95
8/20/2011	13.84	79.95
8/21/2011	13.46	68.44
8/22/2011	13.08	66.3
8/23/2011	13.52	62.21
8/24/2011	13.84	68.44
8/25/2011	13.46	64.1
8/26/2011	13.46	61.21
8/27/2011	14.59	66.24
8/28/2011	14.41	65.61
8/29/2011	13.96	82.09
8/30/2011	11.64	71.84
8/31/2011	13.34	82.97
9/1/2011	12.9	132.29
9/2/2011	13.08	100.02
9/3/2011	13.78	94.29
9/4/2011	13.52	105.11
9/5/2011	14.15	129.52
9/6/2011	14.34	98.19
9/7/2011	12.96	92.85
9/8/2011	13.21	89.07
9/9/2011	13.21	120.84
9/10/2011	11.57	155.94
9/11/2011	13.34	130.46
9/12/2011	13.52	125.43
9/13/2011	12.33	134.05

**ACOUSTIC PRESSURE SURVEY
BUILD-UP TEST**

LEVEL BEST



TECHNOLOGIES LTD.

WASKADA UNIT NO. 2 HZNTL 5-27-1-26 (WPM)

102/05-27-001-26W1/0

Surface Location: 102/07-27-001-26W1/0 (HZTL)

License: 007151

Field: WASKADA MB

Formation: AMRANTH

Pool: LOWER AMARANTH A

SEPTEMBER 2011

Analysis provided by NR-Tec Ltd.

Prepared by: Sean Chakowski, C.E.T. (NR-Tec Ltd.)

Date: 2011-Sep-26

**Prepared for: BRAD CALDWELL
PENN WEST PETROLEUM**

NR-Tec Ltd.

P.O. Box 36028 Lakeview RPO, Calgary, Alberta, Canada T3E 7C6

Tel: (403) 283-1416 Fax: (403) 206-7783

<http://www.nr-tec.com>

PENN WEST PETROLEUM

**ACOUSTIC PRESSURE SURVEY (BUILD-UP)
WASKADA UNIT NO. 2 HZNTL 5-27-1-26 (WPM)
102/05-27-001-26W1/0
WASKADA MB
POOL: LOWER AMARANTH A
2011-SEP-14 TO 2011-SEP-23**

TEST SUMMARY:

- An acoustic well sounder instrument was installed into the casing on 2011-09-14 at 13:10 hours. The fluid level was at 82.3 joints.
- The well was shut-in on 2011-09-14 at 14:55 hours to start the build-up.
- The build-up test was concluded on 2011-09-23 at 10:42 hours.
- A final bottomhole pressure of 2,963 kPa (absolute) was calculated at the mid-point of the producing interval after 8.8 days of shut-in.
- The rate of change in pressure during the last 6.3 hours of shut-in is 1.45 kPa/hr.

PRESSURE DATA CALCULATIONS:

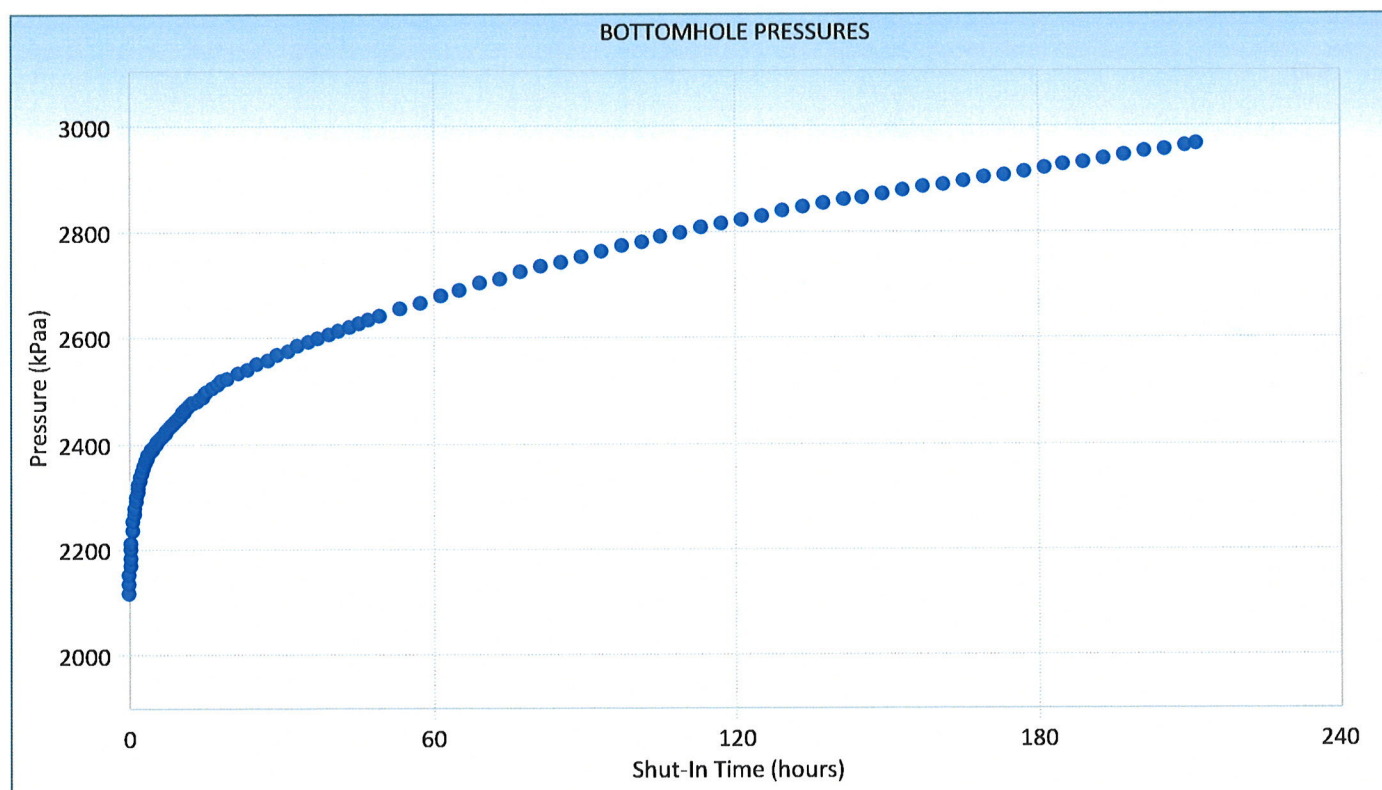
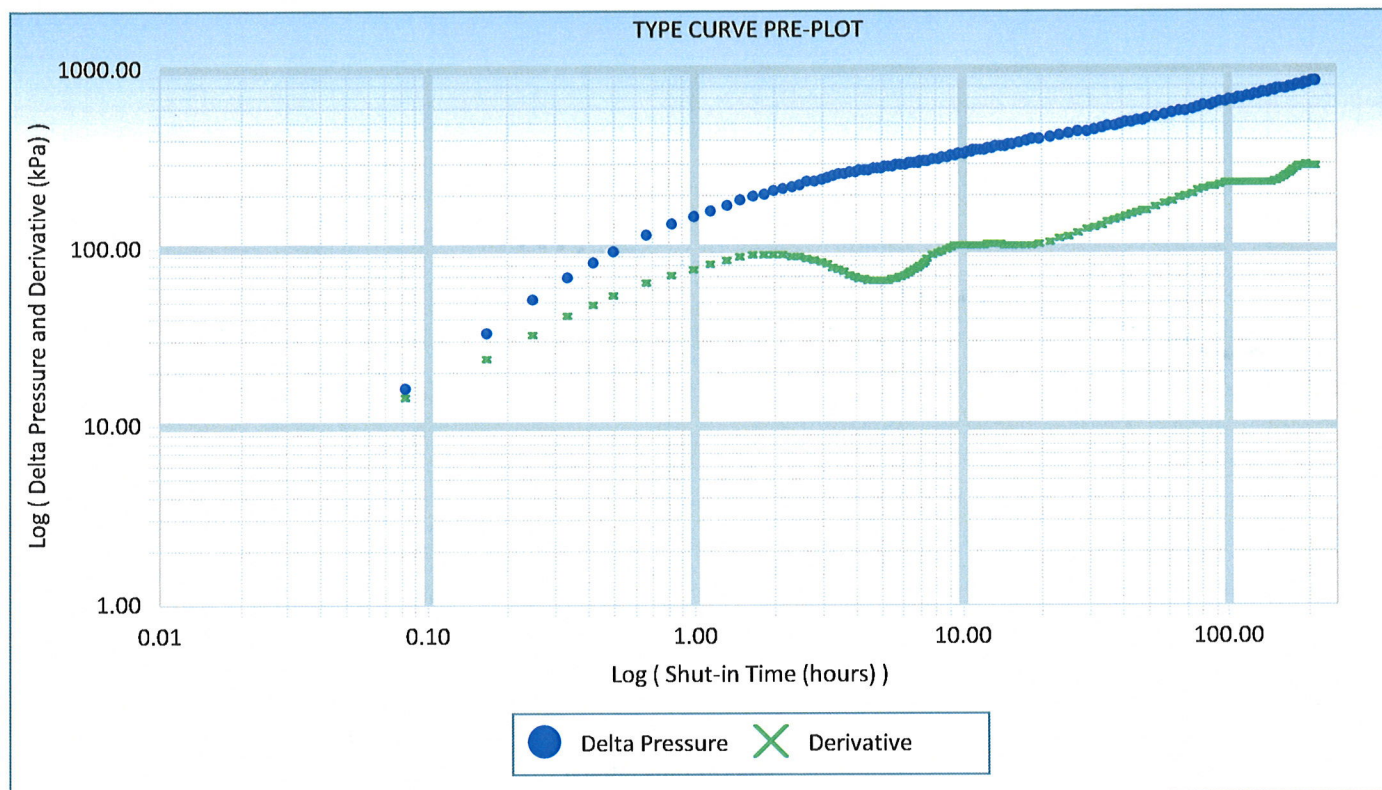
- The bottomhole pressures were calculated using the following information:

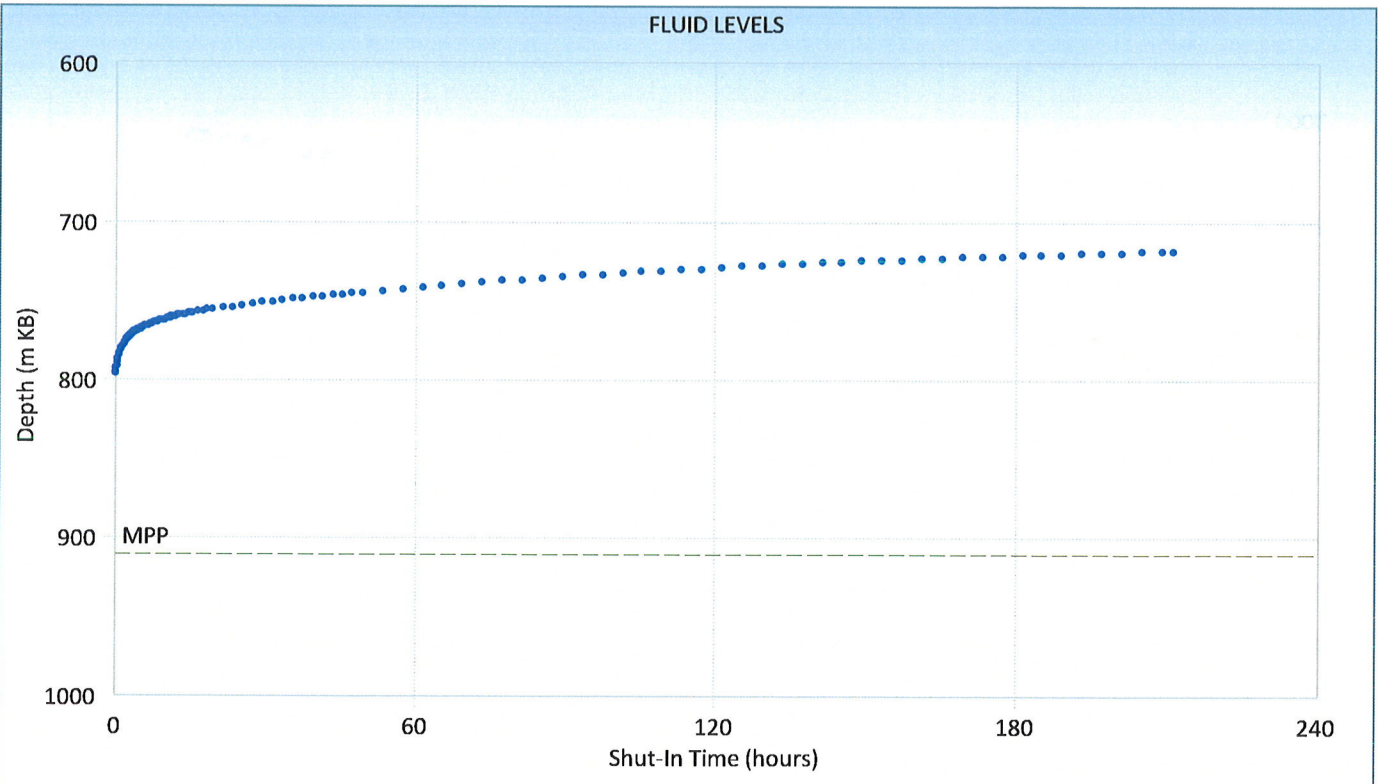
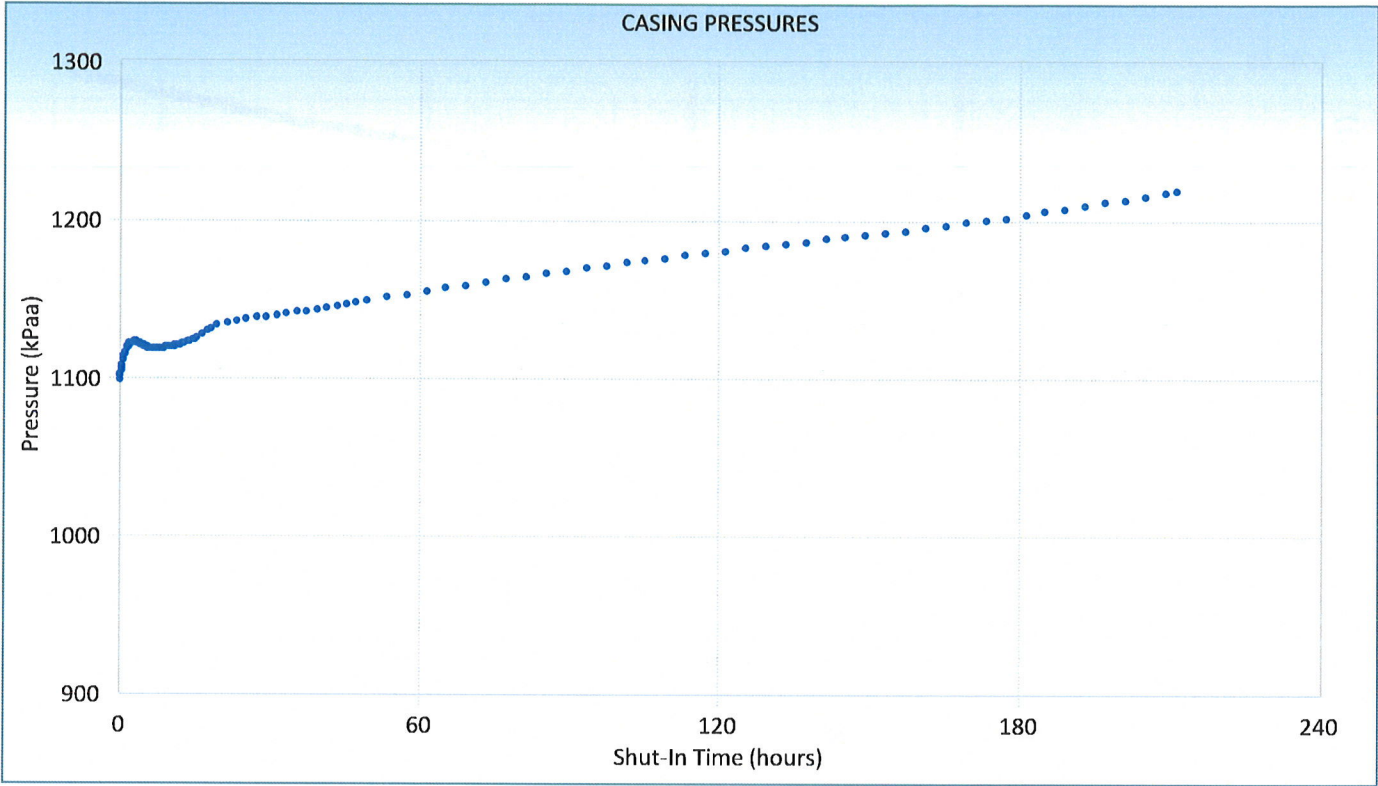
Atmospheric Pressure	93.0 kPa
Formation Depth	910.36 m KB (TVD) / 1,330.15 m KB
Oil Gravity	37.79 °API
Water Gravity	1.067
Gas Gravity	0.750
Oil Production	2.28 m ³ /d
Water Production	10.38 m ³ /d
Gas Production	1.08 E ³ m ³ /d
Bottomhole Temperature	50.00 °C

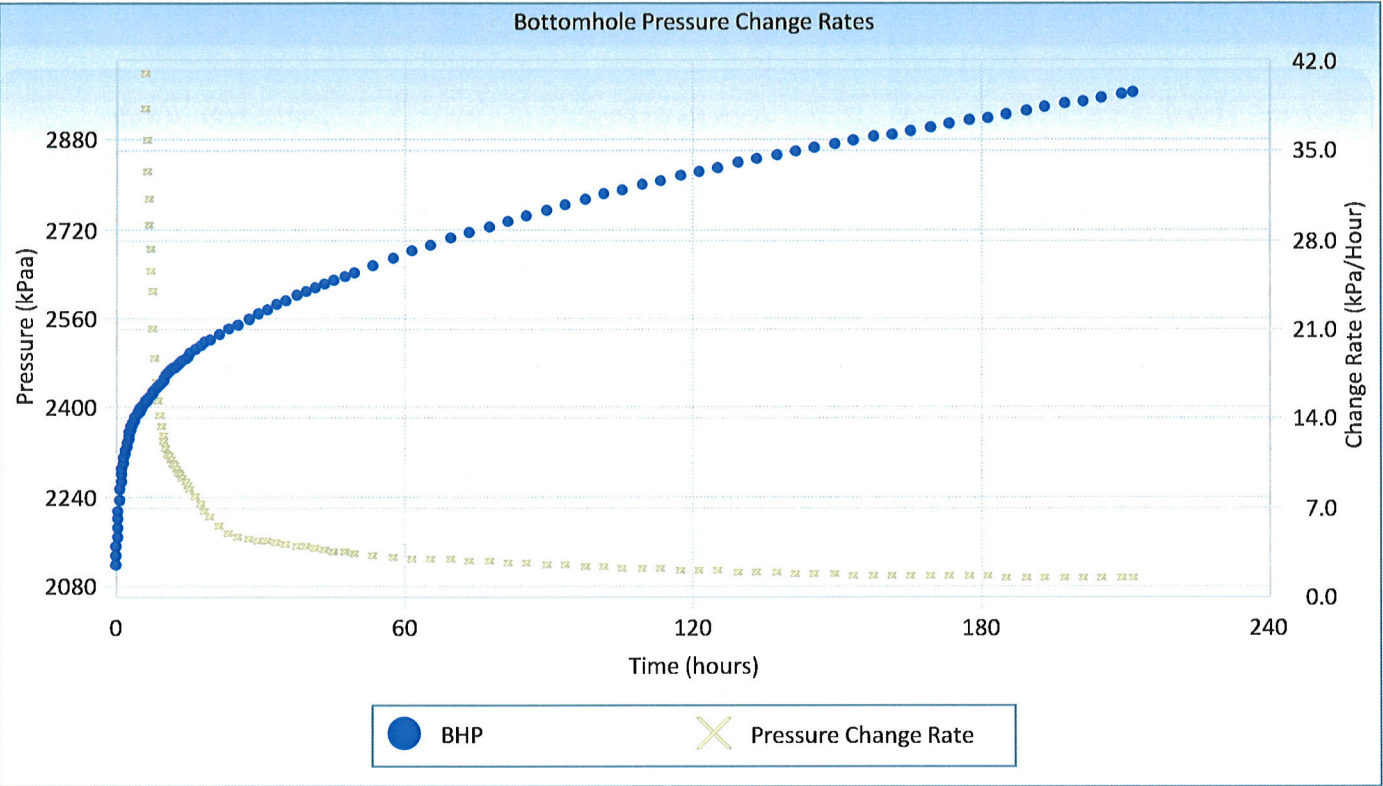
ATTACHMENTS:

ACOUSTIC WELLSOUNDER PRESSURE SURVEY DATA
TYPE CURVE PRE-PLOT
BOTTOMHOLE PRESSURE VERSUS TIME
CASING PRESSURE VERSUS TIME
FLUID LEVEL VERSUS TIME









ACOUSTIC WELLSOUNDER PRESSURE SURVEY

COMPANY: PENN WEST PETROLEUM	POOL: LOWER AMARANTH A	U.W.I.: 102/05-27-001-26W1/0
FIELD: WASKADA MB	WELL STATUS: OIL	WELL NAME: WASKADA UNIT NO. 2 HZNTL 5 -27-1-26 (WPM)
SHUT-IN: 2011-Sep-14 @ 14:55:04	LICENSE: 007151	SURFACE LCN.: 102/07-27-001-26W1/0 (HZTL)

ELEVATIONS:	FLUID PROPERTIES:	TEMPERATURES:
Kelly Bushing (KB): 468.70 m	Gas Gravity: 0.750	Surface: 1.50 °C
Ground Level (GL): 464.10 m	Oil Gravity: 37.790 °API	Reservoir: 50.00 °C
KB to GL: 4.60 m	Water Gravity: 1.067	

PRODUCTION RATES:	TUBING:	PRODUCING INTERVAL:
Gas: 1.08 E³m³/d	Total Joints: 94.337	Top: 907.74 m KB (TVD)
Oil: 2.28 m³/d	Tubing Bottom: 924.72 m KB (MD)	1,020.00 m KB (MD)
Water: 10.38 m³/d	Average Joint Length: 9.754 m	Bottom: 909.18 m KB (TVD)
		1,640.30 m KB (MD)
		Mid-Point: 910.36 m KB (TVD)
		1,330.15 m KB (MD)

NOTES:

All calculated depths have been corrected to True Vertical Depth.

NO.	TEST TIME		DATE	TIME	JOINTS TO LIQUID	SURFACE PRESSURE (kPaa)	GAS COLUMN			OIL COLUMN			EMULSION COLUMN			PRESSURE @ MPP
	(hours)						HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	
1	0.000		2011-Sep-14	14:55:04	81.49	1098.7	792.0	0.103	81.4	93.1	7.867	732.4	20.7	9.866	203.8	2116.4
2	0.083		2011-Sep-14	15:00:04	81.31	1100.7	790.4	0.103	81.4	93.9	7.867	738.7	21.5	9.866	211.9	2132.6
3	0.167		2011-Sep-14	15:05:04	81.12	1102.5	788.7	0.103	81.4	94.7	7.868	745.2	22.4	9.866	220.7	2149.7
4	0.250		2011-Sep-14	15:10:04	80.92	1104.2	786.9	0.103	81.3	95.6	7.868	751.9	23.3	9.866	230.1	2167.5
5	0.333		2011-Sep-14	15:15:04	80.74	1105.8	785.2	0.104	81.3	96.3	7.868	757.8	24.2	9.866	238.8	2183.7
6	0.417		2011-Sep-14	15:20:04	80.57	1107.3	783.7	0.104	81.2	97.0	7.868	763.3	25.0	9.866	247.1	2199.0
7	0.500		2011-Sep-14	15:25:04	80.43	1108.7	782.4	0.104	81.2	97.6	7.868	767.8	25.8	9.865	254.1	2211.8
8	0.667		2011-Sep-14	15:35:04	80.20	1111.2	780.3	0.104	81.2	98.5	7.869	775.0	26.9	9.865	265.9	2233.3
9	0.833		2011-Sep-14	15:45:04	80.01	1113.4	778.6	0.104	81.2	99.2	7.869	780.7	28.0	9.865	275.9	2251.2
10	1.000		2011-Sep-14	15:55:04	79.87	1115.3	777.3	0.104	81.2	99.7	7.869	784.9	28.7	9.865	283.3	2264.7
11	1.167		2011-Sep-14	16:05:04	79.73	1116.8	776.0	0.105	81.2	100.3	7.869	788.9	29.5	9.865	291.0	2278.0
12	1.333		2011-Sep-14	16:15:04	79.61	1118.1	774.9	0.105	81.2	100.7	7.869	792.3	30.2	9.865	297.6	2289.3
13	1.500		2011-Sep-14	16:25:04	79.51	1119.3	774.0	0.105	81.2	101.0	7.869	795.1	30.7	9.865	303.2	2298.8
14	1.667		2011-Sep-14	16:35:04	79.42	1120.3	773.1	0.105	81.2	101.4	7.870	797.6	31.3	9.865	308.3	2307.4
15	1.833		2011-Sep-14	16:45:04	79.33	1121.0	772.3	0.105	81.1	101.7	7.870	800.1	31.8	9.865	313.5	2315.7
16	2.000		2011-Sep-14	16:55:04	79.25	1121.6	771.6	0.105	81.1	101.9	7.870	802.2	32.2	9.865	318.1	2323.0
17	2.167		2011-Sep-14	17:05:04	79.18	1121.9	770.9	0.105	81.1	102.2	7.870	804.1	32.7	9.865	322.2	2329.3
18	2.333		2011-Sep-14	17:15:04	79.11	1122.3	770.3	0.105	81.0	102.4	7.870	805.9	33.1	9.865	326.3	2335.6
19	2.500		2011-Sep-14	17:25:04	79.04	1122.5	769.6	0.105	81.0	102.6	7.870	807.7	33.5	9.865	330.5	2341.7
20	2.667		2011-Sep-14	17:35:04	78.97	1122.7	769.0	0.105	80.9	102.9	7.870	809.5	33.9	9.865	334.7	2347.8
21	2.833		2011-Sep-14	17:45:04	78.91	1122.8	768.4	0.105	80.9	103.1	7.870	811.1	34.3	9.865	338.3	2353.0
22	3.000		2011-Sep-14	17:55:04	78.85	1122.8	767.9	0.105	80.8	103.2	7.871	812.6	34.7	9.865	341.9	2358.1
23	3.167		2011-Sep-14	18:05:04	78.79	1122.8	767.3	0.105	80.8	103.4	7.871	814.1	35.0	9.865	345.6	2363.2
24	3.333		2011-Sep-14	18:15:04	78.74	1122.7	766.8	0.105	80.7	103.6	7.871	815.3	35.3	9.865	348.6	2367.3
25	3.500		2011-Sep-14	18:25:04	78.69	1122.5	766.4	0.105	80.7	103.7	7.871	816.6	35.6	9.865	351.7	2371.4
26	3.667		2011-Sep-14	18:35:04	78.65	1122.3	766.0	0.105	80.6	103.9	7.871	817.6	35.9	9.865	354.1	2374.6
27	3.833		2011-Sep-14	18:45:04	78.61	1122.1	765.6	0.105	80.5	104.0	7.871	818.5	36.1	9.865	356.6	2377.8
28	4.000		2011-Sep-14	18:55:04	78.57	1121.8	765.2	0.105	80.5	104.1	7.871	819.5	36.4	9.865	359.1	2380.9



NO.	TEST		TIME	DATE	TIME	JOINTS TO	SURFACE PRESSURE (kPaa)	GAS COLUMN			OIL COLUMN			EMULSION COLUMN			PRESSURE @ MPP (kPaa)
	(hours)							HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	
29	4.167			2011-Sep-14	19:05:04	78.54	1121.5	765.0	0.105	80.4	104.2	7.871	820.3	36.6	9.865	361.0	2383.1
30	4.333			2011-Sep-14	19:15:04	78.51	1121.1	764.7	0.105	80.4	104.3	7.871	821.0	36.8	9.865	362.8	2385.3
31	4.500			2011-Sep-14	19:25:04	78.48	1120.8	764.4	0.105	80.3	104.4	7.872	821.7	37.0	9.865	364.7	2387.5
32	4.667			2011-Sep-14	19:35:04	78.45	1120.4	764.1	0.105	80.3	104.5	7.872	822.4	37.2	9.866	366.6	2389.7
33	4.833			2011-Sep-14	19:45:04	78.42	1120.1	763.8	0.105	80.2	104.6	7.872	823.2	37.3	9.866	368.5	2391.9
34	5.000			2011-Sep-14	19:55:04	78.39	1119.8	763.6	0.105	80.2	104.7	7.872	823.9	37.5	9.866	370.3	2394.2
35	5.167			2011-Sep-14	20:05:04	78.36	1119.5	763.3	0.105	80.1	104.8	7.872	824.6	37.7	9.866	372.2	2396.4
36	5.333			2011-Sep-14	20:15:04	78.33	1119.2	763.0	0.105	80.1	104.8	7.872	825.3	37.9	9.866	374.1	2398.7
37	5.500			2011-Sep-14	20:25:04	78.30	1119.0	762.7	0.105	80.0	104.9	7.872	826.0	38.1	9.866	376.0	2401.1
38	5.667			2011-Sep-14	20:35:04	78.27	1118.8	762.4	0.105	80.0	105.0	7.872	826.7	38.3	9.866	377.9	2403.5
39	5.833			2011-Sep-14	20:45:04	78.25	1118.7	762.2	0.105	80.0	105.1	7.872	827.2	38.4	9.866	379.2	2405.1
40	6.000			2011-Sep-14	20:55:04	78.23	1118.6	762.1	0.105	79.9	105.1	7.872	827.7	38.6	9.866	380.5	2406.7
41	6.167			2011-Sep-14	21:05:04	78.21	1118.5	761.9	0.105	79.9	105.2	7.872	828.2	38.7	9.866	381.7	2408.3
42	6.333			2011-Sep-14	21:15:04	78.19	1118.4	761.7	0.105	79.9	105.3	7.872	828.6	38.8	9.866	383.0	2410.0
43	6.500			2011-Sep-14	21:25:04	78.17	1118.4	761.5	0.105	79.9	105.3	7.872	829.1	39.0	9.866	384.3	2411.7
44	6.667			2011-Sep-14	21:35:04	78.15	1118.4	761.3	0.105	79.8	105.4	7.872	829.6	39.1	9.866	385.6	2413.4
45	6.833			2011-Sep-14	21:45:04	78.12	1118.4	761.0	0.105	79.8	105.5	7.873	830.3	39.3	9.866	387.5	2416.0
46	7.000			2011-Sep-14	21:55:04	78.10	1118.4	760.8	0.105	79.8	105.5	7.873	830.7	39.4	9.866	388.8	2417.7
47	7.167			2011-Sep-14	22:05:04	78.07	1118.5	760.5	0.105	79.8	105.6	7.873	831.4	39.6	9.866	390.7	2420.3
48	7.333			2011-Sep-14	22:15:04	78.05	1118.5	760.4	0.105	79.8	105.7	7.873	831.9	39.7	9.866	392.0	2422.1
49	7.500			2011-Sep-14	22:25:04	78.03	1118.6	760.2	0.105	79.7	105.7	7.873	832.3	39.9	9.866	393.3	2423.9
50	7.833			2011-Sep-14	22:45:04	77.99	1118.7	759.8	0.105	79.7	105.8	7.873	833.3	40.1	9.866	395.9	2427.5
51	8.167			2011-Sep-14	23:05:04	77.96	1118.8	759.5	0.105	79.7	105.9	7.873	833.9	40.3	9.866	397.8	2430.2
52	8.500			2011-Sep-14	23:25:04	77.92	1119.0	759.1	0.105	79.7	106.0	7.873	834.9	40.6	9.866	400.4	2433.9
53	8.833			2011-Sep-14	23:45:04	77.88	1119.1	758.8	0.105	79.6	106.2	7.873	835.8	40.8	9.866	403.0	2437.5
54	9.167			2011-Sep-15	00:05:04	77.84	1119.3	758.4	0.105	79.6	106.3	7.873	836.7	41.1	9.866	405.6	2441.1
55	9.500			2011-Sep-15	00:25:04	77.80	1119.5	758.0	0.105	79.6	106.4	7.873	837.5	41.4	9.866	408.2	2444.8
56	9.833			2011-Sep-15	00:45:04	77.76	1119.7	757.6	0.105	79.6	106.5	7.873	838.4	41.6	9.866	410.8	2448.5
57	10.167			2011-Sep-15	01:05:04	77.72	1119.9	757.2	0.105	79.5	106.6	7.873	839.3	41.9	9.866	413.5	2452.2
58	10.500			2011-Sep-15	01:25:04	77.67	1120.1	756.8	0.105	79.5	106.7	7.874	840.4	42.2	9.866	416.8	2456.8
59	10.833			2011-Sep-15	01:45:04	77.64	1120.3	756.5	0.105	79.5	106.8	7.874	841.1	42.4	9.866	418.7	2459.6
60	11.167			2011-Sep-15	02:05:04	77.60	1120.5	756.1	0.105	79.5	106.9	7.874	842.0	42.7	9.866	421.4	2463.4
61	11.500			2011-Sep-15	02:25:04	77.57	1120.8	755.8	0.105	79.5	107.0	7.874	842.6	42.9	9.866	423.4	2466.2
62	11.833			2011-Sep-15	02:45:04	77.54	1121.0	755.5	0.105	79.5	107.1	7.874	843.3	43.1	9.866	425.4	2469.1
63	12.167			2011-Sep-15	03:05:04	77.52	1121.3	755.4	0.105	79.5	107.2	7.874	843.7	43.2	9.866	426.7	2471.2
64	12.500			2011-Sep-15	03:25:04	77.49	1121.6	755.1	0.105	79.4	107.2	7.874	844.4	43.5	9.866	428.7	2474.1
65	13.000			2011-Sep-15	03:55:04	77.46	1122.1	754.8	0.105	79.5	107.3	7.874	845.0	43.7	9.866	430.7	2477.2
66	13.500			2011-Sep-15	04:25:04	77.43	1122.7	754.5	0.105	79.5	107.4	7.874	845.7	43.9	9.866	432.7	2480.5
67	14.000			2011-Sep-15	04:55:04	77.40	1123.3	754.2	0.105	79.5	107.5	7.874	846.3	44.1	9.866	434.7	2483.7
68	14.500			2011-Sep-15	05:25:04	77.37	1124.1	753.9	0.105	79.5	107.6	7.874	847.0	44.3	9.866	436.6	2487.3
69	15.000			2011-Sep-15	05:55:04	77.33	1124.9	753.6	0.106	79.5	107.7	7.874	847.8	44.5	9.866	439.3	2491.5
70	15.500			2011-Sep-15	06:25:04	77.29	1125.9	753.2	0.106	79.6	107.8	7.874	848.7	44.8	9.866	442.0	2496.1
71	16.500			2011-Sep-15	07:25:04	77.22	1127.7	752.5	0.106	79.6	108.0	7.874	850.2	45.3	9.866	446.7	2504.2
72	17.500			2011-Sep-15	08:25:04	77.16	1129.8	751.9	0.106	79.7	108.1	7.874	851.4	45.7	9.866	450.7	2511.6
73	18.500			2011-Sep-15	09:25:04	77.12	1131.6	751.6	0.106	79.8	108.2	7.874	852.3	46.0	9.866	453.4	2517.1
74	19.500			2011-Sep-15	10:25:04	77.09	1133.1	751.3	0.106	79.9	108.3	7.874	852.9	46.2	9.866	455.4	2521.3
75	21.500			2011-Sep-15	12:25:04	77.01	1135.1	750.5	0.107	80.0	108.5	7.874	854.6	46.7	9.866	460.8	2530.5
76	23.500			2011-Sep-15	14:25:04	76.93	1136.6	749.8	0.107	80.0	108.7	7.874	856.2	47.3	9.866	466.2	2539.0
77	25.500			2011-Sep-15	16:25:04	76.84	1137.2	748.9	0.107	80.0	109.0	7.874	858.1	47.9	9.866	472.4	2547.6
78	27.500			2011-Sep-15	18:25:04	76.74	1137.8	748.0	0.107	79.9	109.2	7.875	860.1	48.6	9.866	479.2	2557.1
79	29.500			2011-Sep-15	20:25:04	76.65	1138.5	747.1	0.107	79.9	109.5	7.875	862.0	49.2	9.866	485.4	2565.8
80	31.500			2011-Sep-15	22:25:04	76.57	1139.4	746.3	0.107	79.9	109.7	7.875	863.6	49.8	9.866	490.9	2573.8
81	33.500			2011-Sep-16	00:25:04	76.48	1140.3	745.5	0.107	79.8	109.9	7.875	865.4	50.4	9.866	497.2	2582.7
82	35.500			2011-Sep-16	02:25:04	76.41	1141.3	744.8	0.107	79.9	110.1	7.875	866.7	50.9	9.866	502.1	2590.0
83	37.500			2011-Sep-16	04:25:04	76.33	1142.4	744.0	0.107	79.8	110.3	7.875	868.3	51.5	9.866	507.6	2598.2
84	39.500			2011-Sep-16	06:25:04	76.26	1143.4	743.4	0.107	79.9	110.4	7.876	869.7	52.0	9.866	512.5	2605.5
85	41.500			2011-Sep-16	08:25:04	76.20	1144.5	742.8	0.108	79.9	110.6	7.876	870.8	52.4	9.866	516.8	2611.9



NO.	TEST		TIME	LIQUID	SURFACE PRESSURE (kPaa)	GAS COLUMN			OIL COLUMN			EMULSION COLUMN			PRESSURE @ MPP (kPaa)
	TIME (hours)	DATE				HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	HEIGHT (m)	GRADIENT (kPa/m)	PRESSURE (kPa)	
86	43.500	2011-Sep-16	10:25:04	76.13	1145.6	742.1	0.108	79.9	110.7	7.876	872.2	52.9	9.866	521.7	2619.3
87	45.500	2011-Sep-16	12:25:04	76.06	1146.6	741.5	0.108	79.9	110.9	7.876	873.5	53.4	9.866	526.7	2626.7
88	47.500	2011-Sep-16	14:25:04	76.00	1147.7	740.9	0.108	79.9	111.1	7.876	874.6	53.8	9.866	530.9	2633.1
89	49.500	2011-Sep-16	16:25:04	75.93	1148.7	740.2	0.108	79.9	111.2	7.876	875.9	54.3	9.866	535.9	2640.4
90	53.500	2011-Sep-16	20:25:04	75.81	1150.7	739.1	0.108	79.9	111.5	7.876	878.2	55.2	9.866	544.5	2653.2
91	57.500	2011-Sep-17	00:25:04	75.70	1152.7	738.0	0.108	80.0	111.7	7.876	880.2	56.0	9.866	552.3	2665.2
92	61.500	2011-Sep-17	04:25:04	75.58	1154.7	736.9	0.109	80.0	112.0	7.877	882.4	56.9	9.866	561.0	2678.0
93	65.500	2011-Sep-17	08:25:04	75.48	1156.6	735.9	0.109	80.0	112.2	7.877	884.2	57.6	9.866	568.2	2689.0
94	69.500	2011-Sep-17	12:25:04	75.37	1158.5	734.9	0.109	80.1	112.5	7.877	886.1	58.4	9.866	576.2	2700.9
95	73.500	2011-Sep-17	16:25:04	75.28	1160.3	734.0	0.109	80.1	112.7	7.877	887.7	59.1	9.866	582.8	2710.9
96	77.500	2011-Sep-17	20:25:04	75.18	1162.3	733.0	0.109	80.1	112.9	7.877	889.5	59.8	9.866	590.1	2721.9
97	81.500	2011-Sep-18	00:25:04	75.09	1164.1	732.2	0.110	80.2	113.1	7.877	891.0	60.5	9.866	596.7	2732.0
98	85.500	2011-Sep-18	04:25:04	75.00	1165.9	731.3	0.110	80.2	113.3	7.877	892.6	61.2	9.866	603.3	2742.0
99	89.500	2011-Sep-18	08:25:04	74.91	1167.7	730.4	0.110	80.3	113.5	7.878	894.1	61.8	9.866	610.0	2752.1
100	93.500	2011-Sep-18	12:25:04	74.82	1169.5	729.6	0.110	80.3	113.7	7.878	895.7	62.5	9.866	616.6	2762.1
101	97.500	2011-Sep-18	16:25:04	74.74	1171.2	728.8	0.110	80.3	113.9	7.878	897.0	63.1	9.866	622.6	2771.1
102	101.500	2011-Sep-18	20:25:04	74.66	1172.9	728.0	0.110	80.4	114.0	7.878	898.3	63.7	9.866	628.5	2780.1
103	105.500	2011-Sep-19	00:25:04	74.58	1174.5	727.2	0.111	80.4	114.2	7.878	899.6	64.3	9.866	634.5	2789.1
104	109.500	2011-Sep-19	04:25:04	74.50	1176.1	726.5	0.111	80.4	114.4	7.878	900.9	64.9	9.866	640.5	2798.0
105	113.500	2011-Sep-19	08:25:04	74.43	1177.7	725.8	0.111	80.5	114.5	7.878	902.1	65.5	9.866	645.8	2806.1
106	117.500	2011-Sep-19	12:25:04	74.36	1179.3	725.1	0.111	80.5	114.6	7.878	903.2	66.0	9.866	651.1	2814.1
107	121.500	2011-Sep-19	16:25:04	74.29	1180.8	724.4	0.111	80.6	114.8	7.878	904.3	66.5	9.866	656.4	2822.1
108	125.500	2011-Sep-19	20:25:04	74.23	1182.3	723.9	0.111	80.6	114.9	7.878	905.3	67.0	9.866	660.9	2829.0
109	129.500	2011-Sep-20	00:25:04	74.16	1183.7	723.2	0.111	80.6	115.0	7.879	906.3	67.5	9.866	666.3	2836.9
110	133.500	2011-Sep-20	04:25:04	74.10	1185.0	722.6	0.112	80.7	115.2	7.879	907.3	68.0	9.866	670.8	2843.8
111	137.500	2011-Sep-20	08:25:04	74.04	1186.4	722.0	0.112	80.7	115.3	7.879	908.2	68.5	9.866	675.4	2850.7
112	141.500	2011-Sep-20	12:25:04	73.98	1187.8	721.4	0.112	80.7	115.4	7.879	909.1	68.9	9.866	680.0	2857.7
113	145.500	2011-Sep-20	16:25:04	73.93	1189.3	721.0	0.112	80.8	115.5	7.879	909.9	69.3	9.866	683.8	2863.8
114	149.500	2011-Sep-20	20:25:04	73.87	1190.7	720.4	0.112	80.8	115.6	7.879	910.8	69.8	9.866	688.4	2870.7
115	153.500	2011-Sep-21	00:25:04	73.82	1192.1	719.9	0.112	80.9	115.7	7.879	911.6	70.2	9.866	692.3	2876.8
116	157.500	2011-Sep-21	04:25:04	73.77	1193.6	719.4	0.113	80.9	115.8	7.879	912.3	70.6	9.866	696.1	2883.0
117	161.500	2011-Sep-21	08:25:04	73.73	1195.1	719.0	0.113	81.0	115.9	7.879	912.9	70.9	9.866	699.2	2888.2
118	165.500	2011-Sep-21	12:25:04	73.68	1196.7	718.5	0.113	81.1	116.0	7.879	913.7	71.3	9.866	703.0	2894.5
119	169.500	2011-Sep-21	16:25:04	73.63	1198.3	718.1	0.113	81.1	116.1	7.879	914.4	71.7	9.866	706.9	2900.8
120	173.500	2011-Sep-21	20:25:04	73.59	1200.0	717.7	0.113	81.2	116.1	7.879	915.0	72.0	9.866	710.0	2906.2
121	177.500	2011-Sep-22	00:25:04	73.54	1201.7	717.2	0.113	81.3	116.2	7.879	915.7	72.4	9.866	713.9	2912.6
122	181.500	2011-Sep-22	04:25:04	73.50	1203.5	716.8	0.113	81.4	116.3	7.879	916.3	72.7	9.866	716.9	2918.1
123	185.500	2011-Sep-22	08:25:04	73.45	1205.3	716.3	0.114	81.4	116.4	7.879	917.1	73.1	9.866	720.8	2924.6
124	189.500	2011-Sep-22	12:25:04	73.41	1207.2	715.9	0.114	81.5	116.5	7.879	917.6	73.4	9.866	723.9	2930.3
125	193.500	2011-Sep-22	16:25:04	73.36	1209.1	715.4	0.114	81.6	116.6	7.879	918.4	73.8	9.866	727.8	2936.9
126	197.500	2011-Sep-22	20:25:04	73.32	1211.1	715.0	0.114	81.7	116.6	7.879	918.9	74.1	9.866	730.9	2942.6
127	201.500	2011-Sep-23	00:25:04	73.28	1213.1	714.7	0.114	81.8	116.7	7.879	919.5	74.4	9.866	734.0	2948.4
128	205.500	2011-Sep-23	04:25:04	73.25	1215.2	714.4	0.115	81.9	116.8	7.879	920.0	74.6	9.866	736.3	2953.4
129	209.500	2011-Sep-23	08:25:04	73.21	1217.3	714.0	0.115	82.0	116.8	7.879	920.5	75.0	9.866	739.5	2959.4
130	211.796	2011-Sep-23	10:42:51	73.19	1218.6	713.8	0.115	82.1	116.9	7.879	920.8	75.1	9.866	741.0	2962.5

