



PHOENIX
TECHNOLOGY SERVICES

BLACKSPUR OIL CORP._N83

Leduc-WB (NAD 83-Z11)

14-03-051-02W5

BLACKSPUR HZ LEDUC-WB 16-11-51-2

100/16-11-051-02W5/00

28333 P5

Anticollision Report

22 January, 2022

Company:	BLACKSPUR OIL CORP._N83	Local Co-ordinate Reference:	Well BLACKSPUR HZ LEDUC-WB 16-11-51-2
Project:	Leduc-WB (NAD 83-Z11)	TVD Reference:	Actual KB @ 747.51m (Horizon 43)
Reference Site:	14-03-051-02W5	MD Reference:	Actual KB @ 747.51m (Horizon 43)
Site Error:	0.00	North Reference:	True
Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Reference	28333 P5		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 30.00m	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 800.00m	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Risk Settings	
Vertical Depth for Analysis:	m (Below TVD Reference Datum)
Level of Acceptable Risk (1 in):	
Minimum Separation:	0 m

Survey Tool Program	Date	1/22/2022			
From (m)	To (m)	Survey (Wellbore)	Tool Name	Description	
5.50	1,599.00	28333 Surveys (100/16-11-051-02W5/00)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	
1,599.00	4,201.99	28333 P5 (100/16-11-051-02W5/00)	MWD+HDGM	OWSG Rev.2 MWD + HDGM	

Summary						
Site Name	Reference Measured Depth (m)	Offset Measured Depth (m)	Distance Between Centres (m)	Distance Between Ellipses (m)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Offset 04-10-051-02W5						
100/04-10-051-02W5/02 - 100/04-10-051-02W5/02	1,003.30	1,005.11	549.54	524.19	21.674 CC	
100/04-10-051-02W5/02 - 100/04-10-051-02W5/02	1,009.99	1,011.80	549.59	524.06	21.532 ES	
100/04-10-051-02W5/02 - 100/04-10-051-02W5/02	1,181.30	1,175.41	589.12	559.44	19.854 SF	
Offset 04-11-051-02W5						
100/04-11-051-02W5/04 - 100/04-11-051-02W5/04	2,529.23	1,357.39	74.01	42.26	2.331 CC, ES	
100/04-11-051-02W5/04 - 100/04-11-051-02W5/04	2,550.00	1,359.59	76.84	42.85	2.261 SF	
Offset 06-03-051-02W5						
100/06-03-051-02W5/00 - 100/06-03-051-02W5/00						Out of range
Offset 12-02-051-02W5						
100/12-02-051-02W5/04 - 100/12-02-051-02W5/04						Out of range
Offset 15-10-051-02W5						
100/02-15-051-02W5/00 - 100/02-15-051-02W5/00						Out of range

Offset Design		FREE REIN LEDUC-WB 4-10-51-2 - 100/04-10-051-02W5/02 - 100/04-10-051-02W5/02									Offset Site Error:		0.00 m	
Survey Program:		1669-									Offset Well Error:		0.00 m	
Reference		Offset		Semi Major Axis		Offset Wellbore Center		Distance						
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	+N/-S	+E/-W	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning	
(m)	(m)	(m)	(m)	(m)	(m)	(°)	(m)	(m)	(m)	(m)	(m)			
0.00	0.00	1.89	1.89	0.00	0.04	-72.80	163.47	-528.04	552.76					
5.50	5.50	7.39	7.39	0.00	0.16	-72.80	163.47	-528.04	552.76	552.60	0.16	3,437.994		
30.00	30.00	31.89	31.89	0.09	0.69	-145.40	163.47	-528.04	552.82	552.04	0.78	707.970		
36.32	36.32	38.21	38.21	0.11	0.83	-145.40	163.47	-528.04	552.85	551.91	0.94	587.638		
58.62	58.62	60.51	60.51	0.19	1.32	-115.32	163.47	-528.04	553.00	551.49	1.51	367.304		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	BLACKSPUR OIL CORP._N83	Local Co-ordinate Reference:	Well BLACKSPUR HZ LEDUC-WB 16-11-51-2
Project:	Leduc-WB (NAD 83-Z11)	TVD Reference:	Actual KB @ 747.51m (Horizon 43)
Reference Site:	14-03-051-02W5	MD Reference:	Actual KB @ 747.51m (Horizon 43)
Site Error:	0.00	North Reference:	True
Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 m
Survey Program: 1669- FREE REIN LEDUC-WB 4-10-51-2 - 100/04-10-051-02W5/02 - 100/04-10-051-02W5/02												Offset Well Error:	0.00 m
Reference		Offset		Semi Major Axis			Offset Wellbore Center		Distance			Separation Factor	Warning
Measured Depth (m)	Vertical Depth (m)	Measured Depth (m)	Vertical Depth (m)	Reference (m)	Offset (m)	Highside Toolface (°)	+N/-S (m)	+E/-W (m)	Between Centres (m)	Between Ellipses (m)	Minimum Separation (m)		
60.00	60.00	61.89	61.89	0.19	1.35	-116.13	163.47	-528.04	553.01	551.47	1.54	358.975	
77.95	77.94	79.83	79.83	0.26	1.74	-124.85	163.47	-528.04	553.19	551.19	2.00	277.247	
90.00	89.99	91.88	91.88	0.30	2.00	-121.78	163.47	-528.04	553.34	551.03	2.30	240.519	
96.80	96.79	98.68	98.68	0.33	2.15	-120.39	163.47	-528.04	553.42	550.95	2.47	223.799	
115.68	115.66	117.55	117.55	0.39	2.56	-121.83	163.47	-528.04	553.71	550.75	2.95	187.620	
120.00	119.98	121.87	121.87	0.41	2.65	-123.15	163.47	-528.04	553.77	550.71	3.06	180.934	
134.56	134.54	136.43	136.43	0.46	2.97	-131.08	163.47	-528.04	553.97	550.54	3.43	161.530	
150.00	149.97	151.86	151.86	0.52	3.30	-112.54	163.47	-528.04	554.11	550.28	3.82	145.030	
153.68	153.65	155.54	155.54	0.53	3.38	-107.71	163.47	-528.04	554.13	550.21	3.91	141.581	
172.60	172.57	174.46	174.46	0.60	3.80	-140.83	163.47	-528.04	554.29	549.89	4.39	126.173	
180.00	179.97	181.86	181.86	0.62	3.96	-124.72	163.47	-528.04	554.35	549.77	4.58	121.036	
191.58	191.55	193.44	193.44	0.67	4.21	-46.75	163.47	-528.04	554.36	549.48	4.87	113.768	
210.00	209.97	211.86	211.86	0.73	4.61	-7.96	163.47	-528.04	554.19	548.85	5.34	103.847	
210.62	210.59	212.48	212.48	0.73	4.62	-7.36	163.47	-528.04	554.18	548.83	5.35	103.543	
229.59	229.56	231.45	231.45	0.80	5.04	-17.37	163.47	-528.04	553.84	548.01	5.83	95.004	
240.00	239.96	241.85	241.85	0.83	5.26	-15.89	163.47	-528.04	553.62	547.53	6.09	90.876	
248.50	248.46	250.35	250.35	0.86	5.45	-14.58	163.47	-528.04	553.45	547.14	6.31	87.762	
254.00	253.96	255.85	255.85	0.88	5.57	-15.49	163.47	-528.04	553.33	546.89	6.44	85.856	
270.00	269.96	271.85	271.85	0.94	5.91	-11.26	163.47	-528.04	553.01	546.16	6.85	80.750	
271.00	270.96	272.85	272.85	0.94	5.94	-10.99	163.47	-528.04	552.99	546.11	6.87	80.451	
288.40	288.35	290.24	290.24	1.00	6.31	-6.40	163.47	-528.04	552.63	545.32	7.31	75.573	
300.00	299.95	301.84	301.84	1.04	6.57	-6.42	163.47	-528.04	552.39	544.79	7.61	72.633	
330.00	329.95	331.84	331.84	1.14	7.22	-6.47	163.47	-528.04	551.87	543.51	8.36	65.992	
345.42	345.36	347.25	347.25	1.20	7.56	-6.51	163.47	-528.04	551.64	542.89	8.75	63.030	
360.00	359.94	361.83	361.83	1.25	7.87	0.78	163.47	-528.04	551.46	542.34	9.12	60.471	
390.00	389.94	391.83	391.83	1.35	8.52	44.71	163.47	-528.04	551.25	541.37	9.88	55.818	
402.33	402.27	404.16	404.16	1.40	8.79	79.80	163.47	-528.04	551.22	541.03	10.19	54.112	
410.92	410.86	412.75	412.75	1.42	8.98	90.00	163.47	-528.04	551.21	540.81	10.40	52.987	
420.00	419.94	421.83	421.83	1.46	9.18	106.04	163.47	-528.04	551.22	540.59	10.63	51.847	
450.00	449.94	451.83	451.83	1.56	9.83	173.96	163.47	-528.04	551.30	539.91	11.39	48.414	
459.25	459.19	461.08	461.08	1.59	10.03	-174.88	163.47	-528.04	551.34	539.72	11.62	47.447	
480.00	479.94	481.83	481.83	1.66	10.48	143.85	163.47	-528.04	551.44	539.30	12.14	45.412	
510.00	509.94	511.83	511.83	1.76	11.14	111.99	163.47	-528.04	551.56	538.66	12.90	42.759	
516.39	516.33	518.22	518.22	1.79	11.27	108.54	163.47	-528.04	551.58	538.52	13.06	42.234	
540.00	539.94	541.83	541.83	1.87	11.79	76.06	163.47	-528.04	551.59	537.94	13.66	40.393	
570.00	569.94	571.83	571.83	1.97	12.44	47.82	163.47	-528.04	551.40	536.99	14.41	38.259	
573.24	573.18	575.07	575.07	1.98	12.51	45.81	163.47	-528.04	551.37	536.87	14.49	38.041	
600.00	599.93	601.82	601.82	2.08	13.09	44.75	163.47	-528.04	551.06	535.89	15.17	36.326	
630.00	629.93	631.82	631.82	2.18	13.75	43.68	163.47	-528.04	550.70	534.77	15.93	34.575	
630.06	629.99	631.88	631.88	2.18	13.75	43.68	163.47	-528.04	550.70	534.77	15.93	34.572	
660.00	659.92	661.81	661.81	2.29	14.40	30.43	163.47	-528.04	550.33	533.64	16.69	32.982	
687.16	687.08	688.97	688.97	2.38	14.99	13.12	163.47	-528.04	550.00	532.63	17.37	31.660	
690.00	689.92	691.81	691.81	2.39	15.05	14.15	163.47	-528.04	549.96	532.52	17.44	31.528	
720.00	719.92	721.81	721.81	2.50	15.70	32.39	163.47	-528.04	549.70	531.50	18.20	30.200	
744.19	744.11	746.00	746.00	2.58	16.23	66.94	163.47	-528.04	549.60	530.79	18.81	29.213	

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Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 m
Survey Program: 1669- FREE REIN LEDUC-WB 4-10-51-2 - 100/04-10-051-02W5/02 - 100/04-10-051-02W5/02												Offset Well Error:	0.00 m
Measured Depth (m)	Vertical Depth (m)	Measured Depth (m)	Vertical Depth (m)	Reference (m)	Offset (m)	Highside Toolface (°)	+N/-S (m)	+E/-W (m)	Between Centres (m)	Between Ellipses (m)	Minimum Separation (m)	Separation Factor	Warning
750.00	749.92	751.81	751.81	2.60	16.36	62.73	163.47	-528.04	549.59	530.63	18.96	28.986	
780.00	779.92	781.81	781.81	2.71	17.01	-84.54	163.47	-528.04	549.56	529.84	19.72	27.871	
787.35	787.27	789.16	789.16	2.74	17.17	-90.00	163.47	-528.04	549.56	529.65	19.90	27.611	
801.31	801.23	803.12	803.12	2.78	17.47	-94.37	163.47	-528.04	549.56	529.30	20.26	27.131	
810.00	809.92	811.81	811.81	2.81	17.66	-98.48	163.47	-528.04	549.57	529.09	20.47	26.841	
840.00	839.92	841.81	841.81	2.92	18.31	-133.32	163.47	-528.04	549.62	528.39	21.23	25.887	
858.15	858.07	859.96	859.96	2.98	18.71	179.20	163.47	-528.04	549.68	527.99	21.69	25.344	
870.00	869.92	871.81	871.81	3.02	18.97	156.19	163.47	-528.04	549.71	527.73	21.99	25.000	
900.00	899.92	901.81	901.81	3.13	19.62	86.87	163.47	-528.04	549.75	527.00	22.75	24.170	
915.15	915.07	916.96	916.96	3.18	19.95	72.92	163.47	-528.04	549.73	526.61	23.13	23.770	
930.00	929.92	931.81	931.81	3.23	20.27	69.06	163.47	-528.04	549.71	526.21	23.50	23.389	
960.00	959.92	961.81	961.81	3.34	20.93	62.86	163.47	-528.04	549.63	525.37	24.26	22.655	
971.98	971.90	973.79	973.79	3.38	21.19	60.85	163.47	-528.04	549.59	525.03	24.56	22.374	
986.44	986.35	988.24	988.24	3.43	21.50	90.00	163.47	-528.04	549.57	524.64	24.93	22.045	
990.00	989.92	991.81	991.81	3.44	21.58	117.33	163.47	-528.04	549.57	524.55	25.02	21.966	
990.96	990.88	992.77	992.77	3.44	21.60	127.56	163.47	-528.04	549.57	524.53	25.04	21.945	
1,000.54	1,000.46	1,002.35	1,002.35	3.48	21.81	40.06	163.47	-528.04	549.55	524.27	25.29	21.734	
1,003.30	1,003.22	1,005.11	1,005.11	3.49	21.87	90.00	163.47	-528.04	549.54	524.19	25.35	21.674	CC
1,006.00	1,005.92	1,007.81	1,007.81	3.50	21.93	-148.81	163.47	-528.04	549.55	524.13	25.42	21.616	
1,009.99	1,009.91	1,011.80	1,011.80	3.51	22.01	-145.94	163.47	-528.04	549.59	524.06	25.52	21.532	ES
1,019.47	1,019.38	1,021.27	1,021.27	3.54	22.22	-148.70	163.47	-528.04	549.87	524.11	25.76	21.344	
1,020.00	1,019.91	1,021.80	1,021.80	3.55	22.23	-148.37	163.47	-528.04	549.89	524.12	25.78	21.334	
1,028.95	1,028.83	1,030.72	1,030.72	3.58	22.42	-145.08	163.47	-528.04	550.45	524.45	26.00	21.170	
1,038.53	1,038.36	1,040.25	1,040.25	3.61	22.63	-146.67	163.47	-528.04	551.29	525.04	26.24	21.008	
1,048.01	1,047.76	1,049.65	1,049.65	3.64	22.84	-148.27	163.47	-528.04	552.32	525.84	26.48	20.859	
1,050.00	1,049.73	1,051.62	1,051.62	3.65	22.88	-149.25	163.47	-528.04	552.56	526.03	26.53	20.829	
1,057.44	1,057.09	1,058.98	1,058.98	3.68	23.04	-152.62	163.47	-528.04	553.51	526.80	26.71	20.720	
1,066.91	1,066.44	1,068.33	1,068.33	3.71	23.24	-161.01	163.47	-528.04	554.89	527.94	26.95	20.589	
1,076.53	1,075.91	1,077.80	1,077.80	3.74	23.45	-161.21	163.47	-528.04	556.48	529.29	27.19	20.467	
1,080.00	1,079.32	1,081.21	1,081.21	3.76	23.52	-158.61	163.47	-528.04	557.09	529.82	27.28	20.425	
1,086.19	1,085.39	1,087.28	1,087.28	3.78	23.66	-154.49	163.47	-528.04	558.23	530.80	27.43	20.352	
1,095.70	1,094.66	1,096.55	1,096.55	3.81	23.86	-155.06	163.47	-528.04	560.14	532.48	27.66	20.248	
1,105.16	1,103.84	1,105.73	1,105.73	3.85	24.06	-154.55	163.47	-528.04	562.23	534.33	27.90	20.155	
1,110.00	1,108.51	1,110.40	1,110.40	3.86	24.16	-156.71	163.47	-528.04	563.38	535.36	28.01	20.111	
1,114.65	1,112.99	1,114.88	1,114.88	3.88	24.26	-158.59	163.47	-528.04	564.56	536.43	28.13	20.072	
1,124.19	1,122.07	1,123.96	1,123.96	3.92	24.45	-157.71	163.47	-528.04	567.29	538.93	28.36	20.005	
1,133.70	1,130.96	1,132.85	1,132.85	3.96	24.65	-157.40	163.47	-528.04	570.43	541.85	28.58	19.956	
1,140.00	1,136.77	1,138.66	1,138.66	3.98	24.77	-153.69	163.47	-528.04	572.68	543.95	28.73	19.932	
1,143.20	1,139.69	1,141.58	1,141.58	4.00	24.84	-151.96	163.47	-528.04	573.86	545.06	28.81	19.922	
1,152.83	1,148.39	1,150.28	1,150.28	4.04	25.03	-147.80	163.47	-528.04	577.51	548.48	29.03	19.895	
1,162.35	1,156.89	1,158.78	1,158.78	4.08	25.21	-147.12	163.47	-528.04	581.24	552.00	29.24	19.875	
1,170.00	1,163.65	1,165.54	1,165.54	4.12	25.36	-146.12	163.47	-528.04	584.33	554.91	29.42	19.863	
1,171.82	1,165.25	1,167.14	1,167.14	4.13	25.39	-145.89	163.47	-528.04	585.08	555.62	29.46	19.861	
1,181.30	1,173.52	1,175.41	1,175.41	4.18	25.57	-148.12	163.47	-528.04	589.12	559.44	29.67	19.854	SF
1,190.77	1,181.64	1,183.53	1,183.53	4.23	25.75	-149.58	163.47	-528.04	593.44	563.56	29.88	19.859	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	BLACKSPUR OIL CORP._N83	Local Co-ordinate Reference:	Well BLACKSPUR HZ LEDUC-WB 16-11-51-2
Project:	Leduc-WB (NAD 83-Z11)	TVD Reference:	Actual KB @ 747.51m (Horizon 43)
Reference Site:	14-03-051-02W5	MD Reference:	Actual KB @ 747.51m (Horizon 43)
Site Error:	0.00	North Reference:	True
Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Offset Design 1669- FREE REIN LEDUC-WB 4-10-51-2 - 100/04-10-051-02W5/02 - 100/04-10-051-02W5/02													Offset Site Error: 0.00 m
Survey Program: Reference													Offset Well Error: 0.00 m
Measured Depth (m)	Vertical Depth (m)	Measured Depth (m)	Vertical Depth (m)	Reference (m)	Offset (m)	Highside Toolface (°)	Offset Wellbore Center +N/-S (m)	+E/-W (m)	Between Centres (m)	Between Ellipses (m)	Minimum Separation (m)	Separation Factor	Warning
1,200.00	1,189.42	1,191.31	1,191.31	4.29	25.92	-153.57	163.47	-528.04	597.95	567.87	30.08	19.876	
1,200.25	1,189.63	1,191.52	1,191.52	4.29	25.92	-153.67	163.47	-528.04	598.08	567.99	30.09	19.877	
1,209.70	1,197.49	1,199.38	1,199.38	4.35	26.09	-159.09	163.47	-528.04	603.01	572.72	30.29	19.906	
1,219.26	1,205.32	1,207.21	1,207.21	4.42	26.26	-163.91	163.47	-528.04	608.30	577.80	30.49	19.948	
1,228.73	1,212.94	1,214.83	1,214.83	4.49	26.43	-165.34	163.47	-528.04	613.79	583.10	30.69	19.999	
1,230.00	1,213.95	1,215.84	1,215.84	4.50	26.45	-165.20	163.47	-528.04	614.54	583.83	30.72	20.007	
1,238.23	1,220.46	1,222.35	1,222.35	4.56	26.59	-164.30	163.47	-528.04	619.47	588.59	30.88	20.058	
1,247.72	1,227.85	1,229.74	1,229.74	4.65	26.75	-164.17	163.47	-528.04	625.28	594.21	31.07	20.122	
1,257.30	1,235.17	1,237.06	1,237.06	4.74	26.91	-165.05	163.47	-528.04	631.33	600.07	31.26	20.194	
1,260.00	1,237.20	1,239.09	1,239.09	4.76	26.96	-164.22	163.47	-528.04	633.07	601.75	31.32	20.216	
1,266.78	1,242.24	1,244.13	1,244.13	4.83	27.07	-162.17	163.47	-528.04	637.49	606.05	31.45	20.273	
1,276.27	1,249.18	1,251.07	1,251.07	4.93	27.22	-160.07	163.47	-528.04	643.78	612.15	31.63	20.356	
1,285.75	1,255.98	1,257.87	1,257.87	5.04	27.37	-157.30	163.47	-528.04	650.14	618.33	31.80	20.442	
1,290.00	1,258.97	1,260.86	1,260.86	5.09	27.43	-157.13	163.47	-528.04	653.03	621.15	31.88	20.482	
1,295.22	1,262.59	1,264.48	1,264.48	5.16	27.51	-156.90	163.47	-528.04	656.64	624.66	31.98	20.533	
1,304.87	1,269.10	1,270.99	1,270.99	5.28	27.65	-156.79	163.47	-528.04	663.48	631.33	32.15	20.635	
1,314.34	1,275.41	1,277.30	1,277.30	5.41	27.79	-156.67	163.47	-528.04	670.28	637.95	32.32	20.738	
1,320.00	1,279.18	1,281.07	1,281.07	5.50	27.87	-156.77	163.47	-528.04	674.33	641.91	32.42	20.799	
1,324.00	1,281.84	1,283.73	1,283.73	5.55	27.93	-156.84	163.47	-528.04	677.20	644.71	32.49	20.842	
1,333.45	1,288.06	1,289.95	1,289.95	5.69	28.06	-156.68	163.47	-528.04	684.05	651.39	32.66	20.946	
1,342.94	1,294.17	1,296.06	1,296.06	5.84	28.20	-155.88	163.47	-528.04	691.04	658.21	32.82	21.053	
1,350.00	1,298.52	1,300.41	1,300.41	5.96	28.29	-154.70	163.47	-528.04	696.39	663.45	32.94	21.140	
1,352.54	1,300.03	1,301.92	1,301.92	6.00	28.33	-154.25	163.47	-528.04	698.35	665.37	32.98	21.173	
1,362.01	1,305.33	1,307.22	1,307.22	6.17	28.44	-152.73	163.47	-528.04	705.91	672.77	33.13	21.306	
1,371.60	1,310.29	1,312.18	1,312.18	6.35	28.55	-152.17	163.47	-528.04	713.83	680.56	33.27	21.455	
1,380.00	1,314.42	1,316.31	1,316.31	6.52	28.64	-153.01	163.47	-528.04	720.92	687.53	33.39	21.593	
1,381.16	1,314.98	1,316.87	1,316.87	6.55	28.65	-153.12	163.47	-528.04	721.91	688.50	33.40	21.612	
1,390.65	1,319.46	1,321.35	1,321.35	6.74	28.75	-152.05	163.47	-528.04	730.03	696.51	33.53	21.774	
1,400.13	1,323.65	1,325.54	1,325.54	6.95	28.84	-150.39	163.47	-528.04	738.30	704.65	33.65	21.942	
1,409.61	1,327.54	1,329.43	1,329.43	7.16	28.92	-148.17	163.47	-528.04	746.70	712.94	33.76	22.118	
1,410.00	1,327.69	1,329.58	1,329.58	7.17	28.93	-148.17	163.47	-528.04	747.04	713.28	33.76	22.125	
1,419.06	1,331.21	1,333.10	1,333.10	7.38	29.00	-148.09	163.47	-528.04	755.16	721.30	33.87	22.298	
1,428.52	1,334.67	1,336.56	1,336.56	7.61	29.08	-146.97	163.47	-528.04	763.73	729.77	33.97	22.484	
1,431.00	1,335.54	1,337.43	1,337.43	7.67	29.10	-146.38	163.47	-528.04	766.00	732.00	33.99	22.533	
1,437.98	1,337.95	1,339.84	1,339.84	7.84	29.15	-144.69	163.47	-528.04	772.37	738.31	34.07	22.673	
1,440.00	1,338.63	1,340.52	1,340.52	7.89	29.17	-144.96	163.47	-528.04	774.22	740.14	34.09	22.714	
1,447.41	1,341.17	1,343.06	1,343.06	8.08	29.22	-145.94	163.47	-528.04	781.00	746.84	34.16	22.862	
1,456.90	1,344.46	1,346.35	1,346.35	8.32	29.29	-145.87	163.47	-528.04	789.66	755.40	34.26	23.050	
1,463.00	1,346.55	1,348.44	1,348.44	8.48	29.34	-146.04	163.47	-528.04	795.25	760.93	34.32	23.171	
1,466.34	1,347.66	1,349.55	1,349.55	8.56	29.36	-146.12	163.47	-528.04	798.32	763.97	34.35	23.238	

Company:	BLACKSPUR OIL CORP._N83	Local Co-ordinate Reference:	Well BLACKSPUR HZ LEDUC-WB 16-11-51-2
Project:	Leduc-WB (NAD 83-Z11)	TVD Reference:	Actual KB @ 747.51m (Horizon 43)
Reference Site:	14-03-051-02W5	MD Reference:	Actual KB @ 747.51m (Horizon 43)
Site Error:	0.00	North Reference:	True
Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 m
Survey Program: 380-SHINEBK HOLBURN 4-11-51-2 - 100/04-11-051-02W5/04 - 100/04-11-051-02W5/04												Offset Well Error:	0.00 m
Measured Depth (m)	Vertical Depth (m)	Measured Depth (m)	Vertical Depth (m)	Reference (m)	Offset (m)	Highside Toolface (°)	+N/-S (m)	+E/-W (m)	Between Centres (m)	Between Ellipses (m)	Minimum Separation (m)	Separation Factor	Warning
1,740.00	1,368.11	1,260.00	1,258.48	14.17	3.77	-72.61	385.08	1,207.62	775.35	763.86	11.49	67.504	
1,770.00	1,367.61	1,263.55	1,261.96	14.68	3.78	-73.16	384.86	1,208.31	748.45	736.63	11.82	63.346	
1,800.00	1,367.11	1,266.62	1,264.96	15.25	3.79	-73.64	384.67	1,208.92	721.77	709.58	12.19	59.199	
1,821.51	1,366.76	1,269.00	1,267.29	15.68	3.80	-74.02	384.51	1,209.41	702.79	690.30	12.50	56.242	
1,830.00	1,366.62	1,270.57	1,268.82	15.85	3.81	-73.30	384.41	1,209.73	695.28	682.66	12.62	55.087	
1,845.00	1,366.40	1,273.55	1,271.73	16.17	3.82	-71.83	384.21	1,210.35	681.80	668.96	12.84	53.115	
1,860.00	1,366.20	1,276.48	1,274.58	16.49	3.83	-69.97	384.00	1,210.95	668.04	655.01	13.04	51.239	
1,875.00	1,366.02	1,279.34	1,277.38	16.81	3.84	-67.57	383.81	1,211.54	654.05	640.83	13.22	49.462	
1,890.00	1,365.87	1,281.02	1,279.02	17.13	3.85	-64.11	383.69	1,211.89	639.85	626.46	13.39	47.794	
1,905.00	1,365.75	1,282.80	1,280.76	17.45	3.86	-59.48	383.57	1,212.26	625.46	611.93	13.53	46.222	
1,920.00	1,365.65	1,284.55	1,282.46	17.76	3.87	-53.05	383.44	1,212.63	610.91	597.26	13.65	44.748	
1,935.00	1,365.58	1,286.26	1,284.13	18.07	3.87	-43.87	383.33	1,212.99	596.24	582.49	13.75	43.370	
1,950.00	1,365.53	1,288.00	1,285.83	18.37	3.88	-30.70	383.21	1,213.36	581.48	567.66	13.82	42.088	
1,965.00	1,365.51	1,290.61	1,288.37	18.65	3.89	-12.86	383.03	1,213.91	566.65	552.80	13.86	40.897	
1,968.57	1,365.51	1,291.24	1,288.98	18.72	3.89	-7.99	382.99	1,214.05	563.12	549.26	13.86	40.628	
1,980.00	1,365.51	1,293.19	1,290.89	18.94	3.90	2.84	382.85	1,214.46	551.80	537.94	13.87	39.793	
2,010.00	1,365.51	1,297.81	1,295.39	19.48	3.92	29.73	382.53	1,215.43	522.13	508.31	13.82	37.782	
2,018.73	1,365.51	1,298.94	1,296.49	19.63	3.93	36.01	382.45	1,215.67	513.53	499.74	13.79	37.247	
2,040.00	1,365.51	1,301.64	1,299.12	20.00	3.94	37.29	382.27	1,216.23	492.59	478.89	13.69	35.972	
2,070.00	1,365.51	1,305.44	1,302.83	20.53	3.95	39.18	382.02	1,217.02	463.08	449.53	13.55	34.185	
2,100.00	1,365.51	1,309.22	1,306.52	21.08	3.97	41.17	381.77	1,217.80	433.60	420.22	13.38	32.414	
2,130.00	1,365.51	1,312.97	1,310.19	21.64	3.99	43.26	381.52	1,218.57	404.17	390.99	13.18	30.660	
2,160.00	1,365.51	1,316.70	1,313.83	22.21	4.00	45.46	381.28	1,219.34	374.79	361.84	12.96	28.924	
2,190.00	1,365.51	1,320.41	1,317.46	22.80	4.02	47.76	381.04	1,220.09	345.49	332.79	12.70	27.205	
2,207.39	1,365.51	1,322.55	1,319.55	23.14	4.03	49.14	380.90	1,220.53	328.53	316.00	12.53	26.217	
2,220.00	1,365.49	1,324.04	1,321.00	23.39	4.03	54.90	380.81	1,220.83	316.30	303.91	12.39	25.528	
2,221.27	1,365.48	1,324.19	1,321.14	23.41	4.03	55.42	380.80	1,220.86	315.07	302.70	12.37	25.461	
2,250.00	1,365.37	1,327.55	1,324.43	23.97	4.05	57.61	380.58	1,221.54	287.39	275.40	11.99	23.962	
2,280.00	1,365.25	1,331.19	1,327.98	24.57	4.06	60.05	380.35	1,222.28	258.69	247.13	11.56	22.384	
2,310.00	1,365.13	1,334.74	1,331.46	25.17	4.08	62.51	380.12	1,222.99	230.26	219.15	11.11	20.729	
2,340.00	1,365.00	1,338.21	1,334.85	25.78	4.09	64.98	379.90	1,223.67	202.24	191.51	10.73	18.840	
2,370.00	1,364.88	1,341.63	1,338.20	26.40	4.11	67.47	379.69	1,224.34	174.81	164.16	10.66	16.405	
2,400.00	1,364.76	1,345.02	1,341.52	27.02	4.12	69.98	379.49	1,225.00	148.31	136.99	11.32	13.101	
2,430.00	1,364.64	1,347.71	1,344.16	27.66	4.14	72.00	379.33	1,225.52	123.35	110.00	13.35	9.240	
2,460.00	1,364.52	1,350.52	1,346.91	28.30	4.15	74.13	379.16	1,226.07	101.08	83.76	17.31	5.839	
2,490.00	1,364.40	1,353.45	1,349.77	28.94	4.16	76.37	378.98	1,226.66	83.66	60.29	23.37	3.579	
2,520.00	1,364.28	1,356.45	1,352.70	29.59	4.17	78.68	378.80	1,227.27	74.58	44.48	30.10	2.478	
2,529.23	1,364.24	1,357.39	1,353.62	29.79	4.18	79.40	378.74	1,227.47	74.01	42.26	31.75	2.331	CC, ES
2,550.00	1,364.16	1,359.59	1,355.76	30.25	4.19	81.09	378.61	1,227.93	76.84	42.85	33.99	2.261	SF
2,580.00	1,364.04	1,362.95	1,359.04	30.91	4.20	83.66	378.40	1,228.66	89.57	55.62	33.95	2.638	
2,610.00	1,363.92	1,366.46	1,362.46	31.58	4.22	86.33	378.18	1,229.43	109.17	77.01	32.16	3.394	
2,640.00	1,363.80	1,369.96	1,365.86	32.25	4.24	88.96	377.95	1,230.21	132.61	102.41	30.20	4.391	
2,670.00	1,363.68	1,373.46	1,369.26	32.92	4.25	91.54	377.72	1,231.00	158.21	129.66	28.54	5.543	
2,700.00	1,363.56	1,376.88	1,372.58	33.60	4.27	94.01	377.48	1,231.77	185.06	157.84	27.21	6.800	
2,730.00	1,363.43	1,380.26	1,375.87	34.28	4.28	96.39	377.24	1,232.54	212.69	186.53	26.16	8.130	

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	BLACKSPUR OIL CORP._N83	Local Co-ordinate Reference:	Well BLACKSPUR HZ LEDUC-WB 16-11-51-2
Project:	Leduc-WB (NAD 83-Z11)	TVD Reference:	Actual KB @ 747.51m (Horizon 43)
Reference Site:	14-03-051-02W5	MD Reference:	Actual KB @ 747.51m (Horizon 43)
Site Error:	0.00	North Reference:	True
Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 m
Survey Program: 380- SHINEBK HOLBURN 4-11-51-2 - 100/04-11-051-02W5/04 - 100/04-11-051-02W5/04												Offset Well Error:	0.00 m
Reference		Offset		Semi Major Axis		Offset Wellbore Center			Distance				
Measured Depth (m)	Vertical Depth (m)	Measured Depth (m)	Vertical Depth (m)	Reference (m)	Offset (m)	Highside Toolface (°)	+N/-S (m)	+E/-W (m)	Between Centres (m)	Between Ellipses (m)	Minimum Separation (m)	Separation Factor	Warning
2,760.00	1,363.31	1,383.66	1,379.17	34.97	4.30	98.72	376.99	1,233.31	240.85	215.52	25.33	9.510	
2,790.00	1,363.19	1,387.21	1,382.62	35.65	4.32	101.08	376.73	1,234.12	269.35	244.69	24.66	10.924	
2,820.00	1,363.07	1,390.74	1,386.04	36.35	4.33	103.35	376.47	1,234.93	298.10	273.99	24.11	12.364	
2,850.00	1,362.95	1,394.06	1,389.27	37.04	4.35	105.41	376.23	1,235.68	327.04	303.39	23.65	13.826	
2,880.00	1,362.83	1,396.98	1,392.11	37.74	4.36	107.16	376.01	1,236.34	356.13	332.87	23.26	15.308	
2,910.00	1,362.71	1,399.80	1,394.84	38.44	4.38	108.80	375.80	1,236.96	385.33	362.40	22.93	16.803	
2,940.00	1,362.59	1,402.68	1,397.65	39.14	4.39	110.42	375.58	1,237.60	414.62	391.97	22.65	18.305	
2,970.00	1,362.47	1,406.22	1,401.09	39.84	4.41	112.34	375.32	1,238.37	443.98	421.56	22.42	19.803	
3,000.00	1,362.35	1,409.75	1,404.53	40.55	4.43	114.18	375.07	1,239.13	473.39	451.17	22.22	21.303	
3,030.00	1,362.23	1,413.09	1,407.79	41.26	4.44	115.84	374.84	1,239.85	502.85	480.81	22.05	22.809	
3,060.00	1,362.11	1,416.09	1,410.70	41.97	4.46	117.28	374.63	1,240.48	532.35	510.47	21.89	24.322	
3,090.00	1,361.99	1,419.04	1,413.58	42.68	4.47	118.64	374.42	1,241.11	561.89	540.14	21.75	25.836	
3,120.00	1,361.87	1,422.00	1,416.47	43.40	4.48	119.95	374.22	1,241.73	591.46	569.83	21.63	27.349	
3,150.00	1,361.74	1,427.08	1,421.42	44.11	4.51	122.10	373.87	1,242.80	621.04	599.49	21.55	28.817	
3,180.00	1,361.62	1,432.52	1,426.72	44.83	4.54	124.24	373.53	1,243.95	650.64	629.15	21.49	30.273	
3,210.00	1,361.50	1,433.95	1,428.13	45.55	4.54	124.79	373.44	1,244.25	680.26	658.87	21.38	31.810	
3,240.00	1,361.38	1,436.19	1,430.31	46.27	4.55	125.61	373.30	1,244.71	709.89	688.60	21.30	33.330	
3,270.00	1,361.26	1,438.36	1,432.43	46.99	4.56	126.39	373.16	1,245.16	739.55	718.33	21.22	34.849	
3,300.00	1,361.14	1,441.00	1,435.01	47.71	4.58	127.31	372.99	1,245.69	769.23	748.07	21.16	36.356	
3,330.00	1,361.02	1,441.00	1,435.01	48.43	4.58	127.31	372.99	1,245.69	798.92	777.85	21.07	37.925	

Company:	BLACKSPUR OIL CORP._N83	Local Co-ordinate Reference:	Well BLACKSPUR HZ LEDUC-WB 16-11-51-2
Project:	Leduc-WB (NAD 83-Z11)	TVD Reference:	Actual KB @ 747.51m (Horizon 43)
Reference Site:	14-03-051-02W5	MD Reference:	Actual KB @ 747.51m (Horizon 43)
Site Error:	0.00	North Reference:	True
Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Actual KB @ 747.51m (Horizon 43)

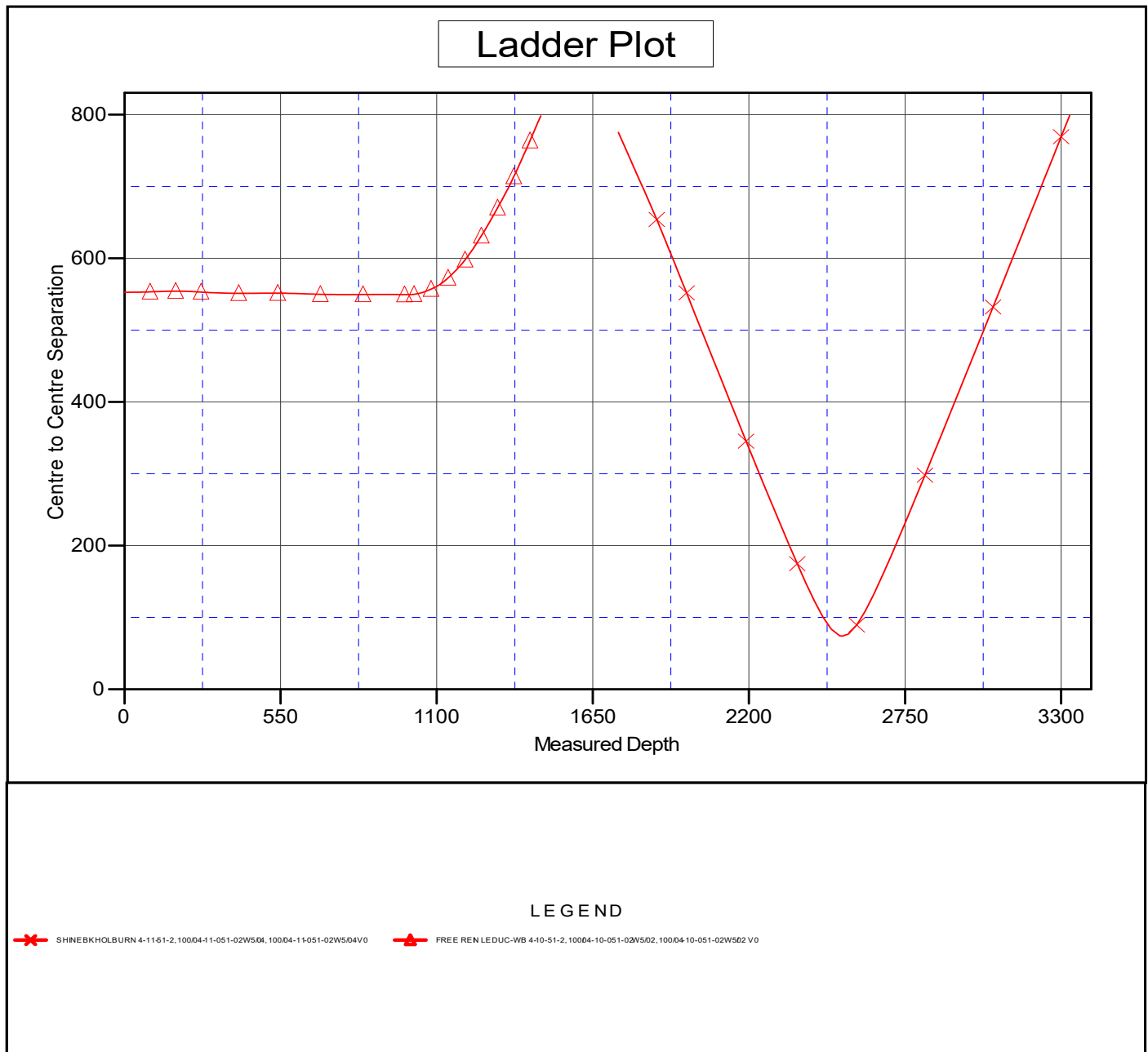
Offset Depths are relative to Offset Datum

Central Meridian is 117° 0' 0.000 W °

Coordinates are relative to: BLACKSPUR HZ LEDUC-WB 16-11-51-2

Coordinate System is Universal Transverse Mercator , Zone 11N (120 W to 114 W)

Grid Convergence at Surface is: 2.24°

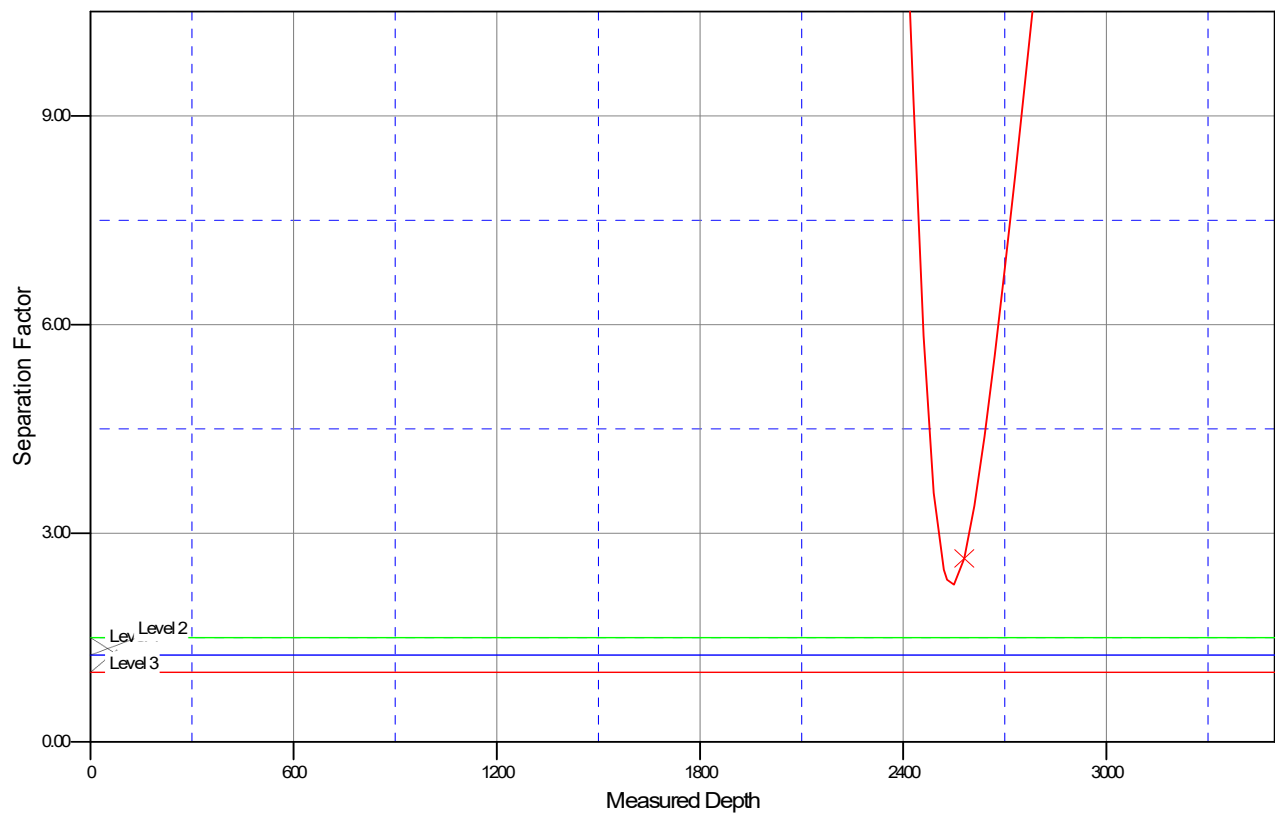


Company:	BLACKSPUR OIL CORP._N83	Local Co-ordinate Reference:	Well BLACKSPUR HZ LEDUC-WB 16-11-51-2
Project:	Leduc-WB (NAD 83-Z11)	TVD Reference:	Actual KB @ 747.51m (Horizon 43)
Reference Site:	14-03-051-02W5	MD Reference:	Actual KB @ 747.51m (Horizon 43)
Site Error:	0.00	North Reference:	True
Reference Well:	BLACKSPUR HZ LEDUC-WB 16-11-51-2	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00	Output errors are at	2.00 sigma
Reference Wellbore	100/16-11-051-02W5/00	Database:	Compass 5000 Canada
Reference Design:	28333 P5	Offset TVD Reference:	Offset Datum

Reference Depths are relative to Actual KB @ 747.51m (Horizon 43)
 Offset Depths are relative to Offset Datum
 Central Meridian is 117° 0' 0.000 W °

Coordinates are relative to: BLACKSPUR HZ LEDUC-WB 16-11-51-2
 Coordinate System is Universal Transverse Mercator, Zone 11N (120 W to 114 W)
 Grid Convergence at Surface is: 2.24°

Separation Factor Plot



LEGEND

✖ SHINEBKHOLBURN 4-11-51-2, 100D4-11-051-02W5D4, 100D4-11-051-02W5D4V0
 ✖ FREE REN LEDUC-WB 4-10-51-2, 100D4-10-051-02W5D2, 100D4-10-051-02W5D2V0