

# **SRC ENERGY**

**WELD COUNTY (NAD83, TRUE NORTH)  
6N-66W-18 LINCOLN STATE 3-18 PAD  
LINCOLN STATE 26N-17B-M**

**Wellbore #1  
Design #1**

## **Anticollision Summary Report**

**12 December, 2017**

<b>Reference</b>	Design #1				
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria				
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA		
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D		
<b>Results Limited by:</b>	Maximum center-center distance of 9,999.98 usft	<b>Error Surface:</b>	Pedal Curve		
<b>Warning Levels Evaluated at:</b>	2.45 Sigma	<b>Casing Method:</b>	Added to Error Values		

<b>Survey Tool Program</b>	<b>Date</b> 12/12/2017				
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
0.00	1,750.00	Design #1 (Wellbore #1)	SRC Energy_ISCWSA REV	Fixed:v2:crustal field declination	
1,750.00	15,365.55	Design #1 (Wellbore #1)	SRC Energy_ISCWSA REV	Fixed:v2:crustal field declination	

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (usft)</b>	<b>Offset Measured Depth (usft)</b>	<b>Distance Between Centres (usft)</b>	<b>Distance Between Ellipses (usft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
6N-66W-06 Offsets Incomplete						
Simonsen-Schaefer 7E-203 - PDC Energy PR Well - Actua	6,611.79	12,010.00	2,417.20	2,275.71	17.085	CC, ES
Simonsen-Schaefer 7E-203 - PDC Energy PR Well - Actua	6,700.00	12,010.00	2,424.58	2,281.93	16.997	SF
Simonsen-Schaefer 7E-423 - PDC Energy PR Well - Actua	6,707.22	11,988.00	1,915.29	1,784.56	14.651	CC, ES
Simonsen-Schaefer 7E-423 - PDC Energy PR Well - Actua	6,850.00	11,988.00	1,935.14	1,801.01	14.427	SF
Simonsen-Schaefer 7J-243 - PDC Energy PR Well - Actua	6,687.38	11,830.00	1,671.89	1,545.28	13.205	CC
Simonsen-Schaefer 7J-243 - PDC Energy PR Well - Actua	6,700.00	11,830.00	1,672.05	1,545.12	13.173	ES
Simonsen-Schaefer 7J-243 - PDC Energy PR Well - Actua	6,850.00	11,830.00	1,697.87	1,567.26	13.000	SF
Simonsen-Schaefer 7J-403 - PDC Planned Well - Planne	6,790.34	11,938.00	1,394.14	1,288.12	13.150	CC
Simonsen-Schaefer 7J-403 - PDC Planned Well - Planne	6,800.00	11,938.00	1,394.23	1,287.81	13.101	ES
Simonsen-Schaefer 7J-403 - PDC Planned Well - Planne	7,050.00	11,938.00	1,460.29	1,343.98	12.555	SF
Simonsen-Schaefer 7M-243 - PDC Planned Well - Plann	6,970.29	11,983.00	865.51	815.64	17.353	CC
Simonsen-Schaefer 7M-243 - PDC Planned Well - Plann	7,000.00	11,983.00	866.32	814.78	16.807	ES
Simonsen-Schaefer 7M-243 - PDC Planned Well - Plann	7,600.00	11,983.00	1,152.37	1,050.59	11.322	SF
6N-66W-07 Offsets Incomplete						
FRYE 1 - Marlin Oil AB Well - No Surveys	4,671.51	4,481.00	1,878.48	1,710.55	11.186	CC, ES, SF
FRYE-SWANSON-FRYE 1 - PDC Energy AB Well - Actua	9,625.32	7,055.55	958.92	861.40	9.833	CC, ES
FRYE-SWANSON-FRYE 1 - PDC Energy AB Well - Actua	9,800.00	7,062.73	974.67	872.82	9.570	SF
HERGERT 1 - Frizzell AB Well - No Surveys	6,492.90	6,473.95	2,066.99	1,823.21	8.479	CC
HERGERT 1 - Frizzell AB Well - No Surveys	6,500.00	6,481.00	2,067.03	1,822.98	8.470	ES
HERGERT 1 - Frizzell AB Well - No Surveys	6,700.00	6,674.24	2,096.49	1,845.03	8.337	SF
Schaefer 34-7D - PDC Energy PR Well - Actual Ensign S	8,197.95	7,276.41	990.60	905.22	11.601	CC
Schaefer 34-7D - PDC Energy PR Well - Actual Ensign S	8,200.00	7,276.40	990.60	905.16	11.594	ES
Schaefer 34-7D - PDC Energy PR Well - Actual Ensign S	8,400.00	7,275.69	1,011.00	921.01	11.235	SF
Schaefer 43-7D - PDC Energy PR Well - Actual Ensign S	9,545.57	7,183.11	2,164.03	2,063.46	21.518	CC
Schaefer 43-7D - PDC Energy PR Well - Actual Ensign S	9,600.00	7,181.59	2,164.71	2,062.53	21.186	ES
Schaefer 43-7D - PDC Energy PR Well - Actual Ensign S	10,300.00	7,162.52	2,291.65	2,172.40	19.217	SF
Schaefer 7DD - PDC Energy PR Well - Actual Ensign Su	8,777.82	7,212.52	1,638.29	1,554.00	19.438	CC
Schaefer 7DD - PDC Energy PR Well - Actual Ensign Su	8,800.00	7,212.55	1,638.44	1,553.62	19.317	ES
Schaefer 7DD - PDC Energy PR Well - Actual Ensign Su	9,200.00	7,213.15	1,691.81	1,599.20	18.269	SF
Schaefer 7TD - PDC Energy PR Well - Actual Ensign Sur	8,715.29	7,165.14	419.20	336.05	5.042	CC, ES
Schaefer 7TD - PDC Energy PR Well - Actual Ensign Sur	8,800.00	7,166.02	427.67	341.48	4.962	SF
Schaefer 7XD - PDC Energy PR Well - Actual Ensign Su	10,190.77	7,155.40	1,616.44	1,487.12	12.500	CC
Schaefer 7XD - PDC Energy PR Well - Actual Ensign Su	10,200.00	7,155.67	1,616.46	1,486.83	12.469	ES
Schaefer 7XD - PDC Energy PR Well - Actual Ensign Su	10,600.00	7,167.99	1,667.39	1,527.23	11.896	SF
6N-66W-08 Offsets Incomplete						
Booth U-8-7HN - Bayswater Planned Well - Planned Ens	8,047.55	16,217.20	1,121.39	783.76	3.321	CC, ES, SF
Booth V-8-7HN - Bayswater Planned Well - Planned Ensi	8,041.16	16,309.65	825.67	489.85	2.459	CC, ES, SF
Booth W-8-7HC - Bayswater Planned Well - Planned Ens	8,034.02	16,405.49	649.06	322.79	1.989	CC, ES, SF
Booth X-8-7HN - Bayswater Planned Well - Planned Ensi	8,034.00	16,250.43	461.67	125.17	1.372	Level 3, CC, ES, SF
HERGERT 8-33 - SRC Energy PR Well - No Surveys	11,053.75	7,037.93	831.31	460.15	2.240	CC
HERGERT 8-33 - SRC Energy PR Well - No Surveys	11,100.00	7,038.20	832.60	460.06	2.235	ES, SF
HERGERT 8-34 - SRC Energy PR Well - No Surveys	12,210.06	7,032.65	801.39	396.49	1.979	CC, ES, SF
HERGERT 8-43 - SRC Energy PR Well - No Surveys	13,724.24	7,036.46	817.20	367.63	1.818	CC, ES, SF
6N-66W-09 Offsets Incomplete						
Circle B 6-66-9-0164CH - SRC Energy PR Well - Actual S	15,365.55	11,895.00	1,229.72	989.83	5.126	CC, ES, SF
LOVELY 14-9 - Bill Barrett AB Well - No Surveys	15,365.55	7,036.00	1,153.94	698.88	2.536	CC, ES, SF

Summary							
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning	
Offset Well - Wellbore - Design			Between Centres (usft)	Between Ellipses (usft)			
6N-66W-16 Offsets Incomplete							
STATE-HOPPE 16-3 - Noble Energy PR Well - Actual VE	15,365.55	7,018.10	1,907.05	1,656.90	7.624	CC, ES, SF	
6N-66W-17 Offsets Incomplete							
ANTELOPE 1-17 - Apache AB Well - No Surveys	12,127.02	7,013.17	1,616.98	1,215.21	4.025	CC	
ANTELOPE 1-17 - Apache AB Well - No Surveys	12,200.00	7,013.59	1,618.62	1,215.01	4.010	ES	
ANTELOPE 1-17 - Apache AB Well - No Surveys	12,300.00	7,014.18	1,626.20	1,220.59	4.009	SF	
FRANK KEMP 1 - UK Operator AB Well - No Surveys	13,407.21	4,850.00	3,636.85	3,340.46	12.270	CC	
FRANK KEMP 1 - UK Operator AB Well - No Surveys	13,500.00	4,850.00	3,638.04	3,339.52	12.187	ES	
FRANK KEMP 1 - UK Operator AB Well - No Surveys	14,200.00	4,850.00	3,722.26	3,409.84	11.914	SF	
Fritzler 17-32-12 - GWOG PR Well - Actual Ensign Surve	14,136.07	7,439.44	2,267.75	2,025.94	9.378	CC	
Fritzler 17-32-12 - GWOG PR Well - Actual Ensign Surve	14,200.00	7,439.08	2,268.65	2,024.60	9.296	ES	
Fritzler 17-32-12 - GWOG PR Well - Actual Ensign Surve	14,600.00	7,436.78	2,314.72	2,060.11	9.091	SF	
Fritzler 17-42-11 - GWOG PR Well - Actual Ensign Surve	15,365.55	7,414.97	2,286.71	2,007.35	8.186	CC, ES, SF	
FRITZLER 43-17 - GWOG PR Well - Actual Ensign Surve	14,756.48	7,246.15	2,909.73	2,656.02	11.469	CC	
FRITZLER 43-17 - GWOG PR Well - Actual Ensign Surve	14,800.00	7,245.79	2,910.05	2,655.13	11.415	ES	
FRITZLER 43-17 - GWOG PR Well - Actual Ensign Surve	15,300.00	7,241.67	2,960.05	2,694.57	11.150	SF	
HERGERT 17-21 - SRC Energy PR Well - No Surveys	12,364.47	7,029.55	346.96	-62.36	0.848	Level 1, CC, ES, SF	
HERGERT 17-22 - Noble Energy PR Well - Actual VES S	10,974.85	7,027.97	662.85	523.91	4.771	CC	
HERGERT 17-22 - Noble Energy PR Well - Actual VES S	11,000.00	7,027.74	663.33	523.88	4.757	ES, SF	
HERGERT 17-25 - SRC Energy PR Well - No Surveys	11,438.87	7,033.17	1,151.80	769.52	3.013	CC, ES	
HERGERT 17-25 - SRC Energy PR Well - No Surveys	11,500.00	7,033.52	1,153.42	769.71	3.006	SF	
MCGLOTHLIN 17-11 - SRC Energy PR Well - No Survey	14,681.95	7,018.03	128.70	-348.44	0.270	Level 1, CC, ES, SF	
MCGLOTHLIN 17-12 - SRC Energy SI Well - No Surveys	13,593.22	7,013.70	151.31	-293.59	0.340	Level 1, CC, ES, SF	
MCGLOTHLIN 17-42 - SRC Energy PR Well - No Survey	13,548.46	7,005.57	2,941.66	2,498.36	6.636	CC	
MCGLOTHLIN 17-42 - SRC Energy PR Well - No Survey	13,600.00	7,005.27	2,942.12	2,497.40	6.616	ES	
MCGLOTHLIN 17-42 - SRC Energy PR Well - No Survey	13,900.00	7,003.52	2,962.60	2,510.87	6.558	SF	
McGlothlin 8-6-17 - GWOG PR Well - Actual MS Energy	15,336.76	7,312.19	3,547.92	3,275.47	13.022	CC	
McGlothlin 8-6-17 - GWOG PR Well - Actual MS Energy	15,365.55	7,311.95	3,548.04	3,274.83	12.986	ES, SF	
SCHAEFFER 17-31 - SRC Energy PR Well - No Surveys	12,280.80	7,009.94	3,108.97	2,702.80	7.654	CC	
SCHAEFFER 17-31 - SRC Energy PR Well - No Surveys	12,400.00	7,009.24	3,111.25	2,701.85	7.600	ES	
SCHAEFFER 17-31 - SRC Energy PR Well - No Surveys	12,700.00	7,007.50	3,137.10	2,720.68	7.533	SF	
SCHAEFFER 17-32 - SRC Energy PR Well - No Surveys	10,785.95	6,984.37	3,131.76	2,770.33	8.665	CC	
SCHAEFFER 17-32 - SRC Energy PR Well - No Surveys	10,900.00	6,985.04	3,133.84	2,769.25	8.595	ES	
SCHAEFFER 17-32 - SRC Energy PR Well - No Surveys	11,400.00	6,987.94	3,191.39	2,814.96	8.478	SF	
ULRICH PC I 17-07D - SRC Energy PR Well - Actual Ens	13,474.07	7,172.96	1,648.66	1,421.44	7.256	CC	
ULRICH PC I 17-07D - SRC Energy PR Well - Actual Ens	13,500.00	7,172.26	1,648.86	1,420.97	7.235	ES	
ULRICH PC I 17-07D - SRC Energy PR Well - Actual Ens	13,600.00	7,169.55	1,653.46	1,423.46	7.189	SF	
ULRICH PC I 17-08 - SRC Energy PR Well - No Surveys	14,641.19	7,008.79	1,585.35	1,109.74	3.333	CC	
ULRICH PC I 17-08 - SRC Energy PR Well - No Surveys	14,700.00	7,009.13	1,586.44	1,109.38	3.325	ES, SF	
ULRICH PC I 17-17D - SRC Energy PR Well - Actual Ens	13,938.28	7,191.81	760.25	526.87	3.258	CC, ES	
ULRICH PC I 17-17D - SRC Energy PR Well - Actual Ens	14,000.00	7,193.09	762.75	527.64	3.244	SF	

## Summary

Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (usft)	Measured Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
6N-66W-18 LINCOLN STATE 3-18 PAD						
LINCOLN 30C-13-M - Wellbore #1 - Design #1	7,580.22	7,199.30	47.39	2.02	1.045	Level 2, CC, ES, SF
LINCOLN 30N-13B-M - Wellbore #1 - Design #1	7,351.50	7,322.06	157.83	114.79	3.667	CC, ES, SF
LINCOLN 31C-13-M - Wellbore #1 - Design #1	250.00	248.00	216.33	208.73	28.452	CC, ES
LINCOLN 31C-13-M - Wellbore #1 - Design #1	8,300.00	6,850.00	1,487.90	1,429.64	25.541	SF
LINCOLN 31N-13B-M - Wellbore #1 - Design #1	250.00	248.00	206.01	198.40	27.094	CC, ES
LINCOLN 31N-13B-M - Wellbore #1 - Design #1	8,100.00	6,823.51	1,271.14	1,218.22	24.017	SF
LINCOLN 31N-13C-M - Wellbore #1 - Design #1	250.00	248.00	196.93	189.33	25.901	CC, ES
LINCOLN 31N-13C-M - Wellbore #1 - Design #1	7,800.00	6,984.42	896.55	849.05	18.876	SF
LINCOLN 32C-13-M - Wellbore #1 - Design #1	250.00	248.00	268.93	261.32	35.370	CC, ES
LINCOLN 32C-13-M - Wellbore #1 - Design #1	9,000.00	6,778.91	2,497.57	2,421.46	32.814	SF
LINCOLN 32N-13B-M - Wellbore #1 - Design #1	250.00	248.00	254.49	246.88	33.470	CC, ES
LINCOLN 32N-13B-M - Wellbore #1 - Design #1	8,800.00	6,675.97	2,256.76	2,186.64	32.185	SF
LINCOLN 4C-13-M - Wellbore #1 - Design #1	250.00	248.00	189.81	182.21	24.964	CC, ES
LINCOLN 4C-13-M - Wellbore #1 - Design #1	7,800.00	7,032.04	708.60	660.95	14.871	SF
LINCOLN 4N-13B-M - Wellbore #1 - Design #1	250.00	248.00	184.33	176.73	24.243	CC, ES
LINCOLN 4N-13B-M - Wellbore #1 - Design #1	7,350.00	7,272.20	435.98	394.22	10.440	SF
LINCOLN 4N-13C-M - Wellbore #1 - Design #1	250.00	247.00	181.19	173.58	23.831	CC, ES
LINCOLN 4N-13C-M - Wellbore #1 - Design #1	7,453.57	7,250.51	253.09	210.11	5.889	SF
LINCOLN 5N-13A-M - Wellbore #1 - Design #1	250.00	248.00	228.17	220.57	30.009	CC, ES
LINCOLN 5N-13A-M - Wellbore #1 - Design #1	300.00	294.48	228.82	221.18	29.923	SF
LINCOLN 5N-13C-M - Wellbore #1 - Design #1	250.00	248.00	240.89	233.29	31.682	CC, ES
LINCOLN 5N-13C-M - Wellbore #1 - Design #1	8,600.00	6,732.85	1,970.91	1,905.53	30.142	SF
LINCOLN STATE 1C-17-M - Wellbore #1 - Design #1	364.32	366.93	39.65	31.92	5.130	CC
LINCOLN STATE 1C-17-M - Wellbore #1 - Design #1	15,365.55	15,510.82	474.31	5.22	1.011	Level 2, ES, SF
LINCOLN STATE 1N-17B-M - Wellbore #1 - Design #1	255.49	256.60	59.74	52.13	7.850	CC, ES
LINCOLN STATE 1N-17B-M - Wellbore #1 - Design #1	15,365.55	15,358.80	667.93	174.64	1.354	Level 3, SF
LINCOLN STATE 1N-17C-M - Wellbore #1 - Design #1	450.27	451.67	19.99	12.14	2.546	CC
LINCOLN STATE 1N-17C-M - Wellbore #1 - Design #1	15,365.55	15,427.23	241.38	-246.38	0.495	Level 1, ES, SF
LINCOLN STATE 26C-17-M - Wellbore #1 - Design #1	200.00	200.00	20.04	12.48	2.649	CC
LINCOLN STATE 26C-17-M - Wellbore #1 - Design #1	15,365.55	15,553.50	284.37	-114.81	0.712	Level 1, ES, SF
LINCOLN STATE 40C-17-M - Wellbore #1 - Design #1	250.00	251.00	179.97	172.36	23.666	CC, ES
LINCOLN STATE 40C-17-M - Wellbore #1 - Design #1	15,365.55	15,603.94	1,985.45	1,486.36	3.978	SF
LINCOLN STATE 40N-17C-M - Wellbore #1 - Design #1	250.00	251.00	200.00	192.40	26.300	CC, ES
LINCOLN STATE 40N-17C-M - Wellbore #1 - Design #1	15,365.55	15,544.22	2,199.80	1,699.23	4.395	SF
LINCOLN STATE 41N-17A-M - Wellbore #1 - Design #1	250.00	251.00	79.78	72.18	10.491	CC, ES
LINCOLN STATE 41N-17A-M - Wellbore #1 - Design #1	15,365.55	15,231.51	889.59	395.02	1.799	SF
LINCOLN STATE 41N-17B-M - Wellbore #1 - Design #1	250.00	251.00	119.86	112.25	15.761	CC, ES
LINCOLN STATE 41N-17B-M - Wellbore #1 - Design #1	15,365.55	15,368.22	1,320.16	820.04	2.640	SF
LINCOLN STATE 41N-17C-M - Wellbore #1 - Design #1	250.00	251.00	99.81	92.21	13.125	CC, ES
LINCOLN STATE 41N-17C-M - Wellbore #1 - Design #1	15,365.55	15,514.64	1,112.84	617.78	2.248	SF
LINCOLN STATE 8C-17-M - Wellbore #1 - Design #1	250.00	251.00	139.89	132.28	18.395	CC, ES
LINCOLN STATE 8C-17-M - Wellbore #1 - Design #1	15,365.55	15,552.45	1,503.14	1,005.89	3.023	SF
LINCOLN STATE 8N-17B-M - Wellbore #1 - Design #1	250.00	251.00	159.93	152.32	21.031	CC, ES
LINCOLN STATE 8N-17B-M - Wellbore #1 - Design #1	15,365.55	15,414.73	1,760.14	1,259.77	3.518	SF

## Summary

Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance		Separation Factor	Warning
Offset Well - Wellbore - Design			Between Centres (usft)	Between Ellipses (usft)		
6N-66W-18 Offsets Incomplete						
ANTELOPE 1 - Marlin Oil AB Sussex Well - No Surveys	4,500.00	4,410.93	2,699.82	2,534.24	16.305	ES
ANTELOPE 1 - Marlin Oil AB Sussex Well - No Surveys	4,600.00	4,435.00	2,701.27	2,534.65	16.212	SF
ANTELOPE 1 - Marlin Oil AB Sussex Well - No Surveys	9,508.32	4,435.00	2,588.02	2,539.30	53.122	CC
CARLSON 18-41 - Noble Energy SI Well - No Surveys	9,555.48	6,984.22	3,142.47	2,816.82	9.650	CC
CARLSON 18-41 - Noble Energy SI Well - No Surveys	9,600.00	6,984.48	3,142.78	2,815.90	9.614	ES
CARLSON 18-41 - Noble Energy SI Well - No Surveys	10,200.00	6,987.97	3,207.88	2,866.03	9.384	SF
CARLSON 33-18 - GWOG PR Well - No Surveys	250.00	209.00	2,365.90	2,355.27	222.547	CC
CARLSON 33-18 - GWOG PR Well - No Surveys	8,200.00	7,006.34	2,623.55	2,335.40	9.105	ES
CARLSON 33-18 - GWOG PR Well - No Surveys	8,700.00	7,009.24	2,678.45	2,378.02	8.916	SF
DICKERSON 1 - Stuarco AB Sussex Well - No Surveys	9,415.03	4,854.00	2,686.44	2,533.32	17.544	CC
DICKERSON 1 - Stuarco AB Sussex Well - No Surveys	9,500.00	4,854.00	2,687.79	2,533.18	17.385	ES
DICKERSON 1 - Stuarco AB Sussex Well - No Surveys	10,600.00	4,854.00	2,936.18	2,754.83	16.190	SF
DUNBAR 18-31 - Noble Energy AB Well - Actual VES Su	305.63	305.82	2,559.84	2,552.37	342.921	CC, ES
DUNBAR 18-31 - Noble Energy AB Well - Actual VES Su	9,700.00	6,900.00	4,620.13	4,546.97	63.157	SF
KOCHERT 11-18 - SRC Energy SI Well - No Surveys	3,485.01	3,462.96	1,713.47	1,583.83	13.216	CC
KOCHERT 11-18 - SRC Energy SI Well - No Surveys	6,456.16	6,419.41	1,738.70	1,496.68	7.184	ES
KOCHERT 11-18 - SRC Energy SI Well - No Surveys	6,600.00	6,561.36	1,757.03	1,509.63	7.102	SF
KOCHERT 12-18 - SRC Energy SI Well - No Surveys	250.00	220.00	2,020.80	2,009.83	184.201	CC
KOCHERT 12-18 - SRC Energy SI Well - No Surveys	500.00	469.68	2,026.14	2,006.62	103.818	ES
KOCHERT 12-18 - SRC Energy SI Well - No Surveys	6,700.00	6,633.24	2,422.97	2,173.20	9.701	SF
PEXOIL MURPHY & DICKERSON 1 - Pexoil AB Sussex	250.00	205.00	1,522.26	1,511.76	144.855	CC
PEXOIL MURPHY & DICKERSON 1 - Pexoil AB Sussex	400.00	344.93	1,524.87	1,509.71	100.624	ES
PEXOIL MURPHY & DICKERSON 1 - Pexoil AB Sussex	4,500.00	4,421.00	1,818.47	1,652.93	10.985	SF
R A 1 - Francis Energy AB Well - No Surveys	250.00	220.00	3,050.88	3,039.91	278.096	CC
R A 1 - Francis Energy AB Well - No Surveys	400.00	369.93	3,053.89	3,037.89	190.835	ES
R A 1 - Francis Energy AB Well - No Surveys	6,900.00	6,803.40	3,649.25	3,393.21	14.253	SF
TIGGES 18-11 - SRC Energy PR Well - No Surveys	9,284.95	7,011.65	530.41	211.58	1.664	CC
TIGGES 18-11 - SRC Energy PR Well - No Surveys	9,300.00	7,011.73	530.62	211.48	1.663	ES, SF
TIGGES 18-13 - SRC Energy PR Well - No Surveys	8,170.61	7,009.17	1,492.71	1,205.19	5.192	CC
TIGGES 18-13 - SRC Energy PR Well - No Surveys	8,200.00	7,009.34	1,493.00	1,204.76	5.180	ES
TIGGES 18-13 - SRC Energy PR Well - No Surveys	8,300.00	7,009.92	1,498.30	1,207.68	5.155	SF
TIGGES 18-14 - SRC Energy PR Well - No Surveys	9,396.65	7,006.71	1,838.37	1,516.51	5.712	CC
TIGGES 18-14 - SRC Energy PR Well - No Surveys	9,400.00	7,006.69	1,838.37	1,516.42	5.710	ES
TIGGES 18-14 - SRC Energy PR Well - No Surveys	9,600.00	7,005.52	1,849.58	1,522.74	5.659	SF
TIGGES 18-15 - SRC Energy PR Well - No Surveys	8,696.67	7,003.23	999.63	697.84	3.312	CC
TIGGES 18-15 - SRC Energy PR Well - No Surveys	8,700.00	7,003.24	999.64	697.76	3.311	ES
TIGGES 18-15 - SRC Energy PR Well - No Surveys	8,800.00	7,003.83	1,004.96	700.85	3.305	SF
TIGGES 31-18 - SRC Energy SI Well - No Surveys	8,194.64	7,009.31	559.30	271.14	1.941	CC
TIGGES 31-18 - SRC Energy SI Well - No Surveys	8,200.00	7,009.34	559.33	271.05	1.940	ES, SF
WALKER 11-18 - Petro Canada AB Well - No Surveys	250.00	228.00	1,819.99	1,808.77	162.197	CC
WALKER 11-18 - Petro Canada AB Well - No Surveys	5,700.00	5,651.99	1,954.08	1,741.45	9.190	ES
WALKER 11-18 - Petro Canada AB Well - No Surveys	6,650.00	6,605.62	2,018.15	1,769.20	8.107	SF
Walker-Shands 18-18 - SRC Energy PR Well - Actual En	1,050.07	1,029.96	112.63	84.23	3.967	CC, ES, SF
Walker-Shands 3-18 - SRC Energy PR Well - No Surveys	1,663.77	1,634.72	119.21	56.44	1.899	CC
Walker-Shands 3-18 - SRC Energy PR Well - No Surveys	2,100.00	2,068.79	126.84	48.59	1.621	ES
Walker-Shands 3-18 - SRC Energy PR Well - No Surveys	2,500.00	2,466.81	145.29	52.64	1.568	SF
Walker-Shands 6-18 - SRC Energy PR Well - Actual Ens	1,281.14	1,262.24	85.08	55.26	2.853	CC, ES
Walker-Shands 6-18 - SRC Energy PR Well - Actual Ens	1,300.00	1,280.69	85.14	55.28	2.851	SF
6N-67W-10 Offsets Incomplete						
Bower FD 11-322HC - GWOG Planned Well - Planned G	6,529.63	13,035.16	8,279.72	8,232.38	174.915	CC, ES
Bower FD 11-322HC - GWOG Planned Well - Planned G	6,600.00	13,035.16	8,283.84	8,236.47	174.859	SF
Bower FD 11-322HN - GWOG Planned Well - Planned G	6,515.65	12,854.66	8,257.61	8,210.88	176.687	CC, ES
Bower FD 11-322HN - GWOG Planned Well - Planned G	6,600.00	12,854.66	8,263.54	8,216.74	176.550	SF
Bower FD 11-359HN - GWOG Planned Well - Planned G	6,519.79	13,026.84	8,223.14	8,172.93	163.769	CC, ES
Bower FD 11-359HN - GWOG Planned Well - Planned G	6,750.00	13,026.84	8,267.05	8,216.34	163.033	SF
Bower FD 11-362HC - GWOG Planned Well - Planned G	6,525.37	13,174.35	8,213.79	8,158.82	149.425	CC, ES
Bower FD 11-362HC - GWOG Planned Well - Planned G	6,800.00	13,174.35	8,276.10	8,220.35	148.455	SF
Bower FD 11-362HN - GWOG Planned Well - Planned G	6,510.72	13,011.68	8,185.64	8,127.48	140.743	CC, ES
Bower FD 11-362HN - GWOG Planned Well - Planned G	6,800.00	13,011.68	8,254.74	8,195.64	139.667	SF
MILLER 1 - GWOG AB Well - Actual VES Surveys	6,468.11	6,436.98	8,376.02	8,345.60	275.311	CC, ES
MILLER 1 - GWOG AB Well - Actual VES Surveys	7,300.00	7,016.88	8,844.75	8,810.66	259.477	SF

## Summary

Site Name Offset Well - Wellbore - Design	Reference	Offset	Distance		Separation Factor	Warning
	Measured Depth (usft)	Measured Depth (usft)	Between Centres (usft)	Between Ellipses (usft)		
6N-67W-12 Offsets Incomplete						
FLOCKHART 12-43(DIR) - SRC Energy SI Well - Actual E	2,025.37	1,783.71	4,292.16	4,274.18	238.724	CC
FLOCKHART 12-43(DIR) - SRC Energy SI Well - Actual E	2,100.00	1,837.00	4,292.48	4,273.34	224.321	ES
FLOCKHART 12-43(DIR) - SRC Energy SI Well - Actual E	6,300.00	6,389.90	4,567.80	4,390.10	25.704	SF
FLOCKHART 12-44 - SRC Energy PR Well - No Surveys	6,479.13	6,460.27	3,031.27	2,787.87	12.454	CC
FLOCKHART 12-44 - SRC Energy PR Well - No Surveys	6,500.00	6,481.00	3,031.59	2,787.40	12.415	ES
FLOCKHART 12-44 - SRC Energy PR Well - No Surveys	6,750.00	6,719.65	3,085.29	2,831.96	12.179	SF
Knievel 14-12D - PDC Energy PR Well - Actual Ensign S	700.00	455.23	5,802.31	5,794.31	725.605	CC
Knievel 14-12D - PDC Energy PR Well - Actual Ensign S	744.70	483.00	5,802.32	5,794.23	717.075	ES
Knievel 14-12D - PDC Energy PR Well - Actual Ensign S	6,000.00	6,000.00	6,804.95	6,754.19	134.060	SF
Knievel 24-12D - PDC Energy PR Well - Actual Ensign S	6,465.37	6,525.36	5,635.63	5,584.62	110.491	CC, ES
Knievel 24-12D - PDC Energy PR Well - Actual Ensign S	6,750.00	6,773.71	5,697.96	5,645.94	109.538	SF
Simonsen 12E-223 - PDC Planned Well - Planned Ensign	6,513.65	11,562.40	7,532.55	7,405.45	59.264	CC, ES
Simonsen 12E-223 - PDC Planned Well - Planned Ensign	6,650.00	11,562.40	7,548.21	7,420.62	59.159	SF
Simonsen 12J-243 - PDC Energy PR Well - Actual Ensig	6,522.36	11,570.00	6,481.41	6,348.39	48.723	CC, ES
Simonsen 12J-243 - PDC Energy PR Well - Actual Ensig	6,650.00	11,570.00	6,495.29	6,361.78	48.649	SF
6N-67W-13 Offsets Incomplete						
FREE ENTERPRISE 1-13 - McGarvey-Stark AB Sussex	250.00	202.00	5,376.42	5,366.00	516.076	CC
FREE ENTERPRISE 1-13 - McGarvey-Stark AB Sussex	500.00	451.68	5,381.05	5,362.16	284.807	ES
FREE ENTERPRISE 1-13 - McGarvey-Stark AB Sussex	4,700.00	4,500.00	5,572.97	5,403.90	32.964	SF
KADLUB/MILLER 1 - Mission Oil AB Well - No Surveys	5,377.54	5,339.13	7,057.42	6,856.66	35.153	CC
KADLUB/MILLER 1 - Mission Oil AB Well - No Surveys	6,500.00	6,456.00	7,059.81	6,816.37	29.000	ES
KADLUB/MILLER 1 - Mission Oil AB Well - No Surveys	7,000.00	6,909.51	7,277.45	7,016.77	27.917	SF
KADLUB-MILLER 2 - Bonanza Creek AB Well - No Surve	250.00	269.00	5,807.01	5,794.47	463.211	CC
KADLUB-MILLER 2 - Bonanza Creek AB Well - No Surve	6,456.16	6,445.41	5,890.41	5,647.49	24.248	ES
KADLUB-MILLER 2 - Bonanza Creek AB Well - No Surve	6,900.00	6,852.40	6,043.45	5,785.08	23.391	SF
KREYKES 13-11 - Noble Energy SI Well - No Surveys	3,977.51	3,952.02	3,164.56	3,016.50	21.374	CC
KREYKES 13-11 - Noble Energy SI Well - No Surveys	6,456.16	6,418.41	3,174.12	2,932.13	13.117	ES
KREYKES 13-11 - Noble Energy SI Well - No Surveys	6,750.00	6,700.65	3,242.69	2,989.97	12.831	SF
KREYKES 13-13 - Noble Energy SI Well - No Surveys	250.00	242.00	4,667.59	4,655.93	400.156	CC
KREYKES 13-13 - Noble Energy SI Well - No Surveys	6,456.16	6,418.41	4,797.31	4,555.38	19.829	ES
KREYKES 13-13 - Noble Energy SI Well - No Surveys	6,850.00	6,785.99	4,920.25	4,664.38	19.230	SF
KREYKES 13-14 - Noble Energy SI Well - No Surveys	250.00	230.00	3,074.39	3,063.11	272.461	CC
KREYKES 13-14 - Noble Energy SI Well - No Surveys	4,500.00	4,459.93	3,206.41	3,039.17	19.172	ES
KREYKES 13-14 - Noble Energy SI Well - No Surveys	6,750.00	6,688.65	3,357.00	3,104.91	13.316	SF
KREYKES 13-15 - Noble Energy SI Well - No Surveys	250.00	247.00	3,780.48	3,768.65	319.719	CC
KREYKES 13-15 - Noble Energy SI Well - No Surveys	6,456.16	6,423.41	3,877.24	3,635.10	16.013	ES
KREYKES 13-15 - Noble Energy SI Well - No Surveys	6,850.00	6,809.01	4,000.04	3,743.34	15.582	SF
PITNER 13-12 - Noble Energy SI Well - No Surveys	5,246.96	5,240.20	4,211.37	4,014.47	21.388	CC
PITNER 13-12 - Noble Energy SI Well - No Surveys	6,500.00	6,487.00	4,214.72	3,970.18	17.235	ES
PITNER 13-12 - Noble Energy SI Well - No Surveys	6,800.00	6,769.32	4,304.63	4,049.35	16.862	SF
Rubyanna 13C-25W - Extraction PR Well - Actual BHI Su	6,412.90	6,843.00	3,462.63	3,411.90	68.252	CC, ES
Rubyanna 13C-25W - Extraction PR Well - Actual BHI Su	6,550.00	6,874.00	3,469.82	3,418.62	67.771	SF
RUBYANNA 13NC-26W - Extraction PR Well - Actual BH	6,402.75	6,780.00	3,779.75	3,732.46	79.919	CC, ES
RUBYANNA 13NC-26W - Extraction PR Well - Actual BH	9,000.00	6,780.00	5,471.66	5,402.22	78.799	SF
STROMBERGER 13-31 - Noble Energy PR Well - Actual	100.00	37.73	6,468.21	6,460.85	879.606	CC, ES
STROMBERGER 13-31 - Noble Energy PR Well - Actual	10,200.00	7,011.97	9,922.83	9,875.18	208.255	SF
STROMBERGER 13-32 - Noble Energy PR Well - Actual	100.00	42.32	7,532.95	7,525.60	1,024.390	CC, ES
STROMBERGER 13-32 - Noble Energy PR Well - Actual	6,950.00	6,737.61	7,956.98	7,925.00	248.775	SF
YANCEY 1 - Chandler AB Well - No Surveys	4,035.33	4,005.55	3,104.17	2,954.08	20.682	CC
YANCEY 1 - Chandler AB Well - No Surveys	6,456.16	6,414.41	3,113.47	2,871.62	12.873	ES
YANCEY 1 - Chandler AB Well - No Surveys	6,750.00	6,703.35	3,182.04	2,929.22	12.586	SF

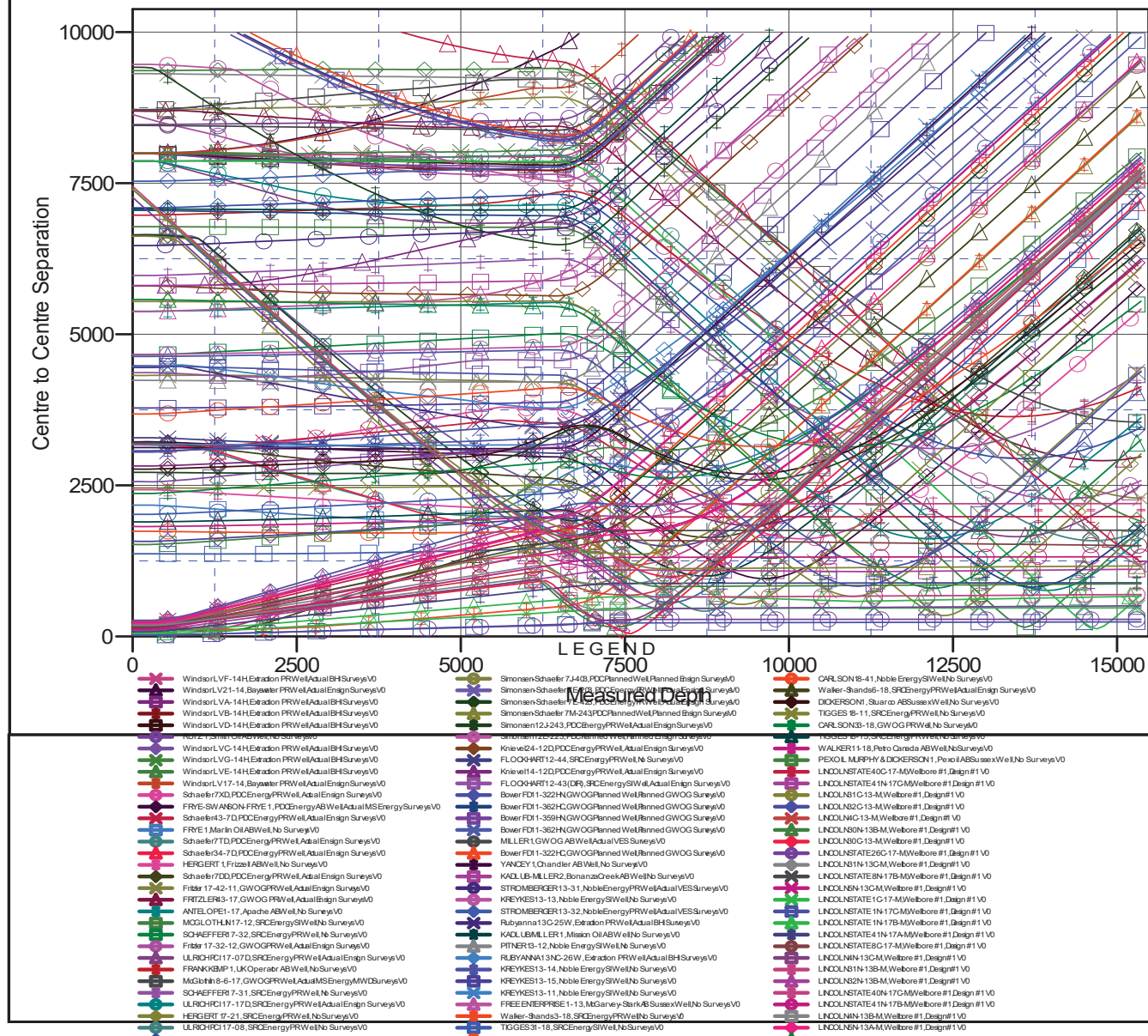


Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)		Separation Factor	Warning
Offset Well - Wellbore - Design						
6N-67W-14 Offsets Incomplete						
RUTZ 1 - Smith Oil AB Well - No Surveys	250.00	241.00	8,471.76	8,460.13	728.282	CC
RUTZ 1 - Smith Oil AB Well - No Surveys	6,456.16	6,417.41	8,548.19	8,306.25	35.331	ES
RUTZ 1 - Smith Oil AB Well - No Surveys	7,000.00	6,904.51	8,770.87	8,510.46	33.681	SF
Windsor LV 17-14 - Bayswater PR Well - Actual Ensign S	0.00	0.00	7,987.88			
Windsor LV 17-14 - Bayswater PR Well - Actual Ensign S	7,000.00	6,995.11	9,295.86	9,257.99	245.431	SF
Windsor LV 21-14 - Bayswater PR Well - Actual Ensign S	0.00	0.00	7,990.02			
Windsor LV 21-14 - Bayswater PR Well - Actual Ensign S	6,800.00	1,520.42	9,975.04	9,953.19	456.469	SF
Windsor LV A-14H - Extraction PR Well - Actual BHI Surv	6,459.29	6,526.18	7,712.34	7,668.29	175.084	CC, ES
Windsor LV A-14H - Extraction PR Well - Actual BHI Surv	6,700.00	6,591.00	7,759.71	7,714.81	172.822	SF
Windsor LV B-14H - Extraction PR Well - Actual BHI Surv	6,461.58	6,546.92	7,710.12	7,671.32	198.747	CC, ES
Windsor LV B-14H - Extraction PR Well - Actual BHI Surv	6,900.00	6,684.00	7,862.77	7,822.60	195.732	SF
Windsor LV C-14H - Extraction PR Well - Actual BHI Surv	6,381.55	6,401.00	7,770.34	7,736.10	226.923	CC
Windsor LV C-14H - Extraction PR Well - Actual BHI Surv	6,400.00	6,401.00	7,770.36	7,736.07	226.586	ES
Windsor LV C-14H - Extraction PR Well - Actual BHI Surv	6,850.00	6,446.65	7,898.70	7,863.18	222.354	SF
Windsor LV D-14H - Extraction PR Well - Actual BHI Surv	6,412.72	6,454.62	7,798.83	7,765.56	234.420	CC
Windsor LV D-14H - Extraction PR Well - Actual BHI Surv	6,456.16	6,471.61	7,798.90	7,765.47	233.259	ES
Windsor LV D-14H - Extraction PR Well - Actual BHI Surv	6,800.00	6,495.00	7,895.98	7,861.66	230.083	SF
Windsor LV E-14H - Extraction PR Well - Actual BHI Surv	6,160.79	6,251.98	7,838.99	7,804.95	230.282	CC
Windsor LV E-14H - Extraction PR Well - Actual BHI Surv	6,200.00	6,261.24	7,839.08	7,804.91	229.389	ES
Windsor LV E-14H - Extraction PR Well - Actual BHI Surv	6,900.00	6,356.11	8,011.44	7,975.33	221.811	SF
Windsor LV F-14H - Extraction PR Well - Actual BHI Surv	4,789.97	4,916.46	7,935.92	7,906.71	271.765	CC
Windsor LV F-14H - Extraction PR Well - Actual BHI Surv	6,456.16	6,588.00	7,942.89	7,903.07	199.505	ES
Windsor LV F-14H - Extraction PR Well - Actual BHI Surv	6,800.00	6,682.00	8,038.86	7,997.93	196.421	SF
Windsor LV G-14H - Extraction PR Well - Actual BHI Surv	2,220.11	2,291.00	7,984.52	7,968.84	509.199	CC, ES
Windsor LV G-14H - Extraction PR Well - Actual BHI Surv	6,750.00	6,587.00	8,126.48	8,079.79	174.041	SF

Reference Depths are relative to RKB = 25' @ 4876.00usft (PD 562)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000

Coordinates are relative to: LINCOLN STATE 26N-17B-M  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.44°

## Ladder Plot





Central Meridian is -105.500000

Grid Convergence at Surface is: 0.44°