

HATHAWAY BURNHAM LLC.

JASMIN FIELD
SECTION 15
QUINN 308-15

Wellbore #1
Plan #1

Anticollision Report

10 June, 2008

Company:	HATHAWAY BURNHAM LLC.	Local Co-ordinate Reference:	Well QUINN 308-15
Project:	JASMIN FIELD	TVD Reference:	QUINN 308-15 @ 703.5ft
Reference Site:	SECTION 15	MD Reference:	QUINN 308-15 @ 703.5ft
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	QUINN 308-15	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD + Stations Interval 25.0ft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 1,000.0ft	Error Surface:	Combined Covariances
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program	Date 6/10/2008			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	2,970.7	Plan #1 (Wellbore #1)	EM-MWD	E-FIELD

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
SECTION 15						
QUINN 309-15 - Wellbore #1 - Plan #1	316.4	316.3	15.0	13.5	10.031	CC
QUINN 309-15 - Wellbore #1 - Plan #1	350.0	349.9	15.0	13.4	9.055	ES
QUINN 309-15 - Wellbore #1 - Plan #1	400.0	399.5	15.8	13.9	8.274	SF

Offset Design													Offset Site Error:	0.0ft
SECTION 15 - QUINN 309-15 - Wellbore #1 - Plan #1													Offset Well Error:	0.0ft
Survey Program: 0-EM-MWD														
Reference	Offset	Semi Major Axis		Distance		Warning								
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.0	0.0	0.0	0.0	0.0	0.0	90.00	0.0	15.0	15.0					
25.0	25.0	25.0	25.0	0.0	0.1	90.00	0.0	15.0	15.0	14.9	0.09	175.448		
50.0	50.0	50.0	50.0	0.1	0.2	90.00	0.0	15.0	15.0	14.8	0.20	75.931		
75.0	75.0	75.0	75.0	0.2	0.2	90.00	0.0	15.0	15.0	14.7	0.31	48.071		
100.0	100.0	100.0	100.0	0.3	0.3	90.00	0.0	15.0	15.0	14.6	0.43	35.128		
125.0	125.0	125.0	125.0	0.4	0.4	90.00	0.0	15.0	15.0	14.4	0.55	27.252		
150.0	150.0	150.0	150.0	0.5	0.5	90.00	0.0	15.0	15.0	14.3	0.67	22.261		
175.0	175.0	175.0	175.0	0.6	0.6	90.00	0.0	15.0	15.0	14.2	0.80	18.815		
200.0	200.0	200.0	200.0	0.7	0.7	90.00	0.0	15.0	15.0	14.1	0.92	16.293		
225.0	225.0	225.0	225.0	0.7	0.7	90.00	0.0	15.0	15.0	14.0	1.04	14.367		
250.0	250.0	250.0	250.0	0.8	0.8	90.00	0.0	15.0	15.0	13.8	1.17	12.848		
275.0	275.0	275.0	275.0	0.9	0.9	90.00	0.0	15.0	15.0	13.7	1.29	11.620		
300.0	300.0	300.0	300.0	1.0	1.0	90.00	0.0	15.0	15.0	13.6	1.41	10.606		
316.4	316.4	316.3	316.3	1.1	1.1	74.76	-0.1	15.0	15.0	13.5	1.50	10.031	CC	
325.0	325.0	324.9	324.9	1.1	1.1	75.44	-0.2	15.0	15.0	13.5	1.54	9.754		
350.0	350.0	349.9	349.9	1.2	1.2	79.03	-0.6	15.2	15.0	13.4	1.66	9.055	ES	
375.0	375.0	374.7	374.7	1.3	1.3	84.91	-1.4	15.4	15.2	13.5	1.78	8.541		
400.0	400.0	399.5	399.5	1.3	1.3	92.74	-2.5	15.7	15.8	13.9	1.91	8.274	SF	
425.0	424.9	424.3	424.2	1.4	1.4	101.78	-3.9	16.0	16.9	14.8	2.03	8.313		
450.0	449.8	448.8	448.7	1.5	1.5	111.07	-5.6	16.5	18.7	16.6	2.15	8.695		
475.0	474.8	473.3	473.1	1.6	1.6	119.69	-7.6	17.0	21.4	19.1	2.27	9.416		
500.0	499.6	497.6	497.2	1.7	1.7	127.12	-9.9	17.6	24.9	22.5	2.39	10.436		
523.0	522.5	519.8	519.3	1.8	1.8	132.80	-12.2	18.2	28.9	26.5	2.50	11.595		
525.0	524.5	521.7	521.2	1.8	1.8	133.24	-12.4	18.3	29.3	26.8	2.51	11.701		

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

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Site Error:	0.0ft	North Reference:	Grid
Reference Well:	QUINN 308-15	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design SECTION 15 - QUINN 309-15 - Wellbore #1 - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-EM-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
550.0	549.3	545.7	545.0	1.9	1.9	138.06	-15.3	19.0	34.4	31.8	2.62	13.110		
575.0	574.1	569.5	568.6	2.0	1.9	141.69	-18.4	19.8	39.9	37.2	2.74	14.581		
600.0	599.0	593.6	592.5	2.1	2.0	144.50	-21.7	20.7	45.8	42.9	2.86	16.022		
625.0	623.8	617.8	616.4	2.1	2.1	146.68	-25.0	21.6	51.7	48.7	2.98	17.371		
650.0	648.6	642.0	640.4	2.2	2.2	148.41	-28.4	22.5	57.7	54.6	3.10	18.633		
675.0	673.5	666.2	664.4	2.3	2.3	149.82	-31.7	23.4	63.7	60.5	3.22	19.813		
700.0	698.3	690.5	688.3	2.4	2.4	150.98	-35.0	24.2	69.8	66.5	3.34	20.916		
725.0	723.1	714.7	712.3	2.5	2.5	151.96	-38.4	25.1	75.9	72.4	3.46	21.950		
750.0	747.9	738.9	736.3	2.6	2.5	152.79	-41.7	26.0	82.0	78.4	3.58	22.919		
775.0	772.8	763.1	760.2	2.7	2.6	153.51	-45.1	26.9	88.1	84.4	3.70	23.829		
800.0	797.6	787.3	784.2	2.8	2.7	154.13	-48.4	27.8	94.2	90.4	3.82	24.685		
825.0	822.4	811.6	808.2	2.8	2.8	154.68	-51.8	28.6	100.4	96.4	3.94	25.491		
850.0	847.3	835.8	832.1	2.9	2.9	155.16	-55.1	29.5	106.5	102.5	4.06	26.251		
875.0	872.1	860.0	856.1	3.0	3.0	155.59	-58.4	30.4	112.7	108.5	4.18	26.969		
900.0	896.9	884.2	880.1	3.1	3.1	155.98	-61.8	31.3	118.8	114.5	4.30	27.648		
925.0	921.8	908.4	904.1	3.2	3.1	156.33	-65.1	32.2	125.0	120.6	4.42	28.291		
950.0	946.6	932.6	928.0	3.3	3.2	156.64	-68.5	33.0	131.2	126.6	4.54	28.901		
975.0	971.4	956.9	952.0	3.4	3.3	156.93	-71.8	33.9	137.4	132.7	4.66	29.480		
1,000.0	996.2	981.1	976.0	3.5	3.4	157.19	-75.2	34.8	143.5	138.7	4.78	30.031		
1,025.0	1,021.1	1,005.3	999.9	3.5	3.5	157.44	-78.5	35.7	149.7	144.8	4.90	30.555		
1,050.0	1,045.9	1,029.5	1,023.9	3.6	3.6	157.66	-81.8	36.6	155.9	150.9	5.02	31.055		
1,075.0	1,070.7	1,053.7	1,047.9	3.7	3.7	157.86	-85.2	37.4	162.1	156.9	5.14	31.532		
1,100.0	1,095.6	1,077.9	1,071.8	3.8	3.7	158.05	-88.5	38.3	168.2	163.0	5.26	31.987		
1,125.0	1,120.4	1,102.2	1,095.8	3.9	3.8	158.23	-91.9	39.2	174.4	169.1	5.38	32.423		
1,150.0	1,145.2	1,126.4	1,119.8	4.0	3.9	158.39	-95.2	40.1	180.6	175.1	5.50	32.840		
1,175.0	1,170.1	1,150.6	1,143.8	4.1	4.0	158.55	-98.6	41.0	186.8	181.2	5.62	33.239		
1,200.0	1,194.9	1,174.8	1,167.7	4.2	4.1	158.69	-101.9	41.8	193.0	187.3	5.74	33.621		
1,225.0	1,219.7	1,199.0	1,191.7	4.3	4.2	158.83	-105.2	42.7	199.2	193.3	5.86	33.988		
1,250.0	1,244.5	1,223.2	1,215.7	4.3	4.3	158.95	-108.6	43.6	205.4	199.4	5.98	34.341		
1,275.0	1,269.4	1,247.5	1,239.6	4.4	4.3	159.07	-111.9	44.5	211.6	205.5	6.10	34.680		
1,300.0	1,294.2	1,271.7	1,263.6	4.5	4.4	159.19	-115.3	45.4	217.8	211.5	6.22	35.006		
1,325.0	1,319.0	1,295.9	1,287.6	4.6	4.5	159.29	-118.6	46.2	224.0	217.6	6.34	35.320		
1,350.0	1,343.9	1,320.1	1,311.5	4.7	4.6	159.39	-121.9	47.1	230.2	223.7	6.46	35.623		
1,375.0	1,368.7	1,344.3	1,335.5	4.8	4.7	159.49	-125.3	48.0	236.3	229.8	6.58	35.913		
1,400.0	1,393.5	1,368.6	1,359.5	4.9	4.8	159.58	-128.6	48.9	242.5	235.8	6.70	36.194		
1,425.0	1,418.3	1,392.8	1,383.4	5.0	4.9	159.66	-132.0	49.8	248.7	241.9	6.82	36.465		
1,450.0	1,443.2	1,417.0	1,407.4	5.0	4.9	159.75	-135.3	50.7	254.9	248.0	6.94	36.727		
1,475.0	1,468.0	1,441.2	1,431.4	5.1	5.0	159.82	-138.7	51.5	261.1	254.1	7.06	36.980		
1,500.0	1,492.8	1,465.4	1,455.4	5.2	5.1	159.90	-142.0	52.4	267.3	260.1	7.18	37.225		
1,525.0	1,517.7	1,489.6	1,479.3	5.3	5.2	159.97	-145.3	53.3	273.5	266.2	7.30	37.461		
1,550.0	1,542.5	1,513.9	1,503.3	5.4	5.3	160.04	-148.7	54.2	279.7	272.3	7.42	37.690		
1,575.0	1,567.3	1,538.1	1,527.3	5.5	5.4	160.10	-152.0	55.1	285.9	278.4	7.54	37.912		
1,600.0	1,592.2	1,562.3	1,551.2	5.6	5.5	160.16	-155.4	55.9	292.1	284.5	7.66	38.127		
1,625.0	1,617.0	1,586.5	1,575.2	5.7	5.5	160.22	-158.7	56.8	298.3	290.5	7.78	38.335		
1,650.0	1,641.8	1,610.7	1,599.2	5.7	5.6	160.28	-162.1	57.7	304.5	296.6	7.90	38.537		
1,675.0	1,666.6	1,634.9	1,623.1	5.8	5.7	160.33	-165.4	58.6	310.7	302.7	8.02	38.733		
1,700.0	1,691.5	1,659.2	1,647.1	5.9	5.8	160.39	-168.7	59.5	316.9	308.8	8.14	38.923		
1,725.0	1,716.3	1,683.4	1,671.1	6.0	5.9	160.44	-172.1	60.3	323.1	314.9	8.26	39.108		
1,750.0	1,741.1	1,707.6	1,695.0	6.1	6.0	160.49	-175.4	61.2	329.3	320.9	8.38	39.288		
1,775.0	1,766.0	1,731.8	1,719.0	6.2	6.1	160.53	-178.8	62.1	335.5	327.0	8.50	39.462		
1,800.0	1,790.8	1,756.0	1,743.0	6.3	6.1	160.58	-182.1	63.0	341.7	333.1	8.62	39.632		
1,825.0	1,815.6	1,780.2	1,767.0	6.4	6.2	160.62	-185.5	63.9	347.9	339.2	8.74	39.797		

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Reference Site:	SECTION 15	MD Reference:	QUINN 308-15 @ 703.5ft
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	QUINN 308-15	Survey Calculation Method:	Minimum Curvature
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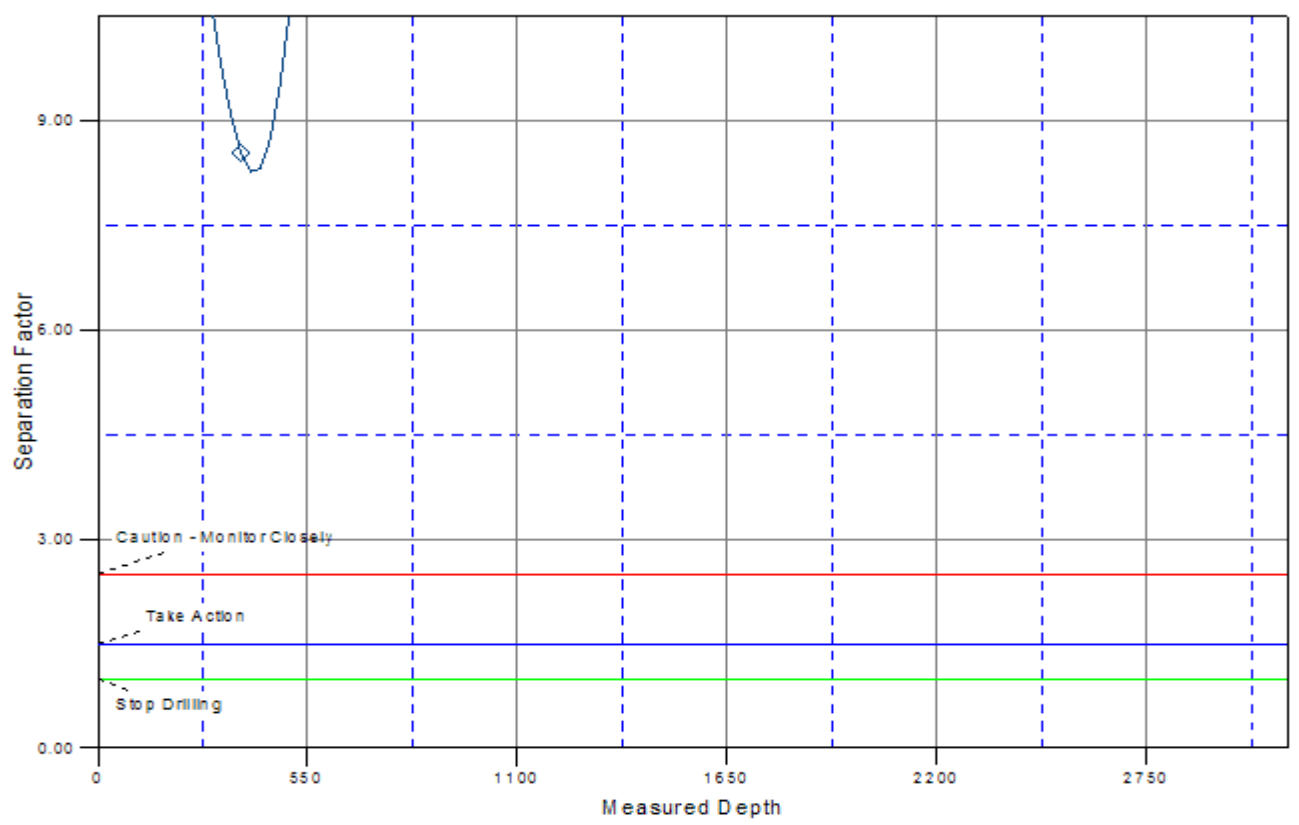
Offset Design													SECTION 15 - QUINN 309-15 - Wellbore #1 - Plan #1	Offset Site Error:	0.0 ft
Survey Program: 0-EM-MWD														Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
1,850.0	1,840.5	1,804.5	1,790.9	6.5	6.3	160.66	-188.8	64.7	354.1	345.3	8.86	39.957			
1,875.0	1,865.3	1,828.7	1,814.9	6.5	6.4	160.71	-192.1	65.6	360.3	351.3	8.98	40.114			
1,900.0	1,890.1	1,852.9	1,838.9	6.6	6.5	160.74	-195.5	66.5	366.5	357.4	9.10	40.266			
1,925.0	1,914.9	1,877.1	1,862.8	6.7	6.6	160.78	-198.8	67.4	372.7	363.5	9.22	40.414			
1,950.0	1,939.8	1,901.3	1,886.8	6.8	6.7	160.82	-202.2	68.3	378.9	369.6	9.34	40.559			
1,975.0	1,964.6	1,925.5	1,910.8	6.9	6.7	160.85	-205.5	69.1	385.1	375.7	9.46	40.699			
2,000.0	1,989.4	1,949.8	1,934.7	7.0	6.8	160.89	-208.9	70.0	391.3	381.8	9.58	40.837			
2,025.0	2,014.3	1,974.0	1,958.7	7.1	6.9	160.92	-212.2	70.9	397.5	387.8	9.70	40.971			
2,050.0	2,039.1	1,998.2	1,982.7	7.2	7.0	160.95	-215.5	71.8	403.7	393.9	9.82	41.101			
2,075.0	2,063.9	2,022.4	2,006.7	7.2	7.1	160.99	-218.9	72.7	409.9	400.0	9.94	41.229			
2,100.0	2,088.8	2,046.6	2,030.6	7.3	7.2	161.02	-222.2	73.5	416.2	406.1	10.06	41.353			
2,125.0	2,113.6	2,070.9	2,054.6	7.4	7.3	161.05	-225.6	74.4	422.4	412.2	10.18	41.475			
2,150.0	2,138.4	2,095.1	2,078.6	7.5	7.3	161.07	-228.9	75.3	428.6	418.3	10.30	41.594			
2,175.0	2,163.2	2,119.3	2,102.5	7.6	7.4	161.10	-232.2	76.2	434.8	424.3	10.42	41.710			
2,200.0	2,188.1	2,143.5	2,126.5	7.7	7.5	161.13	-235.6	77.1	441.0	430.4	10.54	41.823			
2,225.0	2,212.9	2,167.7	2,150.5	7.8	7.6	161.16	-238.9	77.9	447.2	436.5	10.66	41.934			
2,250.0	2,237.7	2,191.9	2,174.4	7.9	7.7	161.18	-242.3	78.8	453.4	442.6	10.78	42.042			
2,275.0	2,262.6	2,216.2	2,198.4	8.0	7.8	161.21	-245.6	79.7	459.6	448.7	10.90	42.148			
2,300.0	2,287.4	2,240.4	2,222.4	8.0	7.9	161.23	-249.0	80.6	465.8	454.8	11.02	42.252			
2,325.0	2,312.2	2,264.6	2,246.3	8.1	7.9	161.25	-252.3	81.5	472.0	460.8	11.14	42.353			
2,350.0	2,337.0	2,288.8	2,270.3	8.2	8.0	161.28	-255.6	82.4	478.2	466.9	11.26	42.453			
2,375.0	2,361.9	2,313.0	2,294.3	8.3	8.1	161.30	-259.0	83.2	484.4	473.0	11.38	42.550			
2,400.0	2,386.7	2,337.2	2,318.3	8.4	8.2	161.32	-262.3	84.1	490.6	479.1	11.50	42.645			
2,425.0	2,411.5	2,361.5	2,342.2	8.5	8.3	161.34	-265.7	85.0	496.8	485.2	11.62	42.738			
2,450.0	2,436.4	2,385.7	2,366.2	8.6	8.4	161.36	-269.0	85.9	503.0	491.3	11.74	42.830			
2,475.0	2,461.2	2,409.9	2,390.2	8.7	8.5	161.38	-272.4	86.8	509.2	497.3	11.86	42.919			
2,500.0	2,486.0	2,434.1	2,414.1	8.7	8.5	161.40	-275.7	87.6	515.4	503.4	11.98	43.007			
2,525.0	2,510.9	2,458.3	2,438.1	8.8	8.6	161.42	-279.0	88.5	521.6	509.5	12.10	43.093			
2,550.0	2,535.7	2,482.5	2,462.1	8.9	8.7	161.44	-282.4	89.4	527.8	515.6	12.22	43.177			
2,575.0	2,560.5	2,506.8	2,486.0	9.0	8.8	161.46	-285.7	90.3	534.0	521.7	12.34	43.260			
2,600.0	2,585.3	2,531.0	2,510.0	9.1	8.9	161.48	-289.1	91.2	540.2	527.8	12.46	43.341			
2,625.0	2,610.2	2,555.2	2,534.0	9.2	9.0	161.50	-292.4	92.0	546.4	533.8	12.58	43.421			
2,650.0	2,635.0	2,579.4	2,557.9	9.3	9.1	161.51	-295.8	92.9	552.6	539.9	12.70	43.499			
2,675.0	2,659.8	2,603.6	2,581.9	9.4	9.1	161.53	-299.1	93.8	558.8	546.0	12.82	43.575			
2,700.0	2,684.7	2,627.9	2,605.9	9.5	9.2	161.55	-302.4	94.7	565.0	552.1	12.94	43.650			
2,725.0	2,709.5	2,652.1	2,629.9	9.5	9.3	161.56	-305.8	95.6	571.2	558.2	13.06	43.724			
2,750.0	2,734.3	2,676.3	2,653.8	9.6	9.4	161.58	-309.1	96.4	577.5	564.3	13.18	43.797			
2,775.0	2,759.2	2,700.5	2,677.8	9.7	9.5	161.59	-312.5	97.3	583.7	570.4	13.30	43.868			
2,800.0	2,784.0	2,724.7	2,701.8	9.8	9.6	161.61	-315.8	98.2	589.9	576.4	13.42	43.938			
2,825.0	2,808.8	2,748.9	2,725.7	9.9	9.7	161.62	-319.1	99.1	596.1	582.5	13.55	44.006			
2,850.0	2,833.6	2,773.2	2,749.7	10.0	9.7	161.64	-322.5	100.0	602.3	588.6	13.67	44.074			
2,875.0	2,858.5	2,797.4	2,773.7	10.1	9.8	161.65	-325.8	100.8	608.5	594.7	13.79	44.140			
2,900.0	2,883.3	2,821.6	2,797.6	10.2	9.9	161.67	-329.2	101.7	614.7	600.8	13.91	44.205			
2,925.0	2,908.1	2,845.8	2,821.6	10.2	10.0	161.68	-332.5	102.6	620.9	606.9	14.03	44.269			
2,950.0	2,933.0	2,870.0	2,845.6	10.3	10.1	161.69	-335.9	103.5	627.1	612.9	14.15	44.332			
2,975.0	2,957.8	2,894.2	2,865.4	10.4	10.2	161.70	-339.2	104.4	633.2	618.0	14.27	44.394			

Company:	HATHAWAY BURNHAM LLC.	Local Co-ordinate Reference:	Well QUINN 308-15
Project:	JASMIN FIELD	TVD Reference:	QUINN 308-15 @ 703.5ft
Reference Site:	SECTION 15	MD Reference:	QUINN 308-15 @ 703.5ft
Site Error:	0.0ft	North Reference:	Grid
Reference Well:	QUINN 308-15	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 2003.21 Single User Db
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to QUINN 308-15 @ 703.5ft
 Offset Depths are relative to Offset Datum
 Central Meridian is 118° 0' 0.000 W °

Coordinates are relative to: QUINN 308-15
 Coordinate System is US State Plane 1927 (Exact solution), California V 405
 Grid Convergence at Surface is: -0.60°

Separation Factor Plot



LEGEND

◆ QUINN 309-15, Wellbore #1, Plan #1 V0