

SURVEY CALCULATION REPORT
Minimum Curvature Method

Operator: **SOUTHWESTERN ENERGY PRODUCTION CO.** DIRECTIONAL DRILLER
 Lease Name: **EWARTZ FARMS 1-58 #1-26H**
 Job Number:
 Comments: **PILOT HOLE & HORIZONTAL**
 Survey Company: **WELL PLAN**

Target KBTVD: **9400** Feet
 Dip Angle: **90.00** Degrees
 Section Plane: **180.00** Degrees
 Declination: **0** Degrees
 Bit to survey offset: **0** Feet

Temp (Deg.)	Survey Number	Measured Depth-ft	Drift (DEG.)	Azimuth (Deg.)	Course Length	TVD (Ft.)	Vertical Section	+N/-S (Ft.)	+E/-W (Ft.)	Closure Distance	Closure Direction	BUR	DLS	KBTVD	+Above -Below Target
TIE IN	T/I	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8,683.00
PLAN	1	1000.00	0.00	0.00	1000	1,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	1,000.00	8,400.00
PLAN	2	2000.00	0.00	0.00	1000	2,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	2,000.00	7,400.00
PLAN	3	3000.00	0.00	0.00	1000	3,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	3,000.00	6,400.00
PLAN	4	4000.00	0.00	0.00	1000	4,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	4,000.00	5,400.00
PLAN	5	5000.00	0.00	0.00	1000	5,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	5,000.00	4,400.00
PLAN	6	6000.00	0.00	0.00	1000	6,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	6,000.00	3,400.00
PLAN	7	7000.00	0.00	0.00	1000	7,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	7,000.00	2,400.00
PLAN	8	8000.00	0.00	0.00	1000	8,000.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	8,000.00	1,400.00
PLAN	9	8827.00	0.00	0.00	827	8,827.00	0.00	0.00	0.00	0.00	360.00	0.00	0.00	8,827.00	573.00
PLAN	10	8927.00	10.00	180.00	100	8,926.49	8.70	-8.70	0.00	8.70	180.00	10.00	10.00	8,926.49	473.51
PLAN	11	9027.00	20.00	180.00	100	9,022.96	34.55	-34.55	0.00	34.55	180.00	10.00	10.00	9,022.96	377.04
PLAN	12	9127.00	30.00	180.00	100	9,113.48	76.76	-76.76	0.00	76.76	180.00	10.00	10.00	9,113.48	286.52
PLAN	13	9227.00	40.00	180.00	100	9,195.29	134.05	-134.05	0.00	134.05	180.00	10.00	10.00	9,195.29	204.71
PLAN	14	9327.00	50.00	180.00	100	9,265.91	204.67	-204.67	0.00	204.67	180.00	10.00	10.00	9,265.91	134.09
PLAN	15	9427.00	60.00	180.00	100	9,323.20	286.48	-286.48	0.00	286.48	180.00	10.00	10.00	9,323.20	76.80
PLAN	16	9527.00	70.00	180.00	100	9,365.40	376.99	-376.99	0.00	376.99	180.00	10.00	10.00	9,365.40	34.60
PLAN	17	9627.00	80.00	180.00	100	9,391.25	473.46	-473.46	0.00	473.46	180.00	10.00	10.00	9,391.25	8.75
PLAN	18	9727.00	90.00	180.00	100	9,399.96	572.96	-572.96	0.00	572.96	180.00	10.00	10.00	9,399.96	0.04
PLAN	19	9977.00	90.00	180.00	250	9,399.96	822.96	-822.96	0.00	822.96	180.00	0.00	0.00	9,399.96	0.04
PLAN	20	10227.00	90.00	180.00	250	9,399.96	1,072.96	-1,072.96	0.00	1,072.96	180.00	0.00	0.00	9,399.96	0.04
PLAN	21	10477.00	90.00	180.00	250	9,399.96	1,322.96	-1,322.96	0.00	1,322.96	180.00	0.00	0.00	9,399.96	0.04
PLAN	22	10727.00	90.00	180.00	250	9,399.96	1,572.96	-1,572.96	0.00	1,572.96	180.00	0.00	0.00	9,399.96	0.04
PLAN	23	10977.00	90.00	180.00	250	9,399.96	1,822.96	-1,822.96	0.00	1,822.96	180.00	0.00	0.00	9,399.96	0.04
PLAN	24	11227.00	90.00	180.00	250	9,399.96	2,072.96	-2,072.96	0.00	2,072.96	180.00	0.00	0.00	9,399.96	0.04
PLAN	25	11477.00	90.00	180.00	250	9,399.96	2,322.96	-2,322.96	0.00	2,322.96	180.00	0.00	0.00	9,399.96	0.04
PLAN	26	11727.00	90.00	180.00	250	9,399.96	2,572.96	-2,572.96	0.00	2,572.96	180.00	0.00	0.00	9,399.96	0.04



