

EXTRACTION OIL & GAS

Weld County

Sec 8-T11N-R61W

HARRY EAST 8S-20-11C

ORIGINAL WELLBORE

Plan: PROPOSAL 1

Standard Planning Report

31 August, 2017



Project: Weld County
Site: Sec 8-T11N-R61W
Well: HARRY EAST 8S-20-11C
Wellbore: ORIGINAL WELLBORE
Design: PROPOSAL 1

PROJECT DETAILS: Weld County

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone

System Datum: Mean Sea Level



Azimuths to True North
Magnetic North: 7.94°

Magnetic Field
Strength: 52705.5nT
Dip Angle: 67.36°
Date: 8/11/2017
Model: IGRF2015

WELL DETAILS: HARRY EAST 8S-20-11C

+N/-S	+E/-W	Northing	Easting	5260.00	Latitude	Longitude	Slot
0.00	0.00	1588207.51	3353200.49		40° 56' 27.618 N	104° 13' 17.674 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	1121.28	12.43	350.62	1116.42	66.21	-10.93	2.00	350.62	-65.70	
4	6002.75	12.43	350.62	5883.55	1102.52	-182.07	0.00	0.00	-1094.14	
5	6624.03	0.00	0.00	6499.97	1168.73	-193.00	2.00	180.00	-1159.84	
6	6724.03	0.00	0.00	6599.97	1168.73	-193.00	0.00	0.00	-1159.84	
7	7624.19	90.00	180.92	7173.00	595.73	-202.24	10.00	180.92	-586.95	HARRY EAST 11C LP
8	8224.19	90.00	180.92	7172.95	-4.19	-211.91	0.00	0.00	12.87	
9	8678.00	90.00	190.00	7172.94	-455.48	-255.06	2.00	90.03	465.54	
10	8778.00	90.00	190.00	7172.94	-553.96	-272.42	0.00	0.00	564.65	
11	9253.64	90.00	180.49	7172.94	-1027.06	-315.84	2.00	-90.00	1039.13	HARRY EAST 11C PBHL
12	17680.42	90.00	180.49	7173.00	-9453.53	-387.50	0.00	0.00	9461.47	HARRY EAST 11C PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3967.00	4040.23	PARKMAN
4789.00	4881.95	SUSSEX
5587.00	5699.09	SHANNON
6879.00	7015.46	NIORARA
6982.00	7142.20	NIO B TARGET
7141.00	7431.74	FORT HAYS
7173.00	7624.19	CODELL

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	BUILD 2°/100'
1121.28	12.43	350.62	1116.42	66.21	-10.93	-65.70	67.10	HOLD 12.43° INC
6002.75	12.43	350.62	5883.55	1102.52	-182.07	-1094.14	1117.45	DROP 2°/100'
6624.03	0.00	0.00	6499.97	1168.73	-193.00	-1159.84	1184.56	HOLD VERTICAL
6724.03	0.00	0.00	6599.97	1168.73	-193.00	-1159.84	1184.56	KOP, BUILD 10°/100'
7624.19	90.00	180.92	7173.00	595.73	-202.24	-586.95	1757.63	LP @ 90° INC
8224.19	90.00	180.92	7172.95	-4.19	-211.91	12.87	2357.63	NUDGE 2°/100'
8678.00	90.00	190.00	7172.94	-455.48	-255.06	465.54	2811.45	HOLD
8778.00	90.00	190.00	7172.94	-553.96	-272.42	564.65	2911.45	NUDGE 2°/100'
9253.64	90.00	180.49	7172.94	-1027.06	-315.84	1039.13	3387.09	HOLD 180.49° AZM
17680.42	90.00	180.49	7173.00	-9453.53	-387.50	9461.47	11813.86	TD at 17680.42' MD

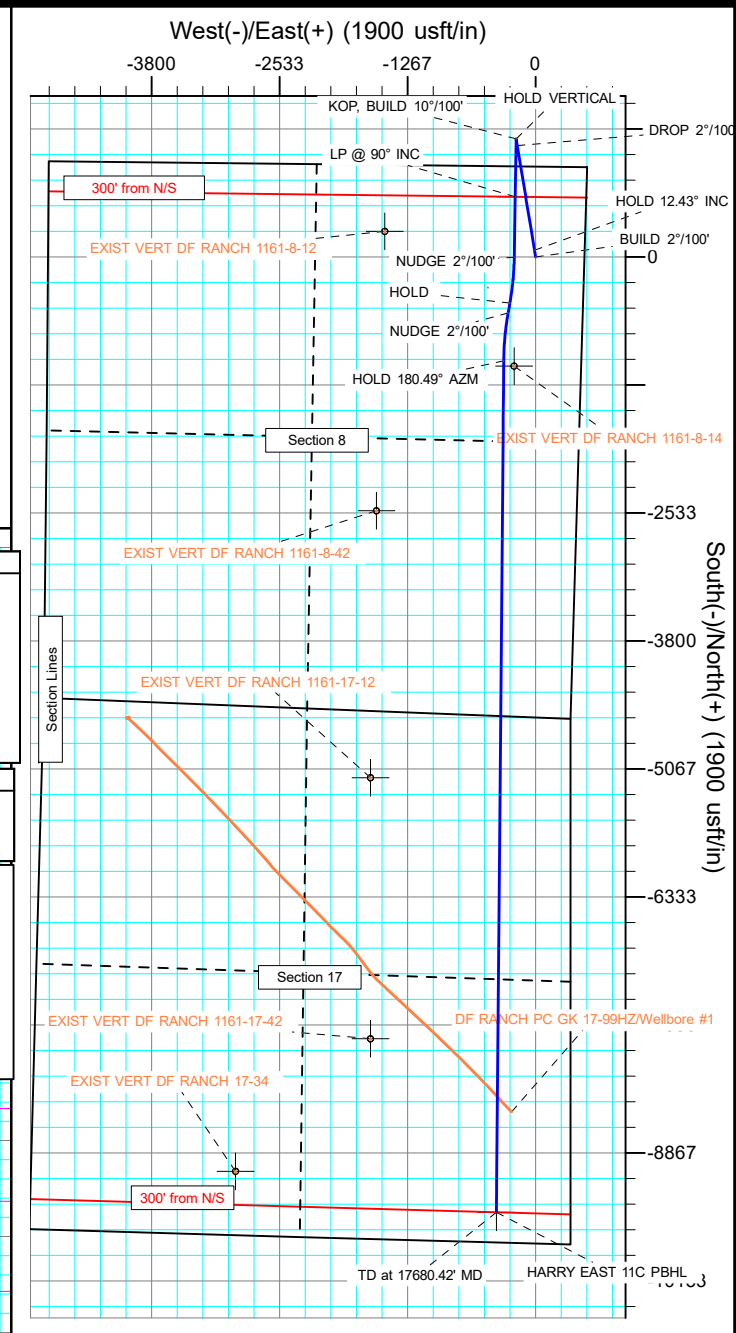
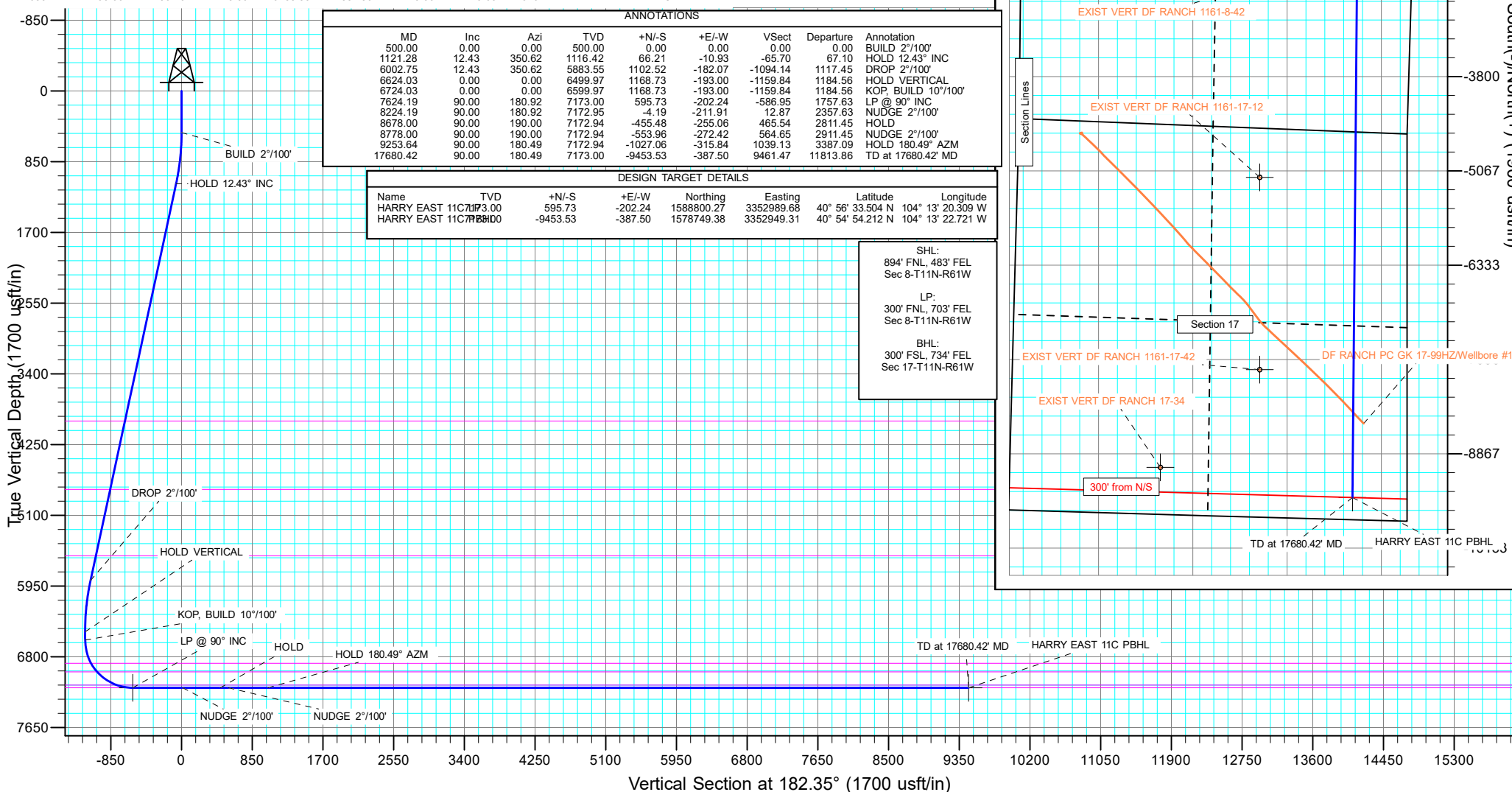
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
HARRY EAST 11C LP	7173.00	595.73	-202.24	1588800.27	3352989.68	40° 56' 33.504 N	104° 13' 20.309 W
HARRY EAST 11C PBHL	7173.00	-9453.53	-387.50	1578749.38	3352949.31	40° 54' 54.212 N	104° 13' 22.721 W

SHL:
894' FNL, 483' FEL
Sec 8-T11N-R61W

LP:
300' FNL, 703' FEL
Sec 8-T11N-R61W

BHL:
300' FSL, 734' FEL
Sec 17-T11N-R61W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well HARRY EAST 8S-20-11C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5285.00usft
Project:	Weld County	MD Reference:	KB 25' @ 5285.00usft
Site:	Sec 8-T11N-R61W	North Reference:	True
Well:	HARRY EAST 8S-20-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Project	Weld County		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Sec 8-T11N-R61W			
Site Position:		Northing:	1,589,102.71 usft	Latitude: 40° 56' 36.391 N
From:	Lat/Long	Easting:	3,353,696.82 usft	Longitude: 104° 13' 11.039 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence: 0.83 °

Well	HARRY EAST 8S-20-11C			
Well Position	+N/-S	-887.94 usft	Northing:	1,588,207.51 usft
	+E/-W	-509.20 usft	Easting:	3,353,200.49 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 5,260.00 usft

Wellbore	ORIGINAL WELLBORE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	8/11/2017	7.94	67.36	52,705.50565041

Design	PROPOSAL 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	182.35

Plan Survey Tool Program	Date	8/31/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	17,680.41	PROPOSAL 1 (ORIGINAL WELL	MWD OWSG
			OWSG MWD - Standard	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well HARRY EAST 8S-20-11C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5285.00usft
Project:	Weld County	MD Reference:	KB 25' @ 5285.00usft
Site:	Sec 8-T11N-R61W	North Reference:	True
Well:	HARRY EAST 8S-20-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,121.28	12.43	350.62	1,116.42	66.21	-10.93	2.00	2.00	0.00	350.62	
6,002.75	12.43	350.62	5,883.55	1,102.52	-182.07	0.00	0.00	0.00	0.00	
6,624.03	0.00	0.00	6,499.97	1,168.73	-193.00	2.00	-2.00	0.00	180.00	
6,724.03	0.00	0.00	6,599.97	1,168.73	-193.00	0.00	0.00	0.00	0.00	
7,624.19	90.00	180.92	7,173.00	595.73	-202.24	10.00	10.00	-19.89	180.92	HARRY EAST 11C LF
8,224.19	90.00	180.92	7,172.96	-4.19	-211.91	0.00	0.00	0.00	0.00	
8,678.00	90.00	190.00	7,172.94	-455.48	-255.06	2.00	0.00	2.00	90.03	
8,778.00	90.00	190.00	7,172.94	-553.96	-272.42	0.00	0.00	0.00	0.00	
9,253.64	90.00	180.49	7,172.94	-1,027.06	-315.84	2.00	0.00	-2.00	-90.00	HARRY EAST 11C P
17,680.42	90.00	180.49	7,173.00	-9,453.53	-387.50	0.00	0.00	0.00	0.00	HARRY EAST 11C P

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well HARRY EAST 8S-20-11C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5285.00usft
Project:	Weld County	MD Reference:	KB 25' @ 5285.00usft
Site:	Sec 8-T11N-R61W	North Reference:	True
Well:	HARRY EAST 8S-20-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
BUILD 2°/100'									
600.00	2.00	350.62	599.98	1.72	-0.28	-1.71	2.00	2.00	0.00
700.00	4.00	350.62	699.84	6.89	-1.14	-6.83	2.00	2.00	0.00
800.00	6.00	350.62	799.45	15.48	-2.56	-15.37	2.00	2.00	0.00
900.00	8.00	350.62	898.70	27.51	-4.54	-27.30	2.00	2.00	0.00
1,000.00	10.00	350.62	997.47	42.94	-7.09	-42.61	2.00	2.00	0.00
1,100.00	12.00	350.62	1,095.62	61.77	-10.20	-61.30	2.00	2.00	0.00
1,121.28	12.43	350.62	1,116.42	66.21	-10.93	-65.70	2.00	2.00	0.00
HOLD 12.43° INC									
1,200.00	12.43	350.62	1,193.30	82.92	-13.69	-82.29	0.00	0.00	0.00
1,300.00	12.43	350.62	1,290.96	104.15	-17.20	-103.36	0.00	0.00	0.00
1,400.00	12.43	350.62	1,388.61	125.38	-20.70	-124.43	0.00	0.00	0.00
1,500.00	12.43	350.62	1,486.27	146.61	-24.21	-145.49	0.00	0.00	0.00
1,600.00	12.43	350.62	1,583.93	167.84	-27.72	-166.56	0.00	0.00	0.00
1,700.00	12.43	350.62	1,681.59	189.07	-31.22	-187.63	0.00	0.00	0.00
1,800.00	12.43	350.62	1,779.24	210.30	-34.73	-208.70	0.00	0.00	0.00
1,900.00	12.43	350.62	1,876.90	231.53	-38.23	-229.77	0.00	0.00	0.00
2,000.00	12.43	350.62	1,974.56	252.76	-41.74	-250.83	0.00	0.00	0.00
2,100.00	12.43	350.62	2,072.22	273.99	-45.25	-271.90	0.00	0.00	0.00
2,200.00	12.43	350.62	2,169.87	295.22	-48.75	-292.97	0.00	0.00	0.00
2,300.00	12.43	350.62	2,267.53	316.44	-52.26	-314.04	0.00	0.00	0.00
2,400.00	12.43	350.62	2,365.19	337.67	-55.76	-335.11	0.00	0.00	0.00
2,500.00	12.43	350.62	2,462.85	358.90	-59.27	-356.18	0.00	0.00	0.00
2,600.00	12.43	350.62	2,560.50	380.13	-62.77	-377.24	0.00	0.00	0.00
2,700.00	12.43	350.62	2,658.16	401.36	-66.28	-398.31	0.00	0.00	0.00
2,800.00	12.43	350.62	2,755.82	422.59	-69.79	-419.38	0.00	0.00	0.00
2,900.00	12.43	350.62	2,853.48	443.82	-73.29	-440.45	0.00	0.00	0.00
3,000.00	12.43	350.62	2,951.14	465.05	-76.80	-461.52	0.00	0.00	0.00
3,100.00	12.43	350.62	3,048.79	486.28	-80.30	-482.58	0.00	0.00	0.00
3,200.00	12.43	350.62	3,146.45	507.51	-83.81	-503.65	0.00	0.00	0.00
3,300.00	12.43	350.62	3,244.11	528.74	-87.31	-524.72	0.00	0.00	0.00
3,400.00	12.43	350.62	3,341.77	549.97	-90.82	-545.79	0.00	0.00	0.00
3,500.00	12.43	350.62	3,439.42	571.20	-94.33	-566.86	0.00	0.00	0.00
3,600.00	12.43	350.62	3,537.08	592.43	-97.83	-587.93	0.00	0.00	0.00
3,700.00	12.43	350.62	3,634.74	613.66	-101.34	-608.99	0.00	0.00	0.00
3,800.00	12.43	350.62	3,732.40	634.89	-104.84	-630.06	0.00	0.00	0.00
3,900.00	12.43	350.62	3,830.05	656.12	-108.35	-651.13	0.00	0.00	0.00
4,000.00	12.43	350.62	3,927.71	677.35	-111.85	-672.20	0.00	0.00	0.00
4,040.23	12.43	350.62	3,967.00	685.89	-113.27	-680.67	0.00	0.00	0.00
PARKMAN									
4,100.00	12.43	350.62	4,025.37	698.58	-115.36	-693.27	0.00	0.00	0.00
4,200.00	12.43	350.62	4,123.03	719.81	-118.87	-714.33	0.00	0.00	0.00
4,300.00	12.43	350.62	4,220.68	741.04	-122.37	-735.40	0.00	0.00	0.00
4,400.00	12.43	350.62	4,318.34	762.27	-125.88	-756.47	0.00	0.00	0.00
4,500.00	12.43	350.62	4,416.00	783.50	-129.38	-777.54	0.00	0.00	0.00
4,600.00	12.43	350.62	4,513.66	804.72	-132.89	-798.61	0.00	0.00	0.00
4,700.00	12.43	350.62	4,611.32	825.95	-136.40	-819.68	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well HARRY EAST 8S-20-11C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5285.00usft
Project:	Weld County	MD Reference:	KB 25' @ 5285.00usft
Site:	Sec 8-T11N-R61W	North Reference:	True
Well:	HARRY EAST 8S-20-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,800.00	12.43	350.62	4,708.97	847.18	-139.90	-840.74	0.00	0.00	0.00	
4,881.95	12.43	350.62	4,789.00	864.58	-142.77	-858.01	0.00	0.00	0.00	
SUSSEX										
4,900.00	12.43	350.62	4,806.63	868.41	-143.41	-861.81	0.00	0.00	0.00	
5,000.00	12.43	350.62	4,904.29	889.64	-146.91	-882.88	0.00	0.00	0.00	
5,100.00	12.43	350.62	5,001.95	910.87	-150.42	-903.95	0.00	0.00	0.00	
5,200.00	12.43	350.62	5,099.60	932.10	-153.92	-925.02	0.00	0.00	0.00	
5,300.00	12.43	350.62	5,197.26	953.33	-157.43	-946.08	0.00	0.00	0.00	
5,400.00	12.43	350.62	5,294.92	974.56	-160.94	-967.15	0.00	0.00	0.00	
5,500.00	12.43	350.62	5,392.58	995.79	-164.44	-988.22	0.00	0.00	0.00	
5,600.00	12.43	350.62	5,490.23	1,017.02	-167.95	-1,009.29	0.00	0.00	0.00	
5,699.09	12.43	350.62	5,587.00	1,038.06	-171.42	-1,030.16	0.00	0.00	0.00	
SHANNON										
5,700.00	12.43	350.62	5,587.89	1,038.25	-171.45	-1,030.36	0.00	0.00	0.00	
5,800.00	12.43	350.62	5,685.55	1,059.48	-174.96	-1,051.43	0.00	0.00	0.00	
5,900.00	12.43	350.62	5,783.21	1,080.71	-178.46	-1,072.49	0.00	0.00	0.00	
6,002.75	12.43	350.62	5,883.55	1,102.52	-182.07	-1,094.14	0.00	0.00	0.00	
DROP 2°/100'										
6,100.00	10.48	350.62	5,978.86	1,121.57	-185.21	-1,113.05	2.00	-2.00	0.00	
6,200.00	8.48	350.62	6,077.49	1,137.82	-187.90	-1,129.17	2.00	-2.00	0.00	
6,300.00	6.48	350.62	6,176.63	1,150.67	-190.02	-1,141.92	2.00	-2.00	0.00	
6,400.00	4.48	350.62	6,276.17	1,160.09	-191.57	-1,151.27	2.00	-2.00	0.00	
6,500.00	2.48	350.62	6,375.98	1,166.08	-192.56	-1,157.22	2.00	-2.00	0.00	
6,600.00	0.48	350.62	6,475.94	1,168.63	-192.98	-1,159.75	2.00	-2.00	0.00	
6,624.03	0.00	0.00	6,499.97	1,168.73	-193.00	-1,159.84	2.00	-2.00	0.00	
HOLD VERTICAL										
6,700.00	0.00	0.00	6,575.94	1,168.73	-193.00	-1,159.84	0.00	0.00	0.00	
6,724.03	0.00	0.00	6,599.97	1,168.73	-193.00	-1,159.84	0.00	0.00	0.00	
KOP, BUILD 10°/100'										
6,750.00	2.60	180.92	6,625.93	1,168.14	-193.01	-1,159.26	10.00	10.00	0.00	
6,800.00	7.60	180.92	6,675.72	1,163.70	-193.08	-1,154.82	10.00	10.00	0.00	
6,850.00	12.60	180.92	6,724.93	1,154.94	-193.22	-1,146.06	10.00	10.00	0.00	
6,900.00	17.59	180.92	6,773.19	1,141.93	-193.43	-1,133.05	10.00	10.00	0.00	
6,950.00	22.59	180.92	6,820.13	1,124.75	-193.71	-1,115.88	10.00	10.00	0.00	
7,000.00	27.59	180.92	6,865.40	1,103.56	-194.05	-1,094.69	10.00	10.00	0.00	
7,015.46	29.14	180.92	6,879.00	1,096.21	-194.17	-1,087.34	10.00	10.00	0.00	
NIORARA										
7,050.00	32.59	180.92	6,908.64	1,078.50	-194.45	-1,069.63	10.00	10.00	0.00	
7,100.00	37.59	180.92	6,949.54	1,049.77	-194.92	-1,040.90	10.00	10.00	0.00	
7,142.20	41.81	180.92	6,982.00	1,022.82	-195.35	-1,013.96	10.00	10.00	0.00	
NIO B TARGET										
7,150.00	42.59	180.92	6,987.78	1,017.58	-195.44	-1,008.72	10.00	10.00	0.00	
7,200.00	47.59	180.92	7,023.07	982.19	-196.01	-973.33	10.00	10.00	0.00	
7,250.00	52.59	180.92	7,055.14	943.85	-196.63	-935.00	10.00	10.00	0.00	
7,300.00	57.59	180.92	7,083.74	902.86	-197.29	-894.03	10.00	10.00	0.00	
7,350.00	62.59	180.92	7,108.67	859.54	-197.98	-850.71	10.00	10.00	0.00	
7,400.00	67.59	180.92	7,129.72	814.22	-198.72	-805.39	10.00	10.00	0.00	
7,431.74	70.76	180.92	7,141.00	784.56	-199.19	-775.75	10.00	10.00	0.00	
FORT HAYS										
7,450.00	72.59	180.92	7,146.74	767.23	-199.47	-758.41	10.00	10.00	0.00	
7,500.00	77.59	180.92	7,159.61	718.93	-200.25	-710.13	10.00	10.00	0.00	
7,550.00	82.59	180.92	7,168.21	669.70	-201.05	-660.90	10.00	10.00	0.00	
7,600.00	87.59	180.92	7,172.49	619.91	-201.85	-611.12	10.00	10.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well HARRY EAST 8S-20-11C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5285.00usft
Project:	Weld County	MD Reference:	KB 25' @ 5285.00usft
Site:	Sec 8-T11N-R61W	North Reference:	True
Well:	HARRY EAST 8S-20-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
7,624.19	90.00	180.92	7,173.00	595.73	-202.24	-586.95	10.00	10.00	0.00	
LP @ 90° INC - CODELL										
7,700.00	90.00	180.92	7,172.99	519.93	-203.46	-511.16	0.00	0.00	0.00	
7,800.00	90.00	180.92	7,172.99	419.94	-205.07	-411.19	0.00	0.00	0.00	
7,900.00	90.00	180.92	7,172.98	319.95	-206.68	-311.22	0.00	0.00	0.00	
8,000.00	90.00	180.92	7,172.97	219.97	-208.30	-211.25	0.00	0.00	0.00	
8,100.00	90.00	180.92	7,172.96	119.98	-209.91	-111.28	0.00	0.00	0.00	
8,200.00	90.00	180.92	7,172.96	19.99	-211.52	-11.31	0.00	0.00	0.00	
8,224.19	90.00	180.92	7,172.96	-4.19	-211.91	12.87	0.00	0.00	0.00	
NUDGE 2°/100'										
8,300.00	90.00	182.44	7,172.95	-79.97	-214.13	88.67	2.00	0.00	2.00	
8,400.00	90.00	184.44	7,172.94	-179.79	-220.13	188.65	2.00	0.00	2.00	
8,500.00	90.00	186.44	7,172.94	-279.33	-229.61	288.50	2.00	0.00	2.00	
8,600.00	90.00	188.44	7,172.94	-378.48	-242.56	388.10	2.00	0.00	2.00	
8,678.00	90.00	190.00	7,172.94	-455.48	-255.06	465.54	2.00	0.00	2.00	
HOLD										
8,700.00	90.00	190.00	7,172.94	-477.14	-258.88	487.34	0.00	0.00	0.00	
8,778.00	90.00	190.00	7,172.94	-553.96	-272.42	564.65	0.00	0.00	0.00	
NUDGE 2°/100'										
8,800.00	90.00	189.56	7,172.94	-575.63	-276.16	586.46	2.00	0.00	-2.00	
8,900.00	90.00	187.56	7,172.94	-674.52	-291.04	685.87	2.00	0.00	-2.00	
9,000.00	90.00	185.56	7,172.94	-773.86	-302.47	785.59	2.00	0.00	-2.00	
9,100.00	90.00	183.56	7,172.94	-873.53	-310.42	885.51	2.00	0.00	-2.00	
9,200.00	90.00	181.56	7,172.94	-973.43	-314.89	985.51	2.00	0.00	-2.00	
9,253.64	90.00	180.49	7,172.94	-1,027.06	-315.84	1,039.13	2.00	0.00	-2.00	
HOLD 180.49° AZM										
9,300.00	90.00	180.49	7,172.94	-1,073.42	-316.24	1,085.47	0.00	0.00	0.00	
9,400.00	90.00	180.49	7,172.94	-1,173.41	-317.09	1,185.42	0.00	0.00	0.00	
9,500.00	90.00	180.49	7,172.94	-1,273.41	-317.94	1,285.36	0.00	0.00	0.00	
9,600.00	90.00	180.49	7,172.94	-1,373.41	-318.79	1,385.31	0.00	0.00	0.00	
9,700.00	90.00	180.49	7,172.94	-1,473.40	-319.64	1,485.26	0.00	0.00	0.00	
9,800.00	90.00	180.49	7,172.94	-1,573.40	-320.49	1,585.21	0.00	0.00	0.00	
9,900.00	90.00	180.49	7,172.94	-1,673.40	-321.34	1,685.15	0.00	0.00	0.00	
10,000.00	90.00	180.49	7,172.94	-1,773.39	-322.19	1,785.10	0.00	0.00	0.00	
10,100.00	90.00	180.49	7,172.94	-1,873.39	-323.04	1,885.05	0.00	0.00	0.00	
10,200.00	90.00	180.49	7,172.94	-1,973.39	-323.89	1,984.99	0.00	0.00	0.00	
10,300.00	90.00	180.49	7,172.94	-2,073.38	-324.74	2,084.94	0.00	0.00	0.00	
10,400.00	90.00	180.49	7,172.94	-2,173.38	-325.59	2,184.89	0.00	0.00	0.00	
10,500.00	90.00	180.49	7,172.94	-2,273.37	-326.44	2,284.84	0.00	0.00	0.00	
10,600.00	90.00	180.49	7,172.94	-2,373.37	-327.29	2,384.78	0.00	0.00	0.00	
10,700.00	90.00	180.49	7,172.94	-2,473.37	-328.14	2,484.73	0.00	0.00	0.00	
10,800.00	90.00	180.49	7,172.94	-2,573.36	-328.99	2,584.68	0.00	0.00	0.00	
10,900.00	90.00	180.49	7,172.94	-2,673.36	-329.84	2,684.63	0.00	0.00	0.00	
11,000.00	90.00	180.49	7,172.94	-2,773.36	-330.69	2,784.57	0.00	0.00	0.00	
11,100.00	90.00	180.49	7,172.94	-2,873.35	-331.54	2,884.52	0.00	0.00	0.00	
11,200.00	90.00	180.49	7,172.94	-2,973.35	-332.40	2,984.47	0.00	0.00	0.00	
11,300.00	90.00	180.49	7,172.94	-3,073.35	-333.25	3,084.42	0.00	0.00	0.00	
11,400.00	90.00	180.49	7,172.94	-3,173.34	-334.10	3,184.36	0.00	0.00	0.00	
11,500.00	90.00	180.49	7,172.94	-3,273.34	-334.95	3,284.31	0.00	0.00	0.00	
11,600.00	90.00	180.49	7,172.94	-3,373.33	-335.80	3,384.26	0.00	0.00	0.00	
11,700.00	90.00	180.49	7,172.94	-3,473.33	-336.65	3,484.20	0.00	0.00	0.00	
11,800.00	90.00	180.49	7,172.94	-3,573.33	-337.50	3,584.15	0.00	0.00	0.00	
11,900.00	90.00	180.49	7,172.94	-3,673.32	-338.35	3,684.10	0.00	0.00	0.00	
12,000.00	90.00	180.49	7,172.94	-3,773.32	-339.20	3,784.05	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well HARRY EAST 8S-20-11C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5285.00usft
Project:	Weld County	MD Reference:	KB 25' @ 5285.00usft
Site:	Sec 8-T11N-R61W	North Reference:	True
Well:	HARRY EAST 8S-20-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
12,100.00	90.00	180.49	7,172.94	-3,873.32	-340.05	3,883.99	0.00	0.00	0.00	
12,200.00	90.00	180.49	7,172.94	-3,973.31	-340.90	3,983.94	0.00	0.00	0.00	
12,300.00	90.00	180.49	7,172.94	-4,073.31	-341.75	4,083.89	0.00	0.00	0.00	
12,400.00	90.00	180.49	7,172.94	-4,173.31	-342.60	4,183.84	0.00	0.00	0.00	
12,500.00	90.00	180.49	7,172.94	-4,273.30	-343.45	4,283.78	0.00	0.00	0.00	
12,600.00	90.00	180.49	7,172.94	-4,373.30	-344.30	4,383.73	0.00	0.00	0.00	
12,700.00	90.00	180.49	7,172.94	-4,473.29	-345.15	4,483.68	0.00	0.00	0.00	
12,800.00	90.00	180.49	7,172.94	-4,573.29	-346.00	4,583.62	0.00	0.00	0.00	
12,900.00	90.00	180.49	7,172.94	-4,673.29	-346.85	4,683.57	0.00	0.00	0.00	
13,000.00	90.00	180.49	7,172.94	-4,773.28	-347.70	4,783.52	0.00	0.00	0.00	
13,100.00	90.00	180.49	7,172.94	-4,873.28	-348.55	4,883.47	0.00	0.00	0.00	
13,200.00	90.00	180.49	7,172.94	-4,973.28	-349.40	4,983.41	0.00	0.00	0.00	
13,300.00	90.00	180.49	7,172.94	-5,073.27	-350.25	5,083.36	0.00	0.00	0.00	
13,400.00	90.00	180.49	7,172.94	-5,173.27	-351.10	5,183.31	0.00	0.00	0.00	
13,500.00	90.00	180.49	7,172.94	-5,273.27	-351.95	5,283.26	0.00	0.00	0.00	
13,600.00	90.00	180.49	7,172.94	-5,373.26	-352.80	5,383.20	0.00	0.00	0.00	
13,700.00	90.00	180.49	7,172.94	-5,473.26	-353.66	5,483.15	0.00	0.00	0.00	
13,800.00	90.00	180.49	7,172.94	-5,573.26	-354.51	5,583.10	0.00	0.00	0.00	
13,900.00	90.00	180.49	7,172.94	-5,673.25	-355.36	5,683.05	0.00	0.00	0.00	
14,000.00	90.00	180.49	7,172.94	-5,773.25	-356.21	5,782.99	0.00	0.00	0.00	
14,100.00	90.00	180.49	7,172.94	-5,873.24	-357.06	5,882.94	0.00	0.00	0.00	
14,200.00	90.00	180.49	7,172.94	-5,973.24	-357.91	5,982.89	0.00	0.00	0.00	
14,300.00	90.00	180.49	7,172.94	-6,073.24	-358.76	6,082.83	0.00	0.00	0.00	
14,400.00	90.00	180.49	7,172.94	-6,173.23	-359.61	6,182.78	0.00	0.00	0.00	
14,500.00	90.00	180.49	7,172.94	-6,273.23	-360.46	6,282.73	0.00	0.00	0.00	
14,600.00	90.00	180.49	7,172.94	-6,373.23	-361.31	6,382.68	0.00	0.00	0.00	
14,700.00	90.00	180.49	7,172.94	-6,473.22	-362.16	6,482.62	0.00	0.00	0.00	
14,800.00	90.00	180.49	7,172.94	-6,573.22	-363.01	6,582.57	0.00	0.00	0.00	
14,900.00	90.00	180.49	7,172.94	-6,673.22	-363.86	6,682.52	0.00	0.00	0.00	
15,000.00	90.00	180.49	7,172.94	-6,773.21	-364.71	6,782.47	0.00	0.00	0.00	
15,100.00	90.00	180.49	7,172.94	-6,873.21	-365.56	6,882.41	0.00	0.00	0.00	
15,200.00	90.00	180.49	7,172.94	-6,973.20	-366.41	6,982.36	0.00	0.00	0.00	
15,300.00	90.00	180.49	7,172.94	-7,073.20	-367.26	7,082.31	0.00	0.00	0.00	
15,400.00	90.00	180.49	7,172.94	-7,173.20	-368.11	7,182.26	0.00	0.00	0.00	
15,500.00	90.00	180.49	7,172.94	-7,273.19	-368.96	7,282.20	0.00	0.00	0.00	
15,600.00	90.00	180.49	7,172.94	-7,373.19	-369.81	7,382.15	0.00	0.00	0.00	
15,700.00	90.00	180.49	7,172.94	-7,473.19	-370.66	7,482.10	0.00	0.00	0.00	
15,800.00	90.00	180.49	7,172.94	-7,573.18	-371.51	7,582.04	0.00	0.00	0.00	
15,900.00	90.00	180.49	7,172.94	-7,673.18	-372.36	7,681.99	0.00	0.00	0.00	
16,000.00	90.00	180.49	7,172.94	-7,773.18	-373.21	7,781.94	0.00	0.00	0.00	
16,100.00	90.00	180.49	7,172.94	-7,873.17	-374.06	7,881.89	0.00	0.00	0.00	
16,200.00	90.00	180.49	7,172.94	-7,973.17	-374.92	7,981.83	0.00	0.00	0.00	
16,300.00	90.00	180.49	7,172.94	-8,073.16	-375.77	8,081.78	0.00	0.00	0.00	
16,400.00	90.00	180.49	7,172.94	-8,173.16	-376.62	8,181.73	0.00	0.00	0.00	
16,500.00	90.00	180.49	7,172.94	-8,273.16	-377.47	8,281.68	0.00	0.00	0.00	
16,600.00	90.00	180.49	7,172.94	-8,373.15	-378.32	8,381.62	0.00	0.00	0.00	
16,700.00	90.00	180.49	7,172.94	-8,473.15	-379.17	8,481.57	0.00	0.00	0.00	
16,800.00	90.00	180.49	7,172.94	-8,573.15	-380.02	8,581.52	0.00	0.00	0.00	
16,900.00	90.00	180.49	7,172.94	-8,673.14	-380.87	8,681.46	0.00	0.00	0.00	
17,000.00	90.00	180.49	7,172.94	-8,773.14	-381.72	8,781.41	0.00	0.00	0.00	
17,100.00	90.00	180.49	7,172.94	-8,873.14	-382.57	8,881.36	0.00	0.00	0.00	
17,200.00	90.00	180.49	7,172.94	-8,973.13	-383.42	8,981.31	0.00	0.00	0.00	
17,300.00	90.00	180.49	7,172.94	-9,073.13	-384.27	9,081.25	0.00	0.00	0.00	
17,400.00	90.00	180.49	7,172.94	-9,173.13	-385.12	9,181.20	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well HARRY EAST 8S-20-11C
Company:	EXTRACTION OIL & GAS	TVD Reference:	KB 25' @ 5285.00usft
Project:	Weld County	MD Reference:	KB 25' @ 5285.00usft
Site:	Sec 8-T11N-R61W	North Reference:	True
Well:	HARRY EAST 8S-20-11C	Survey Calculation Method:	Minimum Curvature
Wellbore:	ORIGINAL WELLBORE		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
17,500.00	90.00	180.49	7,172.94	-9,273.12	-385.97	9,281.15	0.00	0.00	0.00
17,600.00	90.00	180.49	7,172.94	-9,373.12	-386.82	9,381.10	0.00	0.00	0.00
17,680.42	90.00	180.49	7,173.00	-9,453.53	-387.50	9,461.47	0.00	0.00	0.00
TD at 17680.42' MD									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
HARRY EAST 11C PBH	0.00	0.00	7,173.00	-9,453.53	-387.50	1,578,749.37	3,352,949.31	40° 54' 54.212 N	104° 13' 22.721 W
- plan hits target center									
- Point									
HARRY EAST 11C LP	0.00	0.00	7,173.00	595.73	-202.24	1,588,800.26	3,352,989.69	40° 56' 33.504 N	104° 13' 20.309 W
- plan hits target center									
- Point									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,040.23	3,967.00	PARKMAN				
4,881.95	4,789.00	SUSSEX				
5,699.09	5,587.00	SHANNON				
7,015.46	6,879.00	NIOBRARA				
7,142.20	6,982.00	NIO B TARGET				
7,431.74	7,141.00	FORT HAYS				
7,624.19	7,173.00	CODELL				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
500.00	500.00	0.00	0.00	BUILD 2°/100'
1,121.28	1,116.42	66.21	-10.93	HOLD 12.43° INC
6,002.75	5,883.55	1,102.52	-182.07	DROP 2°/100'
6,624.03	6,499.97	1,168.73	-193.00	HOLD VERTICAL
6,724.03	6,599.97	1,168.73	-193.00	KOP, BUILD 10°/100'
7,624.19	7,173.00	595.73	-202.24	LP @ 90° INC
8,224.19	7,172.96	-4.19	-211.91	NUDGE 2°/100'
8,678.00	7,172.94	-455.48	-255.06	HOLD
8,778.00	7,172.94	-553.96	-272.42	NUDGE 2°/100'
9,253.64	7,172.94	-1,027.06	-315.84	HOLD 180.49° AZM
17,680.42	7,173.00	-9,453.53	-387.50	TD at 17680.42' MD