

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_PCHR PAD

PEHR 19-1

PEHR 19-1

Plan: PEHR 19-1 (wp01)

Standard Planning Report

09 November, 2011

Project: COLORADO NORTHERN ZONE - 83 Site: WELD_PHR PAD Well: PEHR 19-1 Wellbore: PEHR 19-1 Section: SHL: Design: PEHR 19-1 (wp01) Latitude: 40.076874 Longitude: -104.847736 GL: 4944.00 KB: gl + rkb @ 4959.00ft	FORMATION TOP DETAILS			
	TVDPath	MDPath	Formation	
	4124.00	4303.56	PRKM TOP	
	4521.00	4703.43	SX TOP	
	7217.00	7399.51	NI A TOP	
	7536.00	7718.51	CDL TOP	
	7623.00	7805.51	GH TOP	

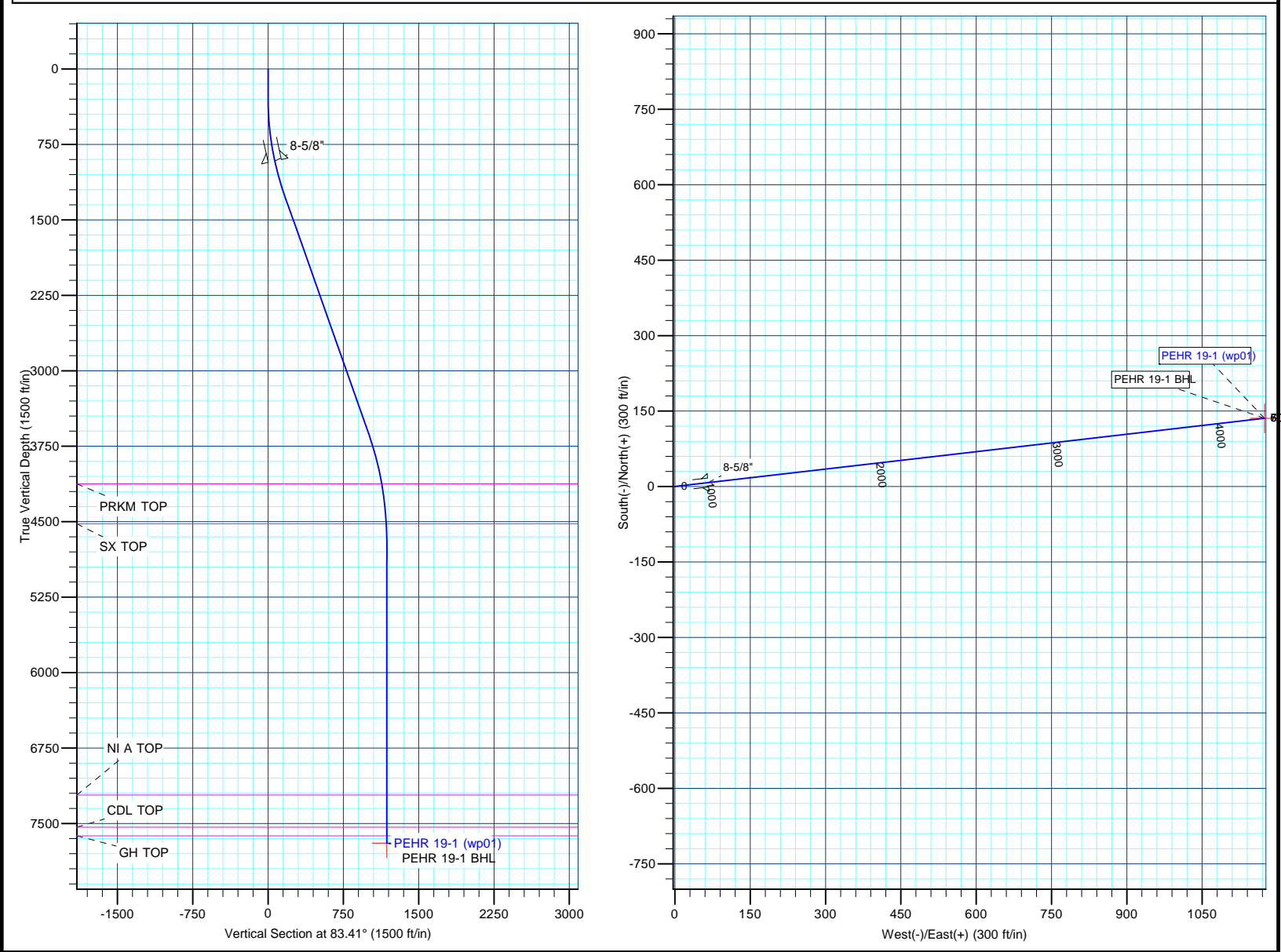
WELL DETAILS: PEHR 19-1					CASING DETAILS			
+N/-S	+E/-W	Northing	Ground Level: Easting	4944.00 Latitude	Longitude	Slot	TVD	MD
0.00	0.00	1271521.43	3182526.47	40.076874	-104.847736		915.00	919.82
							Name	Size
							8-5/8"	8-5/8

Azimuths to True North
Magnetic North: 8.95°

Magnetic Field
Strength: 53007.4snT
Dip Angle: 66.79°
Date: 12/2/2010
Model: IGRF2010

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PEHR 19-1 BHL	7696.00	135.55	1174.20	1271665.61	3183699.64	40.077246	-104.843540

SECTION DETAILS								
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	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
1273.73	19.47	83.41	1255.09	18.80	162.82	2.00	83.41	163.90
3765.67	19.47	83.41	3604.47	114.07	988.12	0.00	0.00	994.68
4878.51	0.00	0.00	4696.00	135.55	1174.20	1.75	180.00	1181.99
7878.51	0.00	0.00	7696.00	135.55	1174.20	0.00	0.00	1181.99



Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PEHR 19-1
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4959.00ft
Site:	WELD_PEHR PAD	North Reference:	True
Well:	PEHR 19-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 19-1		
Design:	PEHR 19-1 (wp01)		

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	WELD_PEHR PAD			
Site Position:		Northing:	1,271,518.67 usft	Latitude: 40.076867
From:	Lat/Long	Easting:	3,182,496.55 usft	Longitude: -104.847843
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence: 0.42 °

Well	PEHR 19-1			
Well Position	+N/-S	2.54 ft	Northing:	1,271,521.43 usft
	+E/-W	29.94 ft	Easting:	3,182,526.47 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:		Ground Level: 4,944.00 ft

Wellbore	PEHR 19-1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	12/2/2010	8.95	66.79	53,007

Design	PEHR 19-1 (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	83.41

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
1,273.73	19.47	83.41	1,255.09	18.80	162.82	2.00	2.00	0.00	83.41	
3,765.67	19.47	83.41	3,604.47	114.07	988.12	0.00	0.00	0.00	0.00	
4,878.51	0.00	0.00	4,696.00	135.55	1,174.20	1.75	-1.75	0.00	180.00	
7,878.51	0.00	0.00	7,696.00	135.55	1,174.20	0.00	0.00	0.00	0.00	PEHR 19-1 BHL

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PEHR 19-1
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4959.00ft
Site:	WELD_PEHR PAD	North Reference:	True
Well:	PEHR 19-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 19-1		
Design:	PEHR 19-1 (wp01)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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	2.00	83.41	399.98	0.20	1.73	1.75	2.00	2.00	0.00
500.00	4.00	83.41	499.84	0.80	6.93	6.98	2.00	2.00	0.00
600.00	6.00	83.41	599.45	1.80	15.59	15.69	2.00	2.00	0.00
700.00	8.00	83.41	698.70	3.20	27.70	27.88	2.00	2.00	0.00
800.00	10.00	83.41	797.47	4.99	43.24	43.52	2.00	2.00	0.00
900.00	12.00	83.41	895.62	7.18	62.19	62.60	2.00	2.00	0.00
919.82	12.40	83.41	915.00	7.66	66.35	66.79	2.00	2.00	0.00
8-5/8"									
1,000.00	14.00	83.41	993.06	9.76	84.53	85.10	2.00	2.00	0.00
1,100.00	16.00	83.41	1,089.64	12.73	110.24	110.98	2.00	2.00	0.00
1,200.00	18.00	83.41	1,185.27	16.08	139.29	140.21	2.00	2.00	0.00
1,273.73	19.47	83.41	1,255.09	18.80	162.82	163.90	2.00	2.00	0.00
1,300.00	19.47	83.41	1,279.86	19.80	171.52	172.65	0.00	0.00	0.00
1,400.00	19.47	83.41	1,374.14	23.62	204.63	205.99	0.00	0.00	0.00
1,500.00	19.47	83.41	1,468.41	27.45	237.75	239.33	0.00	0.00	0.00
1,600.00	19.47	83.41	1,562.69	31.27	270.87	272.67	0.00	0.00	0.00
1,700.00	19.47	83.41	1,656.97	35.09	303.99	306.01	0.00	0.00	0.00
1,800.00	19.47	83.41	1,751.25	38.92	337.11	339.35	0.00	0.00	0.00
1,900.00	19.47	83.41	1,845.53	42.74	370.23	372.69	0.00	0.00	0.00
2,000.00	19.47	83.41	1,939.81	46.56	403.35	406.03	0.00	0.00	0.00
2,100.00	19.47	83.41	2,034.09	50.39	436.47	439.37	0.00	0.00	0.00
2,200.00	19.47	83.41	2,128.37	54.21	469.59	472.70	0.00	0.00	0.00
2,300.00	19.47	83.41	2,222.65	58.03	502.70	506.04	0.00	0.00	0.00
2,400.00	19.47	83.41	2,316.92	61.86	535.82	539.38	0.00	0.00	0.00
2,500.00	19.47	83.41	2,411.20	65.68	568.94	572.72	0.00	0.00	0.00
2,600.00	19.47	83.41	2,505.48	69.50	602.06	606.06	0.00	0.00	0.00
2,700.00	19.47	83.41	2,599.76	73.33	635.18	639.40	0.00	0.00	0.00
2,800.00	19.47	83.41	2,694.04	77.15	668.30	672.74	0.00	0.00	0.00
2,900.00	19.47	83.41	2,788.32	80.97	701.42	706.08	0.00	0.00	0.00
3,000.00	19.47	83.41	2,882.60	84.80	734.54	739.42	0.00	0.00	0.00
3,100.00	19.47	83.41	2,976.88	88.62	767.66	772.75	0.00	0.00	0.00
3,200.00	19.47	83.41	3,071.16	92.44	800.78	806.09	0.00	0.00	0.00
3,300.00	19.47	83.41	3,165.43	96.27	833.89	839.43	0.00	0.00	0.00
3,400.00	19.47	83.41	3,259.71	100.09	867.01	872.77	0.00	0.00	0.00
3,500.00	19.47	83.41	3,353.99	103.91	900.13	906.11	0.00	0.00	0.00
3,600.00	19.47	83.41	3,448.27	107.74	933.25	939.45	0.00	0.00	0.00
3,700.00	19.47	83.41	3,542.55	111.56	966.37	972.79	0.00	0.00	0.00
3,765.67	19.47	83.41	3,604.47	114.07	988.12	994.68	0.00	0.00	0.00
3,800.00	18.87	83.41	3,636.89	115.36	999.32	1,005.96	1.75	-1.75	0.00
3,900.00	17.12	83.41	3,731.99	118.91	1,030.01	1,036.86	1.75	-1.75	0.00
4,000.00	15.37	83.41	3,827.99	122.12	1,057.81	1,064.84	1.75	-1.75	0.00
4,100.00	13.62	83.41	3,924.80	124.99	1,082.68	1,089.87	1.75	-1.75	0.00
4,200.00	11.87	83.41	4,022.34	127.52	1,104.60	1,111.94	1.75	-1.75	0.00
4,300.00	10.12	83.41	4,120.49	129.71	1,123.55	1,131.02	1.75	-1.75	0.00
4,303.56	10.06	83.41	4,124.00	129.78	1,124.17	1,131.64	1.75	-1.75	0.00
PRKM TOP									
4,400.00	8.37	83.41	4,219.19	131.55	1,139.52	1,147.09	1.75	-1.75	0.00
4,500.00	6.62	83.41	4,318.33	133.05	1,152.48	1,160.14	1.75	-1.75	0.00
4,600.00	4.87	83.41	4,417.82	134.19	1,162.43	1,170.15	1.75	-1.75	0.00
4,700.00	3.12	83.41	4,517.58	134.99	1,169.36	1,177.13	1.75	-1.75	0.00

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Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PEHR 19-1
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4959.00ft
Site:	WELD_PEHR PAD	North Reference:	True
Well:	PEHR 19-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 19-1		
Design:	PEHR 19-1 (wp01)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
4,703.43	3.06	83.41	4,521.00	135.01	1,169.55	1,177.31	1.75	-1.75	0.00	
SX TOP										
4,800.00	1.37	83.41	4,617.50	135.44	1,173.26	1,181.05	1.75	-1.75	0.00	
4,878.51	0.00	0.00	4,696.00	135.55	1,174.20	1,181.99	1.75	-1.75	0.00	
4,900.00	0.00	0.00	4,717.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,817.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,100.00	0.00	0.00	4,917.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,017.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,300.00	0.00	0.00	5,117.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,400.00	0.00	0.00	5,217.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,317.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,600.00	0.00	0.00	5,417.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,700.00	0.00	0.00	5,517.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,800.00	0.00	0.00	5,617.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
5,900.00	0.00	0.00	5,717.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,000.00	0.00	0.00	5,817.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,100.00	0.00	0.00	5,917.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,200.00	0.00	0.00	6,017.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,300.00	0.00	0.00	6,117.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,400.00	0.00	0.00	6,217.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,500.00	0.00	0.00	6,317.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,600.00	0.00	0.00	6,417.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,700.00	0.00	0.00	6,517.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,800.00	0.00	0.00	6,617.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
6,900.00	0.00	0.00	6,717.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,000.00	0.00	0.00	6,817.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,100.00	0.00	0.00	6,917.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,200.00	0.00	0.00	7,017.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,300.00	0.00	0.00	7,117.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,399.51	0.00	0.00	7,217.00	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
NI A TOP										
7,400.00	0.00	0.00	7,217.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,317.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,417.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,517.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,718.51	0.00	0.00	7,536.00	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
CDL TOP										
7,800.00	0.00	0.00	7,617.49	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
7,805.51	0.00	0.00	7,623.00	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
GH TOP										
7,878.51	0.00	0.00	7,696.00	135.55	1,174.20	1,181.99	0.00	0.00	0.00	
PEHR 19-1 BHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PEHR 19-1 BHL	0.00	0.00	7,696.00	135.55	1,174.20	1,271,665.61	3,183,699.64	40.077246	-104.843540	
- hit/miss target										
- Shape										
- plan hits target center										
- Point										

Anadarko Petroleum Corp

Planning Report

Database:	edmp	Local Co-ordinate Reference:	Well PEHR 19-1
Company:	US ROCKIES REGION PLANNING	TVD Reference:	gl + rkb @ 4959.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	gl + rkb @ 4959.00ft
Site:	WELD_PEHR PAD	North Reference:	True
Well:	PEHR 19-1	Survey Calculation Method:	Minimum Curvature
Wellbore:	PEHR 19-1		
Design:	PEHR 19-1 (wp01)		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
919.82	915.00	8-5/8"	8-5/8	11	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,303.56	4,124.00	PRKM TOP			
4,703.43	4,521.00	SX TOP			
7,399.51	7,217.00	NI A TOP			
7,718.51	7,536.00	CDL TOP			
7,805.51	7,623.00	GH TOP			