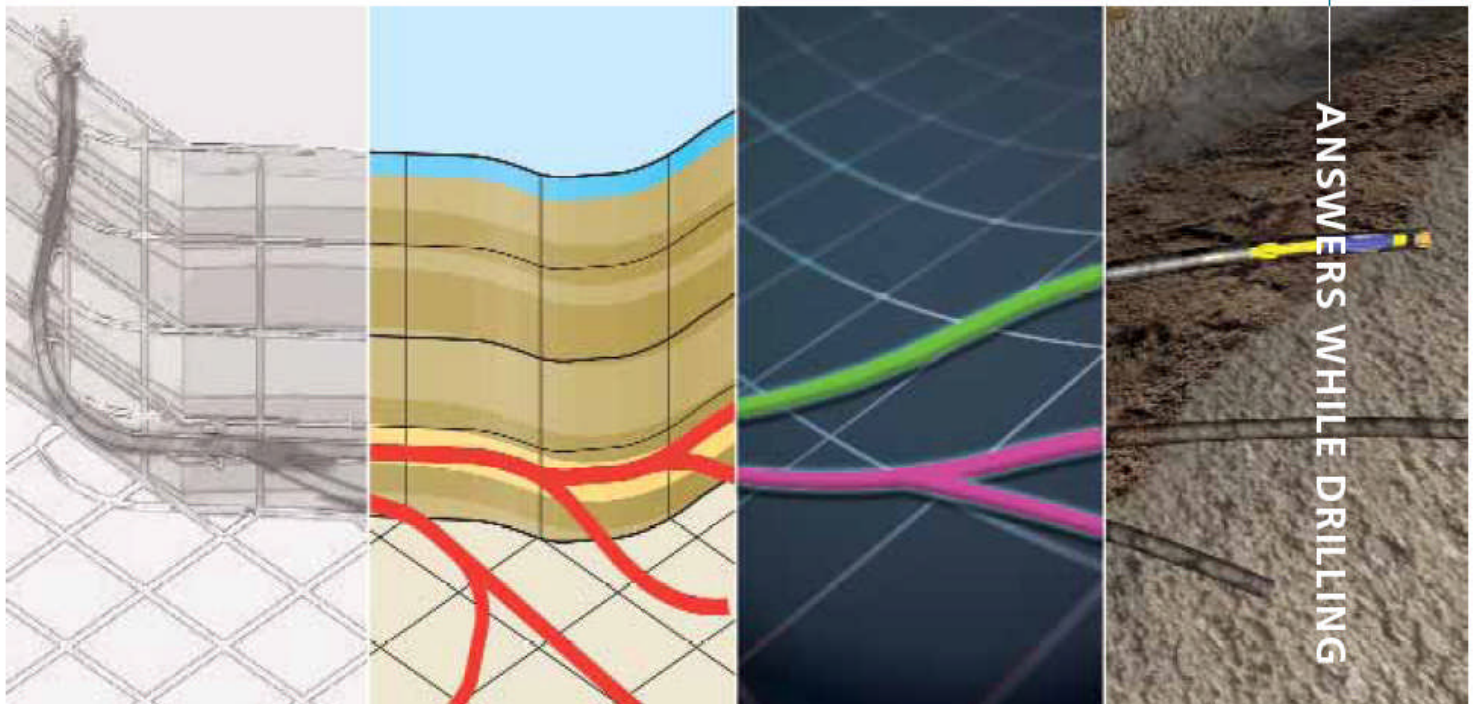




Trava NW 1 dir

DRILLING PROGRAM



Summary

Introduction..... 3

Well Overview.....	3
Offset Wells.....	3
Planned Wellpath Report.....	4
WellPlot.....	8
Hole sizes/ Casing Design.....	10

12 1/4" Section.....11

Section and equipment overview.....	11
BHA Proposal.....	12
Hydraulics.....	13
Torque and Drag.....	15

8 1/2" Section..... 18

Section and equipment overview.....	18
BHA Proposal.....	19
Hydraulics.....	20
Torque and Drag.....	22

Introduction

Well Overview

Trava NW#1D will be a new deviated well which will be drilled from surface in the “Corte dei Signori” field (Po Valley area, North Italy).

A 12 ¼” section J-shape will be drilled up to 400mMD. A 2D build up to 8.0° INC will be performed during this phase, kicking off from 240m with a BUR of 1.50°/30m.

Afterwards a 9-5/8” casing will be run to isolate the formations with different pore gradients.

The last 8 ½” section will be drilled with an S-shape profile with maximum INC = 18.9° and 2.50°/30m DLS.

TD of the well (at 1115.27mMD = 1100.00mTVDRT) will be reached after having intercepted the planned geological target, named “PL2G”, at 969.70mTVDRT. The plan is to come back to vertical (0.0° inclination) 100mTVD before reaching the top target depth.

The planned wellbore will have a constant direction = 155.36° Azi.

For the 12 ¼” section, an 8” NaviDrill Ultra XL Motor in combination with 6 ¾” NaviTrak MWD tool will be used.

For the 8 ½” section, a 6 ¾” NaviDrill Ultra XL motor in combination with 6 ¾” NaviTrak MWD tool will be used.

Offset Wells

Reference wells for Trava NW 1 dir are: Trava 1 (2,9 km distant), Trava 2 dir (2,4 km distant), Valli di Comacchio NW 1 (2,2 km distant), Valli di Comacchio NW 2 (2,2,5 km distant), Schiorsi 1 (3,9 km distant), Mezzano#1 (8,1 km distant), Agosta 1dir (8,7 km distant).

Consequently there are no anti-collision issues with the planned well trajectory.

Planned Wellpath Report



Planned Wellpath Report

Positional Uncertainty
Trava NW 1 dir (PWP A.1 AD 04-May-2018)

Page 1 of 4



REFERENCE WELLPATH IDENTIFICATION

Operator	Aleanna Resources LLC	Slot	Slot 1
Area	Italy	Well	Trava NW 1 dir
Field	Corte dei Signori	Wellbore	Trava NW 1 dir (PWB)
Facility	Trava NW 1 dir		

REPORT SETUP INFORMATION

Projection System	WGS84 / UTM Zone 32 North	Software System	WellArchitect® 5.1
North Reference	Grid	User	Dangand
Scale	1.000293	Report Generated	15/May/2018 at 20:42
Convergence at slot	2.11° East	Database/Source file	WellArchitectDB/Trava_NW_1_dir__PWP_A.1_AD_04-May-2018_.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[m]	East[m]	Easting[m]	Northing[m]	Latitude	Longitude
Slot Location	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E
Facility Reference Pt			737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E
Field Reference Pt			739244.30	4952461.94	44°41'08.221"N	12°01'08.489"E

WELLPATH DATUM

Calculation method	Minimum curvature	HH 200 (RT) to Facility Vertical Datum	7.70m
Horizontal Reference Pt	Slot	HH 200 (RT) to Mean Sea Level	4.70m
Vertical Reference Pt	HH 200 (RT)	HH 200 (RT) to Mud Line at Slot (Slot 1)	7.70m
MD Reference Pt	HH 200 (RT)	Section Origin	N 0.00, E 0.00 m
Field Vertical Reference	Mean Sea Level	Section Azimuth	155.36°

POSITIONAL UNCERTAINTY CALCULATION SETTINGS

Ellipse Confidence Limit	2.00 Std Dev	Ellipse Start MD	7.70m	Surface Position Uncertainty	included
Declination	3.22° East of TN	Dip Angle	61.05°	Magnetic Field Strength	47391nT
Slot Surface Uncertainty @1SD		Horizontal	0.000m	Vertical	0.000m
Facility Surface Uncertainty @1SD		Horizontal	0.500m	Vertical	0.200m

Positional Uncertainty values in the WELLPATH DATA table are the projection of the ellipsoid of uncertainty onto the vertical and horizontal planes

Planned Wellpath Report

Positional Uncertainty
Trava NW 1 dir (PWP A.1 AD 04-May-2018)

Page 2 of 4

REFERENCE WELLPATH IDENTIFICATION

Operator	Aleanna Resources LLC	Slot	Slot 1
Area	Italy	Well	Trava NW 1 dir
Field	Corte dei Signori	Wellbore	Trava NW 1 dir (PWB)
Facility	Trava NW 1 dir		

WELLPATH DATA (45 stations) - with Positional Uncertainty values † = interpolated/extrapolated station

MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	TVDSS [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Latitude	Longitude	DLS [°/30m]	Toolface [°]	Vertical Semi-Axis [m]	Horiz Semi-Axis [m]	Major Semi-Axis [m]	Minor Semi-Axis [m]	Horiz Axis Azim [°]	Minor Axis Azim [°]	Comments
0.00†	0.000	155.358	0.00	-4.70	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
7.70	0.000	155.358	7.70	3.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.40	1.00	1.00	0.00			Tie On
37.70†	0.000	155.358	37.70	33.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.81	1.01	1.01	0.00			
67.70†	0.000	155.358	67.70	63.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.81	1.02	1.02	0.00			
97.70†	0.000	155.358	97.70	93.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.81	1.05	1.05	0.00			
127.70†	0.000	155.358	127.70	123.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.82	1.09	1.09	0.00			
157.70†	0.000	155.358	157.70	153.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.83	1.14	1.14	0.00			
187.70†	0.000	155.358	187.70	183.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.83	1.19	1.19	0.00			
217.70†	0.000	155.358	217.70	213.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.84	1.25	1.25	0.00			
240.00	0.000	155.358	240.00	235.30	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	155.36	0.85	1.30	1.30	0.00			KOP
247.70†	0.385	155.358	247.70	243.00	0.03	-0.02	0.01	737344.01	4954123.98	44°42'04.284"N	11°59'45.055"E	1.50	0.00	0.85	1.32	1.32	242.763			
277.70†	1.885	155.358	277.69	272.99	0.62	-0.56	0.26	737344.26	4954123.44	44°42'04.266"N	11°59'45.066"E	1.50	0.00	0.86	1.40	1.39	245.092			
307.70†	3.385	155.358	307.66	302.96	2.00	-1.82	0.83	737344.83	4954122.18	44°42'04.225"N	11°59'45.090"E	1.50	0.00	0.88	1.50	1.47	245.151			
337.70†	4.885	155.358	337.58	332.88	4.16	-3.78	1.74	737345.74	4954120.22	44°42'04.160"N	11°59'45.127"E	1.50	0.00	0.89	1.60	1.55	245.085			
367.70†	6.385	155.358	367.44	362.74	7.11	-6.46	2.96	737346.96	4954117.54	44°42'04.072"N	11°59'45.179"E	1.50	0.00	0.91	1.70	1.64	244.985			
397.70†	7.885	155.358	397.20	392.50	10.83	-9.85	4.52	737348.52	4954114.15	44°42'03.961"N	11°59'45.244"E	1.50	0.00	0.92	1.80	1.74	244.840			
400.00	8.000	155.358	399.48	394.78	11.15	-10.14	4.65	737348.65	4954113.86	44°42'03.951"N	11°59'45.249"E	1.50	0.00	0.92	1.81	1.74	244.824			Catenary1
427.70†	10.308	155.358	426.83	422.13	15.56	-14.14	6.49	737350.49	4954109.85	44°42'03.819"N	11°59'45.326"E	2.50	0.00	0.94	1.86	1.80	244.692			
457.70†	12.808	155.358	456.22	451.52	21.57	-19.60	8.99	737353.00	4954104.39	44°42'03.639"N	11°59'45.430"E	2.50	0.00	0.95	1.91	1.83	244.824			
487.70†	15.308	155.358	485.31	480.61	28.86	-26.23	12.03	737356.03	4954097.76	44°42'03.421"N	11°59'45.557"E	2.50	0.00	0.97	1.97	1.88	244.819			
517.70†	17.808	155.358	514.07	509.37	37.40	-34.00	15.60	737359.60	4954089.99	44°42'03.166"N	11°59'45.706"E	2.50	0.00	1.00	2.04	1.96	244.596			
530.98	18.915	155.358	526.67	521.97	41.59	-37.80	17.34	737361.34	4954086.19	44°42'03.040"N	11°59'45.779"E	2.50	0.00	1.01	2.06	2.01	244.187			Catenary2
547.70†	18.915	155.358	542.49	537.79	47.01	-42.73	19.60	737363.61	4954081.26	44°42'02.878"N	11°59'45.873"E	0.00	0.00	1.02	2.08	2.07	225.746			
577.70†	18.915	155.358	570.87	566.17	56.73	-51.57	23.65	737367.66	4954072.42	44°42'02.587"N	11°59'46.042"E	0.00	0.00	1.05	2.20	2.10	156.174			
607.70†	18.915	155.358	599.25	594.55	66.46	-60.41	27.71	737371.72	4954063.58	44°42'02.296"N	11°59'46.212"E	0.00	0.00	1.07	2.35	2.13	155.814			
637.70†	18.915	155.358	627.63	622.93	76.18	-69.24	31.76	737375.77	4954054.74	44°42'02.005"N	11°59'46.381"E	0.00	0.00	1.10	2.50	2.17	155.701			
657.99	18.915	155.358	646.83	642.13	82.76	-75.22	34.51	737378.52	4954048.75	44°42'01.808"N	11°59'46.496"E	0.00	180.00	1.13	2.62	2.20	155.661			End of Tangent
667.70†	18.106	155.358	656.03	651.33	85.84	-78.02	35.79	737379.80	4954045.95	44°42'01.716"N	11°59'46.549"E	2.50	180.00	1.14	2.67	2.21	155.648			
697.70†	15.606	155.358	684.74	680.04	94.54	-85.93	39.42	737383.43	4954038.04	44°42'01.456"N	11°59'46.701"E	2.50	180.00	1.17	2.83	2.27	155.627			
727.70†	13.106	155.358	713.80	709.10	101.98	-92.69	42.52	737386.53	4954031.28	44°42'01.233"N	11°59'46.830"E	2.50	180.00	1.22	2.98	2.35	155.627			

Planned Wellpath Report

Positional Uncertainty
Trava NW 1 dir (PWP A.1 AD 04-May-2018)
Page 3 of 4

REFERENCE WELLPATH IDENTIFICATION

Operator	Aleanna Resources LLC	Slot	Slot 1
Area	Italy	Well	Trava NW 1 dir
Field	Corte dei Signori	Wellbore	Trava NW 1 dir (PWB)
Facility	Trava NW 1 dir		

WELLPATH DATA (45 stations) - with Positional Uncertainty values † = interpolated/extrapolated station

MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	TVSS [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Latitude	Longitude	DLS [°/30m]	Tooface [°]	Vertical Semi- Axis [m]	Horiz Major Semi-Axis [m]	Horiz Minor Semi-Axis [m]	Horiz Minor Axis Azim [°]	Comments
757.70†	10.606	155.358	743.16	738.46	108.14	-98.29	45.09	737389.10	4954025.68	44°42'01.049"N	11°59'46.937"E	2.50	180.00	1.26	3.12	2.44	155.633	
787.70†	8.106	155.358	772.76	768.06	113.02	-102.72	47.12	737391.14	4954021.24	44°42'00.903"N	11°59'47.022"E	2.50	180.00	1.29	3.24	2.53	155.644	
817.70†	5.606	155.358	802.54	797.84	116.60	-105.98	48.61	737392.63	4954017.99	44°42'00.796"N	11°59'47.085"E	2.50	180.00	1.33	3.34	2.62	155.659	
847.70†	3.106	155.358	832.45	827.75	118.88	-108.05	49.56	737393.58	4954015.92	44°42'00.728"N	11°59'47.124"E	2.50	180.00	1.36	3.42	2.72	155.679	
877.70†	0.606	155.358	862.43	857.73	119.85	-108.93	49.97	737393.98	4954015.03	44°42'00.699"N	11°59'47.141"E	2.50	180.00	1.39	3.48	2.81	155.705	
884.97	0.000	155.358	869.70	865.00	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	2.50	0.00	1.40	3.50	2.83	155.712	Back to 0°Inc
907.70†	0.000	155.358	892.43	887.73	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.42	3.54	2.88	155.726	
937.70†	0.000	155.358	922.43	917.73	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.46	3.59	2.94	155.744	
967.70†	0.000	155.358	952.43	947.73	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.49	3.65	3.01	155.763	
984.97	0.000	155.358	969.70†	965.00	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.51	3.68	3.05	155.773	Target
997.70†	0.000	155.358	982.43	977.73	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.52	3.71	3.07	155.781	
1027.70†	0.000	155.358	1012.43	1007.73	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.56	3.77	3.15	155.799	
1057.70†	0.000	155.358	1042.43	1037.73	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.59	3.83	3.22	155.817	
1087.70†	0.000	155.358	1072.43	1067.73	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.63	3.90	3.29	155.835	
1115.27	0.000	155.358	1100.00	1095.30	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00		1.66	3.96	3.36	155.851	Total Depth

HOLE & CASING SECTIONS - Ref Wellbore: Trava NW 1 dir (PWB) Ref Wellpath: Trava NW 1 dir (PWP A.1 AD 04-May-2018)

String/Diameter	Start MD [m]	End MD [m]	Interval [m]	Start TVD [m]	End TVD [m]	Start N/S [m]	Start E/W [m]	End N/S [m]	End E/W [m]
13.375in Conductor	7.70	50.00	42.30	7.70	50.00	0.00	0.00	0.00	0.00
12.25in Open Hole	50.00	400.00	350.00	50.00	399.48	0.00	0.00	-10.14	4.65
9.625in Casing	7.70	400.00	392.30	7.70	399.48	0.00	0.00	-10.14	4.65
8.5in Open Hole	400.00	1115.27	715.27	399.48	1100.00	-10.14	4.65	-108.97	49.99
7in Casing	7.70	1115.27	1107.57	7.70	1100.00	0.00	0.00	-108.97	49.99



Planned Wellpath Report

Positional Uncertainty
Trava NW 1 dir (PWP A.1 AD 04-May-2018)

Page 4 of 4



REFERENCE WELLPATH IDENTIFICATION

Operator	Aleanna Resources LLC	Slot	Slot 1
Area	Italy	Well	Trava NW 1 dir
Field	Corte dei Signori	Wellbore	Trava NW 1 dir (PWB)
Facility	Trava NW 1 dir		

TARGETS

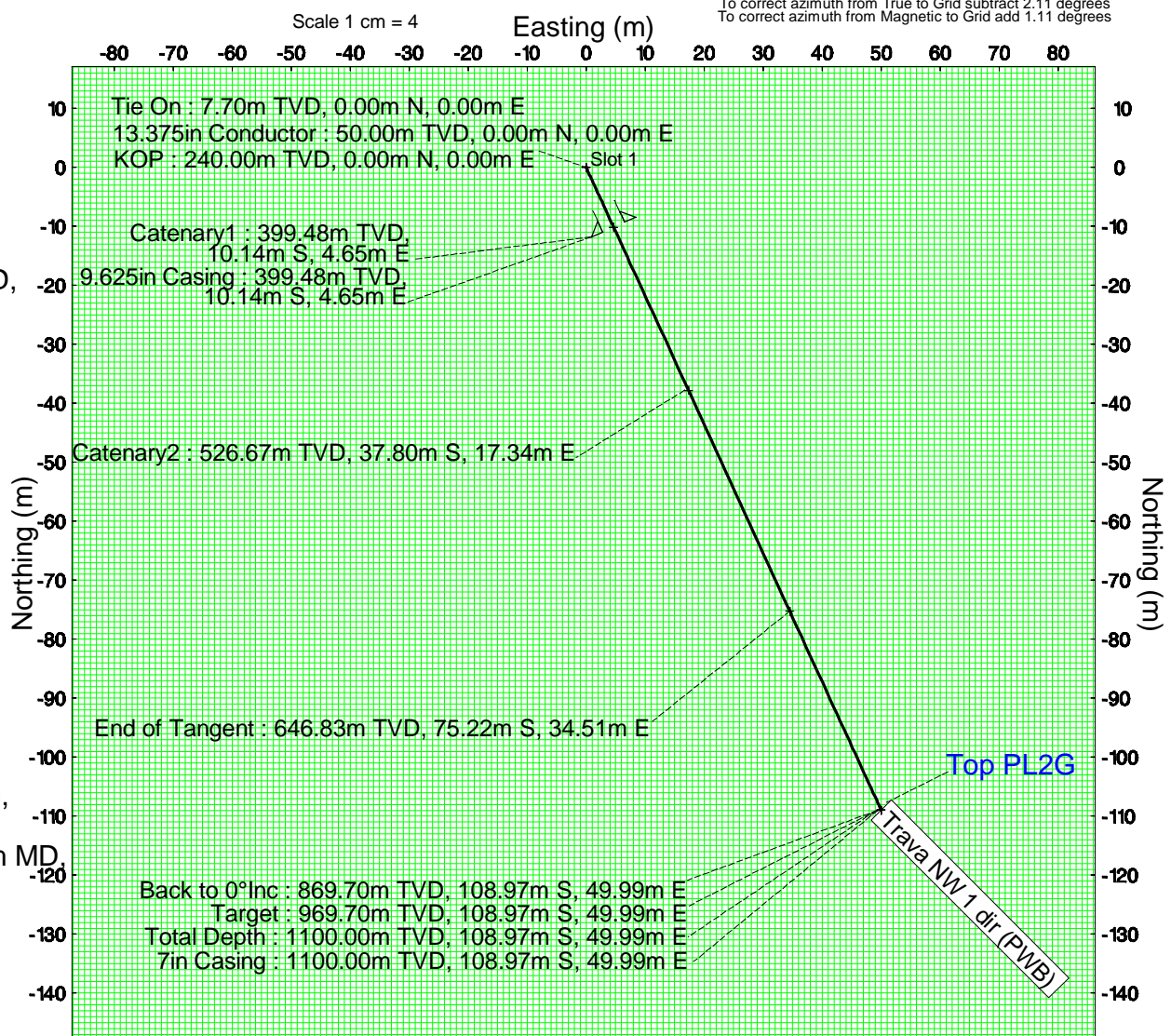
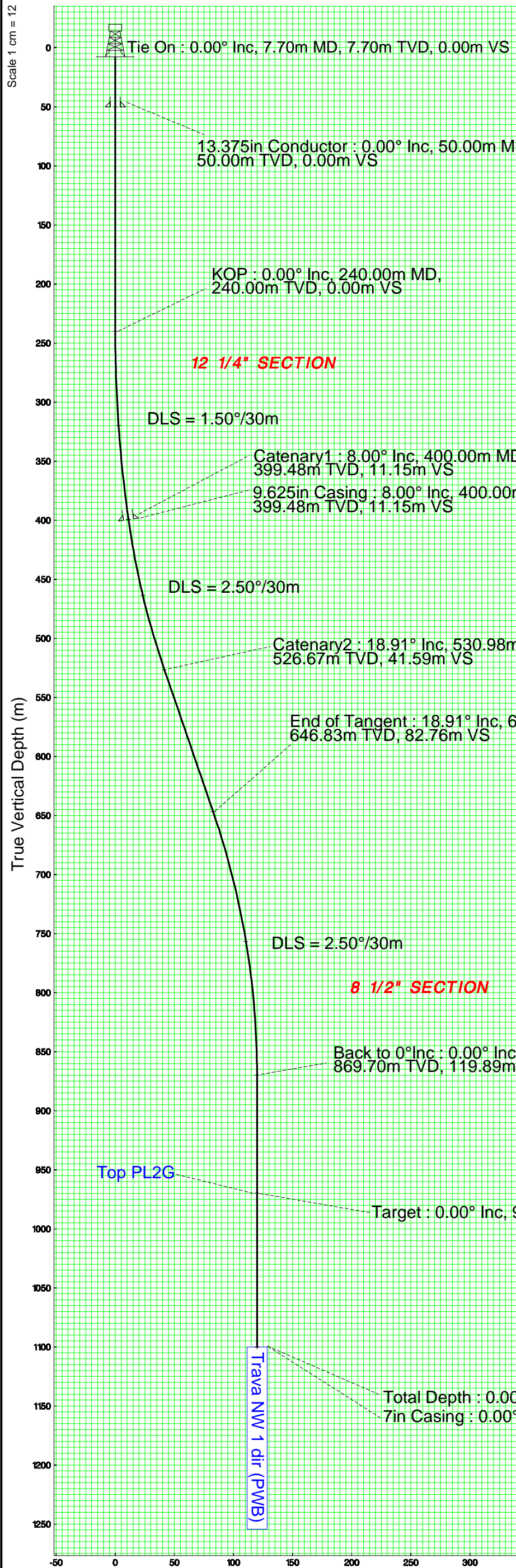
Name	MD [m]	TVD [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Latitude	Longitude	Shape
1) Top PL2G	984.97	969.70	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	point

SURVEY PROGRAM - Ref Wellbore: Trava NW 1 dir (PWB) Ref Wellpath: Trava NW 1 dir (PWP A.1 AD 04-May-2018)

Start MD [m]	End MD [m]	Positional Uncertainty Model	Log Name/Comment	Wellbore
7.70	400.00	BHI NaviTrak (SAG, Axial)		Trava NW 1 dir (PWB)
400.00	1115.27	BHI NaviTrak (SAG, Axial)		Trava NW 1 dir (PWB)

WellPlot

Scale 1 cm = 12



Plot reference wellpath is Trava NW 1 dir (PWP A.1 AD 04-May-2018)	Grid System: WGS84 / UTM Zone 32 North
True vertical depths are referenced to HH 200 (RT)	North Reference: Grid north
Measured depths are referenced to HH 200 (RT)	Scale: True distance
HH 200 (RT) to Mean Sea Level: 4.7 meters	Depths are in meters
Mean Sea Level to Mud line (At Slot: Slot 1): 3 meters	Created by: dangand on 2018-05-15
Coordinates are in meters referenced to Slot	Database: WA_PES_Defn

Location Information					
Facility Name	Grid East (m)	Grid North (m)	Latitude	Longitude	
Trava NW 1 dir	737344.000	4954124.000	44°42'04.285"N	11°59'45.055"E	
Slot	Local N (m)	Local E (m)	Grid East (m)	Grid North (m)	Longitude
Slot 1	0.00	0.00	737344.000	4954124.000	44°42'04.285"N
HH 200 (RT) to Mud line (At Slot: Slot 1)			7.7m		
Mean Sea Level to Mud line (At Slot: Slot 1)			3m		
HH 200 (RT) to Mean Sea Level			4.7m		

Survey Program					
Start MD (m)	End MD (m)	Tool	Model	Log Name/Comment	Wellbore
7.70	400.00	BHI NaviTrak	BHI NaviTrak (SAG, Axial)		Trava NW 1 dir (PWB)
400.00	1115.27	BHI NaviTrak	BHI NaviTrak (SAG, Axial)		Trava NW 1 dir (PWB)

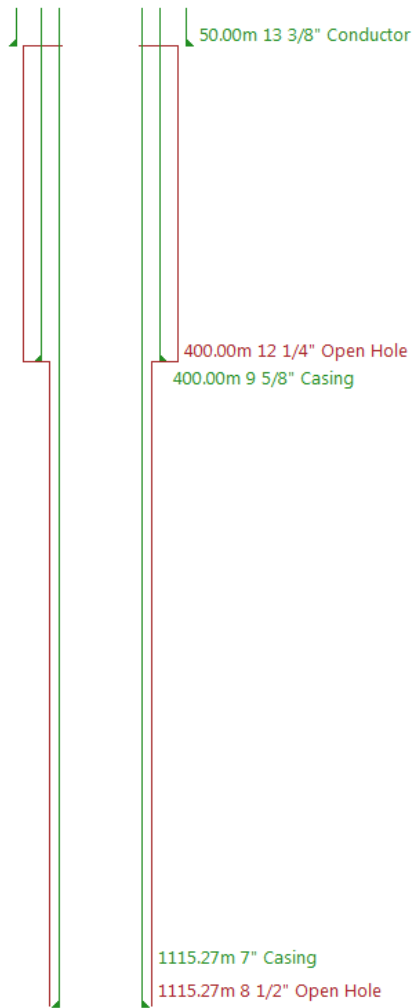
Targets								
Name	MD (m)	TVD (m)	Local N (m)	Local E (m)	Grid East (m)	Grid North (m)	Latitude	Longitude
Top PL2G	984.97	969.70	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E

Hole and Casing Sections										
Name	Start MD (m)	End MD (m)	Interval (m)	Start TVD (m)	End TVD (m)	Start Local N (m)	Start Local E (m)	End Local N (m)	End Local E (m)	Wellbore
13.375in Conductor	7.70	50.00	42.30	7.70	50.00	0.00	0.00	0.00	0.00	Trava NW 1 dir (PWB)
12.25in Open Hole	50.00	400.00	350.00	50.00	399.48	0.00	0.00	-10.14	4.65	Trava NW 1 dir (PWB)
9.625in Casing	7.70	400.00	392.30	7.70	399.48	0.00	0.00	-10.14	4.65	Trava NW 1 dir (PWB)
8.5in Open Hole	400.00	1115.27	715.27	399.48	1100.00	-10.14	4.65	-108.97	49.99	Trava NW 1 dir (PWB)
7in Casing	7.70	1115.27	1107.57	7.70	1100.00	0.00	0.00	-108.97	49.99	Trava NW 1 dir (PWB)

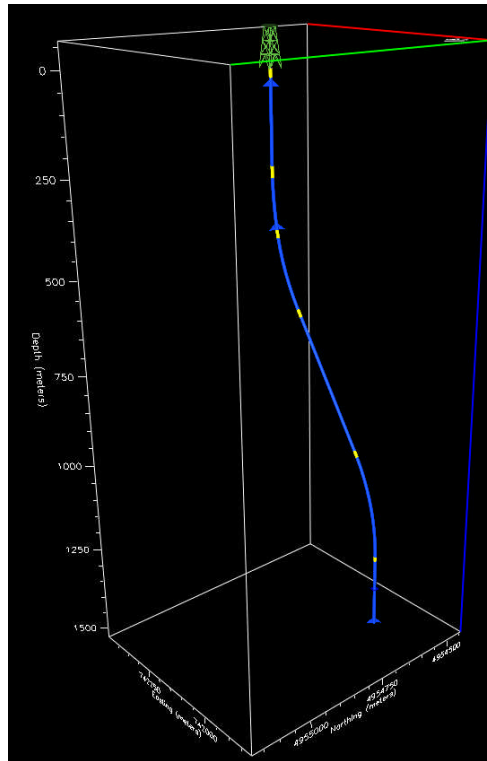
Well Profile Data								
Design Comment	MD (m)	Inc (°)	Az (°)	TVD (m)	Local N (m)	Local E (m)	DLS (°/30m)	VS (m)
Tie On	7.70	0.000	155.358	7.70	0.00	0.00	0.00	0.00
KOP	240.00	0.000	155.358	240.00	0.00	0.00	0.00	0.00
Catenary1	400.00	8.000	155.358	399.48	-10.14	4.65	1.50	11.15
Catenary2	530.98	18.915	155.358	526.67	-37.80	17.34	2.50	41.59
End of Tangent	657.99	18.915	155.358	646.83	-75.22	34.51	0.00	82.76
Back to 0°Inc	884.97	0.000	155.358	869.70	-108.97	49.99	2.50	119.89
Target	984.97	0.000	155.358	969.70	-108.97	49.99	0.00	119.89
Total Depth	1115.27	0.000	155.358	1100.00	-108.97	49.99	0.00	119.89

Approval			
Baker Hughes Representatives			
Prepared by	Signature	Reviewed by	Signature
Position	Date	Position	Date
Aleanna Resources LLC Representative			
Approved by	Signature	Position	Date
Comment			

Hole sizes/ Casing Design



All depths in MD



FASE	TOOLS	MWD / LWD
12 1/4"	Ultra XL Motor	NaviTrak
8 1/2"	Ultra XL Motor	NaviTrak

WELLPATH DATA (9 stations) - with Positional Uncertainty values † = interpolated/extrapolated station																		
MD [m]	Inclination [°]	Azimuth [°]	TVD [m]	TVDSS [m]	Vert Sect [m]	North [m]	East [m]	Grid East [m]	Grid North [m]	Latitude	Longitude	DLS ["/30m]	Toolface [°]	Vertical Semi-Axis [m]	Horiz Major Semi-Axis [m]	Horiz Minor Semi-Axis [m]	Horiz Minor Axis Azim [°]	Comments
0.00†	0.00	155.358	0.00	-4.70	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.00	0.00	0.00	0.00	
7.70	0.00	155.358	7.70	3.00	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	0.00	0.40	1.00	1.00	0.00	Tie On
240.00	0.00	155.358	240.00	235.30	0.00	0.00	0.00	737344.00	4954124.00	44°42'04.285"N	11°59'45.055"E	0.00	155.36	0.85	1.30	1.30	0.00	KOP
400.00	8.00	155.358	399.48	394.78	11.15	-10.14	4.65	737348.65	4954113.86	44°42'03.951"N	11°59'45.249"E	1.50	0.00	0.92	1.81	1.74	244.824	Catenary1
530.98	18.915	155.358	526.67	521.97	41.59	-37.80	17.34	737361.34	4954086.19	44°42'03.040"N	11°59'45.779"E	2.50	0.00	1.01	2.08	2.01	244.187	Catenary2
657.99	18.915	155.358	646.83	642.13	82.76	-75.22	34.51	737378.52	4954048.75	44°42'01.808"N	11°59'46.496"E	0.00	180.00	1.13	2.62	2.20	155.661	End of Tangent
884.97	0.00	155.358	869.70	865.00	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	2.50	0.00	1.40	3.50	2.83	155.712	Back to 0°Inc
984.97	0.00	155.358	969.70†	965.00	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00	0.00	1.51	3.68	3.05	155.773	Target
1115.27	0.00	155.358	1100.00	1095.30	119.89	-108.97	49.99	737394.00	4954015.00	44°42'00.698"N	11°59'47.142"E	0.00		1.66	3.96	3.36	155.851	Total Depth

12 1/4" Section

Section and equipment overview

Starting from the 16" conductor shoe at 50m MD, the 12 1/4" section will be drilled with a J-Shape profile. The KOP is planned at 240m, then the plan is to build inclination up 8.0° with 1.50°/30m DLS. TD of the phase is at 400mMD.

An 8" Ultra XL motor and an 6 3/4" NaviTrak MWD tool will be use to drill this section.

The motor will be stabilized with a 12 1/8" UBHS and 11 3/4" string top stabilizer: this stabilizer configuration, in conjunction with an adequate AKO (Adjustable Kick-Off) angle, will provide the required BUR, in order to build the follow the planned vertical wellprofile. At the same time, the proposed BHA configuration will assure a quite neutral/building tendency of the assembly, while drilling in rotary mode, considering the soft formations expected at these shallow depths.

The NaviTrak tool, together with the Pulser, will provide directional information using a real-time transmission from the tool up to surface, allowing steering the motor with the required toolface and recording directional surveys.

The number of drill collars and HWDPs above and below the jar has been chosen in order to provide a sufficient WOB and ensuring correct jar activation in case of stuck BHA; along the whole wellpath.

Hydraulics calculations show a 89bar SPP with a 2000lpm flow-rate.
















Using standard values for friction factors, the T&D analysis shows a drilling torque value equal to ~1.2 kft.lb: this value is far below the maximum limit for the planned drillpipes (5" OD – 19.5 lb/ft – Premium). The maximum value of the drag, when the BHA will be picked-up, will be equal to 1 tons.

Sinusoidal buckling limit is equal to 19.6 tons.

Calculated load below the jar is equal to 8tons, above is equal to 10tons.



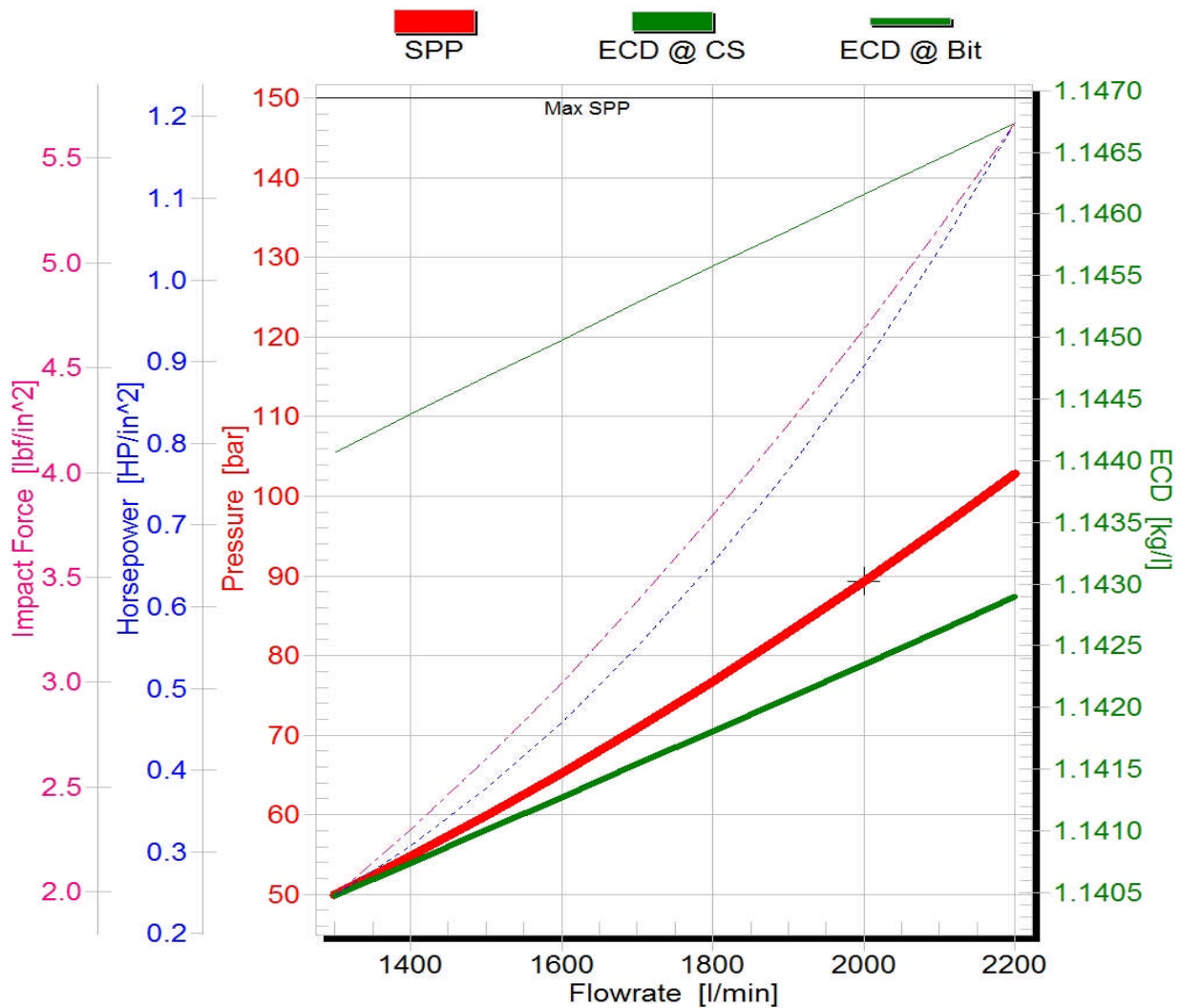
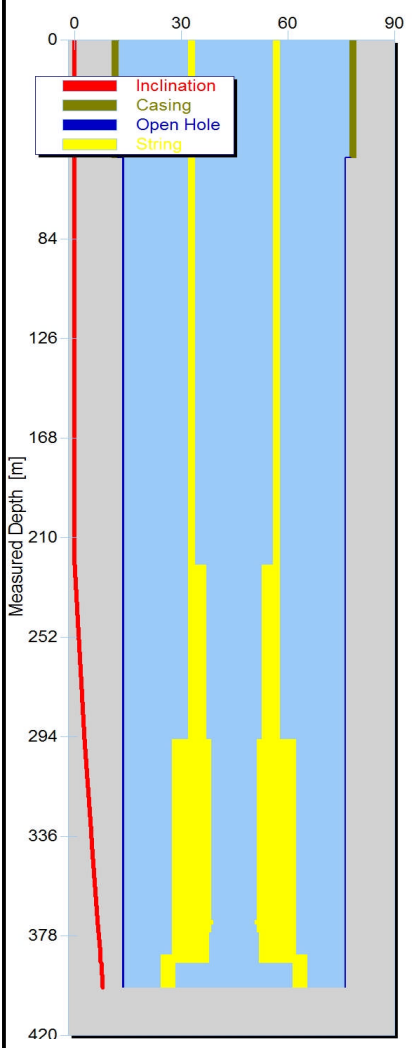
12 1/4" Section - Proposed Ultra XL Motor + NaviTrak BHA

12 1/4" Steerable Motor BHA + MWD NaviTrak								
Operator	Aleanna Resources		Field			Corte dei Signori		
Well	Trava NW 1 dir		Depth IN: 50m MD			Depth OUT: 400m MD		
String Components								
Item	#	Component	Gauge OD In	OD In	ID In	Thread	Length m	Total Length m
	15	Drill pipe		5	4.276	(BP) 4 1/2 IF – 4 1/2 IF	221.70	400.00
	14	HWDP x 8		5	3	(BP) 4 1/2 IF – 4 1/2 IF	73.60	178.30
	13	Drill Collar x 4		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	36.80	104.70
	12	Jar		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	9.60	67.90
	11	Drill Collar x 3		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	27.90	58.30
	10	Circulating Sub		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	2.00	38.40
	9	String Stab	8 3/8	6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	1.80	28.40
	8	Filter Sub		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	1.80	26.60
	7	Pulser		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	1.60	24.80
	6	MWD NaviTrak		6 3/4	2 3/4	(BP) 4 1/2 IF – 4 1/2 IF	9.30	23.20
	5	X-Over Sub		8	2 3/4	(BP) 4 1/2 IF – 6 5/8 Reg	0.80	13.90
	4	String Stab	11 3/4	8 1/4	2 13/16	(BP) 6 5/8 Reg – 6 5/8 Reg	2.10	13.10
	3	Float Valve (included in the motor)		8	2 3/4	(BP) 6 5/8 Reg – 6 5/8 Reg	0.80	11.00
	2	Ultra XL Motor (12 1/8" UBHS, AKO= 1.5°)	12 1/8	8	6.400	(BB) 6 5/8 Reg – 6 5/8 Reg	9.80	10.20
	1	Bit		12 1/4	12 1/4	6 5/8 Reg	0.40	0.40
15 BHA components.								

Case - Trava NW 1 Dir - 12 1/4" UTR + NTK

Operator	Aleanna Resources LLC	Facility	Trava NW 1 dir
Well	Trava NW 1 dir	Field	Corte dei Signori
Hole Size	12 1/4 in	Bit Depth (MD)	400.00 m
		Bit Depth (TVD)	399.48 m

Inclination deg Hydraulics Operating Window Numerical Data



Drilling Fluid	
Mud System	Water Based
Mud Density	1.12 kg/l
	Csg Shoe Bottom
	kg/l kg/l
ECD _{w/o} Cuttings	1.14 1.15
ESD _{w/o} Cuttings	1.12 1.12
initial	
Circulation Data	
Flowrate	2000 l/min
ROP	10.0 m/hr
RPM	50 RPM
Bit TFA	0.7854 in ²
Flowrates	
OH Critical	6011 l/min
System Pressure Loss	
Drill String	16.1 bar
Motor (Op ΔP)	5.9 bar
Motor (No-Load)	19.2 bar
MWD	21.6 bar
Bit	23.3 bar
Annulus	1.0 bar
Surface Equip	2.2 bar
SPP	89.3 bar

Comment Date 15/May/2018 20:51:17
Prepared by Andrea D'Angelo

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Case - Trava NW 1 Dir - 12 1/4" UTR + NTK

Operator	Aleanna Resources LLC	Facility	Trava NW 1 dir
Well	Trava NW 1 dir	Field	Corte dei Signori

General				Drill String							
Max Allw.SPP	150.0 bar			Type	Length m	OD in	ID in	TJ in \ in	Weight lb/ft		
Surface Equip.	Type 4			DP - NC50 (IF) /S-1...	221.70	5	4.276	6 5/16 \ 2 3/4	19.50		
Bit Depth	400.00	Bit TVD	399.48 m	HWDP-HT50 /HW-100	73.60	5	3	6 5/8 \ 3	50.38		
Bit Nozzles in/32	4x16	TFA	0.7854 in^2	DC - API N.C. 50	36.80	6 3/4	2 1/2		105.00		
Drilling Fluid				Jar	9.60	6 3/4	2 1/2		220.23		
Mud System	Water Based			DC - API N.C. 50	27.90	6 3/4	2 1/2		105.00		
Mud Weight	1.12 kg/l			Sub - circulation	2.00	6 3/4	2 1/2		150.66		
PV \ YP	10.00 cP \ 12.00 g/100cm^2			Stab - string	1.80	6 3/4	2 1/4		112.53		
Gel Strength, 10s\10min	8.00 \ 10.00 g/100cm^2			NM Sub - filter	1.80	6 3/4	2 1/2		146.82		
Rheological Model	Robertson-Stiff			UP / UPU	1.60	6 3/4	2 1/2		240.86		
	k 1,297.940[cP] N 0.404[-] sri 68.514[1/s]			NAVITRAK /INTEQ	9.30	6 3/4	2 3/4		230.24		
Casing / Open Hole				Sub - X/O	0.80	8	2 3/4		150.66		
Type	OD in	ID in	Bottom MD m	Stab - string	2.10	8	2 3/4		178.34		
Casing	13 3/8	12.615	50.00	Sub - float	0.80	8	2 3/4		165.01		
Openhole		12 1/4	400.00	PDM - Ultra XL w/ I...	9.80	8	6.400		94.64		
Volumes bbl				Bit - insert - roll...	0.40	12 1/4			179.08		
Annulus Volume	152.460	Hole Volume	192.750								
String Displacement	22.380	String Volume	17.910								

Flowrate	l/min	2200	2100	2000	1900	1800	1700	1600	1500	1400	1300
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Bit Hydraulics											
SPP	bar	102.9	95.9	89.3	82.9	76.7	70.9	65.3	59.9	54.8	50.0
Surface HP	HP	505.4	450.0	398.8	351.7	308.5	269.1	233.2	200.7	171.4	145.2
Bit DeltaP	bar	28.2	25.7	23.3	21.0	18.9	16.8	14.9	13.1	11.4	9.8
%SPP	%	27	27	26	25	25	24	23	22	21	20
Jet Velocity	ft/sec	237.4	226.6	215.8	205.0	194.2	183.5	172.7	161.9	151.1	140.3
Impact Force	lbf/in^2	5.7	5.2	4.7	4.2	3.8	3.4	3.0	2.6	2.3	2.0
HSI	HP/in^2	1.19	1.04	0.90	0.77	0.65	0.55	0.46	0.38	0.31	0.25

System Pressure Loss - W/O Cuttings Effect											
Surf Equip	bar	2.6	2.4	2.2	2.0	1.8	1.6	1.4	1.3	1.1	1.0
DP,CSG,LNR,TBG	bar	3.5	3.2	3.0	2.8	2.5	2.3	2.1	1.9	1.7	1.6
HWDP/CSDP	bar	4.5	4.2	3.9	3.6	3.3	3.0	2.8	2.5	2.3	2.0
DC/CT	bar	8.3	7.8	7.2	6.7	6.1	5.6	5.2	4.7	4.2	3.8
MWD	bar	25.4	23.5	21.6	19.8	18.2	16.6	15.2	13.8	12.6	11.4
Motor (Op ΔP 5.9 bar)		27.0	26.0	25.1	24.1	23.1	22.2	21.2	20.3	19.3	18.3
Additional Tools	bar	2.4	2.2	2.1	1.9	1.8	1.6	1.5	1.3	1.2	1.1
Annulus	bar	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.9
ECD - CSG Shoe	kg/l	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
ECD - BH	kg/l	1.15	1.15	1.15	1.15	1.15	1.15	1.14	1.14	1.14	1.14

Annular Velocities m/s Flow Regime											
Hole ID in	String OD in										
12.615	5	0.54 L	0.51 L	0.49 L	0.47 L	0.44 L	0.42 L	0.39 L	0.37 L	0.34 L	0.32 L
12 1/4	5	0.58 L	0.55 L	0.53 L	0.50 L	0.47 L	0.45 L	0.42 L	0.39 L	0.37 L	0.34 L
12 1/4	6 3/4	0.69 L	0.66 L	0.63 L	0.60 L	0.57 L	0.54 L	0.50 L	0.47 L	0.44 L	0.41 L

Fluid Circulation Times											
Surface to Bit	hr	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bottom Up	hr	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3

Case - Trava NW 1 Dir - 12 1/4" UTR + NTK

Operator	Aleanna Resources LLC	Facility	Trava NW 1 dir
Well	Trava NW 1 dir	Field	Corte dei Signori

Drilling Parameter		Analysis Setup	
Bit Depth	400 m	Calculate Indicated Hook Loads	No
Weight on Bit	4 tonne	Include Bending Influence	Yes
Torque on Bit	0.8 kft.lb		
Bit Drag Force	- tonne		
Overpull Force	- tonne		
ROB Torque Resistance	- kft.lb		
Buckling Criterion		Conservative - (Unloading)	
Depth Interval m	Inner Fluid Density kg/l	Depth Interval m	Outer Fluid Density kg/l
400	1.12	400	1.12

Drill String							Casing / Open Hole			
Type	OD in	ID in	TJOD in	TJID in	Act. Wt lb/ft	Length m		OD in	ID in	Bottom MD m
Drill pipe	5	4.276	6 5/16	2 3/4	23.89	221.70	Casing	13 3/8	12.615	50.00
HWDP	5	3	6 5/8	3	50.38	73.60	Open Hole		12 1/4	400.00
Drill collar	6 3/4	2 1/2			105.00	36.80				
Jar	6 3/4	2 1/2			220.23	9.60				
Drill collar	6 3/4	2 1/2			105.00	27.90				
Sub - circulation	6 3/4	2 1/2			150.66	2.00				
Stab - string	6 3/4	2 1/4			112.53	1.80				
NM Sub - filter	6 3/4	2 1/2			146.82	1.80				
UP / UPU	6 3/4	2 1/2			240.86	1.60				
MWD - NaviTrak	6 3/4	2 3/4			230.24	9.30				
Sub - X/O	8	2 3/4			150.66	0.80				
Stab - string	8	2 3/4			178.34	2.10				
Sub - float	8	2 3/4			165.01	0.80				
Motor - steerable	8	6.400			94.64	9.80				
Bit - insert - roller cone	12 1/4				179.08	0.40				

Tortuosity / Noise				Friction Factor		
Bottom MD m	Build-Plane Curvature deg/30m	Turn-Plane Curvature deg/30m	Variation	Bottom MD m	Axial	Torsional
50	0.2	0.2	Random	50	0.25 i	
400	0.8	1.6	Random	400	0.35 i	

	Hook Load @ 0.0 MD tonne	Indicated Hook Load tonne	Rotary Torque kft.lb		Axial Velocity m/hr	Rotary Speed RPM
Drilling	22	22	1.2	ROP	10.0	50
Slack-Off	25	25	0.0	RIH	300.0	0
Pick-Up	27	27	0.0	POOH	300.0	0
Rot off Btm	26	26	0.5	Rotational Discontinuity	No	

	Drag tonne	Drill String Twist	0 rev	26 deg		Stretch mm
Drilling	0	Max Allowable HookLoad (@min. Yield)	323 tonne		Drilling	63.7
Slack-Off	1	DrillString Weight in Air	34 tonne		Slack-Off	76.5
Pick-Up	1	Bit To Neutral Point (Drilling)	26.67 m		Pick-Up	81.3
		Sin. Buckling WOB	20 tonne		Rot off Btm	78.9

	Drawwork HP	at Fastline Load tonne	Rotary HP	Mud Pumps HP	Max Flowrate l/min	Max SPP bar
Power	29.5 P	27 P	11.6 D	0.0	0	150.0

Case - Trava NW 1 Dir - 12 ¼" UTR + NTK

Operator	Aleanna Resources LLC	Facility	Trava NW 1 dir
Well	Trava NW 1 dir	Field	Corte dei Signori

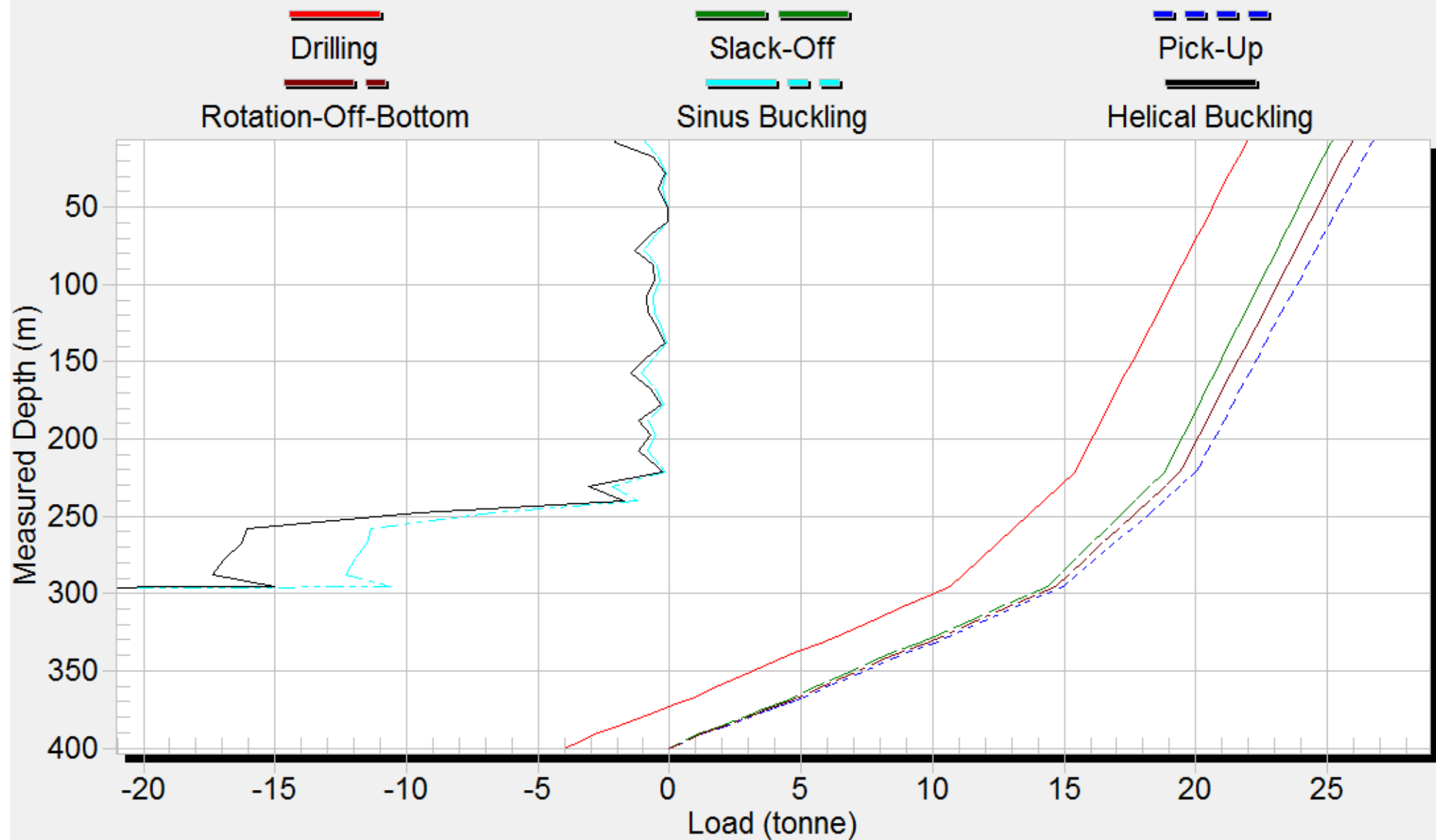
	O.Mode	Stress psi	at MD m		O.Mode	Safety Factor	at MD m
Max Axial	P	11164.9	0.00	Min Yield Safety Factor	P	12.00	7.70
Max Torsional	D	1282.0	0.00	Min Fatigue Safety Factor	D	6.82	295.30
Max Bending	D	3714.3	399.60				
Max Combined	D	11250.1	7.70				
D Drilling	S Slack-Off	P Pick-Up	R Rot off Btm		i input	c calculated	

Comment	Date 15/May/2018 20:52:36 Prepared by Andrea D'Angelo
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Any opinion and/or recommendation, expressed orally or written herein, has been prepared carefully and may be used if the user so elects, however, no representative or warranty is made by ourselves or our agents as to the correctness or completeness, and no liability is assumed for any damages resulting from the use of same.

Calculated Loads along String vs. Measured Depth

Case - Trava NW 1 dir - 12 1/4" UTR + NTK



Min. Yield Saf. Fact.: 12.00 (P)

Drilling HKLD: 22.2 tonne

Pick-Up HKLD: 26.9 tonne

Min. Fatigue Saf. Fact.: 6.82 (D)

Slack-Off HKLD: 25.4 tonne

ROB HKLD: 26.2 tonne

Sin. Buckling WOB: 19.6 tonne

8 1/2" Section

Section and equipment overview

Starting from the 9 5/8" casing shoe at 400m MD, the 8 1/2" section will be drilled with a S-shape tangent profile up to TD = 1115.27mMD (=1100.00m TVDRT)

A 6 3/4" Ultra XL motor and a 6 3/4" MWD NaviTrak tool will be use to drill this productive phase.

The motor will be stabilized with a 8 3/8" UBHS and 8" string top stabilizer: this stabilizer configuration, in conjunction with an adequate AKO (Adjustable Kick-Off) angle, will provide the required BUR, in order to build/drop the follow the assembly and follow the correct trajectory. At the same time, the proposed BHA configuration will assure a quite neutral tendency of the assembly, while drilling in rotary mode, considering the soft formations expected at these intermediate depths.

The number of drill collars and HWDPs above and below the jar has been chosen in order to provide a sufficient WOB and ensuring correct jar activation in case of stuck BHA; along the whole tangent wellpath.

Hydraulics calculations show a 149bar SPP with a 1600lpm flow-rate.














Using standard values for friction factors, the T&D analysis shows a drilling torque value equal to ~4.2 kft.lb: this value is below the maximum limit for the planned drillpipes (5" OD – 19.5 lb/ft – Premium). The maximum value of the drag, when the BHA will be picked-up, will be equal to 7 tons.

Sinusoidal buckling limit is equal to 18 tons.

Calculated load below the jar is equal to 7tons, above is equal to 10tons.



8 1/2" Section - Proposed Ultra XL Motor + NaviTrak BHA

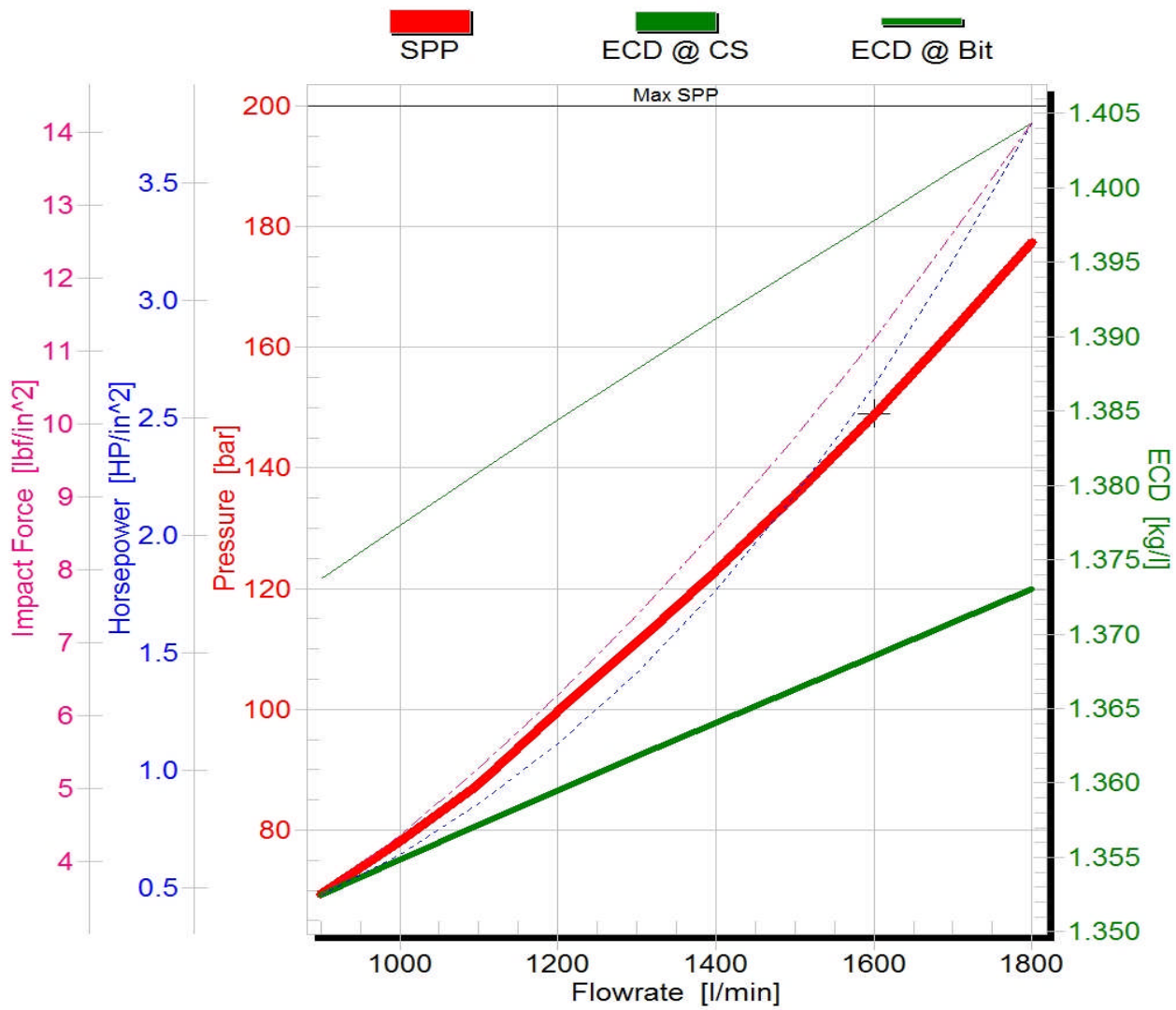
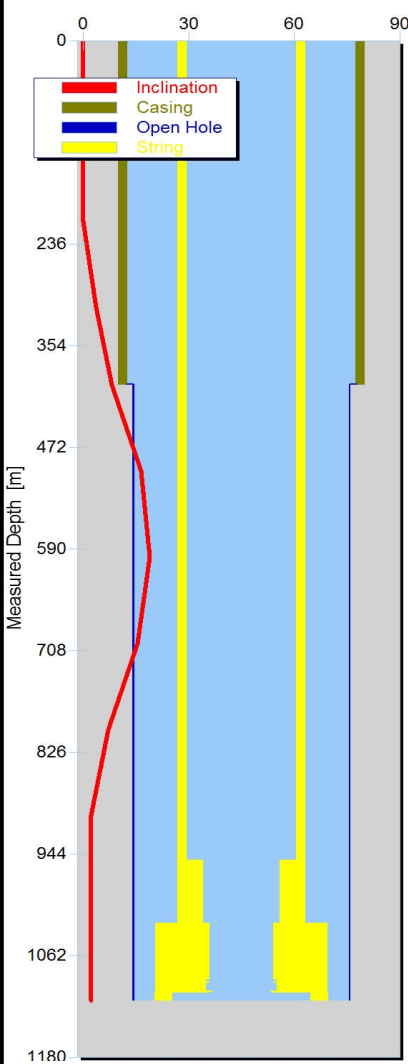
8 1/2" Steerable Motor BHA + MWD NaviTrak								
Operator	Aleanna Resources		Field		Corte dei Signori			
Well	Trava NW 1 dir		Depth IN: 400m MD		Depth OUT: 1115 MD			
String Components								
Item	#	Component	Gauge OD in	OD in	ID in	Thread	Length m	Total Length m
	13	Drill pipe		5	4.276	(BP) 4 1/2 IF – 4 1/2 IF	951.20	1115.00
	12	HWDP x 8		5	3	(BP) 4 1/2 IF – 4 1/2 IF	73.60	163.80
	11	Drill Collar x 4		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	36.80	90.20
	10	Jar		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	9.60	53.40
	9	Drill Collar x 3		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	27.90	43.80
	8	Circulation Sub		6 3/4	2 3/4	(BP) 4 1/2 IF – 4 1/2 IF	1.40	25.20
	7	Sub - Filter		6 3/4	2 3/4	(BP) 4 1/2 IF – 4 1/2 IF	1.20	23.80
	6	Pulser		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	1.60	22.60
	5	MWD NaviTrak		6 3/4	2 3/4	(BP) 4 1/2 IF – 4 1/2 IF	9.30	21.00
	4	Stab string	8	6 3/4	2 1/4	(BP) 4 1/2 IF – 4 1/2 IF	1.80	11.70
	3	Float Valve (included in the motor)		6 3/4	2 1/2	(BP) 4 1/2 IF – 4 1/2 IF	0.60	9.90
	2	Ultra XL motor UBHS = 8 3/8" AKO=1.3°	8 3/8	6.791	5.400	(BB) 4 1/2 IF – 4 1/2 Reg	9.00	9.30
	1	Bit	8 1/2	8 1/2		4 1/2 Reg	0.30	0.30
13 BHA components								



Case - Trava NW 1 Dir - 8 1/2" UTR + NTK

Operator	Aleanna Resources LLC	Facility	Trava NW 1 dir
Well	Trava WE 1 dir	Field	Corte dei Signori
Hole Size	8 1/2 in	Bit Depth (MD)	1115.00 m
		Bit Depth (TVD)	1099.54 m

Inclination deg **Hydraulics Operating Window** **Numerical Data**



Drilling Fluid	
Mud System	Water Based
Mud Density	1.30 kg/l
	Csg Shoe Bottom
	kg/l kg/l
ECD_{w/o} Cuttings	1.37 1.40
ESD_{w/o} Cuttings	1.30 1.30
initial	
Circulation Data	
Flowrate	1600 l/min
ROP	10.0 m/hr
RPM	60 RPM
Bit TFA	0.5085 in ²
Flowrates	
OH Critical	2611 l/min
System Pressure Loss	
Drill String	27.6 bar
Motor (Op ΔP)	12.4 bar
Motor (No-Load)	28.5 bar
MWD	26.6 bar
Bit	41.3 bar
Annulus	10.5 bar
Surface Equip	2.0 bar
SPP	148.9 bar

Comment Date 15/May/2018 20:54:20
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Case - Trava NW 1 Dir - 8 1/2" UTR + NTK

Operator	Aleanna Resources LLC	Facility	Trava NW 1 dir
Well	Trava WE 1 dir	Field	Corte dei Signori

General				Drill String					
Max Allw.SPP	200.0 bar			Type	Length m	OD in	ID in	TJ in \ in	Weight lb/ft
Surface Equip.	Type 4			DP - NC50 (IF) /S-1...	951.20	5	4.276	6 5/16 \ 2 3/4	19.50
Bit Depth	1115.00	Bit TVD	1099.54 m	HWDP-NC50 /HW-55	73.60	5	3	6 5/8 \ 3 1/16	50.10
Bit Nozzles in/32	3x11 \ 3x10 TFA 0.5085 in^2			DC - API N.C. 50	36.80	6 3/4	2 1/2		105.00
Drilling Fluid				Jar	9.60	6 3/4	2 1/2		148.91
Mud System	Water Based			DC - API N.C. 50	18.60	6 3/4	2 1/2		105.00
Mud Weight	1.30 kg/l			Sub - circulation	1.40	6 3/4	2 3/4		100.51
PV \ YP	25.00 cP \ 14.00 g/100cm^2			NM Sub - filter	1.20	6 3/4	2 3/4		97.60
Gel Strength, 10s\10min	6.00 \ 8.00 g/100cm^2			PULSER /INTEQ	1.60	6 3/4	2 1/2		150.77
Rheological Model	Robertson-Stiff			NAVITRAK /INTEQ	9.30	6 3/4	2 3/4		152.16
	k 706.040[cP] N 0.577[-] sri 30.514[1/s]			Stab - string	1.80	6 3/4	2 1/4		100.95
Casing / Open Hole				Sub - float	0.60	6 3/4	2 1/2		104.94
Type	OD in	ID in	Bottom MD m	PDM - Ultra XL /INT...	9.00	6.791	5.400		87.04
Casing	9 5/8	8.921	400.00	Bit - PDC - fixed c...	0.30	8 1/2			134.39
Openhole		8 1/2	1115.00						
Volumes bbl									
Annulus Volume	168.860	Hole Volume	266.100						
String Displacement	38.810	String Volume	58.430						

Flowrate	l/min	1800	1700	1600	1500	1400	1300	1200	1100	1000	900
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Bit Hydraulics											
SPP	bar	177.3	162.8	148.9	135.6	123.0	111.0	99.7	87.5	78.2	69.5
Surface HP	HP	712.9	618.0	532.0	454.3	384.5	322.3	267.1	214.9	174.6	139.7
Bit DeltaP	bar	52.2	46.6	41.3	36.3	31.6	27.2	23.2	19.5	16.1	13.1
%SPP	%	29	29	28	27	26	25	23	22	21	19
Jet Velocity	ft/sec	300.0	283.3	266.7	250.0	233.3	216.7	200.0	183.3	166.7	150.0
Impact Force	lbf/in^2	14.1	12.6	11.2	9.8	8.5	7.4	6.3	5.3	4.4	3.5
HSI	HP/in^2	3.76	3.16	2.64	2.17	1.77	1.41	1.11	0.86	0.64	0.47

System Pressure Loss - W/O Cuttings Effect											
Surf Equip	bar	2.4	2.2	2.0	1.7	1.5	1.3	1.2	1.0	0.8	0.7
DP,CSG,LNR,TBG	bar	16.3	14.8	13.5	12.2	10.9	9.7	8.5	5.9	5.6	5.3
HWDP/CSDP	bar	5.5	5.1	4.6	4.1	3.7	3.3	2.9	2.5	2.2	1.8
DC/CT	bar	9.0	8.3	7.5	6.8	6.1	5.4	4.7	4.1	3.6	3.0
MWD	bar	33.7	30.1	26.6	23.4	20.4	17.6	15.0	12.6	10.4	8.4
Motor (Op ΔP 12.4 bar)		44.5	42.7	40.9	39.1	37.3	35.5	33.8	32.0	30.2	28.4
Additional Tools	bar	2.4	2.2	2.0	1.8	1.6	1.4	1.3	1.1	0.9	0.8
Annulus	bar	11.3	10.9	10.5	10.2	9.8	9.5	9.1	8.7	8.3	7.9
ECD - CSG Shoe	kg/l	1.37	1.37	1.37	1.37	1.36	1.36	1.36	1.36	1.35	1.35
ECD - BH	kg/l	1.40	1.40	1.40	1.39	1.39	1.39	1.38	1.38	1.38	1.37

Annular Velocities m/s Flow Regime											
Hole ID in	String OD in										
8.921	5	1.08 L	1.02 L	0.96 L	0.90 L	0.84 L	0.78 L	0.72 L	0.66 L	0.60 L	0.54 L
8 1/2	5	1.25 L	1.18 L	1.11 L	1.04 L	0.97 L	0.90 L	0.84 L	0.77 L	0.70 L	0.63 L
8 1/2	6 3/4	2.22 L	2.10 L	1.97 L	1.85 L	1.73 L	1.60 L	1.48 L	1.36 L	1.23 L	1.11 L

Fluid Circulation Times											
Surface to Bit	hr	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Bottom Up	hr	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.5

Comment Date 15/May/2018 20:55:18
Prepared by Andrea D'Angelo

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Case - Trava NW 1 Dir - 8½" UTR + NTK

Operator	Aleanna Resources LLC	Facility	Trava NW 1 dir
Well	Trava WE 1 dir	Field	Corte dei Signori

Drilling Parameter				Analysis Setup			
Bit Depth	1115 m	Calculate Indicated Hook Loads		No			
Weight on Bit	5 tonne						
Torque on Bit	1.0 kft.lb						
Bit Drag Force	- tonne						
Overpull Force	- tonne	Include Bending Influence		Yes			
ROB Torque Resistance	- kft.lb	Buckling Criterion		Conservative - (Unloading)			
Depth Interval m	Inner Fluid Density kg/l	Depth Interval m	Outer Fluid Density kg/l				
1115	1.30	1115	1.30				

Drill String							Casing / Open Hole			
Type	OD in	ID in	TJOD in	TJID in	Act.Wt lb/ft	Length m		OD in	ID in	Bottom MD m
Drill pipe	5	4.276	6 5/16	2 3/4	23.89	951.20	Casing	9 5/8	8.921	400.00
HWDP	5	3	6 5/8	3 1/16	50.10	73.60	Open Hole		8 1/2	1115.00
Drill collar	6 3/4	2 1/2			105.00	36.80				
Jar	6 3/4	2 1/2			148.91	9.60				
Drill collar	6 3/4	2 1/2			105.00	18.60				
Sub - circulation	6 3/4	2 3/4			100.51	1.40				
NM Sub - filter	6 3/4	2 3/4			97.60	1.20				
UP / UPU	6 3/4	2 1/2			150.77	1.60				
MWD - NaviTrak	6 3/4	2 3/4			152.16	9.30				
Stab - string	6 3/4	2 1/4			100.95	1.80				
Sub - float	6 3/4	2 1/2			104.94	0.60				
Motor	6.791	5.400			87.04	9.00				
Bit - PDC - fixed cutter	8 1/2				134.39	0.30				

Tortuosity / Noise				Friction Factor		
Bottom MD m	Build-Plane Curvature deg/30m	Turn-Plane Curvature deg/30m	Variation	Bottom MD m	Axial	Torsional
400	0.4	0.8	Random	400	0.25 i	
1115	0.8	1.6	Random	1115	0.35 i	

	Hook Load @ 0.0 MD tonne	Indicated Hook Load tonne	Rotary Torque kft.lb		Axial Velocity m/hr	Rotary Speed RPM
Drilling	39	39	4.2	ROP	10.0	60
Slack-Off	38	38	0.0	RIH	300.0	0
Pick-Up	52	52	0.0	POOH	300.0	0
Rot off Btm	44	44	3.8	Rotational Discontinuity	No	

	Drag tonne	Drill String Twist	0 rev	235 deg		Stretch mm
Drilling	0	Max Allowable HookLoad (@min. Yield)	323 tonne		Drilling	337.7
Slack-Off	6	DrillString Weight in Air	55 tonne		Slack-Off	359.5
Pick-Up	7	Bit To Neutral Point (Drilling)	38.33 m		Pick-Up	464.7
		Sin. Buckling WOB	19 tonne		Rot off Btm	407.6

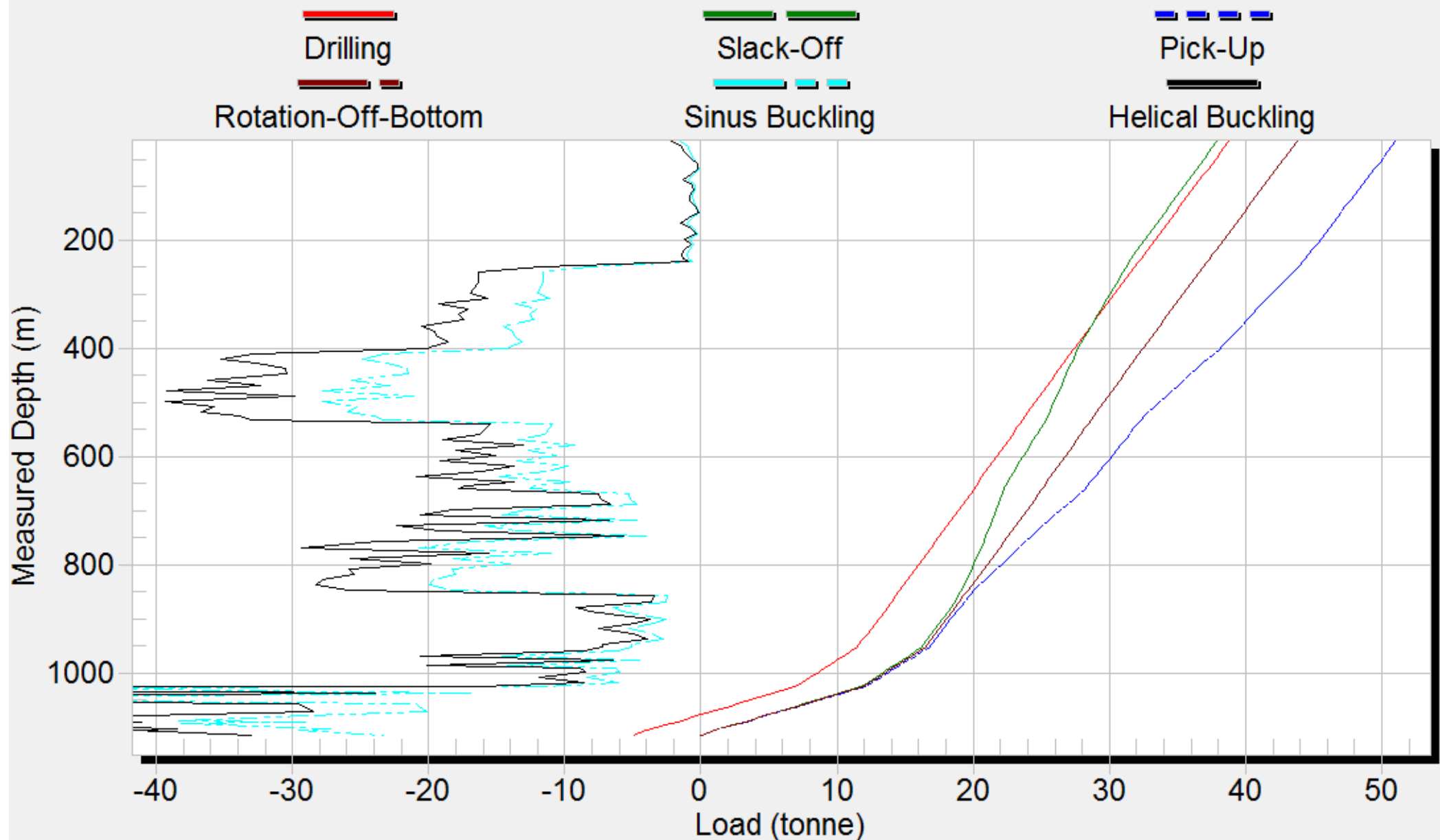
	Drawwork HP	at Fastline Load tonne	Rotary HP	Mud Pumps HP	Max Flowrate l/min	Max SPP bar
Power	56.4 P	52 P	47.8 D	0.0	0	200.0

Case - Trava NW 1 Dir - 8½" UTR + NTK

Operator	Aleanna Resources LLC			Facility	Trava NW 1 dir		
Well	Trava WE 1 dir			Field	Corte dei Signori		
	O.Mode	Stress psi	at MD m		O.Mode	Safety Factor	at MD m
Max Axial	P	21446.7	0.00	Min Yield Safety Factor	P	6.02	247.70
Max Torsional	D	4400.9	0.00	Min Fatigue Safety Factor	D	3.15	467.70
Max Bending	P	6760.4	467.70				
Max Combined	P	22436.5	247.70				
D Drilling	S Slack-Off	P Pick-Up	R Rot off Btm			i input	c calculated
Comment					Date 15/May/2018 20:55:54 Prepared by Andrea D'Angelo		
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Calculated Loads along String vs. Measured Depth

Case - Trava NW 1 dir - 8½" UTR + NTK



Min. Yield Saf. Fact.: 6.02 (P)

Drilling HKLD: 39.3 tonne

Pick-Up HKLD: 51.5 tonne

Min. Fatigue Saf. Fact.: 3.15 (D)

Slack-Off HKLD: 38.4 tonne

ROB HKLD: 44.3 tonne

Sin. Buckling WOB: 18.6 tonne