



USR CHINA PROJECT

JUNE 2019 - PRESENT

UPDATE MAY 31, 2021

- **COMMENCED** Project - June 2019 With Rig 1. Added Rig 2 Dec 2019 After 10 Wells Drilled by Rig 1. Added Rig 3 Apr 2020 After 18 Wells Drilled by Rig 1 and Rig 2. Added Rig 4 Jul 2020 After 36 Wells Drilled by Rig 1, -2 and -3. Adding Rig 5 From May 2021.
- **COMPLETED** 77 Wells To Date in 24 Blocks / Fields Under 8 Oil-company Subsidiaries of CNPC Daqing Oilfield Co., Ltd.
- **IN PROGRESS** Rig 3 Well 77 Completion; Rig 1, 2, 5 Move To Wells 78, 79, 80
- **WELL TYPES-** The Number of Wells Drilled Includes 1 Re-entry (Successfully Overcame Shale Collapse Problem, est. 40 bopd); Suspension (Communicates and Overcharged by Water Injection Zone); A Number of Two-lateral Wells.
- **PRODUCTION RESULTS-** First 5 Wells Incremental Oil 264 bopd (Known, Available Production Data Only).
- **MANPOWER-** Five Rig Teams, Three USR Crews On-site operations Under Two “Foreign Experts” On-site & Remote Real Time Directional Supervision Between March and September 2020 And January 2021 To Present Due to Pandemic Travel Restrictions Supporting Field Operations and Planning.
- **RIG & KEY EQUIPMENT-** Power Swivel No. 3, 4, 5, 6 and All Downhole Equipment For Three Additional Crew Arrived November 2020. Five USR Rigs Operate in “Leap Frog” Mode Since After Chinese New Year ‘21
- **FUTURE WORK SCOPE-** >100 Wells, Plus 3 Other Oil Fields in Other 3 Regions
- **INACTIVE DAYS-** 2020 CNY Break and Pandemic Stoppage from 12th (Rig 2) and 17th Jan (Rig 1) to 4th (Rig 2) and 21st Mar (Rig 1). 2021 CNY break 31-Jan to 19-Feb-21.



ATTESTATION, CNPC DAQING OILFIELD CO., LTD.

“...Proof of Application of USR Technology ... make the precise targeting tapping of oilfield reserves possible...has several unique innovations...quickly adjust the well orientation while drilling to ensure the probability of drilling to the oil reservoir...resulting in a high utilization rate of the oil reservoir...multi-directional multi-branch drilling in the same layer and the multi-layer multi-branch drilling in a single well are realized so as to achieve the maximum control and tapping of the reservoirs through one well and improve the development efficiency...Between 2019 and 2020, 45 wells with ultra-short radius horizontal drilling were successfully tested in Daqing Oilfield and all indicators met the design requirements. This technology can achieve precise tapping of remaining oil when being applied in old wells and reduce the number of wells deployed to save land acquisition when being applied in new area development. The development and application of this technology has filled the gap of ultra-short radius horizontal drilling technology in China...”

超短半径水平钻井技术成果应用证明

大庆辰平钻井技术服务有限公司研发的超短半径水平钻井技术是一项油田精准靶向挖潜的新技术,属于国内首创技术,整体处于国际领先水平。创新的随钻测量技术、钻井轨迹随钻调整技术使油田储量精准靶向挖潜成为了现实。具有靶前位移短、轨迹控制程度高、储量损失少、储层钻遇率高的特点;技术核心优势是可定方位、定深度、定长度对油气储量进行靶向挖潜。与以往同类技术对比具有多项独特创新:1、独有的MWD随钻测量技术实时反馈井斜、方位信息,使得井下轨迹信息可视;2、独有的多弯角泥浆马达+钛合金钻杆+遥控动力水龙头组合,可随钻进行井斜、方位快速调整,确保油层钻遇率;3、造斜阶段的超高造斜率可达 $7.6^{\circ}/\text{米}$,仅以小于30米的曲率半径将直井变成水平井,仅以20米的水平位移就可迅速进入油层,油层利用率高;4、水平钻进距离达到200米以上,以往超短半径水平井仅能钻进几十米;5、实现同层多方向多分支及单井多层多分支钻井,利用一口井实现对储量最大程度的控制和挖潜,提升开发效益。

2019-2020年在大庆油田成功进行了45口超短半径水平钻井试验,各项指标完全达到设计要求。该项技术用于老井可实现剩余油精准挖潜,用于新区开发可减少布井数量,节约土地征用。这项技术的研发和应用,填补了国内超短半径水平钻井技术的空白。



大庆油田有限责任公司技术管理部

2021年4月30日



LIST OF CUSTOMERS

(ALL ARE SUBSIDIARIES OF CNPC
DAQING OILFIELD CO. LTD.)

UPDATE MAY 31, 2021 **DRAFT**

BLK/FLD #	BLOCK NAME, FIELD NAME	OIL COMPANY NAME
1	Tai 105 Block, Toutai Oilfield	Daqing Fangxing Oilfield Development Co., Ltd.
2	Bumug Field	Daqing Fangxing Oilfield Development Co., Ltd.
3	Tai 137 Block	Daqing Fangxing Oilfield Development Co., Ltd.
4	Tai 1 Block Mao 511-2	Daqing Fangxing Oilfield Development Co., Ltd.
5	Shu 334 Block, Yulin Oilfield	Daqing Yulin Oilfield Development Co., Ltd.
6	Xinshugang	No.5 Oil Extraction of Daqing
7	ShengYu Block 22, YuShuLin oilfield	Daqing Yulin Oilfield Development Co., Ltd.
8	Zhao 25 Well Block, Yushulin oilfield	Daqing Yulin Oilfield Development Co., Ltd.
9	Lamadian Oilfield	Daqing Oilfield Co., Ltd. 6th Oil Production Plant
10	No.4 Fault Block of North Pu	No.7 Oil Extraction of Daqing
11	No.3 Fault Block of North Pu	No.7 Oil Extraction of Daqing
12	West X1-3 Block	No.4 Oil Extraction of Daqing
13	Saertu Oilfield North 1 Block	No. 1 Oil Extraction of Daqing
14	Tai 190 Block	No.7 Oil Extraction of Daqing
15	No. 2 Fault Block of North Pu	No.7 Oil Extraction of Daqing
16	Pu 47 Block	No.7 Oil Extraction of Daqing
17	Chao 5 North Block	No.10 Oil Extraction of Daqing
18	Chao 44	No.10 Oil Extraction of Daqing
19	Chao 64	No.10 Oil Extraction of Daqing
20	Dong 18	Daqing Yulin Oilfield Development Co., Ltd.
21	Chao 50	No.10 Oil Extraction of Daqing
22	Block 86	No.10 Oil Extraction of Daqing
23	Saertu Field	No. 1 Oil Extraction of Daqing
24	Gu506-508 Block, GaoXi Oilfield South	Daqing Fangxing Oilfield Development Co., Ltd.



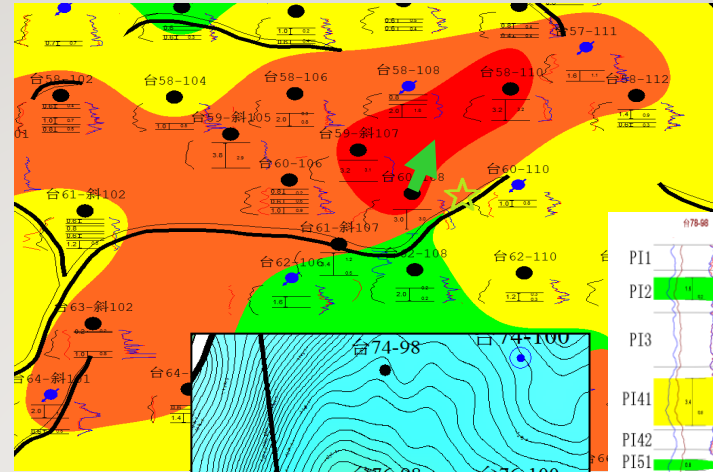
PROJECT'S FIELD NO. 1

HISTORY

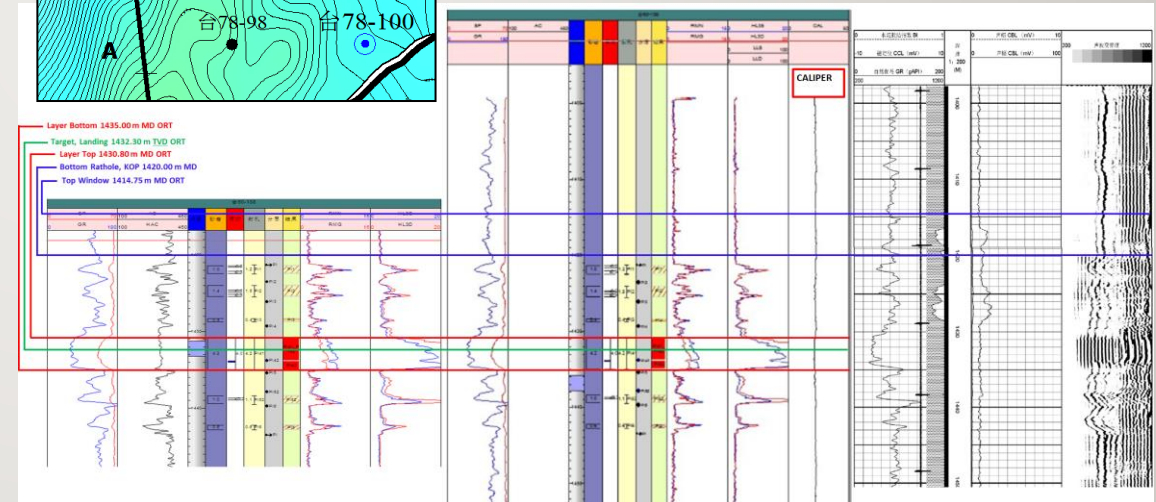
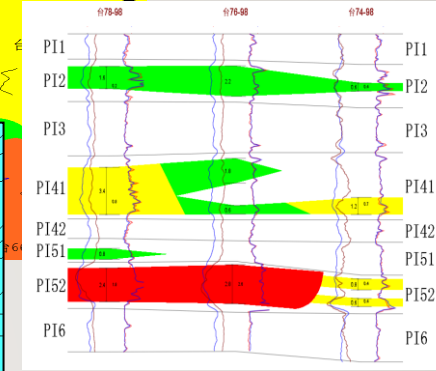
- Low recovery factors attributed to rapid decline in individual wells, due to the fault development and incomplete water flooding pattern.
- Significant oil reserves are in fault side and not exposed to flood front.
- Fracking and increased water injection to tap the remaining oil proved unsuccessful.

OBJECTIVES :

- To place horizontal wells toward residual oil-rich area by using USR drilling technology from existing wells.
- To improve drainage area and increase oil production.



⑤ Tai 60-108 well in P141 layer (north by east 30)



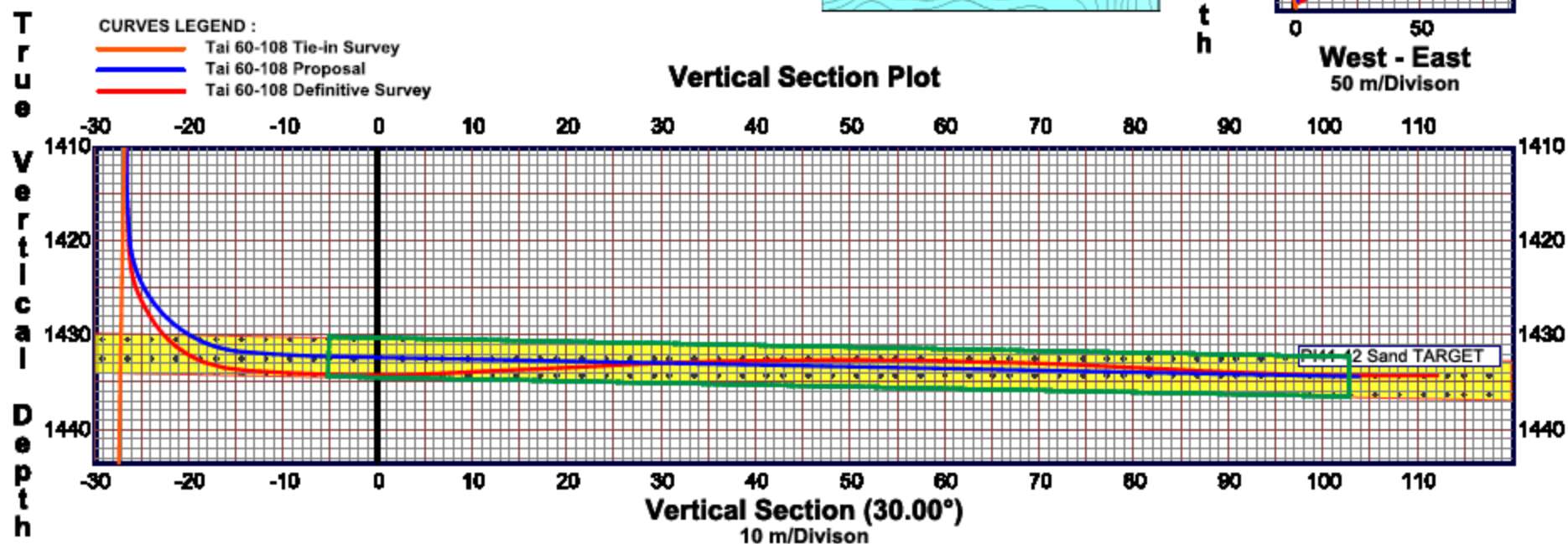
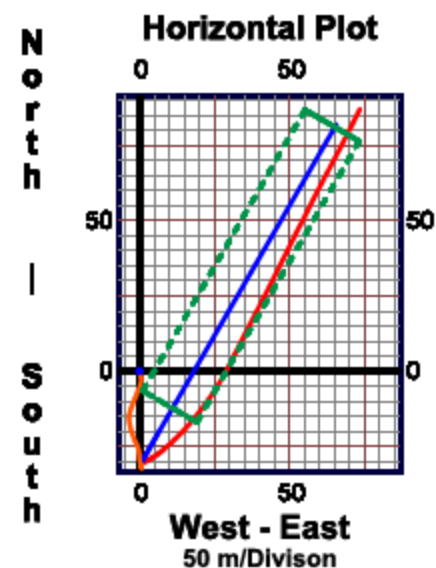
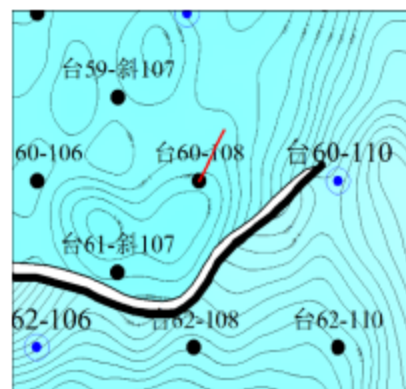


TAI 60-108 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Faxing
 Tie-In Survey Ref: File received 14-May-2019
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.68 deg (West of TN)
 Grid Convergence: +1.27 (East of TN)

Depth Reference: ORT
 ORT-GL: 4.00 m
 GL-MSL: 137.70 m
 Target Objective: PI41-42
 Target Thickness: 4.20 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 26.34° Grid azimuth
 Window: Top whipstock 1414.8, Bottom 1417.0, Rathole to 1419.5 (KOP)
 4-1/2" Curve: 1442.0 EOC, 15.8 m ROC (4.145°/m DLS)
 3-7/8" Lateral: 1568.6 Well TD



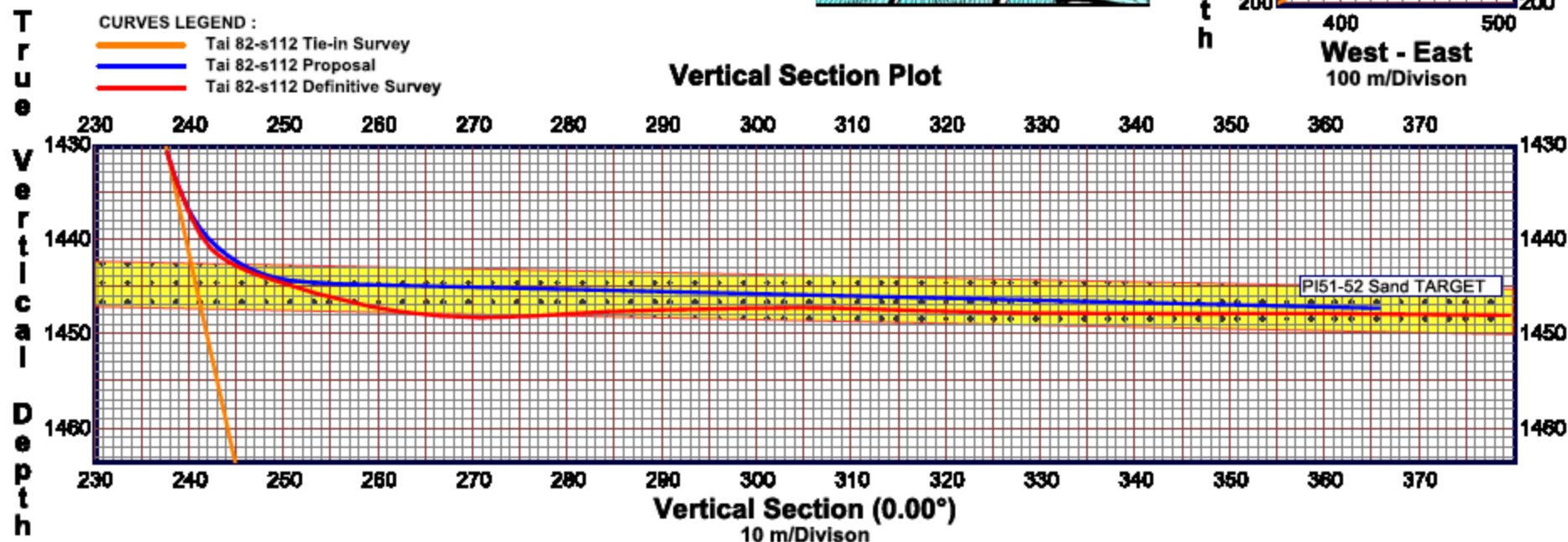
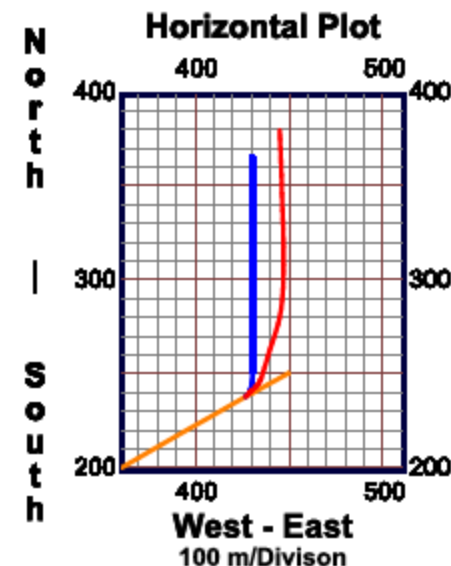
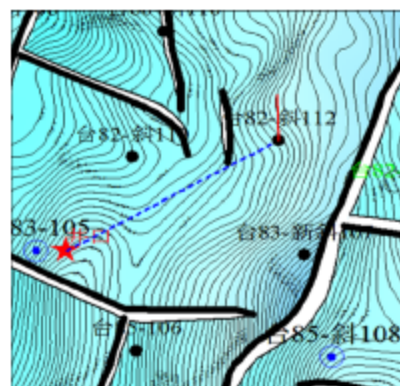


TAI 82-S112 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanding
Tie-In Survey Ref: File received 14-May-2019
North Reference: Grid Azimuth
Magnetic Dec.: -10.68 deg (West of TN)
Grid Convergence: +1.27 (East of TN)

Depth Reference: ORT
ORT-GL: 3.90 m
GL-MSL: 125.04 m
Target Objective: PI52
Target Thickness: 5.30 m

Whipstock, 5-1/2" 17# Casing MWD Oriented to 37.50° Grid azimuth
Window: Top whipstock 1539.0, Bottom 1542.0, Rathole to 1544.5 (KOP)
4-1/2" Curve: 1563.5 EOC, 13.4 m ROC (4.453°/m DLS)
3-7/8" Lateral: 1692.3 Well TD



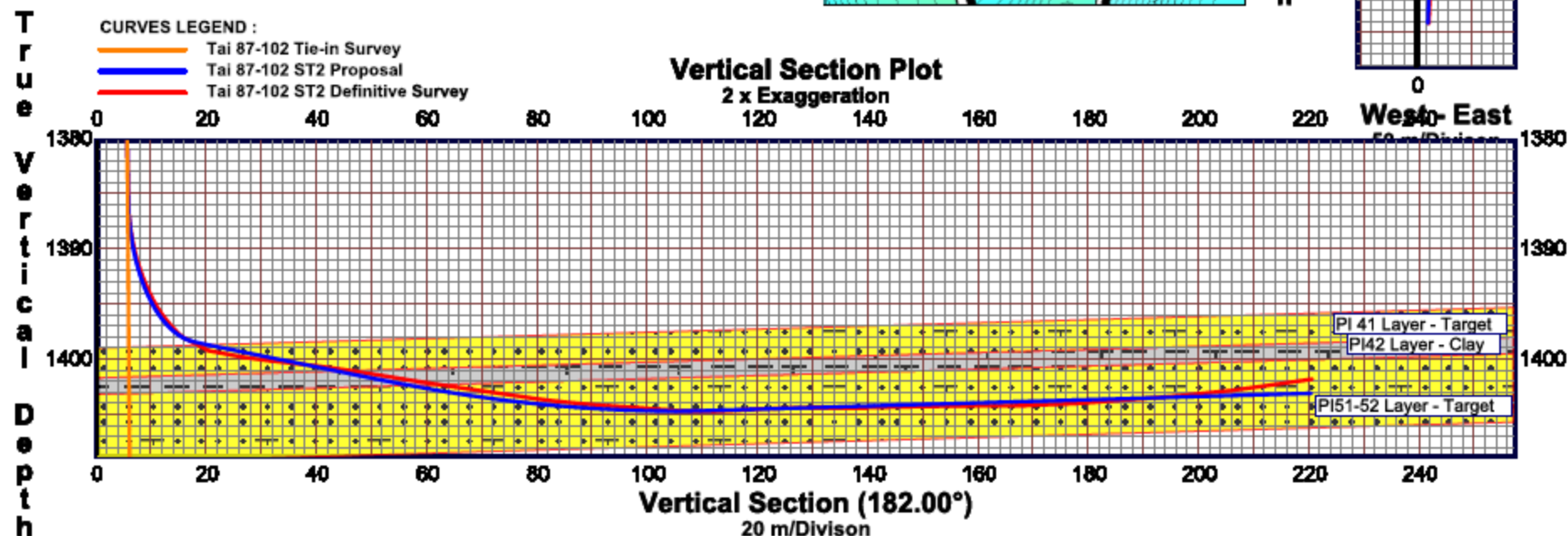
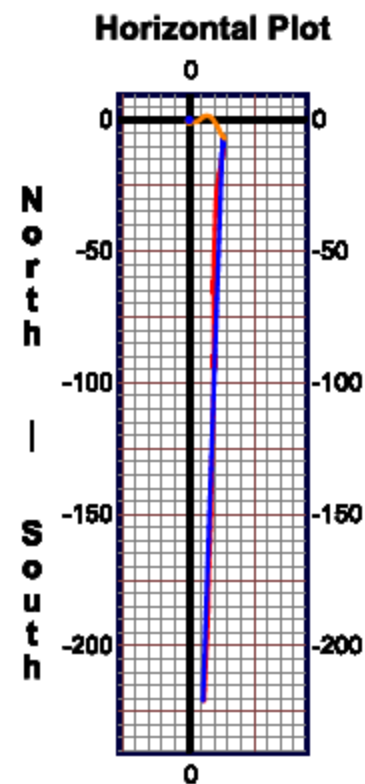
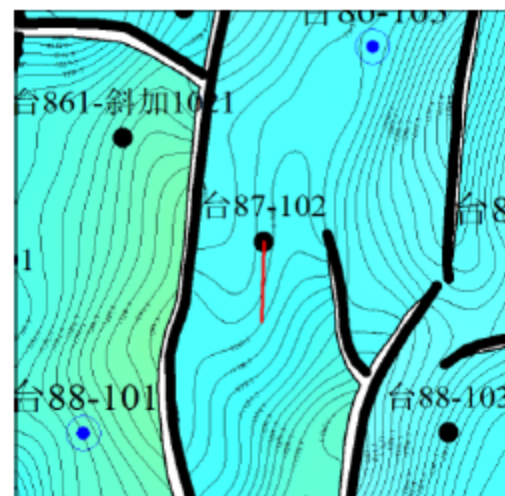


TAI 87-102 ST2 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Faxing
Tie-In Survey Ref: File received 14-May-2019
North Reference: Grid Azimuth
Magnetic Dec.: -10.68° (West of TN)
Grid Convergence: +1.27° (East of TN)

Depth Reference: ORT
ORT-GL: 3.70 m
GL-MSL: 125.04 m
Target Objective: PI52
Target Thickness: 6.20 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 162° Grid azimuth
Window: Top whipstock 1380.5, Bottom 1383.5, Rathole to 1385.5 (KOP)
4-1/2" Curve: 1407.5 EOC, 15.1 m ROC (4.004°/m DLS)
3-7/8" Lateral: 1608.0 Well TD



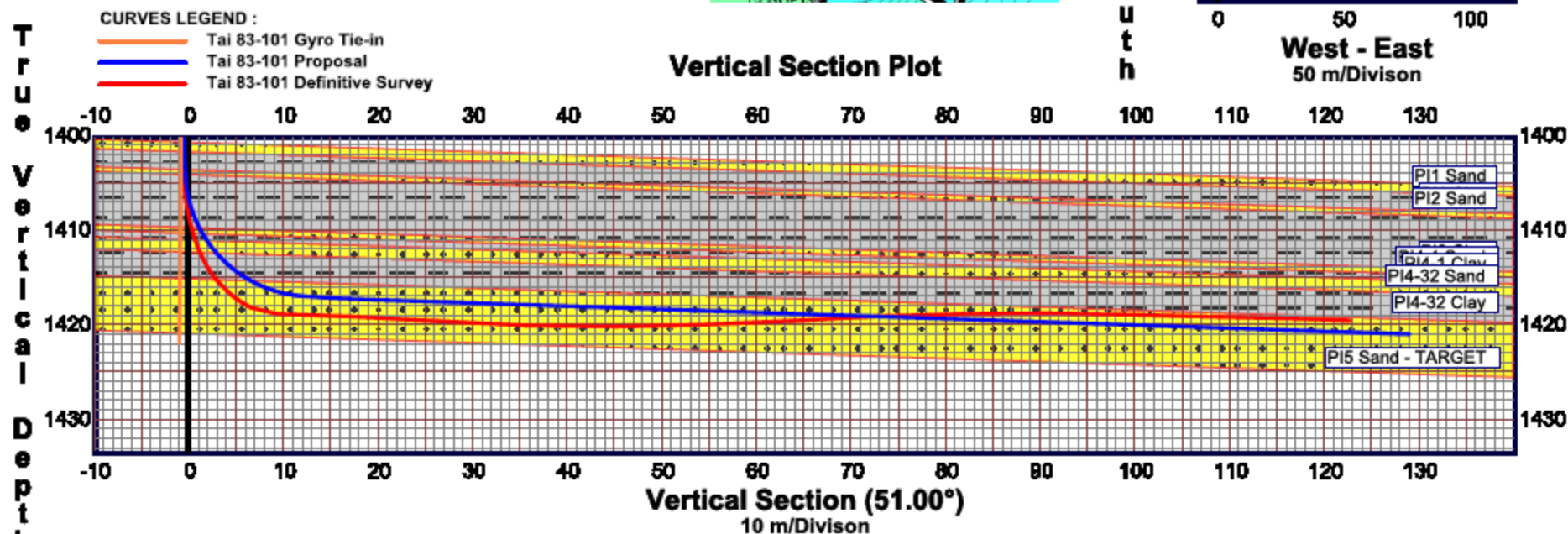
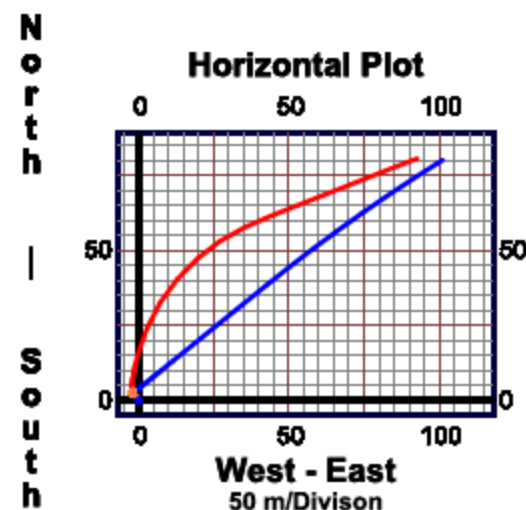
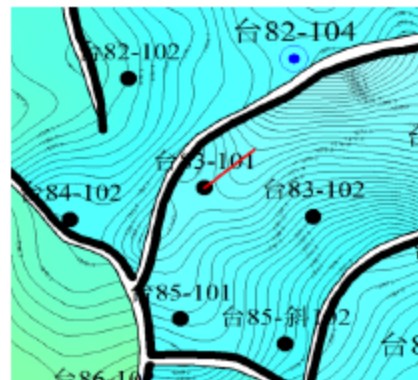


TAI 83-101 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing
 Tie-In Survey Ref: File received 14-May-2019
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.68° (West of TN)
 Grid Convergence: +1.27° (East of TN)

Depth Reference: ORT
 ORT-GL: 3.65 m
 GL-MSL: 125.03 m
 Target Objective: PI51-52
 Target Thickness: 5.20 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 140° Grid azimuth
 Window: Top whipstock 1399.1, Bottom 1402.1, Rathole to 1404.2 (KOP)
 4-1/2" Curve: 1427.5 EOC, 14.9 m ROC (4.189°/m DLS)
 3-7/8" Lateral: 1545.0 Well TD



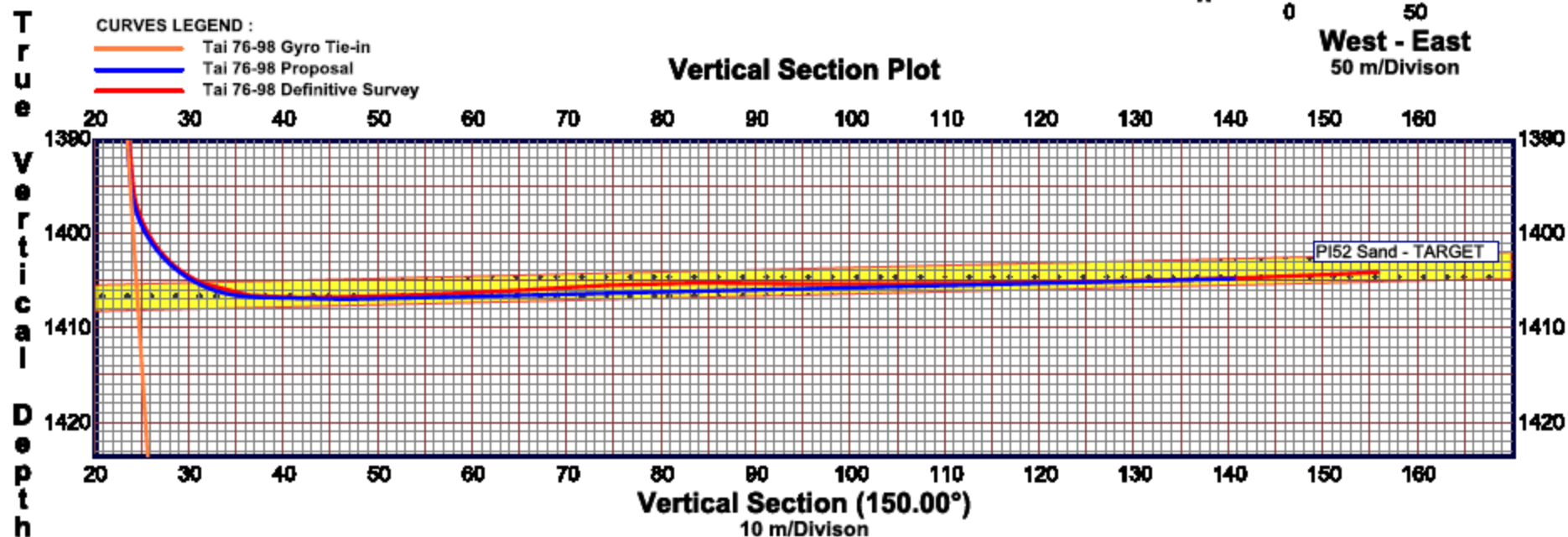
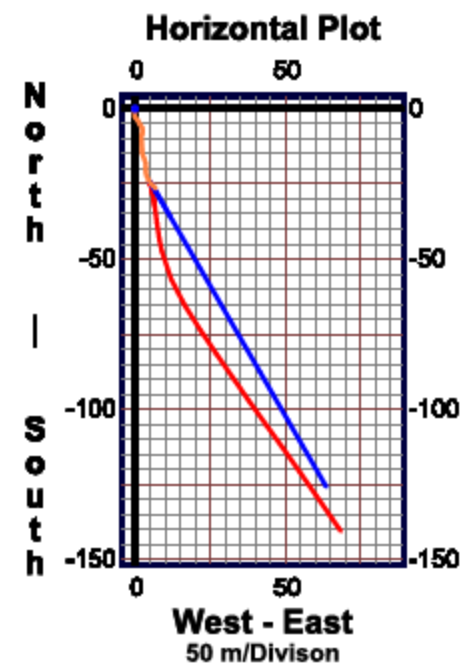
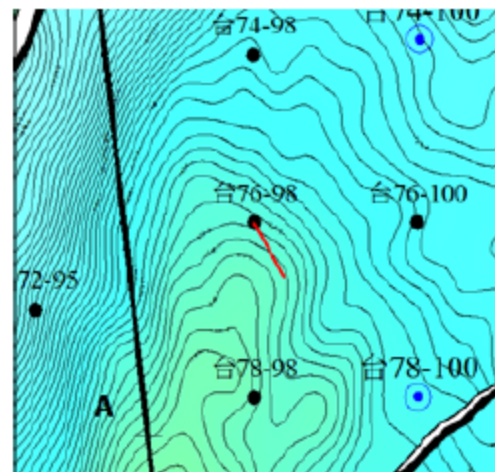


TAI 76-98 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Faxing
Tie-In Survey Ref: File received 14-May-2019
North Reference: Grid Azimuth
Magnetic Dec.: -10.68° (West of TN)
Grid Convergence: +1.27° (East of TN)

Depth Reference: ORT
ORT-GL: 4.50 m
GL-MSL: 126.66 m
Target Objective: PI52
Target Thickness: 2.80 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 140° Grid azimuth
Window: Top whipstock 1390.1, Bottom 1394.0, Rathole to 1395.1 (KOP)
4-1/2" Curve: 1414.0 EOC, 13.9 m ROC (4.533°/m DLS)
3-7/8" Lateral: 1535.2 Well TD



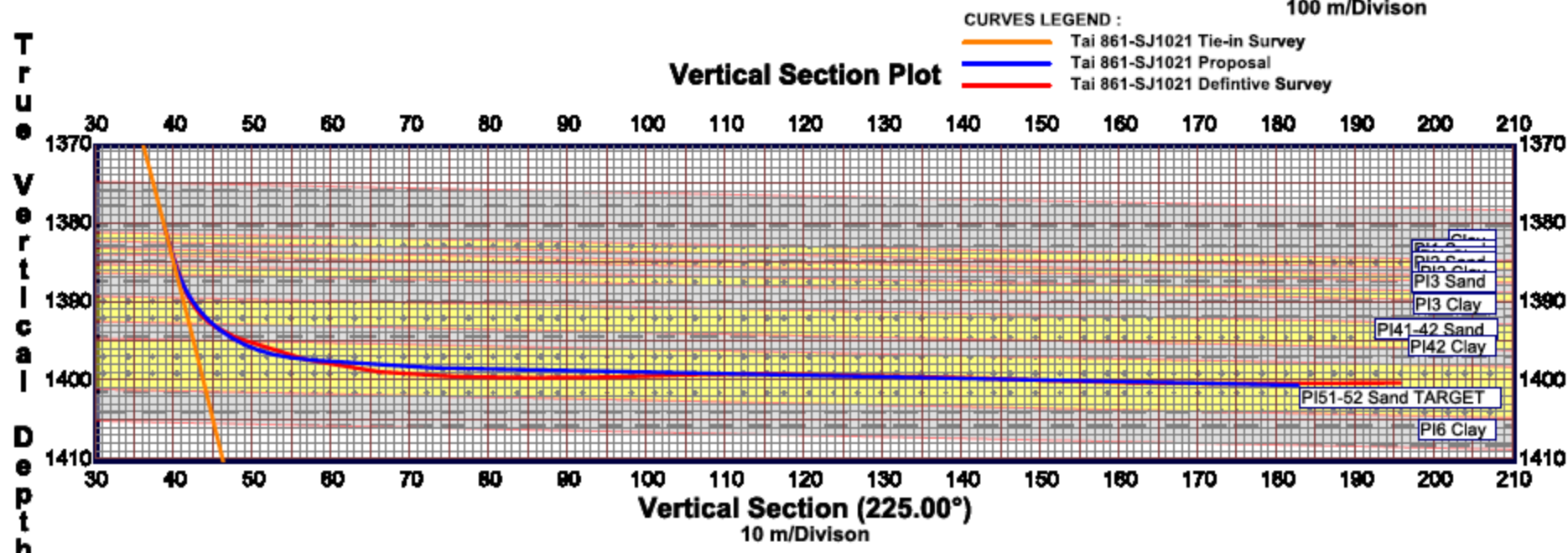
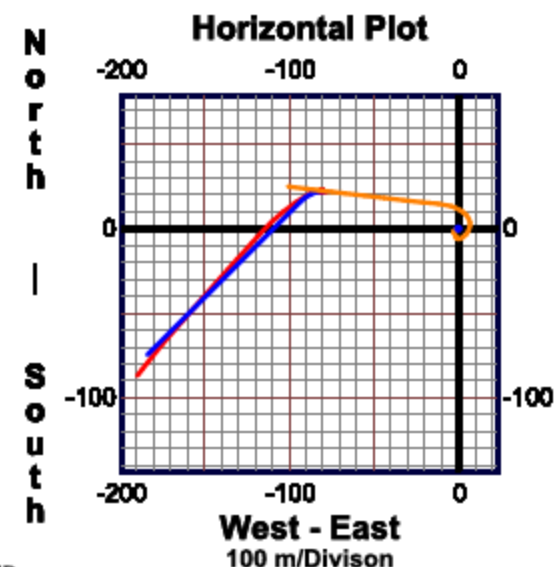
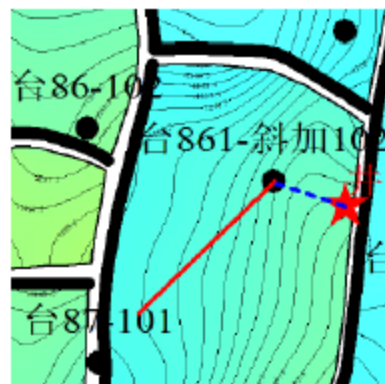


TAI 861-SJ1021 - DEFINITIVE SURVEY

Field, Company: Toutal, Daqing Fanxing
Tie-in Survey Ref: Gyro Multishot
North Reference: Grid Azimuth
Magnetic Dec.: -10.57 deg (West of TN)
Grid Convergence: +1.31(East of TN)

Depth Reference: Orig. Rot. Table
ORT-GL: 3.90 m
GL-MSL: 127.90 m

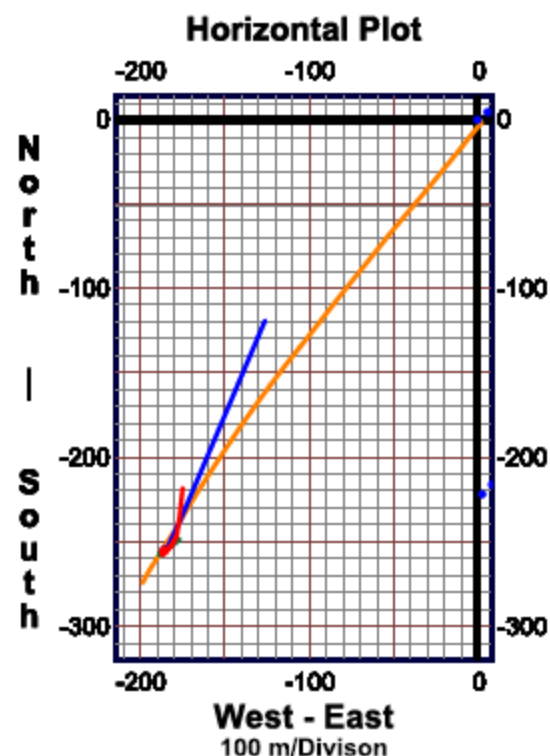
PLAN vs STRUCTURE ALONG 225° TARGET AZIMUTH
From the orig. well : 1.15° Downdip
Proposed trajectory targets sweet spot in PI51-52 Layer



**ST1**

ST2

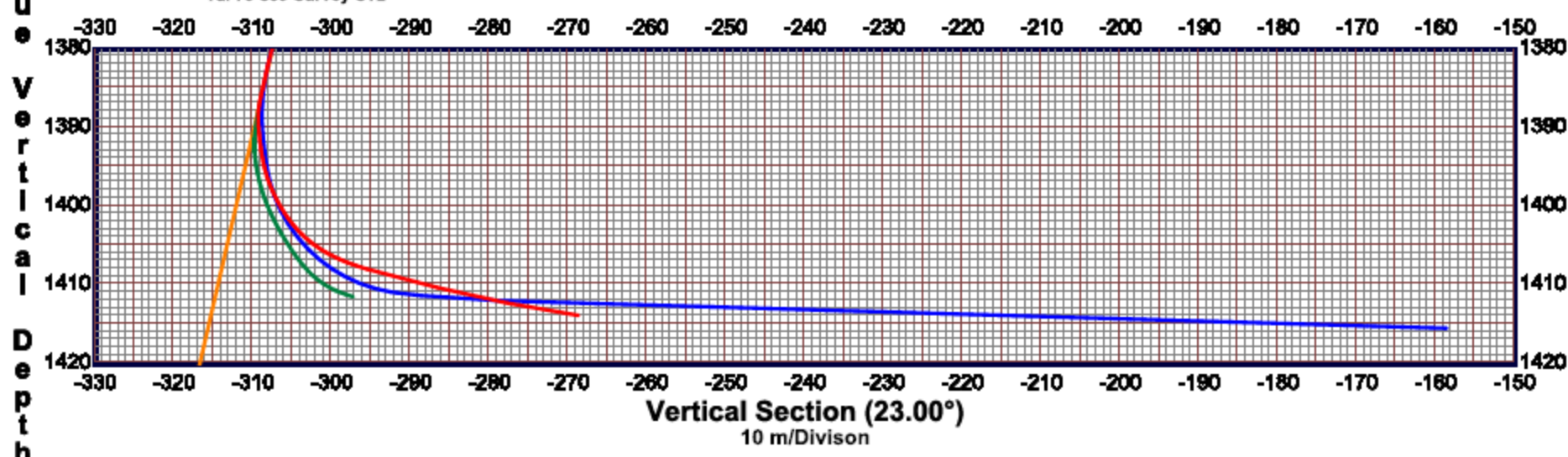
Whipstock, MWD Oriented to 206° GN (Plan 23°)
Top Whipstock 1422.0, Bottom Window 1425.0, Rathole to 1428.6 (KOP)
4-1/2" Curve: 1465.0 EOC, 19.0 m ROC (102°/30m DLS)
3-7/8" Lateral: 1490.4 m MD



CURVES LEGEND :

- Tai 73-s89 Gyro Orig.Well
- Tai 73-s89 Survey ST1
- Tai 73-s89 Proposal ST2
- Tai 73-s89 Survey ST2

Vertical Section Plot





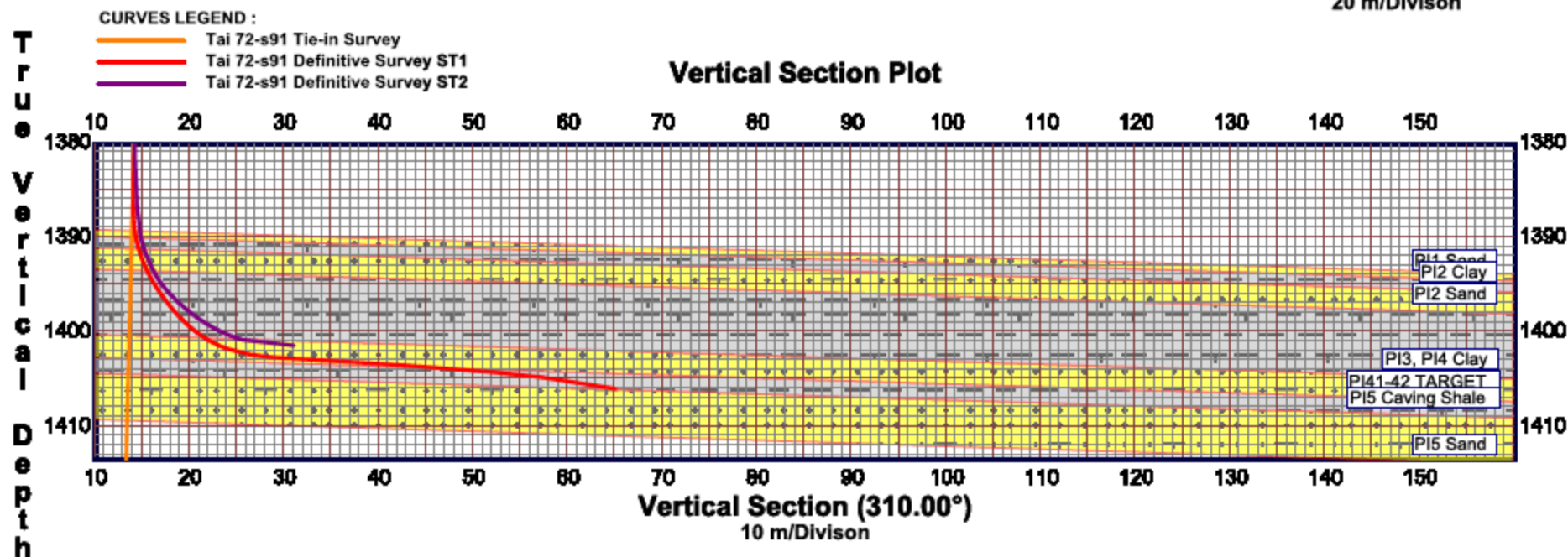
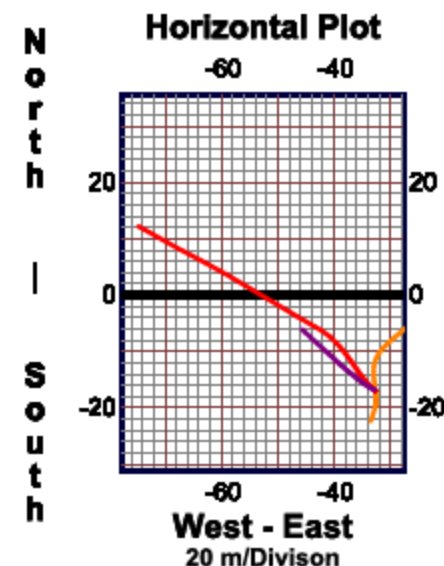
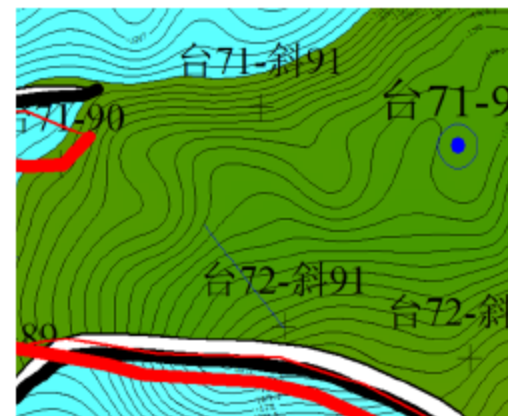
TAI 72-S91

DEFINITIVE SURVEY ST1, ST2

Field, Company: Toutai, Daqing Fanxing Depth Ref: Orig. Rot. Table
Tie-in Survey Ref: File received 31-Oct-2019 ORT-GL: 5.00 m
North Reference: Grid Azimuth GL-MSL: 127.35 m
Magnetic Dec.: -10.58 deg (West of TN) ORT-MSL: 132.35 m
Grid Convergence: +1.29 deg (East of TN) Target Obj: PI51-52 (ST1)
PI41-42 (ST2)

ST2 Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 287° Grid azimuth
Window 4.72": Top 1380.7, Bottom 1383.7, Rathole to 1385.7 (KOP) m MD
Curve Section 4-1/2": 1413.3 m MD (EOC), 16.3 m ROC (118°/30m DLS)

NOTE: ST1 and ST2 Lateral drillings aborted due to PI5 Shale and PI3,4 shale, respectively, collapse. Only ST2 is accessible through whipstock window above ST1. In ST2, last hold-up depth found and will be expected at 1406.6 m





TAI 85-103 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing

Tie-in Ref: Gyro Multishot 08-Nov-2019

Azim. Ref: Grid North

Magnetic Dec.: -10.58° (W of TN)

Grid Converg.: $+1.31^{\circ}$ (E of TN)

Depth Datum: Orig. Rot. Table

ORT-GL: 4.70 m

GL-MSL: 126.91 m

Wellbore Summary (m MD):

Window: 5-1/2" 17# Whipstock 1393.5 - 1396.1

Rathole: 1396.1 - 1398.0 KOP

Target Entry 1411.4, EOC 1420.3, ROC 14.8 m

Hole Length in Reservoir: 128.9 m

Before USR:

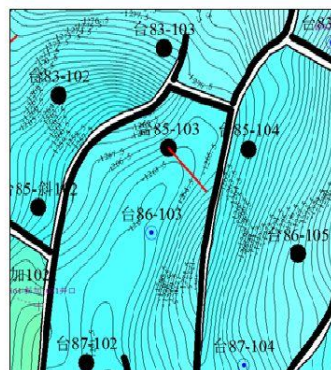
Orig. Well Initial: 36 bopd, 0% Water

Sep 2019: 14 bopd, 31% Water

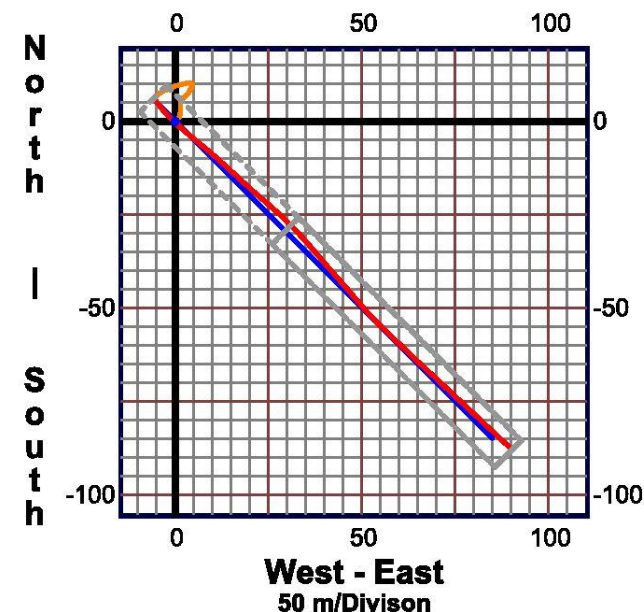
After USR:

31 Nov 2019: 87 bopd

(2.5 t in 5 hours). Water not reported



Horizontal Plot



Description Along 135° Target Azimuth:

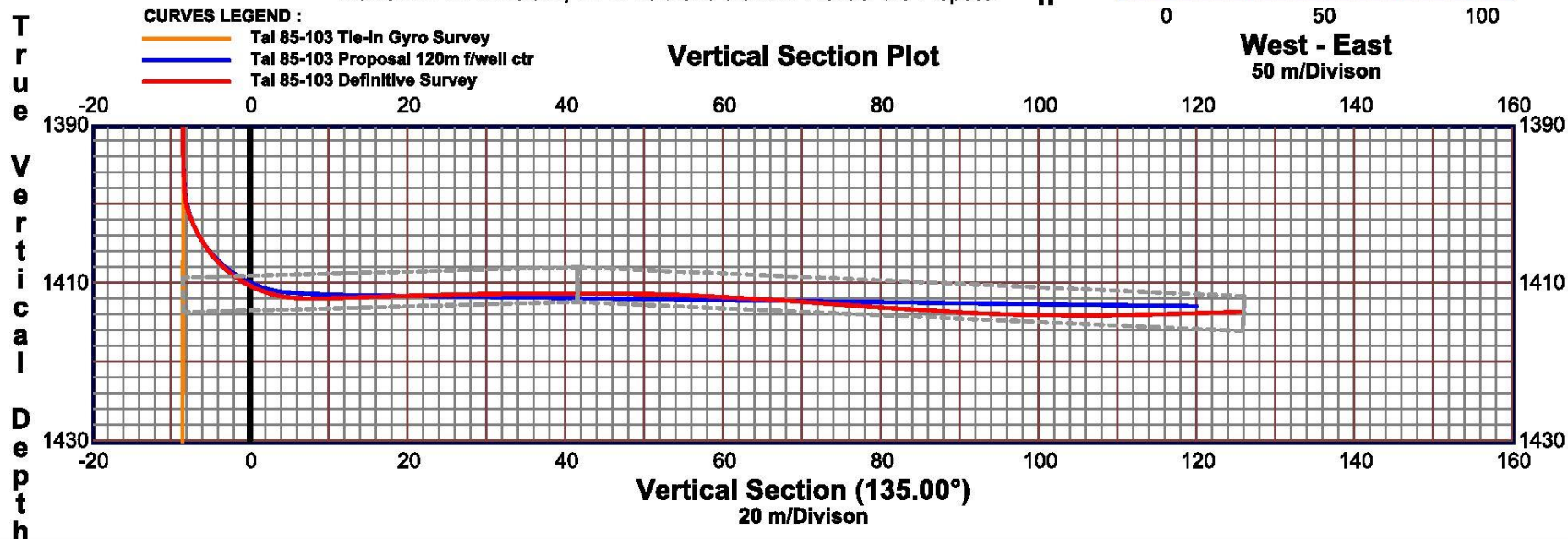
Structure: 1.52° updip from orig. well @ Top PI-51-52 Target to 50 m displacement, 2.50° downdip from 50 to (extended) Target TD.

Target: Cube 4.40 m TVD Thickness x 10.00 m Lateral Width x Structure Length

Proposal: Sweet Spot in PI51-52 Layer at effective 0.74° deg downdip to Well TD

ACTUAL : 1.2 m Below-, 1.1 m Left- and 9.5 m in Front of the Proposal

Vertical Section Plot





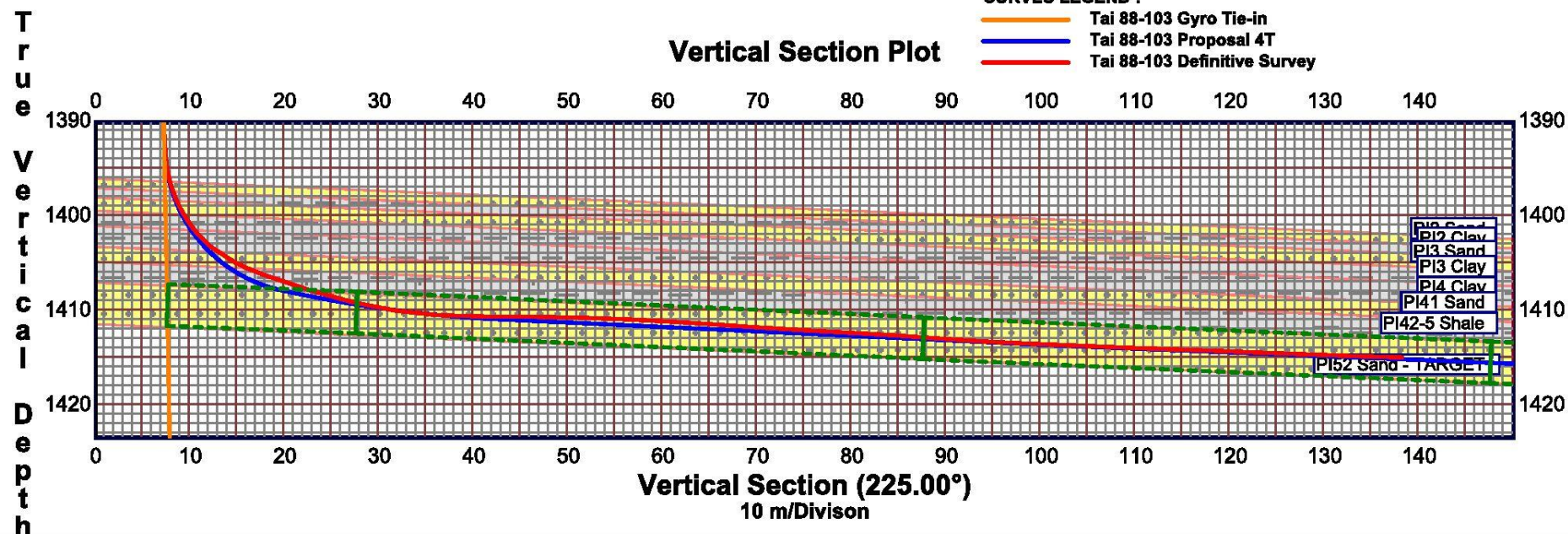
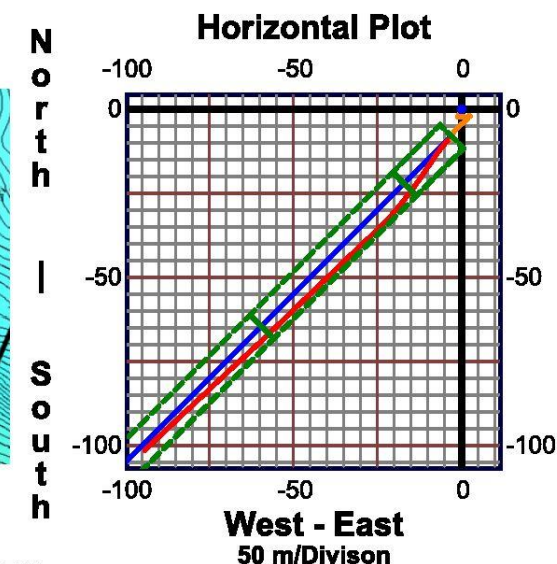
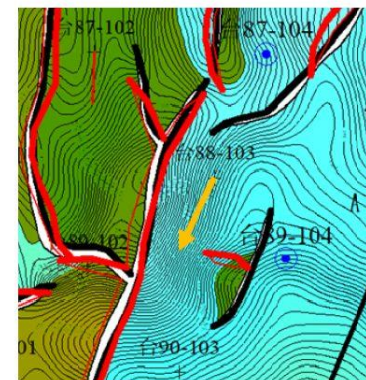
TAI 88-103 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing Depth Reference: Orig. Rot. Table
Tie-in Survey Ref: Gyro Multishot 26-Nov-2019 ORT-GL: 3.80 m
North Reference: Grid Azimuth GL-MSL: 125.41 m
Magnetic Dec.: -10.586 deg (West of TN) Target Objective: PI52
Grid Convergence: +1.31 (East of TN)

Control Point as Targets Along 225.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Target Comparison (m MD)
A	1410.3	27.7	Down 2.29°	Actual- 1421.7, 1.0 m ABOVE Target A
B	1413.0	87.8	Down 2.58°	Actual- 1482.0, 0.1 m ABOVE Target B
C	1415.6	147.8	Down 2.45°	(TD Called)
D	1416.4	167.8	Down 2.43°	(TD Called)

At 1532.0 m Well TD: 0.2 m ABOVE, 1.6 m LEFT, 0.0 m IN FRONT of- the Proposal

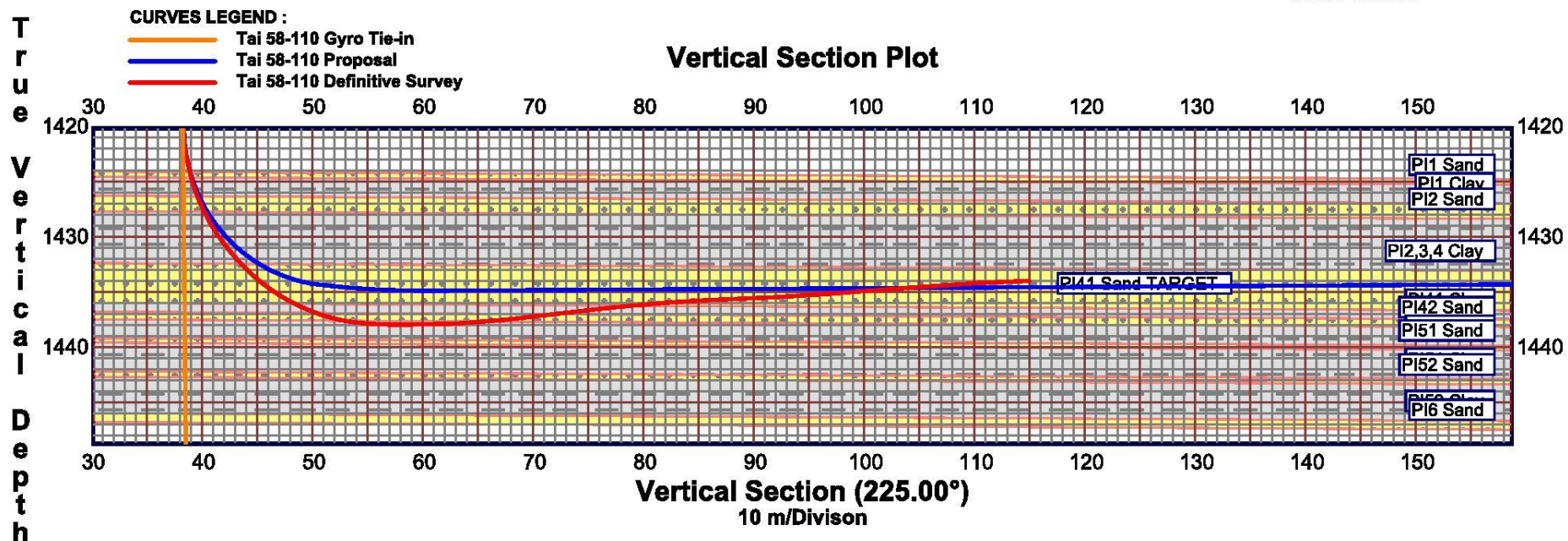
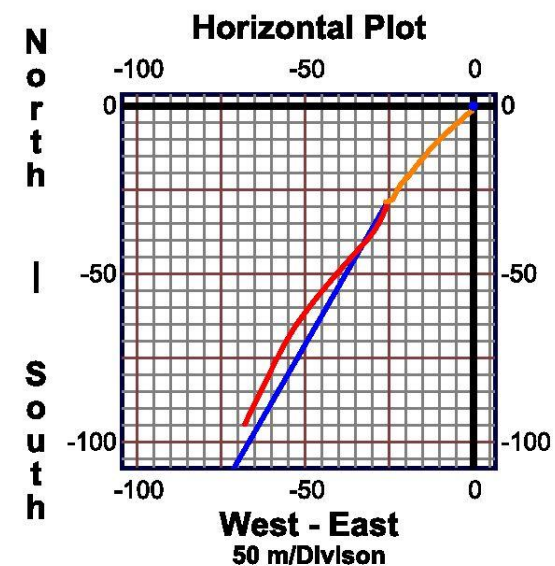
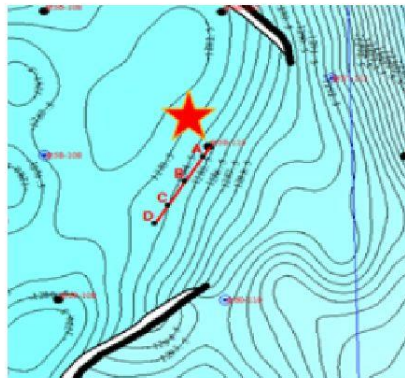




TAI 58-110 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing
Tie-in Survey Ref: Gyro Multishot 26-Nov-2019
North Reference: Grid Azimuth
Magnetic Dec.: -10.599 deg (West of TN)
Grid Convergence: +1.32 (East of TN)

Depth Reference: Orig. Rot. Table
ORT-GL: 3.80 m
GL-MSL: 134.65 m
Target Objective: PI41 Layer



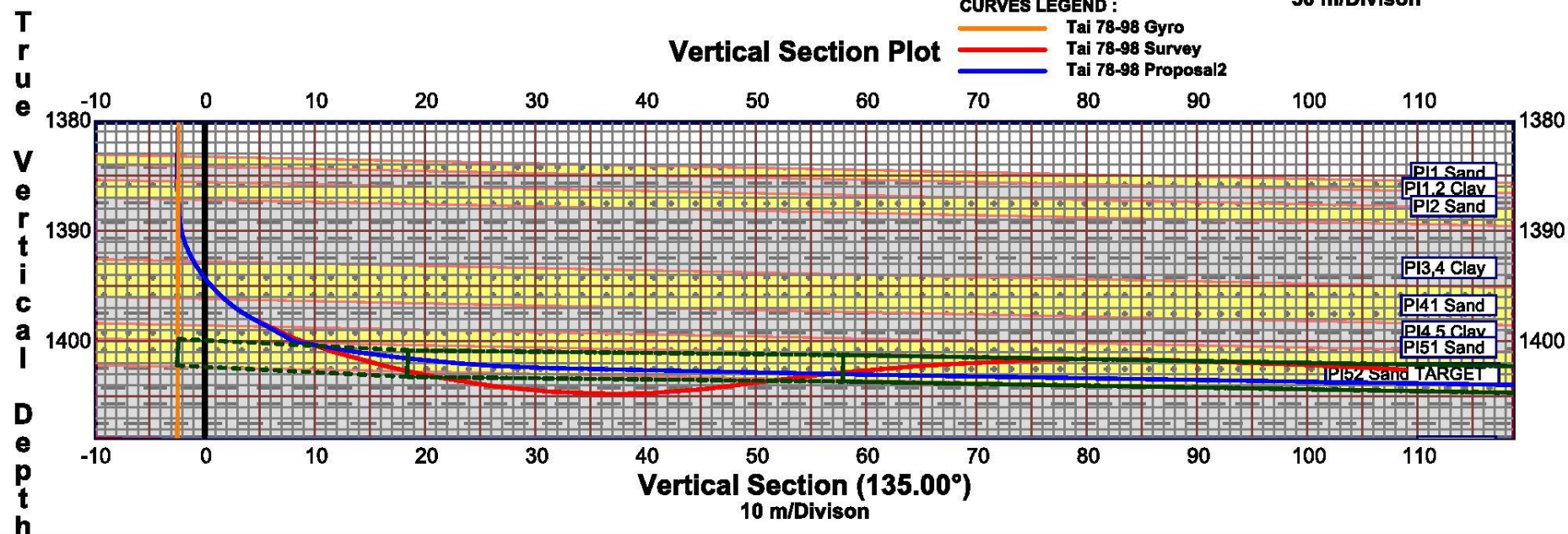
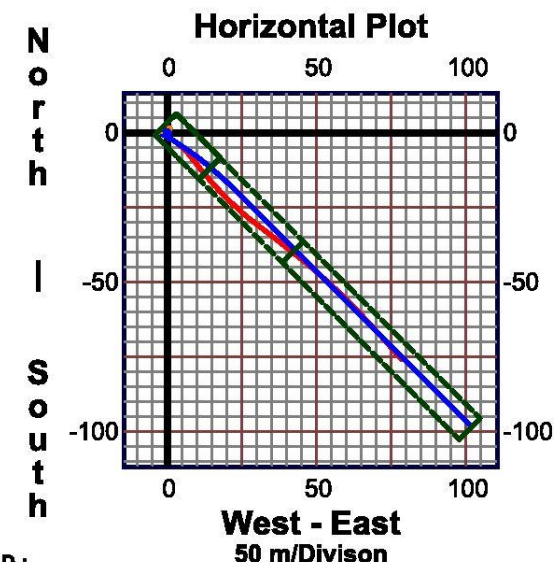
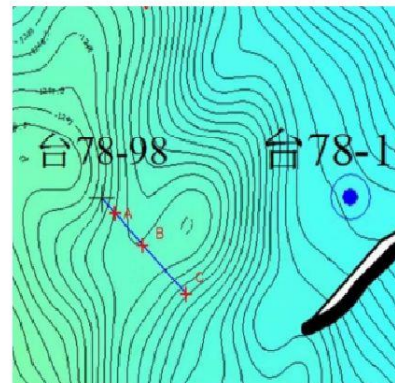


TAI 78-98 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing Depth Reference: Orig. Rot. Table
Tie-in Survey Ref: Gyro Multishot 7-Dec-19 ORT-GL: 3.70 m
North Reference: Grid Azimuth GL-MSL: 126.51 m
Magnetic Dec.: -10.590 deg (West of TN) Target Objective: PI52
Grid Convergence: +1.30 (East of TN) Target Tolerance: 2.40 m TVD

Control Points (Given 21-Dec-2019) as Targets Along 135.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual m MD, Target Comparison
A	1402.02	18.43	Down 2.80°	1415.8, 0.7 m BELOW
B	1402.45	57.88	Down 0.62°	1455.6, 0.4 m BELOW
C	1403.86	141.55	Down 0.97°	(1506.8 TD Called 25-Dec-2019)





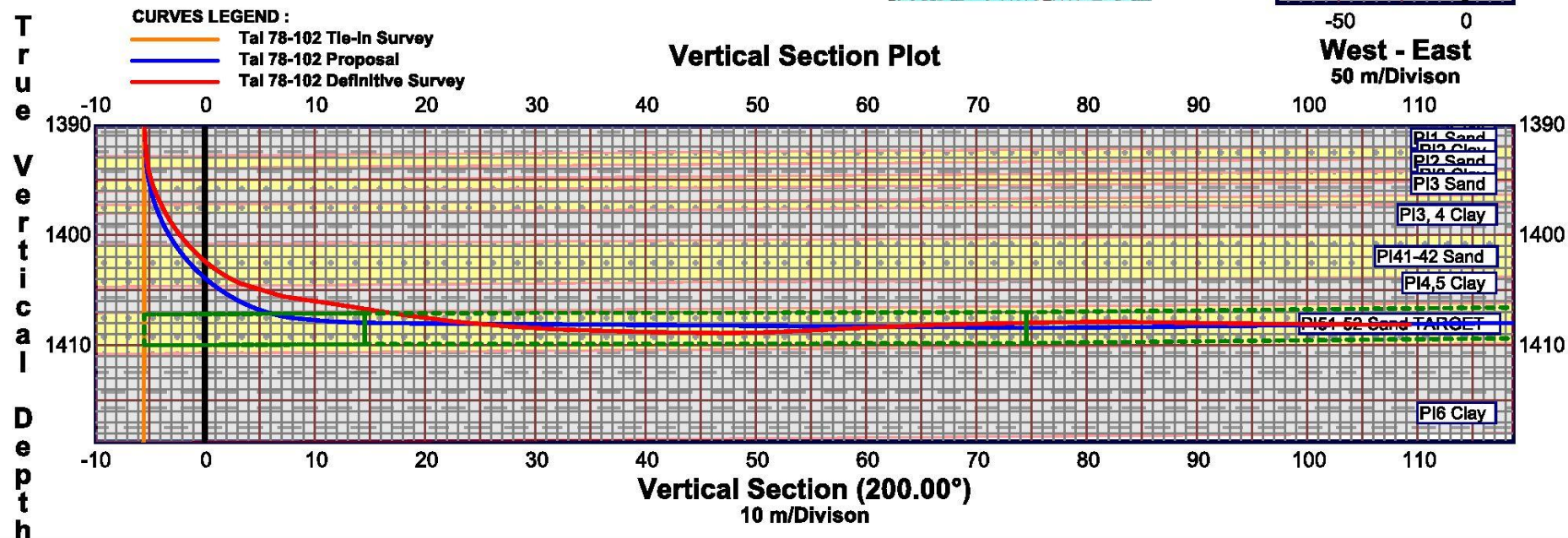
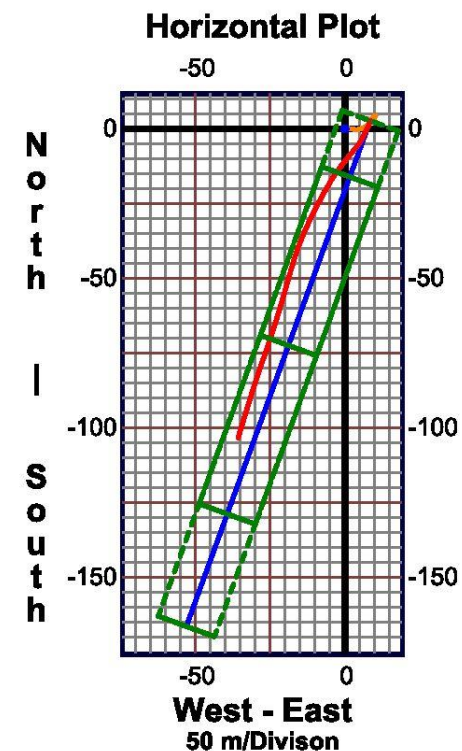
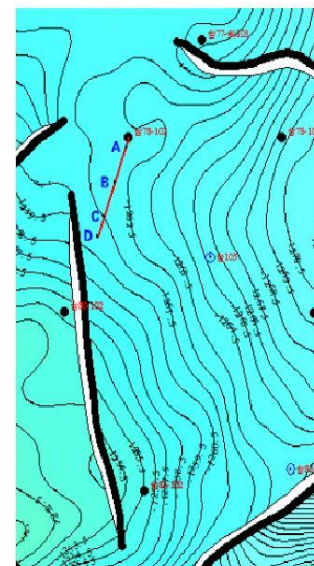
TAI 78-102 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing
Tie-in Survey Ref: Gyro Multishot
North Reference: Grid Azimuth
Magnetic Dec.: -10.591 deg (West of TN)
Grid Convergence: +1.31 (East of TN)

Depth Reference: Orig.Rot.Table
ORT-GL: 3.70 m
GL-MSL: 126.72 m
Target Objective: PI51-52
Effective Thickness: 2.8 m

Control Point as Targets Along 200.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual / Projected mMD, Target Comparison
A	1408.5	14.52	Up 0.29°	1420.1, 1.8 m ABOVE
B	1408.4	74.52	Up 0.10°	1480.6, 0.4 m ABOVE
C	1407.8	134.52	Up 0.57°	TD Called
D	1407.3	174.53	Up 0.72°	TD @1515.4 m MD, 1408.1 m TVD, 109.3 m VS





TAI 82-S110 - DEFINITIVE SURVEY

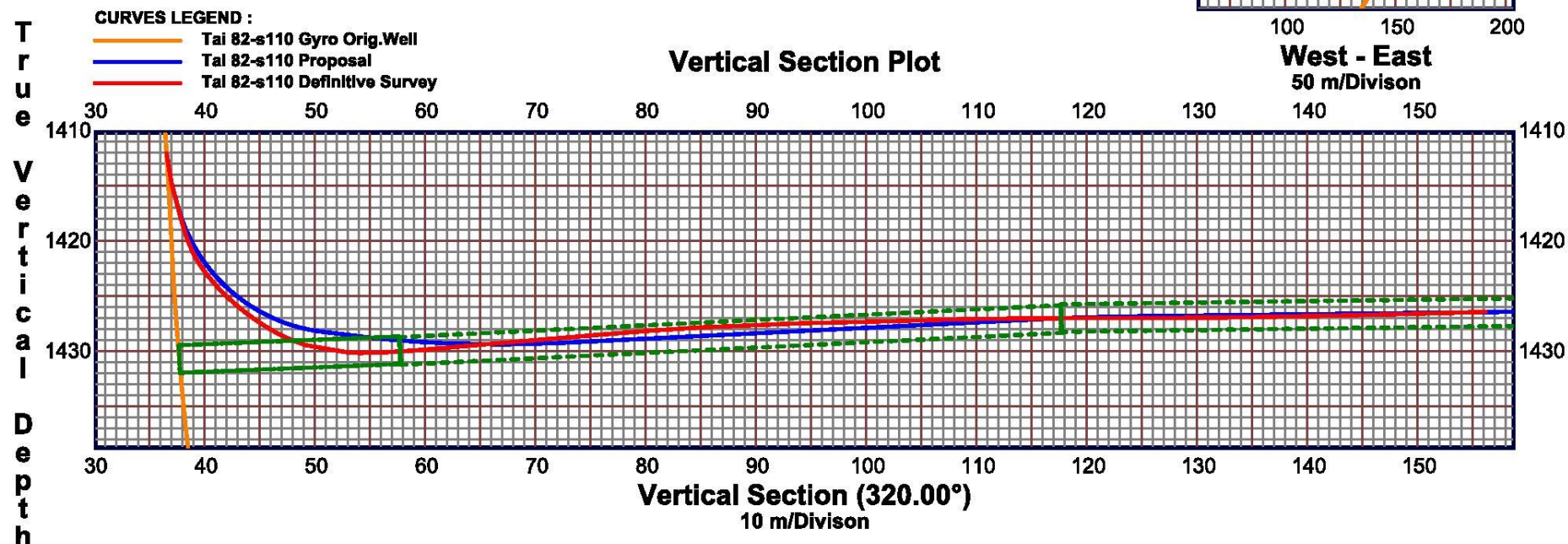
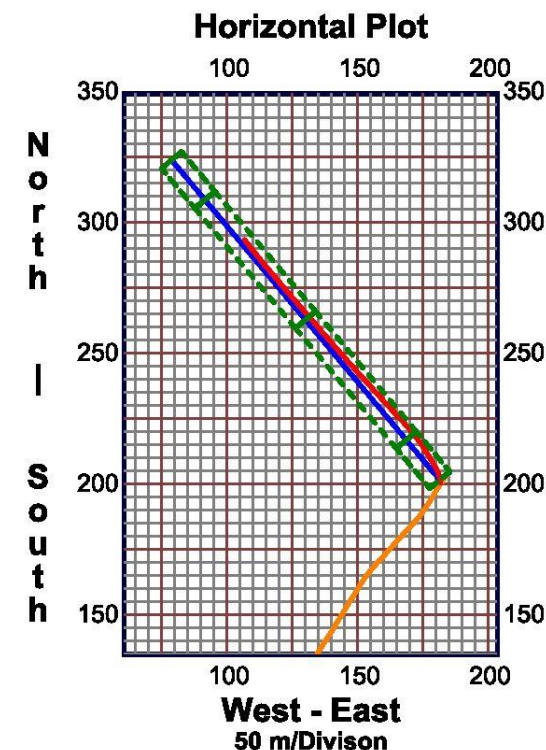
Field, Company: Toutai, Daqing Fanxing Depth Ref.: Orig.Rot.Table
Tie-in Survey Ref: Gyro Multishot ORT-GL: 3.70 m
North Reference: Grid Azimuth GL-MSL: 124.74 m
Magnetic Dec.: -9.86° (West of TN) Target Objective: PI52
Grid Convergence: +1.31° (East of TN) Effective Thickness: 2.5 m

Control Point as Targets Along 320.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual / Projected mMD, versus Target
A	1429.9	59.22	Up 2.29°	1487.6, On Depth
B	1427.0	117.64	Up 2.77°	1546.2, On Depth
C	1426.2	177.41	Up 0.76°	TD Called @ 1584.7, 1426.4 m TVD,
D	1425.9	197.36	Up 0.86°	156.2 m VS (102.0 m from EOC)

At Well TD:

Same TVD, 1.8 m RIGHT, 0.1 m in FRONT of the Proposal





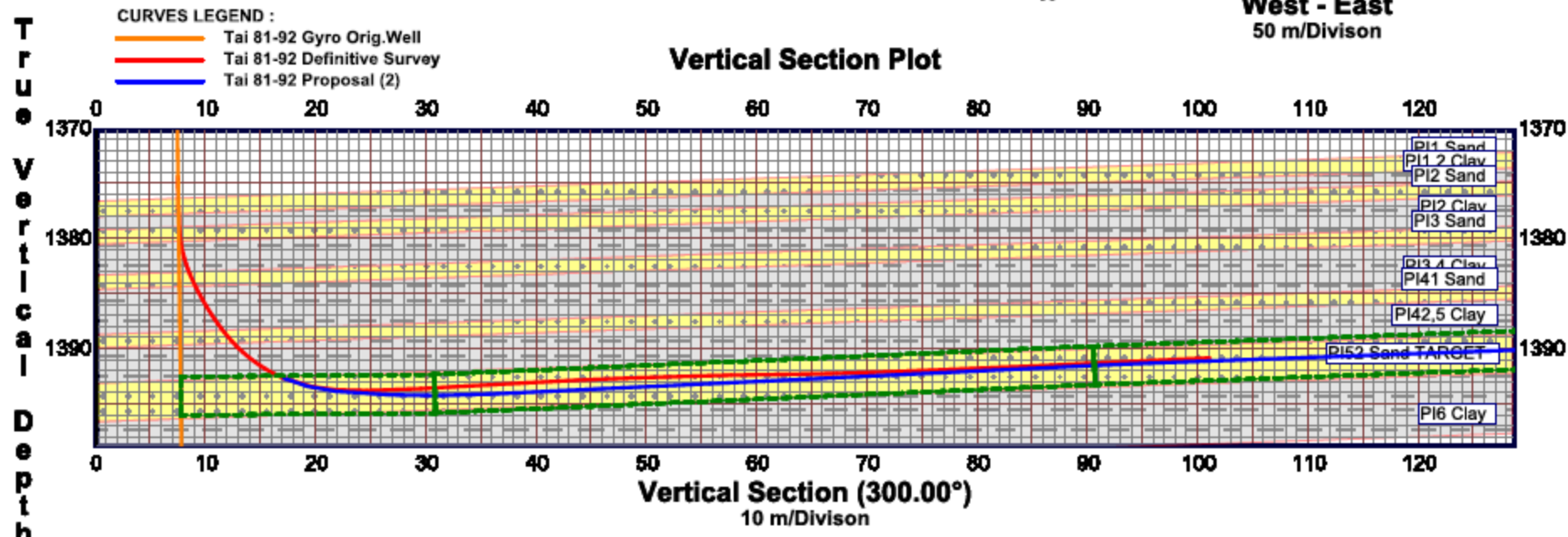
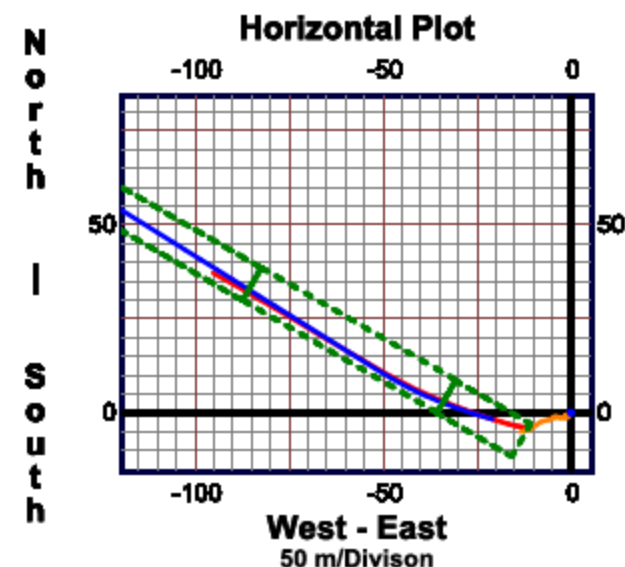
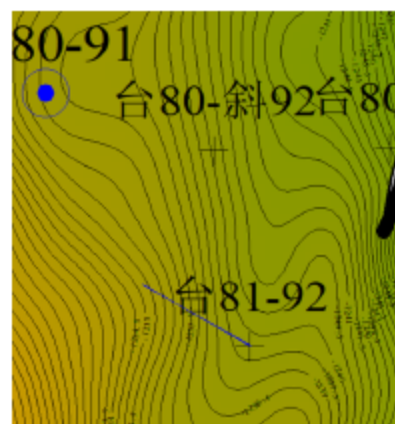
TAI 81-92 - DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing
Tie-In Survey Ref: Gyro Multishot
North Reference: Grid Azimuth
Magnetic Dec.: -10.584 deg (West of TN)
Grid Convergence: +1.29 (East of TN)

Depth Reference: Orig. Rot. Table
ORT-GL: 4.70 m
GL-MSL: 127.89 m
Target Objective: PI51-52
Layer Thickness: 3.5 m

Control Point as Targets Along 300.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Proposal mMD, versus Targets
A	1394.10	30.85	Up 0.50°	1410.9, 0.5 m ABOVE Target
B	1391.53	90.66	Up 2.46°	1470.8, 0.2 ABOVE Target
C	1389.81	137.81	Up 2.08°	TD Called @ 1481.26 m





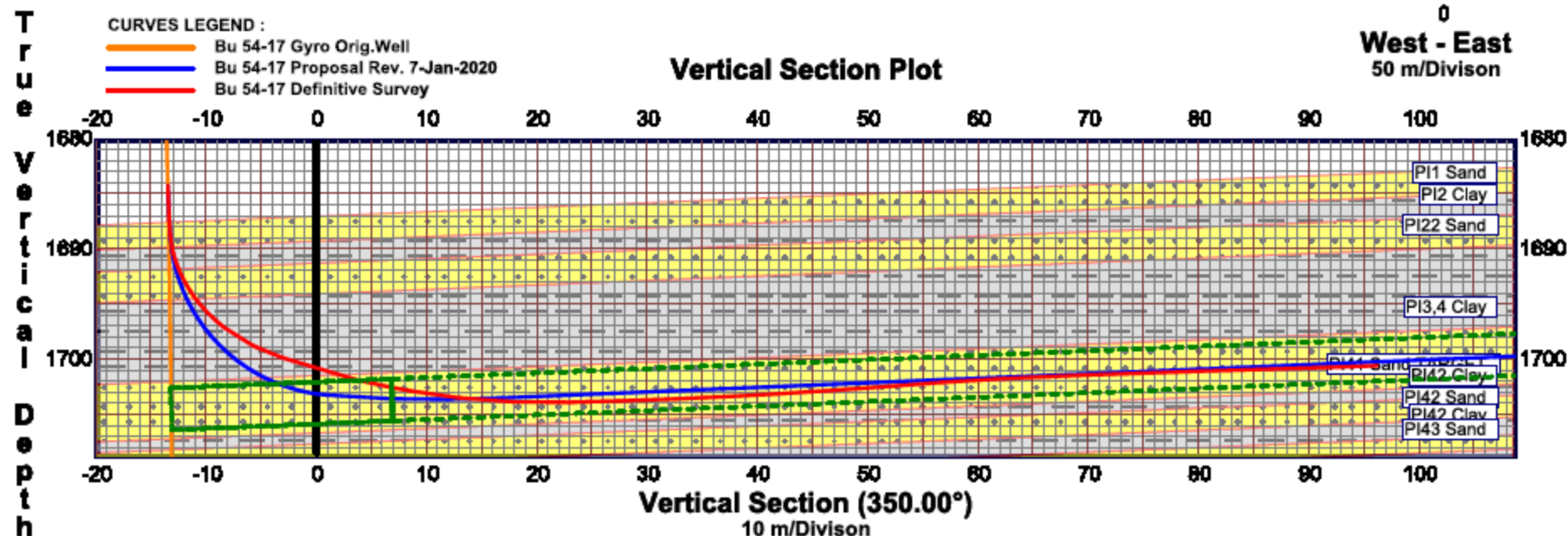
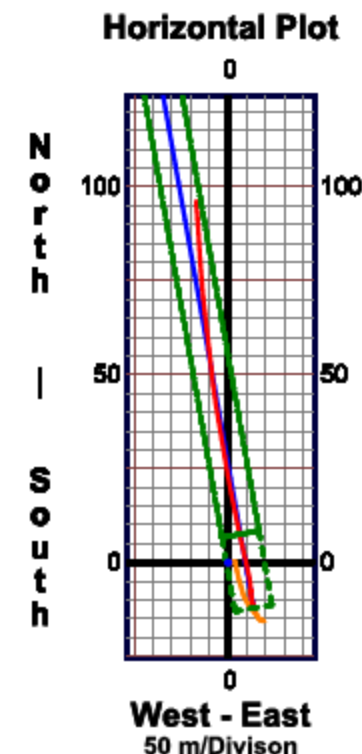
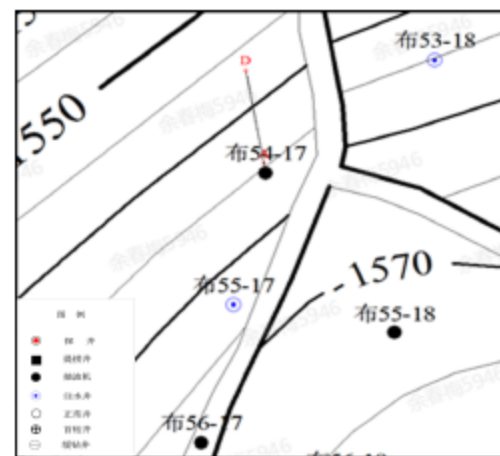
BU 54-17 - DEFINITIVE SURVEY

Field, Company: Bumug, Daqing Faxing Depth Ref: Orig. Rot. Table
Tie-in Survey Ref: Gyro Multishot ORT-GL: 0.00 m
North Reference: Grid Azimuth GL-MSL: 146.80 m
Magnetic Dec.: -10.666 deg (West of TN) Target Objective: PI41
Grid Convergence: +0.91 (East of TN) Effective Thickness: 3.8 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 335° Grid Azimuth
Window: Top whipstock 1684.5, Bottom 1687.3, Rathole to 1689.0 (KOP)
4-1/2" Curve: 1705.2 EOC, 13.0 m ROC (4.714°/m DLS)

Control Points as Targets Along 350.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual mMD, Target Comparison
Target A	1703.7	6.86	Up 2.35°	1715.3, 1.8 m Above
Target D	1695.7	206.85	Up 2.30°	TD Called @ 1805.0 m, 100 m from EOC





TAI 76-86 - DEFINITIVE SURVEY

TD on 11-Mar-20 @ 1579.5 m MD, 1418.0 TVD, 161.1 m VS

Field, Company: Toutai, Daqing Fanxing Depth Ref.: Orig.Rot.Table
Tie-in Survey Ref: Gyro Multishot ORT-GL: 3.60 m
North Reference: Grid Azimuth GL-MSL: 126.34 m
Magnetic Dec.: -10.596° (West of TN) Target Objective: PI51-52
Grid Convergence: +1.28° (East of TN) Layer Thickness: 3.4 m

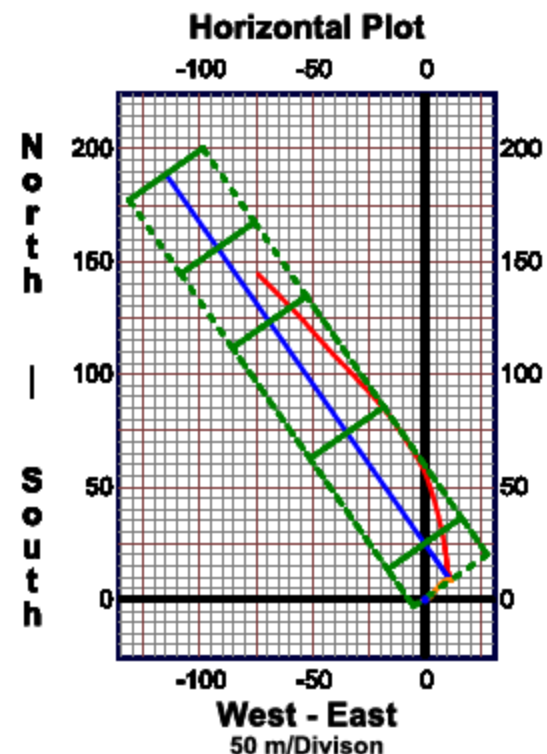
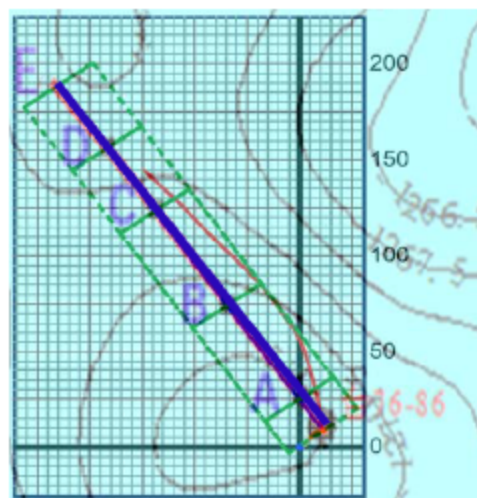
Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 309.93° Grid azimuth
Window: Top 1402.5, Bottom 1405.3, Rathole 1407.0 (KOP)

4-1/2" Curve Section: 1429.5 EOC, 15.7 m ROC (116°/30m DLS)

At 1579.5 m TD: 1.0 m ABOVE, 7.9 m RIGHT, 1.4 m BEHIND the Proposal

Control Point as Targets Along 325.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD, Target Comparison
A	1421.1	20.55	Up 0.29°	1436.5, 0.1 m Above, 8.7 m Right
B	1420.3	80.56	Up 0.76°	1498.1, On Depth, 19.3 m Right
C	1419.3	140.56	Up 0.95°	1558.7, 0.6 m Above, 11.3 m Right
D	1418.6	180.57	Up 1.00°	(TD Called)
E	1418.3	220.58	Up 0.40°	(TD Called)

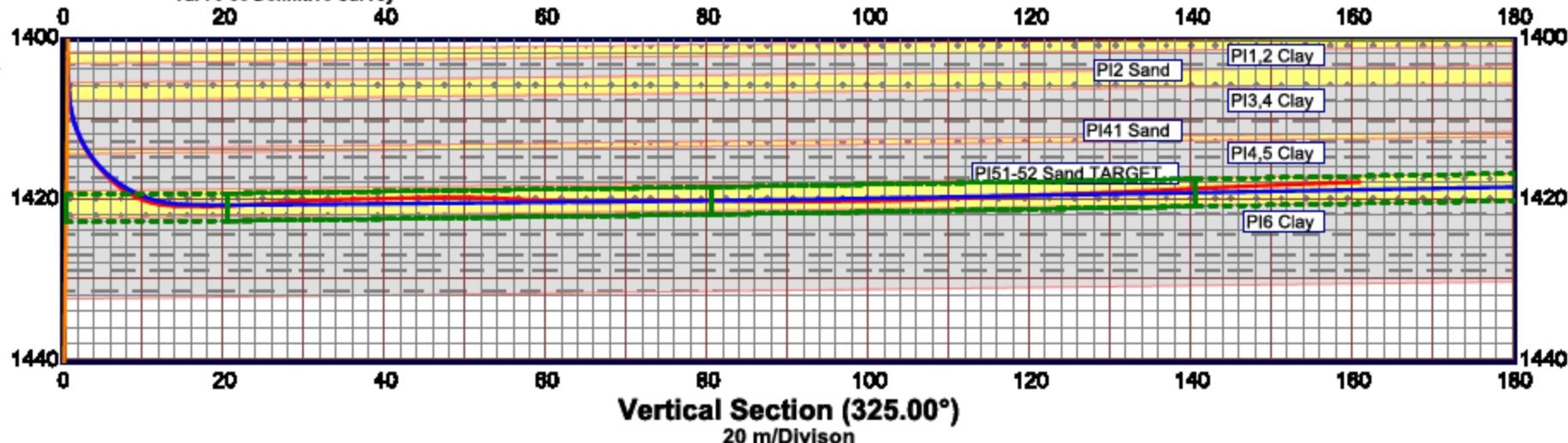


True Vertical Depth

CURVES LEGEND :

- Tai 76-86 Gyro Orig Well
- Tai 76-86 Proposal rev. 10-Mar-20
- Tai 76-86 Definitive Survey

Vertical Section Plot



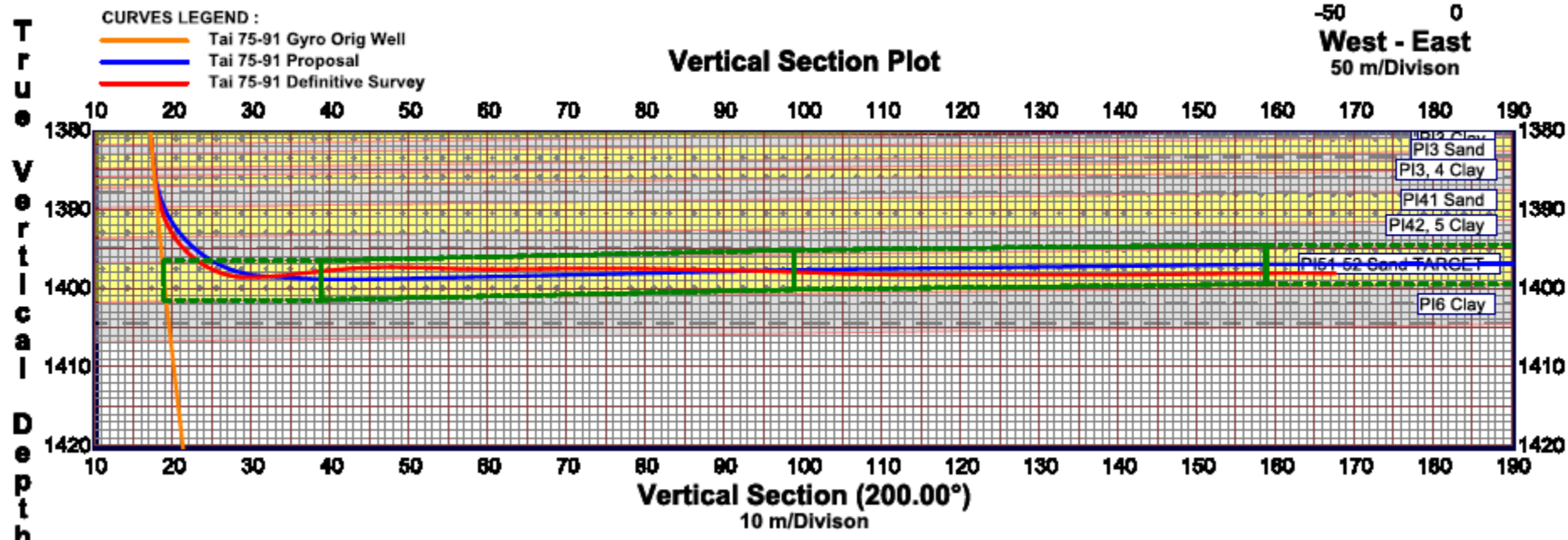
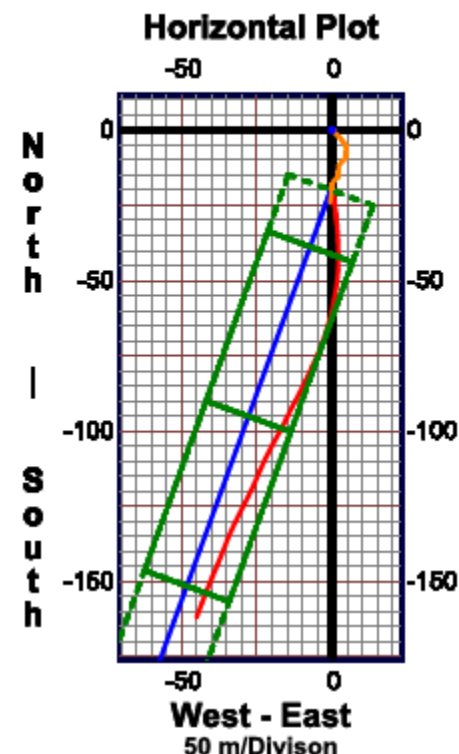
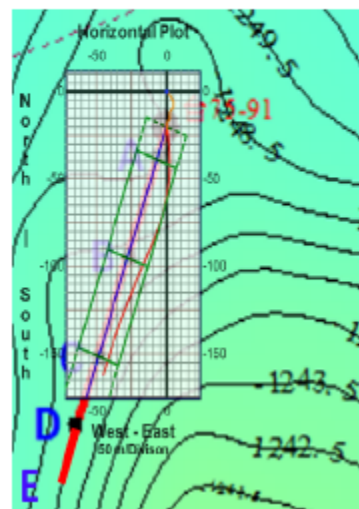


Depth Ref.: Orig.Rot.Table
ORT-GL: 3.80 m
GL-MSL: 127.60 m
Target Objective: PI51-52
Layer Thickness: 5.0 m

Edt: Whiplock, 5-1/2" 17# Casing Gyro Oriented to 309.93° Grid azimuth
Window: Top 1381.4, Bottom 1384.2, Rathole 1388.0 (KOP)
4-1/2" Curve Section: 1408.0 EOC, 15.1 m ROC (124 °/30m DLS)

Control Point as Targets Along 200.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual / Projection mMD vs Target
A	1399.0	38.91	0.00°	1416.8, 1.1 m Above
B	1397.7	98.91	Up 1.24°	1477.5, 0.3 m Below
C	1397.0	158.79	Up 0.69°	1537.7, 1.4 m Below
D	1397.0	198.72	0.00°	TD Called @ 1546.5, 1398.1 m TVD, 67.6 m VS
E	1397.0	228.72	0.00°	TD is 1.2 m Below. 6.6 m Left of the Proposal





GU 85-56 - DEFINITIVE SURVEY

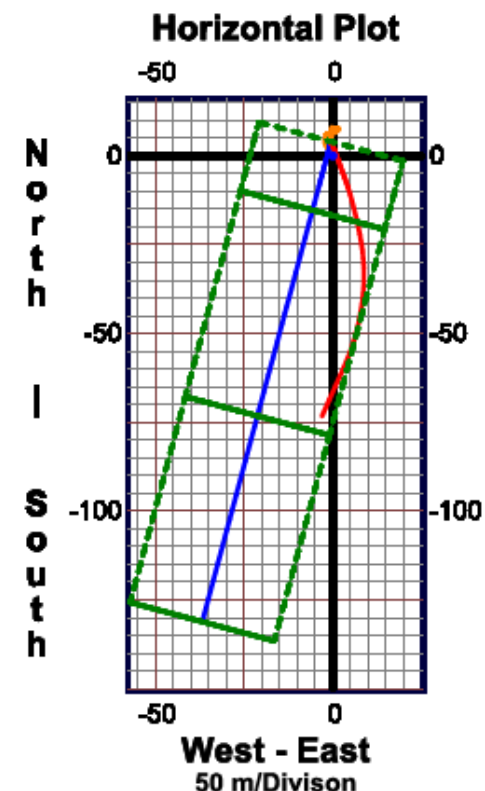
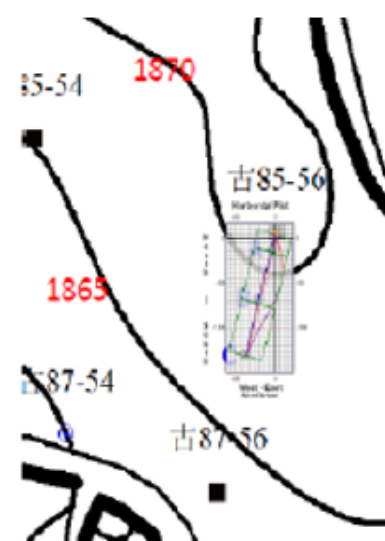
Field, Company: Gu137 Block, Daqing Fanxing Depth Ref.: Orig.Rot.Table
 Tie-in Survey Ref: Gyro Multishot ORT-GL: 3.00 m
 North Reference: Grid Azimuth GL-MSL: 130.73 m
 Magnetic Dec.: -10.614° (West of TN) Target Objective: PI41
 Grid Convergence: +0.91° (East of TN) Layer Thickness: 2.2 m

Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 176.19° Grid azimuth
 Window: Top 2007.4, Bottom 2010.2, Rathole to 2012.0 (KOP)
 4-1/2" Curve Section: 2037.0 EOC, 19.9 m ROC (3.494°/m DLS)

Control Point as Targets Along 195.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD, Target Comparison
A	2026.25	16.22	Up 2.15°	2044.9, 1.7 m Below
B	2023.98	76.21	Up 2.17°	Projected 2106.7, Not Reached
C	2021.71	136.19	Up 2.17°	Projected 2167.4, Not Reached

TD Called @ 2097.0

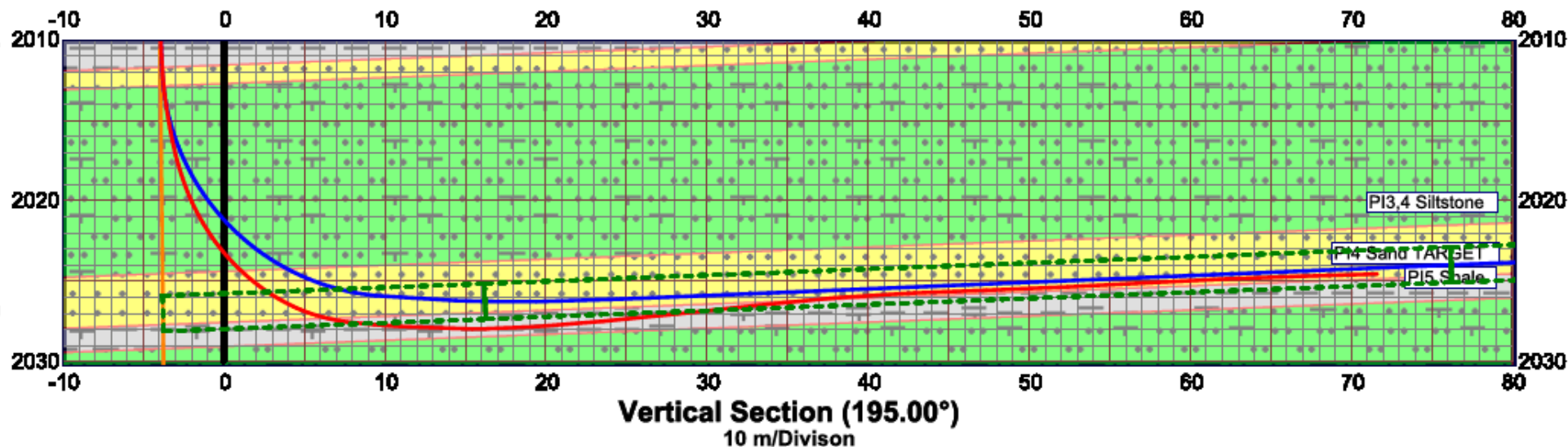


True Vertical Depth

CURVES LEGEND :

- Gu 85-56 Gyro Orig Well
- Gu 85-56 Proposal
- Gu 85-56 Definitive Survey

Vertical Section Plot



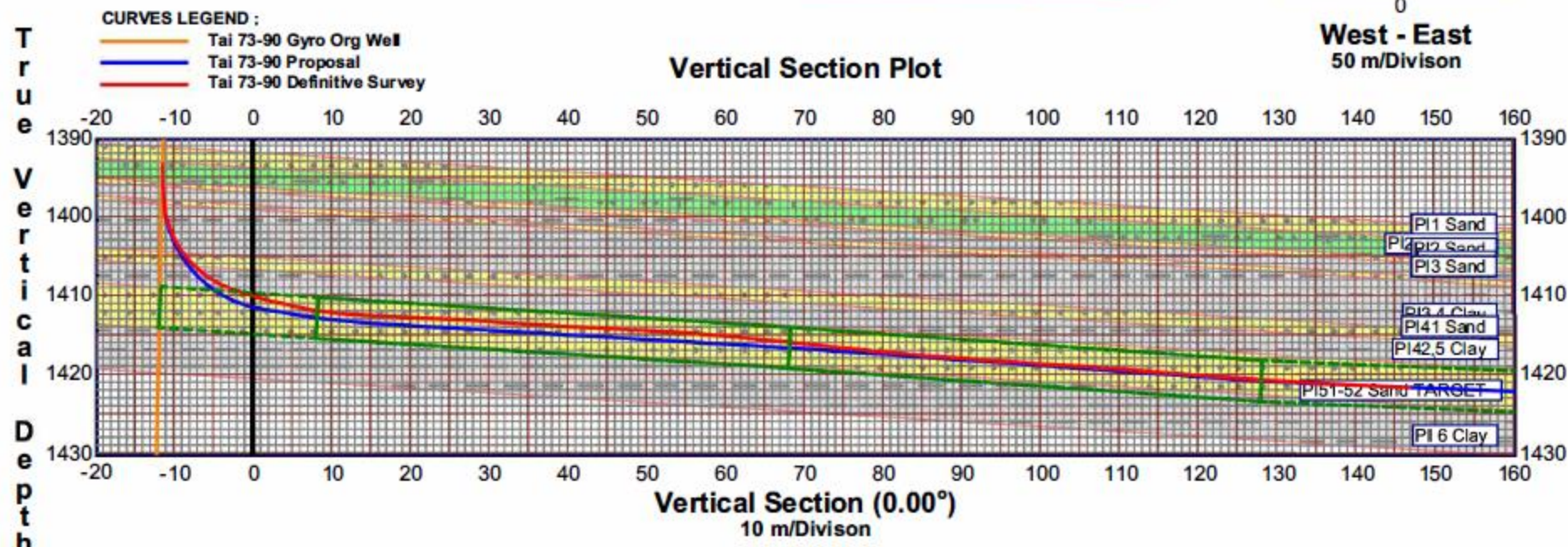
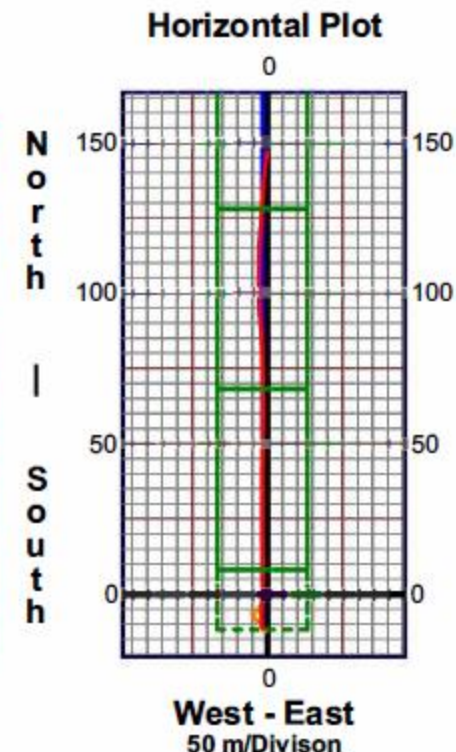
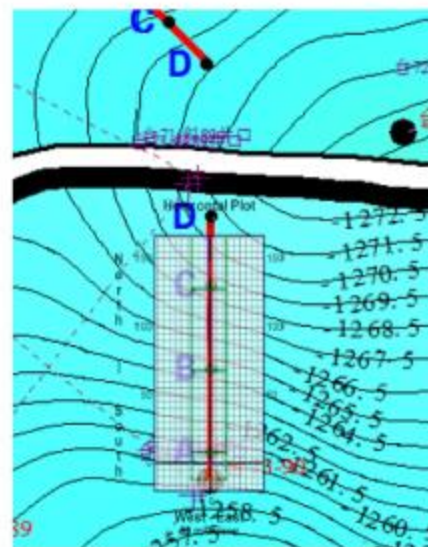


Field, Company:	Tai Block 105, Daqing Fanxing	Depth Ref.: Orig.Rot.Table
Tie-in Survey Ref:	Gyro Multishot	ORT-GL: 4.00 m
North Reference:	Grid Azimuth	GL-MSL: 128.20 m
Magnetic Dec.:	-10.600° (West of TN)	Target Objective: PI51-52
Grid Convergence:	+1.29° (East of TN)	Laver Thickness: 5.20 m

Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 0.00° Grid azimuth
Window: Top 1393.5, Bottom 1396.2, Rathole to 1398.0 (KOP)
4-1/2" Curve Section: 1413.5 EOC, 14.1 m ROC (130°/30m DLS)

Current Projection Against Targets Along 0.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Proposal mMD vs Target
A	1412.9	8.20	Down 4.00°	1424.3, 0.9 m Above
B	1416.7	68.17	Down 3.60°	1484.5, 0.7 m Above
C	1420.9	128.10	Down 4.00°	1544.6, 0.2 m Above
D	1422.9	178.02	Down 2.29°	TD Called @ 1563.5





TAI 72-S89 - DEFINITIVE SURVEY

At 1566.7 m Well TD: 0.4 m Below, 3.9 m Left of The Proposal

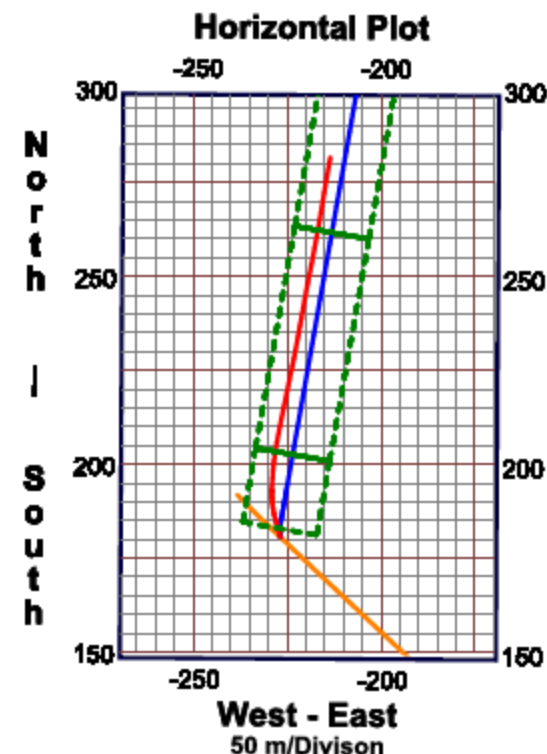
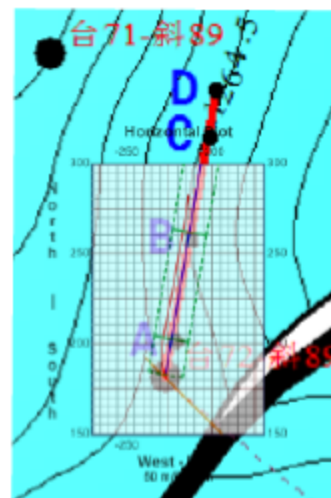
Field, Company: Tai Block 105, Daqing Fanxing
 Tie-in Survey Ref: MWD 07-Mar-04
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.598° (West of TN)
 Grid Convergence: +1.29° (East of TN)

Depth Ref.: Orig.Rot.Table
 ORT-GL: 4.00 m
 GL-MSL: 128.09 m
 Target Objective: PI51-52
 Layer Thickness: 5.00 m

Whipstock: 5-1/2" 17# Casing Oriented to 351.7° Grid azim (38° GTF)
 Window: Top 1456.5, Bottom 1459.2, Rathole to 1461.0 (KOP)
 4-1/2" Curve Section: 1476.2 EOC, 15.4 m ROC (132°/30m DLS)

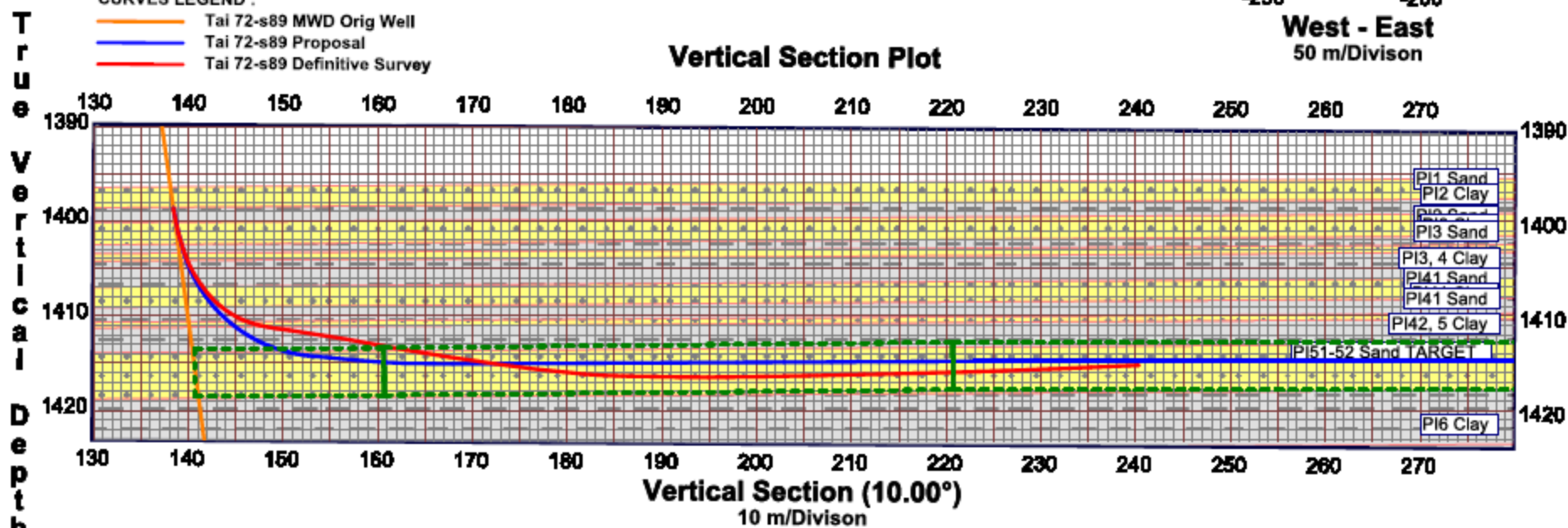
Targets Along 10° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Proposal mMD vs Target
A	1415.4	160.69	Up 0.29°	1486.8, 2.2 m Above
B	1414.8	220.68	Up 0.57°	1547.0, 1.2 m Below
C	1414.8	280.60	Up 0.00°	TD Called @ 1566.7 m MD,
D	1415.0	300.66	Up 0.57°	1415.2 m TVD, 240.3 m VS



CURVES LEGEND :

- Tai 72-s89 MWD Orig Well
- Tai 72-s89 Proposal
- Tai 72-s89 Definitive Survey



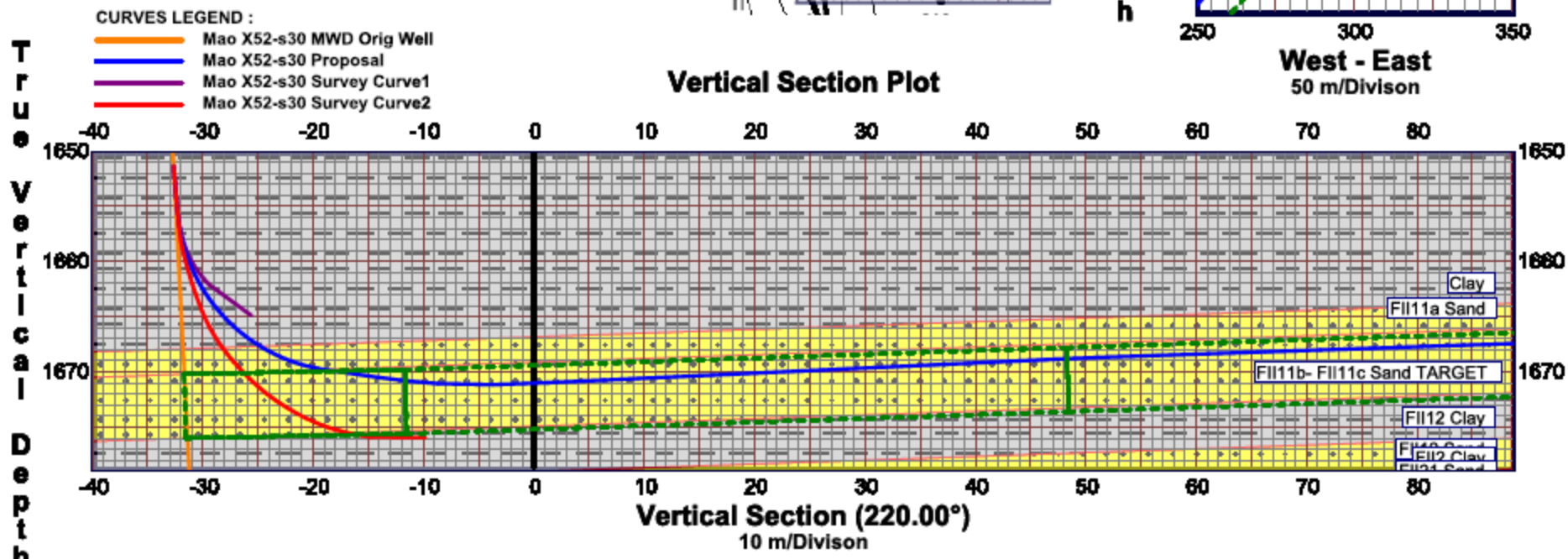
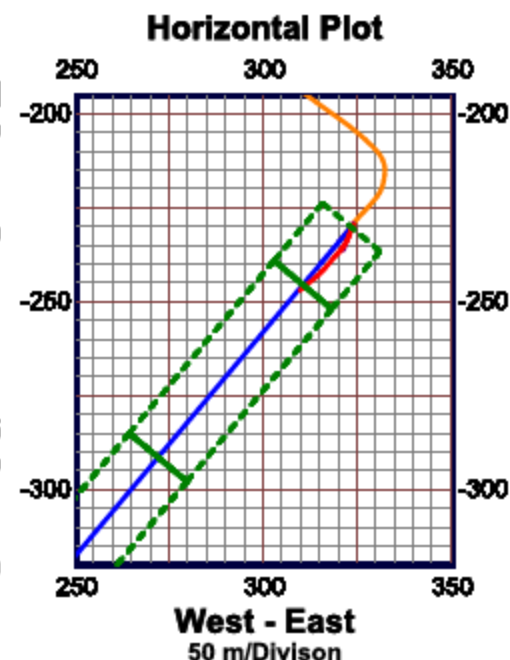
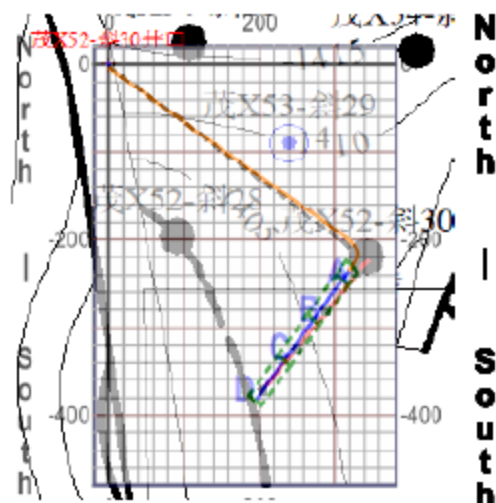


Mao X52-S30 - DEFINITIVE SURVEY

Field, Company: Tai 1 Block Mao, Daqing Faxing Depth Ref.: Orig.Rot.Table
 Tie-in Survey Ref: MWD 21-Oct-06 ORT-GL: 3.65 m
 North Reference: Grid Azimuth GL-MSL: 128.37 m
 Magnetic Dec.: -10.583° (West of TN) Target Obj: FII11b- FII11c
 Grid Convergence: +1.33° (East of TN) Layer Thickness: 5.80 m

Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 206.9° Grid azimuth
 Window: Top 1733.4, Bottom 1736.2, Rathole to 1738.0 (KOP)
 4-1/2" Curve 1: 1738.0 KOP, 1750.0 EOC, 14.4 m ROC (156°/30m DLS)
 4-1/2" Curve 2: 1740.7 KOP, 1772.0 EOC, 21.9 m ROC (94°/30m DLS)

Comparison of Curve 2 to Curve 1 and to The Proposal:
 At 1753.0 Comparison Depth, 4.1 m Below, 0.5 m Left of Curve 1
 At 1772.0 Projected Hole Depth, 4.9 m Below, 0.3 m Left of The Proposal





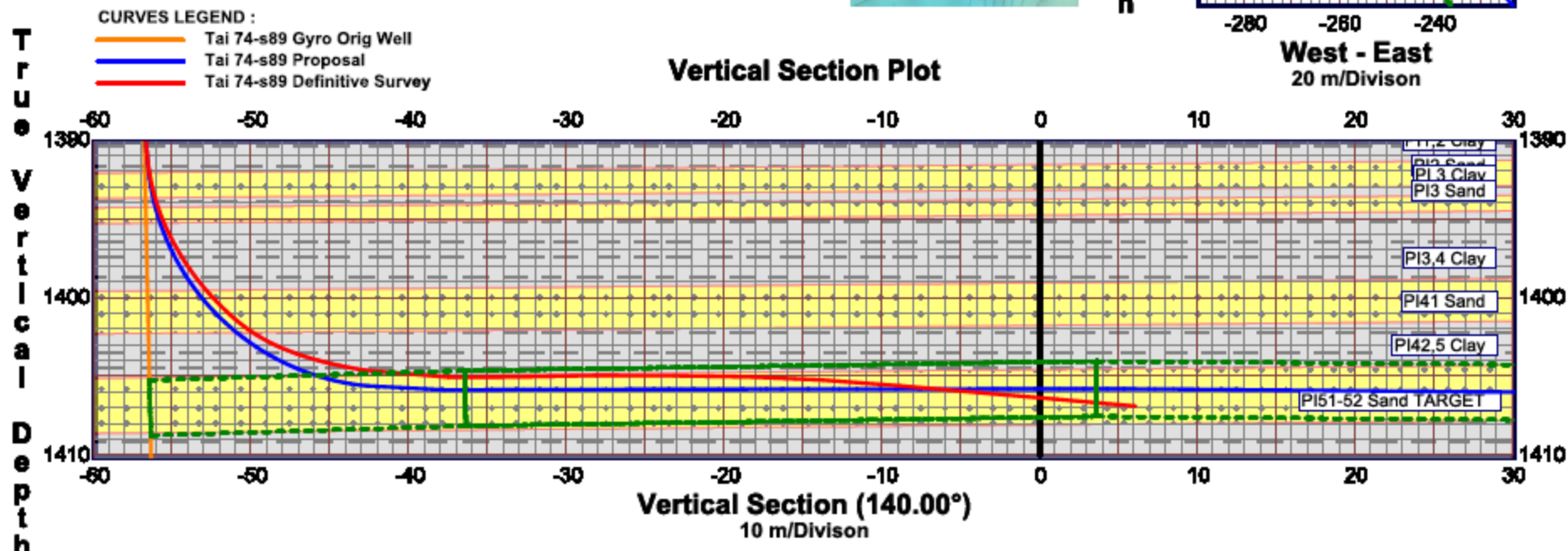
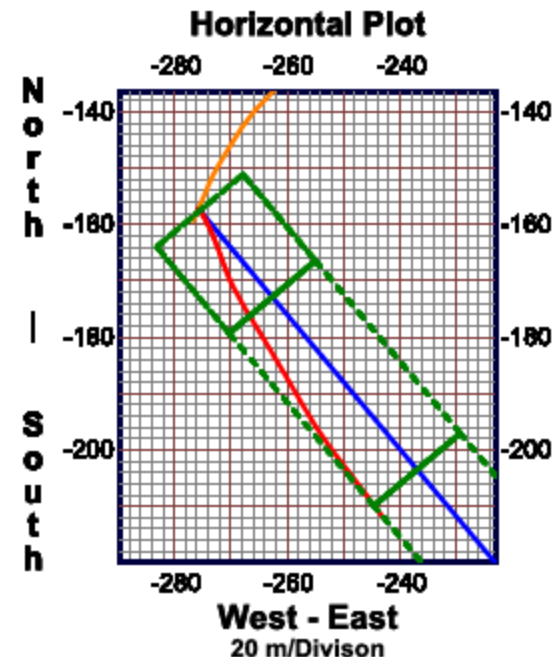
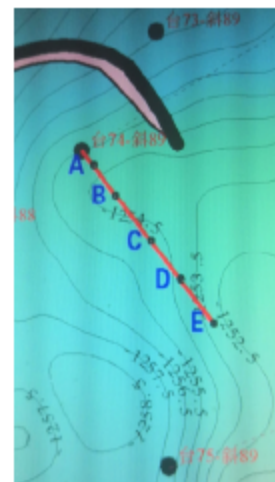
TAI 74-S89 - DEFINITIVE SURVEY

Field, Company: Tai Block 105, Daqing Fanxing Depth Ref.: Orig. Rot. Table
 Tie-in Survey Ref: Gyro Multishot Run 14-Apr-20 ORT-GL: 4.00 m
 North Reference: Grid Azimuth GL-MSL: 127.99 m
 Magnetic Dec.: -10.598° (West of TN) Target Objective: PI51-52
 Grid Convergence: +1.29° (East of TN) Layer Thickness: 3.50 m

Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 126° Grid azimuth
 Window: Top 1456.5, Bottom 1459.2, Rathole to 1461.0 (KOP)
 4-1/2" Curve Section: 1479.0 EOC, 15.7 m ROC (124°/30m DLS)

Control Point as Targets Along 140° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A	1406.4	-36.40	Up 1.72°	1488.6, 1.3 m Above
B	1405.8	3.59	Up 0.86°	Projected 1529.0, On Depth
C	1406.3	63.60	Down 0.48°	TD Called @ 1531.5- Hole Stability





SHU 334-JS401 - DEFINITIVE SURVEY

At 2004.5 m Well TD: 1.8 m Below, 19.2 m Right of The Proposal

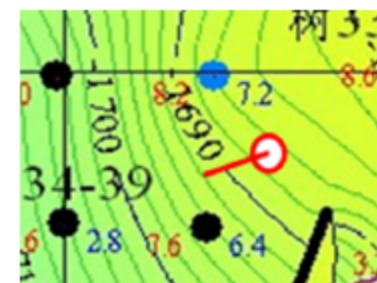
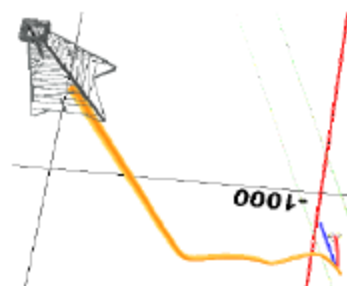
Field, Company: Daqing Yulin Oilfield
Tie-in Survey Ref: MWD 24-Oct-2011
North Reference: Grid Azimuth
Magnetic Dec.: -10.846° (West of TN)
Grid Convergence: +1.82° (East of TN)

Depth Ref.: Orig.Rot. Table
ORT-GL: 4.00 m
GL-MSL: 182.85 m
Target Objective: Y152
Layer Thickness: 6.80 m

Exit: Retrievable Whipstock, 5-1/2" 17# Casing MWD Oriented to 248° Grid azimuth
Window: Top 1903.9, Bottom 1906.7, Rathole to 1908.5 (KOP)
4-1/2" Curve Section: 1929.0 EOC, 16.6 m ROC (113°/30m DLS)

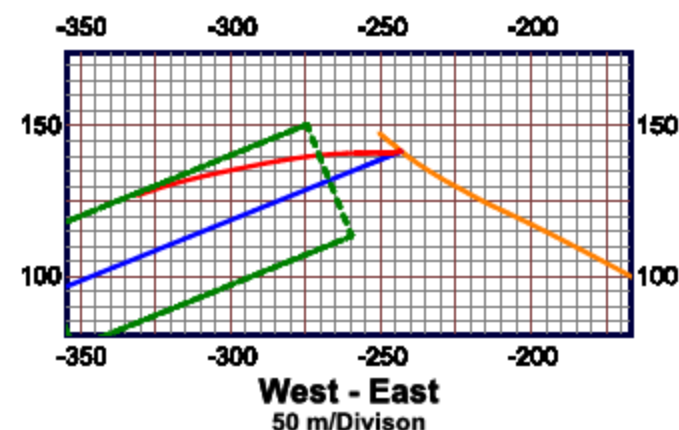
Control Point as Targets Along 0.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
Landing	1887.6	198.21	Down 2.70°	1942.3, 0.6 m Below
A	1892.3	297.99	Down 2.70°	Projected 2043 m. Not Reached



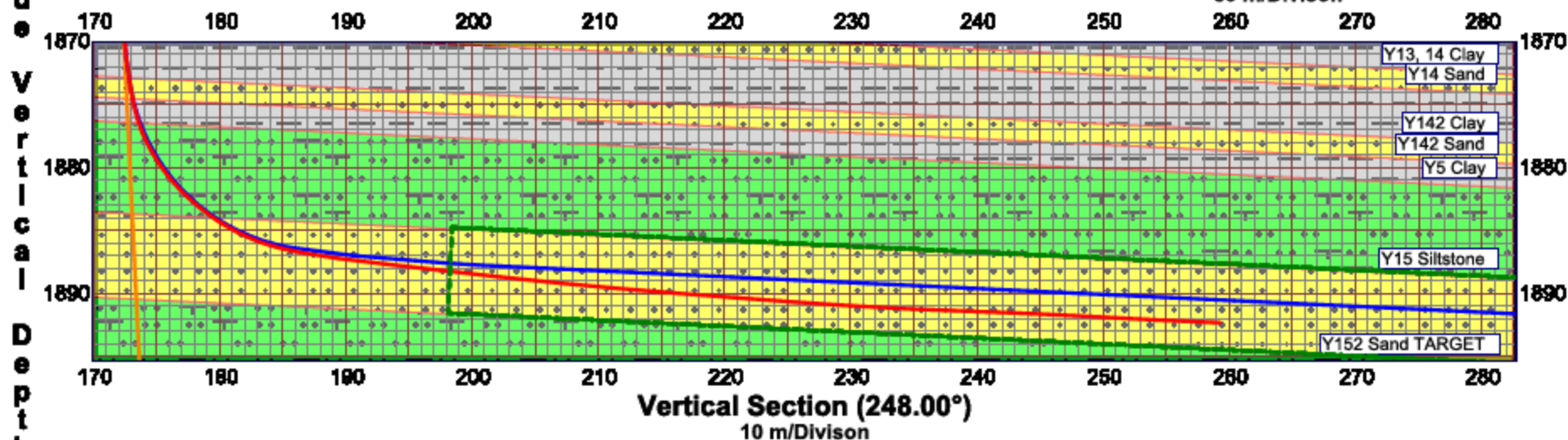
North
|
South

Horizontal Plot



CURVES LEGEND :
— 334-JS401 MWD Orig Well
— 334-JS401 Proposal
— 334-JS401 Definitive Survey

Vertical Section Plot





TAI 71-S89 - DEFINITIVE SURVEY

TD Called @ 1599.0 m MD (113.7 mMD from Target A, 125.5 mMD from EOC)

At TD: 0.4 m Below, 0.1 m Right of The Proposal

Field, Company: Tai Block 105, Daqing Fanxing Depth Ref.: Orig.Rot.Table
Tie-in Survey Ref: Gyro (3 I.R.) 04-May-20 ORT-GL: 4.10 m
North Reference: Grid Azimuth GL-MSL: 127.36 m
Magnetic Dec.: -10.598° (West of TN) Target Objective: PI51-52
Grid Convergence: +1.29° (East of TN) Layer Thickness: 4.90 m

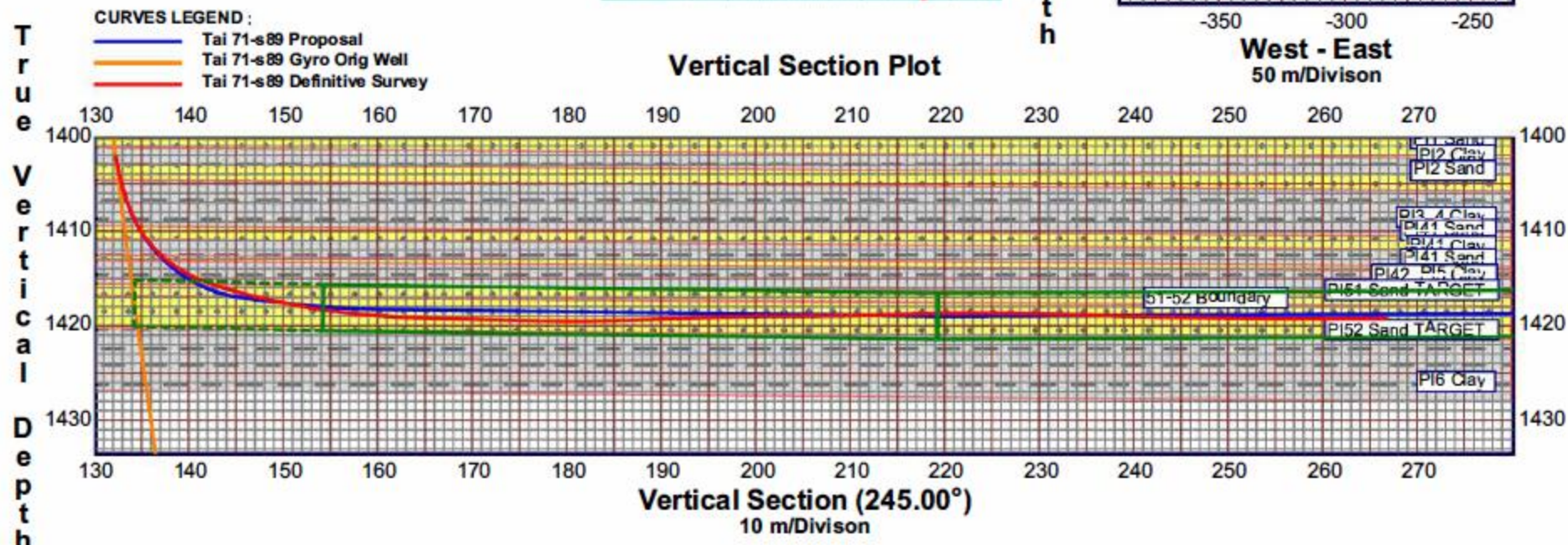
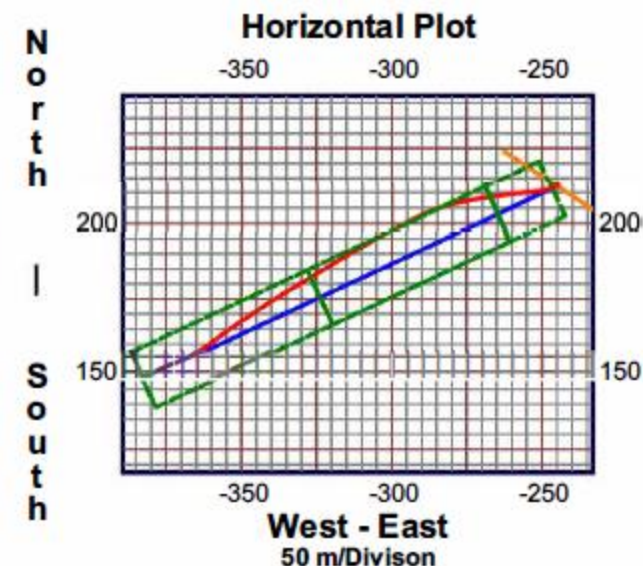
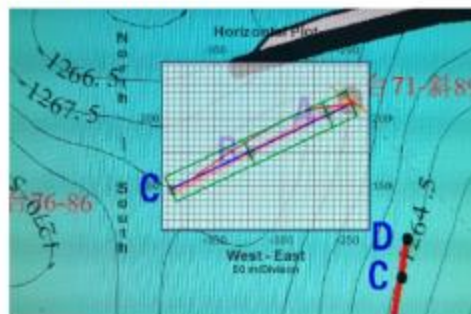
Exit: Retrievable Whipstock, 5-1/2" 17# Casing MWD Oriented to 240° GN (Plan 245°)

Window: Top 1454.4, Bottom 1457.2, Rathole to 1459.0 (KOP)

4-1/2" Curve Section: 1473.5 EOC, 14.3 m ROC (128°/30m DLS)

Control Point as Targets Along 245° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A	1418.1	154.27	Down 1.43°	1485.3, 0.3 m Beow
B	1419.0	219.34	Down 0.79°	1551.1, 0.3 m Above
C	1418.7	284.46	Up 0.26°	Not Reached (TD Called)

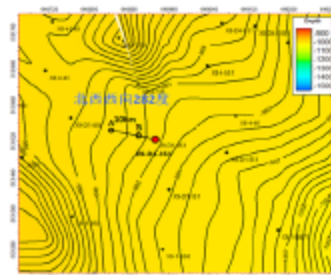




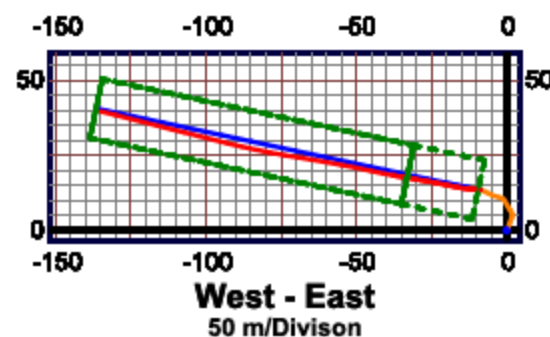
Whipstock, 5-1/2" 17# Casing Gyro Oriented to 270° Grid azimuth
Window: Top whipstock 1114.0, Bottom 1118.7, Rathole to 1118.5 (KOP)
4-1/2" Curve: 1130.0 EOC-1, Avg. 13.6 m ROC (146.9°/30m DLS)
3-7/8" Lateral Open Up to 4-1/2" 1130.0 -1147.0 m
Built to 1153.0 (EOC-2) Avg. 18.8 m ROC (97°/30m DLS)

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A	1133.81	38.00	Up 1.75°	1149.9, 1.4 m Below
B	1130.46	141.97	Up 1.75°	1255.9, 1.6 m Below

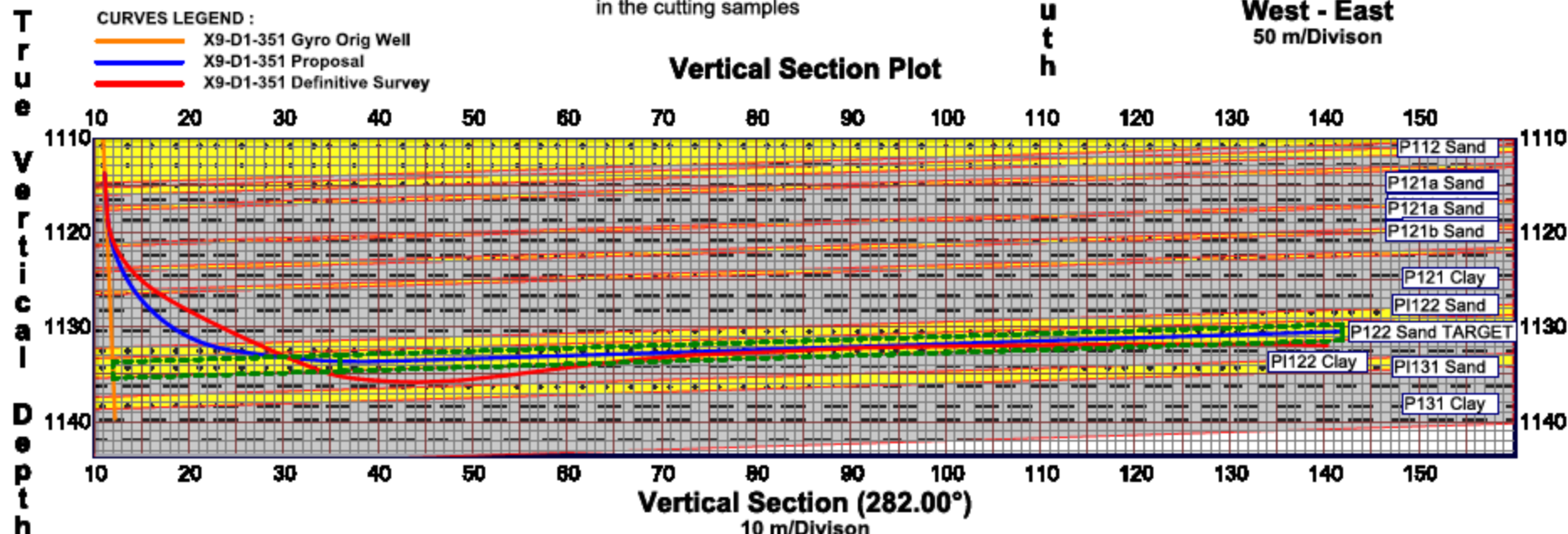
NOTE: Lithology depths in Vertical Section Plot below are based on the open hole log with dip applied. The intermediate clay layer between P122 sand target and the underlying P131 sand layer was found to be thin out, merging of the two sand layers as evidence in the cutting samples



Horizontal Plot



Vertical Section Plot





SHU 334-JS412 ST3 - DEFINITIVE SURVEY

Extended TD @ 1990.0 m

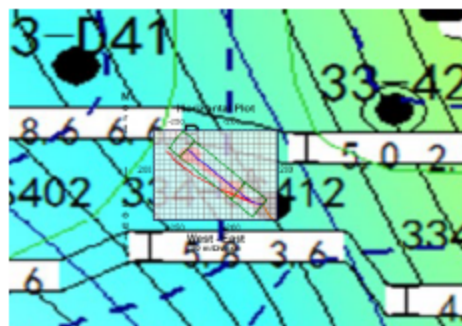
Field, Company: Yulin, Daqing Yulin Oilfield
 Tie-In Survey Ref: Client Provided MWD
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.846° (West of TN)
 Grid Convergence: +1.82° (East of TN)

Depth Ref.: Orig. Rot. Table
 ORT-GL: 4.00 m
 GL-MSL: 181.95 m
 Target Objective: Y152
 Layer Thickness: 3.60 m

Whiptstock No.2: 5-1/2" 17# Casing Oriented to 270° Grid azimuth
 Window: Top 1875.52, Bottom 1878.2, Rathole to 1880.0 (KOP, Dressed TOC)
 4-1/2" Curve ST3: 1894.0 EOC, 21.5 m ROC, 151°/30m DLS

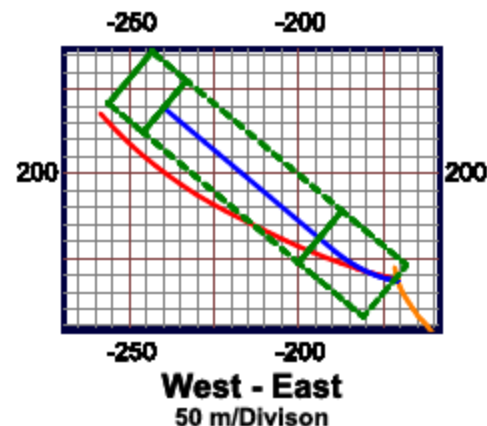
Control Point as Targets Along 310° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1871.4	264.71	Down 1.09°	1915.0, 5.1 m Above
B- TD	1872.5	324.71	Down 1.08°	1978.6, 0.6 m Below
Extended TD	1872.7	338.01	Down 1.09°	1990.0, 0.7 m Below



North
|
South

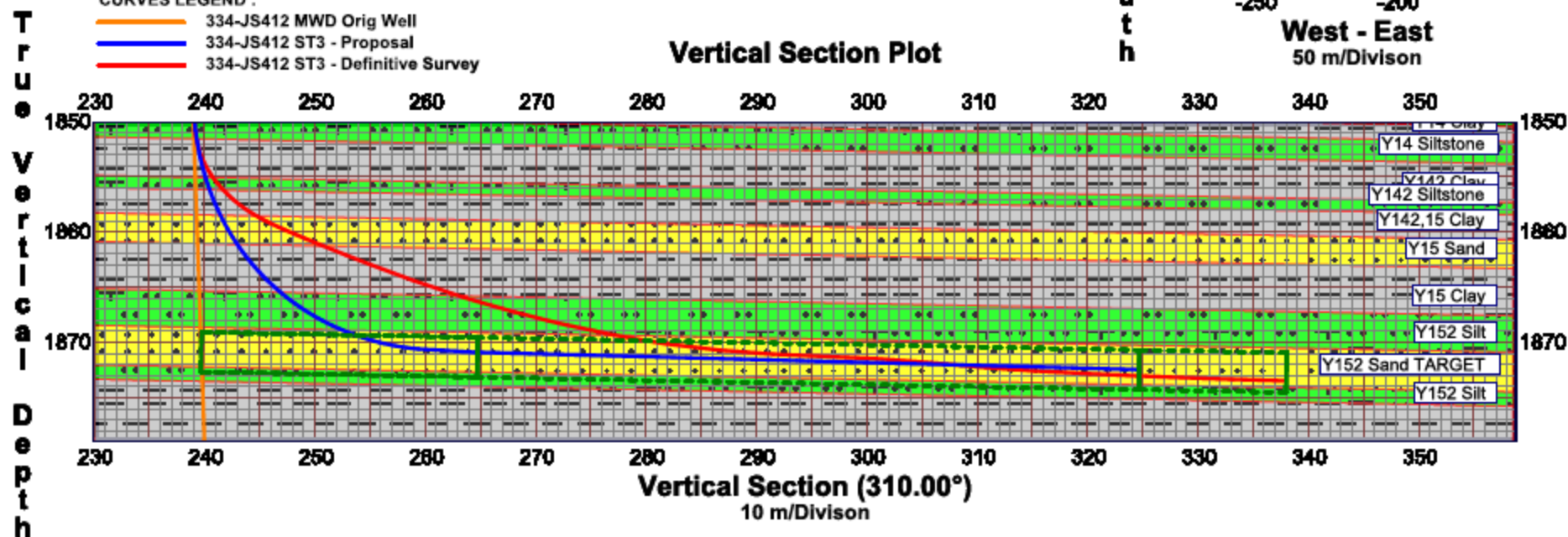
Horizontal Plot



CURVES LEGEND :

- 334-JS412 MWD Orig Well
- 334-JS412 ST3 - Proposal
- 334-JS412 ST3 - Definitive Survey

Vertical Section Plot





X9-31-B56 - DEFINITIVE SURVEY

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
Tie-in Survey Ref: Client Survey File
North Reference: Grid Azimuth
Magnetic Dec.: -10.816° (West of TN)
Grid Convergence: +1.40° (East of TN)

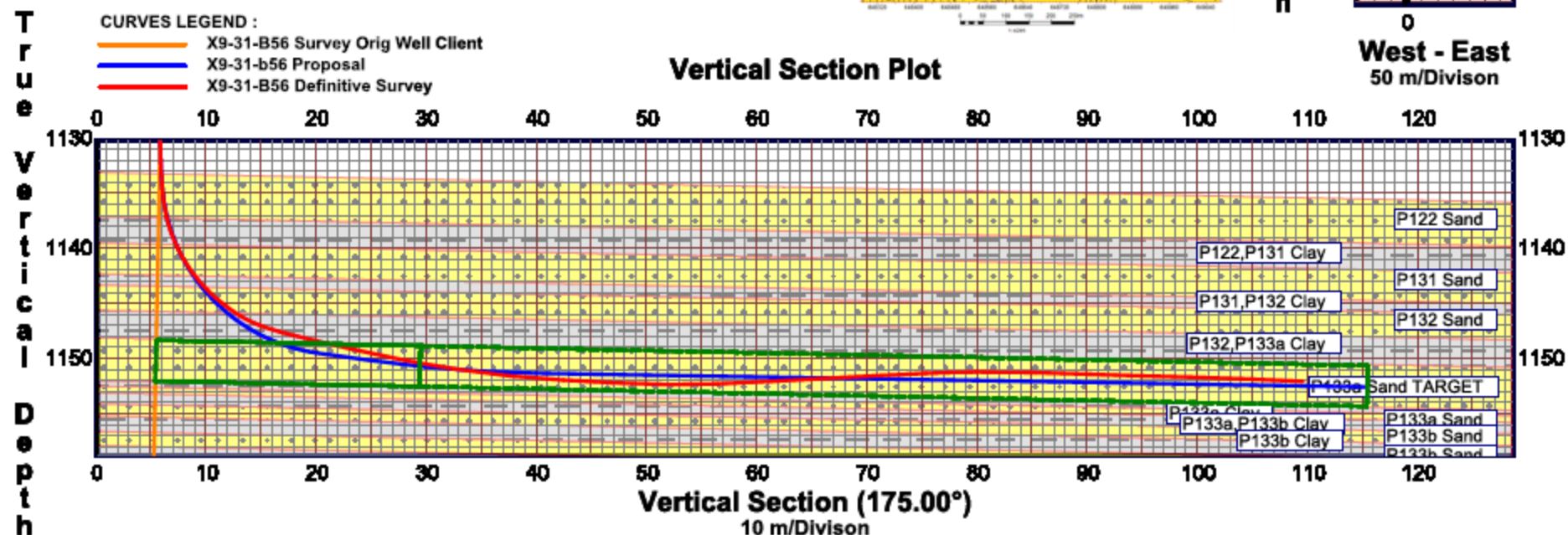
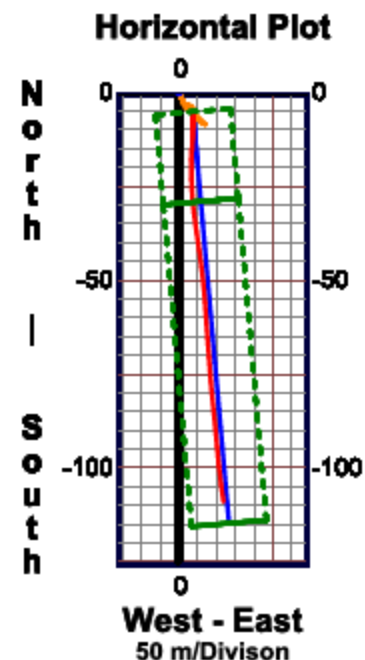
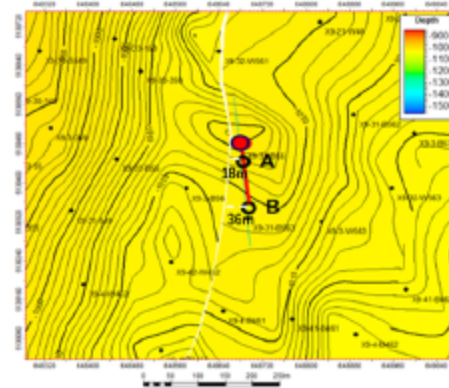
Depth Ref.: Orig. Rot. Table
ORT-GL: 3.70 m
GL-MSL: 138.98 m
Target Objective: P133a
Layer Thickness: 3.70 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 160° Grid azimuth
Window: Top whipstock 1130.0, Bottom 1132.7, Rathole to 1134.5 (KOP)
4-1/2" Curve: 1153.0 EOC, 15.6 m ROC (3.983°/m DLS)

Control Point as Targets Along 175° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A	1150.70	29.48	Down 1.20°	1165.9, 0.3 m Above
B	1152.58	115.48	Down 1.20°	Projected 1252.1, 0.2 m Above

Actual TD @ 1246.2 m





X12-1-FB443 - DEFINITIVE SURVEY

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Run 02-Jul-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.806° (West of TN)
 Grid Convergence: +1.38° (East of TN)

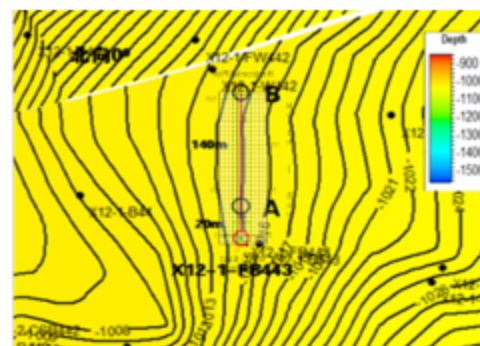
Depth Ref.: Orig.Rot.Table
 ORT-GL: 2.04 m
 GL-MSL: 136.90 m
 Target Objective: P132
 Layer Thickness: 6.20 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 345° Grid azimuth
 Window: Top whipstock 1131.2, Bottom 1133.2, Rathole to 1135.0 (KOP)
 4-1/2" Curve: 1157.0 EOC, 17.5 m ROC (3.879°/m DLS)

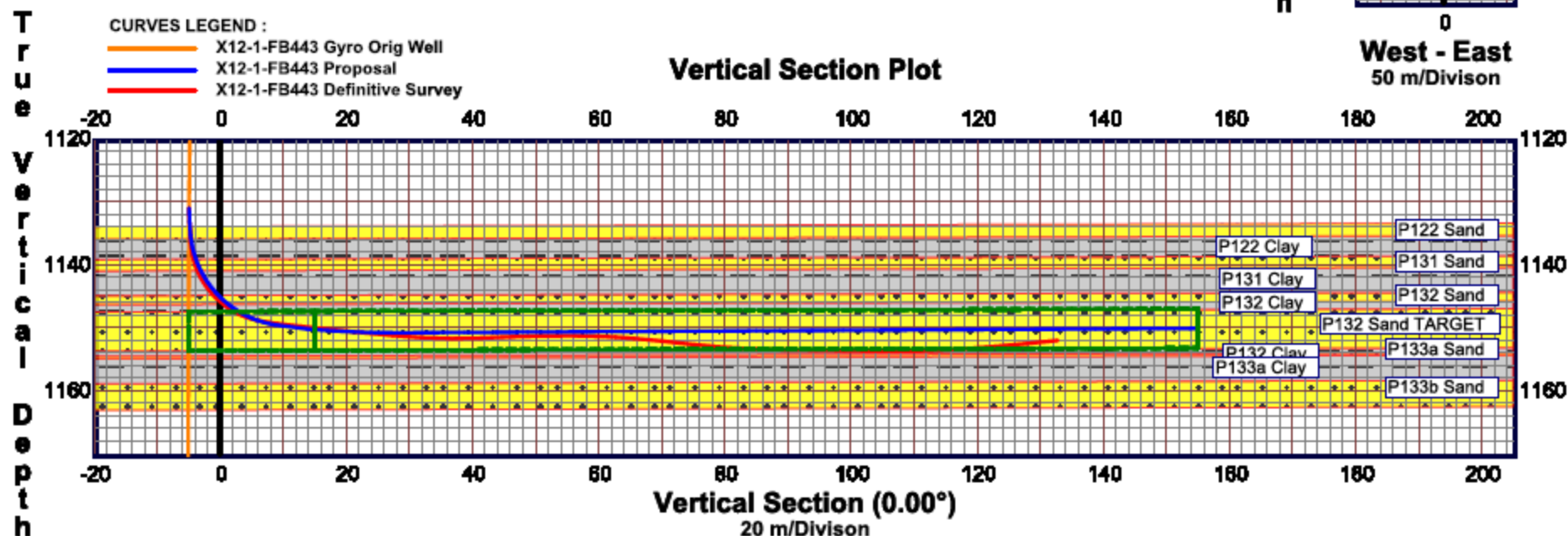
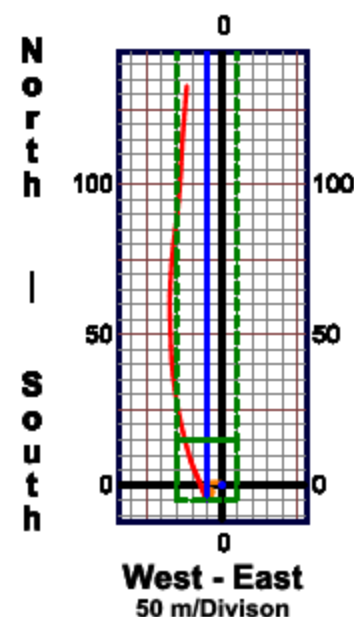
Control Point as Targets Along 175° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1150.49	15.00	Up 0.14°	1162.8, 0.5 m Above
B- TD	1150.14	155.00	Up 0.14°	Projected 1302.9 (early TD called)

Actual TD @ 1283.0



Horizontal Plot





ZHAO 86-26 - DEFINITIVE SURVEY

TD Called @1797.7, 92.9°, 1715.2 TVD, 73.6 VS:
2.7 m Below, 2.1 m Left of The Proposal

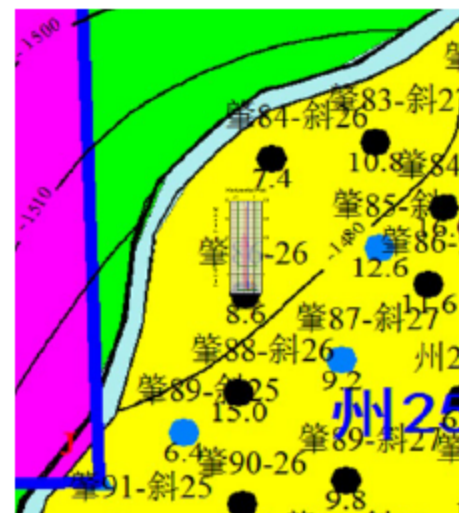
Field, Company: Zhao Block 25, Yushulin Oilfield
Tie-in Survey Ref: Gyro Multishot Outrun 8-Jul-20
North Reference: Grid Azimuth
Magnetic Dec.: -10.690° (West of TN)
Grid Convergence: +1.57° (East of TN)

Depth Ref.: Orig. Rot. Table
ORT-GL: 3.70 m
GL-MSL: 171.50 m
Target Objective: F162-71
Layer Thickness: 9.20 m

Exit: Whipstock, 5-1/2" 17# P110 Casing Gyro Oriented to 345° Grid azimuth
Window: Top 1693.5, Bottom 1696.2, Rathole to 1698.0 (KOP)
4-1/2" Curve: 1718.0 EOC2 (LDM Bypass 1720.8 EOC1- Tight), 17.5 m ROC (119°/30m DLS)

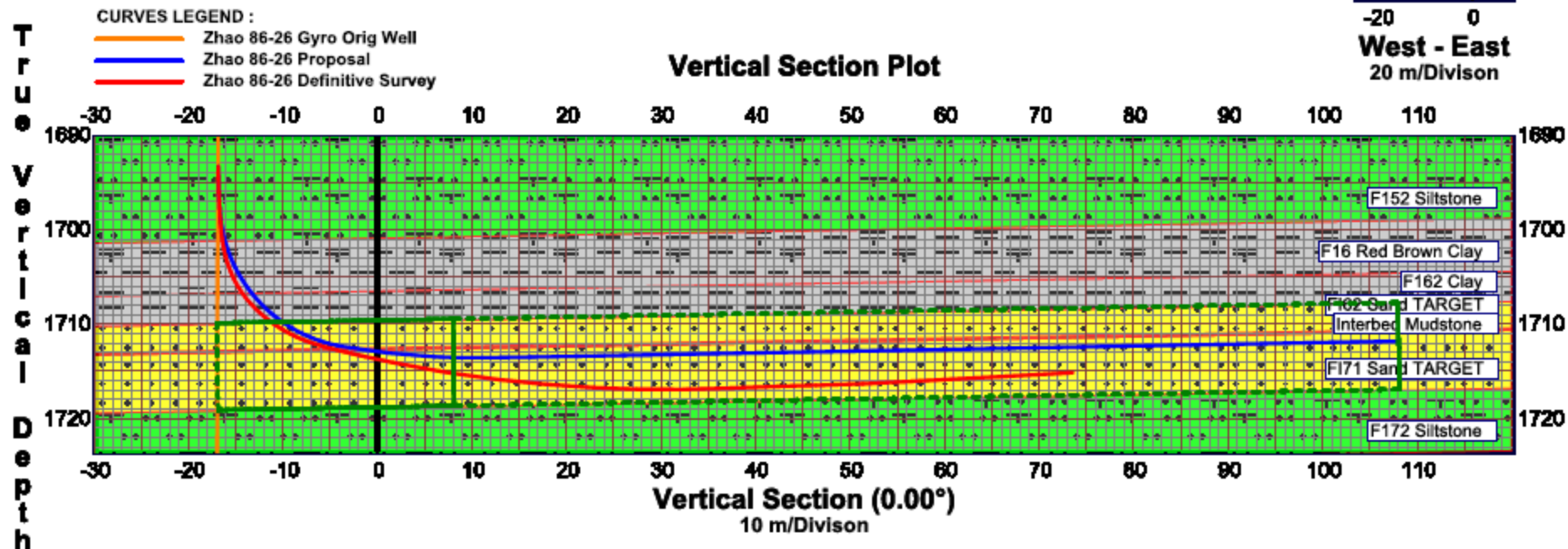
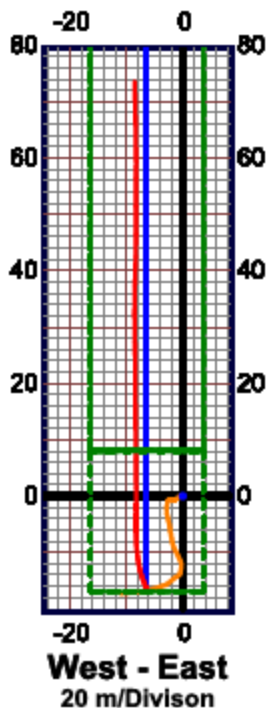
Control Point as Targets Along 0.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1713.58	8.06	Up 1.00°	1732.1, 1.7 m Below
B- TD	1711.81	108.06	Up 1.00°	TD Called @ 1797.7 (Res. Press.)



North
|
South

Horizontal Plot





L4-P2588 - DEFINITIVE SURVEY

Field, Company: Lamadian, No.6 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot 04-Jul-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.939° (West of TN)
 Grid Convergence: +1.41° (East of TN)

Depth Ref.: Orig.Rot.Table
 ORT-GL: 2.80 m
 GL-MSL: 148.50 m
 Target Objective: P11
 Layer Thickness: 1.90 m

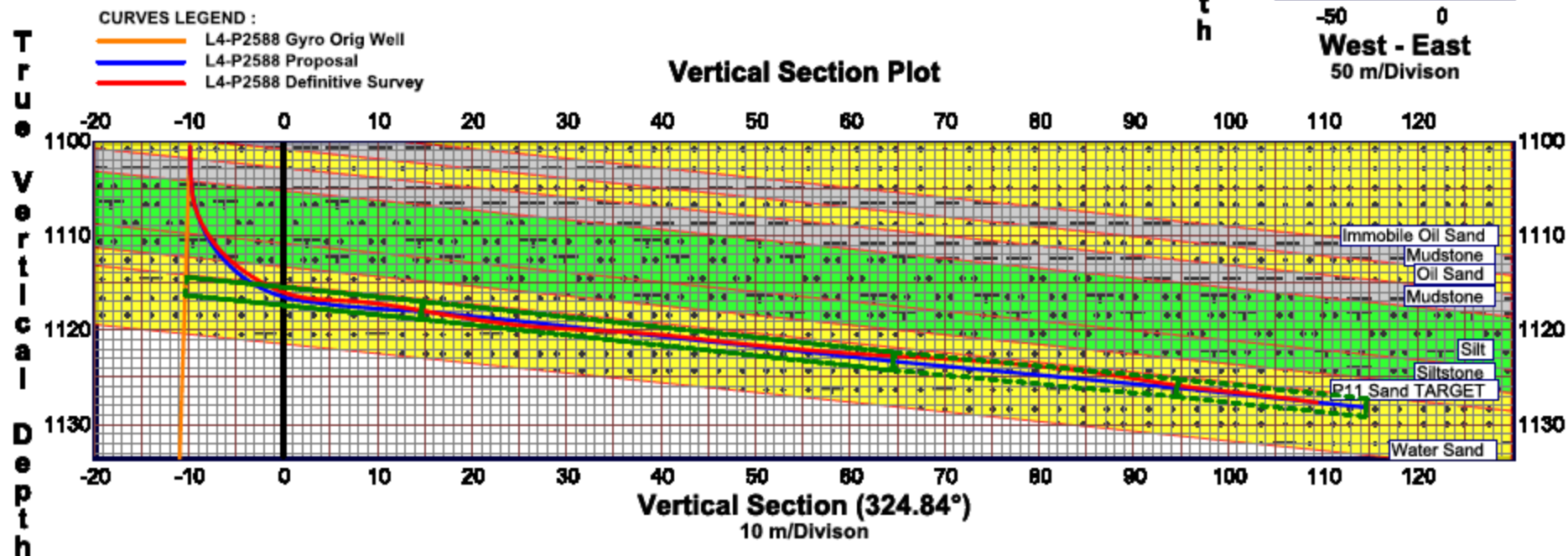
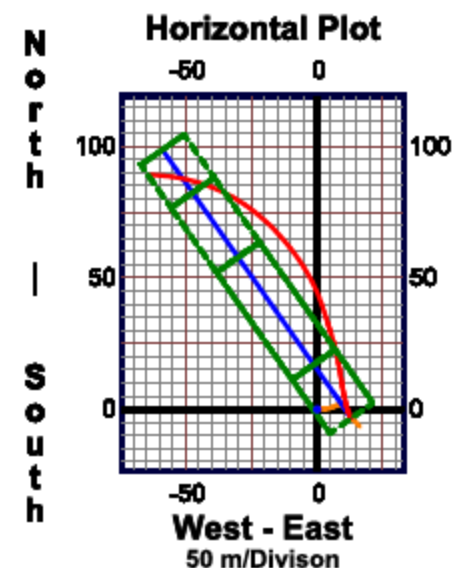
Whipstock, 5-1/2" 17# Casing MWD Oriented to 305° Grid azimuth (324.84° Plan)

Window: Top whipstock 1100.7, Bottom 1103.1, Rathole to 1104.6 (KOP)

4-1/2" Curve: 1122.7 EOC, 13.4 m ROC (128°/30m DLS)

Control Point as Targets Along 324.84° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Proposal mMD vs Target
A- Landing	1117.92	14.67	Down 5.86°	1135.8, On Depth
Target 1	1123.32	64.67	Down 6.16°	1186.1, 0.6 m Above
Target 2	1126.13	94.64	Down 5.35°	Not Reached. TD Called @ 1242.5
Target 3	1128.20	114.67	Down 5.91°	Not Reached.





Field, Company:	Xingshugang, No.5 Oil Extraction of Daqing	Depth Ref.: Orig.Rot.Table
Tie-in Survey Ref:	Gyro Multishot Outrun no. 2, 15-Jul-20	ORT-GL: 2.70 m
North Reference:	Grid Azimuth	GL-MSL: 135.40 m
Magnetic Dec.:	-10.807° (West of TN)	Target Objective: PI33b
Grid Convergence:	+1.35° (East of TN)	Laver Thickness: 2.60 m

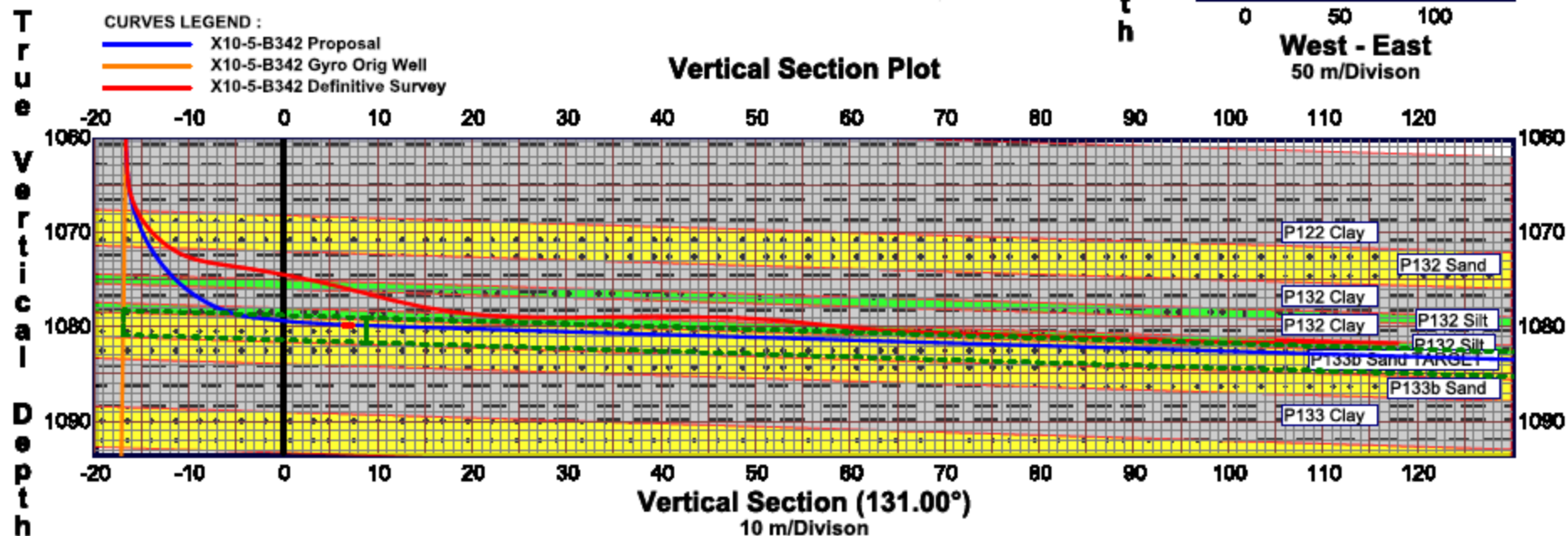
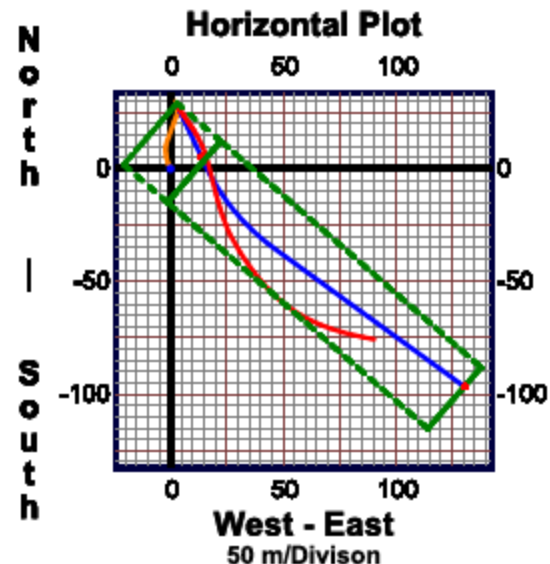
Whipstock, 5-1/2" 17# Casing Gyro Oriented to 140° Grid azimuth (155° Plan Landing)
Window: Top whipstock 1060.3, Bottom 1062.3, Rathole to 1064.0 (KOP)
4-1/2" Curve: 1079.0 EOC, 13.3 m ROC (5.209°/m DLS)

Control Point as Targets Along 131° Dip Direction / Target B Azimuth:

Target	m TVD	m VS	Dip Angle	GN Az	Actual mMD vs Target
A- Landing	1079.86	8.82	Down 1.78°	155°	1096.7, 3.4 m Above, 2.4 m Right
B- TD	1084.40	161.82	Down 1.70°	131°	Plan 1255.0, On Depth, On Line

Actual TD @ 1215.5 (Meet 120m Along Hole Lateral length criteria)

NOTE: Decided to place the Lateral section 1.0-1.5m TVD above Plan,
based on good sands and shows in cutting samples





L9-P262 - DEFINITIVE SURVEY

Field, Company: Lamadian, No.6 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun No. 2, 21-Jul-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.942° (West of TN)
 Grid Convergence: +1.43° (East of TN)

Depth Ref.: Orig.Rot.Table
 ORT-GL: 3.75 m
 GL-MSL: 146.65 m
 Target Objective: PI21a
 Layer Thickness: 2.50 m

Whipstock, 5-1/2" 17# Casing MWD Oriented to 125° Grid azimuth (135.58° Plan)

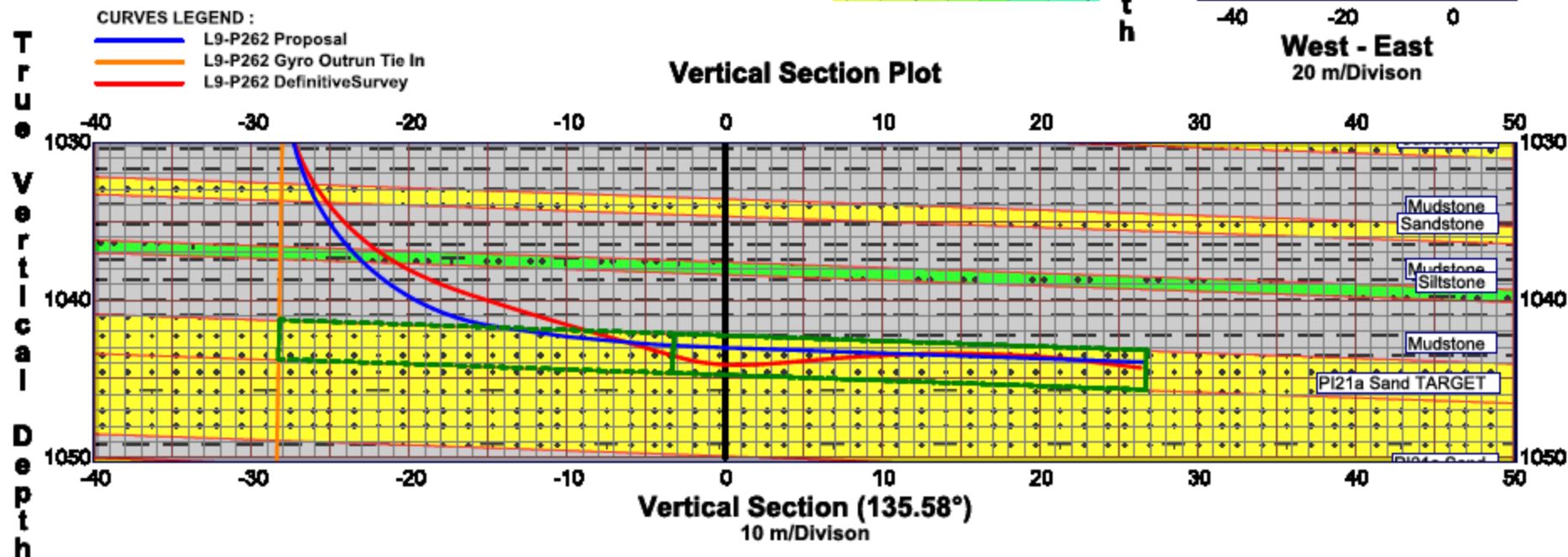
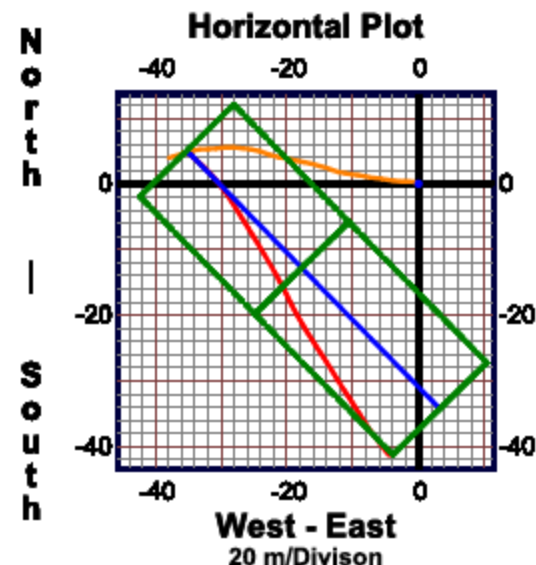
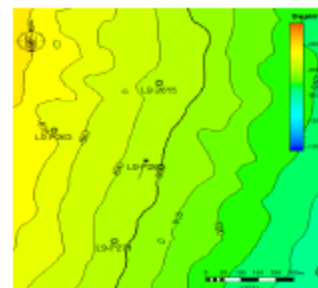
Window: Top whipstock 1024.4, Bottom 1026.7, Rathole to 1028.3 (KOP)

4-1/2" Curve: 1044.5 EOC-1, 14.6 m ROC (128°/30m DLS)

1066.0 EOC-2, 105.9 m ROC (50°/30m DLS)

Control Point as Targets Along 324.84° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1042.88	-3.27	Down 2.00°	1060.0, 0.7 m Below, 4.1 m Right of Target
B- TD	1043.96	26.73	Down 2.00°	1090.5 TD, 0.4 m Below, 10.3 m Right of Target





PU 85-70 - DEFINITIVE SURVEY

Field, Company: No.4 Fault Block of North Pu, No.7 Oil Extraction of Daqing
Tie-in Survey Ref: Gyro Multishot Inrun, 26-Jul-20
North Reference: Grid Azimuth
Magnetic Dec.: -10.695° (West of TN)
Grid Convergence: +1.24° (East of TN)

Depth Ref.: ORT
ORT-GL: 2.50 m
GL-MSL: 128.70 m
Target Objective: PI9
Layer Thickness: 2.60 m

Whipstock, 5-1/2" 17# Casing MWD Orented to 265° Grid azimuth
Window: Top whipstock 966.4, Bottom 969.3, Rathole to 971.0 (KOP)
4-1/2" Curve: 996.5 EOC, 23.2 m ROC (107°/30m DLS)

Control Point as Targets Along 279.73° Dip Direction / Target Azimuth:

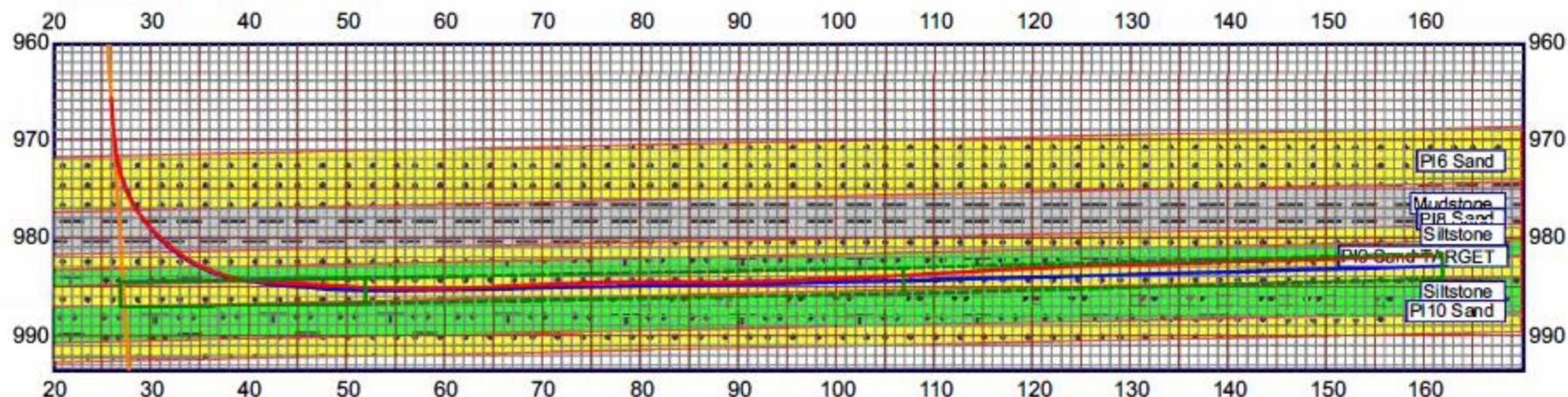
Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	985.44	52.29	Up 0.92°	1005.5, 0.4 m Above, 5.0 m Right
B	984.42	107.30	Up 1.06°	1061.2, 0.6 m Above, 3.5 m Right
C- TD	982.93	162.34	Up 1.55°	1115.5 TD, 1.1 m Above, 5.1 m Left of Target

CURVES LEGEND :

- Pu85-70 Gyro Tie in
- Pu85-70 Proposal
- Pu85-70 Definitive Survey

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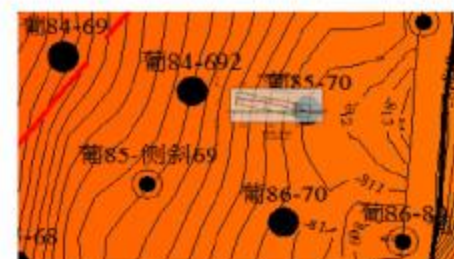


Vertical Section (279.73°)
10 m/Division

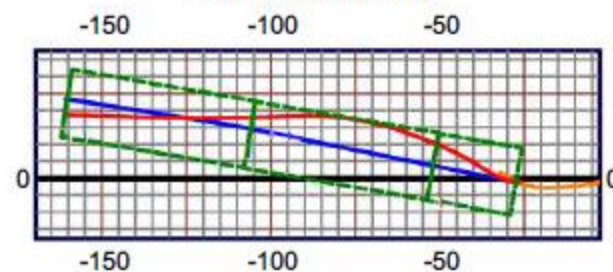
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Horizontal Plot



West - East
50 m/Division



SY 48-56 - DEFINITIVE SURVEY

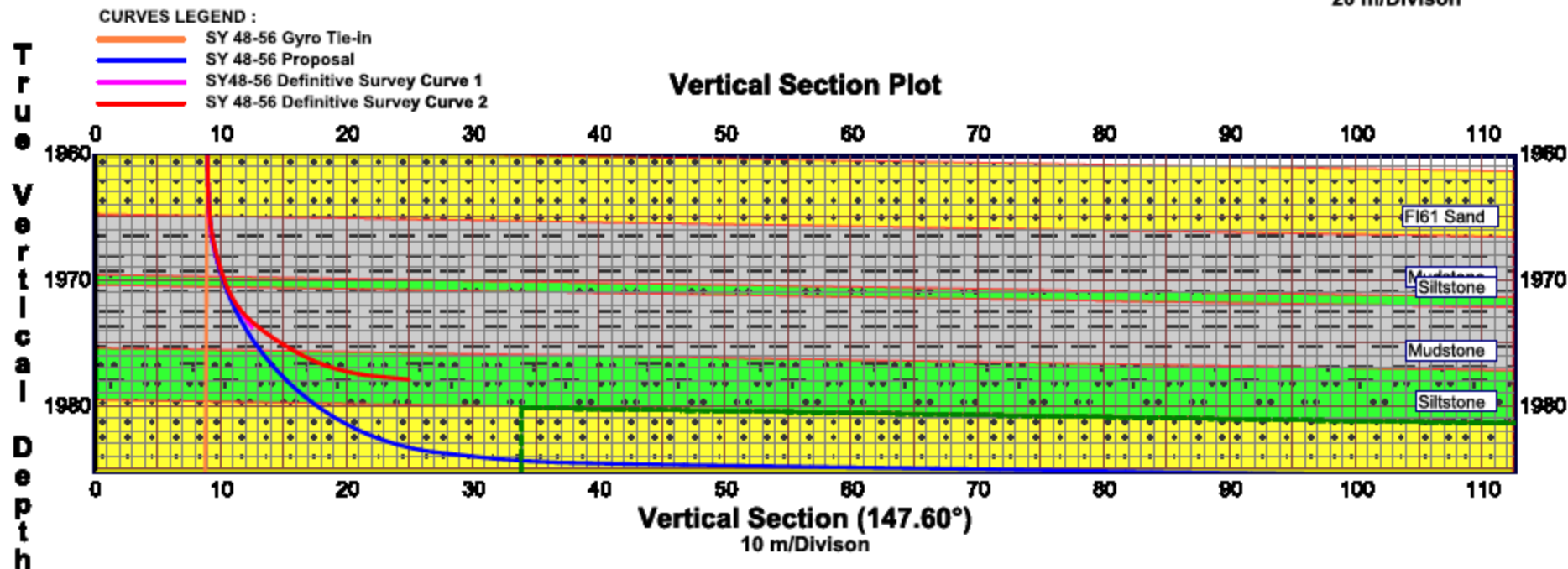
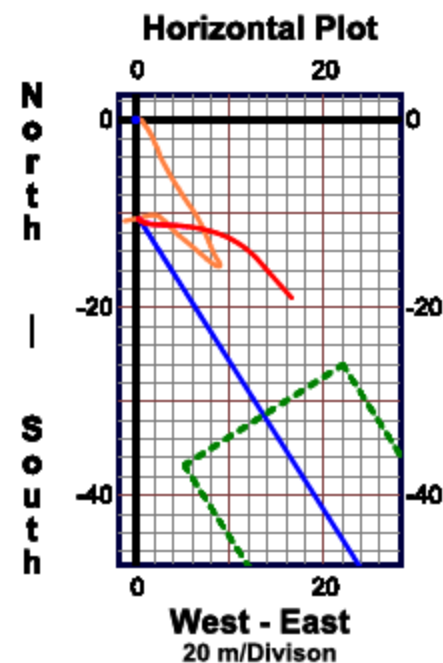
Field, Company: ShengYu Block 22, Yulin Oilfield
 Tie-In Survey Ref: Gyro Multishot Outrun 27-Jul-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.811° (West of TN)
 Grid Convergence: +1.65° (East of TN)

Depth Ref.: ORT
 ORT-GL: 3.70 m
 GL-MSL: 176.37 m
 Target Objective: FI72
 Layer Thickness: 8.50 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 133° Grid Azimuth
 Window: Top 1959.9, Bottom 1962.8, Rathole to 1964.5 (KOP)
 4-1/2" Curve: 1990.5 EOC, xx m ROC (xx°/30m DLS)

Control Point as Targets Along 197° Dip Direction / Target Azimuth:

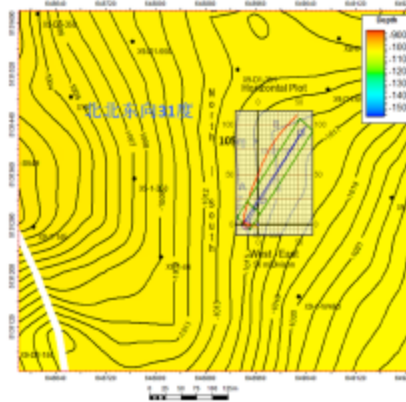
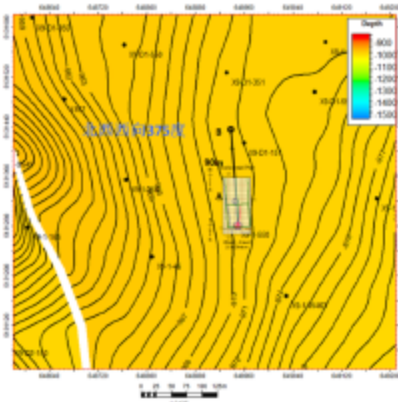
Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
Landing	2015.4	23.75	Down 0.84°	Not Reached
A (TD)	2017.2	143.75	Down 0.84°	TD Called @ 2034.0 EOC (Hole Stability)



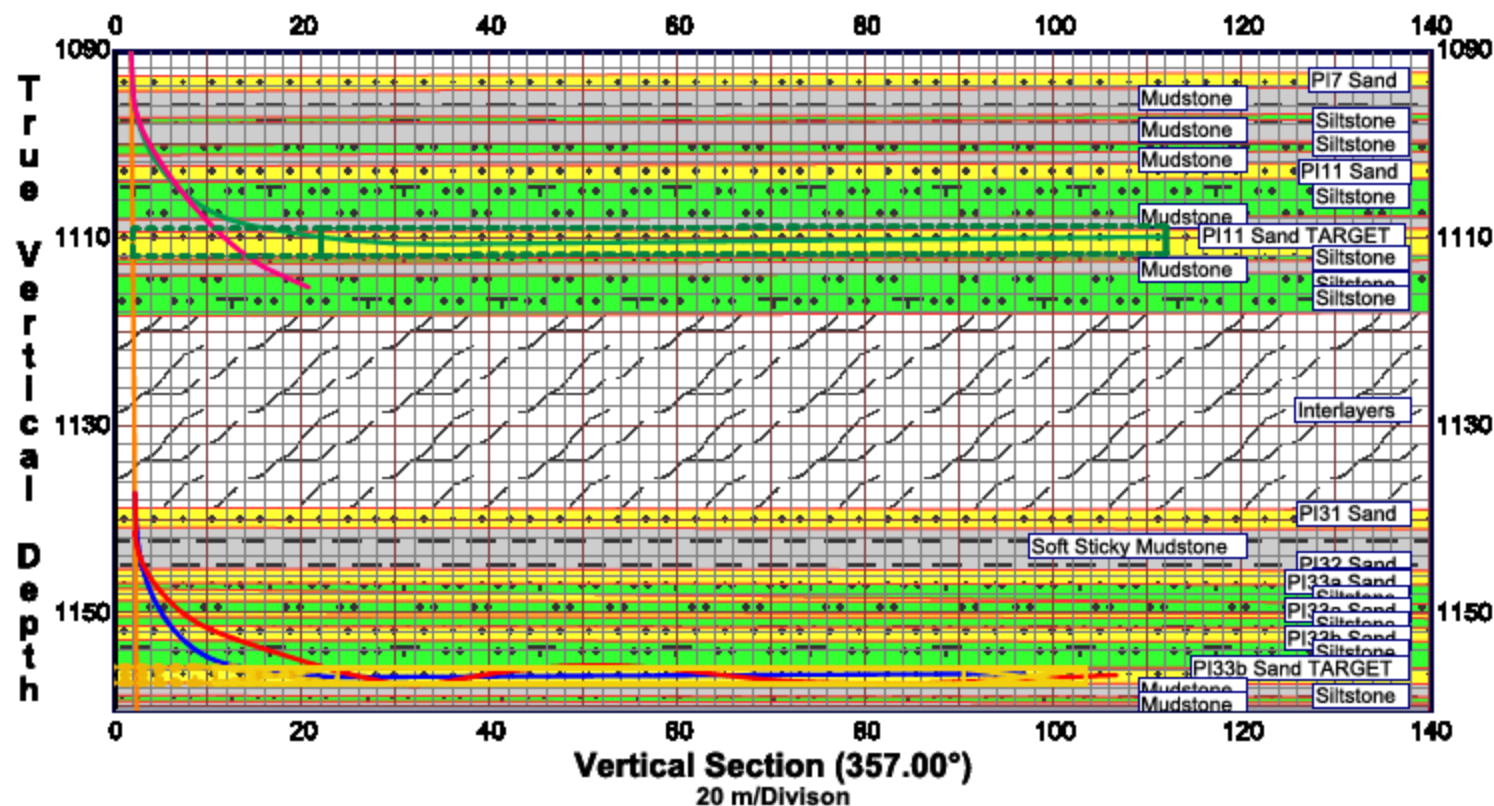


X9-1-550 DEFINITIVE SURVEYS ST1 (LOWER), ST2 (UPPER) LEGS

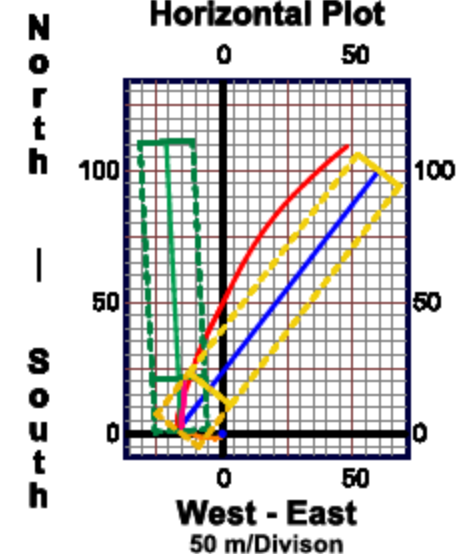
Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
Tie-In Survey Ref: Gyro Multishot Outrun 29-Jul-20
North Reference: Grid Azimuth
Magnetic Dec.: -10.816° (West of TN)
Grid Convergence: +1.40° (East of TN)



Vertical Section Plot



Horizontal Plot



CURVES LEGEND :

- X9-1-550 Gyro Tie In
- X9-1-550 ST1 (Lower Leg) Proposal
- X9-1-550 ST1 Definitive Survey
- X9-1-550 ST2 Proposal
- X9-1-550 ST2 Definitive Survey



X9-1-550 ST1 - DEFINITIVE SURVEY

First (Lower) Leg, 1 of 2 Laterals

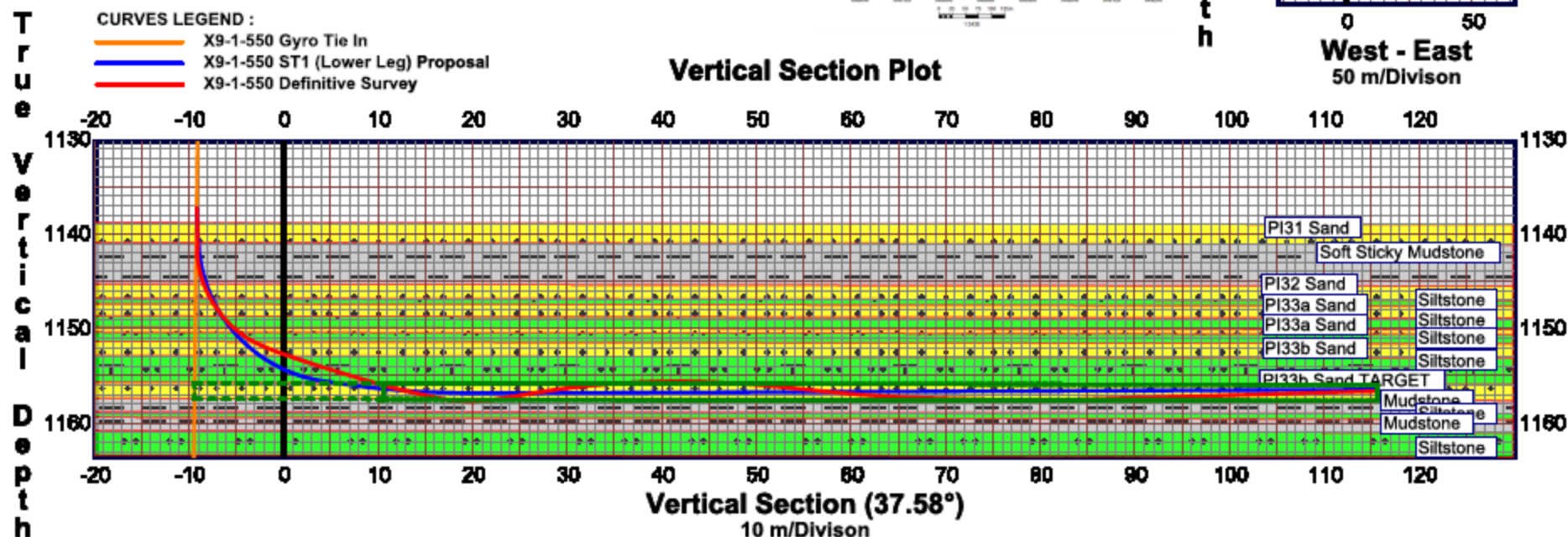
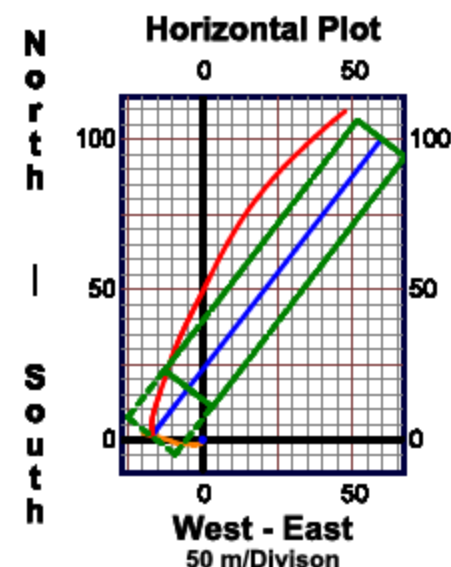
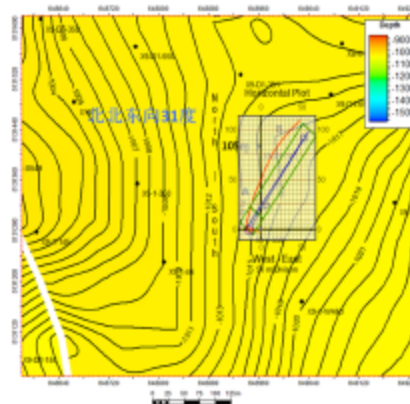
Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 29-Jul-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.816° (West of TN)
 Grid Convergence: +1.40° (East of TN)

Depth Ref.: ORT
 ORT-GL: 6.67 m
 GL-MSL: 136.90 m
 Target Objective: P133b
 Layer Thickness: 1.70 m

Whipstock No. 1, 5-1/2" 17# Casing Gyro Oriented to 27° Grid Azimuth
 Window: Top whipstock 1137.4, Bottom 1139.7, Rathole to 1141.5 (KOP)
 4-1/2" Curve: 1156.5 EOC-1, 12.8 m ROC (170°/30m DLS),
 1182.0 EOC-2, 73.2 m ROC (49°/30m DLS)

Control Point as Targets Along 37.58° Dip Direction / Target B Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
ST1 A- Landing	1156.64	10.63	Down 0.09°	1169.9, 0.6 m Above, 9.0 m Left
ST1 B- TD	1156.47	115.63	Down 0.09°	1277.0 TD, 0.2 m Below, 17.2 m Left





X9-1-550 ST2 - DEFINITIVE SURVEY

Second (Upper) Leg, 2 of 2 Laterals

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 29-Jul-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.816° (West of TN)
 Grid Convergence: +1.40° (East of TN)

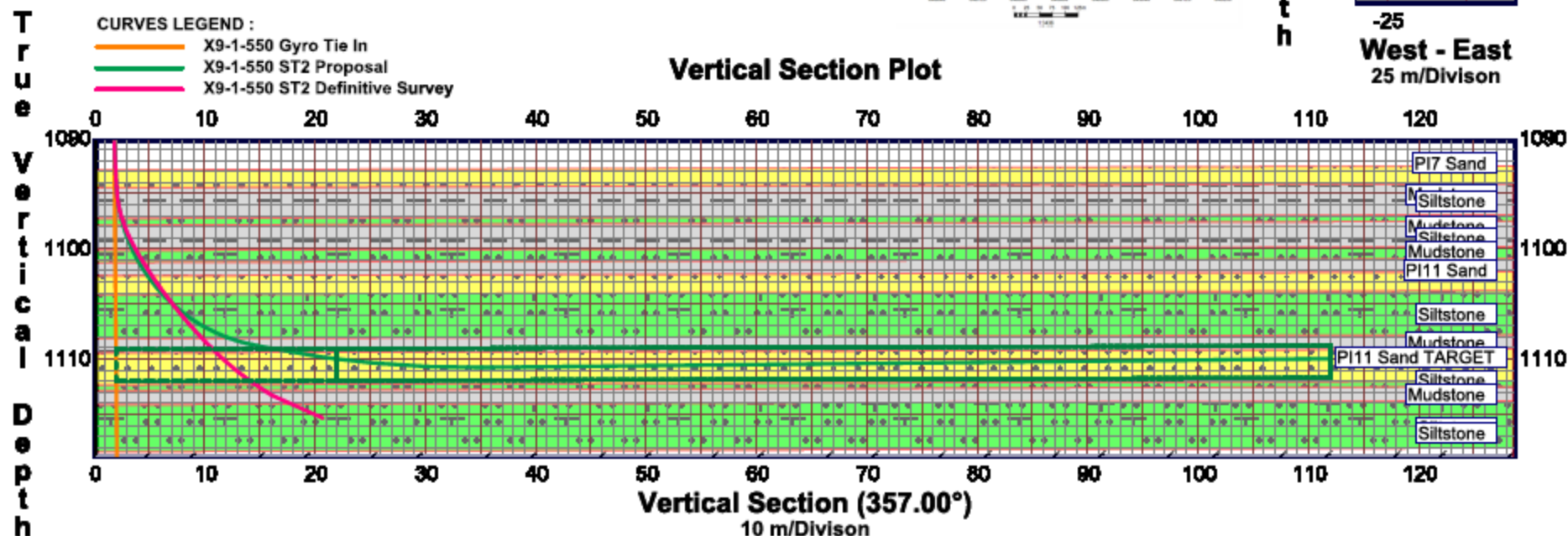
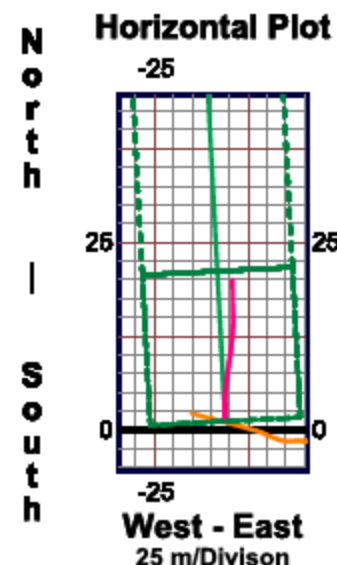
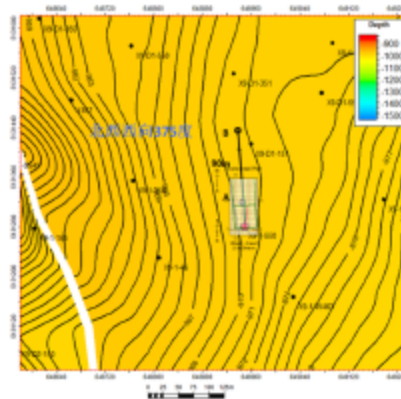
Depth Ref.: ORT
 ORT-GL: 6.67 m
 GL-MSL: 136.90 m
 Target Objective: PI11
 Layer Thickness: 2.90 m

Whipstock No. 2, 5-1/2" 17# Casing Gyro Oriented to 342° Grid Azimuth
 Window: Top whipstock 1090.5, Bottom 1092.7, Rathole to 1094.5 (KOP)
 4-1/2" Curve: 1124.0 TD Called (BUR), 29.2 m ROC (78°/30m DLS),

Control Point as Targets Along 357° Dip Direction / Target B Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
ST2 A- Landing	1110.50	22.00	Up 0.16°	Projected 1125.3, 5.2 m Below (Not Reached)
ST2 B- TD	1109.97	112.00	Up 0.16°	Projected 1215.9, 0.5 m Above (Not Reached)

Actual TD @ 1124.0 (Low BUR in Curve for EOC to meet Target)





At 1092.0 Well TD: 0.1 m Above, 1.2 m Right of The PROPOSAL

Field, Company: No.3 Fault Block of North Pu, No.7 Oil Extraction of Daqing

Tie-in Survey Ref: Gyro Multishot Outrun, 7-Aug-20

North Reference: Grid Azimuth

Magnetic Dec.: -10.703° (West of TN)

Grid Convergence: +1.23° (East of TN)

Depth Ref.: ORT

ORT-GL: 5.00 m

GL-MSL: 129.90 m

Target Objective: P19

Layer Thickness: 2.40 m

Whipstock, 5-1/2" 17# Casing MWD Oriented to 357° Grid azimuth

Window: Top whipstock 946.9, Bottom 949.2, Rathole to 951.0 (KOP)

4-1/2" Curve: 970.0 EOC, 13.4 m ROC (142°/30m DLS)

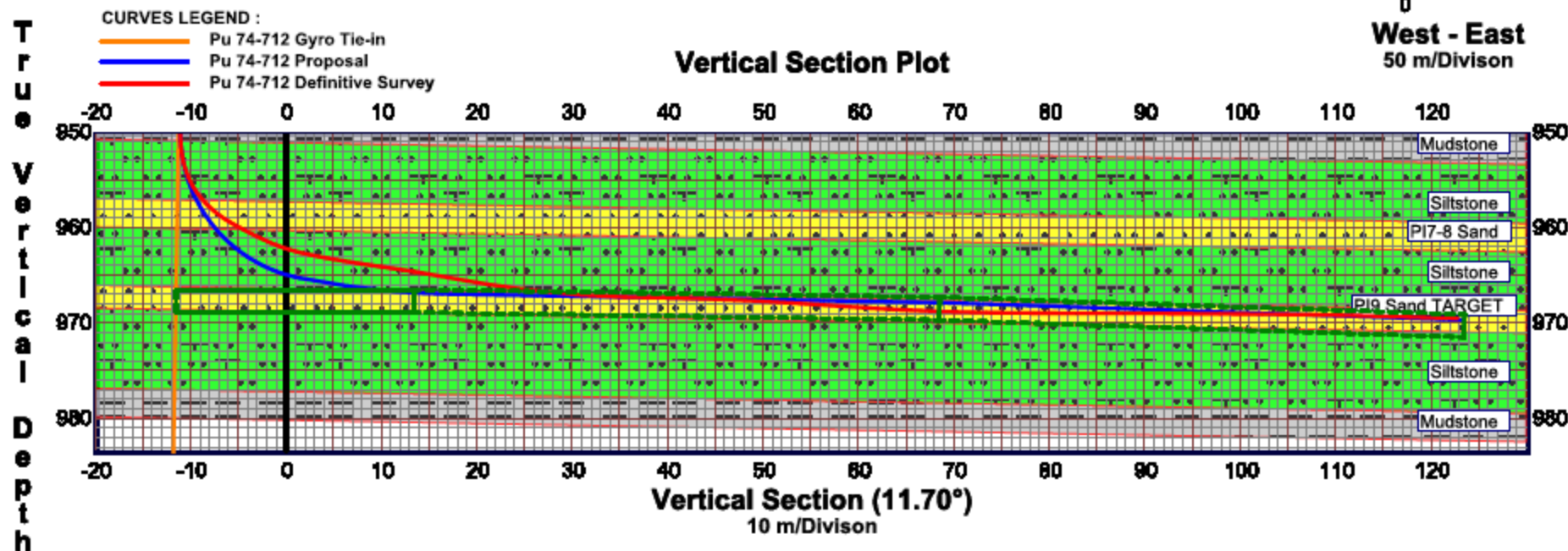
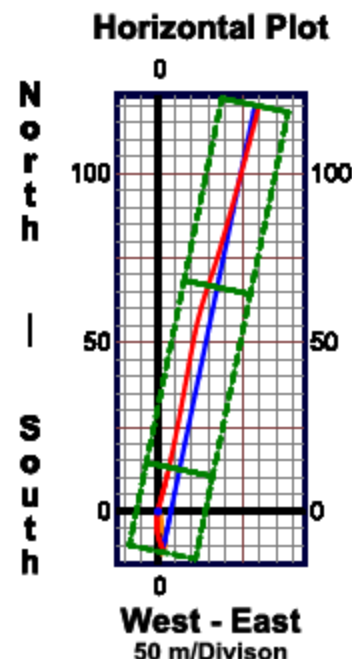
Control Point as Targets Along 11.70° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs TARGETS
--------	-------	------	-----------	-----------------------

A- Landing 967.10 13.51 0.00° 982.3, 2.5 m Above, 5.3 m Left

B 967.90 68.52 Down 0.83^a 1037.5, 0.9 m Below, 4.9 m Left

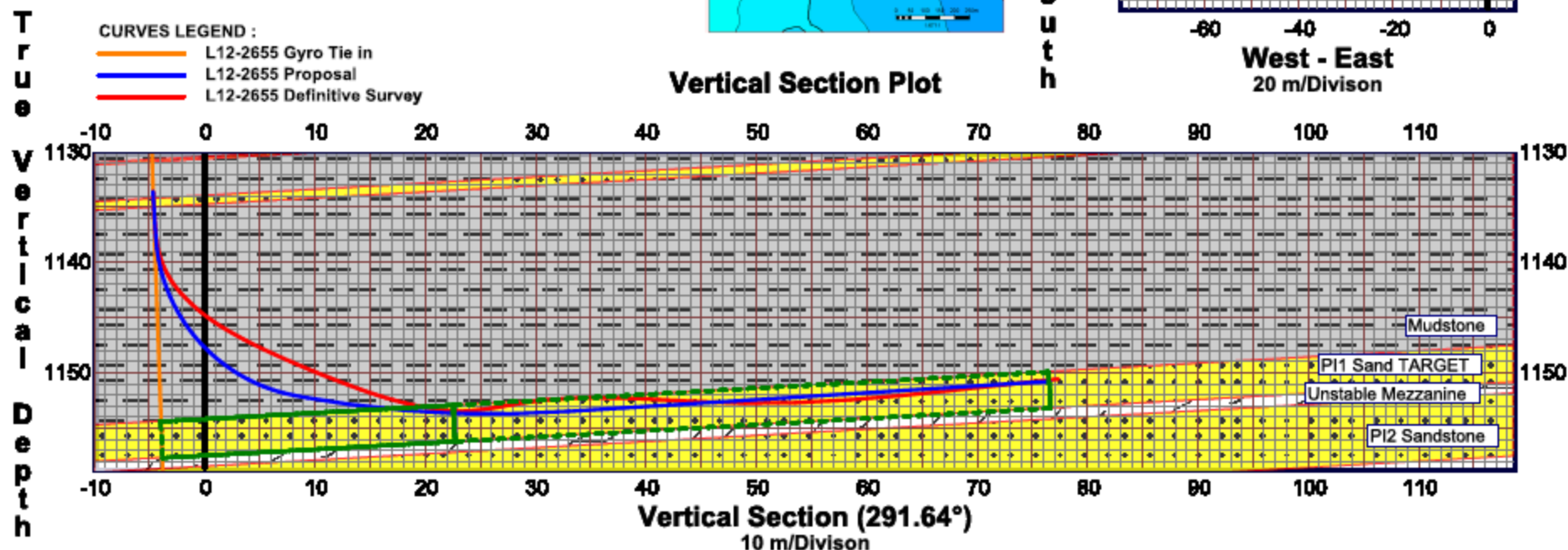
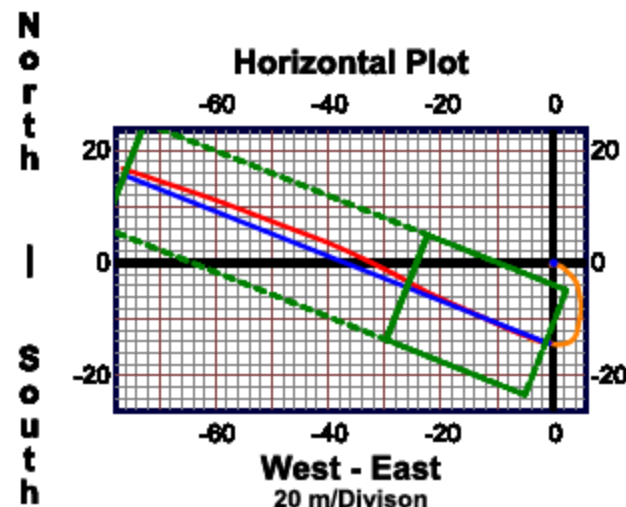
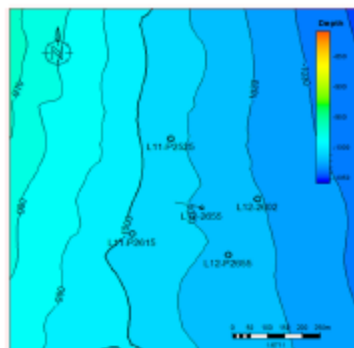
C- TD 989.70 123.54 Down 1.87° 1092.0, 0.2 m Above, 1.3 m Right





Whipstock, 5-1/2" 17# Casing MWD Oriented to 276° Grid azimuth
Window: Top whipstock 1133.8, Bottom 1136.2, Rathole to 1138.0 (KOP)
4-1/2" Curve: 1150.0 EOC-1, 13.9 m ROC (5.009°/m DLS)
1175.0 EOC-2, 63.8 m ROC (1.809°/m DLS)

Control Point as Targets Along 291.64° Dip Direction / Target Azimuth:				
Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1153.77	22.61	Up 3.20°	1171.0, 0.3 m Above, 0.8 m Right
B- TD	1150.76	76.81	Up 3.20°	1226.0 TD, 0.1 m Above, 0.6 m Right





PU 77-642 - DEFINITIVE SURVEY

Field, Company: No.3 Fault Block of North Pu, No.7 Oil Extraction of Daqing

Tie-in Survey Ref: Client Survey File

North Reference: Grid Azimuth

Magnetic Dec.: -10.697° (West of TN)

Grid Convergence: +1.22° (East of TN)

Depth Ref.: ORT

ORT-GL: 3.75 m

GL-MSL: 128.30 m

Target Objective: PI7

Layer Thickness: 2.80 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 85° Grid azimuth

Window: Top whipstock 888.4, Bottom 890.7, Rathole to 892.5 (KOP)

4-1/2" Curve: 910.0 EOC, 20.5 m ROC (4.418°/m DLS)

Control Point as Targets Along 99.07° Dip Direction / Target Azimuth:

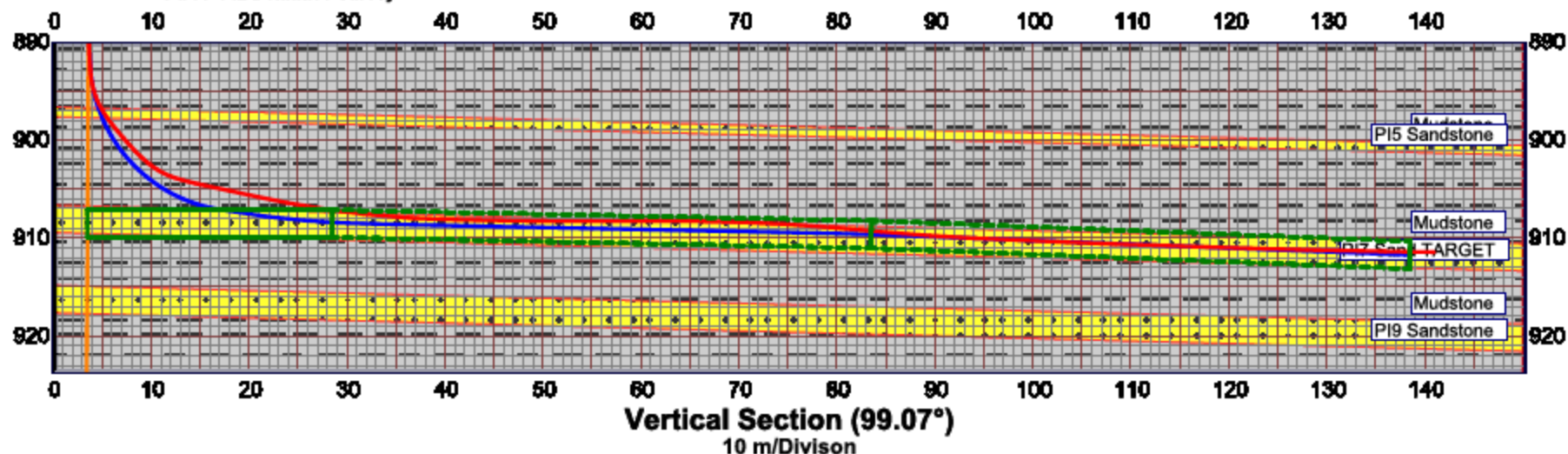
Target	m TVD	m VS	Dip Angle	Proposal mMD vs Target
A- Landing	908.55	28.53	Down 0.07°	924.3, 1.4 m Above, 2.8 m Left
B	909.85	83.54	Down 1.15°	979.5, 0.4 m Above, 2.3 m Left
C- TD	911.75	138.54	Down 2.19°	1037.0 TD, 0.3 m Above, 2.8 m Left

True Vertical Depth

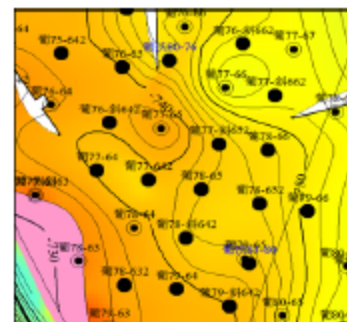
CURVES LEGEND :

- Pu 77-642 Proposal
- Pu 77-642 Client Survey Tie In
- Pu 77-642 Definitive Survey

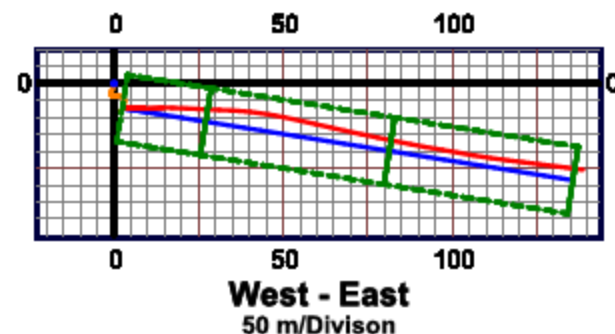
Vertical Section Plot



North | South



Horizontal Plot





X2-D3-113 - DEFINITIVE SURVEY

Field, Company: West of X1-3 Block, No.4 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 29-Jul-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.85° (West of TN)
 Grid Convergence: +1.33° (East of TN)

Depth Ref.: ORT
 ORT-GL: 2.70 m
 GL-MSL: 138.22 m
 Target Objective: GI6+7
 Layer Thickness: 3.20 m

Whipstock ST2, 5-1/2" 17# Casing MWD Oriented to 343° Grid Azimuth
 Window: Top whipstock 1082.8, Bottom 1085.2, Rathole to 1067.0 (KOP)
 4-1/2" Curve: 1087.2, 19.1 m ROC (119°/30m DLS)

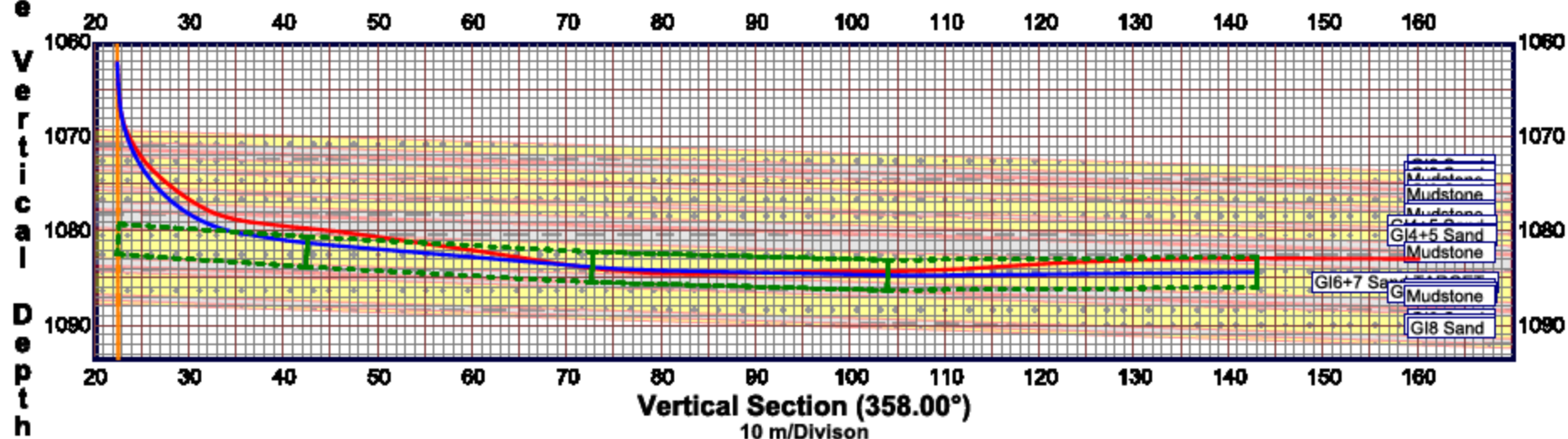
Plan Targets Along 358° Dip Direction Compared with Actual:

Plan Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1082.21	42.55	Down 3.79°	1093.6, 2.5 m Above, 5.0 m Left
B	1083.84	72.74	Down 3.09°	1124.2, 0.1 m Below, 4.3 m Left
C	1084.69	103.97	Down 1.56°	1155.6, 0.4 m Above, 1.4 m Left
D- TD	1084.37	143.06	Up 0.47°	1194.8, 1.5 m Above, 1.9 m Right

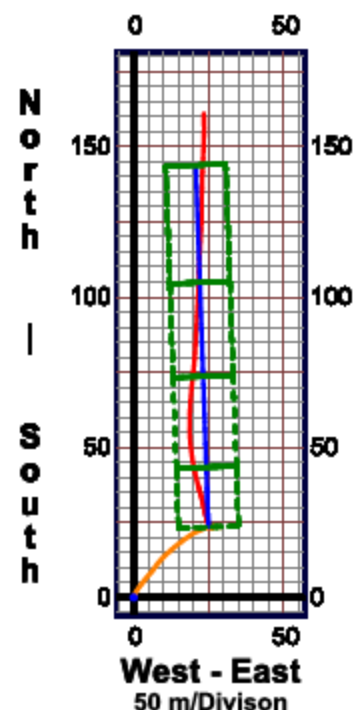
Actual 1212.0 m Extended TD

NOTE: Formation Down Dip of 1.80° is assumed as an average dip angle in this plot.
 This results in the visible discrepancy between the formation and the target box (green color) which is more accurate representation of the actual formation boundary

CURVES LEGEND :
 X2-D3-113 Client Gyro Tie In
 X2-D3-113 Proposal
 X2-D3-113 Definitive Survey



Horizontal Plot





X13-11-146 L2 - DEFINITIVE SURVEY

Upper Lateral

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
Tie-in Survey Ref: Gyro Multishot Outrun 06-Sep-20
North Reference: Grid Azimuth
Magnetic Dec.: -10.802° (West of TN)
Grid Convergence: +1.38° (East of TN)

Depth Ref.: ORT
ORT-GL: 3.33 m
GL-MSL: 136.10 m
Target Objective: PI21b
Layer Thickness: 5.80 m
Effective Thickness: 4.20 m

Whipstock L2, 5-1/2" 17# Casing Gyro Oriented to 200° Grid Azimuth
Window: Top whipstock 1104.8, Bottom 1107.0, Rathole to 1109.0 (KOP)
4-1/2" Curve: 1133.6 EOC, Avg. 17.5 m ROC (3.716°/m DLS)

Control Point as Targets Along 220° Dip Direction (Target Rev. 08-Sep-20)

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
L2 A- Landing	1128.00	27.30	Up 1.51°	1140.7, 1.2 m Above, 8.1 m Right
L2 B- TD	1124.83	147.30	Up 1.51°	1261.2, 0.9 m Above, 0.5 m Right

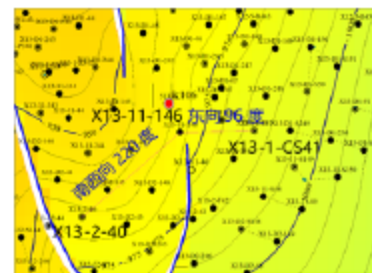
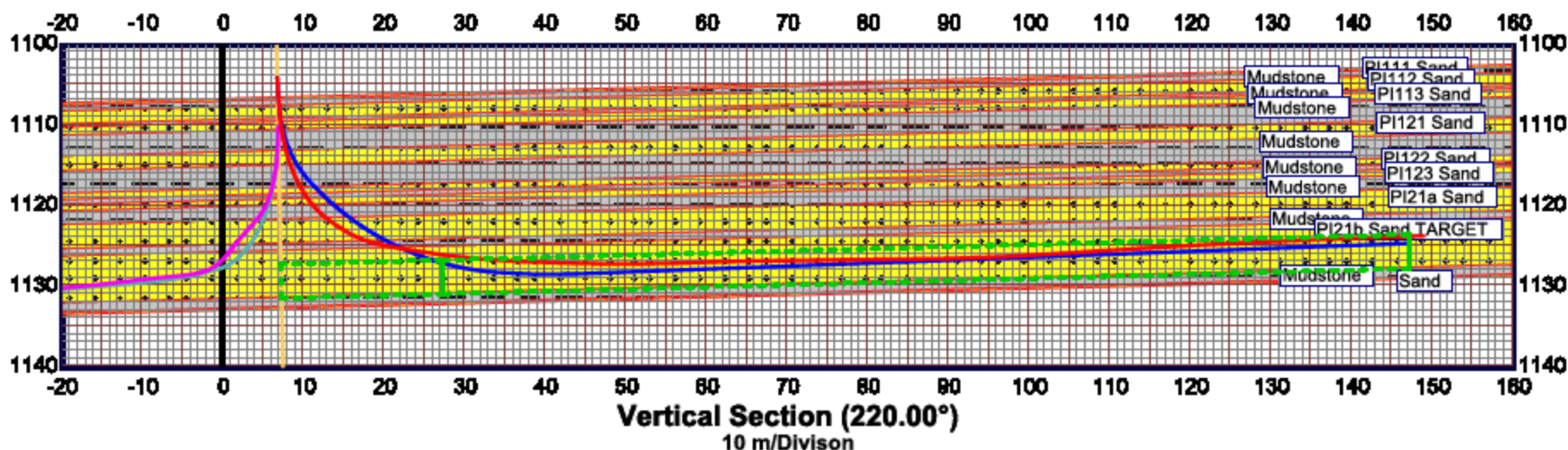
Actual TD @ 1263.0

NOTE: In the Vertical Section Plot below, the formation Up Dip of 1.51° is only applicable to L2 along 220° GAz direction. L1 (left) has a steeper Down Dip at 2.50° along 96° GAz, therefore, appears lower than it should, with respect to the target sand.

CURVES LEGEND :

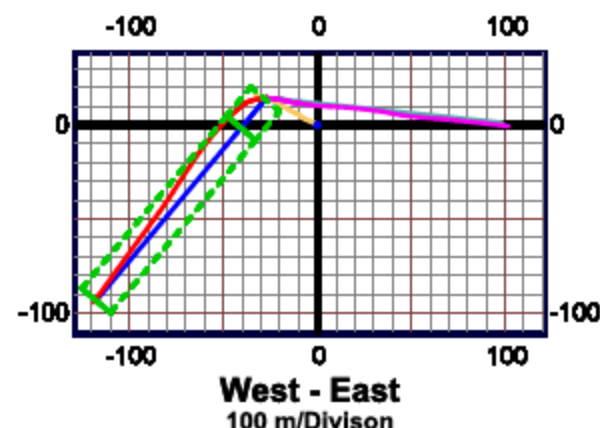
- X13-11-146 Gyro Tie In
- X13-11-146 L1 (Lower) Proposal Rev 8-Sep-20
- X13-11-146 L1 Definitive Survey
- X13-11-146 L2 (Upper) Proposal Rev 8-Sep-20
- X13-11-146 L2 Definitive Survey

True Vertical Depth



North
|
South

Horizontal Plot





X13-11-146 L1 - DEFINITIVE SURVEY

Lower Lateral

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
Tie-in Survey Ref: Gyro Multishot Outrun 06-Sep-20
North Reference: Grid Azimuth
Magnetic Dec.: -10.802° (West of TN)
Grid Convergence: +1.38° (East of TN)

Depth Ref.: ORT
ORT-GL: 3.33 m
GL-MSL: 136.10 m
Target Objective: PI21b
Layer Thickness: 5.80 m
Effective Thickness: 4.20 m

Whipstock L1, 5-1/2" 17# Casing Gyro Oriented to 80° Grid Azimuth
Window: Top whipstock 1110.81, Bottom 1113.2, Rathole to 1115.0 (KOP)
4-1/2" Curve: 1115.0 KOP - 1123.3 (PI123), 14.9 m ROC (6.757°/m DLS)
1123.3 - 1126.5 EOC-1 (PI21a), 33.7 m ROC (2.491°/m DLS)
1126.5 - 1140.5 EOC-2, 20.5 m ROC (3.139°/m DLS)

Control Point as Targets Along 96° Dip Direction (Target Rev. 08-Sep-20)

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
L1 A- Landing	1129.50	-10.10	Down 2.50°	1140.2, 1.0 m Above, 2.4 m Right
L1 B- TD	1134.23	97.90	Down 2.50°	1248.6, 1.9 m Below, 2.6 m Right

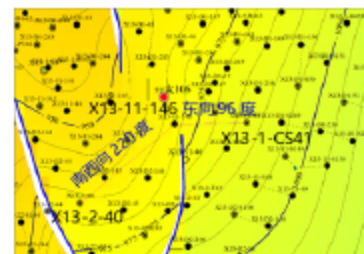
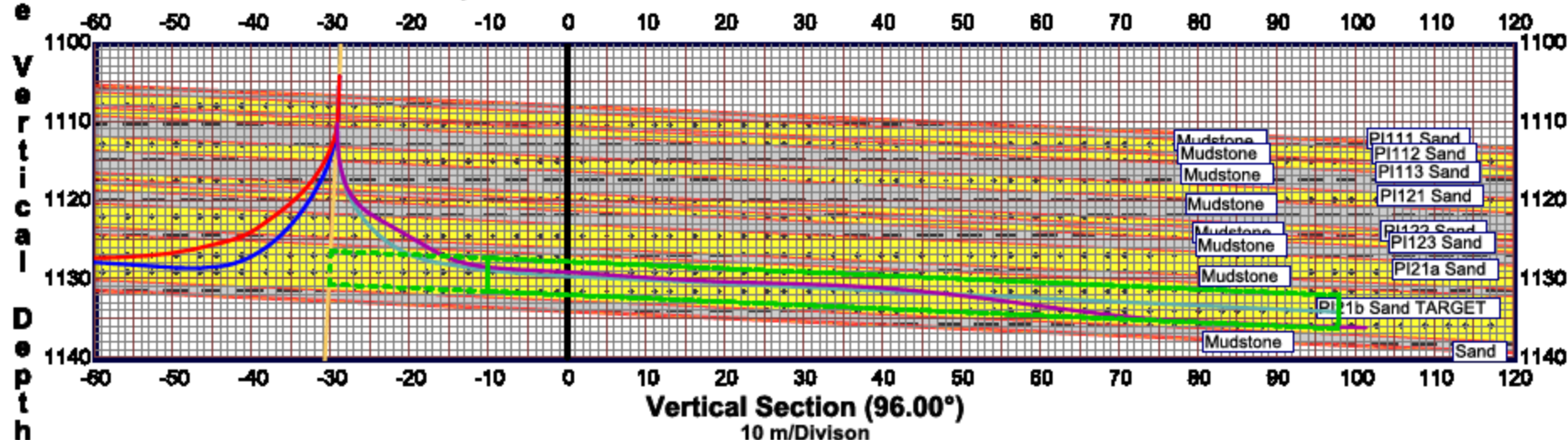
Actual TD @ 1252.0

CURVES LEGEND :

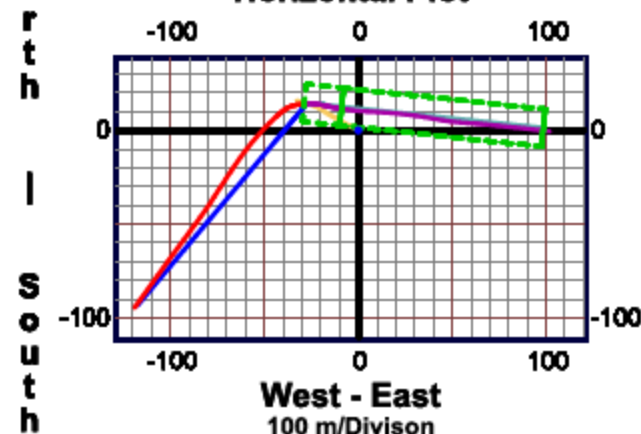
- X13-11-146 Gyro Tie In
- X13-11-146 L1 (Lower) Proposal Rev 8-Sep-20
- X13-11-146 L1 Definitive Survey
- X13-11-146 L2 (Upper) Proposal Rev 8-Sep-20
- X13-11-146 L2 Definitive Survey

NOTE: In the Vertical Section Plot below, the formation Down Dip of 2.50° is only applicable to L1 along 96° GAz direction. Formation along L2 (left) direction of 220° GAz is Up Dip at 1.51°, therefore, appears higher than it should, with respect to the target sand.

Vertical Section Plot



Horizontal Plot





X2-31-614 - DEFINITIVE SURVEY

Field, Company: West of X1-3 Block, No.4 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Survey Received 10-Sep-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.856° (West of TN)
 Grid Convergence: +1.34° (East of TN)

Depth Ref.: ORT
 ORT-GL: 3.50 m
 GL-MSL: 137.36 m
 Target Objective: G16+7
 Layer Thickness: 4.00 m

Whipstock ST2, 5-1/2" 17# Casing Gyro Oriented to 350° Grid Azimuth
 Window: Top whipstock 1100.8, Bottom 1103.2, Rathole to 1105.0 (KOP)
 4-1/2" Curve: 1126.2, 15.9 m ROC (3.596°/m DLS)

Control Point as Targets Along 8.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Proposal mMD vs Target
A- Landing	1120.83	9.19	Up 2.48°	1129.0, 5.7 m Above, 1.5 m Right
B	1118.34	43.39	Up 3.83°	1163.5, 1.0 m Above, 0.4 m Right
C	1116.17	78.19	Up 3.57°	1198.4, 0.4 m Above, 1.3 m Right
D- TD	1115.04	109.97	Up 2.04°	1230.2, 0.7 m Above, 3.3 m Right (TD @ 1233.0)

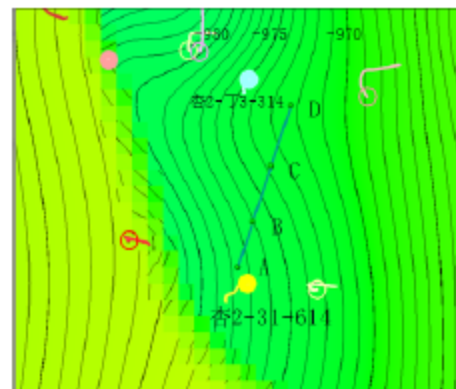
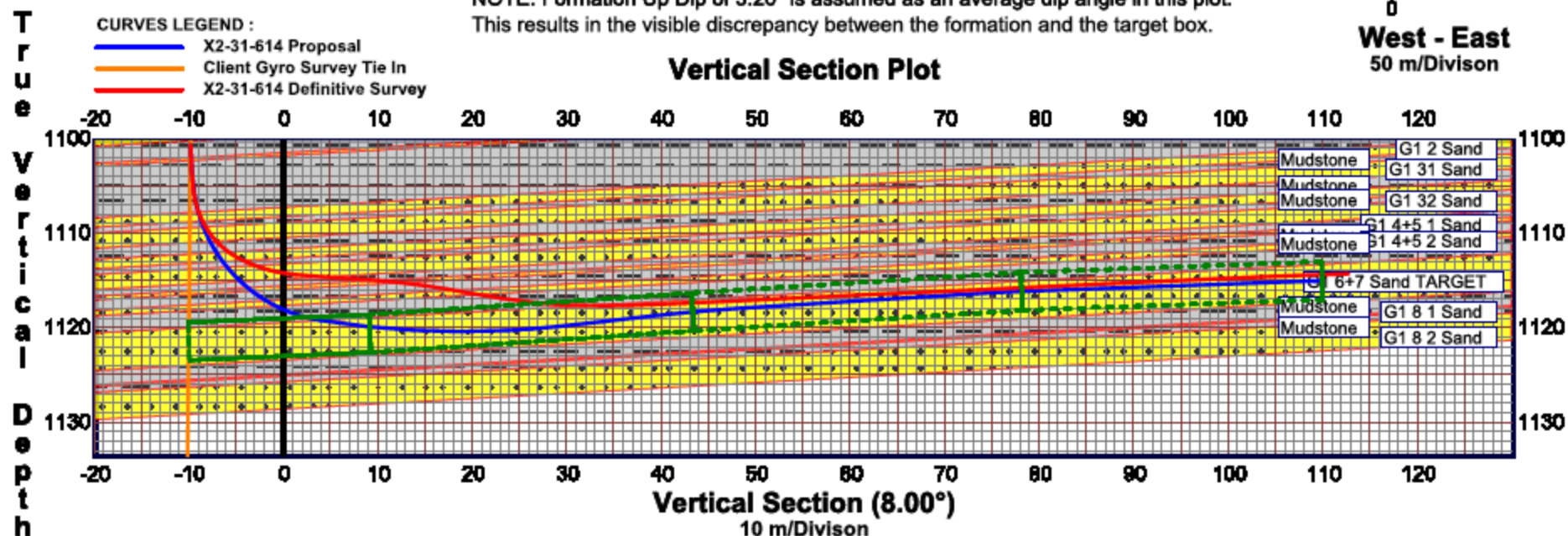
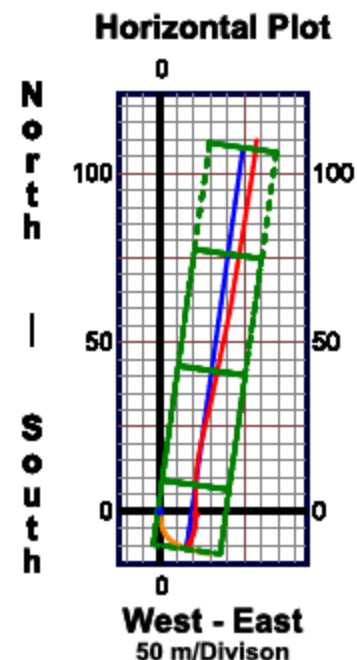


图3 杏2-31-614井侧钻水平井高16+7层构造等值线图





B1-D4-PJ55 - DEFINITIVE SURVEY

Field, Company: North 1 Block, Saertu Oilfield, No.1 Oil Extraction of Daqing
 Tie-in Survey Ref: Client Survey File
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.94° (West of TN)
 Grid Convergence: +1.48° (East of TN)

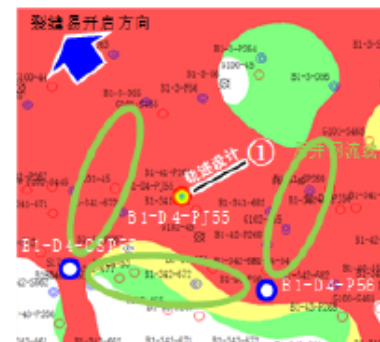
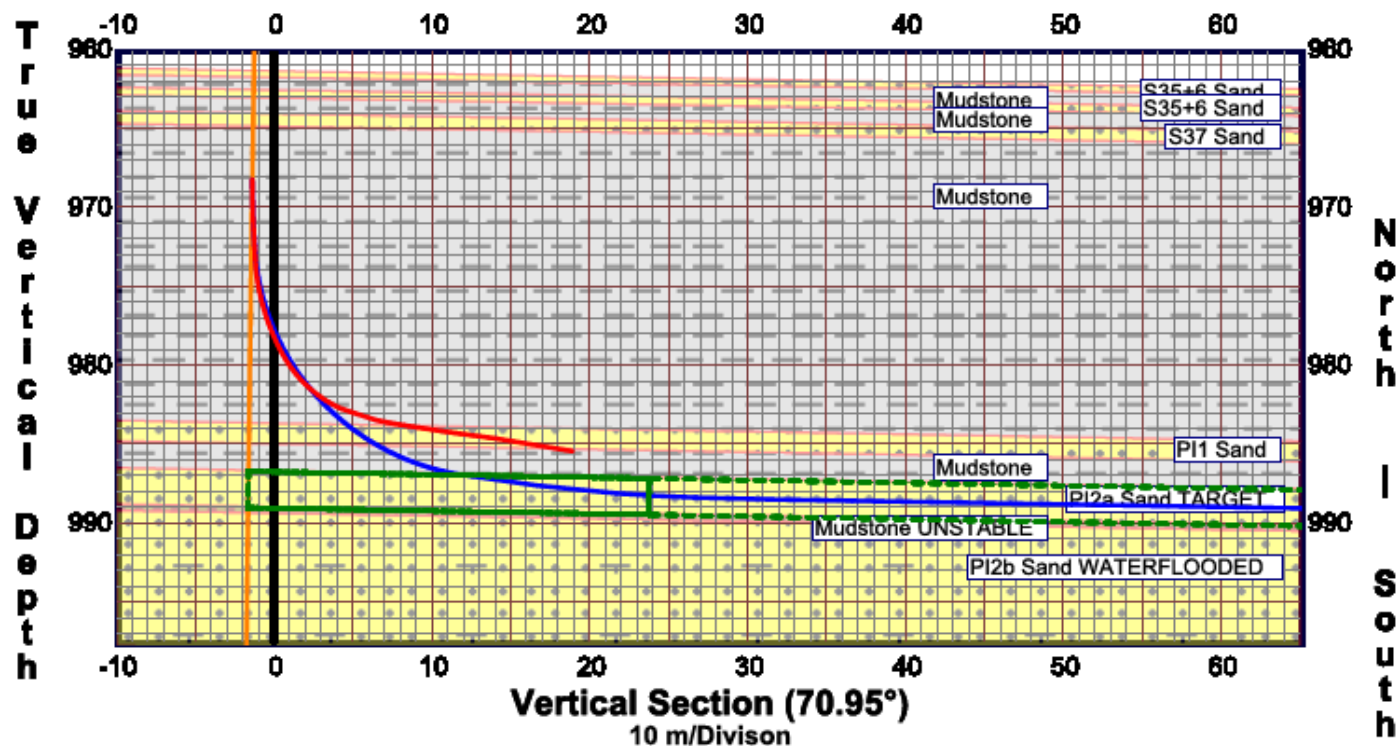
Depth Ref.: ORT
 ORT-GL: 3.30 m
 GL-MSL: 147.52 m
 Target Objective: PI2a
 Layer Thickness: 2.30 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 55° Grid azimuth
 Window: Top whipstock 968.3, Bottom 970.7, Rathole to 972.5 (KOP)
 4-1/2" Curve: 988.0 EOC, 14.4 m ROC (5.441°/m DLS)

Control Point as Targets Along 70.95° Dip Direction / Target Azimuth:
 Target m TVD m VS Dip Angle Projected mMD vs Target
 A- Landing 988.32 23.76 Down 1.00° 1005.0, Not Reached
 B- TD 990.12 127.72 Down 1.00° 1110.0, Not Reached.

NOTE: The operation was suspended when the well encountered water influx at 1000m, suspected to be due to communication with the waterflooded zone below the target sands

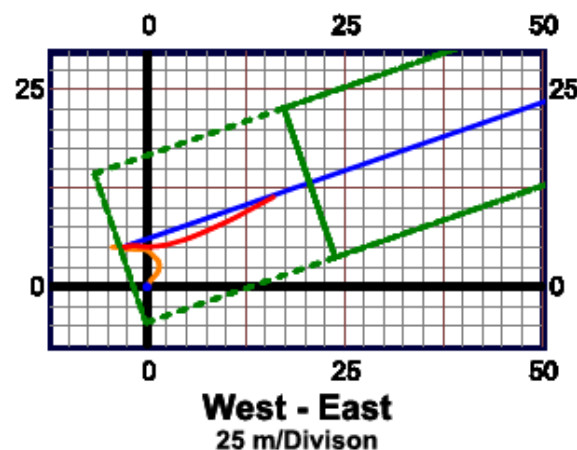
Vertical Section Plot



CURVES LEGEND :

- B1-D4-PJ55 Gyro 05-Sep-20 Tie In
- B1-D4-PJ55 Proposal
- B1-D4-PJ55 Definitive Survey (Suspended)

Horizontal Plot





X8-42-B47 - DEFINITIVE SURVEY

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing
 Tie-in Survey Ref: Oil Company Survey File
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.829° (West of TN)
 Grid Convergence: +1.41° (East of TN)

Depth Ref.: ORT
 ORT-GL: 3.90 m
 GL-MSL: 141.89 m
 Target Objective: PI21b1
 Layer Thickness: 2.90 m
 Effective Thickness: 1.90 m

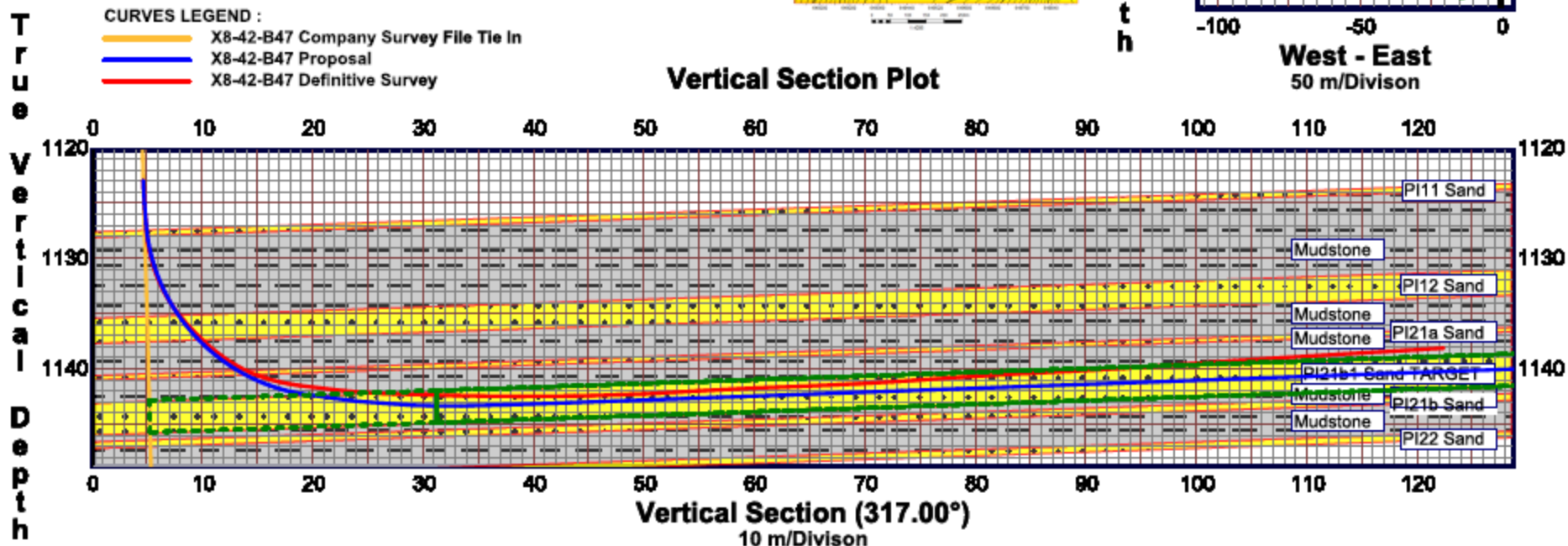
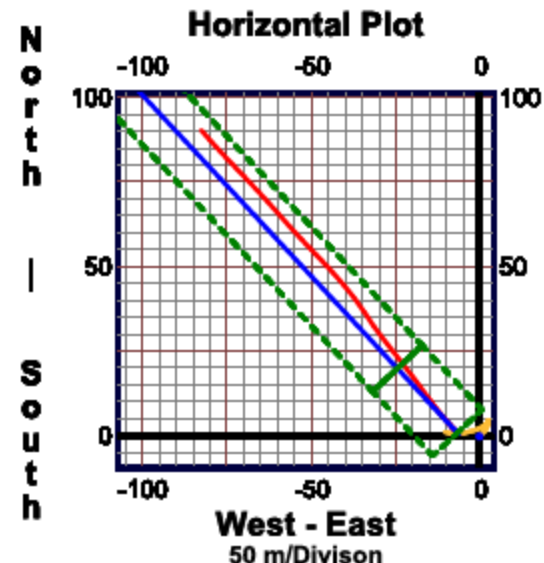
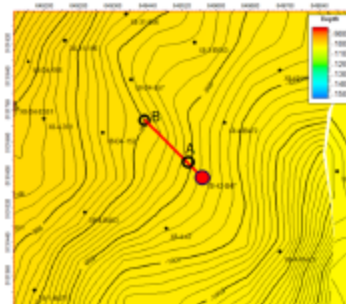
Whipstock 5-1/2" 17# Casing Gyro Oriented to 300° Grid Azimuth
 Window: Top whipstock 1123.1, Bottom 1125.2, Rathole to 1127.0 (KOP)
 4-1/2" Curve: 1149.0 EOC, 17.6 m ROC (3.634°/m DLS) Average

Control Point as Targets Along 317° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1143.41	31.26	Up 1.95°	1161.5, 1.0 m Above, 5.5 m Right
B- TD	1137.29	205.26	Up 1.96°	Early TD Based on Cutting Samples

Actual TD @ 1253.0

NOTE: Decided to place Lateral section between 0.8 - 1.5 m TVD above the plan Targets, based on cutting samples





T65-40 - DEFINITIVE SURVEY

Field, Company: Tai 190 Block, No.7 Oil Extraction of Daqing
Tie-in Survey Ref: Gyro Multishot Outrun, 04-Oct-20
North Reference: Grid Azimuth
Magnetic Dec.: -10.749° (West of TN)
Grid Convergence: $+1.31^\circ$ (East of TN)

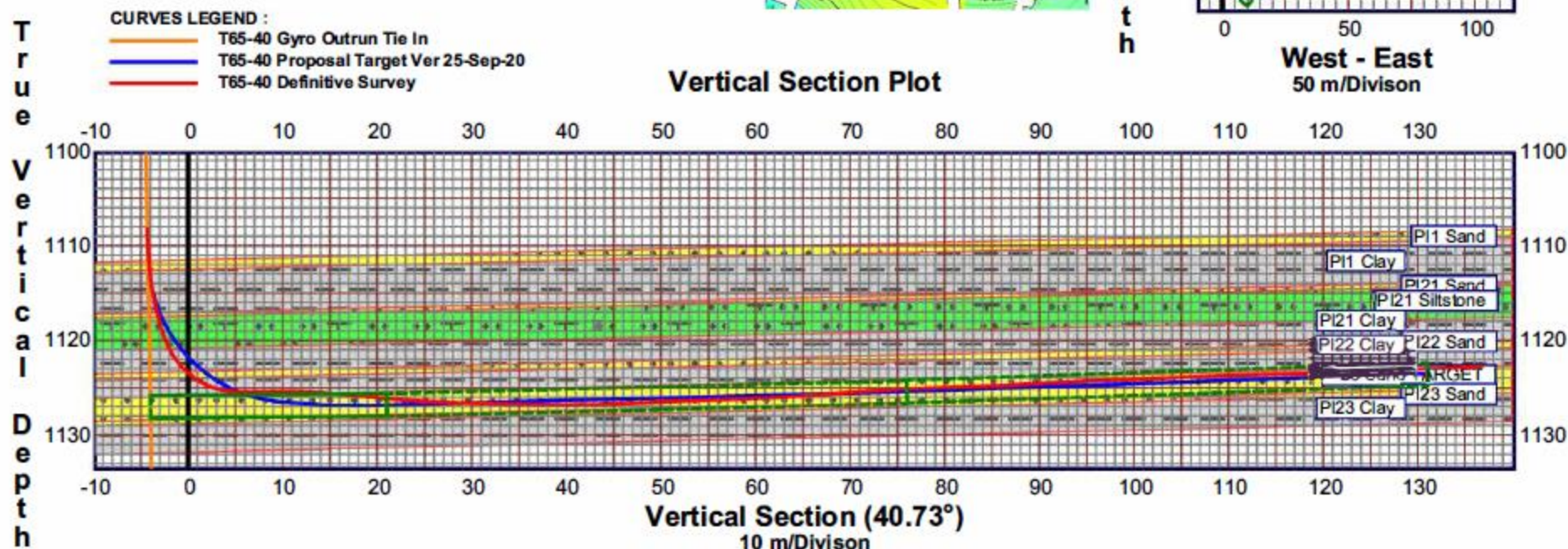
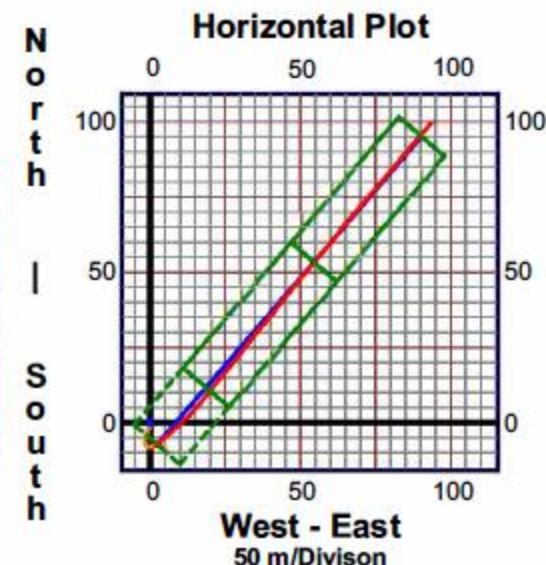
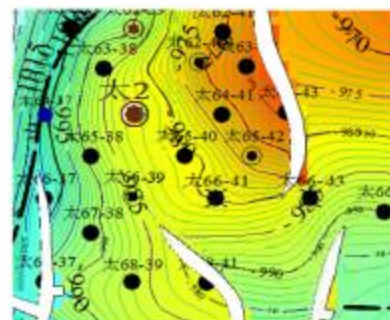
Depth Ref.: ORT
ORT-GL: 3.60 m
GL-MSL: 134.22 m
Target Objective: PI23
Layer Thickness: 2.90 m
Effective Thick: 2.40 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 26° Grid azimuth
Window: Top whipstock 1108.3, Bottom 1110.7, Rathole to 1112.5 (KOP)
4-1/2" Curve: 1130.5 EOC, 17.3 m ROC ($4.808^\circ/\text{m}$ DLS)

Control Point as Targets Along 40.73° Dip Direction, Target Rev. 25-Sep-20:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1126.82	21.02	Up 0.48°	1146.2, 0.7 m Above, 9.2 m Right
B	1125.42	76.03	Up 1.40°	1201.3, 0.3 m Above, 7.7 m Right
C- TD	1123.52	131.04	Up 1.90°	1256.3, 0.5 m Above, 7.2 m Left of Target

Actual TD @ 1262.0 m MD





Tai 71-90 - DEFINITIVE SURVEY

Field, Company: Tai 105 Block, Toutai Oilfield, Daqing Fangxing
Tie-in Survey Ref: Gyro Multishot Outrun, 04-Oct-20
North Reference: Grid Azimuth
Magnetic Dec.: -10.599° (West of TN)
Grid Convergence: +1.29° (East of TN)

Depth Ref.: ORT
ORT-GL: 4.00 m
GL-MSL: 127.41 m
Target Objective: PI51-52
Layer Thickness: 4.60 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 140° Grid azimuth
Top whipstock 1394.8, Bottom 1397.2, Rathole to 1399.0 (KOP)
4-1/2" Curve: 1421.5 EOC (TD), 35.2 m ROC (2.163°/m DLS)

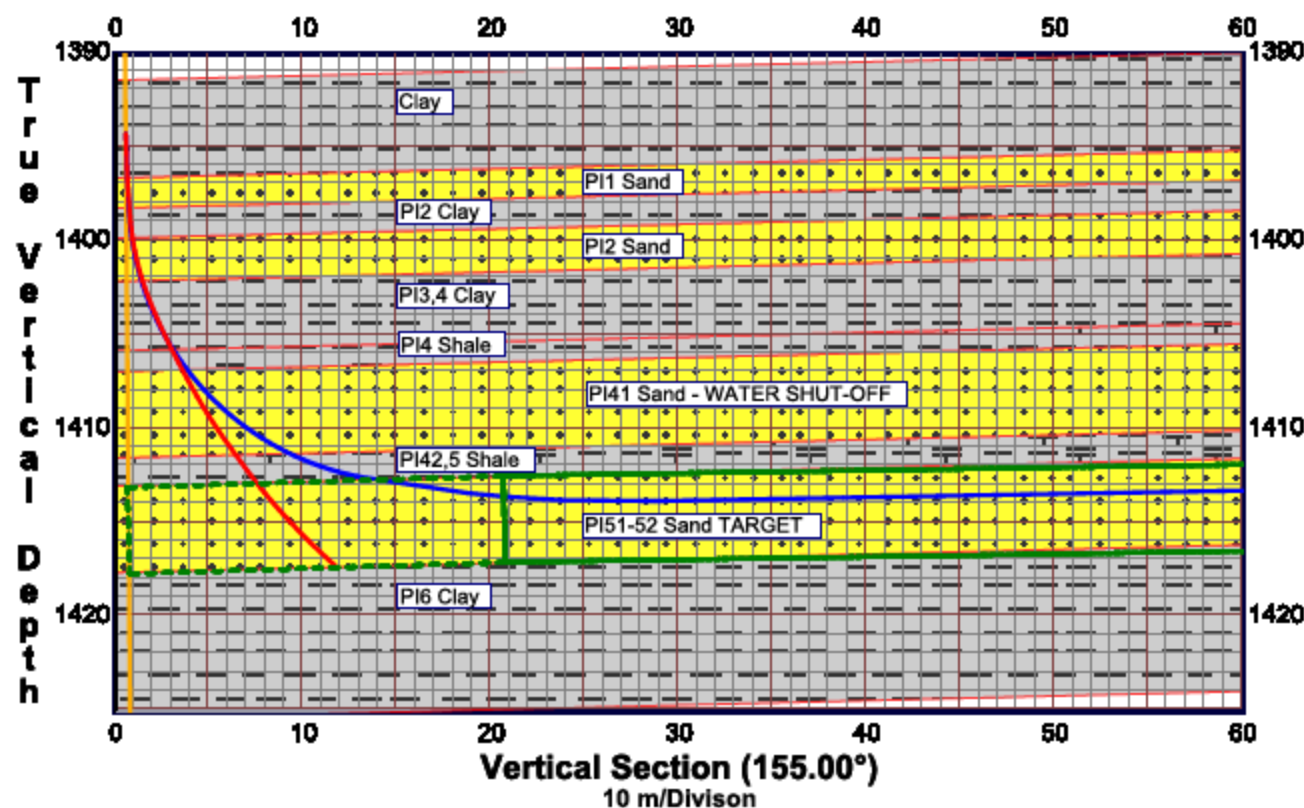
Targets Along 155.00° Dip Direction, Target Rev. 04-Oct-20:

Target	m TVD	m VS	Dip Angle	Proposal mMD vs Target
A- Landing	1413.9	20.78	Up 1.76°	1426.9, Not reached
B	1412.8	91.77	Up 0.87°	1497.9, Not reached
C- TD	1410.3	181.31	Up 1.57°	1587.5, Not reached

Actual TD @ 1421.5 (Poor sand development, angle not built)



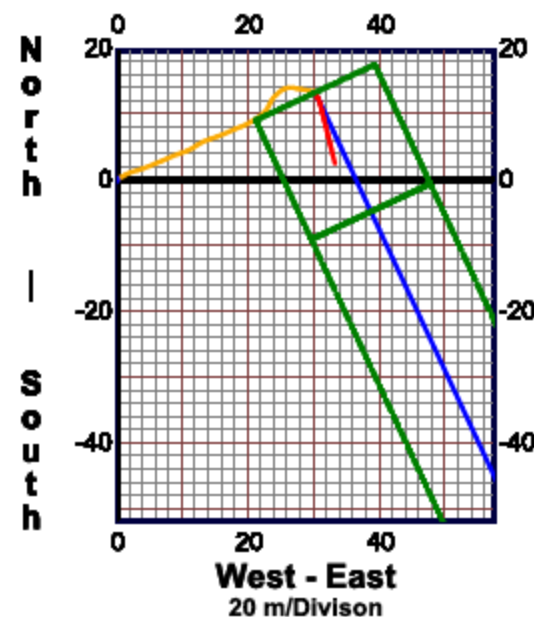
Vertical Section Plot



CURVES LEGEND :

- Tai 71-90 Gyro Outrun Tie In
- Tai 71-90 Proposal
- Tai 71-90 Definitive Survey

Horizontal Plot





TAI 72-S91 (ST3) - DEFINITIVE SURVEY

Well is 15m from Fault, PI3, 4 shale collapsed in ST1, ST3. Redrill ST3 with weighted mud

Field, Company: Toutai, Daqing Faxing Depth Ref: ORT
 Tie-In Survey Ref: File received 31-Oct-2019 ORT-GL: 5.00 m
 North Reference: Grid Azimuth GL-MSL: 127.35 m
 Magnetic Dec.: -10.58 deg (West of TN) Target Objective: PI51-52
 Grid Convergence: +1.29 deg (East of TN)

Whipstock No.2, 5-1/2" 17# Casing Gyro Oriented to 287.45° Grid azimuth
 Top whipstock 1380.7, Bottom 1383.7, Top of KO Cement 1384.7 (KOP)
 4-1/2" Curve: 1395.5 EOC-1, 14.3 m ROC (5.486°/m DLS),
 1411.3 EOC-2, After 2.4m 3° CDM- 16.3 m ROC (4.558°/m DLS)

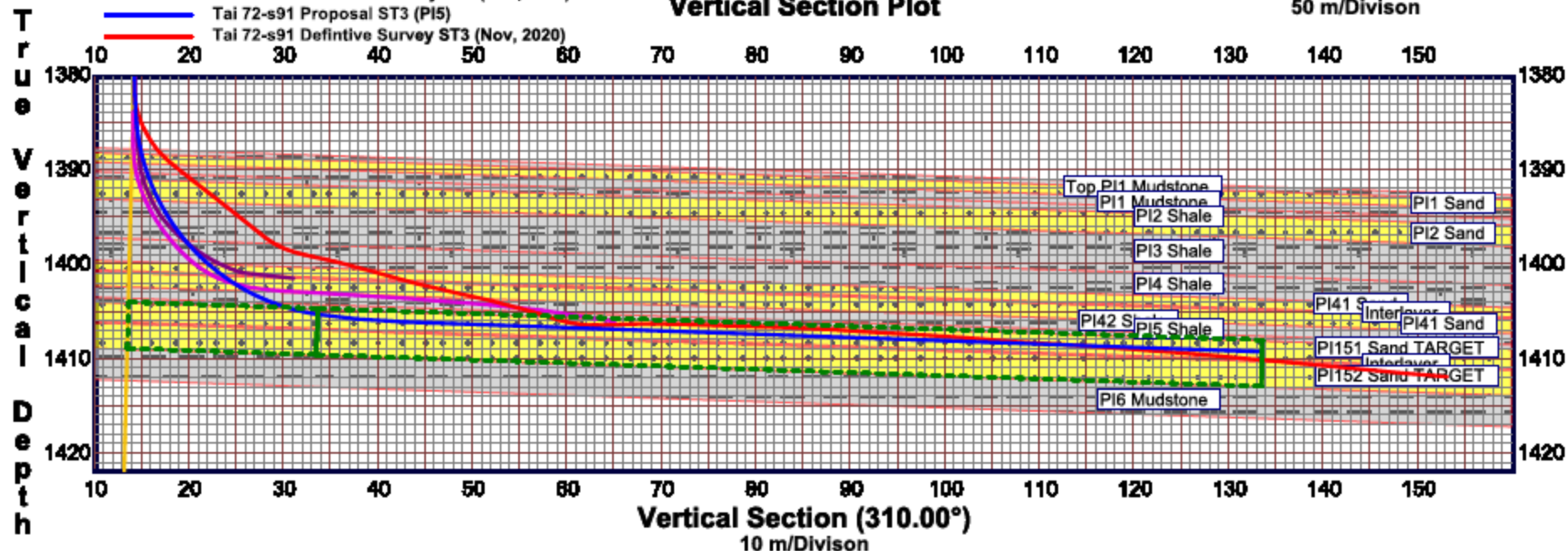
Control Point as Targets Along 310° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual (mMD) vs Target
A- Landing	1405.97	33.61	Down 1.91°	1416.8, 6.6 m Above
B	1409.30	133.61	Down 1.91°	1516.9, 0.9 m Below. Actual TD @ 1542.0

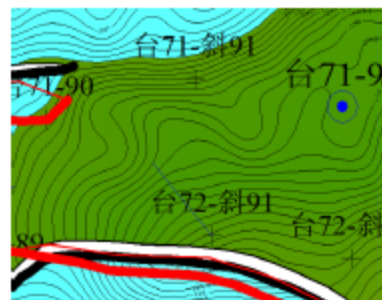
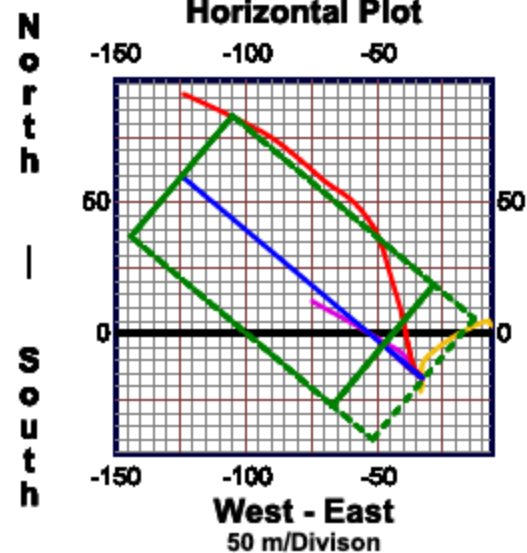
CURVES LEGEND :

- Tai 72-s91 Tie-in Survey
- Tai 72-s91 Definitive Survey ST1 (Nov, 2019)
- Tai 72-s91 Definitive Survey ST2 (Nov, 2019)
- Tai 72-s91 Proposal ST3 (PI5)
- Tai 72-s91 Definitive Survey ST3 (Nov, 2020)

Vertical Section Plot



Horizontal Plot





X2-321-26 - DEFINITIVE SURVEY

Field, Company: West of X1-3 Block, No.4 Oil Extraction of Daqing
 Tie-in Survey Ref: Client Gyro File 30-Sep-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.863° (West of TN)
 Grid Convergence: +1.35° (East of TN)

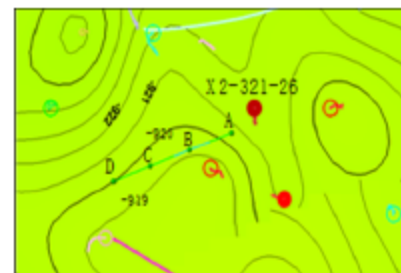
Depth Ref.: ORT
 ORT-GL: 3.47 m
 GL-MSL: 138.23 m
 Target Objective: GI6+7
 Layer Thickness: 3.20 m

Whipstock No. 2, 5-1/2" 17# Casing Gyro Oriented to 223° Grid Azimuth
 Window: Top whipstock 1039.6, Bottom 1041.7, Rathole to 1043.5 (KOP)
 4-1/2" Curve ST2: 1070.5 EOC, 23.3 m ROC (3.425°/m DLS)

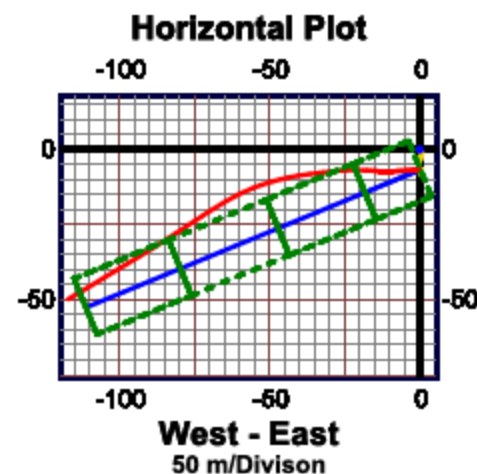
Control Point as Targets Along 247.60° Dip Direction:

Target	m TVD	m VS	Dip Angle	ST2 Actual (m MD) vs Target
A- Landing	1064.01	22.29	Up 4.45°	1073.1, 3.2 m Above, 7.6 m Right
B	1062.74	63.49	Up 2.33°	1106.4, 0.1 m Above, 15.0 m Right
C	1062.75	88.88	Down 0.02°	1141.0, 0.1 m Below, 10.0 m Right
D- TD	1063.34	122.69	Down 0.99°	1175.4, 0.2 m Above, 4.7 m Right

Actual TD-ST2 @ 1180.0 m MD



North
|
South



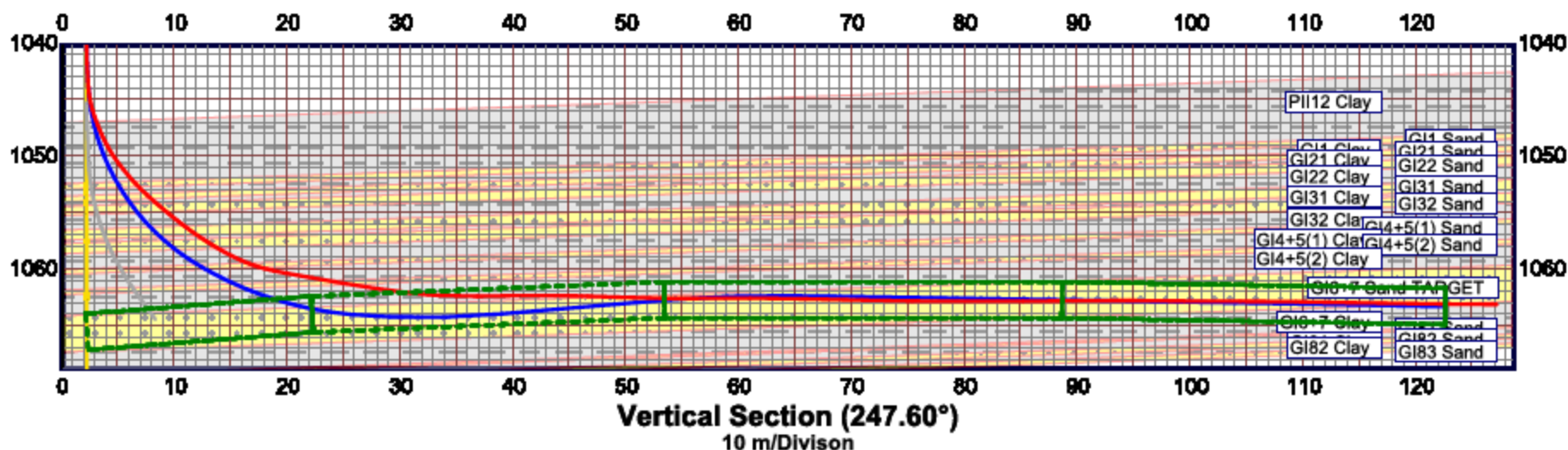
True
Vertical
Depth

CURVES LEGEND :

- X2-321-26 Client Survey Tie In
- X2-321-26 Definitive Survey ST1
- X2-321-26 Proposal ST2
- X2-321-26 Definitive Survey ST2

NOTE: A constant formation Up Dip of 2.00° is assumed as an average dip angle in this plot. This results in the visible discrepancy between the formation and the target box with variable dip angles.

Vertical Section Plot





PU 66-882 - DEFINITIVE SURVEY

Field, Company: No.2 Fault Block of North Pu, No.7 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun, 24-Oct-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.731° (West of TN)
 Grid Convergence: +1.26° (East of TN)

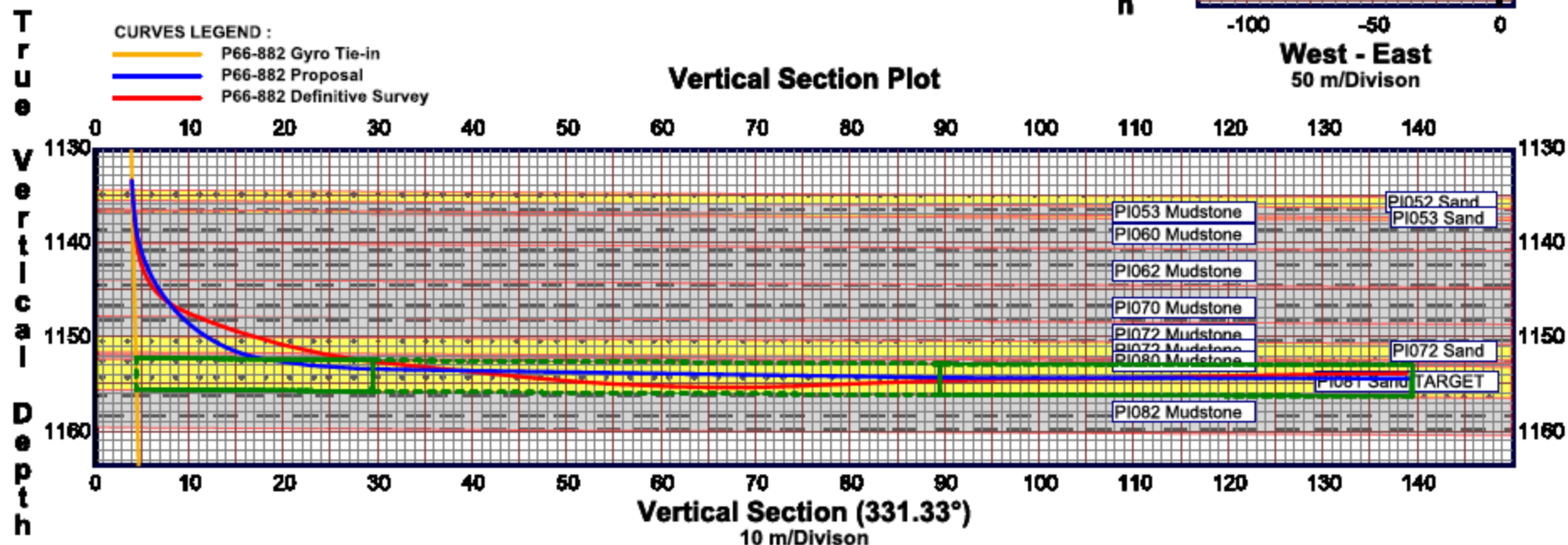
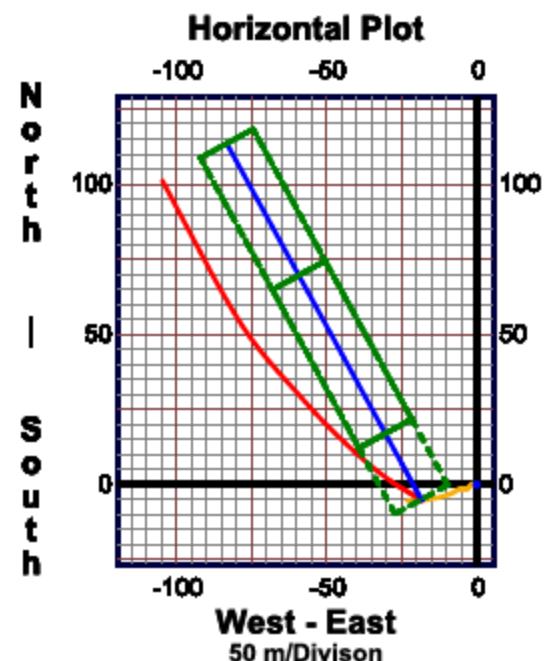
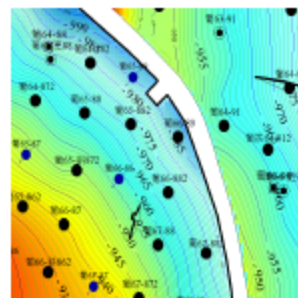
Depth Ref.: ORT
 ORT-GL: 3.80 m
 GL-MSL: 135.63 m
 Target Objective: PI8
 Layer Thickness: 3.30 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 316° Grid azimuth
 Top whipstock 1133.8, Bottom 1136.0, Rathole to 1137.8 (KOP)
 4-1/2" Curve: 1150.5 EOC, 23.5 m ROC (5.153°/m DLS)

Control Point as Targets Along 331.33° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual (mMD) vs Target
A- Landing	1153.93	29.47	Down 0.50°	1172.8, 1.3 m Above, 11.8 m Left
B	1154.33	89.47	Down 0.38°	1234.5, 0.3 m Below, 24.7 m Left
C- TD	1154.43	139.48	Down 0.11°	1284.5, 0.6 m Above, 24.5 m Left

Actual TD @ 1284.0





T135-57 - DEFINITIVE SURVEY

Field, Company: Pu 47 Block, No.7 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun, 28-Oct-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.717° (West of TN)
 Grid Convergence: +1.32° (East of TN)

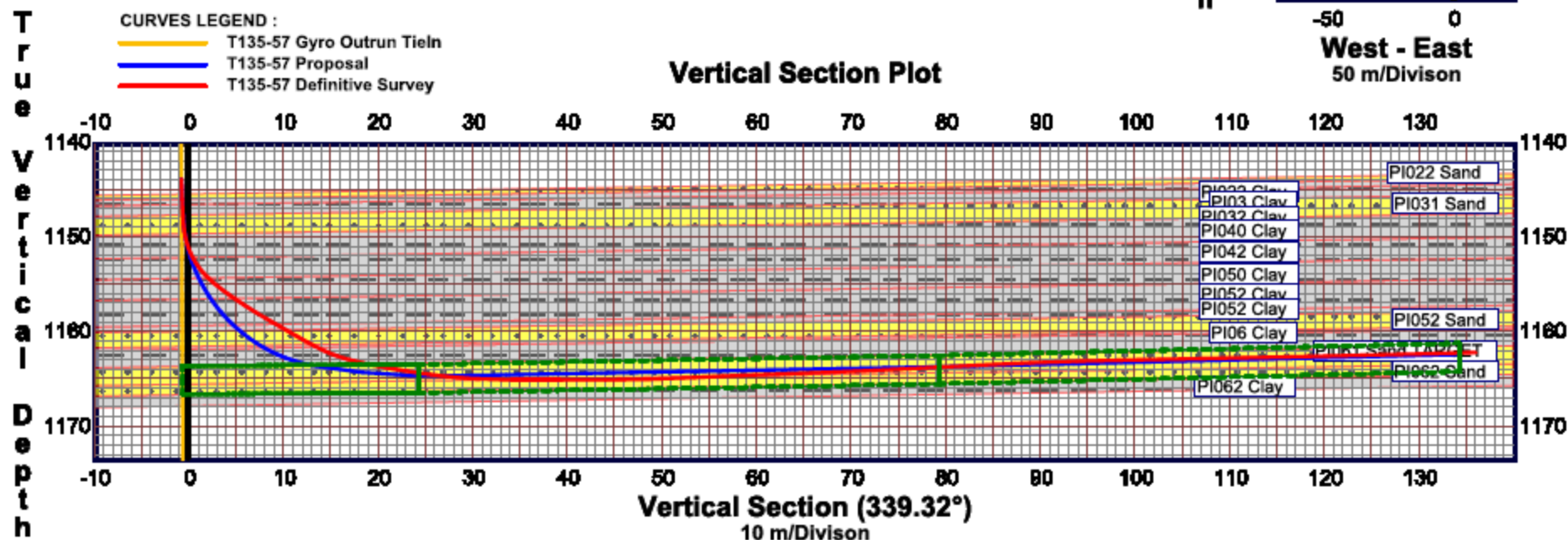
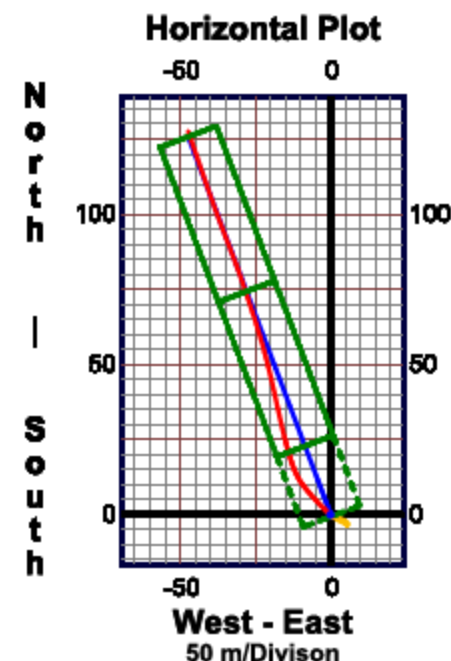
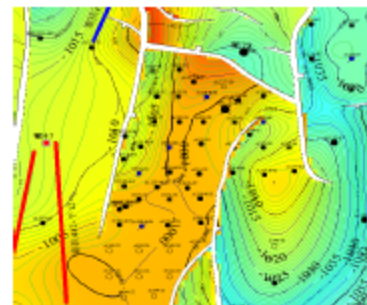
Depth Ref.: ORT
 ORT-GL: 3.70 m
 GL-MSL: 130.75 m
 Target Objective: PI61
 Layer Thickness: 3.00 m
 Effective Thick: 1.90 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 325° Grid azimuth
 Window: Top whipstock 1144.0, Bottom 1146.2, Rathole to 1148.0 (KOP)
 4-1/2" Curve: 1160.0 EOC-1, 20.6 m ROC (4.732°/m DLS)
 1177.5 EOC-2, 60.8 m ROC (1.921°/m DLS)

Control Point as Targets Along 339.32° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1164.70	24.35	Up 0.30°	1180.9, 0.3 m Above, 5.7 m Left
B	1163.75	79.35	Up 0.99°	1236.3, On Depth, 0.7 m Right
C- TD	1162.42	134.35	Up 1.35°	1291.3, 0.2 m Above, 1.0 m Right

Actual TD @ 1293.0 m MD





Tai 72-S92 - DEFINITIVE SURVEY

Field, Company: Tai 105 Block, Toutai Oilfield, Daqing Fangxing
 Tie-In Survey Ref: Gyro Multishot Outrun, 04-Oct-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.641° (West of TN)
 Grid Convergence: +1.29° (East of TN)

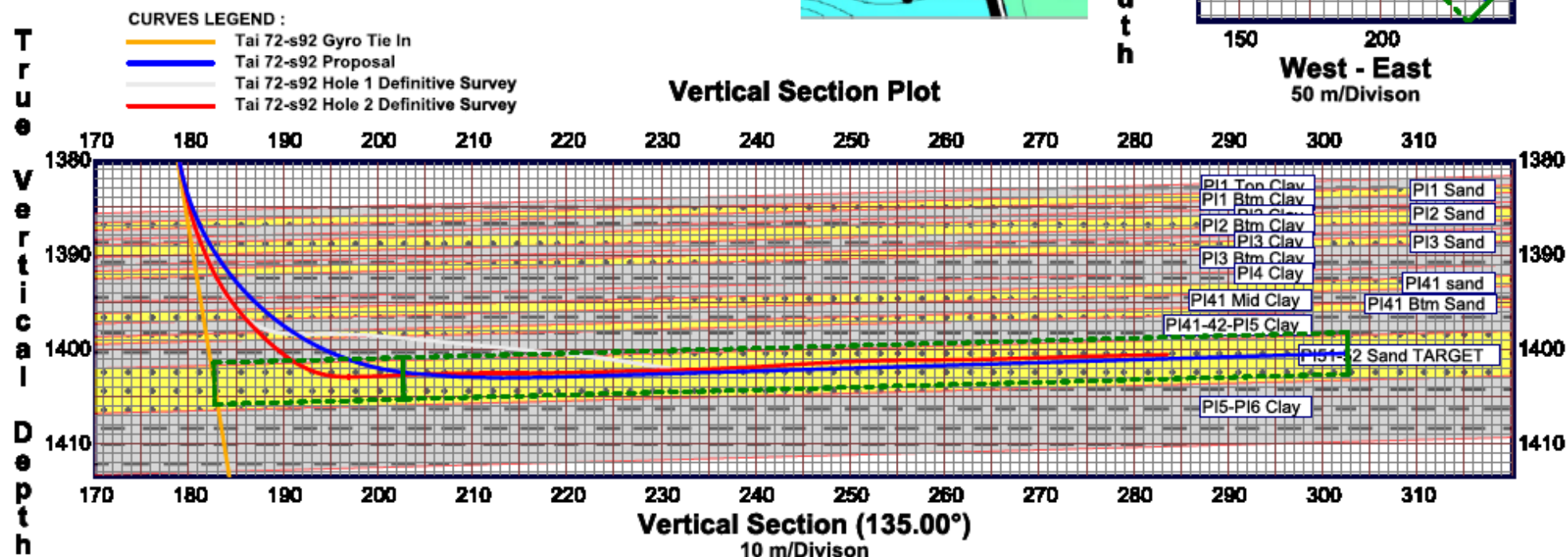
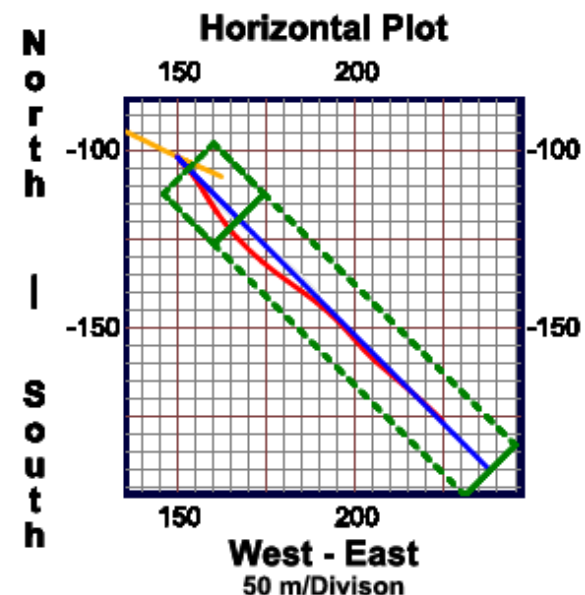
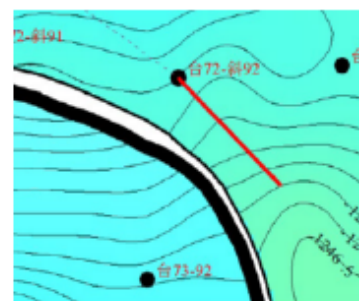
Depth Ref.: ORT
 ORT-GL: 4.00 m
 GL-MSL: 128.05 m
 Target Objective: PI51-52
 Layer Thickness: 4.80 m
 Effective Thick: 4.40 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 143° Grid azimuth
 Window: Top whipstock 1394.7, Bottom 1397.0, Rathole to 1400.0 (KOP)
 4-1/2" Curve: 1431.2 EOC-2 (Hole 2), 32.8 m ROC (3.008°/m DLS)

Control Point as Targets Along 135.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual (mMD) vs Target
A- Landing	1403.10	202.70	Up 1.52°	1437.1, 0.4 m Above
B- TD	1400.45	302.70	Up 1.52°	Projected 1537.4, 0.3 Above

TD Called @ 1518.0





C81-P65 - DEFINITIVE SURVEY

Field, Company: Chao 5 North, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Oil Company Survey File
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.797° (West of TN)
 Grid Convergence: +1.88° (East of TN)

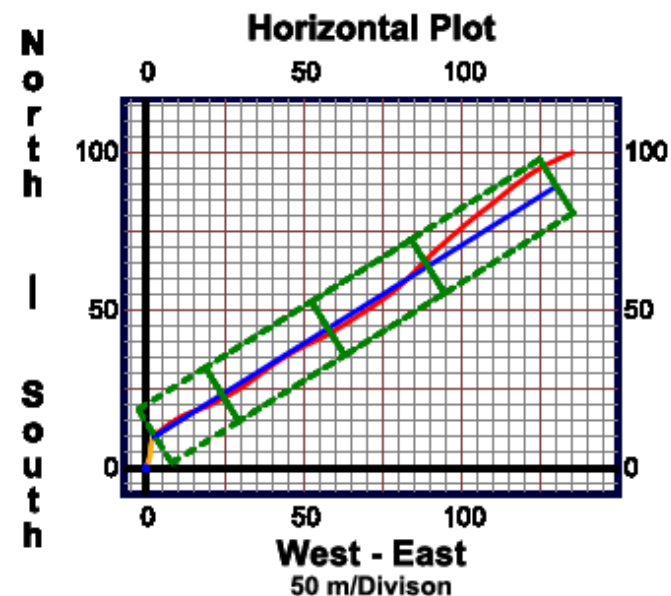
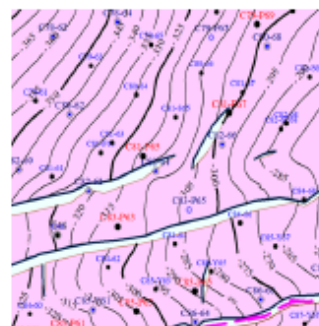
Depth Ref.: ORT
 ORT-GL: 3.40 m
 GL-MSL: 169.93 m
 Target Objective: PI2
 Layer Thickness: 4.20 m
 Effective Thickness: 4.20 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 43° Grid Azimuth
 Window: Top whipstock 477.0, Bottom 479.2, Rathole to 481.0 (KOP)
 4-1/2" Curve: 504.0 EOC, 20.9 m ROC (3.882°/m DLS) Average

Control Point as Targets Along 58.1° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	497.24	32.73	Up 0.71°	514.2, 1.0 m Above, 1.0 m Right
B	497.08	72.25	Up 0.39°	553.8, 0.3 m Below, 1.8 m Right
C	496.71	109.41	Up 0.58°	591.4, 0.6 m Above, 2.0 m Left
D- TD	495.35	157.40	Up 1.78°	639.8, 0.4 m Above, 7.5 m Left

Actual TD @ 650.0

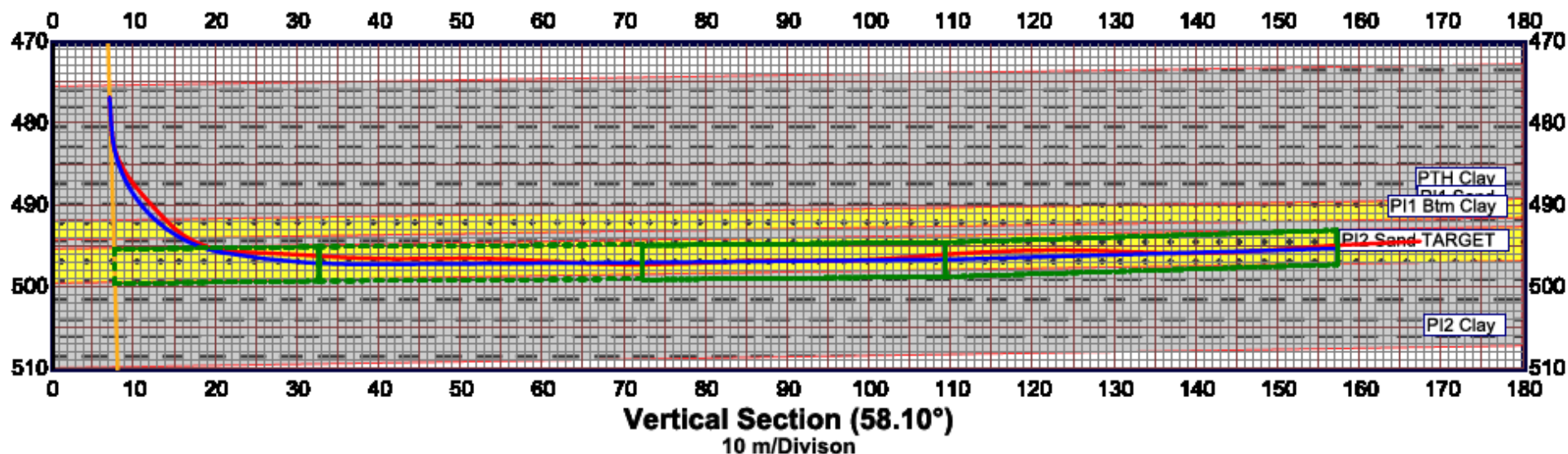


True
Vertical
Depth

CURVES LEGEND :

- C81-P85 Gyro Tie-in
- C81-P65 Proposal
- C81-P85 Definitive Survey

Vertical Section Plot

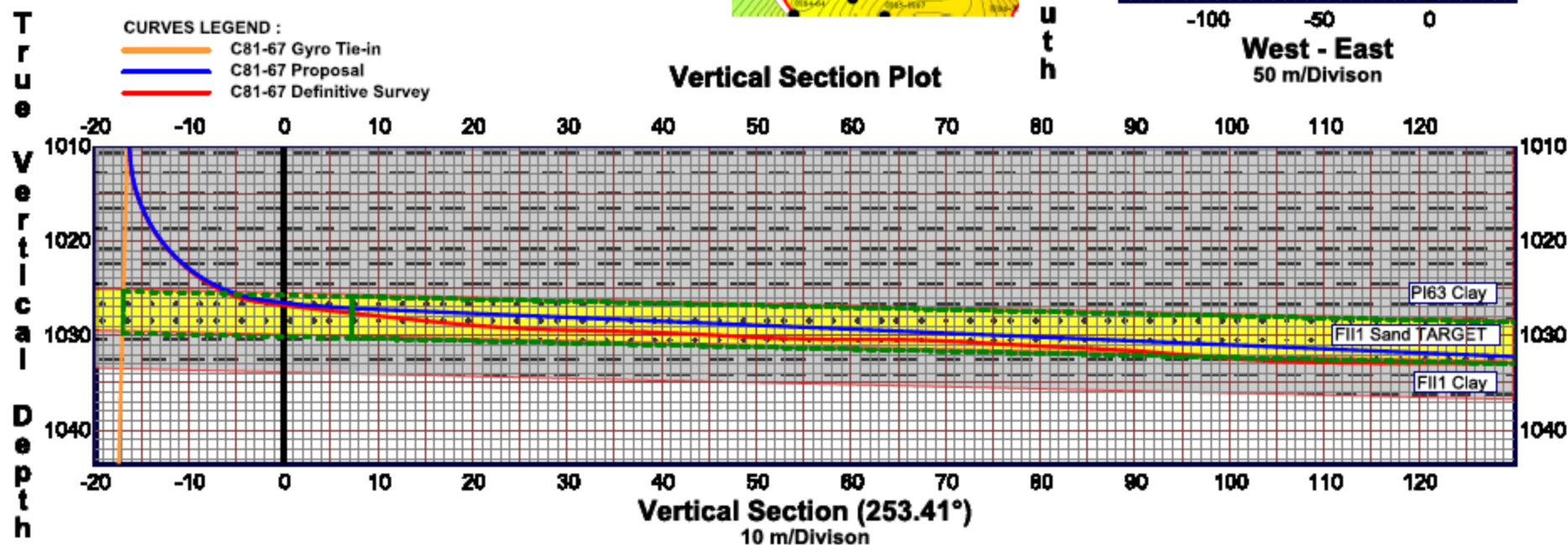
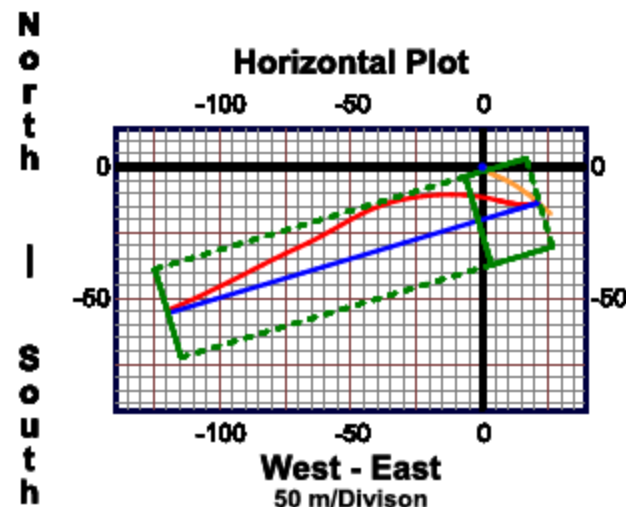
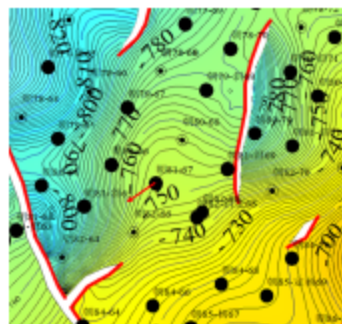




Depth Ref.: ORT
ORT-GL: 3.75 m
GL-MSL: 168.62 m
Target Objective: FII11
Layer Thickness: 4.40 m
Effective Thickness: 3.60 m

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1027.13	7.30	Down 2.38°	1045.8, 0.5 m Below, 9.9 m Right
B- TD	1032.24	130.43	Up 0.39°	Proj 1171.2, On Depth, 1.1 m Right
Actual TD @ 1170.0.				

NOTE: Lateral Section Drilled 1m TVD Below Plan (Reservoir Found 1m Deeper)





C68-81 - DEFINITIVE SURVEY

Field, Company: Chao 5 North, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 20-Dec-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.810° (West of TN)
 Grid Convergence: +1.90° (East of TN)

Whipstock 5-1/2" 17# Casing Gyro Oriented to 358° Grid Azimuth
 Window: Top whipstock 482.3, Bottom 484.7, Rathole to 488.5 (KOP)
 4-1/2" Curve: 499.0 EOC-1, 15.8 m ROC (5.194°/m DLS) Average
 516.0 EOC-2, 43.8 m ROC (2.633°/m DLS) Average

Control Point as Targets Along 12.72° Dip Direction

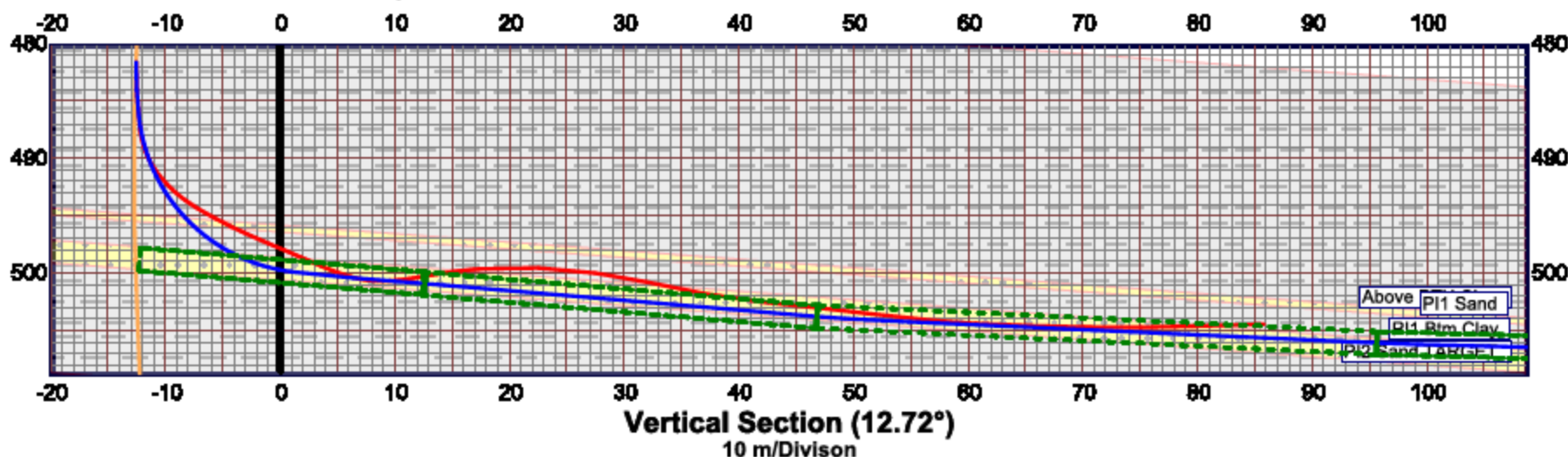
Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	500.90	12.40	Down 4.83°	518.1, 0.6 m Above, 1.7 m Right
B	503.80	46.86	Down 4.83°	552.9, 0.8 m Above, 1.5 m Right
C	506.10	95.69	Down 2.70°	Not Reached
D- TD	507.24	138.56	Down 1.52°	Not Reached

Actual TD @ 592.0 (TD Called Earlier Due to Poor Sand and Shows)

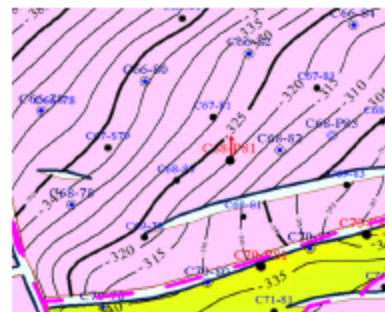
CURVES LEGEND :

- C68-P81 Gyro Tie-in
- C68-P81 Proposal (Target Dated 12-Dec-20)
- C68-P81 Definitive Survey

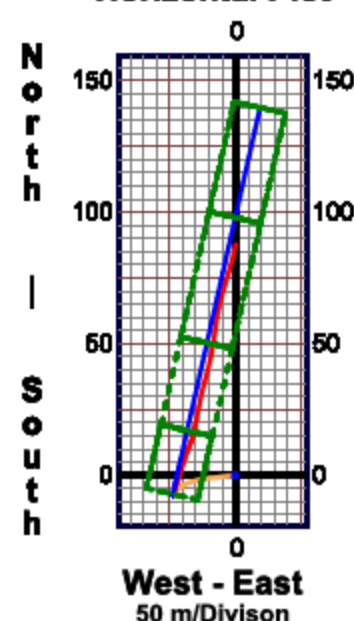
True Vertical Depth



Depth Ref.: ORT
 ORT-GL: 3.50 m
 GL-MSL: 170.10 m
 Target Objective: PI2
 Layer Thickness: 2.00 m
 Effective Thickness: 2.00 m



Horizontal Plot



NOTE: An assumed constant formation Down Dip of 4.25° is used here as the average dip angle in this plot. This results in the visible discrepancy between the formation and the target box due to the big contrast of dip angle of each target.



SHU 334-JS434 - DEFINITIVE SURVEY

Field, Company: Shu 334 Block, YuShuLin Oilfield of Daqing
 Tie-in Survey Ref: Client Survey File
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.848° (West of TN)
 Grid Convergence: +1.83° (East of TN)

Depth Ref.: ORT
 ORT-GL: 4.00 m
 GL-MSL: 181.95 m
 Target Objective: Y152
 Layer Thickness: 4.80 m

Exit: Retrievable Whipstock, 5-1/2" 17# Casing Gyro Oriented to 120° Grid azimuth
 Window: Top 1888.1, Bottom 1890.2, Rathole to 1892.0 (KOP)
 4-1/2" Curve Section: 1904.5 EOC, 13.3 m ROC (5.630°/m DLS)

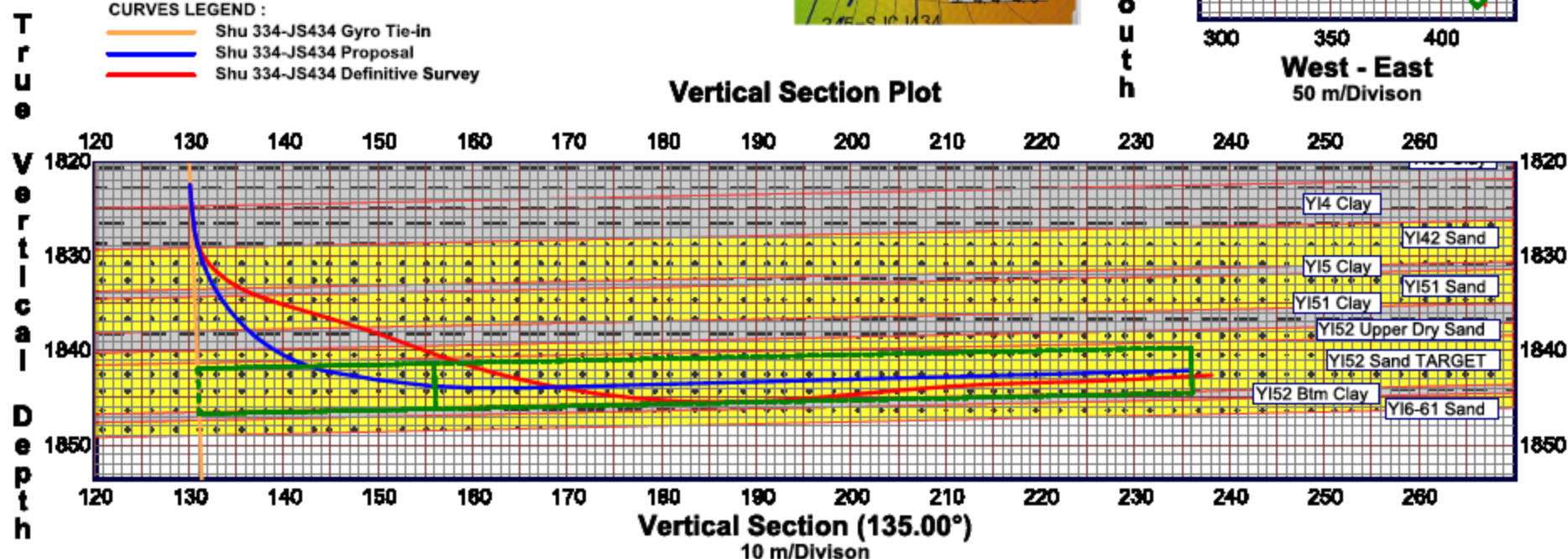
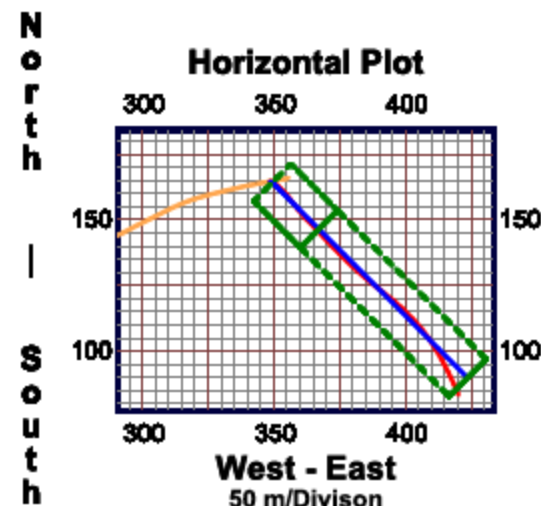
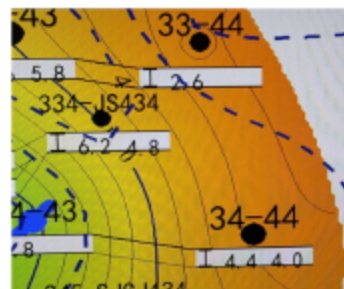
Control Point as Targets Along 135.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Proposal mMD vs Target
Landing	1843.78	156.02	Up 1.20°	1922.9, 3.4 m Above
A	1842.10	236.00	Up 1.20°	2004.6, 0.7 m Below

Actual TD @ 2007.0

CURVES LEGEND :

- Shu 334-JS434 Gyro Tie-in
- Shu 334-JS434 Proposal
- Shu 334-JS434 Definitive Survey





C68-84 - DEFINITIVE SURVEY

Field, Company: Chao 5 North, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 20-Dec-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.811° (West of TN)
 Grid Convergence: +1.90° (East of TN)

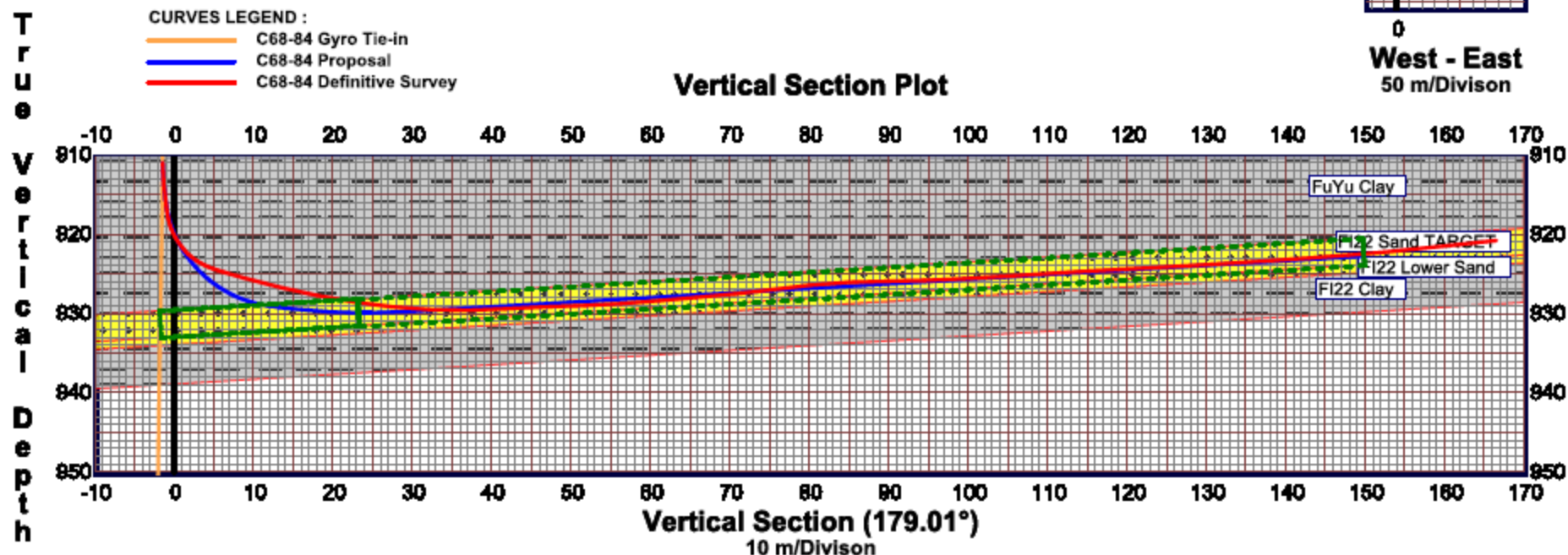
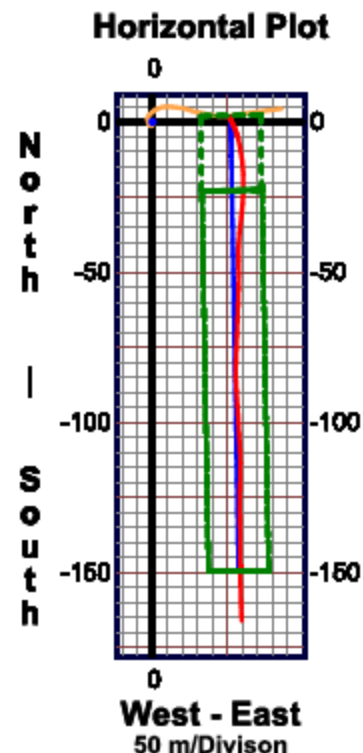
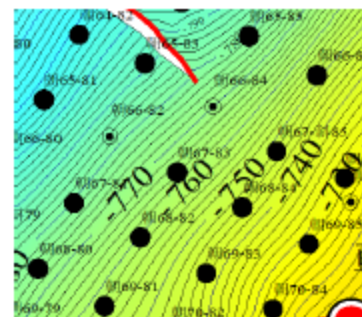
Depth Ref.: ORT
 ORT-GL: 3.10 m
 GL-MSL: 162.56 m
 Target Objective: FI22
 Layer Thickness: 3.40 m
 Effective Thickness: 3.40 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 164° Grid Azimuth
 Window: Top whipstock 911.9, Bottom 914.7, Rathole to 916.5 (KOP)
 4-1/2" Curve: 929.5 EOC, 18.4 m ROC (5.497°/m DLS) Average

Control Point as Targets Along 179.01° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	929.97	23.19	Up 1.73°	947.1, 1.3 m Above, 2.8 m Right
B- TD	922.81	149.97	Up 1.73°	1074.4, 0.3 m Above, 0.5 m Right

Actual TD @ 1091.0 (TD Extended Due to Good Sand and Shows)





C92-P54 - DEFINITIVE SURVEY

Field, Company: Chao 5 North, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 25-Dec-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.793° (West of TN)
 Grid Convergence: +1.87° (East of TN)

Depth Ref.: ORT
 ORT-GL: 2.07 m
 GL-MSL: 172.89 m
 Target Objective: PI2
 Layer Thickness: 3.20 m
 Effective Thickness: 3.20 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 187° Grid Azimuth
 Window: Top whipstock 448.5, Bottom 450.7, Rathole to 452.5 (KOP)
 4-1/2" Curve: 478.5 EOC, 22.5 m ROC (3.802°/m DLS) Average

Control Point as Targets Along 171.80° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	467.09	21.33	Up 0.20°	487.5, 2.1 m Below, 6.6 m Left
B	466.46	84.34	Up 0.20°	549.5, 1.4 m Above, 4.5 m Right
C- TD	465.56	141.32	Up 0.80°	Projected 606.6, 1.4 m Above, 1.0 m Right

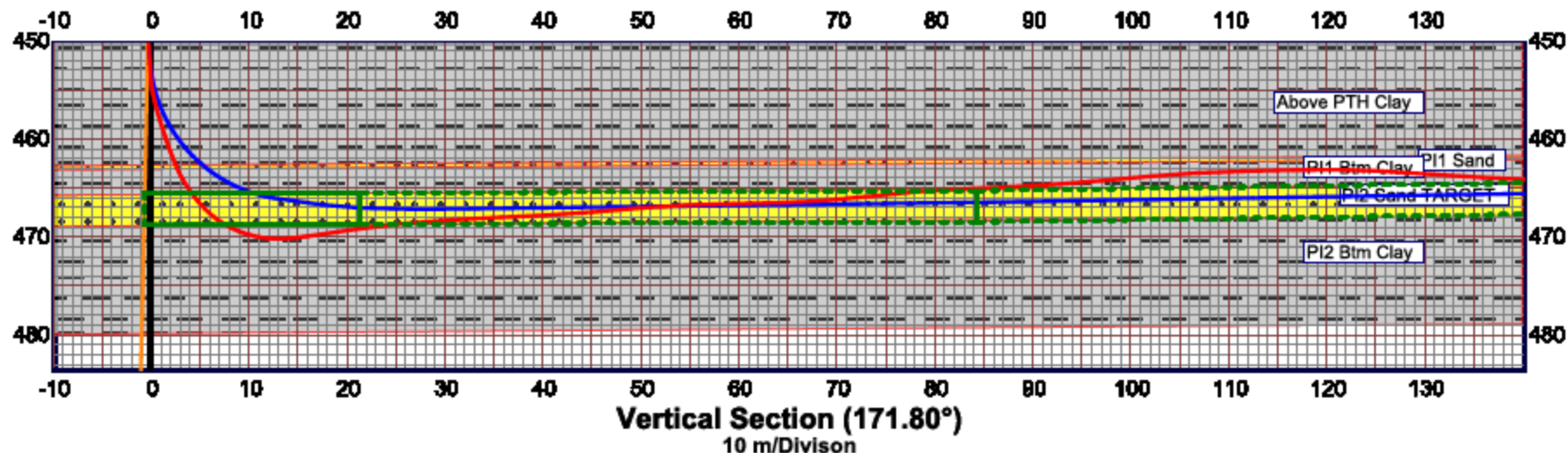
Actual TD @ 606.0

NOTE: Lateral Section Drilled 1.0-1.5 m TVD Above Plan Based On Cutting Samples

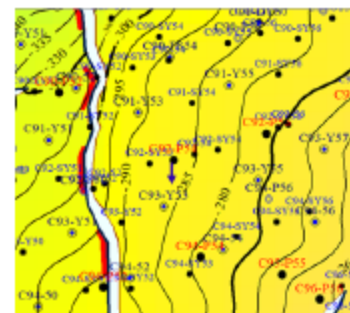
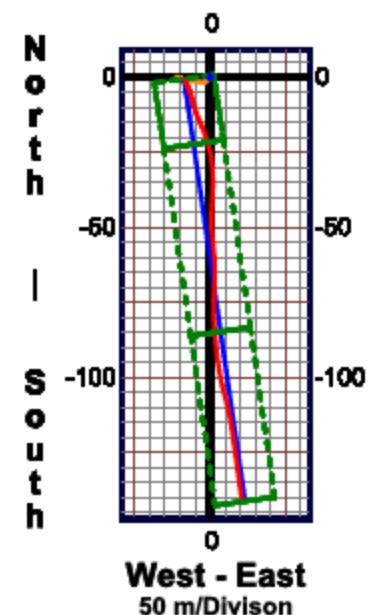
CURVES LEGEND :

- C92-P54 Gyro Tie-in
- C92-P54 Proposal
- C92-P54 Definitive Survey

True Vertical Depth



Horizontal Plot





C67-83 - DEFINITIVE SURVEY

Field, Company: Chao 5 North, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 9-Jan-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.811° (West of TN)
 Grid Convergence: +1.90° (East of TN)

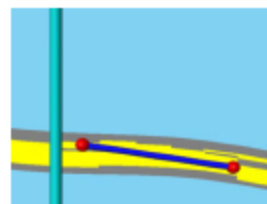
Depth Ref.: ORT
 ORT-GL: 3.40 m
 GL-MSL: 163.00 m
 Target Objective: FI22
 Layer Thickness: 3.8 - 2.2 m
 Effective Thickness: 3.8 - 2.2 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 238° Grid Azimuth
 Window: Top whipstock 933.9, Bottom 936.7, Rathole to 938.5 (KOP)
 4-1/2" Curve: 959.0 EOC, 27.2 m ROC (4.689°/m DLS)

Control Point as Targets Along 255.82° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	953.28	13.27	Down 2.96°	974.6, 0.7 m Below, 0.8 m Left
B- TD	959.75	139.02	Down 2.96°	Projected 1100.9, 0.1 m Below, 3.8 m Right

Actual TD @ 1072.5 Due to Good Sands, Met Lateral Length Objective

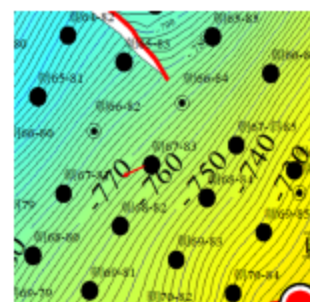
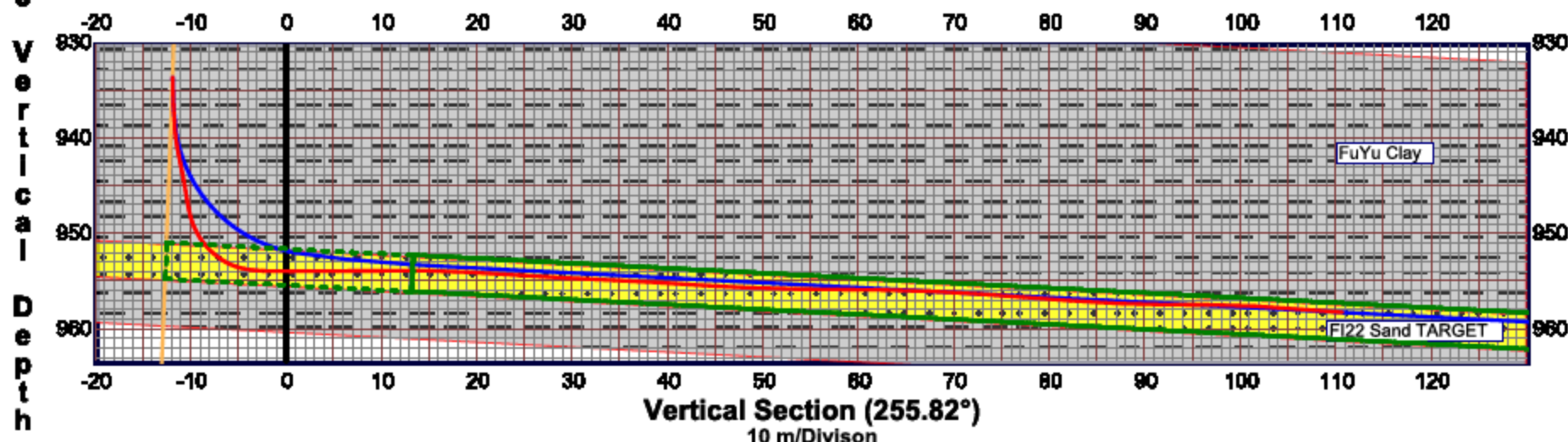


NOTE: The Vertical Section Plot uses a constant 3.80 m target thick.
 However, the thickness is prognosed to be 3.80 m at Target A (1.3 m from top-, 2.5m from bottom of sand), thinning out to 2.2 m at Target B (1.0 m from top-, 1.2 m from bottom of sand)

CURVES LEGEND :

- C67-83 Gyro Tie-in
- C67-83 Proposal
- C67-83 Definitive Survey

Vertical Section Plot



North
|
South



C129-S63 - DEFINITIVE SURVEY

Field, Company: Chao 44 North, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 18-Jan-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.791° (West of TN)
 Grid Convergence: +1.90° (East of TN)

Depth Ref.: ORT
 ORT-GL: 3.20 m
 GL-MSL: 169.80 m
 Target Objective: F14-F151
 Layer Thickness: 8.0 - 7.0 m
 Effective Thickness: 8.0 - 7.0 m

Whipstock #2: 5-1/2" 17# Casing Gyro Oriented to 270° Grid Azimuth
 Window: Top whipstock 1013.9, Bottom 1016.2, Rathole to 1018.0 (KOP)
 4-1/2" Curve ST2: 1042.4 EOC, 27.6 m ROC (3.338°/m DLS)

Control Point as Targets Along 230.08° Dip Direction

Target	m TVD	m VS	Dip Angle (Drilling)	ST2 Actual mMD vs Target
A- Landing	979.61	190.07	Up 1.390°	1061.9, 0.2m Above, 20.0 m Left
B- TD	976.62	312.58	Up 1.396°	1184.0 TD Called, 979.6 TVD, 309.1 VS

NOTE: 1) The Vertical Section Plot uses a constant 8.0 m target thickness. However, the thickness is prognosed to be 8.0m at Target A (2.5 m from top-, 5.5 m from bottom of sand), thinning out to 7.0 m at Target B (4.5 m from top-, 2.5 m from bottom of sand). 2) From 1152.5m, 278.3m VS, it was decided to drop angle to cross the F14-F15 Interlayer down to F15.

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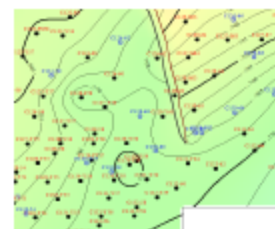
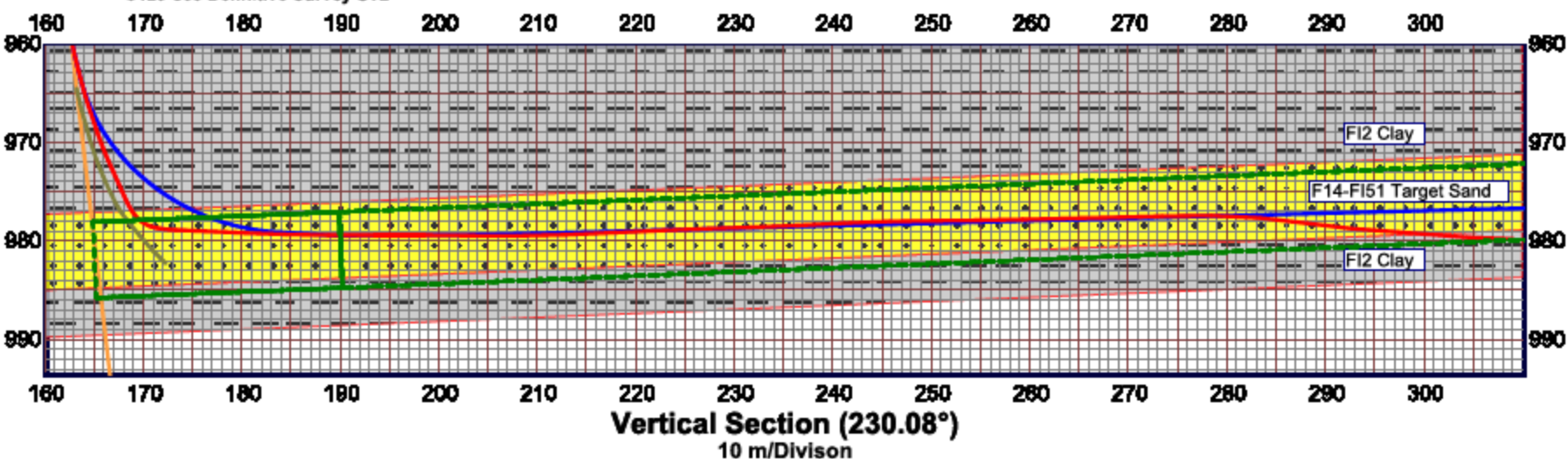
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CURVES LEGEND :

- C129-s63 Gyro Outrun 18-Jan-21 Tie-in
- C129-s63 Definitive Survey ST1
- C129-s63 Proposal (ST2)
- C129-s63 Definitive Survey ST2

Vertical Section Plot



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West - East
100 m/Division



C118-30 - DEFINITIVE SURVEY

Field, Company: Chao 64, No.10 Oil Extraction of Daqing

Tie-in Survey Ref: Gyro Multishot Outrun 22-Feb-21

North Reference: Grid Azimuth

Magnetic Dec.: -10.783° (West of TN)

Grid Convergence: +1.84° (East of TN)

Whipstock 5-1/2" 17# Casing Gyro Oriented to 34° Grid Azimuth

Window: Top whipstock 1045.4, Bottom 1047.7, Rathole to 1049.5 (KOP)

4-1/2" Curve: 1065.5 EOC, 12.6 m ROC (5.416°/m DLS)

Control Point as Targets Along 48.7° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD	Distance To Target
A- Landing	1065.11	25.86	Up 0.73°	1081.1, 3.0 m Above, 2.6 m Right	
B	1064.34	89.19	Up 0.70°	1144.7, 0.2 m Above, 1.1 m Left	
C- TD	1063.16	154.51	Up 1.05°	1210.2, 0.1 m Above, 1.5 m Left	

Actual TD @ 1212.0

Depth Ref.: ORT

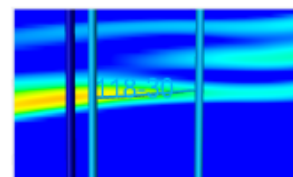
ORT-GL: 3.00 m

GL-MSL: 169.04 m

Target Objective: F212

Gross Thickness: 4.8-2.8 m

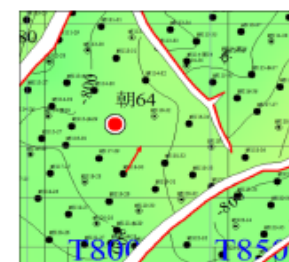
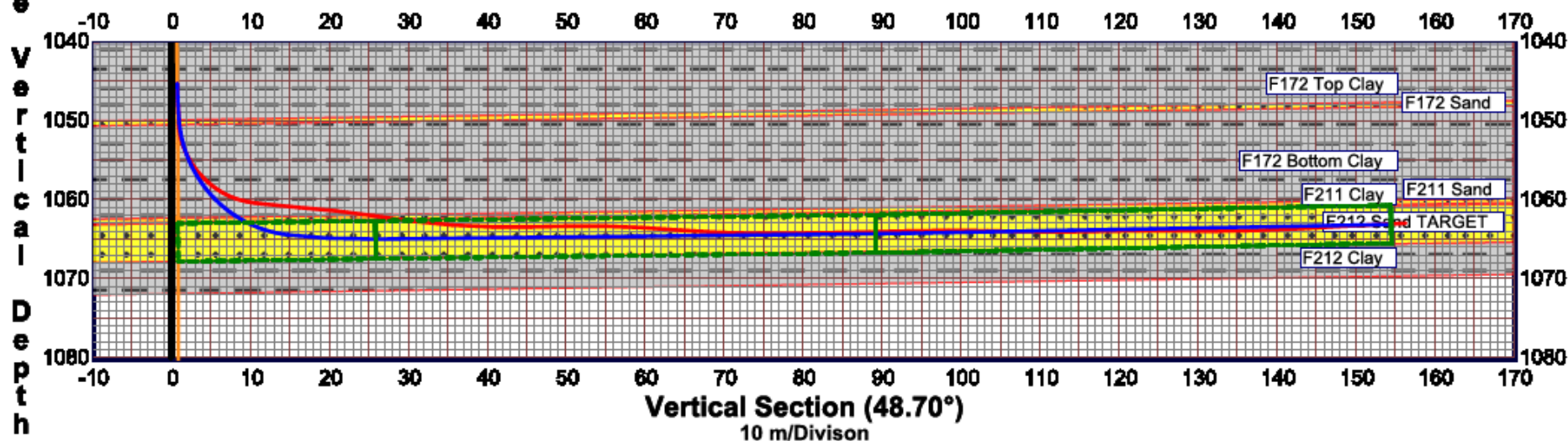
Eff. Thickness: 3.8 - 2.8 m



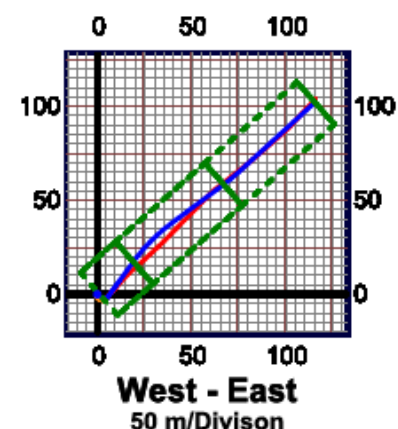
NOTE: The Vertical Section Plot uses a constant 4.80 m target thick. However, the thickness is prognosed to be 4.80 m at Target A (2.3m from top-, 2.5m from bottom of sand), thinning out to 2.8 m at Target C (1.5 m from top-, 1.3 m from bottom of sand)

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CURVES LEGEND :
 C118-30 Gyro Outrun Tie-in
 C118-30 Proposal
 C118-30 Definitive Survey



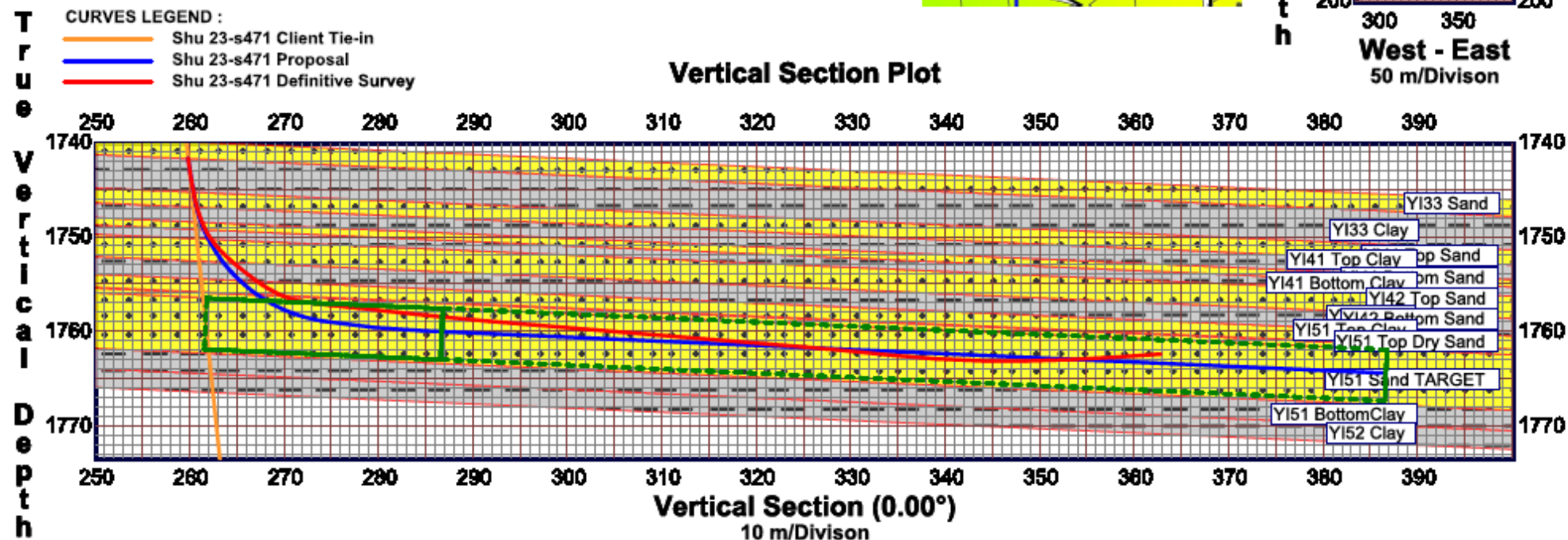
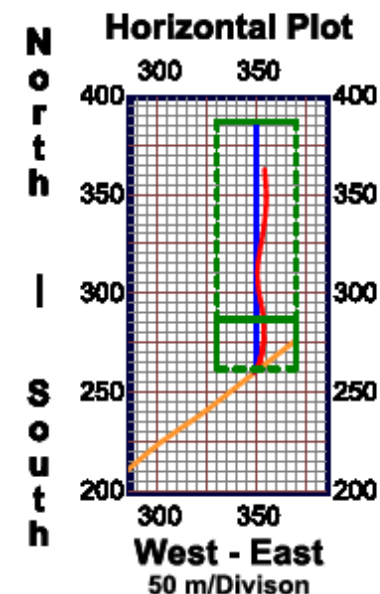
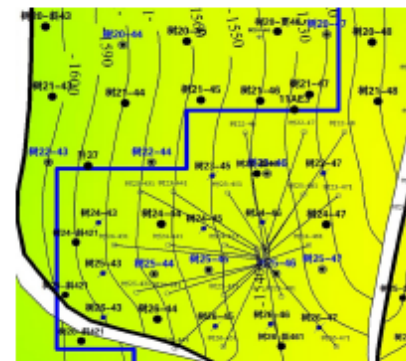
Horizontal Plot





Target	m TVD	m VS	Dip Angle	Actual mMD Distance To Target
A- Landing	1760.10	286.70	Down 2.50°	1852.6, 1.6 m Above
B- TD	1764.47	386.70	Down 2.50°	1953.5, Not Reached

Actual TD Called @ 1829.5 Note: Lateral Traversed to Locate Better Oil Sands





C120-66 - DEFINITIVE SURVEY

Field, Company: Chao 44 North, No.10 Oil Extraction of Daqing

Tie-in Survey Ref: Gyro Song Outrun 05-Mar-21

North Reference: Grid Azimuth

Magnetic Dec.: -10.796° (West of TN)

Grid Convergence: +1.89° (East of TN)

Whipstock 5-1/2" 17# Casing Gyro Oriented to 100° Grid Azimuth

Window: Top whipstock 989.4, Bottom 991.7, Rathole to 993.5 (KOP)

4-1/2" Curve: 1013.5 EOC, 27.7 m ROC (3.946°/m DLS)

Control Point as Targets With Dip Angle Along 122.71° Direction

Target m TVD m VS Dip Angle Proposed mMD Distance To Target

A- Landing 1008.89 7.29 Down 2.1° 1032.0, 0.6 m Below, 12.4 m Left

B- TD 1013.46 132.26 Down 2.1° Projected 1161.2, 0.2 m Above, 9.7 m Right

TD Called @ 1159.0

Depth Ref.: ORT

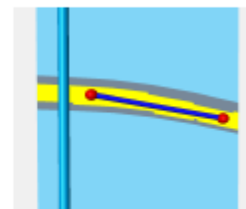
ORT-GL: 5.10 m

GL-MSL: 173.26 m

Target Objective: F221

Gross Thickness: 3.6-4.0 m

Eff Thickness: 3.6-4.0 m

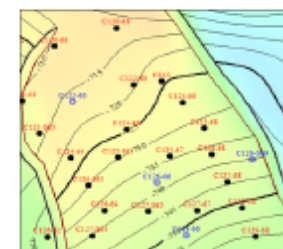
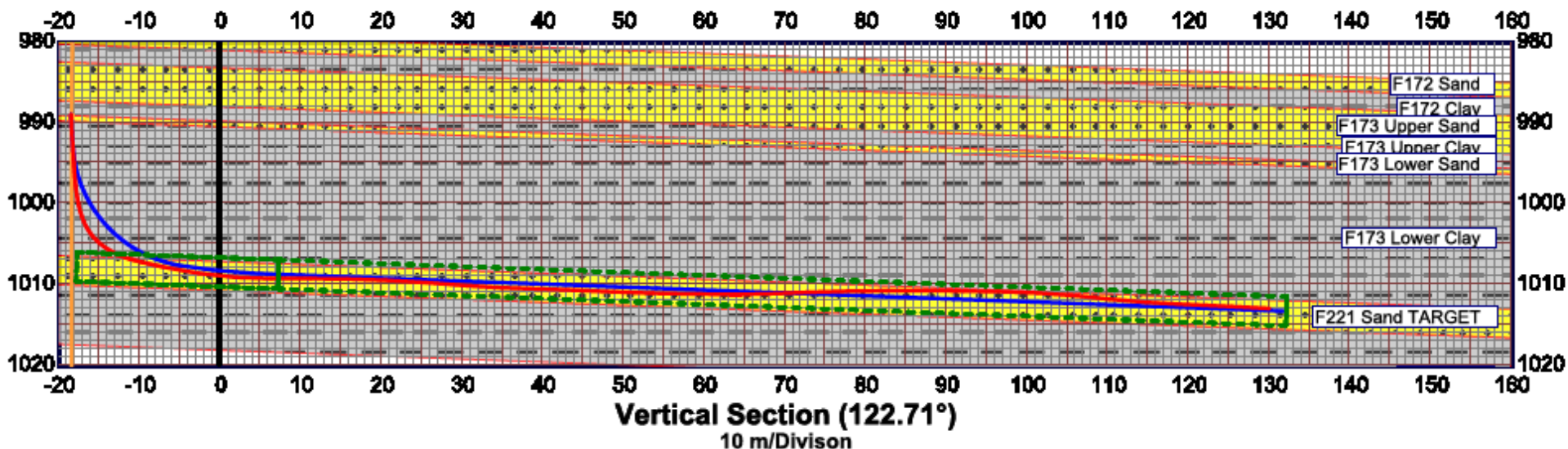


NOTE: The Vertical Section Plot uses a constant 3.6 m target thickness. However, the thickness is prognosed to be 3.6 m at Target A (1.8 m from top-, 1.8 m from bottom of sand), thickened to 4.0 m at Target B (2.0 m from top-, 2.0 m from bottom of sand)

True Vertical Depth

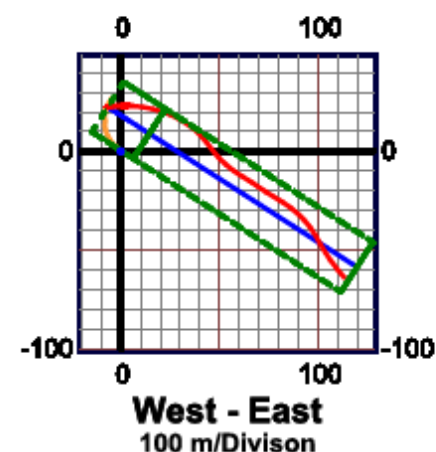
CURVES LEGEND :

- C120-66 Gyro Outrun Song Tie-in
- C120-66 Proposal
- C120-66 Definitive Survey



North
|
South

Horizontal Plot





C118-26 - DEFINITIVE SURVEY

Field, Company: Chao 64, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun 05-Mar-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.779° (West of TN)
 Grid Convergence: +1.84° (East of TN)

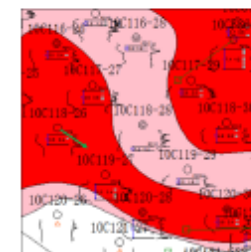
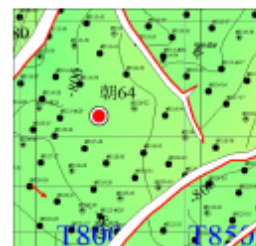
Depth Ref.: ORT
 ORT-GL: 2.60 m
 GL-MSL: 166.41 m
 Target Objective: F212
 Gross Thickness: 3.5-3.3 m
 Eff. Thickness: 3.5-3.3 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 100° Grid Azimuth
 Window: Top whipstock 1049.4, Bottom 1051.7, Rathole to 1053.5 (KOP)
 4-1/2" Curve: 1065.5 EOC, 12.6 m ROC (5.366°/m DLS)

Control Point as Targets Along 118° Dip Direction

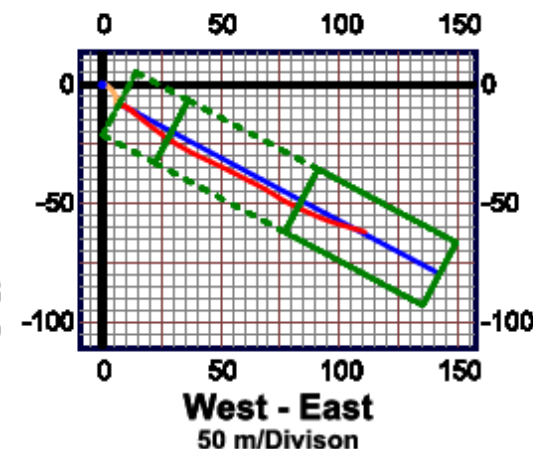
Target	m TVD	m VS	Dip Angle	Actual mMD Distance To Target
A- Landing	1069.87	35.08	Down 0.13°	1085.2, 1.7 m Above, 3.6 m Right
B	1070.01	97.13	Down 0.13°	1147.5, 0.5 m Above, 3.6 m Right
C- TD	1070.19	163.08	Down 0.13°	Projected 1214.7 Not Reached.

TD Called @ 1178.0. Trajectory traverse up and down to locate good oil sands.



North
|
South

Horizontal Plot



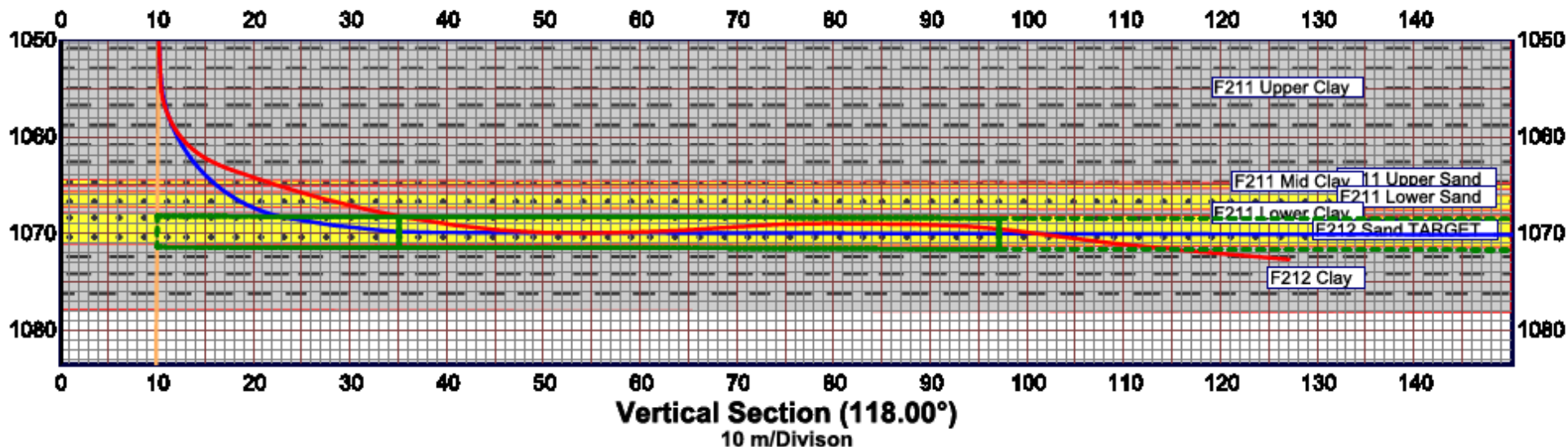
NOTE: The Vertical Section Plot uses a constant 3.2 m target thickness. However, the prognosed to be 3.5 m at Target A (1.8m from top-, 1.8m from bottom of sand), thinning out to 3.3 m m at Target C (1.5 m from top-, 1.8 m from bottom of sand)

Vertical Section Plot

True
Vertical
Depth

CURVES LEGEND :

- C118-26 Gyro Outrun Tie In
- C118-26 Proposal
- C118-26 Definitive Survey





C51-127 - DEFINITIVE SURVEY

Field, Company: Chao 50, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Multishot Outrun1_20-Mar-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.85° (West of TN)
 Grid Convergence: +1.85° (East of TN)

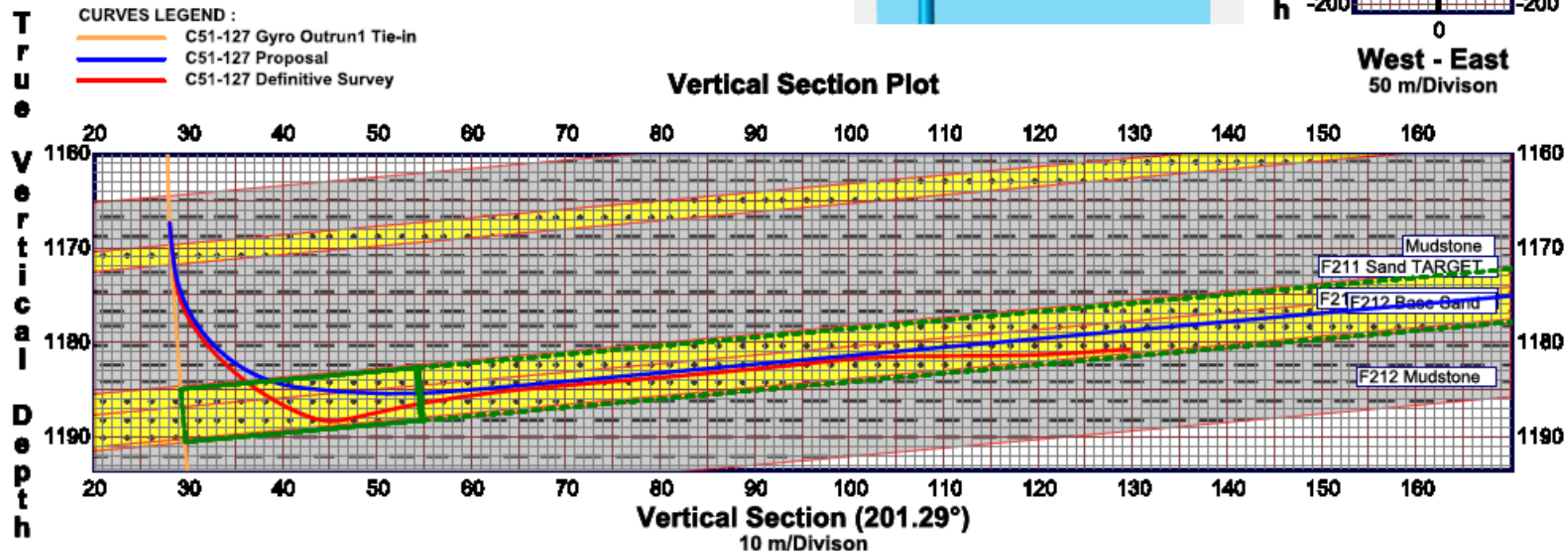
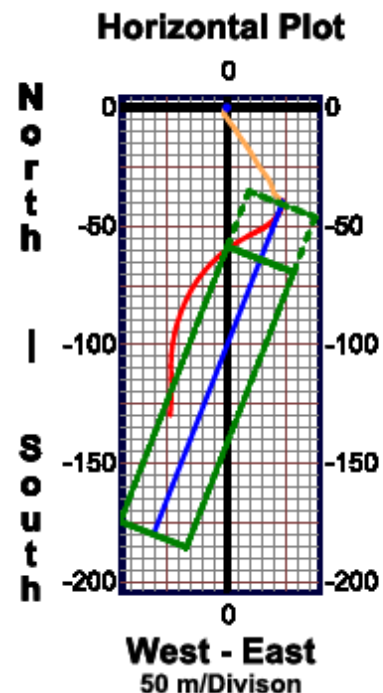
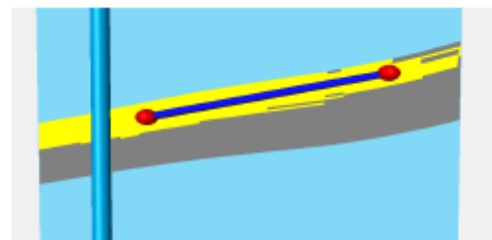
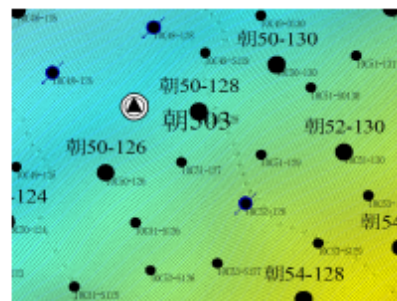
Depth Ref.: ORT
 ORT-GL: 3.05 m
 GL-MSL: 168.76 m
 Target Objective: F212
 Gross Thickness: 6.0-5.0 m
 Eff. Thickness: 6.0-5.0 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 185° Grid Azimuth
 Window: Top whipstock 1168.9, Bottom 1171.2, Rathole to 1173.0 (KOP)
 4-1/2" Curve: 1203.0 EOC, 19.0 m ROC (3.837°/m DLS)

Control Point as Targets Along 201.29° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD	Distance To Target
A- Landing	1185.5	54.48	Up 5.16°	1212.3, 1.0 m Below, 15.0 m Right	
B- TD	1174.3	179.22	Up 5.16°	1343.3, Not Reached	

TD Called @ 1291.5 (Traverse down to locate sands. Freed stuck BHA-
 Motor stator mandrel sheared off)





C55-S127 - DEFINITIVE SURVEY

Field, Company: Chao 50, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Client Survey File
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.846° (West of TN)
 Grid Convergence: +1.93° (East of TN)

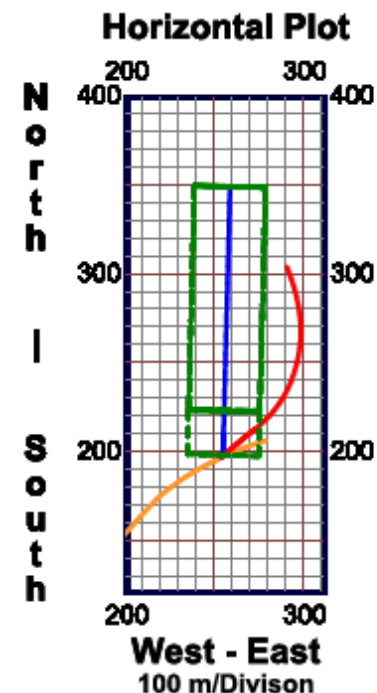
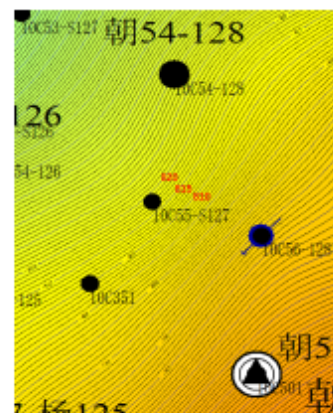
Depth Ref.: ORT
 ORT-GL: 3.30 m
 GL-MSL: 174.30 m
 Target Objective: F212
 Gross Thickness: 4.0-3.8 m
 Eff. Thickness: 4.0-3.8 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 30° Grid Azimuth
 Window: Top whipstock 1138.4, Bottom 1140.7, Rathole to 1142.5 (KOP)
 4-1/2" Curve: 1173.5 EOC, 25.6 m ROC (3.079°/m DLS)

Control Point as Targets Along 1.5° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD	Distance To Target
A- Landing	1099.16	229.44	Down 5.6°	1187.5, 0.2 m Below, 25.5 m Right	
B- TD	1111.64	355.84	Down 5.6°	Projected 1322.2. Not Reached.	

TD Called @ 1274.0. Trajectory Deliberately Traverse Up to Locate Oil Sand (Uncertain Dip Angle).

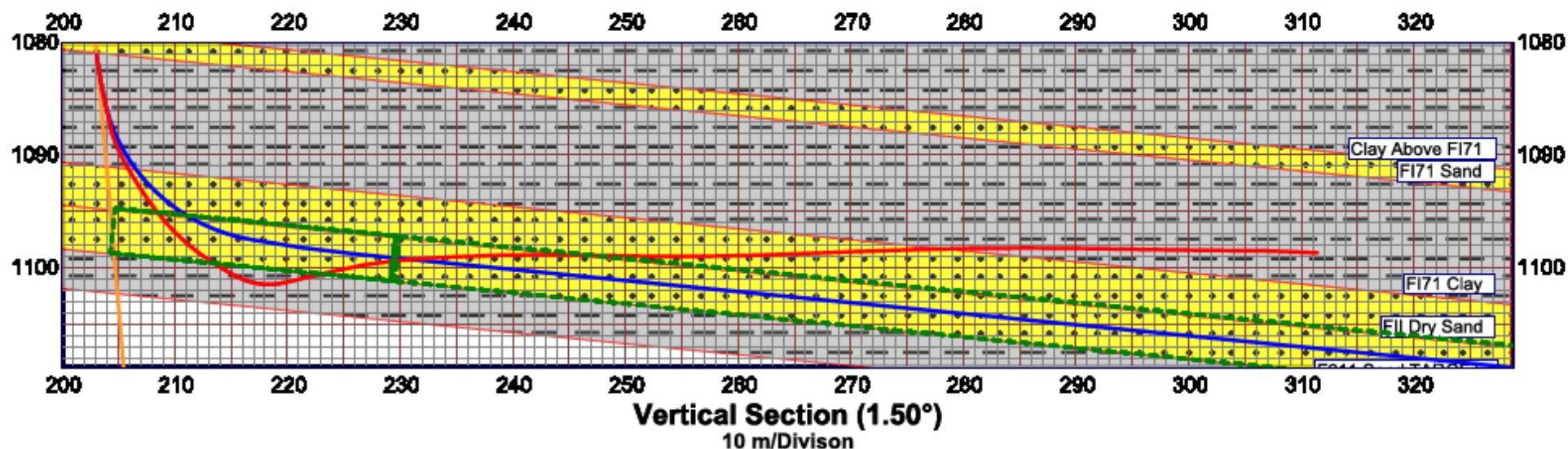


True Vertical Depth

CURVES LEGEND :

- C55-S127 Client Gyro
- C55-S127 Proposal
- C55-S127 Definitive Survey

Vertical Section Plot





Tai 71-86 - DEFINITIVE SURVEY

Field, Company: Tai 105 Block, Toutai Oilfield, Daqing Fangxing
 Tie-in Survey Ref: Gyro Multishot Inrun 07-Apr-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.660° (West of TN)
 Grid Convergence: +1.28° (East of TN)
 Whipstock, 5-1/2" 17# Casing Gyro Oriented to 100° Grid azimuth
 Window: Top whipstock 1399.9, Bottom 1402.2, Rathole to 1404.0 (KOP)
 4-1/2" Curve: 1426.0 EOC, 20.1 m ROC (4.194°/m DLS)

Depth Ref.: ORT
 ORT-GL: 2.80 m
 GL-MSL: 128.36 m
 Target Objective: PI51-52
 Layer Thickness: 3.60 m
 Effective Thick: 3.60 m

Control Point as Targets Along 120.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual (mMD) vs Target
A- Landing	1419.60	19.65	Up 1.15°	1429.5, 3.4 m Above
B	1419.10	74.64	Up 0.52°	1485.4, 0.6 m Below
C- TD	1420.40	159.64	Down 0.88°	Projected 1570.6, Not Reached

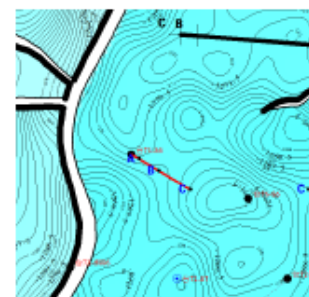
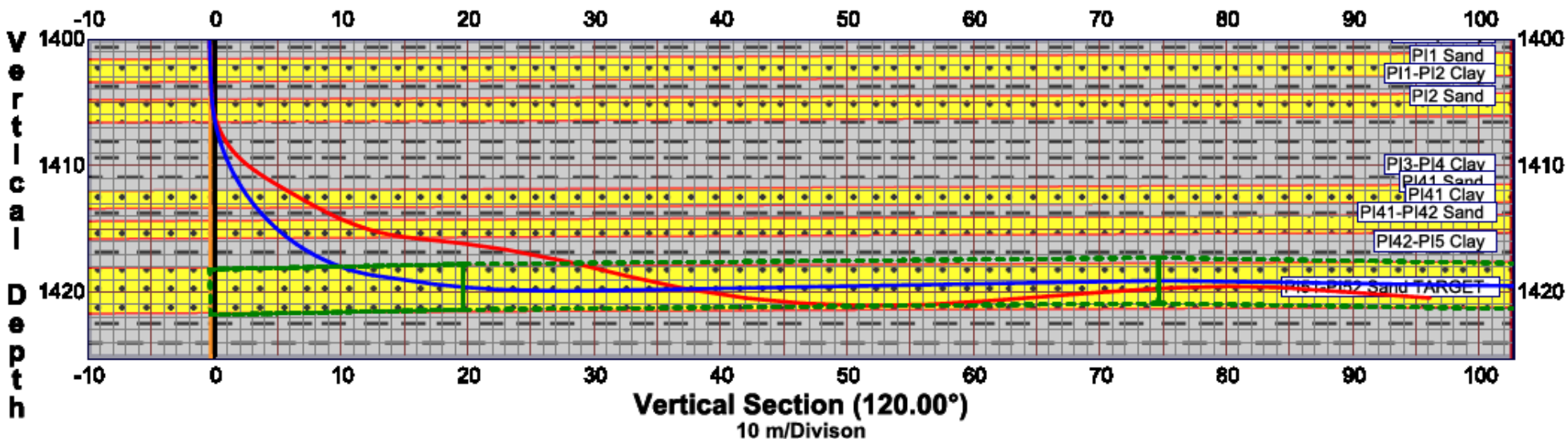
TD Called @ 1507.0. Traversed to follow good sands. Samples good oil sand / mixed Clay-sand.
 TD called when sample with blocky clay showed up.

True Vertical Depth

CURVES LEGEND :

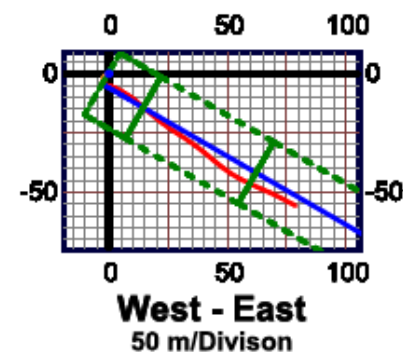
- Tai 71-86 Gyro Inrun 07-Apr-21 Tie-in
- Tai 71-86 Proposal
- Tai 71-86 Definitive Survey

Vertical Section Plot



North
|
South

Horizontal Plot





Tai 51-CS92 - DEFINITIVE SURVEY

Field, Company: Tai 105 Block, Toutai Oilfield, Daqing Fangxing
 Tie-in Survey Ref: Gyro Multishot Inrun 06-Apr-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.672° (West of TN)
 Grid Convergence: +1.29° (East of TN)

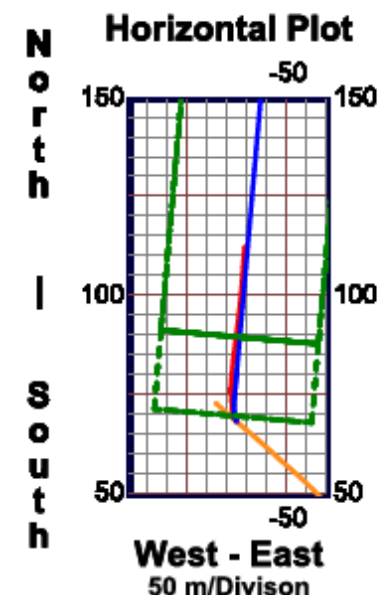
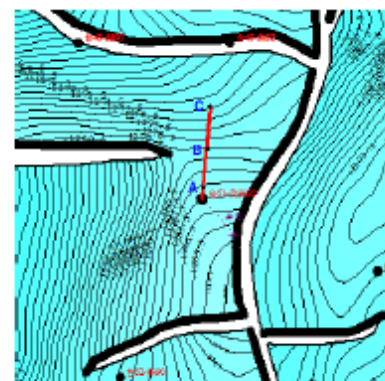
Depth Ref.: ORT
 ORT-GL: 3.94 m
 GL-MSL: 126.36 m
 Target Objective: PI52
 Layer Thickness: 2.40 m
 Effective Thick: 2.40 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 340° Grid azimuth
 Window: Top whipstock 1433.4, Bottom 1435.7, Rathole to 1437.5 (KOP)
 4-1/2" Curve: 1449.0 EOC, 19.5 m ROC (5.772°/m DLS)

Control Point as Targets Along 5.00° Dip Direction:

Target	m TVD	m VS	Dip Angle	Actual (mMD) vs Target
A- Landing	1444.20	19.85	Up 2.00°	1463.5, 2.4 m Above
B	1441.00	74.64	Up 2.63°	Projected 1533.7, Not Reached
C- TD	1437.50	159.64	Up 2.87°	Projected 1603.8, Not Reached

TD Called @ 1486.5. Poor to no sands in cuttings. Uncertainty on Fault Vicinity.
 Client decided to Call TD



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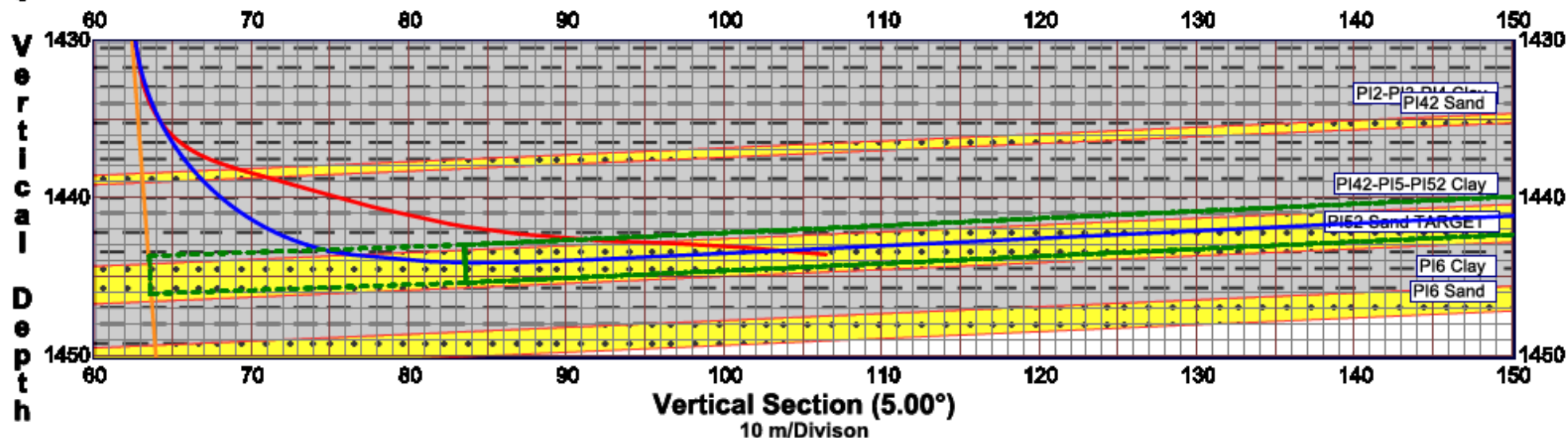
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CURVES LEGEND :

- Tai 51-CS92 Gyro Inrun 06-Apr-21 Tie-in
- Tai 51-CS92 Proposal
- Tai 51-CS92 Definitive Survey

Vertical Section Plot





F132-S52 - DEFINITIVE SURVEY

Field, Company: Block 86, No.10 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Inrun2_11-Apr-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.76° (West of TN)
 Grid Convergence: +1.76° (East of TN)

Depth Ref.: ORT
 ORT-GL: 3.80 m
 GL-MSL: 126.33 m
 Target Objective: F221
 Gross Thickness: 3.8-3.7 m
 Eff. Thickness: 3.8-3.7 m

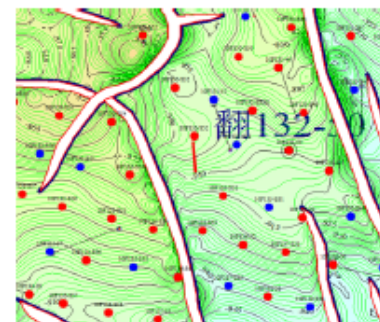
Whipstock 5-1/2" 17# Casing Gyro Oriented to 178.30° Grid Azimuth
 Window: Top whipstock 1153.4, Bottom 1155.7, Rathole to 1157.5 (KOP)
 4-1/2" Curve: 1172.0 EOC, 15.6 m ROC (4.953°/m DLS)

Control Point as Targets Along 178.30° Dip Direction

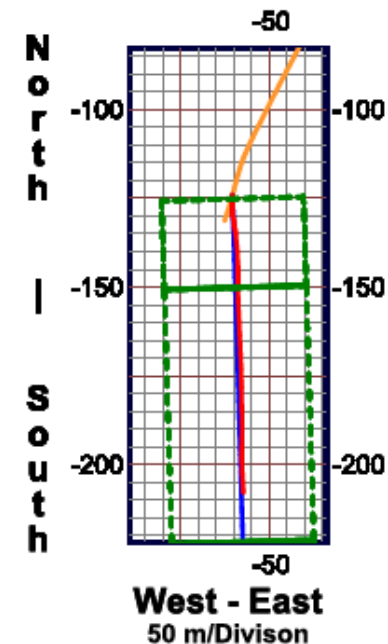
Target	m TVD	m VS	Dip Angle	Actual mMD	Distance To Target
A- Landing	1156.00	148.09	Down 3.30°	1189.8, 0.9 m Above, 4.5 m Left	
B	1161.58	219.88	Down 3.40°	Projected 1262.0, Not Reached	
C-TD	1166.30	285.80	Down 3.55°	Projected 1327.8, Not Reached	

TD Called @ 1248.0 - Good Sandstone with HC Shows.

TD Called Early Where High Reservoir Pressure Encountered.



Horizontal Plot

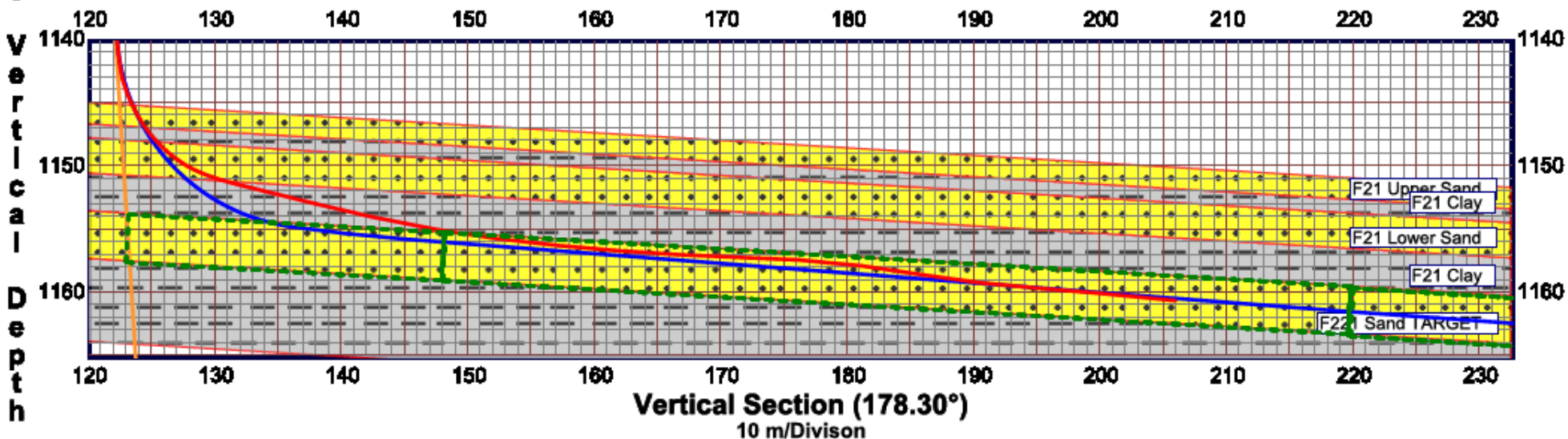


True Vertical Depth

CURVES LEGEND :

- F132-S52 Gyro Inrun2_11-Apr-2021 Tie-in
- F132-S52 Proposal
- F132-S52 Definitive Survey

Vertical Section Plot





C53-123 - DEFINITIVE SURVEY

Field, Company: Chao 50, No.10 Oil Extraction of Daqing

Tie-in Survey Ref: Client Gyro Survey Rec'd 15-Apr-21

North Reference: Grid Azimuth

Magnetic Dec.: -10.847° (West of TN)

Grid Convergence: +1.93° (East of TN)

Depth Ref.: ORT

ORT-GL: 3.00 m

GL-MSL: 171.46 m

Target Objective: F212

Gross Thickness: 6.3-5.6 m

Eff. Thickness: 6.3-5.6 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 195° Grid Azimuth

Window: Top whipstock 1139.9, Bottom 1142.2, Rathole to 1144.0 (KOP)

4-1/2" Curve: 1174.5 EOC, 19.2 m ROC (3.752°/m DLS)

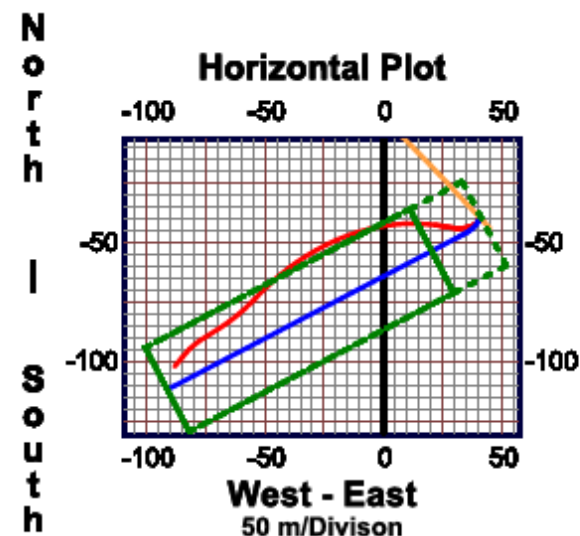
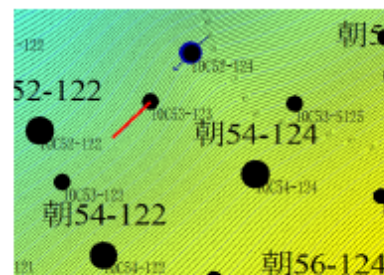
Control Point as Targets Along 242.34° Dip Direction

Target m TVD m VS Dip Angle Actual mMD Distance To Target

A- Landing 1157.77 6.69 Down 0.76° 1183.4, 3.7 m Below, 11.3 m Right

B- TD 1159.58 132.69 Down 0.76° Projected 1313.9, 0.1 m Below, 2.5 Right

TD Called @ 1306.0 - Good Sandstone with HC Shows

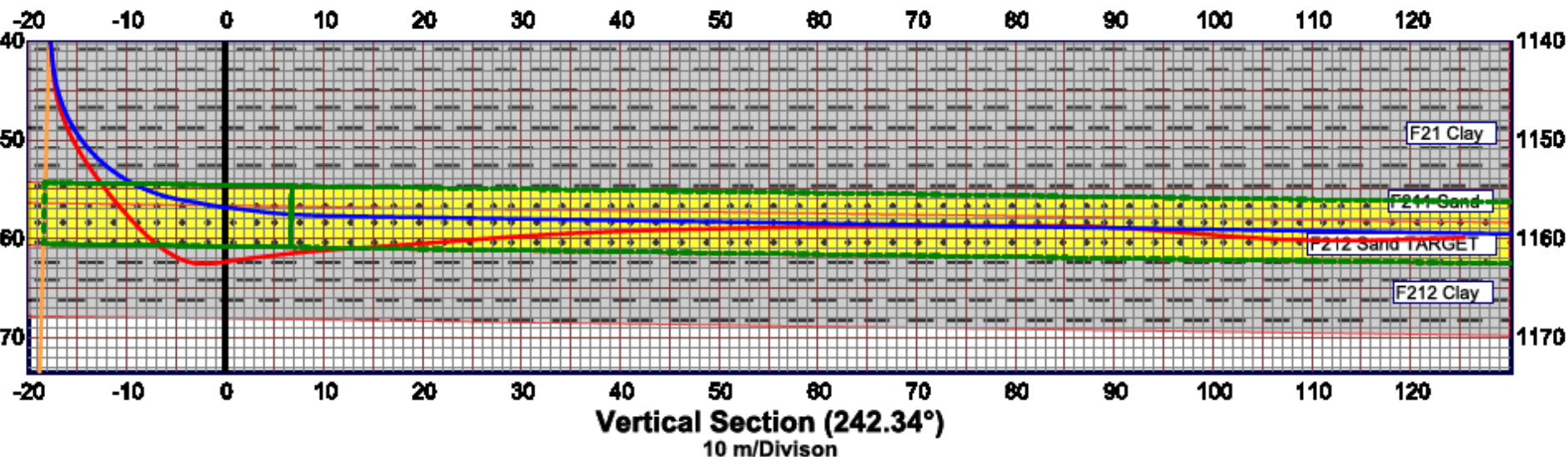


True Vertical Depth

CURVES LEGEND :

- C53-123 Client Gyro Tie-in
- C53-123 Proposal
- C53-123 Definitive Survey

Vertical Section Plot





F142-S50 - DEFINITIVE SURVEY

Field, Company: Block 86, No.10 Oil Extraction of Daqing
 Tie-In Survey Ref: Client Gyro File
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.756° (West of TN)
 Grid Convergence: +1.77° (East of TN)

Depth Ref.: ORT
 ORT-GL: 3.70 m
 GL-MSL: 120.92 m
 Target Objective: F221
 Gross Thickness: 6.80 m
 Eff. Thickness: 6.80 m

Whipstock 5-1/2" 17# Casing Gyro Oriented to 349° Grid Azimuth
 Window: Top whipstock 1211.4, Bottom 1213.7, Rathole to 1215.5 (KOP)
 4-1/2" Curve: 1231.0 EOC, 16.7 m ROC (4.836°/m DLS)

Control Point as Targets Along 349.00° Dip Direction

Target	m TVD	m VS	Dip Angle	Actual mMD	Distance To Target
A- Landing	1197.56	258.73	Up 1.134°	1249.5, 1.0 m Below, 2.0 m Left	
B	1195.95	340.01	Up 1.134°	1331.0, 0.8 m Below, 2.5 m Right	
C-TD	1192.57	417.93	Up 2.460°	Projected 1409.0, Not Reached	

TD Called @ 1379.5 - Deliberately Stayed Below Plan to Locate Sand.

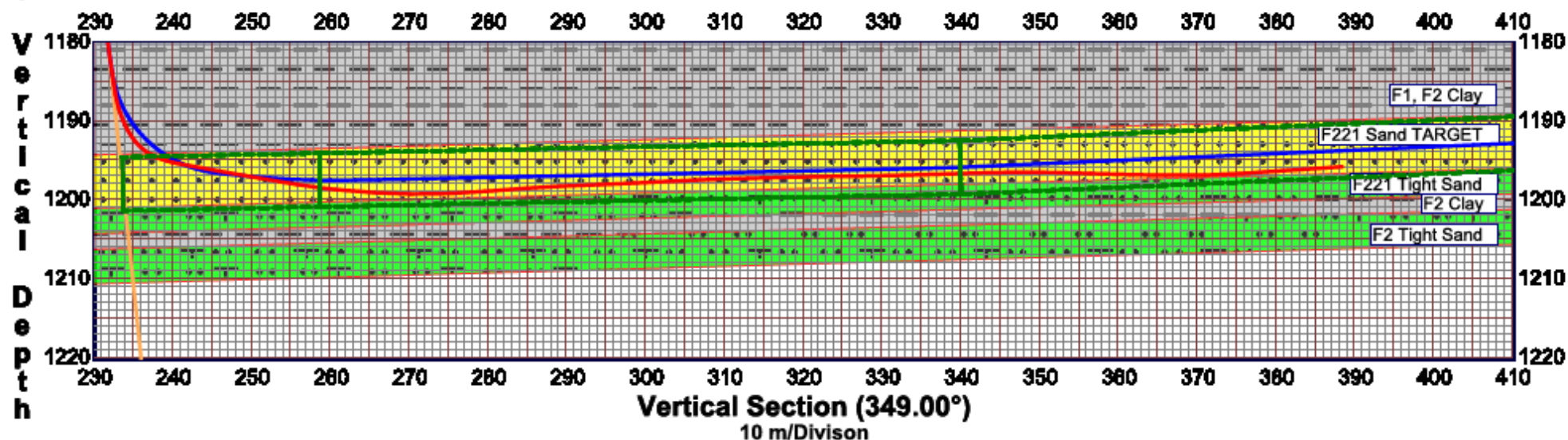
NOTE: An constant formation Up Dip of 1.60° is assumed here as the average dip angle in this plot. This results in the visible discrepancy between the formation and the target box due to the deviation in dip angle of each target from such average.

True Vertical Depth

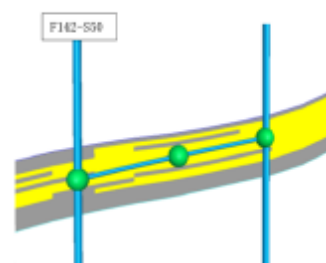
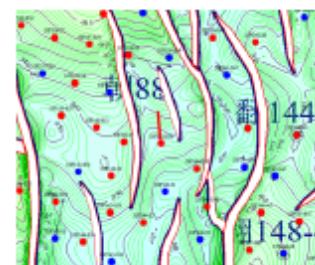
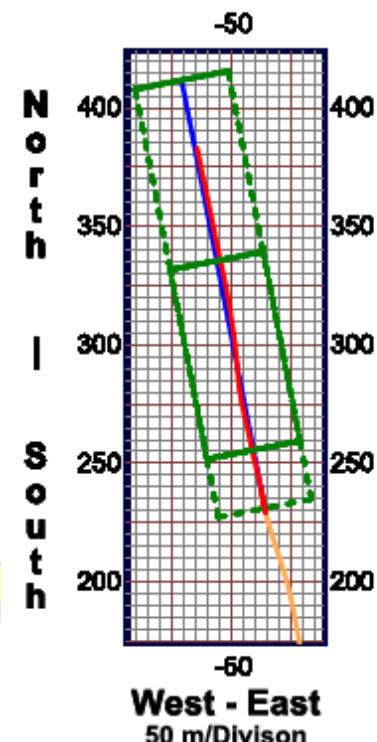
CURVES LEGEND :

- F142-s50 Client Gyro Tie-in
- F142-s50 Proposal
- F142-s50 Definitive Survey

Vertical Section Plot



Horizontal Plot



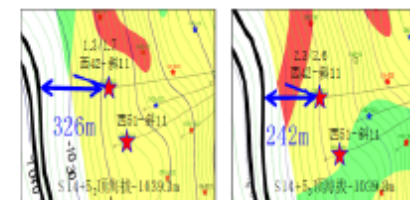
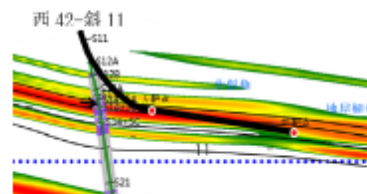


Depth Ref.: ORT
ORT-GL: 4.80 m
GL-MSL: 149.90 m
Target Objective: SI4+5A,
SI4+5bA, SI4+5bB
Layer Thickness: 5.00 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 268.56° Grid azimuth
Window: Top whipstock 1388.7, Bottom 1391.5, Rathole to 1393.5 (KOP)
4-1/2" Curve: 1400.5 EOC, 12.3 m ROC (6.079°/m DLS)

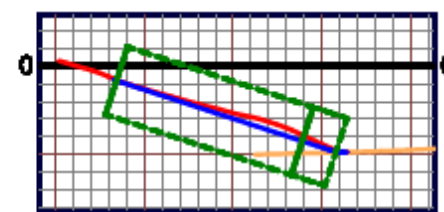
Control Point as Targets Along 288.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1173.80	663.26	Down 3.80°	1419.8, 0.3 m Below, 3.1 m Right
B- TD	1184.60	775.00	Down 3.80°	1532.4, 0.4 m Above, 2.4 m Right
TD Extended To 1585.0 For Additional Oil Sand As Per Litholog				



Horizontal Plot

-800 -700



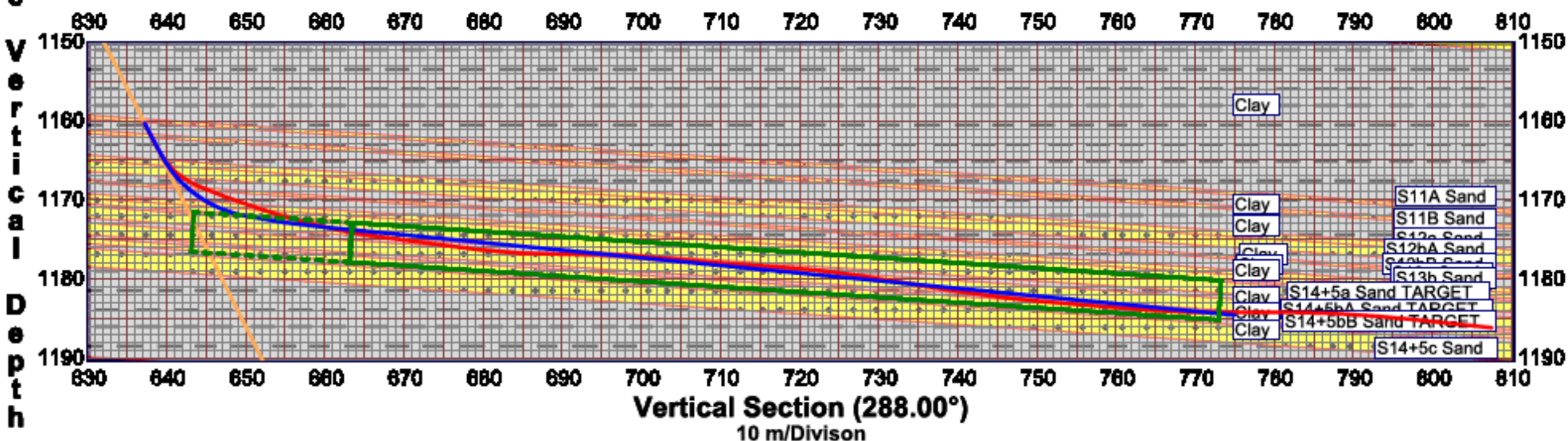
West - East
100 m/Divison

True Vertical Depth

CURVES LEGEND :

- C42-s11 Gyro Outrun 5-May-21 Tie-in
— C42-s11 Proposal
— C42-s11 Definitive Survey

Vertical Section Plot





GU 32-27 - DEFINITIVE SURVEY

Field, Company: Gu506-508 Block, Daqing Fanxing
 Tie-in Survey Ref: Gyro Multishot
 North Reference: Grid Azimuth
 Magnetic Declination: -10.746° (West of TN)
 Grid Convergence: $+1.16^\circ$ (East of TN)

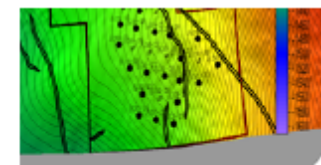
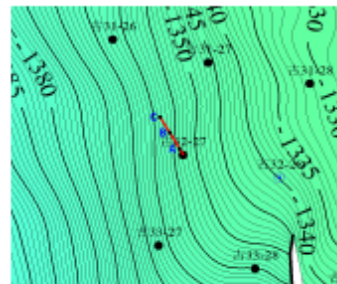
Depth Ref.: ORT
 ORT-GL: 3.85 m
 GL-MSL: 149.60 m
 Target Objective: PI-11
 Layer Thickness: 3.4 m

Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 20° Grid Az
 Window: Top 1545.3, Bottom 1547.6, Rathole to 1549.0 (KOP)
 4-1/2" Curve Section: 1571.0 EOC, 19.3 m ROC ($4.034^\circ/\text{m}$ DLS)

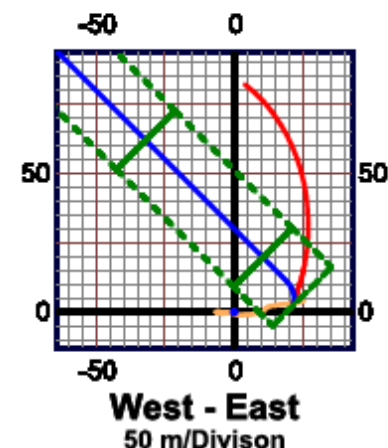
Control Point as Targets Along 315.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD, Target Comparison
A	1558.30	6.56	Down 2.58°	1591.1, 2.8 m Below
B	1561.80	66.57	Down 3.34°	Not Reached. See Note
C	1565.20	126.57	Down 3.24°	Not Reached. See Note

TD @ 1644.5. Poor sand quality and HC shows

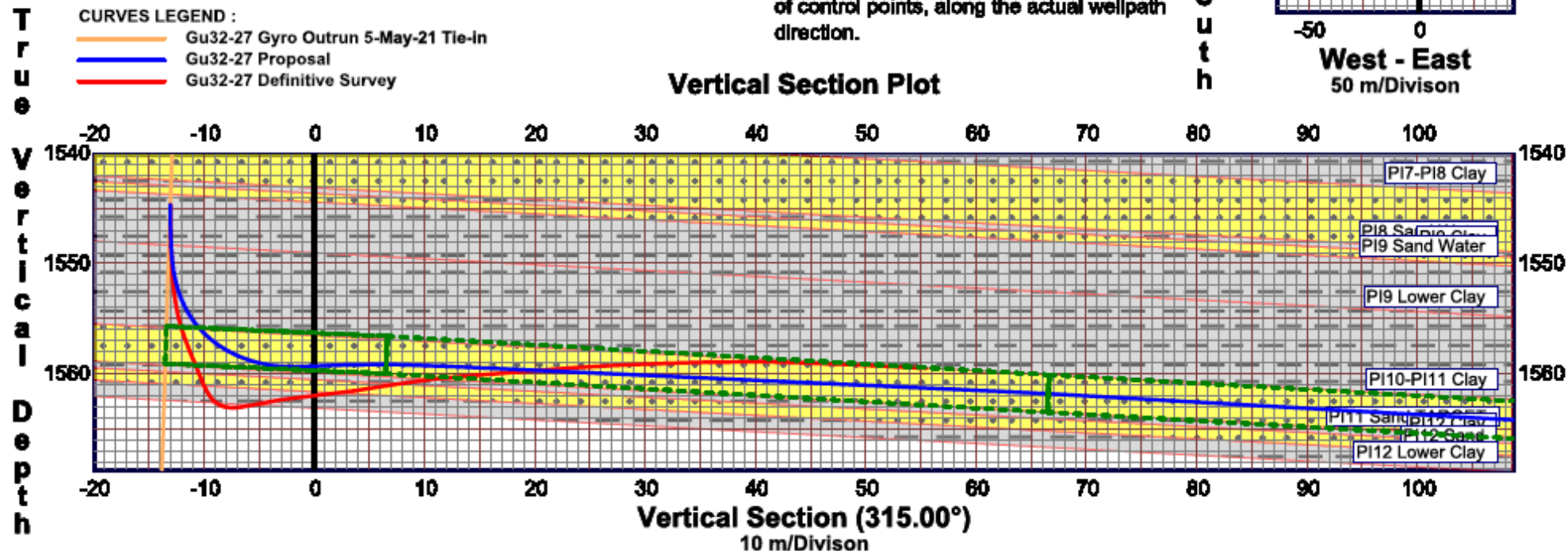


Horizontal Plot



NOTE: In the Vertical Section Plot, the lateral section appears to be higher than the formation and target box. As the well veers off to the right, the dip angles, therefore the target TVD along the actual wellpath differs from the depths along the target 315° Az. The lateral section is therefore drilled according to the new set of control points, along the actual wellpath direction.

Vertical Section Plot





GU 31-29 - DEFINITIVE SURVEY

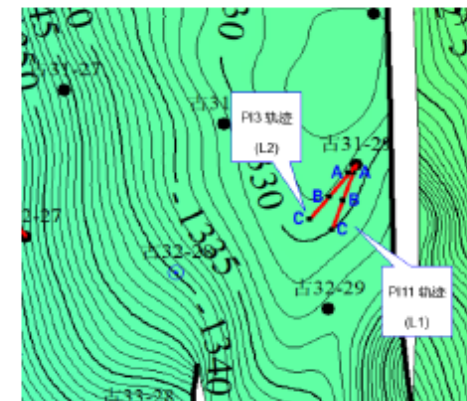
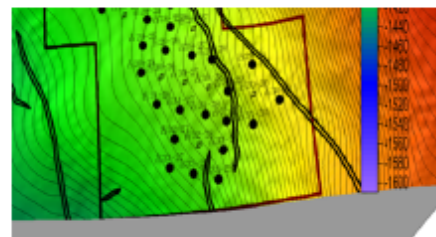
Dual Lateral: L1 (Lower), L2 (Upper)

Field, Company: Gu506-508 Block, Daqing Fanxing
 Tie-In Survey Ref: Gyro Multishot
 North Reference: Grid Azimuth
 Magnetic Declination: -10.747° (West of TN)
 Grid Convergence: +1.16° (East of TN)

Depth Ref.: ORT
 ORT-GL: 3.85 m
 GL-MSL: 149.35 m
 Target Objective: PI3
 Layer Thickness: 2.8 m

Whipstock L2: 5-1/2" 17# Casing Gyro Oriented to 150° Grid azimuth
 Window: Top 1471.9, Bottom 1474.7, Rathole to 1476.5 (KOP)
 4-1/2" Curve Section: 1494.0 EOC, 22.6 m ROC (5.375°/m DLS)

Whipstock L1: 5-1/2" 17# Casing Gyro Oriented to 156° Grid azimuth
 Window: Top 1514.4, Bottom 1516.7, Rathole to 1518.5 (KOP)
 4-1/2" Curve Section: 1531.0 EOC, 14.1 m ROC (5.992°/m DLS)



NOTE:

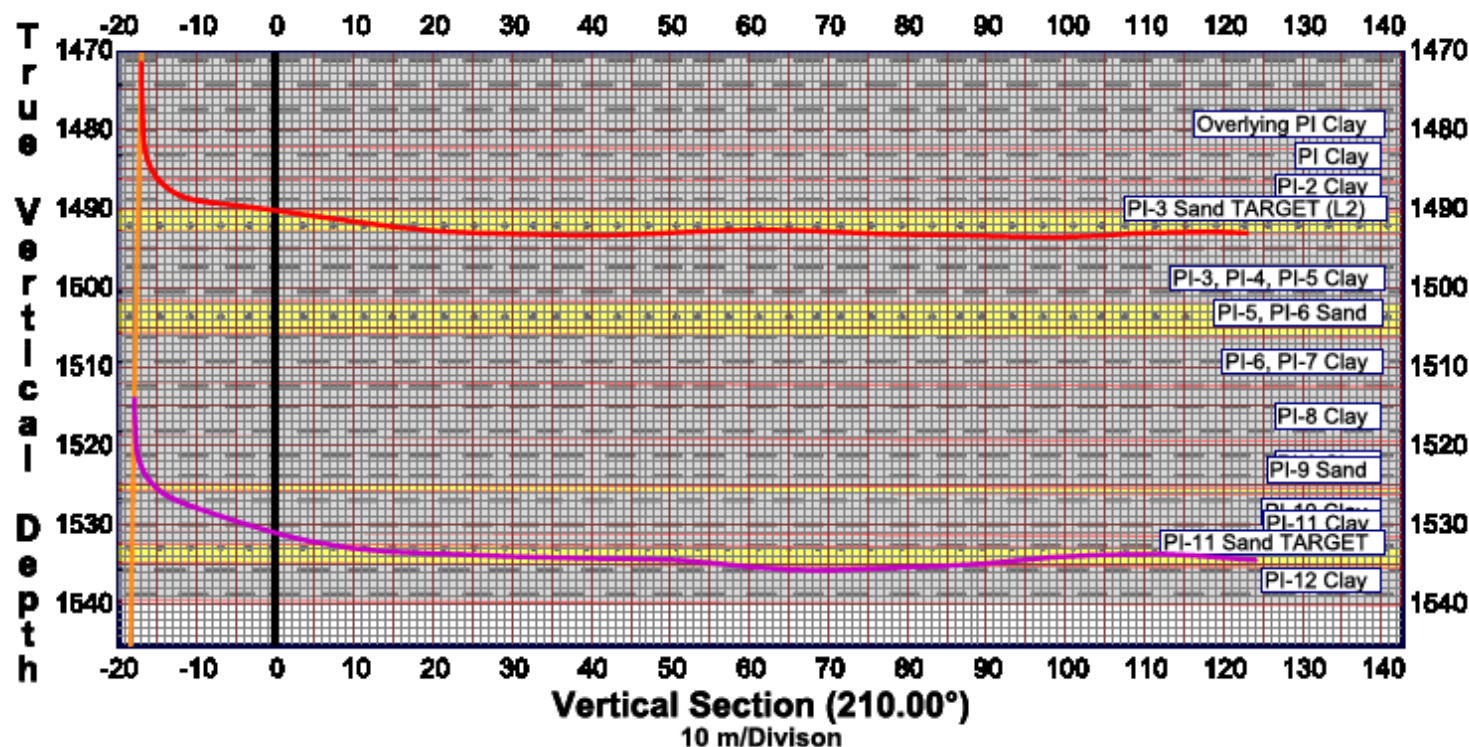
Lateral L2- Found Top Sand 1.6m TVD Deeper. Drilled per Revised Target TVD.

Excellent Sand and HC Shows The Entire Lateral.

Lateral L1- Found Top Sand 0.7m TVD Deeper. Drilled as per Revised Target TVD.

Good Sand Quality and HC Shows The Entire Lateral.

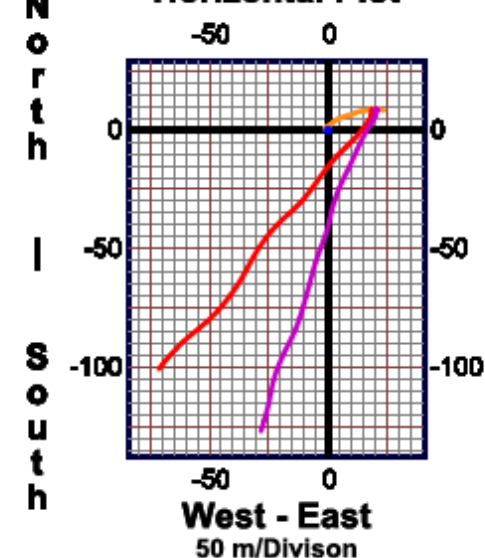
Vertical Section Plot



CURVES LEGEND :

- Gu31-29 Gyro Outrun 6-May-21 Tie-in
- Gu31-29 L1 Definitive Survey
- Gu31-29 L2 Definitive Survey

Horizontal Plot





GU 31-29 L1 - DEFINITIVE SURVEY (Lower, 1 of 2 Laterals)

Field, Company: Gu506-508 Block, Daqing Fanxing Depth Ref.: Orig. Rot. Table
Tie-In Survey Ref: Gyro Multishot ORT-GL: 3.85 m
North Reference: Grid Azimuth GL-MSL: 149.35 m
Magnetic Dec.: -10.747° (West of TN) Target Objective: PI11
Grid Convergence: +1.16° (East of TN) Layer Thickness: 2.4 m

Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 156° Grid azimuth

Window: Top 1514.4, Bottom 1516.7, Rathole to 1518.5 (KOP)

4-1/2" Curve Section: 1531.0 EOC, 14.1 m ROC (5.992°/m DLS)

Control Point as Targets Along 200.00° Dip Direction / Target Azimuth:

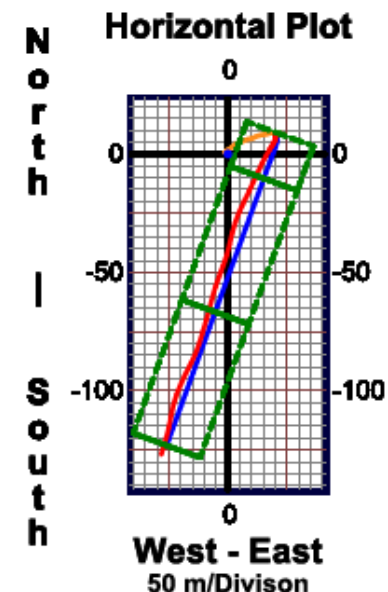
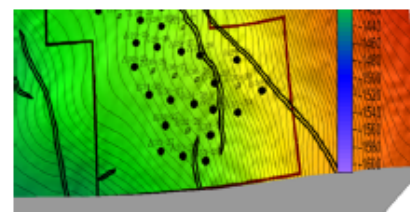
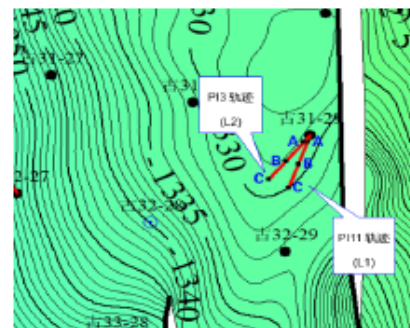
Target m TVD m VS Dip Angle Actual mMD, Target Comparison

A 1533.72 4.54 Down 0.29° 1544.8, 2.2 m Above

B 1533.82 64.54 Down 0.10° 1605.2, 1.6 m Below

C 1534.12 124.55 Down 0.29° 1665.5, 0.1 m Below

TD @ 1670.0. Note: Found Top Sand 0.7m TVD Depper. Deliberately traverse down-
and up based on Litholog. Found Good Sand, HC Shows The Entire Lateral



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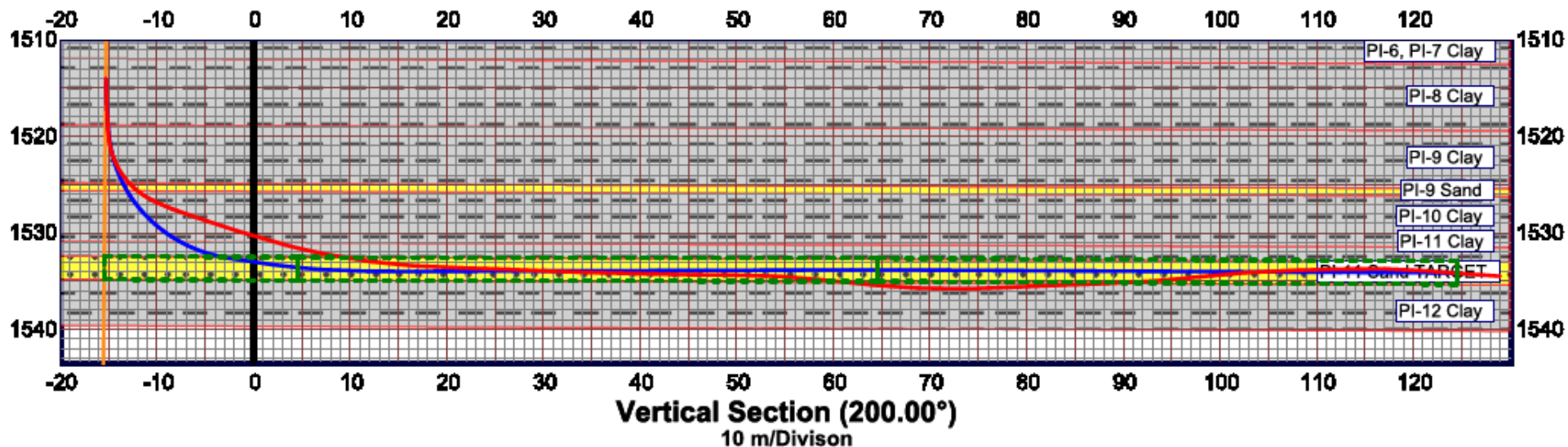
CURVES LEGEND :

Gu31-29 Gyro Outrun 6-May-21 Tie-in

Gu31-29 L1 Proposal

Gu31-29 L1 Definitive Survey

Vertical Section Plot





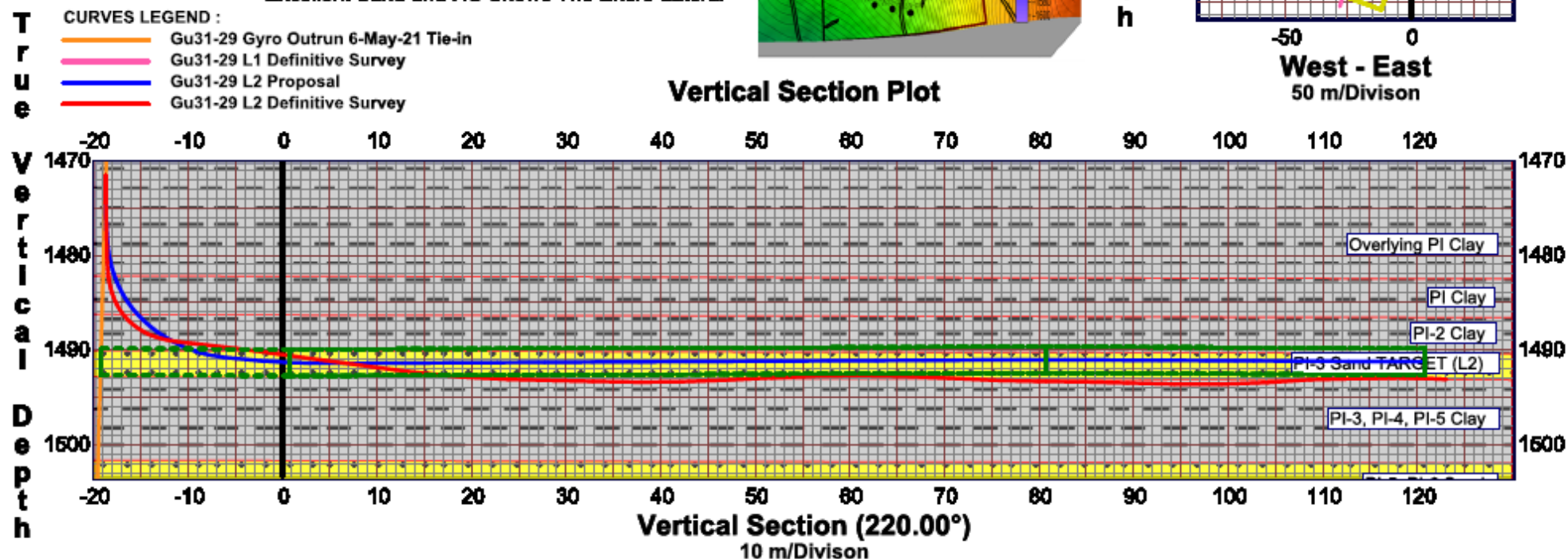
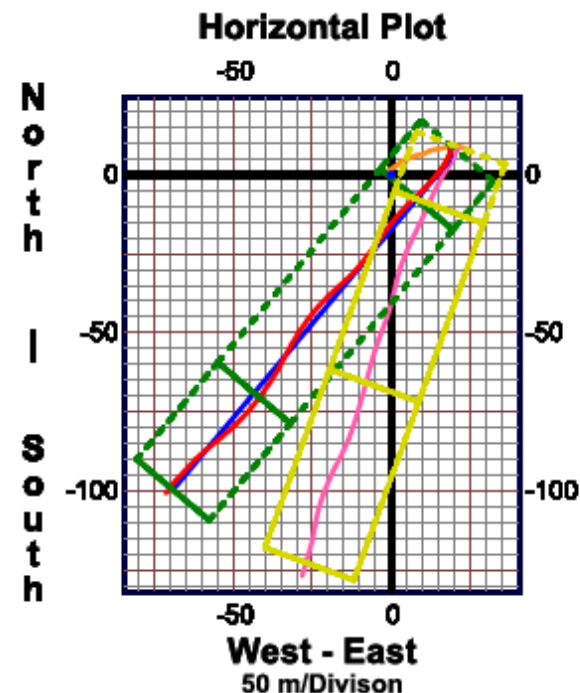
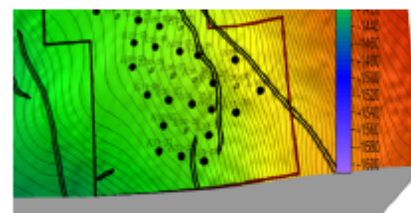
Field, Company:	GU506-508 Block, Daqing Fanxing	Depth Ref.:	ORT
Tie-in Survey Ref:	Gyro Multishot	ORT-GL:	3.85 m
North Reference:	Grid Azimuth	GL-MSL:	149.35 m
Magnetic Declination:	-10.747° (West of TN)	Target Objective:	PI3
Grid Convergence:	+1.16° (East of TN)	Layer Thickness:	2.8 m

Exit: Whipstock L2, 5-1/2" 17# Casing Gyro Oriented to 150° Grid azimuth
Window: Top 1471.9, Bottom 1474.7, Rathole to 1476.5 (KOP)
4-1/2" Curve Section: 1494.0 EOC, 22.6 m ROC (5.375°/m DLS)

Control Point as Targets Along 220.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD, Target Comparison
A	1491.35	0.77	Down 0.29°	1505.7, 0.7 m Above
B	1495.05	80.76	Up 0.21°	1586.4, 2.3 m Below (see Note)
C	1491.25	120.79	Down 0.29°	1626.7, 1.8 m Below (see Note)

**TD @ 1629.0. Note: Found Top Sand 1.6m TVD Deeper. Drilled per Adjusted TVD
Excellent Sand and HC Shows The Entire Lateral**





C22-18 - DEFINITIVE SURVEY

Field, Company: Saertu Oilfield, No.1 Oil Extraction of Daqing
 Tie-in Survey Ref: Gyro Outrun 19-May-21
 North Reference: Grid Azimuth
 Magnetic Dec.: -11.42° (West of TN) WMM2020
 Grid Convergence: +1.37° (East of TN)

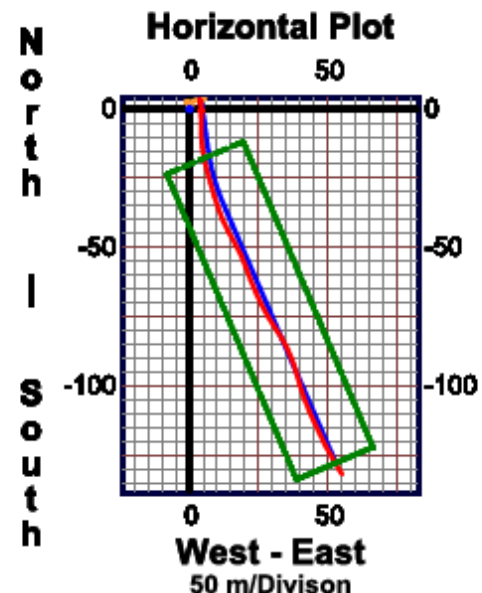
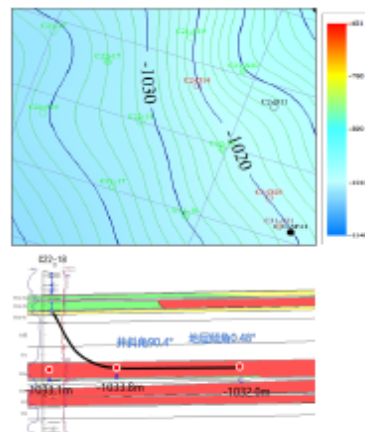
Depth Ref.: ORT
 ORT-GL: 2.70 m
 GL-MSL: 147.50 m
 Target Objective: S221
 Layer Thickness: 4.6 m

Whipstock, 5-1/2" 17# Casing Gyro Oriented to 150° Grid azimuth
 Window: Top whipstock 1163.9, Bottom 1166.7, Rathole to 1168.5 (KOP)
 4-1/2" Curve: 1179.0 EOC, 9.8 m ROC (6.711°/m DLS)

Control Point as Targets Along 157.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A- Landing	1182.95	18.40	Up 0.48°	1194.4, 2.8 m Above, 2.5 m Right
B- TD	1182.15	138.41	Up 0.48°	1315.2, 2.0 m Below, 1.6 m Right

TD @ 1320.0. Lateral Section Deliberately Drilled Below Target As Per Litholog
 Good to Fair Sand Quality and HC Shows

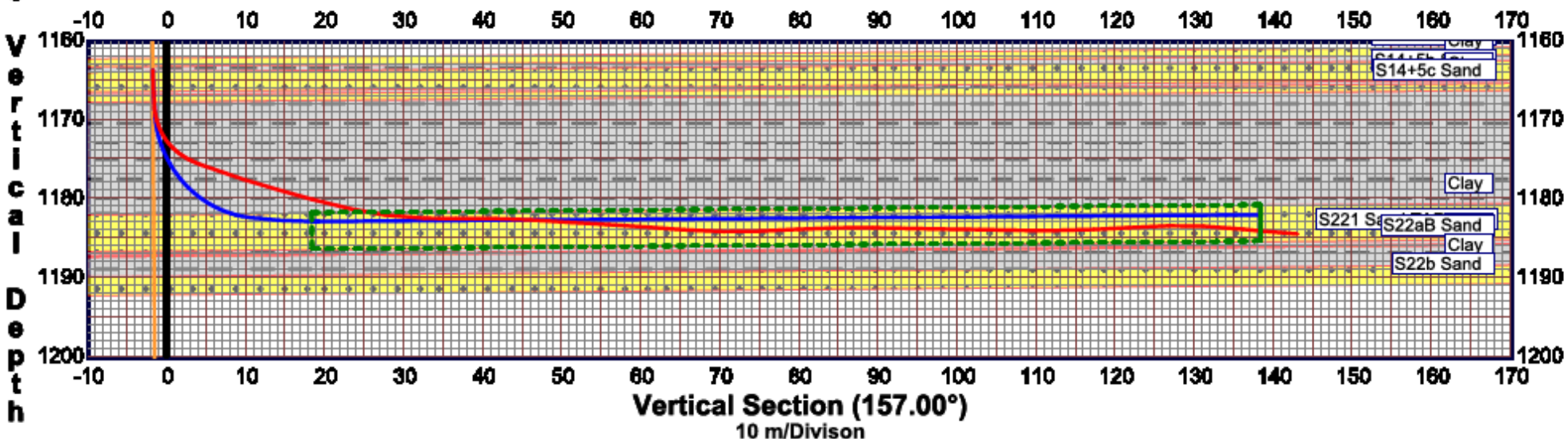


True Vertical Depth

CURVES LEGEND :

- C22-18 Client Gyro 19-May-21 Tie-in
- C22-18 Proposal
- C22-18 Definitive Survey

Vertical Section Plot





FIRST 5-WELL COMBINED INCREMENTAL OIL 264 BOPD

