



ПРОЕКТ USR В КИТАЕ

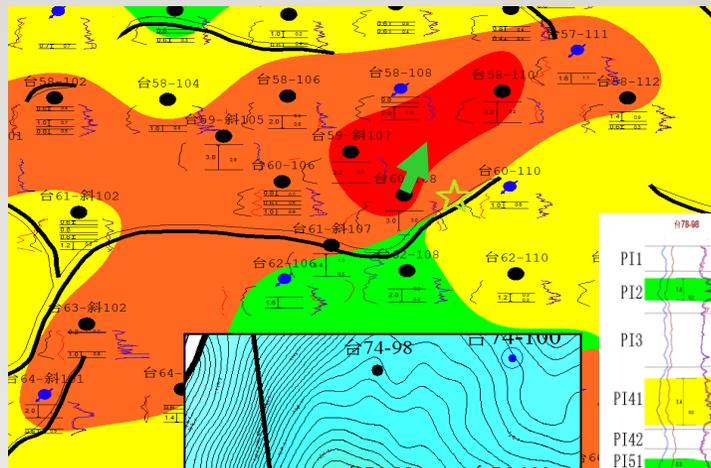
ОБНОВЛЕНО 7 ЯНВАРЯ 2020 ГОДА

- Начало проекта – в июне 2019 г. с буровой установки 1.
- Добавлена буровая установка 2 – в декабре 2019 г. после того, как 10 скважин пробурены установкой 1.
- Добавлена буровая установка 3 в апреле 2020 г. после того, как 18 скважин пробурены установками 1 и 2.
- Всего пробурено 36 скважин в 9 блоках.
- На текущий момент – скважины № 37 (установка 4), № 38 (установка 2), № 39 (установка 3) – ведутся работы.
- От первых 5 скважин прирост нефти 264 барр/сут. нефти.
- Работают две группы USR (начиная с марта 2020 г. руководящий контроль ведется удаленно в реальном времени из-за ограничений передвижения в связи с пандемией).
- Подбор источников, мобилизация для 4-й группы и оборудования.
- Текущий объем работ > 140 скважин до конца 2020 года.

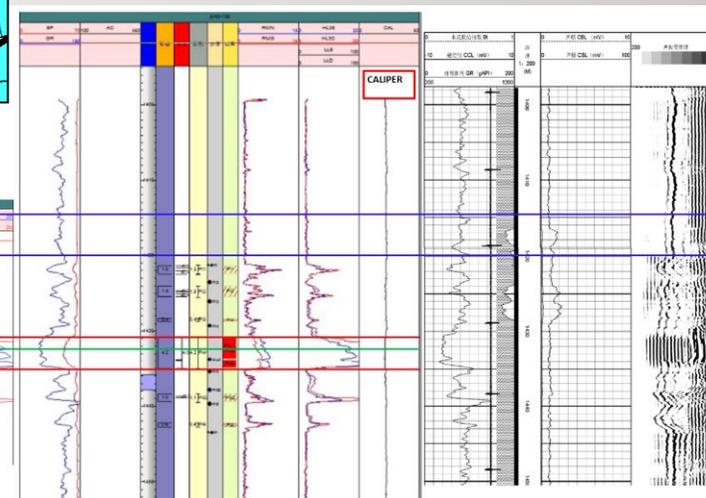
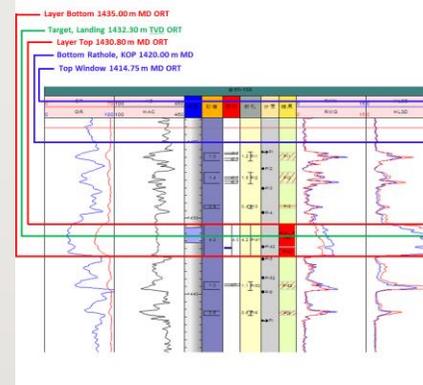
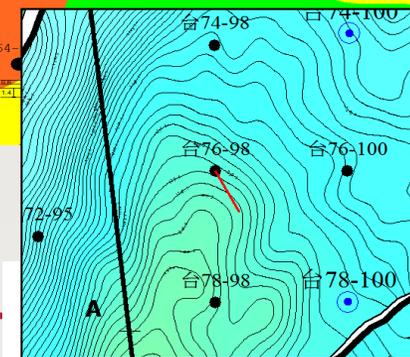
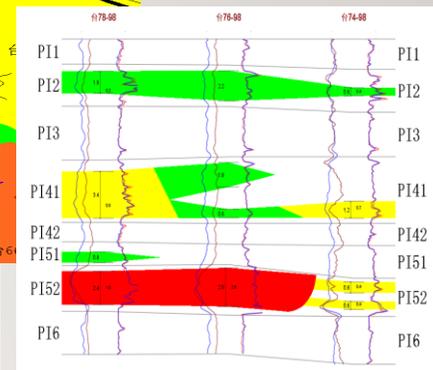


ИСТОРИЯ:

- Низкие коэффициенты извлечения объясняются быстрым снижением добычи в отдельных скважинах из-за образования разломов и тенденции к неполному затоплению водой.
- Значительные запасы нефти находятся на стороне разломов и не подвергаются воздействию фронта затопления.
- Гидроразрыв и закачивание большего объема воды для вскрытия остаточной нефти не принесли результатов.



⑤ Тай 60-108 скважин в слое P141 (с севера на восток 30)



ЦЕЛИ:

- Установка горизонтальных скважин в направлении зон с большим содержанием остаточной нефти, используя технологию бурения USR от существующих скважин.
- Улучшение области питания скважины и увеличение добычи нефти.



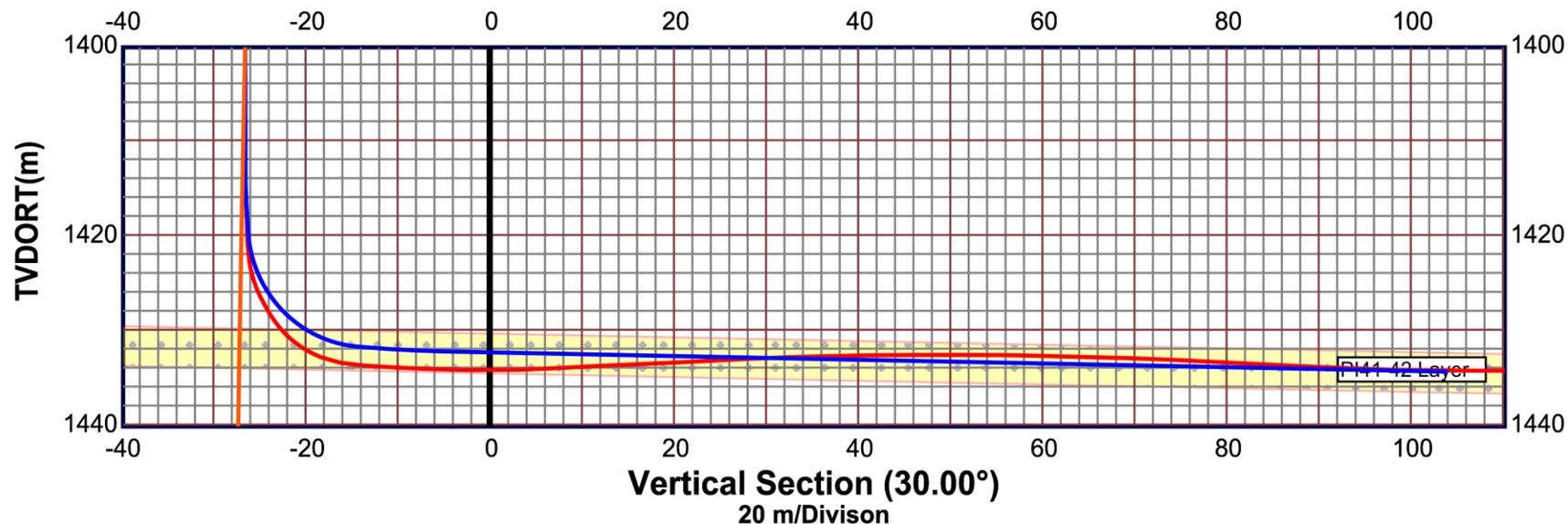
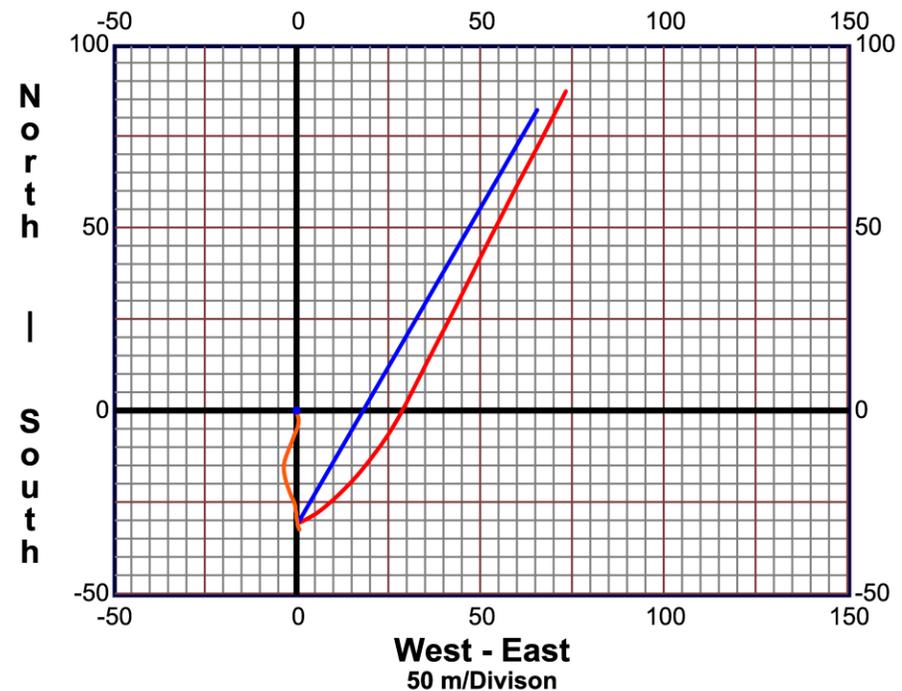
TAI 60-108

DEFINITIVE SURVEY

Field, Company:	Toutai, Daqing Fanxing	Depth Reference:	Orig. Rot. Table
Tie-in Survey Ref:	File received 14-May-2019	ORT-GL:	4.00 m
North Reference:	Grid Azimuth	GL-MSL:	137.70 m
Magnetic Dec.:	-10.68 deg (West of TN)	ORT-MSL:	141.70 m
Grid Convergence:	+1.27 (East of TN)	Target Objective:	PI41-42 Layer

Target Lithology:	PI41-42 Layer	Bottom (mTVDORT):	1434.60 @ orig. well
Description:	Sandstone, Mudstone	Formation Dip:	1.12 deg
Top (mTVDORT):	1430.41 @ orig. well	Dip Direction:	30 deg Grid Azimuth

	mMDORT (mTVDORT), Incl., Grid Az.	ROC (m) (BUR (deg/30m))
Top 5-1/2" 17# Window:	1414.75 (1414.36), 1.46, 26.34	Plan: 13.00 (132.22)
Bottom Window:	1417.00 (1416.61), 2.00, 26.34	Actual: 14.14 (127.96)
Btm Rathole / KOP:	1419.50 (1419.11), 1.65, 54.84	Lateral Length (m)
EOC / Start 3-7/8" Lat:	1442.00 (1433.76), 85.40, 46.85	Plan: 108.00
Well TD:	1568.55 (1434.31), 90.10, 26.55	Actual: 126.55
TD Date:	08-Jul-2019 @ 14:30 hr	





TAI 82-s112

DEFINITIVE SURVEY

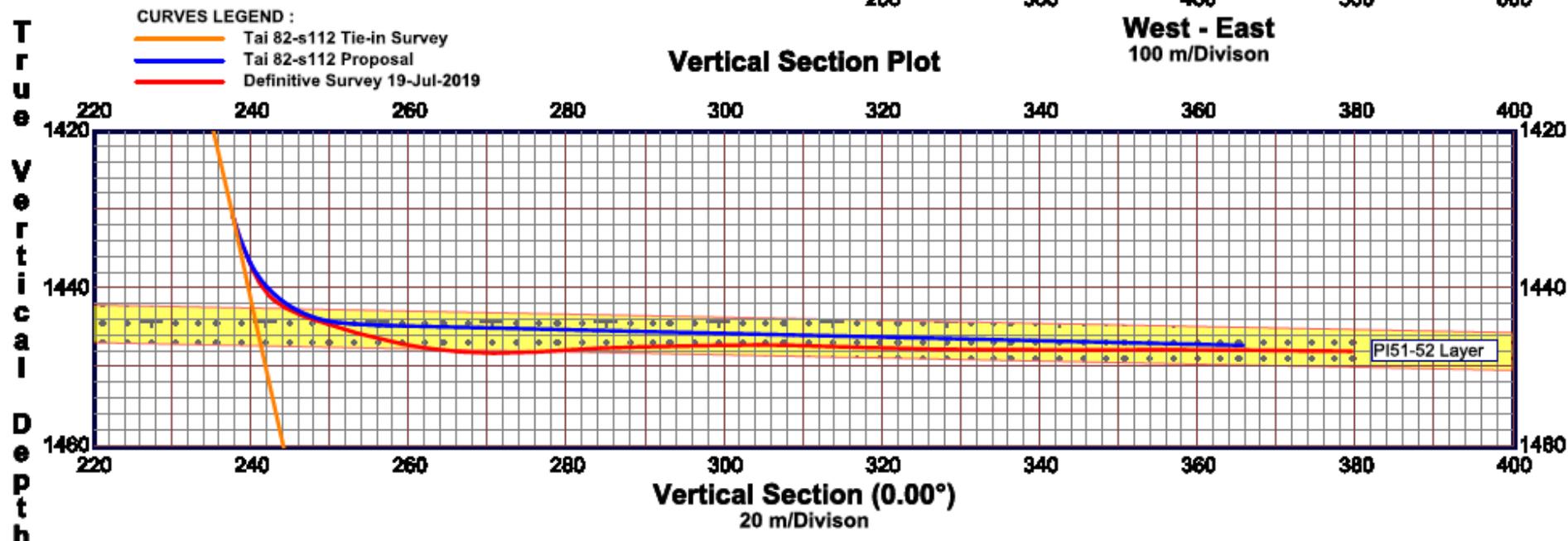
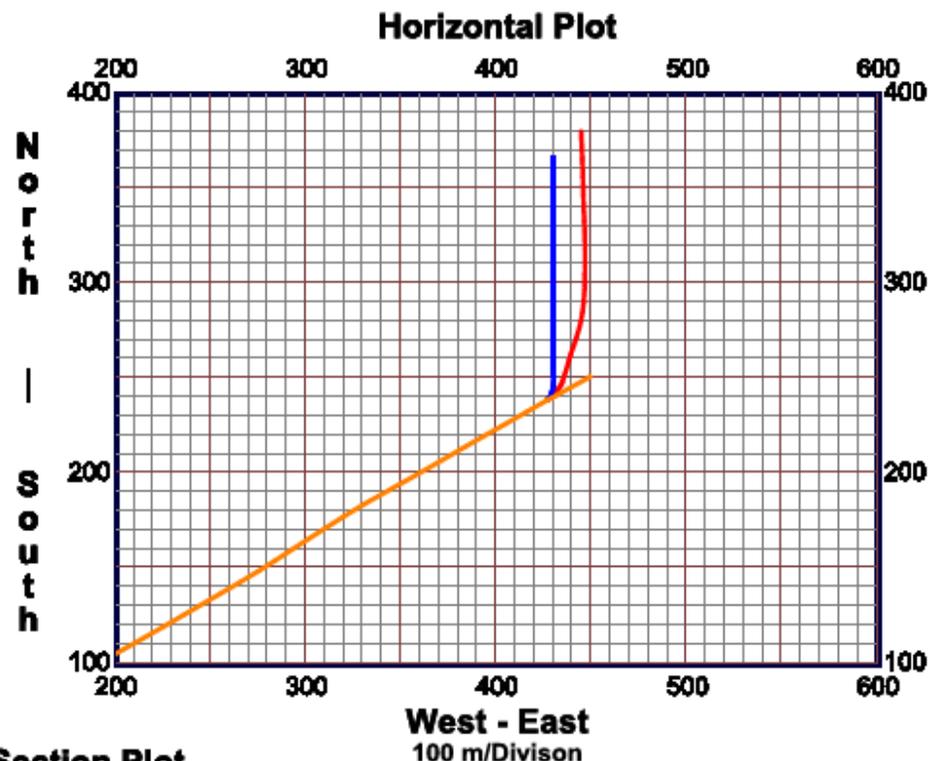
TD Reached 19-Jul-2019

Field, Company:	Toutal, Daqing Faxing	Depth Reference:	Orig. Rot. Table
Tie-in Survey Ref:	File received 14-May-2019	ORT-GL:	3.90 m
North Reference:	Grid Azimuth	GL-MSL:	125.04 m
Magnetic Dec.:	-10.68 deg (West of TN)	ORT-MSL:	128.94 m
Grid Convergence:	+1.27 (East of TN)	Target Objective:	PI51-52 Layer

Target Lithology:	PI51-52 Layer	Bottom @ orig. well (mTVDORT):	1447.39
Description:	Sandstone, Mudstone	Formation Dip:	1.12 deg
Top @ orig. well (mTVDORT):	1442.58	Dip Direction:	30 deg Grid Azimuth

Comparison (Plan mMD, Actual mD, Differences TVD, XY Planes):

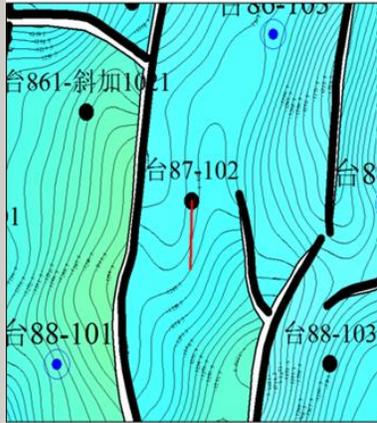
Target Landing:	1566.5, 1569.3, 1.6 m Below, 7.3 m Right
Max. TVD Separation:	1587.3, 1583.7, 3.2 m Below, 12.5 m Right
Max XY separation:	1628.3, 1632.3, 1.4 m Below, 16.3 m Right
At Plan TD:	1674.5, 1679.3, 0.6 m Below, 14.8 m Right



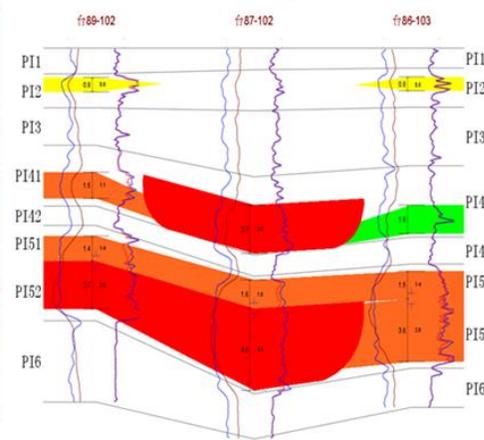


TAI 87-102

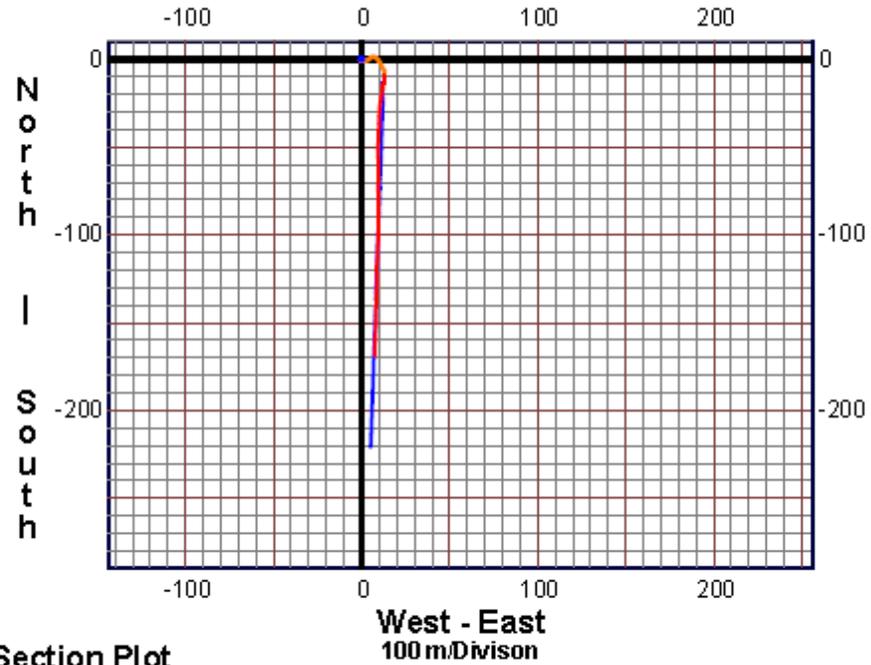
Top structural map of PI52 layer



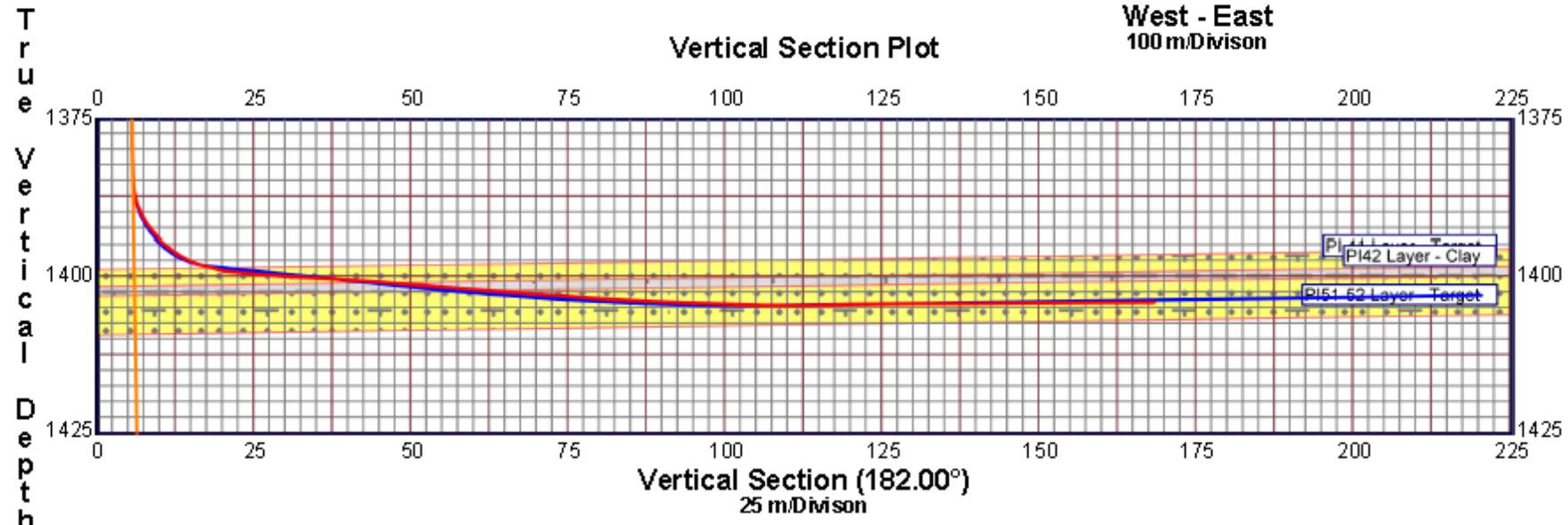
Oil layer profile map



Horizontal Plot



Vertical Section Plot





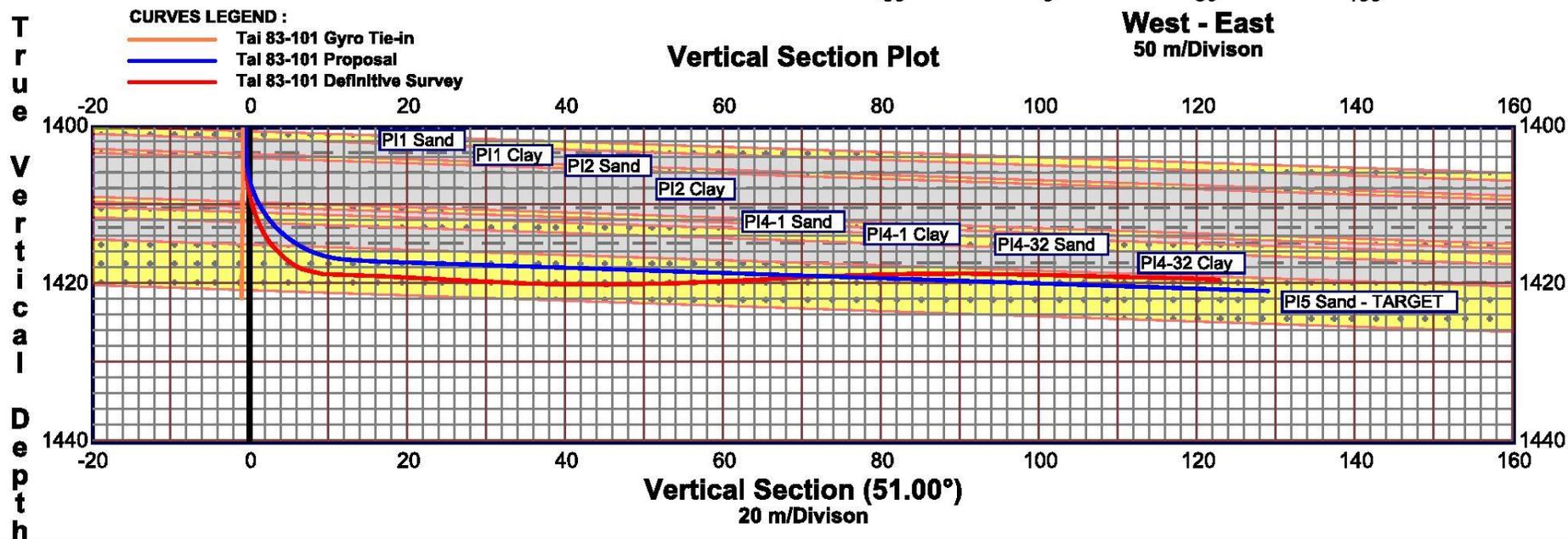
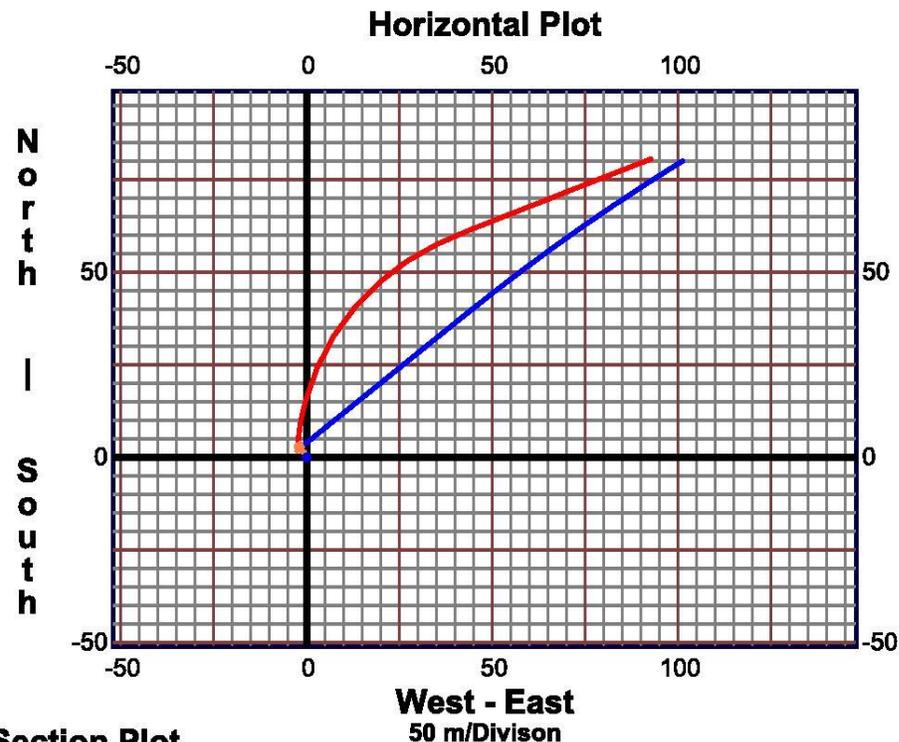
TAI 83-101

DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing Depth Reference: Orig. Rot. Table
 Tie-in Survey Ref: File received 14-May-2019 ORT-GL: 3.65 m
 North Reference: Grid Azimuth GL-MSL: 125.03 m
 Magnetic Dec.: -10.68° (West of TN) Target Objective: PI5Layer
 Grid Convergence: +1.27° (East of TN)

Lithology @ orig. well (mTVDORT): Top - Bottom
 PI51-52 Sandstone (Target): 1415.14 - 1420.94

	m MDORT (mTVDORT), Incl (°), Grid Az.(°)
ROC (m) (BUR (%/30m))	Top 5-1/2" 17# Window: 1399.1 (1399.1), 0.76, 4.05
Plan: 14.0 (127.2)	Bottom Window: 1402.1 (1402.1), 2.76, 27.78
Hole Length Through	Btm Rathole / KOP: 1404.2 (1404.1), 1.40, 48.00
PI5 Target: 129.2 m MD	PI5 Target Entry Point: 1415.8 (1414.6), 44.90, 7.05
	EOC / Start 3-7/8" Lat: 1427.5 (1418.9), 88.20, 17.27
	Well TD: 1545.0 (1419.6), 88.20, 68.87



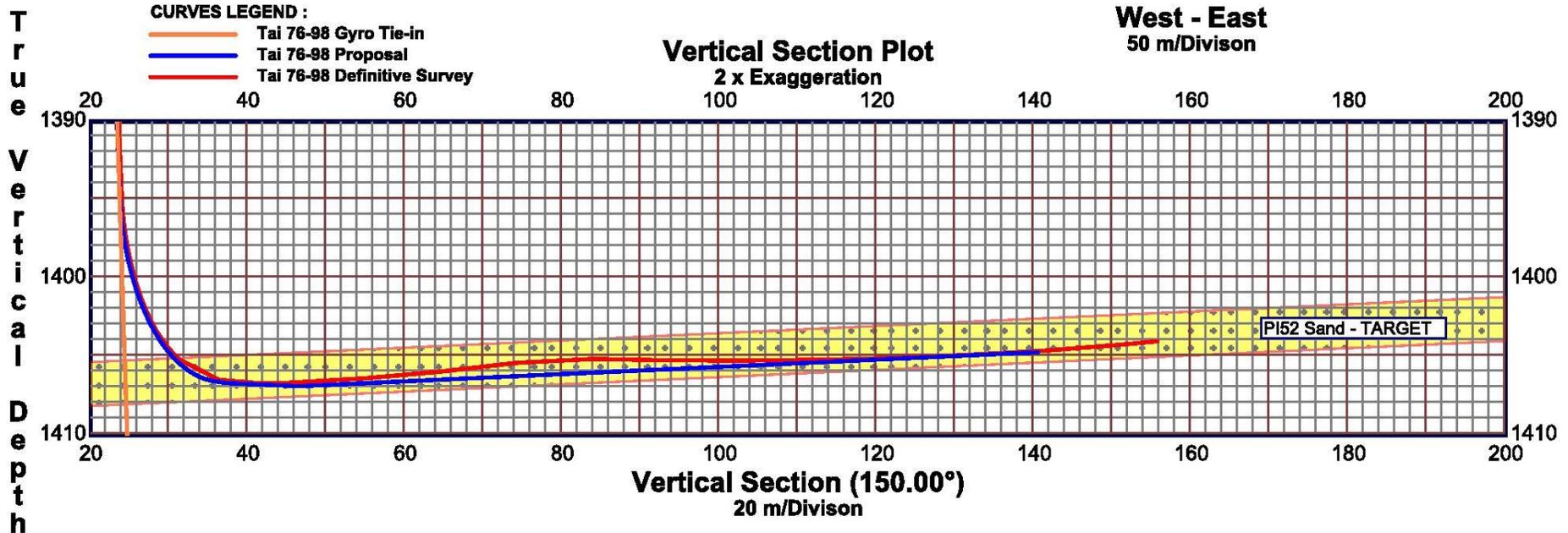
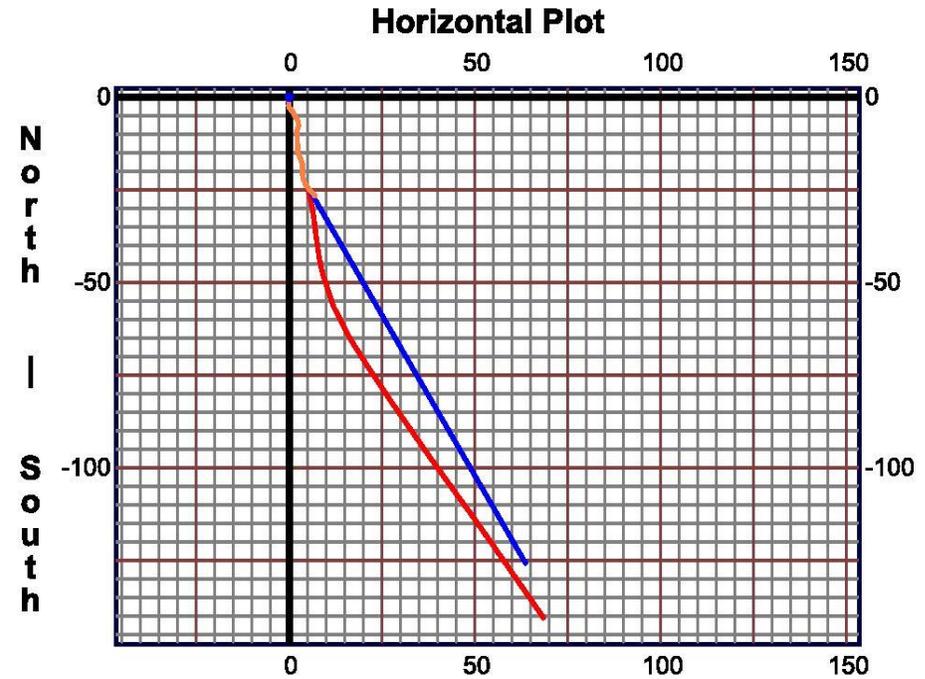


TAI 76-98 DEFINITIVE SURVEY

Field, Company: Toutai, Daqing Fanxing Depth Reference: Orig. Rot. Table
 Tie-in Survey Ref: File received 14-May-2019 ORT-GL: 4.50 m
 North Reference: Grid Azimuth GL-MSL: 126.66 m
 Magnetic Dec.: -10.68° (West of TN) Target Objective: PI52 Layer
 Grid Convergence: +1.27° (East of TN)

Lithology @ orig. well (mTVDORT): Top - Bottom
 PI52 Sandstone (Target): 1405.4 - 1408.2

	m MDORT (mTVDORT), Incl (°), Grid Az.(°)
ROC (m) (BUR (°/30m))	Top 5-1/2" 17# Window: 1390.1 (1389.7), 5.49, 150.00
Plan: 13.3 (137.3)	Bottom Window: 1393.1 (1392.7), 4.00, 165.00
Hole Length Through	Btm Rathole / KOP: 1395.2 (1394.8), 5.50, 165.00
PI52 Target: 128.0 m MD	PI52 Target Entry Point: 1407.2 (1404.5), 60.20, 170.65
	EOC / Start 3-7/8" Lat: 1414.6 (1406.6), 85.60, 173.35
	Well TD: 1535.2 (1404.1), 92.70, 145.25



CURVES LEGEND :
 — Tai 76-98 Gyro Tie-in
 — Tai 76-98 Proposal
 — Tai 76-98 Definitive Survey

PI52 Sand - TARGET

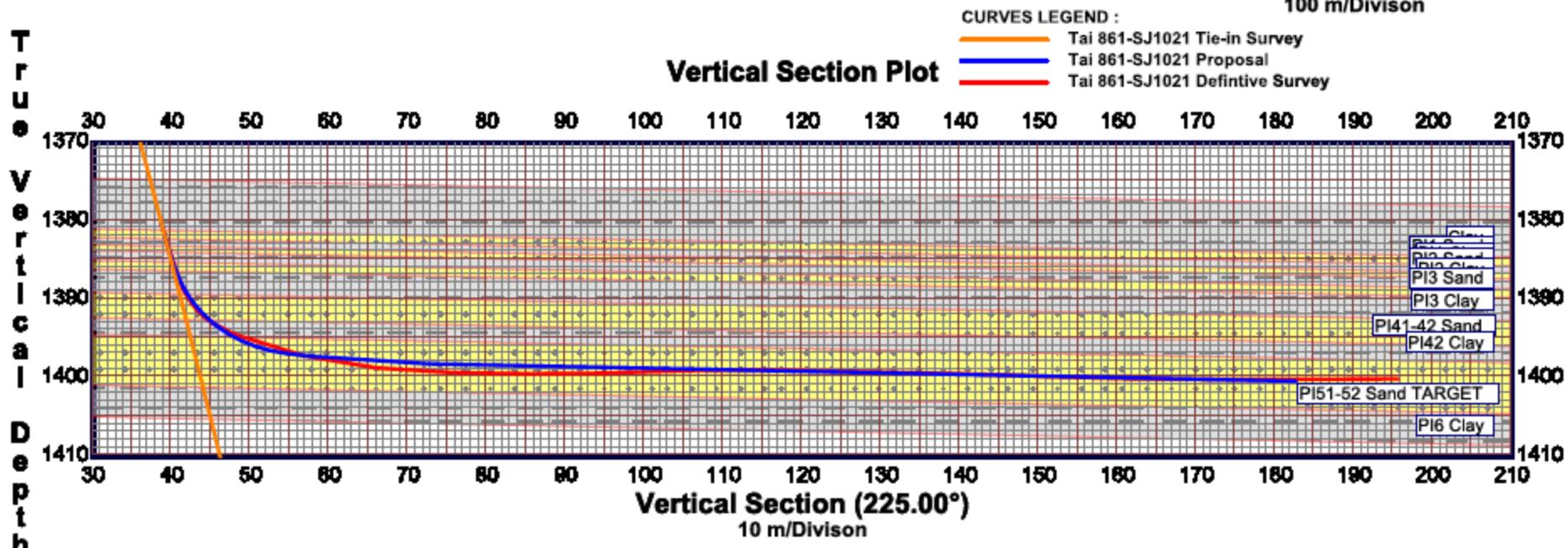
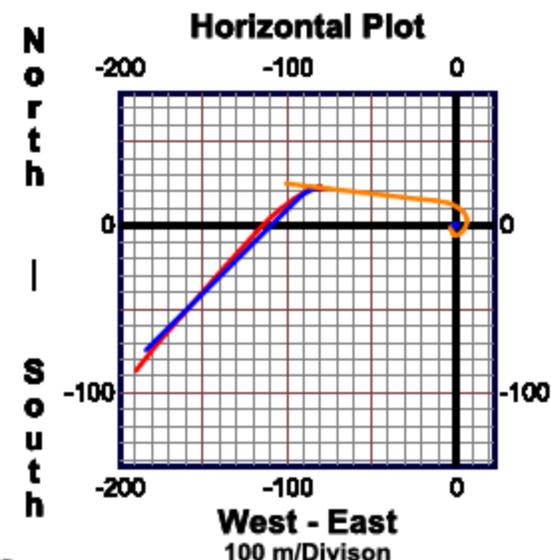
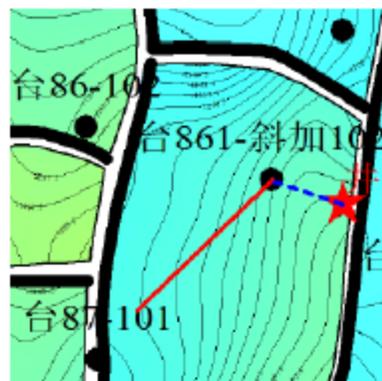


TAI 861-SJ1021 - DEFINITIVE SURVEY

Field, Company: Toutal, Daqing Faxing
 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





TAI 73-S89 - DEFINITIVE SURVEY

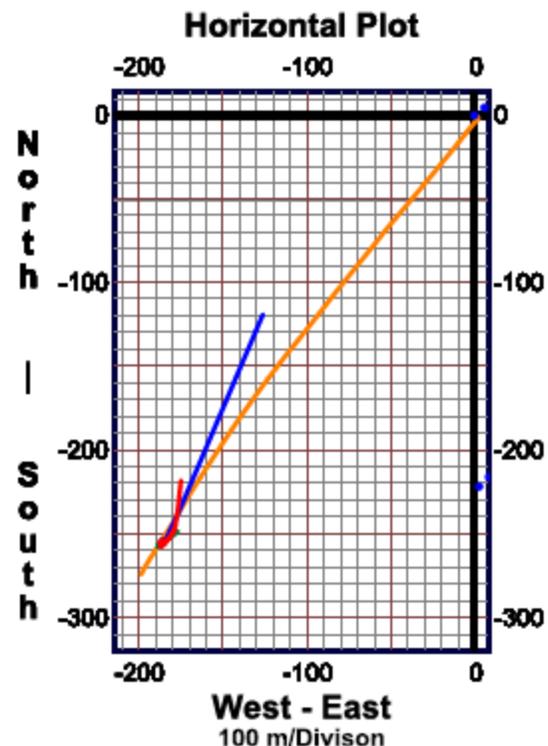
Field, Company:	Tai Block 105, Daqing Fanxing	Depth Ref.: Orig.Rot.Table
Tie-in Survey Ref:	Original Well Survey	ORT-GL: 4.10 m
North Reference:	Grid Azimuth	GL-MSL: 127.36 m
Magnetic Dec.:	-10.30° (West of TN)	Target Objective: PI51-52
Grid Convergence:	+1.29° (East of TN)	Layer Thickness: 4.10 m

ST1

Whipstock, 5-1/2" 17# Casing MWD Oriented to 211° GN (Plan 23°)
 Top Whipstock 1432.6, Rathole to 1437.6 (KOP)
 4-1/2" Curve: 1470.9 EOC, 20.4 m ROC (91°/30m DLS)

ST2

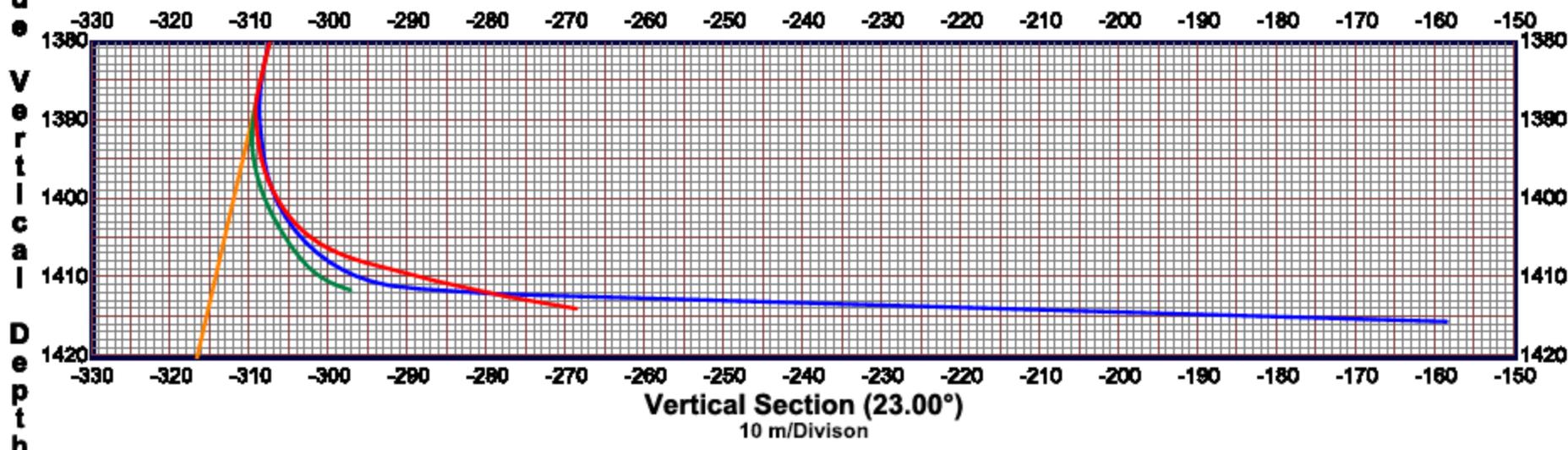
Whipstock, MWD Oriented to 206° GN (Plan 23°)
 Top Whipstock 1422.0, Bottom Window 1425.0, Rathole to 1428.6 (KOP)
 4-1/2" Curve: 1465.0 EOC, 19.0 m ROC (102°/30m DLS)
 3-7/8" Lateral: 1490.4 m MD



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





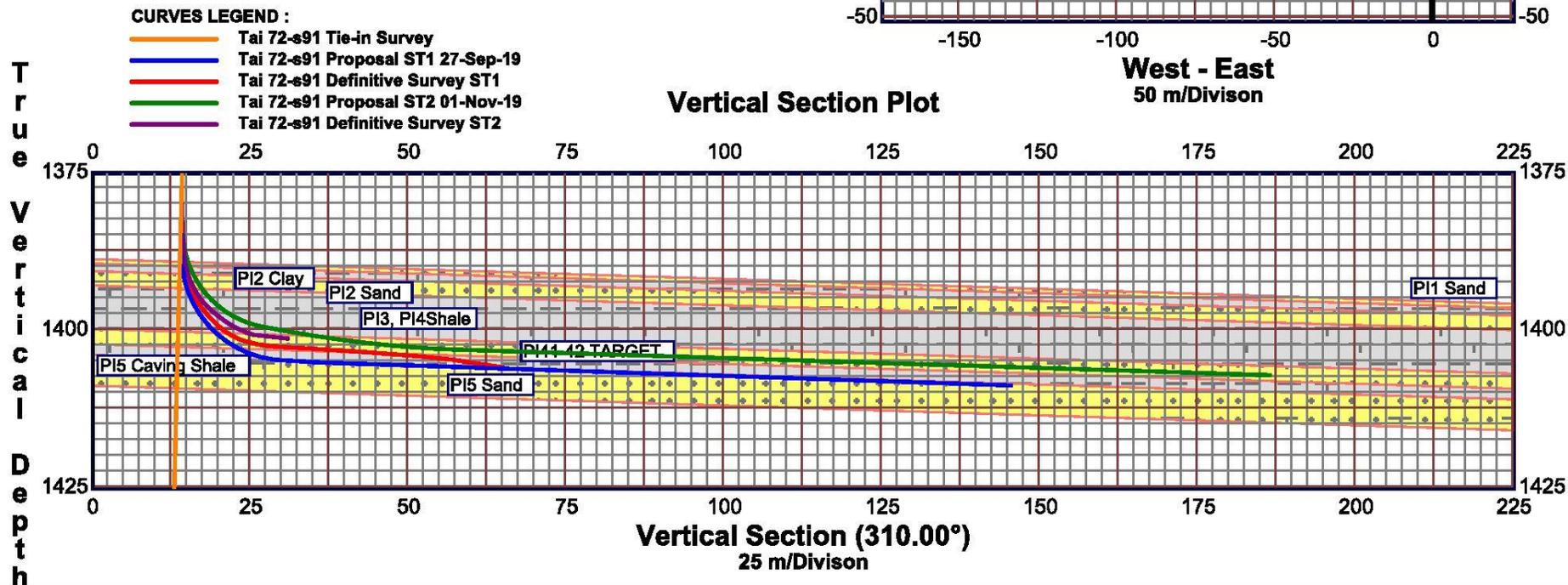
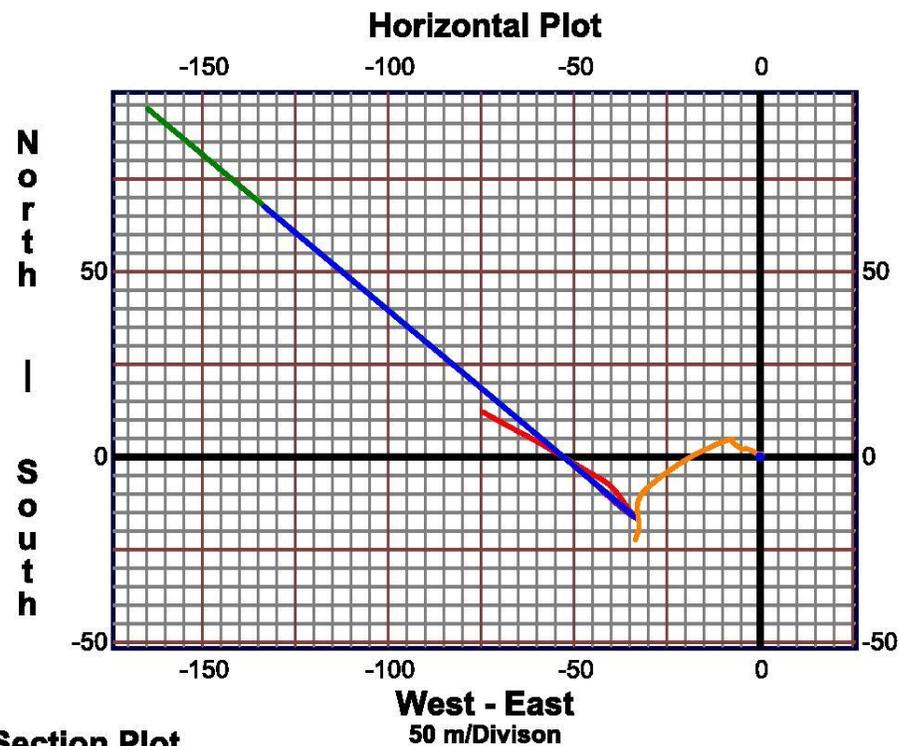
TAI 72-S91

DEFINITIVE SURVEY ST1, ST2

Field, Company:	Toutai, Daqing Fanxing	Depth Reference:	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 Objective:	PI51-52 (ST1) PI41-42 (ST2)

Target Lithology:	Sandstone	Formation Dip:	1.80 deg downdip
Target Landing @ Original Wellbore		Dip Direction:	310 deg Grid Azimuth
ST1: 1405.30 m TVDORT (PI51-52)		ST2: 1401.90 m TVDORT (PI41-42)	
Actual ROC (Plan), m: 15.4 (16.7)		Actual ROC (Plan), m: 16.3 (15.4)	

NOTE: ST1 and ST2 Lateral Drillings Aborted due to PI5 Shale and PI3,4 Shale Collapsing, Respectively.





TAI 85-103 - DEFINITIVE SURVEY

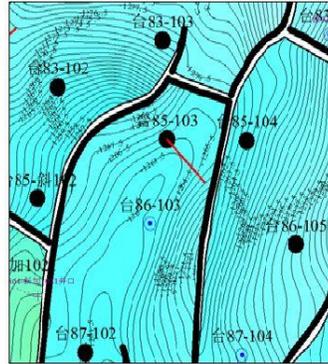
Field, Company: Toutai, Daqing Fanxing
Tie-in Ref: Gyro Multishot 08-Nov-2019

Azim. Ref: Grid North
Magnetic Dec.: -10.58° (W of TN)
Grid Converg.: +1.31° (E of TN)

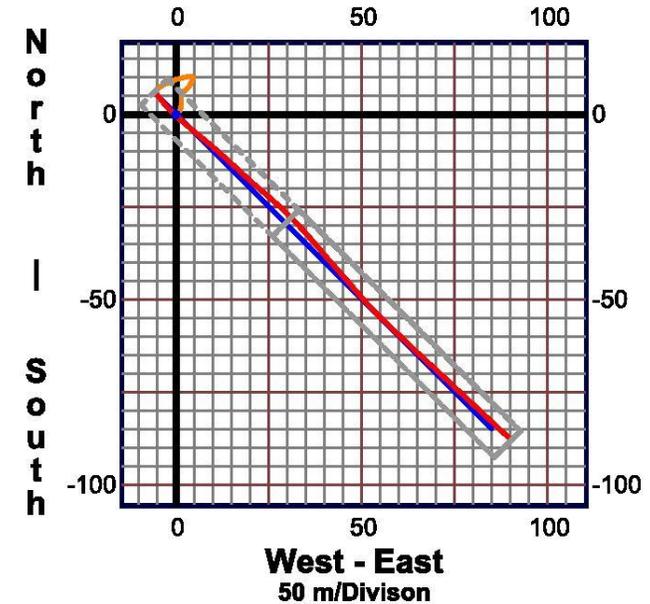
Depth Datum: Orig. Rot. Table
ORT-GL: 4.70 m
GL-MSL: 126.91 m

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:

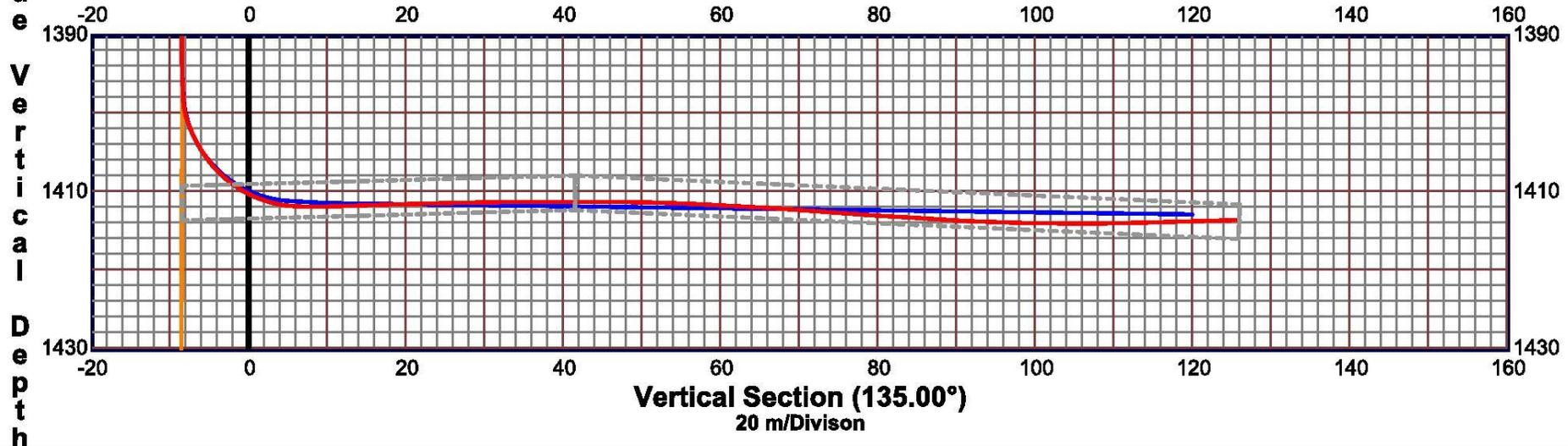
Structure: 1.52° updip from orig. well @ Top PI-51-52 Target to 50 m displacement, 2.50° down dip from 50 to (extended) Target TD.

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 down dip to Well TD
ACTUAL : 1.2 m Below-, 1.1 m Left- and 9.5 m in Front of the Proposal

CURVES LEGEND :

- Tal 85-103 Tie-In Gyro Survey
- Tal 85-103 Proposal 120m f/well ctr
- Tal 85-103 Definitive Survey

Vertical Section Plot





TAI 85-104 - DEFINITIVE SURVEY - 1576.0 m Well TD

Field, Company: Toutai, Daqing Fanxing
 Tie-in Survey Ref: Gyro Multishot 08-Nov-2019
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.586 deg (West of TN)
 Grid Convergence: +1.31(East of TN)

Wellbore Summary (m MD):
 Window: 5-1/2" 17# Whipstock 1385.0 - 1387.6
 Rathole: 1387.6 - 1390.0 KOP
 4-1/2" Curve Section: 1390.0 - 1408.2 EOC
 Radius of Curvature (BUR): 15.8 m (115°/30m)
 3-7/8" Lateral Section: 1408.2 - 1576.0
 Target Entry 1411.4, EOC 1420.3, ROC 14.8 m
 Hole Length in Reservoir: 128.9 m

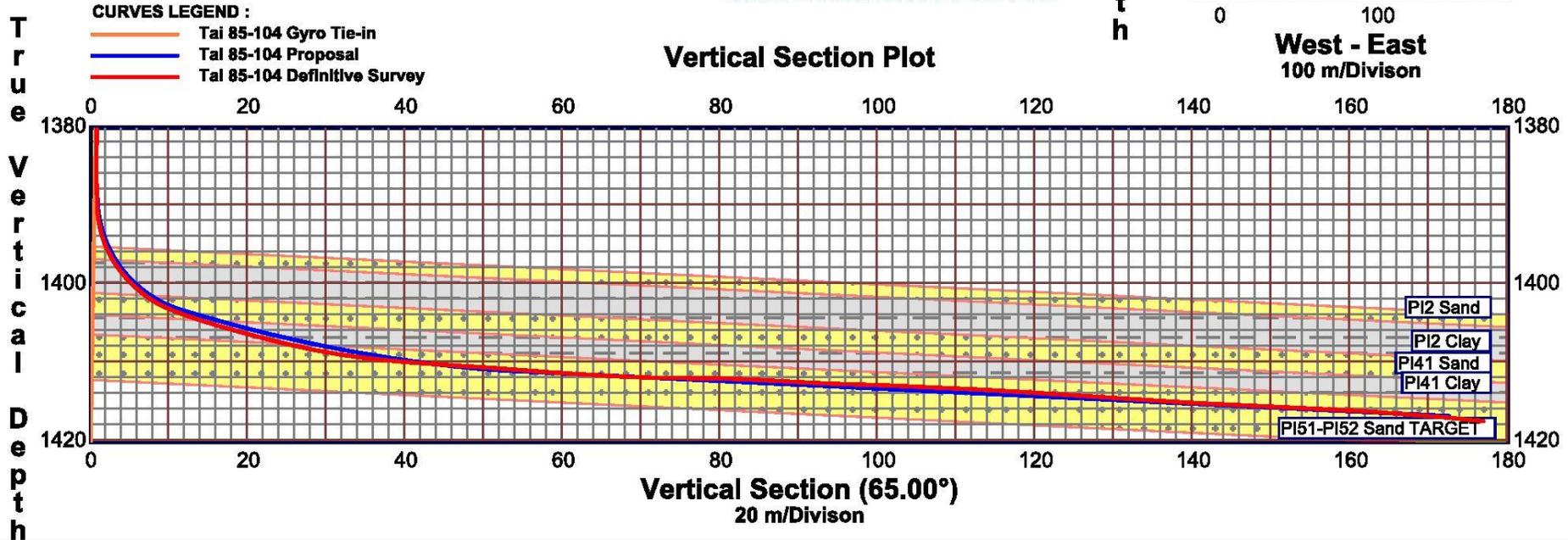
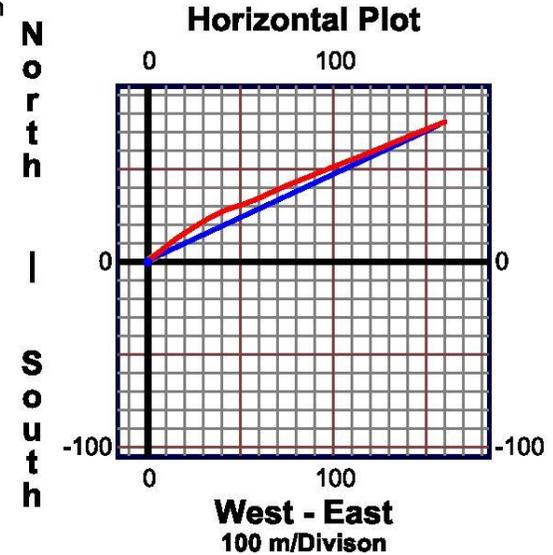
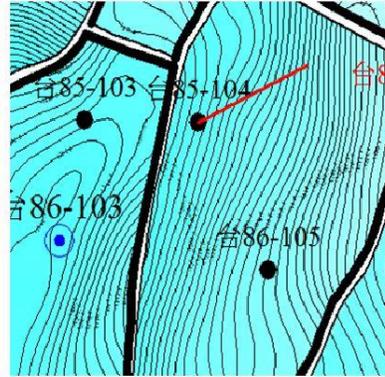
Datum: Orig. Rot. Table
 ORT-GL: 3.62 m
 GL-MSL: 125.63 m
 Target Objective: PI51-52

Target Landing:
 1451.4, 1410.9 m TVD,
 52.8 m VS, 0.16 m ABOVE,
 6.6 m LEFT of the Proposal
 Length from Target Landing
 to Well TD: 123.3 m MD

Well TD: Same TVD as-
 0.7 m LEFT of-, 0.1 m in
 FRONT of the Proposal

PLAN vs STRUCTURE ALONG 65° TARGET AZ.

From the orig. well : 2.76° Downdip. Proposed trajectory targets sweet spot in PI51-52 Layer. Estimated distance from Fault @ Target in Orig.Well: 44 m





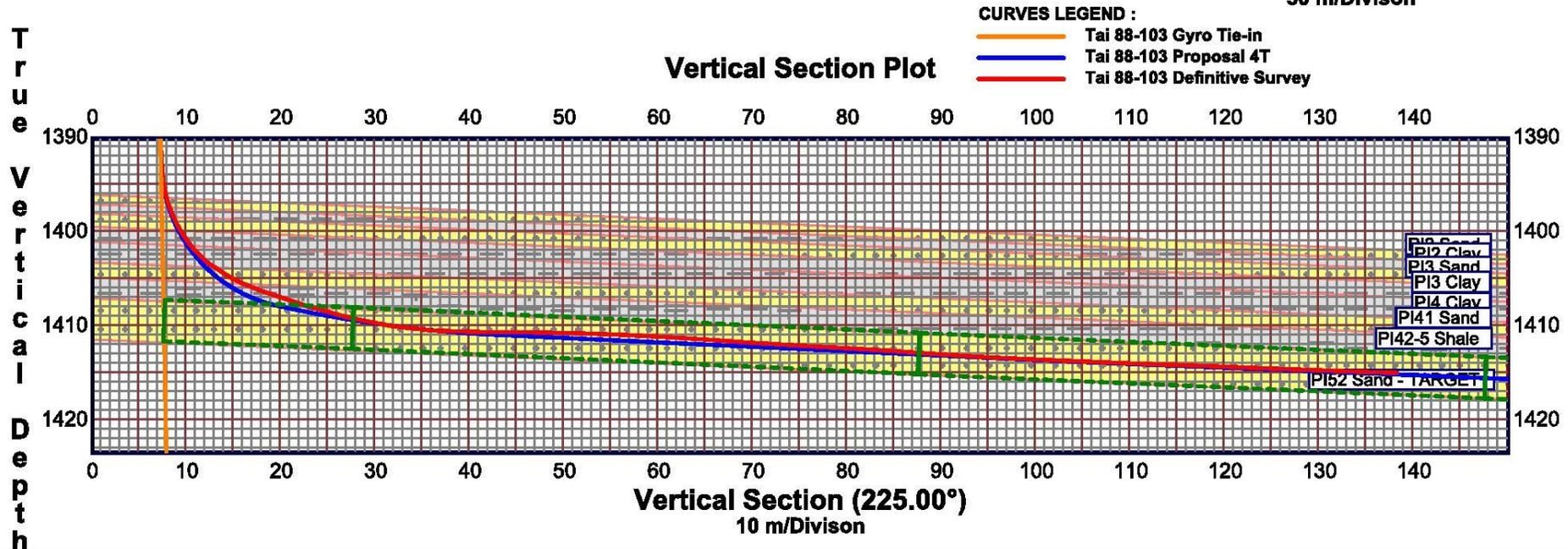
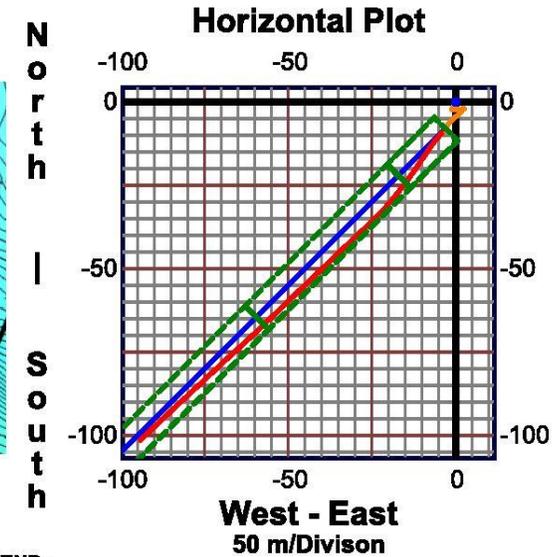
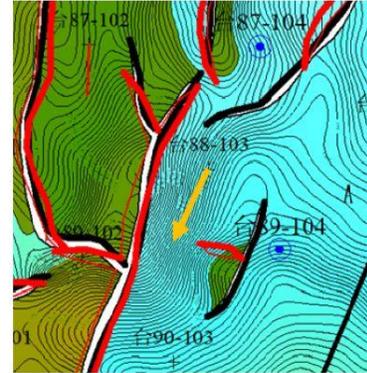
TAI 88-103 - DEFINITIVE SURVEY

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

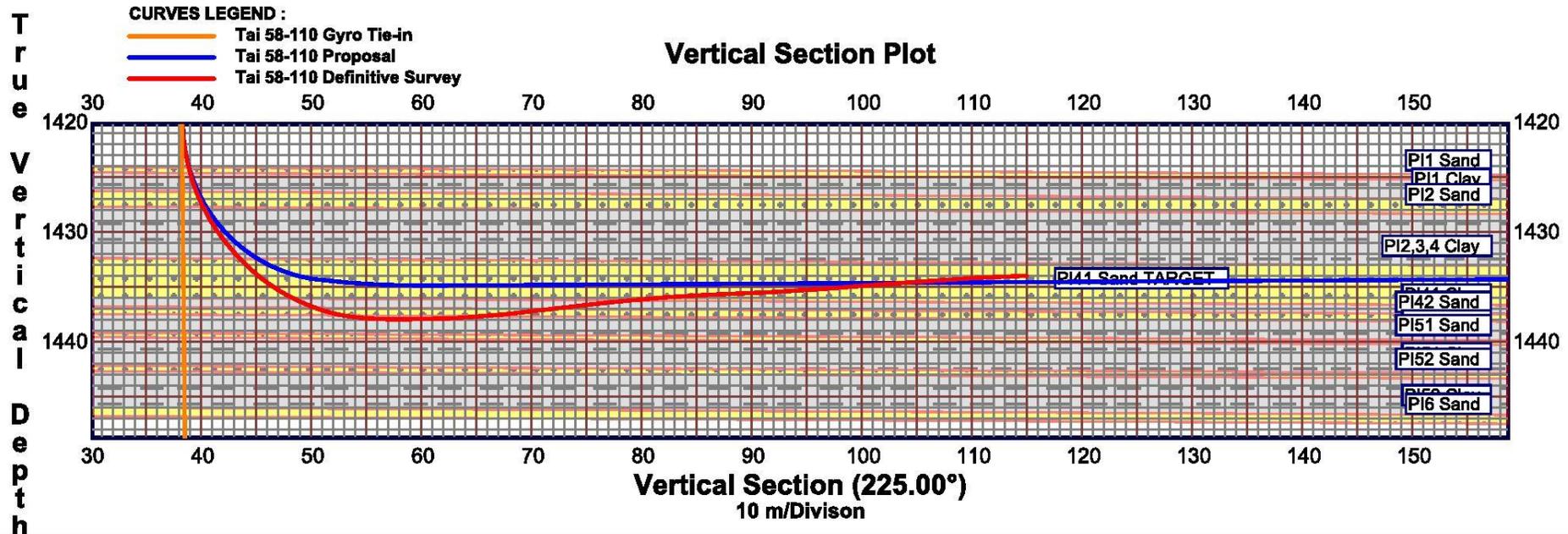
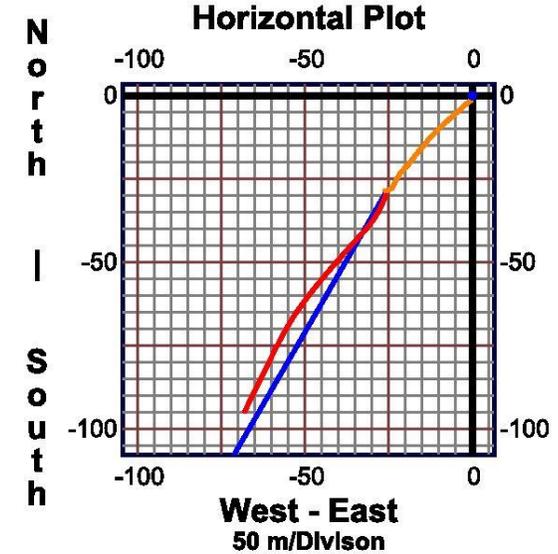
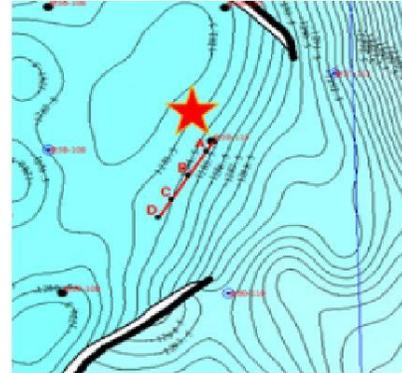




TAI 58-110 - DEFINITIVE SURVEY

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



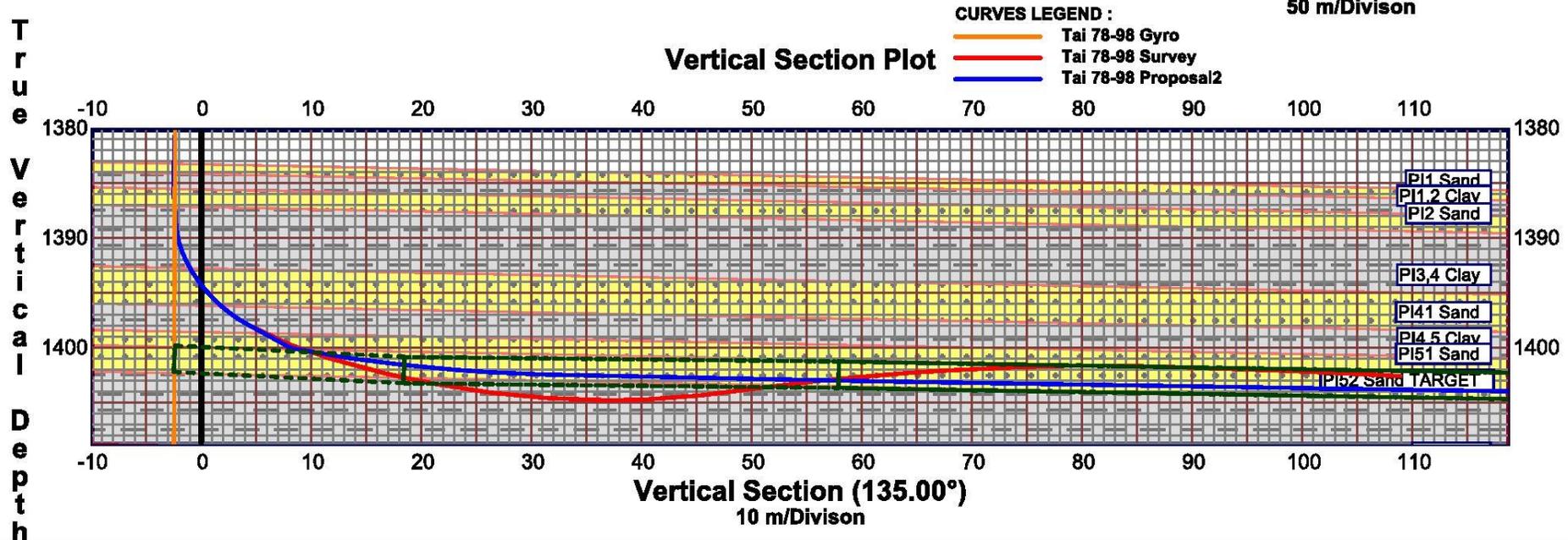
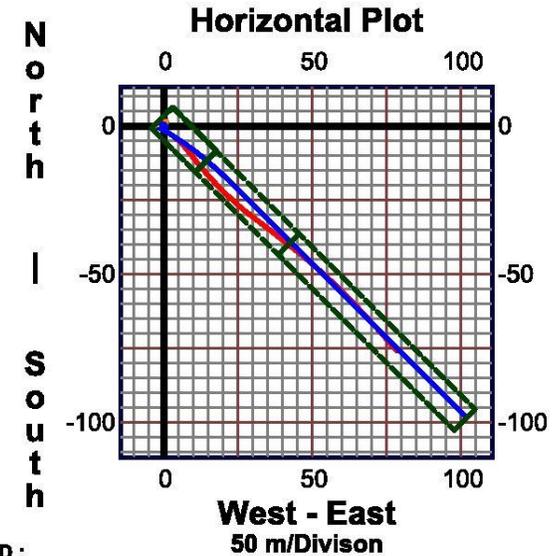
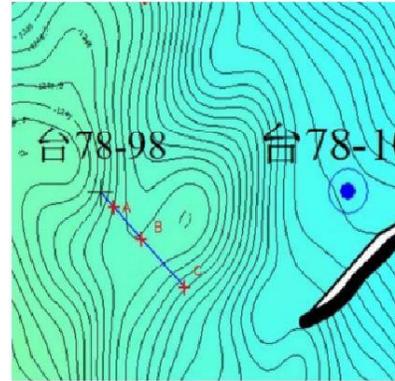


TAI 78-98 - DEFINITIVE SURVEY

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)





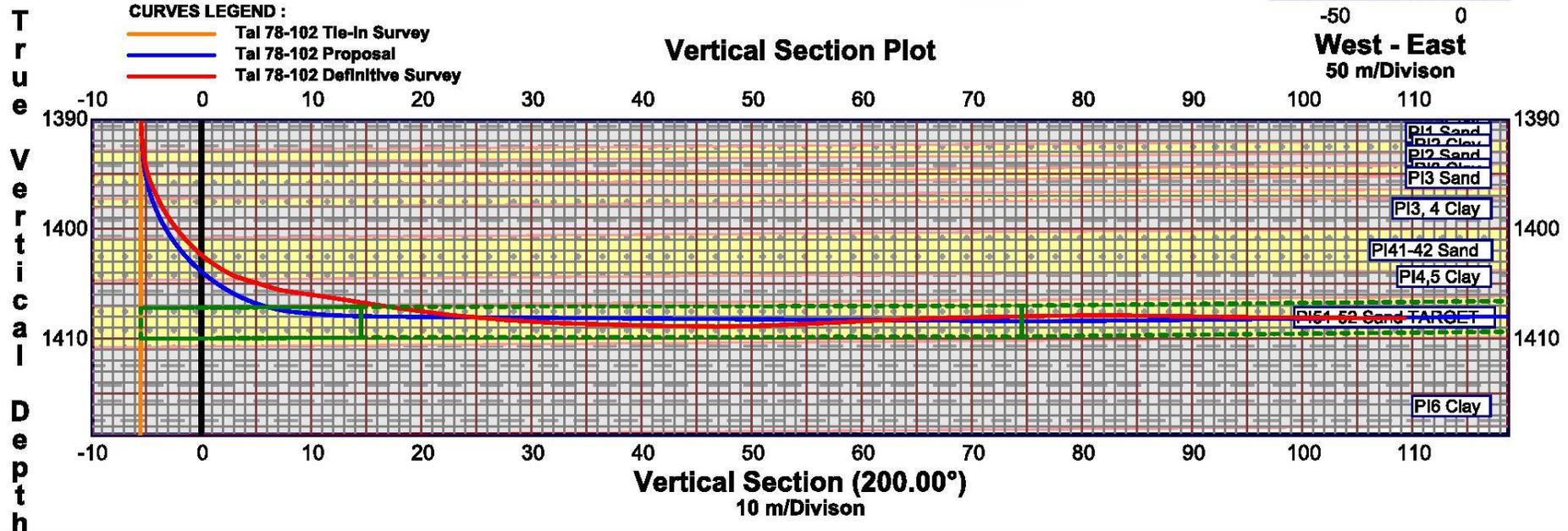
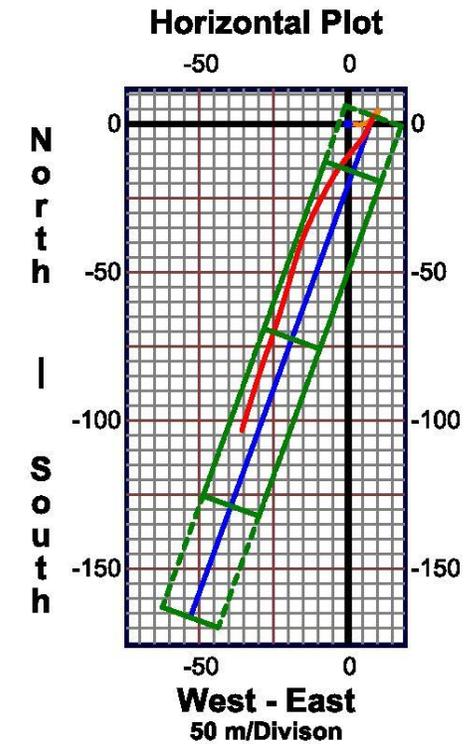
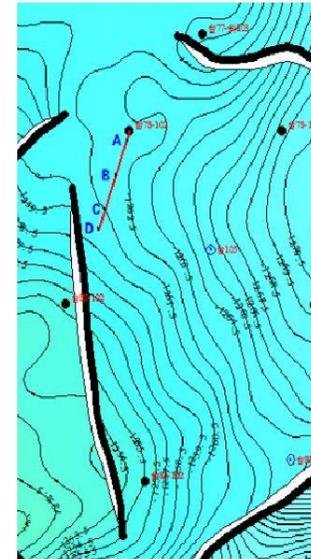
TAI 78-102 - DEFINITIVE SURVEY

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





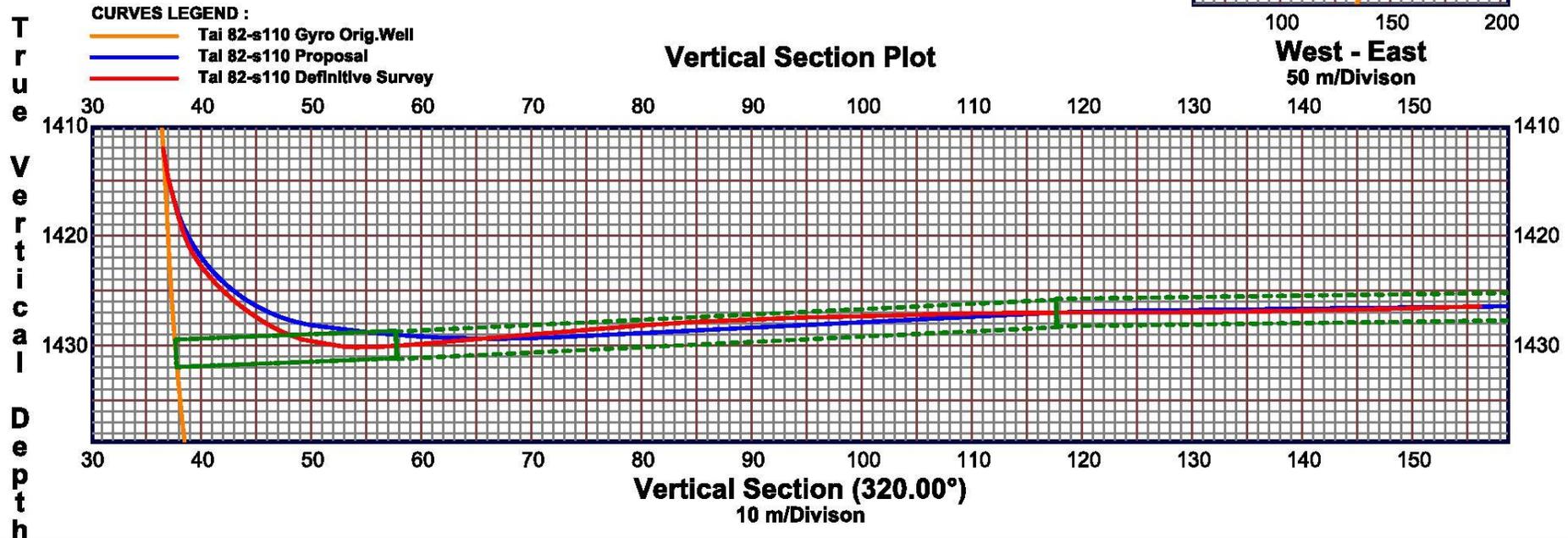
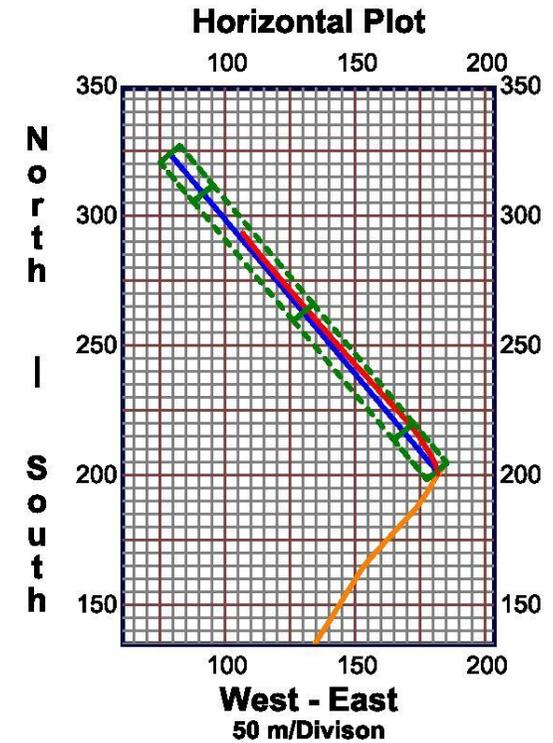
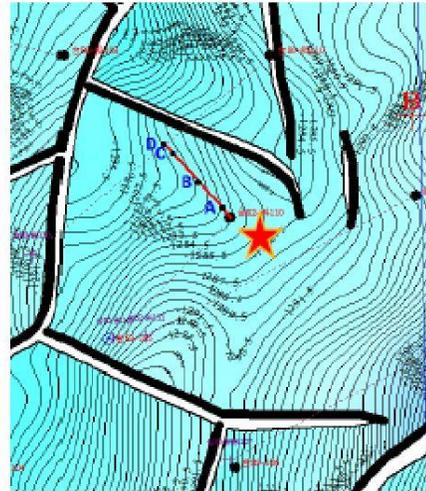
TAI 82-S110 - DEFINITIVE SURVEY

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





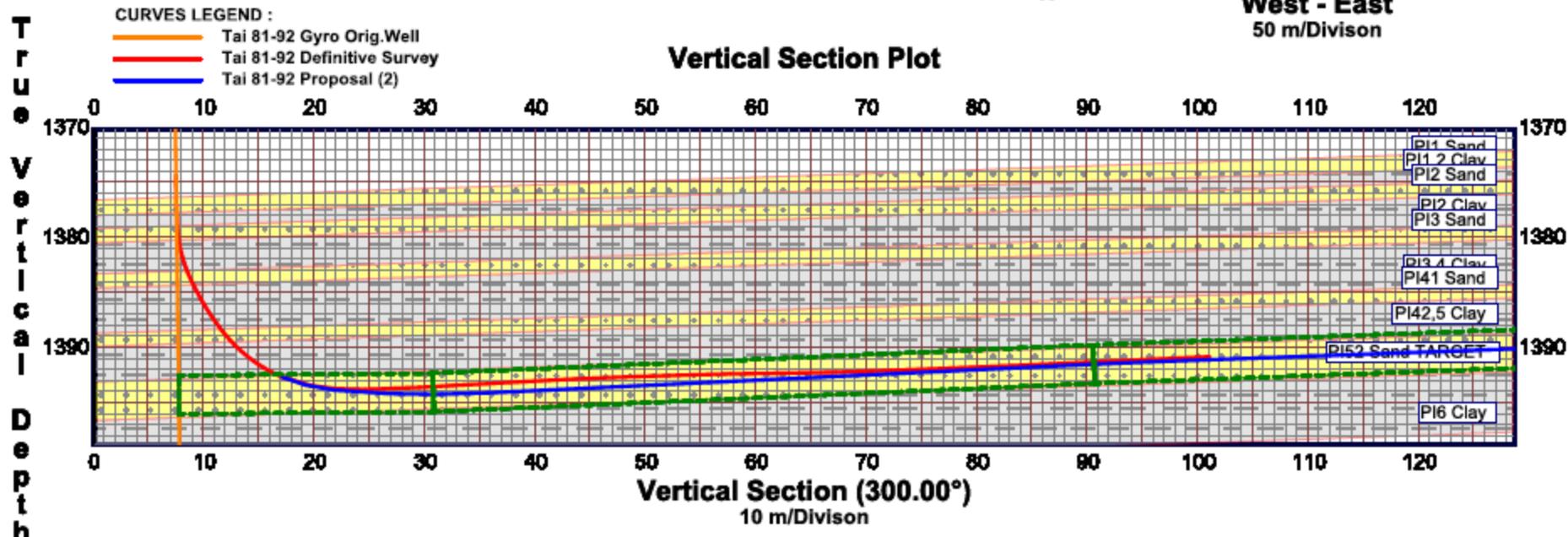
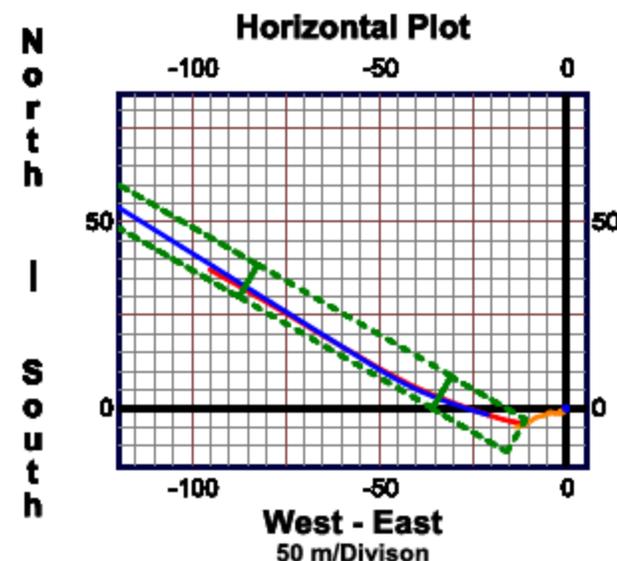
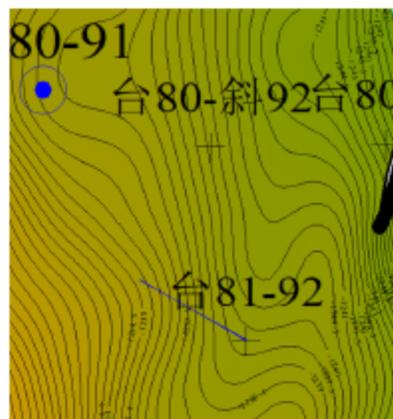
TAI 81-92 - DEFINITIVE SURVEY

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



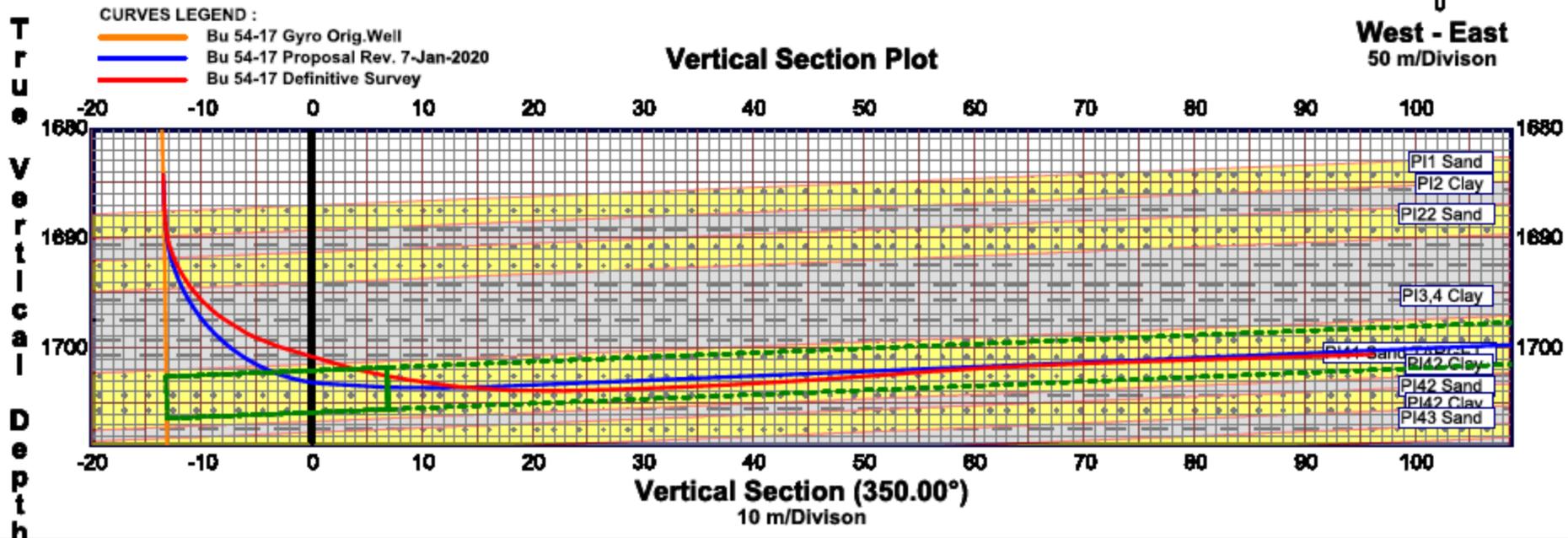
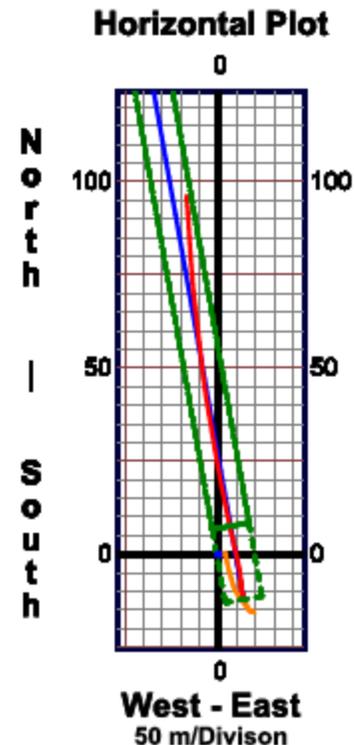
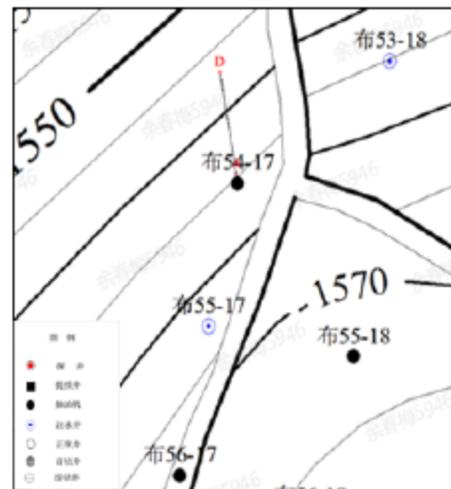


BU 54-17 - DEFINITIVE SURVEY

Field, Company: Bumug, Daqing Fanxing 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

Control Points as Targets Along 350.00° Dip Direction:
 Target m TVD m VS Dip Angle Proposal mMD, Target Comparison
 Target A 1703.7 6.86 Up 2.35° 1715.3, 1.8 m ABOVE Target
 Target D 1695.7 206.85 Up 2.30° TD Called @ 1805.0 m, 100 m from EOC

At Projected Well TD 1805.0 m MD:
 0.4 m BELOW, 3.7 m RIGHT, 0.4 m in FRONT of the Proposal @ 1806.4 m MD





TAI 76-86 - DEFINITIVE SURVEY

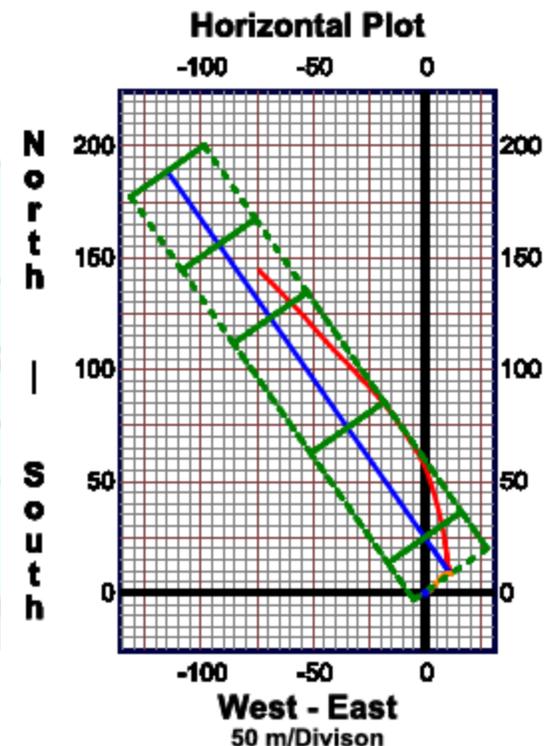
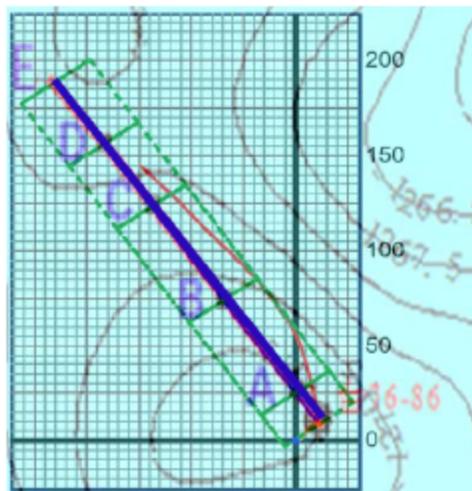
TD on 11-Mar-20 @ 1579.5 m MD, 1418.0 TVD, 161.1 m VS

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)

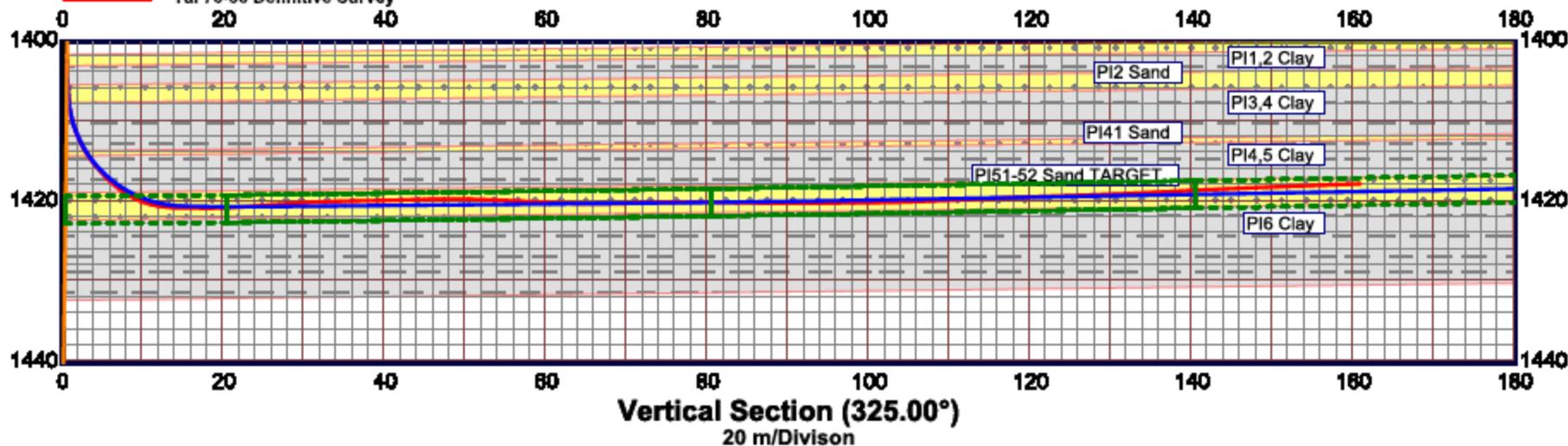


True Vertical Depth

CURVES LEGEND :

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

Vertical Section Plot





TAI 75-91 - DEFINITIVE SURVEY

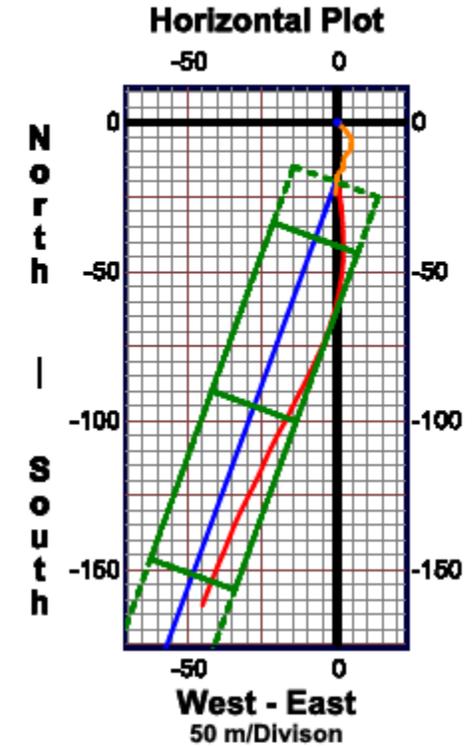
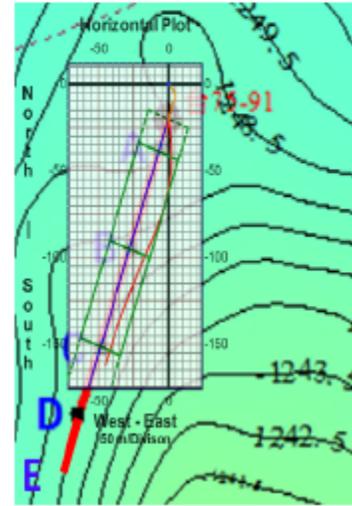
Field, Company: Toutai, Daqing Fanxing
 Tie-in Survey Ref: Gyro Multishot
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.595° (West of TN)
 Grid Convergence: +1.29° (East of TN)

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

Exit: Whipstock, 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)

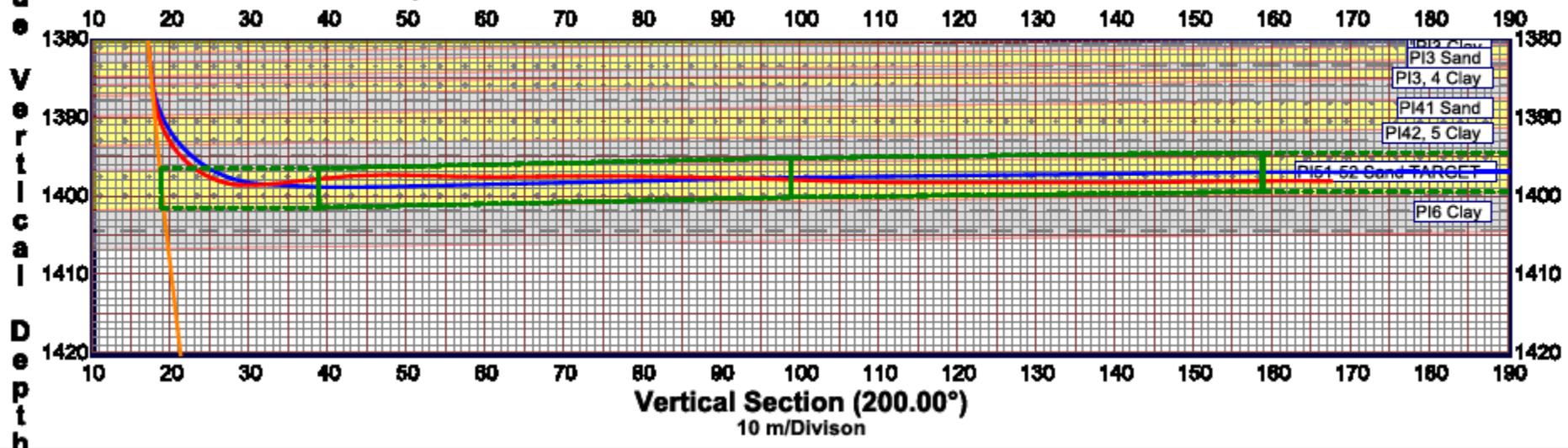
Control Point as Targets Along 200.00° Dip Direction / Target Azimuth:

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



CURVES LEGEND :
 — Tai 75-91 Gyro Orig Well
 — Tai 75-91 Proposal
 — Tai 75-91 Definitive Survey

Vertical Section Plot





GU 85-56 - DEFINITIVE SURVEY

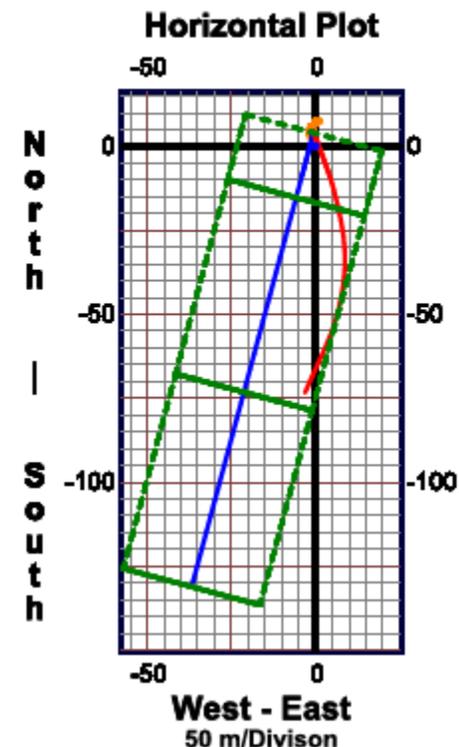
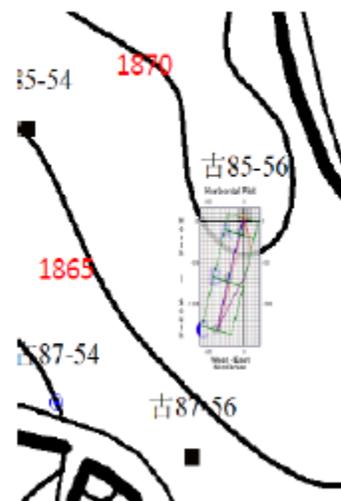
At 2102.0 m Well TD: 0.3 m Below, 17.4 m Left of The Proposal

Field, Company: Tai Block 137, 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 180° 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 (104°/30m DLS)

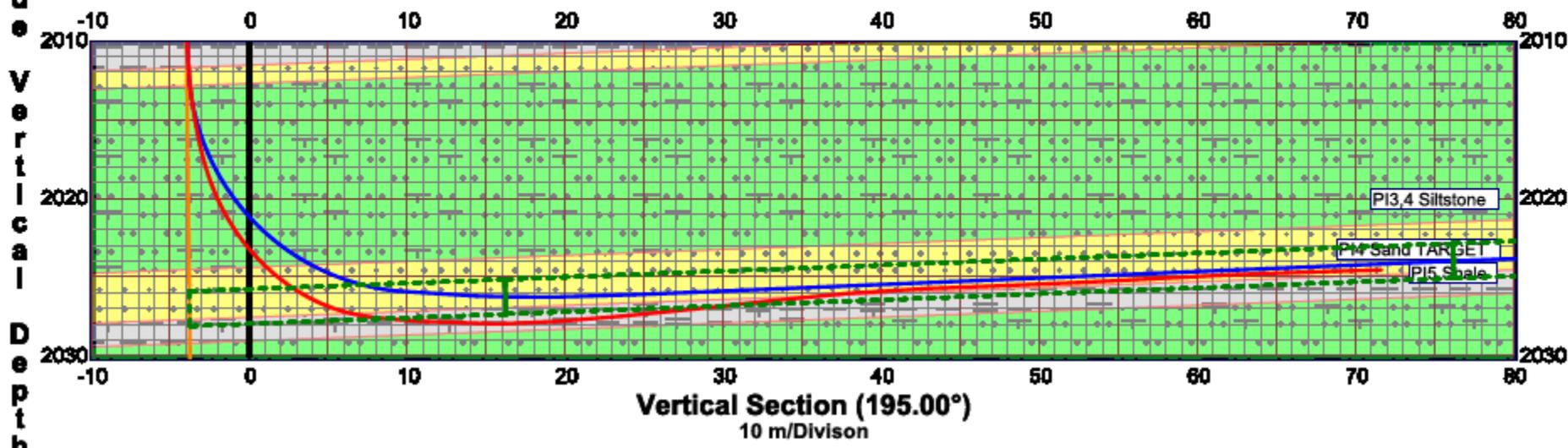
Control Point as Targets Along 195.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Proposal 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°	TD Called
C	2021.71	136.19	Up 2.17°	TD Called



CURVES LEGEND :
 — Gu 85-56 Gyro Orig Well (Orange)
 — Gu 85-56 Proposal (Blue)
 — Gu 85-56 Definitive Survey (Red)

Vertical Section Plot





TAI 73-90 - DEFINITIVE SURVEY

At 1563.5 m Well TD- Same TVD and 1.5 m Right of The Proposal

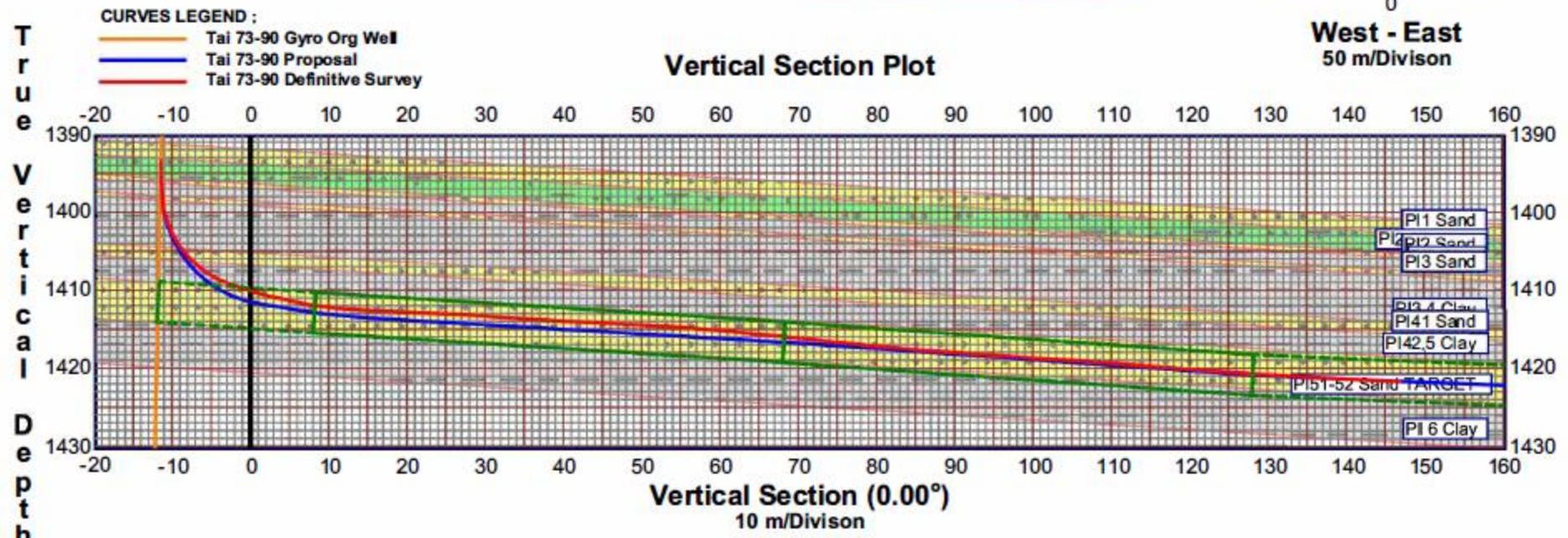
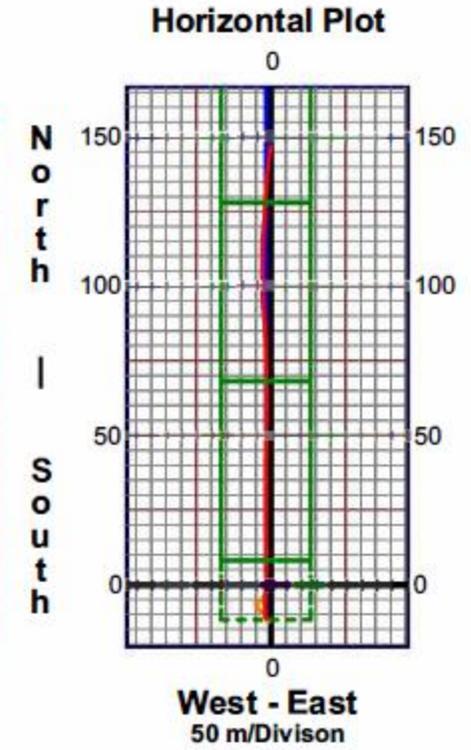
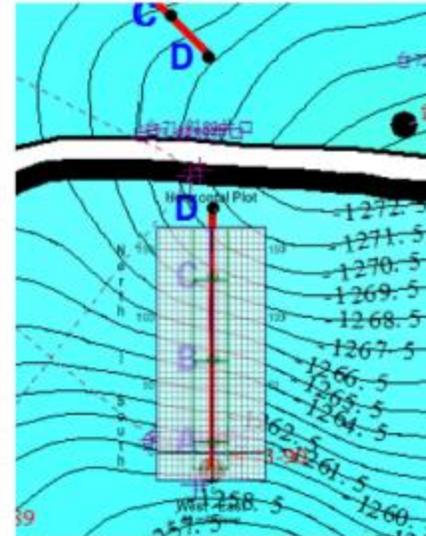
Field, Company: Tai Block 105, Daqing Fanxing
 Tie-in Survey Ref: Gyro Multishot
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.600° (West of TN)
 Grid Convergence: +1.29° (East of TN)

Depth Ref.: Orig.Rot.Table
 ORT-GL: 4.00 m
 GL-MSL: 128.20 m
 Target Objective: PI51-52
 Layer 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

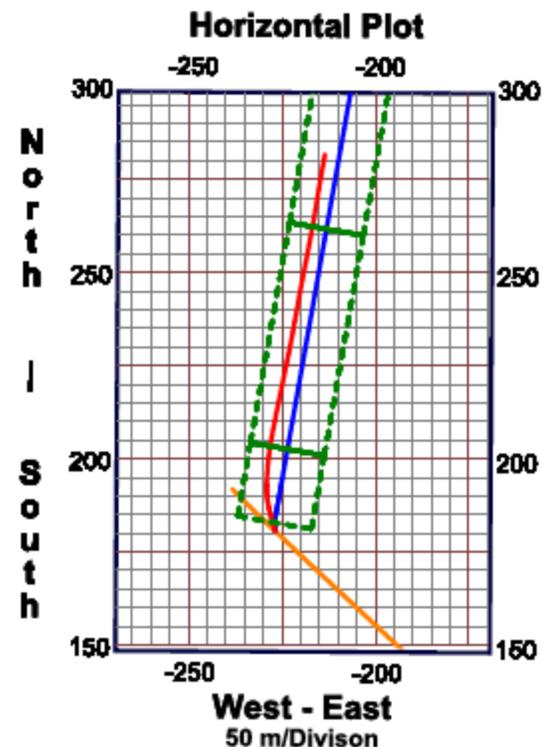
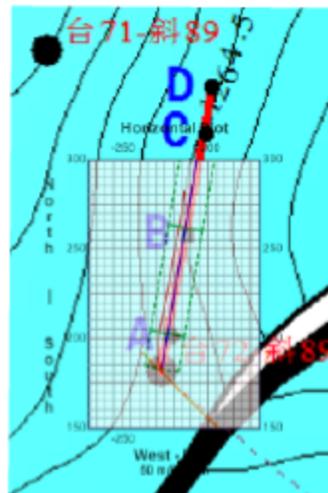
At 1566.7 m Well TD: 0.4 m Below, 3.9 m Left of The Proposal

Field, Company: Tai Block 105, Daqing Faxing Depth Ref.: Orig.Rot.Table
 Tie-in Survey Ref: MWD 07-Mar-04 ORT-GL: 4.00 m
 North Reference: Grid Azimuth GL-MSL: 128.09 m
 Magnetic Dec.: -10.598° (West of TN) Target Objective: PI51-52
 Grid Convergence: +1.29° (East of TN) 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)

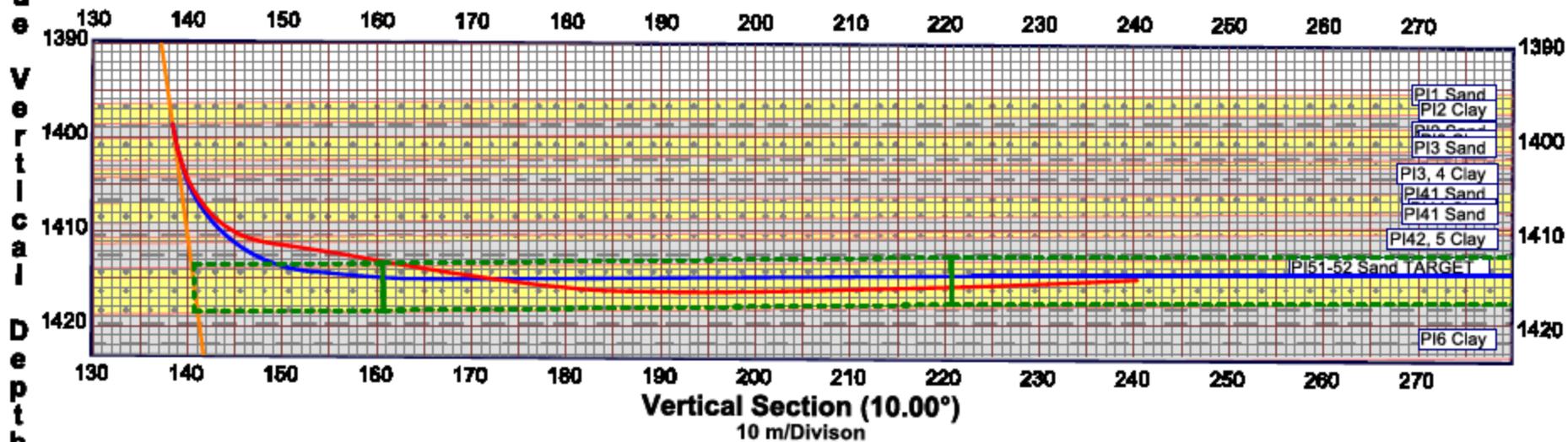
Targets Along 10° Dip Direction / Target Azimuth:

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

Vertical Section Plot



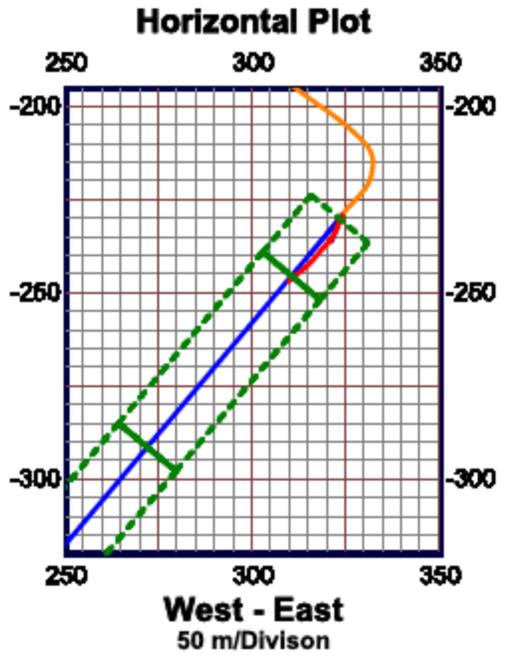
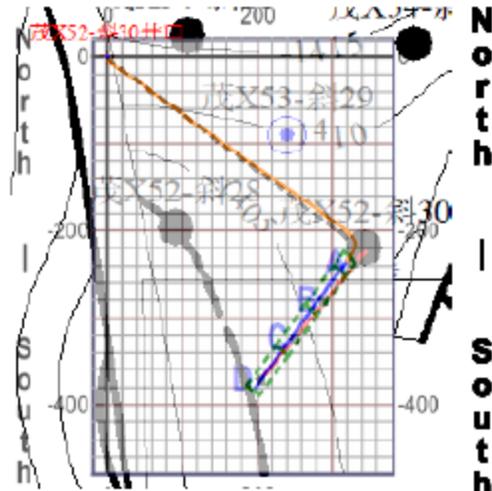


Mao X52-S30 - DEFINITIVE SURVEY

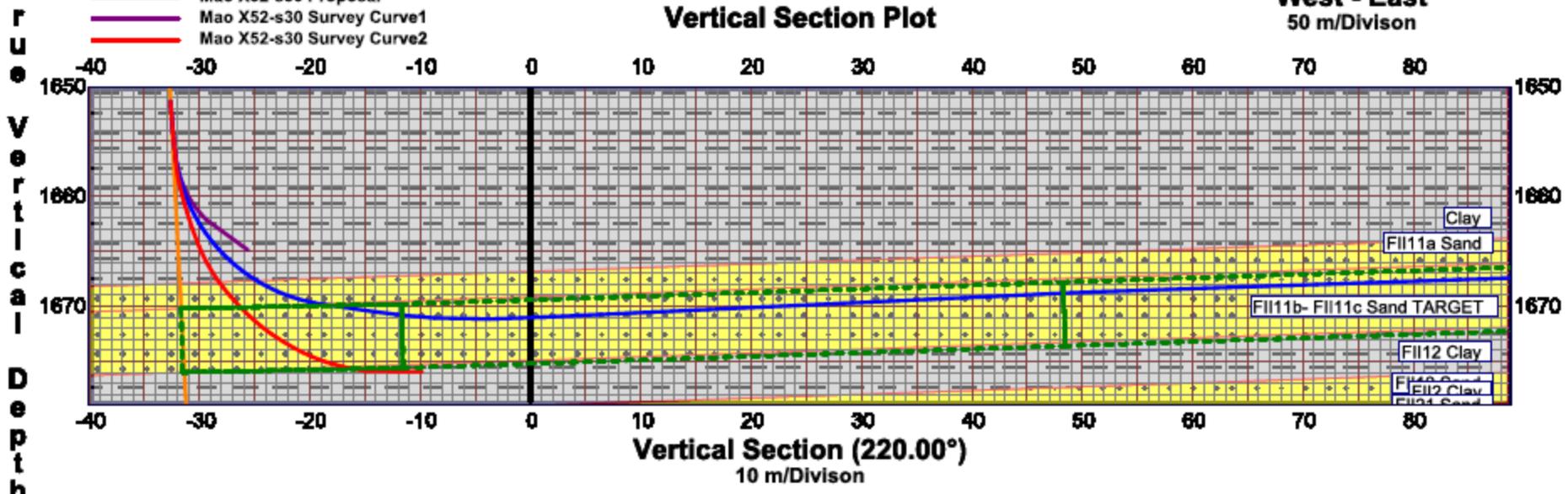
Field, Company: Tai 1 Block Mao, Daqing Faxing Depth Ref.: Orig.Rot.Table
 Tie-in Survey Ref: MWD 21-Oct-06 ORT-GL: 3.65 m
 North Reference: Grid Azimuth GL-MSL: 128.37 m
 Magnetic Dec.: -10.583° (West of TN) Target Obj: FII11b- FII11c
 Grid Convergence: +1.33° (East of TN) Layer Thickness: 5.80 m

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 (158°/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



- CURVES LEGEND :**
- Mao X52-s30 MWD Orig Well
 - Mao X52-s30 Proposal
 - Mao X52-s30 Survey Curve1
 - Mao X52-s30 Survey Curve2





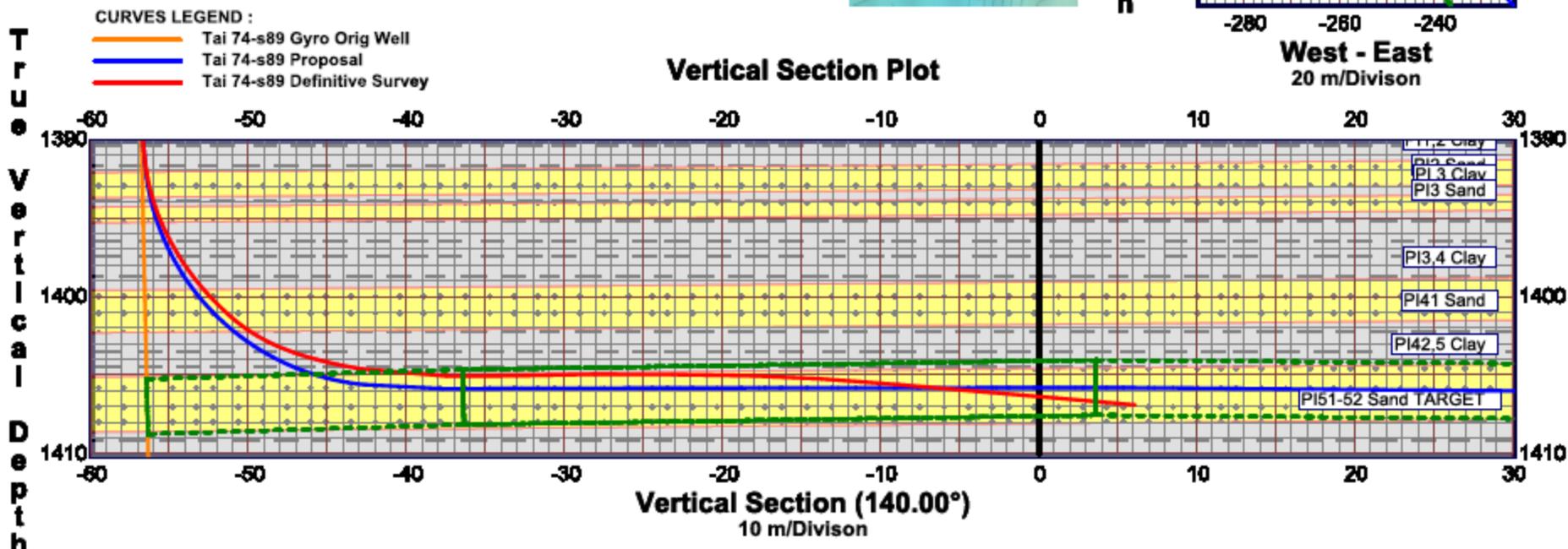
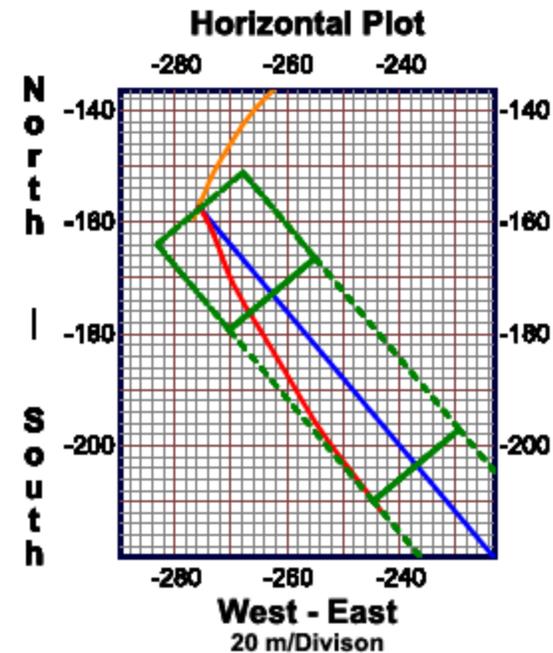
TAI 74-S89 - DEFINITIVE SURVEY

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





TAI 74-S92 - DEFINITIVE SURVEY

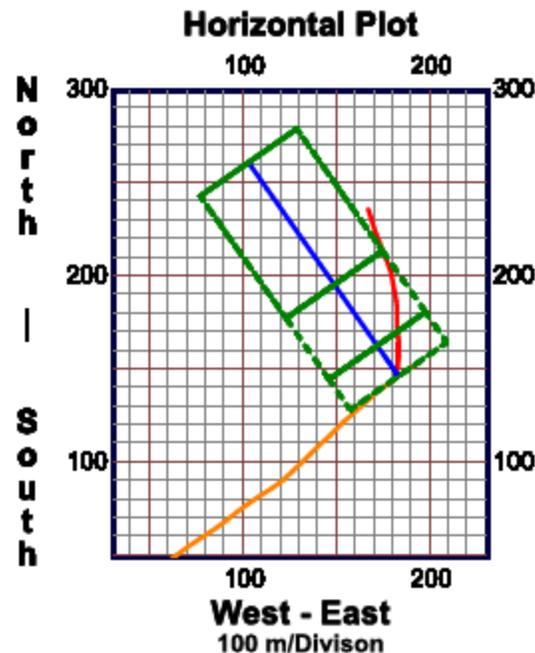
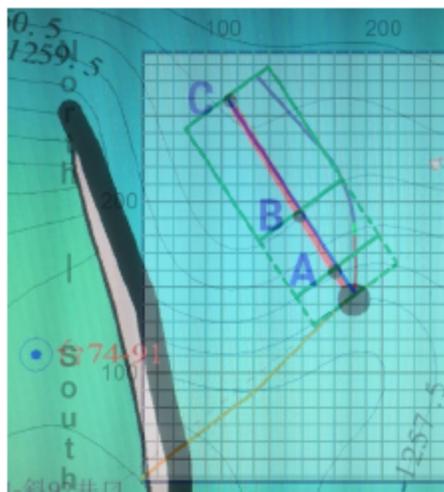
Field, Company: Tai Block 105, Daqing Fanxing
 Tie-in Survey Ref: Gyro Multishot 15-Apr-20
 North Reference: Grid Azimuth
 Magnetic Dec.: -10.600° (West of TN)
 Grid Convergence: +1.29° (East of TN)

Depth Ref.: Orig.Rot.Table
 ORT-GL: 4.00 m
 GL-MSL: 126.84 m
 Target Objective: PI51-52
 Layer Thickness: 3.80 m

Exit: Whipstock, 5-1/2" 17# Casing MWD Oriented to 360° Grid azimuth
 Window: Top 1416.5, Bottom 1419.2, Rathole to 1421.0 (KOP)
 4-1/2" Curve Section: 1442.0 EOC, 20.3 m ROC (114°/30m DLS)

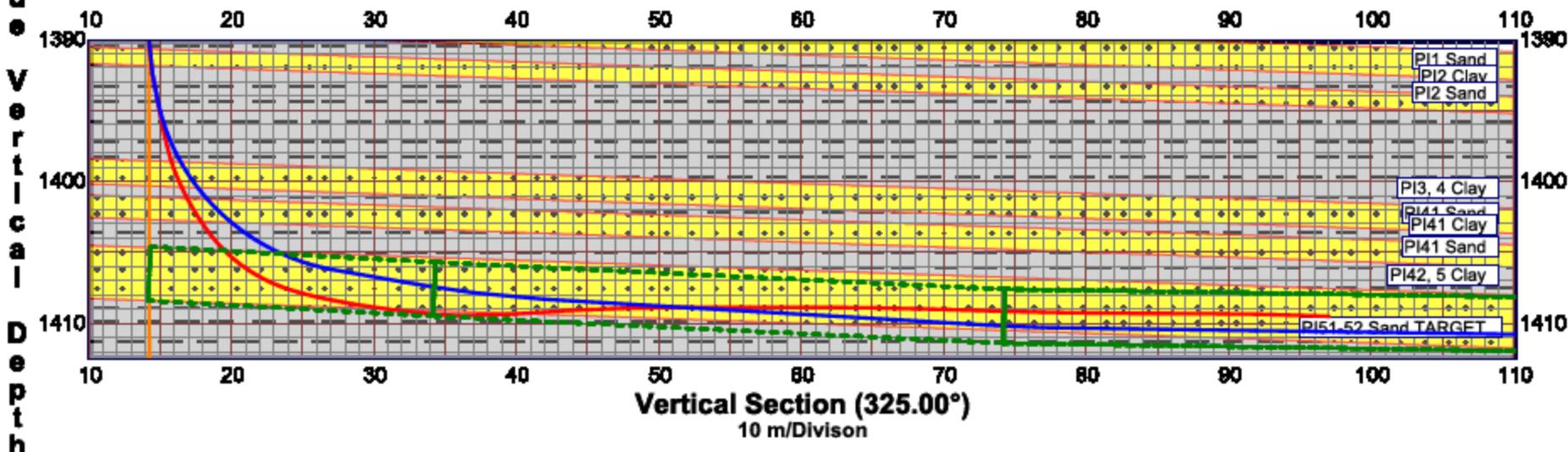
Control Point as Targets Along 0.00° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A	1408.3	34.25	Down 3.15°	1452.4, 1.1 m Below
B	1410.2	74.25	Down 2.72°	1496.8, 1.1 m Above
C	1411.4	154.25	Down 0.86°	TD Called @ 1535.0



CURVES LEGEND :
 — Tai 74-s92 Gyro Orig Well
 — Tai 74-s92 Proposal
 — Tai 74-s92 Definitive Survey

Vertical Section Plot





SHU 334-JS401 - DEFINITIVE SURVEY

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

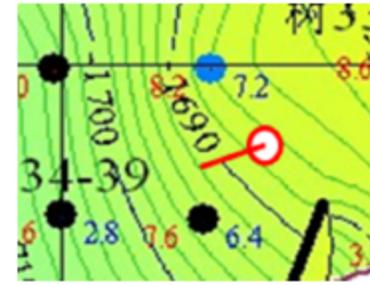
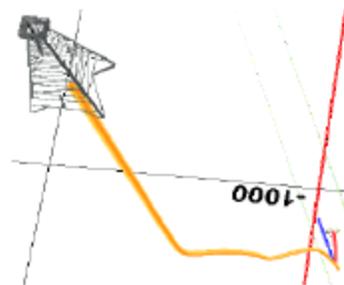
Field, Company: Daqing Yulin Oilfield
Tie-in Survey Ref: MWD 24-Oct-2011
North Reference: Grid Azimuth
Magnetic Dec.: -10.846° (West of TN)
Grid Convergence: +1.82° (East of TN)

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 1803.9, 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





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

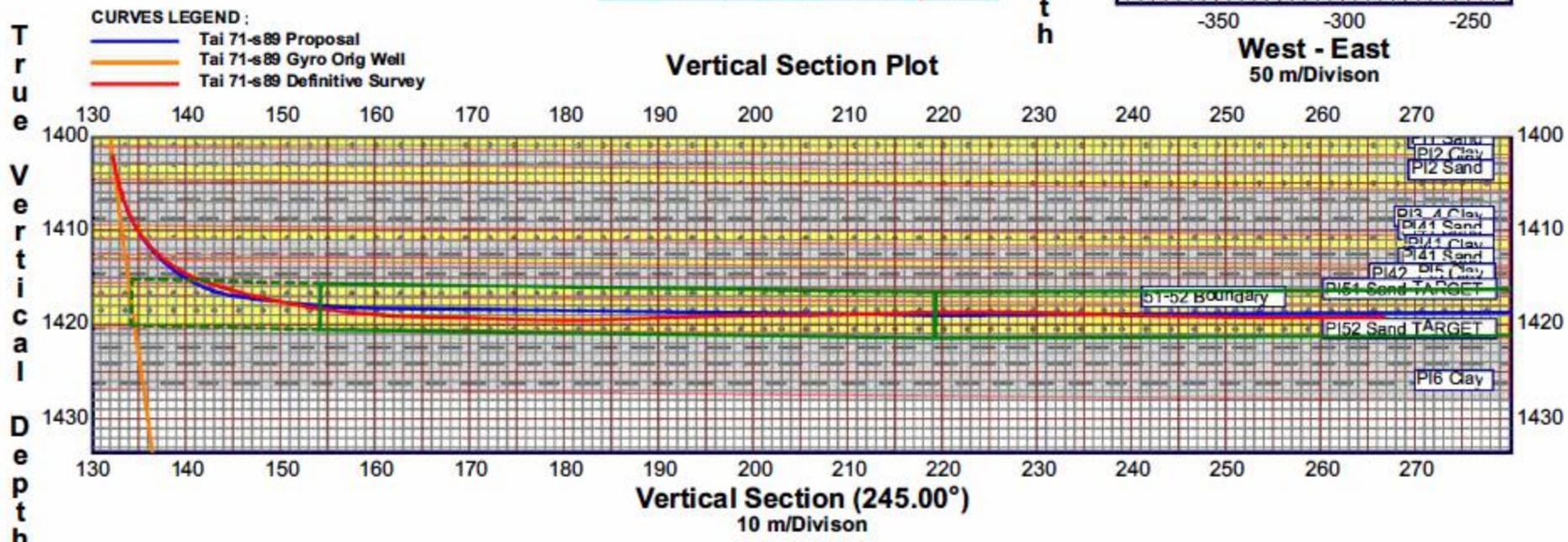
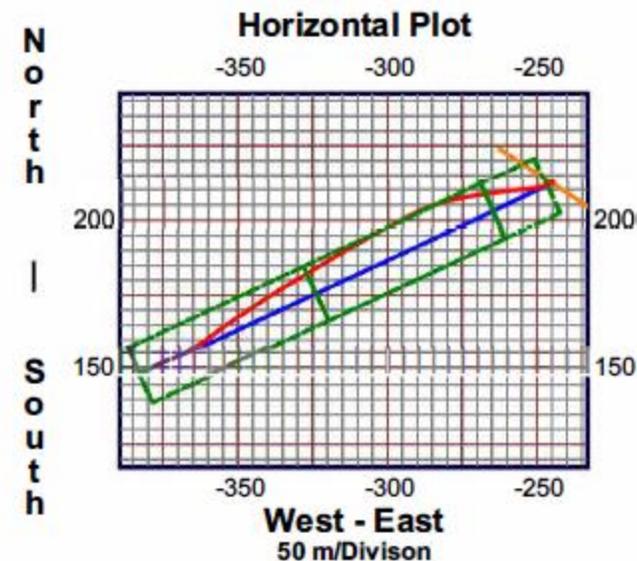
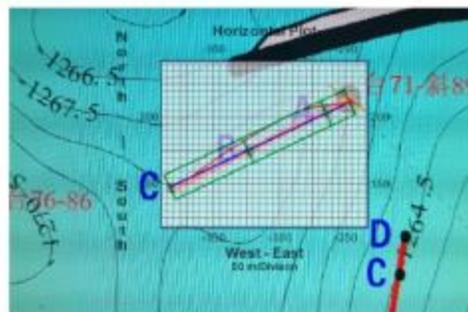
Exit: Retrievable Whipstock, 5-1/2" 17# Casing MWD Oriented to 240° GN (Plan 245°)

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 Below
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)





X9-D1-351 - DEFINITIVE SURVEY

TD @ 1254.5 m MD, 104.6 m from Target A
At TD: 1.4 m Below, 0.6 m Left of The Proposal

Field, Company:	Xingshugang, No.5 Oil Extraction of Daqing	Depth Ref.: Orig.Rot.Table
Tie-in Survey Ref:	Gyro 15-May20	ORT-GL: 8.12 m
North Reference:	Grid Azimuth	GL-MSL: 136.90 m
Magnetic Dec.:	-10.814° (West of TN)	Target Objective: P122
Grid Convergence:	+1.40° (East of TN)	Layer Thickness: 1.70 m

Exit: Whipstock, 5-1/2" 17# Casing Gyro Oriented to 270° Grid azimuth
 Window: Top whipstock 1114.0, Bottom 1116.7, Rathole to 1116.5 (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)

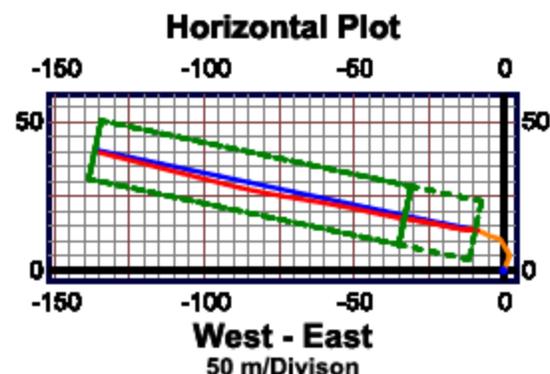
Control Point as Targets Along 282° Dip Direction / Target Azimuth

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A	1133.81	36.00	Up 1.75°	1149.9, 1.4 m Below
B	1130.46	141.97	Up 1.75°	(TD 1.4 m before)

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



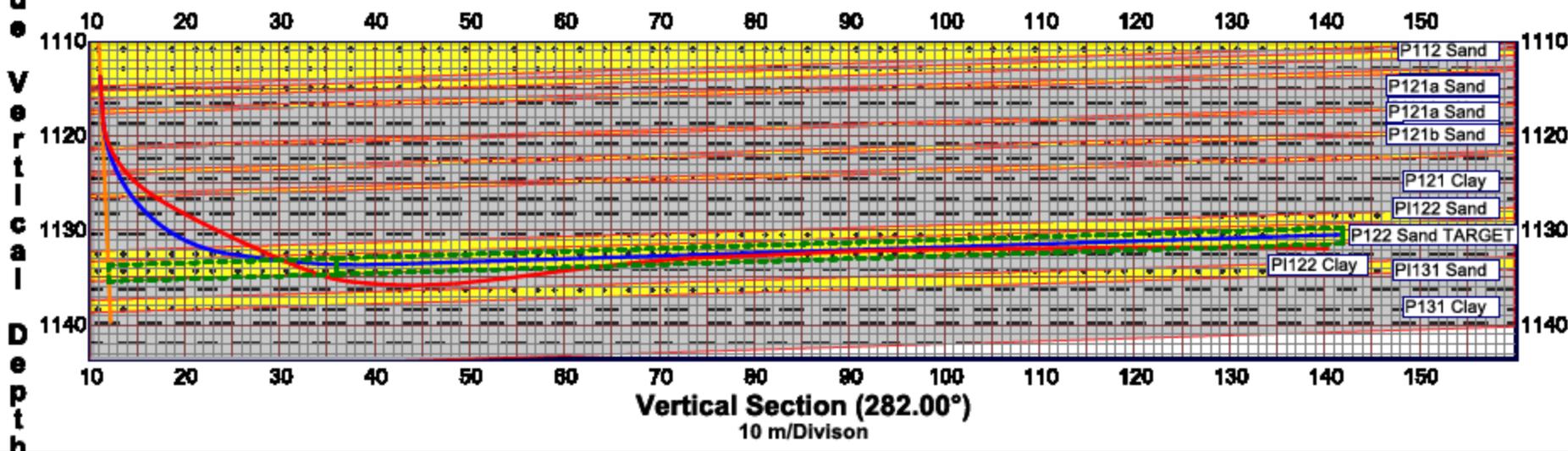
North
|
South



CURVES LEGEND :

- X9-D1-351 Gyro Orig Well
- X9-D1-351 Proposal
- X9-D1-351 Definitive Survey

Vertical Section Plot





X10-3-B4111 - DEFINITIVE SURVEY

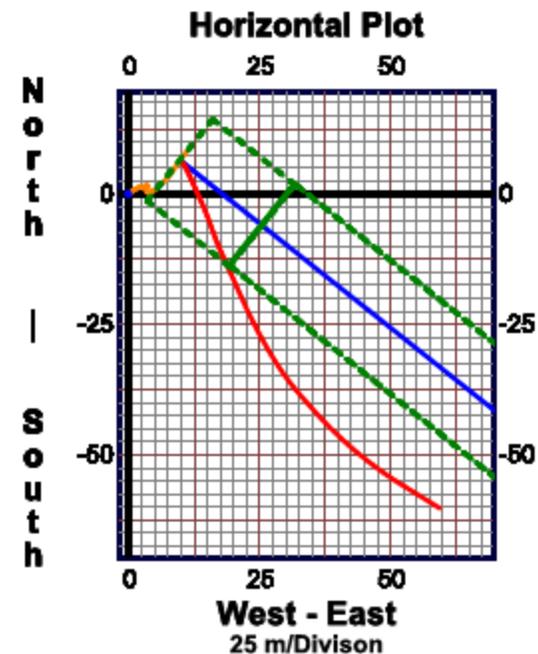
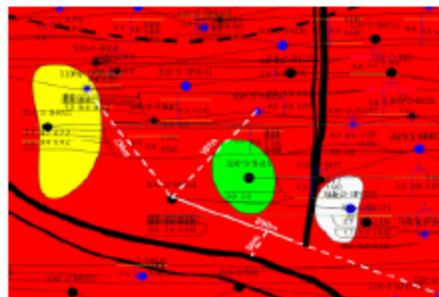
At 1217.8 m MD TD: 0.8 m Below, 21.0 m Right of The Proposal

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing Depth Ref.: Orig.Rot.Table
 Tie-In Survey Ref: Client Survey File ORT-GL: 3.10 m
 North Reference: Grid Azimuth GL-MSL: 137.42 m
 Magnetic Dec.: -10.808° (West of TN) Target Objective: P133b
 Grid Convergence: +1.38° (East of TN) Layer Thickness: 2.50 m

Whipstock, 5-1/2" 17# Casing MWD Oriented to 114° Grid azimuth
 Window: Top whipstock 1118.0, Bottom 1120.7, Rathole to 1122.5 (KOP)
 4-1/2" Curve: 1148.5 EOC, 17.2 m ROC (123°/30m DLS)

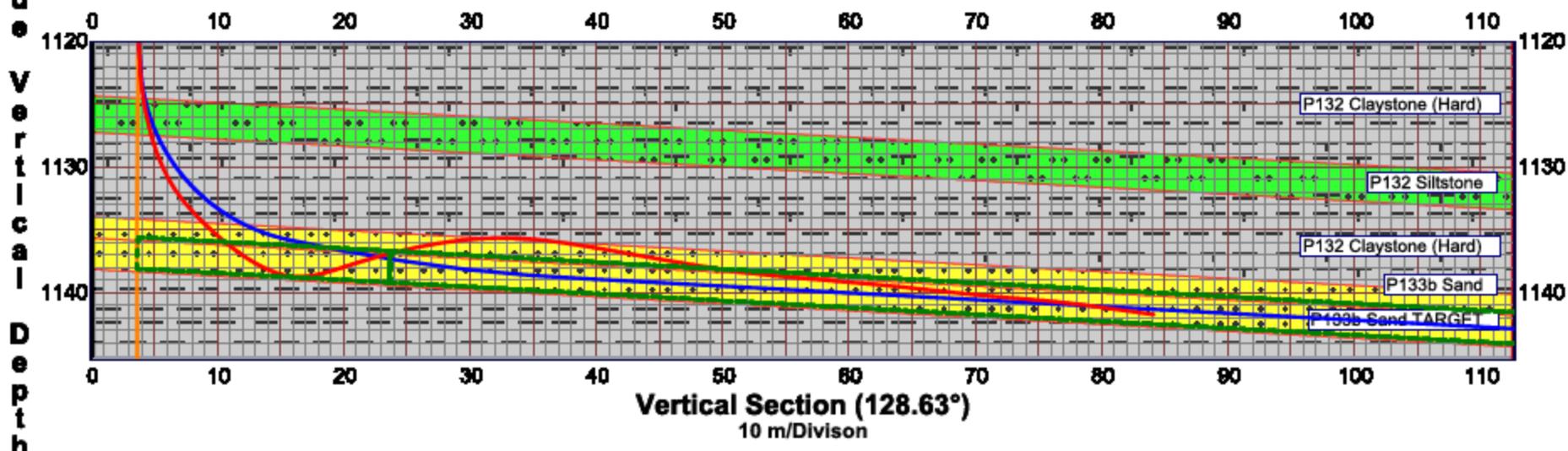
Control Point as Targets Along 128.63° Dip Direction / Target Azimuth:

Target	m TVD	m VS	Dip Angle	Actual mMD vs Target
A	1137.9	23.65	Down 3.13°	1154.5, 1.1 m Above
B	1147.8	203.65	Down 3.13°	Proj. 1134.5, On Depth (TD Called @ 1217.8)



CURVES LEGEND :
 — X10-3-B4111 Proposal
 — X10-3-B4111 Survey Orig Well_Client
 — X10-3-B4111 Definitive Survey

Vertical Section Plot





X9-31-B56 - DEFINITIVE SURVEY

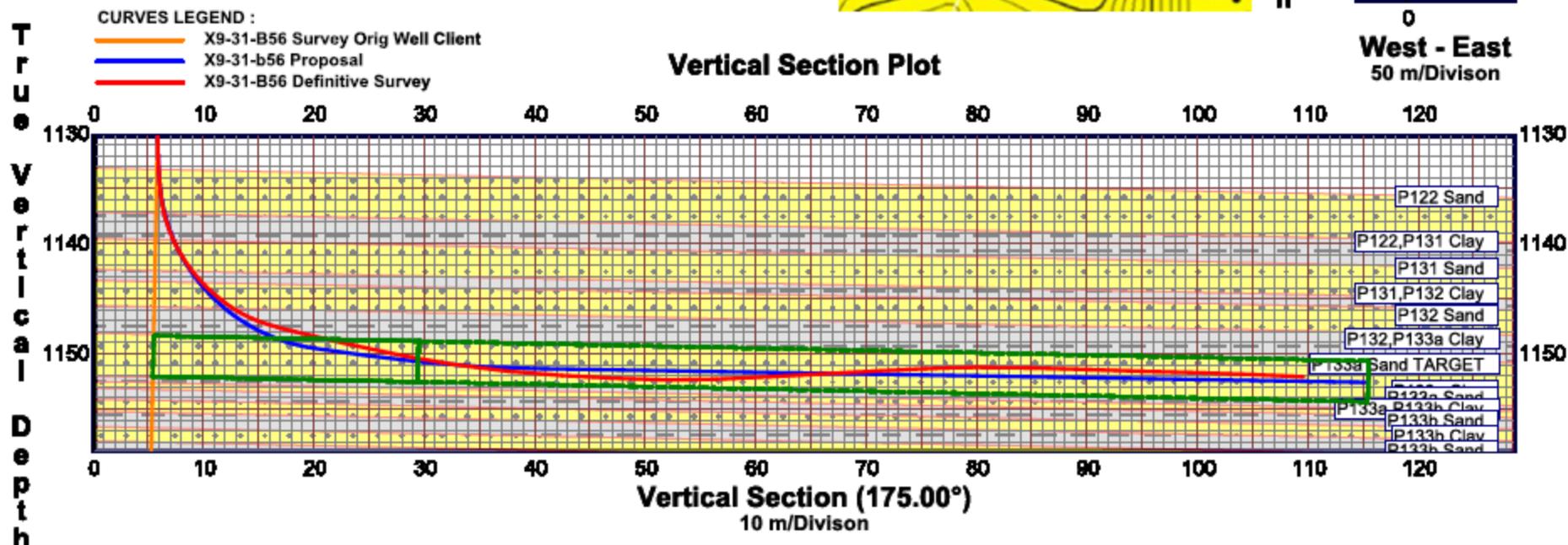
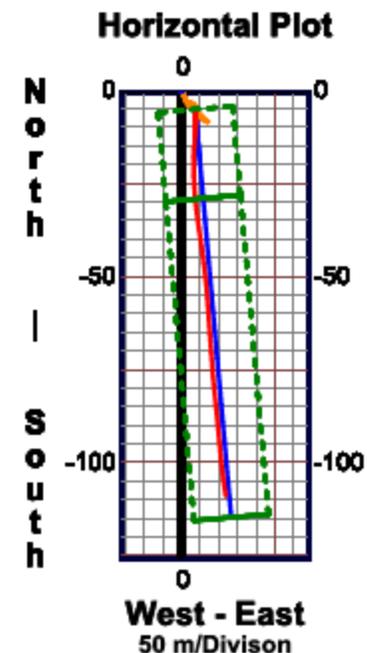
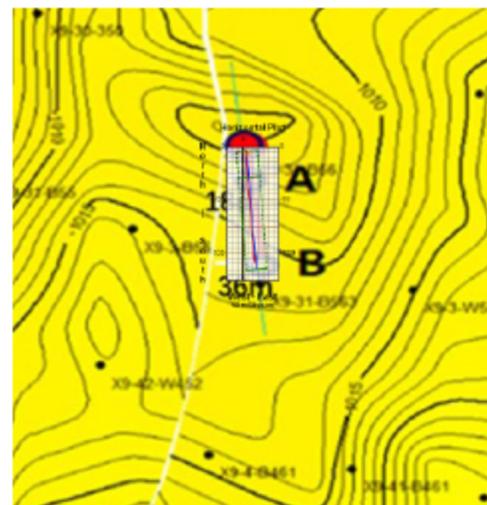
At 1246.2 m Well TD: 0.4 Above, 0.9 m Right of The Proposal

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing Depth Ref.: Orig.Rot.Table
 Tie-in Survey Ref: Client Survey File ORT-GL: 3.70 m
 North Reference: Grid Azimuth GL-MSL: 138.98 m
 Magnetic Dec.: -10.816° (West of TN) Target Objective: P133a
 Grid Convergence: +1.40° (East of TN) Layer Thickness: 3.70 m

Whipstock, 5-1/2" 17# Casing MWD Oriented to 160° Grid azimuth (175° Plan)
 Window: Top whipstock 1130.0, Bottom 1132.7, Rathole to 1134.5 (KOP)
 4-1/2" Curve: 1153.0 EOC, 15.6 m ROC (119°/30m 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 1252.0, 0.2m Above (TD Called @ 1246.2 m)





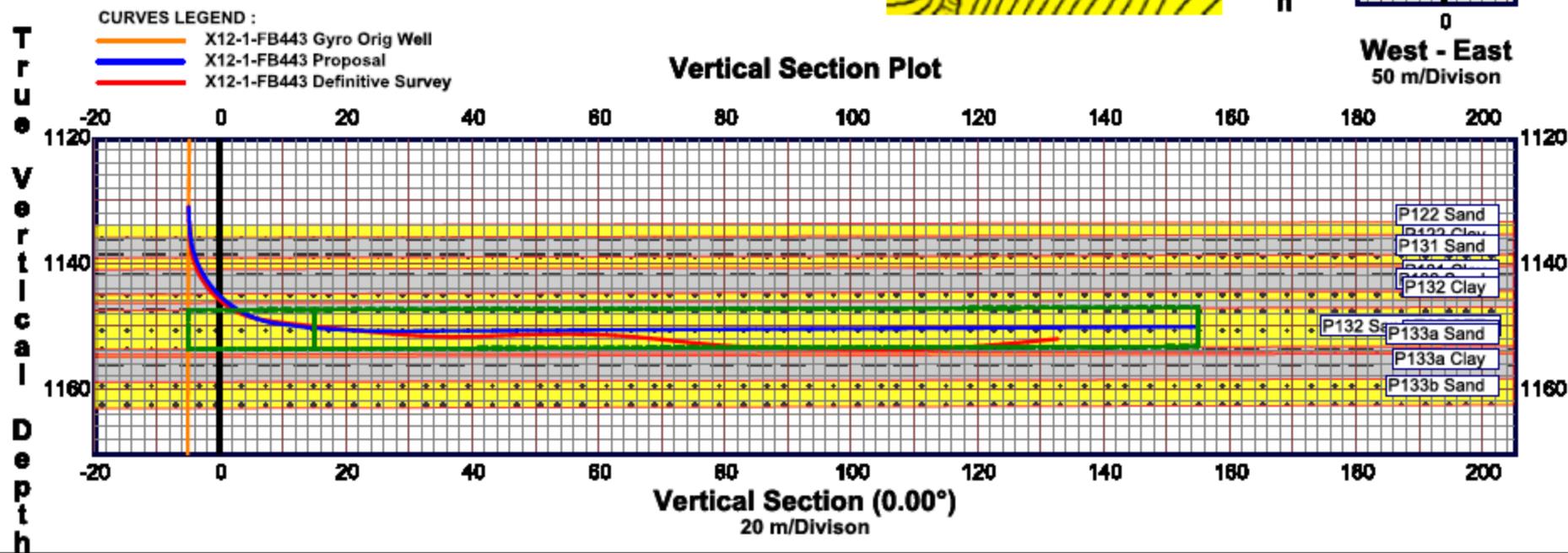
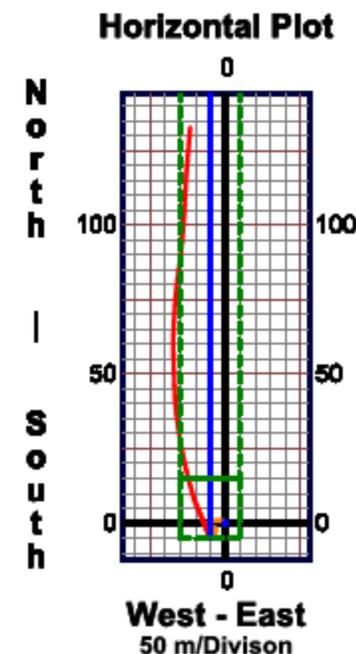
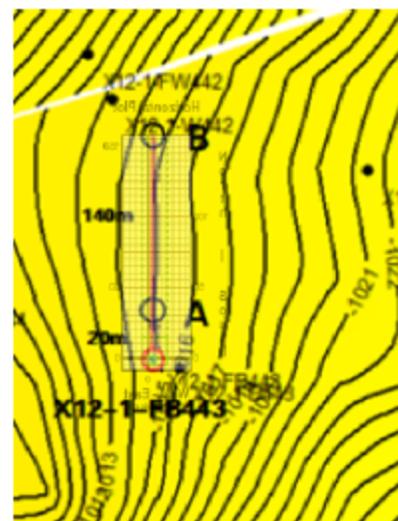
X12-1-FB443 - DEFINITIVE SURVEY

Field, Company: Xingshugang, No.5 Oil Extraction of Daqing Depth Ref.: Orig.Rot.Table
 Tie-in Survey Ref: Gyro Multishot Run 02-Jul-20 ORT-GL: 2.04 m
 North Reference: Grid Azimuth GL-MSL: 136.90 m
 Magnetic Dec.: -10.806° (West of TN) Target Objective: P132
 Grid Convergence: +1.38° (East of TN) Layer Thickness: 6.20 m

Whipstock, 5-1/2" 17# Casing MWD Oriented to 345° Grid azimuth (0° Plan)
 Window: Top whipstock 1131.2, Bottom 1133.2, Rathole to 1135.0 (KOP)
 4-1/2" Curve: 1157.0 EOC, 17.5 m ROC (116°/30m 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°	Not Reached. TD Called @ 1283.0





ZHAO 86-26 - DEFINITIVE SURVEY

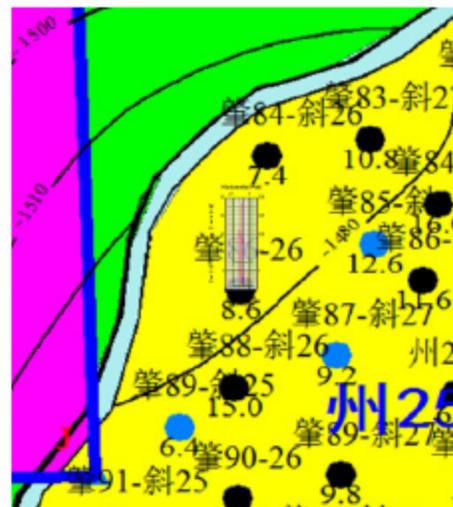
TD Called @1797.7, 92.9°, 1715.2 TVD, 73.6 VS:
2.7 m Below, 2.1 m Left of The Proposal

Field, Company:	Zhao Block 25, Yushulin Oilfield	Depth Ref.: Orig. Rot. Table
Tie-in Survey Ref:	Gyro Multishot Outrun 8-Jul-20	ORT-GL: 3.70 m
North Reference:	Grid Azimuth	GL-MSL: 171.50 m
Magnetic Dec.:	-10.690° (West of TN)	Target Objective: F162-71
Grid Convergence:	+1.57° (East of TN)	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)

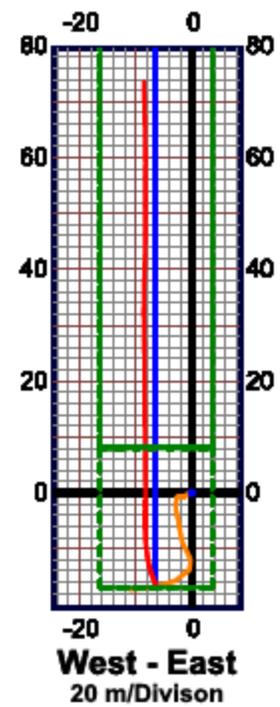
Control Point as Targets Along 0.00° Dip Direction / Target Azimuth:

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
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South

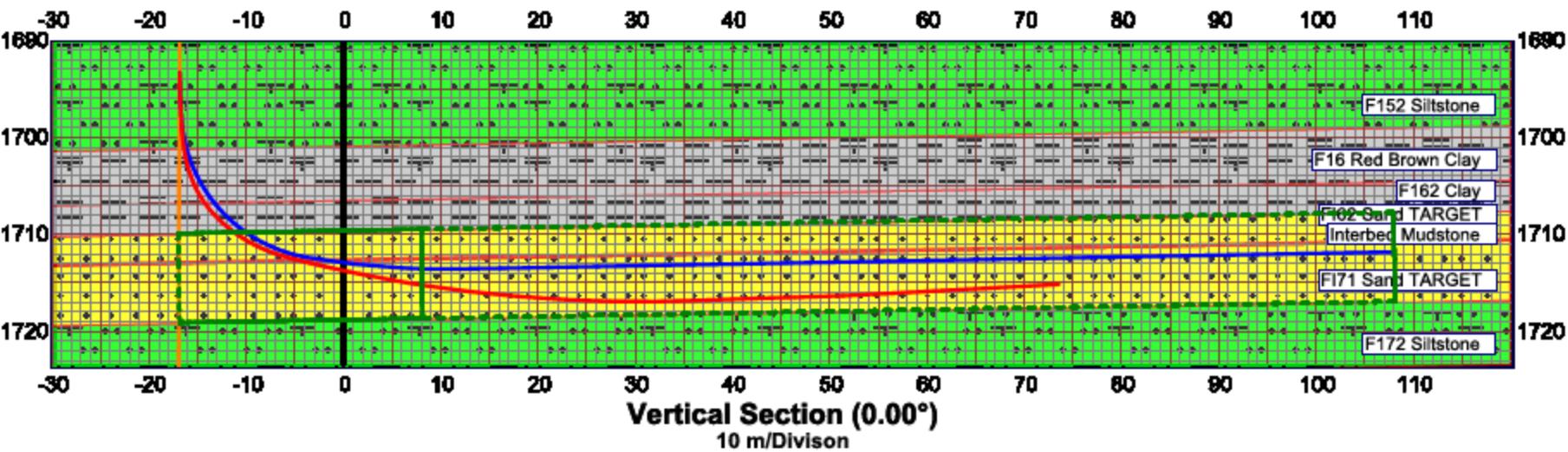
Horizontal Plot



CURVES LEGEND :
 — Zhao 86-26 Gyro Orig Well
 — Zhao 86-26 Proposal
 — Zhao 86-26 Definitive Survey

Vertical Section Plot

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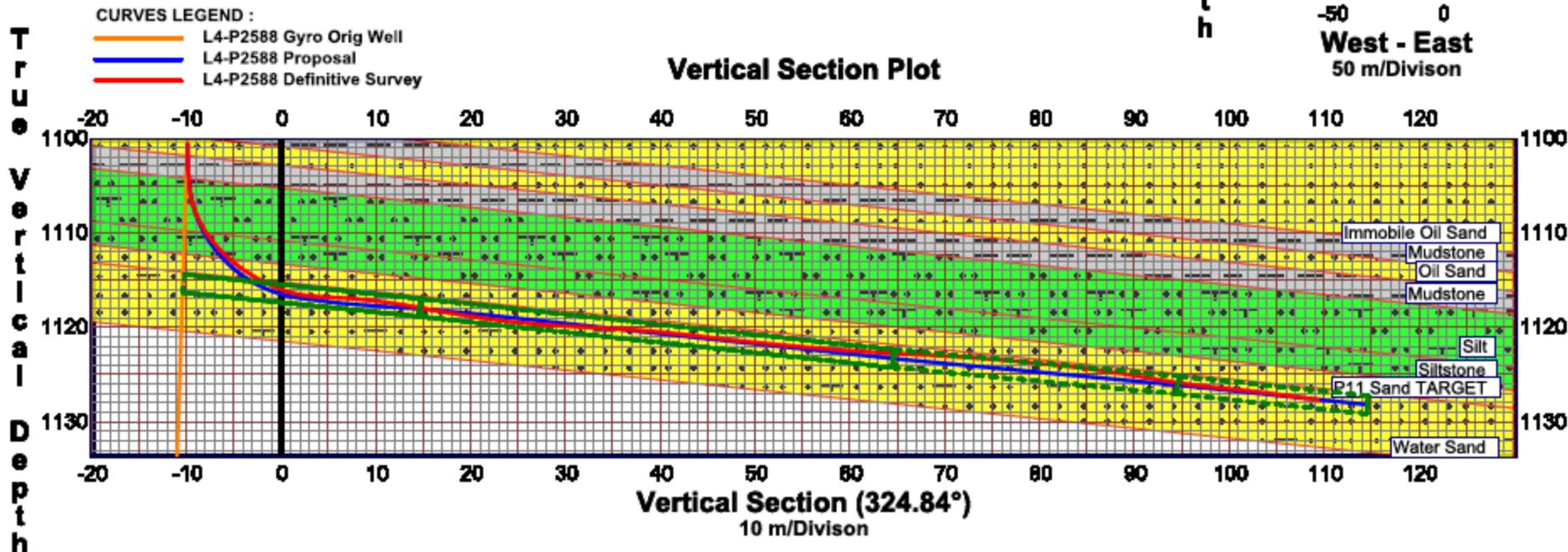
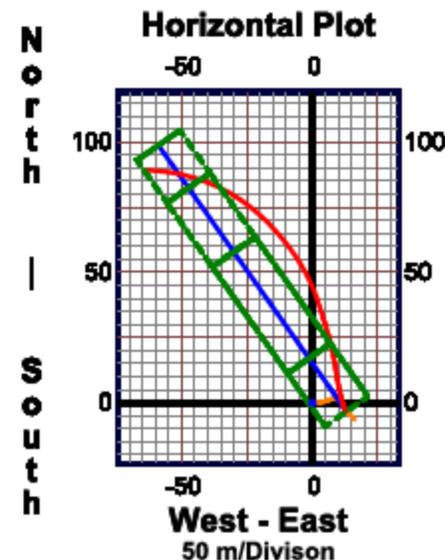
L4-P2588 - DEFINITIVE SURVEY

Field, Company: Lamadian, No.6 Oil Extraction of Daqing Depth Ref.: Orig.Rot.Table
 Tie-in Survey Ref: Gyro Multishot 04-Jul-20 ORT-GL: 2.80 m
 North Reference: Grid Azimuth GL-MSL: 148.50 m
 Magnetic Dec.: -10.939° (West of TN) Target Objective: P11
 Grid Convergence: +1.41° (East of TN) 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.





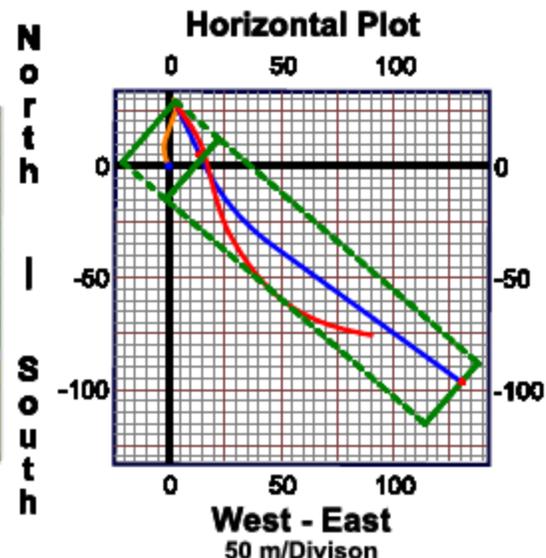
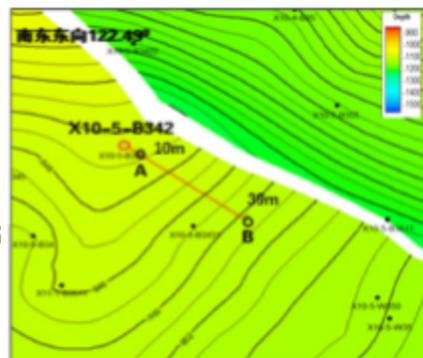
X10-5-B342 - DEFINITIVE SURVEY

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: P133b
 Grid Convergence: +1.35° (East of TN) Layer Thickness: 2.60 m

Whipstock, 5-1/2" 17# Casing MWD Oriented to 140° Grid azimuth (155° Plan)
 Window: Top whipstock 1060.3, Bottom 1062.3, Rathole to 1064.0 (KOP)
 4-1/2" Curve: 1079.0 EOC, 13.3 m ROC (156°/30m DLS)

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

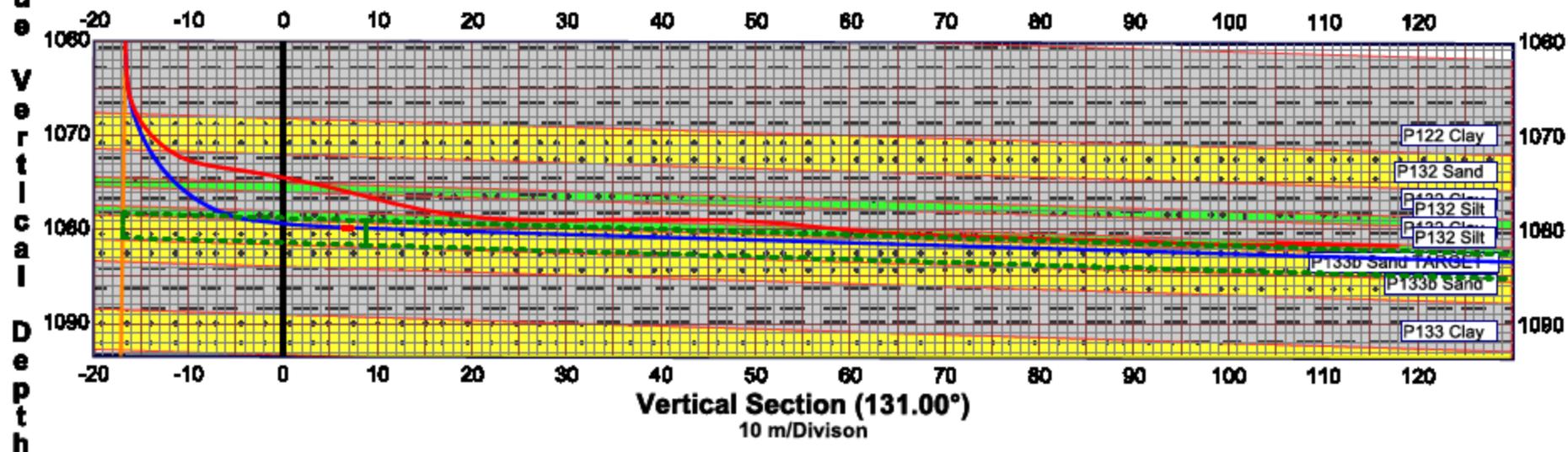
Target	m TVD	m VS	Dip Angle	GN Az	Actual mMD vs Target
A- Landing	1079.86	8.82	Down 1.78°	155°	1096.7, 3.4 m Above, 2.4 m Right
B- TD	1084.40	161.82	Down 1.70°	131°	Not Reached. TD Called @1215.5



CURVES LEGEND :

- X10-5-B342 Proposal
- X10-5-B342 Gyro Orig Well
- X10-5-B342 Definitive Survey

Vertical Section Plot





СУММАРНЫЙ ПРИРОСТ НЕФТИ ИЗ ПЕРВЫХ ПЯТИ СКВАЖИН ВМЕСТЕ ВЗЯТЫХ СОСТАВИЛ 264 БАРР/СУТ. НЕФТИ

