



COLUMBINE
CORPORATION

Scale: 5" = 100'
Measured Depth Log

Well Name Lloydminster 7-66-3-10-2N HRZ FINAL

Location S3 T7N 66W 556' FSL 1109' FEL 40.612903/-104.757904

State Colorado

County Weld

Country USA

Rig Number Cyclone 37

API Number 05-123-46142

AFE # DRL 190172

Geographic Region DJ Basin

Field Wattenberg

Spud Date 1/19/2020

Drilling Completed 1/22/2020

Surface Coordinates S3 T7N 66W

556' FSL 1109' FEL

40.612903/-104.757904

NAD83

Bottom Hole Coordinates S10 T7N 66W

500' FSL 1925' FWL

Ground Elevation 4993

K.B. Elevation 5020

Logged Interval 8350 To 17830

Total Depth 17830

Formation Codell

Type of Drilling Fluid OBM

Operator

Company Enerplus Resources Corporation

Address 333 7th Avenue SW, Suite 3000
Calgary, AB T2P 2Z1

enerPLUS

Geologist

Name Jeff Kiernan

Company Enerplus Resources Corporation

Address 950 17th Street, Suite 2200
Denver, CO 80202-2805

Other

Wellsite Geologists Jared Gerard / Kyle Matthew

Rock Types

SANDSTONE

SILTY SHALE

Other Symbols

Engineering

▲ CONNECTION (up)

⬆️ CONNECTION GAS

MINDEPTH
MN DEPTH

Columbine Corporation 2-Person Logging

Rigged Up: 01/19/2020

Begin Logging: 01/19/2020

Bloodhound Gas Detector #5311

Bloodhound Gas Detector #5311

ROP/Gamma
ROP
Gamma

ROP (ft/hr)
Gamma (api)

ROP and Gamma provided by
Baker Hughes MWD

Gas Data

TG

C1

C2

C3

C4

C5

Gas data from Bloodhound unit
#5311 imported from Iball Gas Chart

TG (units)
C1-C5 (units)

Log continued from
"Lloydminster 7-66-3-10-2N VRT.tlog"

Depth Labels

% Lith

Bit Data
Bit #: 1
Type: HCC ATD5061X
Size: 8.5
Depth In: 1.647
Jets: 3x13s, 3x14s
S/N: 5277319

Survey Data
MD: 8.379'
Inc: 90.83°
Azim: 179.7°
TVD: 7.560.72
VS: 1.582.59'

Survey Data
MD: 8.474'
Inc: 90.55°
Azim: 178.4°
TVD: 7.559.58'
VS: 1.674.82'

Well Bore
TVD

TVD (ft)

SS: predy dk gy, sl fri, vfg, occ f-med
grs, sb md, mod strd, v arg, sl calc;

SS: predy dk gy, sl fri, vfg, occ f-med
grs, sb md, mod strd, v arg, sl calc;

SS: predy dk gy, sl fri, vfg, occ f-med
grs, sb md, mod strd, v arg, sl calc;

Images



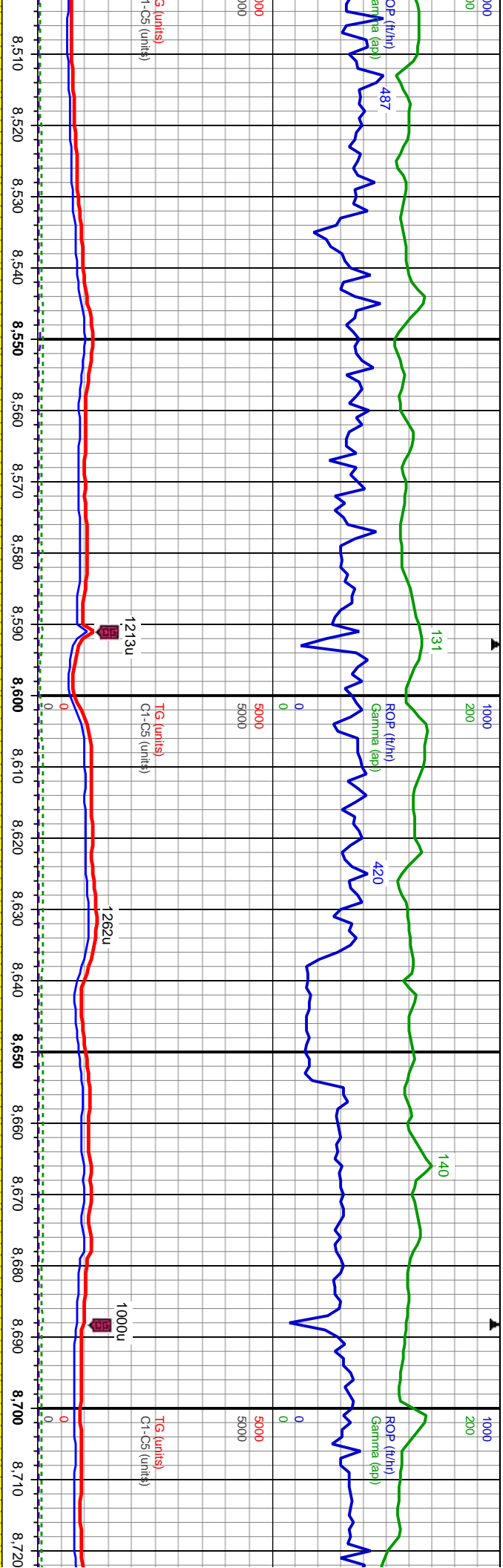
Gas Ratios

Witness
Balance

Witness
Balance

Witness
Balance

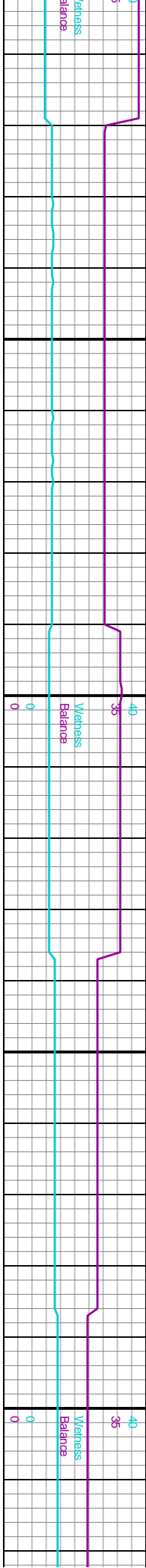
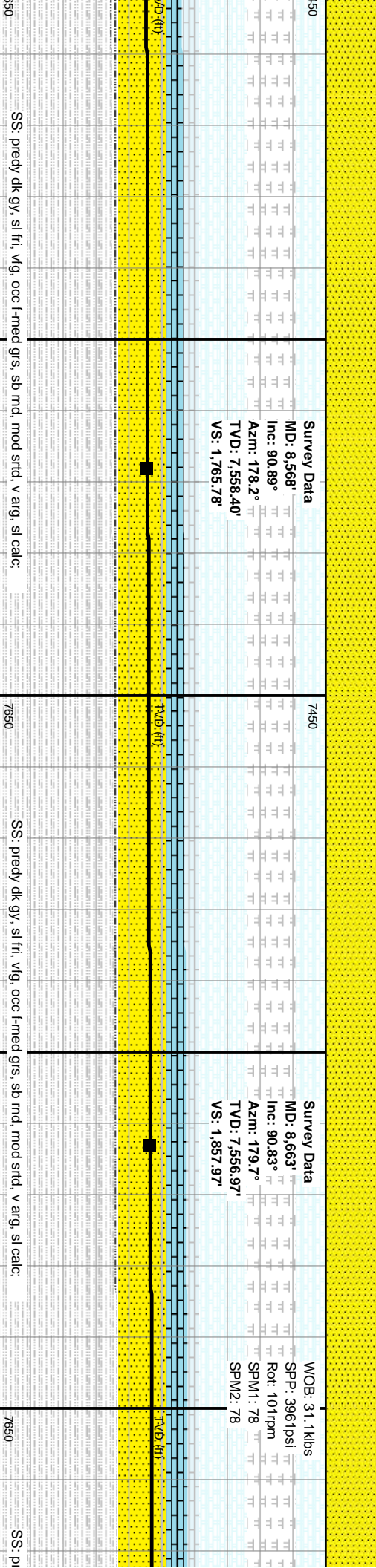
Witness
Balance

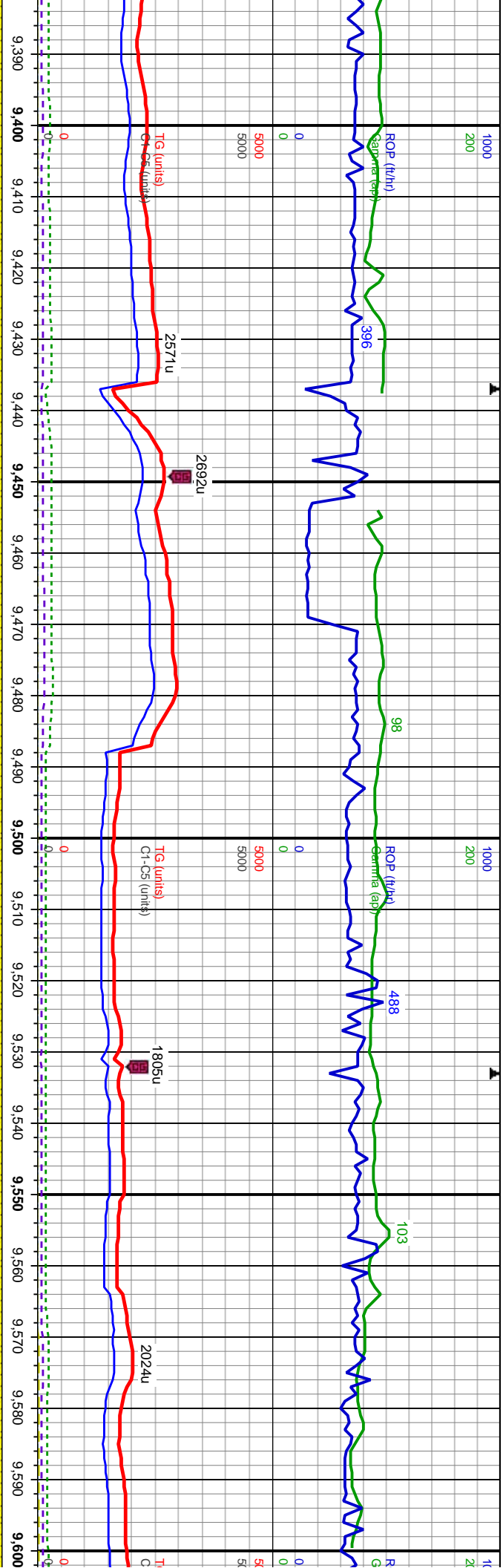


Survey Data
MD: 8,568'
Inc: 90.89°
Azim: 178.2°
TVD: 7,558.40'
VS: 1,765.78'

Survey Data
MD: 8,663'
Inc: 90.83°
Azim: 179.7°
TVD: 7,556.97'
VS: 1,857.97'

WOB: 31.1klbs
SPR: .3961psi
Rot: 101rpm
SPM1: .78
SPM2: .78





Survey Data
MD: 9.414'
Inc: 89.45°
Azim: 178.3°
TVD: 7.554.36'
VS: 2.586.79'

Survey Data
MD: 9.509'
Inc: 89.78°
Azim: 178.9°
TVD: 7.555.00'
VS: 2.678.86'

WOB: 31.4klbs
SPP: 4149psi
MD: 9.509'
Inc: 89.78°
Rot: 101rpm
SPM1: 78
SPM2: 78
TVD: 7.555.00'

SS: predy dk gy, sl fri, vfg, occ f-med grs, sb md, mod srd, occ lann, v arg, sl calc.

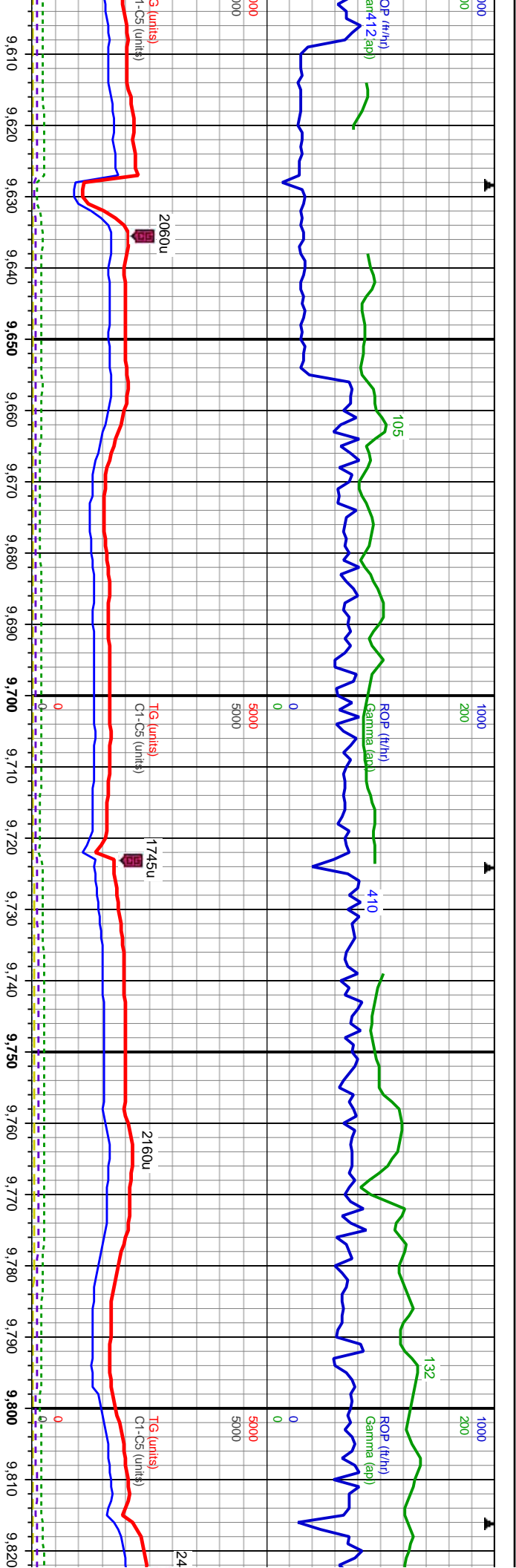
SS: predy dk gy, sl fri, vfg, occ f-med grs, sb md, mod srd, indst lann/bioturb, v arg, sl calc.



Weblogs
Balance
0

Weblogs
Balance
0

Weblogs
Balance
0

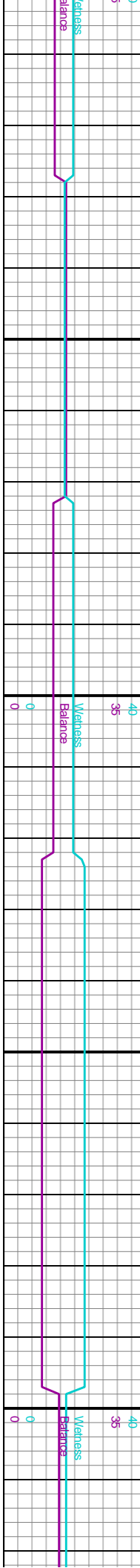


Key Data									
9.603°	TT	TT	TT	TT	TT	TT	TT	TT	TT
88.31°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 179.7°	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 7.556.56'	TT	TT	TT	TT	TT	TT	TT	TT	TT
2,770.22'	TT	TT	TT	TT	TT	TT	TT	TT	TT

Survey Data 50									
MD: 9.697°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.54°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 180.2°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.558.33'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 2.861.82'	TT	TT	TT	TT	TT	TT	TT	TT	TT

Key Data									
9.603°	TT	TT	TT	TT	TT	TT	TT	TT	TT
88.31°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 179.7°	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 7.556.56'	TT	TT	TT	TT	TT	TT	TT	TT	TT
2,770.22'	TT	TT	TT	TT	TT	TT	TT	TT	TT

Survey Data 50									
MD: 9.697°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.54°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 180.2°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.558.33'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 2.861.82'	TT	TT	TT	TT	TT	TT	TT	TT	TT



01/20/2020 01/21/2020

MINDDEPTH

1000 200

484

134

ROP (ft/hr)
Gamma (api)

434

110

ROP (ft/hr)
Gamma (api)

0 5000 5000

3416u

0

2379u

TG (units)
Ct-C5 (units)

2474u

TG (units)
Ct-C5 (units)

9,830 9,840 9,850 9,860 9,870 9,880 9,890 9,900 9,910 9,920 9,930 9,940 9,950 9,960 9,970 9,980 9,990 10,000 10,010 10,020 10,030 10,040

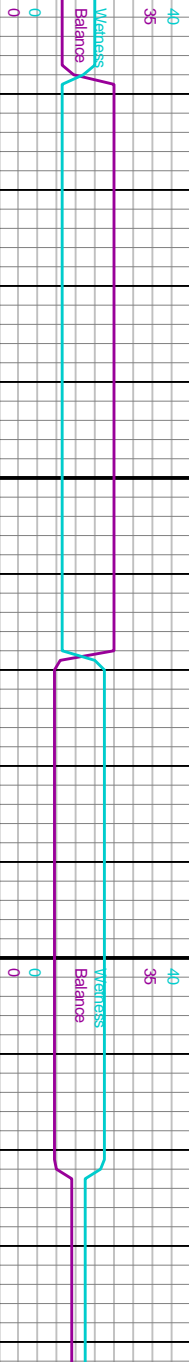
Survey Data
MD: 9,885'
Inc: 90.06°
Azim: 179.5°
TVD: 7,558.98'
VS: 3,045.00'

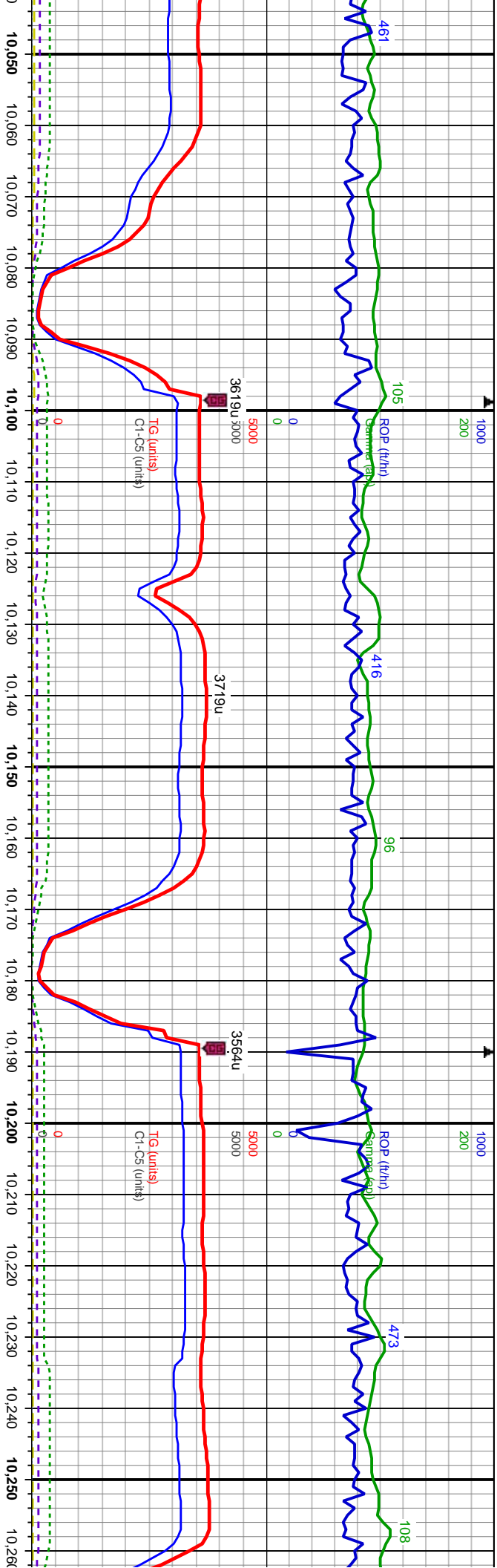
Survey Data
MD: 9,980'
Inc: 90.22°
Azim: 180.2°
TVD: 7,558.75'
VS: 3,137.56'

sl ffr, vfg, occ f-med grs, sb ind, mod srnd, indst lamn/bioturb, v arg, sl calc.

SS: predy dk gy, sl ffr, vfg, occ f-med grs, sb ind, mod srnd, indst lamn/bioturb, v arg, sl calc.

SS: predy dk gy, sl ffr, vfg, occ f-m





Survey Data
MD: 10.074'
Inc: 90.43°
Azim: 180.1°
TVD: 7.558.22'
VS: 3.229.26'

Survey Data
MD: 10.168'
Inc: 90.06°
Azim: 181.4°
TVD: 7.557.81'
VS: 3.321.11'

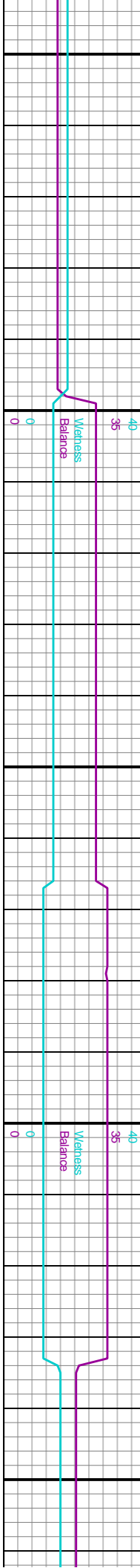
WOB: 35.5kibs
SPP: 427 lpsi
Rot: 100rpm
SPM1: 78
SPM2: 78

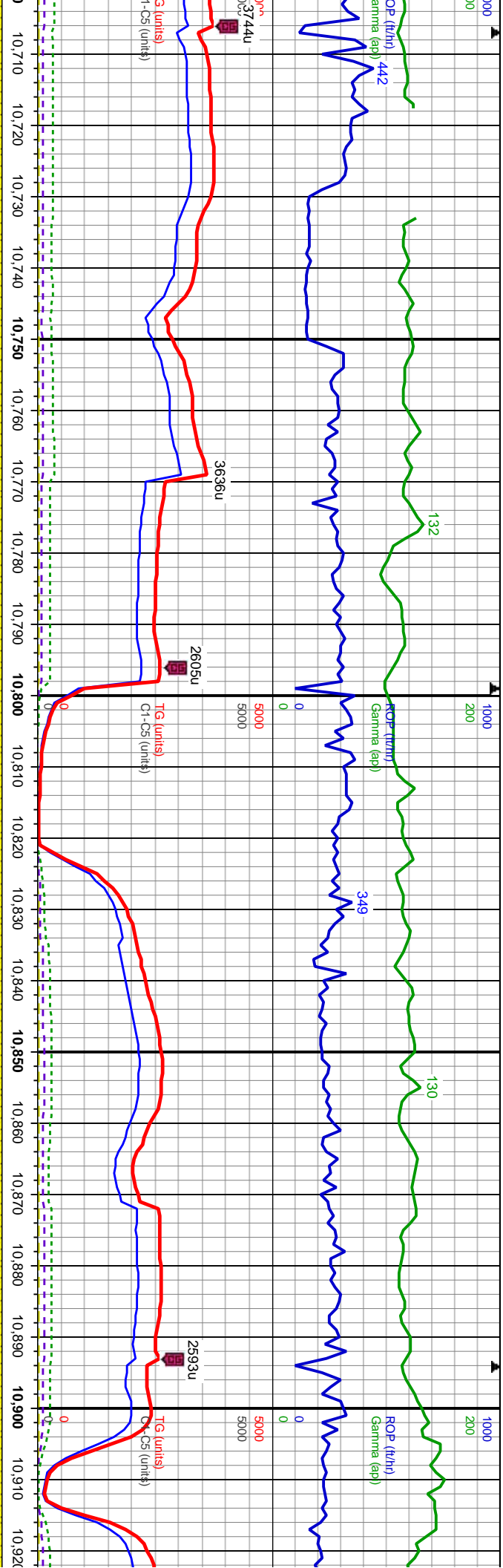
Survey Data
MD: 10.168'
Inc: 90.06°
Azim: 181.4°
TVD: 7.557.81'
VS: 3.321.11'

ed grs, sb md, mod strd, occ lamm, v arg, sl calc:

SS: predy dk gy, sl fri, vfg, occ f-med grs, sb rnd, mod strd, occ lamm, v arg, sl calc:

SS: predy dk gy, sl fri, vfg, occ f-med grs, sb rnd, mod strd, occ lamm, v arg, sl calc:





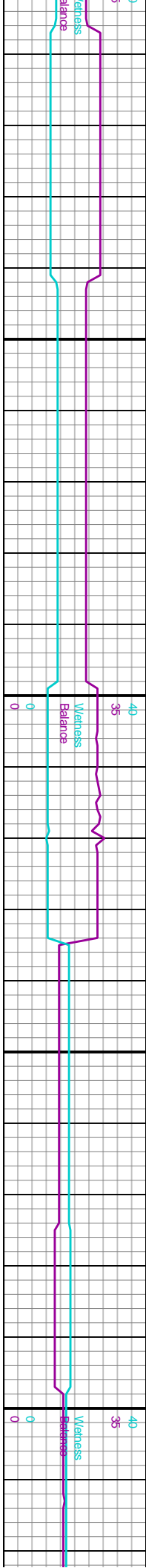
Mud Rheology
Depth: 10,732
MW: 9.85
Vis: 63
PV: 21
YP: 7
GelStr: 710/12
Oil/Water: 79/21
Alk: 2.2
Cl: 48000

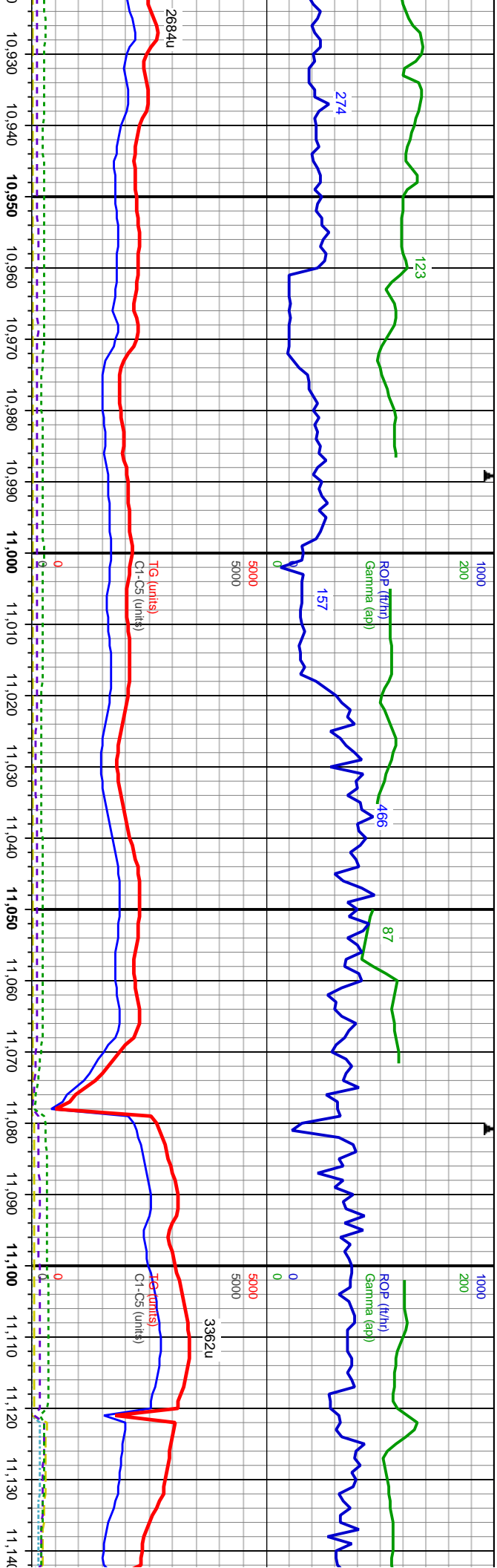
Survey Data
MD: 10,775'
Inc: 90.43°
Azim: 181.3°
TVD: 7,559.32'
VS: 3,913.87'

WOB: 30.4kbs
SPP: 4458psi
Rot: 101rpm
SPM1: 78
SPM2: 78

SS: predy lt - med dk gy, mod cons, vfg, tr f-med grs,
sb md-sb ang, mod strd, predy bloturb, v arg, sl calc;

SS: predy dk gy, sl fri, vfg, occ f-med grs, sb rnd, mod strd, occ lamn, v arg, sl calc;





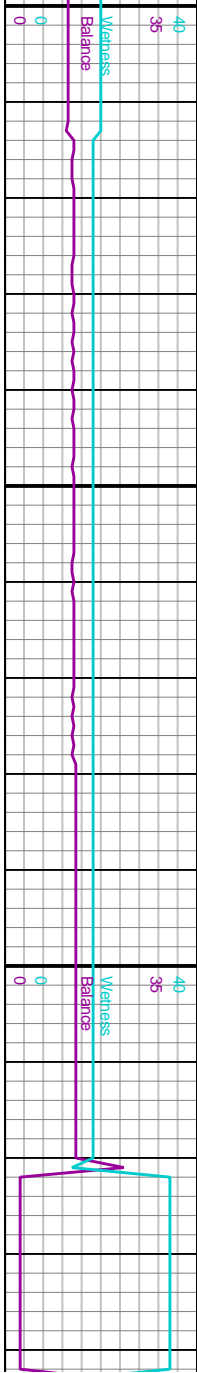
Survey Data
MD: 10.963'
Inc: 90.15°
Azim: 180.6°
TVD: 7.557.29'
VS: 4.097.85'

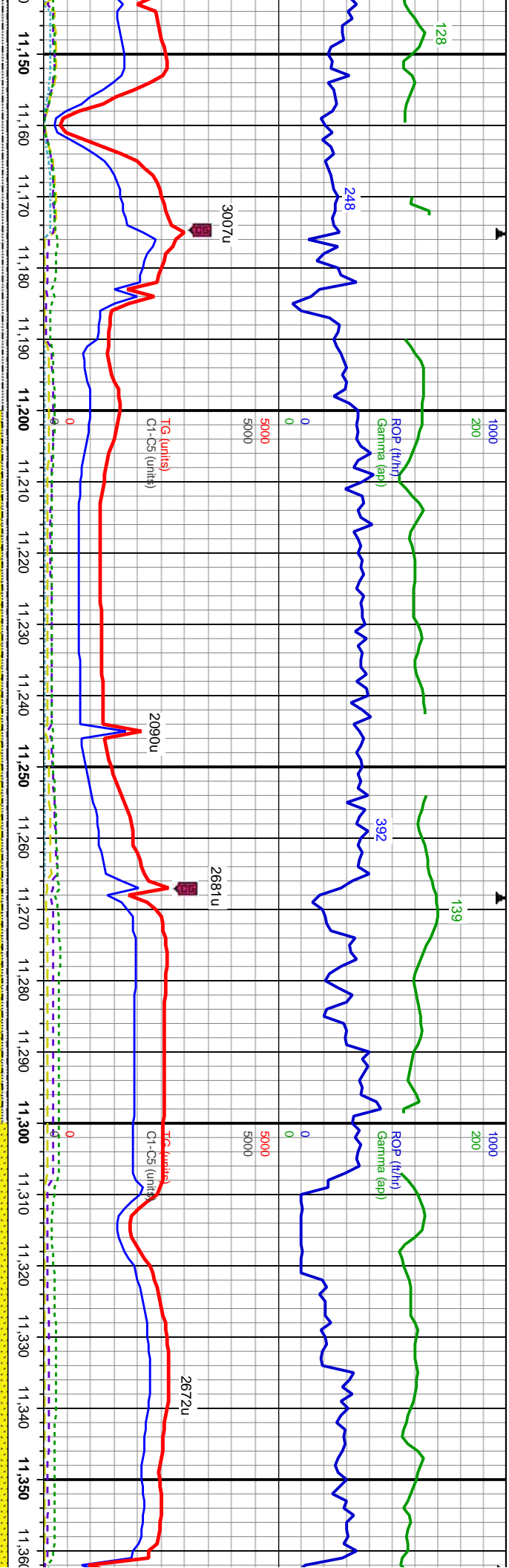
WOB: 32.5klbs
SPP: 4690psi
Rot: 100rpm
SPM1: 78
SPM2: 78

SS: predy lt - med dk gy, mod cons, vfg, tr f-med grs,
sb md- sb ang, mod strd, predy bioturp, v arg, sl calc;

SS: predy lt - med dk gy, mod cons, vfg, tr f-med grs,
sb md- sb ang, mod strd, predy bioturp, v arg, sl calc;

SS: predy dk gy, mod cons, vfg, tr f-med grs,
bioturp, v arg, sl calc; SLTY SH:

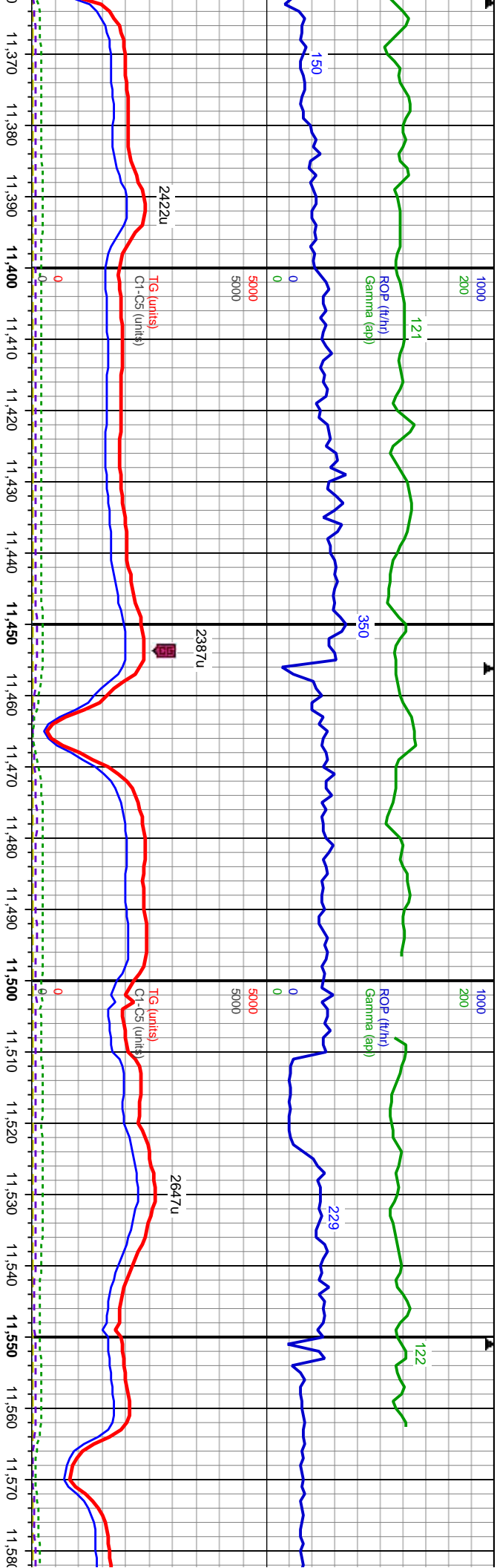




Survey Data		Survey Data		Survey Data	
MMD: 11,149'	MD: 11,243'	MMD: 11,338'	MD: 11,338'	MD: 11,338'	MD: 11,338'
Inc: 90.18°	Inc: 89.91°	Inc: 89.91°	Inc: 89.91°	Inc: 89.35°	Inc: 89.35°
Azm: 179.8°	Azm: 180.2°	Azm: 180.2°	Azm: 180.2°	Azm: 179.1°	Azm: 179.1°
TVD: 7,557.10'	TVD: 7,557.02'	TVD: 7,557.02'	TVD: 7,557.02'	TVD: 7,557.64'	TVD: 7,557.64'
VS: 4,279.23'	VS: 4,370.87'	VS: 4,370.87'	VS: 4,370.87'	VS: 4,463.36'	VS: 4,463.36'

Survey Data		Survey Data		Survey Data	
MMD: 11,149'	MD: 11,243'	MMD: 11,338'	MD: 11,338'	MMD: 11,338'	MD: 11,338'
Inc: 90.18°	Inc: 89.91°	Inc: 89.91°	Inc: 89.91°	Inc: 89.35°	Inc: 89.35°
Azm: 179.8°	Azm: 180.2°	Azm: 180.2°	Azm: 180.2°	Azm: 179.1°	Azm: 179.1°
TVD: 7,557.10'	TVD: 7,557.02'	TVD: 7,557.02'	TVD: 7,557.02'	TVD: 7,557.64'	TVD: 7,557.64'
VS: 4,279.23'	VS: 4,370.87'	VS: 4,370.87'	VS: 4,370.87'	VS: 4,463.36'	VS: 4,463.36'





WOB: 22.0kbs
SPP: 4540psi
Rot: 100rpm
SPM1: 78
SPM2: 78

Survey Data
MD: 11.432°
Inc: 90.09°
Azim: 181.9°
TVD: 7.558.10'
VS: 4.555.16'

Survey Data
MD: 11.526°
Inc: 90.34°
Azim: 181.8°
TVD: 7.557.75'
VS: 4.647.42'

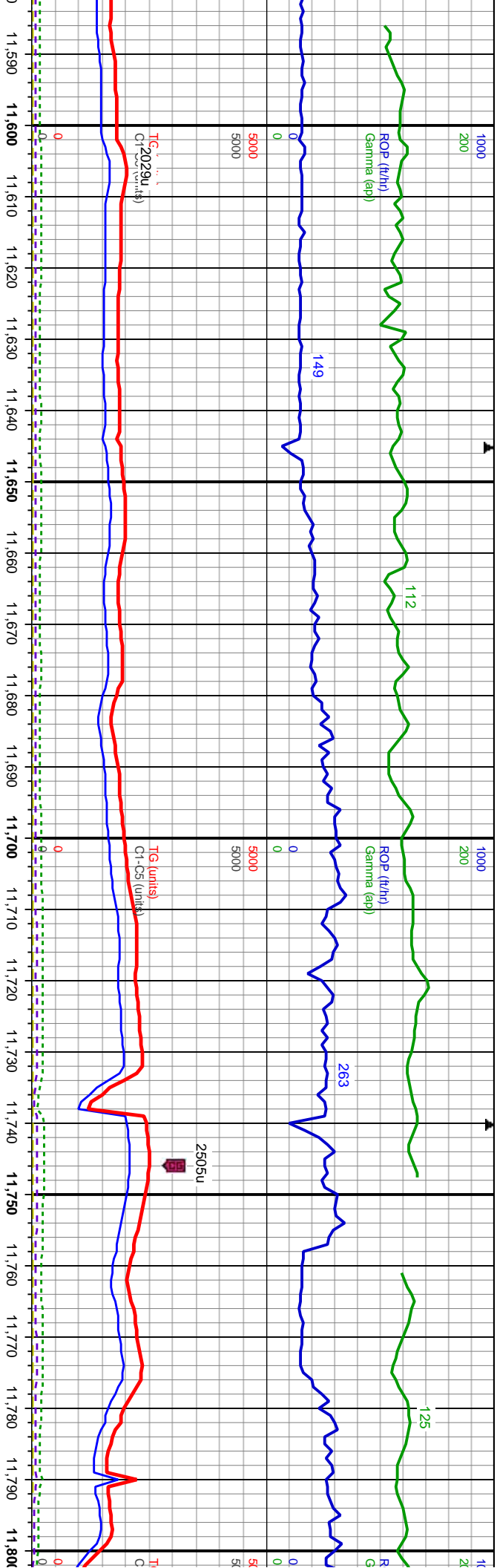
SS: predy dk gy, mod cons, occ w cons, vfg, tr f-med grs, sb md-
sb ang, mod strd, predy bioturb, v arg, sl calc, occ pyr clus.

SS: predy dk gy, mod cons, occ w cons, vfg, tr f-med grs, sb md-
sb ang, mod strd, predy bioturb, v arg, sl calc, occ pyr clus.



40
35
Wellness
Balance
0

40
35
Wellness
Balance
0



Survey Data
MD: 11,621'
Inc: 90.77°
Azmi: 181.8°
TVD: 7,556.82'
VS: 4,740.66'

WOB: 23.1klbs
SPP: 4620psi
Rot: 100rpm
SPM1: 78
SPM2: 78
MD: 11,715'
Inc: 90.95°
Azmi: 181.1°
TVD: 7,555.41'
VS: 4,832.79'

SS: predy dk gy, mod cons, vfg, tr f-med grs, sb md-sb ang, mod strd, predy bioturb, v arg, sl calc.

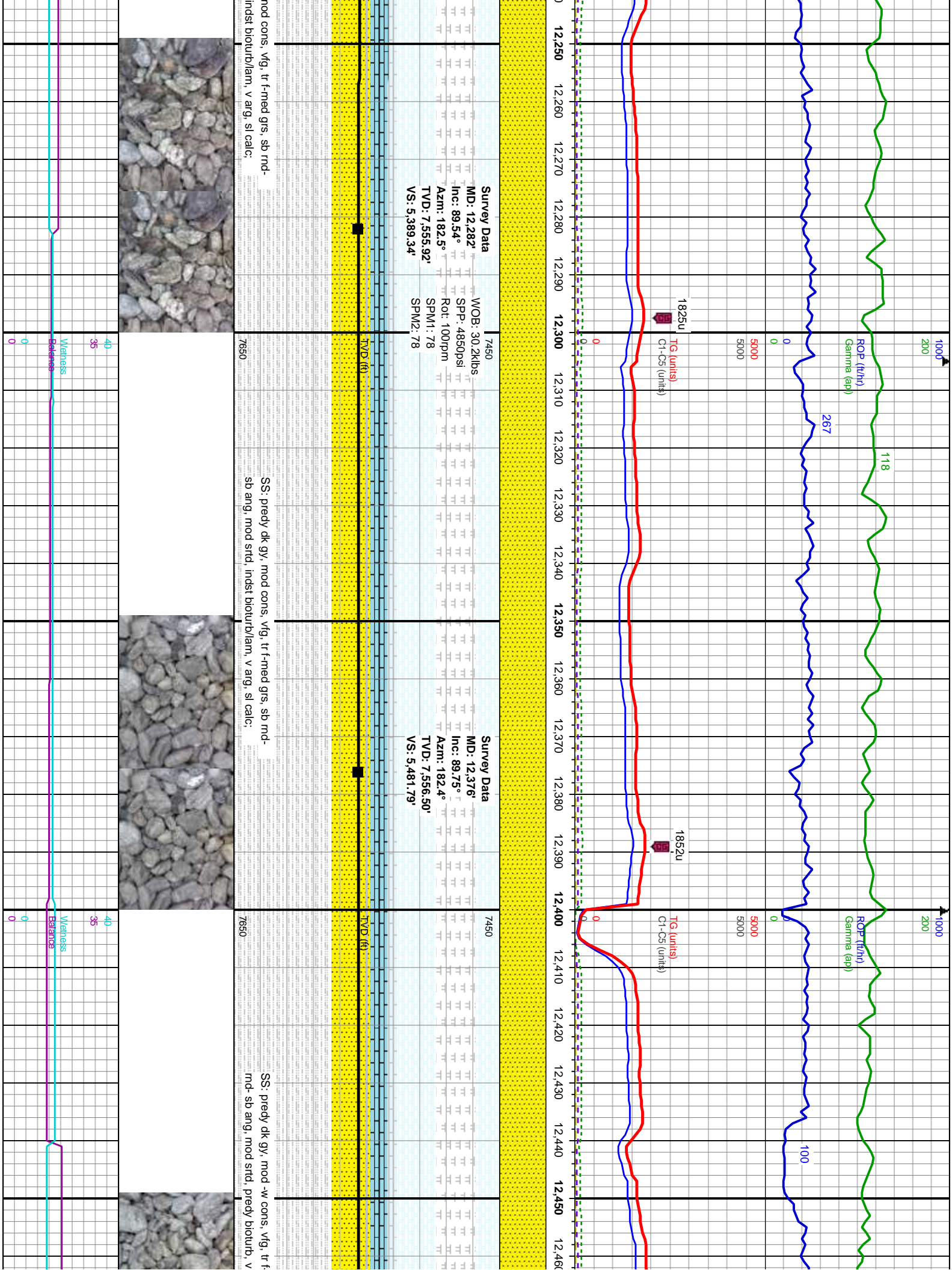
SS: predy dk gy, mod cons, vfg, tr f-med grs, sb md-sb ang, mod strd, predy bioturb, v arg, sl calc.

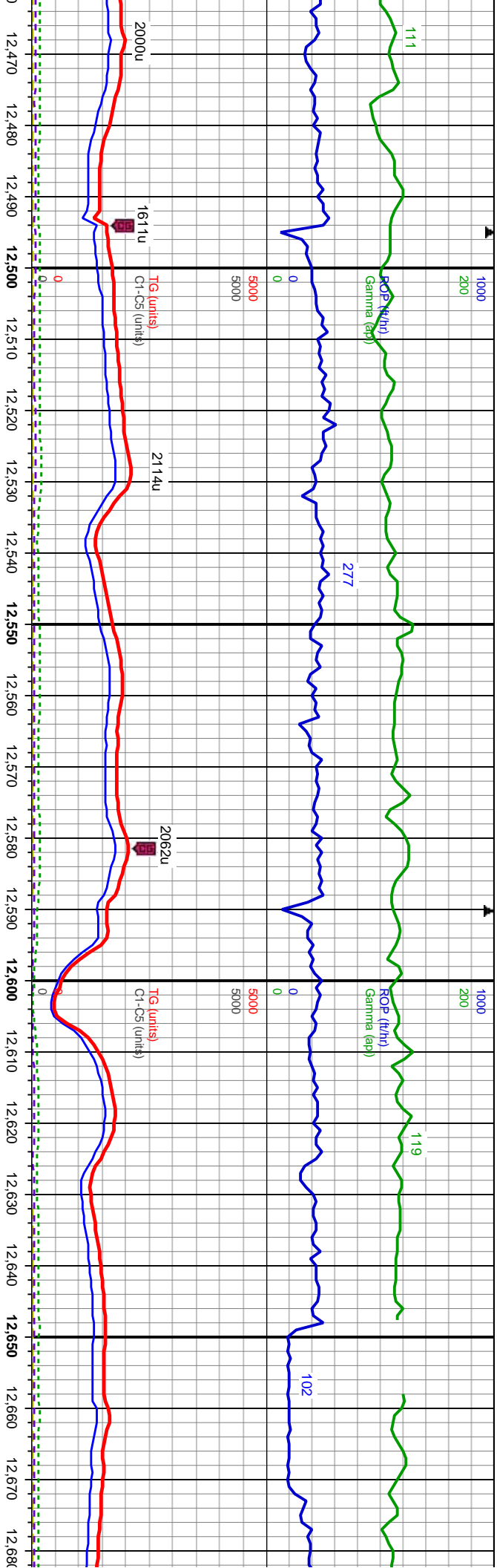


40
35
0
0
0

40
35
0
0
0

40
35
0
0
0

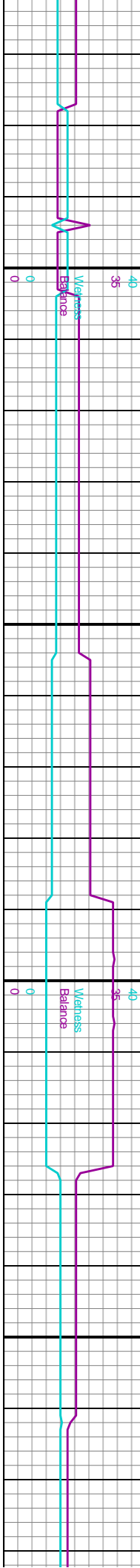


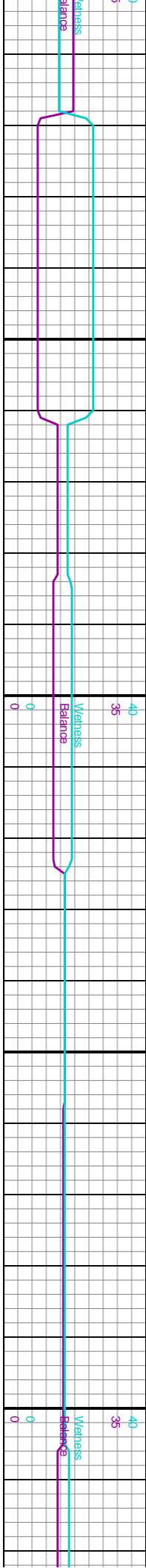
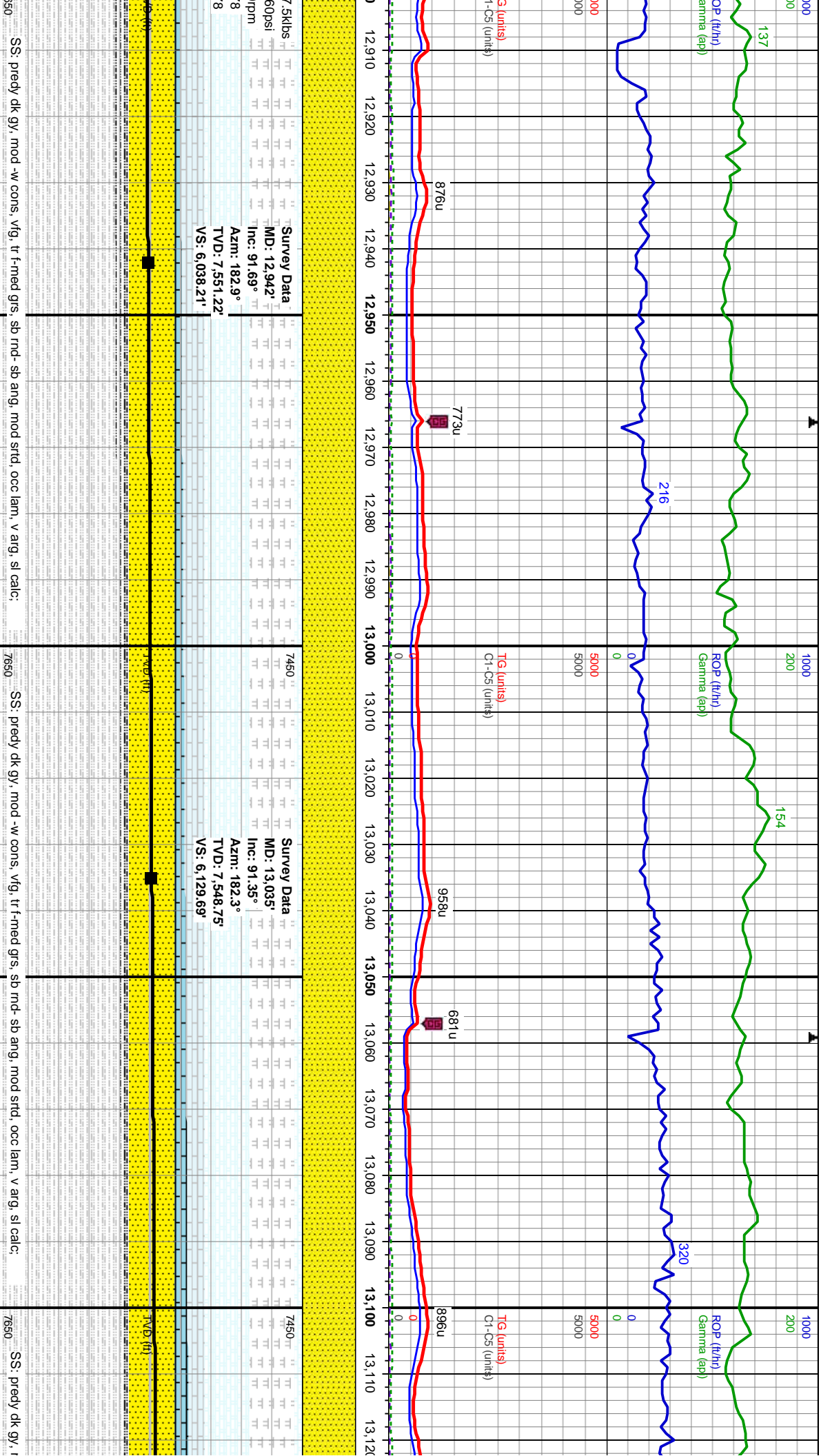


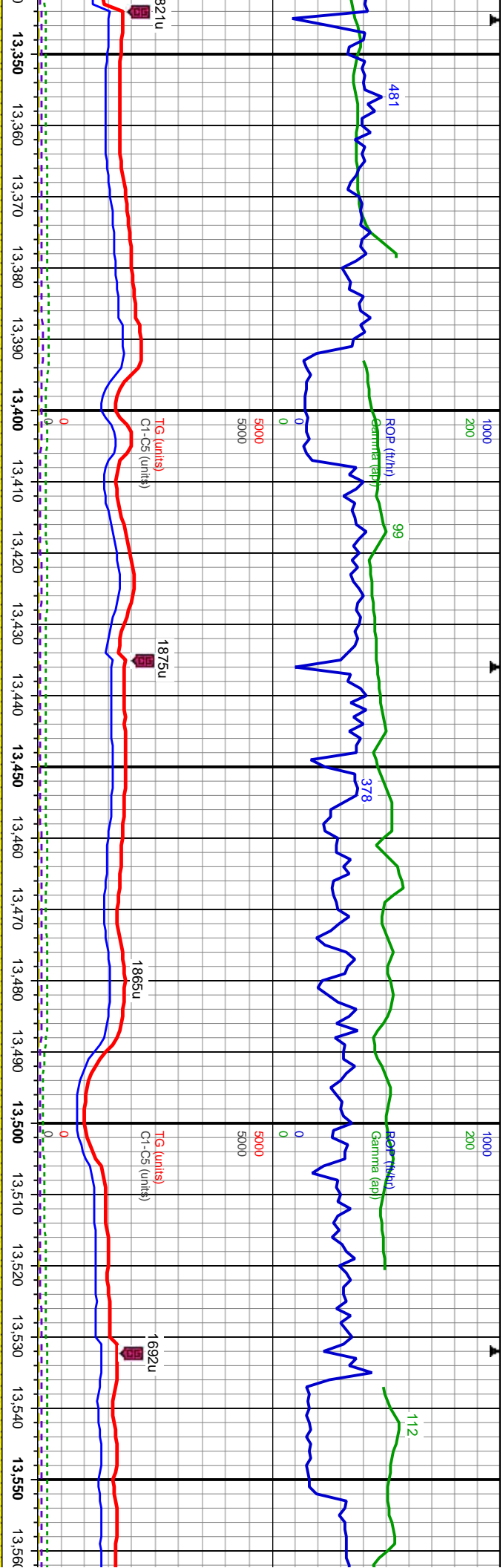
Survey Data		Survey Data		Survey Data		Survey Data	
MD: 12,470'	TT	MD: 12,565'	TT	MD: 12,659'	TT	MD: 12,659'	TT
Inc: 90.52°	TT	Inc: 90.34°	TT	Inc: 90.25°	TT	Inc: 90.25°	TT
Azm: 182.5°	TT	Azm: 181.6°	TT	Azm: 182.6°	TT	Azm: 182.6°	TT
TVD: 7,556.28'	TT	TVD: 7,555.57'	TT	TVD: 7,555.08'	TT	TVD: 7,555.08'	TT
VS: 5,574.24'	TT	VS: 5,667.54'	TT	VS: 5,759.87'	TT	VS: 5,759.87'	TT

Mud Rheology		Mud Rheology		Mud Rheology		Mud Rheology	
Depth: 12,645	TT	Depth: 12,645	TT	Depth: 12,645	TT	Depth: 12,645	TT
SP: 4820psi	TT	SP: 4820psi	TT	SP: 4820psi	TT	SP: 4820psi	TT
Rot: 100rpm	TT	Rot: 100rpm	TT	Rot: 100rpm	TT	Rot: 100rpm	TT
SPM1: 78	TT	SPM1: 78	TT	SPM1: 78	TT	SPM1: 78	TT
SPM2: 78	TT	SPM2: 78	TT	SPM2: 78	TT	SPM2: 78	TT
YP: 6	TT	YP: 6	TT	YP: 6	TT	YP: 6	TT
GelStr: 710/12	TT	GelStr: 710/12	TT	GelStr: 710/12	TT	GelStr: 710/12	TT
Oil/Water: 80/20	TT	Oil/Water: 80/20	TT	Oil/Water: 80/20	TT	Oil/Water: 80/20	TT
Alk: 2.3	TT	Alk: 2.3	TT	Alk: 2.3	TT	Alk: 2.3	TT
Cl: 47000	TT	Cl: 47000	TT	Cl: 47000	TT	Cl: 47000	TT

SS: predy dk gy, mod -w cons, vfg, tr f-med grs, sb md- sb ang, mod strd, predy bioturb, v arg, sl calc;		SS: predy dk gy, mod -w cons, vfg, tr f-med grs, sb md- sb ang, mod strd, predy bioturb, v arg, sl calc;		SS: predy dk gy, mod -w cons, vfg, tr f-med grs, sb md- sb ang, mod strd, predy bioturb, v arg, sl calc;		SS: predy dk gy, mod -w cons, vfg, tr f-med grs, sb md- sb ang, mod strd, predy bioturb, v arg, sl calc;	
7450	TT	7450	TT	7450	TT	7450	TT
7550	TT	7550	TT	7550	TT	7550	TT







Survey Data									
MD: 13.412'	TT	11	TT	11	TT	11	TT	11	TT
Inc: 90.34°	TT	11	TT	11	TT	11	TT	11	TT
Azm: 181.8°	TT	11	TT	11	TT	11	TT	11	TT
TVD: 7,540.37'	TT	11	TT	11	TT	11	TT	11	TT
VS: 6,499.03'	TT	11	TT	11	TT	11	TT	11	TT

WOB: 30.0kbs
SP: 5189psi
Rot: 100rpm
SPM1: 79
SPM2: 78
Azm: 181.6°
TVD: 7,540.80'
VS: 6,591.25'

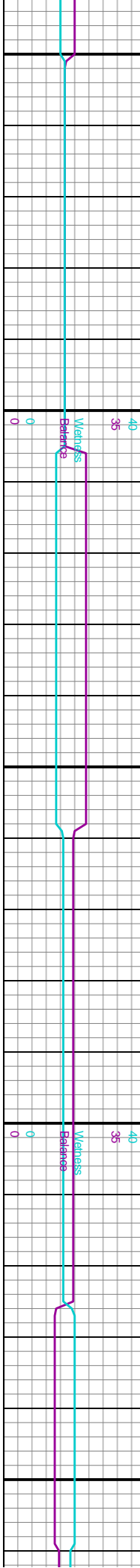
Survey Data									
MD: 13.506'	TT	11	TT	11	TT	11	TT	11	TT
Inc: 89.14°	TT	11	TT	11	TT	11	TT	11	TT
Azm: 181.6°	TT	11	TT	11	TT	11	TT	11	TT
TVD: 7,540.80'	TT	11	TT	11	TT	11	TT	11	TT
VS: 6,591.25'	TT	11	TT	11	TT	11	TT	11	TT

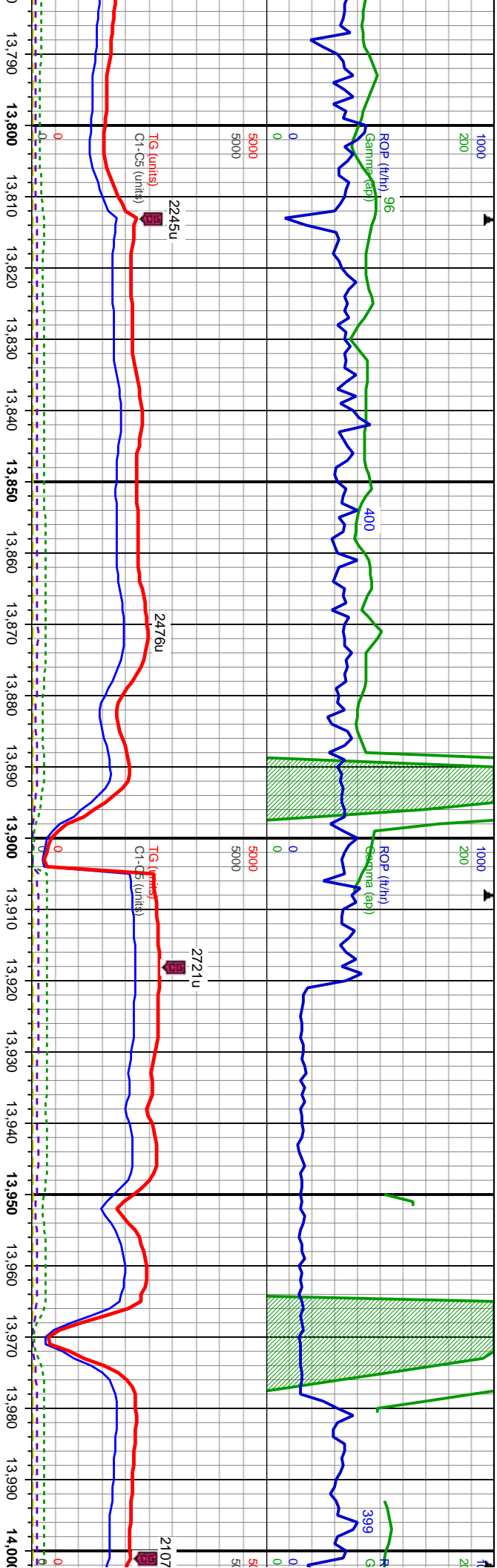
SS: priedy dk gy, mod -w cons, vfg, tr f-med grs, sb rnd- sb ang, mod srtd, occ lam, v arg, sl calc;

7650

SS: priedy dk gy, mod cons, vfg, tr f-med grs, sb ang, mod srtd, indst blotub/lam, v arg, sl calc;

7650



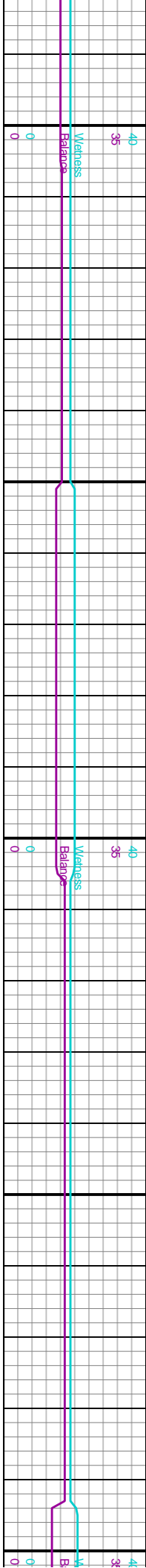


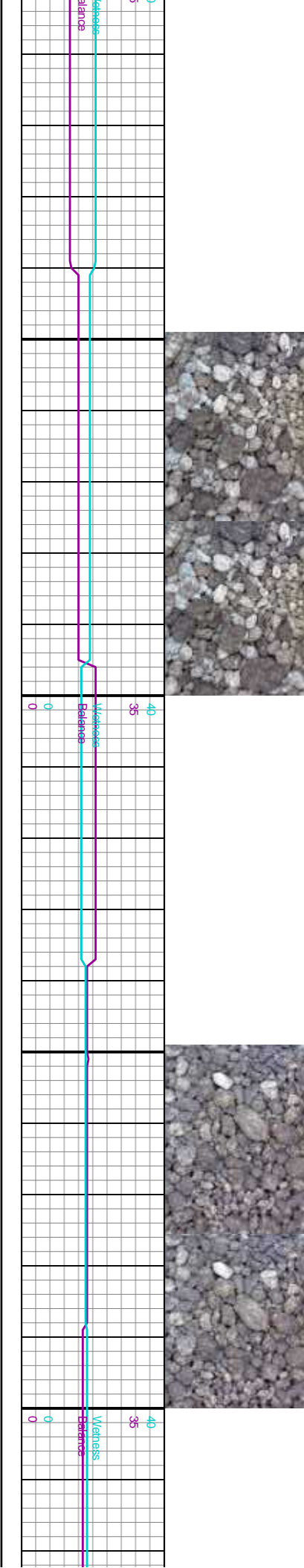
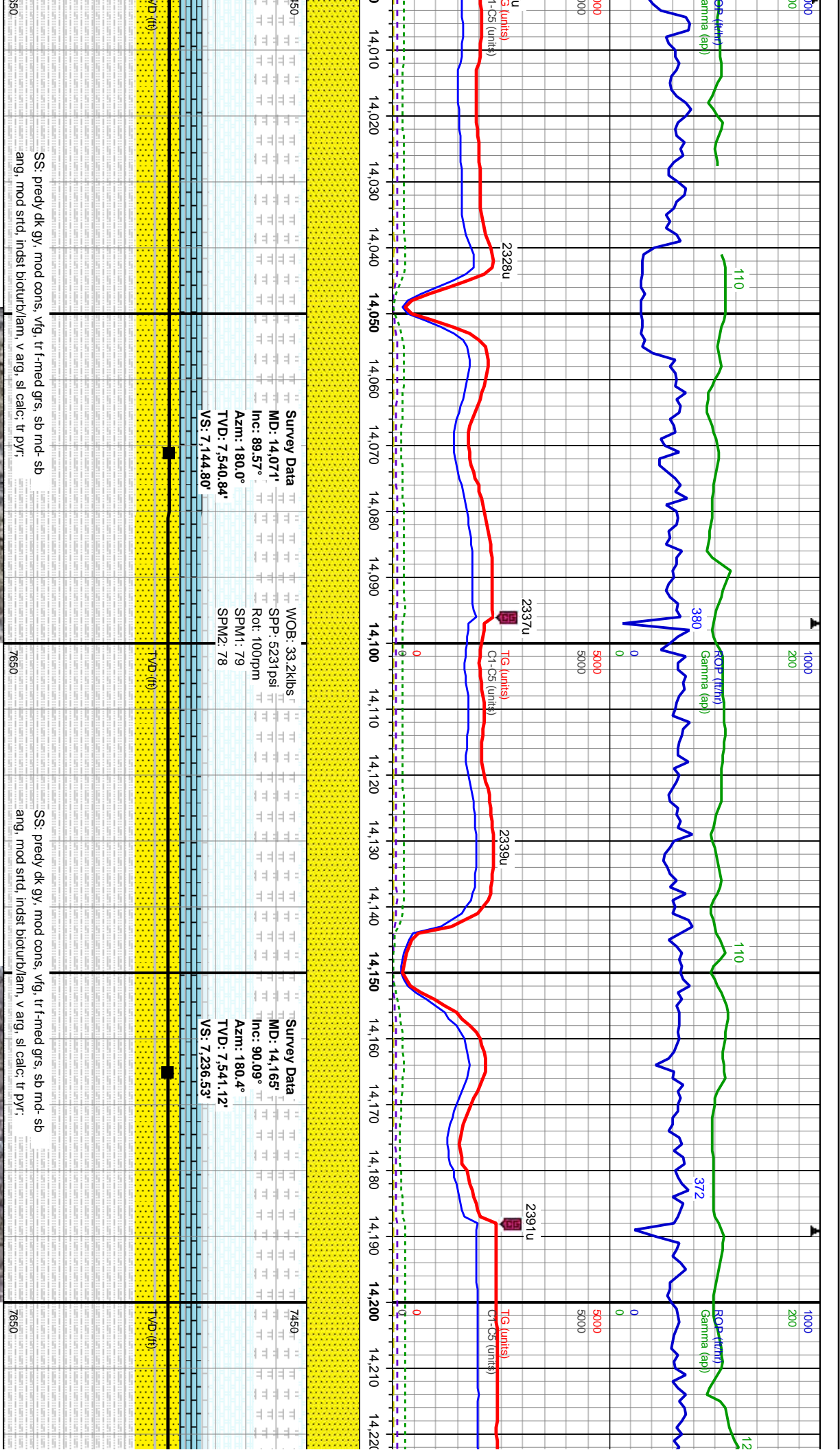
Survey Data									
WOB: 30.8kbs	TT	TT	TT	TT	TT	TT	TT	TT	TT
D: 13.787°	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPP: 5199psi	TT	TT	TT	TT	TT	TT	TT	TT	TT
Rot: 100rpm	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM1: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT
D: 7,540.00'	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM2: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 181.8°	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 6,866.54'	TT	TT	TT	TT	TT	TT	TT	TT	TT

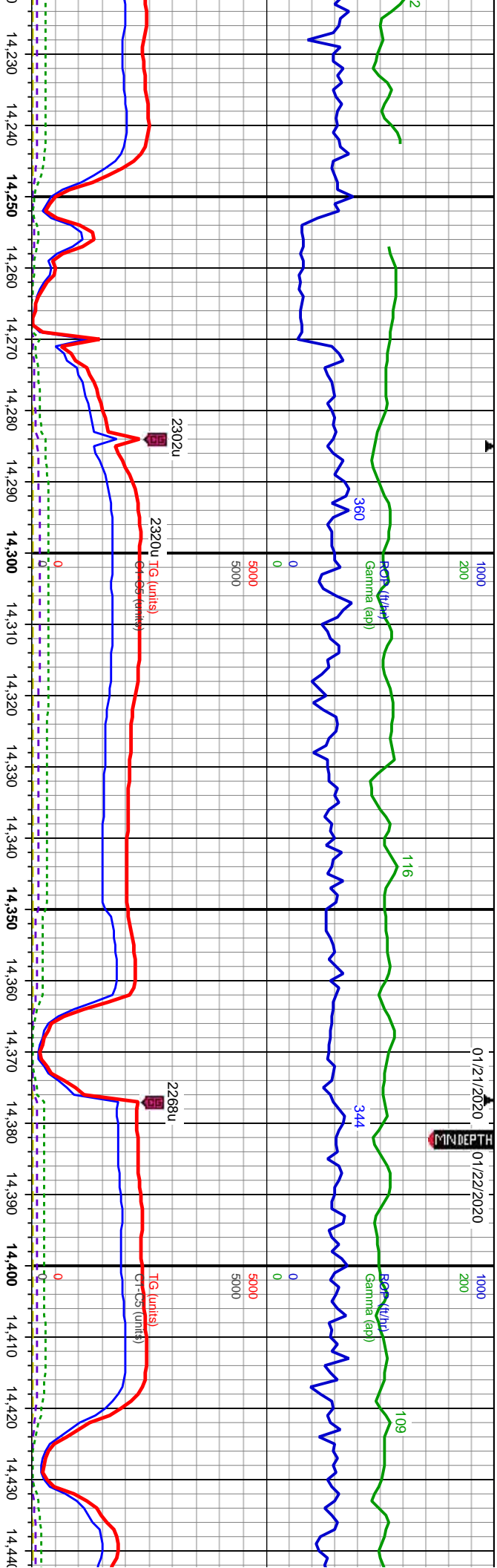
Survey Data									
MD: 13.882°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 90.06°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 182.0°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7,539.41'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 6,959.79'	TT	TT	TT	TT	TT	TT	TT	TT	TT

SS: predy dk gy, mod -w cons, vfg, tr f-med grs, sb
md- sb ang, mod srl, occ lam, v arg, sl calc; tr pyr;

SS: predy dk gy, mod -w cons, vfg, tr f-med grs, sb
md- sb ang, mod srl, occ lam, v arg, sl calc; tr pyr;







Survey Data
MD: 14,260'
Inc: 89.54°
Azim: 180.5°
TVD: 7,541.42'
VS: 7,329.32'

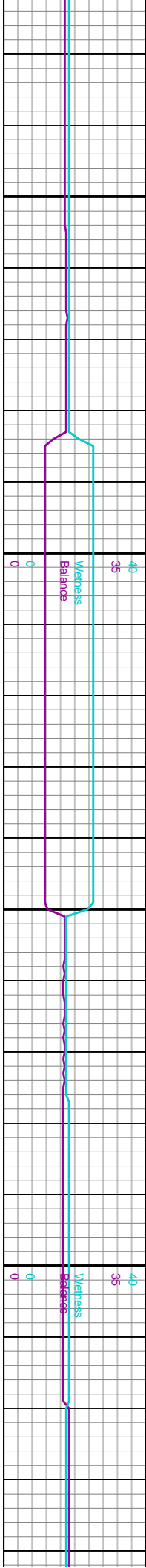
Survey Data
MD: 14,354'
Inc: 90.09°
Azim: 180.3°
TVD: 7,541.73'
VS: 7,421.10'

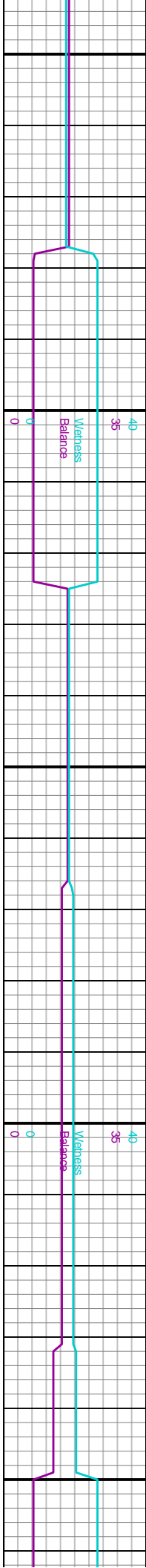
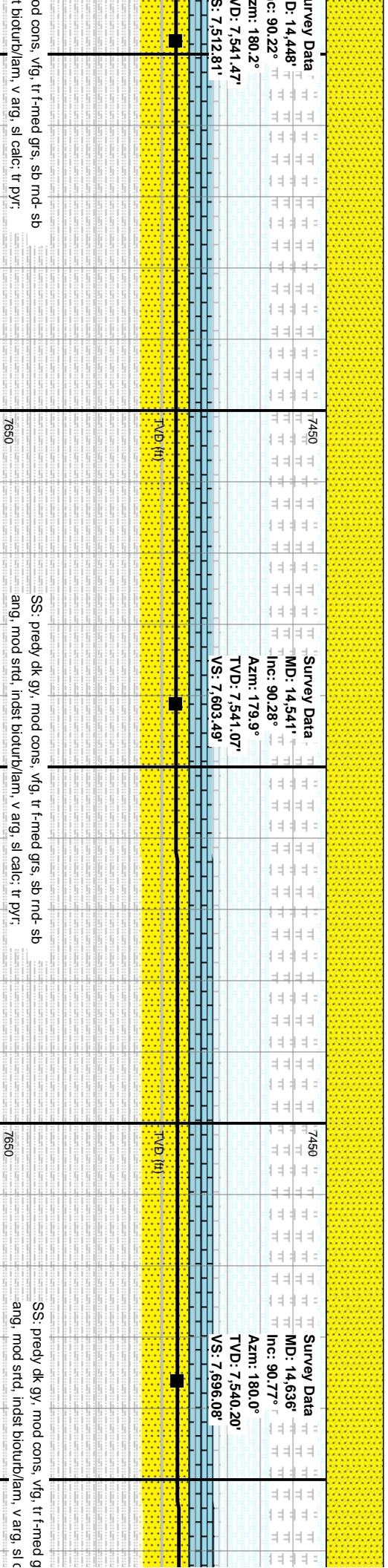
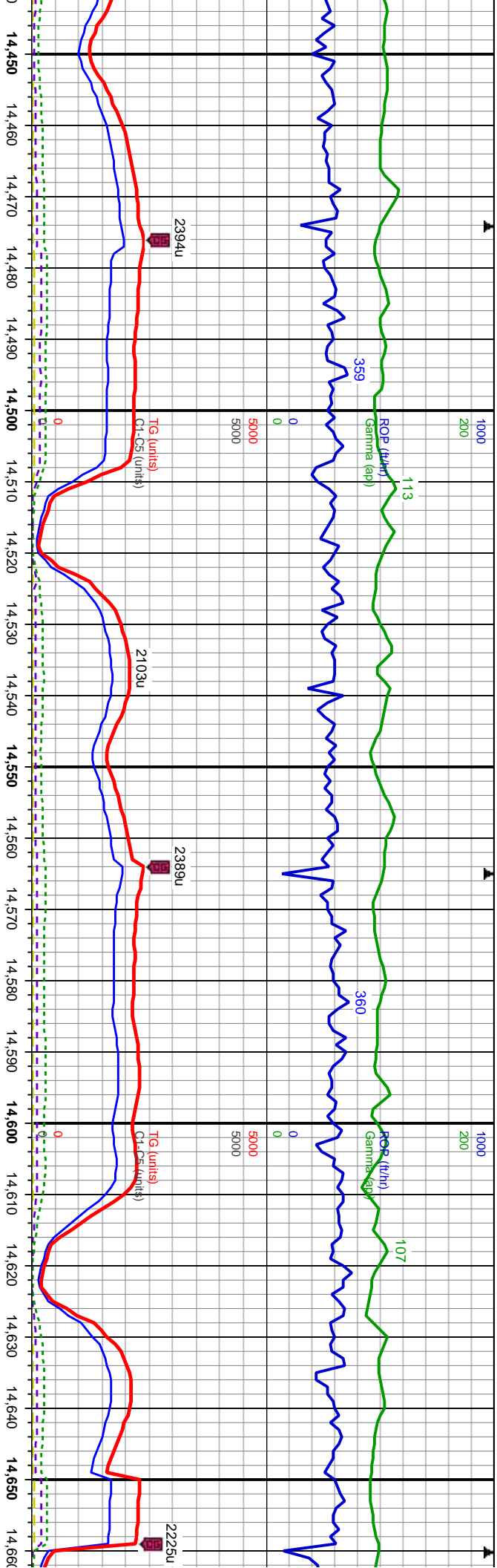
WOB: 33.2kbs
SP: 5306psi
Rot: 100rpm
SPM1: 78
SPM2: 78

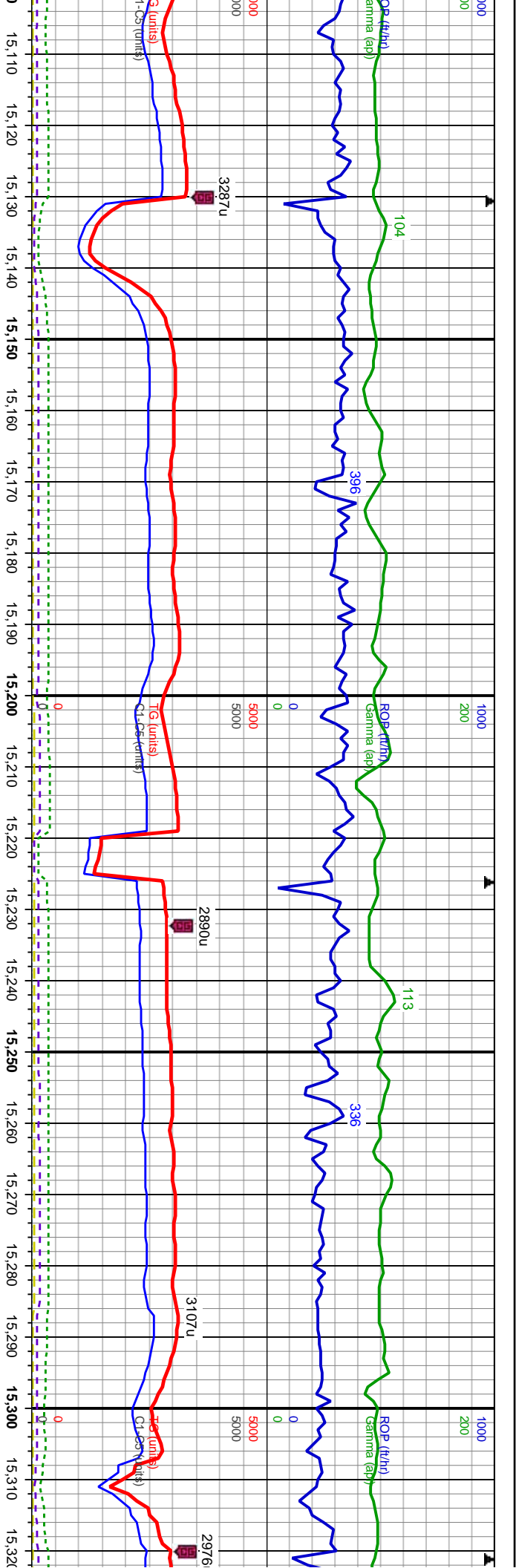
SS: predy dk gy, mod cons, vfg, tr f-med grs, sb md-sb ang, mod srt, indst bioturb/lan, v arg, sl calc; tr pyr.

SS: predy dk gy, mod cons, vfg, tr f-med grs, sb md-sb ang, mod srt, indst bioturb/lan, v arg, sl calc; tr pyr.

SS: predy dk gy, m ang, mod srt, indst





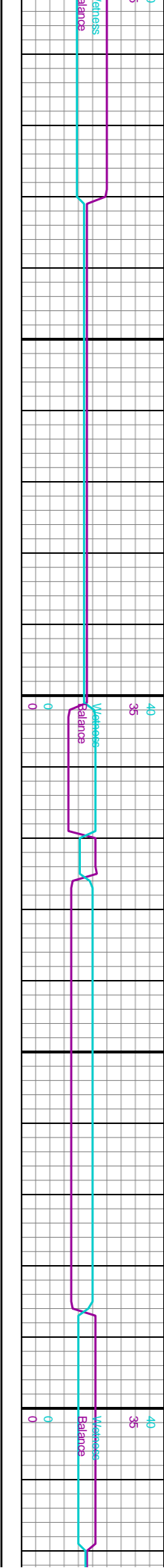


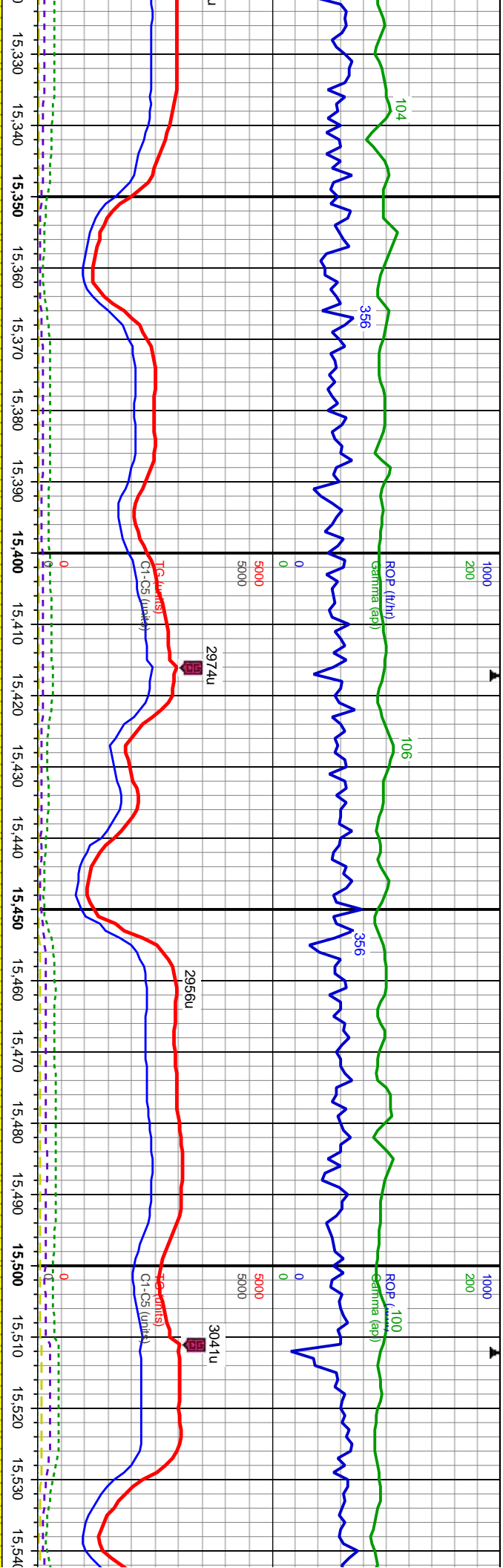
Survey Data									
MD: 15.108°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.82°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 181.2°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.540.67'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 8.156.69'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Survey Data									
MD: 15.202°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.29°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 179.6°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.541.40'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 8.248.46'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Mud Rheo									
WOB: 28.7kibs	TT	TT	TT	TT	TT	TT	TT	TT	TT
Depth: 15.1	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPP: 5416psi	TT	TT	TT	TT	TT	TT	TT	TT	TT
Rot: 100rpm	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM1: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM2: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT
V/s: 67	TT	TT	TT	TT	TT	TT	TT	TT	TT
PV: 26	TT	TT	TT	TT	TT	TT	TT	TT	TT
YP: 7	TT	TT	TT	TT	TT	TT	TT	TT	TT
GelStr: 8/1	TT	TT	TT	TT	TT	TT	TT	TT	TT
Oil/Water:	TT	TT	TT	TT	TT	TT	TT	TT	TT
Alk: 2.0	TT	TT	TT	TT	TT	TT	TT	TT	TT
CI: 44000	TT	TT	TT	TT	TT	TT	TT	TT	TT

Survey Data									
MD: 15.108°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.82°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 181.2°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.540.67'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 8.156.69'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Survey Data									
MD: 15.202°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.29°	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 179.6°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.541.40'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 8.248.46'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Mud Rheo									
WOB: 28.7kibs	TT	TT	TT	TT	TT	TT	TT	TT	TT
Depth: 15.1	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPP: 5416psi	TT	TT	TT	TT	TT	TT	TT	TT	TT
Rot: 100rpm	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM1: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM2: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT
V/s: 67	TT	TT	TT	TT	TT	TT	TT	TT	TT
PV: 26	TT	TT	TT	TT	TT	TT	TT	TT	TT
YP: 7	TT	TT	TT	TT	TT	TT	TT	TT	TT
GelStr: 8/1	TT	TT	TT	TT	TT	TT	TT	TT	TT
Oil/Water:	TT	TT	TT	TT	TT	TT	TT	TT	TT
Alk: 2.0	TT	TT	TT	TT	TT	TT	TT	TT	TT
CI: 44000	TT	TT	TT	TT	TT	TT	TT	TT	TT

SS: piedy dk gy, mod cons, vfg, tr f-med grs, sb md- sb
ang, mod srt, indst biotur/iam, v arg, sl calc; tr pyr.

SS: piedy dk gy, mod cons, vfg, tr f-med grs, sb md- sb
ang, mod srt, indst biotur/iam, v arg, sl calc; tr pyr.





log		log	
15,330	15,340	15,350	15,360
15,370	15,380	15,390	15,400
15,410	15,420	15,430	15,440
15,450	15,460	15,470	15,480
15,490	15,500	15,510	15,520
15,530	15,540		

Survey Data
MD: 15,391'
Inc: 90.09°
Azim: 179.3°
TVD: 7,542.42'
VS: 8,432.29'

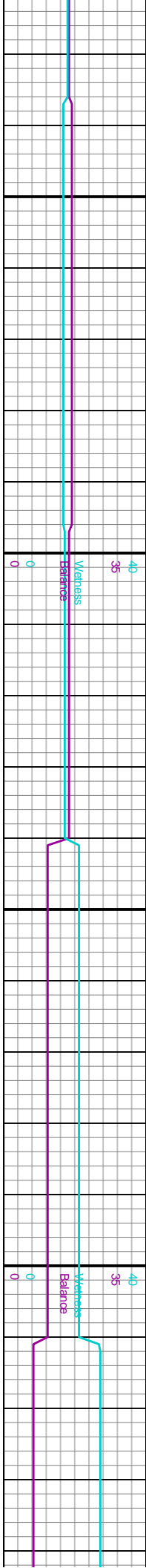
Survey Data
MD: 15,485'
Inc: 89.75°
Azim: 180.3°
TVD: 7,542.55'
VS: 8,523.85'

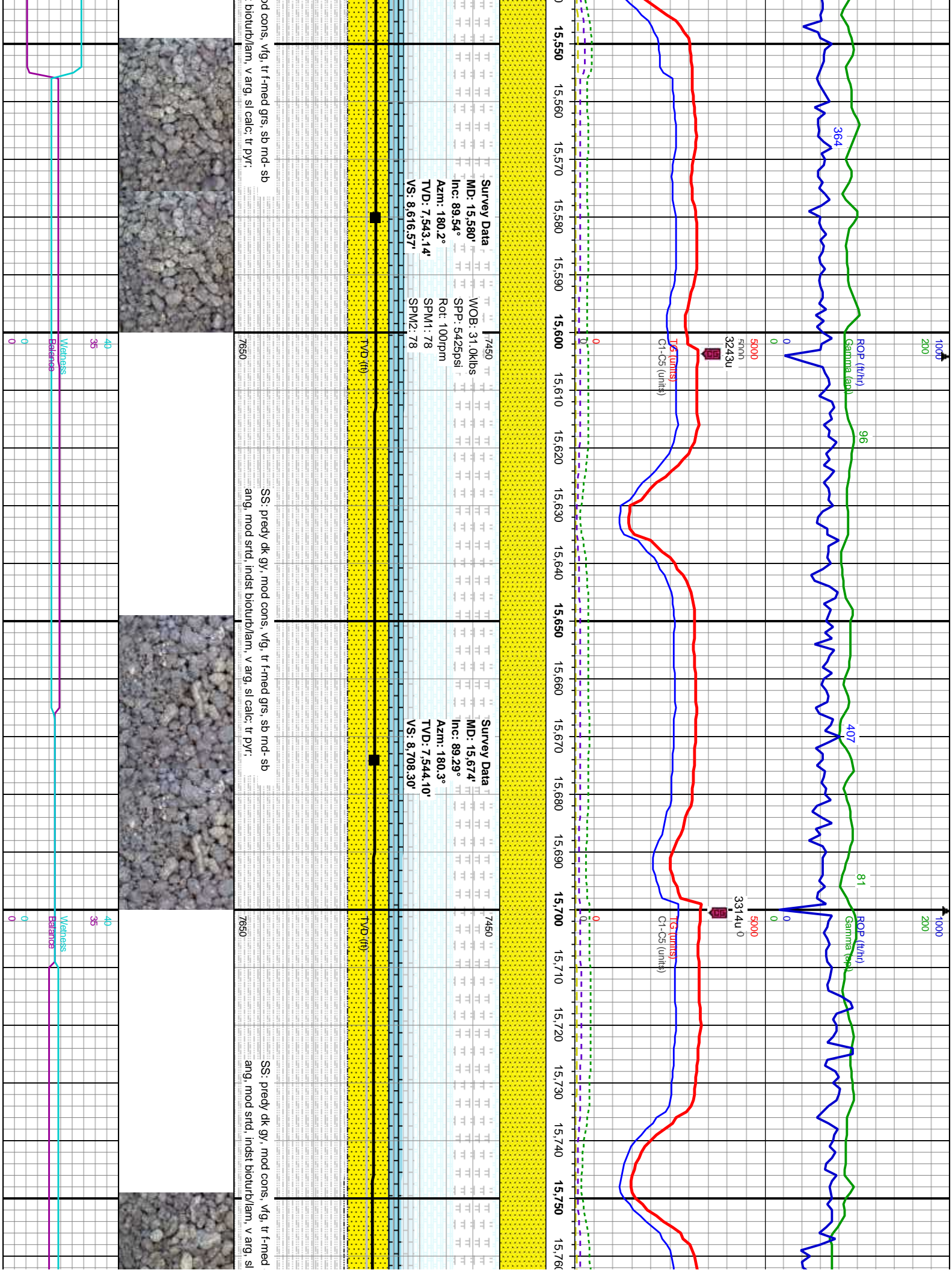
1/13		1/13	
8/1/19	8/1/19	8/1/19	8/1/19
15,330	15,340	15,350	15,360
15,370	15,380	15,390	15,400
15,410	15,420	15,430	15,440
15,450	15,460	15,470	15,480
15,490	15,500	15,510	15,520
15,530	15,540		

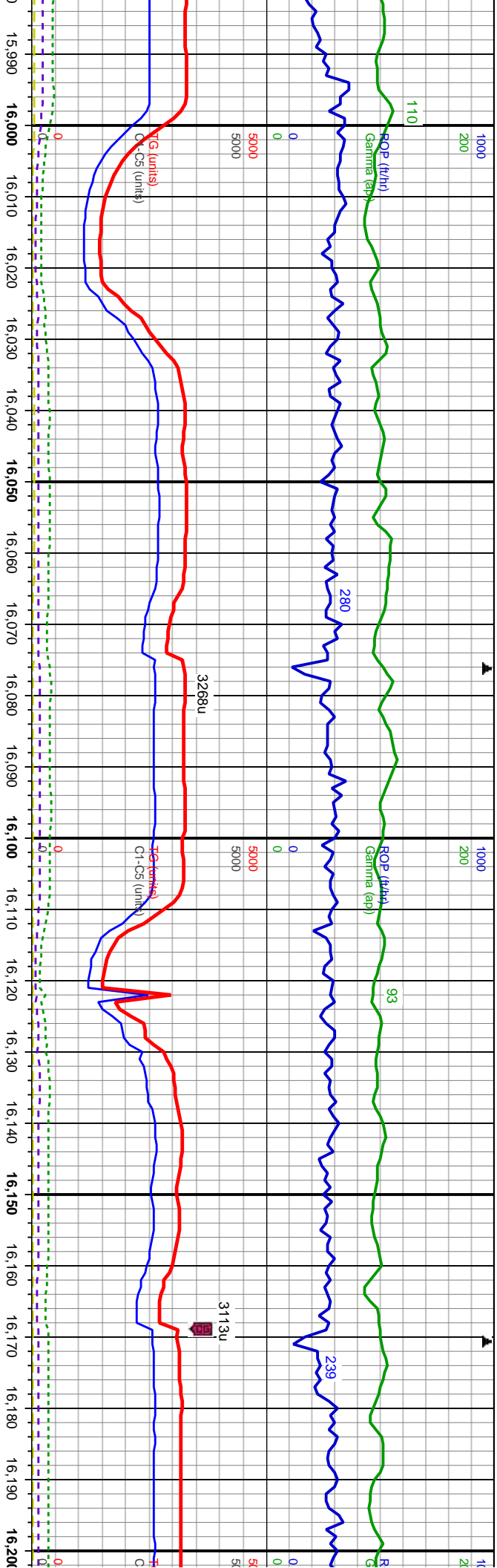
SS: predy dk gy, mod cons, vfg, tr f-med grs, sb rnd- sb
ang, mod strd, indst bioturblam, v arg, sl calc; tr pyr;

SS: predy dk gy, mod cons, vfg, tr f-med grs, sb rnd- sb
ang, mod strd, indst bioturblam, v arg, sl calc; tr pyr;

SS: predy dk gy, mod cons, vfg, tr f-med grs, sb rnd- sb
ang, mod strd, indst bioturblam, v arg, sl calc; tr pyr;







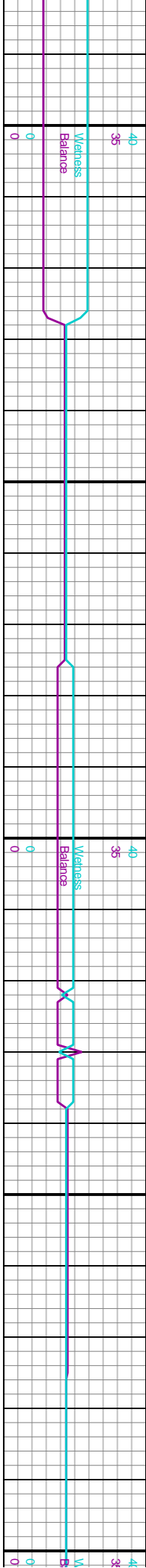
Survey Data
MD: 16.051'
Inc: 89.05°
Azim: 180.0°
TVD: 7,548.66'
VS: 9.075.99'

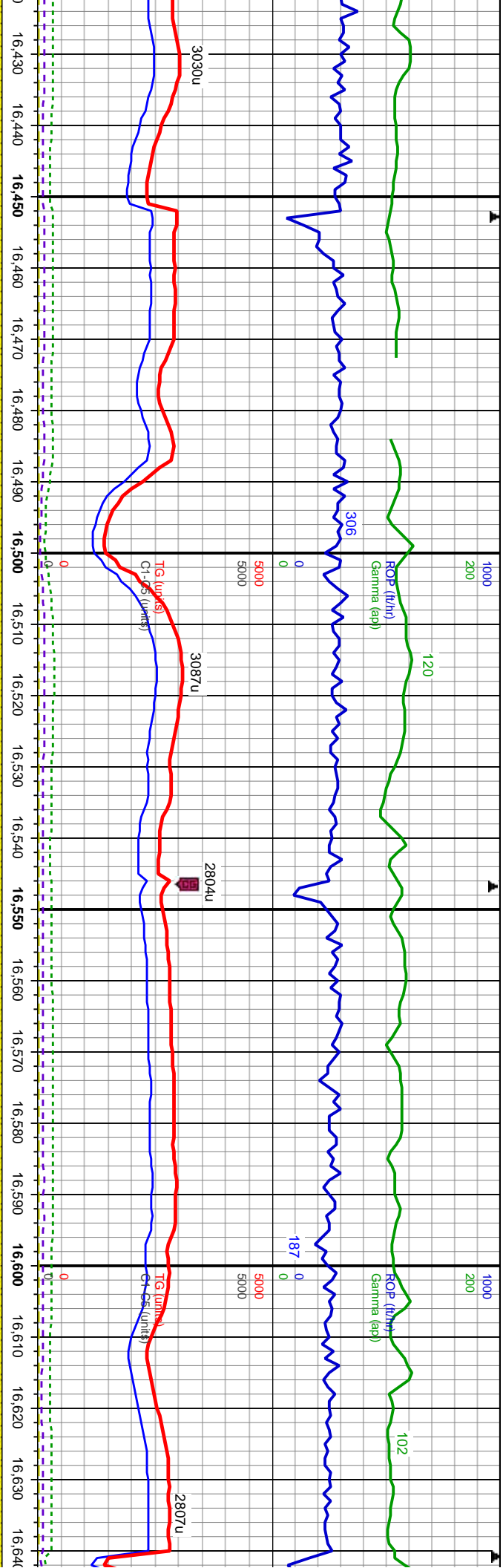
Survey Data
MD: 16.146'
Inc: 89.75°
Azim: 179.2°
TVD: 7,549.65'
VS: 9.168.47'

WOB: 31.146'
SPM: 569'
Rot: 100R
SPM1: 78
SPM2: 78

SS: priedy dk gy, mod cons, vfg, tr f-med grs, sb md- sb
ang, mod srt, indst bloturb/lam, v arg, sl calc, tr pyr,

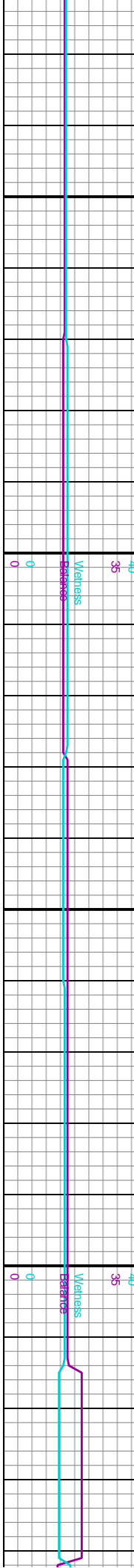
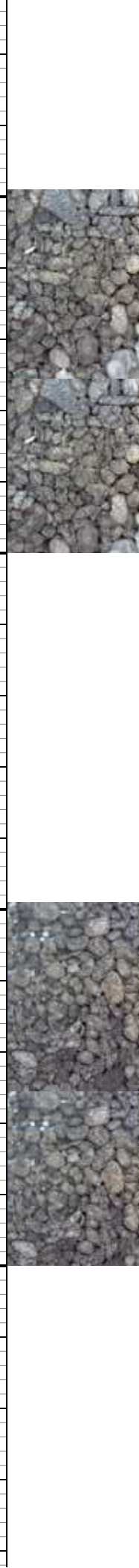
SS: priedy dk gy, mod cons, vfg, tr f-med grs, sb md- sb
ang, mod srt, indst bloturb/lam, v arg, sl calc, tr pyr,

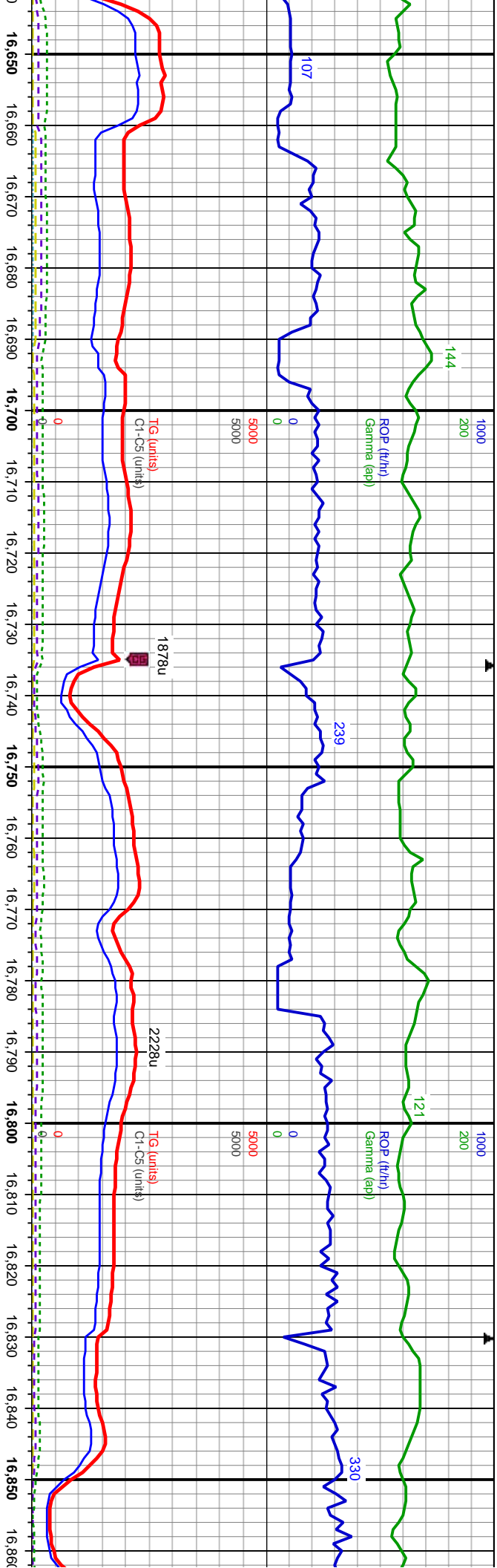




Survey Data											
ID: 16.429°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 90.03°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
VD: 7.552.96'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
S: 9.444.11'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 179.9°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
WOB: 25.9klbs	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPP: 5840psi	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Rot: 100rpm	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM1: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
SPM2: 78	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 179.9°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.553.24'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 9.535.70'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT

Survey Data											
ID: 16.523°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.63°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
VD: 7.553.24'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
S: 9.535.70'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 179.2°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
MD: 16.617°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.82°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.553.69'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 9.627.17'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azm: 179.2°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
MD: 16.617°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 89.82°	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7.553.69'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 9.627.17'	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT	TT





7450
Survey Data
MD: 16,711'
Inc: 90.22°
Azim: 182.4°
TVD: 7,553.66'
VS: 9,719.08'

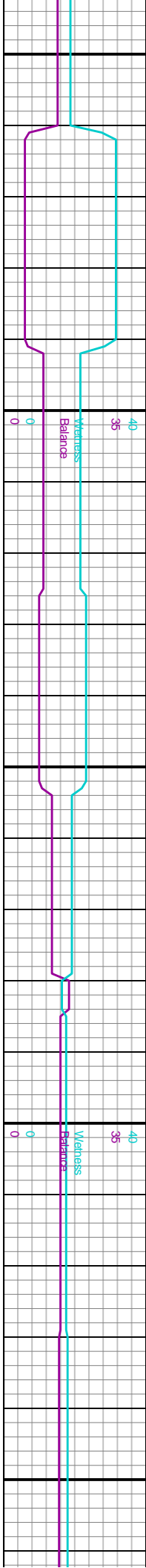
7450
WOB: 29.5kbs
SPP: 5750psi
Rot: 100rpm
SPM1: 78
SPM2: 78

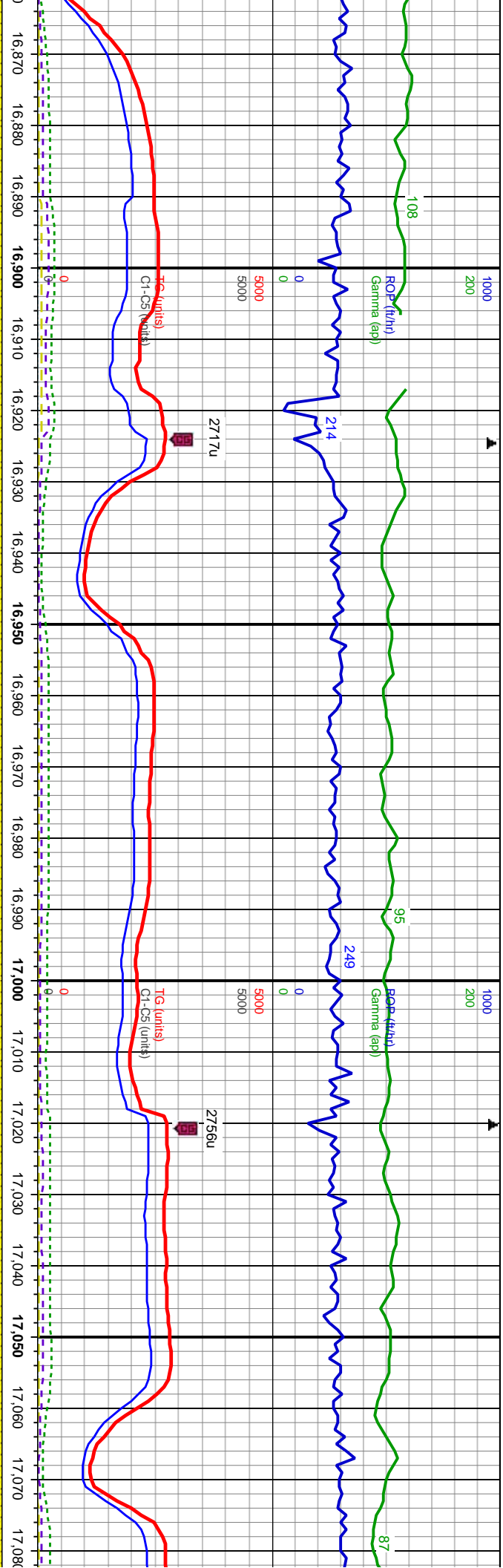
7450
Survey Data
MD: 16,805'
Inc: 91.39°
Azim: 181.9°
TVD: 7,552.34'
VS: 9,811.43'

cons, vfg, tr f-med grs, sb rnd- sb ang, mod strd, indst bloturb/lan, v arg, sl calc, occ pyr clus;

SS: predy dk gy, mod cons, vfg, tr f-med grs, sb rnd- sb ang, mod strd, indst bloturb/lan, v arg, sl calc, occ pyr clus;

SS: predy dk gy, mod cons, vfg, tr f-med grs, sb rnd- sb ang, mod strd, indst bloturb/lan, v arg, sl calc, occ pyr clus;





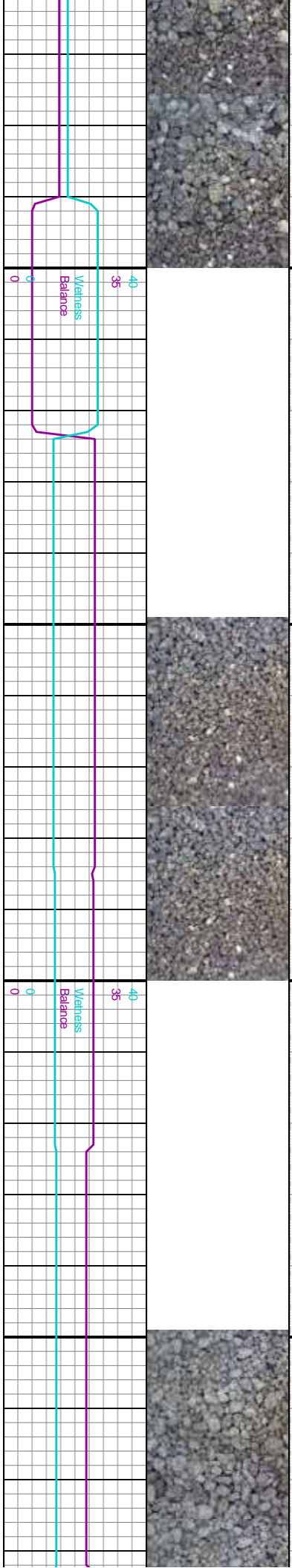
Survey Data
MD: 16.900'
Inc: 90.28°
Az: 181.7°
TVD: 7,550.95'
VS: 9,904.64'

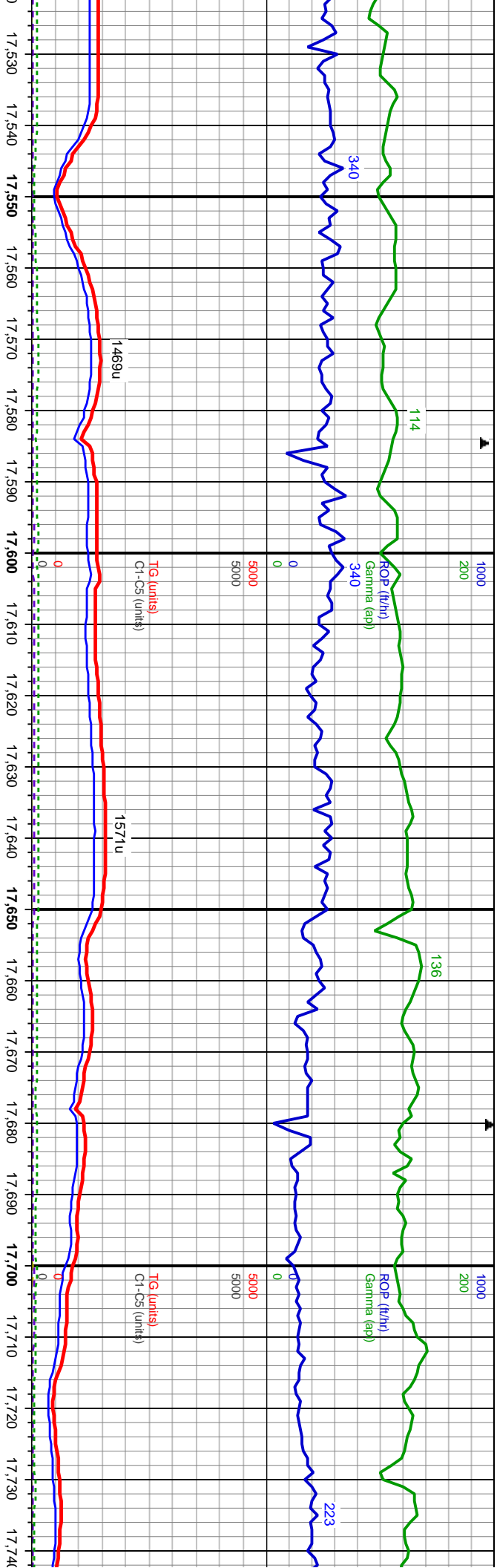
Survey Data
MD: 16.994'
Inc: 90.49°
Az: 182.4°
TVD: 7,550.32'
VS: 9,996.96'

grs, sb rnd- sb ang,
occ pyr clus:

SS: priedy dk gy, mod cons, vfg, tr f-med grs, sb rnd- sb
ang, mod strd, indst bioturblam, v arg, sl calc; tr pyr;

SS: priedy dk gy, mod cons, vfg, tr f-med grs, sb rnd- sb
ang, mod strd, indst bioturblam, v arg, sl calc; tr pyr;





Survey Data
MD: 17,561'
Inc: 88.34°
Azim: 181.6°
TVD: 7,562.61'
VS: 10,552.58'

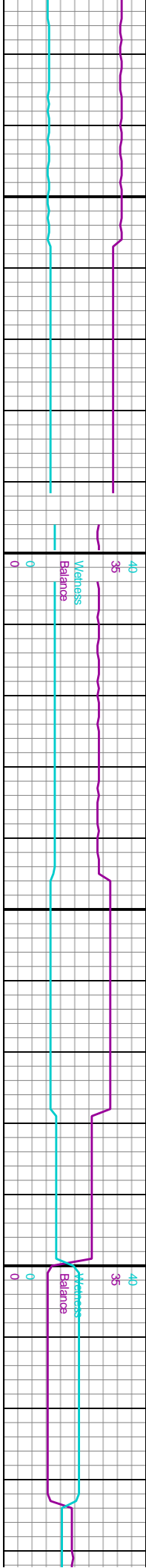
Survey Data
MD: 17,656'
Inc: 88.74°
Azim: 181.5°
TVD: 7,565.03'
VS: 10,645.71'

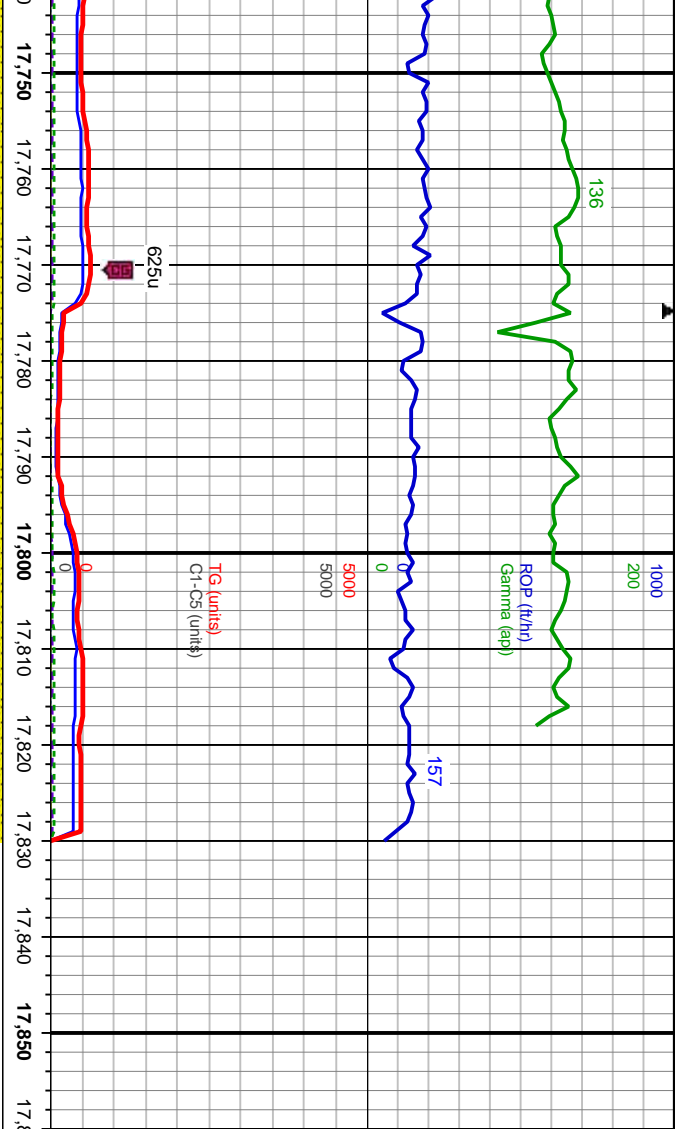
WOB: 3.1 Oklbs
SP: 5710psi
Rot: 50rpm
SPM1: 78
SPM2: 78

SS: predy dk gy, mod cons, vfg, tr f-med gs, sb md-sb ang, mod srd, indst bloturb/lam, v arg, sl calc, tr pyr.

SS: predy dk gy, mod cons, vfg, tr f-med gs, sb md-sb ang, mod srd, indst bloturb/lam, v arg, sl calc, tr pyr.

SS: predy dk gy, mod cons, vfg, tr f-med gs, sb md-sb ang, mod srd, indst bloturb/lam, v arg, sl calc, tr pyr.





Survey Data									
MD: 17,750'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 88.83°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7,567.02'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 10,737.92'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azrn: 182.0°	TT	TT	TT	TT	TT	TT	TT	TT	TT

Survey Data									
MD: 17,830'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 88.83°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7,568.66'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 10,816.47'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azrn: 182.0°	TT	TT	TT	TT	TT	TT	TT	TT	TT

Reached TD of 17,830 MD
at 18:12 hrs on 01/22/2020

Survey Data									
MD: 17,750'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 88.83°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7,567.02'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 10,737.92'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azrn: 182.0°	TT	TT	TT	TT	TT	TT	TT	TT	TT

Survey Data									
MD: 17,830'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Inc: 88.83°	TT	TT	TT	TT	TT	TT	TT	TT	TT
TVD: 7,568.66'	TT	TT	TT	TT	TT	TT	TT	TT	TT
VS: 10,816.47'	TT	TT	TT	TT	TT	TT	TT	TT	TT
Azrn: 182.0°	TT	TT	TT	TT	TT	TT	TT	TT	TT

Thank you for using Columbine Corporation

