

# COLUMBINE LOGGING

## Wellsite Geology

Scale: 2.50" / 100'  
Measured Depth Log

**Well Name** Salt Ranch Fee 502-1034H

**Location** S.10 T11N R64W

**State** Colorado

**County** Weld

**Country** USA

**Rig Number** Unit 406

**API Number** 0512346501

**Field** DJ Basin

**Spud Date** 4/09/2019

**Drilling Completed** 4/27/2019

**Surface Coordinates** 40.94220977,-104.5253904

S.10 T11N R64W

637' FEL (sec 10)

357' FNL (sec 10)

**Bottom Hole Coordinates** 40.97074486,-104.5290812

1620' FEL (sec 34)

600' FNL (sec 34)

**Ground Elevation** 5434

**K.B. Elevation** 5456

**Logged Interval** 7200 To 17884

**Total Depth** 17884

**Formation** Codell

**Type of Drilling Fluid** OBM

### Operator

**Company** Clear Creek Resource Partners

**Address** 717 17th Street, Suite 1525  
Denver, CO 80202



**CLEAR CREEK**  
Resource Partners

### Geologist

**Name** Steen Jergenson

**Company** Clear Creek Resource Partners

**Address** 717 17th Street, Suite 1525  
Denver, CO 80202

### Other

**Mudlogging Company** Columbine Logging Inc.

**Wellsite Geologist (Days)** Jeremy Loftness

**Wellsite Geologist (Nights)** Ty Gallaway

### Rock Types



CHALK  
LIMESTONE



MARLSTONE  
SANDSTONE



Other Symbols

Engineering

▲ CONNECTION (UP)

🔌 CONNECTION GAS

↕ FORMATION TOP

⚡ FAULT

K

SILTY SHALE



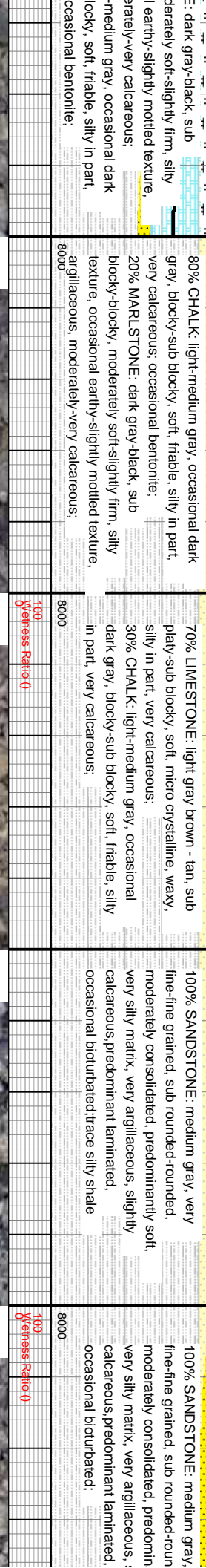
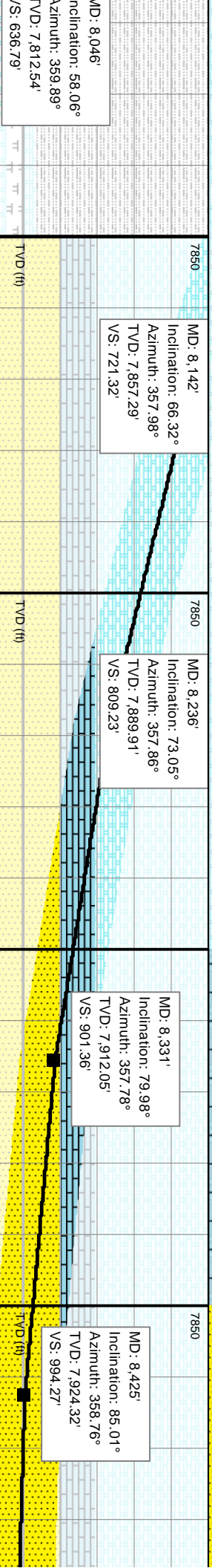
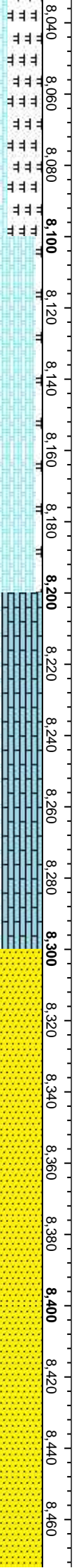
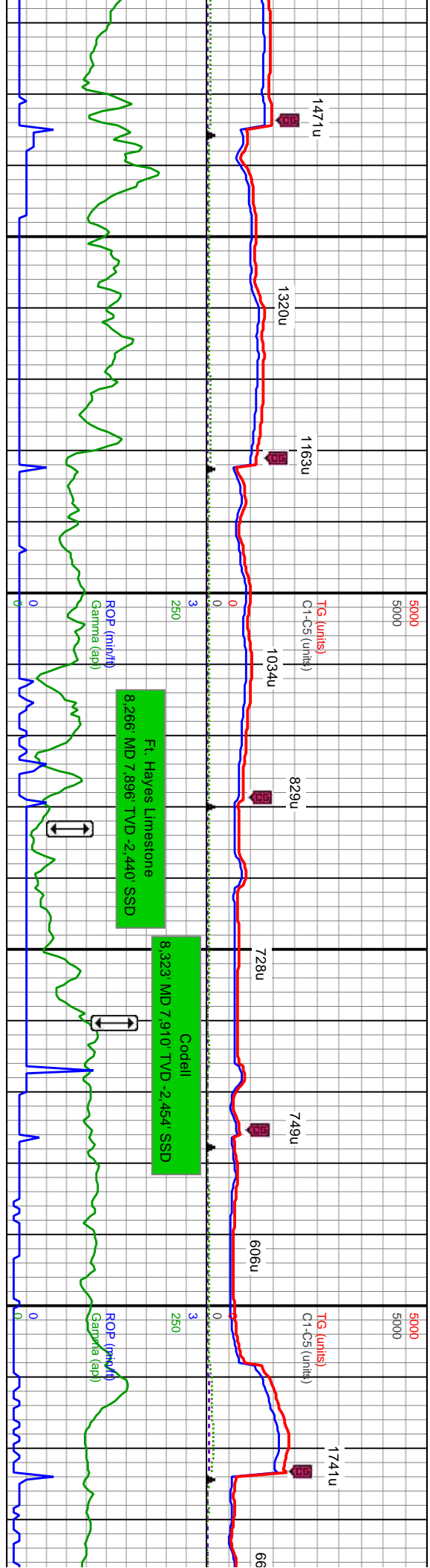
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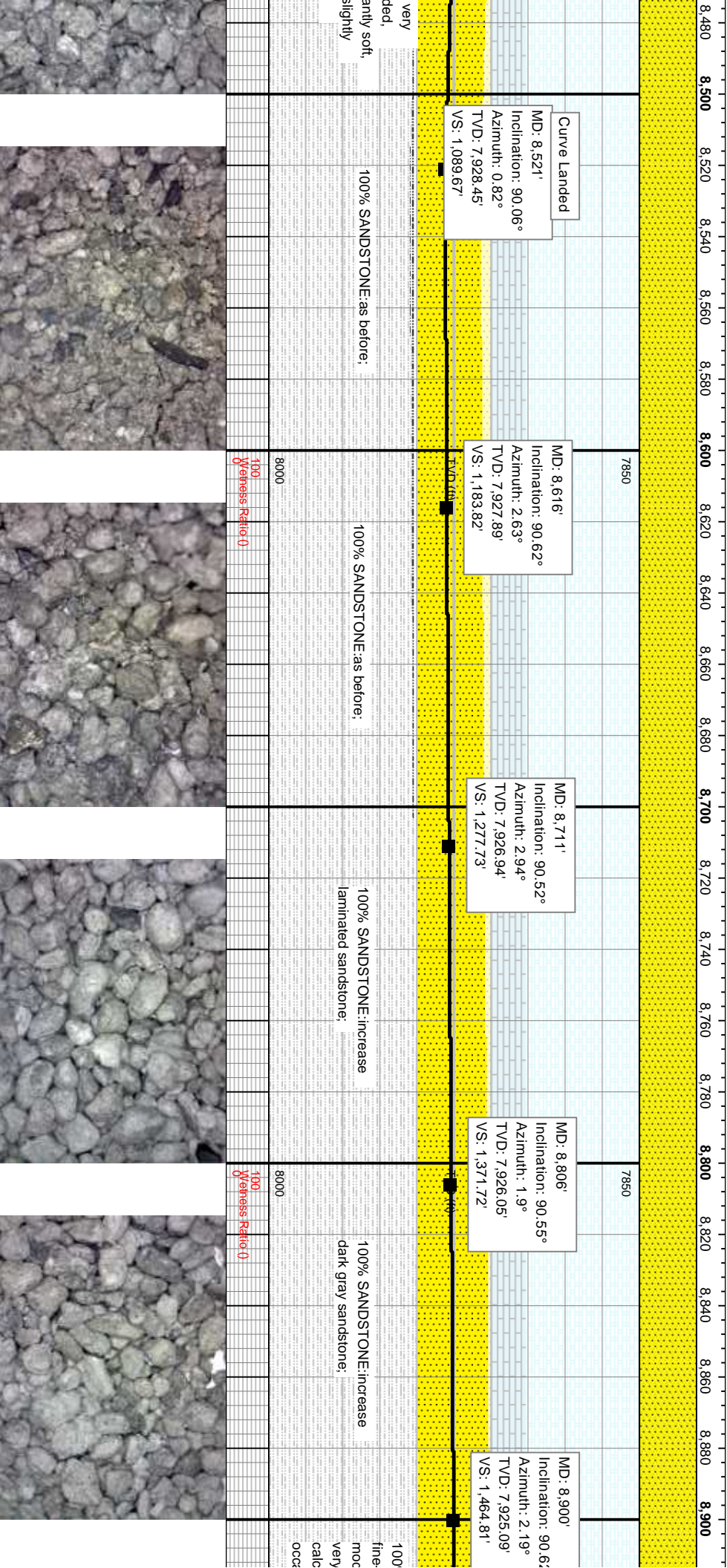
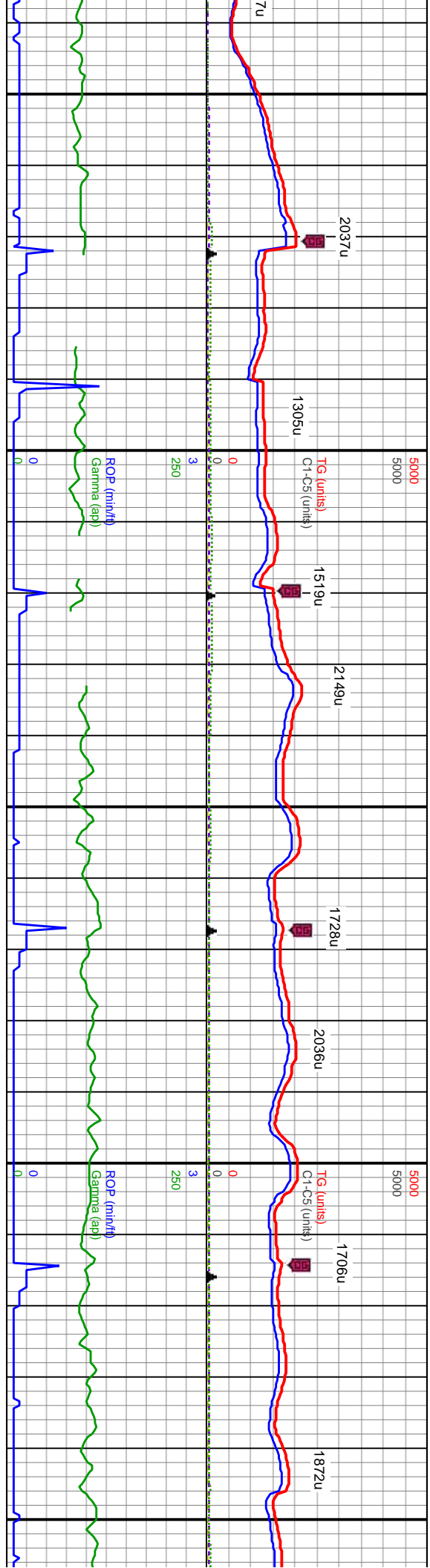




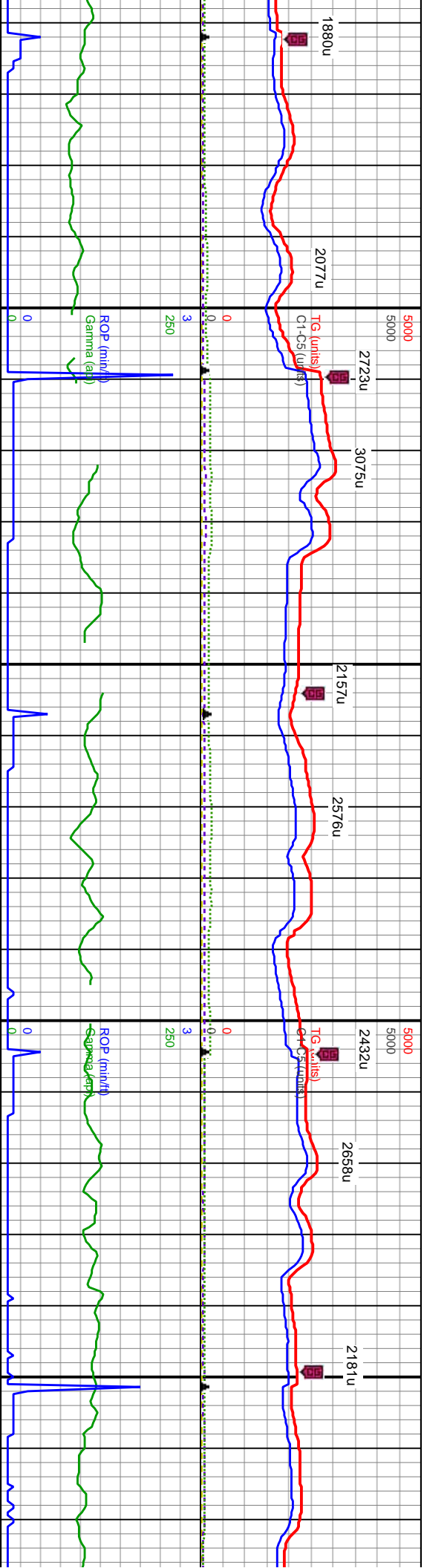












MD: 8.995'  
Inclination: 90.95°  
Azimuth: 3.6°  
TVD: 7.923.79'  
VS: 1.558.88'

MD: 9.089'  
Inclination: 90.65°  
Azimuth: 3.78°  
TVD: 7.922.48'  
VS: 1.651.35'

MD: 9.184'  
Inclination: 90.58°  
Azimuth: 1.77°  
TVD: 7.921.46'  
VS: 1.745.25'

MD: 9.279'  
Inclination: 90.49°  
Azimuth: 359.52°  
TVD: 7.920.57'  
VS: 1.839.62'

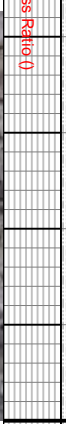
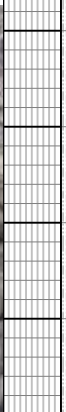
% SANDSTONE: medium gray, very fine grained, sub rounded-rounded, laterally consolidated, predominantly soft, silty matrix, very argillaceous, slightly areaceous, predominant laminated, occasional bioturbated;

100% SANDSTONE:as before:

100% SANDSTONE:as before;trace silty shale

100% SANDSTONE:as before;increase silty shale;

100% SANDSTONE:as before;decrease

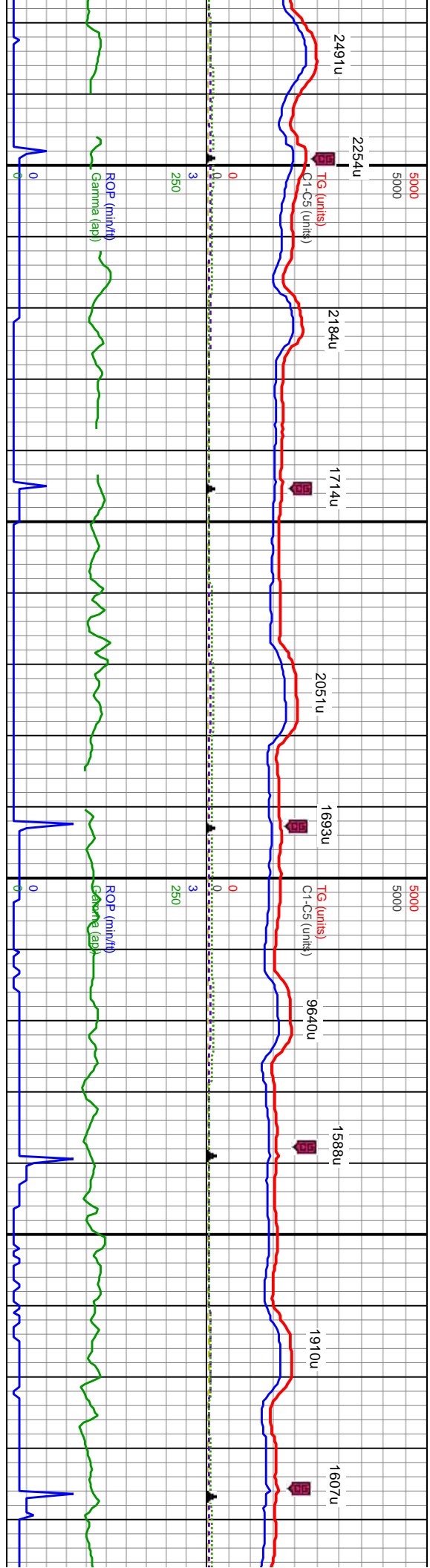


100  
Wenness Ratio 0

100  
Wenness Ratio 0

100  
Wenness Ratio 0





MD: 9.373'  
Inclination: 90.68°  
Azimuth: 356.33°  
TVD: 7.919.61'  
VS: 1.933.39'

MD: 9.466'  
Inclination: 90.58°  
Azimuth: 355.29°  
TVD: 7.918.59'  
VS: 2.026.35'

MD: 9.559'  
Inclination: 90.62°  
Azimuth: 356.05°  
TVD: 7.917.62'  
VS: 2.119.3'

MD: 9.654'  
Inclination: 90.52°  
Azimuth: 356.74°  
TVD: 7.916.67'  
VS: 2.214.22'

MD: 9.749'  
Inclination: 90.68°  
Azimuth: 357.2°  
TVD: 7.915.68'  
VS: 2.309.1'

100% SANDSTONE: medium gray, very fine-fine grained, sub rounded-rounded, moderately consolidated, predominantly soft, very silty matrix, very argillaceous, slightly calcareous, predominant laminated, occasional bioturbated; trace silty shale

100% SANDSTONE: as before:

100% SANDSTONE: increase bioturbated sandstone:

100% SANDSTONE: as before:



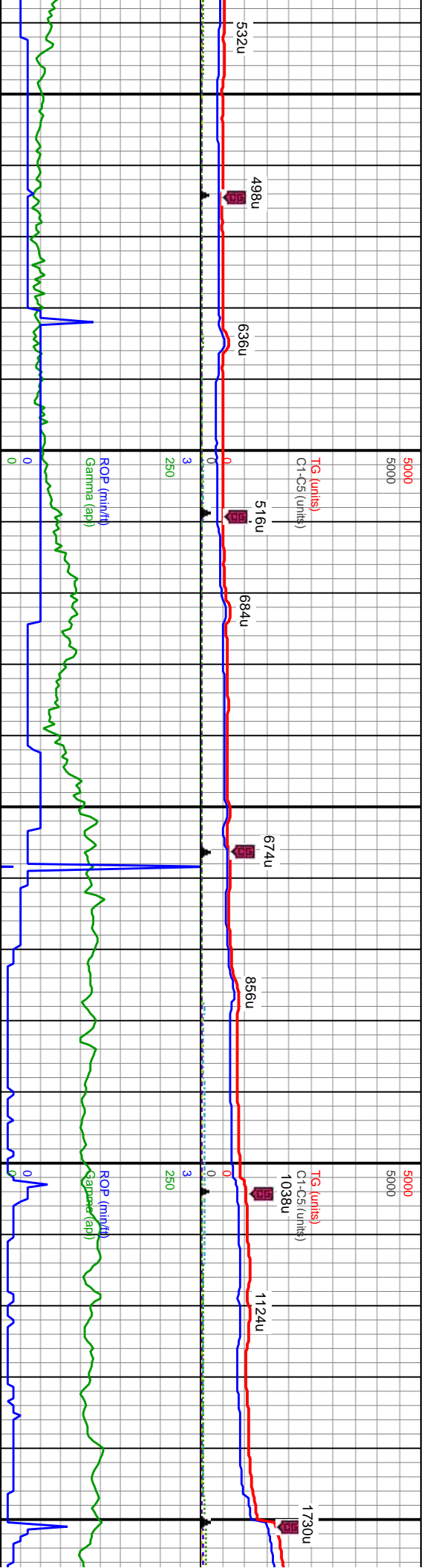




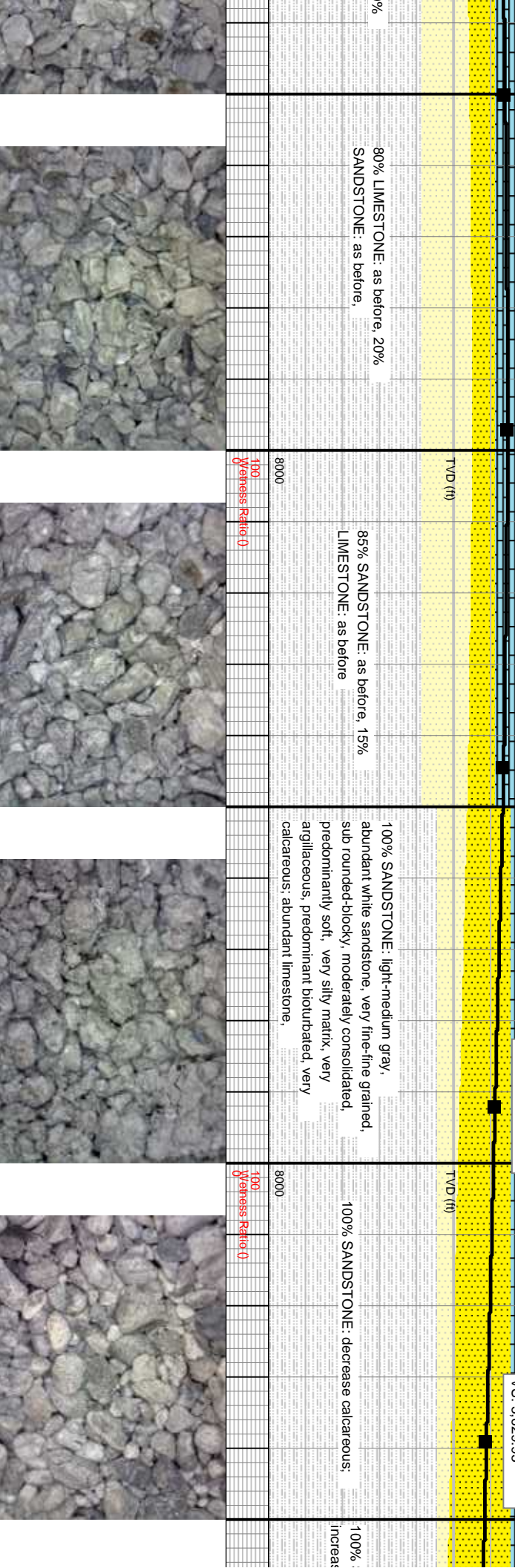




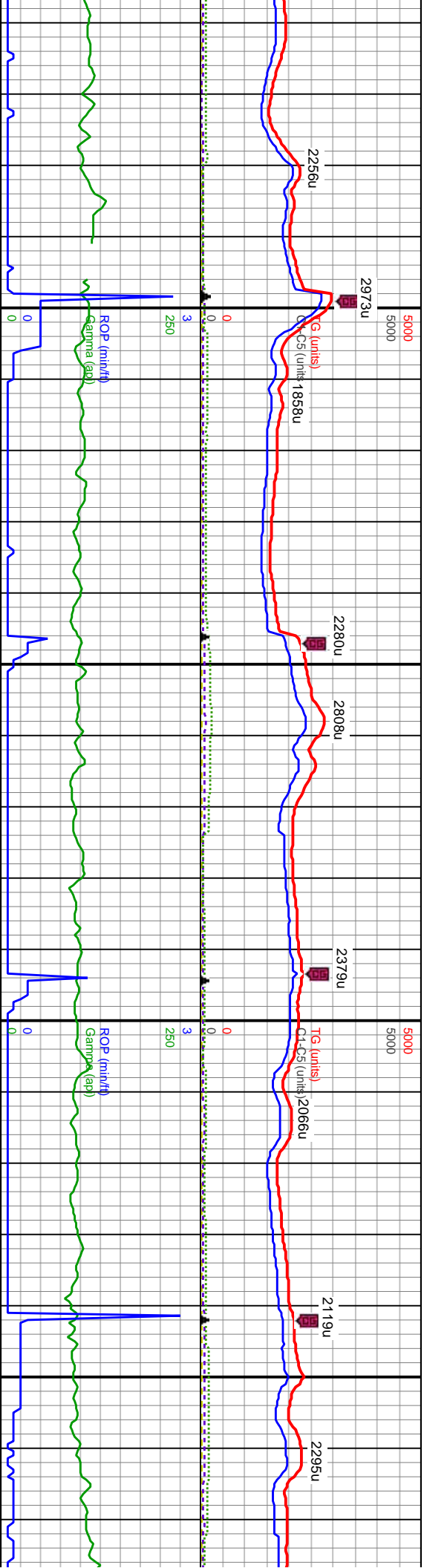




MD: 10,700'	MD: 10,794'	MD: 10,889'	MD: 10,984'	MD: 11,078'
Inclination: 91.35°	Inclination: 90.06°	Inclination: 87.82°	Inclination: 87.88°	Inclination: 87.94°
Azimuth: 3.61°	Azimuth: 2.27°	Azimuth: 2.11°	Azimuth: 1.78°	Azimuth: 2.2°
TVD: 7,904.04'	TVD: 7,902.88'	TVD: 7,904.64'	TVD: 7,908.2'	TVD: 7,911.63'
VS: 3,255.94'	VS: 3,348.81'	VS: 3,442.84'	VS: 3,536.89'	VS: 3,629.93'







MD: 11,174'  
Inclination: 87.97°  
Azimuth: 1.57°  
TVD: 7,915.06'  
VS: 3,724.98'

MD: 11,268'  
Inclination: 89.82°  
Azimuth: 1.19°  
TVD: 7,916.87'  
VS: 3,818.2'

MD: 11,364'  
Inclination: 89.97°  
Azimuth: 0.76°  
TVD: 7,917.04'  
VS: 3,913.51'

MD: 11,459'  
Inclination: 89.97°  
Azimuth: 0.65°  
TVD: 7,917.09'  
VS: 4,007.88'

MD: 11,554'  
Inclination: 89.97°  
Azimuth: 0.65°  
TVD: 7,917.09'  
VS: 4,102.25'

SANDSTONE: Increase laminated sandstone, medium-dark gray sandstone.

100% SANDSTONE: as before,

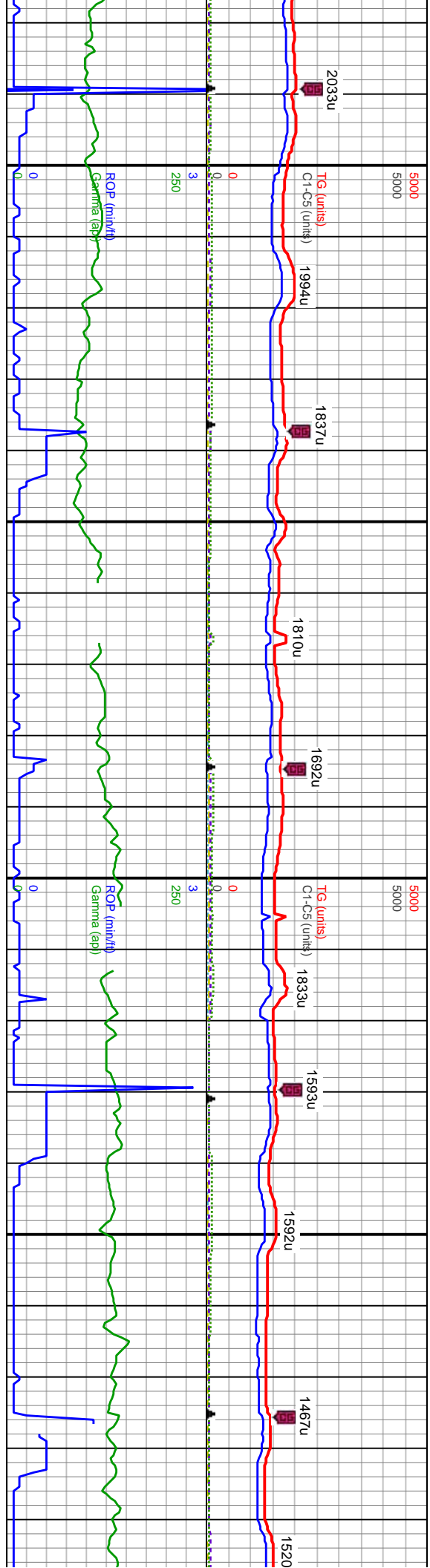
100% SANDSTONE: increase laminated sandstone,

100% SANDSTONE: predominant medium-dark gray sandstone, occasional light-medium gray, very fine-fine grained, sub rounded-blocky, moderately consolidated, predominantly soft, very silty matrix, very argillaceous, predominant laminated, abundant bioturbated sandstone, slightly calcareous.

100% SANDSTONE: increase







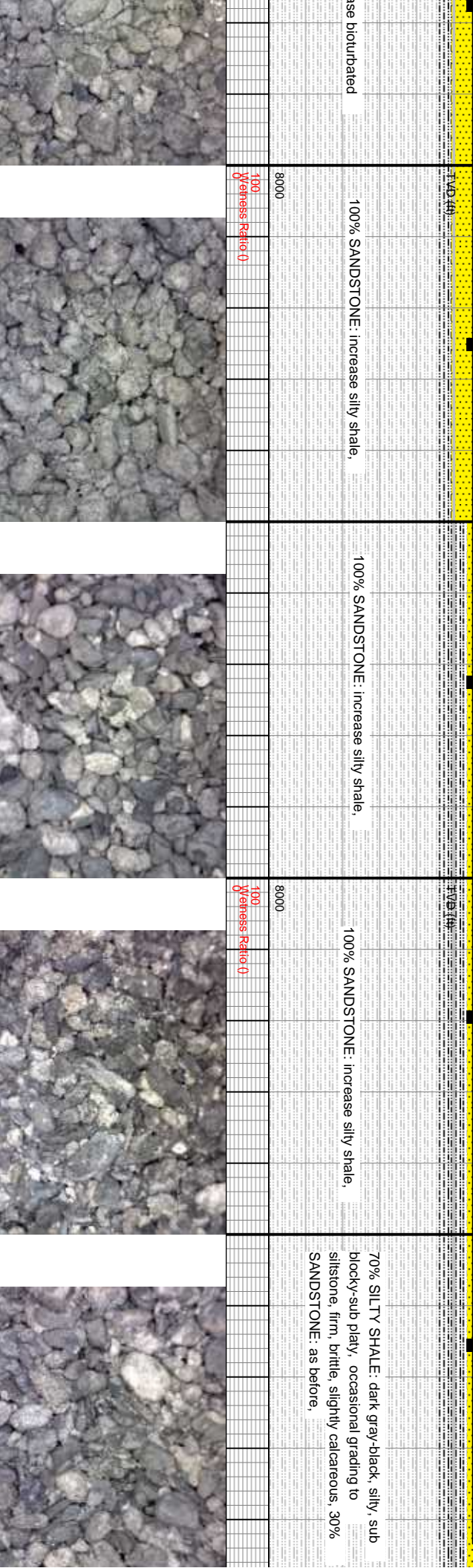
MD: 11,906'  
Inclination: 90.06°  
Azimuth: 0.61°  
TVD: 7,917.07'  
VS: 3.25'

MD: 11,650'  
Inclination: 89.97°  
Azimuth: 357.53°  
TVD: 7,917.04'  
VS: 4,197.88'

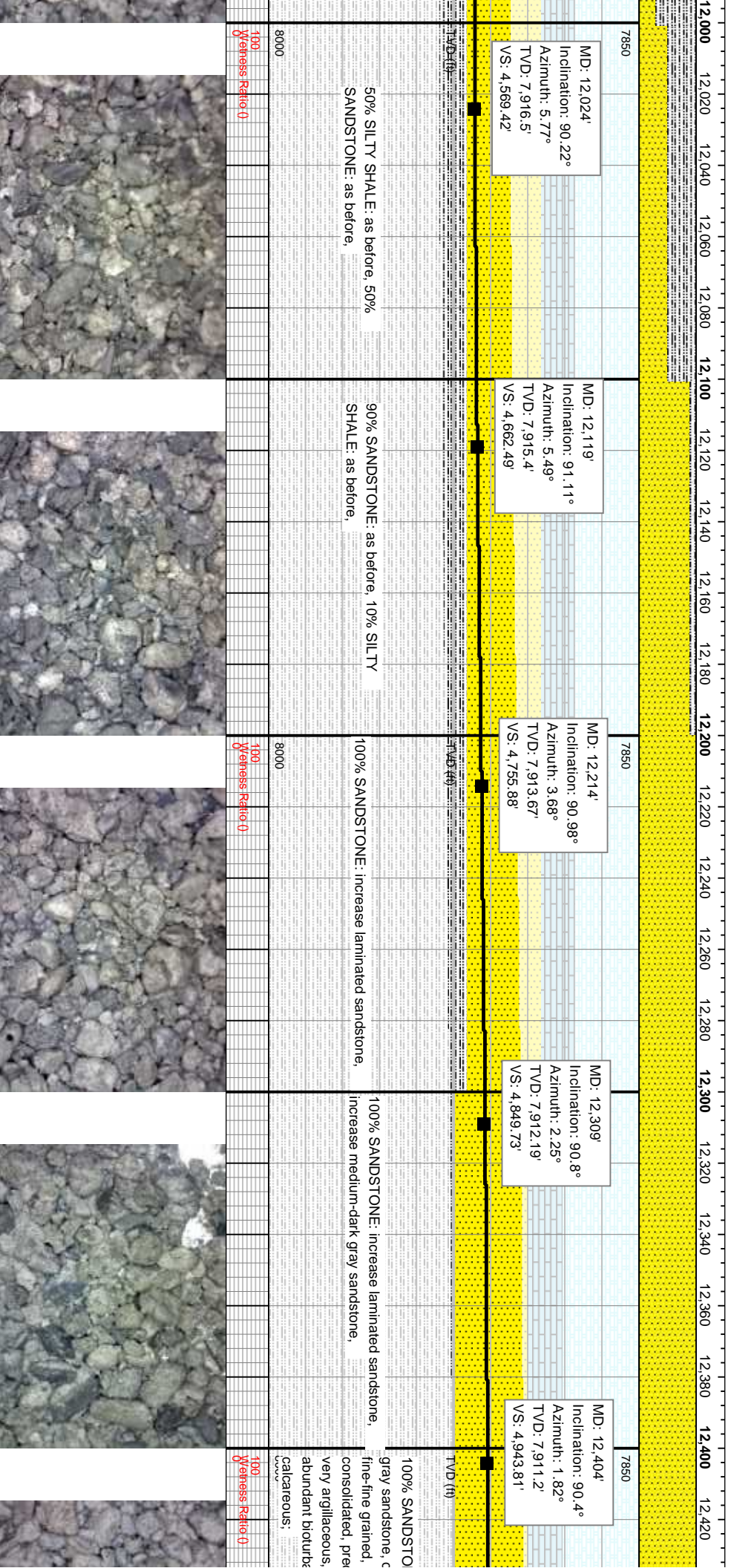
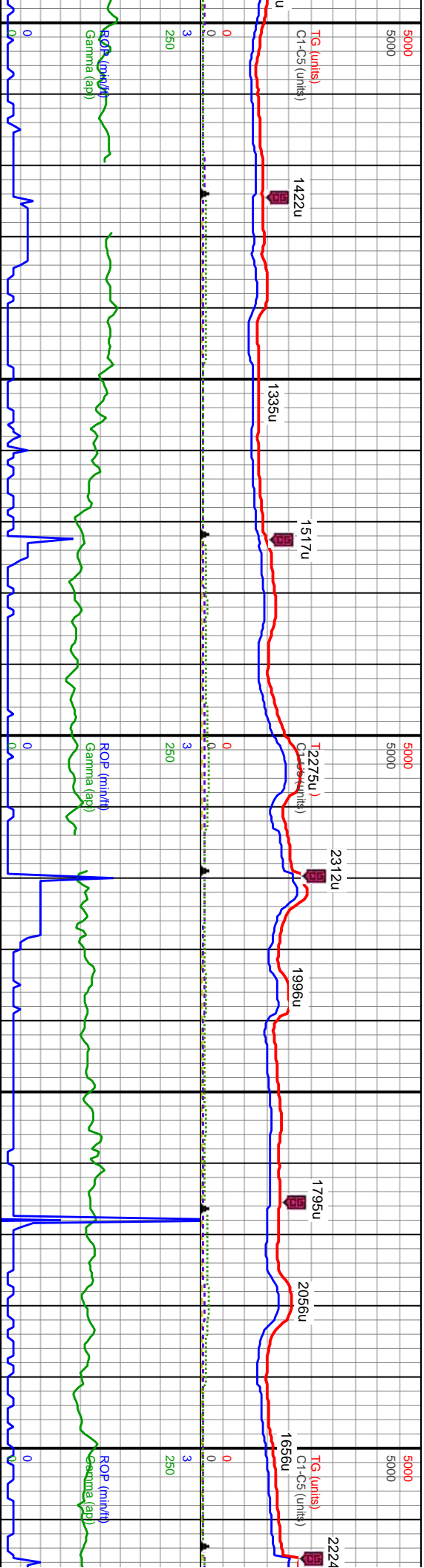
MD: 11,745'  
Inclination: 89.97°  
Azimuth: 357.2°  
TVD: 7,917.09'  
VS: 4,292.73'

MD: 11,839'  
Inclination: 90.09°  
Azimuth: 358.2°  
TVD: 7,917.05'  
VS: 4,386.54'

MD: 11,931'  
Inclination: 90.18°  
Azimuth: 2.97°  
TVD: 7,916.83'  
VS: 4,477.92'



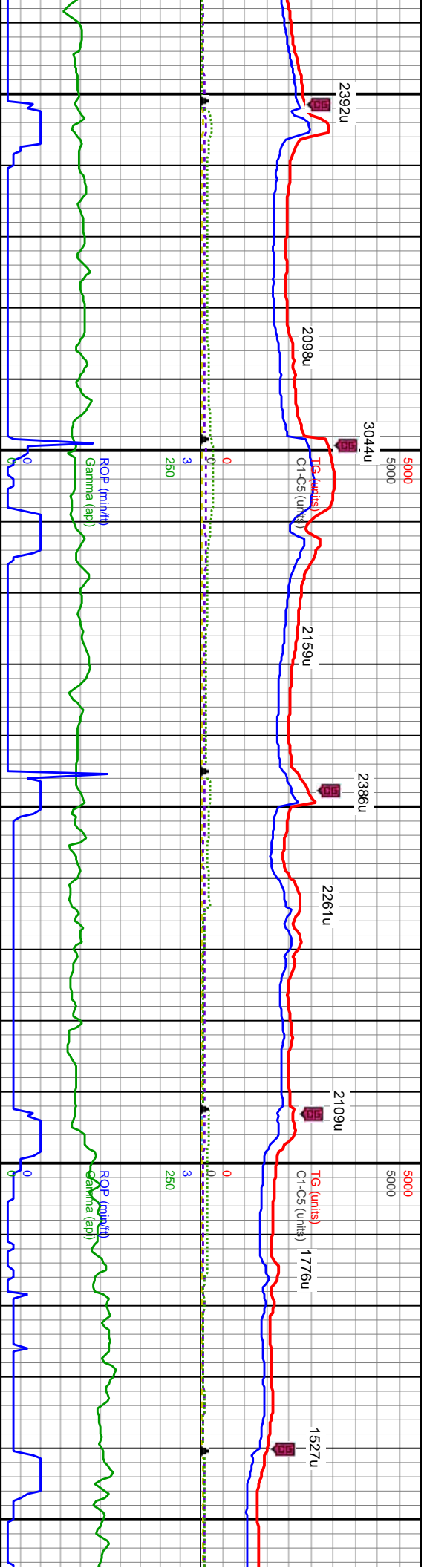












MD: 12.973'  
Inclination: 90.06°  
Azimuth: 355.31°  
TVD: 7,908.72'  
VS: 5,511.1'

MD: 13.066'  
Inclination: 88.92°  
Azimuth: 352.92°  
TVD: 7,909.55'  
VS: 5,604.09'

MD: 13.161'  
Inclination: 89.05°  
Azimuth: 356.91°  
TVD: 7,911.23'  
VS: 5,699.04'

MD: 13.257'  
Inclination: 89.02°  
Azimuth: 1.18°  
TVD: 7,912.85'  
VS: 5,794.65'

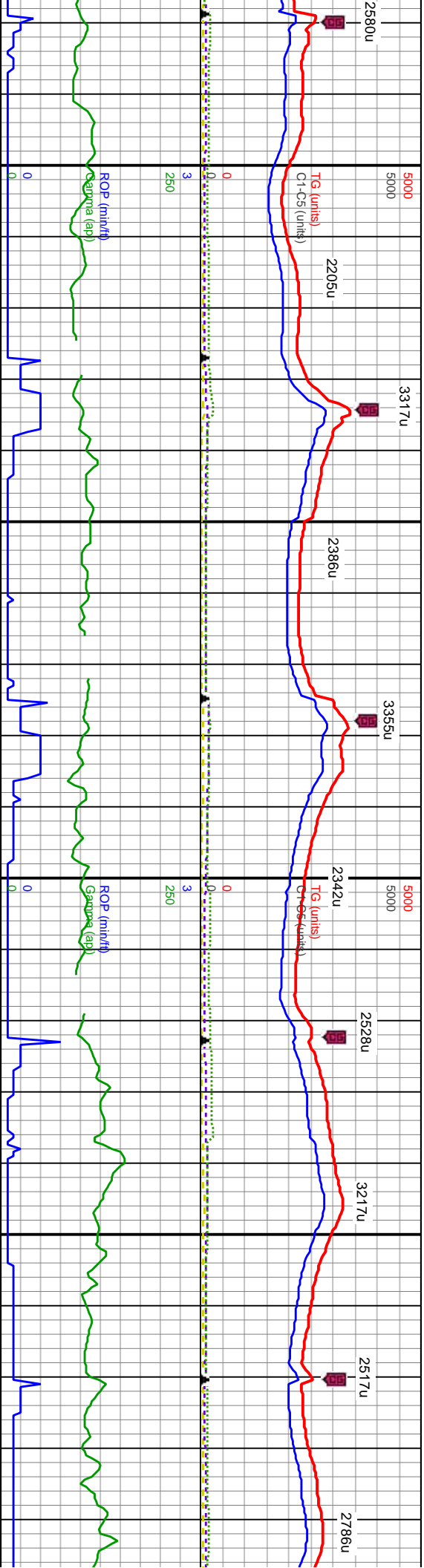
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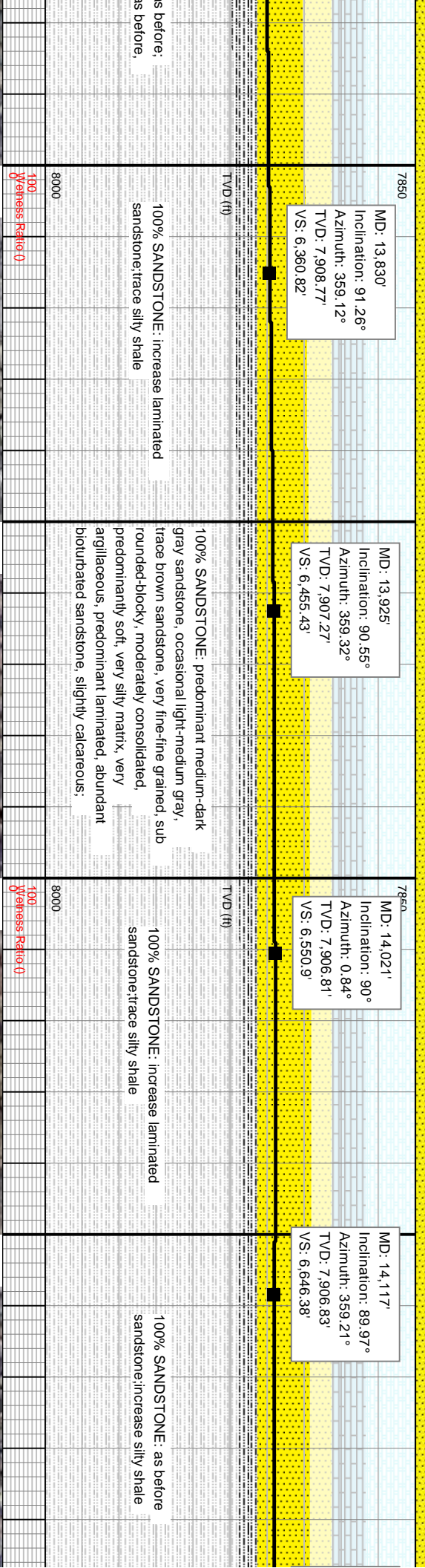
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MD: 13,830'  
Inclination: 91.26°  
Azimuth: 359.12°  
TVD: 7,908.77'  
VS: 6,360.82'

MD: 13,925'  
Inclination: 90.55°  
Azimuth: 359.32°  
TVD: 7,907.27'  
VS: 6,455.43'

MD: 14,021'  
Inclination: 90°  
Azimuth: 0.84°  
TVD: 7,906.81'  
VS: 6,550.9'

MD: 14,117'  
Inclination: 89.97°  
Azimuth: 359.21°  
TVD: 7,906.83'  
VS: 6,646.38'



100% SANDSTONE: increase laminated sandstone; trace silty shale

100% SANDSTONE: predominant medium-dark gray sandstone, occasional light-medium gray, trace brown sandstone, very fine-fine grained, sub rounded-blocky, moderately consolidated, predominantly soft, very silty matrix, very argillaceous, predominant laminated, abundant bioturbated sandstone, slightly calcareous;

100% SANDSTONE: increase laminated sandstone; trace silty shale

100% SANDSTONE: as before sandstone; increase silty shale

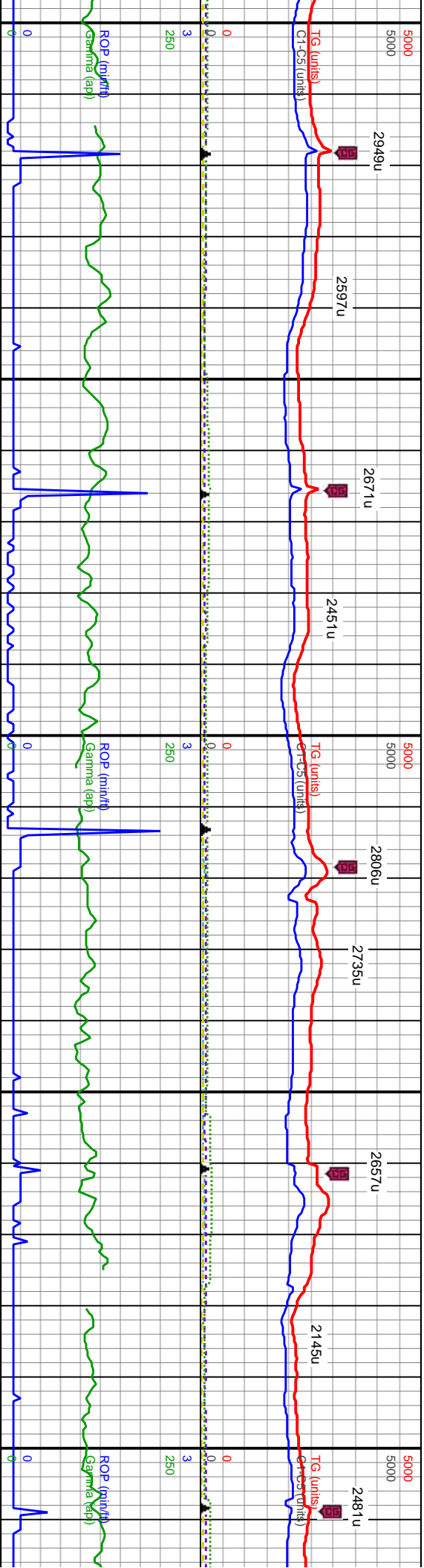


100  
Wenness Ratio 0

100  
Wenness Ratio 0

100  
Wenness Ratio 0





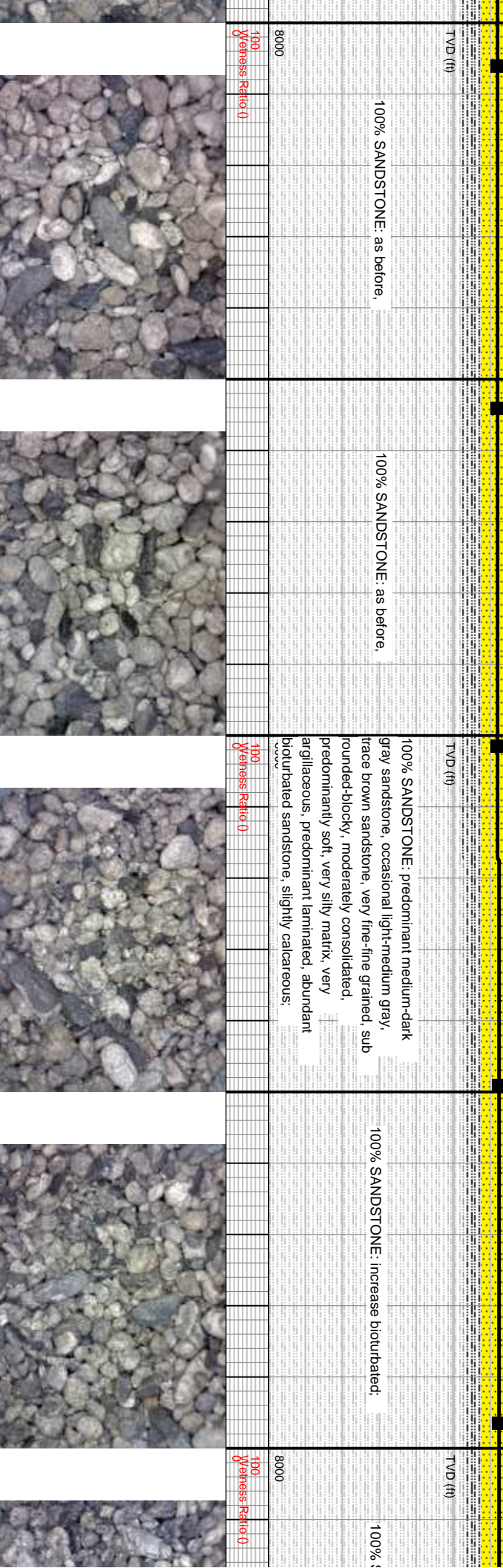
MD: 14,212'  
Inclination: 89.88°  
Azimuth: 358.58°  
TVD: 7,906.96'  
VS: 6,741.05'

MD: 14,308'  
Inclination: 90.18°  
Azimuth: 357.63°  
TVD: 7,906.9'  
VS: 6,836.81'

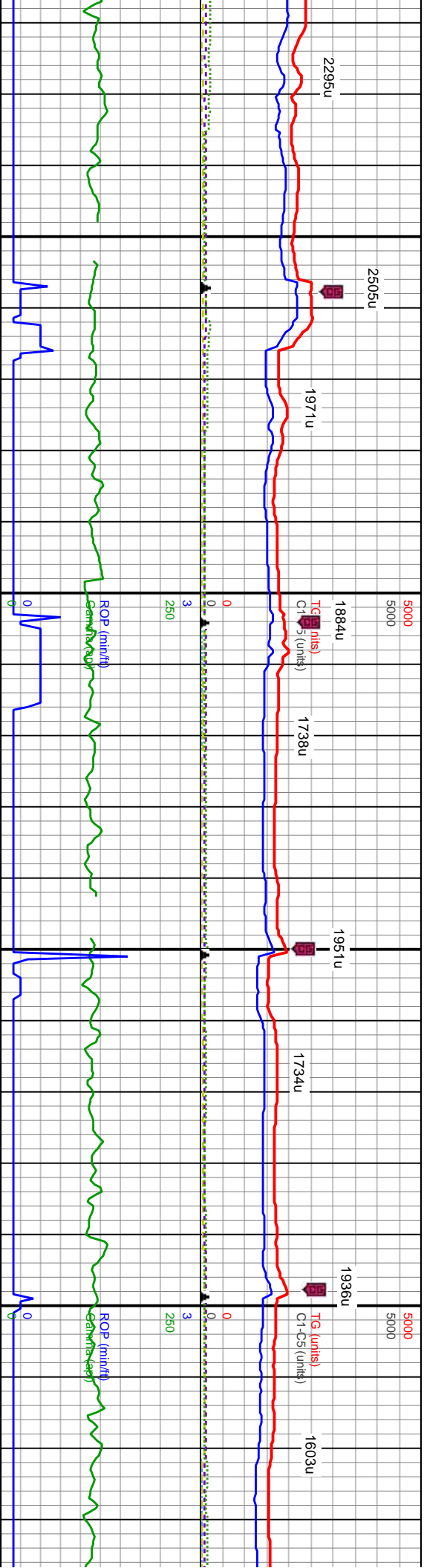
MD: 14,403'  
Inclination: 89.85°  
Azimuth: 357.85°  
TVD: 7,906.88'  
VS: 6,931.62'

MD: 14,498'  
Inclination: 90.34°  
Azimuth: 358.7°  
TVD: 7,906.72'  
VS: 7,026.36'

MD: 14,593'  
Inclination: 89.72°  
Azimuth: 358.7°  
TVD: 7,906.67'  
VS: 7,121.06'







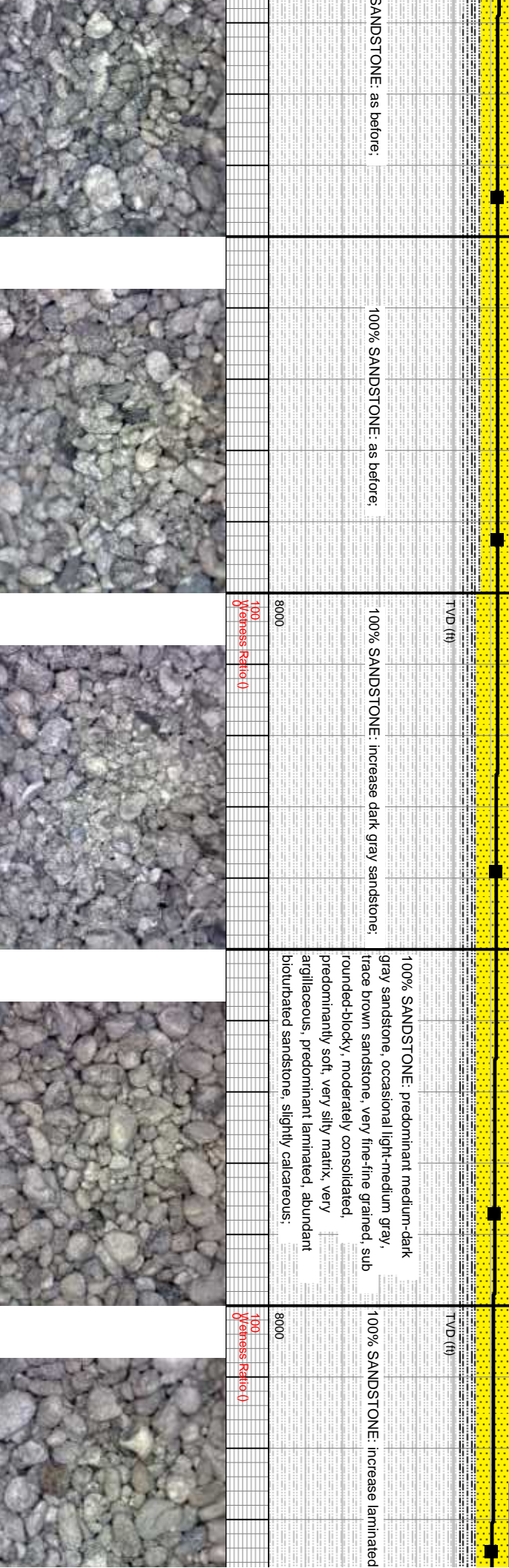
MD: 14,689'  
Inclination: 89.88°  
Azimuth: 356.39°  
TVD: 7,907.01'  
VS: 7,216.87'

MD: 14,785'  
Inclination: 90°  
Azimuth: 356.97°  
TVD: 7,907.11'  
VS: 7,312.78'

MD: 14,878'  
Inclination: 89.48°  
Azimuth: 358.84°  
TVD: 7,907.53'  
VS: 7,405.56'

MD: 14,974'  
Inclination: 89.54°  
Azimuth: 0.36°  
TVD: 7,908.35'  
VS: 7,501.12'

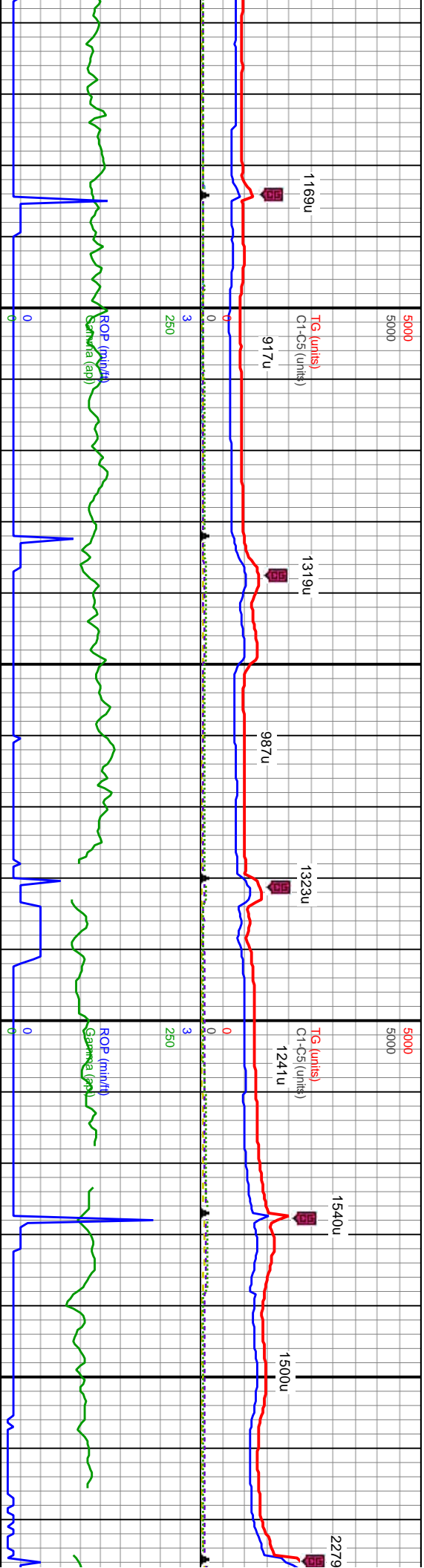
MD: 15,069'  
Inclination:  
Azimuth: 1.6°  
TVD: 7,909.  
VS: 7,595.4'











MD: 15,544'  
Inclination: 89.91°  
Azimuth: 2.25°  
TVD: 7,913.22'  
VS: 8,064.8'

MD: 15,640'  
Inclination: 89.97°  
Azimuth: 2.5°  
TVD: 7,913.32'  
VS: 8,159.8'

MD: 15,735'  
Inclination: 90°  
Azimuth: 2.63°  
TVD: 7,913.34'  
VS: 8,253.76'

MD: 15,831'  
Inclination: 90.06°  
Azimuth: 1.84°  
TVD: 7,913.29'  
VS: 8,348.79'

MD: 15,926'  
Inclination: 90°  
Azimuth: 359.81°  
TVD: 7,913.24'  
VS: 8,443.13'

SILTY SHALE: dark gray-black, silty, sub blocky-sub platy, occasional grading to one, firm, brittle, slightly calcareous, SANDSTONE: as before,

90% SILTY SHALE: dark gray-black, silty, sub blocky-sub platy, occasional grading to siltstone, firm, brittle, slightly calcareous, 10% SANDSTONE: as before,

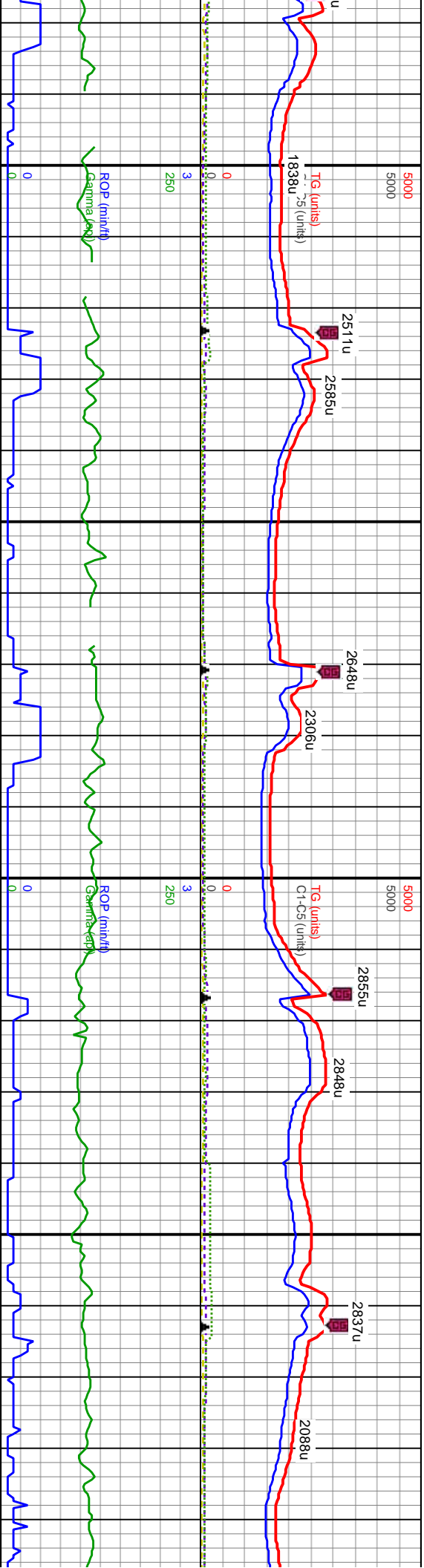
90% SILTY SHALE: dark gray-black, silty, sub blocky-sub platy, occasional grading to siltstone, firm, brittle, slightly calcareous, 10% SANDSTONE: as before,

70% SILTY SHALE: dark gray-black, silty, sub blocky-sub platy, occasional grading to siltstone, firm, brittle, slightly calcareous, 30% SANDSTONE: as before,

50% SILTY SHALE: dark gray-black, silty, sub blocky-sub platy, occasional grading to siltstone, firm, brittle, slightly calcareous, 50% SANDSTONE: as before,







MD: 16,021'  
Inclination: 90.34°  
Azimuth: 358.93°  
TVD: 7,912.96'  
VS: 8,537.73'

MD: 16,116'  
Inclination: 89.88°  
Azimuth: 356.81°  
TVD: 7,912.78'  
VS: 8,632.52'

MD: 16,210'  
Inclination: 89.94°  
Azimuth: 355.38°  
TVD: 7,912.93'  
VS: 8,726.46'

MD: 16,303'  
Inclination: 89.97°  
Azimuth: 355.76°  
TVD: 7,913'  
VS: 8,819.42'

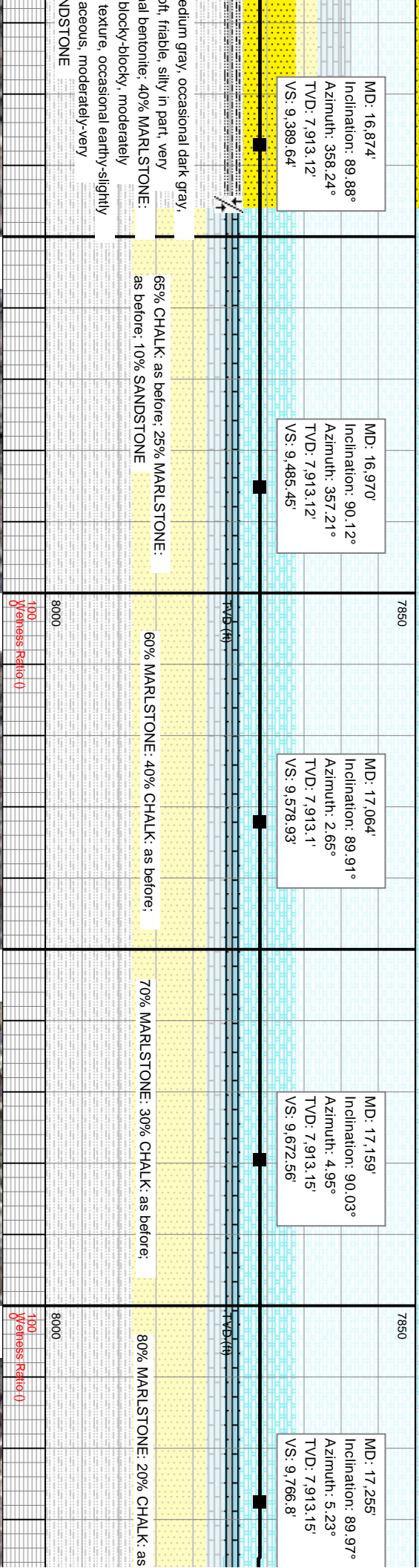
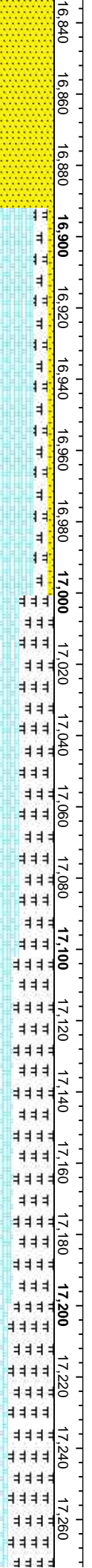
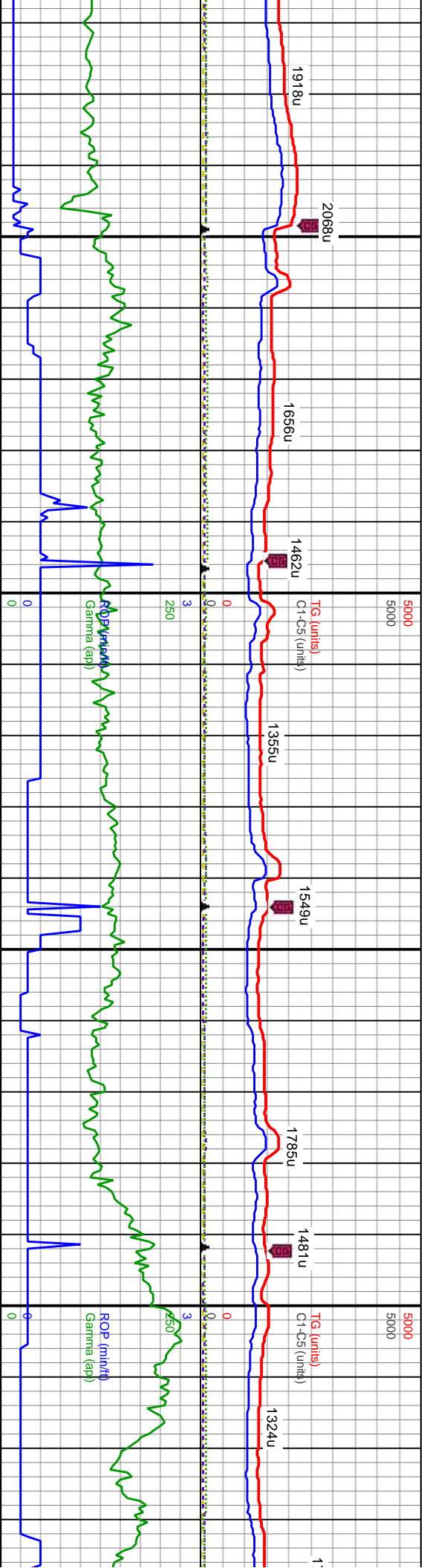
MD: 16,303'  
Inclination: 89.97°  
Azimuth: 355.76°  
TVD: 7,913'  
VS: 8,819.42'

gray-black, silty, subal grading to yellow calcareous, fine laminated	90% SANDSTONE; increase laminated sandstone, increase medium-dark gray sandstone, 10% SILTY SHALE: as before,	100% SANDSTONE: as before,	100% SANDSTONE: increase laminated sandstone, increase brown sandstone,	100% SANDSTONE: as before,
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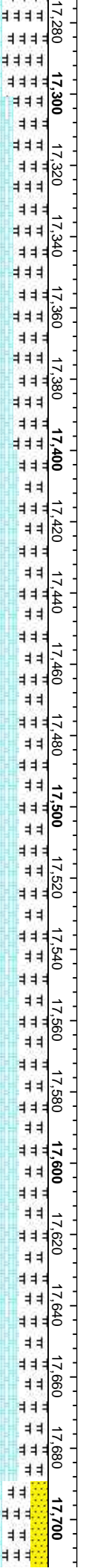
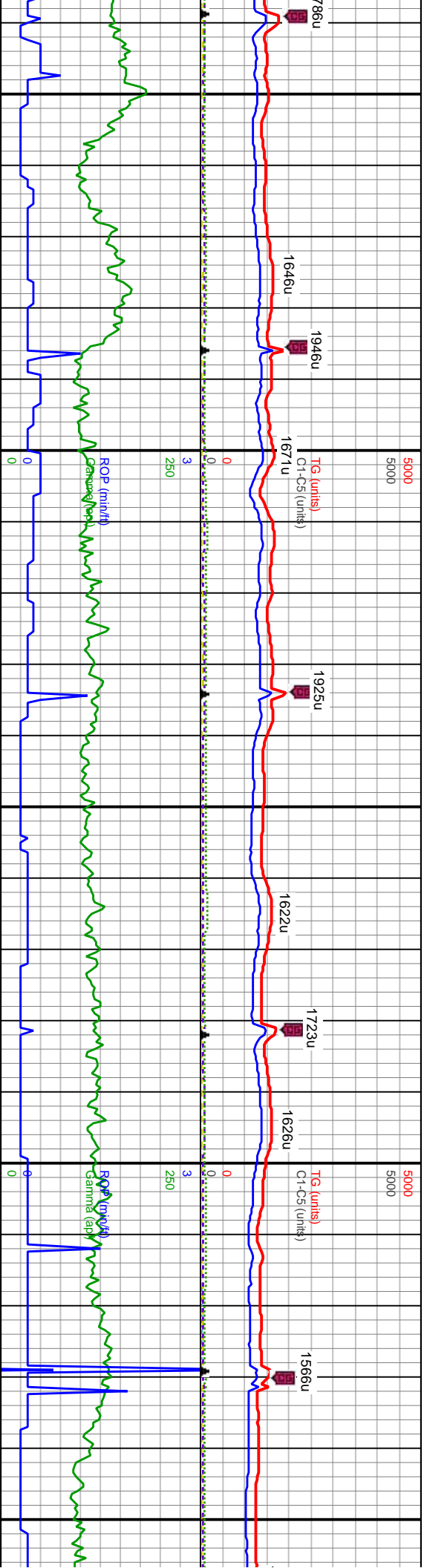












before:	60% MARLSTONE: 40% CHALK: as before;	7850	<div>MD: 17,349' Inclination: 89.85° Azimuth: 4.71° TVD: 7,913.29' VS: 9,859.11'</div>	<div>MD: 17,444' Inclination: 90° Azimuth: 3.41° TVD: 7,913.42' VS: 9,952.67'</div>	<div>MD: 17,540' Inclination: 89.88° Azimuth: 1.42° TVD: 7,913.52' VS: 10,047.65'</div>	7850	<div>MD: 17,635' Inclination: 89.91° Azimuth: 359.9° TVD: 7,913.69' VS: 10,142.03'</div>	8000	50% MARLSTONE: 50% CHALK: as before;	50% CHALK: light-medium gray, occasional dark gray, blocky-sub blocky, soft, friable, silty in part, very calcareous; occasional bentonite; 50% MARLSTONE: dark gray-black, sub blocky-blocky, moderately soft-slightly firm, silty texture, occasional earthy-slightly mottled texture, argillaceous, moderately-very calcareous	100 Wenness Ratio 0	100 Wenness Ratio 0

