Borehole Image Interpretation

Techlog
Because every well counts

Schlumberger

BOREHOLE IMAGE INTERPRETATION

Image Interval: 13700-14768 ft

Scale 1:15

COMPANY: DCP Midstream LP
WELL: Zia AGI D2
FIELD: AGI Devonian Exploration
COUNTY: Lea
STATE: New Mexico
COUNTRY: USA

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API No: 30-025-42207

Other Services:

Location
Field: 1893' FSL & 950' FWL Section: 19 Township: T19S Abstract: R32S
Sec: 19 Township: T19S Range:R32S
Lat: 32° 38' 38.29" N
Long: 103° 46' 40.02" W

Elevations:
K.B. 3574 ft
D.F. 3573 ft
G.L. 3547 ft

Permanent Datum:	GL	Elev.: 3547	ft
Log Measured From:	KB	27	ft above Perm. Datum
Drilling Measured from:	KB		

Magnetic Dec: 7.2253 Magnetic Inc: 60.4659 Magnetic Intensity: 0.482977

Date	30-Nov-2016		
Run No.	Run 1B		
Depth Driller	13622 ft		
Depth Logger (Schl)	13637 ft		
Btm Log Interval	13637 ft		
Top Log Interval	4702 ft		
Casing-Driller	9.625 in @ 4696 ft		
Casing-Logger	4702 ft		
Bit Size	6 in		
Type Fluid in Hole	Fresh Water		
Dens. | Visc.	10 lbm/gal | 41 s		
pH | Fluid loss	10 | 9 in3		
Source of Sample	Active Tank		
Rm @ Meas. Temp.	0.08 ohmm @	72 degF	
Rmf @ Meas. Temp.	0.08 ohmm @	72 degF	
Rmc @ Meas. Temp.	-999.25 ohmm @	68 degF	
Source: Rmf | Rmc	Calculated |		
Rm @ BHT	0.0347157 @	174.75 degF	
Circulation Stopped	00:00:00		
Logger on Bottom	23:30:00		
Max Rec. Temp.	174.75 deg F		
Equipment | Location	9105 |Midland, TX		
Recorded by:	Danielle Krebs		
Witnessed by:	Jared Smith		

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The well name, location and borehole reference data were furnished by the customer

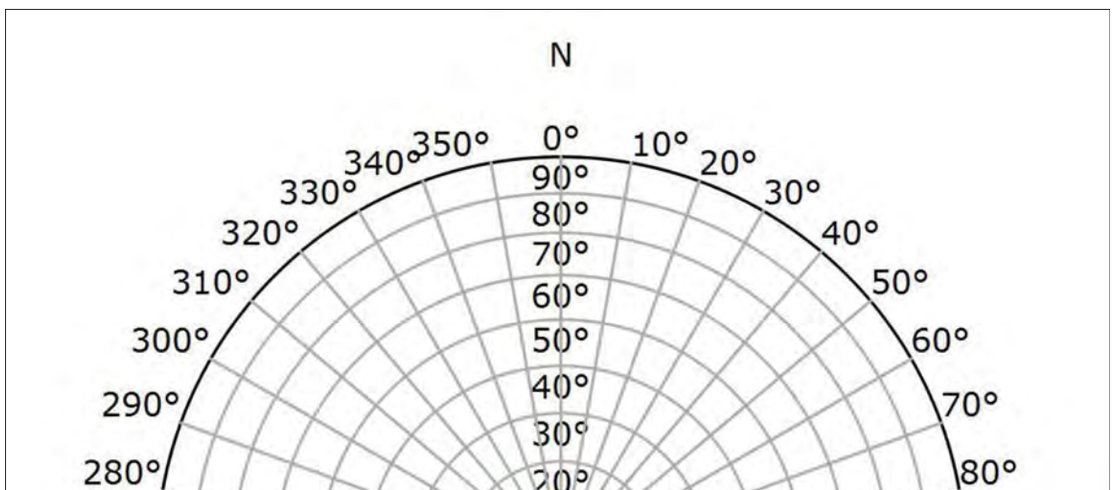
DS-2016-41710	OP Vers.: 20C0-999	Process Date:01/12/2017	Center: Midland DS	Baseline: Techlog 2013.4	Log Analyst: Olfa Zened

Remarks:

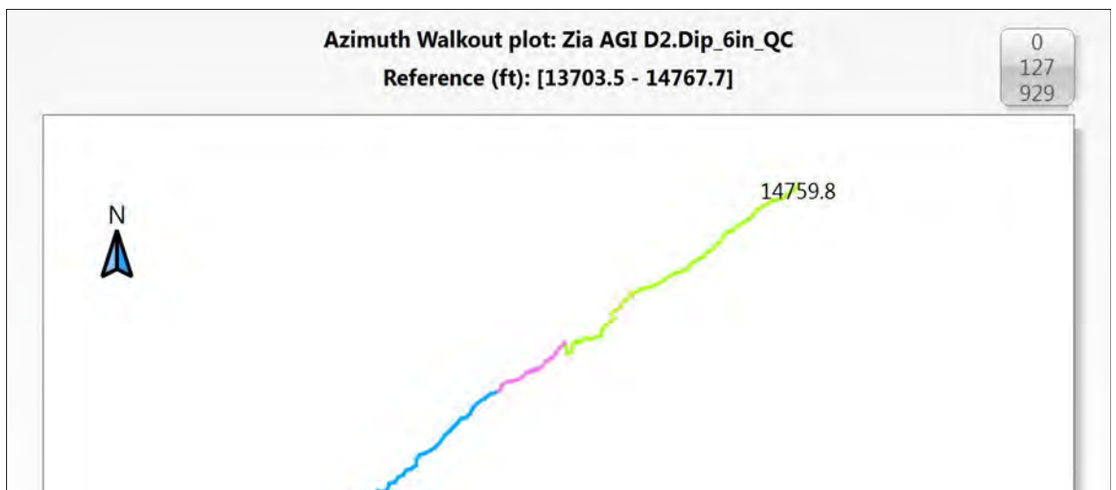
FMI in 6 in section
Image processing and Interpretation interval: 13700-14768 ft
All the displayed logs have been depth matched to the FMI Image
All completion decision should be made taking this into account.

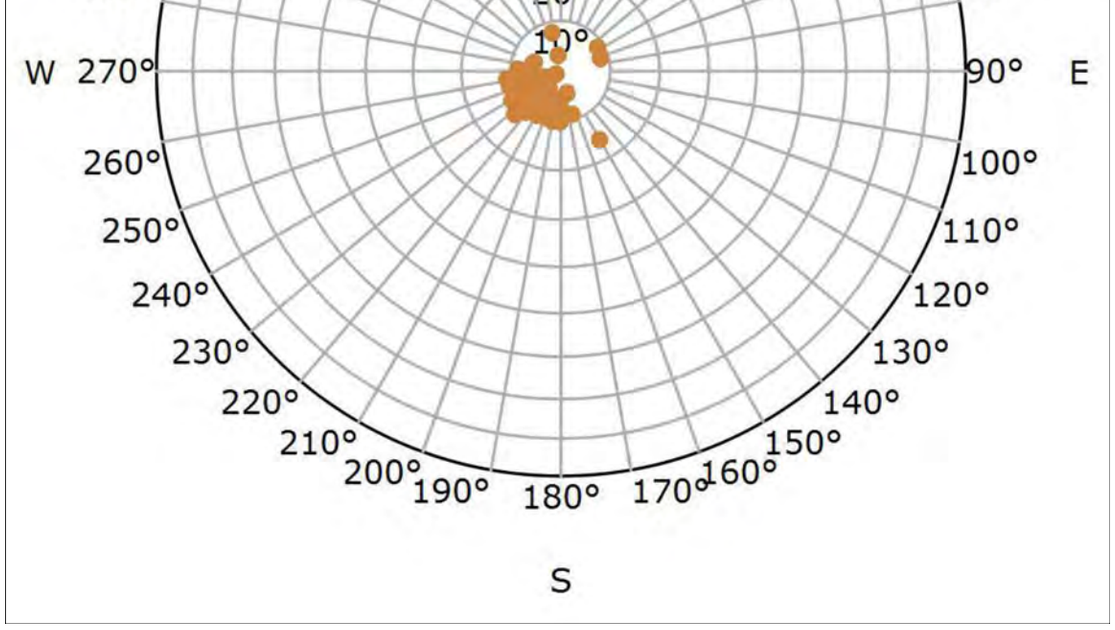
Sedimentary Bedding Summary All 13704ft - 14768ft

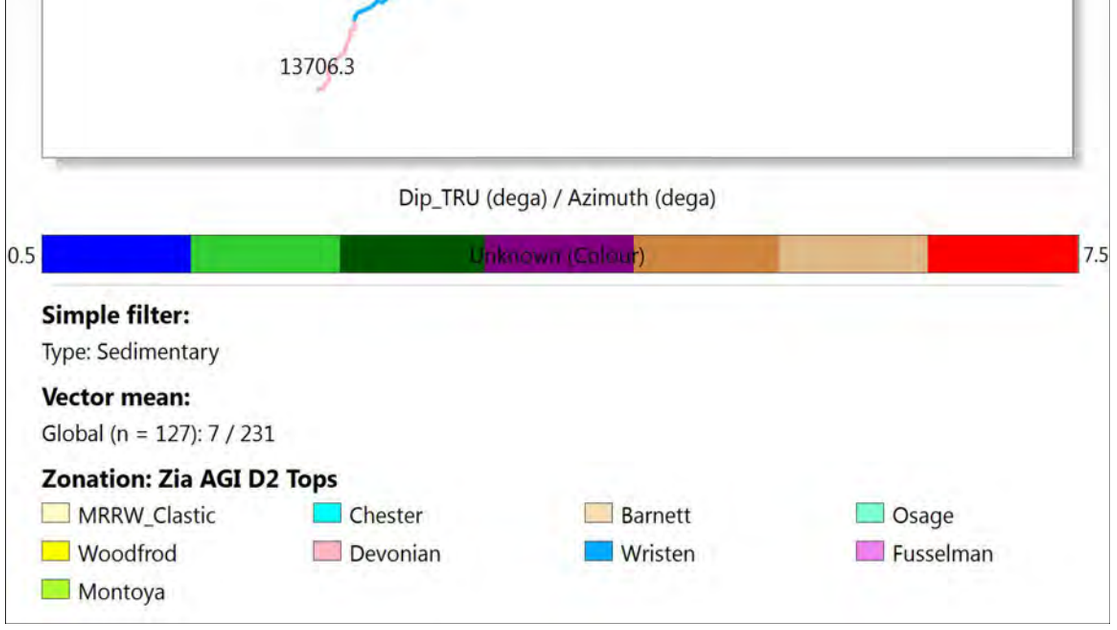
Schmidt Plot - Upper Hemisphere



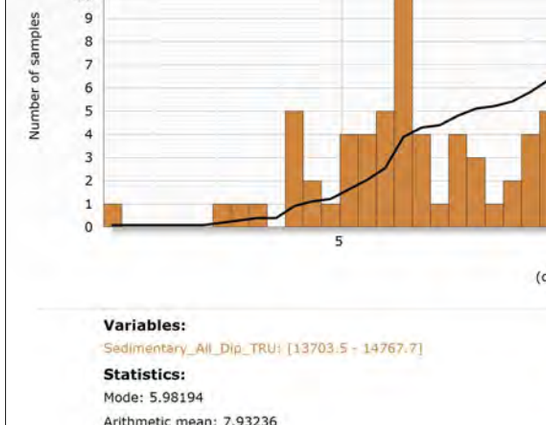
Azimuth Vector Plot



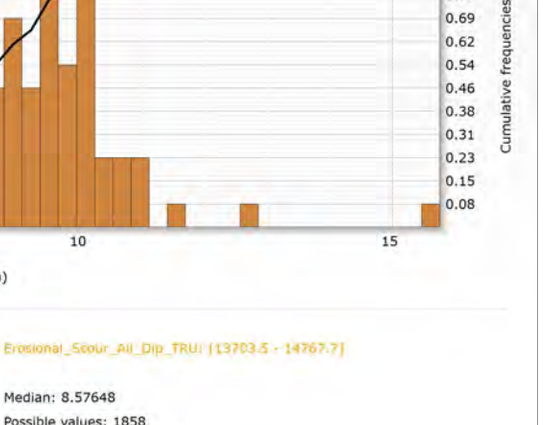




Azimuth Rosette



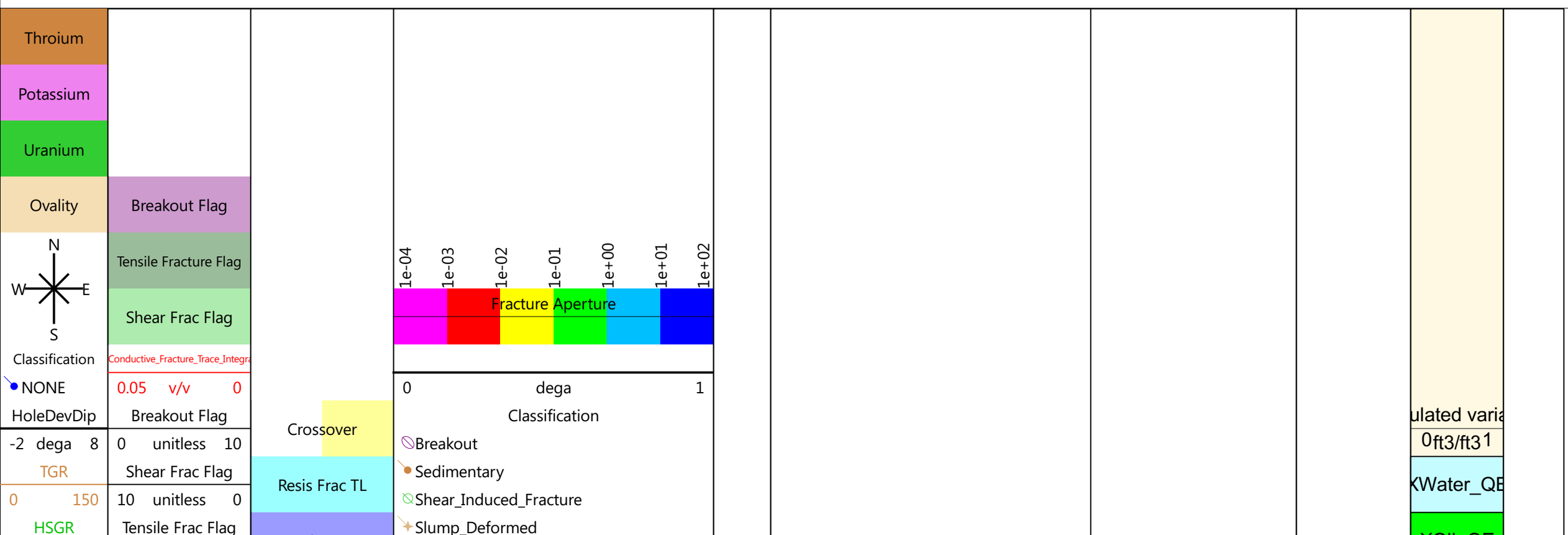
Strike Rosette

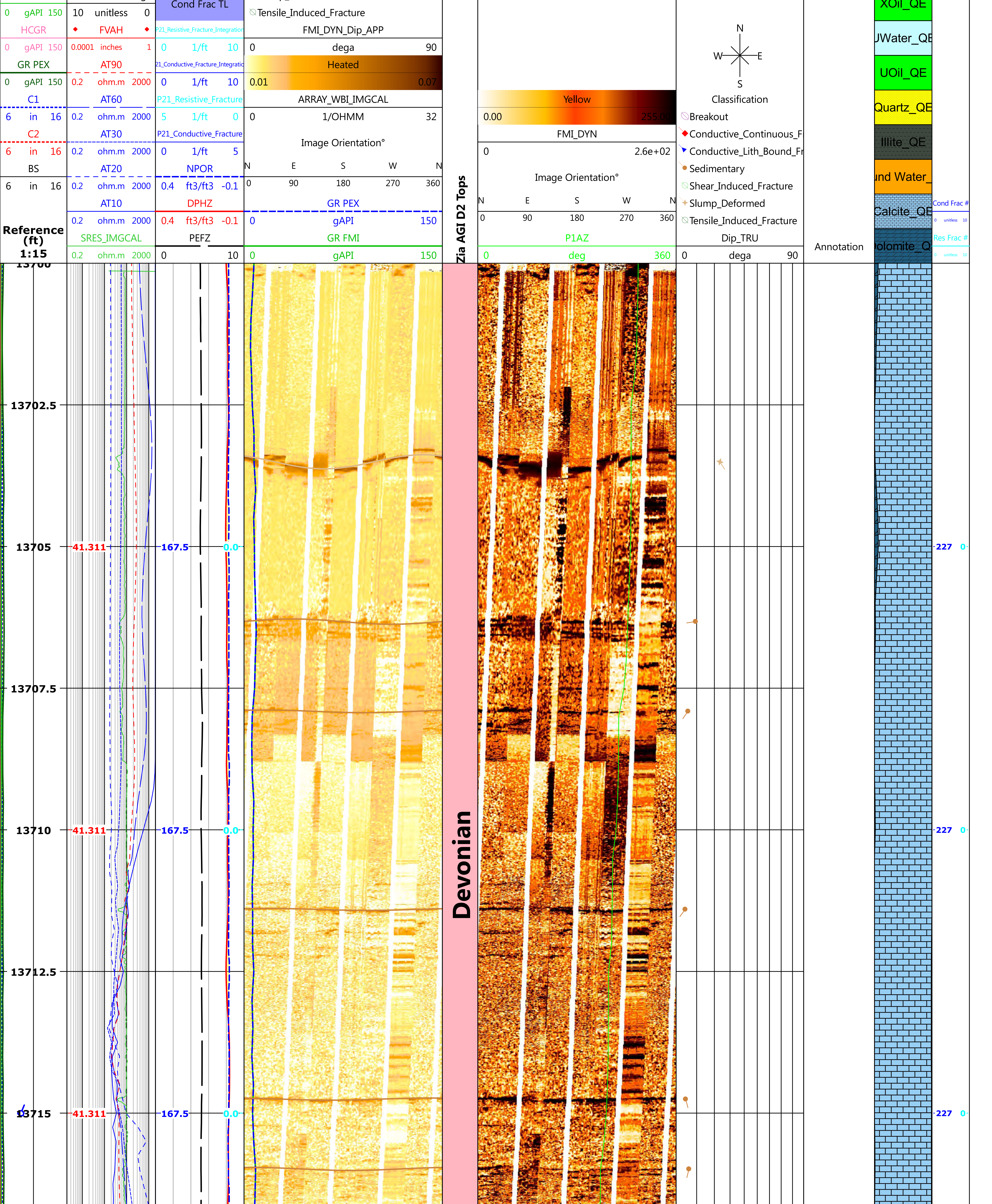


Observations

The Sedimentary bedding dipset is composed of hand picked dip data for any sediment deposited with energy. The classification is general in the sense that it does not describe the transport / deposition mechanism or sediment structure. They are presented in the dip track as brown circular tadpoles and shown in true dip. True dip is calculated by taking borehole drift into account (red tadpoles in track 1). The brown sinusoids on the dynamic image (track 7) represent the sedimentary bedding in apparent dip (without taking borehole drift into account). For the interval from 13704ft to 14768ft, the mean dip magnitude is 7.9 degrees with a mean azimuth of 229.8 degrees. The azimuth rosette shows dips in a general Southwest direction.

Dip Angle Histogram




0 gAPI 150
HCGR
0 gAPI 150
GR PEX
0 gAPI 150
C1
6 in 16
C2
6 in 16
BS
6 in 16
Reference (ft) 1:15
10 unitless 0
FVAH
0.0001 inches 1
AT90
0.2 ohm.m 2000
AT60
0.2 ohm.m 2000
AT30
0.2 ohm.m 2000
AT20
0.2 ohm.m 2000
AT10
0.2 ohm.m 2000
SRES_IMGCAL
0.2 ohm.m 2000
Cond Frac TL
P21_Resistive_Fracture_Integration
0 1/ft 10
21_Conductive_Fracture_Integratio
0 1/ft 10
P21_Resistive_Fracture
5 1/ft 0
P21_Conductive_Fracture
0 1/ft 5
NPOR
0.4 ft3/ft3 -0.1
DPHZ
0.4 ft3/ft3 -0.1
PEFZ
0 10
Tensile_Induced_Fracture
FMI_DYN_Dip_APP
0 dega 90
Heated
0.01 0.07
ARRAY_WBI_IMGCAL
0 1/OHMM 32
Image Orientation°
N E S W N
0 90 180 270 360
GR PEX
0 gAPI 150
GR FMI
0 gAPI 150
Zia AGI D2 Tops
Yellow
0.00 255.00
FMI_DYN
0 2.6e+02
Image Orientation°
N E S W N
0 90 180 270 360
P1AZ
0 deg 360
N
W E
S
Classification
Breakout
Conductive_Continuous_F
Conductive_Lith_Bound_Fr
Sedimentary
Shear_Induced_Fracture
Slump_Deformed
Tensile_Induced_Fracture
Dip_TRU
0 dega 90
Annotation
XOil_QE
UWater_QE
UOil_QE
Quartz_QE
Illite_QE
und Water_
Calcite_QE
olomite_Q
Cond Frac #
0 unitless 10
Res Frac #
0 unitless 10
13700
13702.5
13705
41.311
167.5
0.0
227
0
13707.5
13710
41.311
167.5
0.0
227
0
13712.5
13715
41.311
167.5
0.0
227
0
Devonian

13717.5

13720 41.311 167.5 0.0 227 0

13722.5

13725 41.311 167.5 0.0 227 0

13727.5

13730 41.311 167.5 0.0 227 0

Devonian

13732.5

13735 41.311 167.5 0.0 227 0

13737.5

13740
41.311
167.5
0.0
227
0
13742.5
13745
41.311
167.5
0.0
227
0
13747.5
13750
41.311
167.5
0.0
227
0
13752.5
13755
41.311
167.5
0.0
227
0
13757.5
Devonian

13760
41.310
167.5
0.0
227
0
13762.5
13765
41.310
167.5
0.0
227
0
13767.5
13770
41.293
167.4
0.0
225
0
Devonian
13772.5
13775
41.293
167.3
0.0
225
0
13777.5
13780
39.852
166.8
0.0
224
0
Poor data quality
Drilling-Induced

13782.5

13785

39.823 166.0 0.0

13787.5

13790

39.823 165.6 0.0

13792.5

13795

39.823 165.5 0.0

13797.5

13800

39.823 165.5 0.0

Devonian

Wristen

fractures

Open litho-fracture

223 0

223 0

223 0

13802.5

13805 39.823 165.5 0.0

13807.5

13810 39.823 165.5 0.0

13812.5

13815 39.823 165.5 0.0

13817.5

13820 39.823 165.5 0.0

13822.5

Wristen

223 0

223 0

223 0

13825
39.542
162.3
0.0
13827.5
13830
33.822
160.5
0.0
13832.5
13835
30.659
159.4
0.0
13837.5
13840
30.254
156.8
0.0
13842.5
Wristen
Ope fracture segments
217
0
214
0
212
0
Open fractures
208
0

13845
29.904
149.2
0.0
13847.5
13850
29.901
149.1
0.0
13852.5
13855
29.901
149.1
0.0
13857.5
13860
29.796
148.2
0.0
13862.5
13865
29.796
148.2
0.0
Wristen
202
0
202
0
Good
porosity
202
0
201
0
201
0

13867.5

13870

29.672

143.6

0.0

13872.5

13875

29.662

142.3

0.0

13877.5

13880

29.593

139.3

0.0

13882.5

13885

29.531

137.4

0.0

Wristen

Open litho-bound fractures

190

0

188

0

184

0

178

0

Open litho-bound fractures

13887.5

13890

29.531 137.4 0.0

13892.5

13895

29.531 137.4 0.0

13897.5

13900

29.531 137.4 0.0

13902.5

13905

29.531 137.4 0.0

13907.5

Wristen

178 0

178 0

178 0

13910
29.531
137.4
0.0
178
0
13912.5
13915
29.531
137.4
0.0
178
0
13917.5
13920
29.531
137.4
0.0
178
0
13922.5
13925
29.531
137.4
0.0
178
0
13927.5
Wristen

13930
29.531
137.4
0.0
178
0
13932.5
13935
29.531
137.4
0.0
178
0
13937.5
13940
29.531
137.4
0.0
178
0
Wristen
13942.5
13945
29.531
137.4
0.0
178
0
13947.5
Laminated
Carbonate
13950
29.531
137.4
0.0
178
0

13952.5

13955 29.531 137.4 0.0

13957.5

13960 29.531 137.4 0.0

13962.5

13965 29.531 137.4 0.0

13967.5

13970 29.531 137.4 0.0

Wristen

178 0

178 0

178 0

13972.5

13975

29.531 137.4 0.0

13977.5

13980

29.531 137.4 0.0

13982.5

13985

29.531 137.4 0.0

13987.5

13990

29.464 136.2 0.0

13992.5

ist

Fusselman

178 0

Washouts

178 0

178 0

Open and drilling-induced fractures

176 0

13995
29.421
136.1
0.0
13997.5
14000
29.371
135.9
0.0
14002.5
14005
29.371
135.9
0.0
14007.5
14010
29.371
135.9
0.0
14012.5
Fusselman
175
0
174
0
174
0

14015
29.371
135.9
0.0
174
0
14017.5
14020
29.371
135.9
0.0
174
0
14022.5
14025
29.371
135.9
0.0
174
0
Fusselman
14027.5
14030
29.371
135.9
0.0
174
0
14032.5
14035
29.371
135.9
0.0
174
0

14037.5

14040

29.371 135.9 0.0

14042.5

14045

29.371 135.9 0.0

14047.5

14050

29.371 135.9 0.0

14052.5

14055

29.336 134.0 0.0

Fusselman

174 0

Vuggy connected porosity

174 0

174 0

14057.5

14060 29.313 133.8 0.0 171 0

14062.5

14065 29.313 133.8 0.0 171 0

14067.5

14070 29.313 133.8 0.0 171 0

14072.5

14075 29.313 133.8 0.0 171 0

14077.5

Fusselman

En-Echelon drilling induced fractures

14080
29.313
133.8
0.0
171
0
14082.5
14085
29.313
133.8
0.0
171
0
14087.5
14090
29.313
133.8
0.0
171
0
Fusselman
14092.5
14095
29.313
133.8
0.0
171
0
14097.5

14100
29.313
133.8
0.0
171
0
14102.5
14105
29.313
133.8
0.0
171
0
14107.5
Fusselman
14110
29.313
133.8
0.0
Good
porosity
interval
171
0
14112.5
14115
29.313
133.2
0.0
171
0
14117.5
14120
29.251
129.4
0.0
170
0

14122.5

14125

29.251

126.2

0.0

14127.5

14130

29.240

124.1

0.0

14132.5

14135

29.240

124.1

0.0

14137.5

14140

29.240

124.1

0.0

Fusselman

170

0

169

0

169

0

En-Echelon drilling-induced fractures

Vuggy Porosity

14142.5

14145 — 28.975 — 120.8 — 0.0

14147.5

14150 — 28.819 — 119.4 — 0.0

14152.5

14155 — 28.819 — 119.4 — 0.0

14157.5

14160 — 28.809 — 118.7 — 0.0

14162.5

Fusselman

Open fracture segments

laminated porosity

Drilling Induced fractures

164 0

161 0

161 0

160 0

14165
28.809
118.7
0.0
14167.5
14170
28.809
118.7
0.0
14172.5
14175
28.809
118.7
0.0
14177.5
14180
28.809
118.7
0.0
14182.5
Fusselman
160
0
160
0
160
0
Vuggy
porosity