APPENDIX C

SIDEWALL CORING REPORTS AND ANALYSES OF CORE SAMPLES

APPENDIX C
SIDEWALL CORING REPORTS AND ANALYSES OF CORE SAMPLES

- Weatherford's Rotary Sidewall Core Analysis Report
- Geophysical Log Composite through the Injection Zone With Sidewall points
- Ultraviolet and Natural Light Photographs of Sidewall Core Samples with lithologic descriptions

WEATHERFORD'S ROTARY SIDEWALL CORE ANALYSIS REPORT

Weatherford®
LABORATORIES

ROTARY SIDEWALL CORE ANALYSIS REPORT

FOR

GEOLEX, INC.

DCP – ZIA AGI D # 2

LEA COUNTY, NEW MEXICO

GEOLEX, INC.
DCP – ZIA AGI D # 2
LEA COUNTY, NEW MEXICO
U.S.A.
File: MD-93873

Weatherford®
LABORATORIES

January 3, 2017

GEOLEX, INC.
500 Marquette Avenue, NW, Suite 1350
Albuquerque, NM. 87102

Attn: ALBERTO GUTIERREZ

RE: DCP – ZIA AGI D # 2
Rotary Sidewall Core Analysis

Mr. GUTIERREZ:

The core analysis data from the above referenced well is enclosed in the following pages. All quality control data is enclosed in a separate section of the report. The data, results, and digital images will be maintained in our files for your future reference. If you have any questions regarding our results or procedures, please do not hesitate to contact us. We appreciate the opportunity to analyze the core from the above referenced well and look forward to working with you again in the future.

DISTRIBUTION

GEOLEX, INC.
Attn: ALBERTO GUTIERREZ, RG
500 Marquette Avenue, NW, Suite 1350
Albuquerque, NM. 87102
5 Copies of the Report with Photographs and 6 USB Drives

Sincerely,

Wayne Helms, General Manager
Weatherford Laboratories

GEOLEX, INC.
DCP - ZIA AGI D # 2
LEA COUNTY, NEW MEXICO
U.S.A.
File:MD-93873

Weatherford®
LABORATORIES

CORE ANALYSIS PROCEDURES

FOR

GEOLEX, INC.

DCP - ZIA AGI D # 2

LEA COUNTY, NEW MEXICO

The Rotary Sidewalls were picked up by Weatherford Laboratories.

Gases from the Sidewalls were measured by Hot Wire Chromatography and reported in Gas Units.

A brief Lithological Description of the Sidewalls was recorded.

A description of the Fluorescence of the Sidewalls was recorded.

Ultraviolet Light Photographs were taken of the Sidewalls for a permanent record.

Natural Light Photographs were taken of the Sidewalls for a permanent record.

The Sidewalls were extracted utilizing the Dean Stark method.

The fluids were measured by the Dean Stark method.

Porosities were measured in a Boyle's Law Porosimeter utilizing Helium.

Permeabilities were measured in a Hassler Sleeve Permeameter utilizing Nitrogen at 300 psi confining pressure.

Test samples of a known permeability were measured before and after the Sidewall permeabilities were measured.

Weatherford LABORATORIES

LITHOLOGICAL ABBREVIATIONS

Anhydrite (-ic)	anhy, anhyd	Filled	fd	Poor	pr
Anhydrite inclusion	A/I	Fine (-ly)	f, fnly	Pyrite	pyr
Bentonite (-ic)	bent	Fluorescence	flu	Quartz (-itic)	qtz
Black (-ish)	blk, blksh	Fossil (-iferous)	foss	Red	rd
Bleeding Oil	B/O	Fracture	frac	Round	rnd
Brecciated	brec	Fragments	frag	Residual Oil	So
Bright	brt	Friable	fri	Residual Water	Sw
Brittle	brit	Fusulinid	fus	Sample	Spl
Broken	brkn	Gilsonite	gil	Sandstone	Ss
Brown	brn	Gold	gld	Sandy	sdy
Buff	bf	Good	gd	Scattered	sc
Calcite (-ic)	calc, calctc	Grain (-s)	gr	Shaley	shy
Calcareous	calc	Granular	gran	Shale	sh
Carbonaceous	carb	Gray	gy	Shale parting	s/p
Cement	cmt	Gypsum	gyp	Silt (-y)	slt, slty
Chalk (-y)	chk, chky	Hair line(frac)	hl	Slight (-ly)	sli, s
Chert	cht	Halite	hal	Small	sml
Clay	cl	Inclusion	incl	Spotted (-y)	sp
Coal	c	Laminations (ated)	lam	Stringer	strgr
Coarse	crs	Large	lrg	Stylolite (-itic)	sty, styl
Conglemerate	cgl	Light	lt	Subround	sbrnd
Consolidated	consol	Limestone	ls	Subangular	sbang
Contaminated	contam	Limey	lmy	Sucrosic	suc
Crinoid (-al)	crin, crinal	Lithology	lith	Sulphur	su
Cross-bedded	x-bd	Medium	m	Tan	tn
Crystal (-line)	Xl, xln	Mineral Fluorescence	mf	Too broken (for Analysis)	tbfa
Dark	dk	Moderate	mod		
Dense	dns	Mudcake	m/c	Thin	thn
Diameter	dia	No Show	N/S	Trace	Tr
Dolomite (ic)	dol, dolm	Oolite (-itic)	ool	Tripolitic	trip
Dull	dl	Pale	pl	Very	v
Faint	fnt	Permeability	Perm, K	Vertical	vert, vt
Fair	fr	Pin-Point Porosity	ppp	Vug (-gy)	vug

Weatherford LABORATORIES

GEOLEX, INC.
DCP-ZIA AGI D # 2
1/10/2017

QUALITY CONTROL RERUN DATA

Sample No.	GRAIN DENSITY original	GRAIN DENSITY reruns	POROSITY original	POROSITY reruns	*kstandard* Test Sample	PERMEABILITY original	PERMEABILITY reruns
3	2.714	2.715	0.88	0.92	**2.659**	<.001	<.001
7	2.714	2.715	1.52	1.56		<.001	<.001
9	2.837	2.838	11.15	11.20		136.923	130.528
10	2.870	2.871	8.25	8.29		283.510	282.267
15	2.840	2.841	1.30	1.33		0.007	0.006
20	2.839	2.838	6.35	6.30		0.031	0.032
25	2.865	2.866	5.45	5.46		<.001	<.001
27	2.862	2.863	7.81	7.84		1.637	1.649
32	2.864	2.863	2.95	2.91		131.388	129.387
37	2.863	2.864	4.91	4.95		0.028	0.029
43	2.669	2.670	12.56	12.57	**2.651**	1.086	1.105

ROTARY SIDEWALL CORE ANALYSIS

Weatherford LABORATORIES

GEOLEX, INC.
DCP-ZIA AGI D # 2
LEA COUNTY, NEW MEXICO

A.P.I. NUMBER : 30-025-42207
FIELD : AGI Devonian Exploration
LOCATION: 1893' FSL, 950' FWL,
Section 19, T-19-S, R-32-S

FILE NO. : MD-93873
DATE : December 16, 2016
ANALYSTS : WH, SB, JR, ND, FF

DEAN STARK EXTRACTION

SAMPLE	DEPTH	GRAIN	POROSITY		PERMEABILITY		SATURATIONS		GAS	FLUORESCENCE		
NO.	ft	DENSITY	%	NCS	mD	NCS	Sw	So	UNITS	%		LITHOLOGY
1	13637.0				tbfa				17	0	Mf / cont	
2	13641.0				tbfa				87	0	Mf	
3	13654.0	2.71	0.9	N/A	<.001	N/A	16.7	Tr	7	Tr	Brt yl / Mf / cont	Ls tn-gy sslty sc slty intrbd sc sml vug sc calc incl sc sty hl frac
4	13685.0	2.72	0.9	0.9	<.001	<.001	10.3	0.0	2	0	Mf	Ls tn-gy sslty sc slty intrbd tr calc fd frac tr sty
5	13714.0	2.72	1.1	N/A	<.001	N/A	16.8	0.0	0	0	Mf / cont	Ls tn-gy sslty sc slty intrbd tr sml vug tr calc incl
6	13773.0	2.71	1.7	N/A	<.001	N/A	20.8	0.0	0	0	Mf / cont	Ls tn-gy sslty sc slty intrbd tr sml vug tr calc incl
7	13780.0	2.71	1.5	1.5	<.001	<.001	14.5	0.0	0	0	Mf / cont	Ls tn-gy sslty sc slty intrbd tr sml vug tr calc incl
8	13820.0	2.73	1.3	N/A	<.001	N/A	7.4	0.0	0	0	Mf	Ls tn-gy sslty sc slty intrbd tr sml vug tr calc incl
9	13847.0	2.84	11.2	11.1	136.923	83.055	9.4	0.0	0	0	Dl Mf	Dol tn-gy sslty suc sc slty intrbd abd sc sml-lrg vug
10	13853.0	2.87	8.3	8.2	283.510	81.325	10.0	0.0	0	0	Dl Mf	Dol tn-gy sslty suc sc slty intrbd abd sc sml-lrg vug hl frac sc pyr
11	13895.0	2.81	11.0	10.9	0.325	<.001	39.6	0.0	4	0	Mf	Dol gy-tn sslty sc slty intrbd tr sml vug lrg A/I tr hl frac
12	13903.0	2.87	8.0	7.9	10.843	2.326	21.8	0.0	1	0	Mf	Dol gy-tn sslty sc slty intrbd tr sml vug
13	13976.0	2.84	1.7	N/A	tbfa	N/A	24.6	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd tr sml vug tr hl frac
14	13980.0	2.84	1.6	N/A	tbfa	N/A	26.0	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd tr sml vug tr hl frac
15	13985.0	2.84	1.3	N/A	0.007	N/A	34.7	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd tr sml vug sc fd frac
16	14045.0	2.84	3.1	N/A	0.026	N/A	29.2	0.0	0	0		Dol tn-crm sslty sc slty intrbd sc sml vug sc hl frac anhy nod
17	14093.0	2.85	4.3	4.2	0.005	<.001	4.0	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd abd sc sml vug tr A/I
18	14100.0	2.85	3.8	N/A	tbfa	N/A	17.4	0.0	2	0	Mf	Dol gy-tn sslty sc slty intrbd tr sml vug tr hl frac
19	14223.0	2.84	2.8	N/A	tbfa	N/A	0.0	0.0	0	0		Dol gy-tn sslty sc slty intrbd sc sml vug tr hl frac
20	14240.0	2.84	6.4	6.3	0.031	<.001	15.0	0.0	0	0		Dol tn-crm sslty suc sc slty intrbd abd sc sml vug
21	14267.0	2.87	7.4	N/A	tbfa	N/A	6.0	0.0	1	0		Dol gy-tn sslty ssuc sc slty intrbd abd sc sml vug tr hl frac
22	14298.0	2.86	5.3	N/A	tbfa	N/A	0.0	0.0	0	0	Mf	Dol wht-tn sslty sc slty intrbd sc sml vug

ROTARY SIDEWALL CORE ANALYSIS

Weatherford LABORATORIES

GEOLEX, INC.
DCP-ZIA AGI D # 2
LEA COUNTY, NEW MEXICO

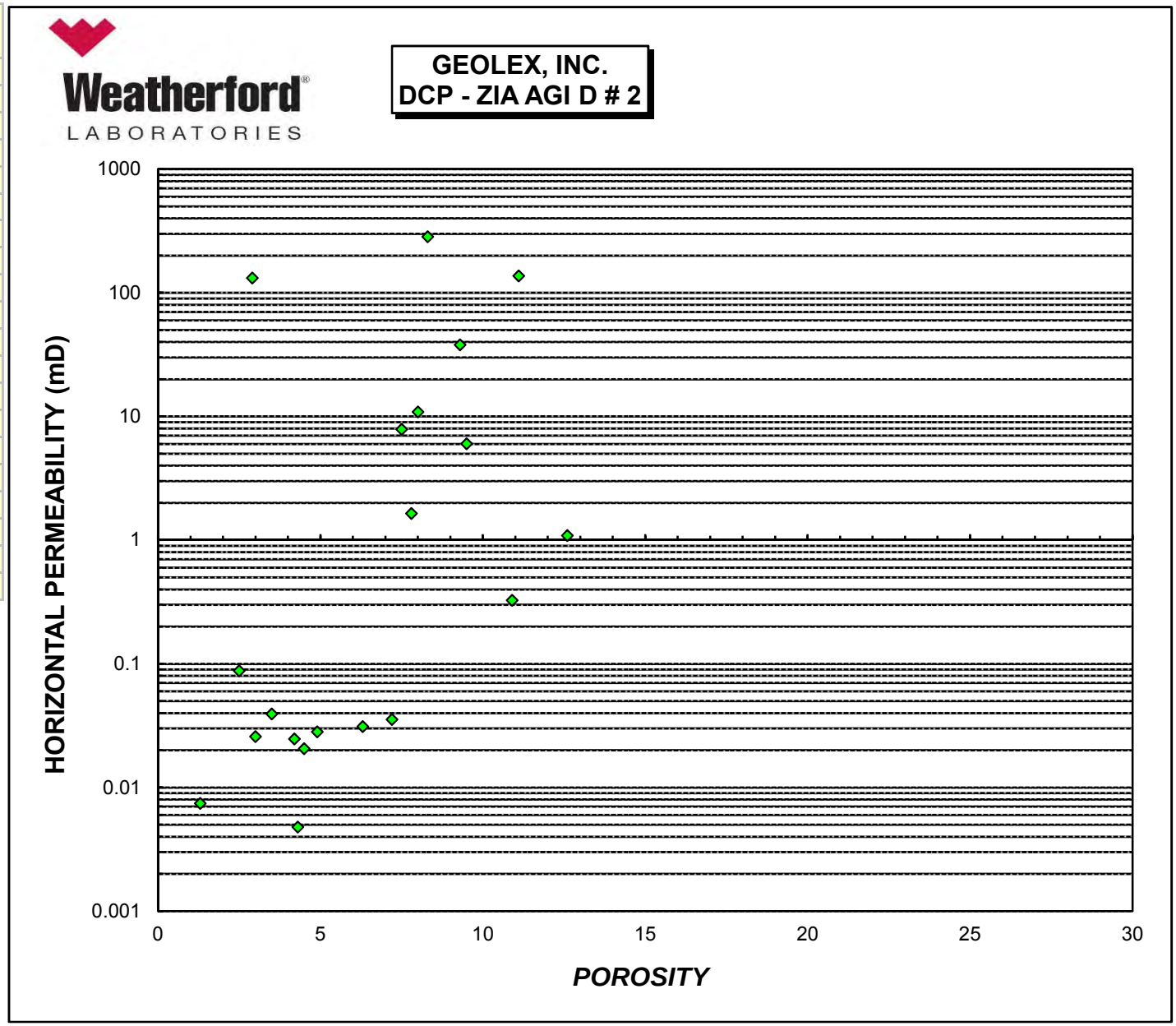
A.P.I. NUMBER : 30-025-42207
FIELD : AGI Devonian Exploration
LOCATION: 1893' FSL, 950' FWL,
Section 19, T-19-S, R-32-S

FILE NO. : MD-93873
DATE : December 16, 2016
ANALYSTS : WH, SB, JR, ND, FF

DEAN STARK EXTRACTION

SAMPLE	DEPTH	GRAIN	POROSITY		PERMEABILITY		SATURATIONS		GAS	FLUORESCENCE		
NO.	ft	DENSITY	%	NCS	mD	NCS	Sw	So	UNITS	%		LITHOLOGY
23	14302.0	2.86	6.2	N/A	tbfa	N/A	5.7	0.0	0	0	Mf	Dol wht-tn sslty suc sc slty intrbd sc sml vug
24	14306.0	2.86	4.3	N/A	tbfa	N/A	15.2	0.0	0	0	Mf	Dol wht-tn sslty sc slty intrbd sc sml vug
25	14308.0	2.87	5.5	5.4	<.001	<.001	26.2	0.0	0	0	Mf	Dol wht-tn sslty sc slty intrbd abd sc sml vug
26	14316.0	2.86	4.7	N/A	<.001	N/A	15.9	0.0	0	0	Mf	Dol tn-crm sslty sc slty intrbd sc sml vug
27	14319.0	2.86	7.8	7.8	1.637	1.044	10.5	0.0	0	0	Mf	Dol tn-crm sslty sc slty intrbd sc sml vug
28	14325.0	2.86	12.4	N/A	tbfa	N/A	4.4	0.0	0	0	Mf	Dol wht-tn sslty suc sc slty intrbd sc sml vug
29	14347.0	2.86	4.9	N/A	<.001	N/A	6.7	0.0	0	0	Mf	Dol wht-tn sslty suc sc slty intrbd sc sml vug
30	14363.0	2.84	3.5	N/A	0.039	N/A	4.6	0.0	0	0		Dol gy-tn sslty sc slty intrbd sc sml vug tr calc incl
31	14468.0	2.85	7.3	7.2	0.035	<.001	10.3	0.0	0	0		Dol gy-tn sslty suc sc slty intrbd abd sc sml vug
32	14514.0	2.86	3.0	2.9	131.388	24.340	10.2	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd sc sml vug tr hl frac
33	14547.0	2.83	1.4	N/A	<.001	N/A	9.8	0.0	0	0		Dol gy-tn sslty sc slty intrbd sc sml vug tr hl frac
34	14586.0	2.84	2.5	N/A	0.088	N/A	8.2	0.0	0	0		Dol tn-gy sslty sc slty intrbd sc sml vug sc hl frac
35	14614.0	2.85	4.2	4.2	0.025	<.001	8.8	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd sc sml vug sc fd frac
36	14618.0	2.86	2.7	N/A	tbfa	N/A	13.1	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd sc sml vug tr hl frac
37	14641.0	2.86	4.9	N/A	0.028	N/A	3.9	0.0	0	0		Dol gy-tn sslty sc slty intrbd abd sc sml vug tr hl frac
38	14665.0	2.85	4.5	N/A	0.021	N/A	27.3	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd abd sc sml vug
39	14682.0	2.86	9.5	N/A	5.994	N/A	13.7	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd abd sc sml vug
40	14695.0	2.86	7.5	7.5	7.869	2.166	7.6	0.0	0	0	Mf	Dol gy-tn sslty sc slty intrbd abd sc sml vug
41	14707.0	2.87	6.2	N/A	tbfa	N/A	6.6	0.0	0	0	Mf	Dol gy-tn sslty ssuc sc slty intrbd abd sc sml vug tr hl frac
42	14712.0	2.85	9.3	9.3	37.970	16.552	16.1	0.0	0	0	Mf	Dol gy-tn sslty ssuc sc slty intrbd abd sc sml vug
43	14722.0	2.67	12.6	12.5	1.086	0.627	35.5	9.0	0	30	Brt yl-gld	Cht wht-tn-gy trip sc slty intrbd sc sml vug sc suc dol intrbd

Porosity	*Perm*	Sample ID
11.1	136.9229	9
8.3	283.5097	10
10.9	0.3249	11
8.0	10.8433	12
1.3	0.0074	15
3.0	0.0258	16
4.3	0.0048	17
6.3	0.0310	20
7.8	1.6367	27
3.5	0.0392	30
7.2	0.0354	31
2.9	131.3879	32
2.5	0.0876	34
4.2	0.0247	35
4.9	0.0282	37
4.5	0.0205	38
9.5	5.9943	39
7.5	7.8688	40
9.3	37.9700	42
12.6	1.0858	43



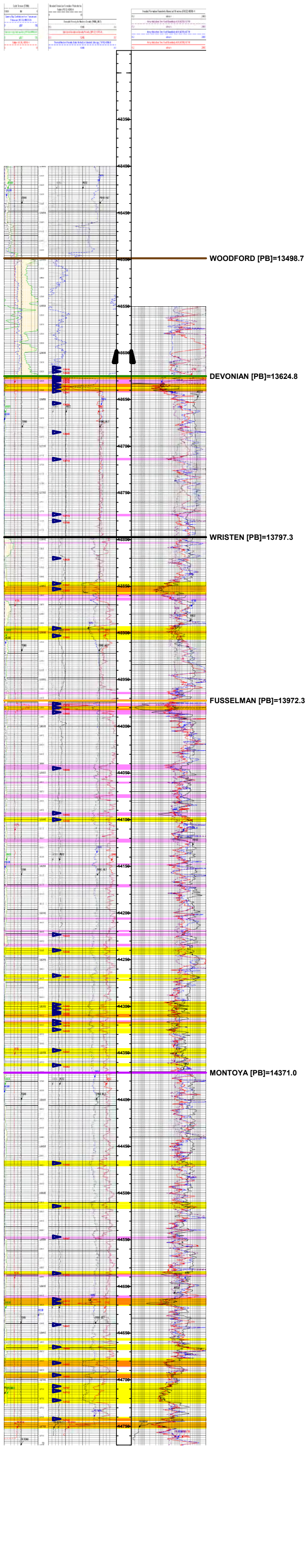
GEOPHYSICAL LOG COMPOSITE THROUGH THE INJECTION ZONE WITH SIDEWALL POINTS

CS 3

CS 3'

300254220700

DCP MIDSTREAM
ZIA AGI #2D
1893 FSL 950 FWL
County : LEA
ELEV_KB : 3,576



LOUIS J. MAZZULLO, LLC
GEOLEX, INC.: DCP ZIA AGI #2D
Sec. 19, Twp. 19S-32E, Lea Co., NM
SIDEWALL CORE POINTS
UPDATE 12/11/16 @2215 MT
By: Louis J. Mazzullo, CPG- Morrison, CO
December 11,2016 10:22 PM

GEOLEX INCORPORATED

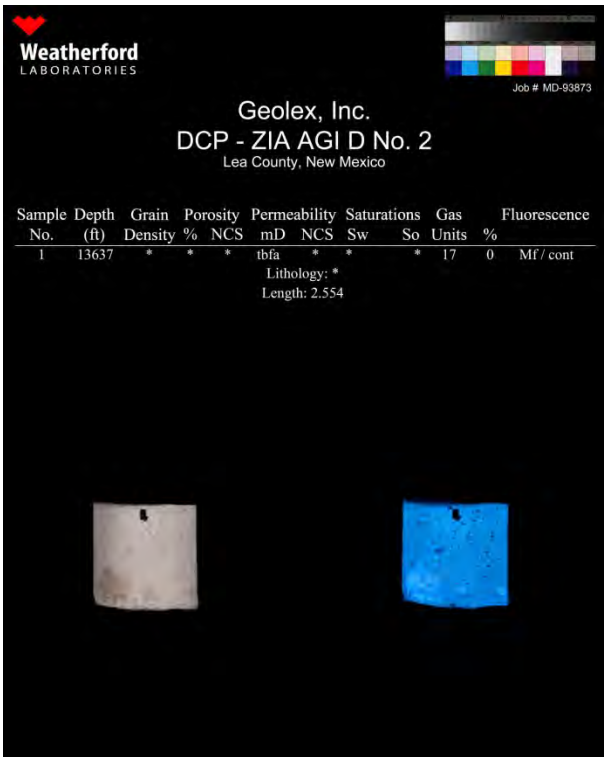
Final Core Picks

SIDEWALL CORING PLAN FOR ZIA D#2 12/11/2016

	CORE POINT No.		DEPTH (from KB)		ANTICIPATED POROSITY/PERM High √	Low √	
MONTOYA	1		14742			x	
	2		14722		x		
	3		14712		x		
	4		14707		x		
	5		14695		x		
	6		14682		x		
	7		14665			x	
	8		14641			x	Control
	9		14618		x		
	10		14614		x		
	11		14586			x	
	12		14547		x		
	13		14514			x	
	14		14468			x	Control
FUSSELMAN	15		14363			x	
	16		14347			x	
	17		14325		x		
	18		14319		x		
	19		14316			x	
	20		14308		x		
	21		14306			x	
	22		14302			x	
	23		14298		x		
	24		14267			x	
	25		14240		x		
	26		14223			x	
	27		14100		x		
	28		14093			x	
	29		14045			x	
	30		13985			x	
	31		13980		x		
	32		13976		x		
	33		13903		x		
WRISTEN	34		13895		x		
	35		13853		x		
	36		13847		x		
	37		13820		x		
	38		13780			x	Control
DEVONIAN	39		13773			x	
	40		13714			x	
	41		13685			x	Control
	42		13654			x	
	43		13641		x		
	44		13637		x		
	45		13634		x		
	46		13630		x		
	47		13628		x		
	48		13626		x		
WOODFORD	49		13620			X	
	50		13616			X	

BLACK = primary porosity; RED = fracture-enhanced; BLUE = caprock

ULTRAVIOLET AND NATURAL LIGHT PHOTOGRAPHS OF SIDEWALL CORE SAMPLES WITH LITHOLOGICAL DESCRIPTIONS



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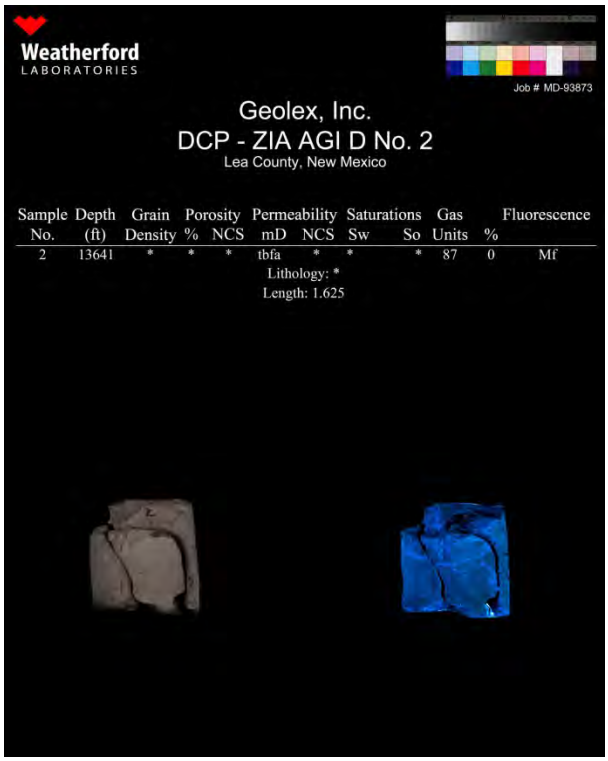

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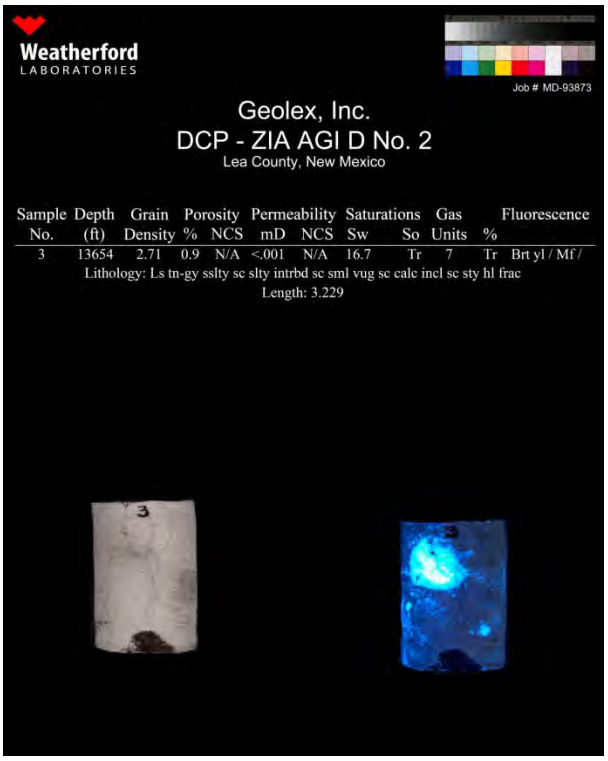

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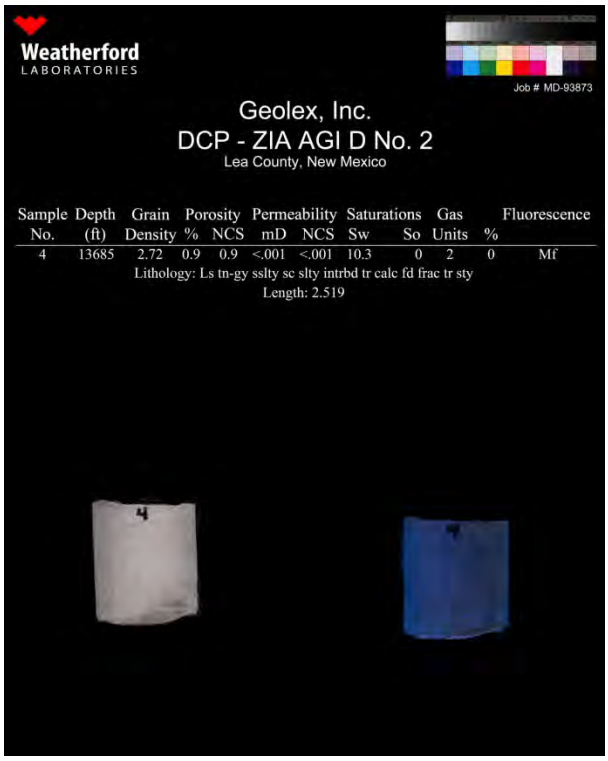

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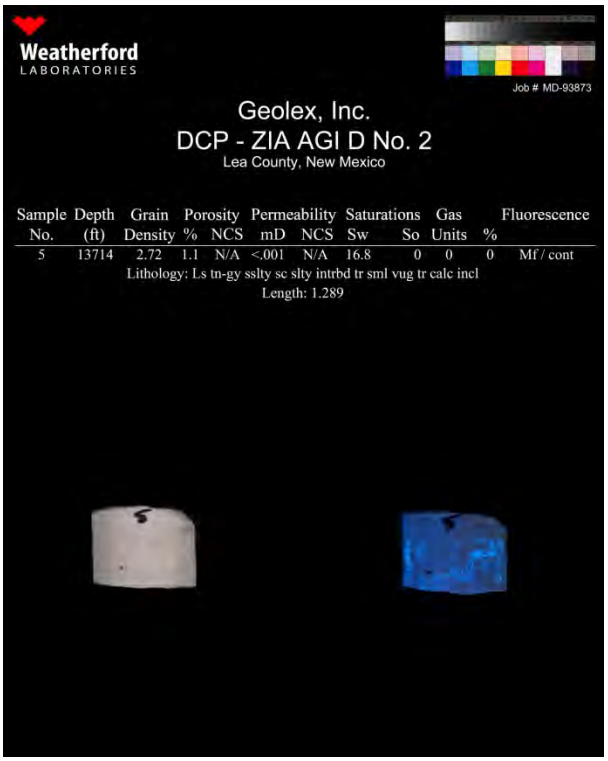

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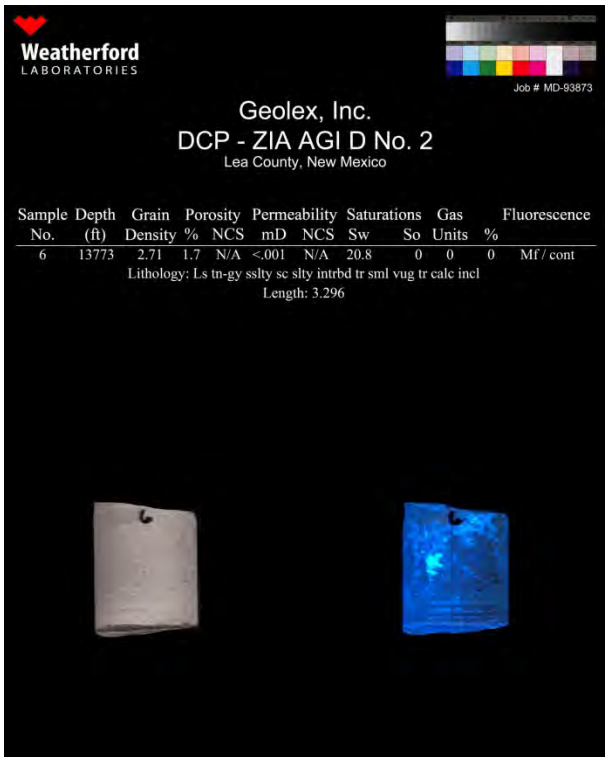

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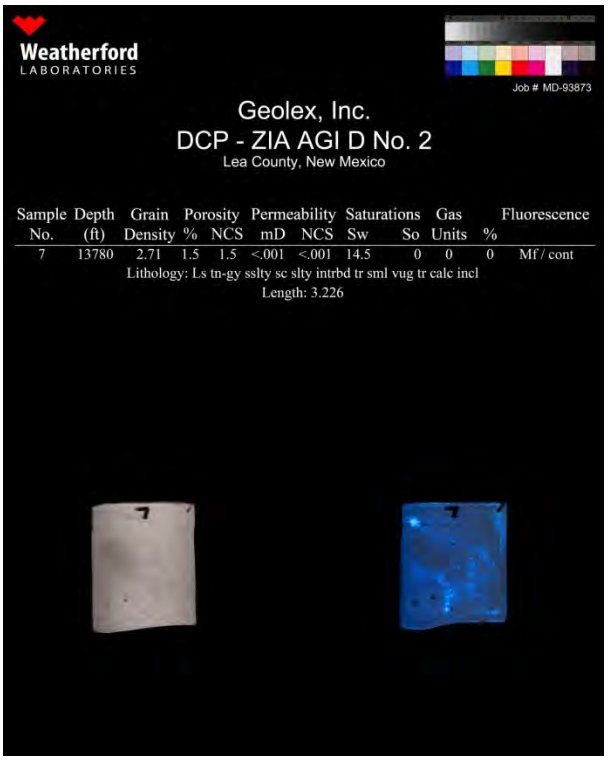

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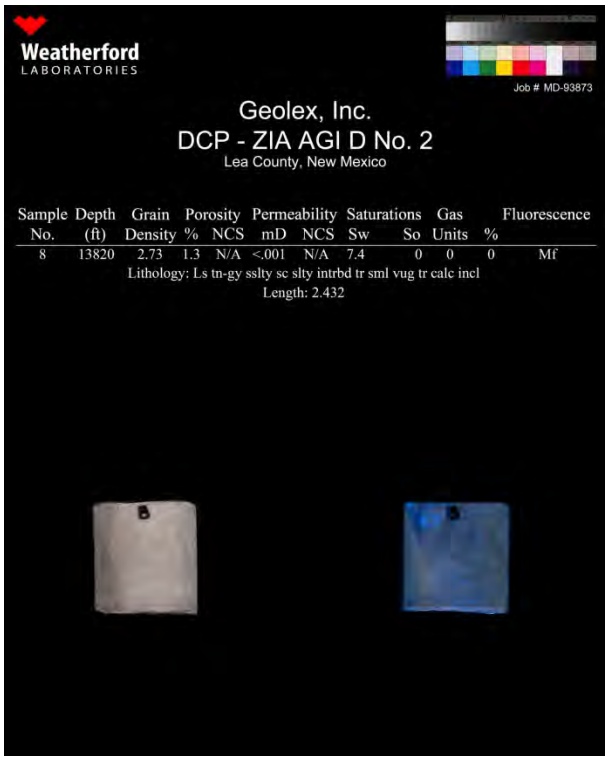

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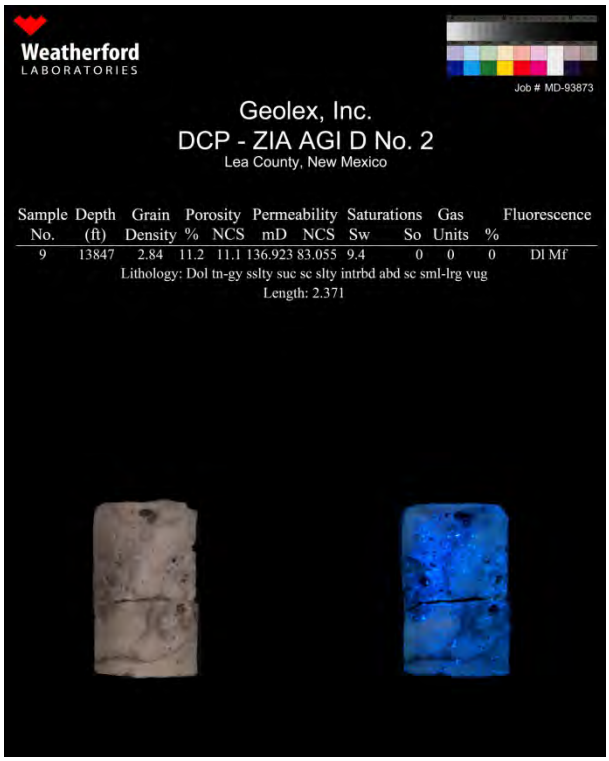

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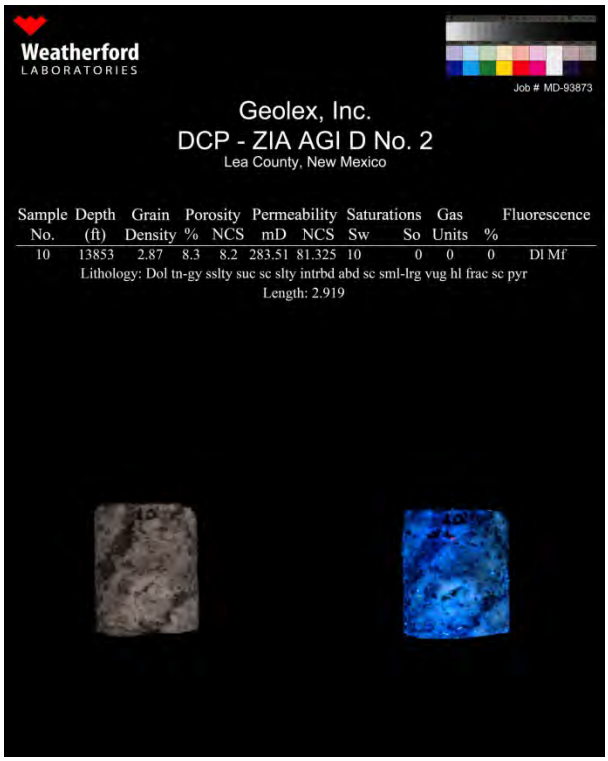

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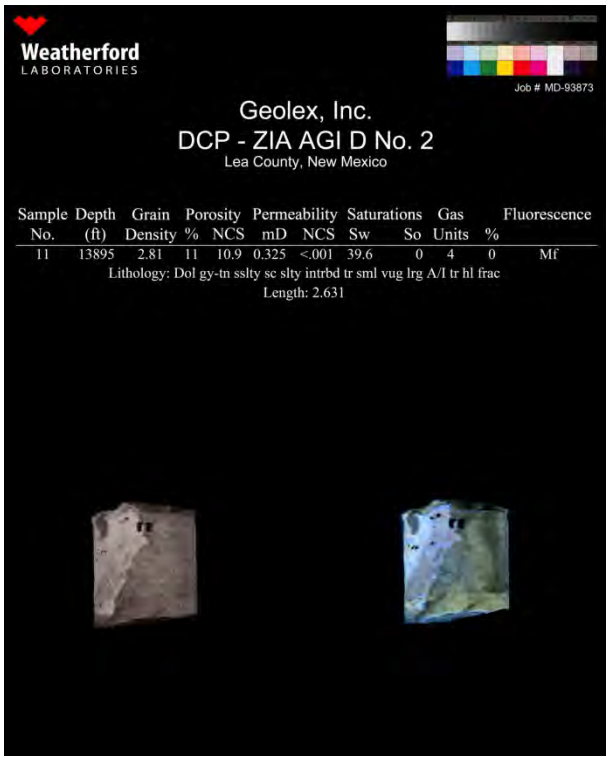

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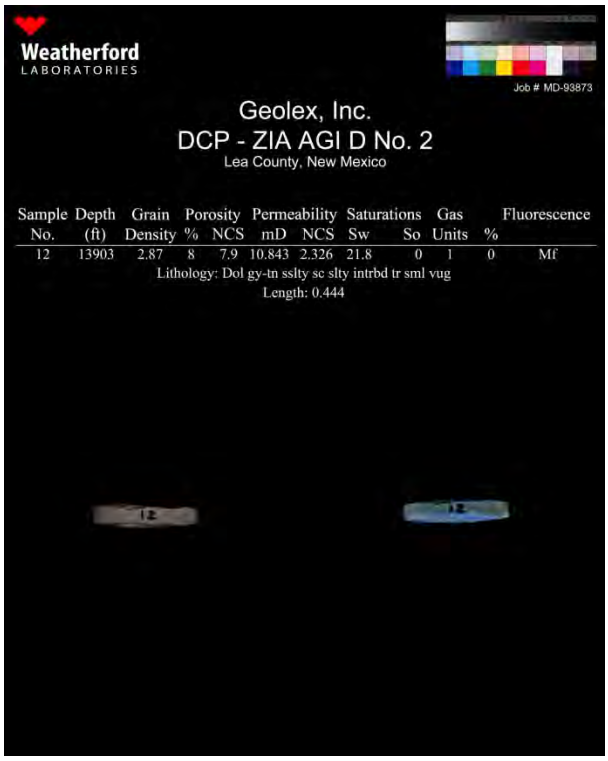

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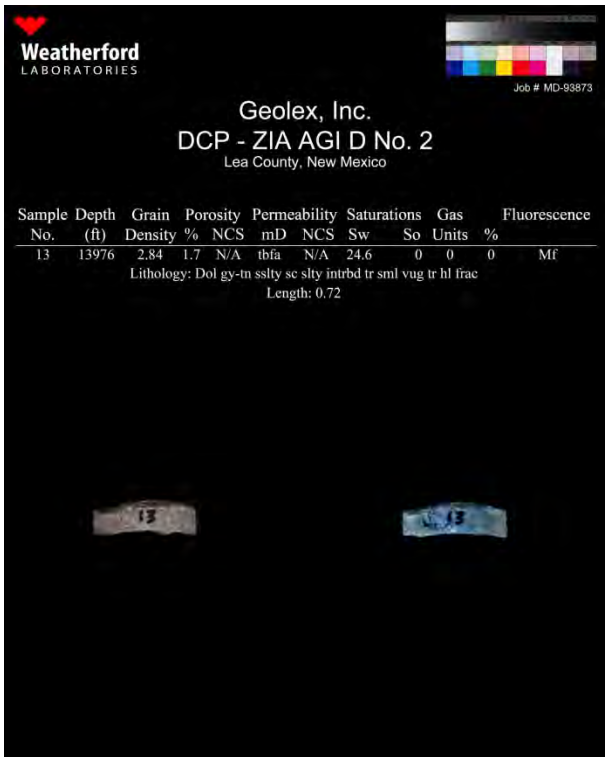

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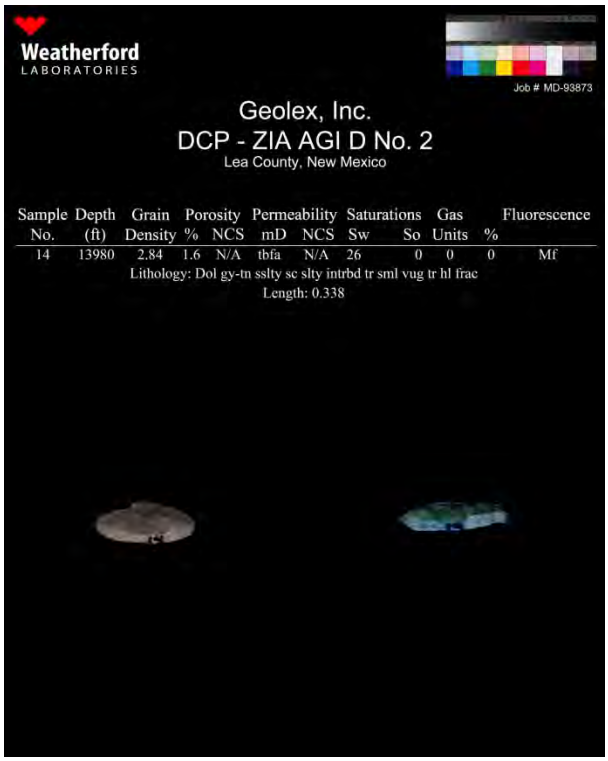

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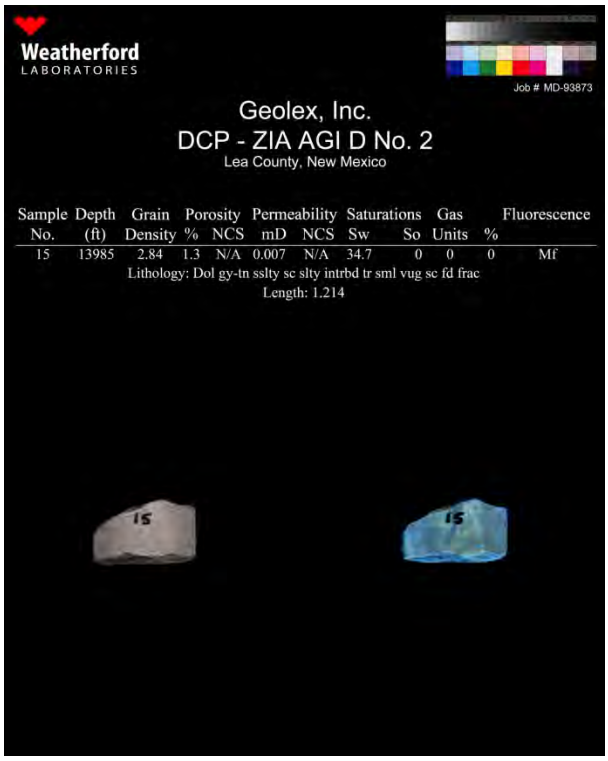

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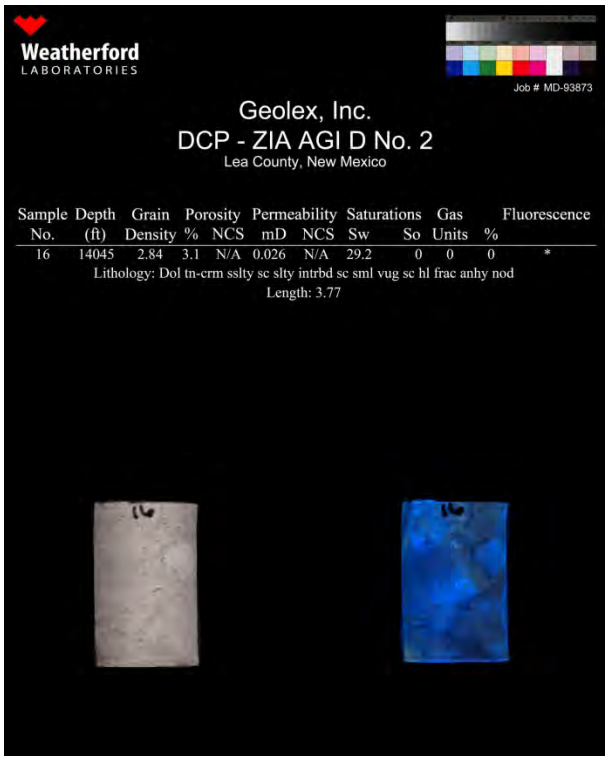

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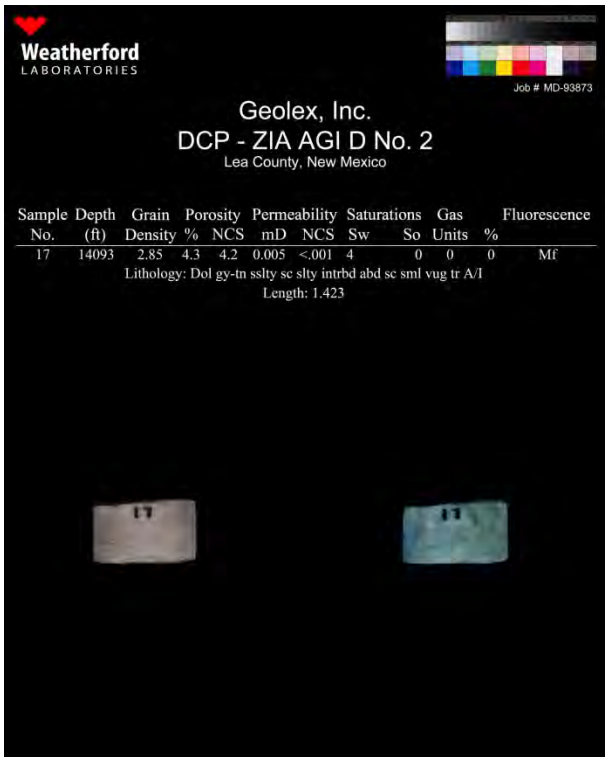

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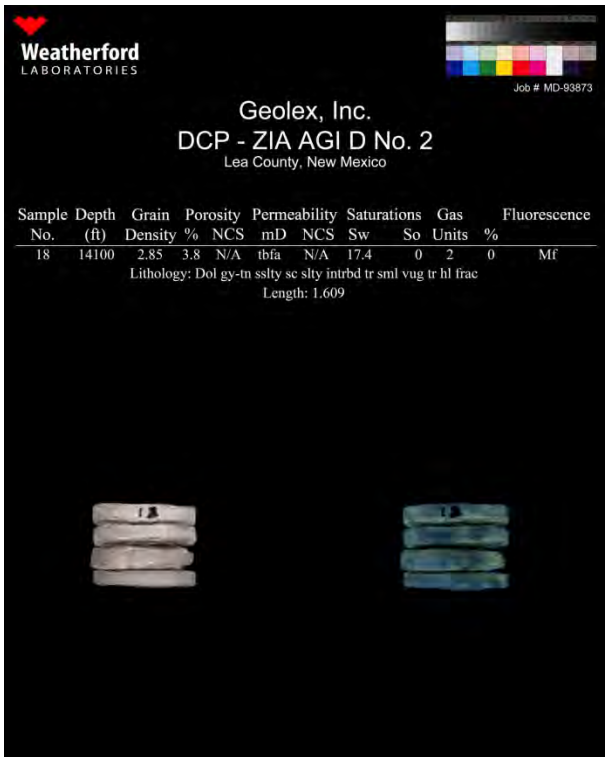

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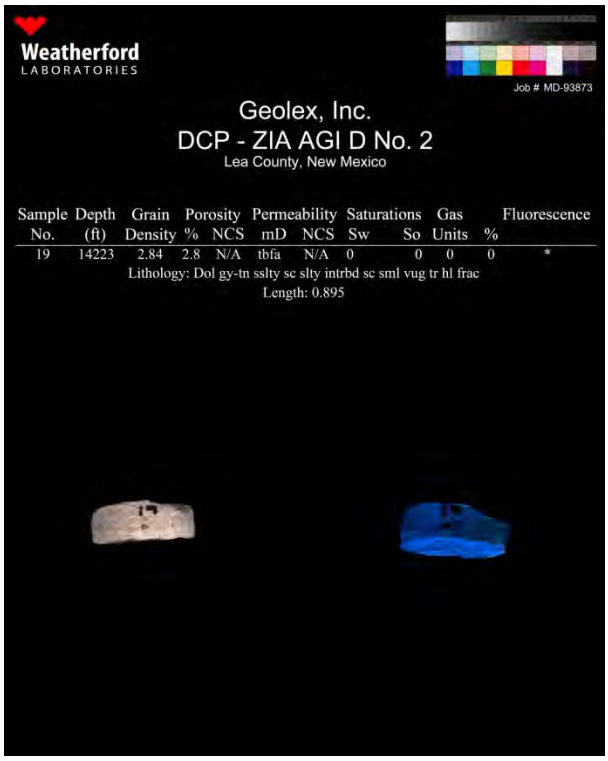

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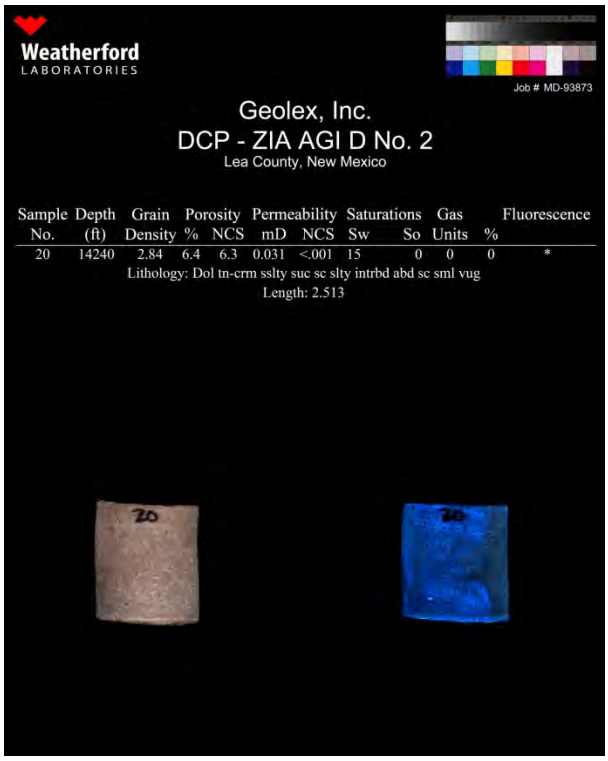

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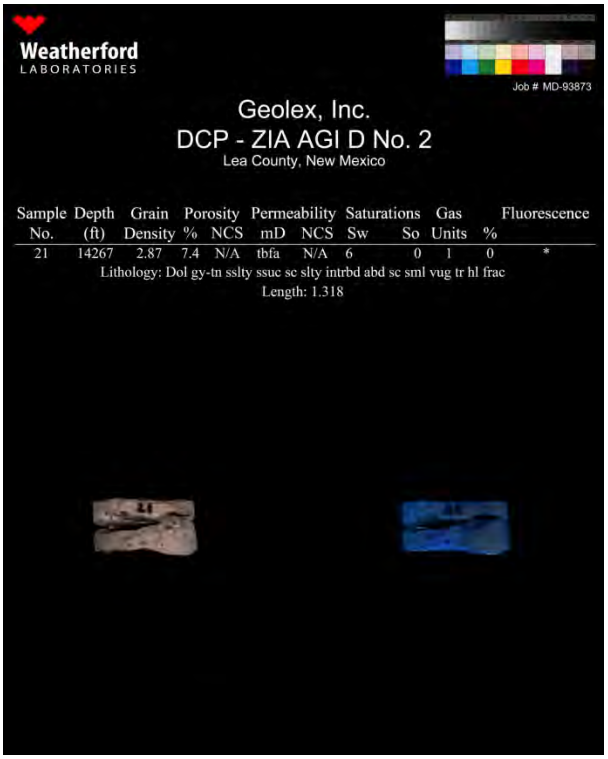

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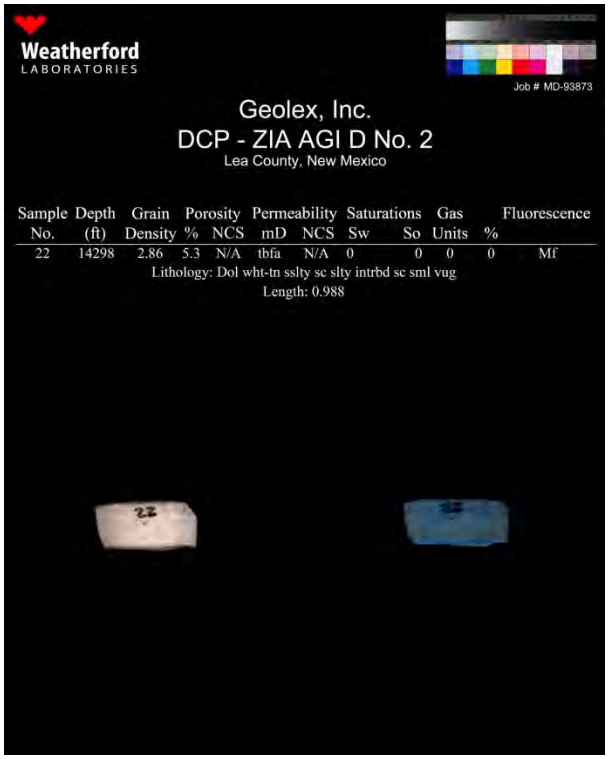

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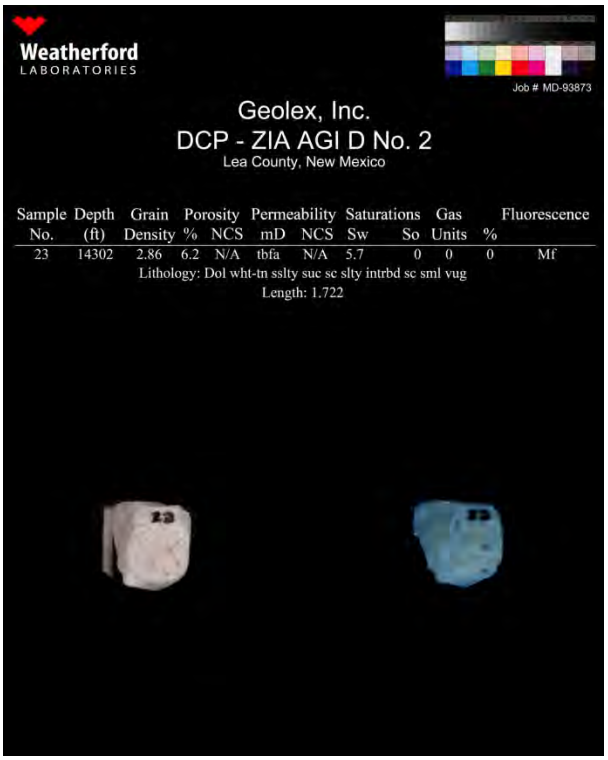

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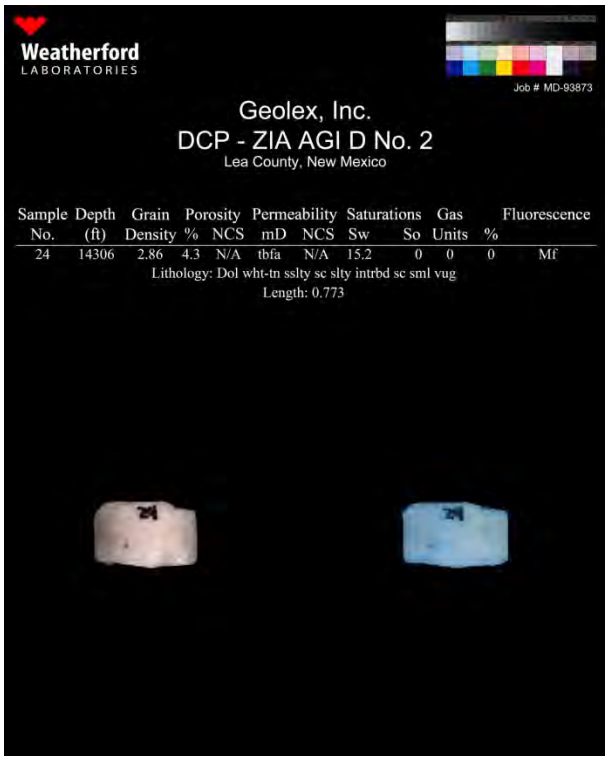

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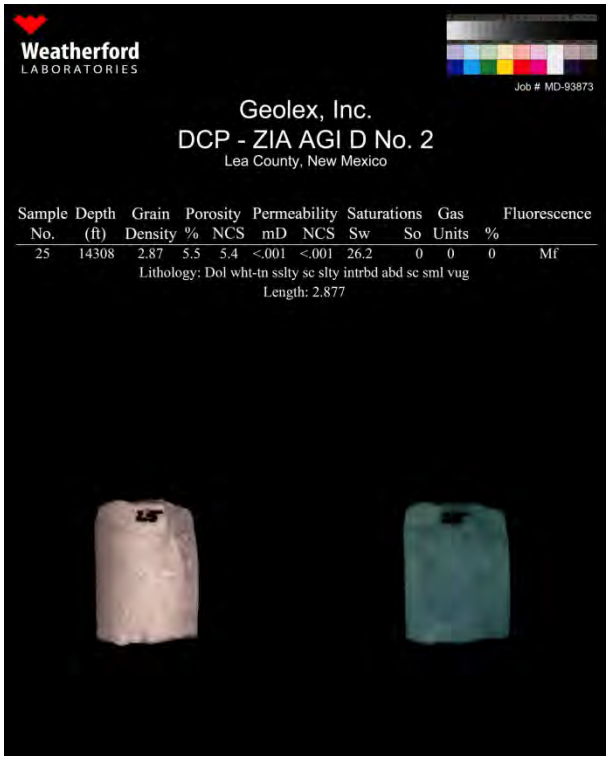

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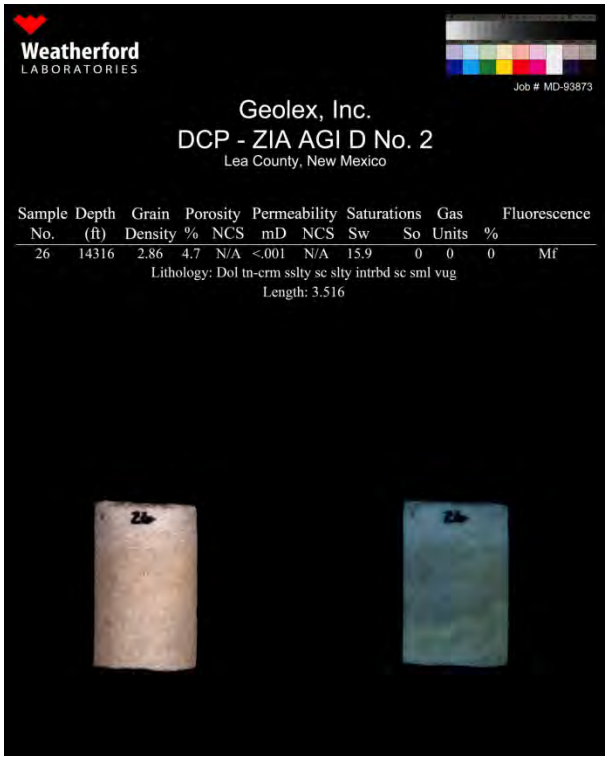

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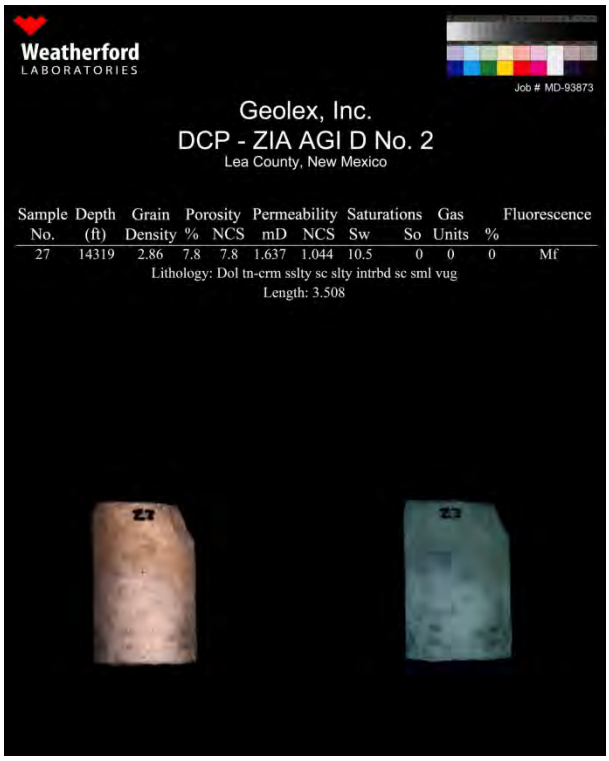

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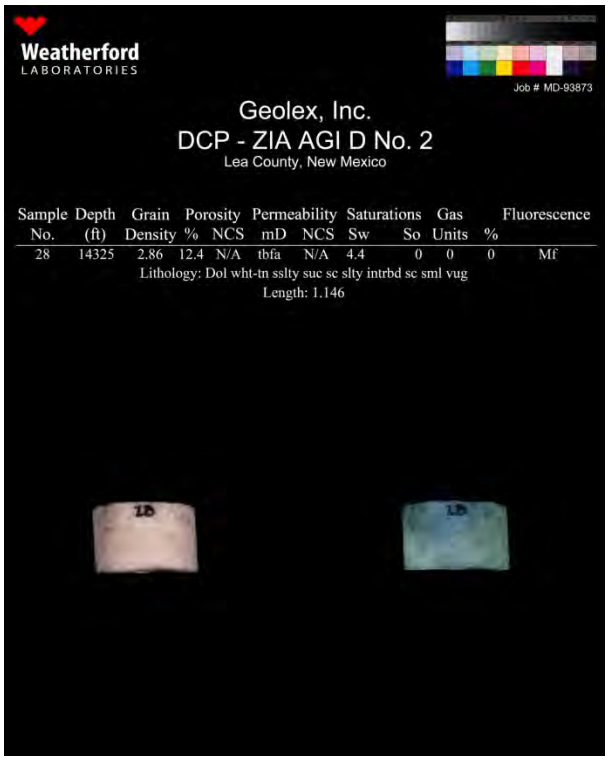

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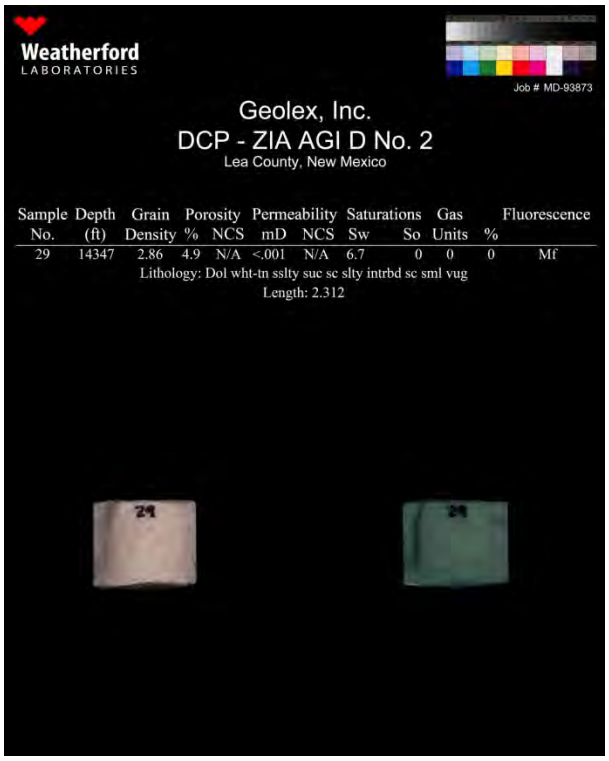

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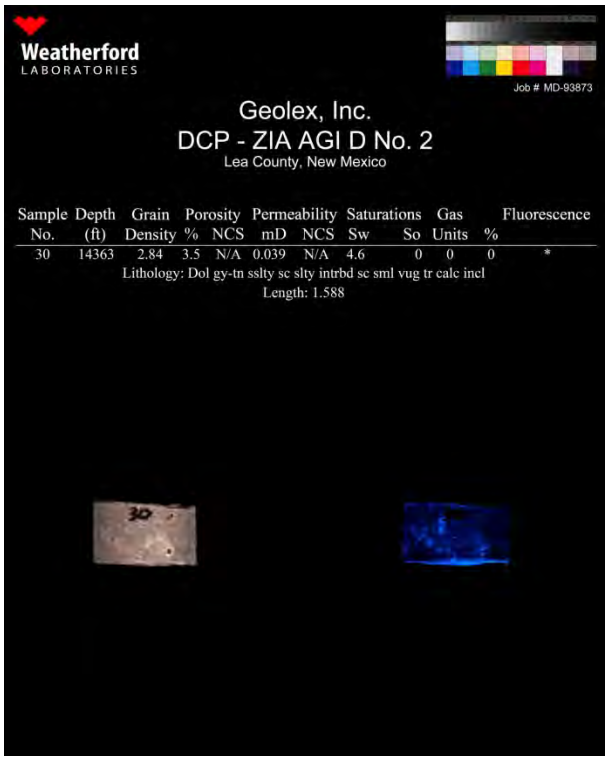

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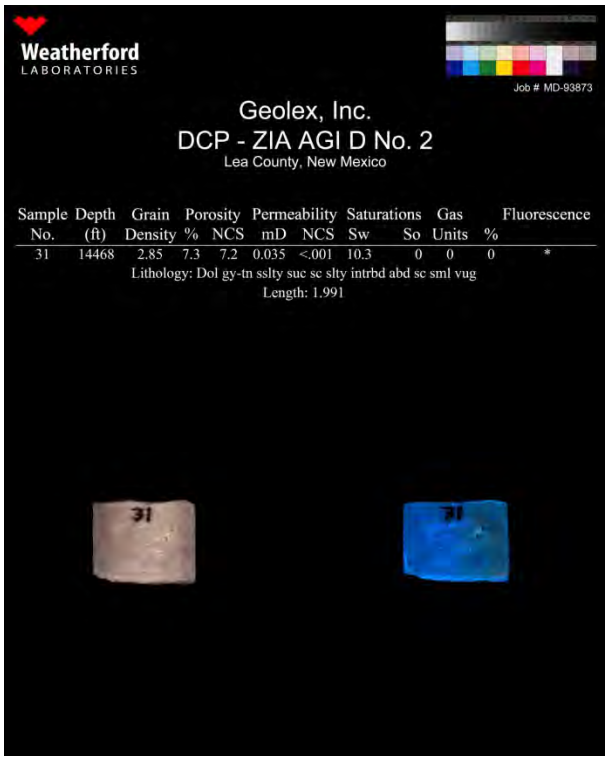

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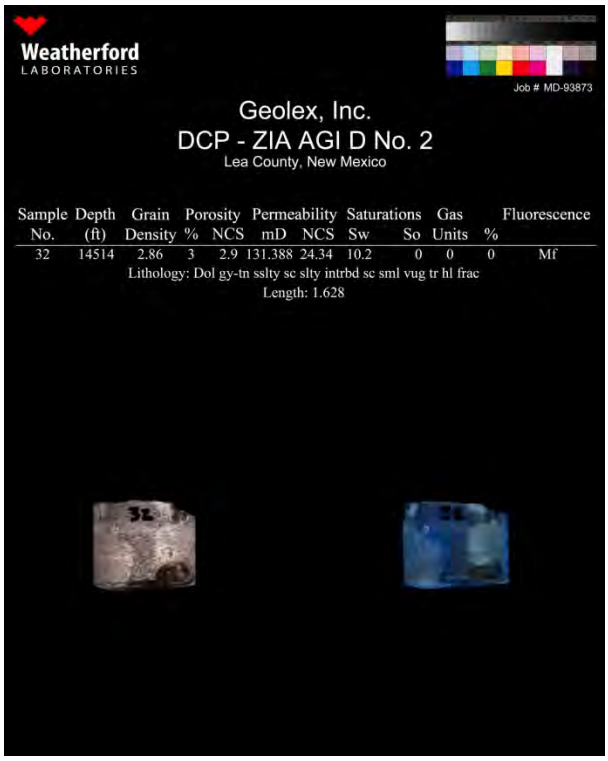

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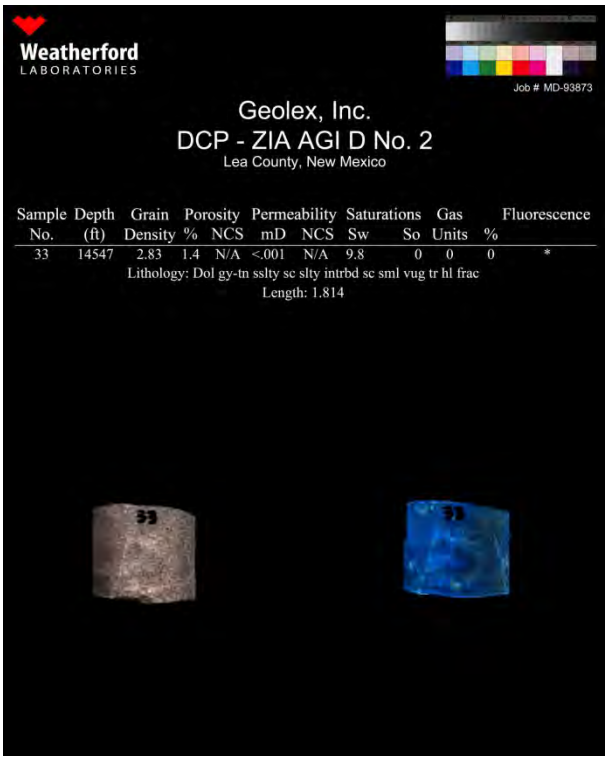

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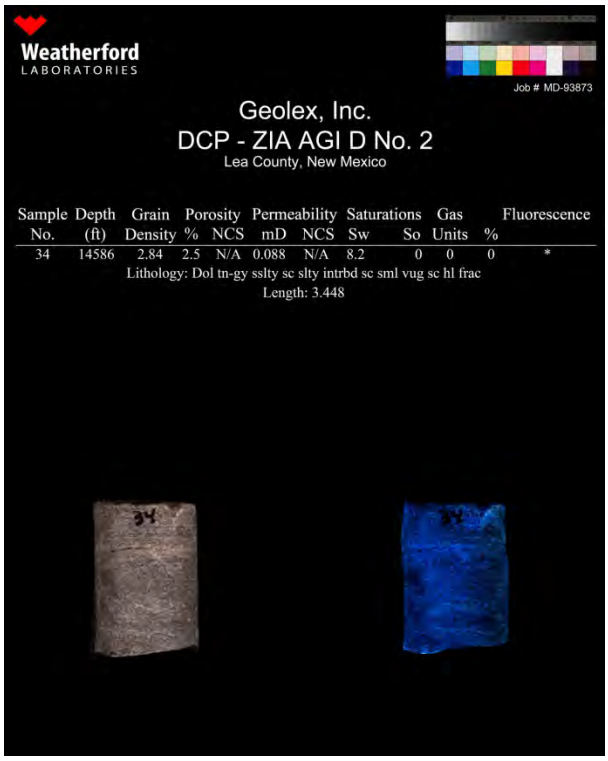

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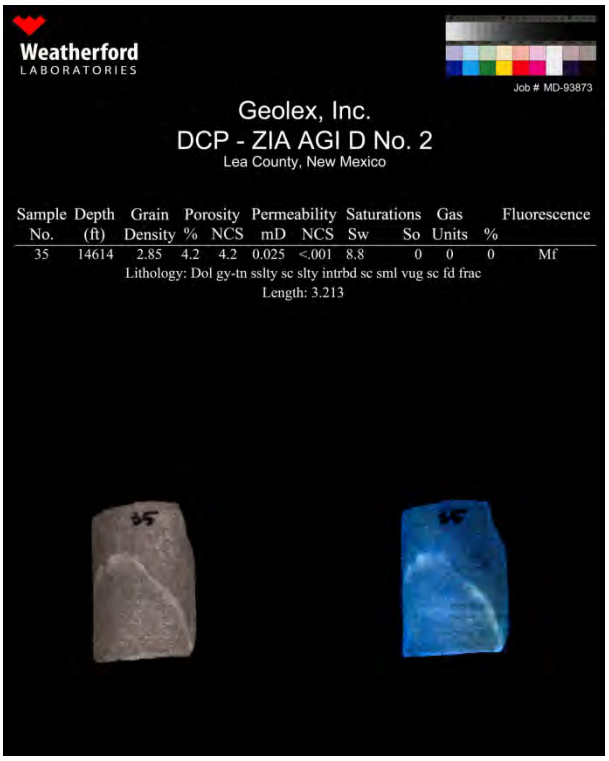

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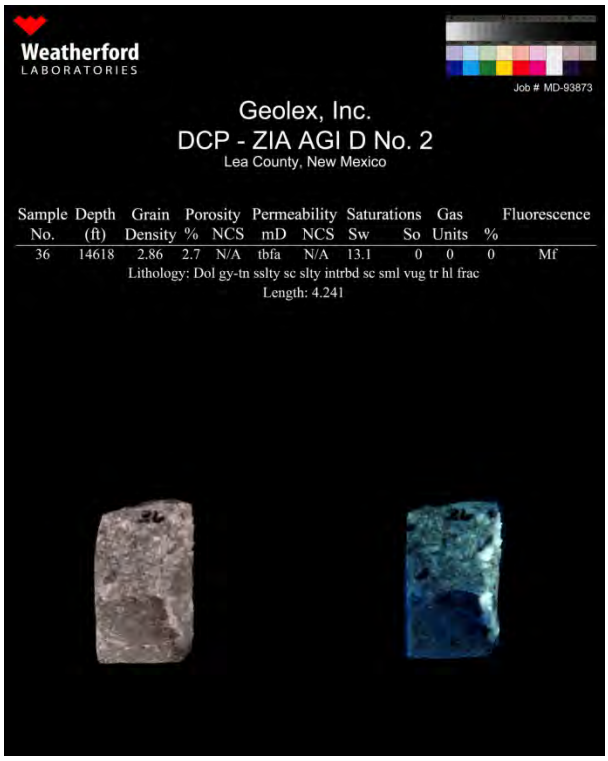

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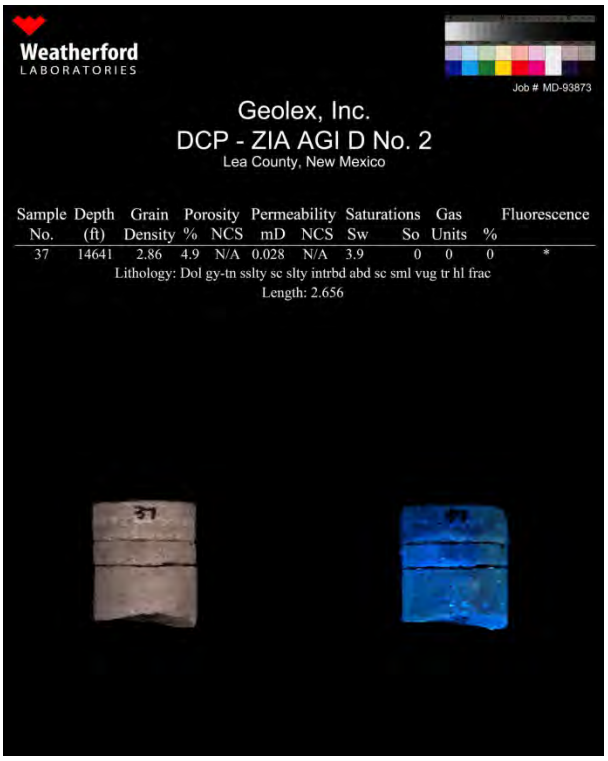

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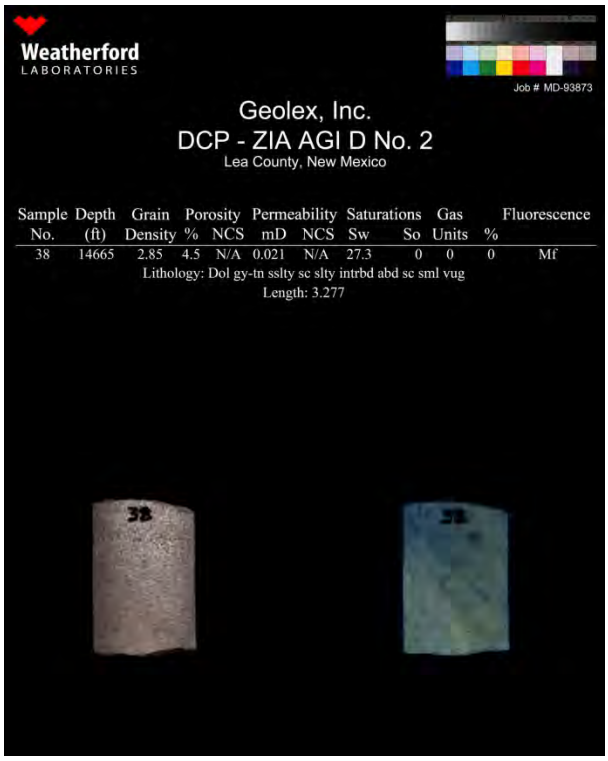

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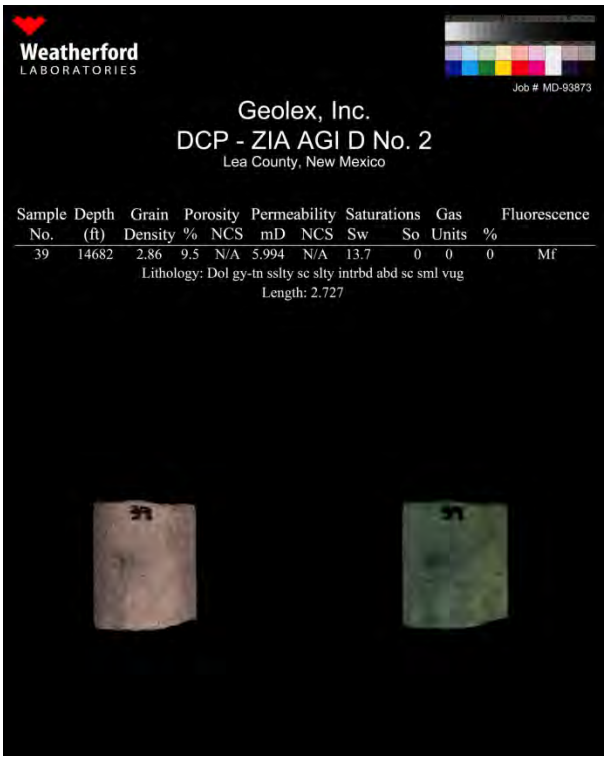

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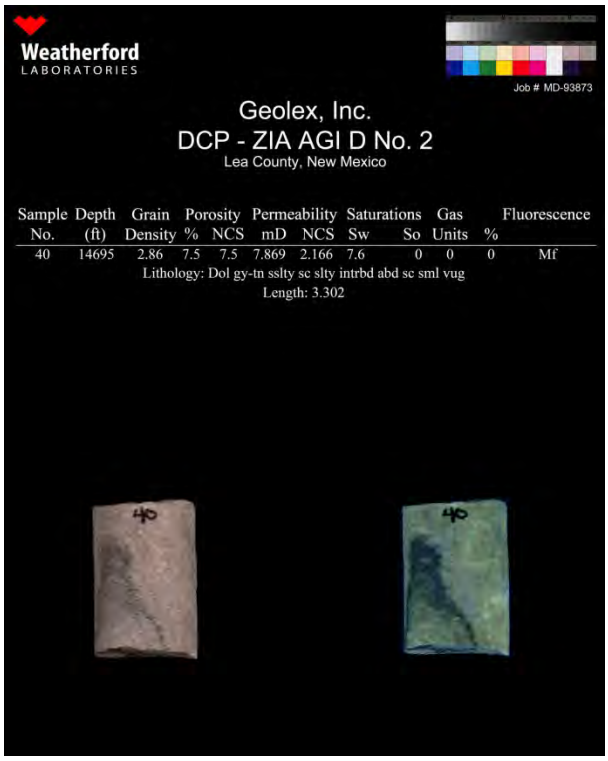

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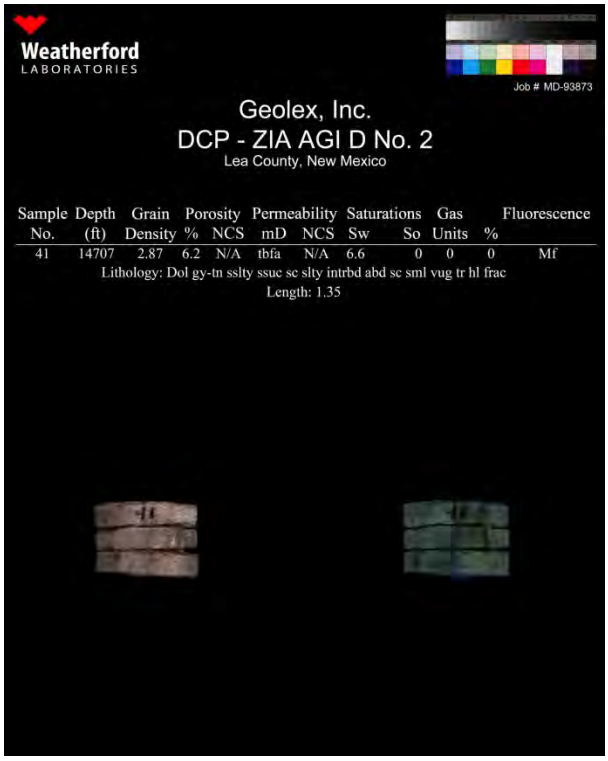

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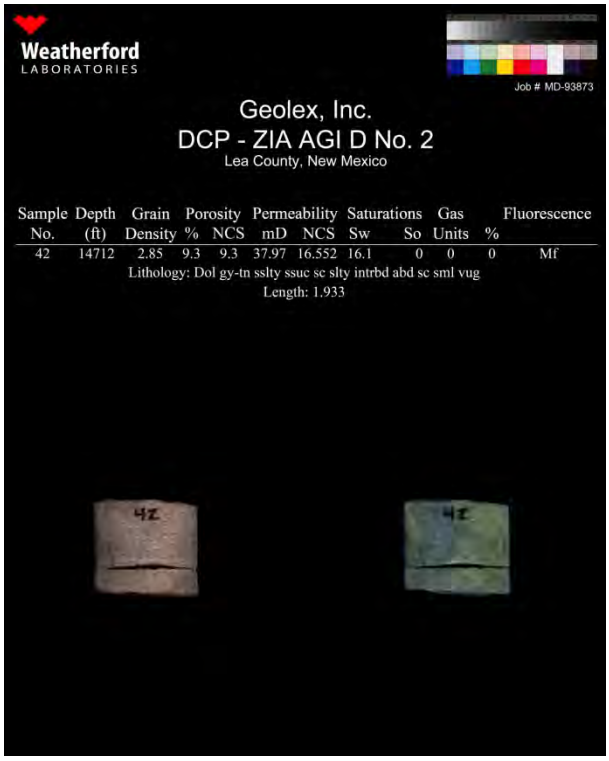

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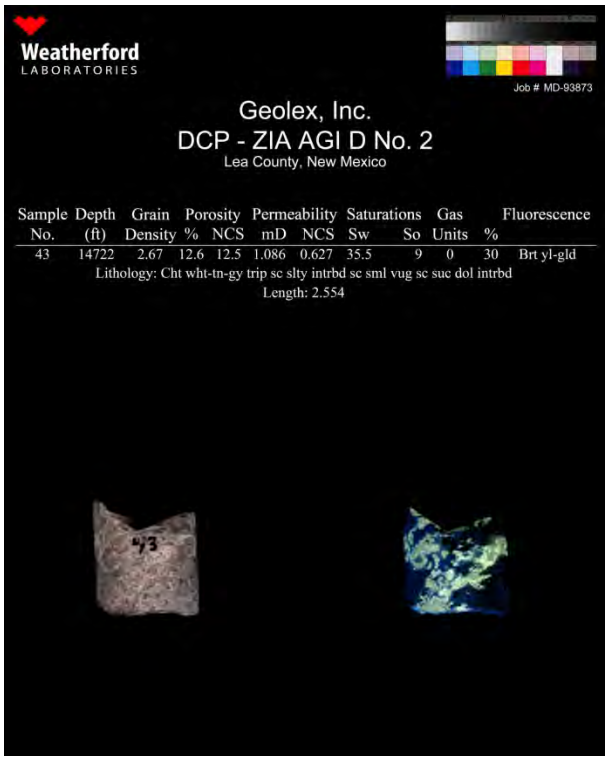


14,722 ft.

APPENDIX D

RESERVOIR TESTS

APPENDIX D
RESERVOIR TESTS

- Step Rate Test Data Sheets for the BLM
- DTS Analysis
- 10 Day Pressure Fall-Off and Temperature Warm-Back
- Halliburton SRT Summary Report
- No Recoverable Hydrocarbon Documents
- Summary and Results of Formation Fluid Analysis from Cardinal Laboratories
- Schlumberger FMI Presentation and Analysis
- Thermal Modeling During SRT and Pressure Transient Analysis

STEP RATE DATA SHEETS FOR THE BLM

STEP RATE TEST DATA for BLM

Operator: DCP Midstream (Halliburton Surface Press) Well: Zia AGI D#2 open hole injection interval
API#: 30-025-42207 Lease: NM0149956

Date collected: 12/29/2016 Sfc Loc: T-19-S, R-32-E, Sec 19 1893FSL 950FWL

Tbg OD 3.5" Tbg Wt. 9.2 Grade L-80

Packer set at: **10000** (ft) Inj Pipe I.D.: **2.992** (in)
Top Injection Depth: **13622** X 0.20psig/ft = Expected Surface Fracture psig: **2724.4**
With Mud Wt Scale: **8.35** lbs/gal Beginning Formation psig: **6474** at Depth: **14662**
Injection fluid lbs/gal: **8.35** Hydrostatic Pressure of fluid at top depth of injection: **5909**
Beginning Wellhead psig: **86** Target Maximum Rate - bpd(barrels per day): **7200**

1. Take a charted record of shut in psig for no less than 48 hours. If the shut in psig is above the expected fracture pressure, **the wellhead pressure will need to be bled off before beginning the Step Rate Test**.
2. Preform a minimum of seven steps, recording rate to ±0.1bpm and surface pressures to ±10psig in five minute intervals. The first two step rate pressures must be below 0.2psig/ft x depth at top of injection.

4. The last two five minute surface pressure readings of each (minimum 30 minute) step are to be within 15psig of each other. If not, hold that step injection rate past the 30 minute step until two consecutive pressure readings are within 15psig. Record the average of those two readings as the Data Point for that Step #.

Step 1 0.25 bpm pmp'd for Step 1
Target Test Rate (5% of maximum bpd/1440 = **0.2500** bpm (barrels per minute) for **Step 1**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	14:11
Surface (psig):	86.00	86.00	85.00	86.00	85.00	86.00	End Time:	14:41
Formation (psig)	6481.50	6482.60	6483.40	6483.90	6484.20	6484.60	**Graph Data**	
gpm:	10.50	10.50	10.50	10.50	10.50	10.50	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #1**	
Surface (psig):							Sfc psig:	85.67
Formation (psig):							F psig:	6483.37
gpm:							gpm:	10.50

Step 1 has a target bpd rate of: 360

Step 2 0.50 bpm pmp'd for Step 2
Target Test Rate (10% of maximum bpd/1440 = **0.5000** bpm for **Step 2**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	14:41
Surface (psig):	97.00	99.00	100.00	101.00	100.00	100.00	End Time:	15:11
Formation (psig):	6492.70	6495.70	6497.40	6498.50	6499.30	6499.80	**Graph Data**	
gpm:	21.00	21.00	21.00	21.00	21.00	21.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #2**	
Surface (psig):							Sfc psig:	99.50
Formation (psig):							F psig:	6497.23
gpm:							gpm:	21.00

Step 2 has a target bpd rate of: 720

Step 3 1.00 bpm pmp'd for Step 3
Target Test Rate (20% of maximum bpd/1440 = **1.0000** bpm for **Step 3**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	15:11
Surface (psig):	134.00	138.00	142.00	141.00	142.00	152.00	End Time:	15:41
Formation (psig):	6517.10	6524.30	6528.10	6530.70	6532.50	6534.20	**Graph Data**	
gpm:	42.00	42.00	42.00	42.00	42.00	42.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #3**	
Surface (psig):							Sfc psig:	141.50
Formation (psig)							F psig:	6527.82
gpm:							gpm:	42.00

Step 3 has a target bpd rate of: 1440

STEP RATE TEST DATA for BLM

Operator: DCP Midstream (Halliburton Surface Press) Well: Zia AGI D#2 open hole injection interval
API#: 30-025-42207 Lease: NM0149956
Date collected: 12/29/2016 Sfc Loc: T-19-S, R-32-E, Sec 19 1893FSL 950FWL

Step 4 1.50 bpm pmp'd for Step 4
Target Test Rate (30% of maximum bpd/1440 = **1.5000** bpm for **Step 4**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	15:41
Surface (psig):	190.00	195.00	197.00	199.00	203.00	211.00	End Time:	16:11
Formation (psig):	6554.40	6561.90	6566.50	6569.70	6572.10	6574.50	**Graph Data**	
Rate gal/min:	63.00	63.00	63.00	63.00	63.00	63.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #4**	
Surface (psig):							Sfc psig:	199.17
Formation (psig):							F psig:	6566.52
gpm:							gpm:	63.00

Step 4 has a target bpd rate of: 2160

Step 5 2.00 bpm pmp'd for Step 5
Target Test Rate (40% of maximum bpd/1440 = **2.0000** bpm for **Step 5**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	16:11
Surface (psig):	267.00	270.00	272.00	275.00	275.00	279.00	End Time:	16:41
Formation (psig)	6595.40	6603.50	6608.50	6612.10	6614.90	6617.00	**Graph Data**	
gpm:	84.00	84.00	84.00	84.00	84.00	84.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #5**	
Surface (psig):							Sfc psig:	273.00
Formation (psig):							F psig:	6608.57
gpm:							gpm:	84.00

Step 5 has a target bpd rate of: 2880

Step 6 3.00 bpm pmp'd for Step 6
Target Test Rate (60% of maximum bpd/1440 = **3.0000** bpm for **Step 6**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	16:41
Surface (psig):	412.00	428.00	449.00	442.00	453.00	452.00	End Time:	17:11
Formation (psig)	6660.70	6678.10	6688.20	6695.20	6700.50	6704.50	**Graph Data**	
Rate gal/min:	126.00	126.00	126.00	126.00	126.00	126.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #6**	
Surface (psig):							Sfc psig:	439.33
Formation (psig):							F psig:	6687.87
gpm:							gpm:	126.00

Step 6 has a target bpd rate of: 4320

Step 7 4.00 bpm pmp'd for Step 7
Target Test Rate (80% of maximum bpd/1440 = **4.0000** bpm for **Step 7**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	17:11
Surface (psig):	614.00	629.00	644.00	655.00	658.00	662.00	End Time:	17:41
Formation (psig):	6747.60	6766.40	6778.10	6786.30	6792.70	6798.10	**Graph Data**	
gpm:	168.00	168.00	168.00	168.00	168.00	168.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #7**	
Surface (psig):							Sfc psig:	643.67
Formation (psig):							F psig:	6778.20
gpm:							gpm:	168.00

Step 7 has a target bpd rate of:: 5760

STEP RATE TEST DATA for BLM

Operator: DCP Midstream (Halliburton Surface Press) Well: Zia AGI D#2 open hole injection interval
API#: 30-025-42207 Lease: NM0149956
Date collected: 12/29/2016 Sfc Loc: T-19-S, R-32-E, Sec 19 1893FSL 950FWL

Step 8 5.00 bpm pmp'd for Step 8
Target Test Rate (100% of maximum bpd/1440 = **5.0000** bpm for **Step 8**

Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	17:41
Surface (psig):	795.00	860.00	891.00	912.00	923.00	927.00	End Time:	18:11
Formation (psig):	6746.40	6827.30	6858.30	6877.00	6890.10	6900.40	**Graph Data**	
Rate gal/min:	210.00	210.00	210.00	210.00	210.00	210.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #8**	
Surface (psig):							Sfc psig:	884.67
Formation (psig):							F psig:	6849.92
gpm:							gpm:	210.00

Step 8 has a target bpd rate of: 7200

Step 9 6.00 bpm pmp'd for Step 9
Target Test Rate (120% of maximum bpd/1440 = **6.0000** bpm for **Step 9**

Time:	5 min	10 min	15 min	2.00	25 min	30 min	Start Time:	18:13
Surface (psig):	1196.00	1218.00	1229.00	1229.00	1251.00	1253.00	End Time:	18:43
Formation (psig)	6951.90	6978.60	6996.80	7010.70	7022.00	7031.50	**Graph Data**	
gpm:	252.00	252.00	252.00	252.00	252.00	252.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #9**	
Surface (psig):							Sfc psig:	1229.33
Formation (psig):							F psig:	6998.58
gpm:							gpm:	252.00

Step 9 has a target bpd rate of: 8640

Step 10 Target gpm = 294.00 7.00 bpm pmp'd for Step 10
Target Test Rate (140% of maximum bpd/1440 = **7.0000** bpm for **Step 10**

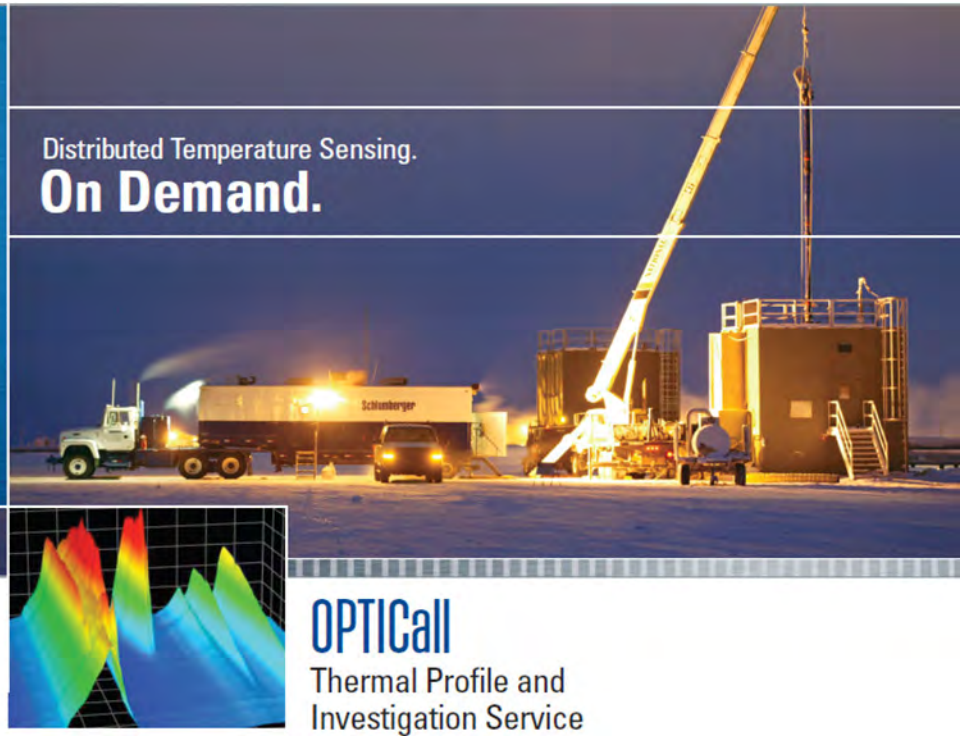
Time:	5 min	10 min	15 min	20 min	25 min	30 min	Start Time:	18:43
Surface (psig):	1526.00	1547.00	1544.00	1531.00	1587.00	1613.00	End Time:	19:13
Formation (psig)	7079.90	7107.90	7127.20	7141.90	7154.00	7163.90	**Graph Data**	
Rate gal/min:	294.00	294.00	294.00	294.00	294.00	294.00	**for**	
Time:	35 min	40 min	45 min	50 min	25 min	60 min	**Point #10**	
Surface (psig):							Sfc psig:	1558.00
Formation (psig):							F psig:	7129.13
gpm:							gpm:	294.00

Step 10 has a target bpd rate of: 10080

Instant Shut In Pressure:	1608
5 minute Shut In Pressure:	449
7 minute Shut In Pressure:	394
19 minute Shut In Pressure:	229

DTS ANALYSIS

Slickline Services



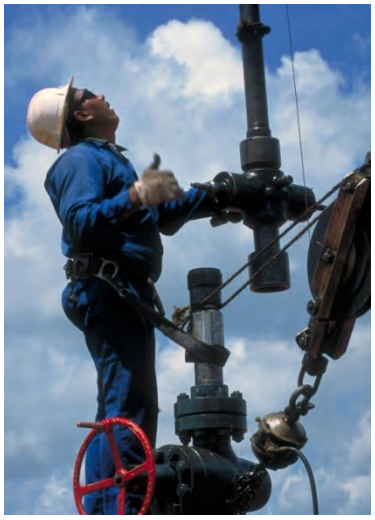
Concho
Well: ZIA AGI D#2 SRT

OPTICall
Thermal Profile and
Investigation Service

Yosmar Gonzalez
Reservoir Engineer

Schlumberger

Slickline Services

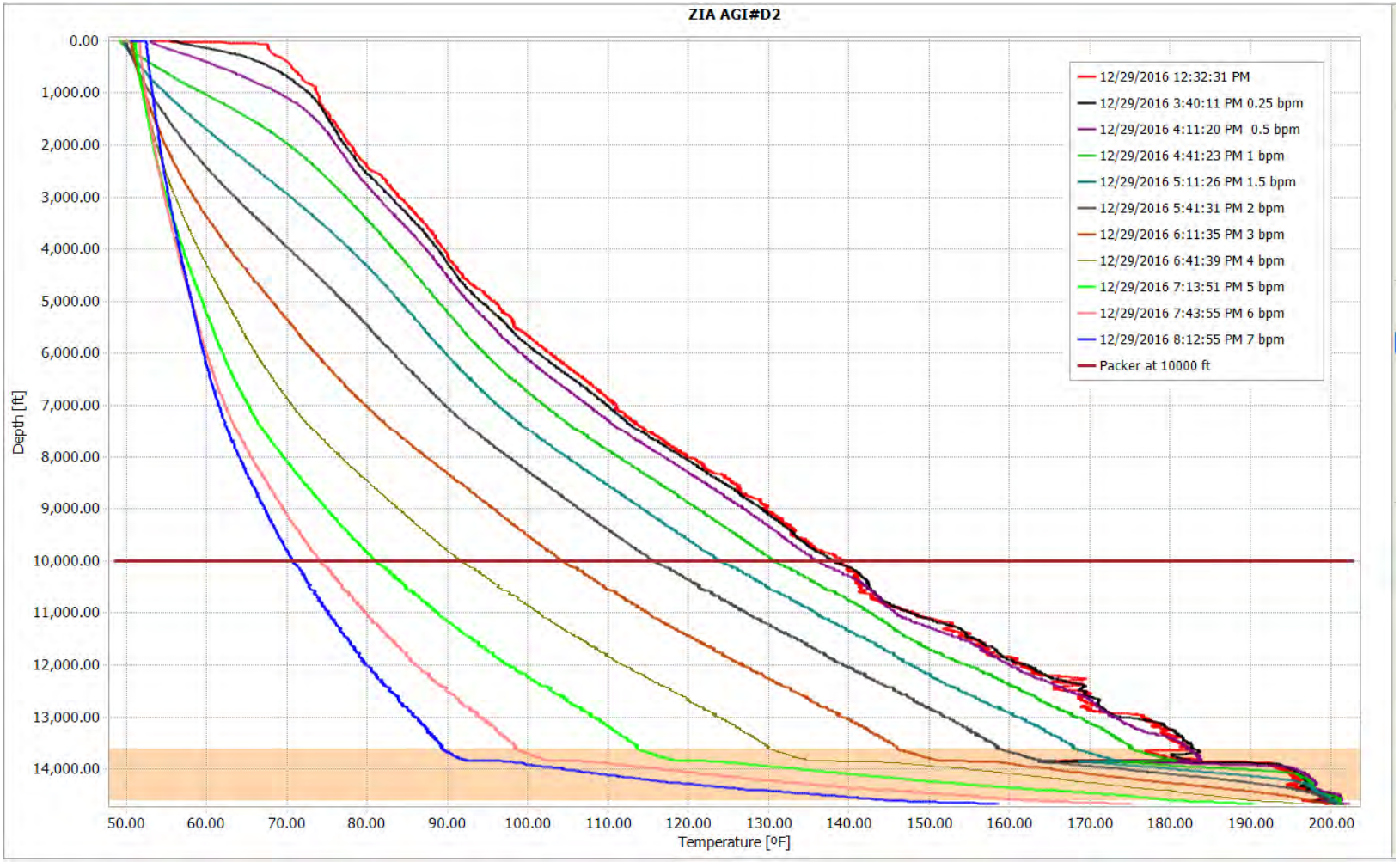


ZIA AGI D#2
Step Rate Test Preliminary Plots

Schlumberger

SRT- DTS Profiles

DTS Cable at 14,665 ft.

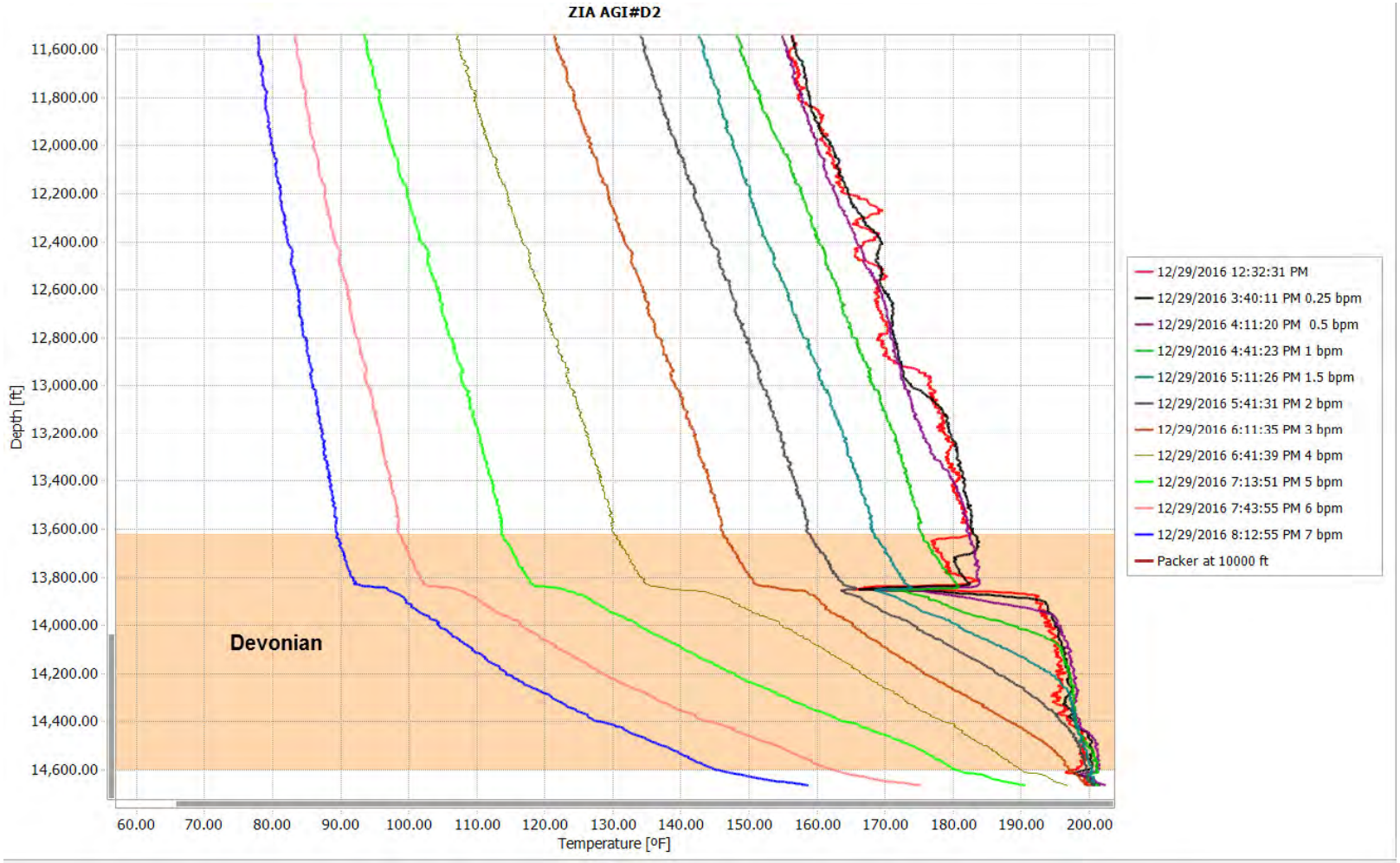


Slickline Services

Schlumberger

SRT- DTS Profiles

DTS Cable at 14,665 ft.

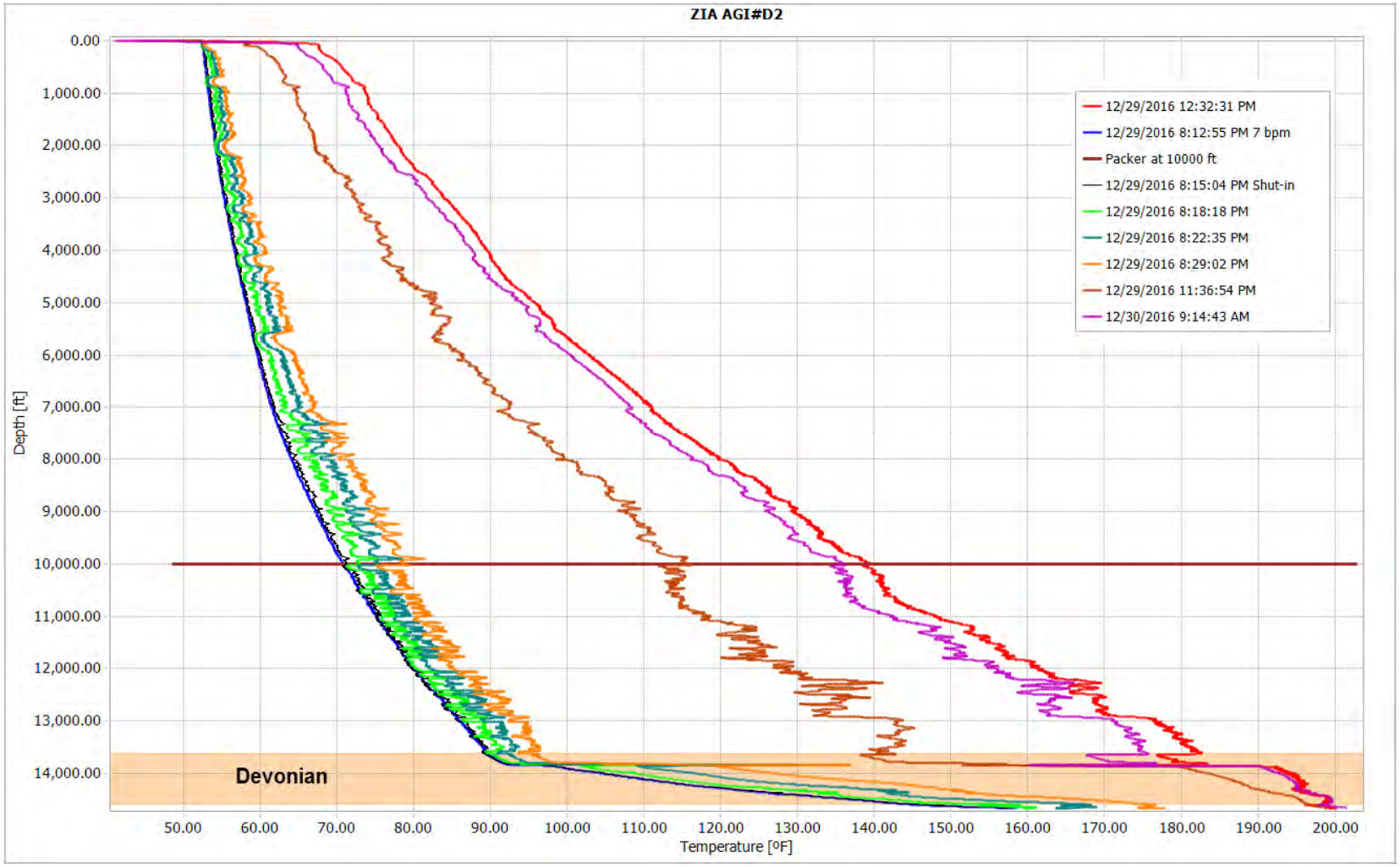


Slickline Services

Schlumberger

Post SRT- DTS profiles

DTS Cable at 14,665 ft.

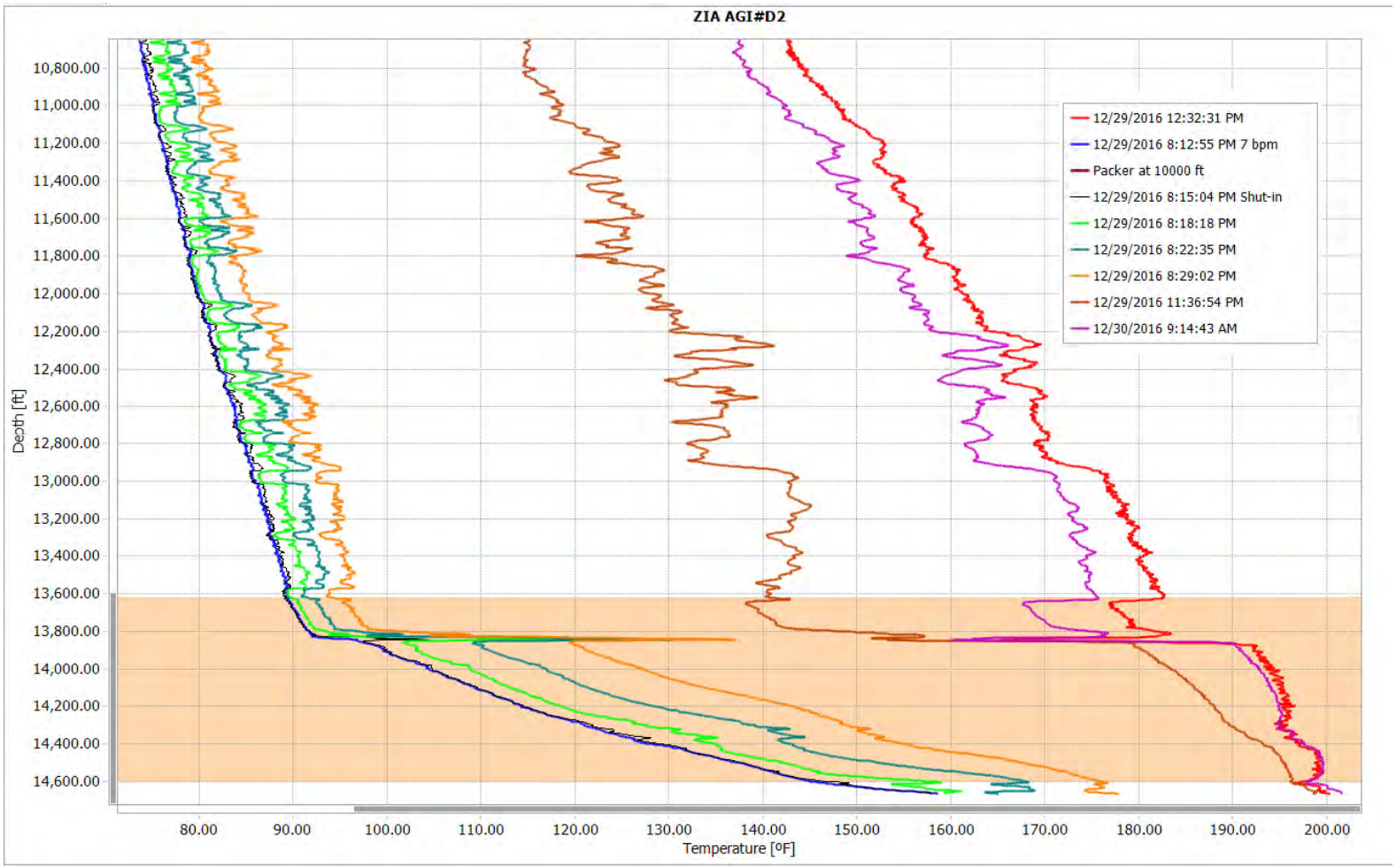


Slickline Services

Schlumberger

Post SRT- DTS profiles

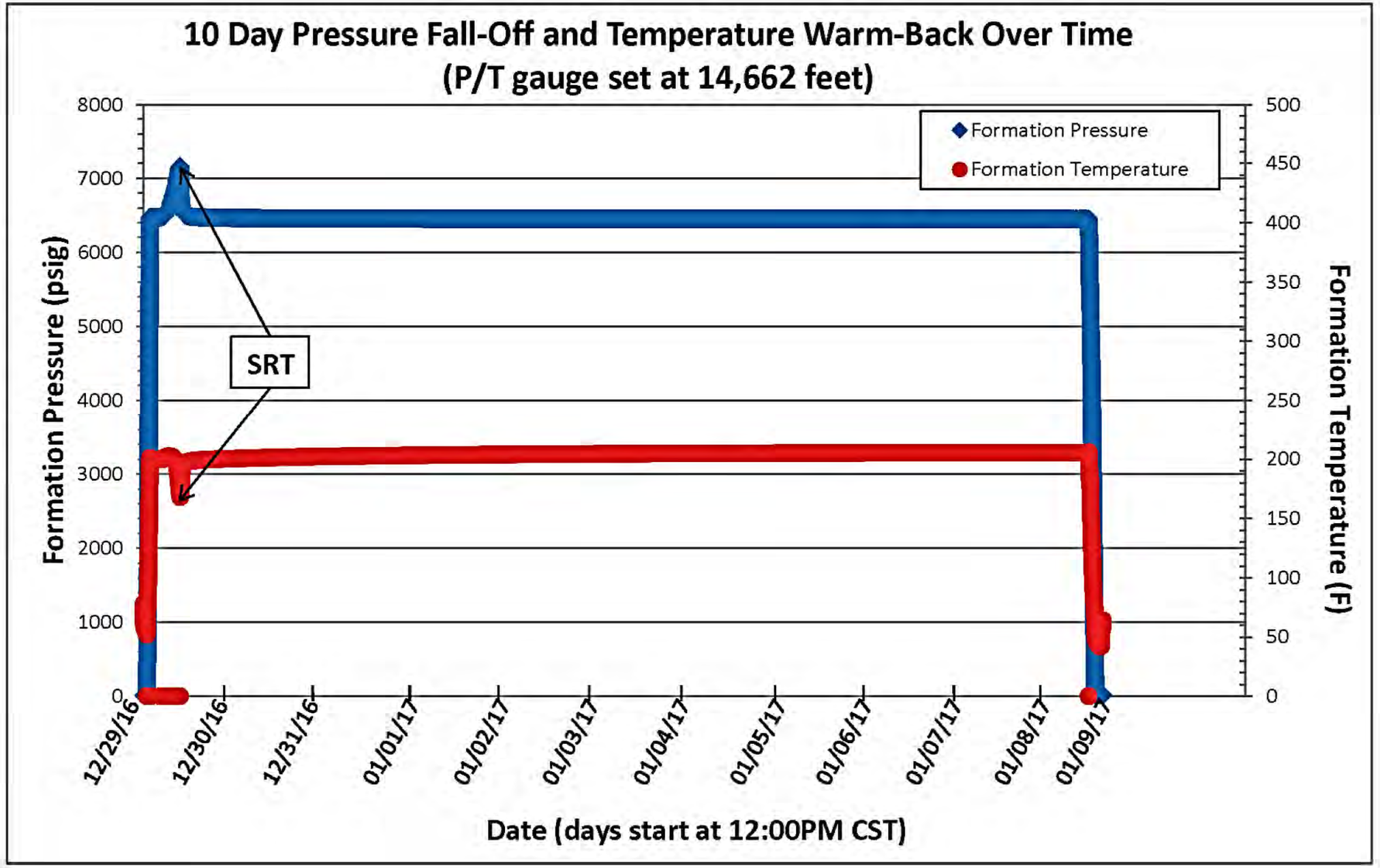
DTS Cable at 14,665 ft.



Slickline Services

Schlumberger

10 DAY PRESSURE FALL-OFF AND TEMPERATURE WARM-BACK


10 Day Pressure Fall-Off and Temperature Warm-Back Over Time
(P/T gauge set at 14,662 feet)
Formation Pressure
Formation Temperature
SRT
Formation Pressure (psig)
Formation Temperature (F)
Date (days start at 12:00PM CST)
8000
7000
6000
5000
4000
3000
2000
1000
0
500
450
400
350
300
250
200
150
100
50
0
12/29/16
12/30/16
12/31/16
01/01/17
01/02/17
01/03/17
01/04/17
01/05/17
01/06/17
01/07/17
01/08/17
01/09/17

HALLIBURTON SRT SUMMARY REPORT

HALLIBURTON

Field Ticket

Original

Field Ticket Number:	0903736294	Field Ticket Date: Thursday, December 29, 2016	Planning Order #: NA

Bill To:
DCP MIDSTREAM LP - EBUS,
DONOTMAIL - PO BOX 982265,
EL PASO, TX, 79998

Ship To:
ZIA AGI 2,LEA,
HOBBS, NM, 88240

Job Name:	Step Rate Test
Order Type:	ZOH
Well Name:	ZIA AGI 2
Company Code:	1100
Customer PO No.:	NA
AFE:	
Shipping Point:	Artesia South Shipping Point
Sales Office:	PERMIAN BASIN BD
Well Type:	INJECTION
Well Category:	Development
Rig Name/#:	

Material	Description	QTY	UOM	Unit Amount	Gross Amount	Discount	Net Amount
14511	**PE BOM-Miscellaneous Pumping**	1	JOB		0.00		0.00
	Solution pricing line items						
224400	PE MOBILIZATION FRAC SOL SVC CHG	340	MI	32.00 USD / 1.00 MI	10,880.00	$ 7,072.00	3,808.00
	BARRELS/CUBIC METRES (BBL/M3)	BBL					
	RATE PER BBL\CUM	7					
	PRESSURE UNITS (PSI/MPA/BAR)	PSI					
	PRESSURE	5000					
224401	PE FRACTURING SOLUTION SERVICE CHARGE	1	JOB	7,965.40 USD / 1.00 JOB	7,965.40	$ 5,177.51	2,787.89
	PRESSURE UNITS (PSI/MPA/BAR)	PSI					
	PRESSURE	5000					
	RATE PER BBL\CUM	7					
	BARRELS/CUBIC METRES (BBL/M3)	BBL					
224403	PE PUMP & PROPORTIONING CHG ADD HRS	10	H	1,480.80 USD / 1.00 H	14,808.00	$ 9,625.20	5,182.80
	PRESSURE	5000					
	RATE PER BBL\CUM	7					
	BARRELS/CUBIC METRES (BBL/M3)	BBL					
	PRESSURE UNITS (PSI/MPA/BAR)	PSI					
224402	PE FRAC SOL SVC CHG ADD HRS ON LOC	3	H	1,236.60 USD / 1.00 H	3,709.80	$ 2,411.37	1,298.43
	BARRELS/CUBIC METRES (BBL/M3)	BBL					
	RATE PER BBL\CUM	7					
	PRESSURE UNITS (PSI/MPA/BAR)	PSI					
	PRESSURE	5000					
			Totals	(USD)	$ 37,363.20	$ 24,288.08	$ 13,077.12

HALLIBURTON

Original

Field Ticket Signature

Field Ticket Number: 0903736294	Field Ticket Date: Thursday, December 29, 2016	Planning Order #: NA

Bill To:
DCP MIDSTREAM LP - EBUS,
DONOTMAIL - PO BOX 982265,
EL PASO, TX, 79998

Ship To:
ZIA AGI 2,LEA,
HOBBS, NM, 88240

Job Name:	Step Rate Test
Order Type:	ZOH
Well Name:	ZIA AGI 2
Company Code:	1100
Customer PO No.:	NA
AFE :	
Shipping Point:	Artesia South Shipping Point
Sales Office:	PERMIAN BASIN BD
Well Type:	INJECTION
Well Category:	Development
Rig Name/#:	

THIS OUTPUT DOES NOT INCLUDE TAXES. APPLICABLE SALES TAX WILL BE BILLED ON THE FINAL INVOICE. CUSTOMER HEREBY ACKNOWLEDGES RECEIPT OF THE MATERIALS AND SERVICES DESCRIBED ABOVE, ON ANY PRECEDING PAGES, AND ATTACHED DOCUMENTS.

Gross Amount Total:	$ 37,363.20
Item Discount Total:	$ 24,286.08
Net Amount Total:	$ 13,077.12 USD

Customer Representative Signature:

Date: 12-29-16

GARY HENRICH
Customer Representative

Ramon Trevino
Halliburton Representative

Was our HSE performance satisfactory? (Health, Safety, Environment) ☐ Yes ☐ No

Were you satisfied with our equipment? ☐ Yes ☐ No

Were you satisfied with our people? ☑ Yes ☐ No

Comments:

HALLIBURTON

Work Order Contract

Order Number: 0903736294

TO: HALLIBURTON ENERGY SERVICES, INC. - YOU ARE HEREBY REQUESTED TO FURNISH EQUIPMENT AND SERVICE PERSONNEL TO DELIVER AND OPERATE THE SAME AS AN INDEPENDENT CONTRACTOR TO CUSTOMER LISTED BELOW AND DELIVER AND SELL PRODUCTS, SUPPLIES AND MATERIALS FOR THE PURPOSE OF SERVICING:

Well No.	Farm or Lease	County	State	Well Permit Number
2	ZIA AGI	LEA	NEW MEXICO	

Customer	Well Owner	Job Purpose
DCP MIDSTREAM LP - EBUS -	DCP MIDSTREAM LP	PE BOM-Miscellaneous Pumping

THIS WORK ORDER MUST BE SIGNED BEFORE WORK IS COMMENCED

A. CUSTOMER REPRESENTATION - Customer warrants that the well is in proper condition to receive the services, equipment, products, and materials to be supplied by Halliburton Energy Services, Inc. (hereinafter "Halliburton").

B. PRICE AND PAYMENT - The services, equipment, products, and/or materials to be supplied hereunder are priced in accordance with Halliburton's current price list. All prices of Halliburton are exclusive of any federal, state or municipal taxes which may be imposed on the sale or use of any materials, products or supplies furnished or services performed. Customer agrees to pay such taxes in addition to the prices in Halliburton's price list. If Customer does not have an approved open account with Halliburton, all sums due are payable in cash at the time of performance of services or delivery of equipment, products or materials. If Customer has an approved open account, invoices are payable on the twentieth day after the date of invoice. Customer agrees to pay interest on any unpaid balance from the date payable until paid at the highest lawful contract rate applicable, but never to exceed 18% per annum. In the event Halliburton employs an attorney for collection of any account, Customer agrees to pay attorney fees of 20% of the unpaid account, or Halliburton's actual attorney fees, whichever is greater, plus all collection and court costs. Customer agrees that the amount of attorney fees set out herein are reasonable and necessary.

C. RELEASE AND INDEMNITY - Customer agrees to RELEASE Halliburton Group from any and all liability for any and all damages whatsoever to property of any kind owned by, in the possession of, or leased by Customer and those persons and entities Customer has the ability to bind by contract or which are co-interest owners or joint ventures with Customer. Customer also agrees to DEFEND, INDEMNIFY, AND HOLD Halliburton Group HARMLESS from and against any and all liability, claims, costs, expenses, attorney fees and damages whatsoever for personal injury, illness, death, property damage and loss resulting from loss of well control; services to control a wild well whether underground or above the surface; reservoir or underground damage, including loss of oil, gas, other mineral substances or water; surface damage arising from underground damage; damage to or loss of the well bore; subsurface trespass or any action in the nature thereof; fire; explosion; subsurface pressure; radioactivity; and pollution and contamination and its cleanup and control.

CUSTOMER'S RELEASE, DEFENSE, INDEMNITY AND HOLD HARMLESS obligations will apply even if the liability and claims are caused by the sole, concurrent, active or passive negligence, fault, or strict liability of one or more members of the Halliburton Group, the unseaworthiness of any vessel or any defect in the data, products, supplies, materials or equipment furnished by any member or members of the Halliburton Group whether in the design, manufacture, maintenance or marketing thereof or from a failure to warn of such defect. "Halliburton Group" is defined as Halliburton Energy Services, Inc., its parent, subsidiary, and affiliated companies, insurers and subcontractors and all its/their officers, directors, employees, consultants and agents. Customer's RELEASE, DEFENSE, INDEMNITY AND HOLD HARMLESS obligations apply whether the personal injury, illness, death, property damage or loss is suffered by one or more members of the Halliburton Group, Customer, or any other person or entity. Customer agrees to support such obligations assumed herein with liability insurance with limits of not less than $500,000. Customer agrees to name Halliburton Group as named additional insured on all of its general liability policy(s). Customer agrees that its liability under this Contract is not limited by the amounts of its insurance coverage, except where and as may be required by applicable local law for the provisions of this Contract to be enforceable.

D. EQUIPMENT LIABILITY - Customer shall at its risk and expense attempt to recover any Halliburton Group equipment lost or lodged in the well. If the equipment is recovered and repairable, Customer shall pay the repair costs, unless caused by Halliburton's sole negligence. If the equipment is not recovered or is irreparable, Customer shall pay the current published replacement rate, unless caused by Halliburton's sole negligence. If a radioactive source becomes lost or lodged in the well, Customer shall meet all requirements of Section 39.15(a) of the Nuclear Regulatory Commission regulations and any other applicable laws or regulations concerning retrieval or abandonment and shall permit Halliburton to monitor the recovery or abandonment efforts all at no risk or liability to Halliburton Group. Customer shall be responsible for damage to or loss of Halliburton group equipment, products, and materials while in transit aboard Customer-supplied transportation, even if such is arranged by Halliburton at Customer's request, and during loading and unloading from such transport. Customer will also pay for the repair or replacement of Halliburton group equipment damaged by corrosion or abrasion due to well effluents.

E. LIMITED WARRANTY - Halliburton warrants only title to the equipment, products, and materials supplied under this Contract and that same are free from defects in workmanship and **materials for thirty (30) days from the date of delivery. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS OR OTHERWISE BEYOND THOSE STATED IN THE IMMEDIATELY PRECEDING SENTENCE. Halliburton's sole liability and Customer's exclusive remedy in any cause of** action (whether in contract, tort, breach of warranty or otherwise) arising out of the sale, lease or use or any equipment, products, or materials is expressly limited to the replacement of such on their return to Halliburton or, at Halliburton's option, to the allowance to Customer of credit for the cost of such items. In no event shall Halliburton be liable for special, incidental, indirect, consequential, or punitive damages. Because of the uncertainty of variable well conditions and the necessity of relying on facts and supporting services furnished by others, **HALLIBURTON IS UNABLE TO GUARANTEE THE EFFECTIVENESS OF THE EQUIPMENT, MATERIALS, OR SERVICE, NOR THE ACCURACY OF ANY CHART INTERPRETATION, RESEARCH ANALYSIS, JOB RECOMMENDATION OR OTHER DATA FURNISHED BY HALLIBURTON GROUP. Halliburton** personnel will use their best efforts in gathering such information and their best judgment in interpreting it, but Customer agrees that Halliburton Group shall not be liable for and **CUSTOMER SHALL INDEMNIFY HALLIBURTON GROUP AGAINST ANY DAMAGES ARISING FROM THE USE OF SUCH INFORMATION, even if such is contributed to or caused by the active or passive negligence, fault or strict liability of any member or members of Halliburton Group.** Halliburton also does not warrant the accuracy of data transmitted by electronic process, and Halliburton will not be responsible for accidental or intentional interception of such data by third parties.

F. GOVERNING LAW - The validity, interpretation and construction of this Contract shall be determined by the laws of the jurisdiction where the services are performed or the equipment or materials are delivered.

G. DISPUTE RESOLUTION Except for Halliburton's statutory rights with regard to collection of past due invoices for services or materials, including the Contractor's statutory rights for perfection and enforcement of mechanics' and materialmen's' liens, Customer and Halliburton agree that any dispute that may arise out of the performance of this Contract shall be resolved by binding arbitration by a panel of three arbitrators under the rules or the American Arbitration Association. The arbitration will take place in Houston, TX.

H. SEVERABILITY - If any provision or part thereof of this Contract shall be held to be invalid, void, or of no effect for any reason, such holding shall not be deemed to affect the validity of the remaining provisions of this Contract which can be given effect, without the invalid provision or part thereof, and to this end, the provisions of this Contract are declared to be severable. Customer and Halliburton agree that any provision of this Contract that is unenforceable or void under applicable law will be modified to achieve the intent of the parties hereunder to the greatest extent allowed by applicable law.

I. MODIFICATIONS - Customer agrees that Halliburton shall not be bound by any modifications to this Contract, except where such modification is made in writing by a duly authorized executive officer of Halliburton. Requests for modifications should be directed to the Vice President - Legal, 10200 Bellaire Blvd, Houston, TX 77072-5299.

I HAVE READ AND UNDERSTAND THIS WORK ORDER CONTRACT WHICH CONTAINS RELEASE AND INDEMNITY LANGUAGE WHICH CUSTOMER ACKNOWLEDGES IS CONSPICUOUS AND AFFORDS FAIR AND ADEQUATE NOTICE AND I REPRESENT THAT I AM AUTHORIZED TO SIGN THE SAME AS CUSTOMER'S AGENT. I AM SIGNING THIS WORK ORDER CONTRACT WITH THE UNDERSTANDING THAT ITS TERMS AND CONDITIONS WILL NOT APPLY TO THE EXTENT THEY CONFLICT WITH TERMS AND CONDITIONS OF A SIGNED MASTER SERVICE CONTRACT BETWEEN THE PARTIES.

Customer Acceptance of Terms and Conditions,Materials and Services

CUSTOMER Authorized Signatory — Date

Alberto Gutiérrez

CUSTOMER Name Printed

Job Event Log

Type	Time (ucts)	Activity Code	Comment	Slurry Rate (bpm)	Treating Pressure (psi)	Backside Pressure (psi)	Slurry Left In Stage (gal)	Job Slurry Vol (gal)
Event	29-Dec-16 00:00:00	RETURN TO SERVICE CENTER FROM JOB						
Event	06:45:00	DEPART YARD SAFETY MEETING						
Event	07:00:00	DEPART FROM SERVICE CENTER OR OTHER SITE						
Event	09:00:00	ARRIVE AT LOCATION FROM SERVICE CENTER						
Event	09:05:00	ASSESSMENT OF LOCATION SAFETY MEETING						
Event	09:15:00	OTHER	WAIT ON WIRE LINE					
Event	11:17:02	START JOB	Starting Job	0.0	0	0	0	0
Treatment	11:17:02	NEXT TREATMENT	Treatment Interval 1	0.0	-0	0	0	0
Event	11:25:53	PRESSURE TEST	TEST LUBICATOR TO 3000 PSI	0.6	2782	8	0	268
Event	14:48:06	PRESSURE TEST	6000 PSI	0.0	6015	455	0	2648
Event	14:49:11	OTHER		0.0	256	455	0	2650
Event	14:50:18	OTHER	90	0.0	89	456	0	2652
Stage	14:50:36	Stage 1		0.2	2708	456	0	2652
Stage	14:50:39	Stage 2		0.1	2735	456	500	0
Stage	15:11:34	Stage 3	Step Rate Test	0.5	99	458	204	112
Event	15:40:46	OTHER	COMPLTE STAGE	0.2	86	388	5	421
Stage	15:41:17	Stage 4	Step Rate Test	0.5	92	387	-0	427
Event	16:10:46	OTHER	COMPLETE STAGE	0.5	100	243	3	1054
Stage	16:10:56	Stage 5	Step Rate Test	0.5	102	242	-1	1058
Event	16:40:14	OTHER	COMPLETE STAGE	1.0	144	54	3	2315
Stage	16:40:26	Stage 6	Step Rate Test	1.5	157	53	-8	2326
Event	17:09:55	OTHER	COMPLETE STAGE	1.5	212	9	2	4214
Stage	17:10:15	Stage 7	Step Rate Test	1.9	221	10	-21	4237
Event	17:40:04	OTHER	COMPLETE STAGE	2.0	277	-2	0	6757
Stage	17:40:27	Stage 8	Step Rate Test	2.9	335	-3	-36	6793
Event	18:10:08	OTHER	COMPLETE STAGE	3.0	442	-9	2	10571
Stage	18:10:20	Stage 9	Step Rate Test	3.9	551	-7	-22	10595
Event	18:40:32	OTHER	COMPLETE STAGE	4.0	663	-11	8	15627
Stage	18:40:46	Stage 10	Step Rate Test	5.0	735	-11	-30	15665
Event	18:46:25	OTHER	LUBICATOR LEAKED	5.0	795	-11	5619	16345
Event	19:13:06	OTHER	COMPLETE STAGE	5.0	934	-11	3	21961
Stage	19:13:11	Stage 11	Step Rate Test	5.7	979	-12	-15	21980
Event	19:43:06	OTHER	COMPLETE STAGE	6.0	1258	-11	17	29523
Stage	19:43:21	Stage 12	Step Rate Test	7.0	1442	-13	8815	29595
Event	20:13:14	OTHER	COMPLETE STAGE	7.0	1595	-12	24	38386
Event	20:14:54	ISIP		0.0	600	-12	1	38409
Event	20:20:06	SHUT-IN PRESSURE @ 5 MINUTES	TOTAL LOAD 914.50 BBLS	0.0	397	-11	1	38409
Event	20:24:36	SHUT-IN PRESSURE @ 10 MINUTES		0.0	311	-8	1	38409
Event	20:33:01	SHUT-IN PRESSURE @ 15 MINUTES		0.0	223	-10	1	38409
Event	20:37:44	END JOB	Ending Job	0.0	-5	-9	1	38409
Event	20:45:00	SAFETY MEETING - PRE RIG-DOWN		0.0	-5	-9	1	38409
Event	21:00:00	RIG-DOWN EQUIPMENT		0.0	-5	-9	1	38409
Event	21:30:00	RIG-DOWN COMPLETED		0.0	-5	-9	1	38409
Event	21:45:00	SAFETY MEETING - DEPARTING LOCATION		0.0	-5	-9	1	38409
Event	22:00:00	DEPART LOCATION		0.0	-5	-9	1	38409

DCP MIDSTREAM LP - EBUS -
DONOTMAIL - PO BOX 982265
EL, PASO TX

ZIA AGI 2

Interval 1
N/A, N/A

Sales Order: 0903736294

Post Job Report

For: N/A
Date: Thursday, December 29, 2016

HALLIBURTON

Table of Contents

1.0 Executive Summary

DCP MIDSTREAM LP - EBUS -
DONOTMAIL - PO BOX 982265
EL , PASO TX

Halliburton appreciates the opportunity to perform the stimulation treatment on the ZIA AGI 2. A pre-job safety meeting was held where details of the job were discussed, potential safety hazards were reviewed, and environmental compliance procedures were outlined. Pump time was 303.55 min.

The proposed treatment for DCA ZIA AGI2 STEP TEST consisted of:

- 38430 gal of Fresh Water.

The treatment actually pumped consisted of:

- 38408 gal of Fresh Water.

The average BH treating rate was 4.2 bpm and average WH pressure was 546 psi.
The total liquid load to recover is 38409 gal.

Halliburton is strongly committed to quality control on location. Before and after each job all chemicals, proppants, and fluid volumes are measured to assure the highest level of quality control. Tank fluid analysis, crosslink time, and break tests are performed before each job in order to optimize the performance of the treatment fluids.

Halliburton maintains a continuous quality improvement process and appreciates any comments or suggestions that you may have. Halliburton again thanks you for the opportunity to perform service work on this well. We hope to be your solutions provider for future projects.

Respectfully,

2.0 Well Information

2.1 Customer Information

Customer	DCP MIDSTREAM LP - EBUS -
Sales Order	0903736294
Well Name	ZIA AGI
Interval	1
Well Number	2
Job Date	29-Dec-2016
UWI/API	30-025-42207-00
Latitude	32° 38' 37.9" N (32.643852°)
Longitude	103° 48' 38.2" W (-103.810616°)
H2S Concentration	0.000000
CO2 Concentration	0.000000
Customer Telephone Number	3035718249

2.2 Pipe Information

Equipment	Top MD ft	Bottom MD ft	OD in	ID in	Grade	Weight lb/ft
Casing	0.0	10048.0	7.000	6.456	J-55	20.00
Tubing	0.0	9000.0	3.500	2.992	J-55	9.30
Surface Pipe	0.0	75.0	2.620	1.870		
Formation	8000.0	8500.0				

2.3 Perforation Intervals

Top MD ft	Bottom MD ft
8000.0	8500.0

3.0 Performance Highlights

3.1 Job Summary

Start Time	29-Dec-16 11:17:04	ucts
End Time	29-Dec-16 20:37:41	ucts
Pump Time	303.55	min
Start Averaging Time	29-Dec-16 14:50:37	ucts
End Averaging Time	29-Dec-16 20:37:41	ucts
Max Treating Pressure	1635	psi
Max Slurry Rate	7.0	bpm
Max Wellhead Rate	7.0	bpm
Max Gel Rate	7.0	bpm
Avg Treating Pressure	546	psi
Avg Clean Rate	3.0	bpm
Avg Slurry Rate	3.0	bpm
Avg Wellhead Rate	3.0	bpm
Avg Gel Rate	3.0	bpm
Avg Hydraulic Horsepower	40	hp
Clean Volume	38409	gal
Slurry Volume	38409	gal
Wellhead Volume	38398	gal
Gel Volume	38409	gal
BH Max Treating Pressure	5355	psi
BH Avg Treating Pressure	4510	psi
BH Max Rate	6.9	bpm
BH Avg Rate	4.2	bpm
Load to Recover	38409	gal
Volumes Pumped	**Total**	**Units**
Fresh Water	38408	gal

Disclaimer: The average and maximum values (except volumes and bottom hole values) are based on the start and end averaging times.

3.2 Job Stage Log

Time ucts	Description	Comment	Slurry Rate bpm	Treating Pressure psi	Backside Pressure psi	Slurry Left In Stage gal	Job Slurry Vol gal
29-Dec-16 14:50:36	Stage 1		0.2	2708	456	0	2652
14:50:39	Stage 2		0.1	2735	456	500	0
15:11:34	Stage 3	Step Rate Test	0.5	99	458	204	112
15:41:17	Stage 4	Step Rate Test	0.5	92	387	-0	427
16:10:56	Stage 5	Step Rate Test	0.5	102	242	-1	1058
16:40:26	Stage 6	Step Rate Test	1.5	157	53	-8	2326
17:10:15	Stage 7	Step Rate Test	1.9	221	10	-21	4237
17:40:27	Stage 8	Step Rate Test	2.9	335	-3	-36	6793
18:10:20	Stage 9	Step Rate Test	3.9	551	-7	-22	10595
18:40:46	Stage 10	Step Rate Test	5.0	735	-11	-30	15665
19:13:11	Stage 11	Step Rate Test	5.7	979	-12	-15	21980
19:43:21	Stage 12	Step Rate Test	7.0	1442	-13	8815	29595

3.3 Job Event Log

Stage Number	Event Number	Time ucts	Description	Comment	Slurry Rate bpm	Treating Pressure psi	Backside Pressure psi	Slurry Left In Stage gal	Job Slurry Vol gal
	1	29-Dec-16 00:00:00	Return to Service Center from Job						
	2	06:45:00	Depart Yard Safety Meeting						
	3	07:00:00	Depart from Service Center or Other Site						
	4	09:00:00	Arrive at Location from Service						

Stage Number	Event Number	Time ucts	Description	Comment	Slurry Rate bpm	Treating Pressure psi	Backside Pressure psi	Slurry Left In Stage gal	Job Slurry Vol gal
			Center						
	5	09:05:00	Assessment Of Location Safety Meeting						
	6	09:15:00	Other	WAIT ON WIRE LINE					
	7	11:17:02	Start Job	Starting Job	0.0	0	0	0	0
	8	11:25:53	Pressure Test	TEST LUBICATOR TO 3000 PSI	0.6	2782	8	0	268
	9	14:48:06	Pressure Test	6000 PSI	0.0	6015	455	0	2648
	10	14:49:11	Other		0.0	256	455	0	2650
	11	14:50:18	Other	90	0.0	89	456	0	2652
1		14:50:36	Stage 1		0.2	2708	456	0	2652
		14:50:37	Start Averaging	Start Avg Trt 1	0.1	2724	456	500	0
2		14:50:39	Stage 2		0.1	2735	456	500	0
3		15:11:34	Stage 3	Step Rate Test	0.5	99	458	204	112
	12	15:40:46	Other	COMPLTE STAGE	0.2	86	388	5	421
4		15:41:17	Stage 4	Step Rate Test	0.5	92	387	-0	427
	13	16:10:46	Other	COMPLETE STAGE	0.5	100	243	3	1054
5		16:10:56	Stage 5	Step Rate Test	0.5	102	242	-1	1058
	14	16:40:14	Other	COMPLETE STAGE	1.0	144	54	3	2315
6		16:40:26	Stage 6	Step Rate Test	1.5	157	53	-8	2326
	15	17:09:55	Other	COMPLETE STAGE	1.5	212	9	2	4214
7		17:10:15	Stage 7	Step Rate Test	1.9	221	10	-21	4237
	16	17:40:04	Other	COMPLETE STAGE	2.0	277	-2	0	6757
8		17:40:27	Stage 8	Step Rate Test	2.9	335	-3	-36	6793
	17	18:10:08	Other	COMPLETE STAGE	3.0	442	-9	2	10571
9		18:10:20	Stage 9	Step Rate Test	3.9	551	-7	-22	10595

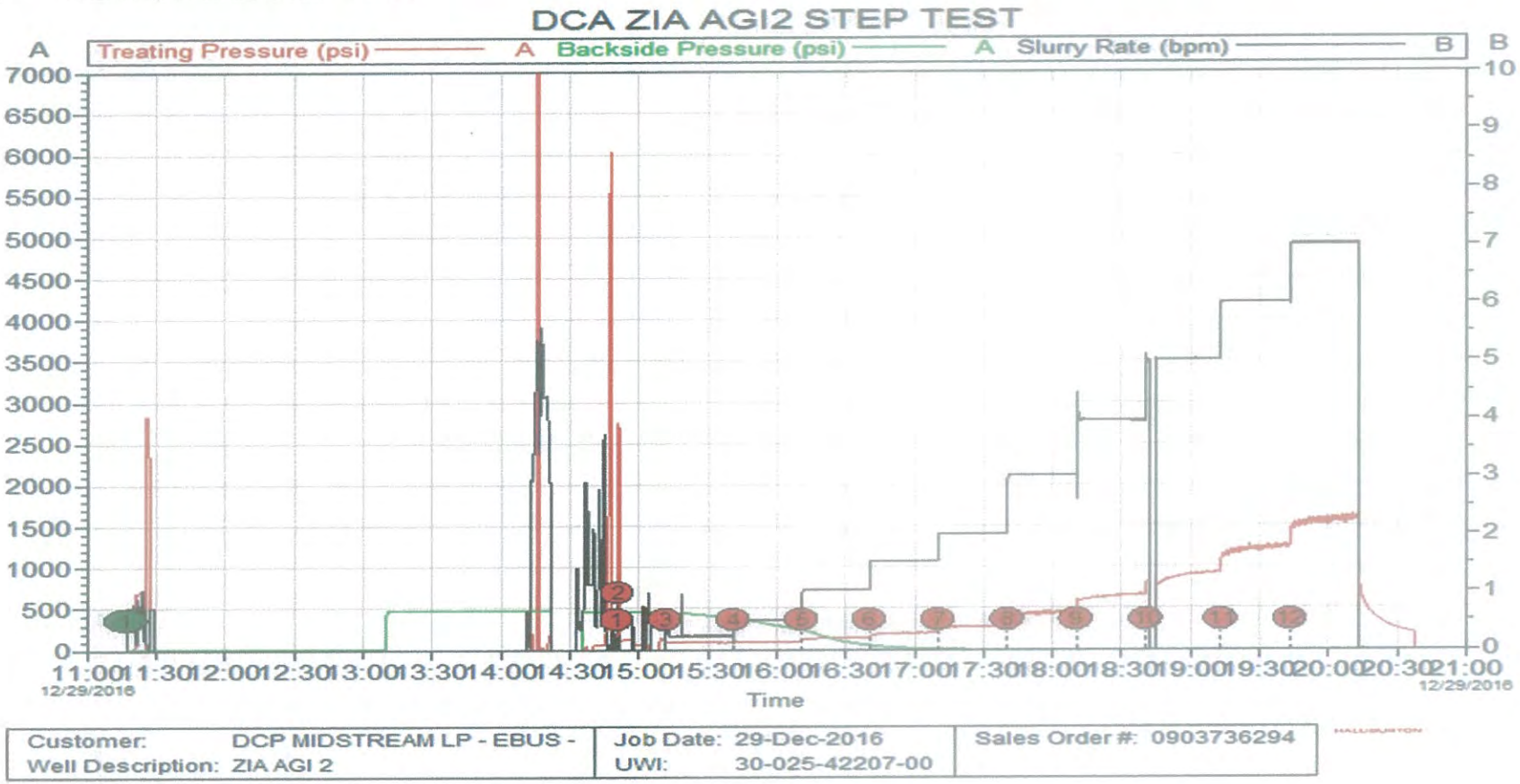
Stage Number	Event Number	Time ucts	Description	Comment	Slurry Rate bpm	Treating Pressure psi	Backside Pressure psi	Slurry Left In Stage gal	Job Slurry Vol gal
	18	18:40:32	Other	COMPLETE STAGE	4.0	663	-11	8	15627
10		18:40:46	Stage 10	Step Rate Test	5.0	735	-11	-30	15665
	19	18:46:25	Other	LUBICATOR LEAKED	5.0	795	-11	5619	16345
	20	19:13:06	Other	COMPLETE STAGE	5.0	934	-11	3	21961
11		19:13:11	Stage 11	Step Rate Test	5.7	979	-12	-15	21980
	21	19:43:06	Other	COMPLETE STAGE	6.0	1258	-11	17	29523
12		19:43:21	Stage 12	Step Rate Test	7.0	1442	-13	8815	29595
	22	20:13:14	Other	COMPLETE STAGE	7.0	1595	-12	24	38386
	23	20:14:54	ISIP		0.0	600	-12	1	38409
	24	20:20:06	Shut-In Pressure @ 5 Minutes	TOTAL LOAD 914.50 BBLS	0.0	397	-11	1	38409
	25	20:24:36	Shut-In Pressure @ 10 Minutes		0.0	311	-8	1	38409
	26	20:33:01	Shut-In Pressure @ 15 Minutes		0.0	223	-10	1	38409
		20:37:41	End Averaging	End Avg Trt 1	0.0	-5	-9	1	38409
	27	20:37:44	End Job	Ending Job	0.0	-5	-9	1	38409
	28	20:45:00	Safety Meeting - Pre Rig-Down		0.0	-5	-9	1	38409
	29	21:00:00	Rig-Down Equipment		0.0	-5	-9	1	38409
	30	21:30:00	Rig-Down Completed		0.0	-5	-9	1	38409
	31	21:45:00	Safety Meeting - Departing Location		0.0	-5	-9	1	38409
	32	22:00:00	Depart Location		0.0	-5	-9	1	38409

3.4 ISIP

Time	Description	Treating Pressure psi
20:14:54	ISIP	600
20:20:06	Shut-In Pressure @ 5 Minutes	397
20:24:36	Shut-In Pressure @ 10 Minutes	311
20:33:01	Shut-In Pressure @ 15 Minutes	223

4.0 Attachments

4.1 DCA ZIA AGI2 STEP TEST



HALLIBURTON

Stimulation Call out Sheet

Sales Order #: 0903736294
Planning Order #:
AFE #:
PO #: NA

Step Rate Test

Crew:
Requested Job Start Date: *12/27/2016*

The Road to Excellence Starts with Safety

Customer:	DCP MIDSTREAM LP - EBUS -	County/Parish:	US	Job Type:	Miscellaneous Pumping
UWI/API Number:	30-025-42207-00	State:	NEW MEXICO	Well Name:	ZIA AGI
Latitude:	32.643852	Ship To Number:	3571531	Well No:	2
Longitude:	-103.810616	Sold To Number:	301910	Sect/ Twn/ Rng:	19 /19 /32
Cust Rep Name:		Formation:		H2S?	Unknown
Cust Rep Phone #:		Field:	AGI	Round Trip Mileage:	340

Rig Operator:

Drive Safely. Lights On for Safety. Wear Seat-belts. Observe all HES / Customer Safety Policies

Directions:

From the intersection of 529 and CR 126 (Maljamar Rd.) head south for 9.8 miles, T/R on Lusk Rd and go 1.0 miles, T/L and drive 0.2 miles to location.

Well Related Information

Type	Name	Linear Weight (lbm/ft)	Pipe Thread Grade	Size (in)	Top MD (ft)	Bottom MD (ft)	Top TVD (ft)	Bottom TVD (ft)	Shot Density (spf)	# of Perfs

Job Information

Injection Path:	CASING	BHST ():	
Tie on Connection:		Deviation ():	
Max Allowed Pressure ():		Dsgn BH Treat Press (psig):	
		Anticip. WHTP (psig):	
Max Allowed Rate ():		Dsgn Treat Rate (bbl/min):	7.00
Total Rt (bbl/min):	7.00	Foam Qual:	0.0
Fluid Rt (bbl/min):	7.0	CO2 Mass (lbm):	0.00
Max CO2 Rate (bbl/min):	0.0	N2 Volume (scf):	0

Required Equipment

Equip	Qty	Comment

Fluid System	Base Fluid/Density	Total Volume (Gal)	# of Tanks	Volume/ Tank (Gal)	Water/Oil in each	Acid Vol (Gal)	Water/Oil Vol (Gal)	Chemical Vol (Gal)
Fresh Water	FRESH WATER	37800.0				0.0	37800.0	0.0

Coordinator's Comments:

DCP ZIA AGI 2
BROWNFIELD ACID CREW

Ordered By:		Primary Service Center:	Artesia South	Service Supervisor:	
Taken By:		Materials Service Center:	Artesia South	Call Out Time:	
Reviewed By:		Secondary Service Center:		On Location Date:	
Call Taken Date/Time:				Requested Job Start Time:	12/27/2016

RTP 12-27-16 at 7:00 AM MT

Brownfield Acid Crew to catch this job on 12-27-16 at 7:00 AM MT

Brownfield will supply 2 Acid Singles and 1 HT-2000

Brownfield to provide the materials for this job.

PARAMETERS
RATE = 10 BPM
MAX PRESSURE = 6,000 PSI

EQUIPMENT REQUIRED
1 HT-2000 AND 2 ACID SINGLES
(1 OF THE 2 ACID SINGLES FOR BACKUP HHP)

WE NEED TO ATTEND A SAFETY SEMINAR TAKEN WHEN ARRIVING TO LOCATION, IN THE OFFICE NEXT TO THE DCA ZAI PLANT.

Service Supervisor to review pumping procedure with Co. Rep prior to pumping this job.

TA- JULIO SANCHEZ- 575-513-9036

HALLIBURTON

Job Safety Analysis

JSA	JOB TYPE : STEP RATE	DATE: 12/29/16	NEW: REVISED: XXX
INSTRUCTIONS ON REVERSE SIDE	TITLE OF PERSON WHO DOES JOB:	COORDINATOR:	ANALYSIS BY:
TICKET #0903736199	RAMON TREVINO	CHIS YOUNT	
Customer :DCP MIDSTREAM ZIA AGI 19/19/32	WELL LOCATION; MALAJAMAR N.M	DEPARTMENT: ACID	REVIEWED BY:
REQUIRED PERSONAL PROTECTION EQUIPMENT: Hard Hat, Steel toed boots, Hex armor gloves, FRC's, Safety glasses, Hearing protection, Respirators, H2S Monitors (current) All other PPE as required by MSDS or Contractor policies.		HES JOBSITE SUPERVISOR: RAMON TREVINO	APPROVED BY:

GLOBAL LIFT PLAN WM-GL-HAL-CMT-419 MUST BE COMPLETED IF LIFTS ARE PERFORMED.

SEQUENCE OF BASIC JOB STEPS	POTENTIAL HAZARDS	RECOMMENDED ACTION OR PROCEDURE
EQUIPMENT/SUPPLY REQUIREMENTS LIFTING DEVICES A. JOB REQUIRED EQUIPMENT AND SUPPLIES. B. LIFTING EQUIPMENT AND TAG LINES C. ADEQUATE SUPPLY OF DRINKING WATER AND ELECTROLYTES.	NOT HAVING THE CORRECT EQUIPMENT FOR THE JOB COULD RESULT IN DOWN TIME. DEFECTIVE OR OUT OF COMPLIANCE LIFTING DEVICES COULD RESULT IN INJURY OR DEATH.	INSURE ALL PERSONNEL HAVE ALL EQUIPMENT REQUIRED: HIGH PRESSURE SIGNS, WELLHEAD "DO NOT OPERATE" SIGNS, SAFETY BARRIER TAPE, HEX ARMOR GLOVES, H2S MONITORS WITH CURRENT BUMP TEST, FRESH WATER, FIRST AID KITS, EYE WASH KITS, PPE AS REQUIRED, SPECIALIZED EQUIPMENT, RESPIRATORS, FALL ARREST HARNESS, LIFTING DEVICES. CHECK ALL LIFTING DEVICES -SLINGS FOR DAMAGE, SAFE WORKING LOAD DATA AND CURRENT CERTIFICATION. REMOVE DEFECTIVE OR OUT OF COMPLIANCE LIFTING DEVICES FROM SERVICE IMMEDIATELY. LOTO LOCKS.
2 SERVICE CENTER SAFETY MEETING	TRUCK ISSUES, PERSONNEL ISSUES	INSURE PROPER PRETRIP INSPECTIONS ARE PERFORMED, PERSONNEL ARE RESTED, READY FOR THE JOB, AND FIT FOR DUTY. EMPLOYEES TO HAVE ALL PPE, PAPERWORK AND MSDS SHEETS IN HAND, TRUCKS PROPERLY PLACARDED, PROPER LOAD SECUREMENT, LOGS CORRECT.
3 JOURNEY MANAGEMENT	FATIGUE, ROAD HAZARDS, WEATHER, TRAFFIC, CONSTRUCTION, ROUTING, CONVOYS, LEASE ROADS, NO CELL PHONE USE WHILE DRIVING	CHECK ROAD CONDITIONS, WEATHER REPORTS, ALL UNITS TO CONVOY, EMERGENCY CONTACT NUMBERS TO EACH EMPLOYEE, INCIDENT/ ACCIDENT PROCEDURES, 20MPH SPEED LIMIT ON ALL LEASE ROADS. WATCH SCHOOL ZONES. PERFORM GATE CHECKS.

4 ARRIVAL ON LOCATION	ALL LOCATION HAZARDS Discuss Stop Work Authority and obtain a commitment from all employees.	SIGN IN WITH RIG CREW BEFORE ANY WORK IS STARTED. PERFORM HOC OBSERVATIONS DURING LOCATION ASSESSMENT MEETINGS TO PROMOTE TEAMWORK AND HAZARD COMMUNICATION. EMPLOYEES SHOULD BE INSTRUCTED AT THIS POINT THAT THEY HAVE THE OBLIGATION TO STOP THE JOB IF THEY OBSERVE A HAZARDOUS SITUATION OR ACTION. INSPECT LOCATION FOR HAZARDS SUCH AS OVERHEAD AND GROUND HAZARDS, TRACTION PROBLEMS, OPEN PITS AND WIND DIRECTION, BACKING HAZARDS. HOLD DETAILED SAFETY HUDDLE AND POINT OUT ALL HAZARDS, IDENTIFY MUSTER AREAS, ASSIGN MENTOR FOR ALL SSE'S AND DOCUMENT ON JSA. LOG HAZARDS IN SECTION 12.
5 SPOTTING EQUIPMENT	BACKING AND CLOSE QUARTER MANUEVERING HAZARDS, WIND DIRECTION, GROUND AND OVERHEAD DANGERS, FALL LINES, PITS, OTHERS	UTILIZE SPOTTERS WHENEVER MANUEVERING TRUCKS ON LOCATION, WATCH FOR OVERHEAD AND GROUND OBSTACLES, DETERMINE WIND DIRECTION, FALL LINES, OTHER TRAFFIC, ETC.
6 RIGGING UP / SAFE LIFT ZONES / RED ZONES	HEAVY LIFTING, LINE OF FIRE, PINCH POINTS, HYDRATION, MUSTER AREAS, STRUCK BY HAZARDS, HAZARDS ASSOCIATED WITH LIFTING PROCEDURES. REINFORCE STOP WORK AUTHORITY	WORK EFFECIENTLY BUT SAFELY. WATCH FOR PINCH POINTS, LINE OF FIRE, HEAVY OBJECTS, UTILIZE HELP WITH EQUIPMENT OVER 60 POUNDS, HEX ARMOR GLOVES, DRINK PLENTY OF WATER AND TAKE REGULAR BREAKS DURING HOT WEATHER, DESIGNATE LIFT ZONES AND SAFE LIFT MEASURES FOR EACH LIFT MADE, NO ONE UNDER A SUSPENDED LOAD AT ANY TIME. USE TAG LINES ON ALL LIFT OPERATIONS. RIGGER AND OPERATOR MUST KNOW AND UNDERSTAND HAND SIGNALS FOR LIFT PROCEDURES. WATCH FOR OBSTRUCTIONS THAT MAY EFFECT LIFT PATH. SWA TO BE UTILIZED IF UNSAFE CONDITIONS ARISE. GLOBAL LIFT PLAN 419 IS TO BE COMPLETED BEFORE ANY LIFT IS MADE. PERFORM BBP OBSERVATIONS TO PROMOTE TEAM WORK.
7 RUNNING JOB	HIGH PRESSURES, HAZARDOUS CHEMICALS, SPLASH HAZARDS, LEAKS, ECT.	UTILIZE ALL SAFETY GUIDELINES, IDENTIFY AND SECURE RED ZONE, USE BUDDY SYSTEM, STAY CLEAR OF HIGH PRESSURE LINES, HAVE ALL SAFETY BARRIERS AND SIGNAGE IN PLACE. STOP WORK AUTHORITY IN PLACE. FACE SHIELDS AND GOGGLES MUST BE WORN WITHIN 10 FT. OF A LINE UNDER PRESSURE. UPDATE JSA AS NEEDED AS CONDITIONS CHANGE.
8 RIGGIN DOWN	SAME AS RIGGING UP, WATCH FOR ENERGIZED LINES, CHEMICALS, FATIGUE, SLIP AND TRIP HAZARDS, ETC.	BUDDY SYSTEM, PINCH POINTS, LINE OF FIRE, HEAVY OBJECTS, SPOTTER WHEN MOVING EQUIPMENT, SAFE LIFT ZONES TO BE ENFORCED, TAG LINES ON ALL SUSPENDED LOADS.

9 DEPARTING LOCATION	SLICK LOCATIONS, OVERHEAD AND GROUND OBSTACLES, FATIGUE, READY FOR TASK AT HAND	PERFORM GATE CHECKS. USE SPOTTERS, WATCH FOR OBSTACLES, HOLD JOURNEY MANAGEMENT MEETING, MAKE SURE EVERYONE IS READY TO DRIVE, MAKE SURE ALL LOADS ARE SECURED AND PLACARDS CHANGED IF NEEDED.
10 CONVOYS	TRUCK BREAKDOWNS, ACCIDENTS OR ILLNESS, SAFEST ROUTES	ALL TRUCKS TO COVOY HOME OR TO NEXT LOCATION. EMERGENCY PLAN IN PLACE AS TO ACCIDENTS, ILLNESSES, WEATHER CHANGES, ECT. ALL EMPLOYEES TO CONVOY AND TAKE THE SAME ROUTE AS OUTLINED IN PRE DEPARTURE SAFETY MEETING. ALL CHANGES TO BE OK'D BY SUPERVISOR. JOURNEY MANAGEMENT IN PLACE.
11 ARRIVING BACK AT CAMP	FUELING TRUCKS, MAINTENANCE, WASH RACKS, POST TRIPS, LOGS,	TURN OFF AND STAY WITH TRUCK WHILE FUELING, WATCH FOR SLIPS ON WASH RACK, NOTIFY SUPERVISOR AND MECHANIC OF EQUIPMENT PROBLEMS, DO DETAILED POST TRIP AND TURN IN WHITE COPIES, COMPLETE LOGS AND HAVE APPROVED.
12. JOB SITE SPECIFIC HAZARDS (ANY HAZARD UNIQUE TO THIS LOCATION) SHOWER TRAILER OR ACID TRACTOR WITH SHOWER SHALL BE AVAILABLE WHEN HAZARDOUS CHEMICALS ARE PRESENT.	1. 2. 3. 4. 5.	1. 2. 3. 4. 5.
13. WELLHEAD INSPECTION	DAMAGED OR WORN COMPONENTS. UNKNOWN PRESSURE RATINGS, FLOWLINES, CHECK VALVES, ECT.	DO NOT HOOK UP TO WELLHEAD WITHOUT CHECKING PRESSURE RATINGS OF WELL HEAD CONNECTIONS, FLOWLINES, CHECKS, ECT. DO NOT ATTACH HES LINES TO UNKNOWN OR DAMAGED WELLHEAD CONNECTIONS.
14. STOP WORK AUTHORITY	EMPLOYEES FAILING TO STOP ALL UNSAFE ACTS INCREASE THE CHANCES FOR ACCIDENTS OR INJURIES. "ZERO TOLERANCE" MUST START WITH FRONTLINE EMPLOYEES"	EMPLOYEES HAVE THE OBLIGATION TO STOP ANY UNSAFE ACT BEFORE AN ACCIDENT OR INJURY OCCURS, WITHOUT THE FEAR OF REPROCUSSION. SUPPORT ANY EMPLOYEE WHO TAKES THE INITIATIVE TO STOP UNSAFE ACTIONS. ALL SWA'S ARE TO BE REPORTED TO H.S.E. AS SOON AS POSSIBLE FOR ENTRY INTO RHS.

15. ACCIDENTS, INJURIES, INCIDENTS	EMPLOYEES ARE REQUIRED TO REPORT ALL ACCIDENTS, INJURIES AND INCIDENTS TO A SUPERVISOR IMMEDIATELY. DISCIPLINARY ACTION WILL RESULT FOR NOT REPORTING.	IN THE EVENT OF INJURY, AXIOM AND/OR 9-1-1 SHALL BE NOTIFIED IMMEDIATELY. EMPLOYEES MAY BE RELIEVED OF DUTY TO PREVENT AGGRAVATION OF INJURY. CUSTOMER, SUPERVISOR AND HSE ARE TO BE IMMEDIATELY NOTIFIED OF INJURIES/ACCIDENTS.
16. JSA Meetings ○ Journey Management ○ Location Assessment Safety Meeting ○ Pre Rig up Safety Meeting ○ Post Rig up Safety Meeting ○ Pre-Job Safety Meeting ○ Post Job Safety Meeting ○ Pre Rig Down Safety Meeting ○ Journey Management ○ Any MOC ○ Any SWA ○ Any Near Miss	Revisions	Communicated

SIGNATURES OF PERSONEL ATTENDING JSA MEETING

HALLIBURTON

Safety Meeting Sign Up

Sales Order #: 0903736294
AFE #:
WO #:
PO #:

Job Date: 12/29/2016

The Road to Excellence Starts with Safety

Customer: DCP MIDSTREAM
UWI / API Number:
Well Name : ZIA AGI
Well No: 2
Formation:

Field: WILLARD
County US
State: N.M
Latitude:
Longitude:
Sect / Twn / Rng: / /

Job Type: ACIDIZING JOB
HES Employee:
Customer Name:
Customer Phone #

HALLIBURTON ONSITE SAFETY PERSON JORGE RAMIREZ

Employee's Name & Emp #	Company	Location	Pre-Rig-Up	Pre-Job	Position
RAMON TREVINO 407764	HES	BROWNFIELD			
JORGE RAMIREZ	HES	BROWNFIELD			
MARIO FAVELA	DM^c O[illegible]	Nadine	Rigup		Pump Truck
Santos Navarro	Hes	Brownfield			Haul
Gary Henrich	COG				
Ray Norman	Hes				
Carlos Lopez	Hes				
Jorge Ramirez	Hes				
Remio Franco	Hes				
Danny Macias	Hes				

TOTAL HALLIBURTON		TOTAL OTHER	

NO RECOVERABLE HYDROCARBON DOCUMENTS

ATTACHMENT A

DEMONSTRATION OF NO COMMERCIALLY-RECOVERABLE HYDROCARBONS IN THE DEVONIAN THROUGH UPPER MONTOYA PERMITTED INJECTION INTERVAL

EVALUATION OF GEOPHYSICAL LOGS, SIDEWALL CORE, AND FORMATION FLUID SAMPLES

Sec. 19- Twp. 19S-32E

Lea County, New Mexico

Prepared For:
DCP Midstream LP

Prepared By:
Geolex, Inc.
500 Marquette, NW Suite 1350
Albuquerque, NM 87102

December 22, 2016

GEOLEX® INCORPORATED

SUMMARY OF FACTORS CONSIDERED IN RESERVOIR EVALUATION FOR COMMERCIALLY-RECOVERABLE HYDROCARBONS AND INJECTION SUITABILITY

- The successful evaluation of commercially-recoverable hydrocarbon potential and reservoir properties using sidewall cores requires the careful considerations of the limitations of the samples obtained since each actual sidewall is only representative of a small portion of the sampled formation at each sample location.

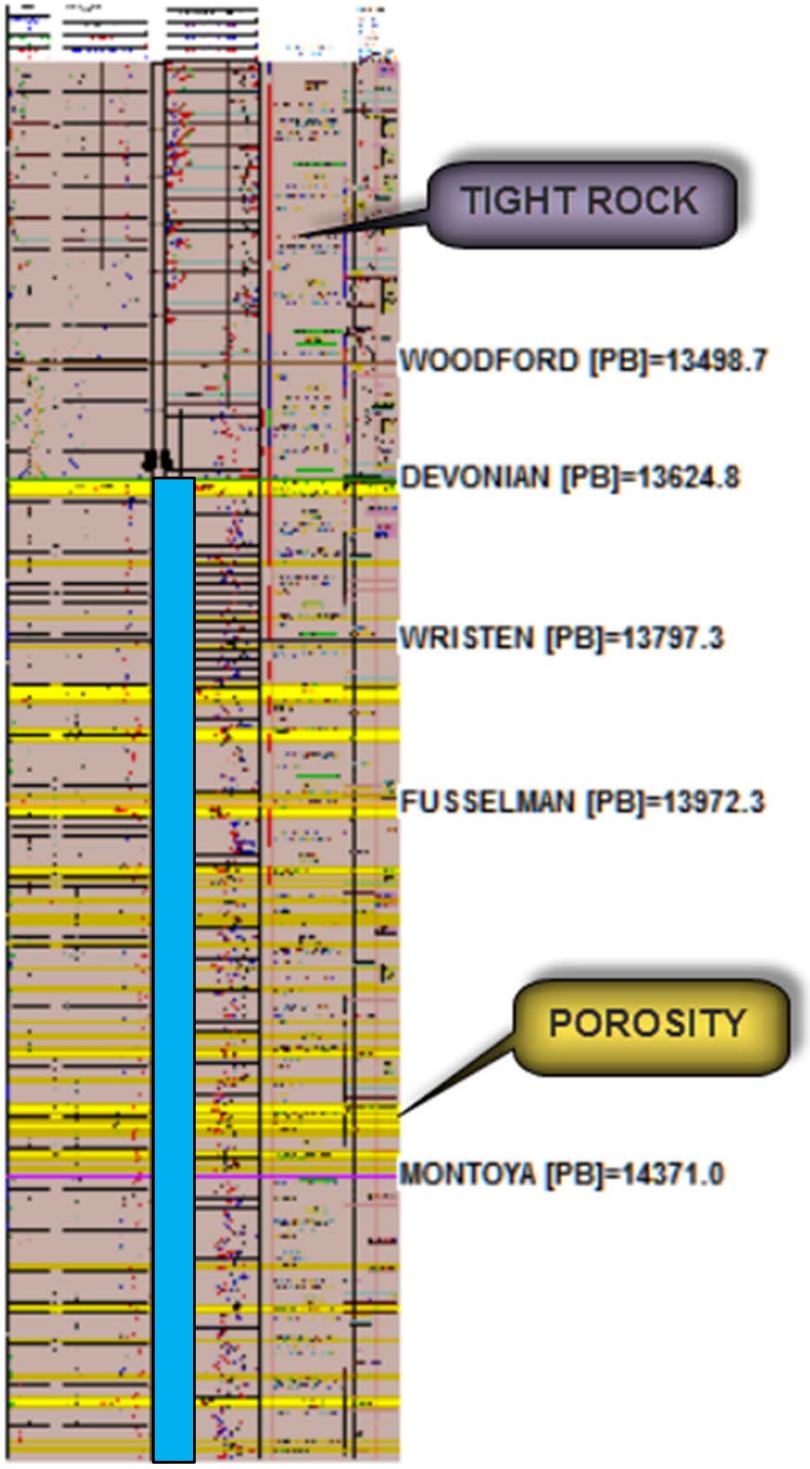
- The overall evaluation of the reservoir requires the simultaneous consideration of various data types and sources in order to arrive at a reasonable conceptual model of predicted injection performance. These additional data types are evaluated and considered in this analysis and include the complete geophysical log suite for the well including the triple combo, porosity, and resistivity logs, mudlogs, drilling condition reports, and on-site observations. The overall evaluation and recommendations included herein for completion are the result of the analyses and evaluation of these multiple data types.

- Obviously injection and fall off testing will result in direct observation of injection pressures at varying flowrates and will be considered in addition to the analyses presented herein to predict the ultimate injection performance of the reservoir.

- In the following pages, we have divided the injection interval into 1 complete log segment and 4 log composite segments to integrate the results of the sidewall core analyses and mudlog monitoring, the lithologic architecture of the interval, and the preliminary proposed injection perforations. These consolidated log composites along with the supporting data form the basis for the determination of no commercially-recoverable hydrocarbons in the proposed injection zone.

- Attachment B includes the detailed evaluation of the mudlog and sidewall cores; which are also discussed in conjunction with the geophysical logs on the following pages. In addiction to the geophysical logs and mudlogs, formation fluid samples that were collected after swabbing over 500bbls from the injection zone provide further confirmation of the lack of commercially-recoverable hydrocarbons (Attachment C) within the NMOCC-approved injection zone from the Devonian top at 13,625’ to 14,750’ in the Devonian, Wristen, Fusselman and Montoya Formations.

The NMOCC-approved injection interval (blue bar) is composed of tight limestones and dolomitic carbonates (darker shading), interspersed with porous carbonates (yellow shading) that are locally solution-enhanced by late-stage diagenesis. Open-hole injection is proposed for the entire interval from the top of the Devonian through the upper Montoya, to a total depth of approximately 14,750 feet MD. Tight facies (caprock) occur above the injection zone, with no porosity evident all the way up to and including the Chester (Upper Mississippian) Formation.



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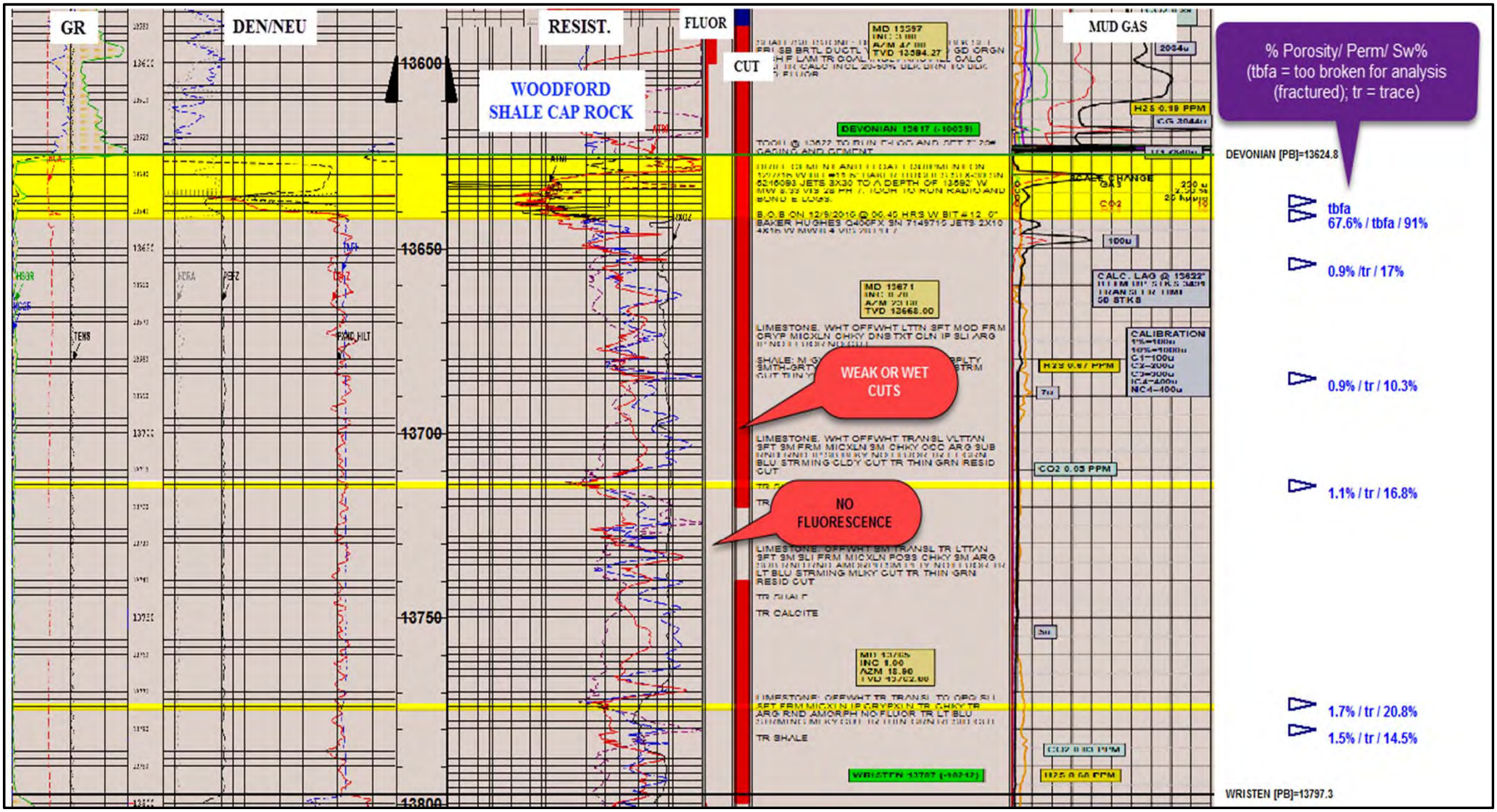

For each of the composite log sections through the NMOCC-approved injection interval, yellow shading denotes porous rock, and light brown shading indicates tight (cap) rock. This section of the injection zone, which shows the Devonian Thirtyone Formation, is characterized by no shows of fluorescence, and weak cuts that generally denote wet rock. There are no significant shows of mud gas through the Devonian; gas shows above are from shale gas in the Woodford Formation. Sidewall core analytical data (far right track) demonstrate no oil saturation in any of the 43 cores collected through the entire injection interval.

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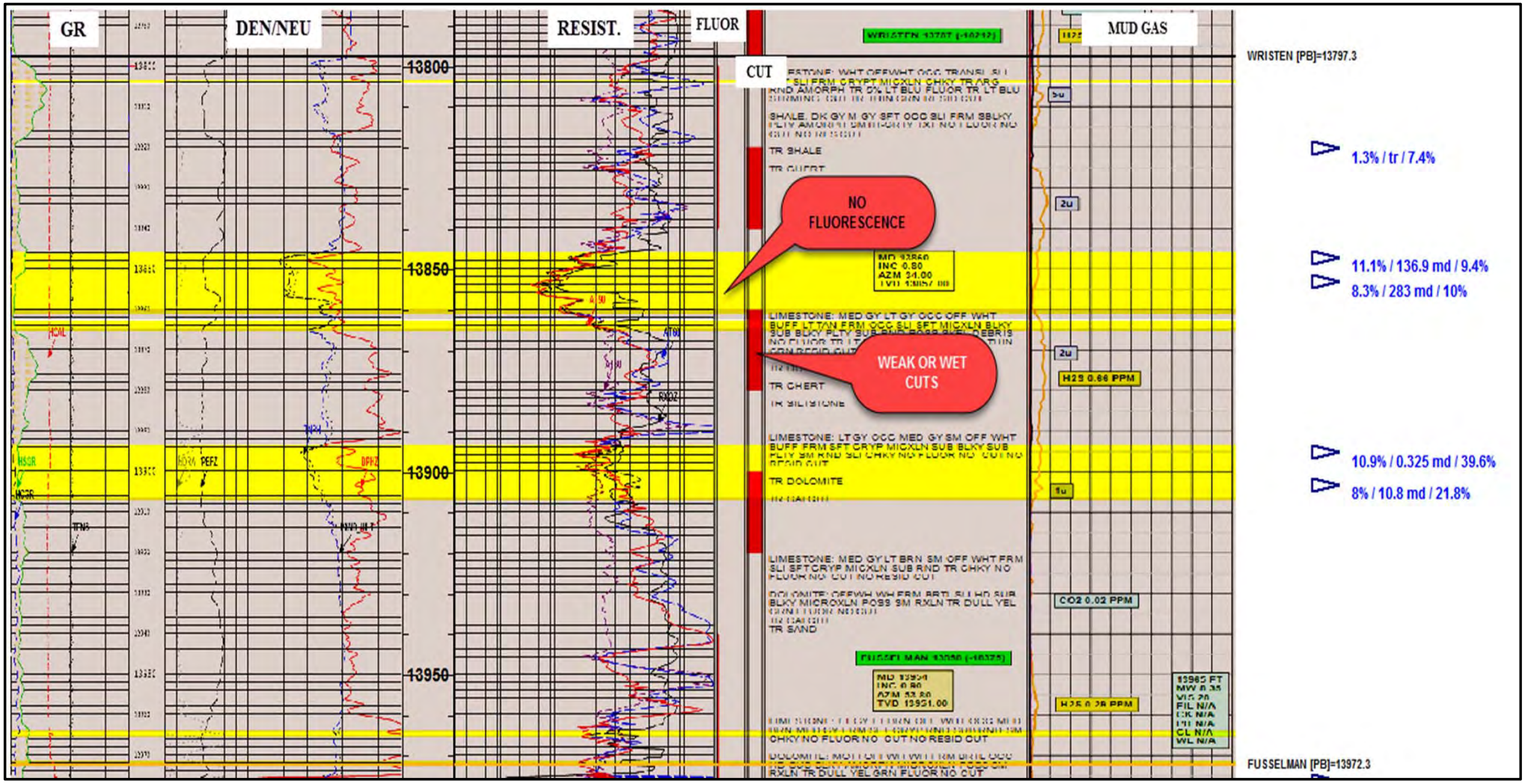

The log composite through the Wristen (Upper Silurian) section shows no sample fluorescence, sporadic weak cuts, and no mud gas. Sidewall core analyses show no oil saturation across this formation.

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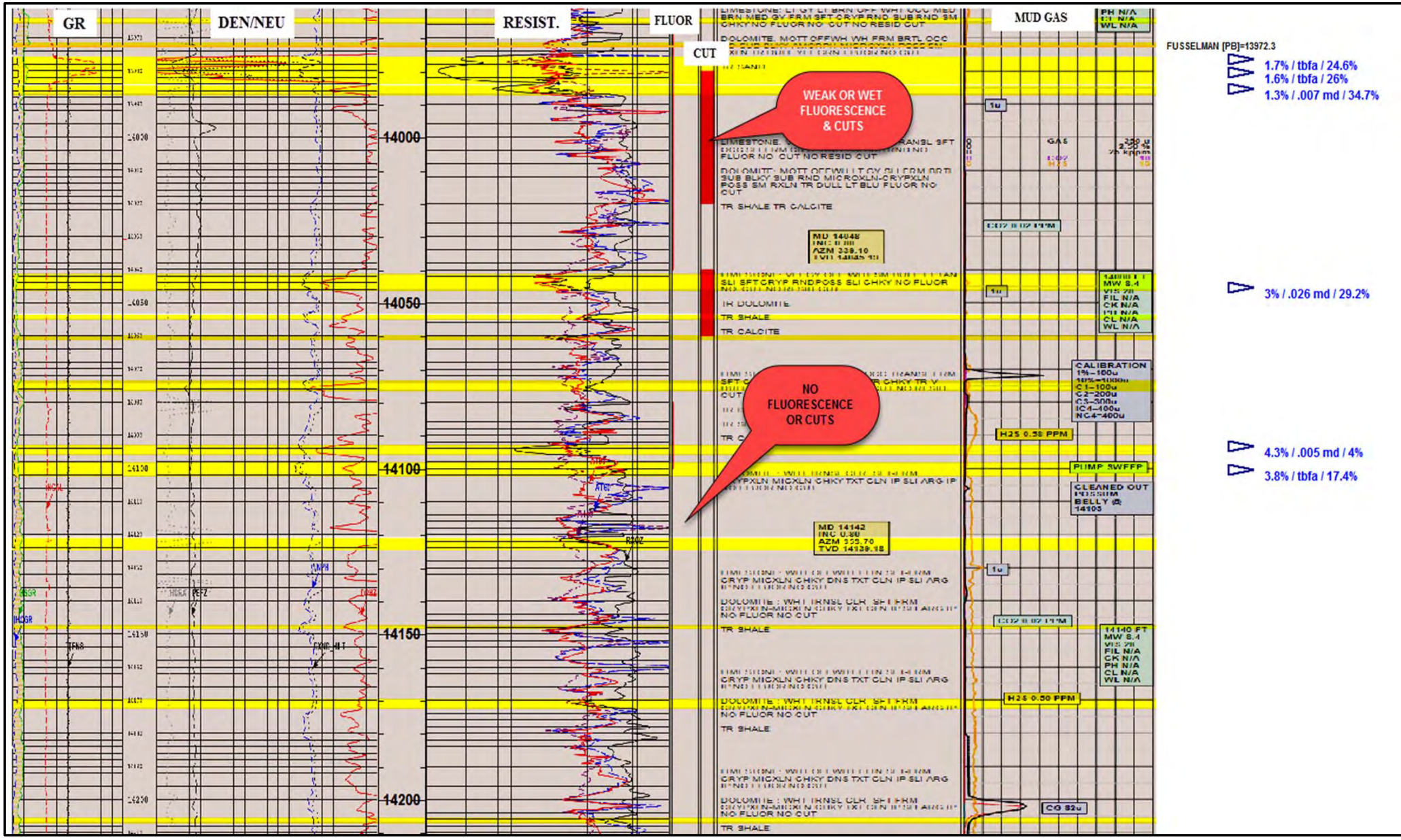

The upper half of the Fusselman (Lower Silurian) section only shows weak cuts and very weak fluorescence in the upper part of the section, with no fluorescence, cuts, or mud gas (other than connection gas) below. No oil saturations were reported in any of the sidewall cores.

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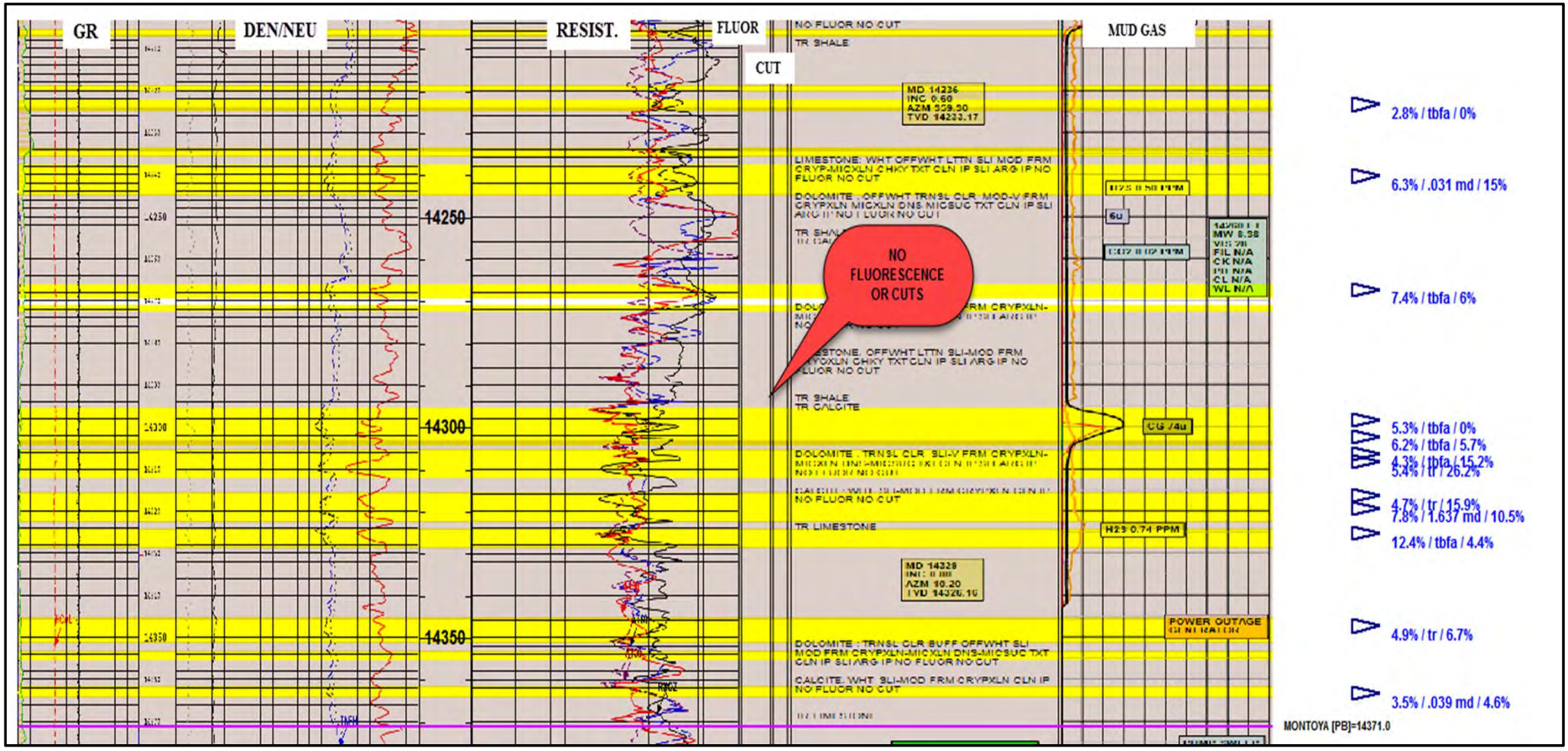

The lower half of the Fusselman Formation is devoid of any sample shows, cuts, or core oil saturation.

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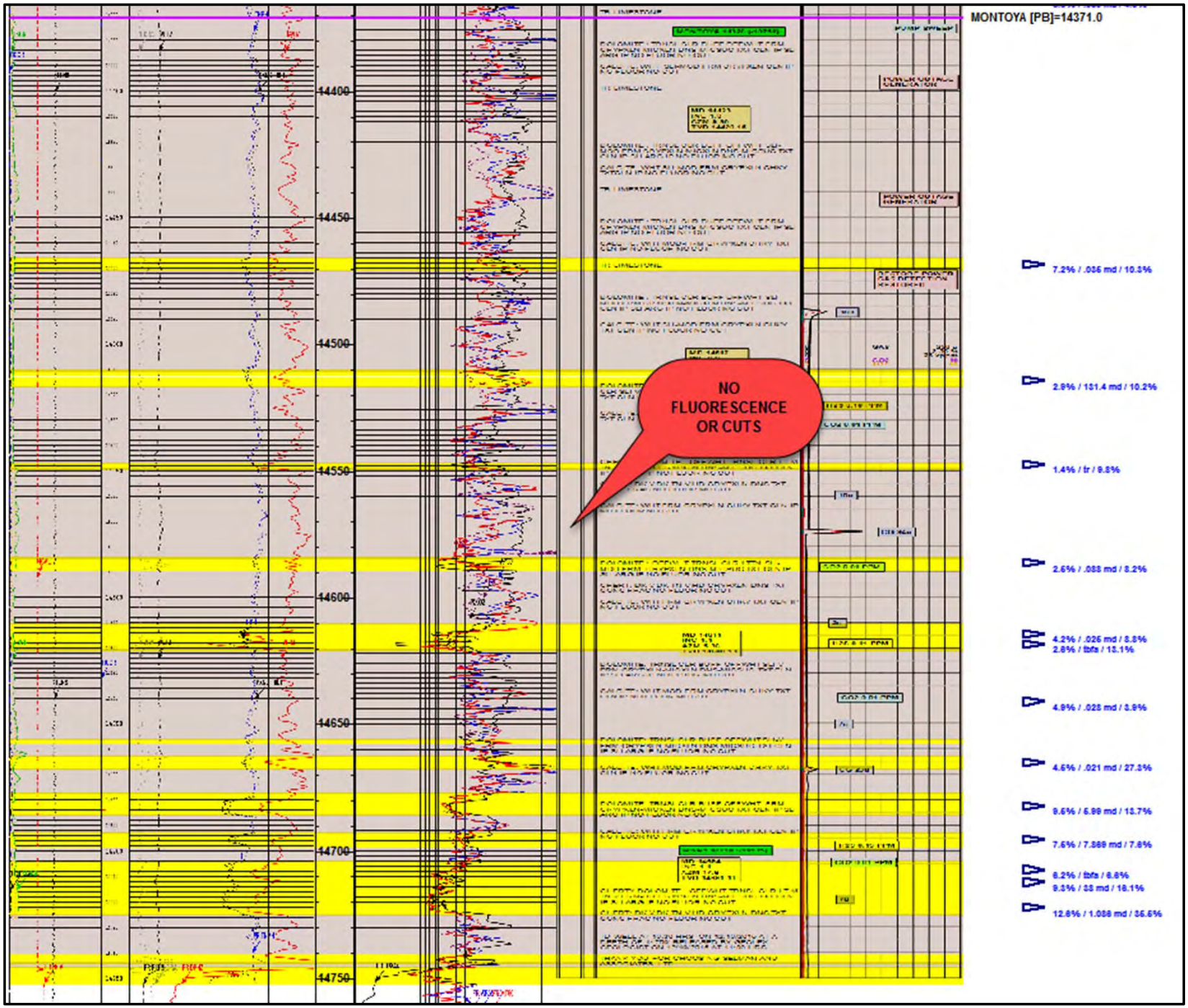
The Montoya Formation (Upper Ordovician) is devoid of any sample fluorescence, cuts, or mud gas, and like the rest of the injection interval, does not have any oil saturation detected in sidewall cores.



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RESERVOIR CHARACTERISTICS OF THE NMOCC-APPROVED INJECTION INTERVAL CONCLUSIVELY DEMONSTRATE LACK OF COMMERCIALLY-RECOVERABLE HYDROCARBONS

- ✓ The NMOCC-approved injection zone is comprised of the porous carbonates of the Devonian Thirtyone, Wristen, Fusselman, and upper Montoya Formations in the Zia AGI D #2 well. This interval is clearly not productive of commercially-recoverable hydrocarbons in the area. Porosity in these carbonates ranges from isolated vugs and interstitial dolomite porosity, to secondarily solution-enhanced porosity.

- ✓ Mudlog sample shows throughout the injection interval are essentially absent and the few shows which were noted were very weak. Sample cuts, in the few places found, were likewise weak and very localized, with either no or minor natural gas shows at these locations. ***Sample cuts indicate wet formation conditions over the entire injection interval. These factors clearly demonstrate a lack of any movable (commercially-recoverable) hydrocarbons.***

- ✓ Sidewall core results only indicate mineral fluorescence, with no shows of hydrocarbon fluorescence across the entire NMOCC-approved injection interval of 13,625' (top Devonian) to 14,750' (Upper Montoya). ***When these results are combined with the lack and quality of mudlog shows, this interval clearly lacks any commercially-recoverable hydrocarbons.***

- ✓ Formation gas shows are absent over the entire injection interval; the only gas shows are from the tight Woodford Shale that forms the first cap rock above the injection interval. ***This is another independent confirmation of the lack of commercially-recoverable hydrocarbons over the NMOCC-approved injection interval.***

- ✓ The well was swabbed to remove over 500 bbls of formation fluid as required by the BLM COAs on the completion sundry. The swabbing resulted in only a minor lowering of the water level of less than 8% of fluid column in the well due to the high permeability of the injection zone. All of the fluid sampled was aqueous with some samples having a slight sour gas smell but no visible sheens or phase separated hydrocarbons observed after settling for over 24 hours. Ten fluid samples were taken from the last 100 bbls. swabbed. These samples have TPH that range from 2.4 – 26.1 ppm. ***The swabbing results confirm the lack of commercially recoverable hydrocarbons in the NMOCC-approved injection zone from 13,625' to 14,750'.***

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END OF ATTACHMENT A

ATTACHMENT B

MUDLOG EVALUATION FROM 13,590’ TO 14,750’ (TD)

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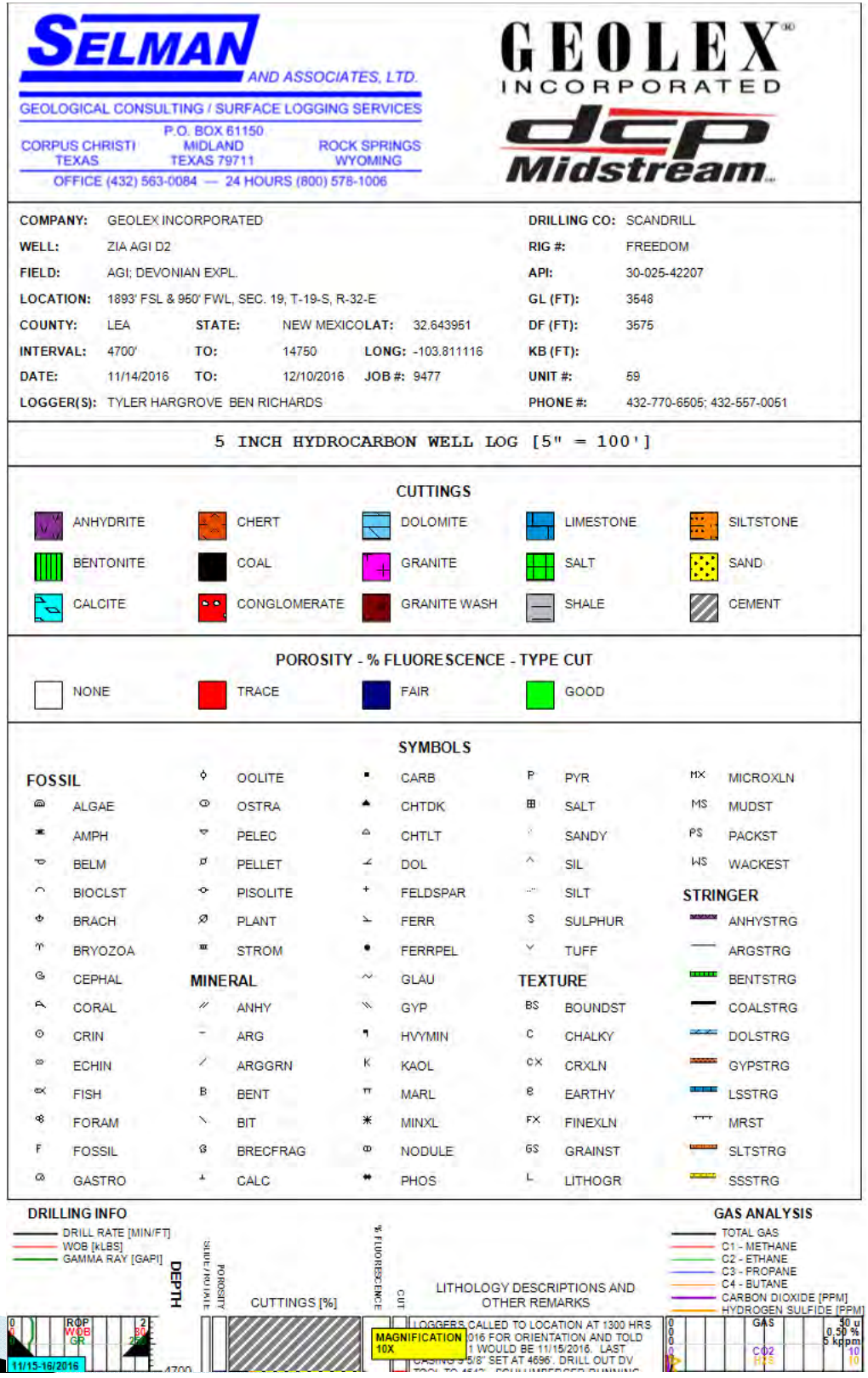
Selman Mudlog Header

- **The contents of the mudlog, including all symbols and readings, are described here.**
- **Fluorescence from sidewall cores collected across the injection interval were analyzed by Weatherford Laboratories.**
- **Sidewall core results show no notable sample fluorescence or shows across the entire injection interval. Sidewall core locations are discussed below.**



SELMAN AND ASSOCIATES, LTD.
GEOLOGICAL CONSULTING / SURFACE LOGGING SERVICES
P.O. BOX 61150
CORPUS CHRISTI TEXAS | MIDLAND TEXAS 79711 | ROCK SPRINGS WYOMING
OFFICE (432) 563-0084 — 24 HOURS (800) 578-1006

GEOLEX INCORPORATED
dcp Midstream

COMPANY:	GEOLEX INCORPORATED				DRILLING CO:	SCANDRILL	
WELL:	ZIA AGI D2				RIG #:	FREEDOM	
FIELD:	AGI; DEVONIAN EXPL.				API:	30-025-42207	
LOCATION:	1893' FSL & 950' FWL, SEC. 19, T-19-S, R-32-E				GL (FT):	3548	
COUNTY:	LEA	STATE:	NEW MEXICO	LAT: 32.643951	DF (FT):	3575	
INTERVAL:	4700'	TO:	14750	LONG: -103.811116	KB (FT):		
DATE:	11/14/2016	TO:	12/10/2016	JOB #: 9477	UNIT #:	59	
LOGGER(S):	TYLER HARGROVE BEN RICHARDS				PHONE #:	432-770-6505; 432-557-0051	

5 INCH HYDROCARBON WELL LOG [5" = 100']

CUTTINGS
ANHYDRITE, CHERT, DOLOMITE, LIMESTONE, SILTSTONE
BENTONITE, COAL, GRANITE, SALT, SAND
CALCITE, CONGLOMERATE, GRANITE WASH, SHALE, CEMENT

POROSITY - % FLUORESCENCE - TYPE CUT
NONE, TRACE, FAIR, GOOD

SYMBOLS
FOSSIL: ALGAE, AMPH, BELM, BIOCLST, BRACH, BRYOZOA, CEPHAL, CORAL, CRIN, ECHIN, FISH, FORAM, FOSSIL, GASTRO
OOLITE, OSTRA, PELEC, PELLET, PISOLITE, PLANT, STROM
MINERAL: ANHY, ARG, ARGGRN, BENT, BIT, BRECFRAG, CALC
CARB, CHTDK, CHTLT, DOL, FELDSPAR, FERR, FERRPEL, GLAU, GYP, HVYMIN, KAOL, MARL, MINXL, NODULE, PHOS
PYR, SALT, SANDY, SIL, SILT, SULPHUR, TUFF
TEXTURE: BOUNDST, CHALKY, CRXLN, EARTHY, FINEXLN, GRAINST, LITHOGR
MICROXLN, MUDST, PACKST, WACKEST
STRINGER: ANHYSTRG, ARGSTRG, BENTSTRG, COALSTRG, DOLSTRG, GYPSTRG, LSSTRG, MRST, SLTSTRG, SSSTRG

DRILLING INFO
DRILL RATE [MIN/FT]
WOB [KLBS]
GAMMA RAY [GAPI]
DEPTH
SHALE/SILT POROSITY
CUTTINGS [%]
% FLUORESCENCE
CUT
LITHOLOGY DESCRIPTIONS AND OTHER REMARKS
GAS ANALYSIS
TOTAL GAS
C1 - METHANE
C2 - ETHANE
C3 - PROPANE
C4 - BUTANE
CARBON DIOXIDE [PPM]
HYDROGEN SULFIDE [PPM]
ROP
WOB
GR
11/15-16/2016
4700
LOGGERS CALLED TO LOCATION AT 1300 HRS
016 FOR ORIENTATION AND TOLD
1 WOULD BE 11/15/2016. LAST
5/8" SET AT 4696'. DRILL OUT DV
MAGNIFICATION 10X
GAS
CO2
H2S

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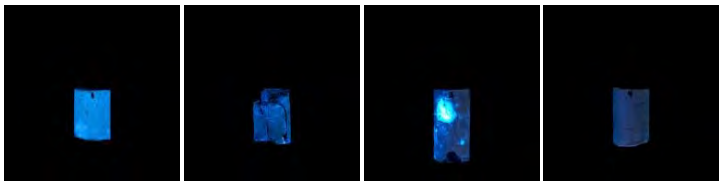
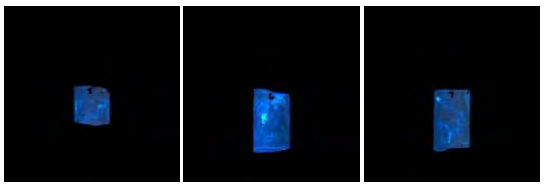
Interval from 13,590’ to 13,800’

- The top of the injection interval is primarily composed of limestone.
- Minor gas detections are shown on the mudlog near the top of the injection zone that do not exceed 25u/2.5 kppm. The rest of this section shows no notable gas detections.
- Sidewall cores collected at 13,637’, 13,641’, 13,654’, 13,685’, 13,714’, 13,773’, and 13,780’ have no notable fluorescence or shows.



13,637’ 13,641’ 13,654’ 13,685’



13,714’ 13,773’ 13,780’

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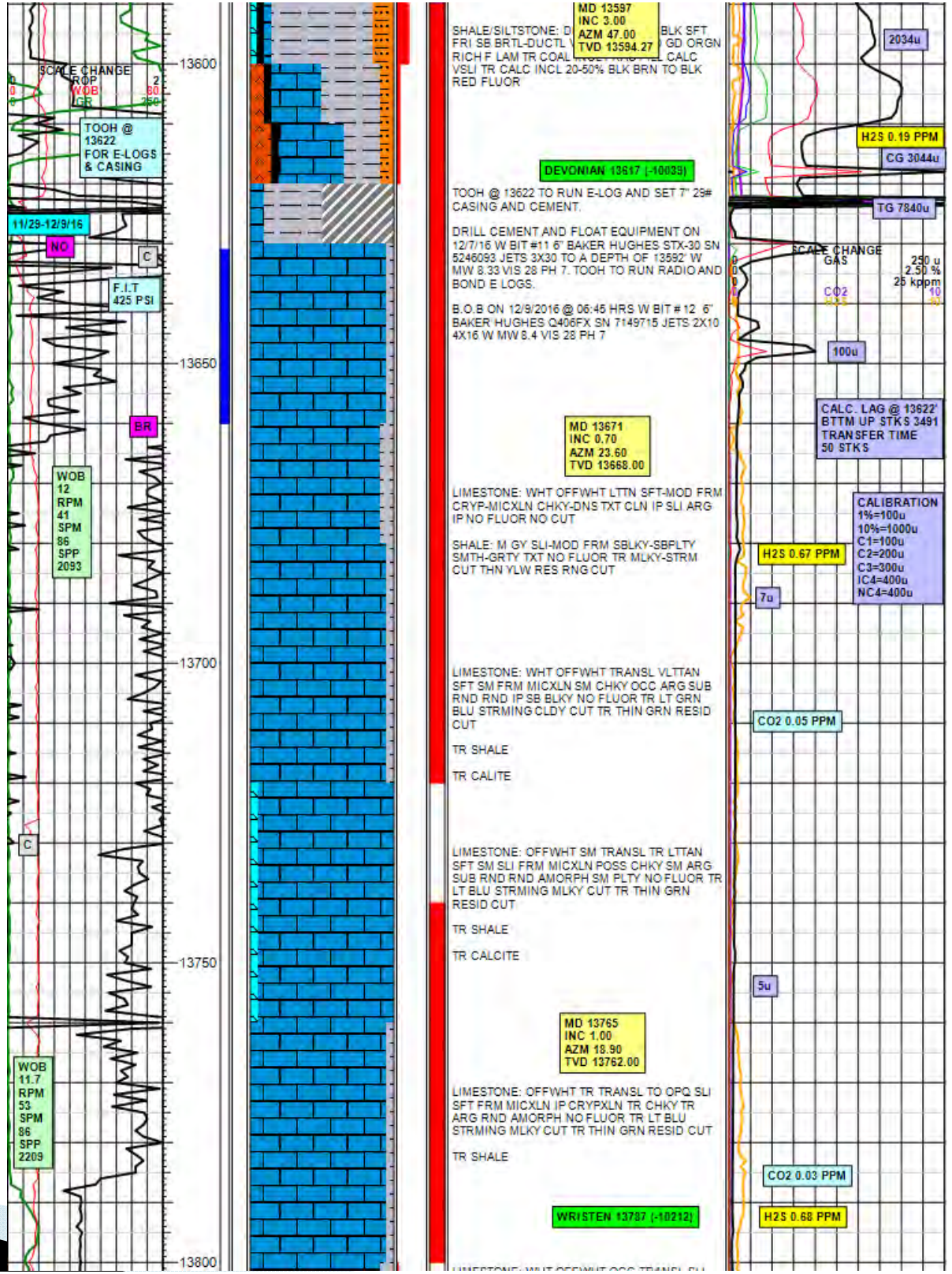
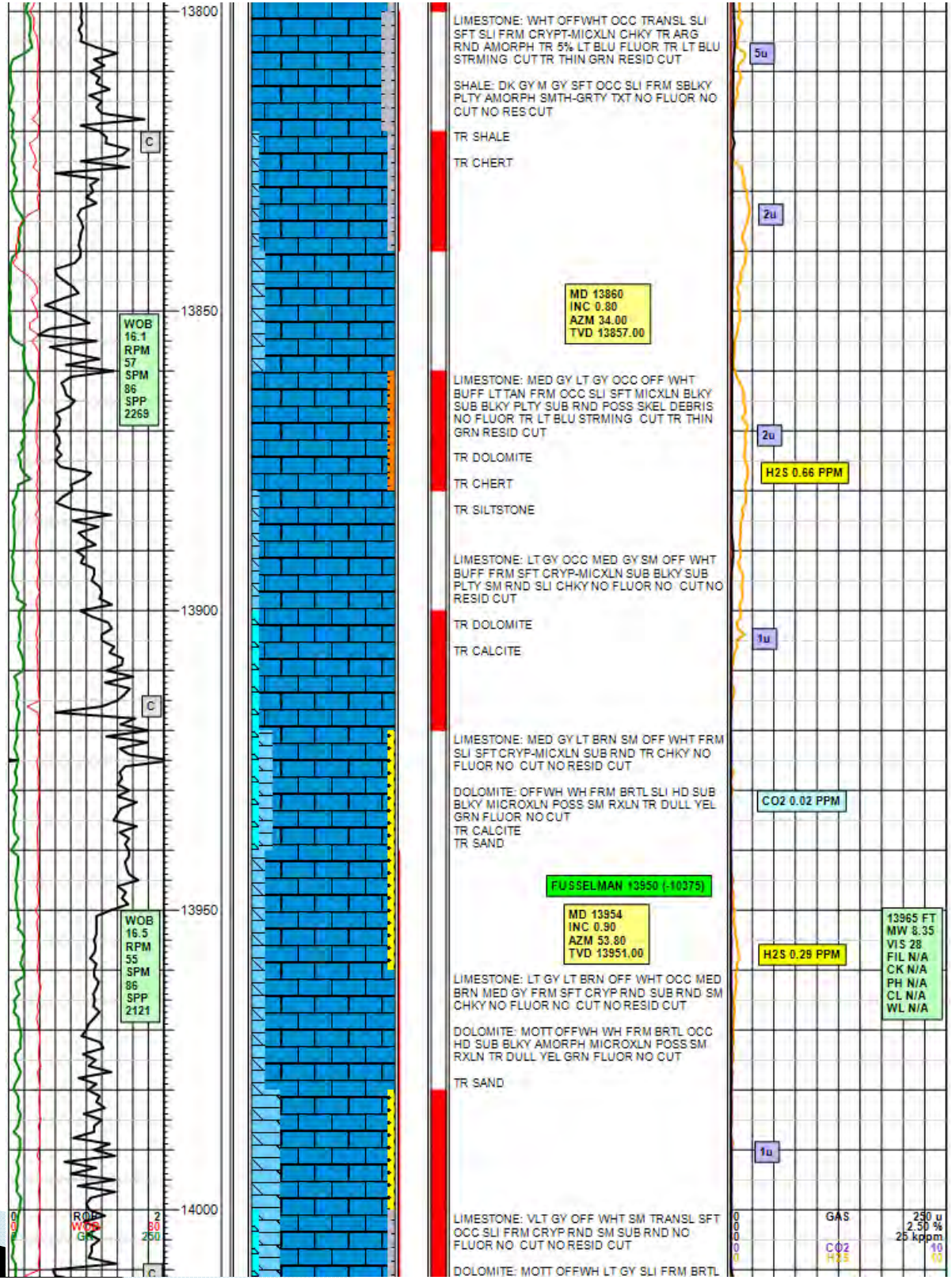


Interval from 13,800’ to 14,010’

- This section of the injection zone is primarily composed of limestone.
- There are no natural gas readings across this interval, with minor H_2S showings.
- Sidewall cores collected at 13,820’, 13,847’, 13,853’, 13,895’, 13,903’, 13,976’, 13,980’, and 13,985’ have no notable fluorescence or shows.

13,820’ 13,847’ 13,853’ 13,895’

13,903’ 13,976’ 13,980’ 13,985’



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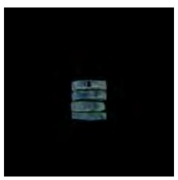
Interval from 14,010’ to 14,220’

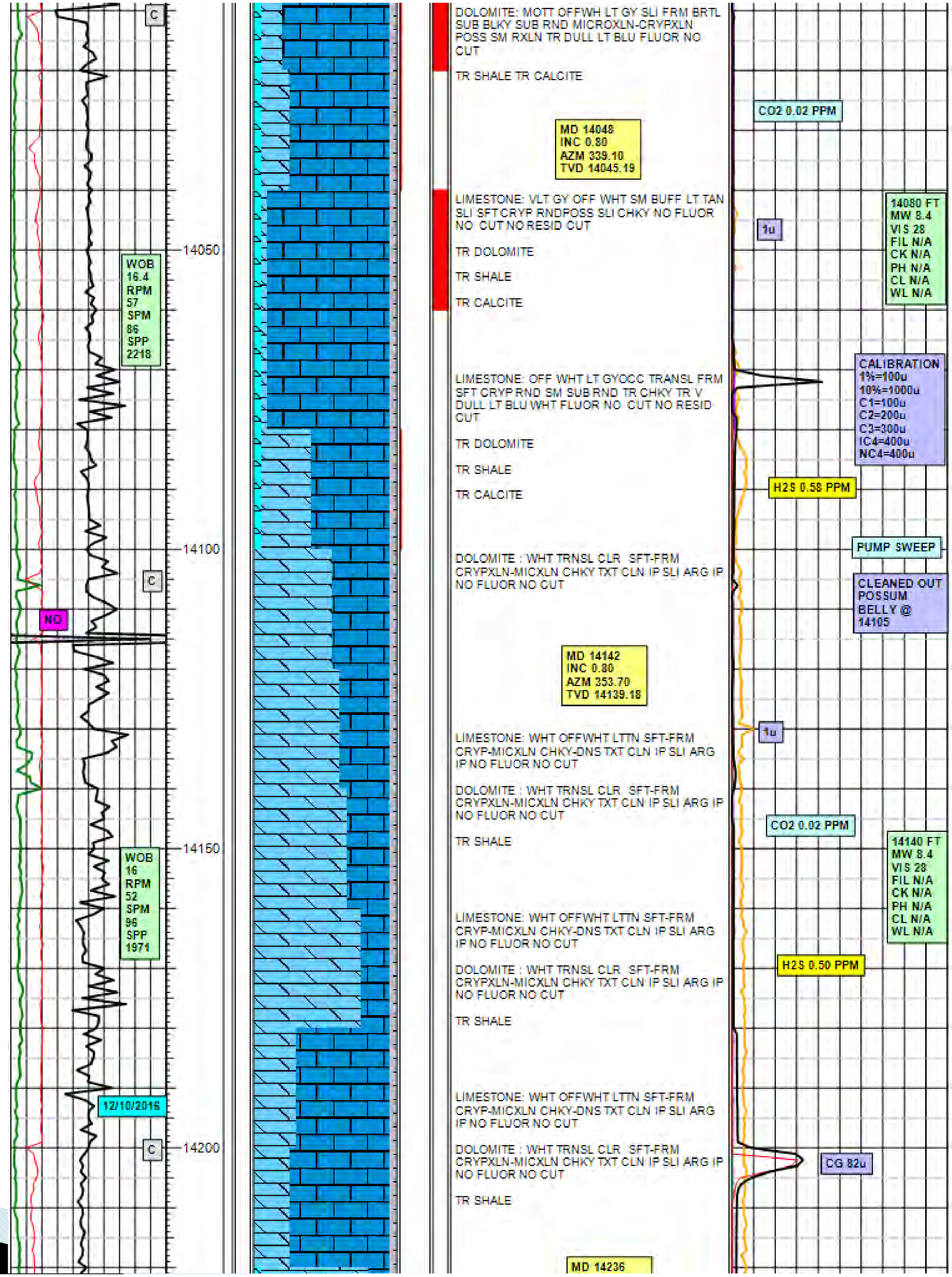
- This section of the injection zone is primarily composed of limestone and dolomite.
- There are two minor localized natural gas showings at 14,072’ and 14,203’. The total gas for both of these shows does not exceed 22 u/2.2 kppm.
- Sidewall cores collected at 14,045’, 14,093’, and 14,100’ have no notable fluorescence or shows.

14,045’

14,093’



14,100’



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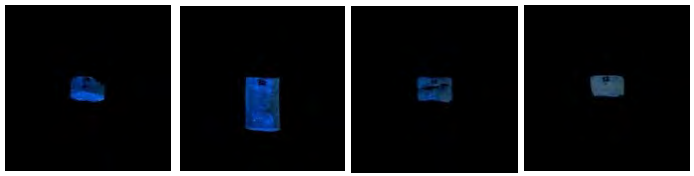
Interval from 14,220’ to 14,430’

- **This section of the injection zone is primarily composed of dolomite.**
- **There is 1 minor localized natural gas detection around 14,300’, which does not exceed 15u/1.5 kppm.**
- **Sidewall cores collected at 14,223’, 14,240’, 14,267’, 14,298’, 14,302’, 14,306’, 14,308’, 14,316’, 14,319’, 14,325’, 14,347’, and 14,363’ have no notable fluorescence or shows.**

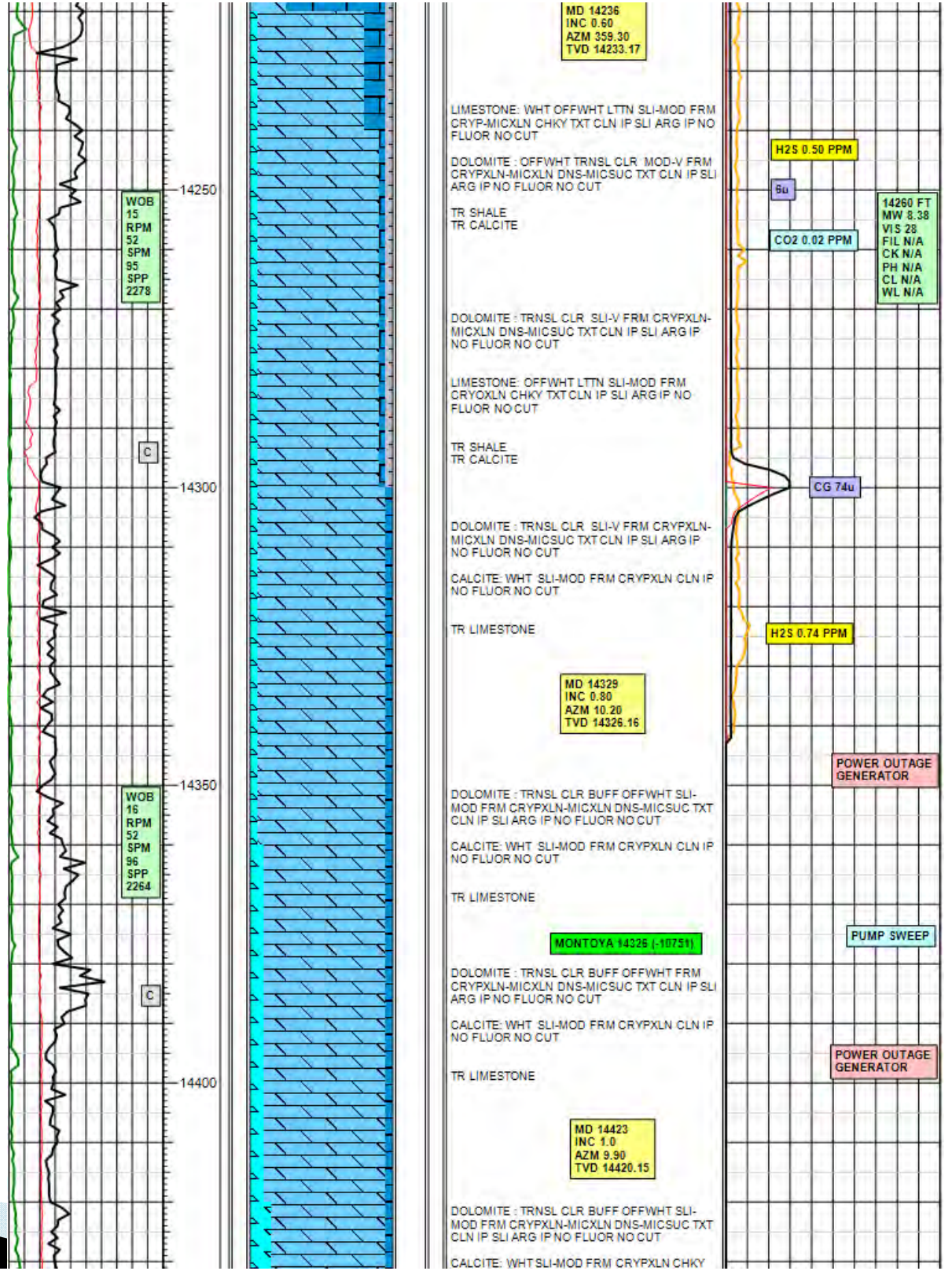


14,223’ 14,240’ 14,267’ 14,298’

14,302’ 14,306’ 14,308’ 14,316’

14,319’ 14,325’ 14,347’ 14,363’

GEOLEX® INCORPORATED



Interval from 14,430’ to 14,640’

- **This section of the injection zone is primarily composed of dolomite.**
- **There is one minor localized natural gas detection around 14,574’, which does not exceed 20u/2.0 kppm.**
- **Sidewall cores collected at 14,468’, 14,514’, 14,547’, 14,586’, 14,614’, and 14,618 have no notable fluorescence or shows.**

14,468’

14,514’

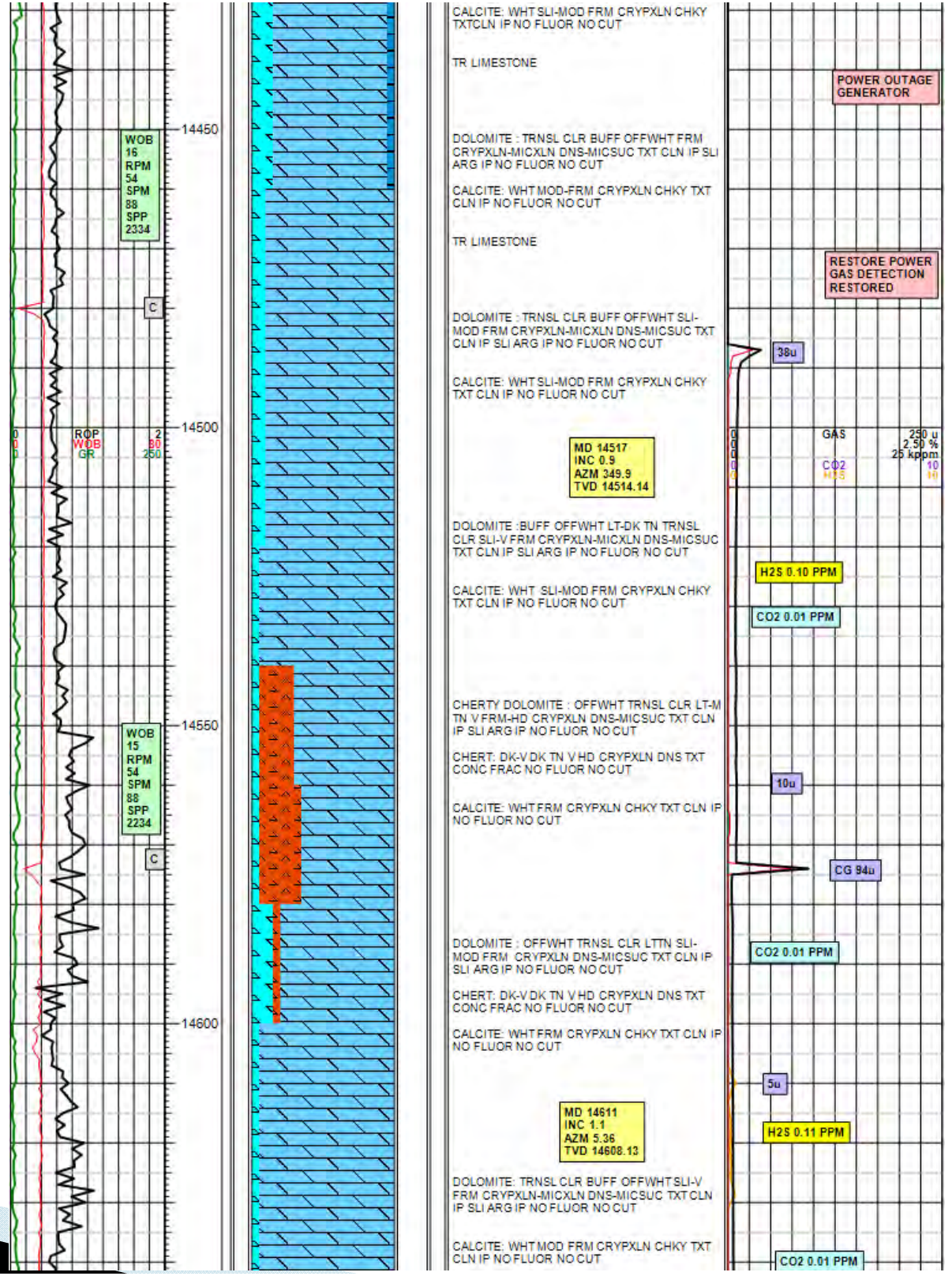
14,547’

14,586’

14,614’

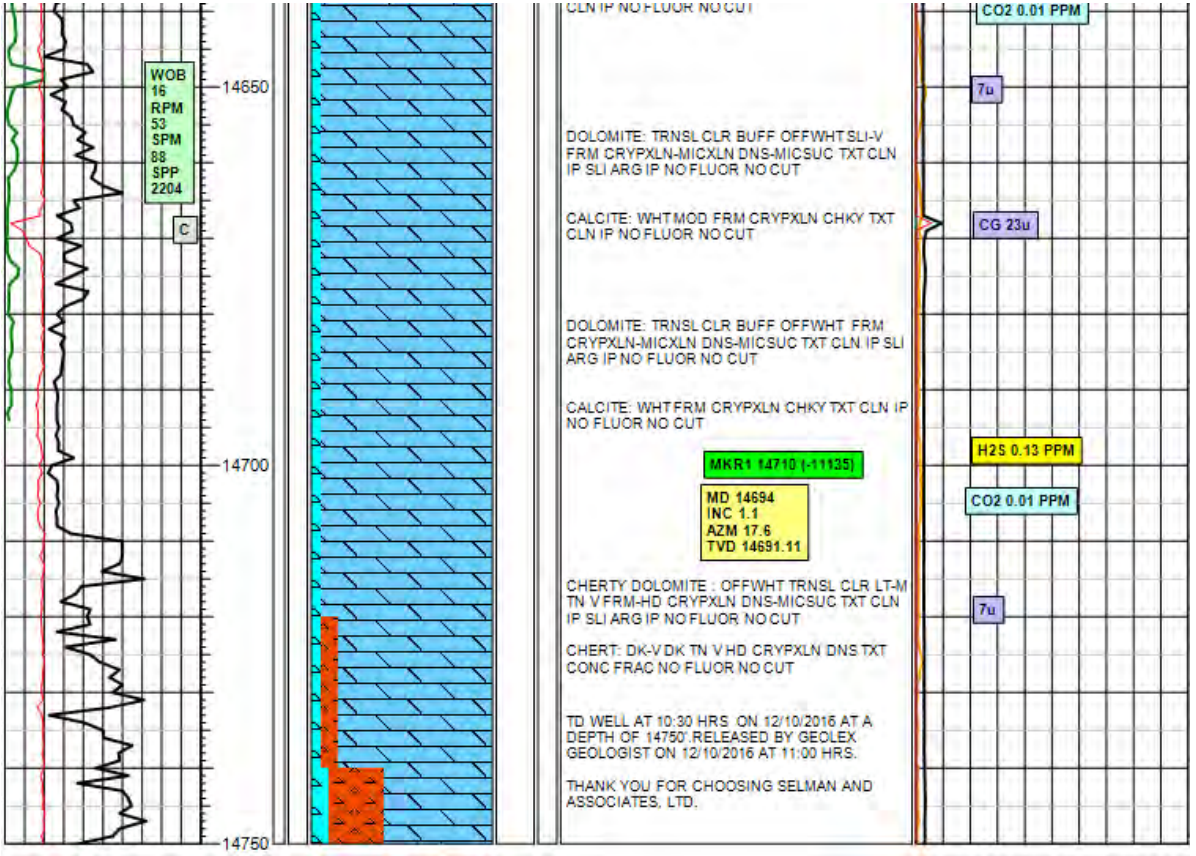
14,618’

GEOLEX INCORPORATED



Interval from 14,640’ to 14,750’ (TD)

- **This section of the injection zone is primarily composed of dolomite.**
- **There is little to no significate natural gas shown across this interval.**
- **Sidewall cores collected at 14,641’, 14,665’, 14,682’, 14,695’, 14,707’, 14,712’, and 14,722’ have no notable fluorescence or shows.**



14,641’ 14,665’ 14,682’

14,695’ 14,707’ 14,712’ 14,722’

GEOLEX® INCORPORATED

ATTACHMENT C

FORMATION FLUID EVALUATION ACROSS INJECTION INTERVAL

GEOLEX® INCORPORATED

ZIA AGI D #2 INJECTION ZONE FORMATION-FLUID RESULTS			
SAMPLE #	**DRO**	**EXT DRO**	**TPH**
1-402 bbls	20.5	5.58	26.1
2-415 bbls	12.1	3.65	15.8
3-435 bbls	6.53	2.3	8.8
4-445 bbls	1.48	1	2.5
5-455 bbls	2.1	1	3.1
6-470 bbls	2.94	1.09	4.0
7-480 bbls	3.59	1.06	4.7
8-490 bbls	3.08	1	4.1
9-500 bblos	1.43	1	2.4
10-515 bbls	3.01	1	4.0

- Total petroleum hydrocarbons from the last 100 barrels of swabbed fluid range from 2.4 to 26.1 ppm. Laboratory Analytical results are on the following pages.

- This clearly demonstrates there are no commercially available hydrocarbons.

GEOLEX® INCORPORATED

SUMMARY AND RESULTS OF FORMATION FLUID ANALYSIS FROM CARDINAL LABORATORIES

Sample Results from Formation Fluid Collected between 13,622 feet and 14,750 feet at the Zia AGI D #2 Well																
ANALYTES	**1-Chlorooctadecane**	**1-Chlorooctane**	**Alkalinity, Bicarbonate**	**Alkalinity, Carbonate**	**Alkalinity, Total**	**Calcium**	**Chloride**	**Conductivity**	**DRO >C10-C28**	**EXT DRO >C28-C35**	**Magnesium**	**pH**	**Potassium**	**Sodium**	**Sulfate**	**TDS**
UNITS	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*uS/cm*	*mg/L*	*mg/L*	*mg/L*	*pH Units*	*mg/L*	*mg/L*	*mg/L*	*mg/L*
Sample Name																
NO. 1 402 BBLS	2.22	2.42	537	ND	440	2620	27000	78200	20.5	5.58	457	6.45	389	17900	1510	42800
NO. 2 415 BBLS	2.08	2.11	756	ND	620	2260	21000	77000	12.1	3.65	380	6.6	315	14400	1550	43600
NO. 3 435 BBLS	4.02	3.52	781	ND	640	1870	26700	75000	6.53	2.3	267	6.65	305	13800	1480	42500
NO. 4 445 BBLS	4.24	3.56	781	ND	640	1810	23700	74200	1.48	ND	253	6.51	302	13500	1440	40200
NO. 5 455 BBLS	4.49	3.64	671	ND	550	1850	27000	77000	2.1	ND	252	6.49	307	14200	1470	43200
NO. 6 470 BBLS	4.37	3.95	781	ND	640	2340	26300	74600	2.94	1.09	322	6.53	389	17500	1510	44700
NO. 7 480 BBLS	3.82	3.04	769	ND	630	1940	22000	78400	3.59	1.06	264	6.47	317	14400	1470	44000
NO. 8 490 BBLS	3.39	2.99	781	ND	640	2070	21000	75600	3.08	ND	291	6.53	336	15400	1480	43400
NO. 9 500 BBLS	4.05	3.28	805	ND	660	2210	22000	78400	1.43	ND	300	6.57	363	16500	1530	43400
NO. 10 515 BBLS	4.14	3.51	817	ND	670	1860	20300	73000	3.01	ND	252	6.63	310	13800	1470	39700
Average	**3.682**	**3.202**	**747.9**	**ND**	**613**	**2083**	**23700**	**76140**	**5.676**	**2.736**	**303.8**	**6.543**	**333.3**	**15140**	**1491**	**42750**
Max	***4.49***	***3.95***	***817***	***ND***	***670***	***2620***	***27000***	***78400***	***20.5***	***5.58***	***457***	***6.65***	***389***	***17900***	***1550***	***44700***

Analysis by Cardinal Laboratories

Hobbs, NM

TPH Analyzed on: 12/21/2016

Anions/Cations Analyzed on: 12/30/2016

pH/Conductivity Analyzed on: 12/27/2016

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

January 11, 2017

ALBERTO GUTIERREZ

GEOLEX, INC.

500 MARQUETTE AVE. NW #1350

ALBUQUERQUE, NM 87102

RE: DCP ZIA AGI D #2 (FORMATION WATER)

Enclosed are the results of analyses for samples received by the laboratory on 12/21/16 13:23.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-16-8. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
NO. 1 402 BBLS	H602848-01	Water	21-Dec-16 08:25	21-Dec-16 13:23
NO. 2 415 BBLS	H602848-02	Water	21-Dec-16 08:45	21-Dec-16 13:23
NO. 3 435 BBLS	H602848-03	Water	21-Dec-16 09:02	21-Dec-16 13:23
NO. 4 445 BBLS	H602848-04	Water	21-Dec-16 09:35	21-Dec-16 13:23
NO. 5 455 BBLS	H602848-05	Water	21-Dec-16 09:50	21-Dec-16 13:23
NO. 6 470 BBLS	H602848-06	Water	21-Dec-16 10:10	21-Dec-16 13:23
NO. 7 480 BBLS	H602848-07	Water	21-Dec-16 10:25	21-Dec-16 13:23
NO. 8 490 BBLS	H602848-08	Water	21-Dec-16 10:44	21-Dec-16 13:23
NO. 9 500 BBLS	H602848-09	Water	21-Dec-16 11:00	21-Dec-16 13:23
NO. 10 515 BBLS	H602848-10	Water	21-Dec-16 11:11	21-Dec-16 13:23

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 1 402 BBLS

H602848-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**537**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**27000**		4.00	mg/L	1	6121908	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**78200**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.45**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1510**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**42800**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**440**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**20.5**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	**5.58**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*48.3 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*44.5 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**2620**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**457**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**389**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**17900**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 2 415 BBLS

H602848-02 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**756**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**21000**		4.00	mg/L	1	6121908	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**77000**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.60**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1550**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**43600**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**620**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**12.1**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	**3.65**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*42.2 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*41.6 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**2260**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**380**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	M5
Potassium*	**315**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**14400**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 3 435 BBLS

H602848-03 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**781**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**26700**		4.00	mg/L	1	6121908	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**75000**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.65**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1480**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**42500**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**640**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**6.53**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	**2.30**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*70.4 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*80.3 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**1870**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**267**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**305**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**13800**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 4 445 BBLS

H602848-04 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**781**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**23700**		4.00	mg/L	1	6121908	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**74200**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.51**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1440**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**40200**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**640**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**1.48**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	<1.00		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*71.2 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*84.7 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**1810**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**253**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**302**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**13500**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

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CARDINAL Laboratories

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 5 455 BBLS

H602848-05 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**671**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**27000**		4.00	mg/L	1	6121908	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**77000**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.49**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1470**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**43200**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**550**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**2.10**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	<1.00		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*72.8 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*89.7 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**1850**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**252**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**307**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**14200**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

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CARDINAL Laboratories

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 6 470 BBLS

H602848-06 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**781**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**26300**		4.00	mg/L	1	6122702	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**74600**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.53**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1510**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**44700**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**640**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**2.94**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	**1.09**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*78.9 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*87.4 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**2340**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**322**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**389**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**17500**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

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CARDINAL Laboratories

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 7 480 BBLS

H602848-07 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**769**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**22000**		4.00	mg/L	1	6122702	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**78400**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.47**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1470**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**44000**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**630**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**3.59**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	**1.06**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*60.9 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*76.5 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**1940**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**264**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**317**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**14400**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 8 490 BBLS

H602848-08 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**781**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**21000**		4.00	mg/L	1	6122702	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**75600**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.53**		0.100	pH Units	1	6122705	AC	27-Dec-16	150.1	
Sulfate*	**1480**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**43400**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**640**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**3.08**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	<1.00		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*59.9 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*67.9 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**2070**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**291**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**336**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**15400**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 9 500 BBLS

H602848-09 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**805**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**22000**		4.00	mg/L	1	6122702	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**78400**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.57**		0.100	pH Units	1	6122706	AC	27-Dec-16	150.1	
Sulfate*	**1530**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**43400**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**660**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**1.43**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	<1.00		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*65.5 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*81.0 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**2210**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**300**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**363**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**16500**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

NO. 10 515 BBLS

H602848-10 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Alkalinity, Bicarbonate	**817**		5.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Alkalinity, Carbonate	<1.00		1.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Chloride*	**20300**		4.00	mg/L	1	6122702	AC	30-Dec-16	4500-Cl-B	
Conductivity*	**73000**		1.00	uS/cm	1	6122707	AC	27-Dec-16	120.1	
pH*	**6.63**		0.100	pH Units	1	6122706	AC	27-Dec-16	150.1	
Sulfate*	**1470**		250	mg/L	25	6123003	AC	30-Dec-16	375.4	
TDS*	**39700**		5.00	mg/L	1	6122204	AC	30-Dec-16	160.1	
Alkalinity, Total*	**670**		4.00	mg/L	1	6121606	AC	30-Dec-16	310.1	
Petroleum Hydrocarbons by GC FID										
DRO >C10-C28	**3.01**		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
EXT DRO >C28-C35	<1.00		1.00	mg/L	0.1	6122108	MS	21-Dec-16	8015B	
Surrogate: 1-Chlorooctane			*70.2 %*	*34.8-131*		*6122108*	MS	*21-Dec-16*	*8015B*	
Surrogate: 1-Chlorooctadecane			*82.9 %*	*30.4-167*		*6122108*	MS	*21-Dec-16*	*8015B*	
Green Analytical Laboratories										
Total Recoverable Metals by ICP (E200.7)										
Calcium*	**1860**		5.00	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Magnesium*	**252**		10.0	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Potassium*	**310**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	
Sodium*	**13800**		100	mg/L	100	B701021	LLG	04-Jan-17	EPA200.7	

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6121606 - General Prep - Wet Chem										
Blank (6121606-BLK1)				Prepared & Analyzed: 16-Dec-16						
Alkalinity, Carbonate	ND	1.00	mg/L							
Alkalinity, Bicarbonate	ND	5.00	mg/L							
Alkalinity, Total	ND	4.00	mg/L							
LCS (6121606-BS1)				Prepared & Analyzed: 16-Dec-16						
Alkalinity, Carbonate	ND	1.00	mg/L				80-120			
Alkalinity, Bicarbonate	122	5.00	mg/L				80-120			
Alkalinity, Total	100	4.00	mg/L	100		100	80-120			
LCS Dup (6121606-BSD1)				Prepared & Analyzed: 16-Dec-16						
Alkalinity, Carbonate	ND	1.00	mg/L				80-120		20	
Alkalinity, Bicarbonate	122	5.00	mg/L				80-120	0.00	20	
Alkalinity, Total	100	4.00	mg/L	100		100	80-120	0.00	20	
Duplicate (6121606-DUP1)		**Source: H602771-15**		Prepared & Analyzed: 16-Dec-16						
Alkalinity, Carbonate	ND	1.00	mg/L		ND				20	
Alkalinity, Bicarbonate	342	5.00	mg/L		342			0.00	20	
Alkalinity, Total	280	4.00	mg/L		280			0.00	20	
Matrix Spike (6121606-MS1)		**Source: H602771-15**		Prepared & Analyzed: 16-Dec-16						
Alkalinity, Carbonate	ND	2.50	mg/L		ND		70-130			
Alkalinity, Bicarbonate	610	12.5	mg/L		342		70-130			
Alkalinity, Total	500	10.0	mg/L	250	280	88.0	70-130			
Batch 6121908 - General Prep - Wet Chem										
Blank (6121908-BLK1)				Prepared: 19-Dec-16 Analyzed: 20-Dec-16						
Chloride	ND	4.00	mg/L							

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CARDINAL Laboratories

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6121908 - General Prep - Wet Chem										
LCS (6121908-BS1)				Prepared: 19-Dec-16 Analyzed: 20-Dec-16						
Chloride	100	4.00	mg/L	100		100	80-120			
LCS Dup (6121908-BSD1)				Prepared: 19-Dec-16 Analyzed: 20-Dec-16						
Chloride	104	4.00	mg/L	100		104	80-120	3.92	20	
Duplicate (6121908-DUP1)		**Source: H602799-02**		Prepared: 19-Dec-16 Analyzed: 20-Dec-16						
Chloride	630	4.00	mg/L		640			1.57	20	
Matrix Spike (6121908-MS1)		**Source: H602799-02**		Prepared: 19-Dec-16 Analyzed: 20-Dec-16						
Chloride	860	4.00	mg/L	250	640	88.0	80-120			
Batch 6122204 - Filtration										
Blank (6122204-BLK1)				Prepared: 22-Dec-16 Analyzed: 30-Dec-16						
TDS	ND	5.00	mg/L							
LCS (6122204-BS1)				Prepared: 22-Dec-16 Analyzed: 30-Dec-16						
TDS	494	5.00	mg/L	527		93.7	80-120			
Duplicate (6122204-DUP1)		**Source: H602835-01**		Prepared: 22-Dec-16 Analyzed: 30-Dec-16						
TDS	36600	5.00	mg/L		38300			4.55	20	
Batch 6122702 - General Prep - Wet Chem										
Blank (6122702-BLK1)				Prepared: 27-Dec-16 Analyzed: 28-Dec-16						
Chloride	ND	4.00	mg/L							

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6122702 - General Prep - Wet Chem										
LCS (6122702-BS1)				Prepared: 27-Dec-16 Analyzed: 28-Dec-16						
Chloride	100	4.00	mg/L	100		100	80-120			
LCS Dup (6122702-BSD1)				Prepared: 27-Dec-16 Analyzed: 28-Dec-16						
Chloride	104	4.00	mg/L	100		104	80-120	3.92	20	
Duplicate (6122702-DUP1)		**Source: H602848-06**		Prepared: 27-Dec-16 Analyzed: 30-Dec-16						
Chloride	29000	4.00	mg/L		26300			9.64	20	
Matrix Spike (6122702-MS1)		**Source: H602848-06**		Prepared: 27-Dec-16 Analyzed: 30-Dec-16						
Chloride	53000	4.00	mg/L	25000	26300	107	80-120			
Batch 6122705 - General Prep - Wet Chem										
LCS (6122705-BS1)				Prepared & Analyzed: 27-Dec-16						
pH	7.10		pH Units	7.00		101	90-110			
Duplicate (6122705-DUP1)		**Source: H602834-01**		Prepared & Analyzed: 27-Dec-16						
pH	7.89	0.100	pH Units		7.84			0.636	20	
Batch 6122706 - General Prep - Wet Chem										
LCS (6122706-BS1)				Prepared & Analyzed: 27-Dec-16						
pH	7.16		pH Units	7.00		102	90-110			
Duplicate (6122706-DUP1)		**Source: H602848-09**		Prepared & Analyzed: 27-Dec-16						
pH	6.51	0.100	pH Units		6.57			0.917	20	

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6122707 - General Prep - Wet Chem										
LCS (6122707-BS1)				Prepared & Analyzed: 27-Dec-16						
Conductivity	471		uS/cm	500		94.2	80-120			
Duplicate (6122707-DUP1)		**Source: H602848-01**		Prepared & Analyzed: 27-Dec-16						
Conductivity	77200	1.00	uS/cm		78200			1.29	20	
Batch 6123003 - General Prep - Wet Chem										
Blank (6123003-BLK1)				Prepared & Analyzed: 30-Dec-16						
Sulfate	ND	10.0	mg/L							
LCS (6123003-BS1)				Prepared & Analyzed: 30-Dec-16						
Sulfate	21.5	10.0	mg/L	20.0		108	80-120			
LCS Dup (6123003-BSD1)				Prepared & Analyzed: 30-Dec-16						
Sulfate	22.6	10.0	mg/L	20.0		113	80-120	5.07	20	
Duplicate (6123003-DUP1)		**Source: H602847-01**		Prepared & Analyzed: 30-Dec-16						
Sulfate	996	10.0	mg/L		1050			5.26	20	
Matrix Spike (6123003-MS1)		**Source: H602847-01**		Prepared & Analyzed: 30-Dec-16						
Sulfate	1860	500	mg/L	1000	1050	80.6	70-130			

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Celey D. Keene, Lab Director/Quality Manager

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Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

Petroleum Hydrocarbons by GC FID - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6122108 - General Prep - Organics										
Blank (6122108-BLK1)				Prepared & Analyzed: 21-Dec-16						
GRO C6-C10	ND	1.00	mg/L							
DRO >C10-C28	ND	1.00	mg/L							
EXT DRO >C28-C35	ND	1.00	mg/L							
Surrogate: 1-Chlorooctane	*2.68*		mg/L	*5.00*		*53.7*	*34.8-131*			
Surrogate: 1-Chlorooctadecane	*5.22*		mg/L	*5.00*		*104*	*30.4-167*			
LCS (6122108-BS1)				Prepared & Analyzed: 21-Dec-16						
GRO C6-C10	49.8	1.00	mg/L	50.0		99.6	77.1-111			
DRO >C10-C28	53.9	1.00	mg/L	50.0		108	84.8-116			
EXT DRO >C28-C35	ND	1.00	mg/L	0.00			0-0			
Surrogate: 1-Chlorooctane	*4.63*		mg/L	*5.00*		*92.7*	*34.8-131*			
Surrogate: 1-Chlorooctadecane	*5.99*		mg/L	*5.00*		*120*	*30.4-167*			
LCS Dup (6122108-BSD1)				Prepared & Analyzed: 21-Dec-16						
GRO C6-C10	50.1	1.00	mg/L	50.0		100	77.1-111	0.541	8.98	
DRO >C10-C28	54.1	1.00	mg/L	50.0		108	84.8-116	0.383	9.66	
EXT DRO >C28-C35	ND	1.00	mg/L	0.00			0-0		20	
Surrogate: 1-Chlorooctane	*4.67*		mg/L	*5.00*		*93.4*	*34.8-131*			
Surrogate: 1-Chlorooctadecane	*5.98*		mg/L	*5.00*		*120*	*30.4-167*			

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

GEOLEX, INC. 500 MARQUETTE AVE. NW #1350 ALBUQUERQUE NM, 87102	Project: DCP ZIA AGI D #2 (FORMATION W Project Number: 16-012 Project Manager: ALBERTO GUTIERREZ Fax To:	Reported: 11-Jan-17 10:35

Total Recoverable Metals by ICP (E200.7) - Quality Control

Green Analytical Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B701021 - EPA 200.2 Total Rec.										
Blank (B701021-BLK1)				Prepared & Analyzed: 04-Jan-17						
Calcium	ND	0.050	mg/L							
Magnesium	ND	0.100	mg/L							
Potassium	ND	1.00	mg/L							
Sodium	ND	1.00	mg/L							
LCS (B701021-BS1)				Prepared & Analyzed: 04-Jan-17						
Sodium	6.31	1.00	mg/L	6.48		97.4	85-115			
Potassium	8.04	1.00	mg/L	8.00		100	85-115			
Magnesium	19.9	0.100	mg/L	20.0		99.3	85-115			
Calcium	4.04	0.050	mg/L	4.00		101	85-115			
LCS Dup (B701021-BSD1)				Prepared & Analyzed: 04-Jan-17						
Potassium	8.10	1.00	mg/L	8.00		101	85-115	0.792	20	
Magnesium	20.1	0.100	mg/L	20.0		100	85-115	1.16	20	
Sodium	6.36	1.00	mg/L	6.48		98.1	85-115	0.753	20	
Calcium	4.11	0.050	mg/L	4.00		103	85-115	1.74	20	

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Notes and Definitions

M5	Sample was chosen for matrix spike. Spike recovery did not meet laboratory acceptance criteria, possible matrix interference in sample.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Geolex, Inc.
Project Manager:	Alberto A Gutierrez
Address:	500 Marquette Ave. NW #1350
City:	Albuquerque **State:** NM **Zip:** 87102
Phone #:	(505) 842-8000 **Fax #:** aag@geolex.com
Project #:	16-012 **Project Owner:** Geolex
Project Name:	DCP Zia AGI D #2 (formation water)
Project Location:	Sec 19(L) T19S R32E Lea Co., NM
Sampler Name:	Dale Littlejohn

BILL TO

P.O. #:	
Company:	Geolex, Inc.
Attn:	Liz Hill
Address:	500 Marquette 1350
City:	Albuquerque
State:	NM **Zip:** 87102
Phone #:	(505) 842-8000
Fax #:	liz@geolex.com

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	Cations / Anions	TDS	PH	Conductivity	TPH 8015 (GRO, DRO Ext)
H602848																			
1	No. 1 402 bbls	G	4	✓						✓	✓		12/21/16	825	✓	✓	✓	✓	✓
2	No. 2 415 bbls	G	4	✓						✓	✓			845	✓	✓	✓	✓	✓
3	No. 3 435 bbls	G	4	✓						✓	✓			902	✓	✓	✓	✓	✓
4	No. 4 445 bbls	G	4	✓						✓	✓			935	✓	✓	✓	✓	✓
5	No. 5 455 bbls	G	4	✓						✓	✓			950	✓	✓	✓	✓	✓
6	No. 6 470 bbls	G	4	✓						✓	✓			1010	✓	✓	✓	✓	✓
7	No. 7 480 bbls	G	4	✓						✓	✓			1025	✓	✓	✓	✓	✓
8	No. 8 490 bbls	G	4	✓						✓	✓			1044	✓	✓	✓	✓	✓
9	No. 9 500 bbls	G	4	✓						✓	✓			1100	✓	✓	✓	✓	✓
10	No. 10 515 bbls	G	4	✓						✓	✓			1111	✓	✓	✓	✓	✓

Relinquished By:	Dale T. Littlejohn	**Date:**	12/21/16
		Time:	1323
Relinquished By:		**Date:**	
		Time:	
Received By:	Jodi Henson		
Received By:			

Delivered By: (Circle One) Sampler - UPS - Bus - Other: 5.8°C

Sample Condition Cool ☑ Yes ☐ No Intact ☑ Yes ☐ No

CHECKED BY: (Initials)

Phone Result:	☐ Yes	☐ No	**Add'l Phone #:**
Fax Result:	☐ Yes	☐ No	**Add'l Fax #:**

REMARKS: RUSH TPH only

#75

† Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326

SCHLUMBERGER FMI PRESENTATION AND ANALYSIS

Formation Micro Imager (FMI)

Processing and Interpretation Overview

DCP Midstream LP

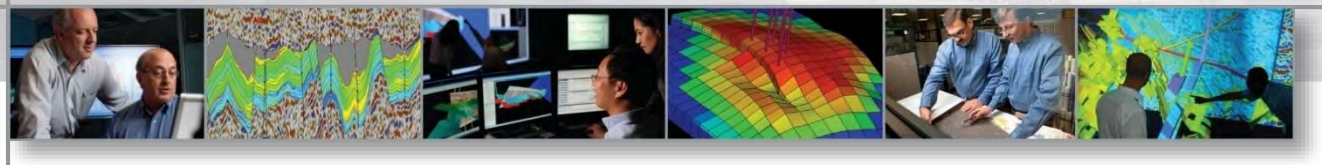
Field: AGI Devonian Exploration

Well: Zia AGI D2

FMI-HD Interval: 12675-13625 ft & 13700 -14768 ft MD

Olfa Zened

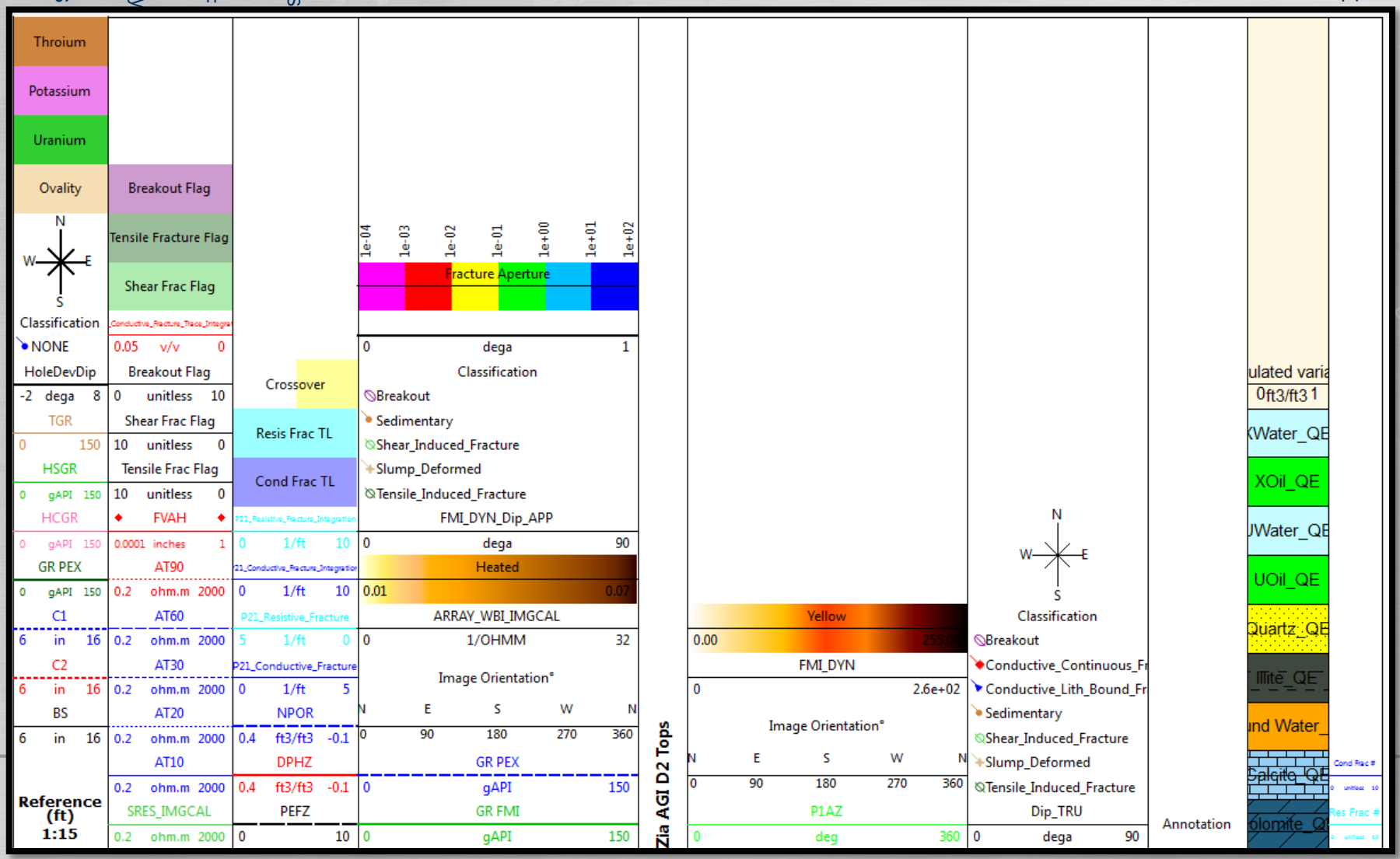
February 14th, 2017



Agenda

- FMI Images and Results
  - Presentation Layout / Legend – Basic Deliverables
  - Image Interpretation
    - Structural Analysis
    - Fractures Characterization
- Q&A – Feedback & Open Discussion

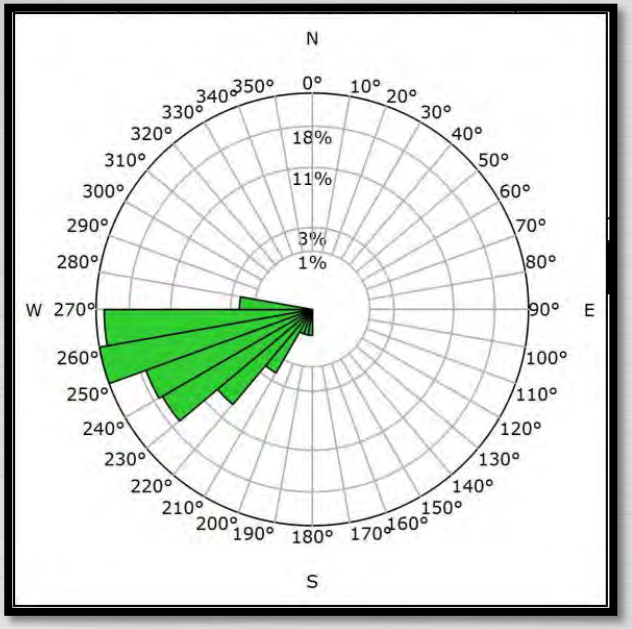
FMI Interpretation Log Legend (Scale 1:15)

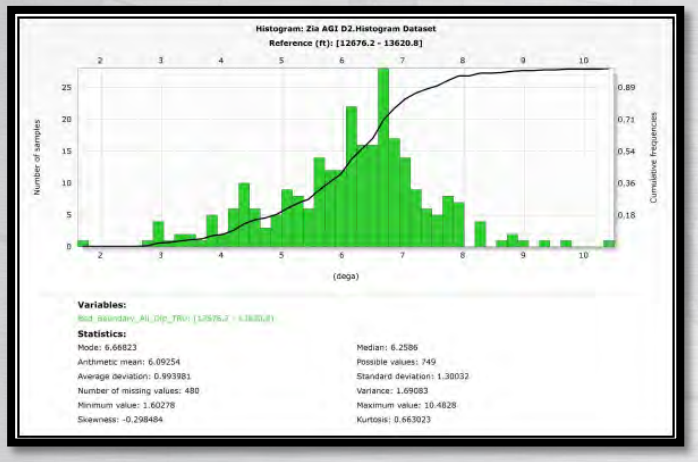


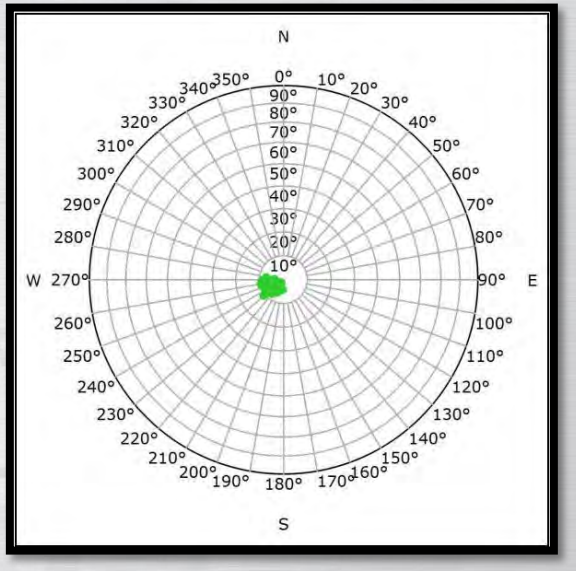
Structural Analysis

8.25 in

- Structural analysis typically based on shale intervals. The analyzed interval is characterized by shaly sand and silts deposit. Structural analysis performed keeping in considerations bed boundaries.
- Overall, average structure seems to be represented by a monocline gently dipping to the West and WSW.
- Average dip magnitude is 6 deg as shown in the histogram plot of bed boundaries.







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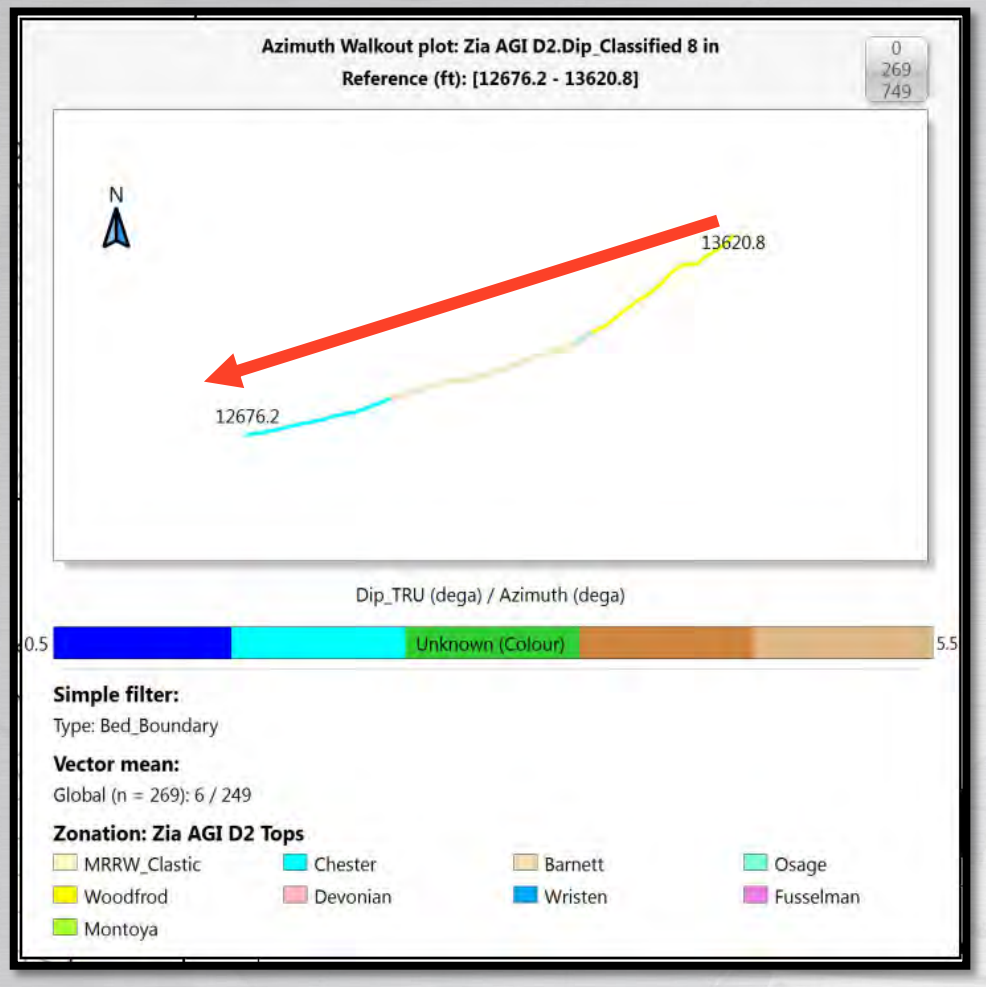
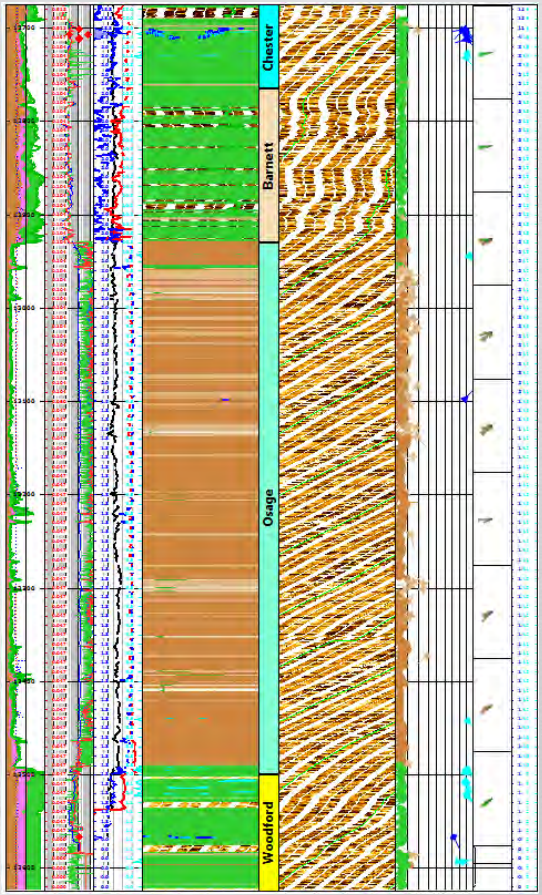
Structural Analysis - Vector Plot

8.25 in

This figure represents the Dip Vector Plot of the manually picked Bed boundary dips showing change in Azimuth versus Depth from bottom to top of the logged interval. The overall dip magnitude is about 6 degrees with a predominant azimuth orientation towards the West and West-South-West.





Representation of bed boundaries dip trend by depth and by formation (color coded).

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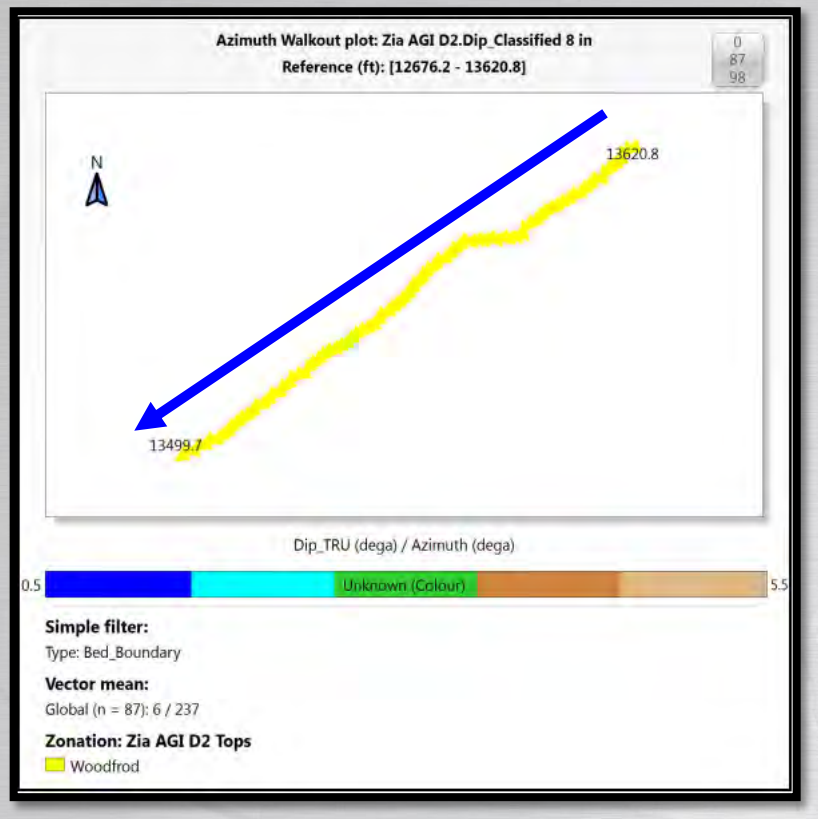
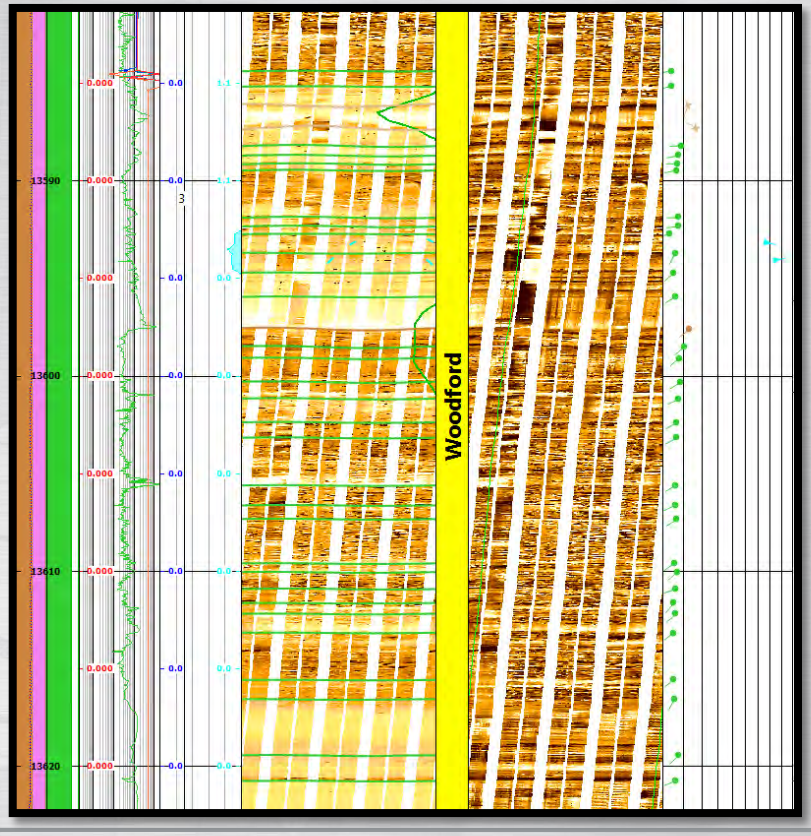
Structural Analysis - Vector Plot

This figure represents the Dip Vector Plot of the manually picked Bed boundary dips showing change in Azimuth versus Depth from bottom to top of the logged interval. The overall dip magnitude is about 6.3 degrees with a predominant azimuth orientation towards South-West.





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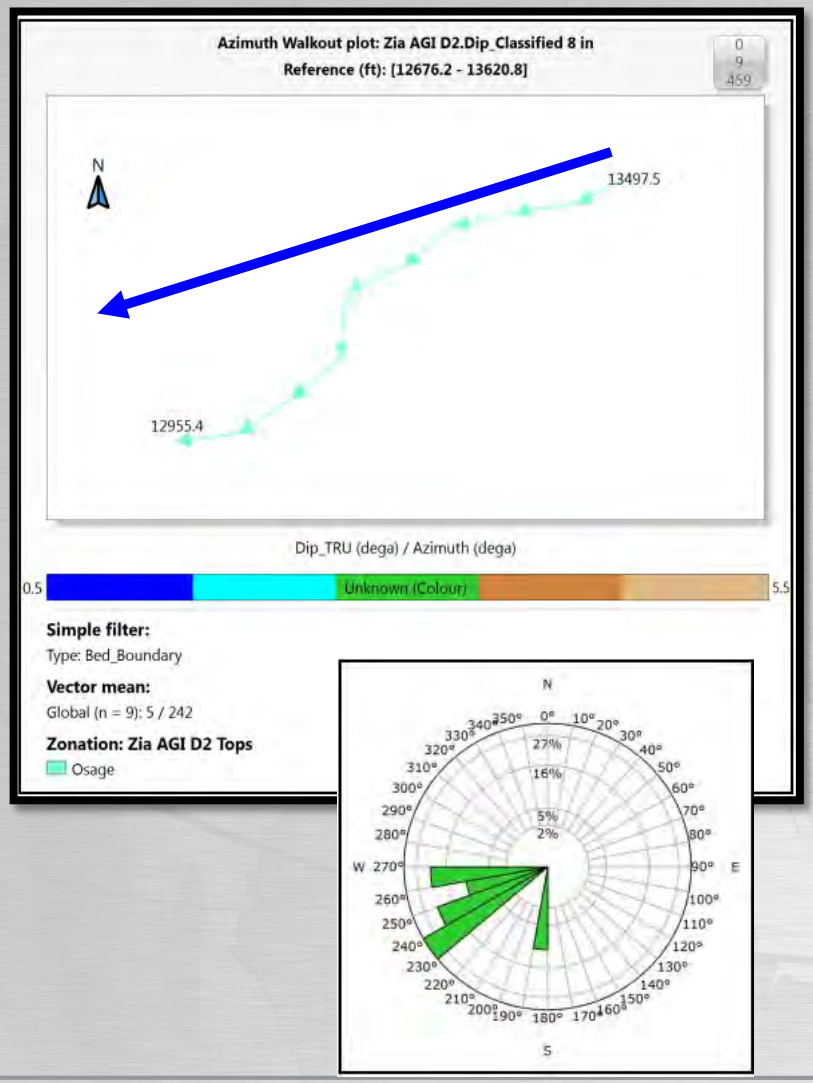
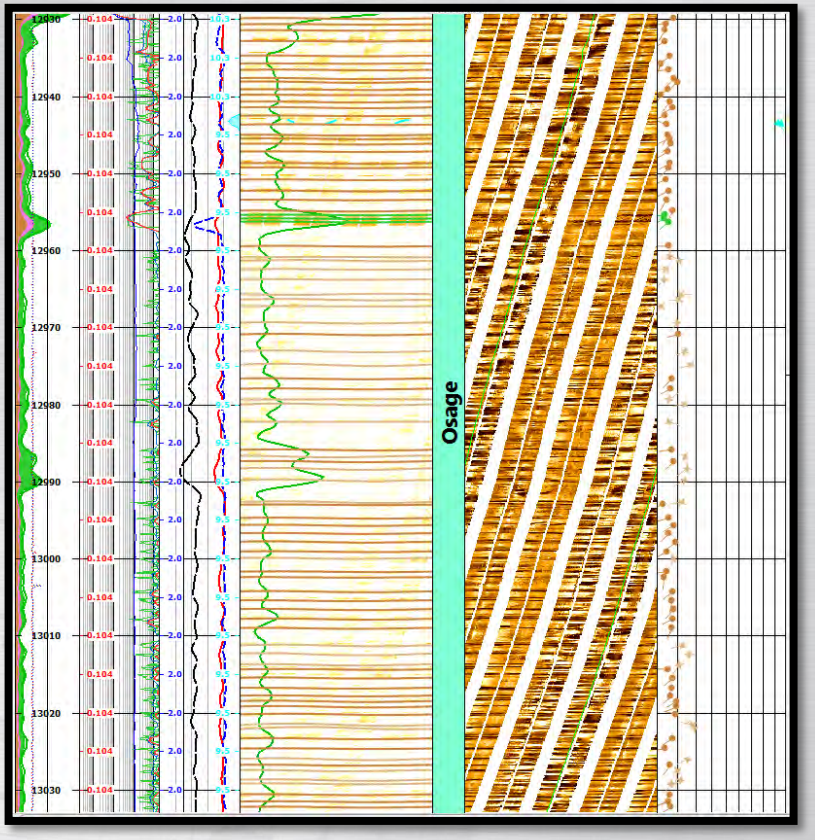
Structural Analysis - Vector Plot

This figure represents the Dip Vector Plot of the manually picked Bed boundary dips showing change in Azimuth versus Depth from bottom to top of the logged interval. The overall dip magnitude is about 6.3 degrees with a predominant azimuth orientation towards South-West.





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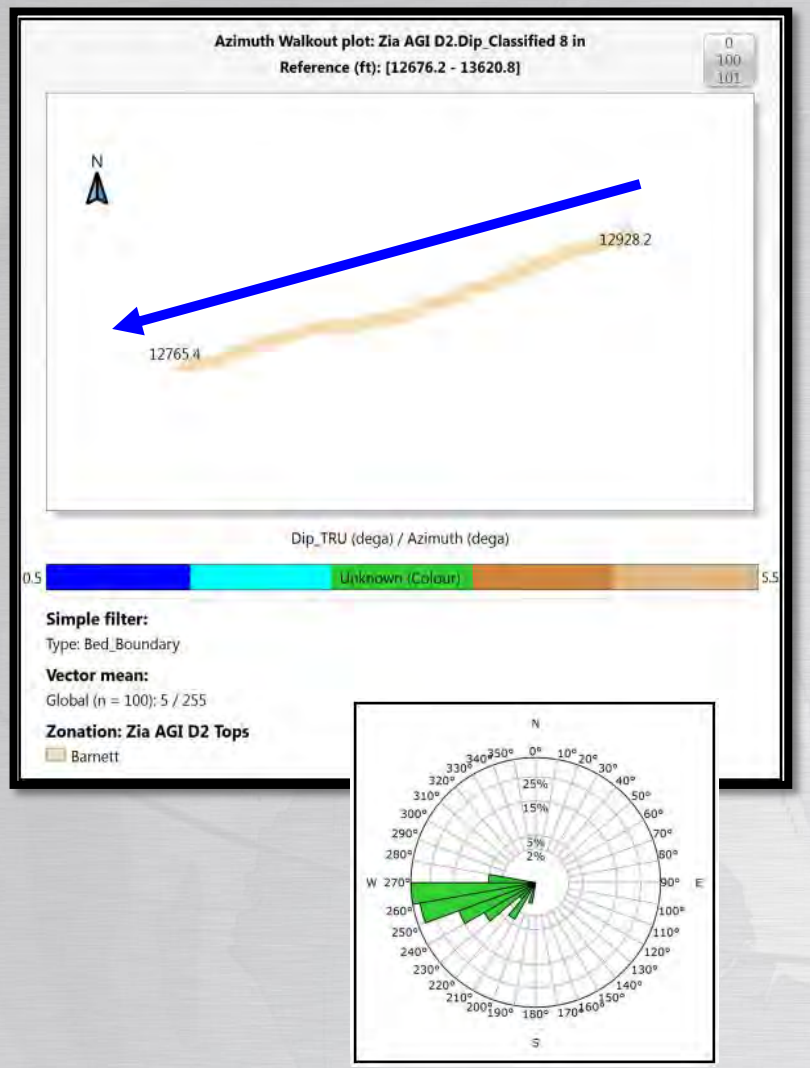
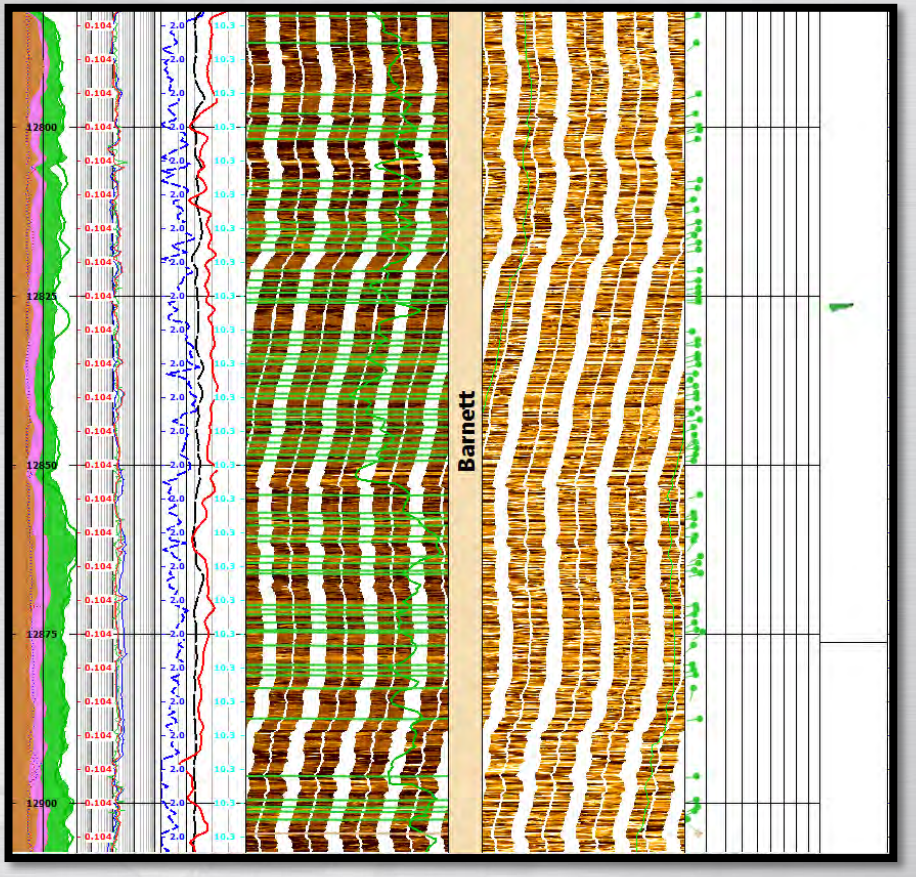
Structural Analysis - Vector Plot

This figure represents the Dip Vector Plot of the manually picked Bed boundary dips showing change in Azimuth versus Depth from bottom to top of the logged interval. The overall dip magnitude is about 5.6 degrees with a predominant azimuth orientation towards WSW.





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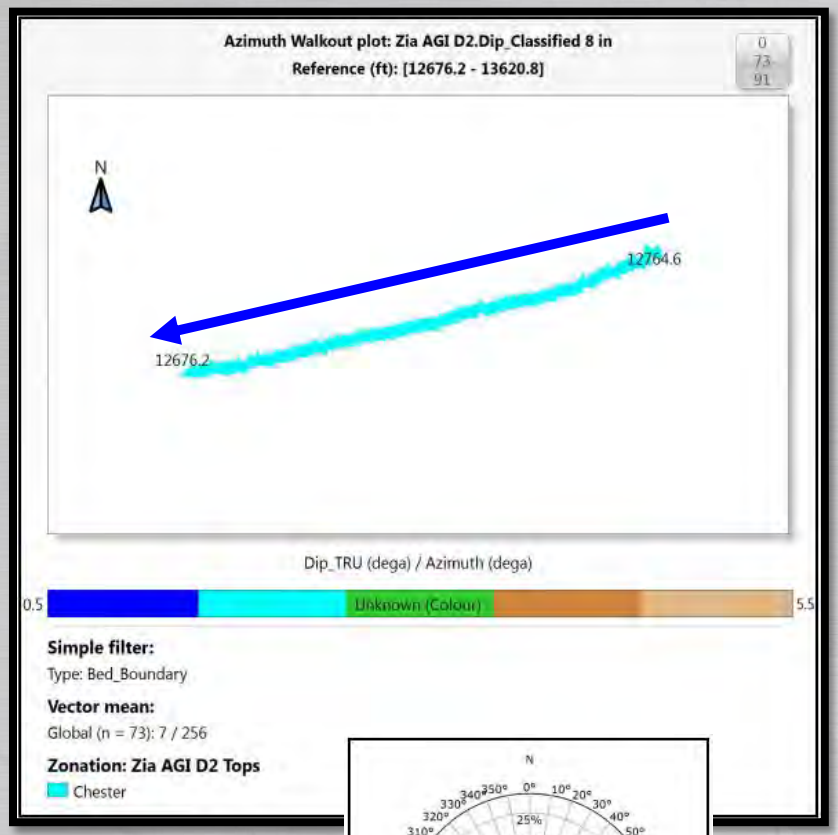
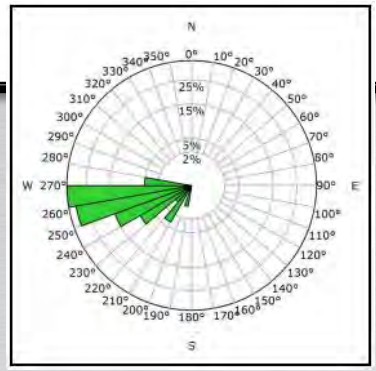
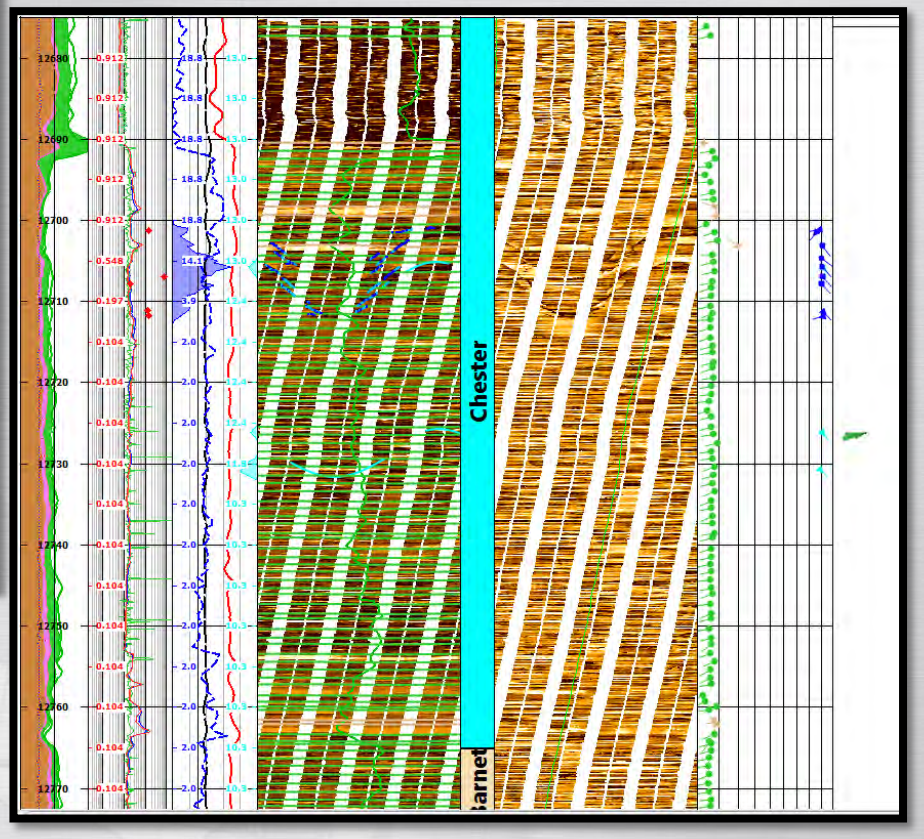
Structural Analysis - Vector Plot

This figure represents the Dip Vector Plot of the manually picked Bed boundary dips showing change in Azimuth versus Depth from bottom to top of the logged interval. The overall dip magnitude is about 6.7 degrees with a predominant azimuth orientation towards WSW.

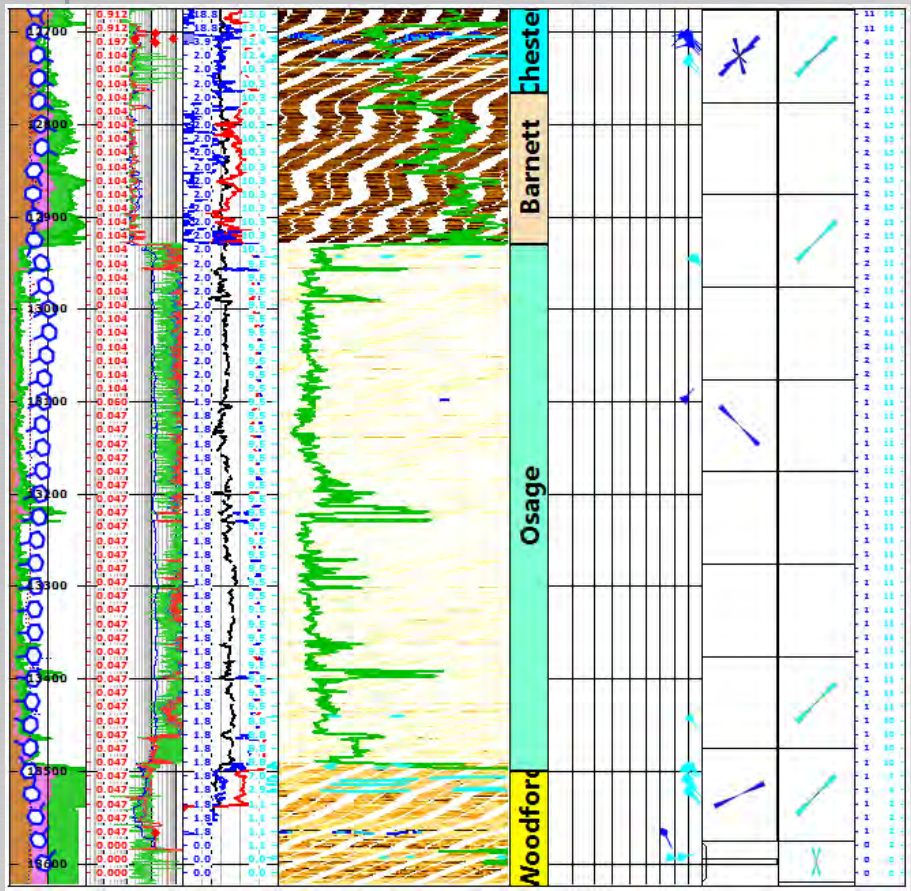




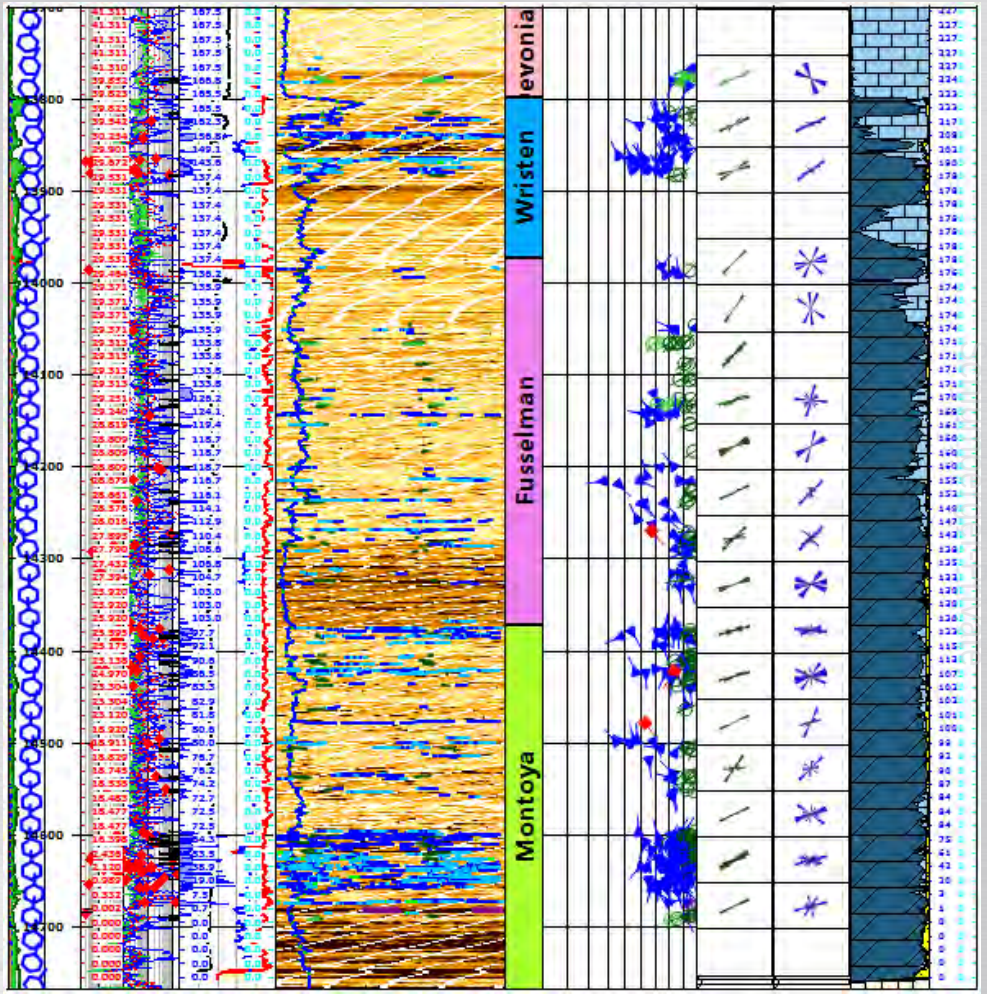


Fractures !

8.25 in



6 in



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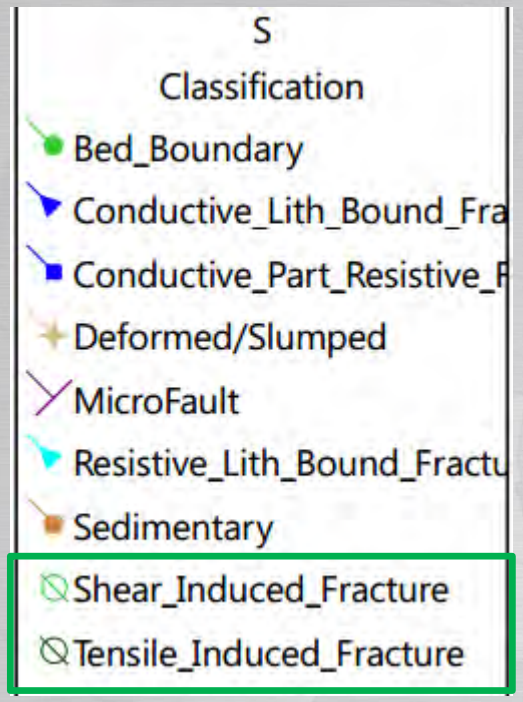
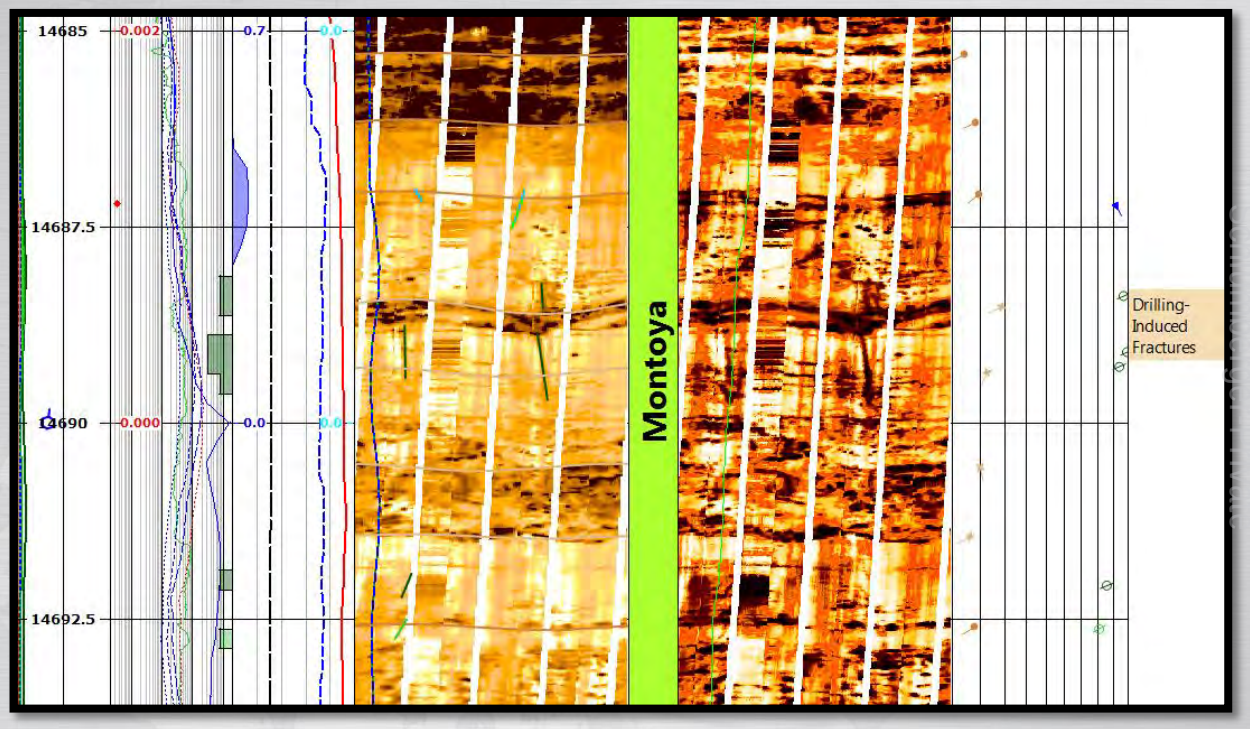
Features Classification & Fractures Analysis





Most of the drilling Induced Fractures are within the Devonian, Fusselman, Montoya and Wristen

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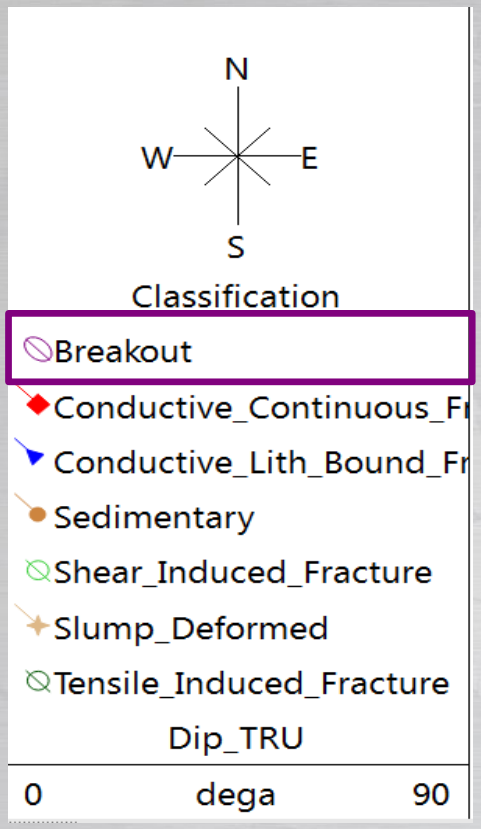
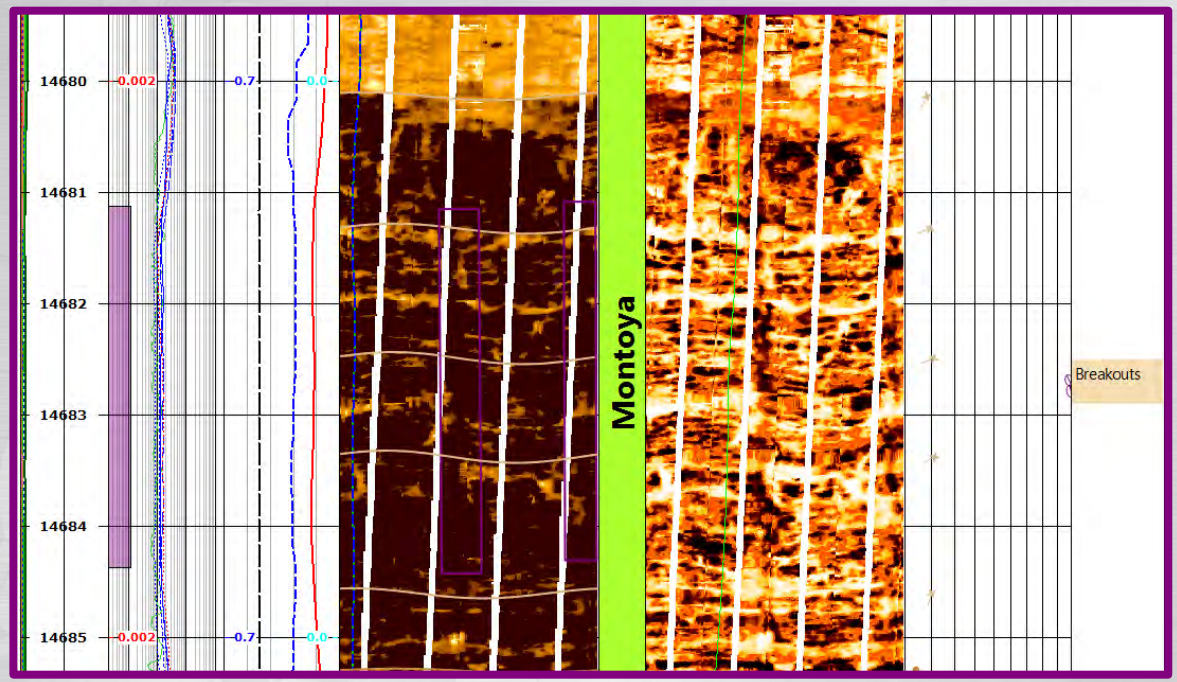
Features Classification & Fractures Analysis





Most of the drilling Induced Fractures are within the Devonian, Fusselman, Montoya and Wristen

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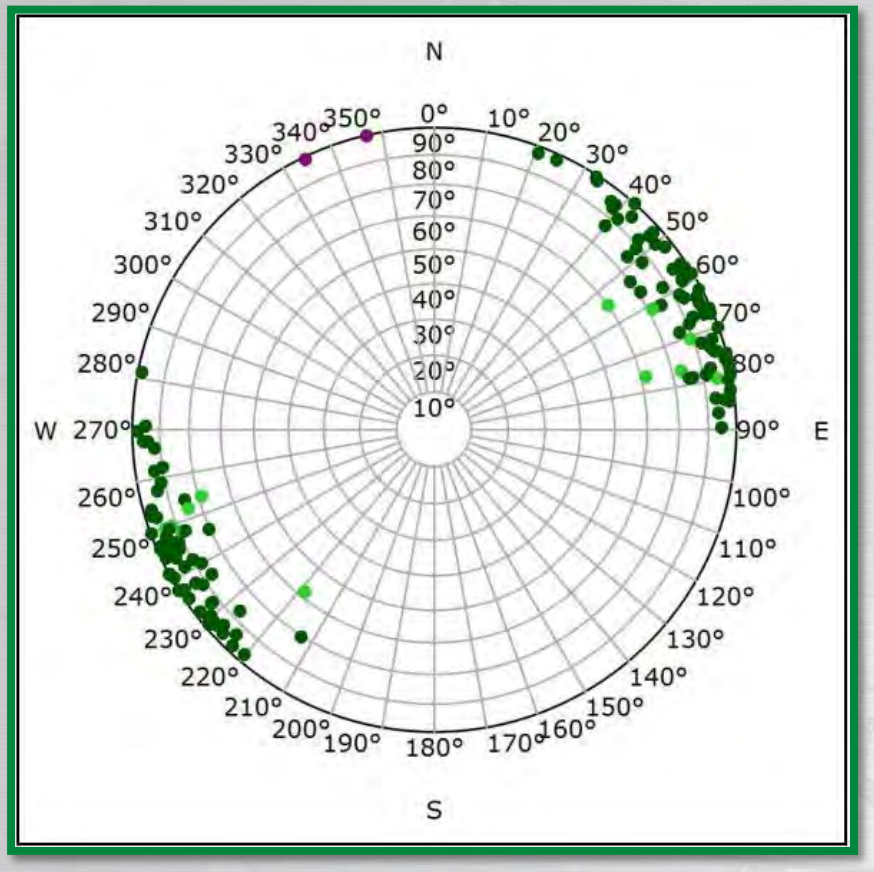
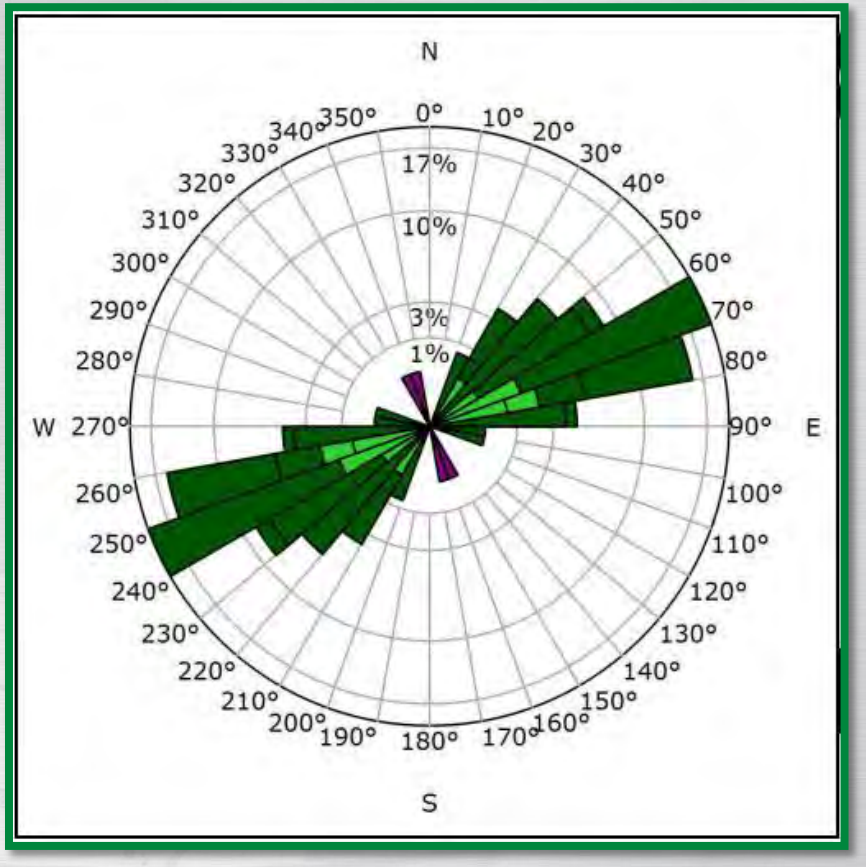
Stress Orientation

6 in

Predominant Stress orientation N65E-S65W





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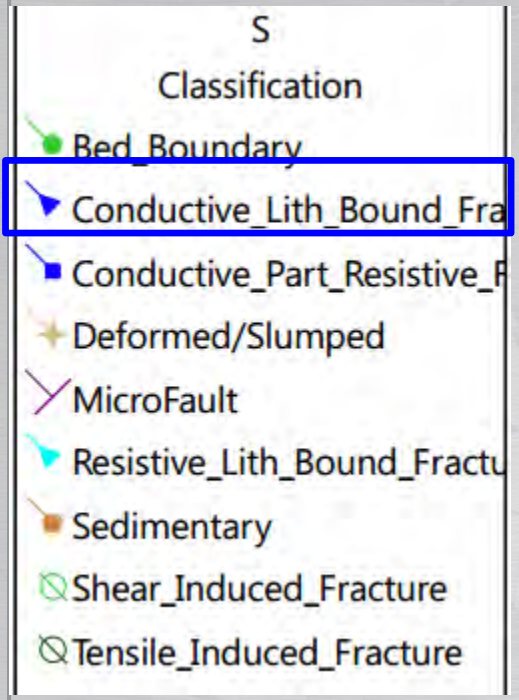
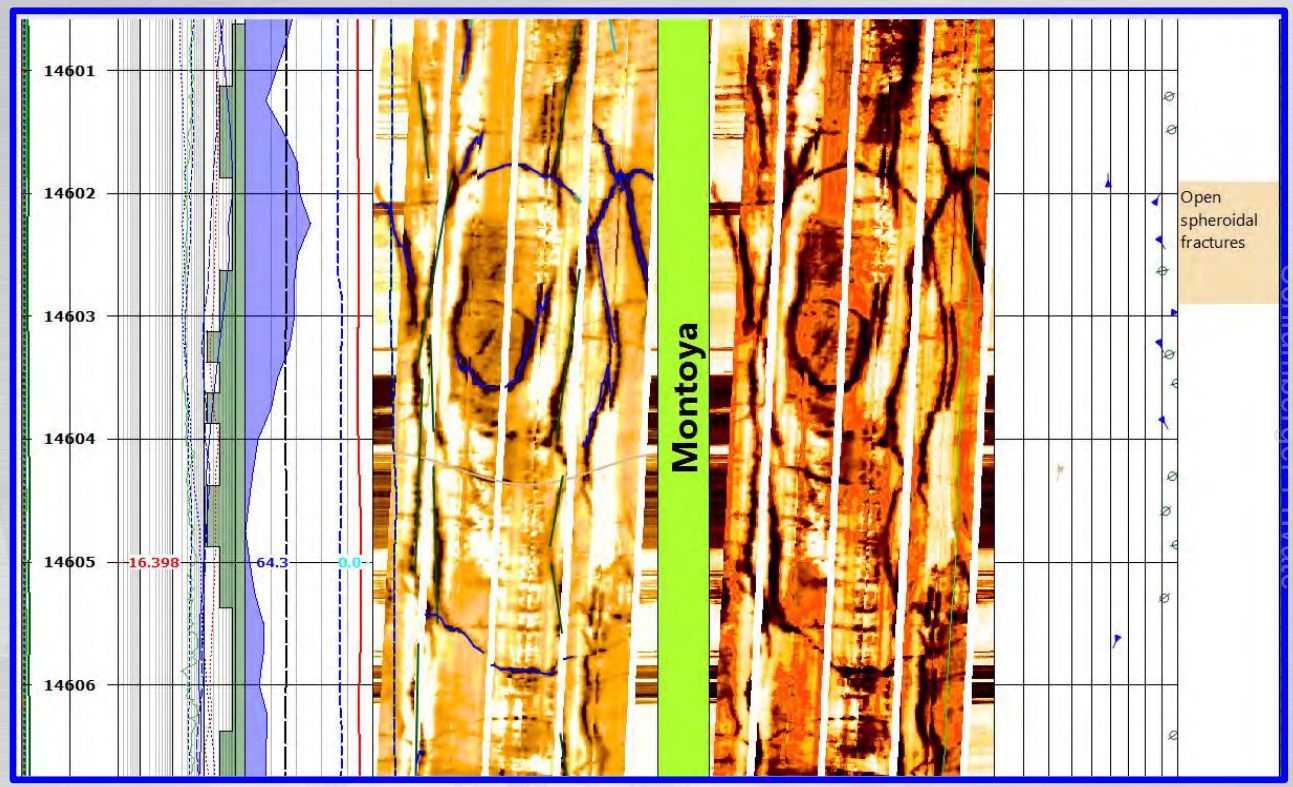
Features Classification & Fractures Analysis





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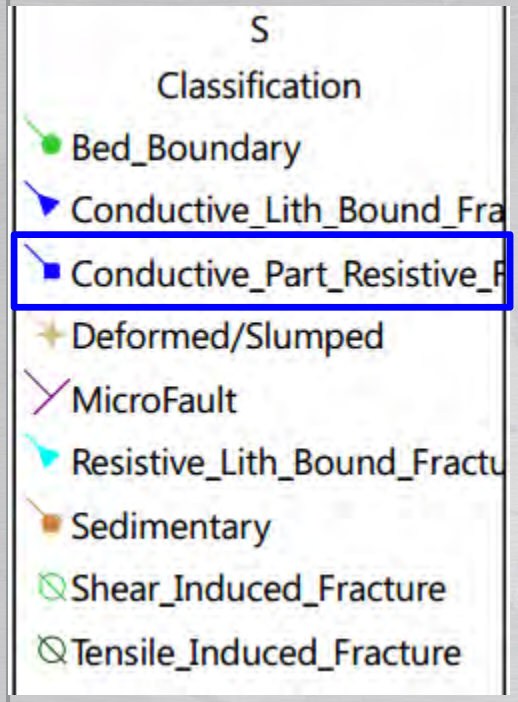
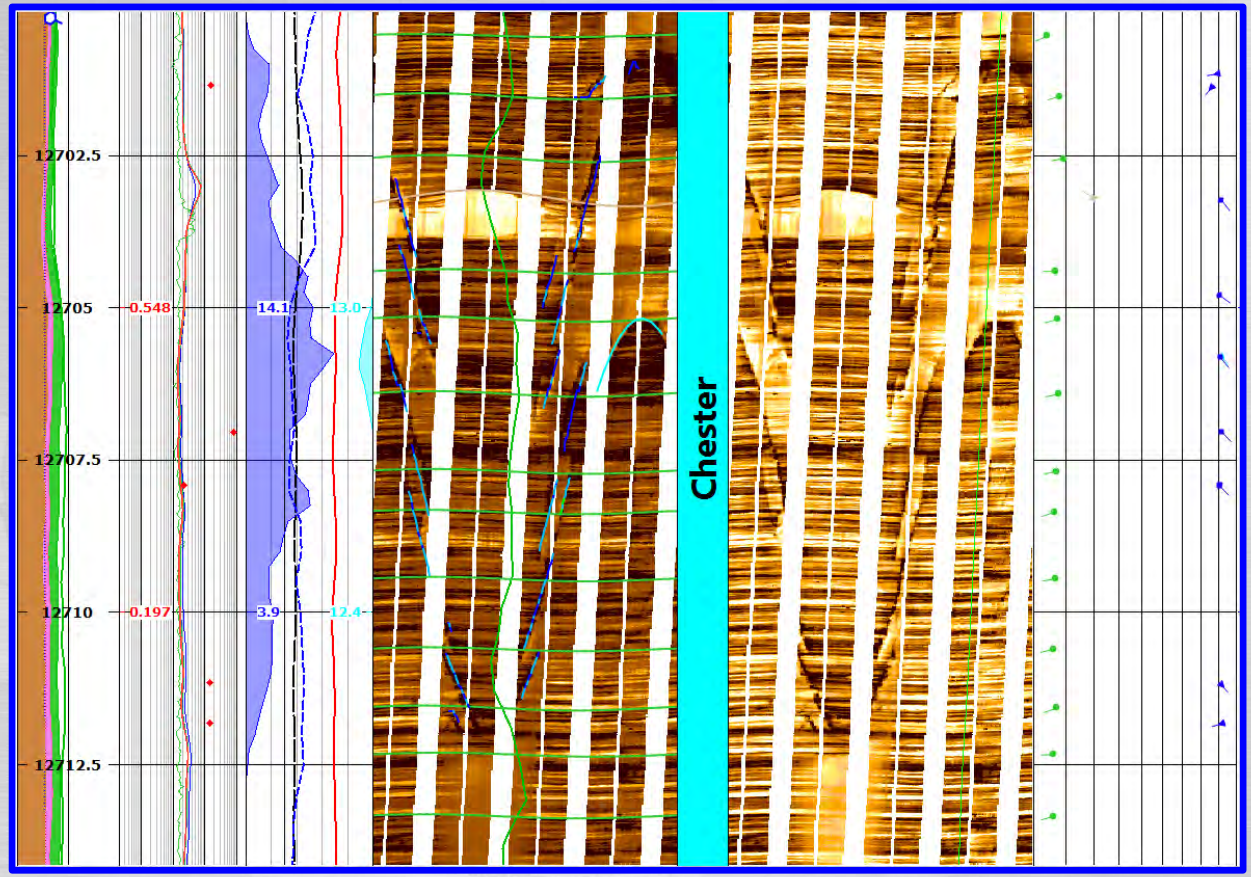
Features Classification & Fractures Analysis





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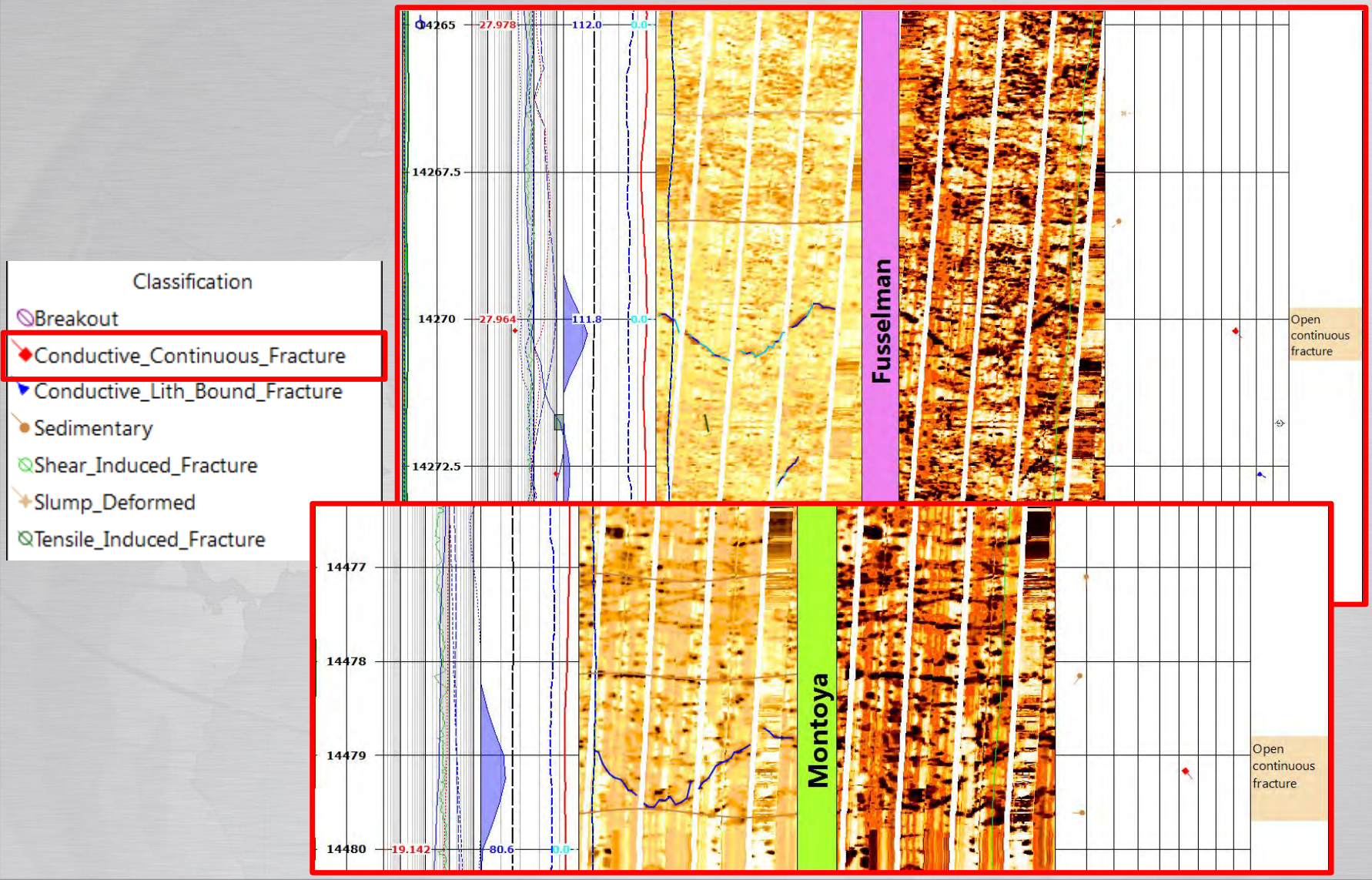
Features Classification & Fractures Analysis



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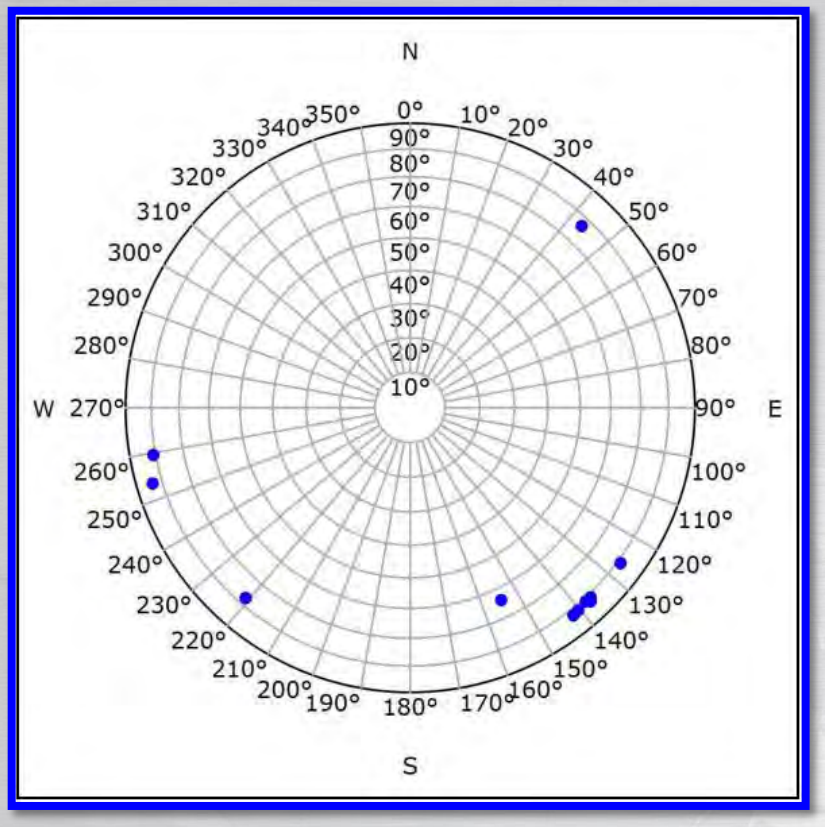
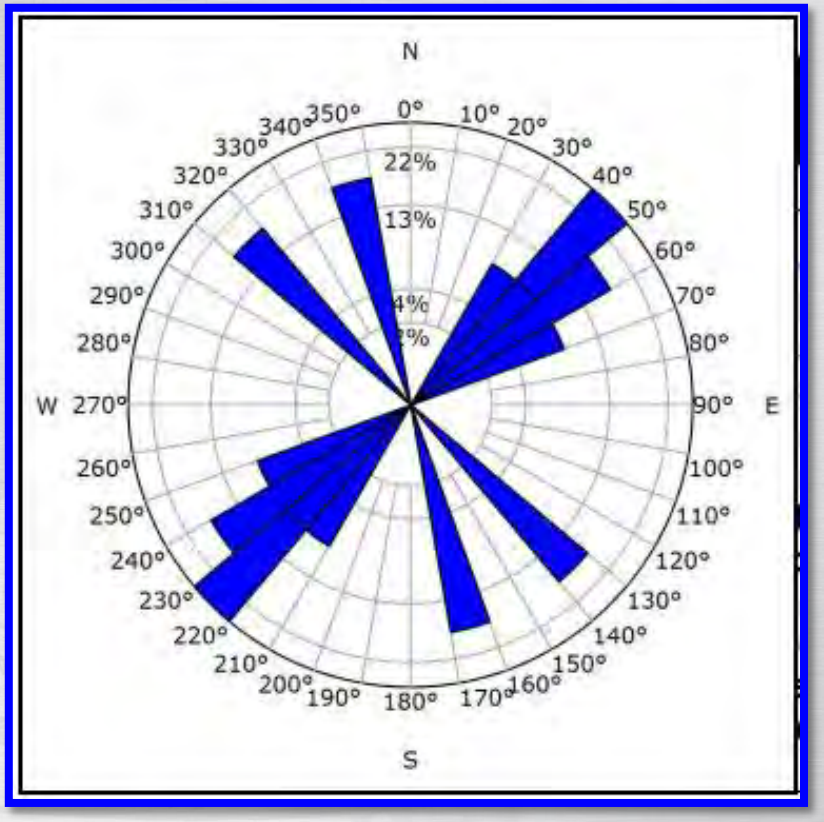
Natural Conductive Fractures Orientation

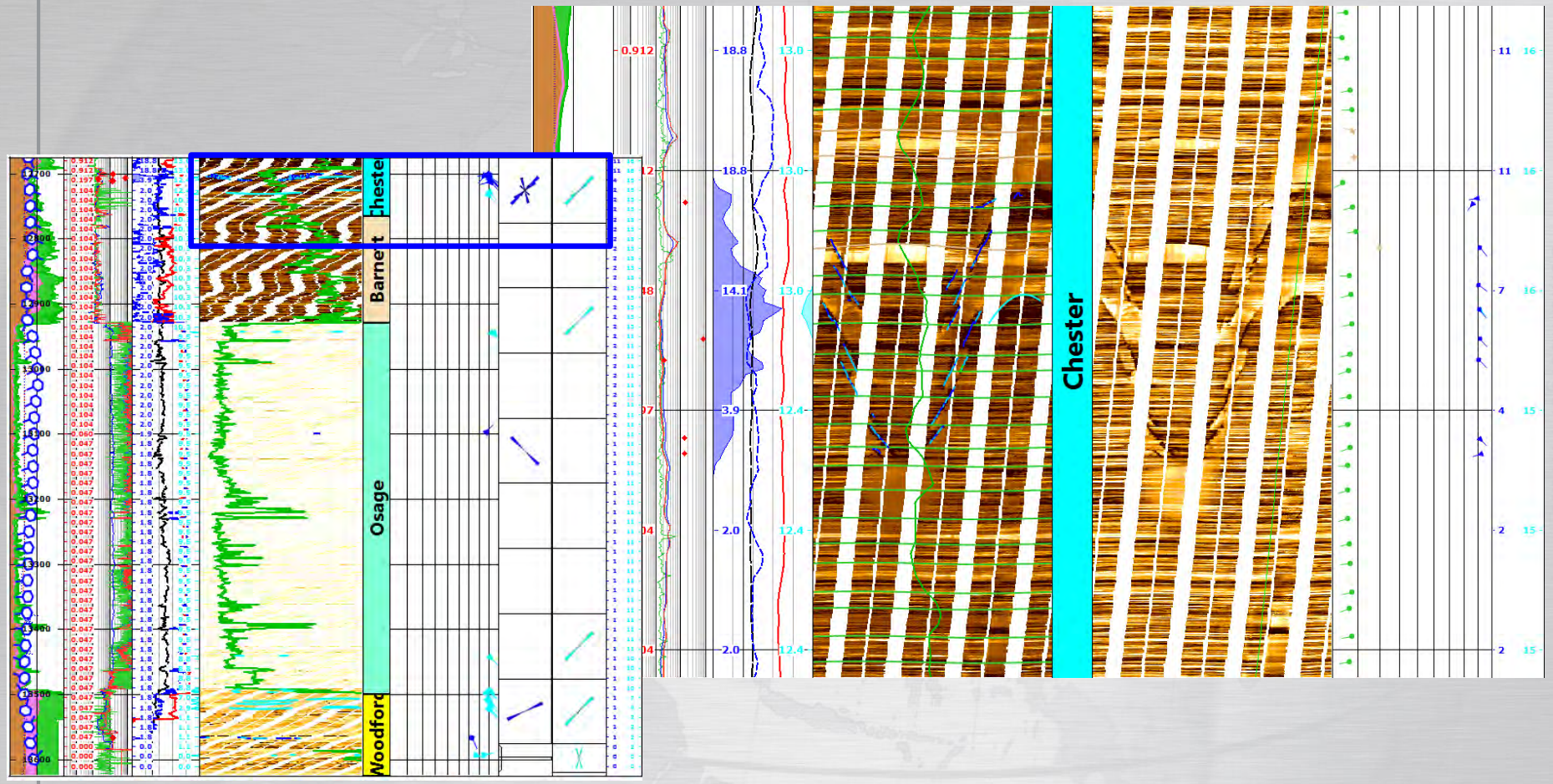
Predominant strike orientation: NE-SE
5 Open Litho-bound fractures
6 Partially-open fractures





All Interval

Fractures in Chester



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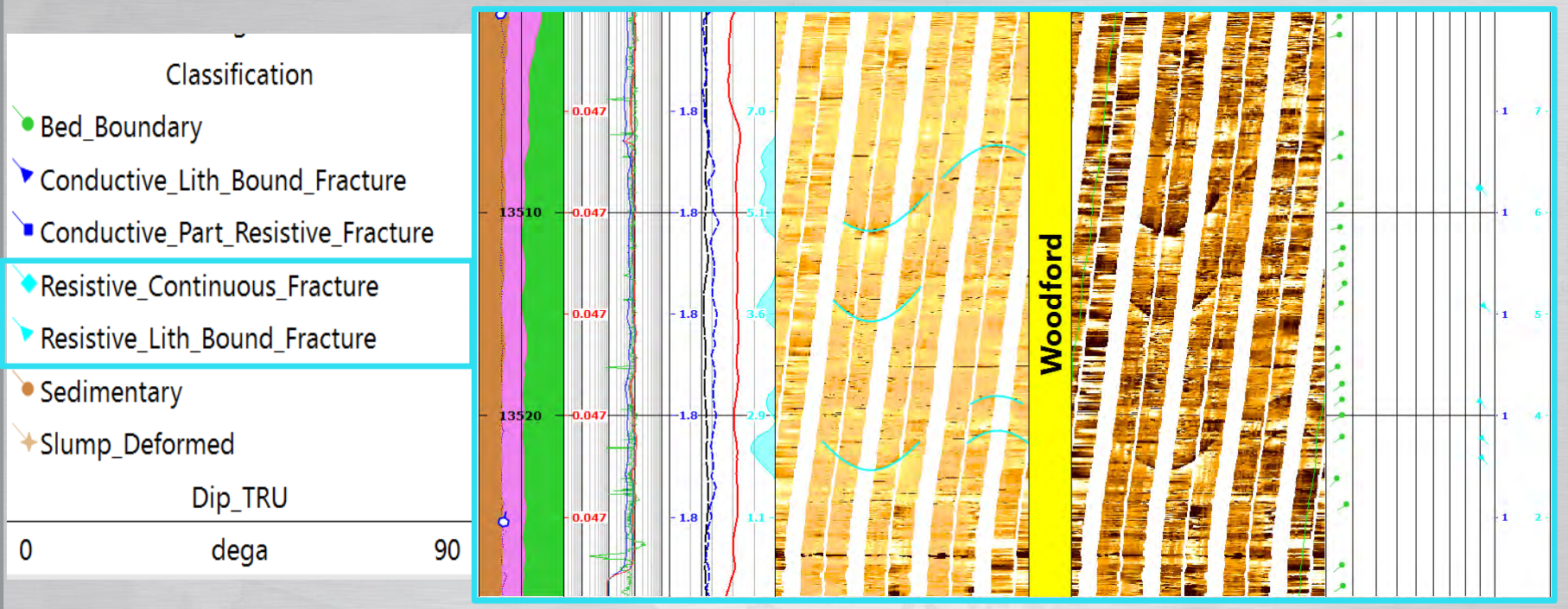
Features Classification & Fractures Analysis



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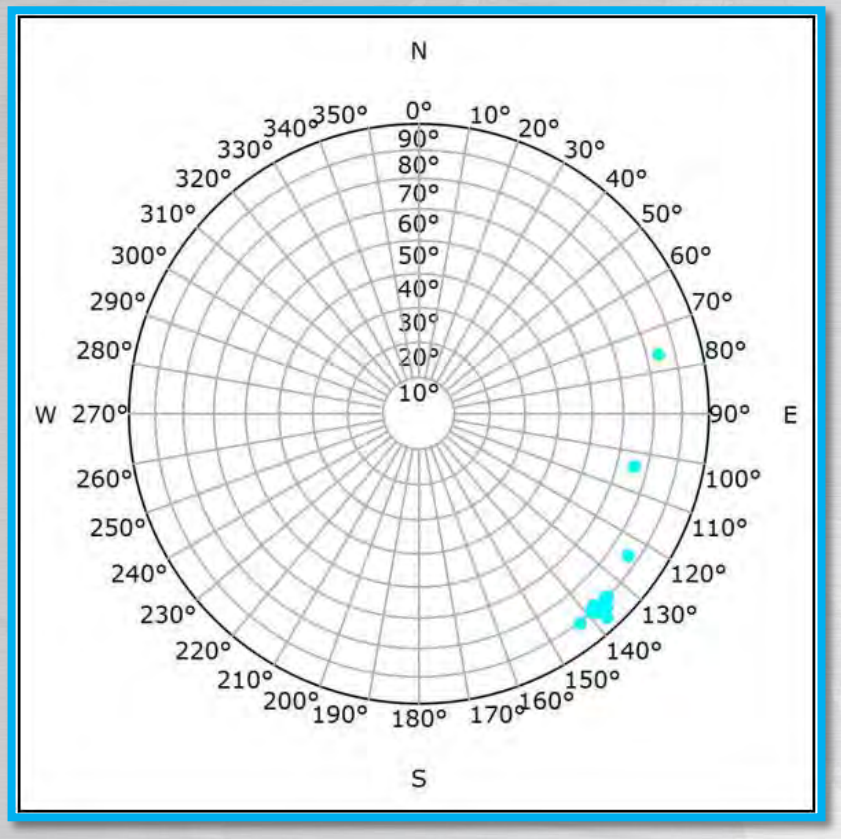
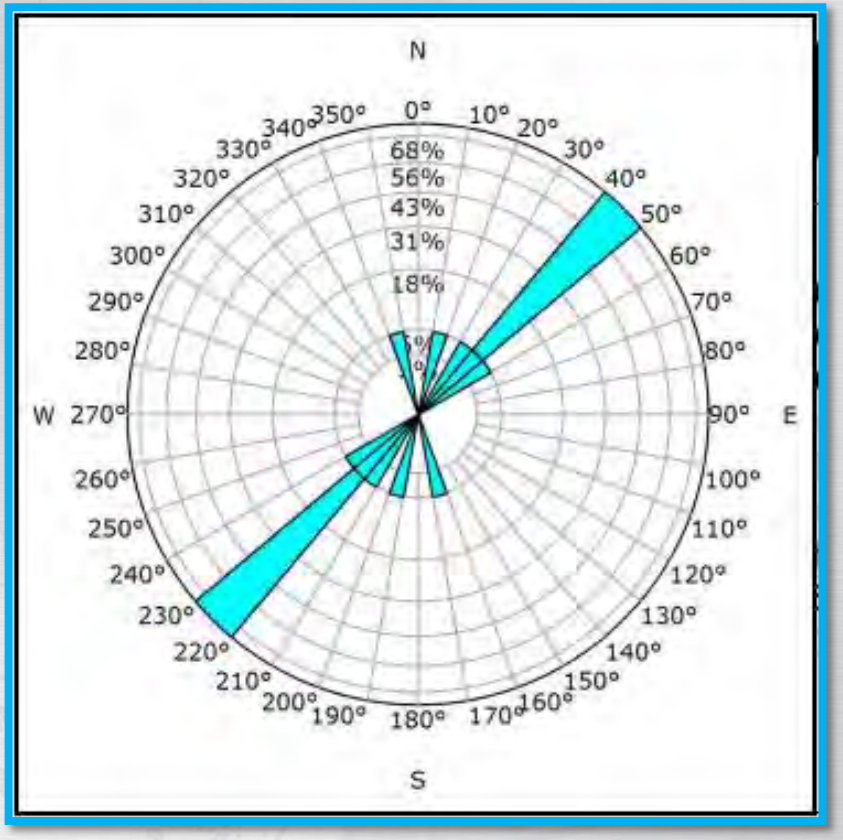
Natural Resistive Fractures Orientation

16 healed fractures and 3 Healed continuous fractures with a predominant strike orientation: **NE-SW**





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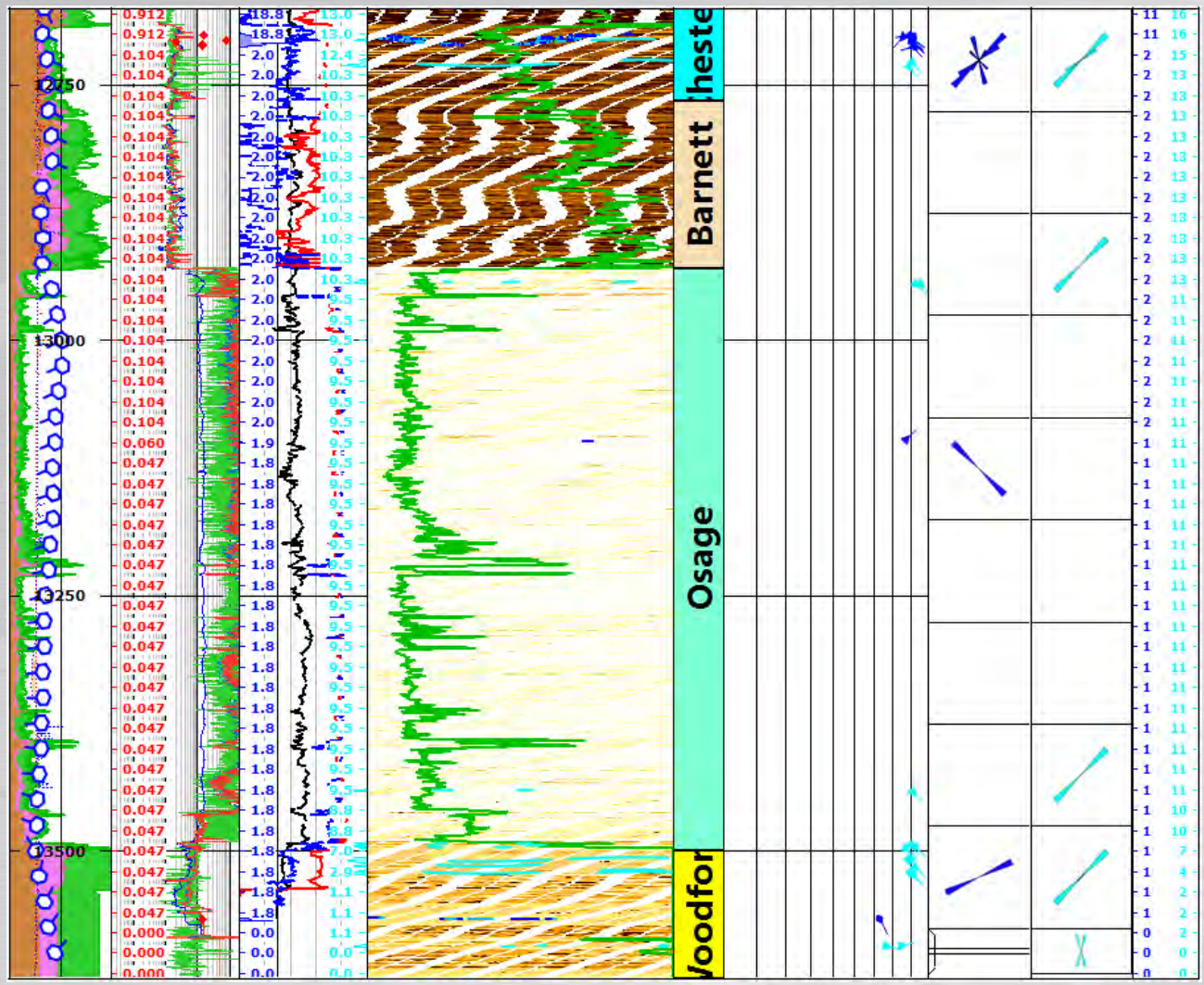
Resistive Fractures

8.25 in



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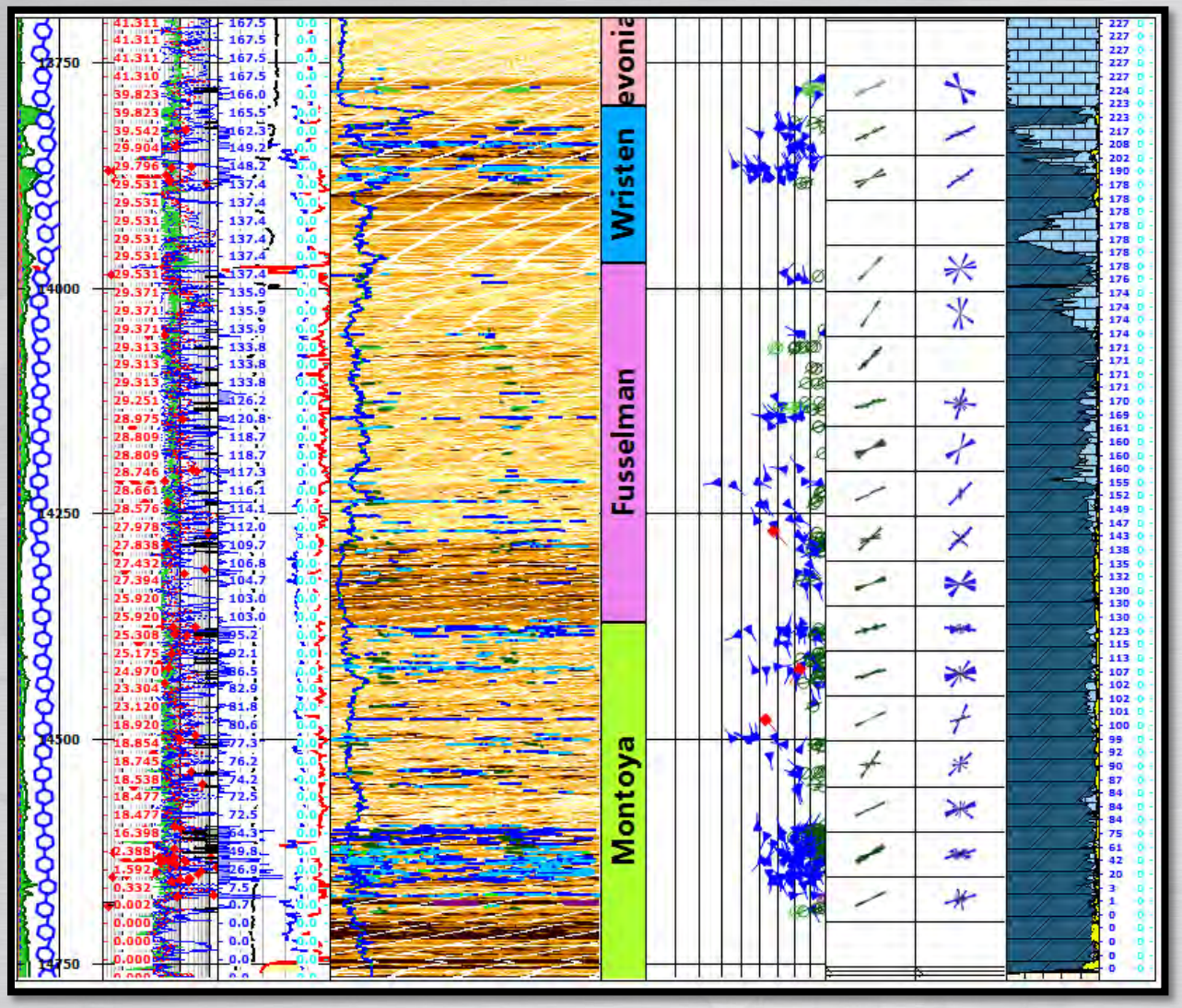
Fractures Distribution Overview – Techlog



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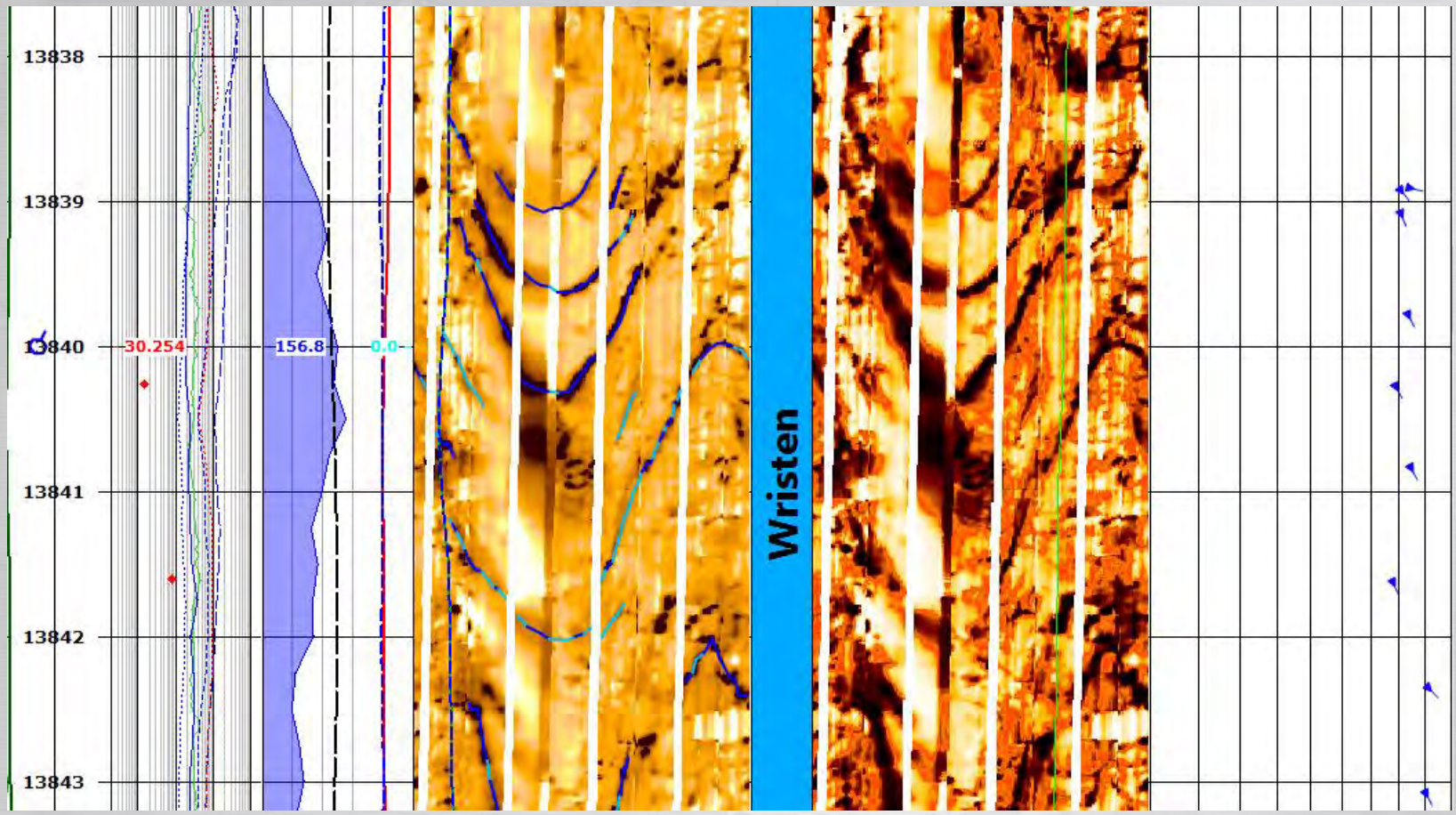
Matrix porosity and and vuggy porosity enhanced by fractures



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Summary

- GPIT Inclinometry is within tolerance.
- FMI image quality is overall good in the 8.25 in borehole but affected with pulls in the 6 in section.
- Bedding dip (structural and sedimentary) orientation consistent in overall and dipping toward the West and WSW.
- Open litho-bound and drilling induced fractures are the predominant features observed.
- Drilling Induced Fractures indicate a maximum horizontal stress of N65E-S65W.

THERMAL MODELING DURING SRT AND PRESSURE TRANSIENT ANALYSIS

SUMMARY OF INITIAL RESERVOIR TESTING AND MODELING USING DISTRIBUTED TEMPERATURE SENSOR (DTS) AND PRESSURE TRANSIENT ANALYSIS (PTA)

Geolex Inc. (Geolex) and Schlumberger have analyzed available data to determine the injectivity of the Montoya, Fusselman, Wristen, and Devonian (i.e. injection reservoir) at the recently-completed Zia AGI D #2. The open-hole injection zone covers a vertical depth of approximately 1,128 feet (from 14,750 feet to 13,622 feet) and is composed of carbonates with secondary porosity features including vugs, karst, and structural features including fractures and faults. One fault was observed in the area, which only penetrates the injection zone terminating in the base of the Woodford shale caprock. This fault is to the east of the well and runs NE-SW deep beneath the Zia plant.

After reviewing the PTA and DTS data prior to initiating TAG injection it was confirmed this zone will accept TAG at the maximum allowable daily rate of 15 MMSCF for at least 30 years, if not significantly more, within the designated MAOP of 5,023 psig and below the maximum AGI system operating pressure of 2,600 psig. This reservoir testing was accomplished using a PTA derived from a pressure gauge set at 13,526 feet and a DTS that covered the entire length of the injection zone. These provide a baseline for reservoir pressures and evidence for permeable zones within the injection reservoir that will accept TAG. Furthermore, the step rate test (SRT) reached a maximum rate of 7 barrels per minute (bpm) with maximum surface and formation pressures of 1,613 psi and 7,165 psi, respectively, without fracturing the formation. The bottom hole TAG injection pressures have remained below 4,220 psi after eight days of injection beginning on February 2, 2017, indicating an open and unrestricted reservoir which takes flow into open fractures, vugs and karst features with rapid bleed-off into a porous matrix.

Schlumberger has provided the attached detailed report on the analysis of the reservoirs pressure and thermal properties during and after the SRT (see attached Schlumberger report). Geolex and Schlumberger agree on an interpretation of a triple porosity reservoir system based on the pressure fall-off data and FMI log interpretation. A graph of this ternary system is shown on the pressure vs. time graph on Figure 1. The green line on Figure 1 shows the pressure curve of a single system. The red line shows a derivative of the actual pressure curve. The red line was compared to a triple porosity system model and matches it closely. A detailed explanation of this reservoir behavior is presented on page 24 of the Schlumberger report.

The first system (takes initial injection) is comprised of the secondary porosity of the carbonate units, vug and karst deposits, and fractures that accept the fluid linearly and radially from the wellbore. The second system is the connectivity of the vugs and karst deposits that are further connected to fractures that extend vertically and horizontally beyond the well bore, but do not intersect the wellbore. The third system is the eastern fault zone that also appears to partially behave as a conduit for fluids to invade additional area of the reservoir. A simplified step-by-step approach to the triple porosity system with respect to injected fluid is explained:

1. Secondary porosity units and fractures within the wellbore are filled with fluid followed by,
2. Fractures and secondary porosity units connecting away from the wellbore being filled with fluid followed by,
3. Fractures and secondary porosity units that connect to, and are a part of, the eastern fault zone being filled with fluids which are redistributed and bled off into the high porosity matrix.

The DTS warm-back analysis showed the Wristen, Montoya and Fusselman Formations are the primary accepters of fluid. During the SRT, at 2 bpm injection 75% of the flow was going into the Wristen with

20% going into Fusselman and 5% to the Montoya. At 7 bpm injection 81% of the flow was going into the Wristen with 18% going into the Montoya and 1% going into the Fusselman. The increased injection rate may be opening fractures within the Montoya facilitating the increased flow. The primary injection interval is within the Wristen, where a high permeability zone (13,840 feet to 13,856 feet) is indicated by conductive fractures on the FMI log.

This baseline reservoir analysis clearly demonstrates that the Zia AGI D #2 will readily accept TAG at anticipated maximum rates (15MMSCFD) for 30 years within the permit restrictions on MAOP and operational restrictions on compression. Further reservoir analyses should be conducted after injecting for one year to help characterize the injection reservoir and assess any deviations from this baseline study. In conjunction with ongoing analyses of injection data and parameters, these analyses will be invaluable to provide the data required for authorizing continued injection into the well every 10 years as required by NMOCC orders and permit conditions.

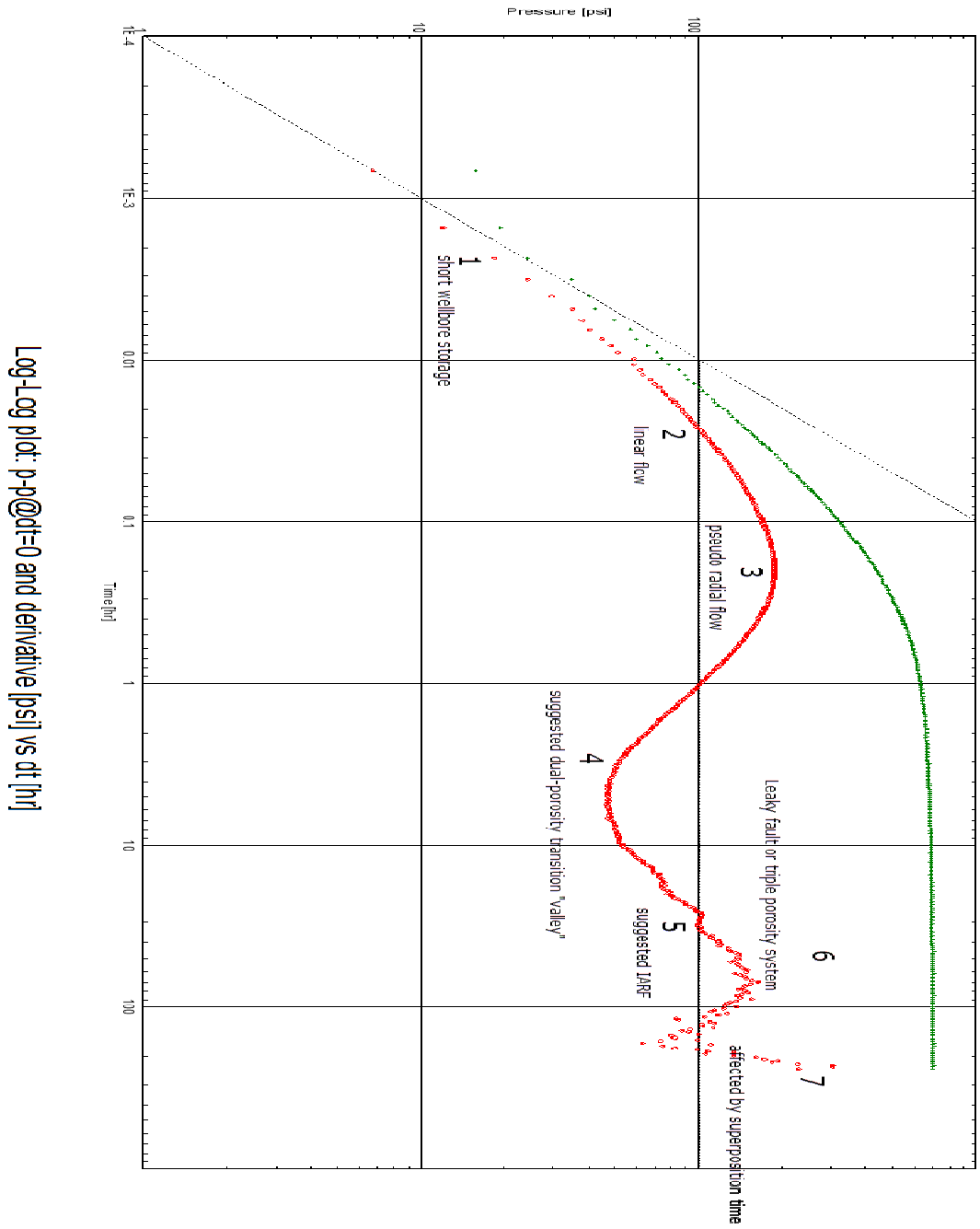


Figure 1: Pressure Derivative vs. Time Graph

Fig. 1 Pressure Derivative for well ZIA AGI#D2

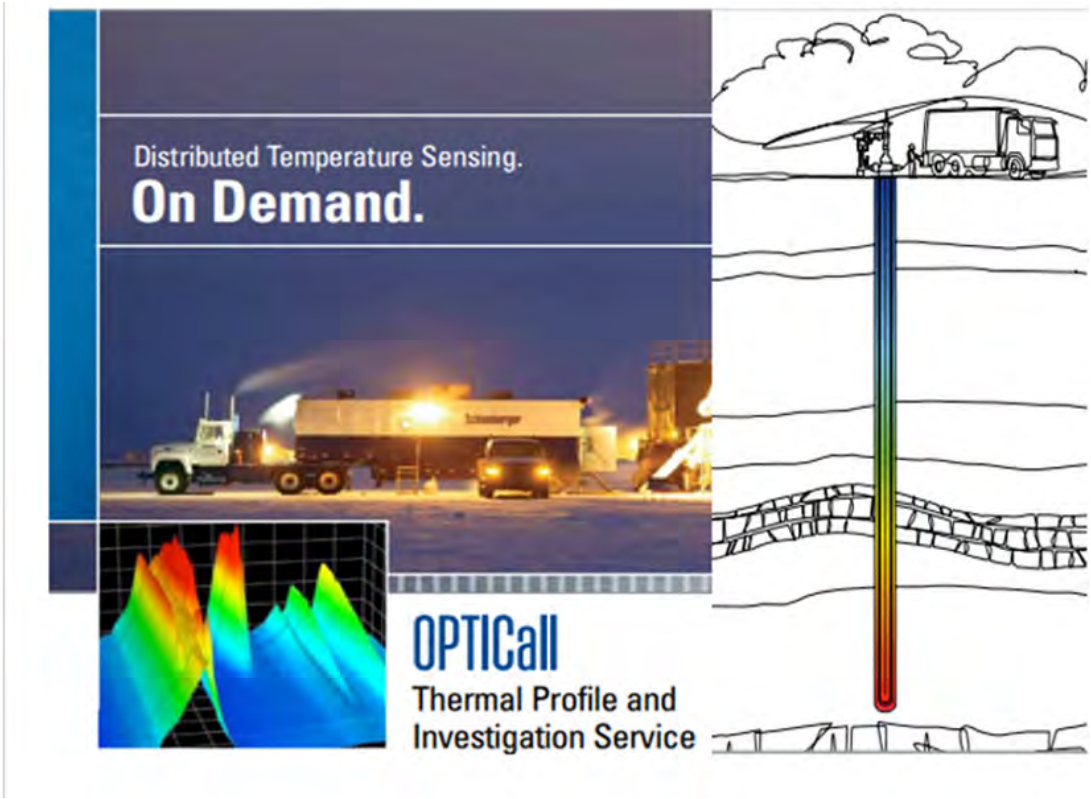
Conclusions

Schlumberger

DCP MIDSTREAM LP
ZIA AGI#D2

Thermal Modeling during Step Rate Test (SRT)

Pressure Transient Analysis



Project:	**DTS Thermal Modeling and Pressure Transient Analysis**
Thermal Analysis by:	**Yosmar Gonzalez – Senior Reservoir Engineer**
Date:	**February, 2017**
Company	**DCP MIDSTREAM LP**
Field	**Devonian- Open Hole (13,622 ft. - 14,687ft.)**
Well Number:	**ZIA AGI#D2**
UWI/ API	**30-025-42207-00**
State & Country:	**New Mexico, USA**

Content

1 Distributed Temperature Survey Objectives

Monitor water injection perfomance by quantifying injection distribution along the following reservoir zones (open hole interval):

Reservoir	Top (ft)
Devonian	13625
Wristen	13797
Fusselman	13972
Montoya	14371

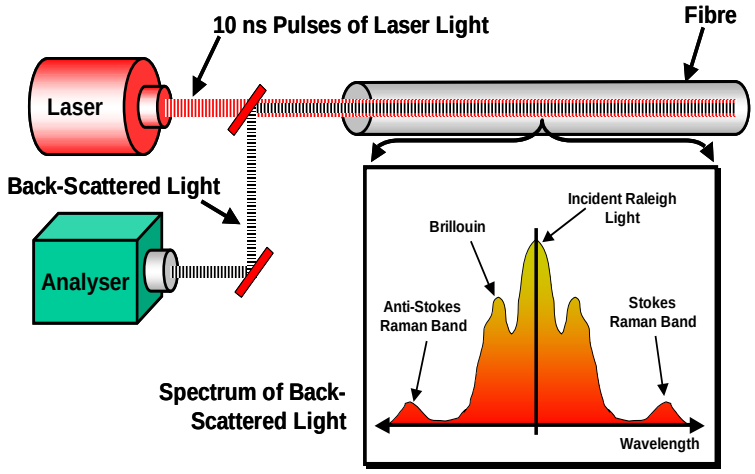
For the OPTICall DTS survey, the temperature traces were recorded pre and post the SRT. The shut-in temperature profiles will aid in analyzing conformance by injected water.

The DTS string was run along with memory pressure gauges to conduct pressure fall off tests, it allows to provide information on the reservoir such as effective permeability, ***k,*** near-wellbore skin, ***S,*** and reservoir heterogeneities and possible boundaries.

2 DTS in Water Injectors

2.1 The DTS Measurement

The fiber optic distributed temperature measurement uses an industrial laser to launch 10 nanosecond bursts of light down the optic fiber. During the passage of each packet of light a small amount is back-scattered from molecules in the fiber. This back-scattered light can be analyzed to measure the temperature along the fiber. Because the speed of light is constant a spectrum of the back-scattered light can be generated for each meter of the fiber using time sampling, allowing a continuous log of spectra along the fiber to be generated



A physical property of each spectrum of back-scattered light is that the ratio of the Stokes Raman to the Anti-Stokes Raman Bands is directly proportional to the temperature of the length of fiber from which it is generated. Consequently a log of temperature can be calculated every meter along the whole length of the

fiber using only the laser source, analyzer and a reference temperature in the surface system, there is no need for any calibration points along the fiber or to calibrate the fiber before installation. Spectrum acquisition times can be varied from as little as 7 seconds to hours, and this defines the accuracy and resolution of the measured temperature log. Typically a resolution of 0.1 Degrees Centigrade is required for reservoir surveillance.

2.2 Temperature profiles in water injectors

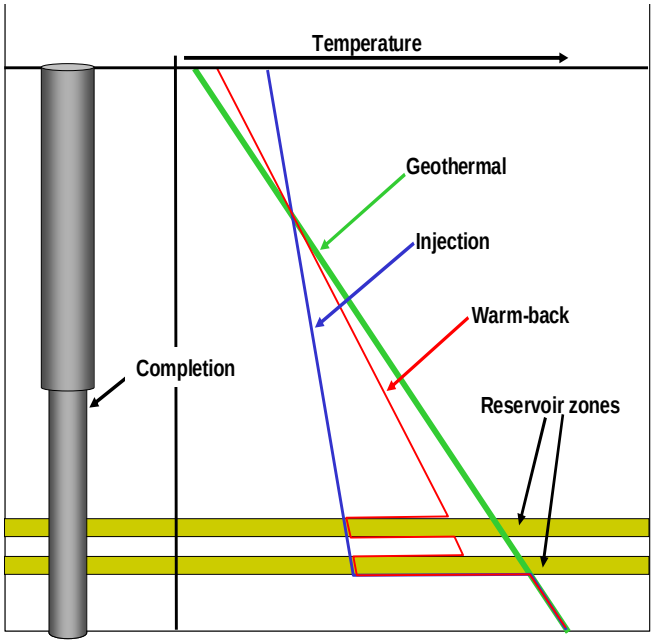


Figure 2: Temperature response to water injection

When injection is taking place the well/tubing is cooled to the temperature of the injected water. In low rate injection the injection profile may trend towards the geothermal line with depth, but usually the injection temperature at the reservoir is below the reservoir geothermal temperature. When the well is shut-in everything warms back towards the geothermal temperature. In zones which have not been flooded this can happen over a period of hours to days. However for flooded zones, where the water has cooled the rock deep into the formation, this can take may take days, or even years, depending on the length and amount of injection.

During the injection period, if the water injection rate is high, the injected fluid would have little time to exchange heat with the formation while moving down the wellbore. Thus the resultant temperature profile would be essentially a straight vertical line. For injection at lower rates, the water does have time to gain heat as moves downhole. At normal surface temperatures of the injection water, it follows that every injection rate between zero and infinity would produce an injection temperature profile with a gradient somewhere between these two extreme temperature curves.

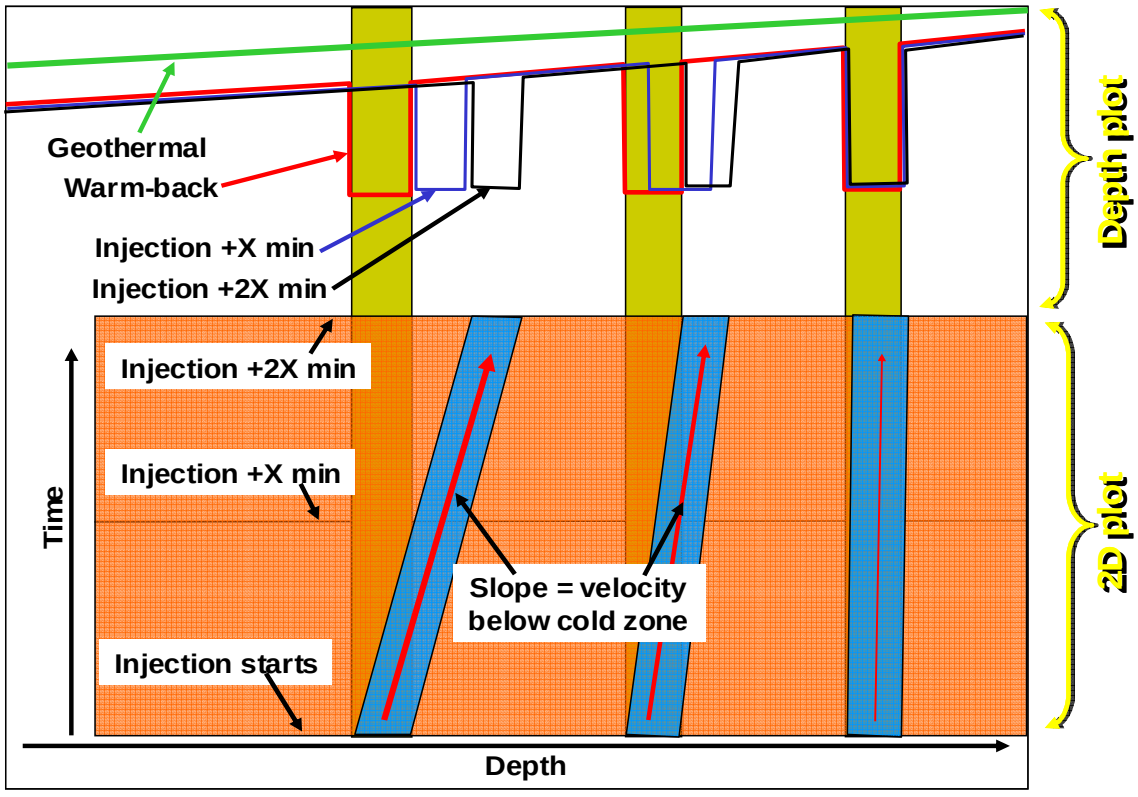
Also, the surface temperature of the water influences the injection curves, when cold water is injected; as the water moves down hole and contacts the warmer region, its temperature increases. For warmer or hot water injection, the temperature drops as the water moves downhole until water temperature reaches the geothermal temperature profile. At this elevation, where the water temperature equals the formation temperature, there is no heat transfer between water and formation, and the temperature curve becomes vertical. Gradually, with increasing depth, the curve again slopes as the water moves into warmer regions. Given sufficient depth, all three curves would converge to a common asymptote for that particular rate. The asymptote would be parallel, but would be cooler than, the geothermal profile.

2.3 Thermal tracking of cold events in water injectors

The reservoir zones that have remained cold as a result of injection have caused the water in the wellbore to be cold too, from conduction, so when injection is started the wellbore water moves down the well and into the perforations and so do these cold events in the wellbore. Thus some of the wellbore water is hot (that which has been opposite non reservoir intervals during shut-in) and some of this water is cold (that which has been opposite reservoir intervals during shut-in) and the movement of the hot and cold water down the well can be tracked by the DTS system acquiring temperature traces at 30 second intervals.

If the DTS traces are plotted in 2D, time and depth, the movement of the cold water intervals in the casing/tubing can be tracked and shows up as cold sloping events where the slope of the event represents the velocity of the fluid below the point where the event intersects zero time. Thus in the example above the velocity derived from the first reservoir zone cold event represents the velocity of the fluid between the first and second reservoir zones.

Because the DTS must be run at a very high acquisition rate (30 seconds) the temperature data is very noisy due to the statistical nature of the measurement. Consequently noise reduction algorithms were applied to the raw data after acquisition in order to enhance the measurements and improve the interpretation.

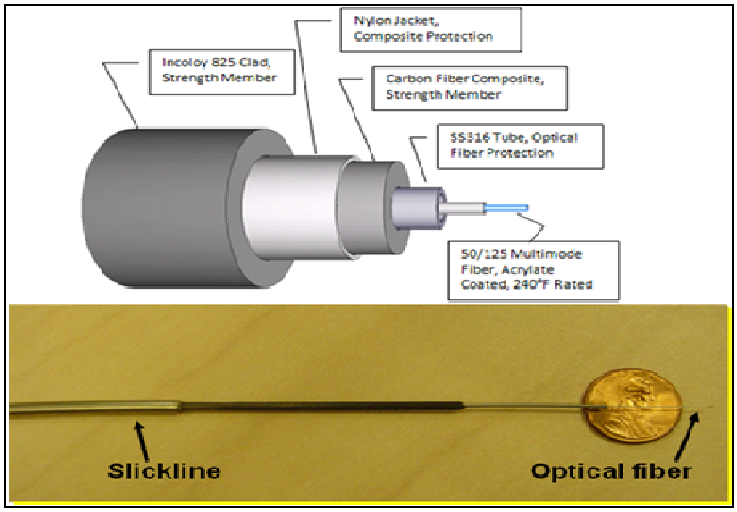


3 The Slick-Line Ultra DTS Logging System

A standard mobile slick line unit and drum with the fiber-optic installed inside a 1/8 inch diameter cable was utilized for these surveys. This combined the ease of using the slick-line as the conveyance, reliable pressure control and the physical properties of the Ultra DTS measurement.

After the surface equipment were rigged up, the depth correction was done using the Kelly Bushing as a reference datum so the log was shifted from a 0 reading at ground level at start of log. The tool acquired distributed temperature profiles with 1-meter of spatial resolution at acquisition times of 2 minutes, enabling the operator to monitor simultaneously all the temperature changes along the entire depth of the well.

The DTS survey lends itself to an initial wellsite diagnostic analysis. The acquired well data will be presented as 2D depth-temperature plots or 3D depth-temperature-time plots. For the 3D plots, the magnitude of temperature changes is represented by the color printed along the time axis.



4 DTS data acquisition/ Field Sequence of Events

The following procedure was conducted to capture the distributed temperature and pressure transients for ZIA AGI#D2:

1. The baseline temperature profile (assumed as geothermal) was recoded on 12/19/2016 using a conventional memory pressure/temperature gauge. Pre-determined depth stations of 6 minutes duration were recorded from 0 ft. to 14781 ft.
2. On the 29th December, DTS (OPTICall Tool) was RIH to 14,665ft. DTS was deployed after the acid stimulation was finalized and prior to the Step Rate Test (SRT). A second baseline temperature using DTS was recorded before the injection started.
3. On the 29th December, according to Halliburton SRT report (page 7) the SRT started at 14:50:36 at 0.2 bpm. The DTS and pressure behavior started to see changes related to injection at 15:11:39 when the injection flowrate was increased to 0.5 bpm. The injection flowrates progressively were increased until it reached 7 bpm. A total of 914 bbl. of fresh water was pumped.
4. On the 29th December, at 20:15:00 pm the SRT was completed. The DTS recorded shut-in time (warm back temperature) during ~11 days. The primary objective for the well to remain shut-in was to monitor the pressure fall off test using the memory pressure gauges.
5. On the 8th January, the DTS cable and pressure gauges were pulled out of the wellbore.
6. The field sequence of events for the injected flow rates and recorded downhole pressures are describe below:

EVENTS TABLE

Calendar (yyyy/mm/dd hh:mm:ss)	Elapsed time (hours)	Pressure (psia)	Temperature (degF)	Comment
2016/12/29 11:30:11	0.91139	181.479	65.190	RIH
2016/12/29 12:22:23	1.78139	6478.969	200.684	Recording Depth @ 14662
2016/12/29 12:28:29	1.88306	6476.611	199.515	Baseline
2016/12/29 15:11:32	4.60056	6474.380	199.723	Start SRT @ .25 bbl/min
2016/12/29 15:41:32	5.10056	6484.642	199.837	Start .5 bbl/min
2016/12/29 16:11:32	5.60056	6499.872	201.168	Start 1 bbl/min
2016/12/29 16:41:32	6.10056	6534.164	202.101	Start 1.5 bbl/min
2016/12/29 17:11:29	6.59972	6575.167	202.569	Start 2 bbl/min
2016/12/29 17:41:20	7.09722	6617.106	202.130	Start 3 bbl/min
2016/12/29 18:11:20	7.59722	6704.631	201.761	Start 4 bbl/min
2016/12/29 18:41:50	8.10556	6798.498	200.590	Start 5 bbl/min
2016/12/29 19:13:35	8.63472	6903.474	196.651	Start 6 bbl/min
2016/12/29 19:43:35	9.13472	7031.597	186.780	Start 7 bbl/min
2016/12/29 20:13:26	9.63222	7163.971	170.744	Shut Down
2017/01/08 20:41:32	250.10056	6421.140	206.009	POOH

Well Completion (Completion Details provided by DCP MIDSTREAM LP)

GL Elev: 3548'
KB Elev: 3573'
Reference: 25' AGL

Conductor: 30" conductor set at 80'.

Surface: 26" hole to 826'.
20"/106.5/J55/BTC surface casing @ 826'.
Cemented with 1175 sx Class C + 4% gel plus 250 sx Class C + 1% CaCl2. Circulated 487 sx to surface.

Intermediate 1: 17-1/2" hole to 2555'.
13-3/8"/61 & 68/J55/BTC intermediate casing (salt) @ 2555'.
Cemented with 1700 sx Class C + 4% gel plus 250 sx Class C + 1% CaCl2. Circulated 428 sx to surface.

Intermediate 2: 12-1/4" hole to 4696'.
9-5/8"/40/L80/BTC intermediate casing (reef) @ 4696'.
DV/ECP @ 2612'.
Stage 1 cemented with 450 sx Class 35:65:6 C blend plus 50 sx Class C + 4% gel plus 250 sx Class C. Circulated 144 sx to surface.
Stage 2 cemented with 600 sx Class C + 4% gel plus 100 sx Class C + 1% CaCl2. Circulated 107 sx to surface.

Injection String: 8-3/4" hole to 13622'.
7-5/8" x 7" injection casing @ 13622'.

7-5/8"/33.7/HCP110/LTC	0-306'
7"/29/HCP110/LTC	306' - 4955'
7"/32/SM2035-110/VAM TOP	4955'- 6317'
7"/29/HCP110/LTC	6317' - 13298'
7"/32/SM2035-110/VAM TOP	13298'- 13622'

DV @ 6346'.
Stage 1 cemented with 770 sx Class 50:50:10 H blend plus 20 bbls Well Lock Resin. Circulated 128 sx to surface.
Stage 2 cemented with 420 sx Class 50:50:10 C blend plus 80 bbls Well Lock Resin. Circulated 93 sx to surface.

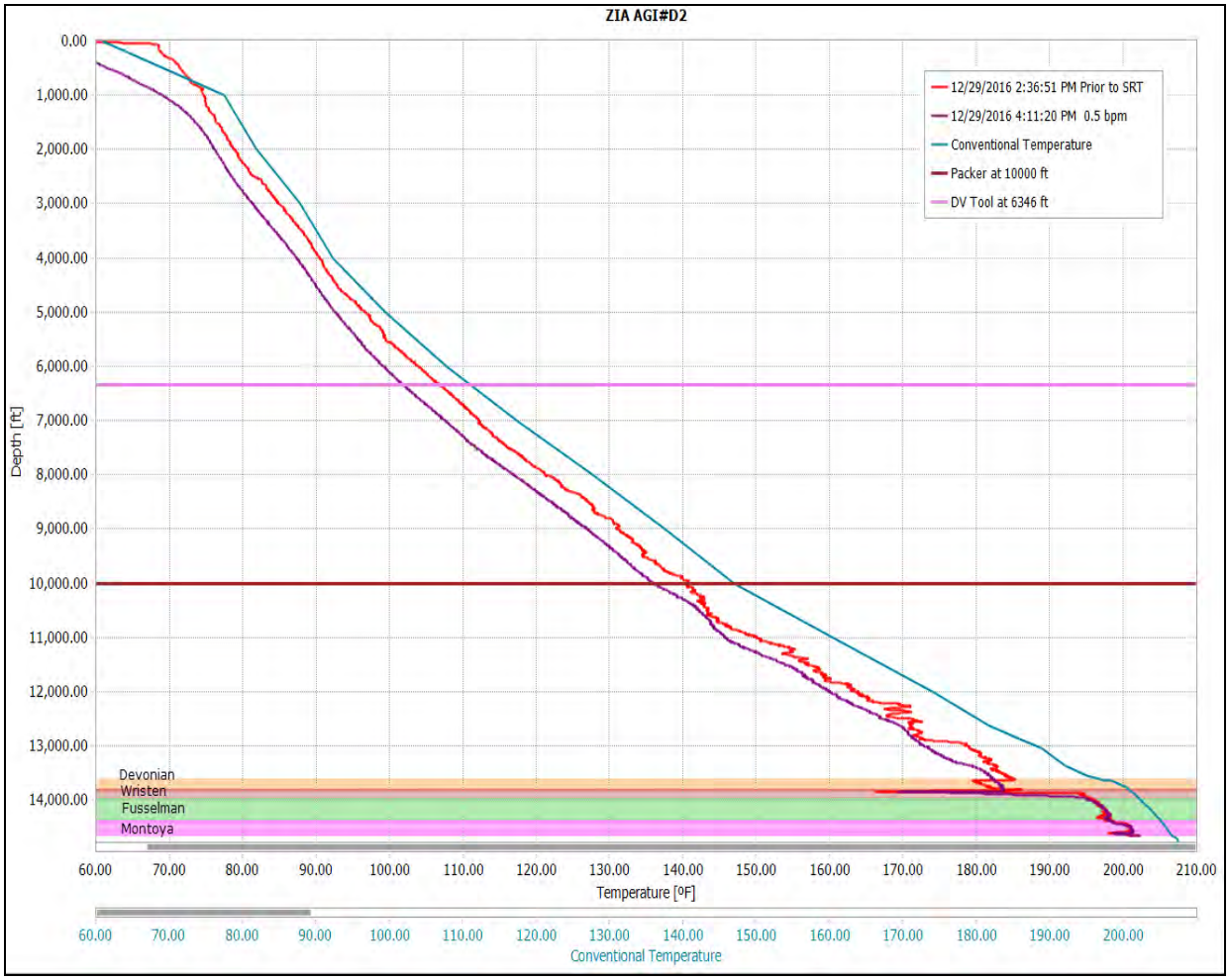
Devonian Open Hole Injection Zone: 6" open hole 13622'- 14xxx'.

5 DTS Analysis

5.1 Baseline Temperature.

Figure 1, 2, and **Figure 3**, shows shut-in DTS profiles prior to SRT. The DTS data is showing a **cold zone** located at Wristen Formation (**13,840ft–13,856ft).** This zone has been identified in the FMI log as a high conductivity open fracture with important changes in porosity observed in both neutron and density measurements. The temperature behavior might be showing upward crossflow and well as a high injection zone. A slight change in the wellbore temperature was also observed at **(14,282ft.-14,430ft. and 14,635ft.-14,654ft)** this could be related low injectivity for Fusselman and Montoya Formations.

Figure 1: Selected DTS profile prior to SRT.



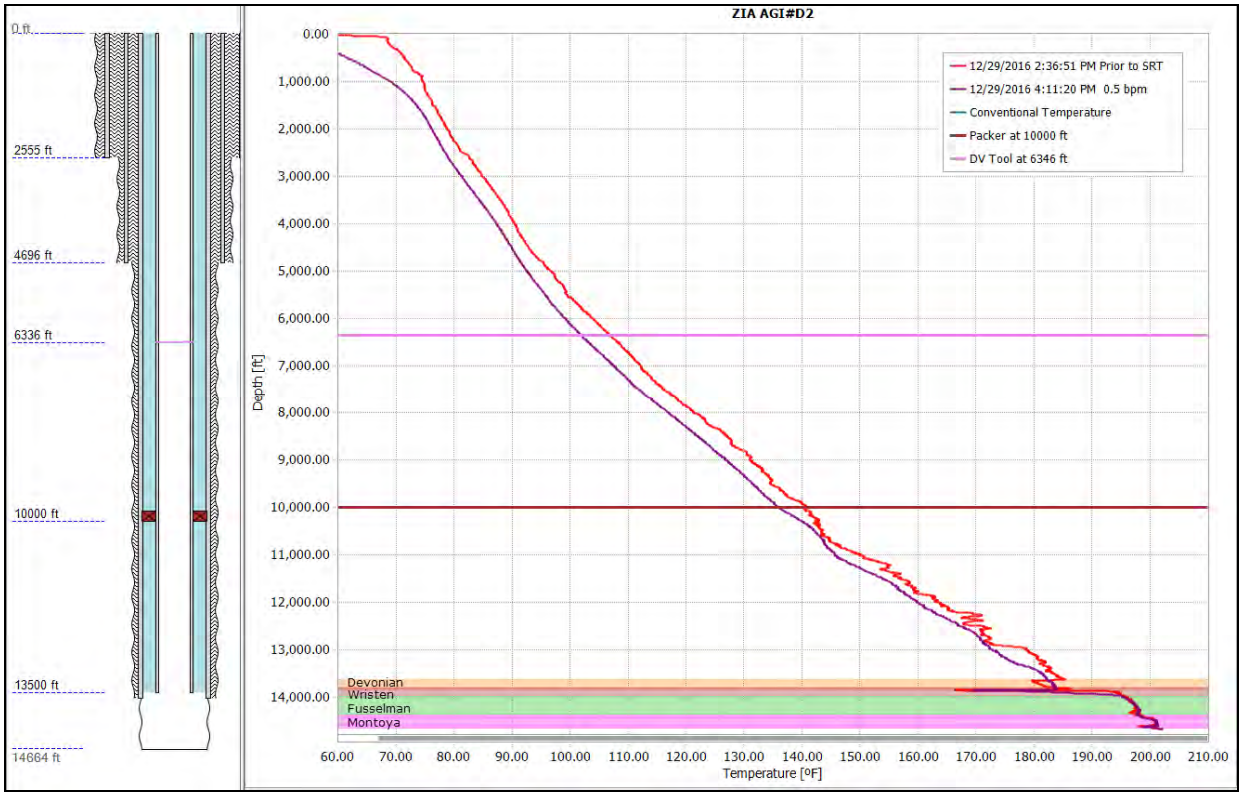


Figure 2: Selected shut-in temperature profile prior to SRT.

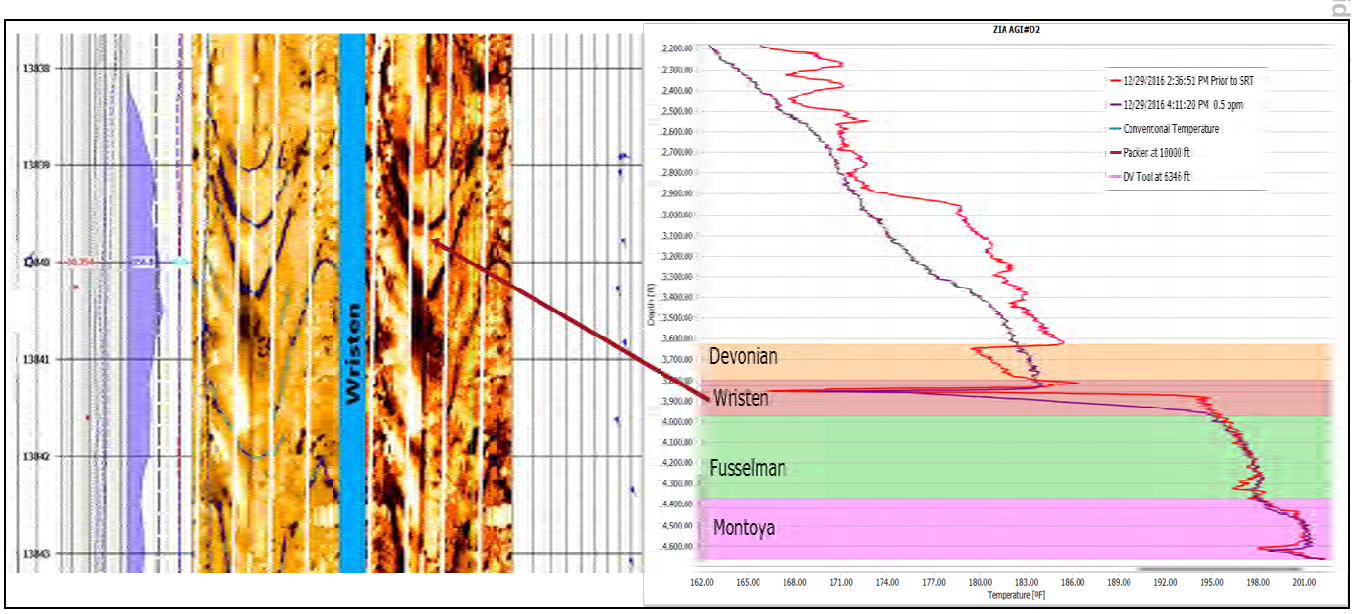


Figure 3: Selected shut-in temperature profile prior to SRT.

5.3 DTS during SRT.

Figure 4 and **Figure 5**, Shows the DTS temperature from 0.5 bpm to 7 bpm. Note as the injection time increases, the temperature inflection (cold anomaly) is also noticeable at the high injection zone located at Wristen **(13,840ft.- 13,856 ft.)**

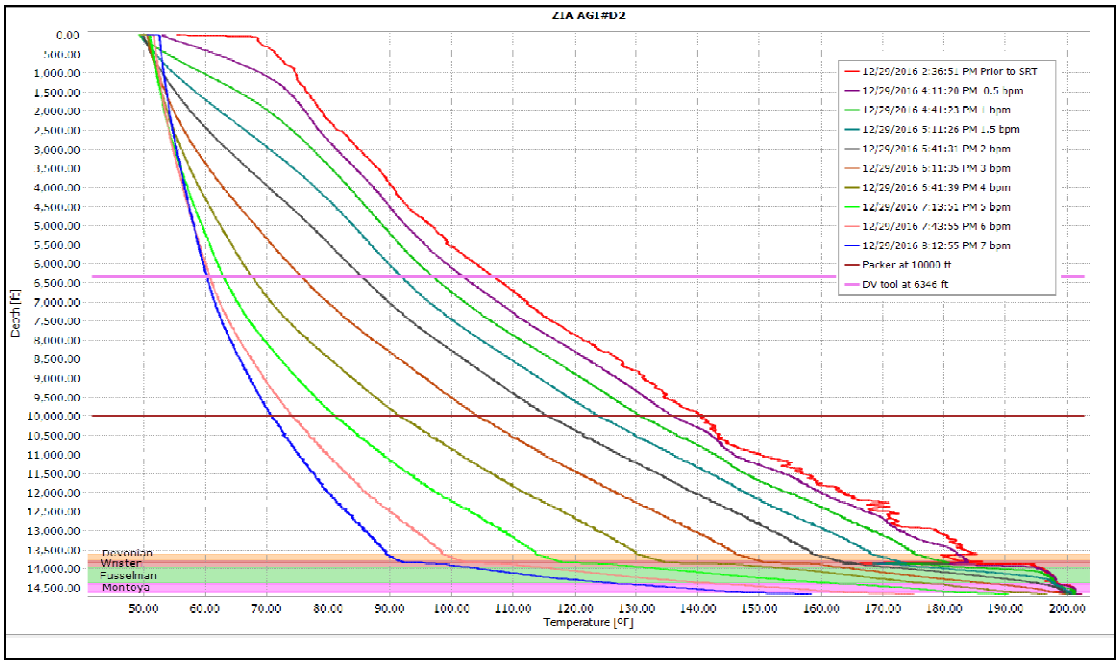


Figure 4: DTS traces for SRT

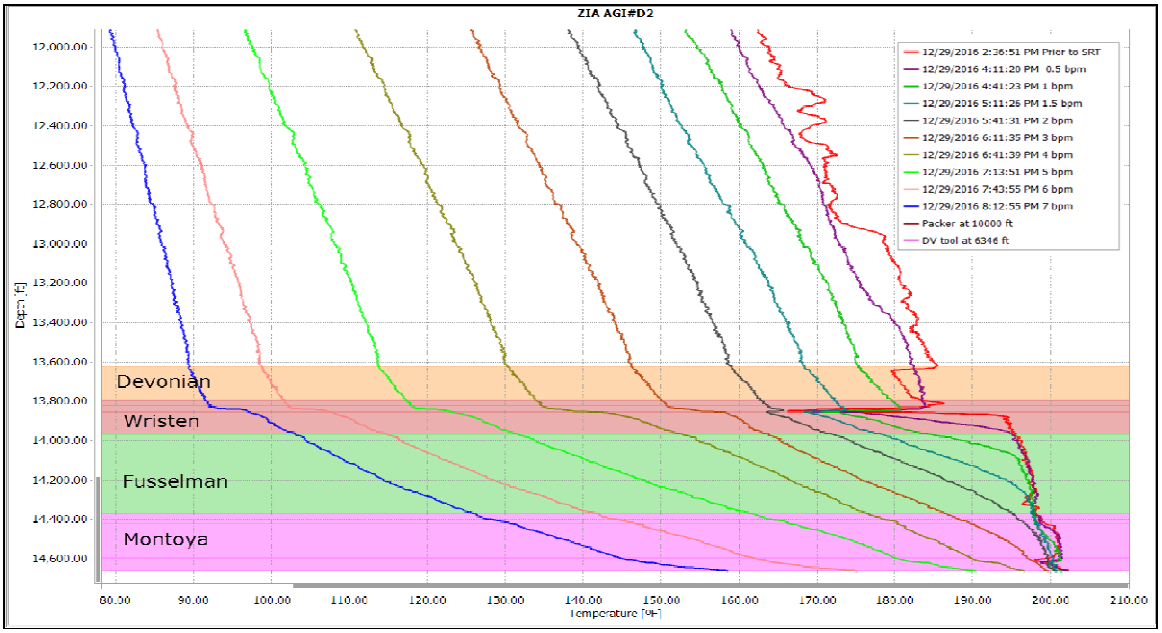


Figure 5: DTS during SRT over all Reservoir zones.

5.3 DTS Flow Model (Heat Loss Analysis- 2 bpm).

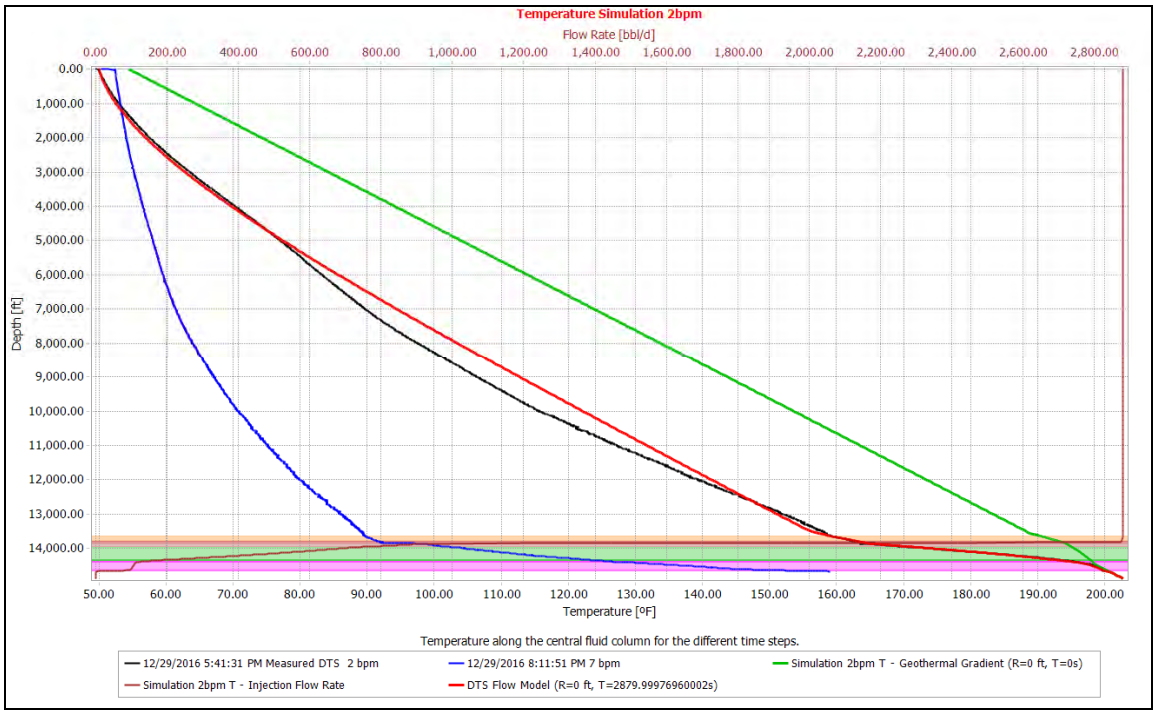


Figure 6: Thermal Simulation for Injection Distribution.

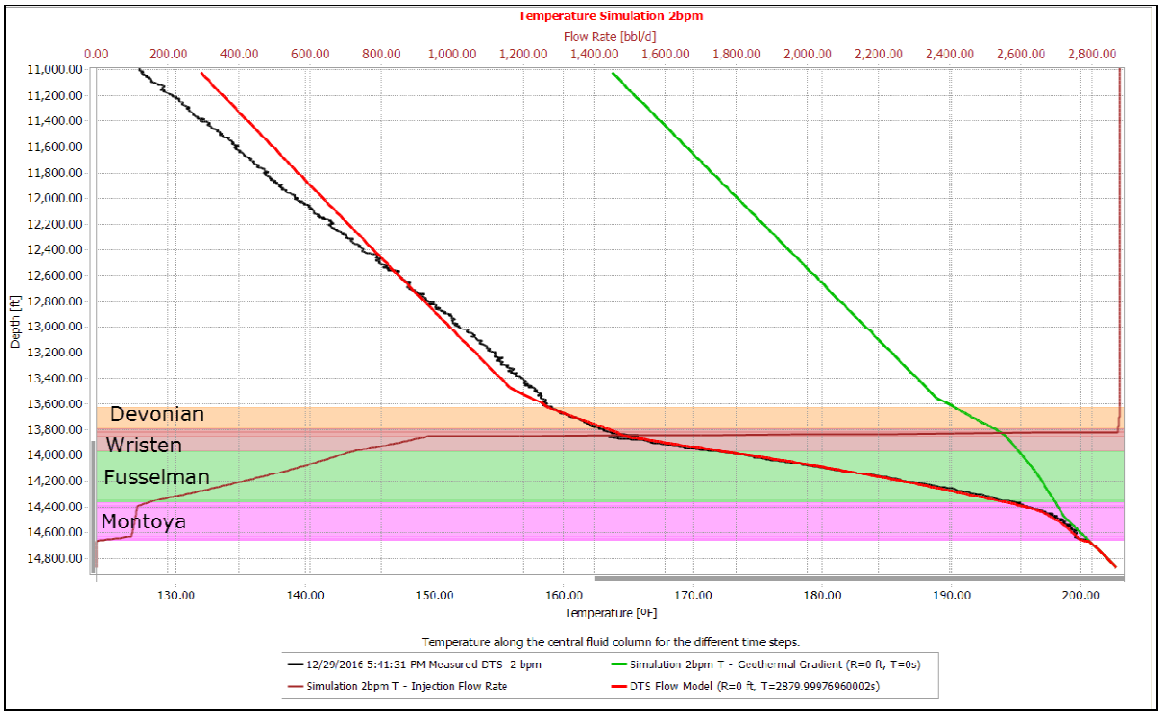


Figure 7: Thermal Simulation for Injection Distribution over all Reservoir Zones.

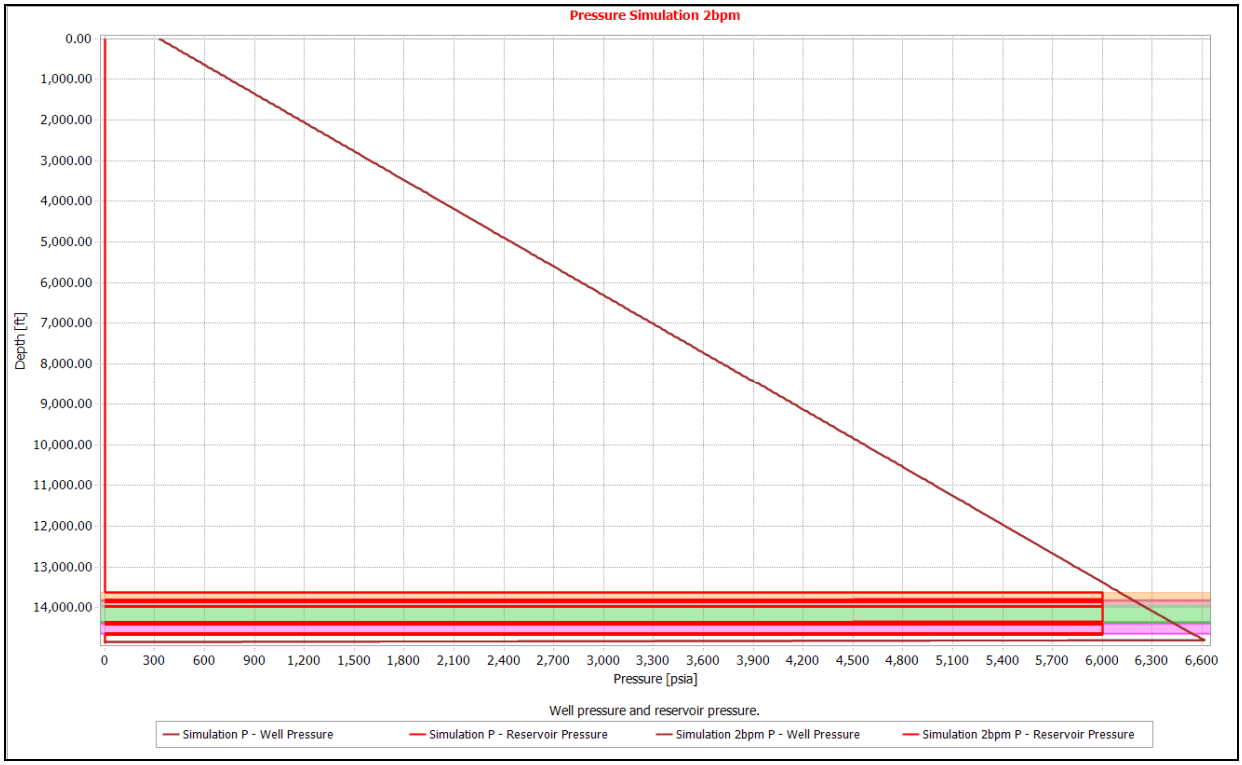


Figure 8: Pressure Simulation for Injection Distribution over all Reservoir Zones.

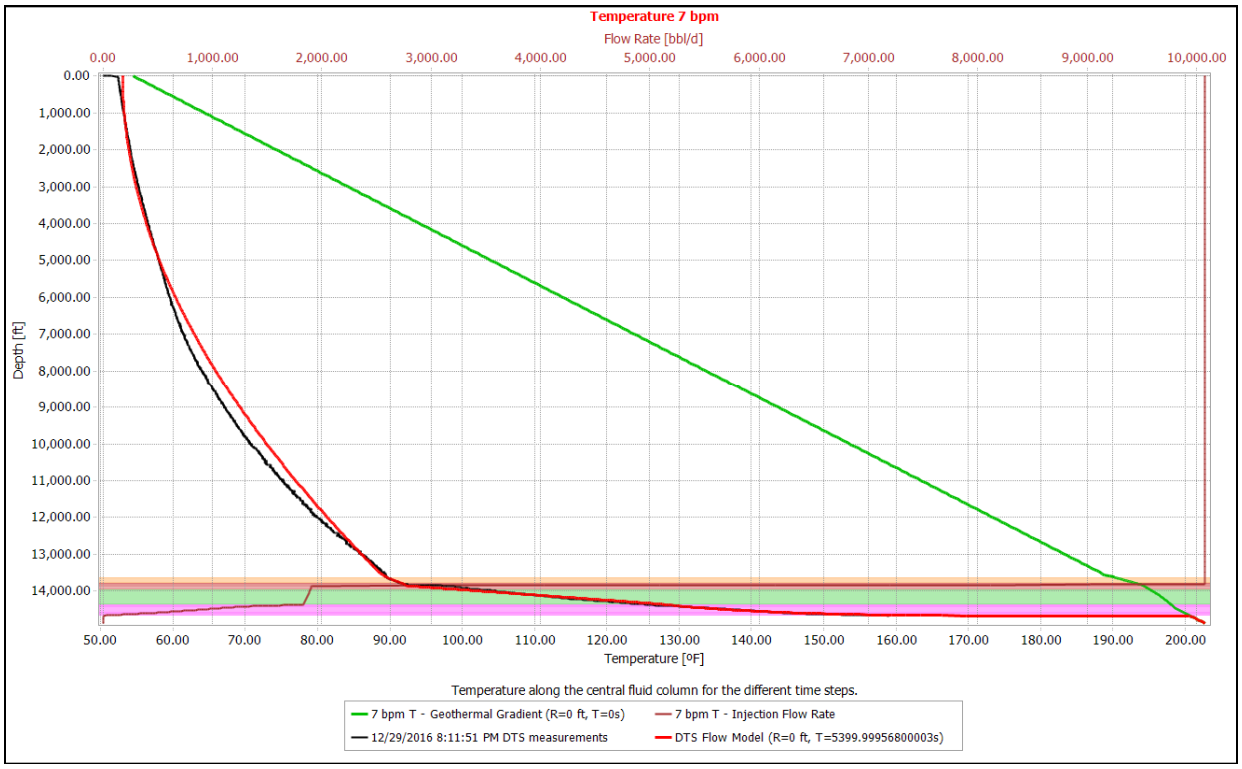
THERMAL Reservoir Model (Input values from Pressure Fall off Results)

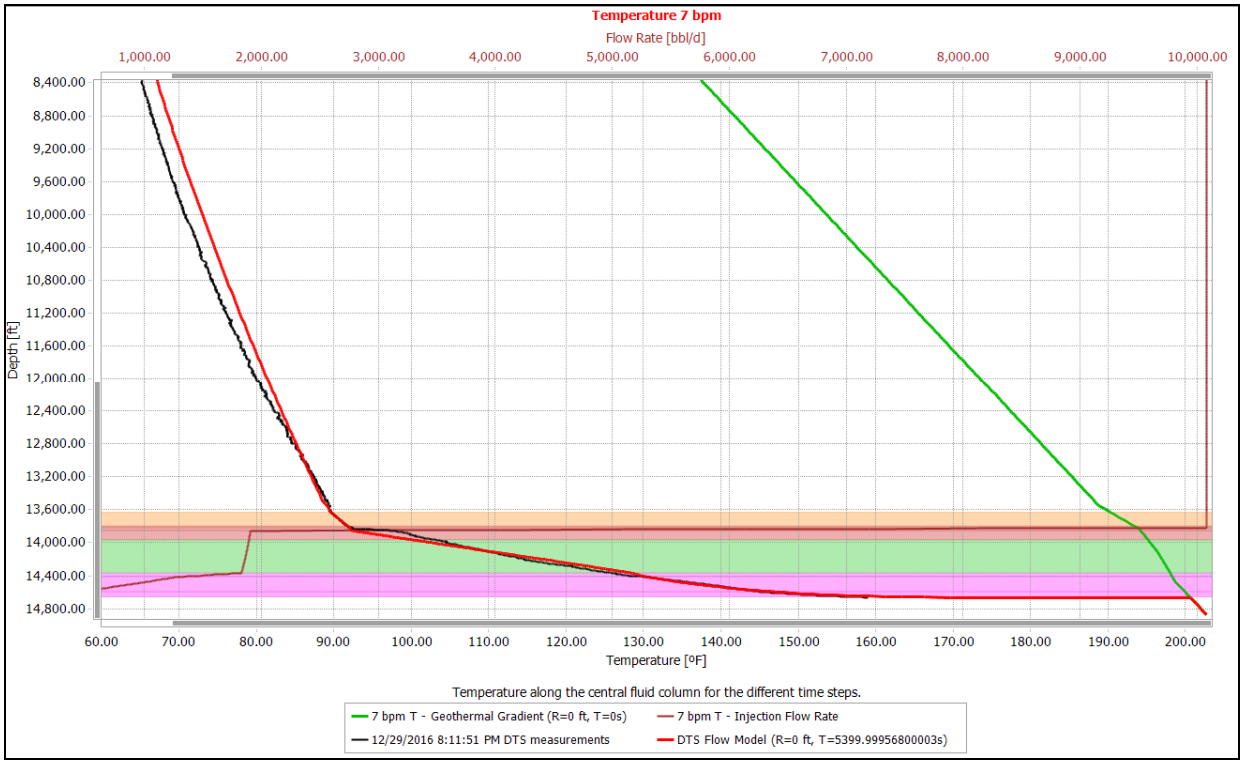
Name		Non-reservoir	Devonian	Wristen	Wristen	Wristen	Fusselman	Fusselman	Fusselman	Montoya	Montoya	Montoya	Montoya	Montoya
MD Top	ft		13625	13797	13825	13856	13972	14346	14353	14371	14398	14407	14635	14654
MD Bottom			13797	13825	13856	13972	14346	14353	14371	14398	14407	14635	14654	14665
Color														
Horz. Permeabili	mD		0.08	0.08	120	3	1.5	1.5	0.8	1	0.05	0.05	2	2
Vert. Permeabilit			0.08	0.08	120	3	1.5	1.5	0.8	1	0.05	0.05	2	2
Static Pressure	psia	Update all ->	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
Formation		Default...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...
Skin			-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54
Drainage Radius	ft		6160	6160	6160	6160	6160	6160	6160	6160	6160	6160	6160	6160
Reservoir Thickn	ft	Update all ->	172	28	31	116	399	7	18	27	9	228	19	11
Model Type			Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...
Porosity	ft3/ft3		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

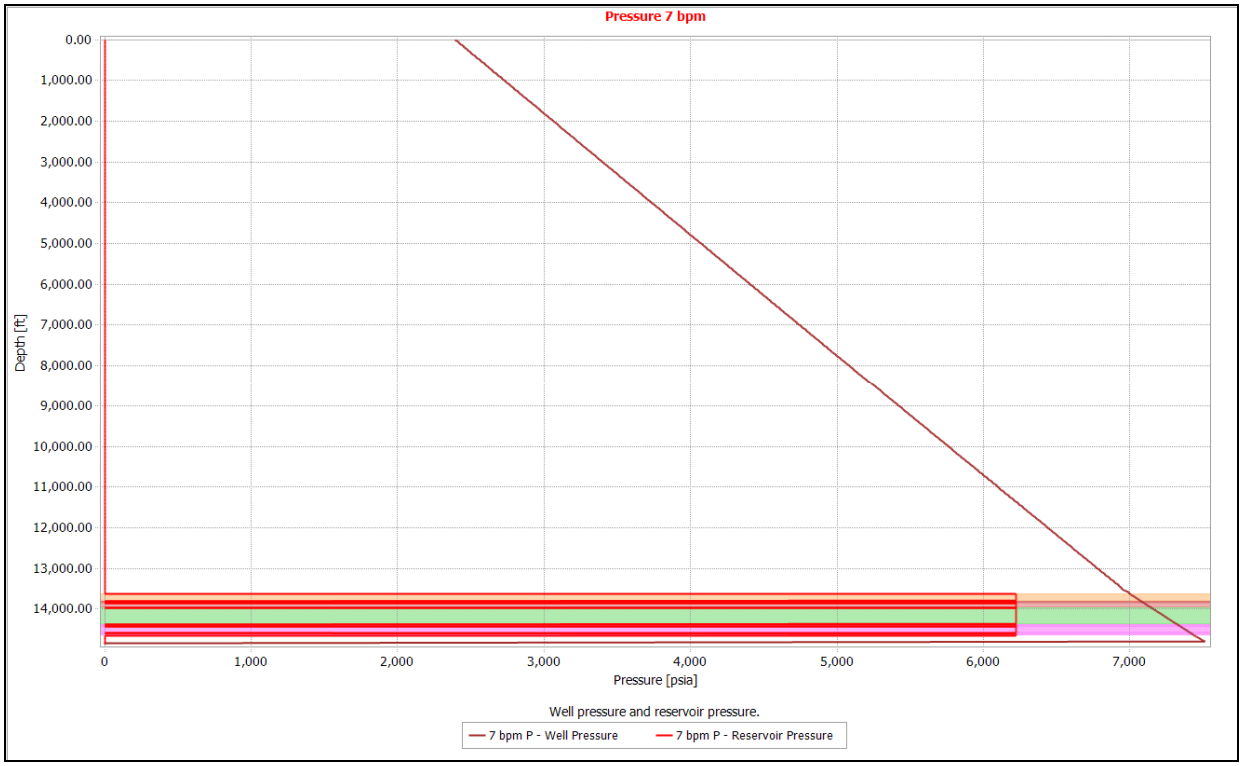
Injection Distribution based on Thermal Model (2 bpm)

Formation	Thermal injection zones		Injection flowrate per thermal zone (bpd)	Injection flow rate per thermal zone (%)	Injection flowrate per reservoir zone (%)
Devonian	13625	13797	5.123291016	0.17789603	0.17789603
Wristen	13797	13825	243.9365234	8.470207734	
Wristen	13825	13856	1707.917786	59.30402809	
Wristen	13856	13972	210.324585	7.303100418	75.07733624
Fusselman	13972	14346	545.3986511	18.93787699	
Fusselman	14346	14353	9.207199097	0.319701568	
Fusselman	14353	14371	17.54440308	0.609194296	19.86677285
Montoya	14371	14398	27.68801117	0.961410793	
Montoya	14398	14407	0.544830322	0.018918143	
Montoya	14407	14635	26.69844818	0.927050198	
Montoya	14635	14654	57.6909256	2.00320197	
Montoya	14654	14665	27.86089325	0.967413777	4.87799488
		Total	2879.935547	100	100

5.4 DTS Flow Model (Heat Loss Analysis- 7 bpm).







THERMAL Reservoir Model (Input values from Pressure Fall off Results)

Name		Non-reservoir	Devonian	Wristen	Wristen	Wristen	Fusselman	Montoya	Montoya	Montoya
MD Top	ft		13625	13797	13825	13856	13972	14371	14420	14596
MD Bottom			13797	13825	13856	13972	14371	14420	14596	14665
Color			@	@	@	@	@	@	@	@
Horz. Permeabili	mD		0.01	0.01	250	0.1	0.1	5.7	2.1	2.5
Vert. Permeabilit			0.01	0.01	250	0.1	0.1	5.7	2.1	2.5
Static Pressure	psia	Update all ->	6221.41	6221.41	6221.41	6221.41	6221.41	6221.41	6221.41	6221.41
Formation		Default...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...	Dolo...
Skin			-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54	-5.54
Drainage Radius	ft		11800	11800	11800	11800	11800	11800	11800	11800
Reservoir Thickn	ft	Update all ->	172	28	31	116	399	49	176	69
Model Type			Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...	Verti...
Porosity	ft3/ft3		0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25

Injection Distribution based on Thermal Model (7 bpm)

Formation		Thermal injection zones		Injection flowrate per thermal zone (bpd)	Injection flow rate per thermal zone (%)	Injection flowrate per reservoir zone (%)
Devonian		13625	13797	1.662109375	0.016489225	0.016489225
Wristen		13797	13825	1045.463867	10.37169348	
Wristen		13825	13856	7125.287598	70.68756871	
Wristen		13856	13972	13.60131836	0.13493408	81.19419628
Fusselman		13972	14371	107.5037842	1.066508689	1.066508689
Montoya		14371	14420	530.1588135	5.259526306	
Montoya		14420	14596	823.783905	8.172481545	
Montoya		14596	14665	432.511261	4.290797959	17.72280581
			Total	10079.97266	100	100

5.4 DTS Post SRT (Warm Back).

The **Figure 9, and 10** the shut-in temperatures profiles at Wristen **(13,840 ft. to 13,856 ft.)** initially are not moving towards the baseline temperature profile and shows a warm anomaly suggesting this is a high injectivity zone**.** Eventually after 1 day shut-in the cold anomaly is noticeable suggesting this zone had received the majority of the injected fluid, also upward crossflow from bottom formations towards Wristen it might be occurring. Note temperature anomalies at bottom of Fusselman, and cooling event at bottom Montoya formation. Thermal behavior could suggest heat exchange Wristen- Fusselman. Also, low injectivity at Montoya Formation.

Figure 10: DTS (Warm-Back).

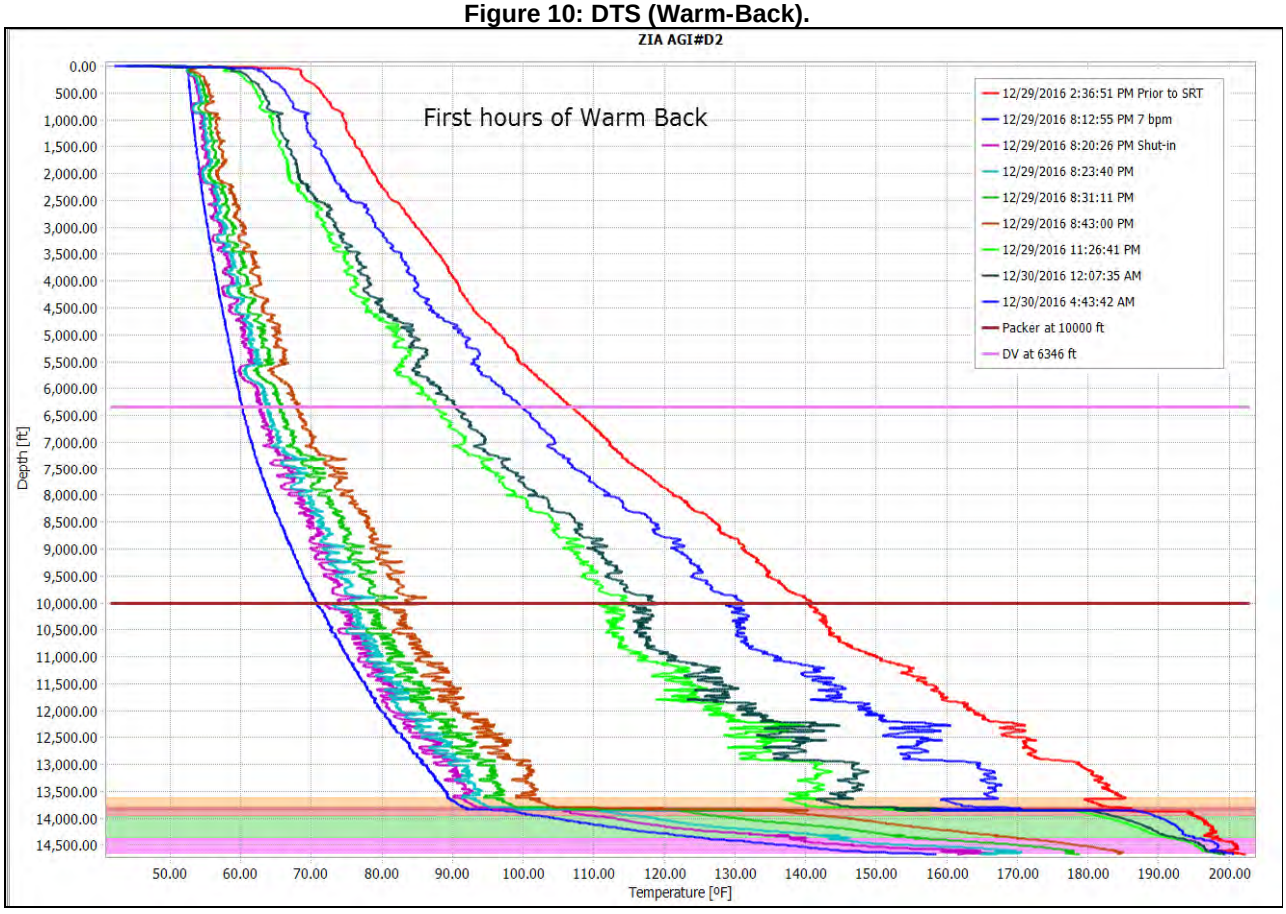
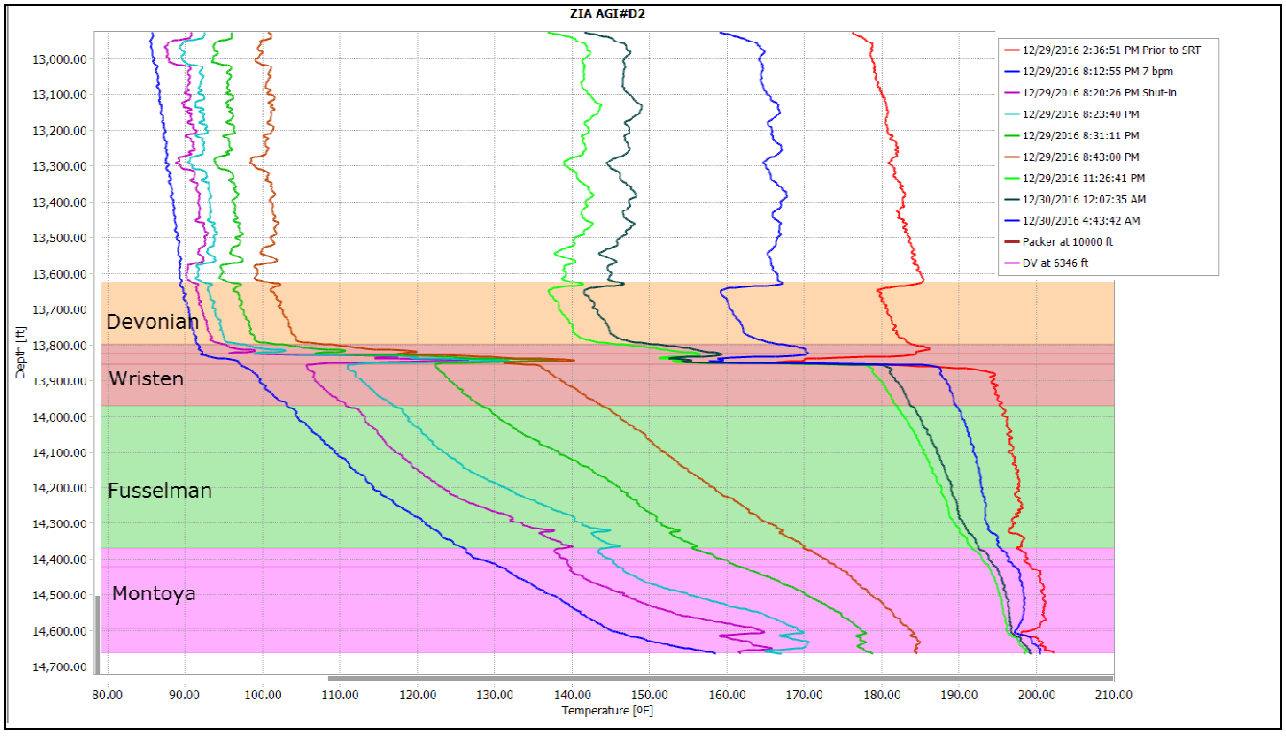
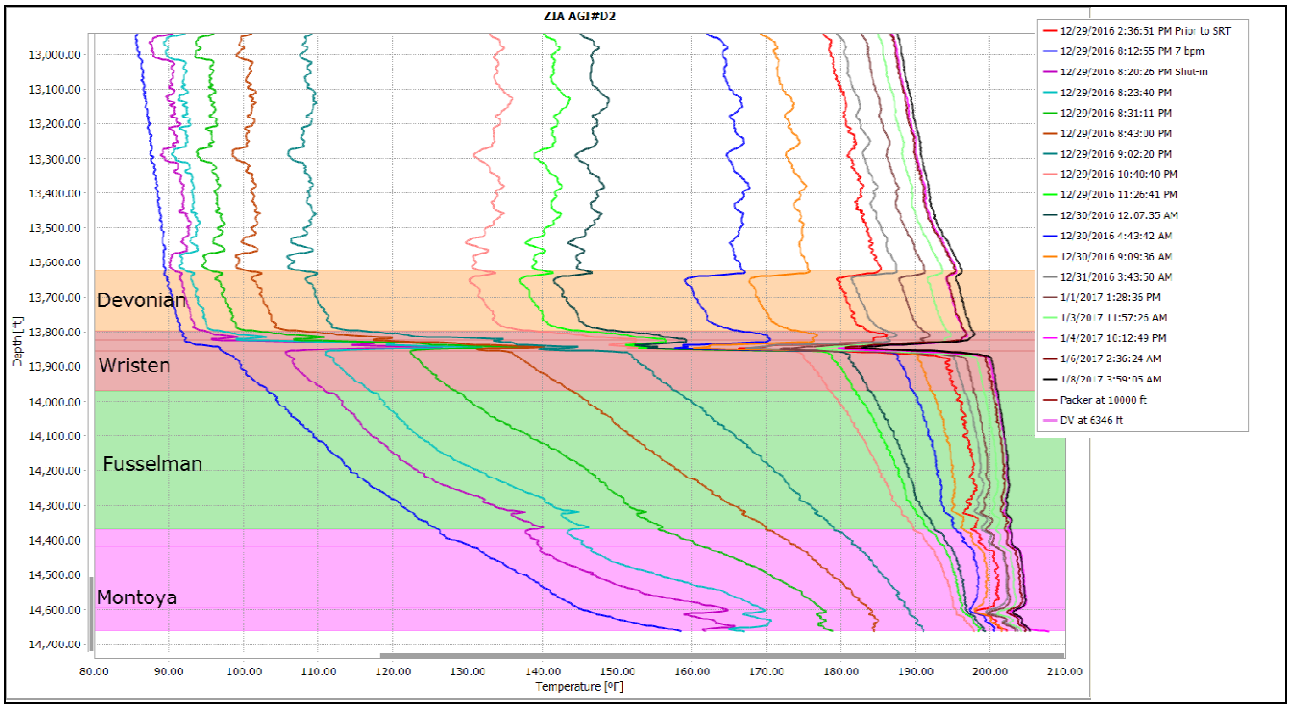


Figure 11: DTS (Warm-Back) over all Reservoir Zones





Conclusions

DST Results

There is a high permeability zone at Wristen from **13,840 ft. to 13,856 ft.** (a conductive fracture of limited extension based on Pressure Fall off Analysis).

Under 2 bpm (2,879 bpd) injection 75% of the flow is going into Wristen with 20% going into Fusselman and 5% to Montoya Formation.

Formation		Thermal injection zones		Injection flowrate per thermal zone (bpd)	Injection flow rate per thermal zone (%)	Injection flowrate per reservoir zone (%)
Devonian		13625	13797	5.123291016	0.17789603	0.17789603
Wristen		13797	13825	243.9365234	8.470207734	
Wristen		13825	13856	1707.917786	59.30402809	
Wristen		13856	13972	210.324585	7.303100418	75.07733624
Fusselman		13972	14346	545.3986511	18.93787699	
Fusselman		14346	14353	9.207199097	0.319701568	
Fusselman		14353	14371	17.54440308	0.609194296	19.86677285
Montoya		14371	14398	27.68801117	0.961410793	
Montoya		14398	14407	0.544830322	0.018918143	
Montoya		14407	14635	26.69844818	0.927050198	
Montoya		14635	14654	57.6909256	2.00320197	
Montoya		14654	14665	27.86089325	0.967413777	4.87799488
			Total	2879.935547	100	100

Injection Distribution based on Thermal Model (2 bpm)

When the injection rate is increased to 7 bpm (10,080 bpd) is clear from the DTS response that the majority of the flow 81% is now going Wristen. The increased flow rate must be opening up the fractures facilitating the increased flow at Montoya 17%.

Formation		Thermal injection zones		Injection flowrate per thermal zone (bpd)	Injection flow rate per thermal zone (%)	Injection flowrate per reservoir zone (%)
Devonian		13625	13797	1.662109375	0.016489225	0.016489225
Wristen		13797	13825	1045.463867	10.37169348	
Wristen		13825	13856	7125.287598	70.68756871	
Wristen		13856	13972	13.60131836	0.13493408	81.19419628
Fusselman		13972	14371	107.5037842	1.066508689	1.066508689
Montoya		14371	14420	530.1588135	5.259526306	
Montoya		14420	14596	823.783905	8.172481545	
Montoya		14596	14665	432.511261	4.290797959	17.72280581
			Total	10079.97266	100	100

Injection Distribution based on Thermal Model (7 bpm)

6 Pressure Transient Analysis

Main results

The pressure gauge recorders were deployed using Slick Line to test Devonian/Wristen/Fusselman/Montoya formations over the open hole interval 13,622 ft.-14,672 ft. The gauge recorders were located at 14,687 ft.The pressure transient test consisted of two main events:

- Step Rate Test (SRT) of ~5 hours. The injection flowrate started at 0.5 bpm, with injection flowrates progressively increasing until it reached 7 bpm. A total of 914 bbl. of fresh water was pumped. For the PTA, the input injection flowrate history is detailed on the below table:

Time (end of injection period)	Water Injection Flowrate	BHP
	bpm (bpd)	Psia
15:40:35	0.5 (-720)	6484
16:10:08	0.5 (-720)	6499
16:40:14	0.5 (-720)	6533
17:10:38	1.5 (-2160)	6573
17:40:53	2 (-2880)	6616
18:10:38	3 (-4320)	6704
18:41:02	4 (-5760)	6797
19:13:29	5 (-7200)	6903
19:42:26	6 (-8640)	7032
20:13:35	7 (-10080)	7164

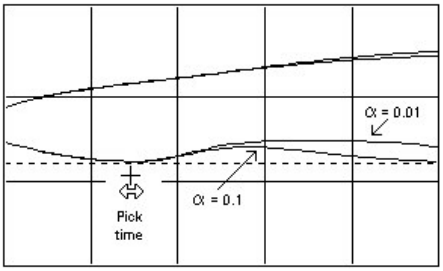
- Pressure Fall Off Test of ~239 hrs. (PFO).The measured static pressure at the end of the shut-in time was 6452 psi.

The pressure fall off analysis provided insights related well and reservoir characteristic in terms of Permeability, k; Total Skin, S and Average Reservoir Pressure, P*. The pressure derivative suggest a Naturally Fracture Reservoir (Dual Porosity System). The best-type curve matching for the log-log scale was considering a hydraulic fracture well for the early time region and a dual porosity reservoir model for the middle time region. The pressure derivative might show zero unit slope indicating Infinite Acting Radial Flow (IARF). The results described below shows the estimation of kh and skin by tracing a straight line where possible IARF is located. There is no unique solution in pressure transient responses and the presented results are provided based upon the best solution to the data acquired. The main PTA results using a reservoir thickness of **h=30 ft.** (from DTS injection distribution) are summarized below:

	Fracture Well and Dual Porosity Reservoir Model Results
Test duration, hrs	239
Pwf before shut-in, Psi	6,452.00
Permeability- Thickness, kh (assuming possible IARF between 27.5 and 32.56 hrs.)	6,240 md-ft (**h=30ft**)
Permeability, k (assuming possible IARF between 27.5 and 32.56 hrs.)	208 md.
Total skin,S	-5.19
Skin, S	0.348
Geometrical skin	-5.54
Fracture Half Length (Xf)	153 ft
Investigation Radius	11800 ft.
Distance from the well to the semi-permeable boundary, (L)	2,500 ft.
Leakage Factor,α	0.21
Omega, ω*	0.238
Lambda, λ**	5.60E-08
Reservoir Pressure, P* [Horner Plot]@ 14,665 ft.	6,453 psi.

Omega, ω* **-** storativity ratio, the fraction of the pore volume occupied by the fissures to the total interconnected pore volume.
Lambda, λ**- interporosity flow parameter, the ability of the matrix flow into the fissure network.

Leakage factor ratio:
- Equals to 0, corresponds to no flow and therefore a sealing fault behavior.
- Between 0 and 1 to transmissibility reduction.
- Greater than 1 to transmissibility increase.



From DTS the we could infer the injected fluid is primarily going into the Wristen conductive fracture of estimated fracture height of h=30 ft. Integrating the DTS and pressure transient response it may indicate good hydraulic connection to the fissure network and the injected fluid migrating into a higher reservoir thickness. Sensitivities to reservoir thickness and the associated value to the estimated matrix permeability, investigation radius, and distance to a possible semi-permeable boundary are detailed as follow:

	Reservoir Model Results h= 100 ft.	Reservoir Model Results h= 500 ft.	Reservoir Model Results h= 1000 ft.
Permeability- Thickness, kh	6,250 md-ft	6,250 md-ft	6,250 md-ft
Permeability, k	62.5 md.	12.5 md.	6.25 md.
Total skin,S	-4.59	-3.78	-3.43
Skin, S	0.348	0.348	0.348
Geometrical skin	-4.93	-4.13	-3.78
Fracture Half Length (Xf)	84 ft	37.6 ft	26.6 ft
Investigation Radius	6460 ft.	2890 ft.	2040 ft.
Distance to the semi-permeable boundary, (L)	1380 ft.	615 ft.	435 ft.
Leakage Factor,α	0.21	0.21	0.21
Omega, ω*	0.238	0.238	0.238
Lambda, λ**	1.80E-07	9.34E-07	1.87E-06

Interpretation

Identification of flow regimes is important for the reservoir characterization from pressure transient tests. The diagnostic Log-Log plot (Fig 1), were generated using Kappa-Sapphire pressure transient test software. The pressure fall off derivative plot was used to for early, middle and late times flow regimen identification, The Log-log scale shows six main flow regimes:

1. Short Wellbore Storage (WBS) effects were observed until 0.0040 hrs. The obtained WBS coefficient C from the time match was 0.0518 bbl/psi. **The wellbore storage is not masking** relevant near-wellbore conditions. The short duration allowed to estimate the skin value with confidence as well as identify near-wellbore possible open fractures (no-proppant).

2. From 0.0040 hrs. to 0.05 hrs., the pressure derivative follows a half unit slope (linear flow regime). This pressure behavior suggest a near-well bore open fracture (no-proppant). When linear flow regime is present indicates this fracture hydraulically conductive or it is an "effective fracture" and able to transport fluid. A time period of linear flow might occur when the pressure support is primarily along a fracture connected to the well, which might be re-charge by the matrix or by a connected fracture system. If the fracture connected to the well is the limited extend, the pressure response will progress, after of period of time to a radial flow behavior. The estimated fracture half-length during this period was ***Xf= 84 ft***.

3. From 0.1 hrs. To 0.26 hrs., the derivative approaches a horizontal line indicating pseudoradial flow regime. The match on the pressure-time log-log scale suggest a geometrical skin value of s=-4.93 (stimulated reservoir).

4. At intermediates times (from 0.26 hrs. to 27 hrs.), the pressure response deviated from the pseudo radial flow and shows a possible "transition valley" suggesting interporosity flow started. This pressure behavior could be attributable to a dual-porosity system. The behavior of naturally fracture reservoirs depends on the intensity, aperture and shape of the fractures and also on the rock/matrix fluid transfer efficiency. The selected reservoir model presented here is the classic Double porosity model. In this model, the reservoir is assumed to be composed of two distinct media that exist in a continuum: one is the fracture/fissure network and the other is the matrix. The model assumes that fluid transfer between fractures/fissures occurs through transient pseudosteady sate flow conditions. Having a type curve match along the "transition valley" will provide two important parameters to describe dual porosity models: 1. Interporosity flow coefficient (Lambda,λ) which measure the ability of fluid exchange between the matrix and the fractures and 2. Relative storage capacity of the fractures and the matrix. (Omega,ω)

5. From 27 hrs to 34 hrs, the pressure derivative shows a total system response. Infinite Acting Radial Flow (IARF) regime has been observed during this time period. Also, the reservoir properties, such as average drainage area pressure and matrix permeability were estimated from this flow regime. Permeability value was estimated using and reservoir thickness of h=30 ft. (based DTS the injection distribution profile). Sensivities to reservoir thickness and the associated value to the estimated matrix permeability were presented in the main results section.

6. Between 28 hrs. And 106 hrs, the pressure derivative increased and then decreased again. This behavior could be related to a transition regime (i.e. two matrix systems: triple porosity) or a semi- permeable fault behavior. Selected recommended references are: SPE 77689 "Pressure Transient and Decline Curve Behaviors in Naturally Fractured Vuggy Carbonate Reservoirs" discuss the pressure derivative behavior under those reservoir heterogeneities scenarios (multiple-transitions). SPE 54588, "Detection of Communication Cross Faults in Naturally Fractured Reservoirs" will provided information on late time pressure behavior with conductive faults.

7. After 157 hours, the pressure derivative might be affected by the short injection time. As a rule of thumb, the production time is considered long if it is more than 5 times the duration of the build up test. The pressure derivative calculation corrects the pressure scale to account for the details of the well production history. If no sufficient flow history, this will result in an "apparent" or "artificial" late-time trend in the pressure derivative that could be misinterpreted as reservoir behavior.

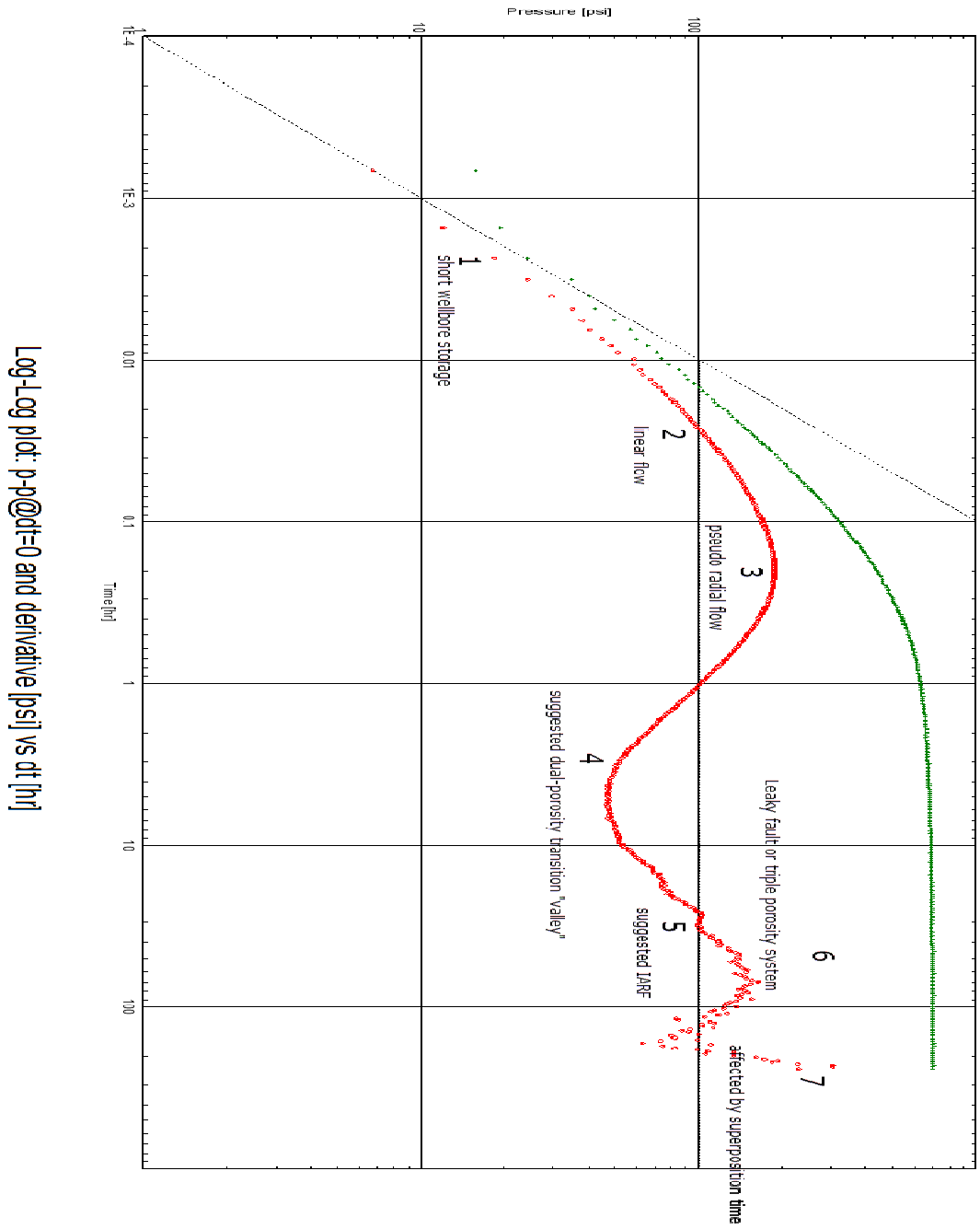


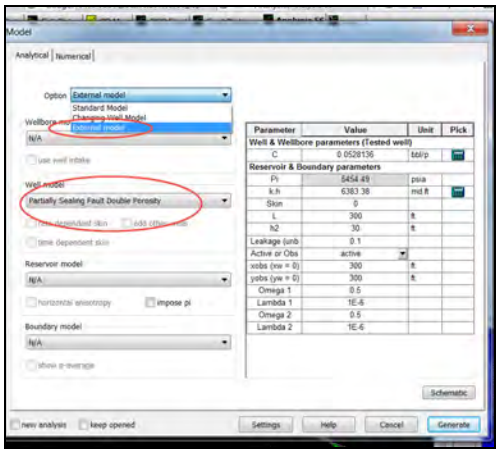
Fig. 1 Pressure Derivative for well ZIA AGI#D2

Conclusions

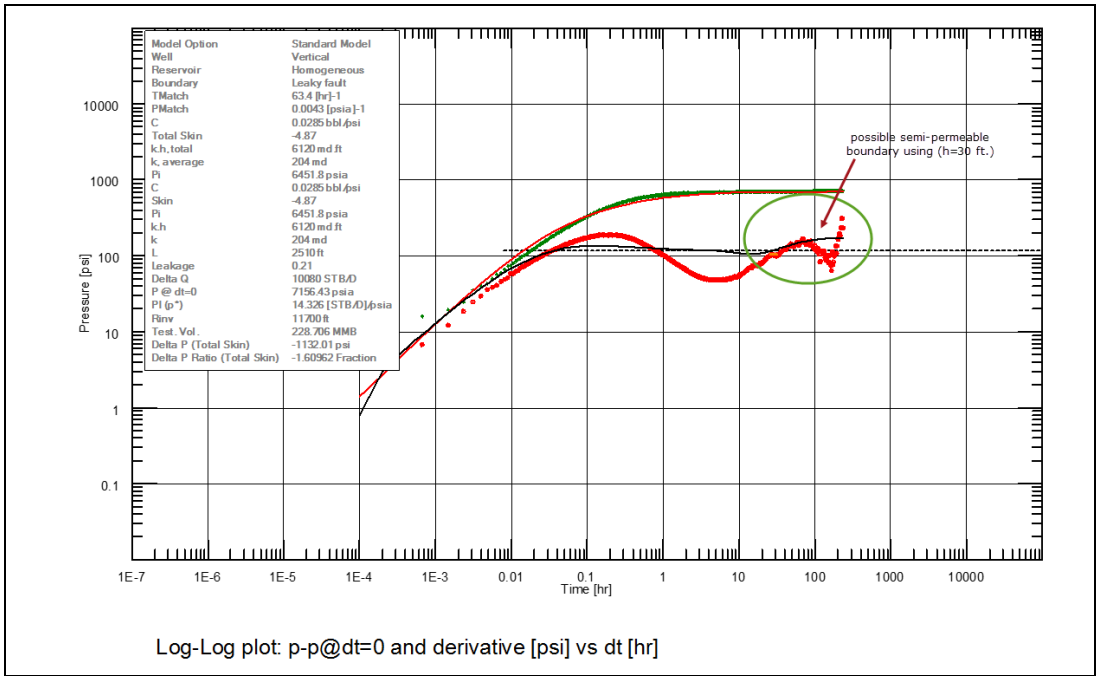
PTA Results

For the Pressure Fall Off, the best type curve (Log-Log plot) matched at early and middle time region was obtained using an analytical model to represent transient fluid flow towards a fracture well (assumed a non-proppant fracture for this case) and classic dual porosity reservoir. The pressure match was done at the second IARF (until 35 hrs).

There is no a standard analytical model to combine a fracture well in a dual porosity reservoir with a semi-permeable fault. This modeling is available through an external modeling which solution is still analytical. It is advisable to generate this model to honor a pressure match for all the identify flow regime (early, middle and late time regions).



However, the late transient response were model separately to infer the distance to a possible semi-permeable fault and leakage factor. The modeling is assuming a homogeneous reservoir for early and middle time region (which is not the scenario for this well).



Log-Log plot: p-p@dt=0 and derivative [psi] vs dt [hr]

Appendix 1

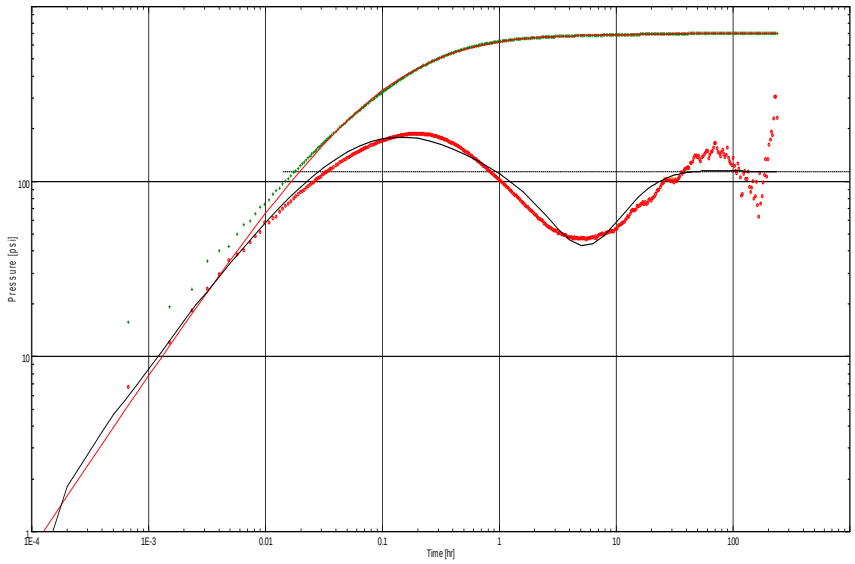
Saphir Software Results

- Complete table of results
- History plot
- Log log plot
- Semilog plot

Complete table of inputs and results

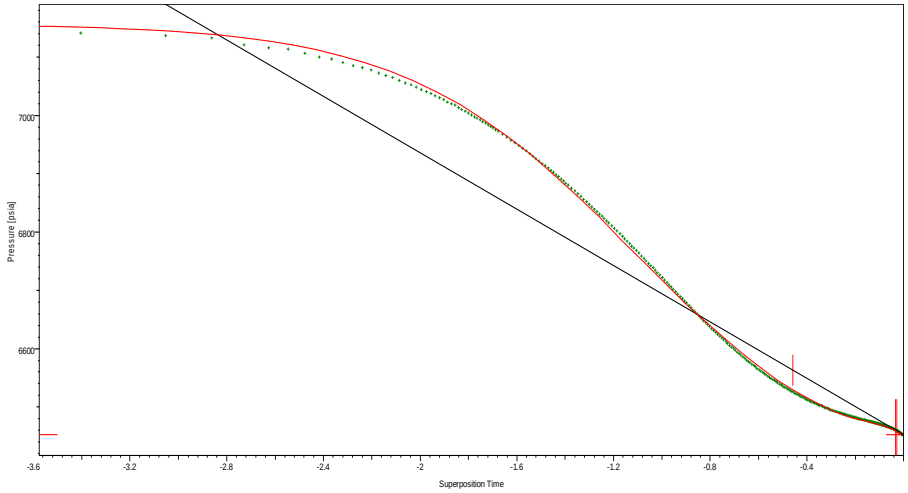
Name	Value	Name	Value
Pressure Fall Off ZIA AGI#D2		C	0.0518 bbl/psi
Formation interval	13,622 ft.- 14,665 ft.	Total Skin	-5.19
Perforated interval	Open Hole	k.h, total	6240 md.ft
		k, average	208 md
Gauge depth	14,687 ft.	Pi	6450.32 psia
Analyzed by	Yosmar Gonzalez		
Analysis date / time		**Model Parameters**	
		Well & Wellbore parameters (Tested well)	
TEST TYPE	Standard	C	0.0518 bbl/psi
		Skin	0.348
Porosity Phi (%)	10	Geometrical Skin	-5.54
Well Radius rw	0.3 ft	Xf	153 ft
Pay Zone h	30 ft	Reservoir & Boundary parameters	
		Pi	6450.32 psia
Form. compr.	3E-6 psi-1	k.h	6240 md.ft
		k	208 md
Fluid type	Water	Omega	0.238
		Lambda	5.6E-8
Volume Factor B	1 B/STB		
Viscosity	1 cp	**Derived & Secondary Parameters**	
Total Compr. ct	3E-6 psi-1	Delta Q	10080 STB/D
		P @ dt=0	7156.43 psia
		PI (p*)	14.326 [STB/D]/psia
Selected Model		Rinv	11800 ft
Model Option	Standard Model	Test. Vol.	233.232 MMB
Well	Fracture - Infinite conductivity	Delta P (Total Skin)	-1183.21 psi
Reservoir	Two porosity PSS	Delta P (Skin)	79.4618 psi
Boundary	Infinite	Delta P Ratio (Total Skin)	-1.67807 Fraction
Main Model Parameters			
TMatch	7.78 [hr]-1		
PMatch	0.00438 [psia]-1		

delta_t	0.213 hr		
Skin	0.133		



Log-Log plot: p-p@dt=0 and derivative [psi] vs dt [hr]

Name	Value	Name	Value
ZIA AGI#D2		**Model Parameters**	
Rate	0 STB/D	Well & Wellbore parameters (Tested well)	
Rate change	10080 STB/D	C	0.0518 bbl/psi
P@dt=0	7156.43 psia	Skin	0.348
Pi	6450.32 psia	Geometrical Skin	-5.54
Smoothing	0.1	Xf	153 ft
		Reservoir & Boundary parameters	
Default values are used!		Pi	6450.32 psia
Selected Model		k.h	6240 md.ft
Model Option	Standard Model	k	208 md
Well	Fracture - Infinite conductivity	Omega	0.238
Reservoir	Two porosity PSS	Lambda	5.6E-8
Boundary	Infinite		
		Derived & Secondary Parameters	
Main Model Parameters		Delta Q	10080 STB/D
TMatch	7.78 [hr]-1	P @ dt=0	7156.43 psia
PMatch	0.00438 [psia]-1	PI (p*)	14.326 [STB/D]/psia
C	0.0518 bbl/psi	Rinv	11800 ft
Total Skin	-5.19	Test. Vol.	233.232 MMB
k.h, total	6240 md.ft	Delta P (Total Skin)	-1183.21 psi
k, average	208 md	Delta P (Skin)	79.4618 psi
Pi	6450.32 psia	Delta P Ratio (Total Skin)	-1.67807 Fraction



Semi-Log plot: p [psia] vs Superposition Time

Name	Value	Name	Value
ZIA AGI#D2		k	208 md
Rate	0 STB/D	Omega	0.238
Rate change	10080 STB/D	Lambda	5.6E-8
P@dt=0	7156.43 psia		
Pi	6450.32 psia	**Derived & Secondary Parameters**	
Smoothing	0.1	Delta Q	10080 STB/D
		P @ dt=0	7156.43 psia
Default values are used!		PI (p*)	14.326 [STB/D]/psia
Selected Model		Rinv	11800 ft
Model Option	Standard Model	Test. Vol.	233.232 MMB
Well	Fracture - Infinite conductivity	Delta P (Total Skin)	-1183.21 psi
Reservoir	Two porosity PSS	Delta P (Skin)	79.4618 psi
Boundary	Infinite	Delta P Ratio (Total Skin)	-1.67807 Fraction
Main Model Parameters		**Semilog Line**	
TMatch	7.78 [hr]-1	From	-482.255 hr
PMatch	0.00438 [psia]-1	To	-476.444 hr
C	0.0518 bbl/psi	Slope	241.75 psi
Total Skin	-5.19	Intercept	6452.81 psia
k.h, total	6240 md.ft	P@1hr	6563.37 psia
k, average	208 md	Delta Q	10080 STB/D
Pi	6450.32 psia	P @ dt=0	7156.43 psia
		PMatch	0.00476 [psia]-1
Model Parameters		k.h	6780 md.ft
Well & Wellbore parameters (Tested well)		k	226 md
C	0.0518 bbl/psi	p*	6452.81 psia
Skin	0.348	Skin	-4.62
Geometrical Skin	-5.54	Delta P Skin	-970.445 psi
Xf	153 ft		
Reservoir & Boundary parameters			
Pi	6450.32 psia		
k.h	6240 md.ft		