KOLAR Document ID: 1425560

Confidentiality Requested:
☑ Yes ☐ No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1
January 2018
Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # 5144
Name: Mull Drilling Company, Inc.
Address 1: 1700 N WATERFRONT PKWY BLDG 1200
Address 2:
City: WICHITA State: KS Zip: 67206 + 6637
Contact Person: Mark Shreve
Phone: (316) 264-6366
CONTRACTOR: License # 33575
Name: WW Drilling, LLC
Wellsite Geologist: Wildcat Well Logging/Seth Stacey
Purchaser: Plains Marketing

Designate Type of Completion:
☑ New Well ☐ Re-Entry ☐ Workover
☑ Oil ☐ WSW ☐ SWD
☐ Gas ☐ DH ☐ EOR
☐ OG ☐ GSW
☐ CM *(Coal Bed Methane)*
☐ Cathodic ☐ Other *(Core, Expl., etc.)*:

If Workover/Re-entry: Old Well Info as follows:
Operator:
Well Name:
Original Comp. Date: Original Total Depth:
☐ Deepening ☐ Re-perf. ☐ Conv. to EOR ☐ Conv. to SWD
☐ Plug Back ☐ Liner ☐ Conv. to GSW ☐ Conv. to Producer

☐ Commingled Permit #:
☐ Dual Completion Permit #:
☐ SWD Permit #:
☐ EOR Permit #:
☐ GSW Permit #:

07/10/2018 Spud Date or Recompletion Date
08/01/2018 Date Reached TD
10/03/2018 Completion Date or Recompletion Date

API No.: 15-063-22331-01-00
Spot Description:
NW - NW - SE - SE Sec. 31 Twp. 15 S. R. 26 ☐ East ☑ West
1291 Feet from ☐ North / ☑ South Line of Section
1106 Feet from ☑ East / ☐ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☐ NE ☐ NW ☑ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Gove
Lease Name: CBC UNIT Well #: 1-31H
Field Name: Horchem West
Producing Formation: Mississippian
Elevation: Ground: 2586 Kelly Bushing: 2601
Total Vertical Depth: 8454 Plug Back Total Depth: 7450
Amount of Surface Pipe Set and Cemented at: 309 Feet
Multiple Stage Cementing Collar Used? ☐ Yes ☑ No
If yes, show depth set: Feet
If Alternate II completion, cement circulated from:
feet depth to: w/ sx cmt.

Drilling Fluid Management Plan
(Data must be collected from the Reserve Pit)
Chloride content: 24500 ppm Fluid volume: 900 bbls
Dewatering method used: Evaporated
Location of fluid disposal if hauled offsite:
Operator Name:
Lease Name: License #:
Quarter Sec. Twp. S. R. ☐ East ☐ West
County: Permit #:

AFFIDAVIT
I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY
☐ **Confidentiality Requested**
Date: 10/24/2018
☐ **Confidential Release Date:** 10/23/2020
☑ **Wireline Log Received** ☐ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** Karen Ritter **Date:** 10/25/2018

Operator Name: Mull Drilling Company, Inc. Lease Name: CBC UNIT Well #: 1-31H

Sec. 31 Twp. 15 S. R. 26 ☐ East ☑ West County: Gove

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken (Attach Additional Sheets) ☐ Yes ☑ No

Samples Sent to Geological Survey ☑ Yes ☐ No

Cores Taken ☐ Yes ☑ No

Electric Log Run ☑ Yes ☐ No

Geologist Report / Mud Logs ☑ Yes ☐ No

List All E. Logs Run:

Gamma Ray Neutron/CCL

☑ Log Formation (Top), Depth and Datum ☐ Sample

Name	Top	Datum
Mississippi	5139 MD	-1898

CASING RECORD ☑ New ☐ Used

Report all strings set-conductor, surface, intermediate, production, etc.

Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives
Surface	12.250	9.625	36	309	Common	170	3% cc, 2% gel
Intermediate	9.625	7.000	26	5166	SMD	625	2% cc, 2% calseal, 2% metso bead
Production	7.000	4.500	11.6	8397			

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ Plug Off Zone	-			
	-			

1. Did you perform a hydraulic fracturing treatment on this well? ☐ Yes ☑ No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? ☐ Yes ☐ No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? ☐ Yes ☐ No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/ Injection: 10/03/2018

Producing Method: ☐ Flowing ☑ Pumping ☐ Gas Lift ☐ Other *(Explain)*

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity
	90	0	139		36

DISPOSITION OF GAS: ☐ Vented ☐ Sold ☐ Used on Lease *(If vented, Submit ACO-18.)*

METHOD OF COMPLETION: ☑ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*

PRODUCTION INTERVAL:

Top	Bottom
6810	6901

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*
	8295	8296		8262	1,000 gals 15% NEFE (SPF=Sleeve, BP Type=Composite)
6	8220	8221			No Treatment
6	8160	8161		7450	No Treatment (BP Type = Composite)
6	6900	6901			750 gals 15% NEFE
6	6810	6811			Treated with 6900' - 6901'

TUBING RECORD: Size: 3.5 Set At: 4277 Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Mull Drilling Company, Inc.
Well Name	CBC UNIT 1-31H
Doc ID	1425560

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.250	9.625	36	309	Common	170	3% cc, 2% gel
Intermediate	9.625	7.000	26	5166	SMD	625	2% cc, 2% calseal, 2% metso bead
Production	7.000	4.500	11.6	8397			

SWIFT Services, Inc.

CHARGE TO: Mull Drilling
ADDRESS
CITY, STATE, ZIP CODE

TICKET 031658

PAGE 1 OF 1

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. Ness City KS	# 1-31 H	CBC Unit	Gove	KS	Utica	7-10-18	Same
2.	TICKET TYPE ☒ SERVICE ☐ SALES / CONTRACTOR: W + W Drilling	RIG NAME/NO. # 14	SHIPPED VIA CT	DELIVERED TO: Location	ORDER NO.		
3.	WELL TYPE: Oil	WELL CATEGORY: Development	JOB PURPOSE: Cement 9 5/8" Surface Pipe	WELL PERMIT NO.	WELL LOCATION: Utica - 4w, 4n, 1/2w, Unit		
4.							
REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
575		1			MILEAGE Trk # 115			40	mi	5 00	200 00
576 S		1			Pump Charge - Shallow Surface			1	job	875 00	875 00
325		1			Standard Cement			180	sks	13 00	2340 00
279		1			Bentonite Gel	2	%	3	sks	30 00	90 00
278		1			Calcium Chloride	3	%	8	sks	40 00	320 00
290		1			D-Air			2	gal	42 00	84 00
580		1			Additional Hours (waiting time)			2	hrs	250 00	500 00
581		1			Service Charge Cement			180	sks	1 75	315 00
583		1			Drayage	17620	lbs	352.4	TM	00 85	299 54

LEGAL TERMS: Customer hereby acknowledges and agrees to the terms and conditions on the reverse side hereof which include, but are not limited to, **PAYMENT, RELEASE, INDEMNITY, and LIMITED WARRANTY** provisions.

MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS.

X Cavin Ainsworth

DATE SIGNED 7-10-18 | TIME SIGNED 0345 ☐ A.M. ☐ P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UNDECIDED	DISAGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	5023 54
Gove Dist Sls Tax 8.5 10	283 39
TOTAL	5306 93

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR David Kuehn | APPROVAL Cavin Ainsworth

Thank You!

JOB LOG

SWIFT Services, Inc.

DATE 7-10-18 | PAGE NO. 1

CUSTOMER: Mull Drilling | WELL NO.: # 1-31 H | LEASE: CBC Unit | JOB TYPE: 9⅝" Surface Pipe | TICKET NO.: #31658

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
	1930							on location 9⅝" 36 #
								RTD - 310' TP - 309'
								Rig Drilling
	2145							waiting for trash pump
7-11-18	0120							Start 9⅝" 36 # casing in well
	0230							Break circulation
	0250	4½	5		✓		100	Pump 5 bbl water spacer
	0255	4½	44		✓		100	mix 180 sks STD 2% Gel 3% cc @ 14.7
	0310	4½	0		✓		100	Start Displacement
		4½	16		✓		100	circulate cement to surface - *30 sks
	0315	4½	23		✓		200	Kick out Pump / Shut in *Plug Down*
								Release Pressure * Valve Held *
								wash up truck
	0345							Job Complete
								Thank You
								Dave Preston Kirby Gideon

SWIFT Services, Inc.

CHARGE TO: Mull Drilling
ADDRESS
CITY, STATE, ZIP CODE

TICKET 27343

PAGE 1 OF

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. Hays Ks	1-31H	CBC Unit		Ks		7-19-18	
2. Ness City Ks	TICKET TYPE ☐ SERVICE ☐ SALES / CONTRACTOR: WW Drilling		RIG NAME/NO.: Rig #14	SHIPPED VIA: CT	DELIVERED TO: location	ORDER NO.	
3.	WELL TYPE: Oil	WELL CATEGORY: development	JOB PURPOSE: 7" long String		WELL PERMIT NO.	WELL LOCATION	
4.							
REFERRAL LOCATION	INVOICE INSTRUCTIONS						

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
575		1			MILEAGE Trk # 111	40	mi			5 00	200 00
578		1			Pump Charge - long String	1	EA			1300 00	1300 00
~~290~~ 290		1			D-Air	7	Gal			42 00	294 00
281		1			Mud Flush	500	Gal			1 50	750 00
221		1			Liquid KCl	2	Gal			25 00	50 00
		2			Double Bow Turbolizer	4	EA	7"		120 00	480 00
409		2			Regular Turbolizer	8	EA	↓		90 00	720 00
403		2			Cement Basket	4	EA			300 00	1200 00
406		2			Latch Down Plug & Baffle	1	EA			400 00	400 00
400		2			Guide Shoe	1	EA	✓		600 00	600 00
580		1			Additional Hours	8	Hrs			250 00	2000 00
					Sugar	2	Sks			20 00	40 00

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MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS

X

DATE SIGNED | TIME SIGNED ☐ A.M. ☐ P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UN-DECIDED	DIS-AGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL P.1	8034 00
P.2	12698 12
Total	20732 12
02 Discount	
Gov Tax 8%	1448 48
TOTAL	22180 60

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR David Edgerton

APPROVAL

Thank You

SWIFT Services, Inc.

PO Box 466
Ness City, KS 67560
Off: 785-798-2300

TICKET CONTINUATION

TICKET No. 27343

CUSTOMER: Mull Drilling | WELL: CBC Unit 1-31 H | DATE: 7-19-18 | PAGE | OF

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	TIME	DESCRIPTION	QTY	U/M	QTY	U/M	UNIT PRICE	AMOUNT
330						Swift Multi Density	625	sks			16 25	10156 2
276						Flocele	156	lbs			2 50	390 00
						SERVICE CHARGE Cement	CUBIC FEET 625 sks				1 75	1093 75
						MILEAGE CHARGE TOTAL WEIGHT 62275 LOADED MILES 40	TON MILES 1245				85	1058 25

CONTINUATION TOTAL 12698 2

JOB LOG

SWIFT Services, Inc.

DATE 7-19-18 | PAGE NO.

CUSTOMER Mull Drilling | WELL NO. 1-31H | LEASE CBC Unit | JOB TYPE 4" long String | TICKET NO. 27343

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS T	PUMPS C	PRESSURE (PSI) TUBING	PRESSURE (PSI) CASING	DESCRIPTION OF OPERATION AND MATERIALS
7/19	1600							On location
								Csg - 7" x 26#
								RTD 5166'
	800					1500		Psi test truck - Held
7/20		6	12			700		pump mud flush - 500 Gal
		6	10			700		pump KCL spacer
	815	5	0			600		Start cmt - 75 sks @ 11.2 ppg
		5	41.5			500		Raise Wgt - 175 sks @ 11.8 ppg
		5	128.75			200		Raise wgt - 200 sks @ 12.5 ppg
		5	205.25			200		Raise wgt - 100 sks @ 13.5 ppg
		5	236.25			200		Raise wgt - 75 sks @ 14.5 ppg
		5	255.75			200		End cmt
	910							Drop plug
	915	4.5	0			200		Start Disp
		4.5	36			400		Catch cmt
		4.5	120			1525		Circ cmt
	1000	3	196			200		land plug - Lift psi - 2000 #
								land psi - 2475 #
								Release psi - Flowed Back
								1.25 BBL then Dry
								Thanks
								David, Zach, Kirby & Wayne
								Circulated 150 sks cmt
								to pit

SWIFT Services, Inc.

CHARGE TO: Mull Drilling Co.
ADDRESS
CITY, STATE, ZIP CODE

TICKET 031674

PAGE 1 OF 1

SERVICE LOCATIONS	WELL/PROJECT NO.	LEASE	COUNTY/PARISH	STATE	CITY	DATE	OWNER
1. Ness City KS	CBC	#1-31 H	Gove	KS	Utica	8-7-18	Same

TICKET TYPE	CONTRACTOR	RIG NAME/NO.	SHIPPED VIA	DELIVERED TO	ORDER NO.
☒ SERVICE ☐ SALES			CT	Location	

WELL TYPE	WELL CATEGORY	JOB PURPOSE	WELL PERMIT NO.	WELL LOCATION
Oil	Development	Plug Rat Hole Mouse Hole		Utica - 3w, 4n, 1w, S Wint

REFERRAL LOCATION
INVOICE INSTRUCTIONS

PRICE REFERENCE	SECONDARY REFERENCE/ PART NUMBER	ACCOUNTING LOC	ACCT	DF	DESCRIPTION	QTY.	U/M	QTY.	U/M	UNIT PRICE	AMOUNT
575		1			MILEAGE Trk # 112			40	mi	5 00	200 00
576 P		1			Pump Charge - PTA			1	job	875 00	875 00
326-4		1			60/40 Pozmix (4% Gel) (min)			50	sks	10 00	530 00
290		1			D-Air			1	gal	42 00	42 00
					Plug RH - 30 sks						
					Plug MH - 20 sks						
581		1			Service Charge Cement			50	sks	1 25	87 50
582		1			Minimum Drayage Charge			1	ea	250 00	250 00

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MUST BE SIGNED BY CUSTOMER OR CUSTOMER'S AGENT PRIOR TO START OF WORK OR DELIVERY OF GOODS.

X

DATE SIGNED 8-7-18 | TIME SIGNED 1300 ☐ A.M. ☐ P.M.

REMIT PAYMENT TO:

SWIFT SERVICES, INC.
P.O. BOX 466
NESS CITY, KS 67560
785-798-2300

SURVEY	AGREE	UNDECIDED	DISAGREE
OUR EQUIPMENT PERFORMED WITHOUT BREAKDOWN?			
WE UNDERSTOOD AND MET YOUR NEEDS?			
OUR SERVICE WAS PERFORMED WITHOUT DELAY?			
WE OPERATED THE EQUIPMENT AND PERFORMED JOB CALCULATIONS SATISFACTORILY?			

ARE YOU SATISFIED WITH OUR SERVICE? ☐ YES ☐ NO

☐ CUSTOMER DID NOT WISH TO RESPOND

PAGE TOTAL	1984 50
Subtotal	
Tax $5.10	48 67
TOTAL	2133 17

CUSTOMER ACCEPTANCE OF MATERIALS AND SERVICES The customer hereby acknowledges receipt of the materials and services listed on this ticket.

SWIFT OPERATOR David Kuchy | APPROVAL

Thank You!

Well Logging, Inc.

316 North Falcon Drive
Oklahoma City, Oklahoma 73127

405.495.8533 office@wildcatwelllogging.com
www.wildcatwelllogging.com

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	CDC Unit #1-31H		
API:	15-063-22331-01-00		
Location:	Sec 31 - 15N - 26W		
License Number:		Region:	Gove County
Spud Date:	07/09/2018	Drilling Completed:	07/31/2018
Surface Coordinates:	1,291' FSL & 1,106' FEL		
Bottom Hole Coordinates:	N/S: -759.17' & E/W: 4,251.41		
Ground Elevation (ft):	2,586'	K.B. Elevation (ft):	2,602'
Logged Interval (ft):	3,890' To: 8,455'	Total Depth (ft):	8,455'
Formation:	Mississippian [Warsaw Dolomite]		
Type of Drilling Fluid:	Water Based / Added live oil at 7,070' to 8,455' [TD]		

Printed by HorizontalLog from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company:	Mull Drilling Corporation
Address:	1700 Waterfront #1200 Wichita, KS 67206

GEOLOGIST

Name: Rusty Mourning
Company: Mull Drilling Corporation
Address: 1700 Waterfront #1200
Wichita, KS 67206

MUDLOGGER

Seth T. Stacey
405-655-0148
sstacey@wildcatwelllogging.com
www.sethstacey.com

COMMENTS

CONTRACTOR: WW Drilling

RIG SAMPLES: 30' Samples @ 3,890'

MUDLOGGING START DATE: 07 / 14 / 2018

MUD LOGGING END DATE: 07 / 31 / 2018

SAMPLES DELIVERED TO MULL DRILLING.

MUDLOGGING END DATE: 10/21/2017

ROCK TYPES

ACCESSORIES

MINERAL

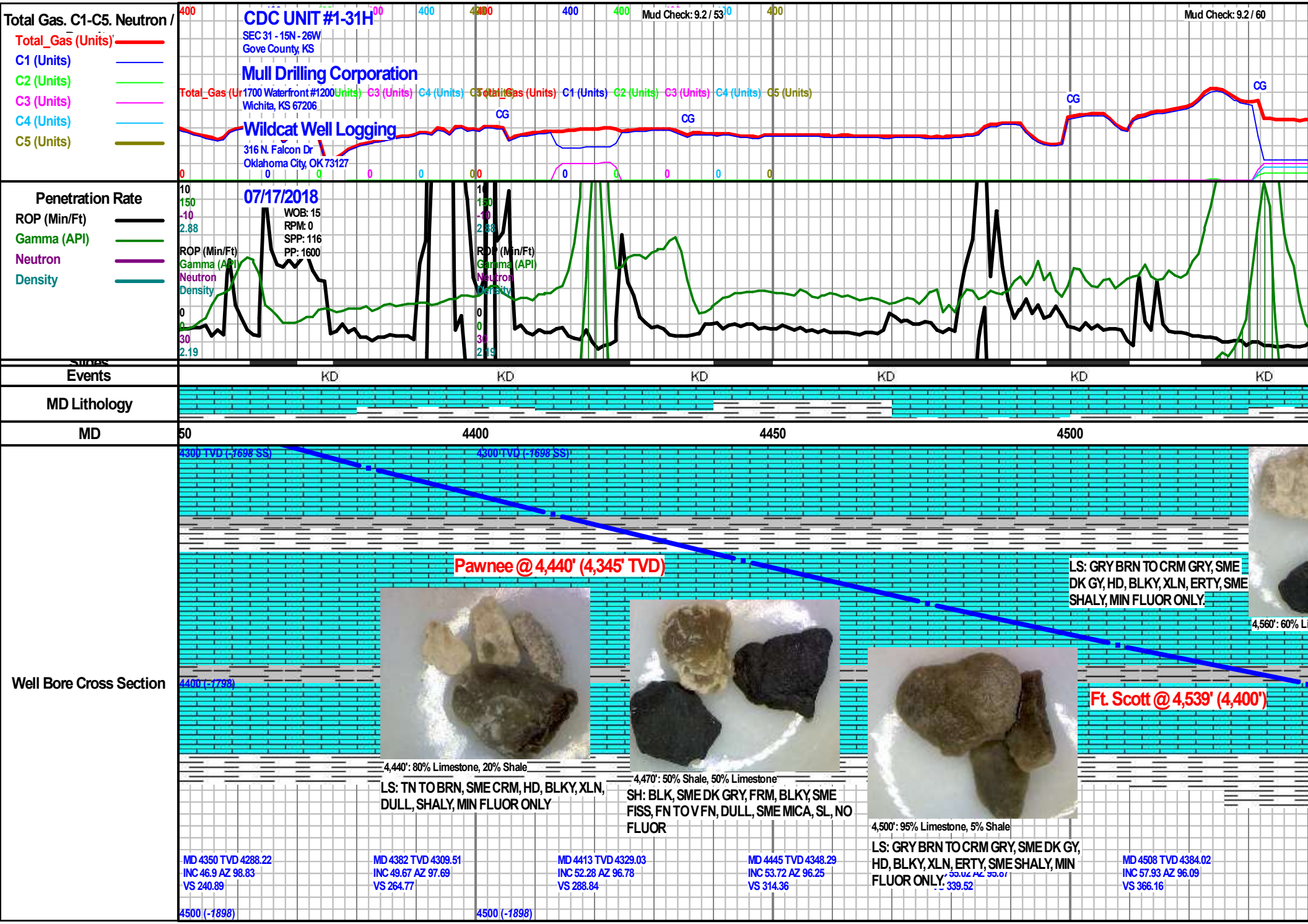
- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

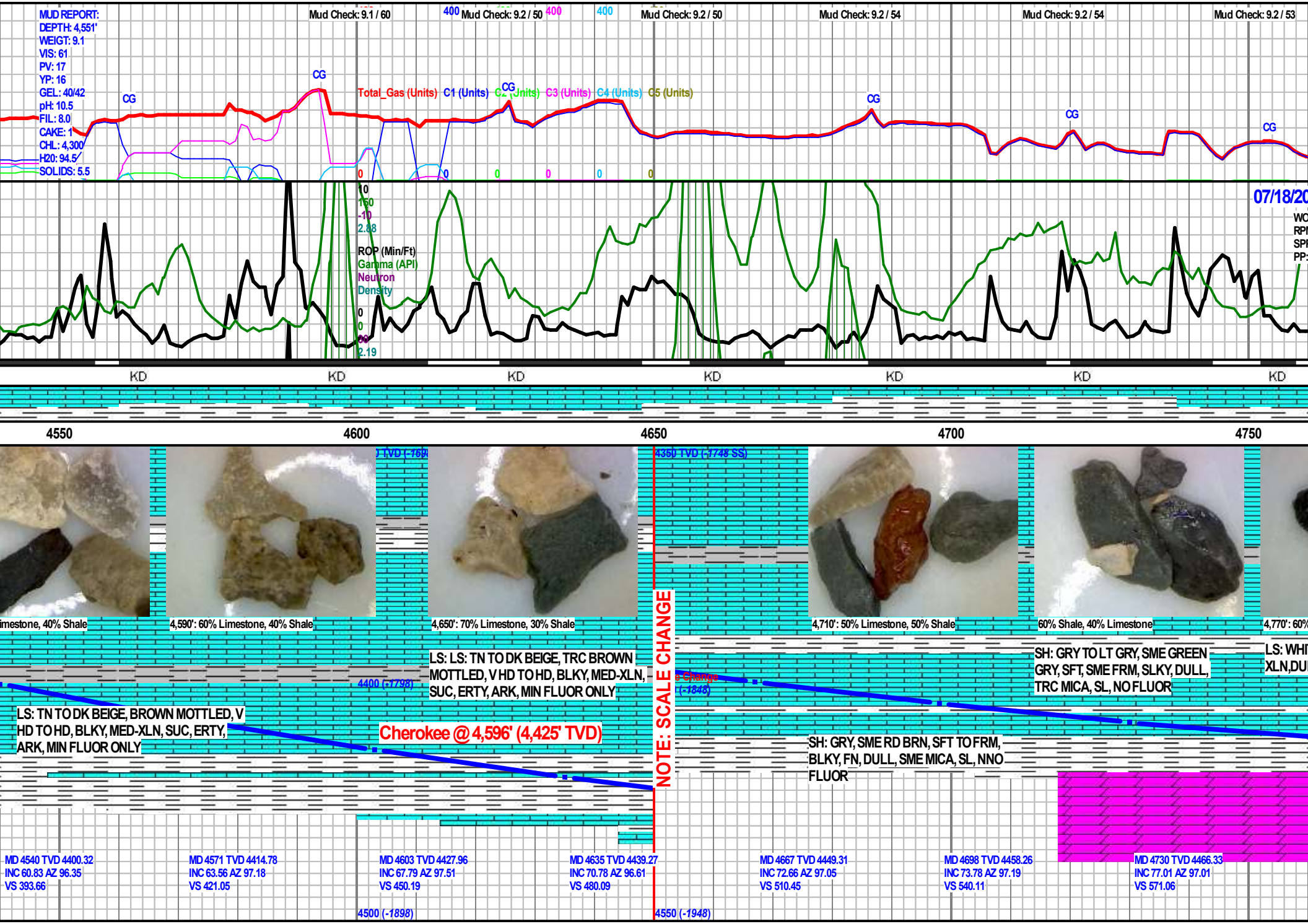
FOSSIL

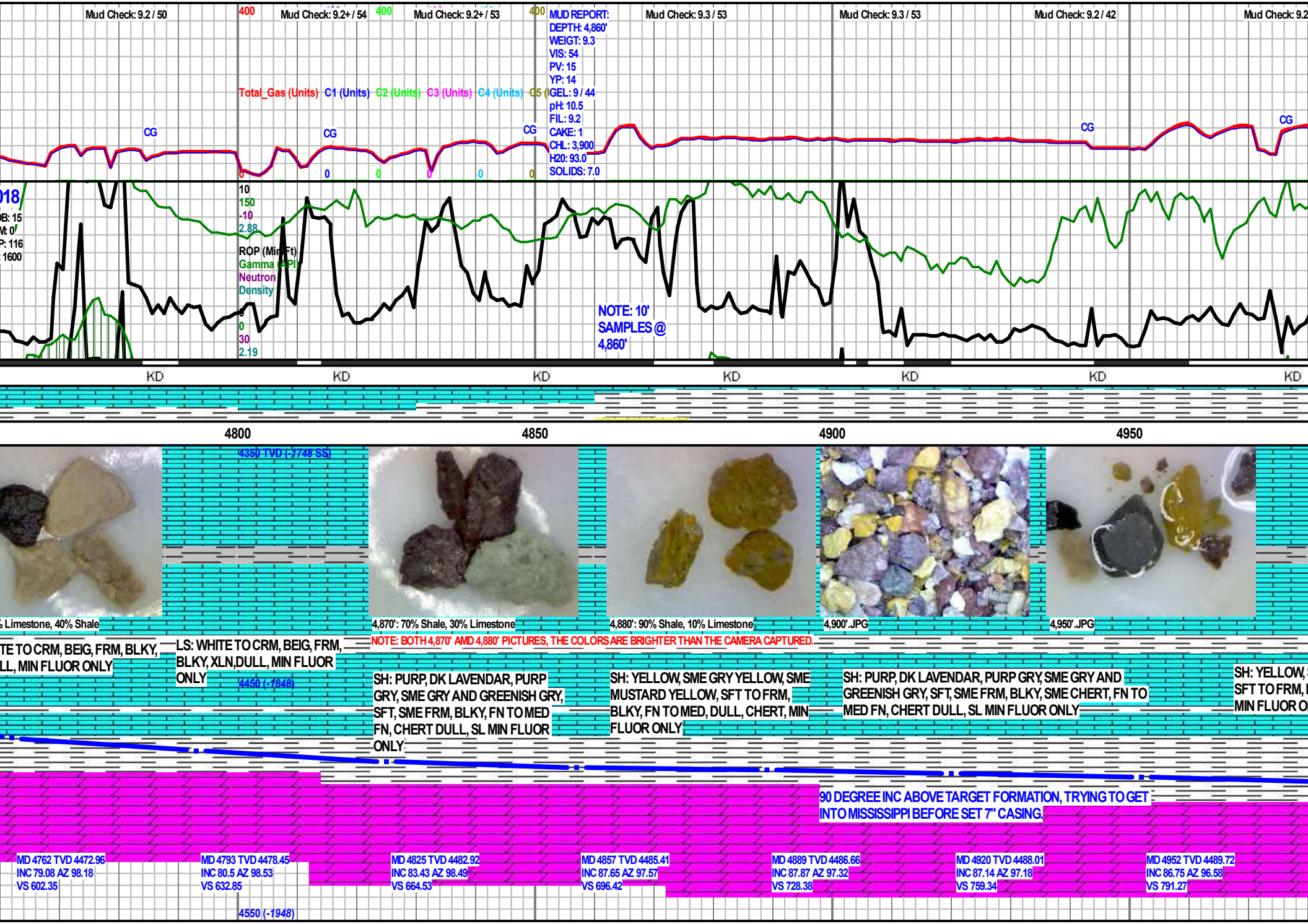
- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

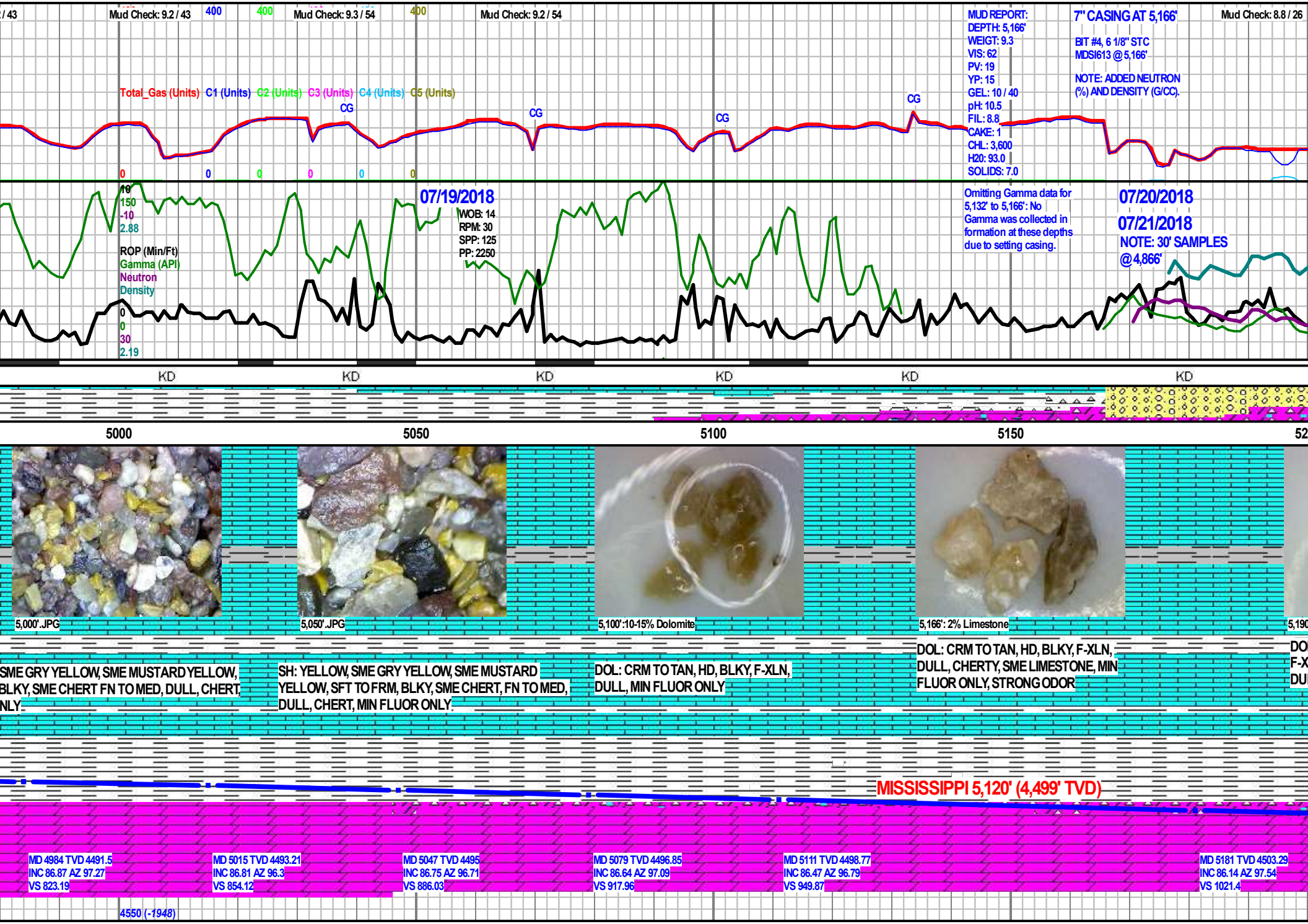
STRINGER

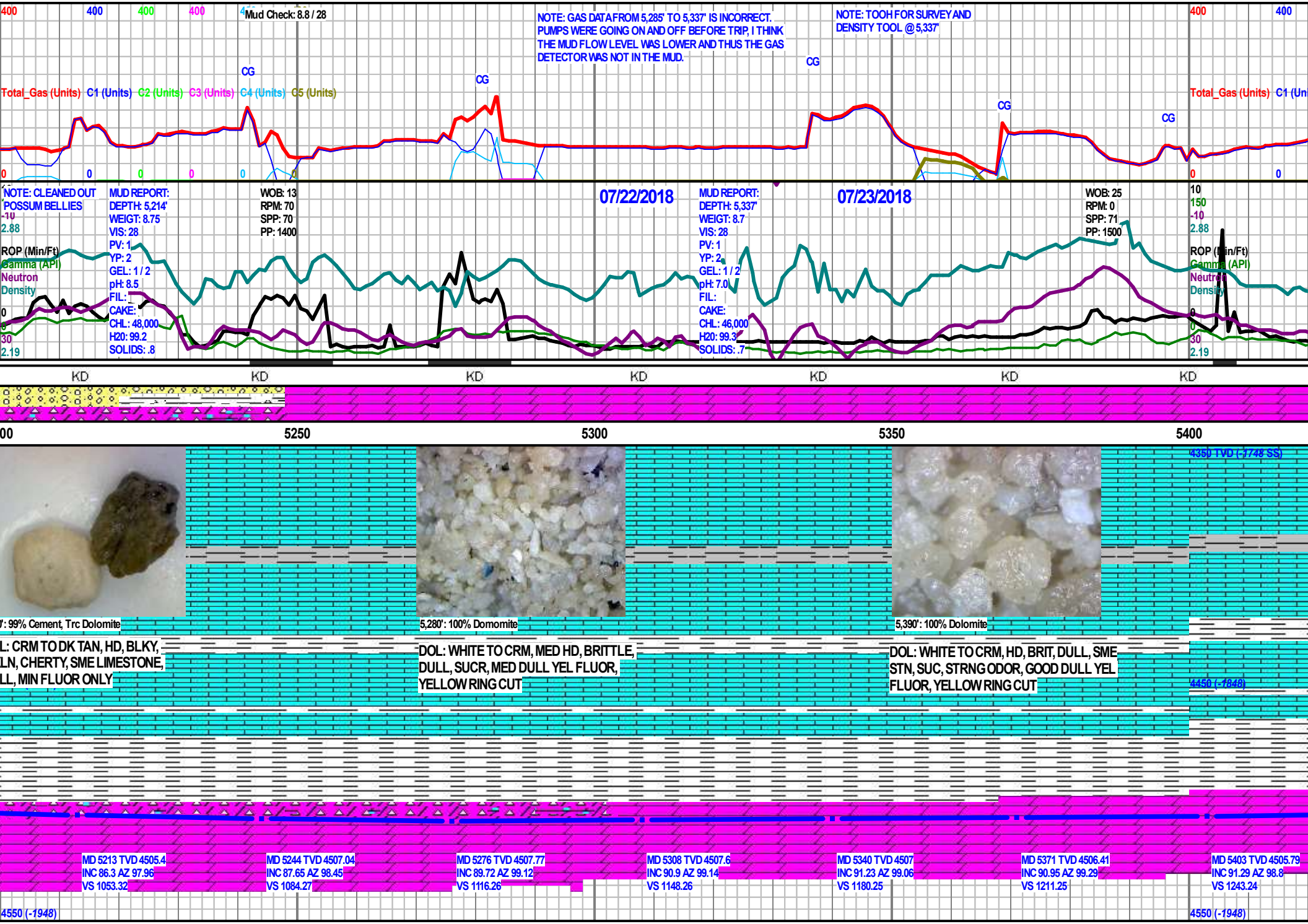
- Arkosic inclus
- Chert inclus
- Anhydrite str
- Arkosic qtz str
- Arkosic str
- Arkosic str ii
- Carb wash str
- Coal/carb sh
- Dolomite str
- Granite str
- Limestone str
- Limy ss str
- Qtz wash str
- Sandy ls str
- Shale str
- Siltstone str
- Sandstone str

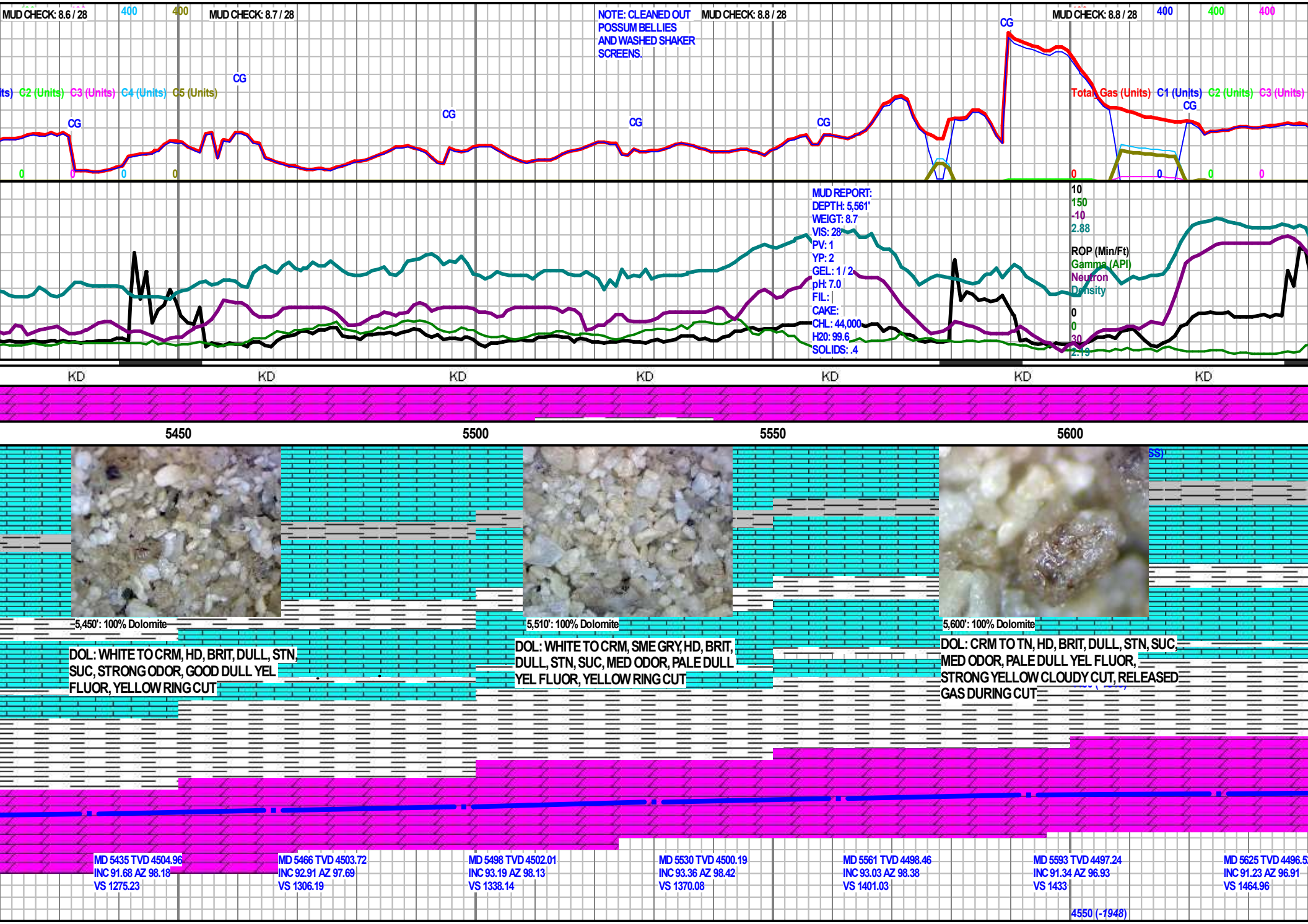

Total Gas. C1-C5. Neutron /
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
CDC UNIT #1-31H
SEC 31 - 15N - 26W
Gove County, KS
Mull Drilling Corporation
1700 Waterfront #1200
Wichita, KS 67206
Wildcat Well Logging
316 N. Falcon Dr
Oklahoma City, OK 73127
Mud Check: 9.2 / 53
Mud Check: 9.2 / 60
CG
Penetration Rate
ROP (Min/Ft)
Gamma (API)
Neutron
Density
07/17/2018
WOB: 15
RPM: 0
SPP: 116
PP: 1600
Events
KD
MD Lithology
MD
50
4400
4450
4500
Well Bore Cross Section
4300 TVD (-1698 SS)
Pawnee @ 4,440' (4,345' TVD)
4400 (-1798)
4,440': 80% Limestone, 20% Shale
LS: TN TO BRN, SME CRM, HD, BLKY, XLN, DULL, SHALY, MIN FLUOR ONLY
4,470': 50% Shale, 50% Limestone
SH: BLK, SME DK GRY, FRM, BLKY, SME FISS, FN TO V FN, DULL, SME MICA, SL, NO FLUOR
LS: GRY BRN TO CRM GRY, SME DK GY, HD, BLKY, XLN, ERTY, SME SHALY, MIN FLUOR ONLY.
4,560': 60% Li
Ft. Scott @ 4,539' (4,400')
4,500': 95% Limestone, 5% Shale
LS: GRY BRN TO CRM GRY, SME DK GY, HD, BLKY, XLN, ERTY, SME SHALY, MIN FLUOR ONLY.
MD 4350 TVD 4288.22
INC 46.9 AZ 98.83
VS 240.89
MD 4382 TVD 4309.51
INC 49.67 AZ 97.69
VS 264.77
MD 4413 TVD 4329.03
INC 52.28 AZ 96.78
VS 288.84
MD 4445 TVD 4348.29
INC 53.72 AZ 96.25
VS 314.36
MD 4508 TVD 4384.02
INC 57.93 AZ 96.09
VS 366.16
4500 (-1898)

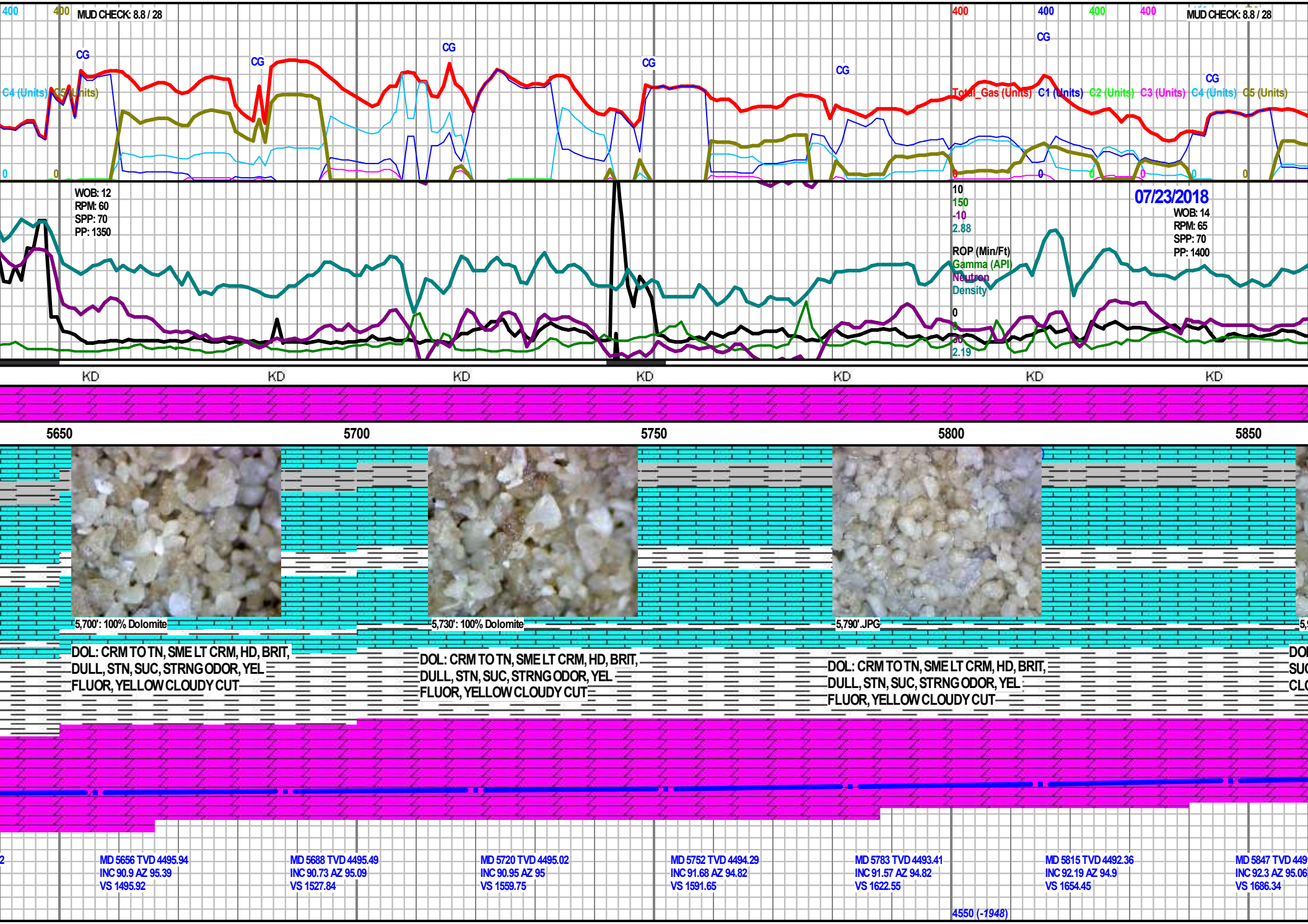

MUD REPORT:
DEPTH: 4,551'
WEIGT: 9.1
VIS: 61
PV: 17
YP: 16
GEL: 40/42
pH: 10.5
FIL: 8.0
CAKE: 1
CHL: 4,300
H20: 94.5
SOLIDS: 5.5
Mud Check: 9.1 / 60
Mud Check: 9.2 / 50
Mud Check: 9.2 / 50
Mud Check: 9.2 / 54
Mud Check: 9.2 / 54
Mud Check: 9.2 / 53
CG
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
ROP (Min/Ft)
Gamma (API)
Neutron
Density
07/18/20
KD
4550
4600
4650
4700
4750
4,590': 60% Limestone, 40% Shale
4,650': 70% Limestone, 30% Shale
4,710': 50% Limestone, 50% Shale
60% Shale, 40% Limestone
4,770': 60%
LS: LS: TN TO DK BEIGE, TRC BROWN MOTTLED, V HD TO HD, BLKY, MED-XLN, SUC, ERTY, ARK, MIN FLUOR ONLY
LS: TN TO DK BEIGE, BROWN MOTTLED, V HD TO HD, BLKY, MED-XLN, SUC, ERTY, ARK, MIN FLUOR ONLY
Cherokee @ 4,596' (4,425' TVD)
NOTE: SCALE CHANGE
SH: GRY TO LT GRY, SME GREEN GRY, SFT, SME FRM, SLKY, DULL, TRC MICA, SL, NO FLUOR
SH: GRY, SME RD BRN, SFT TO FRM, BLKY, FN, DULL, SME MICA, SL, NNO FLUOR
4400 (-1798)
4500 (-1898)
4550 (-1948)
MD 4540 TVD 4400.32
INC 60.83 AZ 96.35
VS 393.66
MD 4571 TVD 4414.78
INC 63.56 AZ 97.18
VS 421.05
MD 4603 TVD 4427.96
INC 67.79 AZ 97.51
VS 450.19
MD 4635 TVD 4439.27
INC 70.78 AZ 96.61
VS 480.09
MD 4667 TVD 4449.31
INC 72.66 AZ 97.05
VS 510.45
MD 4698 TVD 4458.26
INC 73.78 AZ 97.19
VS 540.11
MD 4730 TVD 4466.33
INC 77.01 AZ 97.01
VS 571.06

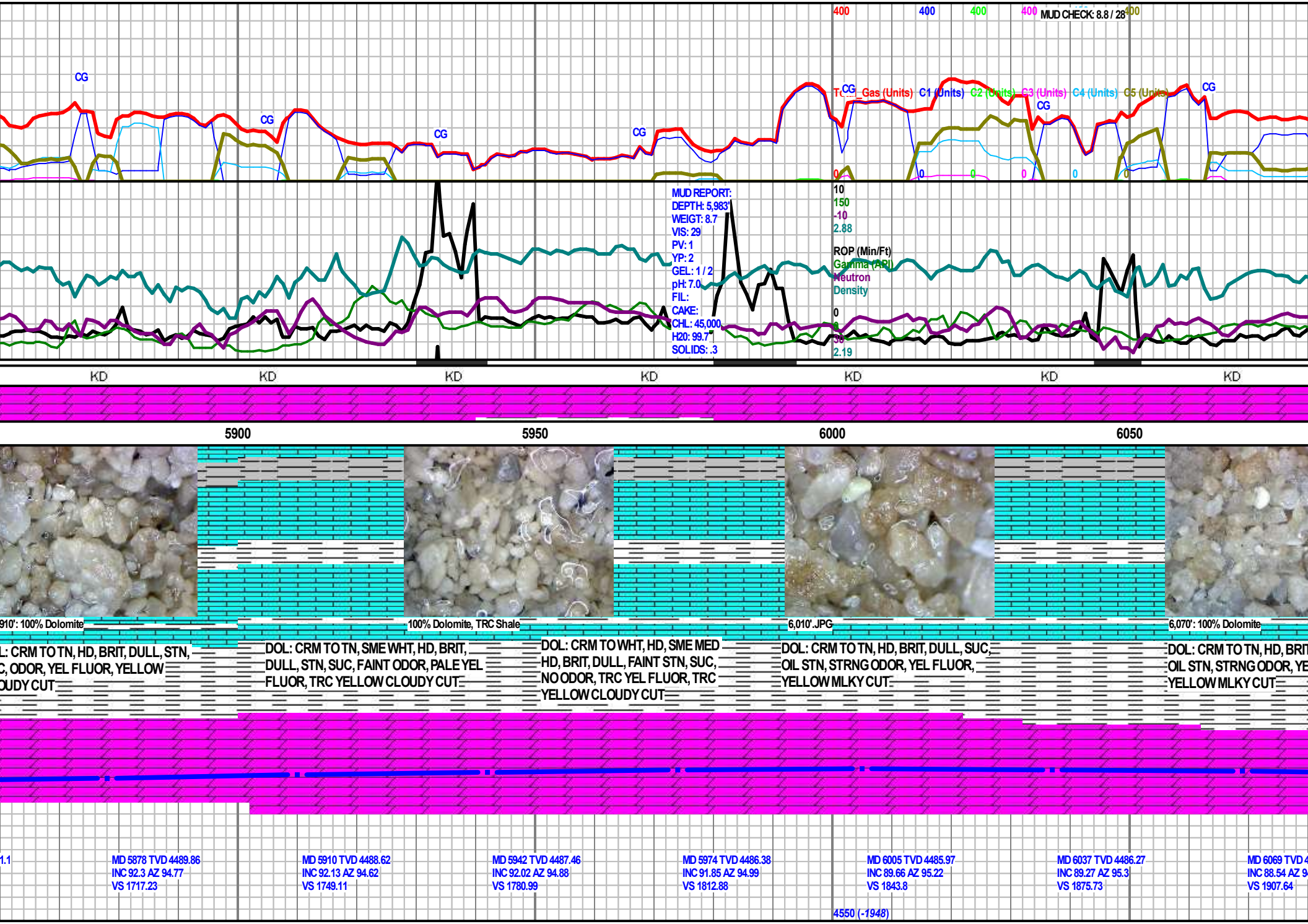

Mud Check: 9.2 / 50
Mud Check: 9.2+ / 54
Mud Check: 9.2+ / 53
Mud Check: 9.3 / 53
Mud Check: 9.3 / 53
Mud Check: 9.2 / 42
Mud Check: 9.2
MUD REPORT:
DEPTH: 4,860'
WEIGT: 9.3
VIS: 54
PV: 15
YP: 14
GEL: 9 / 44
pH: 10.5
FIL: 9.2
CAKE: 1
CHL: 3,900
H20: 93.0
SOLIDS: 7.0
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
CG
ROP (Min/Ft)
Gamma (API)
Neutron
Density
NOTE: 10' SAMPLES @ 4,860'
KD
4800
4850
4900
4950
4350 TVD (-1748 SS)
% Limestone, 40% Shale
4,870': 70% Shale, 30% Limestone
4,880': 90% Shale, 10% Limestone
4,900'.JPG
4,950'.JPG
NOTE: BOTH 4,870' AMD 4,880' PICTURES, THE COLORS ARE BRIGHTER THAN THE CAMERA CAPTURED.
TE TO CRM, BEIG, FRM, BLKY, LL, MIN FLUOR ONLY
LS: WHITE TO CRM, BEIG, FRM, BLKY, XLN,DULL, MIN FLUOR ONLY
4450 (-1848)
SH: PURP, DK LAVENDAR, PURP GRY, SME GRY AND GREENISH GRY, SFT, SME FRM, BLKY, FN TO MED FN, CHERT DULL, SL MIN FLUOR ONLY
SH: YELLOW, SME GRY YELLOW, SME MUSTARD YELLOW, SFT TO FRM, BLKY, FN TO MED, DULL, CHERT, MIN FLUOR ONLY
SH: PURP, DK LAVENDAR, PURP GRY, SME GRY AND GREENISH GRY, SFT, SME FRM, BLKY, SME CHERT, FN TO MED FN, CHERT DULL, SL MIN FLUOR ONLY
SH: YELLOW, SFT TO FRM, MIN FLUOR O
90 DEGREE INC ABOVE TARGET FORMATION, TRYING TO GET INTO MISSISSIPPI BEFORE SET 7" CASING.
MD 4762 TVD 4472.96
INC 79.08 AZ 98.18
VS 602.35
MD 4793 TVD 4478.45
INC 80.5 AZ 98.53
VS 632.85
MD 4825 TVD 4482.92
INC 83.43 AZ 98.49
VS 664.53
MD 4857 TVD 4485.41
INC 87.65 AZ 97.57
VS 696.42
MD 4889 TVD 4486.66
INC 87.87 AZ 97.32
VS 728.38
MD 4920 TVD 4488.01
INC 87.14 AZ 97.18
VS 759.34
MD 4952 TVD 4489.72
INC 86.75 AZ 96.58
VS 791.27
4550 (-1948)

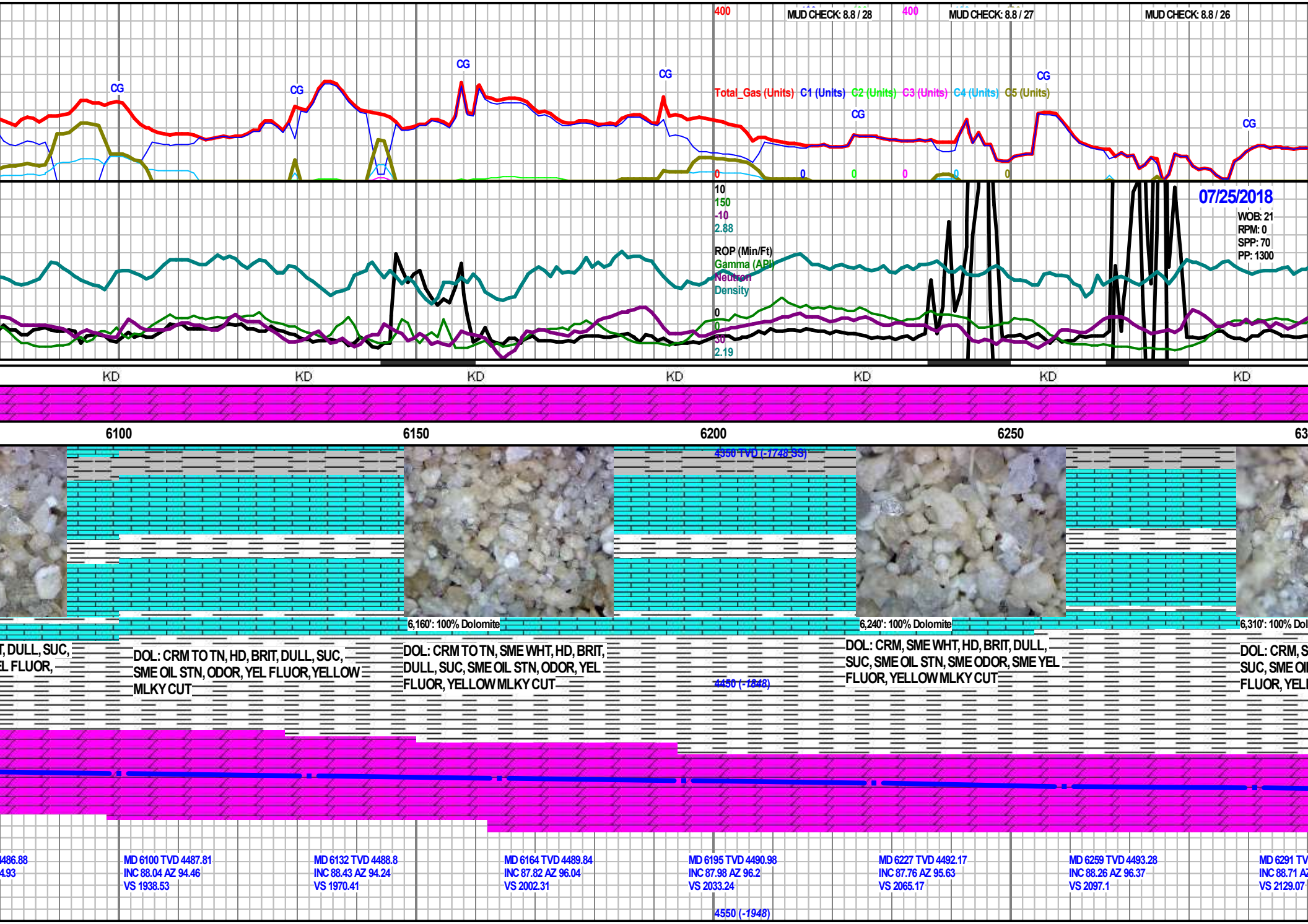

/ 43
Mud Check: 9.2 / 43
400
400
Mud Check: 9.3 / 54
400
Mud Check: 9.2 / 54
Mud Check: 8.8 / 26
MUD REPORT:
DEPTH: 5,166'
WEIGT: 9.3
VIS: 62
PV: 19
YP: 15
GEL: 10 / 40
pH: 10.5
FIL: 8.8
CAKE: 1
CHL: 3,600
H20: 93.0
SOLIDS: 7.0
7" CASING AT 5,166'
BIT #4, 6 1/8" STC
MDSI613 @5,166'
NOTE: ADDED NEUTRON (%) AND DENSITY (G/CC).
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
CG
CG
CG
CG
0
0
0
0
0
0
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
0
30
2.19
07/19/2018
WOB: 14
RPM: 30
SPP: 125
PP: 2250
Omitting Gamma data for 5,132' to 5,166': No Gamma was collected in formation at these depths due to setting casing.
07/20/2018
07/21/2018
NOTE: 30' SAMPLES @4,866'
KD
KD
KD
KD
KD
KD
5000
5050
5100
5150
5,000'.JPG
5,050'.JPG
5,100':10-15% Dolomite
5,166': 2% Limestone
SME GRY YELLOW, SME MUSTARD YELLOW, BLKY, SME CHERT FN TO MED, DULL, CHERT, NLY
SH: YELLOW, SME GRY YELLOW, SME MUSTARD YELLOW, SFT TO FRM, BLKY, SME CHERT, FN TO MED, DULL, CHERT, MIN FLUOR ONLY
DOL: CRM TO TAN, HD, BLKY, F-XLN, DULL, MIN FLUOR ONLY
DOL: CRM TO TAN, HD, BLKY, F-XLN, DULL, CHERTY, SME LIMESTONE, MIN FLUOR ONLY, STRONG ODOR
MISSISSIPPI 5,120' (4,499' TVD)
MD 4984 TVD 4491.5
INC 86.87 AZ 97.27
VS 823.19
MD 5015 TVD 4493.21
INC 86.81 AZ 96.3
VS 854.12
MD 5047 TVD 4495
INC 86.75 AZ 96.71
VS 886.03
MD 5079 TVD 4496.85
INC 86.64 AZ 97.09
VS 917.96
MD 5111 TVD 4498.77
INC 86.47 AZ 96.79
VS 949.87
MD 5181 TVD 4503.29
INC 86.14 AZ 97.54
VS 1021.4
4550 (-1948)

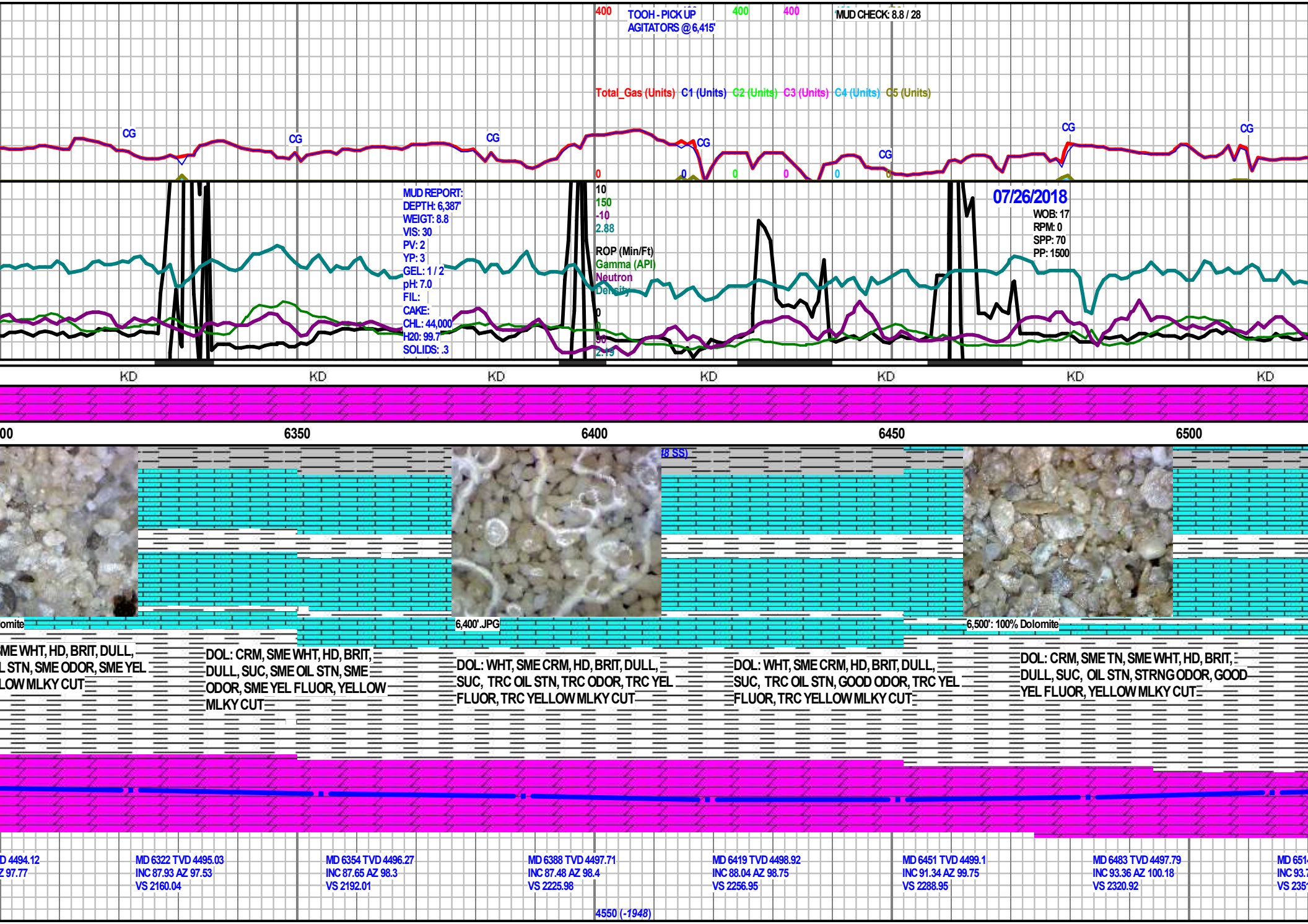

400
400
400
400
Mud Check: 8.8 / 28
NOTE: GAS DATA FROM 5,285' TO 5,337' IS INCORRECT. PUMPS WERE GOING ON AND OFF BEFORE TRIP, I THINK THE MUD FLOW LEVEL WAS LOWER AND THUS THE GAS DETECTOR WAS NOT IN THE MUD.
NOTE: TOOH FOR SURVEY AND DENSITY TOOL @ 5,337'
CG
Total_Gas (Units) C1 (Units) C2 (Units) C3 (Units) C4 (Units) C5 (Units)
0
0
0
0
0
NOTE: CLEANED OUT POSSUM BELLIES
MUD REPORT: DEPTH: 5,214' WEIGT: 8.75 VIS: 28 PV: 1 YP: 2 GEL: 1 / 2 pH: 8.5 FIL: CAKE: CHL: 48,000 H20: 99.2 SOLIDS: .8
WOB: 13 RPM: 70 SPP: 70 PP: 1400
07/22/2018
MUD REPORT: DEPTH: 5,337' WEIGT: 8.7 VIS: 28 PV: 1 YP: 2 GEL: 1 / 2 pH: 7.0 FIL: CAKE: CHL: 46,000 H20: 99.3 SOLIDS: .7
07/23/2018
WOB: 25 RPM: 0 SPP: 71 PP: 1500
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
30
2.19
10
150
KD
00
5250
5300
5350
5400
4350 TVD (-1748 SS)
5,280': 100% Domomite
5,390': 100% Dolomite
': 99% Cement, Trc Dolomite
L: CRM TO DK TAN, HD, BLKY, LN, CHERTY, SME LIMESTONE, LL, MIN FLUOR ONLY
DOL: WHITE TO CRM, MED HD, BRITTLE, DULL, SUCR, MED DULL YEL FLUOR, YELLOW RING CUT
DOL: WHITE TO CRM, HD, BRIT, DULL, SME STN, SUC, STRNG ODOR, GOOD DULL YEL FLUOR, YELLOW RING CUT
4450 (-1848)
MD 5213 TVD 4505.4 INC 86.3 AZ 97.96 VS 1053.32
MD 5244 TVD 4507.04 INC 87.65 AZ 98.45 VS 1084.27
MD 5276 TVD 4507.77 INC 89.72 AZ 99.12 VS 1116.26
MD 5308 TVD 4507.6 INC 90.9 AZ 99.14 VS 1148.26
MD 5340 TVD 4507 INC 91.23 AZ 99.06 VS 1180.25
MD 5371 TVD 4506.41 INC 90.95 AZ 99.29 VS 1211.25
MD 5403 TVD 4505.79 INC 91.29 AZ 98.8 VS 1243.24
4550 (-1948)

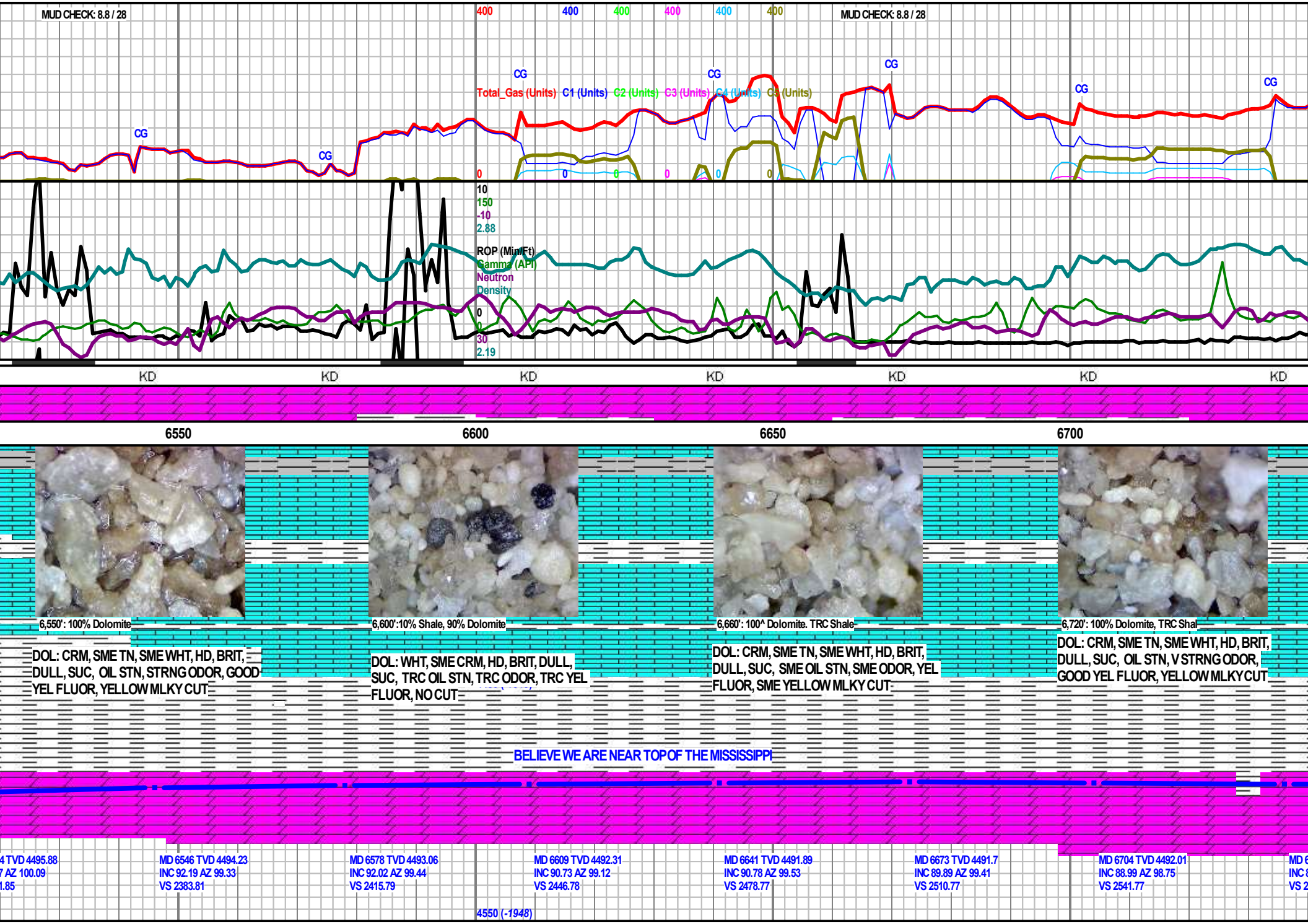

MUD CHECK: 8.6 / 28
MUD CHECK: 8.7 / 28
NOTE: CLEANED OUT POSSUM BELLIES AND WASHED SHAKER SCREENS.
MUD CHECK: 8.8 / 28
MUD CHECK: 8.8 / 28
CG
C2 (Units) C3 (Units) C4 (Units) C5 (Units)
Total Gas (Units) C1 (Units) C2 (Units) C3 (Units)
MUD REPORT:
DEPTH: 5,561'
WEIGT: 8.7
VIS: 28
PV: 1
YP: 2
GEL: 1 / 2
pH: 7.0
FIL:
CAKE:
CHL: 44,000
H20: 99.6
SOLIDS: .4
ROP (Min/Ft)
Gamma (API)
Neutron
Density
KD
5450
5500
5550
5600
5,450': 100% Dolomite
DOL: WHITE TO CRM, HD, BRIT, DULL, STN, SUC, STRONG ODOR, GOOD DULL YEL FLUOR, YELLOW RING CUT
5,510': 100% Dolomite
DOL: WHITE TO CRM, SME GRY, HD, BRIT, DULL, STN, SUC, MED ODOR, PALE DULL YEL FLUOR, YELLOW RING CUT
5,600': 100% Dolomite
DOL: CRM TO TN, HD, BRIT, DULL, STN, SUC, MED ODOR, PALE DULL YEL FLUOR, STRONG YELLOW CLOUDY CUT, RELEASED GAS DURING CUT
MD 5435 TVD 4504.96
INC 91.68 AZ 98.18
VS 1275.23
MD 5466 TVD 4503.72
INC 92.91 AZ 97.69
VS 1306.19
MD 5498 TVD 4502.01
INC 93.19 AZ 98.13
VS 1338.14
MD 5530 TVD 4500.19
INC 93.36 AZ 98.42
VS 1370.08
MD 5561 TVD 4498.46
INC 93.03 AZ 98.38
VS 1401.03
MD 5593 TVD 4497.24
INC 91.34 AZ 96.93
VS 1433
MD 5625 TVD 4496.5
INC 91.23 AZ 96.91
VS 1464.96
4550 (-1948)

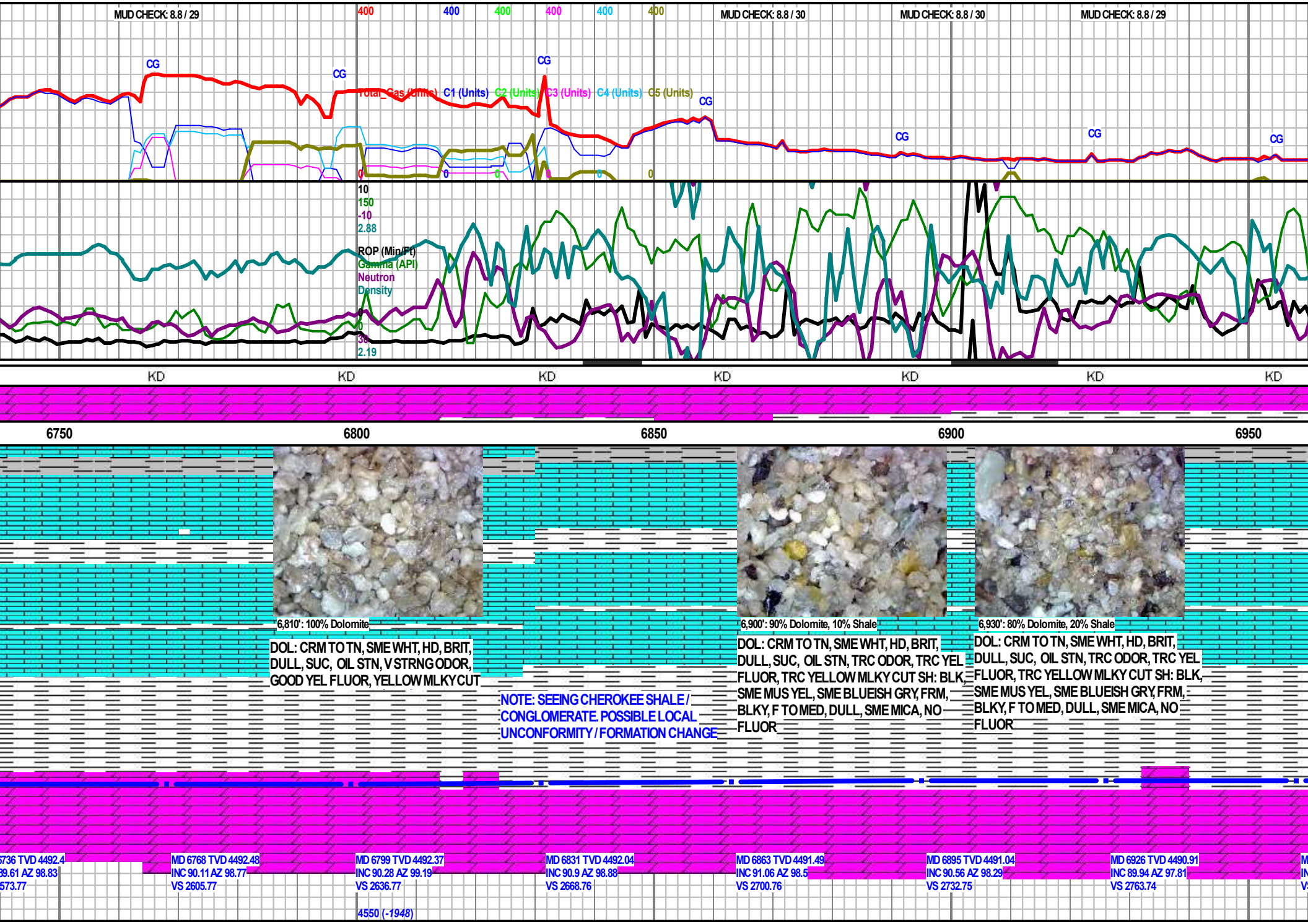

400
400
MUD CHECK: 8.8 / 28
CG
CG
CG
CG
CG
C4 (Units)
C5 (Units)
0
0
400
400
400
400
MUD CHECK: 8.8 / 28
CG
CG
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
0
0
0
0
0
0
WOB: 12
RPM: 60
SPP: 70
PP: 1350
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
2.19
07/23/2018
WOB: 14
RPM: 65
SPP: 70
PP: 1400
KD
KD
KD
KD
KD
KD
KD
5650
5700
5750
5800
5850
5,700': 100% Dolomite
5,730': 100% Dolomite
5,790'.JPG
DOL: CRM TO TN, SME LT CRM, HD, BRIT, DULL, STN, SUC, STRNG ODOR, YEL FLUOR, YELLOW CLOUDY CUT
DOL: CRM TO TN, SME LT CRM, HD, BRIT, DULL, STN, SUC, STRNG ODOR, YEL FLUOR, YELLOW CLOUDY CUT
DOL: CRM TO TN, SME LT CRM, HD, BRIT, DULL, STN, SUC, STRNG ODOR, YEL FLUOR, YELLOW CLOUDY CUT
MD 5656 TVD 4495.94
INC 90.9 AZ 95.39
VS 1495.92
MD 5688 TVD 4495.49
INC 90.73 AZ 95.09
VS 1527.84
MD 5720 TVD 4495.02
INC 90.95 AZ 95
VS 1559.75
MD 5752 TVD 4494.29
INC 91.68 AZ 94.82
VS 1591.65
MD 5783 TVD 4493.41
INC 91.57 AZ 94.82
VS 1622.55
MD 5815 TVD 4492.36
INC 92.19 AZ 94.9
VS 1654.45
MD 5847 TVD 449
INC 92.3 AZ 95.06
VS 1686.34
4550 (-1948)

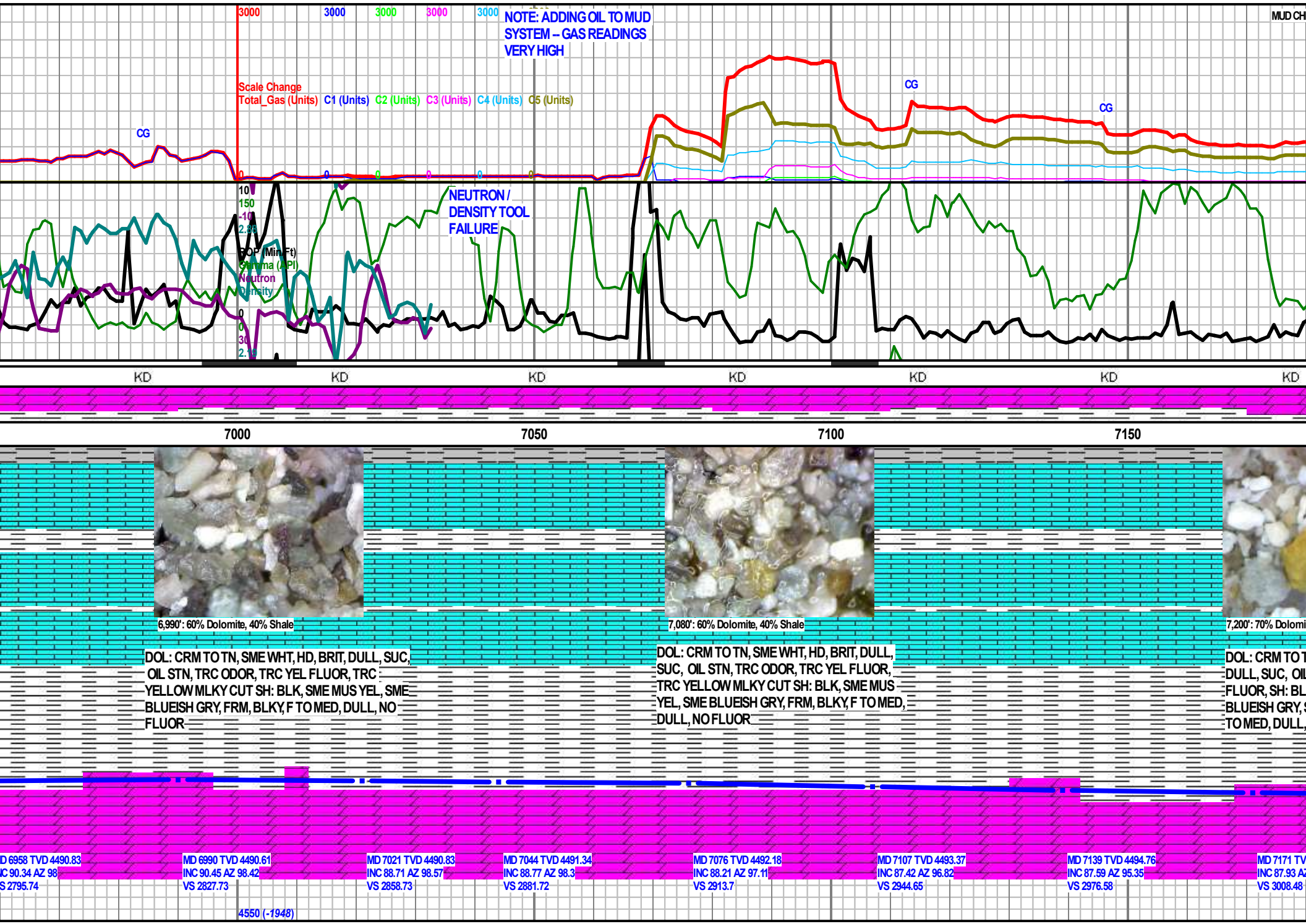

400
400
400
400
MUD CHECK: 8.8 / 28
400
CG
CG
CG
CG
CG
CG
CG
Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
0
0
0
0
0
MUD REPORT:
DEPTH: 5,983'
WEIGT: 8.7
VIS: 29
PV: 1
YP: 2
GEL: 1 / 2
pH: 7.0
FIL:
CAKE:
CHL: 45,000
H20: 99.7
SOLIDS: .3
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
2.19
KD
KD
KD
KD
KD
KD
KD
5900
5950
6000
6050
910': 100% Dolomite
100% Dolomite, TRC Shale
6,010'.JPG
6,070': 100% Dolomite
L: CRM TO TN, HD, BRIT, DULL, STN,
C, ODOR, YEL FLUOR, YELLOW
OUDY CUT
DOL: CRM TO TN, SME WHT, HD, BRIT,
DULL, STN, SUC, FAINT ODOR, PALE YEL
FLUOR, TRC YELLOW CLOUDY CUT
DOL: CRM TO WHT, HD, SME MED
HD, BRIT, DULL, FAINT STN, SUC,
NO ODOR, TRC YEL FLUOR, TRC
YELLOW CLOUDY CUT
DOL: CRM TO TN, HD, BRIT, DULL, SUC,
OIL STN, STRNG ODOR, YEL FLUOR,
YELLOW MLKY CUT
DOL: CRM TO TN, HD, BRIT
OIL STN, STRNG ODOR, YE
YELLOW MLKY CUT
1.1
MD 5878 TVD 4489.86
INC 92.3 AZ 94.77
VS 1717.23
MD 5910 TVD 4488.62
INC 92.13 AZ 94.62
VS 1749.11
MD 5942 TVD 4487.46
INC 92.02 AZ 94.88
VS 1780.99
MD 5974 TVD 4486.38
INC 91.85 AZ 94.99
VS 1812.88
MD 6005 TVD 4485.97
INC 89.66 AZ 95.22
VS 1843.8
MD 6037 TVD 4486.27
INC 89.27 AZ 95.3
VS 1875.73
MD 6069 TVD 4
INC 88.54 AZ 9
VS 1907.64
4550 (-1948)

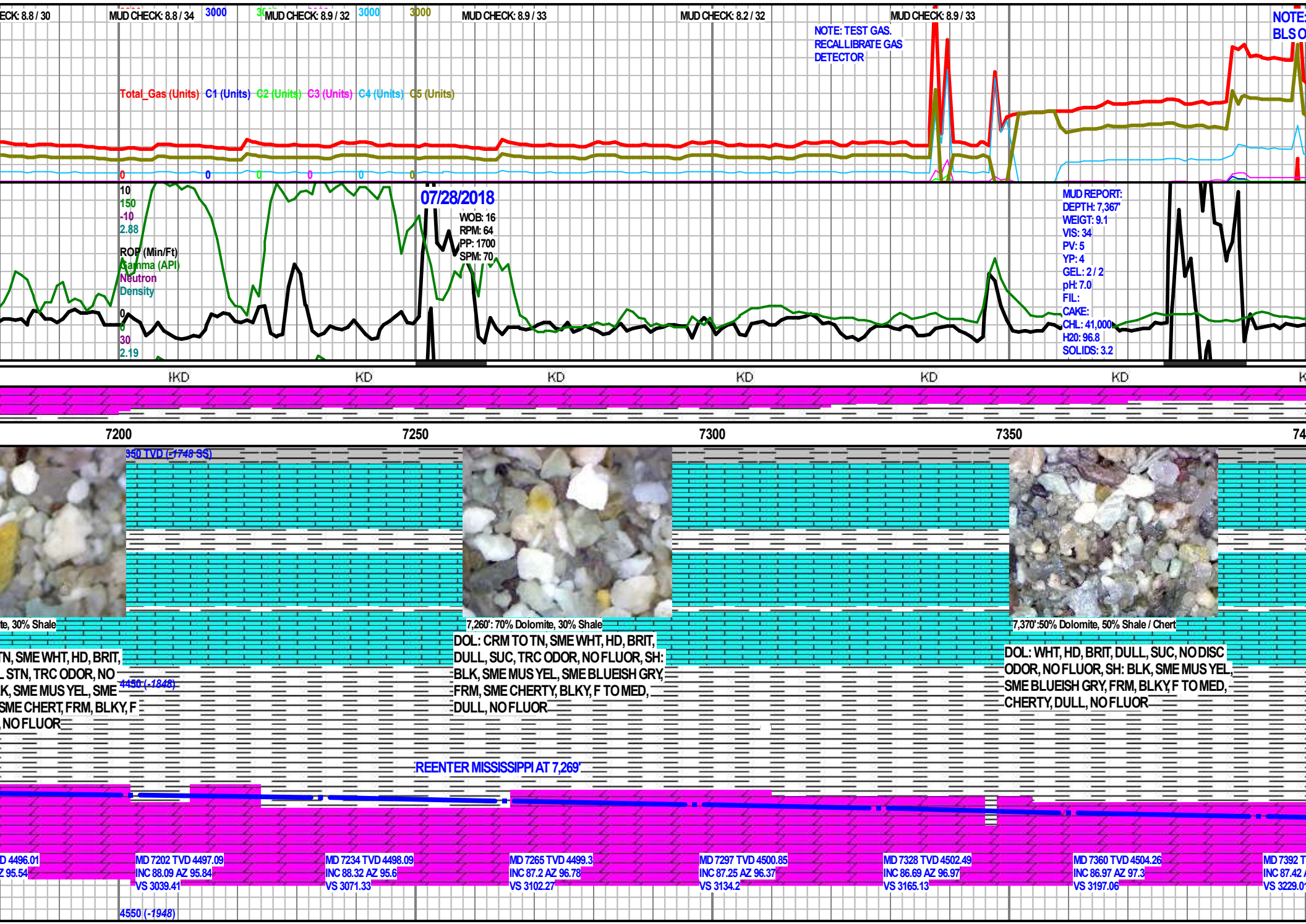

400
MUD CHECK: 8.8 / 28
400
MUD CHECK: 8.8 / 27
MUD CHECK: 8.8 / 26
CG
CG
CG
CG
CG
CG
CG
Total_Gas (Units) C1 (Units) C2 (Units) C3 (Units) C4 (Units) C5 (Units)
0
0
0
0
0
0
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
0
30
2.19
07/25/2018
WOB: 21
RPM: 0
SPP: 70
PP: 1300
KD
KD
KD
KD
KD
KD
KD
6100
6150
6200
6250
4350 TVD (-1748 SS)
6,160': 100% Dolomite
6,240': 100% Dolomite
6,310': 100% Dol
T, DULL, SUC,
EL FLUOR,
DOL: CRM TO TN, HD, BRIT, DULL, SUC, SME OIL STN, ODOR, YEL FLUOR, YELLOW MLKY CUT
DOL: CRM TO TN, SME WHT, HD, BRIT, DULL, SUC, SME OIL STN, ODOR, YEL FLUOR, YELLOW MLKY CUT
4450 (-1848)
DOL: CRM, SME WHT, HD, BRIT, DULL, SUC, SME OIL STN, SME ODOR, SME YEL FLUOR, YELLOW MLKY CUT
DOL: CRM, S
SUC, SME OI
FLUOR, YELL
4486.88
4.93
MD 6100 TVD 4487.81
INC 88.04 AZ 94.46
VS 1938.53
MD 6132 TVD 4488.8
INC 88.43 AZ 94.24
VS 1970.41
MD 6164 TVD 4489.84
INC 87.82 AZ 96.04
VS 2002.31
MD 6195 TVD 4490.98
INC 87.98 AZ 96.2
VS 2033.24
4550 (-1948)
MD 6227 TVD 4492.17
INC 87.76 AZ 95.63
VS 2065.17
MD 6259 TVD 4493.28
INC 88.26 AZ 96.37
VS 2097.1
MD 6291 TV
INC 88.71 A
VS 2129.07

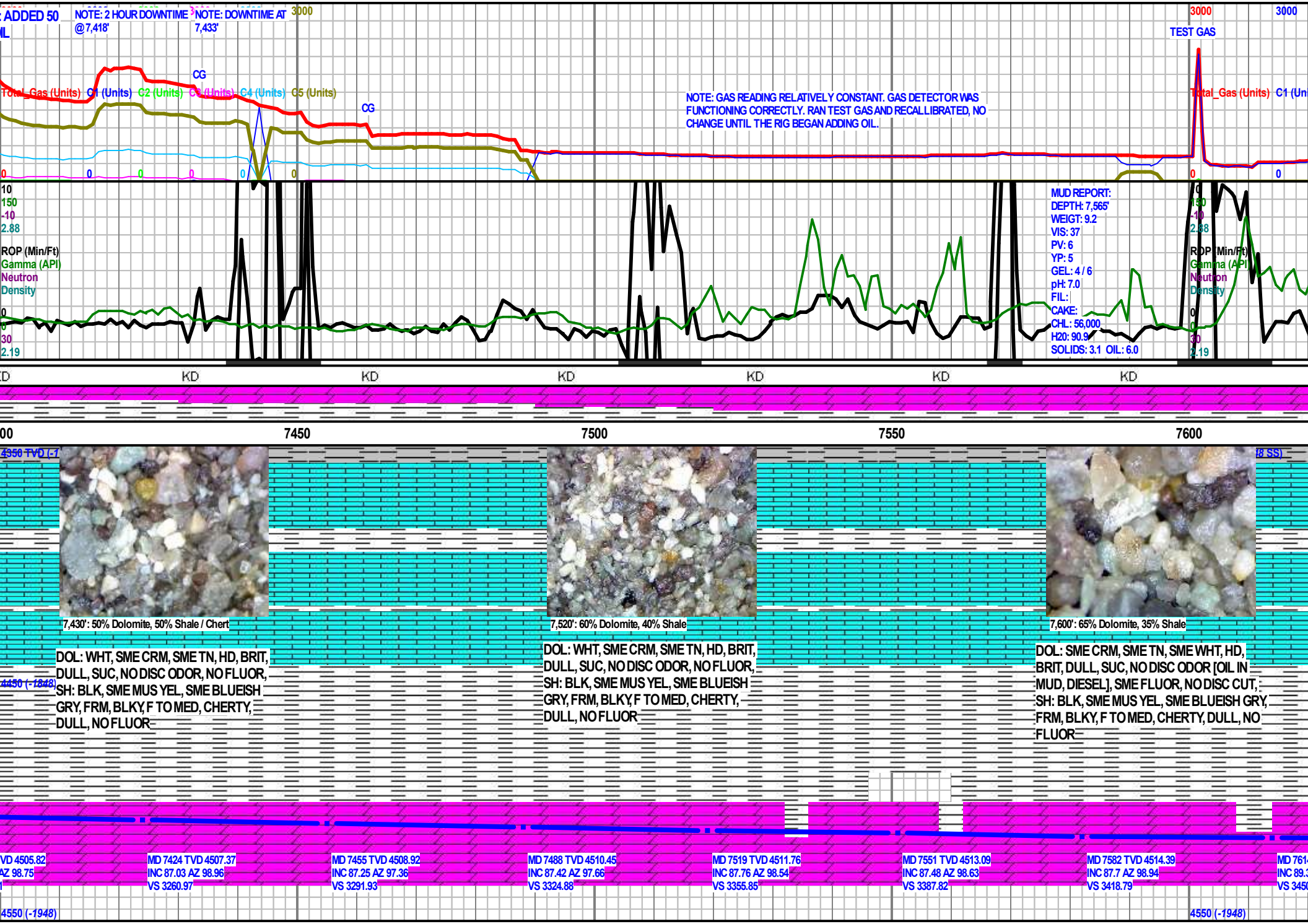

400
TOOH - PICK UP
AGITATORS @ 6,415'
400
400
MUD CHECK: 8.8 / 28
Total_Gas (Units) C1 (Units) C2 (Units) C3 (Units) C4 (Units) C5 (Units)
CG
CG
CG
CG
CG
CG
CG
0
0
0
0
0
0
MUD REPORT:
DEPTH: 6,387'
WEIGT: 8.8
VIS: 30
PV: 2
YP: 3
GEL: 1 / 2
pH: 7.0
FIL:
CAKE:
CHL: 44,000
H20: 99.7
SOLIDS: .3
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
0
90
2.19
07/26/2018
WOB: 17
RPM: 0
SPP: 70
PP: 1500
KD
KD
KD
KD
KD
KD
KD
00
6350
6400
6450
6500
(8' SS)
omite
6,400'.JPG
6,500': 100% Dolomite
ME WHT, HD, BRIT, DULL,
L STN, SME ODOR, SME YEL
LOW MLKY CUT
DOL: CRM, SME WHT, HD, BRIT,
DULL, SUC, SME OIL STN, SME
ODOR, SME YEL FLUOR, YELLOW
MLKY CUT
DOL: WHT, SME CRM, HD, BRIT, DULL,
SUC, TRC OIL STN, TRC ODOR, TRC YEL
FLUOR, TRC YELLOW MLKY CUT
DOL: WHT, SME CRM, HD, BRIT, DULL,
SUC, TRC OIL STN, GOOD ODOR, TRC YEL
FLUOR, TRC YELLOW MLKY CUT
DOL: CRM, SME TN, SME WHT, HD, BRIT,
DULL, SUC, OIL STN, STRNG ODOR, GOOD
YEL FLUOR, YELLOW MLKY CUT
D 4494.12
Z 97.77
MD 6322 TVD 4495.03
INC 87.93 AZ 97.53
VS 2160.04
MD 6354 TVD 4496.27
INC 87.65 AZ 98.3
VS 2192.01
MD 6388 TVD 4497.71
INC 87.48 AZ 98.4
VS 2225.98
MD 6419 TVD 4498.92
INC 88.04 AZ 98.75
VS 2256.95
MD 6451 TVD 4499.1
INC 91.34 AZ 99.75
VS 2288.95
MD 6483 TVD 4497.79
INC 93.36 AZ 100.18
VS 2320.92
MD 651
INC 93.
VS 235
4550 (-1948)

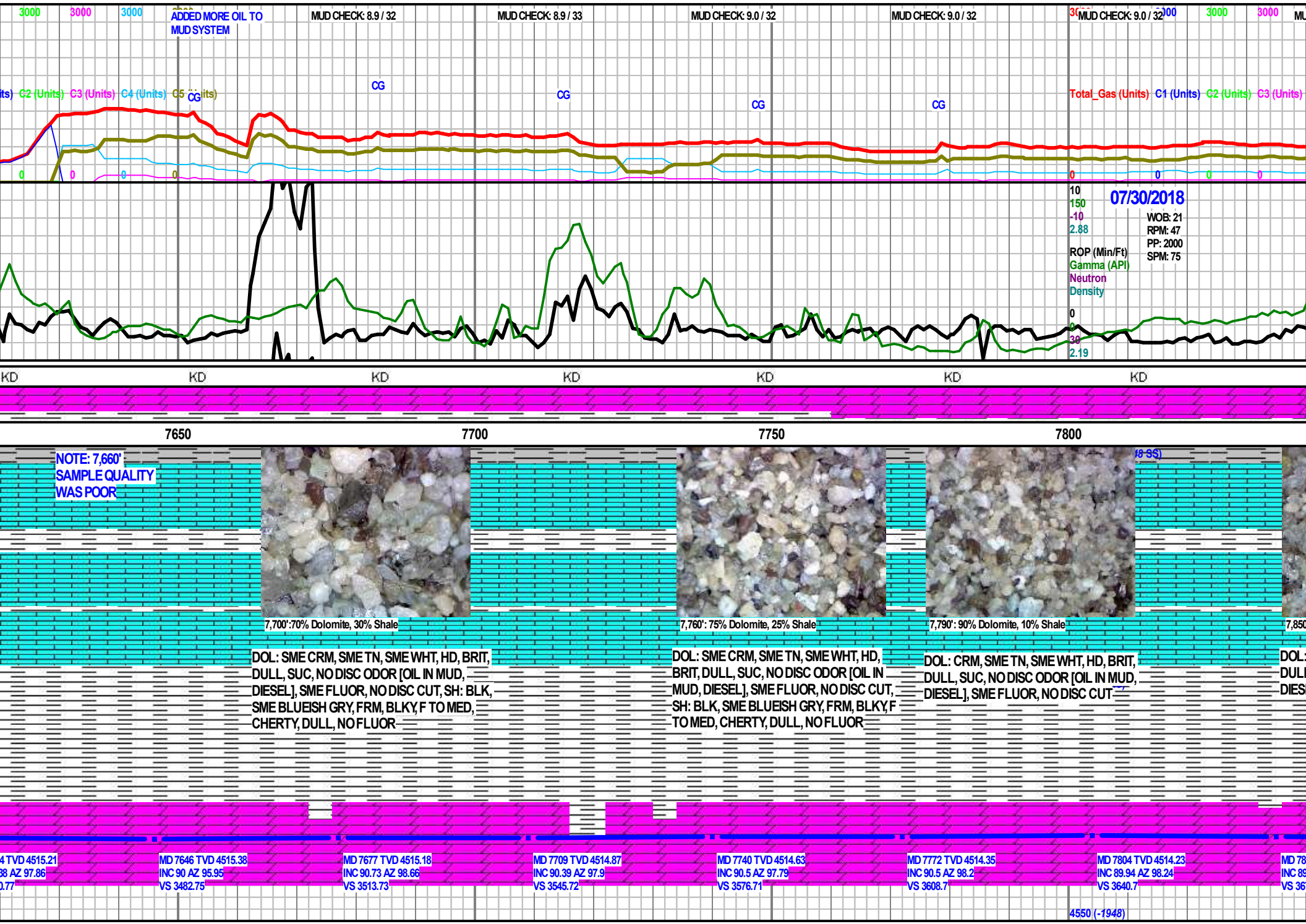

MUD CHECK: 8.8 / 28
MUD CHECK: 8.8 / 28
400
400
400
400
400
400
CG
CG
CG
CG
CG
CG
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
0
0
0
0
0
0
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
30
2.19
KD
KD
KD
KD
KD
KD
KD
6550
6600
6650
6700
6,550': 100% Dolomite
6,600':10% Shale, 90% Dolomite
6,660': 100^ Dolomite. TRC Shale
6,720': 100% Dolomite, TRC Shal
DOL: CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, OIL STN, STRNG ODOR, GOOD YEL FLUOR, YELLOW MLKY CUT
DOL: WHT, SME CRM, HD, BRIT, DULL, SUC, TRC OIL STN, TRC ODOR, TRC YEL FLUOR, NO CUT
DOL: CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, SME OIL STN, SME ODOR, YEL FLUOR, SME YELLOW MLKY CUT
DOL: CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, OIL STN, V STRNG ODOR, GOOD YEL FLUOR, YELLOW MLKY CUT
BELIEVE WE ARE NEAR TOP OF THE MISSISSIPPI
4 TVD 4495.88
7 AZ 100.09
1.85
MD 6546 TVD 4494.23
INC 92.19 AZ 99.33
VS 2383.81
MD 6578 TVD 4493.06
INC 92.02 AZ 99.44
VS 2415.79
MD 6609 TVD 4492.31
INC 90.73 AZ 99.12
VS 2446.78
MD 6641 TVD 4491.89
INC 90.78 AZ 99.53
VS 2478.77
MD 6673 TVD 4491.7
INC 89.89 AZ 99.41
VS 2510.77
MD 6704 TVD 4492.01
INC 88.99 AZ 98.75
VS 2541.77
4550 (-1948)

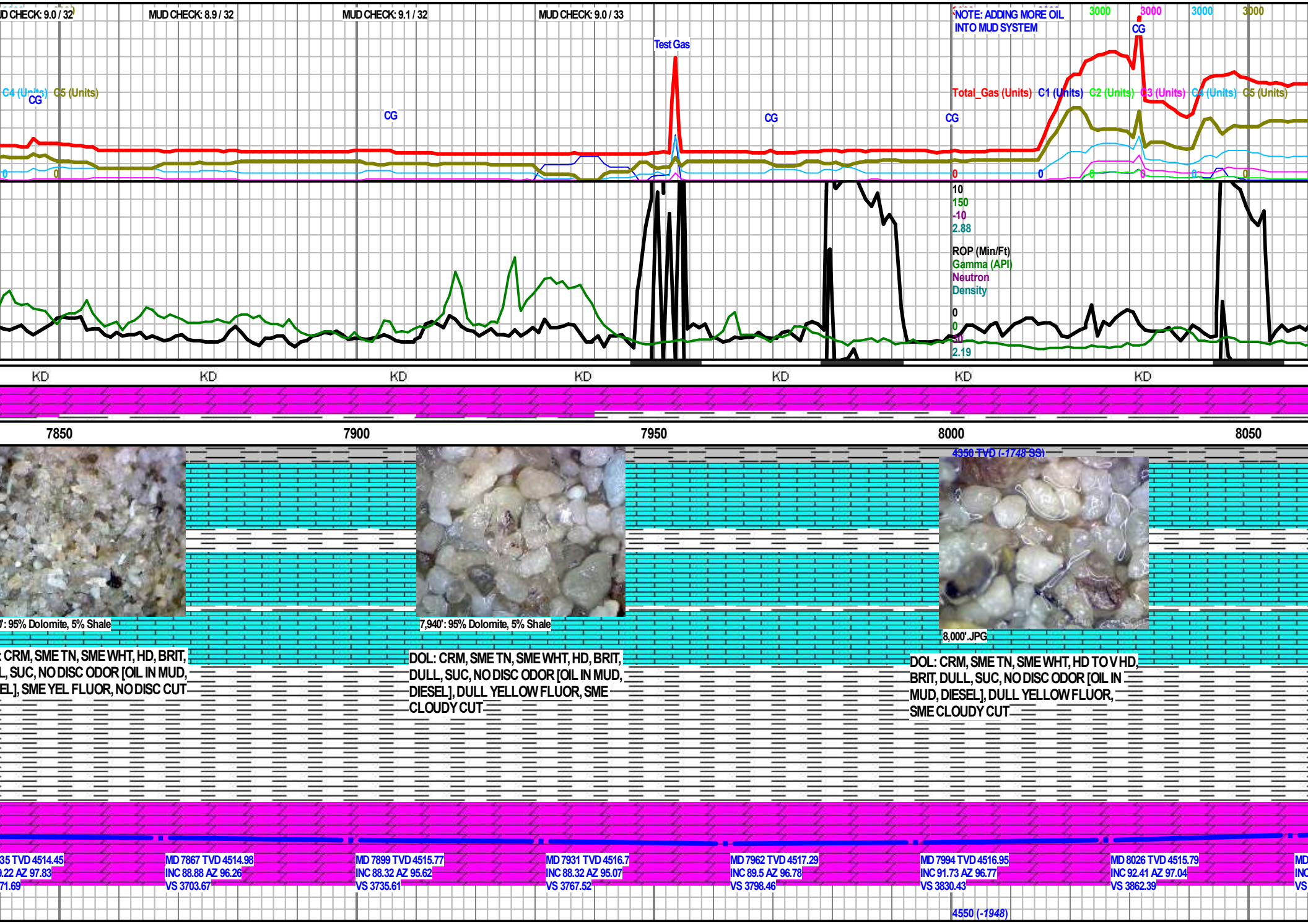

MUD CHECK: 8.8 / 29
MUD CHECK: 8.8 / 30
MUD CHECK: 8.8 / 30
MUD CHECK: 8.8 / 29
CG
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
400
0
ROP (Min/Ft)
Gamma (API)
Neutron
Density
10
150
-10
2.88
0
30
2.19
KD
6750
6800
6850
6900
6950
6,810': 100% Dolomite
DOL: CRM TO TN, SME WHT, HD, BRIT, DULL, SUC, OIL STN, V STRNG ODOR, GOOD YEL FLUOR, YELLOW MLKY CUT
NOTE: SEEING CHEROKEE SHALE / CONGLOMERATE. POSSIBLE LOCAL UNCONFORMITY / FORMATION CHANGE
6,900': 90% Dolomite, 10% Shale
DOL: CRM TO TN, SME WHT, HD, BRIT, DULL, SUC, OIL STN, TRC ODOR, TRC YEL FLUOR, TRC YELLOW MLKY CUT SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, DULL, SME MICA, NO FLUOR
6,930': 80% Dolomite, 20% Shale
DOL: CRM TO TN, SME WHT, HD, BRIT, DULL, SUC, OIL STN, TRC ODOR, TRC YEL FLUOR, TRC YELLOW MLKY CUT SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, DULL, SME MICA, NO FLUOR
5736 TVD 4492.4
89.61 AZ 98.83
573.77
MD 6768 TVD 4492.48
INC 90.11 AZ 98.77
VS 2605.77
MD 6799 TVD 4492.37
INC 90.28 AZ 99.19
VS 2636.77
MD 6831 TVD 4492.04
INC 90.9 AZ 98.88
VS 2668.76
MD 6863 TVD 4491.49
INC 91.06 AZ 98.5
VS 2700.76
MD 6895 TVD 4491.04
INC 90.56 AZ 98.29
VS 2732.75
MD 6926 TVD 4490.91
INC 89.94 AZ 97.81
VS 2763.74
4550 (-1948)

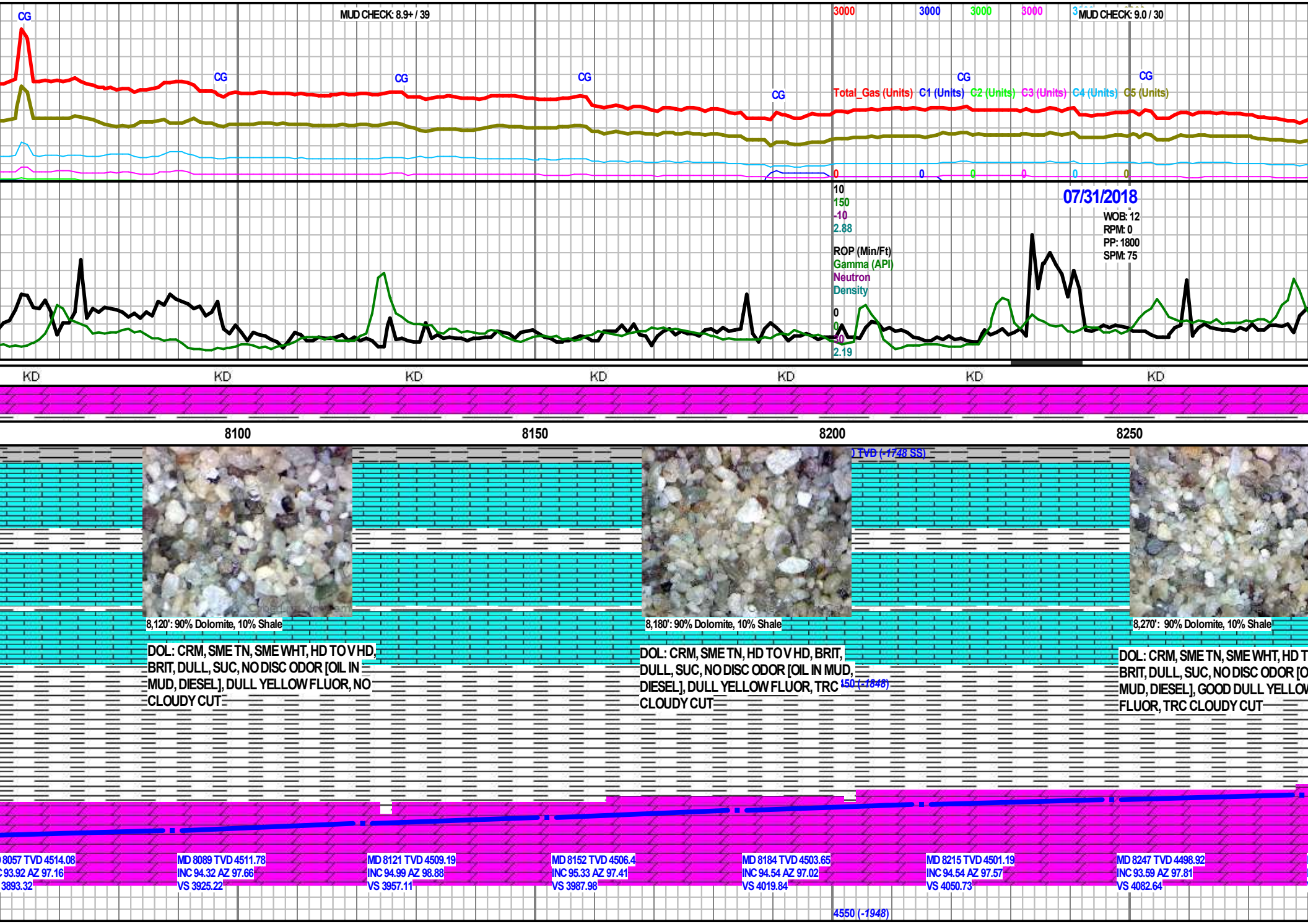

3000
3000
3000
3000
3000
NOTE: ADDING OIL TO MUD SYSTEM -- GAS READINGS VERY HIGH
MUD CH
Scale Change
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
CG
CG
CG
0
0
0
0
0
10
150
-10
2.88
ROP (Min-Ft)
Gamma (API)
Neutron
Density
0
0
30
2.19
NEUTRON / DENSITY TOOL FAILURE
KD
KD
KD
KD
KD
KD
KD
7000
7050
7100
7150
6,990': 60% Dolomite, 40% Shale
7,080': 60% Dolomite, 40% Shale
7,200': 70% Dolomi
DOL: CRM TO TN, SME WHT, HD, BRIT, DULL, SUC, OIL STN, TRC ODOR, TRC YEL FLUOR, TRC YELLOW MLKY CUT SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, DULL, NO FLUOR
DOL: CRM TO TN, SME WHT, HD, BRIT, DULL, SUC, OIL STN, TRC ODOR, TRC YEL FLUOR, TRC YELLOW MLKY CUT SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, DULL, NO FLUOR
DOL: CRM TO T
DULL, SUC, OIL
FLUOR, SH: BL
BLUEISH GRY,
TO MED, DULL,
D 6958 TVD 4490.83
NC 90.34 AZ 98
S 2795.74
MD 6990 TVD 4490.61
INC 90.45 AZ 98.42
VS 2827.73
MD 7021 TVD 4490.83
INC 88.71 AZ 98.57
VS 2858.73
MD 7044 TVD 4491.34
INC 88.77 AZ 98.3
VS 2881.72
MD 7076 TVD 4492.18
INC 88.21 AZ 97.11
VS 2913.7
MD 7107 TVD 4493.37
INC 87.42 AZ 96.82
VS 2944.65
MD 7139 TVD 4494.76
INC 87.59 AZ 95.35
VS 2976.58
MD 7171 TV
INC 87.93 AZ
VS 3008.48
4550 (-1948)

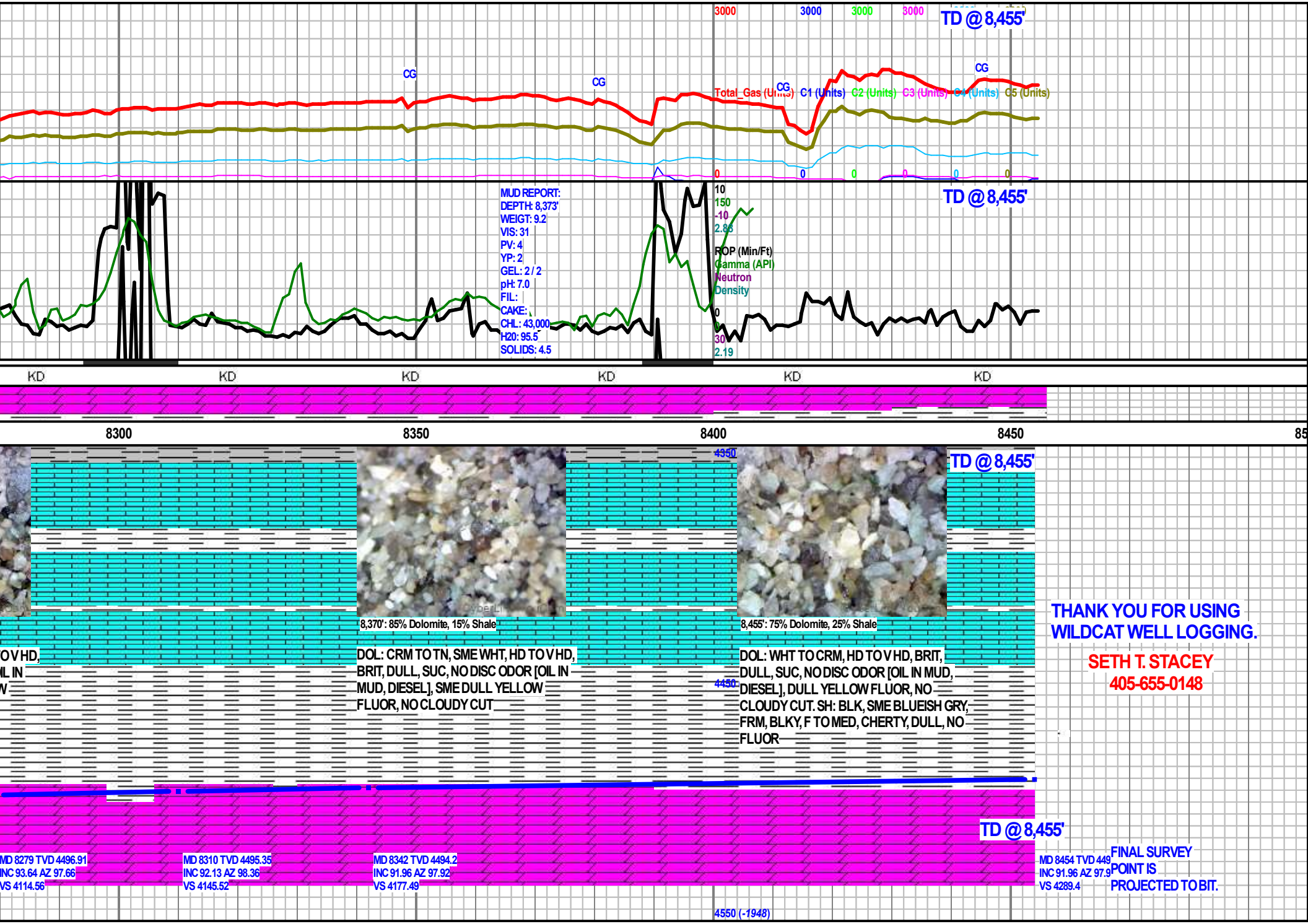

ECK: 8.8 / 30
MUD CHECK: 8.8 / 34
MUD CHECK: 8.9 / 32
MUD CHECK: 8.9 / 33
MUD CHECK: 8.2 / 32
MUD CHECK: 8.9 / 33
NOTE: TEST GAS. RECALLIBRATE GAS DETECTOR
NOTE: BLS O
Total_Gas (Units) C1 (Units) C2 (Units) C3 (Units) C4 (Units) C5 (Units)
07/28/2018
WOB: 16
RPM: 64
PP: 1700
SPM: 70
ROP (Min/Ft)
Gamma (API)
Neutron
Density
MUD REPORT:
DEPTH: 7,367'
WEIGT: 9.1
VIS: 34
PV: 5
YP: 4
GEL: 2 / 2
pH: 7.0
FIL:
CAKE:
CHL: 41,000
H20: 96.8
SOLIDS: 3.2
KD
7200
7250
7300
7350
350 TVD (-1748 SS)
7,260': 70% Dolomite, 30% Shale
7,370':50% Dolomite, 50% Shale / Chert
DOL: CRM TO TN, SME WHT, HD, BRIT, DULL, SUC, TRC ODOR, NO FLUOR, SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, SME CHERTY, BLKY, F TO MED, DULL, NO FLUOR
DOL: WHT, HD, BRIT, DULL, SUC, NO DISC ODOR, NO FLUOR, SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, CHERTY, DULL, NO FLUOR
4450 (-1848)
REENTER MISSISSIPPI AT 7,269'
MD 7202 TVD 4497.09 INC 88.09 AZ 95.84 VS 3039.41
MD 7234 TVD 4498.09 INC 88.32 AZ 95.6 VS 3071.33
MD 7265 TVD 4499.3 INC 87.2 AZ 96.78 VS 3102.27
MD 7297 TVD 4500.85 INC 87.25 AZ 96.37 VS 3134.2
MD 7328 TVD 4502.49 INC 86.69 AZ 96.97 VS 3165.13
MD 7360 TVD 4504.26 INC 86.97 AZ 97.3 VS 3197.06
4550 (-1948)


ADDED 50
NOTE: 2 HOUR DOWNTIME @7,418'
NOTE: DOWNTIME AT 7,433'
3000
TEST GAS
CG
Total_Gas (Units) C1 (Units) C2 (Units) C3 (Units) C4 (Units) C5 (Units)
NOTE: GAS READING RELATIVELY CONSTANT. GAS DETECTOR WAS FUNCTIONING CORRECTLY. RAN TEST GAS AND RECALLIBRATED, NO CHANGE UNTIL THE RIG BEGAN ADDING OIL.
MUD REPORT:
DEPTH: 7,565'
WEIGT: 9.2
VIS: 37
PV: 6
YP: 5
GEL: 4 / 6
pH: 7.0
FIL:
CAKE:
CHL: 56,000
H20: 90.9
SOLIDS: 3.1 OIL: 6.0
ROP (Min/Ft)
Gamma (API)
Neutron
Density
KD
7450
7500
7550
7600
7,430': 50% Dolomite, 50% Shale / Chert
DOL: WHT, SME CRM, SME TN, HD, BRIT, DULL, SUC, NO DISC ODOR, NO FLUOR, SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, CHERTY, DULL, NO FLUOR
7,520': 60% Dolomite, 40% Shale
DOL: WHT, SME CRM, SME TN, HD, BRIT, DULL, SUC, NO DISC ODOR, NO FLUOR, SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, CHERTY, DULL, NO FLUOR
7,600': 65% Dolomite, 35% Shale
DOL: SME CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], SME FLUOR, NO DISC CUT, SH: BLK, SME MUS YEL, SME BLUEISH GRY, FRM, BLKY, F TO MED, CHERTY, DULL, NO FLUOR
MD 7424 TVD 4507.37 INC 87.03 AZ 98.96 VS 3260.97
MD 7455 TVD 4508.92 INC 87.25 AZ 97.36 VS 3291.93
MD 7488 TVD 4510.45 INC 87.42 AZ 97.66 VS 3324.88
MD 7519 TVD 4511.76 INC 87.76 AZ 98.54 VS 3355.85
MD 7551 TVD 4513.09 INC 87.48 AZ 98.63 VS 3387.82
MD 7582 TVD 4514.39 INC 87.7 AZ 98.94 VS 3418.79
4550 (-1948)


3000
ADDED MORE OIL TO MUD SYSTEM
MUD CHECK: 8.9 / 32
MUD CHECK: 8.9 / 33
MUD CHECK: 9.0 / 32
MUD CHECK: 9.0 / 32
MUD CHECK: 9.0 / 32
C2 (Units) C3 (Units) C4 (Units)
CG
Total_Gas (Units) C1 (Units) C2 (Units) C3 (Units)
07/30/2018
WOB: 21
RPM: 47
PP: 2000
SPM: 75
ROP (Min/Ft)
Gamma (API)
Neutron
Density
KD
7650
7700
7750
7800
NOTE: 7,660' SAMPLE QUALITY WAS POOR
7,700':70% Dolomite, 30% Shale
7,760': 75% Dolomite, 25% Shale
7,790': 90% Dolomite, 10% Shale
DOL: SME CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], SME FLUOR, NO DISC CUT, SH: BLK, SME BLUEISH GRY, FRM, BLKY, F TO MED, CHERTY, DULL, NO FLUOR
DOL: SME CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], SME FLUOR, NO DISC CUT, SH: BLK, SME BLUEISH GRY, FRM, BLKY, F TO MED, CHERTY, DULL, NO FLUOR
DOL: CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], SME FLUOR, NO DISC CUT
MD 7646 TVD 4515.38 INC 90 AZ 95.95 VS 3482.75
MD 7677 TVD 4515.18 INC 90.73 AZ 98.66 VS 3513.73
MD 7709 TVD 4514.87 INC 90.39 AZ 97.9 VS 3545.72
MD 7740 TVD 4514.63 INC 90.5 AZ 97.79 VS 3576.71
MD 7772 TVD 4514.35 INC 90.5 AZ 98.2 VS 3608.7
MD 7804 TVD 4514.23 INC 89.94 AZ 98.24 VS 3640.7
4550 (-1948)


MUD CHECK: 9.0 / 32
MUD CHECK: 8.9 / 32
MUD CHECK: 9.1 / 32
MUD CHECK: 9.0 / 33
NOTE: ADDING MORE OIL INTO MUD SYSTEM
Test Gas
CG
C4 (Units) C5 (Units)
Total_Gas (Units) C1 (Units) C2 (Units) C3 (Units) C4 (Units) C5 (Units)
3000
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
2.19
KD
7850
7900
7950
8000
8050
4350 TVD (-1748 SS)
7,940': 95% Dolomite, 5% Shale
8,000'.JPG
DOL: CRM, SME TN, SME WHT, HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], DULL YELLOW FLUOR, SME CLOUDY CUT
DOL: CRM, SME TN, SME WHT, HD TO V HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], DULL YELLOW FLUOR, SME CLOUDY CUT
MD 7867 TVD 4514.98 INC 88.88 AZ 96.26 VS 3703.67
MD 7899 TVD 4515.77 INC 88.32 AZ 95.62 VS 3735.61
MD 7931 TVD 4516.7 INC 88.32 AZ 95.07 VS 3767.52
MD 7962 TVD 4517.29 INC 89.5 AZ 96.78 VS 3798.46
MD 7994 TVD 4516.95 INC 91.73 AZ 96.77 VS 3830.43
MD 8026 TVD 4515.79 INC 92.41 AZ 97.04 VS 3862.39
4550 (-1948)


CG
MUD CHECK: 8.9+ / 39
3000
3000
3000
3000
MUD CHECK: 9.0 / 30
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
0
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
2.19
07/31/2018
WOB: 12
RPM: 0
PP: 1800
SPM: 75
KD
8100
8150
8200
8250
8,120': 90% Dolomite, 10% Shale
DOL: CRM, SME TN, SME WHT, HD TO V HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], DULL YELLOW FLUOR, NO CLOUDY CUT
8,180': 90% Dolomite, 10% Shale
DOL: CRM, SME TN, HD TO V HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], DULL YELLOW FLUOR, TRC CLOUDY CUT
8,270': 90% Dolomite, 10% Shale
DOL: CRM, SME TN, SME WHT, HD T
BRIT, DULL, SUC, NO DISC ODOR [O
MUD, DIESEL], GOOD DULL YELLOW
FLUOR, TRC CLOUDY CUT
MD 8089 TVD 4511.78
INC 94.32 AZ 97.66
VS 3925.22
MD 8121 TVD 4509.19
INC 94.99 AZ 98.88
VS 3957.11
MD 8152 TVD 4506.4
INC 95.33 AZ 97.41
VS 3987.98
MD 8184 TVD 4503.65
INC 94.54 AZ 97.02
VS 4019.84
MD 8215 TVD 4501.19
INC 94.54 AZ 97.57
VS 4050.73
MD 8247 TVD 4498.92
INC 93.59 AZ 97.81
VS 4082.64


3000
3000
3000
3000
TD @ 8,455'
CG
CG
CG
CG
Total_Gas (Units)
C1 (Units)
C2 (Units)
C3 (Units)
C4 (Units)
C5 (Units)
0
0
0
0
0
0
MUD REPORT:
DEPTH: 8,373'
WEIGT: 9.2
VIS: 31
PV: 4
YP: 2
GEL: 2 / 2
pH: 7.0
FIL:
CAKE:
CHL: 43,000
H20: 95.5
SOLIDS: 4.5
10
150
-10
2.88
ROP (Min/Ft)
Gamma (API)
Neutron
Density
0
30
2.19
TD @ 8,455'
KD
KD
KD
KD
KD
KD
8300
8350
8400
8450
4350
4450
8,370': 85% Dolomite, 15% Shale
8,455': 75% Dolomite, 25% Shale
TD @ 8,455'
O V HD,
L IN
W
DOL: CRM TO TN, SME WHT, HD TO V HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], SME DULL YELLOW FLUOR, NO CLOUDY CUT
DOL: WHT TO CRM, HD TO V HD, BRIT, DULL, SUC, NO DISC ODOR [OIL IN MUD, DIESEL], DULL YELLOW FLUOR, NO CLOUDY CUT. SH: BLK, SME BLUEISH GRY, FRM, BLKY, F TO MED, CHERTY, DULL, NO FLUOR
TD @ 8,455'
MD 8279 TVD 4496.91
INC 93.64 AZ 97.66
VS 4114.56
MD 8310 TVD 4495.35
INC 92.13 AZ 98.36
VS 4145.52
MD 8342 TVD 4494.2
INC 91.96 AZ 97.92
VS 4177.49
MD 8454 TVD 449
INC 91.96 AZ 97.9
VS 4289.4
FINAL SURVEY POINT IS PROJECTED TO BIT.
4550 (-1948)
THANK YOU FOR USING WILDCAT WELL LOGGING.
SETH T. STACEY
405-655-0148