



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1156852
OIL & GAS CONSERVATION DIVISION

Form ACO-1

August 2013

Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- 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 ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

Spud Date or Recompletion Date	Date Reached TD	Completion Date or Recompletion Date
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API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ 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: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

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: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____



1156852

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

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 <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
--	---

CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> 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

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 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)*

Shots Per Foot	PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated	Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i>	Depth

TUBING RECORD:	Size:	Set At:	Packer At:	Liner Run: <input type="checkbox"/> Yes <input type="checkbox"/> No
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Date of First, Resumed Production, SWD or ENHR.	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____
---	--

Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ <input type="checkbox"/> Other <i>(Specify)</i> _____	PRODUCTION INTERVAL: _____ _____
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Conservation Division
Finney State Office Building
130 S. Market, Rm. 2078
Wichita, KS 67202-3802



Phone: 316-337-6200
Fax: 316-337-6211
<http://kcc.ks.gov/>

Mark Sievers, Chairman
Thomas E. Wright, Commissioner
Shari Feist Albrecht, Commissioner

Sam Brownback, Governor

August 30, 2013

CHRISTOPHER MITCHELL
Samuel Gary Jr. & Associates, Inc.
1515 WYNKOOP, STE 700
DENVER, CO 80202

Re: ACO1
API 15-195-22863-01-00
11-21-31 H1
SW/4 Sec.30-11S-21W
Trego County, Kansas

Dear Production Department:

We are herewith requesting that the Well Completion Form ACO-1 and attached information for the subject well be held confidential for a period of two years.

Should you have any questions or need additional information regarding subject well, please contact our office.

Respectfully,
CHRISTOPHER MITCHELL

PO Box 93999
Southlake, TX 76092

Voice: (817) 546-7282
Fax: (817) 246-3361

INVOICE

Invoice Number: 136334
Invoice Date: May 18, 2013
Page: 1

Bill To:

Samuel Gary, Jr. & Assoc.
ATTN: Kurt
1815 11th St
Great Bend, KS 67530

Now Includes:



6/07

V1306-AP-136

Customer ID	Field Ticket #	Payment Terms	
Gary	60416	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS2-01	Great Bend	May 18, 2013	6/17/13

Quantity	Item	Description	Unit Price	Amount
275.00	MAT	11-21-31 H-1 <i>subject</i> Class A Common	17.90	4,922.50
10.00	MAT	Chloride	64.00	640.00
69.00	MAT	Flo Seal	2.97	204.93
293.34	SER	Cubic Feet	2.48	727.48
373.71	SER	Ton Mileage	2.60	971.66
1.00	SER	Surface	1,512.25	1,512.25
28.00	SER	Pump Truck Mileage	7.70	215.60
28.00	SER	Light Vehicle Mileage	4.40	123.20
1.00	SER	Manifold Head Rental	275.00	275.00
7.00	SER	Waiting on Location	420.00	2,940.00
6.00	SER	Waiting on Location -- No Charge		
1.00	EQP	9.5/8 Sawtooth Guide Shoe	518.31	518.31
1.00	EQP	9.5/8 AFU Insert	534.69	534.69
5.00	EQP	9.5/8 Centralizer	87.75	438.75
1.00	EQP	9.5/8 Rubber Plug	184.86	184.86
1.00	CEMENTER	Tim Dickson		
1.00	EQUIP OPER	Kevin Eddy		
1.00	OPER ASSIST	Kevin Weighous		

RECEIVED
MAY 29 2013
SAMUEL GARY JR.
& ASSOCIATES, INC.

DRLG COMP W/O LOE GG

Account	8200-138	184.86
Well/Prospect	11-21-31 H-1	
Deck	11-21-31 H-1	
AFE		
Approval	hs	
Description		

Subtotal	14,209.23
Sales Tax	506.19
Total Invoice Amount	14,715.42
Payment/Credit Applied	
TOTAL	14,715.42

ALL PRICES ARE NET, PAYABLE 30 DAYS FOLLOWING DATE OF INVOICE. 1 1/2% CHARGED THEREAFTER. IF ACCOUNT IS CURRENT, TAKE DISCOUNT OF

\$ 4,973.23

ONLY IF PAID ON OR BEFORE
Jun 12, 2013

<4973.23>
9742.19

ALLIED OIL & GAS SERVICES, LLC

060416

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999
SOUTHLAKE, TEXAS 76092

SERVICE POINT:
Direct Road K

DATE <u>5-18-13</u>	SEC. <u>30</u>	TWP. <u>11S</u>	RANGE <u>21W</u>	CALLED OUT <u>2:00 AM</u>	ON LOCATION <u>10:00 AM</u>	JOB START <u>5:45 PM</u>	JOB FINISH <u>6:45 PM</u>
LEASE <u>11-21-31</u>	WELL # <u>H 1</u>	LOCATION <u>I-20 + Ogallala Ex't S West</u>			COUNTY <u>Tarrant</u>	STATE <u>K</u>	
OLD OR <u>NEW</u> (Circle one)		to 'F' N. of East to location					

CONTRACTOR HWA Nalg

TYPE OF JOB Surface

HOLE SIZE _____ T.D. 315

CASING SIZE 9 5/8 DEPTH 300'

TUBING SIZE _____ DEPTH _____

DRILL PIPE _____ DEPTH _____

TOOL _____ DEPTH _____

PRES. MAX 1000# MINIMUM 200#

MEAS. LINE _____ SHOE JOINT 42.55

CEMENT LEFT IN CSC# 2.55

PERFS. _____

DISPLACEMENT 19.94 bbls

OWNER Same

CEMENT

AMOUNT ORDERED 275 cu class A

32cc 1/4# floated per sack

EQUIPMENT

PUMP TRUCK CEMENTER Tom Anderson

1606 HELPER Kevin Eddy

BULK TRUCK

599 DRIVER Kevin Wrayburn

BULK TRUCK

_____ DRIVER _____

COMMON	<u>275</u>	@ <u>17.90</u>	<u>4,922.50</u>
POZMIX		@	
GEL		@	
CHLORIDE	<u>10</u>	@ <u>64.00</u>	<u>640.00</u>
ASC		@	
<u>Flow Seal</u>	<u>69</u>	@ <u>2.97</u>	<u>204.93</u>
		@	
		@	
		@	
		@	
		@	
		@	
HANDLING	<u>293.34</u>	@ <u>2.48</u>	<u>727.48</u>
MILEAGE	<u>13.34 x 28 x</u>	<u>2.40</u>	<u>971.52</u>
			TOTAL <u>7,466.57</u>

REMARKS:

Run 300' of 9 5/8" cas. Bore Circulation
Pumped 5 bbls H₂O mixed 275 cu
class A 32cc 1/4# Floated per sack.
Released plug. Displaced w/ 400' of
H₂O banded plug @ 600#.
Flare Red Not Hold. Shut in 400'

Cement did circulate
circulated 20 bbls to P.M

CHARGE TO: Samuel Roy Jr + Associates

STREET _____

CITY _____ STATE _____ ZIP _____

Frank

To: Allied Oil & Gas Services, LLC.
 You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME Kevin Parker

SIGNATURE [Signature]

SERVICE

DEPTH OF JOB	<u>300'</u>		
PUMP TRUCK CHARGE		<u>1512.25</u>	
EXTRA FOOTAGE		@	
MILEAGE	<u>HUM 28</u>	@ <u>7.70</u>	<u>215.60</u>
MANIFOLD	<u>HUM 28</u>	@ <u>4.40</u>	<u>123.20</u>
<u>Head Rental</u>		@ <u>275.00</u>	<u>275.00</u>
<u>9 hrs wait time</u>		@ <u>420.00</u>	<u>2,940.00</u>
<u>on job site 13 hrs</u>			
			TOTAL <u>5,046.05</u>

PLUG & FLOAT EQUIPMENT

<u>9 5/8"</u>			
<u>Sawtooth Reelers</u>	@ <u>518.01</u>	<u>518.01</u>	
<u>AFD Invert</u>	@ <u>534.69</u>	<u>534.69</u>	
<u>S-Continguum</u>	@ <u>87.75</u>	<u>438.75</u>	
<u>Reelers Plug</u>	@ <u>184.86</u>	<u>184.86</u>	
	@		
			TOTAL <u>1,676.61</u>

SALES TAX (If Any) _____

TOTAL CHARGES 14,209.23

DISCOUNT 4,973.23 IF PAID IN 30 DAYS

9,235.99

PO Box 93999
Southlake, TX 76092

Voice: (817) 546-7282
Fax: (817) 246-3361

INVOICE

Invoice Number: 136535
Invoice Date: May 28, 2013
Page: 2

Bill To:
Samuel Gary, Jr. & Assoc.
ATTN: Kurt
1815 11th St
Great Bend, KS 67530

Now Includes:



6/20

V1306 AF-410

Customer ID	Field Ticket #	Payment Terms	
Gary	60425	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS2-02	Great Bend	May 28, 2013	6/27/13

Quantity	Item	Description	Unit Price	Amount
1.00	OPER ASSIST	Ben Newell		
1.00	OPER ASSIST	Kevin Weighous		

Scanned & Sent Gabe

DRLG COMP W/O LOE GG

Account	8200-138
Well/Prospect	11-21-31 (H) (Shubert)
Deck	
AFE	
Approval	<i>Ph</i>
Description	

RECEIVED

JUN 13 2013

SAMUEL GARY JR. & ASSOCIATES, INC.

Subtotal	35,438.96
Sales Tax	1,846.01
Total Invoice Amount	37,284.97
Payment/Credit Applied	
TOTAL	37,284.97

ALL PRICES ARE NET, PAYABLE 30 DAYS FOLLOWING DATE OF INVOICE. 1 1/2% CHARGED THEREAFTER. IF ACCOUNT IS CURRENT, TAKE DISCOUNT OF

\$ 12,403.63

ONLY IF PAID ON OR BEFORE
Jun 22, 2013

INVOICE

PO Box 93999
Southlake, TX 76092

Invoice Number: 136535
Invoice Date: May 28, 2013
Page: 1

Voice: (817) 546-7282
Fax: (817) 246-3361

Bill To:

Samuel Gary, Jr. & Assoc.
ATTN: Kurt
1815 11th St
Great Bend, KS 67530

Now Includes:



Customer ID	Field Ticket #	Payment Terms	
Gary	60425	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS2-02	Great Bend	May 28, 2013	6/27/13

Quantity	Item	Description	Unit Price	Amount
		11-21-31-H1		
300.00	MAT	AMD	25.90	7,770.00
85.00	MAT	FL-160	18.90	1,606.50
42.00	MAT	Defoamer	9.80	411.60
900.00	MAT	Gilsonite	0.98	882.00
487.00	SER	Cubic Feet	2.48	1,207.76
808.00	SER	Ton Mileage	2.60	2,100.80
1.00	SER	Production -- Bottom Stage	2,765.75	2,765.75
25.00	SER	Pump Truck Mileage	7.70	192.50
1.00	SER	Manifold Head Rental	275.00	275.00
500.00	SER	Hotshot Charge	3.50	1,750.00
1.00	EQP	7" Sure Seal Float Shoe	712.53	712.53
1.00	EQP	7" Sure Seal Float Collar	886.86	886.86
2.00	EQP	7" Stage Collar	6,502.50	13,005.00
2.00	EQP	7" Basket	462.15	924.30
8.00	EQP	7" Centralizer	65.52	524.16
4.00	EQP	Thread Lock	83.07	332.28
2.00	EQP	7" Stop Ring	45.96	91.92
1.00	CEMENTER	Tim Dickson		
1.00	CEMENTER	Patrick Helgerson		
1.00	EQUIP OPER	Kevin Eddy		

ALL PRICES ARE NET, PAYABLE
30 DAYS FOLLOWING DATE OF
INVOICE. 1 1/2% CHARGED
THEREAFTER. IF ACCOUNT IS
CURRENT, TAKE DISCOUNT OF

\$ 12,403.63

ONLY IF PAID ON OR BEFORE
Jun 22, 2013

Subtotal	Continued
Sales Tax	Continued
Total Invoice Amount	Continued
Payment/Credit Applied	
TOTAL	Continued

ALLIED OIL & GAS SERVICES, LLC 060425

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999
SOUTHLAKE, TEXAS 76092

SERVICE POINT: Heartland Ks

DATE <u>5-29-13</u>	SEC <u>30</u>	TWP. <u>11</u>	RANGE <u>21</u>	CALLED OUT <u>5:00 PM</u>	ON LOCATION <u>8:30 PM</u>	JOB START <u>1:45 AM</u>	JOB FINISH <u>3:20 AM</u>
LEASE <u>11-21-01</u>		WELL # <u>H-1</u>	LOCATION <u>I-70 + Oyler Rd East, South</u>		COUNTY <u>Franklin</u>	STATE <u>Ks</u>	
OLD OR <u>NEW</u> (Circle one)			to f'rd. 2 East to loc.				

CONTRACTOR <u>HWD</u>	OWNER <u>Some</u>
TYPE OF JOB <u>Production Bottom Stage</u>	
HOLE SIZE <u>8 3/4"</u>	T.D. <u>4830'</u>
CASING SIZE <u>7"</u>	DEPTH <u>4810'</u>
TUBING SIZE	DEPTH
DRILL PIPE	DEPTH
TOOL <u>Stage Collar</u>	DEPTH <u>2300</u>
PRES. MAX <u>1500 #</u>	MINIMUM <u>1000 #</u>
MEAS. LINE	SHOE JOINT <u>40.28</u>
CEMENT LEFT IN CSG. <u>40.28</u>	
PERFS.	
DISPLACEMENT <u>94.39 H₂O, 87.86 mud</u>	

EQUIPMENT				
PUMP TRUCK # <u>577</u>	CEMENTER <u>Tom Nelson</u>	HELPER <u>Kevin Eddy</u>		
BULK TRUCK # <u>610-291</u>	DRIVER <u>Ben Newell</u>			
BULK TRUCK #	DRIVER <u>Kevin Weigand</u>			
			Am D <u>300</u>	@ <u>25.90</u> <u>7770.00</u>
			Fl-160 <u>85</u>	@ <u>18.90</u> <u>1606.50</u>
			DF <u>42</u>	@ <u>9.80</u> <u>411.60</u>
			Gilsuite <u>900</u>	@ <u>1.98</u> <u>882.00</u>
				@
				@
				@
				@
				@
			HANDLING <u>487</u>	@ <u>2.48</u> <u>1207.76</u>
			MILEAGE <u>808 x 260</u>	<u>2100.80</u>
				TOTAL <u>13,978.66</u>

REMARKS:
Run 4810' of 7" cas. Break circulation
Pumped 2 bbls H₂O Press Test line
To 3500 #. Pumped 3 bbls H₂O Mixed
300 lb Am D, 270 Salt, 270 Mixed
270 Sodium Methacrylate 470 lb of 1 1/2" of
1 1/2" FL-160, 14 Reframer, 3# Gilsuite/sh.
Worked line clean. Displaced with H₂O
& mud. Landed plug @ 1500#. Released
and float held.

CHARGE TO: Samuel Hay Jr & Associates
STREET _____
CITY _____ STATE _____ ZIP _____

SERVICE	
DEPTH OF JOB <u>4810'</u>	
PUMP TRUCK CHARGE	<u>2765.75</u>
EXTRA FOOTAGE	@
MILEAGE <u>25</u>	@ <u>770</u> <u>192.50</u>
MANIFOLD <u>Head Rent</u>	@ <u>275.00</u> <u>275.00</u>
	@
<u>Hotshot 500</u>	@ <u>3.50</u> <u>1750.00</u>
	TOTAL <u>4,983.25</u>

PLUG & FLOAT EQUIPMENT	
<u>7" Sunval Float shoe</u>	<u>712.53</u> <u>712.53</u>
<u>Sunval Float collar</u>	@ <u>886.86</u> <u>886.86</u>
<u>Stage Collar x 2</u>	@ <u>6,502.50</u> <u>13,005</u>
<u>2- Benheth</u>	@ <u>462.15</u> <u>924.30</u>
<u>8- Centralizer</u>	@ <u>65.52</u> <u>524.16</u>
<u>4- Thread Loc</u>	@ <u>83.07</u> <u>332.28</u>
<u>2- Stop Rings</u>	<u>45.94</u> <u>91.92</u>
	TOTAL <u>16,477.05</u>

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME X Kevin Parker
SIGNATURE X [Signature]

SALES TAX (If Any) _____
TOTAL CHARGES 35,438.96
12,403.63
DISCOUNT _____ IF PAID IN 30 DAYS
23,035.32

PO Box 93999
Southlake, TX 76092

Voice: (817) 546-7282
Fax: (817) 246-3361

INVOICE

Invoice Number: 136536
Invoice Date: May 28, 2013
Page: 1

Bill To:
Samuel Gary, Jr. & Assoc.
ATTN: Kurt
1815 11th St
Great Bend, KS 67530

Now Includes:



6/20

V1306-AR-411

Customer ID	Field Ticket #	Payment Terms	
Gary	60476	Net 30 Days	
Job Location	Camp Location	Service Date	Due Date
KS2-02	Great Bend	May 28, 2013	6/27/13

Quantity	Item	Description	Unit Price	Amount
8.00	MAT	11-21-31 #H-1 Chloride	64.00	512.00
350.00	MAT	ALW	16.50	5,775.00
87.00	MAT	Flo Seal	2.97	258.39
1.00	SER	Production -- Top Stage	2,406.25	2,406.25
1.00	CEMENTER	Tim Dickson		
1.00	CEMENTER	Patrick Helgerson		
1.00	EQUIP OPER	Kevin Eddy		
1.00	OPER ASSIST	Kevin Weighous		
1.00	OPER ASSIST	Ben Newell		

RECEIVED
JUN 13 2013
SAMUEL GARY JR. & ASSOCIATES, INC.

DRLG COMP W/O LOE GG

Account	8200-138
Well/Prospect	11-21-31 #H-1
Deck	
AFE	
Approval	[Signature]
Description	

Subtotal	8,951.64
Sales Tax	445.09
Total Invoice Amount	9,396.73
Payment/Credit Applied	
TOTAL	9,396.73

ALL PRICES ARE NET, PAYABLE 30 DAYS FOLLOWING DATE OF INVOICE. 1 1/2% CHARGED THEREAFTER. IF ACCOUNT IS CURRENT, TAKE DISCOUNT OF

\$ 3,133.07

ONLY IF PAID ON OR BEFORE
Jun 22, 2013

ALLIED OIL & GAS SERVICES, LLC 060476

Federal Tax I.D. # 20-8651475

REMIT TO P.O. BOX 93999
SOUTHLAKE, TEXAS 76092

SERVICE POINT:
Green Bend K

DATE <u>5-28-13</u>	SEC <u>30</u>	TWP <u>11</u>	RANGE <u>21</u>	CALLED OUT _____	ON LOCATION _____	JOB START <u>8:55 AM</u>	JOB FINISH <u>10:30 AM</u>
LEASE <u>11-21-31</u>		WELL # <u>H-1</u>		LOCATION <u>I-70 & Ogallah Exit</u>		COUNTY <u>Texas</u>	STATE <u>K</u>
OLD OR <u>(NEW)</u> (Circle one)				<u>5' South, 2' East</u>			

CONTRACTOR HDO OWNER Some

TYPE OF JOB Production Top Stage

HOLE SIZE 8 3/4" T.D. 4830' CEMENT AMOUNT ORDERED 350 lbs 6 3/8 6.90/lb

CASING SIZE 7" DEPTH 4810' 2.0cc, 1/4" float per sack,

TUBING SIZE _____ DEPTH _____

DRILL PIPE _____ DEPTH _____

TOOL Stage Collar DEPTH 2300'

PRES. MAX 1200# MINIMUM 600#

MEAS. LINE _____ SHOE JOINT _____

CEMENT LEFT IN CSG. _____

PERFS. _____

DISPLACEMENT 88.09 bbls

EQUIPMENT

PUMP TRUCK CEMENTER Tom Dickson Nat Holgerman

577 HELPER Kevin Eddy

BULK TRUCK _____

544-198 DRIVER Kevin Whigham

BULK TRUCK _____

_____ DRIVER Ben Newell

COMMON _____	@ _____	_____
POZMIX _____	@ _____	_____
GEL _____	@ _____	_____
CHLORIDE <u>8</u>	@ <u>64.00</u>	<u>512.00</u>
ASC _____	@ _____	_____
<u>Ahw 350</u>	@ <u>16.50</u>	<u>5.775.00</u>
<u>Aboscal 87</u>	@ <u>2.97</u>	<u>258.39</u>
_____	@ _____	_____
_____	@ _____	_____
_____	@ _____	_____
_____	@ _____	_____
HANDLING _____	@ _____	_____
MILEAGE _____	@ _____	_____

TOTAL 6.545.39

REMARKS:

Dropped Bomb - went 15 min. Pressured to 1200# & opened stage collar. Circulated 4 1/2 hrs. Pumped 3 bbls H2O. Pressure tested line - 3500#. Mixed 350 lbs 6 3/8 6.90/lb, 2.0cc, 1/4" float/sh. Waxed line clean. Released plug. Displaced with fresh H2O. Landed plug @ 1200#. Released & held. Stage collar closed. Cement did circulate. 80 bbls to pit

SERVICE

DEPTH OF JOB <u>2300'</u>	_____
PUMP TRUCK CHARGE <u>2406.35</u>	_____
EXTRA FOOTAGE _____	@ _____
MILEAGE _____	@ _____
MANIFOLD _____	@ _____
_____	@ _____
_____	@ _____

TOTAL 2406.35

CHARGE TO: Samuel May Jr & Associates

STREET _____

CITY _____ STATE _____ ZIP _____

12.5 POC
1.97 yield

PLUG & FLOAT EQUIPMENT

_____	@ _____
_____	@ _____
_____	@ _____
_____	@ _____
_____	@ _____

TOTAL _____

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

SALES TAX (If Any) _____

TOTAL CHARGES 8951.64

DISCOUNT 3133.07 IF PAID IN 30 DAYS

PRINTED NAME Randy L. Patterson

SIGNATURE [Signature]

5.818.57



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

Well Name: 11-21-31-H1
 Location: SHL STR; Sec 31 T 11s R 21w, Trego Co, Kansas
 License Number: 15-195-22863-01-00
 Spud Date: May 17, 2013
 Surface Coordinates: 539' FSL & 430' FWL Sec. 30
 Region: Wildcat
 Drilling Completed: June 7, 2013

Bottom Hole 400' FSL & 430' FWL Sec. 31
 Coordinates:
 Ground Elevation (ft): 2302' K.B. Elevation (ft): 2315'
 Logged Interval (ft): 313' To: 8983' Total Depth (ft): 8983'
 Formation: Marmaton Chert
 Type of Drilling Fluid:

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

OPERATOR

Company: Sam Gary Jr. & Assoc.
 Address: 1515 Wynkoop, Ste. # 700
 Denver, Co. 80202
 Co. Geo: Chris Mitchell

GEOLOGIST

Name: Tim Hedrick/Schuyler Hedrick/Rich Osborn
 Company: Earth Tech OGL, Inc.
 Address: P.O. Box 683
 Hooker, OK 73945
 Off; 888-543-8378 Cell; 580-754-0062

ROCK TYPES

Anhy
 Bent
 Brec
 Cht
 Clyst
 Coal
 Congl
 Dol

Gyp
 Igne
 Lmst
 Meta
 Mrlst
 Salt
 Shale
 Shcol

Shgy
 Sltst
 Ss
 Till
 Carb sh
 Dol
 Dtd
 Gry sh

Sandylms
 Shale
 Sltstn
 Shlyslts
 Sltys
 Lms

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
 Chlorite
 Dol
 Sand
 Silty

FOSSIL

Algae
 Amph
 Belm
 Bioclst
 Brach
 Bryozoa
 Cephal
 Coral
 Crin
 Echin
 Fish
 Foram

Fossil
 Gastro
 Oolite
 Ostra
 Pelec
 Pellet
 Pisolite
 Plant
 Strom
 Fuss
 Oomold

STRINGER

Anhy
 Arg
 Bent
 Coal
 Dol
 Gyp
 Ls
 Mrst
 Sltstrg
 Ssstrg
 Carbsh

Clystn
 Dol
 Grysh
 Gryslt
 Lms
 Sandylms
 Sh
 Sltstn

TEXTURE

Boundst
 Chalky
 Cryxln
 Earthy
 Finexln
 Grainst
 Lithogr
 Microxln
 Mudst
 Packst
 Wackest

OTHER SYMBOLS

POROSITY TYPE

Earthy
 Fenest
 Fracture
 Inter
 Moldic
 Organic
 Pinpoint
 Vuggy

SORTING

Well
 Moderate
 Poor

ROUNDING

Rounded
 Subrnd
 Subang

Angular

OIL SHOWS

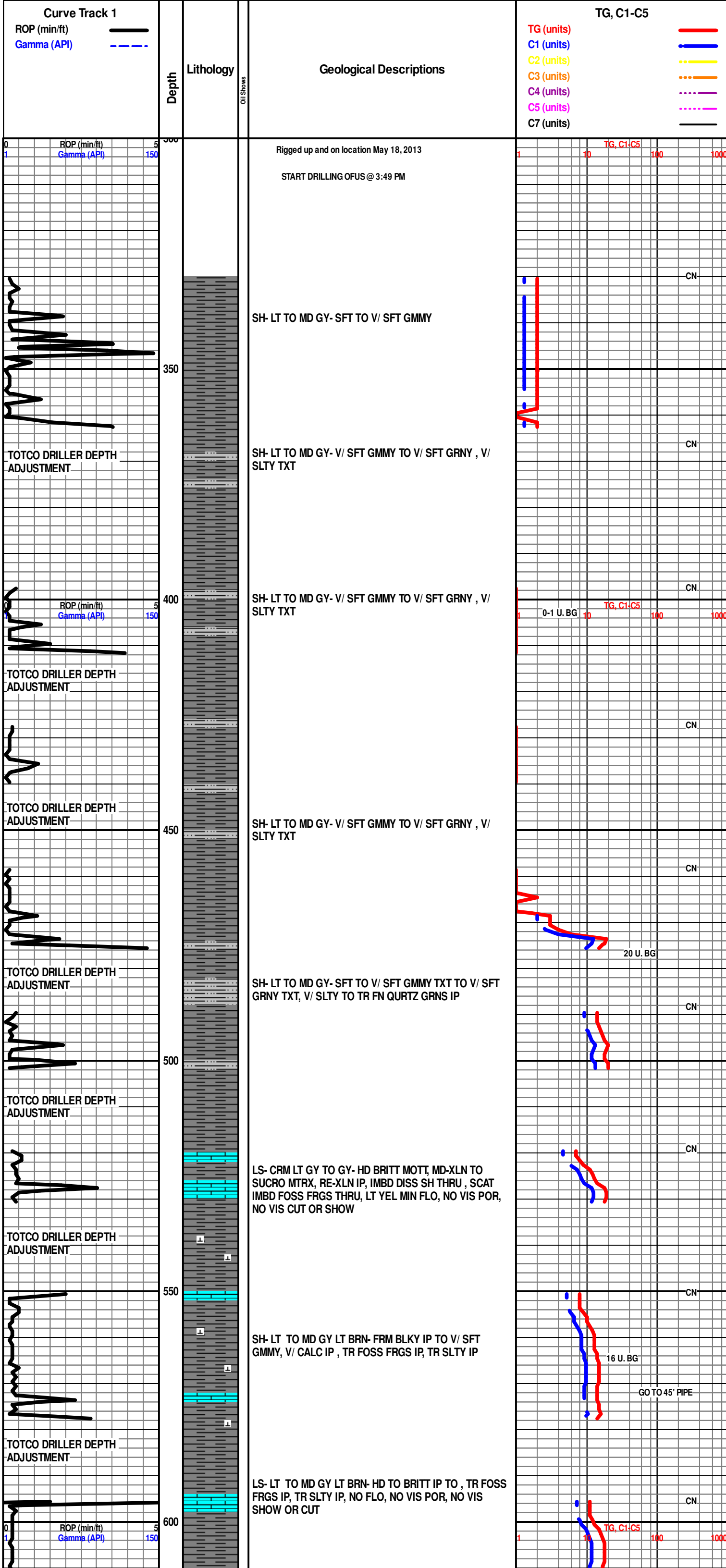
Even
 Spotted
 Ques
 Dead
 Gas show

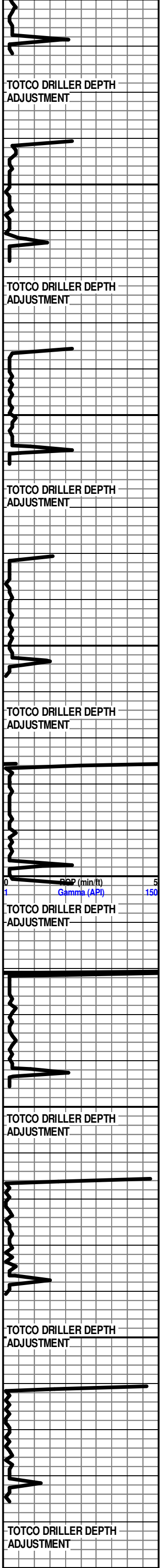
INTERVALS

Core
 Dst
 Dst

EVENTS

Rft
 Sidewall





SLTST- LT GY TO LT TN , V/ SFT ABDT IMBD DISS AND LMNTD SH, ABDT IMBD V/V/FN GRN QURTZ

SLTST- LT GY TO LT TN , V/ SFT ABDT IMBD DISS AND LMNTD SH, ABDT IMBD V/V/FN GRN QURTZ

SH- LT TO MD GY- SFT TO V/ SFT GMMY TXT TO V/ SFT GRNY TXT, V/ SLTY TO TR FN QURTZ GRNS IP

SLTST- CRM TO LT TN , V/ SFT ABDT IMBD DISS AND LMNTD SH, ABDT IMBD V/V/FN GRN QURTZ

SLTST- CRM TO LT TN , V/ SFT ABDT IMBD DISS AND LMNTD SH, ABDT IMBD V/V/FN GRN QURTZ, HVY TR BLK CARB SH W/ IMBD PYR IP

SLTST- CRM TO LT TN , PRED SMLL CLSTRS, V/ SFT ABDT IMBD DISS AND LMNTD SH, ABDT IMBD V/V/FN GRN QURTZ, HVY TR BLK CARB SH W/ IMBD PYR IP

SURVEY@ 820'DEV. -0.70 DEG./ DIR.-220.14 DEG.

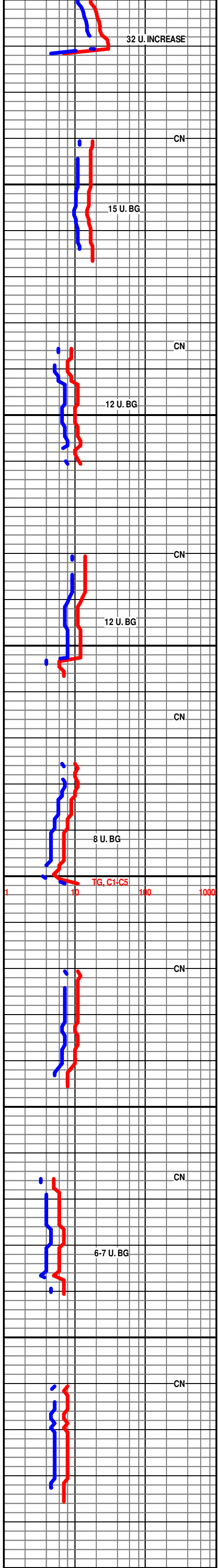
SH & SLTS- CRM LT TN- PRED V/ SFT SLTS W/ TR PYR CLSTRS IP, ABDT LMTD AND DISS SH THRU

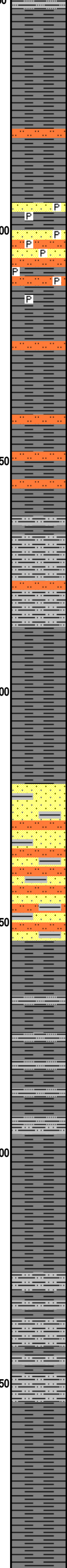
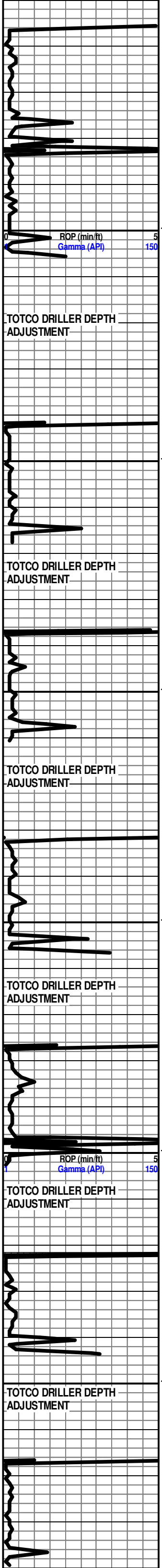
SLTST- CRM TO LT TN , PRED SMLL CLSTRS, V/ SFT ABDT IMBD DISS AND LMNTD SH, ABDT IMBD V/V/FN GRN QURTZ, W/ IMBD PYR IP

SH & SLTS- CRM LT TN- PRED V/ SFT , ABDT LMTD AND DISS SH THRU, TR CALC IP

SH- LT GY TO LT TN- FRM IP TO TO V/ SFT GMMY , V/ SLTY TXT IP

SLTST- CRM TO LT TN LT GY , PRED SMLL CLSTRS, ABDT UNCONSOLIDATED GRNS, V/ SFT ABDT IMBD DISS AND LMNTD SH, ABDT IMBD V/V/FN GRN QURTZ, W/ IMBD PYR IP





SS- CRM LT TN LT GY- HD TT TO V/ FRI IP, PRED V/F-F-GRN QURTZ, V/ CALC TO LMY IP, ABDT IMBD DISS AND LMNTD SH THRU, V/V/F-GRN QURTZ, S-ANG TO S-RND, PR SRT, ABDT IMBD PYR CLSTRS AND DISS PYR THRU, NO FLO, NO VIS POR, NO VIS SHOW OR CUT

SLTST- LT GY TO GY- V/ SFT , ABDT V/V/F-GRN QURTZ, ABDT IMBD DISS SH AND LMNTD SH THRU, V/ SFT GMMY IP

SLTY SH- - LT GY TO LT GRN- V/ SFT TXT TO V/ SLTY TXT THRU

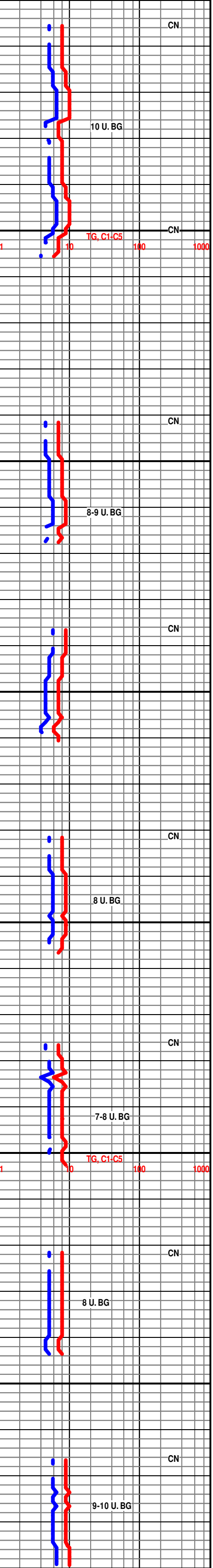
SURVEY@ 1086' DEV. 0.22 DEG./ DIR.173.25 DEG.

SS- FRSTY WHT GRN- HD TT TO V/ FRI, PRED CLSTERS, ABDT FREE GRNS, F-MD- GRN QURTZ, S-ANG TO S-RND TO RND, PR SRT, ABDT IMBD DISS RED AND GREEN SH THRU, NO FLO, NO VIS POR, NO VIS SHOW OR CUT

SH- RED DK RED- FRM IP TO V/ SFT SLTY TXT THRU, ABDT IMBD V/V/F-GRN QURTZ

SH & SLST- GY TO DK GY RD, FRM TO V SFT, SPLNTY, SCAT IMB V/VF- GRN QRTZ

SH- DK GY DK RD, FRM IP TO V SFT GMMY THRU, SMTH TXT



TOTCO DRILLER DEPTH ADJUSTMENT 1300

TOTCO DRILLER DEPTH ADJUSTMENT 1350

TOTCO DRILLER DEPTH ADJUSTMENT 1400

TOTCO DRILLER DEPTH ADJUSTMENT 1450

TOTCO DRILLER DEPTH ADJUSTMENT 1500

TOTCO DRILLER DEPTH ADJUSTMENT 1550

TOTCO DRILLER DEPTH ADJUSTMENT 1600

TOTCO DRILLER DEPTH ADJUSTMENT

SURVEY @ 1356' DEV.-0.22 DEG/ DIR.-250.63 DEG

SH- GY TO DK GY RD IP, FRM TO V SFT, SPLNTY

1375' 12:01 AM MAY 20, 2013

SH-OFF WHT, LT GY TO GY, FRM TO SFT, BLCK SLTY TXT

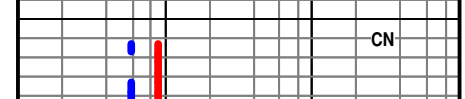
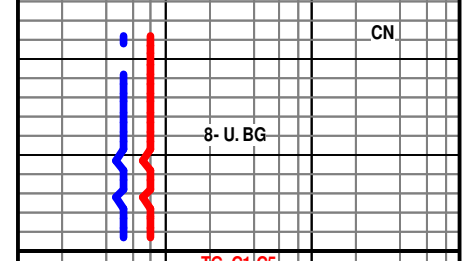
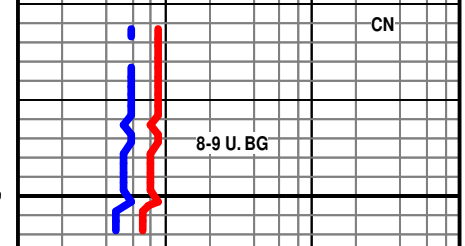
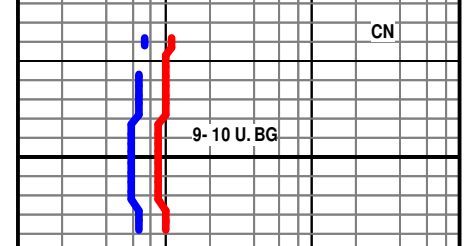
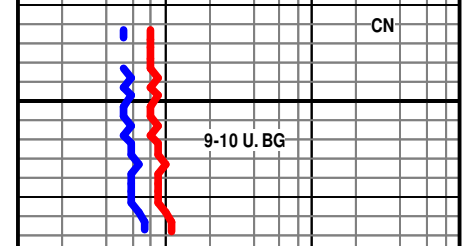
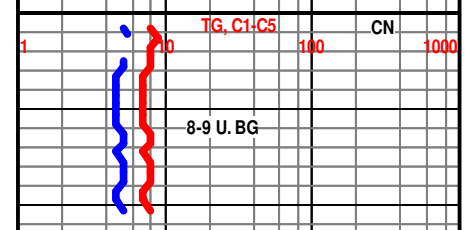
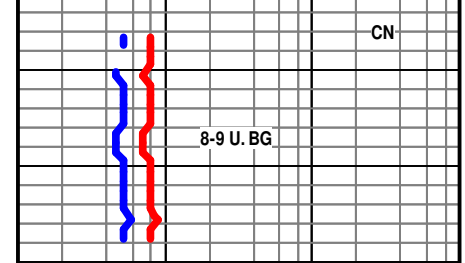
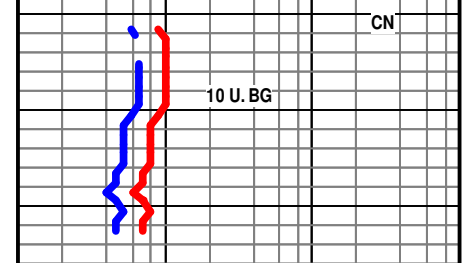
SH & SLTST- GY TO DK RD, SFT, UNCONSOLIDATED V/V/VF-GRNS THRU, V SLTY TXT

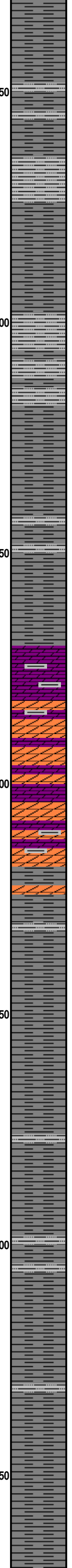
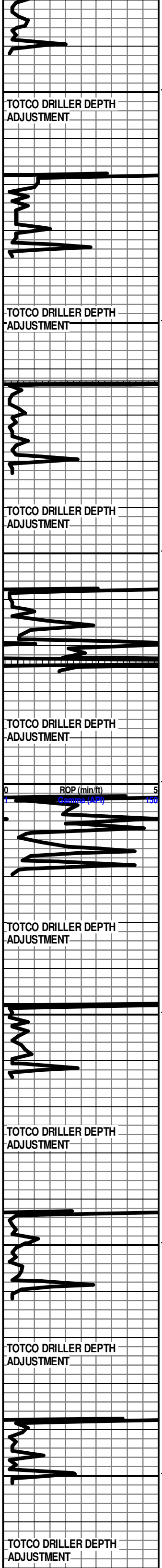
SH- V LT GY TO GY RD, TR FRM IP TO V SFT THRU, V SLTY TXT THRU, SPLNTY

SH SLTST- RD TO DK RD, V SFT TO GMMY THRU, V SLTY, ABDT IMB V/V/VF-GRNS THRU

SH- LT RD TO RD, SFT TO V/V GMMY THRU, V SLTY TXT

SURVEY @ 1622' DEV.-1.32 DEG./ DIR.- 313.04 DEG.





SH- RD, SFT TO GMMY THRU, HVY TR SLTY THRU, W/ LT GY TO GY SH, FRM TO V SFT, SPLNTY

SH- RD, SFT TO V GMMY THRU, V SLTY TXT, BLCKY

SH- LT GY TO GY RD IP, FRM IP TO V SFT, TR SLTY IP

STONE CORRAL 1770' 545'

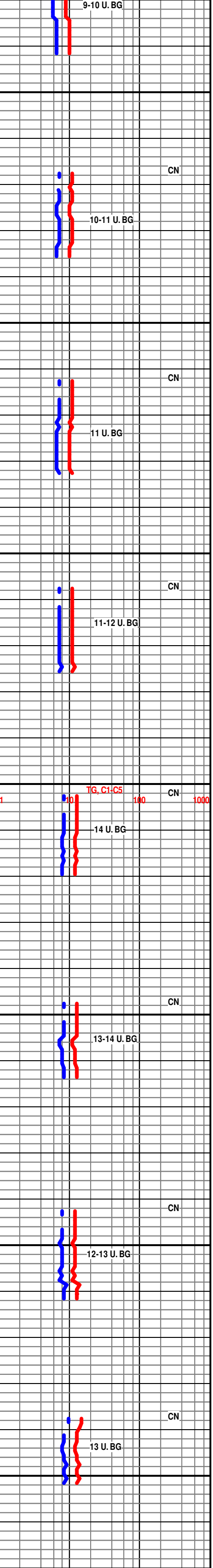
DOLO- LT GY TO GY WHT, HD DNS, V TT SUCRO MTRX, IMB ANHY, W/ LMNTD SFT RD SH'S,

SURVEY @ 1847' DEV- 1.41 DEG./ DIR- 317.43 DEG.

SH- RD TO LT GRN MOTT, V SFT TO V GMMY THRU, BLCKY

SH- V LT GY TO GY, FRM TO V SFT, BLKY, SMTH TXT, SLTY IP

SH- RD TO LT GY GY MOTT, FRM TO V/V SFT, BLKY SMTH TXT



CN

CN

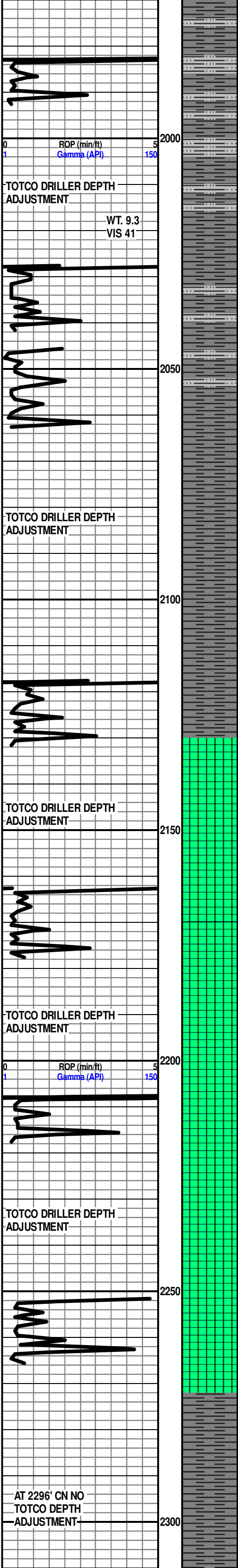
CN

CN

CN

CN

CN



SH- LT RD RD TO DK RD IP TR LT GY, V SFT TO GMMY THRU, BLCKY, SLTY TXT

SH- LT GY TO GY, TR FRM TO V SFT, BLCKY, SMTH TXT, SLTY IP

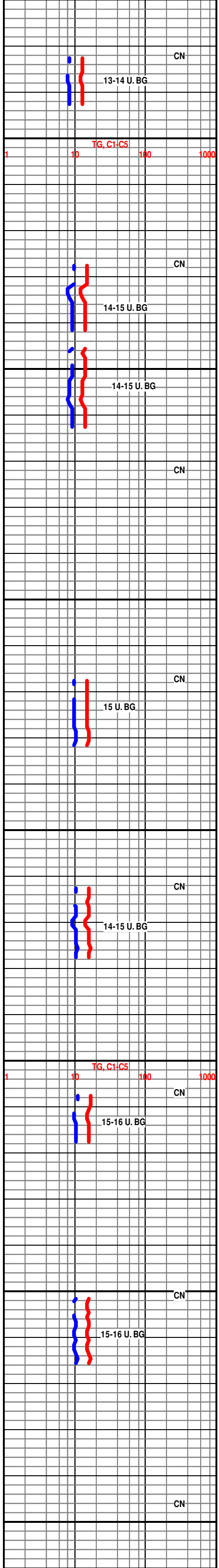
SH- LT GY TO GY DK GY IP, FRM TO V SFT GMMY IP, BLCKY SMTH TXT

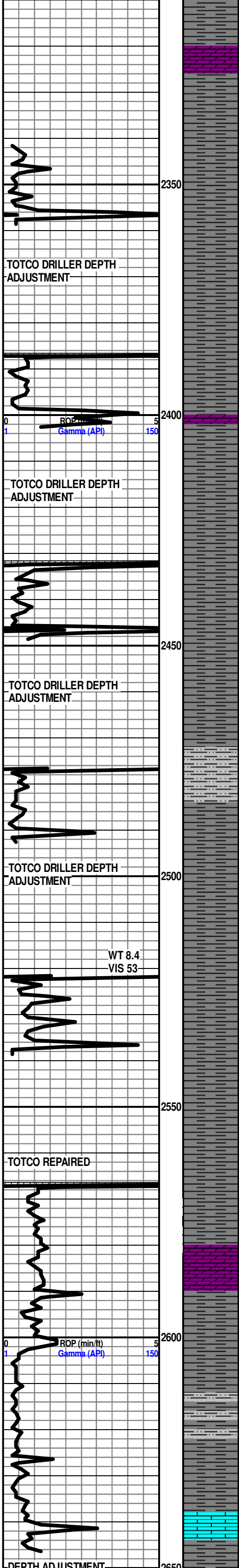
SURVEY @ 2117' DEV.-1.32/DIR.-312.47 DEG.

HUTCHINSON SALT 2129' 186'

BASE HUTCHINSON 2271' 44'

SH-LT GY TO GY F/BLKY V/GRNY TXT TO S GMMY IP,





DOLO-CRM LT GY TO GY HD TO BRITT MOTT, V/TT SUCRO MTRX, V/ARG TO SHLY, LT YEL MIN FLO, NO VIS POR, NO VIS SHOW

SH- RD TO GRN, SFT TO GMMY TXT, V/T

SH- LT TN TO LT GRY, V/SFT GMMY TO V/SLTY IP

DOLO-CRM TO LT GY TO GY, HD BRTT V/MOTT, V/SUCRO MTRX, ABDT IMB DRK GRY SH, SLI CALC IP, NO FLO, NO VIS POR, NO SHOW

SH- GY MD GY TO RD MOTT V/SFT GMMY TXT TO HVY TRC SLTY IP

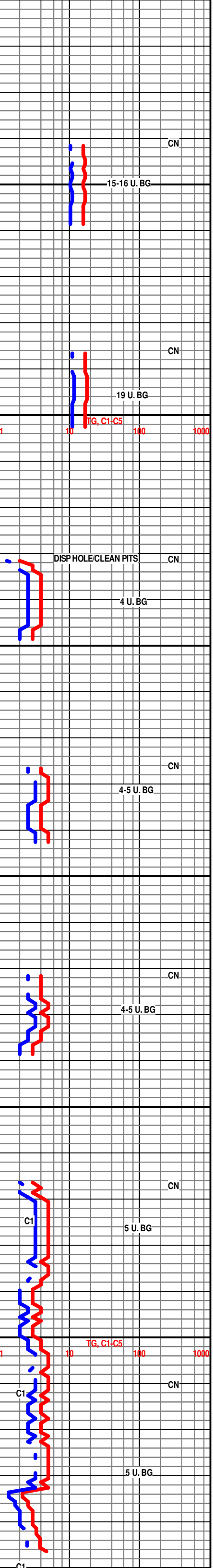
SHLY SLTS-RD TO DRK RD, V/SFT SILTY TXT TO ABDT GMMY RD SH

SH-LT RD TO RD TRC GRN, FRM IP V/SFT GMMY

DOLO-CRM LT GY DK GY MOTT HD DNS TO BRITT MD TO F XLN IMBD DISS AND LMNTD SH THRU, SCATT IMBD FOSS FRG, NO FLO, NO VIS POR, NO VIS SHOW

SH-LT GY TO GY FRM BLKY SM TXT TO V-SFT SILTY IP

LS-HD DNS F TO V/F-XLN, TRC TT SUCRO IP, LT YEL MIN FLO IP, NO VIS POR, NO VIS SHOW



CN

15-16 U. BG

CN

19 U. BG

TG, C1-C5

DISP HOLE/CLEAN PITS

CN

4 U. BG

CN

4-5 U. BG

CN

4-5 U. BG

CN

5 U. BG

C1

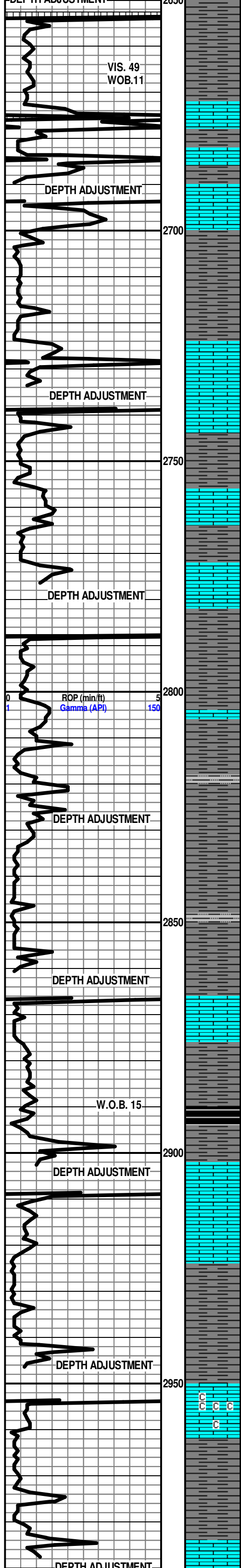
TG, C1-C5

CN

C1

5 U. BG

C1



LS-CR LT TN TN HD TO BRITT MD XLN TO SUCRO IP, TRC SFT WHT CHLK, ABTD IMBD WHT LT GY CHRT, NO FLO, NO VIS POR, NO SHOW

SURVEY @ 2695' DEV.-2.42/DIR.-298.93 DEG.

SH- LT GY TO GY RD IP, FRM TO V SFT, BLCKY SMTH TXT

LS- CRM BFF TO LT TN, HD DNS TO BRTT, MD/F-XLN, S-SUCRO, LT TR IMB GY SH, NO VIS FLO, NO VIS POR, NO VIS SHOW

SURVEY @ 2738' DEV.-2.42/DIR.-298.45

SH- LT GY TO GY, V SFT TO GMMY, BLCKY

SURVEY @ 2787' DEV.-2.42/DIR.-297.74/

SH- RD TO DK RD, V GMMY THRU, SLI TR SLTY IP

NEVA 2866'-551'

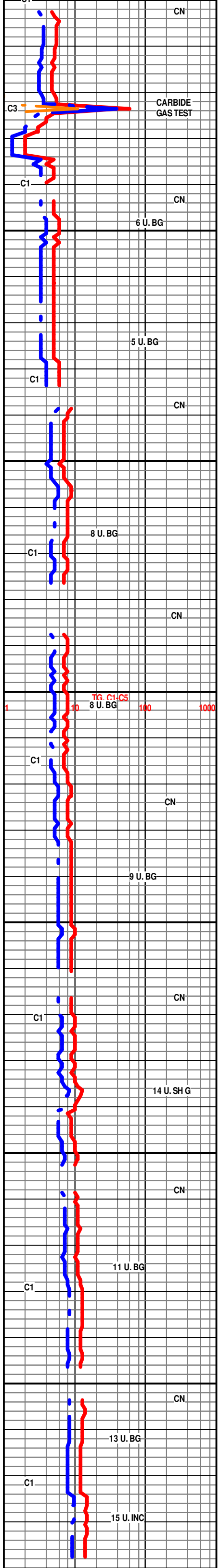
LS- CRM TO LT TN, HD DNS TO BRTT, MD-XLN, TR RE-XLN IP, S-SCURO, SCAT IMB CALC-XLS IP, LT TR FREE CALC-XLS IN TRAY, NO VIS FLO, NO VIS POR, NO VIS SHOW

SH- BLCK SFT CARB

LS- CRM TO LT TN, HD DNS TO BRTT IP, MD/F-XLN, SUCRO MTRX, SCAT IMB CALC-XLS IP, V DUL YEL FLO IP, NO VIS POR, NO VIS CUT OR SHOW

SH- LT GY TO GY, V SFT TO GMMY IP, SMTH TXT, SPLNTY

LS- OFF WHT TO CRM, HD DNS TO V BRTT, MD/F-XLN, CHLKY MTRX, ABTD IMB SFT WHT CHLK THU, ABTD WHT CHLK THRU TRAY, SCAT FREE CALC-XLS THRU TRAY, DUL YEL FLO IN 20%, NO VIS POR, NO VIS CUT OR SHOW



C3 CARBIDE GAS TEST

C1 CN

6 U. BG

5 U. BG

C1 CN

8 U. BG

C1 CN

TG C1-C5 8 U. BG 100 1000

C1 CN

9 U. BG

C1 CN

14 U. SH G

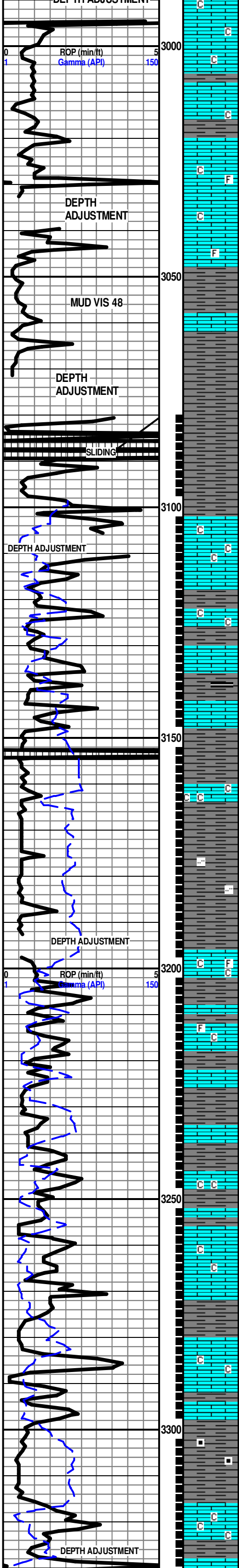
C1 CN

11 U. BG

C1 CN

13 U. BG

15 U. INC



SURVEY@ 2994' DEV- 2.81 DEG/ DIR- 292.24 DEG

LS- CRM TO LT GY, HD DNS TO BRIT, MD/F-XLN MTRX, S-CHLKY IP, LT TR IMB V SM FOSS FRAGS IP, NO VIS FLO, NO VIS POR, NO VIS SHOW

SH- LT GY TO GY, V SFT TO V GMMY THRU, BLCKY

CFS @ 3080'/ T.O.H. @ 2:45 A.M.

BEGIN SLIDING AFTER 3080'
MWD TOOL BACK UP

SH-LT GY TO GY V/SFT GMMY TXT

LS-OFF WHT TO CRM, V/SFT CHLKY TO SUCRO IP, NO FLO, NO VIS POR, NO SHOW

LS-CRM BFF LT TN, HD DNS TO BRIT, MD XLN TO TT SUCRO MTRX, LT YEL MIN FLO, NO VIS POR, NO VIS SHOW

SH- GY DRK GY F-BLKY SMTH TXT TRC BLK SFT CARB
LS-OFF WHT CRM TO BFF HD TO BRIT, MD XLN TO SUCRO IP TRC IMBD SH IP, DLL YEL FLO, NO VIS POR, NO VIS SHOW

SH-MD TO DRK GY F-BLKY MICA, GN TXT IP
LS-OFF WHT TO CRM, MD HD TO SFT V/SUCRO TO V/CHLKY IP, ABTD SFT WHT CHLK THRU, NO FLO, NO VIS POR, NO SHOW

SH-LT GRN TO LT GY, F-BLKY SMTH TXT, TO SLT SILTY TXT IP

LS-OFF WHT CRM BFF HD DNS TO BRIT, MD XLN TO SUCRO SFT CHLKY, ABTD SFT WHT CHLK IP TR FOSS FRAG DLL YEL MIN FLO IP, NO VIS POR, NO VIS SHOW

LS-OFF WHT CRM LT TN, HD DNS IP TO BRIT, MD TO F-XLN RE-XLN MTRX, TR FOSS FRGS IP TRC SFT WHT CHLK TRC DIS PYR, V/DLL YEL FLO THRU, NO VIS POR, NO VIS SHOW

SH-LT TO MD GY, FRM BLKY SMTH TXT

LS-CRM OFF WHT LT GY HD BRIT V/ SUCRO MTRX, V/ S-CHLKY IP, SM IMBD CALC XLS IP, IMBD DISS LT GY SH, DLL YEL MIN FLO, NO VIS POR, NO VIS SHOW

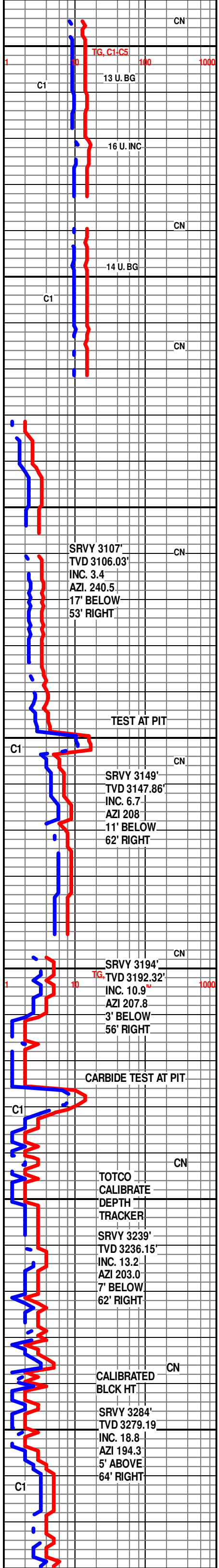
LS-OFF WHT CRM LT TN MD HD TO SFT, V/ SUCRO S-CHLKY TO CHLKY MTRX, ABTD SFT GMMY WHT CHLK, LT MIN FLO, NO VIS POR TO TR MICRO PP IP, NO VIS SHOW

SH-LT GY TO GY FRM BLKY IP SMTH TXT TO SFT GMMY IP

LS-OFF WHT TO WHT TO CRM, MD HD TO SFT, SUCRO TO S-CHLKY MTRX WTH ABTD SFT WHT CHLK, NO FLO, NO VIS SHOW

SH-LT TO MD GY HD SPLNTY TO FRM BLKY SMTH TXT IP TR BLK SFT CARB

LS-CRM LT TN LT GY, HD DNS TO BRIT, V/ SUCRO MTRX, ABTD IMBD SFT WHT CHLK IMBD DISS LT GY SH IP, DLL YEL MIN FLO IP, NO VIS POR, NO VIS SHOW



TG, C1-C5
100 1000

C1

13 U. BG

16 U. INC

14 U. BG

C1

SRVY 3107'
TVD 3106.03'
INC. 3.4
AZI. 240.5
17' BELOW
53' RIGHT

TEST AT PIT

C1

SRVY 3149'
TVD 3147.86'
INC. 6.7
AZI 208
11' BELOW
62' RIGHT

SRVY 3194'
TVD 3192.32'
INC. 10.9
AZI 207.8
3' BELOW
56' RIGHT

CARBIDE TEST AT PIT

C1

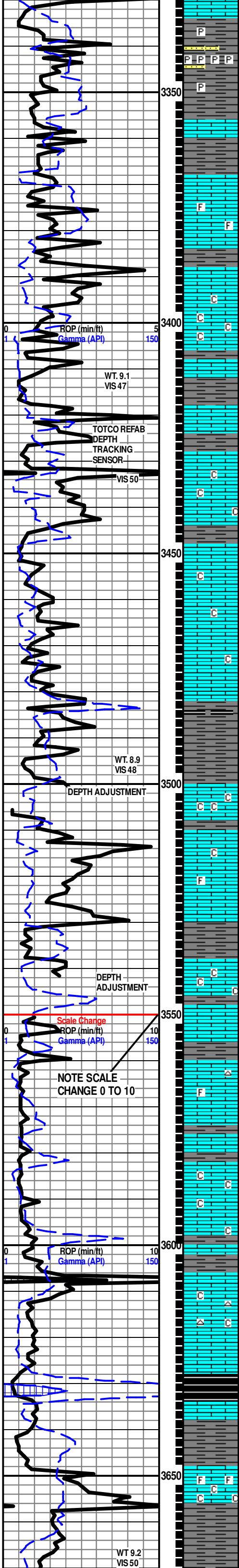
TOTCO
CALIBRATE
DEPTH
TRACKER

SRVY 3239'
TVD 3236.15'
INC. 13.2
AZI 203.0
7' BELOW
62' RIGHT

CALIBRATED
BLCK HT

SRVY 3284'
TVD 3279.19
INC. 18.8
AZI 194.3
5' ABOVE
64' RIGHT

C1



SH-LT GY TO GY, V/ SFT TXT GMMY, PYR CLSTR, HV TR OF SS CLSTR-CLR TO FRSTY GY HD TT PRED CLR GRNS S-ANG TO S-RD, F TO MD GRN, PR SRT, SIL CMNT, ABDT IMBD PYR THRU, IMBD SFT SH, NO FLO, PR VIS INTR GRN POR, NO VIS CUT OR SHOW

TOPEKA MD-3368' TVD 3360'-1045'

LS-OFF WHT TO CRM LT TN, HD DNS IP TO BRITT, MD TO F-XLN, V/ S-CHLKY IP, SLT TR FOSS FRGS IMBD IP, LT YEL MIN FLO, NO VIS POR, NO VIS CUT OR SHOW

LS-CRM OFF WHT TO WHT, HD DNS IP, F-XLN TO V/ CHLKY MTRX, ABDT WHT CHLK, V/V/DLL FLO, NO VIS POR, NO VIS SHOW

SH- GY TO DK GY, FRM TO V SFT, BLCKY SMTH TXT

LS- CRM TO LT TN, HD DNS TO BRITT, MD/F-XLN, S-CHLKY, SCAT IMB SM CALC-XLS THRU, TR IMB SFT WHT CHLK, DUL YEL FLO IN 40%, NO VIS POR, NO VIS SHOW

LS- CRM TO LT TN GY IP, HD DNS TO BRITT IP, F/VF-XLN, V S-CHLKY, V SLI TR IMB SM CALC-XLS IP, SCAT SFT WHT CHLK THRU TRAY, V DUL YEL FLO IN 30%, NO VIS POR, NO VIS CUT OR SHOW

LECOMPTON MD 3501' TVD 3475'-1160'

LS- OFF WHT TO CRM, HD DNS TO V BRITT, MD-XLN, CHLKY MTRX, ABDT SFT WHT CHLK THUR TRAY, DUL YEL FLO IP, NO VIS POR, NO VIS CUT OR SHOW

LS- LT TN TO TN, HD DNS TO BRITT, MD/F-XLN, S-SUCRO, TR S-CHLKY IP, TR IMB SM FOSS FRAGS IP, NO VIS FLO, NO VIS POR, NOV IS CUT OR SHOW

LS-OFF WHT TO CRM LT TN HD TO BRITT, MD XLN TO SUCRO V/S-CHLKY IP, NO FLO, NO VIS POR, NO VIS SHOW

LS-OFF WHT CRM BFF HD TO BRITT, MD TO F-XLN GRDNG TO SUCRO S-CHLKY IP W/TR FOSS FRAG TR TN CHRT, DLL YEL MIN FLO, NO VIS POR, NO VIS SHOW

LS-OFF WHT TO CRM LT TN, HD DNS IP TO BRITT, MD XLN TO SUCRO S-CHLKY MTRX, W/IMBD ABDT WHT CHLK, HVY TR SM CALC XLS IMBD IP, NO FLO IP TO LT BRT YEL FLO IN 20%, V/PR MICRO VUG POR IP, SL TR MICR PP V/WK GSSY CUT IN 1%

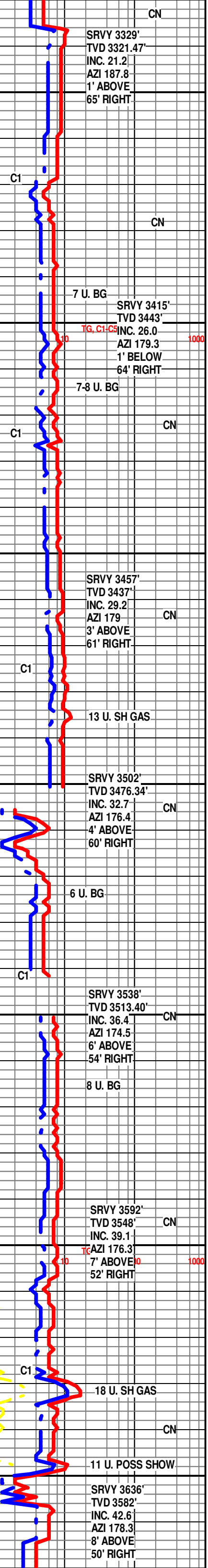
LS-OFF WHT CRM LT TN, MD HD TO SFT V/SUCRO S-CHLKY MTRX, TR MD XLN IP, TR WHT CHRT, NO VIS FLO, NO VIS POR, NO SHOW

HEEBNER 3626'/TVD 3580'-1265'

SH-BLK SFT CARB

TORONTO 3649'/TVD 3605'-1290'

LS-OFF WHT CRM LT TN, HD TO BRITT, MD XLN W/IMBD FOSS FRAG, V/S-CHLKY IP, SM CALC XLS IMBD, DLL YEL FLO IP, TR BRIT YEL FLO, PR MICRO VUG POR IP, NO VIS CUT OR SHOW



SRVY 3329'
TVD 3321.47'
INC. 21.2
AZI 187.8
1' ABOVE
65' RIGHT

7 U. BG
SRVY 3415'
TVD 3443'
INC. 26.0
AZI 179.3
1' BELOW
64' RIGHT

SRVY 3457'
TVD 3437'
INC. 29.2
AZI 179
3' ABOVE
61' RIGHT

13 U. SH GAS

SRVY 3502'
TVD 3476.34'
INC. 32.7
AZI 176.4
4' ABOVE
60' RIGHT

6 U. BG

SRVY 3538'
TVD 3513.40'
INC. 36.4
AZI 174.5
6' ABOVE
54' RIGHT

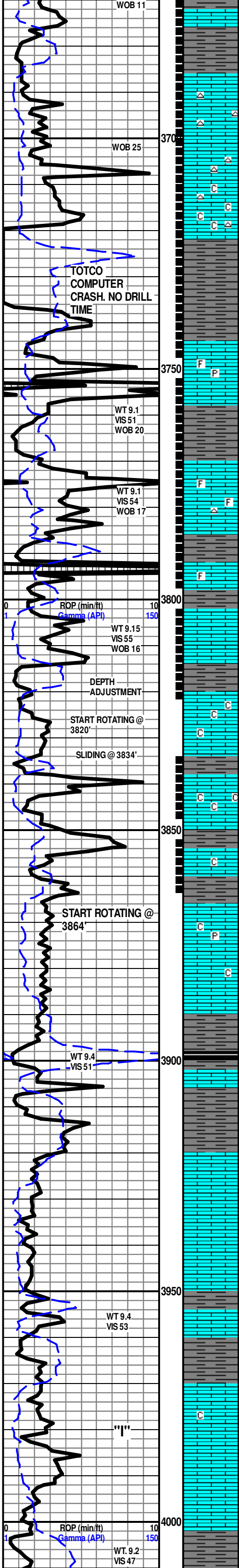
8 U. BG

SRVY 3592'
TVD 3548'
INC. 39.1
AZI 176.3
7' ABOVE
52' RIGHT

18 U. SH GAS

11 U. POSS SHOW

SRVY 3636'
TVD 3582'
INC. 42.6
AZI 178.3
8' ABOVE
50' RIGHT



LANSING 3684'/TVD 3616'-1301'
 LS-CRM LT TN, HD DNS TO BRITT IP, MD XLN TO F-XLN IP, W/ ABDT WHT TN CHRT, DLL YEL FLO IP, NO VIS POR, NO VIS SHOW

LS-OFF WHT CRM LT TN, HD DNS TO BRITT IP, MD XLN TO F-XLN IP, ABDT IMBD F-WHT CHLK, W/ ABDT WHT TN CHRT, DLL YEL FLO IP, NO VIS POR, NO VIS SHOW

SRVY 3681'
TVD 3614.71'
INC. 45.1
AZI 179.0
7' ABOVE
49' LEFT

C1

NO ROP TO LOCK GAS TO.

SRVY 3726'
TVD 3645'
INC. 48.4
AZI 182.3
6.8' ABOVE
50.2' LEFT

LANSING "C" 3747'/TVD 3662'-1347'
 LS-CRM LT TN, HD DNS TO BRITT, MD XLN RE-XLN MTRX IP, TR FOSS IP, SCAT IMBD DISS PYR, SLI S-CHLKY, SME WHT CHRT, LT BRT YEL MIN FLO, NO VIS POR, NO VIS SHOW

LS-CRM LT TN, HD DNS TO BRITT IP, MD/ FN- XLN, S-CHLKY, SCAT SM FOSS FRAGS IP, TR WHT CHRT IN TRAY, NO VIS FLO, NO VIS POR, NO VIS SHOW

4 U. BG

SRVY 3770'
TVD 3673'
INC. 53
AZI 177.3
9.2' ABOVE
46' LEFT

C1

11 U. POSSIBLE SHOW

LANSING "F" 3801'/ TVD 3691'-1376'
 3802'-3808" LS-OFF WHT TO CRM (W/ TN OIL STN IN 30%), HD DNS TR BRITT, MD FN-XLN, S-SUCRO, IMBD SM CALC-XLS IP, SLI TR IMBD FOSS FRAGS, YEL GLD FLO THRU BRT YEL GLD FLO SPTTD IN 10%, V PR MICRO-VUG POR IP, WK FLSH CUT IN 20%, GD TO EXCEL SLW STRM 40%, NO LCH ON DISH, NO OIL ODOR

3824'-3828"LS- CRM TO LT TN (W/ TN OIL STN IN 20%-30%), HD DNS V-BRITT, MD XLN RE-XLN, S-CHLKY THRU, SCATT INBD CALC XLS, ABDT SFT WHT CHLK THRU TRAY, TR V-DUL YEL FLO IN 10% PR/ FR/ TR GD VUG POR IN 3-4%, SCAT PR TO FR MICRO VUG POR, PR FLSH CUT, FR TO GD SLOW STRM IN 30% V SLI TR LT TN LCH ON DSH, NO OIL ODOR

TG, C1-C5

CALIBRATION CHECK ON EQUIP

CARBIDE CHECK AT PIT

SRVY 3815'
TVD 3699'
INC. 57.2
AZI 178
9.2' ABOVE
43' LEFT

LS- LT TN TO TN, HD DNS TO V BRIT SFT, MD-XLN, CHLKY MTRX, ABDT SFT WHT CHLK THRU TRAY, NO VIS FLO, NO VIS POR, NO VIS SHOW

SH- GRV TO DK GRV, FRM TO SFT, SPLNTY

LS- CRM TO LT TN, HD DNS TO BRITT IP, F/VF-XLN, SLI TR S-CHLKY, SCAT SFT WHT CHLK, V SLI TR PRY, DUL YEL FLO IN 20%, NO VIS CUT OR SHOW

2 U. BG

SRVY 3857'
TVD 3720'
INC. 60.2
AZI 178.8
9' ABOVE
42' LEFT

9 U. INC.

C1

LANSING "H" 3890' MD/ TVD 3737'-1422'
 SH- BLCK SFT CARB

SH-V/ LT GY TO GY, V/ SFT TXT TO FRM IP

LS-CRM LT TN TN (DUE TO LT TN STAIN IP) HD TO V/ BRITT, MD XLN RE-XLN MTRX, HVY TR SM CALC XLS IMBD IP, HVY TR DOS, TR LT BRT YEL GLD FLO, IN 50%, NO VIS POR, FR FLSH CUT TO FR SLO STRM CUT THRU, FR OIL ODOR IN SAMPLES, NO STAIN ON DISH

5 U. BG

SRVY 3902'
TVD 3742'
INC. 61.5
AZM 178.4
12' ABOVE
35' RIGHT

2 U. BG

4 U. SHOW

SH- LT GY TO LT GRN, FRM BLKY SMTH TXT

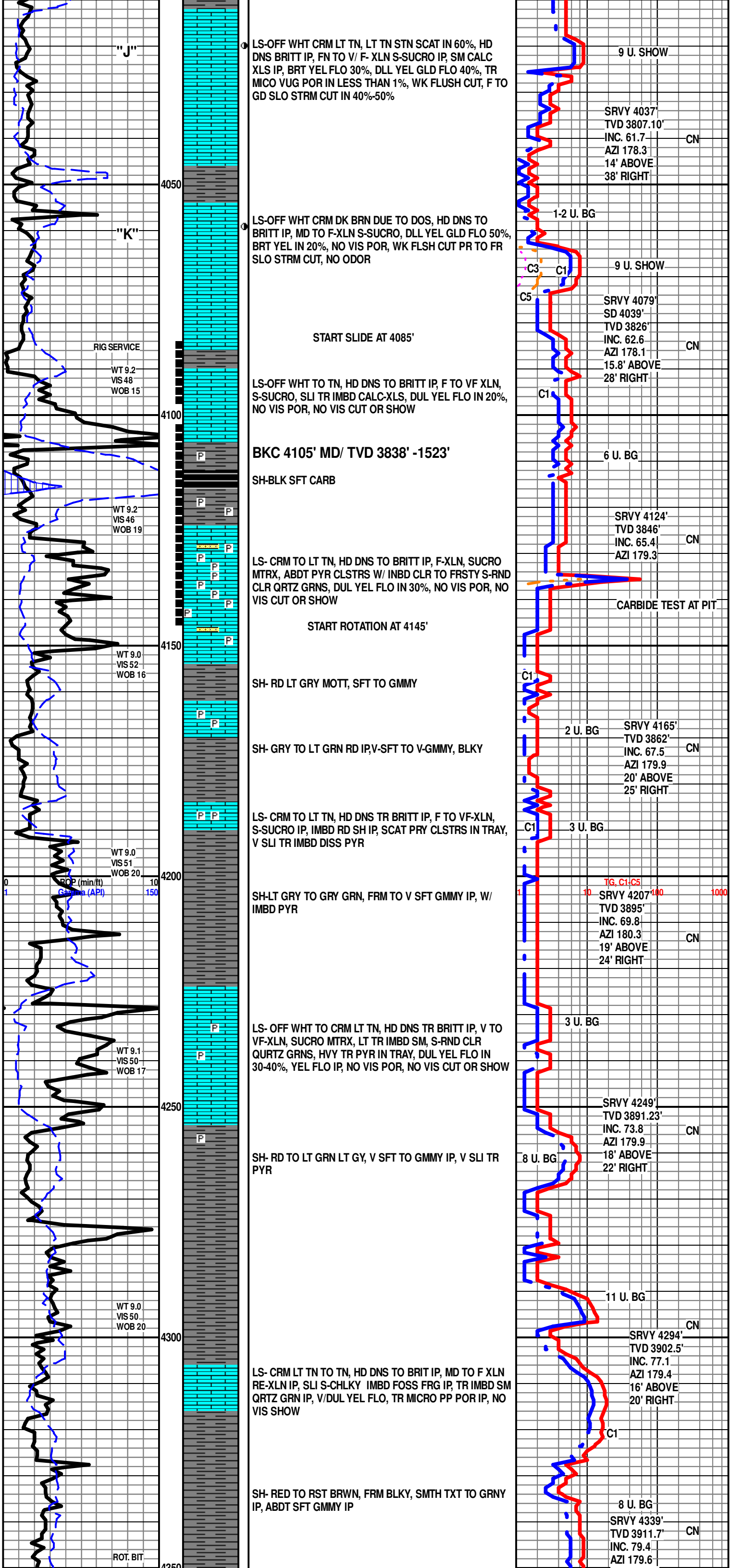
LS-CRM LT TN TO TN, LT TN STN IN 70%, HD DNS TO BRITT, MD XLN TO V/ SUCRO MTRX, SLO S-CHLKY IP, BRIT YEL GLD FLO IN 70%, NO VIS POR, FR FLSH CUT TO FR TO GD SLO STRM CUT, NO ODOR, LT TN STAIN IN DISH

4 U. BG

SRVY 3992'
TVD 3785.76
INC. 61.7
AZI 177.9

SH- LT GY TO GY, FRM BLKY, SMTH TXT, CALC IP

TG, C1



"J"

LS-OFF WHT CRM LT TN, LT TN STN SCAT IN 60%, HD DNS BRITT IP, FN TO V/ F- XLN S-SUCRO IP, SM CALC XLS IP, BRT YEL FLO 30%, DLL YEL GLD FLO 40%, TR MICO VUG POR IN LESS THAN 1%, WK FLUSH CUT, F TO GD SLO STRM CUT IN 40%-50%

9 U. SHOW

SRVY 4037'
TVD 3807.10'
INC. 61.7
AZI 178.3
14' ABOVE
38' RIGHT

"K"

LS-OFF WHT CRM DK BRN DUE TO DOS, HD DNS TO BRITT IP, MD TO F-XLN S-SUCRO, DLL YEL GLD FLO 50%, BRT YEL IN 20%, NO VIS POR, WK FLSH CUT PR TO FR SLO STRM CUT, NO ODOR

1-2 U. BG

9 U. SHOW

SRVY 4079'
SD 4039'
TVD 3826'
INC. 62.6
AZI 178.1
15.8' ABOVE
28' RIGHT

RIG SERVICE

START SLIDE AT 4085'

WT 9.2
VIS 48
WOB 15

LS-OFF WHT TO TN, HD DNS TO BRITT IP, F TO VF XLN, S-SUCRO, SLI TR IMBD CALC-XLS, DUL YEL FLO IN 20%, NO VIS POR, NO VIS CUT OR SHOW

BKC 4105' MD/ TVD 3838' -1523'

6 U. BG

SH-BLK SFT CARB

SRVY 4124'
TVD 3846'
INC. 65.4
AZI 179.3

WT 9.2
VIS 46
WOB 19

LS- CRM TO LT TN, HD DNS TO BRITT IP, F-XLN, SUCRO MTRX, ABDT PYR CLSTRS W/ INBD CLR TO FRSTY S-RND CLR QRTZ GRNS, DUL YEL FLO IN 30%, NO VIS POR, NO VIS CUT OR SHOW

CARBIDE TEST AT PIT

START ROTATION AT 4145'

WT 9.0
VIS 52
WOB 16

SH- RD LT GRY MOTT, SFT TO GMMY

C1

2 U. BG

SRVY 4165'
TVD 3862'
INC. 67.5
AZI 179.9
20' ABOVE
25' RIGHT

SH- GRY TO LT GRN RD IP, V-SFT TO V-GMMY, BLKY

LS- CRM TO LT TN, HD DNS TR BRITT IP, F TO VF-XLN, S-SUCRO IP, IMBD RD SH IP, SCAT PRY CLSTRS IN TRAY, V SLI TR IMBD DISS PYR

C1

3 U. BG

WT 9.0
VIS 51
WOB 20

SH-LT GRY TO GRY GRN, FRM TO V SFT GMMY IP, W/ IMBD PYR

TG, C1-C5
SRVY 4207'
TVD 3895'
INC. 69.8
AZI 180.3
19' ABOVE
24' RIGHT

LS- OFF WHT TO CRM LT TN, HD DNS TR BRITT IP, V TO VF-XLN, SUCRO MTRX, LT TR IMBD SM, S-RND CLR QRTZ GRNS, HVY TR PYR IN TRAY, DUL YEL FLO IN 30-40%, YEL FLO IP, NO VIS POR, NO VIS CUT OR SHOW

3 U. BG

WT 9.1
VIS 50
WOB 17

SH- RD TO LT GRN LT GY, V SFT TO GMMY IP, V SLI TR PYR

8 U. BG

SRVY 4249'
TVD 3891.23'
INC. 73.8
AZI 179.9
18' ABOVE
22' RIGHT

WT 9.0
VIS 50
WOB 20

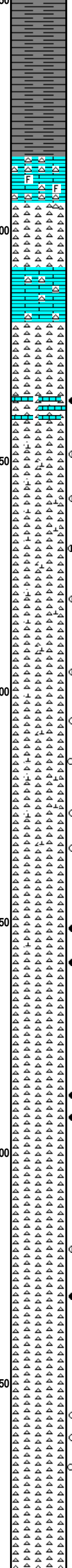
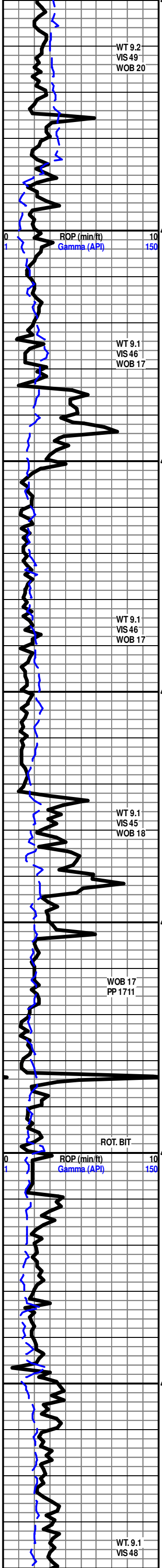
LS- CRM LT TN TO TN, HD DNS TO BRIT IP, MD TO F XLN RE-XLN IP, SLI S-CHLKY IMBD FOSS FRG IP, TR IMBD SM QRTZ GRN IP, V/DUL YEL FLO, TR MICRO PP POR IP, NO VIS SHOW

11 U. BG
SRVY 4294'
TVD 3902.5'
INC. 77.1
AZI 179.4
16' ABOVE
20' RIGHT

SH- RED TO RST BRWN, FRM BLKY, SMTH TXT TO GRNY IP, ABDT SFT GMMY IP

8 U. BG
SRVY 4339'
TVD 3911.7'
INC. 79.4
AZI 179.6

ROT. BIT



SH- RED GRN TO RST BRWN MOTTLD, FRM BLKY, SMTH
TXT TO GRNY IP, ABDT SFT GMMY IP

MARMATON 4385' MD/ TVD3919.7'-1604

LS- OFF WHT TO CRM, HD DNS TO BRIT, MD XLN SUCRO
MTRX, RE-XLN, IMBD FOSS FRG, ABDT IMBD WHT
WTHRD CHRT, NO VIS FLO, NO VIS POR, NO VIS SHOW

CHRT- WHT CRM TO ORNG MOTT, HD DNS WTHRD, TR
IMBD LS, DUL YEL FLO IP TO NO FLO, NO VIS POR,

LS- OFF WHT TO CRM, HD DNS TO BRIT, MD XLN SUCRO
MTRX, RE-XLN, ABDT IMBD WHT WTHRD CHRT, NO VIS
FLO, NO VIS POR, NO VIS SHOW

CHRT- WHT TN TO ORNG MOTT, HD DNS WTHRD IP, LT
BRT YEL FLO, PR MICRO PP POR IP, NO VIS CUT, NO VIS
SHOW

3925TVD/4435' MD- CHRT- OFF WHT CRM TN TO ORNG
IP, HD DNS WTHRD, V/ CALC IP, BRT YEL GLD FLO THRU,
FR FLSH CUT, FR TO GD SLW STRM CUT

4450'-4475' MD- CHRT- OFF WHT CRM TN TO ORNG IP W/
LT TN OIL STN IN 40%, HD DNS TO BRIT WTHRD, SUCRO
MTRX, SLI CALC IP, BRT YEL GLD FLO THRU, GD FLSH
CUT, GD SLW STRM CUT IN 50%

4475'-4500' MD- CHRT- WHT ORNG, HD DNS TO BRIT IP,
WTHRD IP, V/ SUCRO TXT IP, CALC IP, LT YEL GLD FLO
IP, TO LT YEL MIN FLO IP, V/ PR PP POR IP, LT FLSH CUT
IN 30% TO FR SLO STRM CUT IN 30-40%, NO ODOR

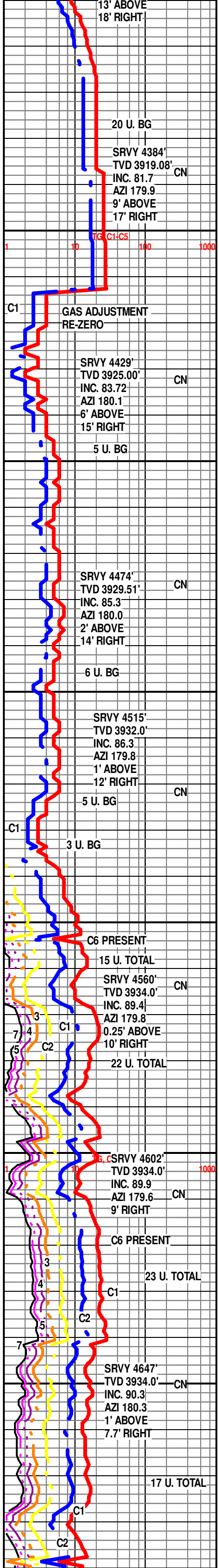
4500'-4540' MD CHRT- WHT ORNG TO LT TN, HD DNS TO
TR BRIT, SLI TR WTHRD IP, SLI TO V/ CALC IP, DUL YEL
GLD FLO IN 10%, NO FLO IN 80%, NO VIS POR, WK FLSH
CUT IN 10%, FR SLW STRM CUT IN 10%

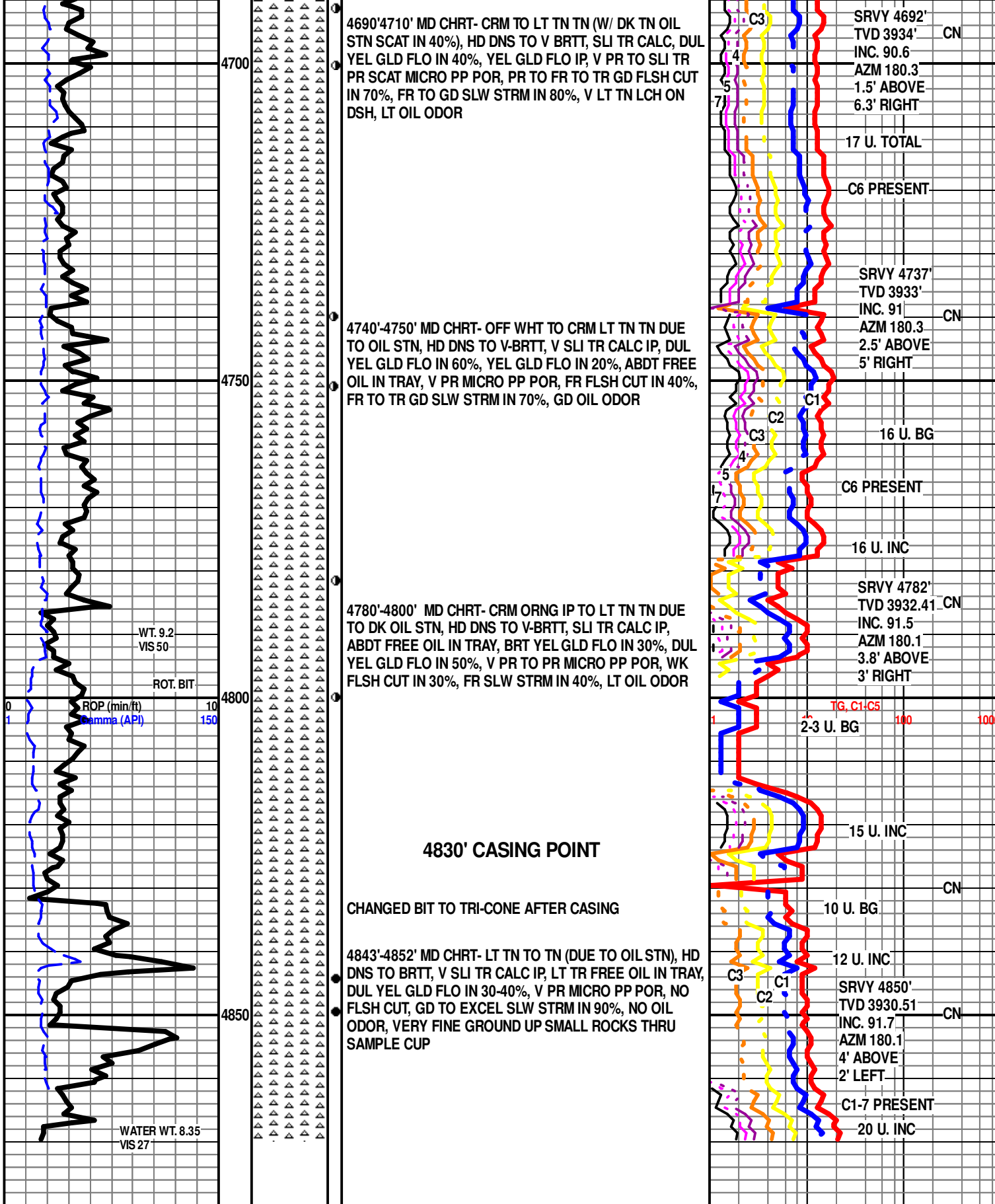
4540'- 4558' MD CHRT- CRM LT TN TO DK TN DUE TO OIL
STN, HD DNS TO V/BRIT WTHRD, V/ SLI CALC, BRT YEL
GLD FLO IN 80%, ABDT FREE OIL IN TRAY, DUL YEL GLD
FLO IN 20%, V/PR VIS MICRO PP POR, FR FLSH CUT IN
80%, FR TO GD SLW STRM IN 80%, LT OIL ODOR

4586'-4592' MD CHRT- TN TO DK TN DUE TO OIL STN
THRU, HD DNS TO V-BRIT WTHRD, V TT SUCRO MTRX,
SLI TR CALC IP, DUL YEL GLD FLO IN 80%, YEL GLD FLO
IN 10%, V PR TO TR PR MICRO PP POR, FR FLSH CUT IN
80%, GD SLW STRM IN 100%, LT TN TO TR TN LCH ON
DSH, FR OIL ODOR

4630'-4640' MD CHRT- CRM TO LT TN TN (SCAT DK TN OIL
STN), HD DNS TO BRIT SLI WTHRD, TT SUCRO MTRX,
SLI CALC, DUL YEL GLD FLO IN 30-40%, V PR MICRO
PP POR, FR FLSH CUT IN 700%, GD SLW STRM IN 800%,
FR OIL ODOR

4650'-4670' MD CHRT- WHT TO CRM LT TN ORNG IP, HD
DNS TO BRIT IP, CALC-IP, DUL YEL GLD FLO IN 10-20%,
V SLI TR MICRO PP POR IP, NO FLSH CUT, V PR WK SLW
STRM IN 10%







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

Well Name: 11-21-31-H1
Location: SHL STR; Sec 31 T 11s R 21w, Trego Co, Kansas
License Number: 15-195-22863-01-00
Spud Date: May 17, 2013
Surface Coordinates: 539' FSL & 430' FWL Sec. 30
Region: Wildcat
Drilling Completed: June 7, 2013

Bottom Hole Coordinates: 400' FSL & 430' FWL Sec. 31
Ground Elevation (ft): 2302' K.B. Elevation (ft): 2315'
Logged Interval (ft): 313' To: 8983' Total Depth (ft): 8983'
Formation: Marmaton Chert
Type of Drilling Fluid:

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

ROCK TYPES

	Bent		Dol		Salt		Shgy
	Brec		Gyp		Htshale		Sltst
	Cht		Igne		Newhotsh		Ss
	Clyst		Lmst		Shale		Till
	Coal		Meta		Shlyss		Blank
	Congl		Mrlst		Shcol		

Directional Drilling Information

Directional Driller: Strata Directional Technology, Inc.
Drilling Rig: Unit Rig #310
KOP: 2725' Lateral Length:
Comments:

GEOLOGIST

Name: Tim Hedrick/Schuyler Hedrick/Rich Osborn/Tom Flowers
Company: Earth Tech OGL, Inc.
Address: P.O. Box 683
Hooker, OK 73945
Off; 888-543-8378 Cell; 580-754-0062

ACCESSORIES

FOSSIL

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

- Plant
- Strom

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Breclrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp

- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol

- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Shale gy

TEXTURE

- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OTHER SYMBOLS

POROSITY

- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint

- Vuggy

SORTING

- Well
- Moderate
- Poor

ROUNDING

- Rounded
- Subrnd
- Subang
- Angular

INTERVAL

- None

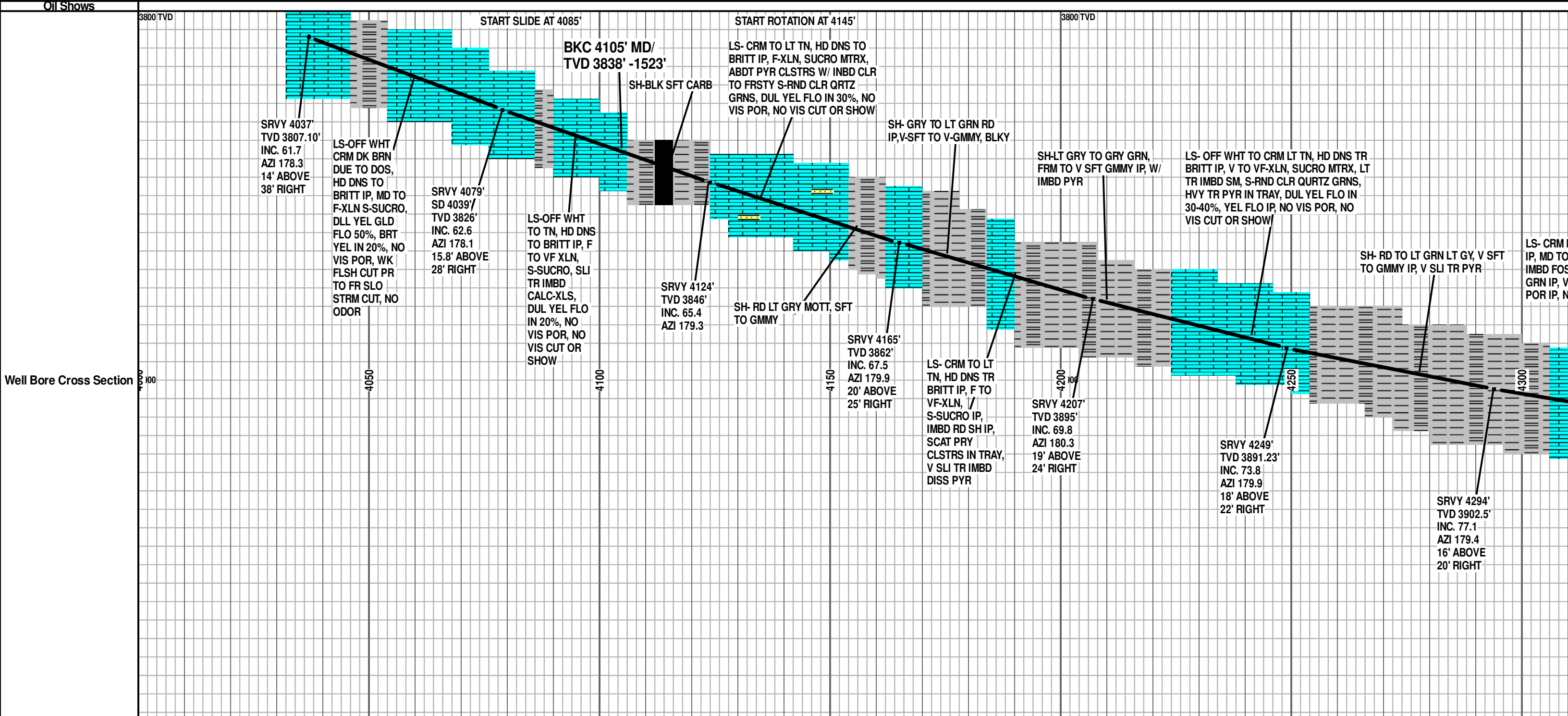
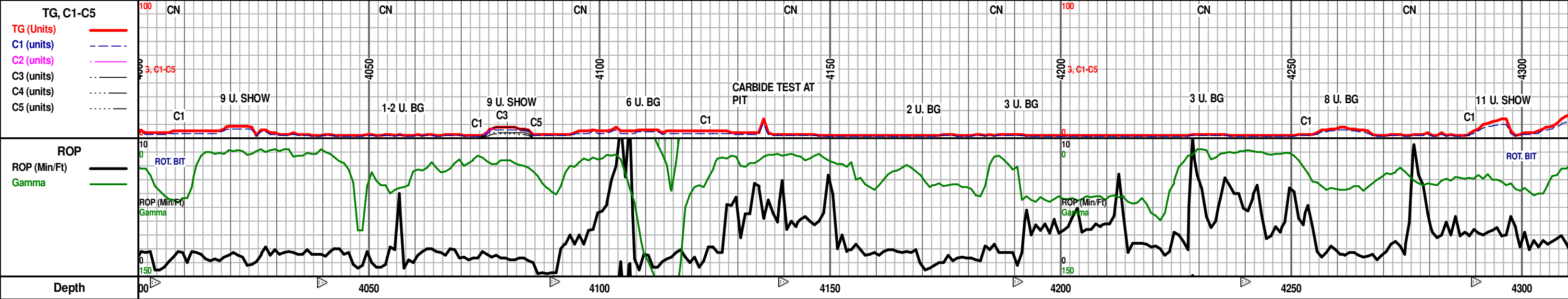
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- Dst

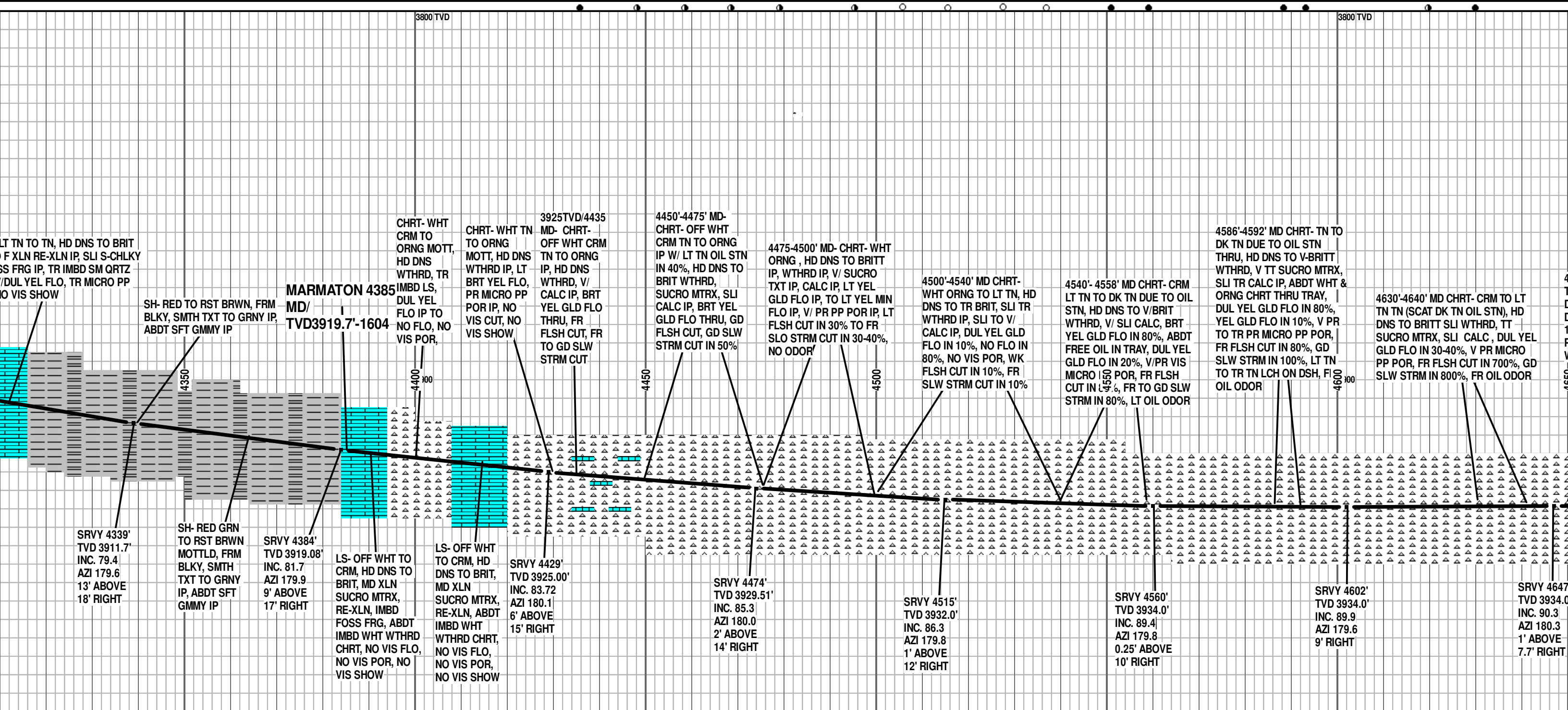
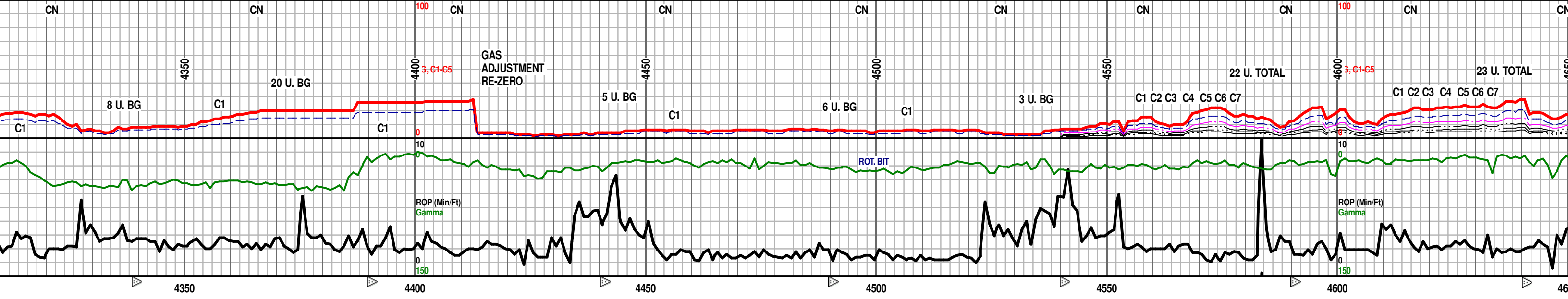
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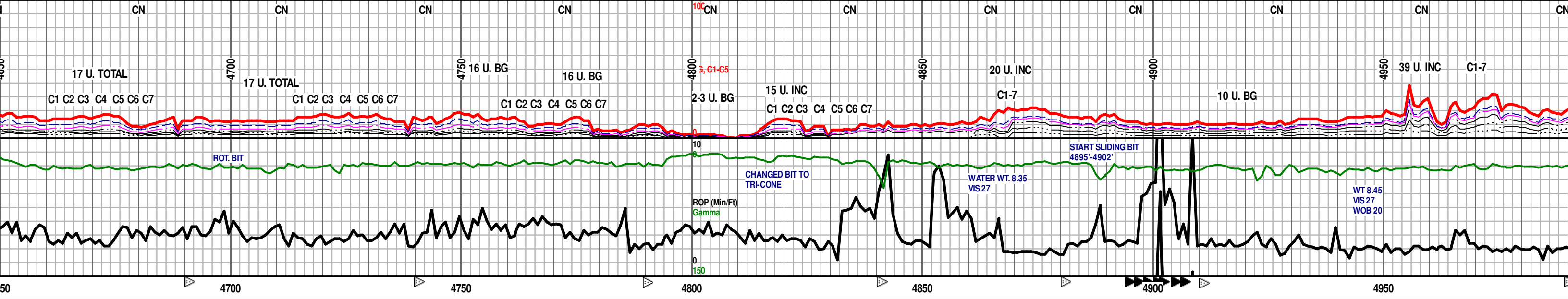
- Rft
- Slide
- Perf

OPERATOR

Company: Sam Gary Jr. & Assoc.
 Address: 1515 Wynkoop, Ste. # 700
 Denver, Co. 80202
 Co. Geo: Chris Mitchell



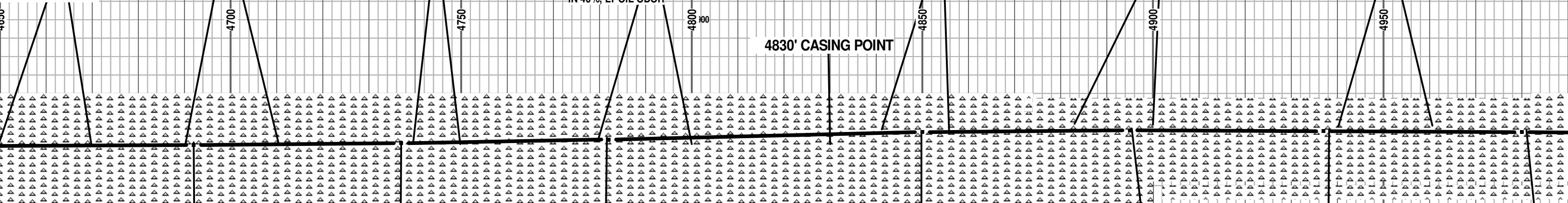




50 4700 4750 4800 4850 4900 4950

3800 TVD

17 U. TOTAL C1 C2 C3 C4 C5 C6 C7
 17 U. TOTAL C1 C2 C3 C4 C5 C6 C7
 16 U. BG C1 C2 C3 C4 C5 C6 C7
 16 U. BG C1 C2 C3 C4 C5 C6 C7
 2-3 U. BG 3, C1-C5
 15 U. INC C1 C2 C3 C4 C5 C6 C7
 20 U. INC C1-7
 10 U. BG
 39 U. INC C1-7



4690'-4710' MD CHRT- CRM TO LT TN TN (W/ DK TN OIL STN SCAT IN 40%), HD DNS TO V BRTT, SLI TR CALC, DUL YEL GLD FLO IN 40%, YEL GLD FLO IP, V PR TO SLI TR PR SCAT MICRO PP POR, PR TO FR TO TR GD FLSH CUT IN 70%, FR TO GD SLW STRM IN 80%, V LT TN LCH ON DSH, LT OIL ODOR

4740'-4750' MD CHRT- OFF WHT TO CRM LT TN TN DUE TO OIL STN, HD DNS TO V-BRTT, V SLI TR CALC IP, DUL YEL GLD FLO IN 60%, YEL GLD FLO IN 20%, ADBT FREE OIL IN TRAY, V PR MICRO PP POR, FR FLSH CUT IN 40%, FR TO TR GD SLW STRM IN 70%, GD OIL ODOR

4780'-4800' MD CHRT- CRM ORNG IP TO LT TN TN DUE TO DK OIL STN, HD DNS TO V-BRTT, SLI TR CALC IP, ADBT FREE OIL IN TRAY, BRT YEL GLD FLO IN 30%, DUL YEL GLD FLO IN 50%, V PR TO PR MICRO PP POR, WK FLSH CUT IN 30%, FR SLW STRM IN 40%, LT OIL ODOR

4843'-4852' MD CHRT- LT TN TO TN (DUE TO OIL STN), HD DNS TO BRTT, V SLI TR CALC IP, LT TR FREE OIL IN TRAY, DUL YEL GLD FLO IN 30-40%, V PR MICRO PP POR, NO FLSH CUT, GD TO EXCEL SLW STRM IN 90%, NO OIL ODOR, VERY FINE GROUND UP SMALL ROCKS THRU SAMPLE CUP

4870'-4900' MD CHRT- OFF WHT TO CRM LT TN TO TN (DUE TO OIL STN IP), HD DNS TO BRTT, V/ SLI TR CALC IP, LT TR FREE OIL IN TRAY, DUL YEL GLD FLO IN 30-40%, V/ PR MICRO PP POR, LT FLSH CUT IP, FR TO GD SLW STRM IN 40%, NO OIL ODOR, VERY FINE GROUND UP SMALL ROCKS THRU SAMPLE CUP

4930'-4960' MD CHRT- OFF WHT TO CRM LT TN TO TN (LT BRN DUE TO OIL STN IN 60%), HD DNS TO BRTT, ADBT WTHRD CHRT, V/ CALC IP, FREE OIL IN TRAY, DUL YEL GLD FLO IN 50%, V/ PR MICRO PP POR, FLSH CUT IP, FR TO GD SLW STRM 50%-60%, NO OIL ODOR, VERY FINE GROUND UP SMALL ROCKS THRU SAMPLE CUP

SRVY 4692' TVD 3934' INC. 90.6 AZM 180.3 1.5' ABOVE 6.3' RIGHT

SRVY 4737' TVD 3933' INC. 91 AZM 180.3 2.5' ABOVE 5' RIGHT

SRVY 4782' TVD 3932.41 INC. 91.5 AZM 180.1 3.8' ABOVE 3' RIGHT

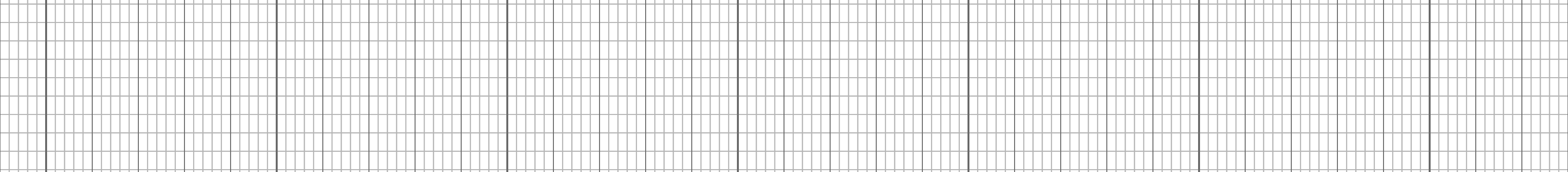
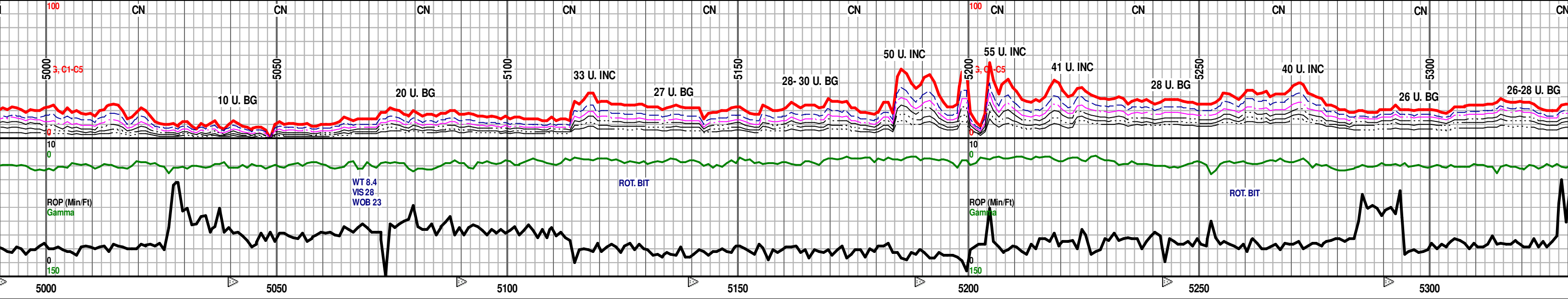
4830' CASING POINT

SRVY 4850' TVD 3930.51 INC. 91.7 AZM 180.1 4' ABOVE 2' LEFT

SRVY 4895' TVD 3929.96' INC. 89.7 AZI 180.3 5' ABOVE 1' LEFT

SRVY 4937' TVD 3930.26 INC. 89.5 AZI 181.3 4.5' ABOVE ON THE LINE

SRVY 4980' TVD 3930.41 INC. 90.1 AZI 180.8 4.5' ABOVE ON THE LINE



4990'-5020' MD CHRT- OFF WHT TO CRM LT TN TO TN LT BRN (DUE TO OIL STN IN 60%), HD DNS TO BRTT, ABTD WTHRD CHRT, V/ CALC IP, TR FREE OIL IN TRAY, DUL YEL GLD FLO IN 30% BRT YEL GLD FLO IN 50%, V/ PR MICRO PP POR, EXC FLSH CUT 70%, FR TO GD SLW STRM 50%-60%, NO OIL ODOR, VERY FINE GROUND UP SMALL ROCKS THRU SAMPLE CUP

5050'-5080' CHRT- LT TN TO TN LT BRN (DUE TO OIL STN IN 50%), HD DNS TO BRTT IP, ABTD WTHRD CHRT, CALC IP, HVY TR SCAT FREE OIL IN TRAY, BRT YEL GLD FLO IN 60%, DUL YEL GLD FLO IN 40%, GD MICRO PP POR, GD TO EXCEL FLSH CUT THRU, EXCEL SLW STRM CUT THRU, GD OIL ODOR, VERY FINE GROUND UP SMALL ROCKS THRU SAMPLE CUP

5110'-5140' CHRT- OFF WHT CRM LT TN TO TN BRN (DUE TO OIL STN IN 100%), HD DNS TO BRTT, WTHRD CHRT, V TT SUCRO MTRX, V CALC IP, LT TR FREE OIL IN TRAY, DUL YEL GLD IN 90%, BRT YEL GLD FLO IN 10%, PR TO TR FR MICRO PP POR, GD FLSH CUT THRU, GD SLW STRM CUT THRU, GD OIL ODOR, V FN GRND UP SM ROCKS THRU SAMPLE CUP

5170'-5200' CHRT-LT TN TO TN BRN (DUE TO OIL STN IN 100%), HD DNS TO BRTT, WTHRD CHRT, CALC IP, LT TR FREE OIL IN TRAY, DUL YEL GLD IN 80%, BRT YEL GLD FLO IN 20%, PR TO TR FR MICRO PP POR, GD FLSH CUT THRU, GD STRM CUT THRU, GD OIL ODOR, TR TN TO BRN LCH ON DSH

5230'-5260' CHRT- CRM LT TN TO TN BRN (DUE TO IN 100%), HD DNS TO BRTT, WTH RD CHRT, SUCRO MTRX IP, CALC IP, LT TR FREE OIL IN TRAY, DUL YEL GLD IN 80%, BRT YEL GLD FLO IN 20%, PR TO TR FR MICRO PP POR, GD FLSH CUT THRU, GD STRM CUT THRU, GD OIL ODOR

5260'-5290' CHRT- CRM LT TN TO TN LT BRN DUE TO OIL STAIN, HD DNS IP TO BRITT, V/ SUCRO IP, V/ CALC IP, ABTD WTHRD CHRT IP, DUL YEL FLO 50%, MICRO PP POR IN 50%, FR FLSH CUT 50% TO GD SLW STRM CUT IN 50%, LIVE OIL IN TRAY, LT TN LCH ON DISH, TR LIVE OIL IN PITS

5290'-5330' CHRT-PRED A CRM LT TN TO TN LT BRN TO OIL STAIN, HD DNS IP TO BRITT, V/ SUCRO IP, CALC IP, ABTD WTHRD CHRT IP, DUL YEL FLO 50%, MICRO PP POR IN 50%, FR FLSH CUT 50% TO GD SLW STRM CUT 50%, OIL IN TRAY, LT TN LCH ON DISH, HVY TR LIVE OIL IN PITS

SRVY 5025'
TVD 3930.88'
INC. 88.7
AZM 180.6
4' ABOVE
1' LEFT

SRVY 5068'
TVD 3932.04'
INC. 88.2
AZM 180.8
3' ABOVE
2' LEFT

SRVY 5110'
TVD 3933.07'
INC. 89
AZM 180.8
2' ABOVE
3' LEFT

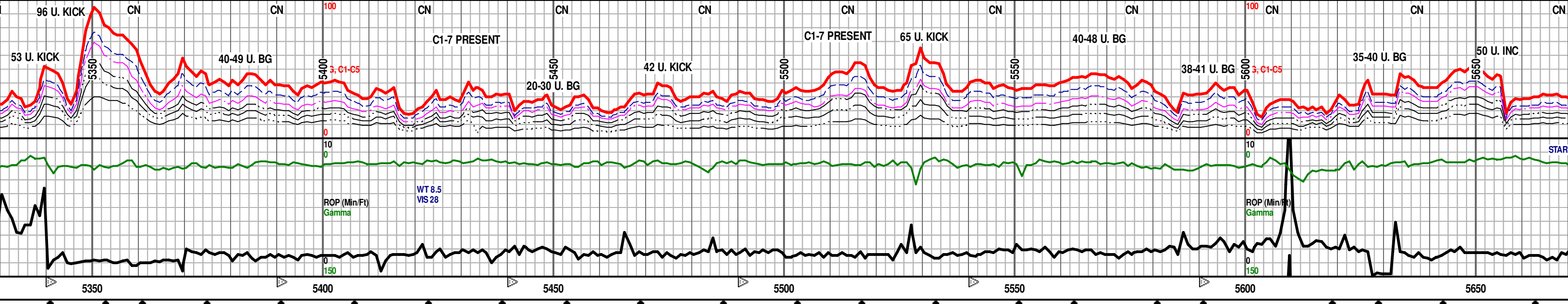
SRVY 5153'
TVD 3933.48'
INC. 89.9
AZM 181
1' ABOVE
4' LEFT

SRVY 5196'
TVD 3933.55'
INC. 89.9
AZM 180.5
1' ABOVE
5' LEFT

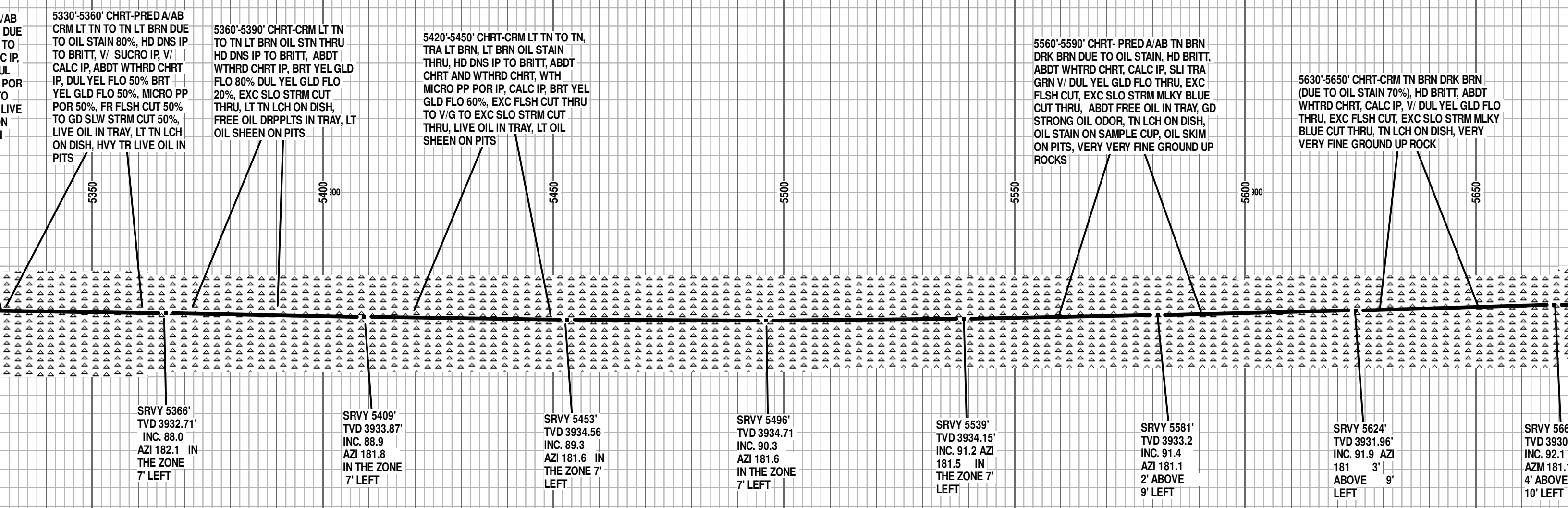
SRVY 5238'
TVD 3933.44'
INC. 90.4
AZM 180.6
1' ABOVE
6' LEFT

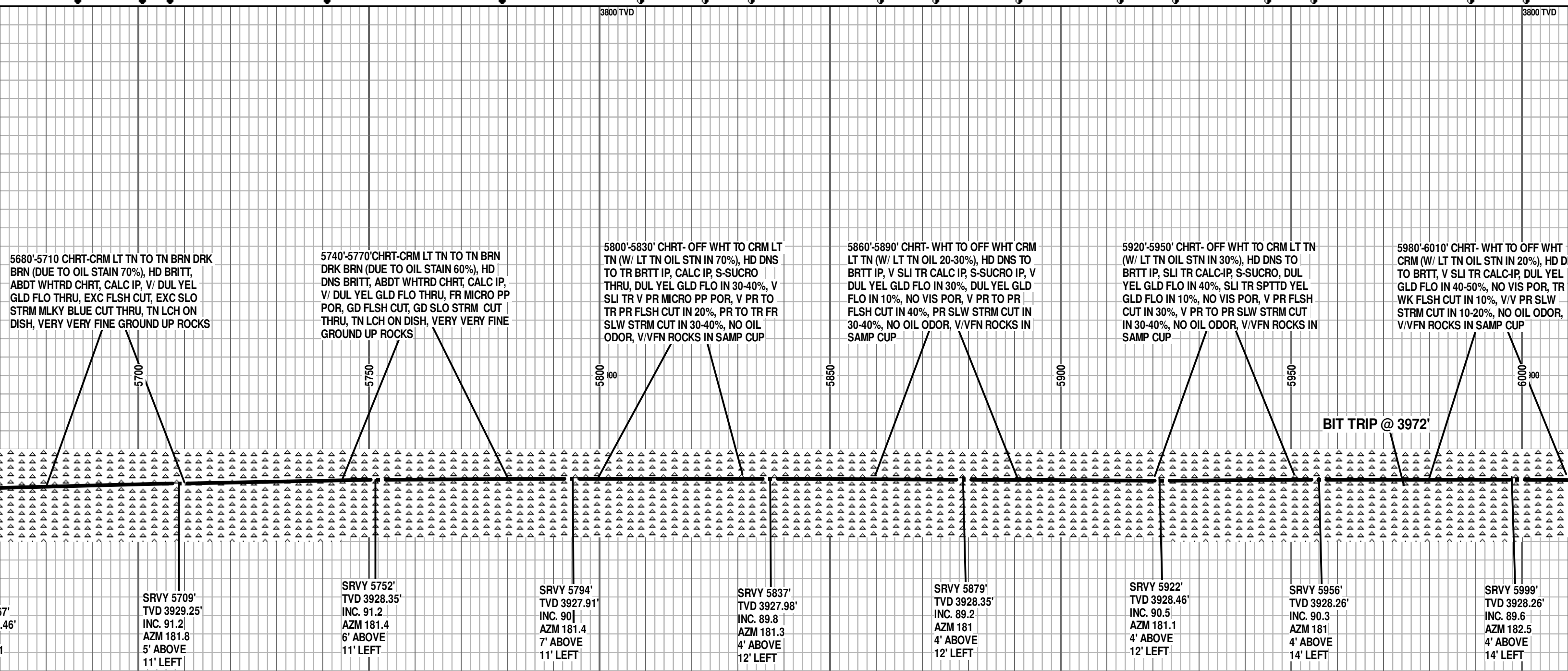
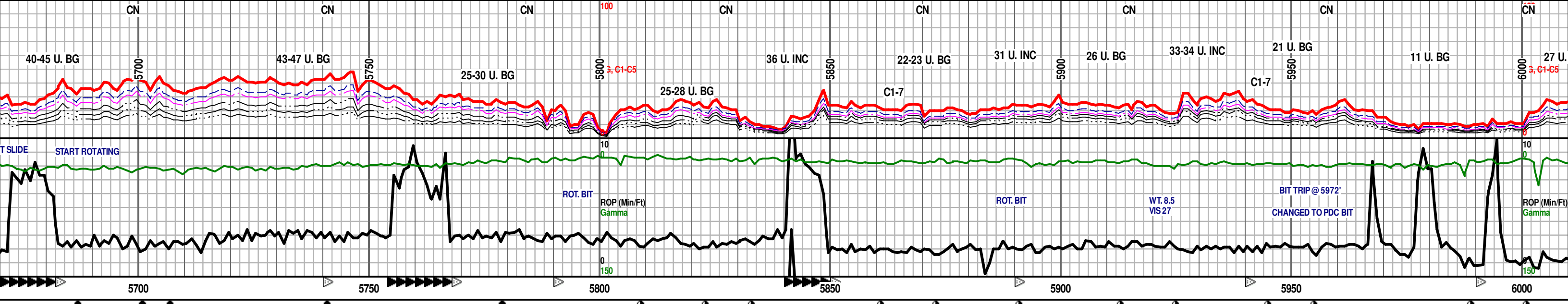
SRVY 5281'
TVD 3932.69'
INC. 91.6
AZM 181.1
2' ABOVE
7' LEFT

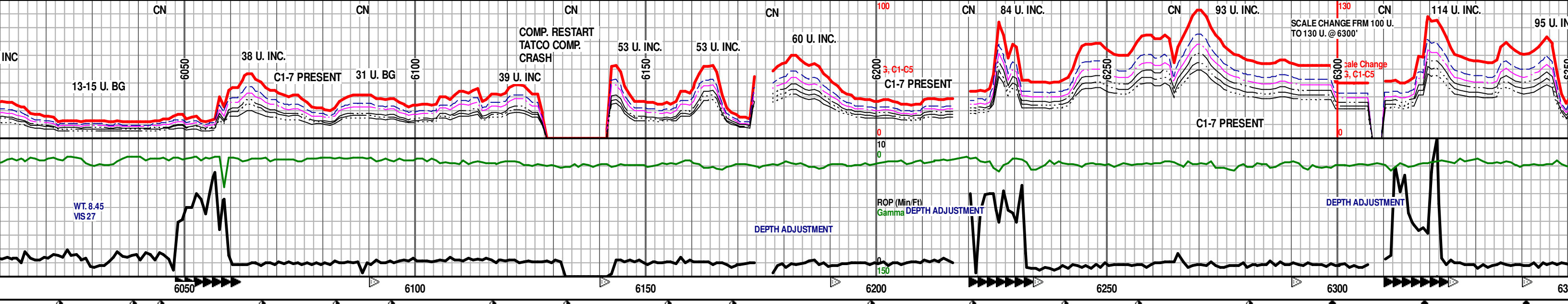
SRVY 5323'
TVD 3932.03'
INC. 90.2
AZM 182
3' ABOVE
7' LEFT



3800 TVD 5496-5800 T 3800 TVD







6040'-6070' CHRT- WHT TO OFF WHT CRM ORNG IP (W/ LT TN TO TR TN OIL STN SCAT IN 30-40%), HD DNS TO BRIT IP, CALC-IP, S-SUCRO IP, DUL YEL GLD FLO IN 60%, YEL GLD FLO IN 20%, NO FLO IN 10%, V SLI TR V PR VIS MICRO PP POR IP, V WK FLSH CUT IN 30%, V PR TO TR PR SLW STM IN 30%, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

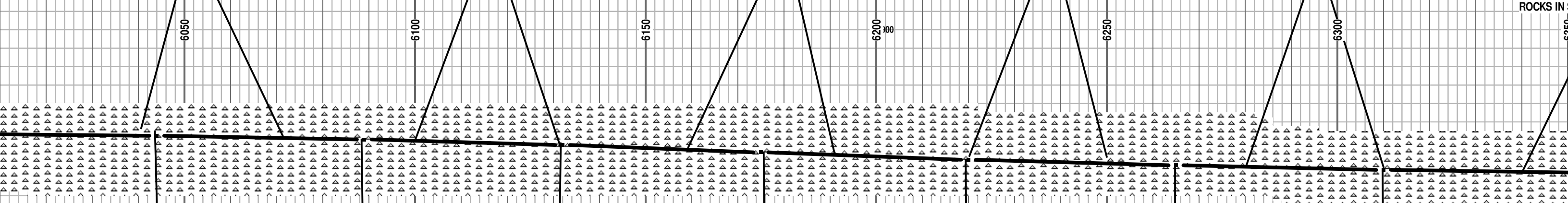
6100'-6130' CHRT- CRM TO LT TN TN IP (W/ LT TN TO TN OIL STN IN 50%), HD DNS TO BRIT, SLI TR CALC-IP, S-SUCRO IP, YEL GLD FLO IN 50%, SPTTD BRT YEL GLD FLO SCAT IN 10-20%, PR TO TR FR FLSH CUT IN 40%, SLI TR V PR VIS MICRO PP POR, FR SLW STRM IN 60%, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

6161'-6190' CHRT- LT TN TN TO CRM IP (W/ LT TN TO TN OIL STN IN 50%), HD DNS TO BRIT, SLI TR CALC-IP, S-SUCRO IP, YEL GLD FLO IN 40%, SPTTD BRT YEL GLD FLO SCAT IN 20-30%, PR TO FR FLSH CUT IN 50%, SLI TR V PR MICRO PP POR, FR SLW STRM IN 60%, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

6220'-6250' CHRT- LT TN TN TO CRM TO OFF WHT IP (W/ LT TN TO TN OIL STN IN 50%), HD DNS TO BRIT, SLI TR CALC-IP, YEL GLD FLO IN 30-40%, SPTTD BRT YEL GLD FLO SCAT IN 20-30%, FR TO GD FLSH CUT IN 50%, SLI TR V PR MICRO PP POR, FR SLW STRM IN 60%, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

6280'-6310' CHRT- CRM TO LT TN TN IP (W/ LT TN TO TN OIL STN IN 50-60%), HD DNS TO BRIT, SLI TR CALC-IP, YEL GLD FLO IN 50%, SPTTD BRT YEL GLD FLO SCAT IN 20-30%, GD FLSH CUT IN 60%, SLI TR PR MICRO PP POR, FR TO GD STRM IN 50%, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

6340'-6390' CHRT- (W/ LT TN TO TN OIL STN IN 50-60%), HD DNS TO BRIT, SLI TR CALC-IP, YEL GLD FLO IN 50%, SPTTD BRT YEL GLD FLO SCAT IN 20-30%, GD FLSH CUT IN 60%, SLI TR PR MICRO PP POR, FR TO GD STRM IN 50%, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP



SRVY 6044'
TVD 3928.70'
INC. 89.3
AZM 182.8
4' ABOVE
14' LEFT

SRVY 6089'
TVD 3929.76'
INC. 88
AZM 183.5
3' ABOVE
13' LEFT

SRVY 6132'
TVD 3931.33'
INC. 87.8
AZM 183.6
4' ABOVE
12' LEFT

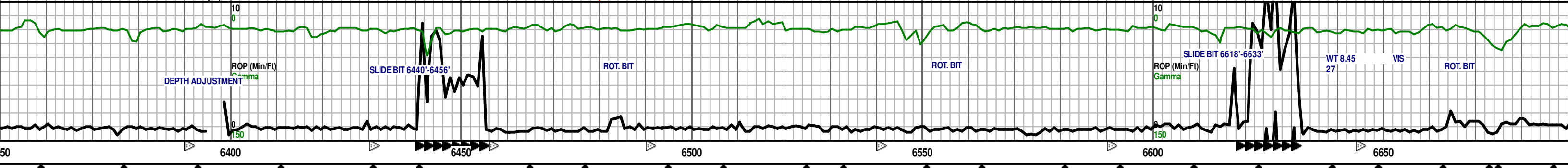
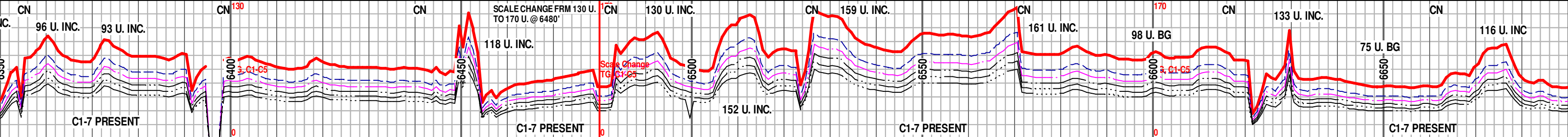
SRVY 6175'
TVD 3933.17'
INC. 87.3
AZM 183.3
3' ABOVE
11' LEFT

SRVY 6220'
TVD 3935.21'
INC. 87.5
AZM 182.8
ON THE LINE
10' LEFT

SRVY 6265'
TVD 3936.82'
INC. 88.4
AZM 183
1' BELOW
9' LEFT

SRVY 6310'
TVD 3938'
INC. 88.6
AZM 182.8
3' BELOW
9' LEFT

SRVY 6350'
TVD 3940'
INC. 88.8
AZM 182.8
3' BELOW
8' LEFT



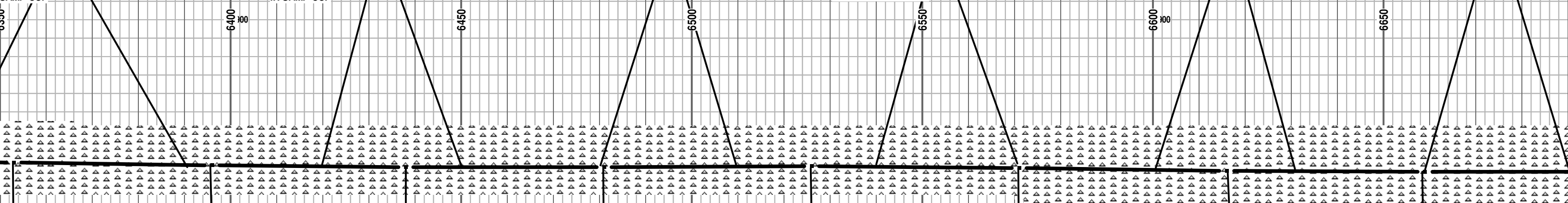
6420'-6450' CHRT- LT TN TN TO CRM OCC ORNG IP (W/ LT TN TO TN OIL STN IN 60-70%), HD DNS TO BRTT, SLI TR CALC-IP, S-SUCRO IP, DUL YEL GLD FLO IN 70-80%, SPTTD BRT YEL GLD FLO SCAT IN 20-30%, GD TO EXL FLSH CUT IN 70%, EXC SLO STRM MLKY BLUE CUT IN 80%, SLI TR PR MICRO PP POR, LT TN LCH ON DISH, SLI TR FREE OIL IN TRAY, TR OIL ODOR, V/VFN ROCKS IN SAMP CUP

6480'-6510' CHRT- CRM LT TN TN TO LT BRN IP (W/ LT TN TO TN OIL STN IN 50-60%), HD DNS TO BRTT, S-SUCRO IP, DUL YEL GLD FLO IN 60-70%, SPTTD BRT YEL GLD FLO SCAT IN 20-30%, GD TO EXL FLSH CUT IN 70%, EXC SLO STRM MLKY BLUE CUT IN 70%, SLI TR PR MICRO PP POR, LT TN LCH ON DISH, SLI TR FREE OIL IN TRAY, SLI TR OIL ODOR, V/VFN ROCKS IN SAMP CUP

6540'-6570' CHRT- TN TO DRK TN TO LT BRN IP (W/ TN TO LT BRN OIL STN IN 60-70%), HD DNS TO BRTT, S-SUCRO IP, DUL YEL GLD FLO IN 70-80%, SPTTD BRT YEL GLD FLO SCAT IN 30-40%, GD TO EXL FLSH CUT IN 80%, EXC SLO STRM MLKY BLUE CUT IN 80%, SLI TR PR MICRO PP POR, LT TN LCH ON DISH, SLI TR FREE OIL IN TRAY, SLI TR OIL ODOR, V/VFN ROCKS IN SAMP CUP

6600'-6630' CHRT- TN TO DK TN LT BRN TO DK BRN IP (LT BRN TO BRN OIL STN IN 70%), HD DNS TO V-BRTT, S-SUCRO, WTHRD CHRT, YEL GLD FLO IN 50%, BRT YEL GLD FLO IN 30%, V PR VIS MICRO-PP POR, EXCEL FLSH CUT IN 90%, EXCEL SLW STRM CUT IN 90%, LT TN TO TN LCH ON DSH, TR FREE OIL IN TRAY, LT OIL ODOR, V/VFN ROCKS IN SAMP CUP

6760'-6690' CHRT- DK TN TO BRN DK BRN DK TN TO BRN OIL STN IN 90%), HD DNS TO BRTT, CALC-IP, WTHRD CHRT, V TT SUCRO YEL GLD FLO IN 60%, BRT YEL GLD FLO PR VIS MICRO-PP POR, EXCEL FLSH CUT EXCEL SLW STRM CUT IN 100%, TN TO TR LCH ON DSH, ABDT FREE OIL IN SAMP CUP OIL ODOR, OIL STRKS IN MUD PIT, V/VFN IN SAMP CUP



SRVY 6353' TVD 3938.79' INC. 89.3 AZM 182.5 4' BELOW 8' LEFT

SRVY 6396' TVD 3939.42' INC. 89.0 AZM 182.3 4' BELOW 8' LEFT

SRVY 6438' TVD 3939.94' INC. 89.6 AZM 182.6 5' BELOW 8' LEFT

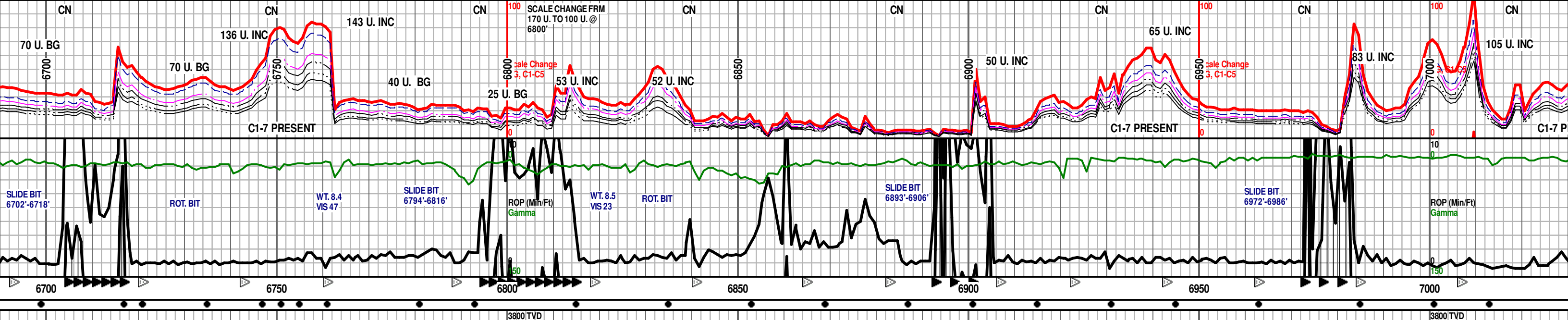
SRVY 6481' TVD 3939.97' INC. 90.3 AZM 183 5' BELOW 7' LEFT

SRVY 6526' TVD 3939.86' INC. 90.0 AZM 183 5' BELOW 6' LEFT

SRVY 6571' TVD 3940.21' INC. 89.1 AZM 182.8 5' BELOW 6' LEFT

SRVY 6616' TVD 3940.92' INC. 89.1 AZM 182.9 5' BELOW 5' LEFT

SRVY 6657' TVD 3941.33' INC. 89.8 AZM 182.9 6' BELOW 4' LEFT



3800 TVD

(DUE TO V... MTRX, IN 40%, V IN 100%, R DK TN UP, GD ROCKS

6720'-6750' CHRT- DK TN TO BRN DK BRN(W/ DK TN TO BRN OIL STN IN 80%)(LIVE OIL STN IN 20%), HD DNS TO V-BRTT, CALC-IP, WHTRD CHRT, TT SUCRO MTRX, YEL GLD FLO IN 70%, BRT YEL GLD FLO IN 30%, V PR TO TR PR VIS MICRO-PP POR, EXCEL FLSH CUT IN 100%, EXCEL SLW STRM IN 100%, FR TO GD OIL ODOR, DK TN TO BRN LCH ON DSH, ABDT FREE OIL THRU SAMP CUP, V/VFN ROCKS IN SAMP CUP

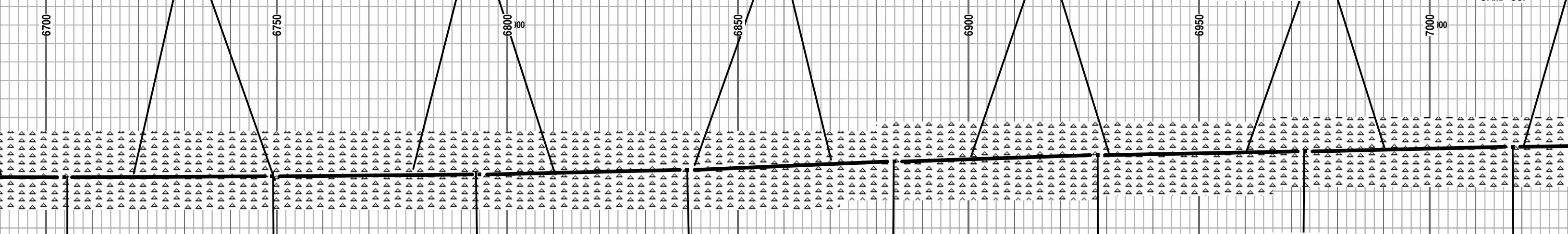
6780'-6810' CHRT- BRN TO DK BRN (DUE TO OIL STN IN 90%), HD DNS TO BRTT, SLI TR CALC-IP, WHTRD CHRT, V TT SUCRO MTRX, DUL YEL GLD FLO IN 80%, SPTTD YEL GLD FLO IN 20%, PR TO TR FR VIS MICRO PP POR, EXCEL FLSH CUT IN 100%, EXCEL SLW STRM MLKY BLUE CUT IN 100%, LT TR OIL ODOR, TN TO DK TN LCH ON DSH, ABDT FREE OIL IN SAMP CUP, V/VFN ROCKS IN SAMP CUP

6840'-6870' CHRT- TN BRN TO DK BRN (DUE TO OIL STN IN 70%), HD DNS TO BRTT, SLI TR CALC-IP, WHTRD CHRT, V TT SUCRO MTRX, DUL YEL GLD FLO IN 60%, SPTTD YEL GLD FLO IN 10%, PR TO TR FR VIS MICRO PP POR, EXCEL FLSH CUT IN 100%, EXCEL SLW STRM MLKY BLUE CUT IN 90%, LT TR OIL ODOR, LT TN TO TN LCH ON DSH, SLI TR FREE OIL IN SAMP CUP, V/VFN ROCKS IN SAMP CUP

6900'-6930' CHRT- LT TN TO TN BRN TO DK BRN (DUE TO OIL STN IN 60%), HD DNS TO BRTT, SLI TR CALC-IP, WHTRD CHRT, DUL YEL GLD FLO IN 60%, SPTTD YEL GLD FLO IN 10%, PR TO TR FR VIS MICRO PP POR, EXCEL FLSH CUT IN 90%, EXCEL SLW STRM MLKY BLUE CUT IN 90%, LT TR OIL ODOR, LT TN TO TN LCH ON DSH, SLI TR FREE OIL IN SAMP CUP, V/VFN ROCKS IN SAMP CUP

6960'-6990' CHRT- LT TN TO TN BRN (DUE TO OIL STN IN 80%), HD DNS TO BRTT, SLI TR CALC-IP, WHTRD CHRT, DUL YEL GLD FLO IN 70%, SPTTD YEL GLD FLO IN 20%, PR TO TR FR VIS MICRO PP POR, EXCEL FLSH CUT IN 100%, EXCEL SLW STRM MLKY BLUE CUT IN 100%, GD OIL ODOR, LT TN TO TN LCH ON DSH, SLI TR FREE OIL IN SAMP CUP, V/VFN ROCKS IN SAMP CUP

7020'-7050' CHRT- LT TN TO TN BRN (DUE TO OIL STN IN 90%), HD DNS TO BRTT, SLI TR CALC-IP, WHTRD CHRT, DUL YEL GLD FLO IN 50%, YEL G... PR VIS MICRO PP P... 80-90%, GD SLW S... GD OIL ODOR, LT T... FREE OIL IN SAMP SAMP CUP



SRVY 6704' TVD 3941.29' INC. 90.3 AZM 182.5 6' BELOW 4' LEFT

SRVY 6749' TVD 3941.09' INC. 90.2 AZM 182.6 6' BELOW 3' LEFT

SRVY 6794' TVD 3940.62' INC. 91.0 AZM 182.6 5' BELOW 3' LEFT

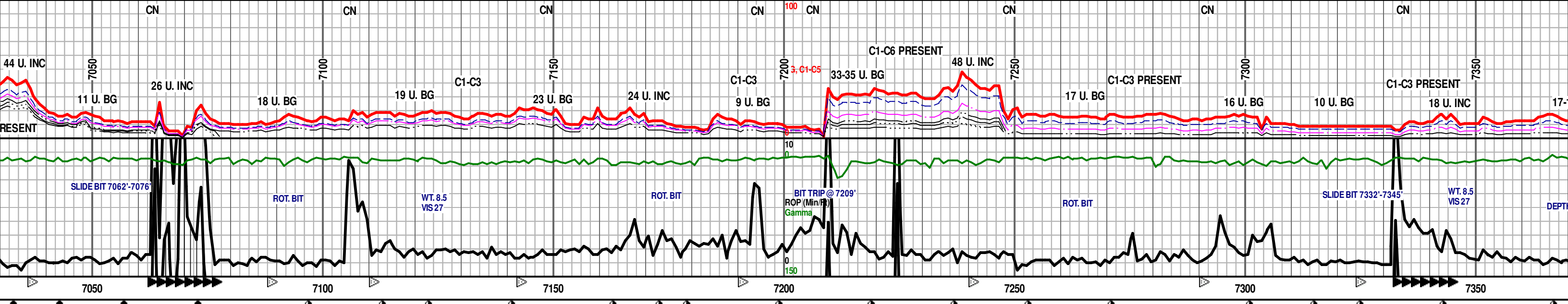
SRVY 6839' TVD 3939.13' INC. 92.8 AZM 183.4 4' BELOW 2' LEFT

SRVY 6884' TVD 3936.89' INC. 92.9 AZM 183.3 2' BELOW 1' LEFT

SRVY 6928' TVD 3935.17' INC. 91.6 AZM 183.8 1' ABOVE 1' LEFT

SRVY 6973' TVD 3934.15' INC. 91.0 AZM 183.8 1' ABOVE 1' RIGHT

SRVY 7018' TVD 3933.09' INC. 91.7 AZM 183.6 2' ABOVE 1' LEFT



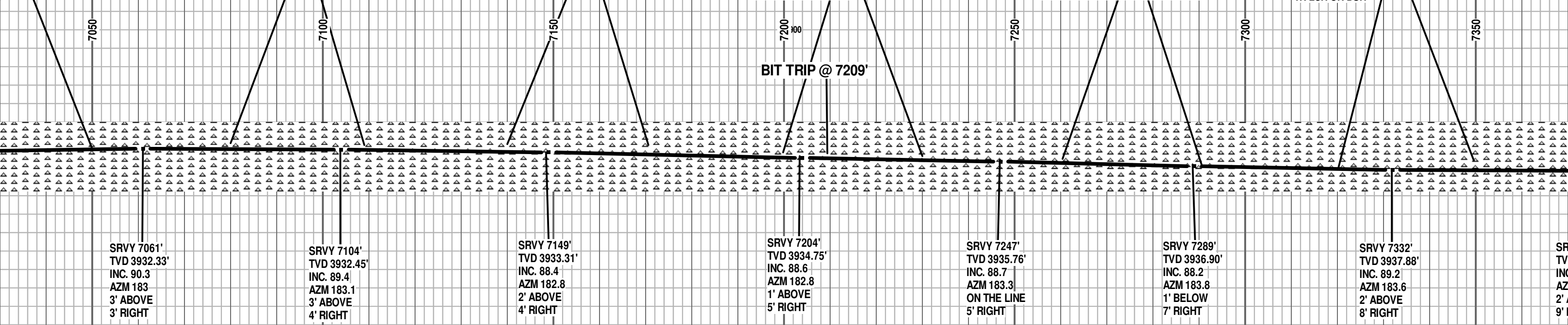
7080'-7110' CHRT- CRM TO LT TN TO TN (DUE TO OIL STN IN 50-60%), HD DNS TO BRIT, SLI TR CALC-IP, DUL YEL GLD FLO IN 50%, SPTTD YEL GLD FLO IN IP, NO VIS POR, FR TO GD FLSH CUT IN 50%, GD SLW STRM IN 60%, NO OIL ODOR, V LT TR FREE OIL IN SAMP CUP, V/VFN ROCKS IN SAMP CUP

7140'-7170' CHRT- OFF WHT TO CRM LT TN TN (W/ OIL STN IN 50-60%), HD DNS TO BRIT IP, V SLI TR CALC-IP, DUL YEL GLD FLO IN 40-50%, YEL GLD FLO IN 10%, NO VIS POR, GD FLSH CUT IN 60-70%, GD SLW STRM IN 60%, LT TR FREE OIL IN SAMP CUP, NO OIL ODOR, LT TN LCH IN DSH, V/VFN ROCKS IN SAMP CUP

7200'-7230' CHRT- WHT TO OFF WHT CRM LT TN IP (W/ LT TN TO TN OIL STN IN 20-30%), HD DNS TO TR BRIT IP, CALC-IP, DUL YEL GLD FLO IN 20-30%, NO VIS POR, WK PR FLSH CUT IN 30%, PR TO SLI TR FR SLW STRM IN 20%, NO VIS LCH ON DSH, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

7260'-7290' CHRT- WHT TO OFF WHT TN (DUE TO OIL STN IN 60%), HD DNS TO TR BRIT IP, V SLI CALC-IP, DUL YEL GLD FLO IN 50%, YEL GLD FLO IN 20%, SPTTD BRT YEL GLD FLO IP, V SLI TR V/V PR VIS MICRO PP POR, FR TO TR GD FLSH CUT IN 60-70%, GD SLW STRM CUT IN 80%, NO OIL ODOR, LT TN TO TN LCH ON DSH,

7320'-7350' CHRT- ORNG OFF WHT TO CRM LT TN TO TN (DUE TO OIL STN IN 50-60%), HD DNS TO BRIT IP, SLI TR CALC-IP, YEL GLD FLO IN 50%, BRT YEL GLD FLO IN 20%, NO FLO IN 30%, NO VIS POR, PR TO FR TO TR GD FLSH CUT IN 70%, FR TO GD SLW STRM IN 70%, NO OIL ODOR, LT TN TO TR TN LCH ON DSH



SRVY 7061'
TVD 3932.33'
INC. 90.3
AZM 183
3' ABOVE
3' RIGHT

SRVY 7104'
TVD 3932.45'
INC. 89.4
AZM 183.1
3' ABOVE
4' RIGHT

SRVY 7149'
TVD 3933.31'
INC. 88.4
AZM 182.8
2' ABOVE
4' RIGHT

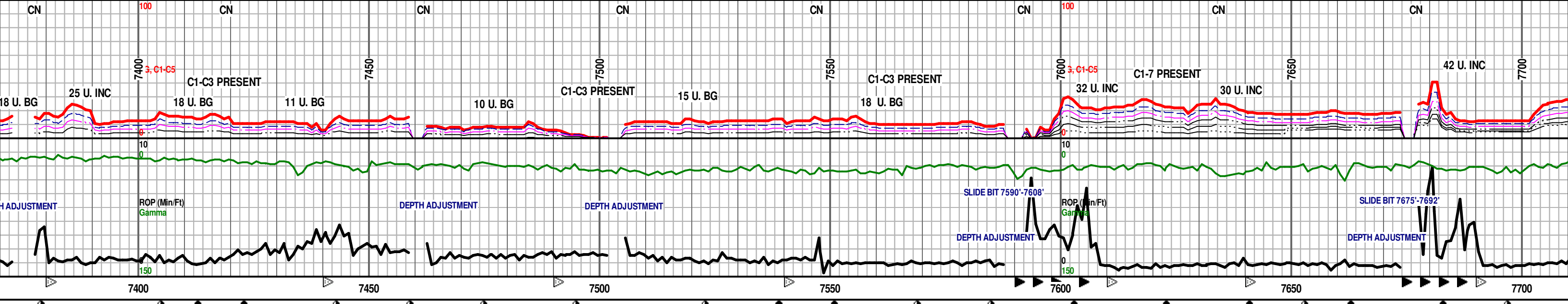
SRVY 7204'
TVD 3934.75'
INC. 88.6
AZM 182.8
1' ABOVE
5' RIGHT

SRVY 7247'
TVD 3935.76'
INC. 88.7
AZM 183.3
ON THE LINE
5' RIGHT

SRVY 7289'
TVD 3936.90'
INC. 88.2
AZM 183.8
1' BELOW
7' RIGHT

SRVY 7332'
TVD 3937.88'
INC. 89.2
AZM 183.6
8' ABOVE
8' RIGHT

SRVY 7332'
TVD 3937.88'
INC. 89.2
AZM 183.6
8' ABOVE
8' RIGHT



3800 TVD

7380'-7410' CHRT- CRM TO LT TN TN DK TN IP (DUE TO OIL STN IN 80%), HD DNS TO BRTT, SLI TR CALC-IP, SLI WTHRD IP, DUL YEL GLD FLO IN 70%, YEL GLD FLO IN 10%, V SLI TR V PR VIS MICRO PP POR IP, FR TO GD FLSH CUT IN 70%, FR TO GD SLW STRM IN 70-80%, TN LCH ON DSH, NO OIL ODOR,

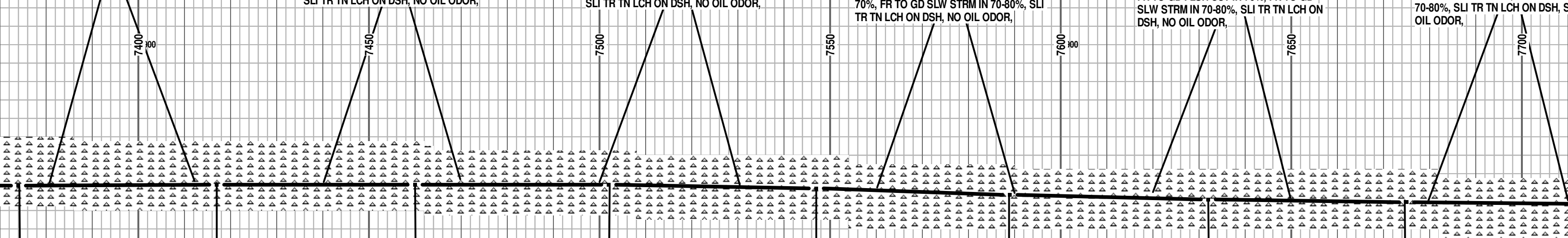
7440'-7470' CHRT- LT TN TO TN CRM OCC DK TN IP (DUE TO OIL STN IN 70%), HD DNS TO BRTT, SLI TR CALC-IP, SLI WTHRD IP, DUL YEL GLD FLO IN 60%, YEL GLD FLO IN 10%, V SLI TR V PR VIS MICRO PP POR IP, FR TO GD FLSH CUT IN 70%, FR TO GD SLW STRM IN 70-80%, SLI TR TN LCH ON DSH, NO OIL ODOR,

7500'-7530' CHRT- LT TN TO TN CRM OCC DK TN IP (DUE TO OIL STN IN 70%), HD DNS TO BRTT, SLI TR CALC-IP, SLI WTHRD IP, DUL YEL GLD FLO IN 60%, YEL GLD FLO IN 10%, V SLI TR V PR VIS MICRO PP POR IP, FR TO GD FLSH CUT IN 70%, FR TO GD SLW STRM IN 60-70%, SLI TR TN LCH ON DSH, NO OIL ODOR,

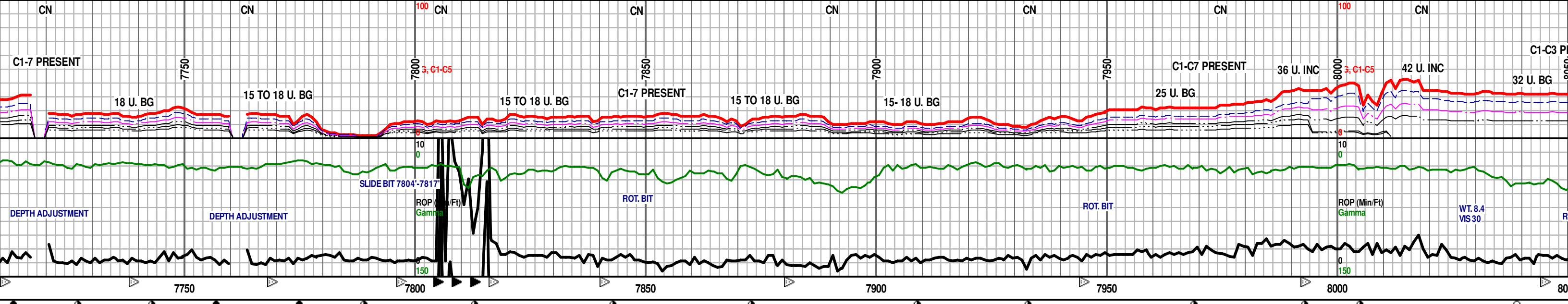
7560'-7590' CHRT- LT TN TO TN OCC CRM OCC DK TN IP (DUE TO OIL STN IN 70%), HD DNS TO BRTT, SLI TR CALC-IP, SLI WTHRD IP, DUL YEL GLD FLO IN 70%, YEL GLD FLO IN 10%, V SLI TR V PR VIS MICRO PP POR IP, FR TO GD FLSH CUT IN 70%, FR TO GD SLW STRM IN 70-80%, SLI TR TN LCH ON DSH, NO OIL ODOR,

7620'-7650' CHRT- LT TN TO TN OCC DK TN IP (DUE TO OIL STN IN 80%), HD DNS TO BRTT, SLI TR CALC-IP, SLI WTHRD IP, DUL YEL GLD FLO IN 70%, YEL GLD FLO IN 10%, SLI TR V PR VIS MICRO PP POR IP, FR TO GD FLSH CUT IN 70%, FR TO GD SLW STRM IN 70-80%, SLI TR TN LCH ON DSH, NO OIL ODOR,

7680'-7710' CHRT- LT TN TO TN OCC DK TN IP (DUE TO OIL STN IN 80%), HD DNS TO BRTT, SLI TR CALC-IP, SLI WTHRD IP, DUL YEL GLD FLO IN 80%, YEL GLD FLO IN 10%, SLI TR V PR VIS MICRO PP POR IP, FR TO GD FLSH CUT IN 80%, GD SLW STRM IN 70-80%, SLI TR TN LCH ON DSH, NO OIL ODOR,



SRVY 7374' TVD 3938.13' INC. 90.1 AZM 182.9 2' ABOVE RIGHT	SRVY 7410' TVD 3937.98' INC. 90.3 AZM 183 2' ABOVE 9' RIGHT	SRVY 7460' TVD 3937.94' INC. 89.8 AZM 183.3 2' ABOVE 10' RIGHT	SRVY 7502' TVD 3938.09' INC. 89.8 AZM 183.4 3' ABOVE 11' RIGHT	SRVY 7547' TVD 3939.07' INC. 87.7 AZM 182.6 1' ABOVE 12' RIGHT	SRVY 7589' TVD 3940.65' INC. 88.0 AZM 181.8 ON THE LINE 12' RIGHT	SRVY 7632' TVD 3941.92' INC. 88.6 AZM 181.5 2' BELOW 12' RIGHT	SRVY 7675' TVD 3942.75' INC. 89.2 AZM 181.9 3' BELOW 11' RIGHT
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7740'-7770' CHRT- LT TN TO TN DK TN IP (DUE TO OIL STN IN 80%), HD DNS TO BRTT, SLI TR CALC-IP, SLI WTHRD IP, DUL YEL GLD FLO IN 80%, YEL GLD FLO IN 10%, SLI TR V PR VIS MICRO PP POR IP, GD FLSH CUT IN 80%, GD SLW STRM IN 70-80%, SLI TR TN LCH ON DSH, SLI TR OIL ODOR.

7800'-7830' CHRT- CRM TO LT TN TN DK TN IP (DUE TO OIL STN IN 80-90%), HD DNS TO BRTT, CALC-IP, WTHRD CHRT IP, SLI TR GRN SH INTERBED, DUL YEL GLD FLO IN 40-50%, V SLI TR V PR VIS MICRO PP POR, GD FLSH CUT IN 70%, GD SLW STRM IN 70%, LT TN TO TN LCH ON DSH, NO OIL ODOR.

7860'-7890' CHRT- CRM TO LT TN TN (DUE TO OIL STN IN 50%), HD DNS TO BRTT IP, TR S-SUCRO IP, V SLI TR CALC-IP, SLI TR WTHRD CHRT IP, DUL YEL GLD FLO IN 50%, TR YEL GLD FLO IP, NO VIS POR, PR TO FR FLSH CUT IN 50%, PR SLW STRM IN 40-50%, LT TN LCH ON DSH, NO OIL ODOR.

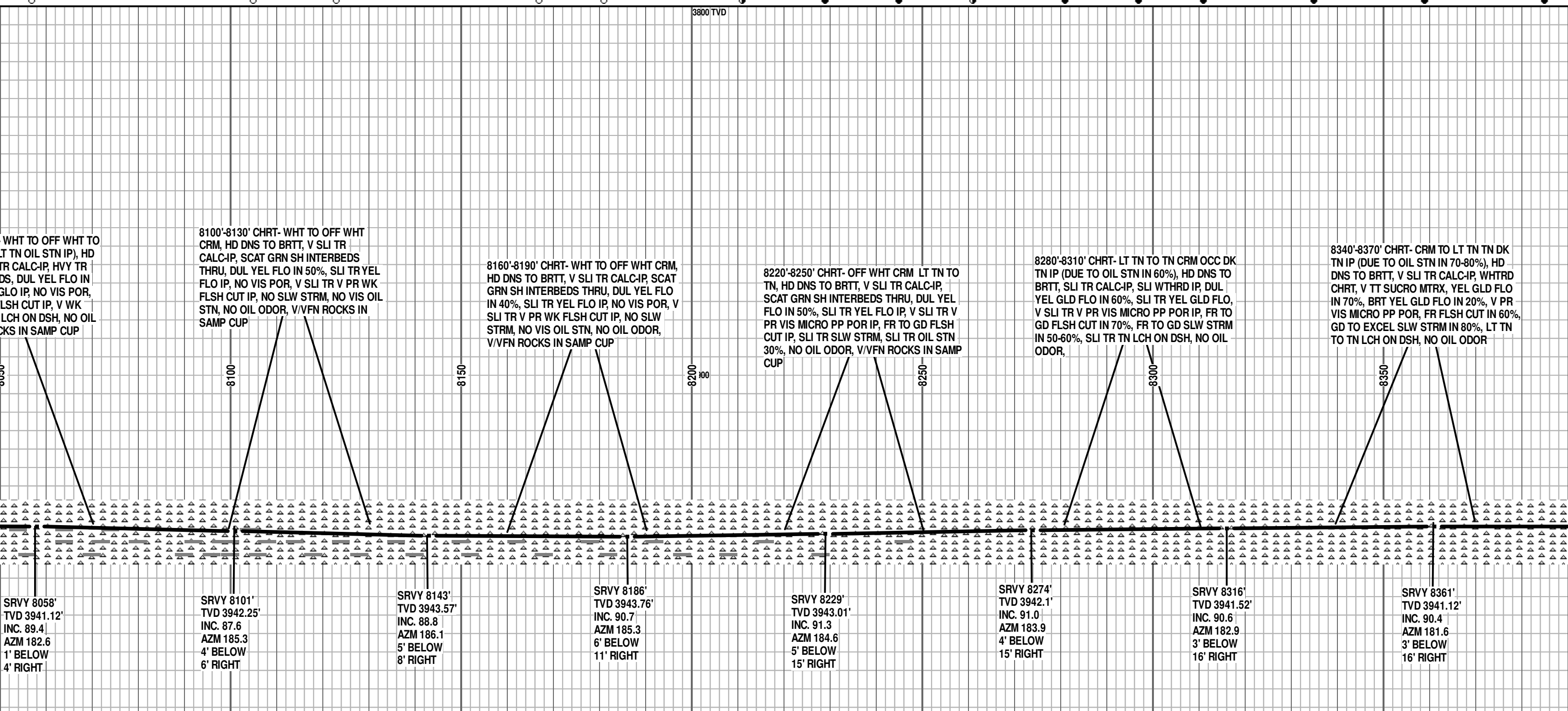
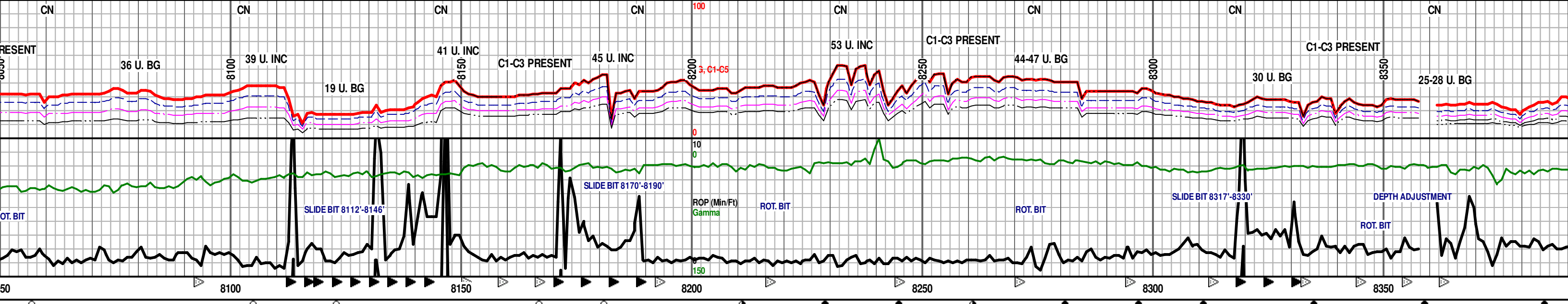
7920'-7950' CHRT- LT TN TO TN DK TN BRN IP (DUE TO OIL STN IN 80%), HD DNS TO BRTT, S-SUCRO IP SLI TR CALC-IP, HVY TR WTHRD CHRT, DUL YEL GLD FLO IN 60%, YEL GLD FLO IN 10%, LT TR V PR VIS MICRO PP POR, FR TO GD FLSH CUT IN 60%, GD SLW STRM IN 70%, LT TN LCH ON DSH, NO OIL ODOR.

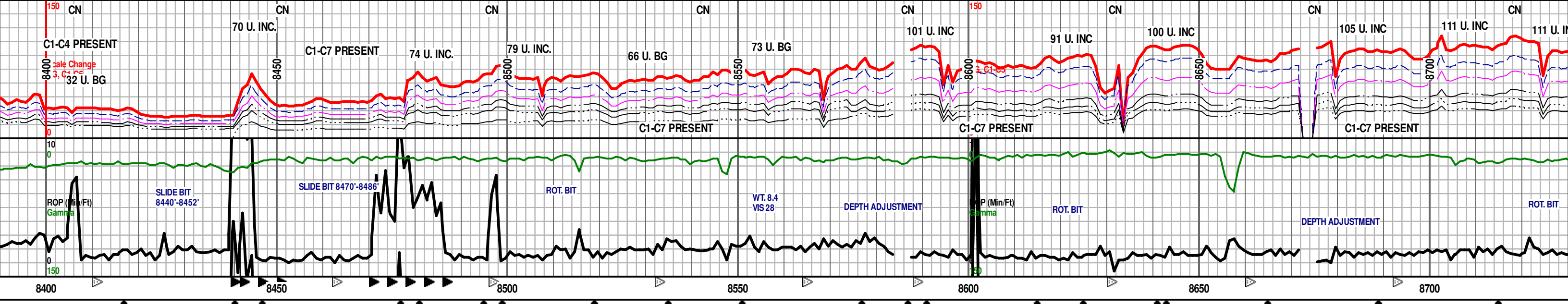
7980'-8010' CHRT- OFF WHT TO CRM TO LT TN (W/ LT TN OIL STN IN 20-30%), HD DNS TO BRTT IP, SLI TR CALC-IP, SCAT GRN SH INTERBEDS IP, DUL YEL GLD FLO IN 20%, NO VIS POR, PR TO TR FR FLSH CUT IN 30%, PR SLW STRM IN 30-40%, NO LCH ON DSH, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP.

8040'-8070' CHRT- CRM (W/ HVY TR L DNS TO BRTT IP, GRN SH INTERBEDS IP, SLI TR YEL C SLI TR V PR WK F SLW STRM IP, NO ODOR, V/VFN ROCKS IN SAMP CUP).



SRVY	TVD	INC.	AZM	Notes
SRVY 7718'	TVD 3943.16'	INC. 89.7	AZM 181.8	3' BELOW 11' RIGHT
SRVY 7760'	TVD 3943.42'	INC. 89.6	AZM 181.3	3' BELOW 11' RIGHT
SRVY 7803'	TVD 3943.42'	INC. 90.4	AZM 181	3' BELOW 10' RIGHT
SRVY 7845'	TVD 3942.94'	INC. 90.9	AZM 180.8	3' BELOW 9' RIGHT
SRVY 7888'	TVD 3942.15'	INC. 91.2	AZM 180.8	2' BELOW 8' RIGHT
SRVY 7930'	TVD 3941.35'	INC. 91	AZM 180.3	1' BELOW 7' RIGHT
SRVY 7973'	TVD 3940.90'	INC. 90.2	AZM 180.1	ON THE LINE 6' RIGHT
SRVY 8015'	TVD 3940.86'	INC. 89.9	AZM 180.3	ON THE LINE 5' RIGHT





8400'-8430' CHRT- TN TO DK TN BRN IP (DUE TO OIL STN IN 80%), HD DNS TO BRTT, SLI TR CALC-IP, WHTRD CHRT, V TT SUCRO MTRX, DUL YEL GLD FLO IN 60%, YEL GLD FLO IN 20%, V PR TO PR VIS MICRO PP POR, FR TO GD FLSH CUT IN 70%, EXCEL SLW STRM CUT IN 90%, TN LCH ON DSH, NO OIL ODOR

8460'-8490' CHRT- TN TO DK TN BRN (DUE TO OIL STN IN 90%), HD DNS TO V BRTT, SLI TR CALC-IP, WHTRD CHRT, V TT SUCRO MTRX, DUL YEL GLD FLO IN 60%, YEL GLD FLO IN 20%, SPTTD BRT YEL GLD FLO IN 10%, V PR TO PR MICRO PP POR, EXCEL FLSH CUT IN 90%, EXCEL SLW STRM IN 100%, TN TO DK TN LCH ON DSH, NO OIL ODOR

8520'-8550' CHRT- TN TO DK TN BRN (DUE TO OIL STN IN 100%), HD DNS TO V BRTT, V SLI TR CALC-IP, WHTRD CHRT, V TT SUCRO MTRX, DUL YEL GLD FLO IN 70%, YEL GLD FLO IN 20%, SLI TR V PR VIS MICRO PP POR, GD FLSH CUT IN 90%, EXCEL SLW STRM IN 100%, TN LCH ON DSH, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

8580'-8610' CHRT- LT TN TO TN DK TN (DUE TO OIL STN IN 80%), HD DNS TO BRTT, CALC-IP, WHTRD CHRT, TT SUCRO MTRX, DUL YEL GLD FLO IN 70%, YEL GLD FLO IN 10%, SLI TR V PR VIS MICRO PP POR, EXCEL FLSH CUT IN 100%, EXCEL SLW STRM CUT IN 100%, TN TO DK TN LCH ON DSH, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

8640'-8670' CHRT- LT TN TO TN DK TN LT BRN TO BRN (DUE TO OIL STN IN 90%), HD DNS TO BRTT, CALC-IP, WHTRD CHRT, TT SUCRO MTRX, DUL YEL GLD FLO IN 70%, YEL GLD FLO IN 10%, SLI TR V PR VIS MICRO PP POR, EXCEL FLSH CUT IN 100%, EXCEL SLW STRM CUT IN 100%, TN TO DK TN LCH ON DSH, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

8700'-8730' CHRT- LT TN TO TN DK TN (DUE TO OIL STN IN 90%), HD DNS TO BRTT, CALC-IP, WHTRD CHRT, DUL YEL GLD FLO IN 70%, YEL GLD FLO IN 10%, SLI TR V PR VIS MICRO PP POR, EXCEL FLSH CUT IN 100%, EXCEL SLW STRM CUT IN 100%, TN TO DK TN LCH ON DSH, NO OIL ODOR, V/VFN ROCKS IN SAMP CUP

SRVY 8406'
TVD 3941.08'
INC. 89.7
AZM 180.8
3' BELOW
15' RIGHT

SRVY 8452'
TVD 3941.41'
INC. 89.5
AZM 180.5
1' BELOW
14' RIGHT

SRVY 8497'
TVD 3941.29'
INC. 90.8
AZM 181.1
1' BELOW
13' RIGHT

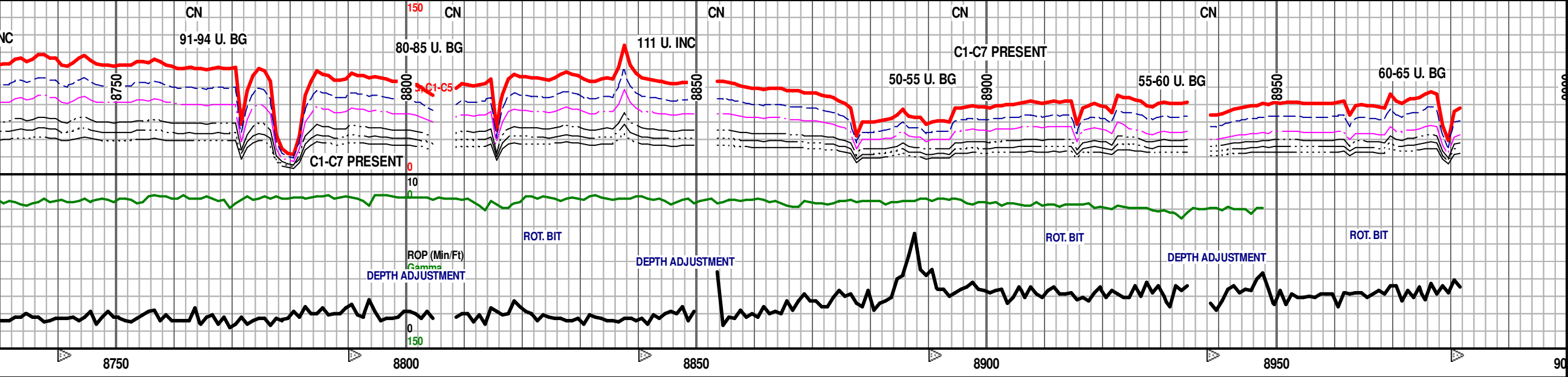
SRVY 8542'
TVD 3940.54'
INC. 91.1
AZM 181.3
ON THE LINE
13' RIGHT

SRVY 8587'
TVD 3939.87'
INC. 90.6
AZM 181.5
2' BELOW
12' RIGHT

SRVY 8630'
TVD 3939.31'
INC. 90.9
AZM 181.3
1' BELOW
12' RIGHT

SRVY 8673'
TVD 3938.75'
INC. 90.6
AZM 181.0
ON THE LINE
11' RIGHT

SRVY 8718'
TVD 3938.32'
INC. 90.5
AZM 181.03
2' ABOVE
10' RIGHT

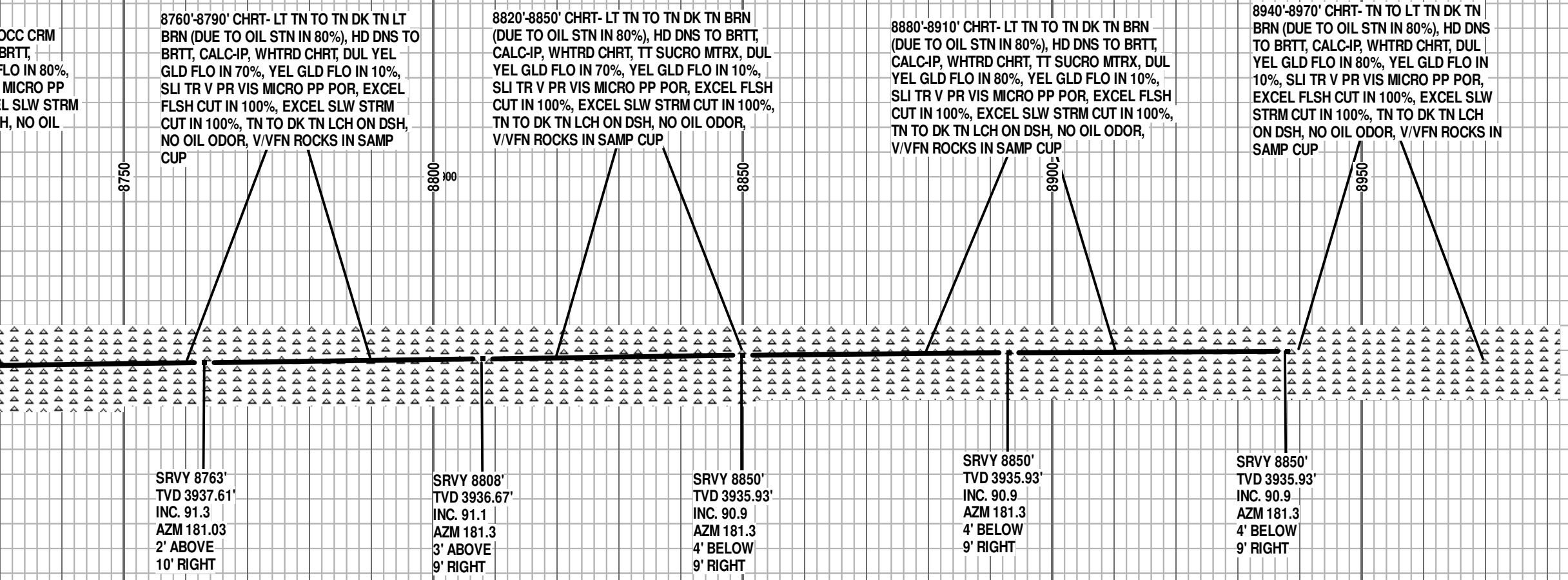


R.T.D 8983'
T.V.D 3935.93'

REACHED MEASURED
DEPTH TD AT 8:00 A.M.
JUNE 7, 2013

THANK YOU FOR
CHOOSING
EARTH TECH
MUDLOGGING

WELL COMPLETED BY:
SCHUYLER HEDRICK
TOM FLOWERS
TIM HEDRICK





Shubert 1-31H
 Sam Gary and Associates
 HWD 5
 Trego Co, Kansas
 Minimum Curvature Calculation

MWD George Hunt / Brian Slater
 DIRECTIONAL DRILLERS: Chris Moon / Mike Foster
 Magnetic Declination: 6.65 grid
 Job #: DR1305064
 Vertical Section Azimuth 182.05

No.	Survey Depth	INC	AZM	TVD	N-S	E-W	Vertical Section	DLS/ 100	BUR	WR
Tie	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	
1	507	0.22	191.13	507.00	-0.96	-0.19	0.96	0.04	0.04	33.31
2	687	0.40	209.15	687.00	-1.84	-0.56	1.86	0.11	0.10	10.01
3	777	0.70	220.14	776.99	-2.54	-1.07	2.57	0.35	0.33	12.21
4	1043	0.22	173.25	1042.98	-4.29	-2.06	4.36	0.22	-0.18	-17.63
5	1137	0.22	202.47	1136.98	-4.63	-2.10	4.71	0.12	0.00	31.09
6	1227	0.31	176.85	1226.98	-5.04	-2.16	5.11	0.16	0.10	-28.47
7	1313	0.22	250.63	1312.98	-5.32	-2.30	5.40	0.38	-0.10	85.79
8	1407	0.62	290.14	1406.98	-5.21	-2.95	5.31	0.50	0.43	42.03
9	1497	1.10	306.84	1496.97	-4.52	-4.10	4.67	0.60	0.53	18.56
10	1579	1.32	313.04	1578.95	-3.41	-5.42	3.60	0.31	0.27	7.56
11	1714	1.49	319.45	1713.91	-1.01	-7.69	1.28	0.17	0.13	4.75
12	1804	1.41	317.43	1803.88	0.69	-9.20	-0.36	0.11	-0.09	-2.24
13	1984	1.19	320.33	1983.83	3.76	-11.89	-3.34	0.13	-0.12	1.61
14	2074	1.32	312.47	2073.81	5.18	-13.26	-4.71	0.24	0.14	-8.73
15	2253	1.71	298.36	2252.75	7.84	-17.13	-7.23	0.30	0.22	-7.88
16	2343	1.58	302.05	2342.71	9.14	-19.36	-8.44	0.19	-0.14	4.10
17	2429	1.58	304.47	2428.68	10.44	-21.34	-9.67	0.08	0.00	2.81
18	2519	2.42	299.15	2518.62	12.07	-24.02	-11.20	0.95	0.93	-5.91
19	2609	2.42	298.93	2608.54	13.91	-27.35	-12.93	0.01	0.00	-0.24
20	2695	2.42	298.45	2694.47	15.66	-30.53	-14.55	0.02	0.00	-0.56
21	2744	2.42	297.74	2743.42	16.63	-32.36	-15.46	0.06	0.00	-1.45
22	2861	2.50	297.57	2860.32	18.96	-36.81	-17.63	0.07	0.07	-0.15
23	2951	2.81	292.47	2950.22	20.71	-40.58	-19.25	0.43	0.34	-5.67
24	3037	2.81	289.35	3036.12	22.22	-44.52	-20.61	0.18	0.00	-3.63
25	3107	3.40	240.50	3106.02	21.76	-47.95	-20.03	3.75	0.84	-69.79
26	3149	6.70	208.00	3147.86	18.99	-50.18	-17.18	10.10	7.86	-77.38
27	3194	10.90	207.80	3192.32	12.90	-53.40	-10.98	9.33	9.33	-0.44
28	3239	15.20	203.00	3236.15	3.70	-57.69	-1.64	9.85	9.56	-10.67
29	3284	18.80	194.30	3279.19	-8.76	-61.79	10.96	9.77	8.00	-19.33
30	3329	21.20	187.80	3321.47	-23.85	-64.69	26.15	7.26	5.33	-14.44
31	3374	22.80	182.80	3363.20	-40.62	-66.22	42.97	5.47	3.56	-11.11
32	3415	26.00	179.30	3400.54	-57.55	-66.50	59.89	8.56	7.80	-8.54
33	3457	29.20	179.00	3437.75	-77.00	-66.20	79.32	7.63	7.62	-0.71
34	3502	32.70	176.40	3476.34	-100.12	-65.25	102.39	8.32	7.78	-5.78
35	3547	36.40	174.50	3513.40	-125.55	-63.20	127.73	8.56	8.22	-4.22
36	3592	39.10	176.80	3548.98	-153.01	-61.13	155.10	6.77	6.00	5.11
37	3636	42.60	178.30	3582.26	-181.76	-59.92	183.79	8.26	7.95	3.41
38	3681	45.10	179.00	3614.71	-212.93	-59.19	214.91	5.66	5.56	1.56
39	3726	48.40	182.30	3645.54	-245.69	-59.58	247.66	9.07	7.33	7.33
40	3770	53.00	177.30	3673.41	-279.71	-59.42	281.65	13.66	10.45	-11.36



Shubert 1-31H
Sam Gary and Associates
HWD 5
Trego Co, Kansas
Minimum Curvature Calculation

MWD George Hunt / Brian Slater
DIRECTIONAL DRILLERS: Chris Moon / Mike Foster
Magnetic Declination: 6.65 grid
Job #: DR1305064
Vertical Section Azimuth 182.05

No.	Survey Depth	INC	AZM	TVD	N-S	E-W	Vertical Section	DLS/ 100	BUR	WR
41	3815	57.20	178.00	3699.15	-316.57	-57.91	318.44	9.42	9.33	1.56
42	3857	60.20	178.80	3720.97	-352.44	-56.91	354.25	7.33	7.14	1.90
43	3902	61.50	178.40	3742.89	-391.73	-55.95	393.48	2.99	2.89	-0.89
44	3947	61.50	178.10	3764.36	-431.26	-54.74	432.94	0.59	0.00	-0.67
45	3992	61.70	177.90	3785.76	-470.82	-53.36	472.43	0.59	0.44	-0.44

Sam Gary & Associates

Location Kansas Installation Trego County
Field Sec 30 - 11S - 21W NAD 27 Well Shubert 1-31H

Installation Data

Name	Latitude	Longitude	Northing	Easting
Trego County	N39 3 39.99	W99 42 8.11	269599.00	1516659.00

Coordinate System Kansas State Planes, Northern Zone

Slot Data

Name	North [ft]	East [ft]	Latitude	Longitude	Northing	Easting
Shubert 1-31H	0.00 N	0.00 E	N39 3 39.99	W99 42 8.11	269599.00	1516659.00

Elevation Data

Slot - Mean Sea Level [ft]	Mean Sea Level - Mudline/Ground level [ft]	Slot - Mudline/Ground level [ft]
-0.00	0.00	0.00

WELL PROFILE DATA

Point	MD	Inc	Azi	TVD	North	East	deg/100ft	V. Sect
Tie on	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.00
KOP	3114.00	0.00	0.00	3114.00	0.00	0.00	0.00	-0.00
Target Shubert 1-31H 6	3864.00	60.00	182.05	3734.25	-357.87	-12.79	8.00	358.10
Target Shubert 1-31H E	4064.00	60.00	182.05	3834.25	-530.96	-18.98	0.00	531.30
Target Shubert 1-31H L	4438.23	90.00	182.04	3930.00	-888.10	-31.74	8.02	888.67
Target Shubert 1-31H C	4738.24	90.00	182.05	3930.00	-1187.91	-42.46	0.00	1188.67
T.D. & Target Shubert 1	8980.26	89.73	182.04	3940.00	-5427.22	-194.01	0.01	5430.68

TARGET DATA

MD	Inc	Azi	TVD	North	East	Name	Position
-	-	-	1.00	-1218.05	132.01	Shubert 31-4 Vertical Well	1516791.00 East : 268381.00 North
3864.00	60.00	182.05	3734.25	-357.87	-12.79	Shubert 1-31H 60°	1516646.21 East : 269241.14 North
4064.00	60.00	182.05	3834.25	-530.96	-18.98	Shubert 1-31H End 60°	1516640.02 East : 269068.06 North
4438.23	90.00	182.04	3930.00	-888.10	-31.74	Shubert 1-31H LP	1516627.26 East : 268710.94 North
4738.24	90.00	182.05	3930.00	-1187.91	-42.46	Shubert 1-31H CP	1516616.54 East : 268411.14 North
8980.26	89.73	182.04	3940.00	-5427.22	-194.01	Shubert 1-31H BHL	1516465.00 East : 264172.00 North



9630 Pole Rd.
Oklahoma City, OK 73160
Tel: (405) 604-2969



11-Apr-2013
IGRF Model [1900.0-2015.0] Dip: 66.63 deg Field: 52725.9 nT
Magnetic North is 5.57 deg East of True North
GRID North is 1.08 deg West of True North
To correct azimuth from True to GRID add 1.08 deg
To correct azimuth from Magnetic to GRID add 6.65 deg

Created by admin
Date plotted 7-Jun-2013
Plot reference is Shubert 1-31H (Plan TVD 3930).
Ref wellpath is Shubert 1-31H (PWP#1).
Coordinates are in feet reference Shubert 1-31H.
True Vertical Depths are reference Shubert 1-31H.
Measured Depths are reference Slot.
Plot North is aligned to GRID North.

East (feet) ->

Scale 1 inch = 1000 ft

-1000 -500 0 500 1000

