Form 3160-4
(June 2019)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: October 31, 2021

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No.

1a. Type of Well ☐ Oil Well ☐ Gas Well ☐ Dry ☐ Other
b. Type of Competion ☐ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Zones ☐ Hydraulic Fracturing
Other: _____

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No.

2. Name of Operator

8. Well Name and Well No.

3. Address

3a. Phone No. *(Include area code)*

9. API Well No.

4. Location of Well *(Report location clearly and in accordance with Federal requirements)**
At surface

At top prod. interval reported below

At total depth

10. Field and Pool or Exploratory

11. Sec., T., R., M., on Block and Survey or Area

12. County or Parish

13. State

14. Date Spudded

15. Date T.D. Reached

16. Date Completed ☐ D & A ☐ Ready to Prod.

17. Elevations (DF, RKB, RT, GL)*

18. Total Depth: MD / TVD

19. Plug Back T.D.: MD / TVD

20. Depth Bridge Plug Set: MD / TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)

22. Was well cored? ☐ No ☐ Yes (Submit analysis)
Was DST run? ☐ No ☐ Yes (Submit report)
Directional Survey? ☐ No ☐ Yes (Submit copy)

23. Casing and Liner Record *(Report all strings set in well)*

Hole Size	Size/Grade	Wt. (#ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled

24. Tubing Record

Size	Dept Set (MD)	Packer Dept (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)

25. Producing Intervals

Formation	Top	Bottom
A)		
B)		
C)		
D)		

26. Perforation Record

Perforated Interval	Size	No. Holes	Perf. Status

27. Acid, Fracture, Treatment, Cement Squeeze, Post hydraulic fracturing chemical disclosures on FracFocus.org when required by state or federal regulation

Depth Interval	Amount, Type of Material and Date of Chemical Disclosure upload on FracFocus.org as applicable

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API.	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API.	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

*(See instructions and spaces for additional data on page 2)

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API.	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production →	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API.	Gas Gravity	Production Method
Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate →	Oil BBL	Gas MCF	Water BBL	Gas/Oil Ratio	Well Status	

29. Disposition of Gas *(Solid, used for fuel, vented, etc.)*

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth

32. Additional remarks (include plugging procedure).

33. Indicate which items have been attached by placing a check in the appropriate boxes:

☐ Electrical/Mechanical Logs (1 full set req'd.) ☐ Geologic Report ☐ DST Report ☐ Directional Survey

☐ Sundry Notice for plugging and cement verification ☐ Core Analysis ☐ Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions)*

Name *(please print)* _____ Title _____

Signature _____ Date _____

Title 18 U.S C. Section 1001 and Title 43 U.S C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 3)

INSTRUCTIONS

GENERAL: This form is designed for submitting a complete and correct well completion/recompletion report and log on all types of wells on Federal and Indian leases to a Federal agency, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal office.
If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, and all types electric), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal laws and regulations. All attachments should be listed on this form, see item 33.
ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal office for specific instructions.
ITEM 17: Indicate which reported elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.
ITEM 23: Show how reported top(s) of cement were determined, i.e. circulated (CIR), or calculated (CAL), or cement bond log (CBL), or temperature survey (TS).

NOTICES

The Privacy Act of 1974 and the regulation in 43 CFR 2.48 (d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 351 et seq., 25 U.S.C. et seq.; 43 CFR 3160.
PRINCIPAL PURPOSE: The information is to be used to evaluate the actual operations performed in the drilling, completing and testing of a well on a Federal or Indian lease.
ROUTINE USES: (1) Evaluate the equipment and procedures used during the drilling and completing/recompleting of a well. (2) The review of geologic zones and formation encountered during drilling. (3) Analyze future applications to drill in light of data obtained and methods used. (4)(5) Information from the record and/or the record will be transferred to appropriate Federal, State, local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecutions.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this report and disclosure of the information is mandatory once a well drilled on a Federal or Indian lease is completed/recompleted.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM collects this information to allow evaluation of the technical, safety, and environmental factors involved with drilling and completing/recompleting wells on Federal and Indian oil and gas leases.
This information will be used to analyze operations and to compare equipment and procedures actually used with those proposed and approved.
Response to this request is mandatory only if the operator elects to initiate drilling and completing/recompleting operations on an oil and gas lease.
The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Information
Location information: 00S1

SHL: SWSW / LOT: 4 / 794 FSL / 682 FWL / TWSP: 26S / RNG: 31E / SEC: 18 / LAT: 32.037529 / LONG: -103.823954
KOP: SWSW / LOT: 4 / 21 FSL / 527 FWL / TWSP: 26S / RNG: 31E / SEC: 18 / LAT: 32.035401 / LONG: -103.824451
PPP: SWSW / LOT: 4 / 552 FSL / 526 FWL / TWSP: 26S / RNG: 31E / SEC: 18 / LAT: 32.03686 / LONG: -103.824456
EXIT: NWNW / LOT: 1 / 366 FNL / 519 FWL / TWSP: 26S / RNG: 31E / SEC: 7 / LAT: 32.063641 / LONG: -103.824491
BHL: NWNW / LOT: 1 / 344 FNL / 514 FWL / TWSP: 26S / RNG: 31E / SEC: 7 / LAT: 32.0637 / LONG: -103.824507

Summary of Porous Zones Information:

Formation: CHERRY CANYON, Descriptions, Contents, etc: null, Bottom: 4740
Formation: BRUSHY CANYON, Descriptions, Contents, etc: null, Bottom: 5849
Formation: BONE SPRING LIME, Descriptions, Contents, etc: null, Bottom: 7727
Formation: FIRST BONE SPRING SAND, Descriptions, Contents, etc: null, Bottom: 8665
Formation: BONE SPRING 2ND, Descriptions, Contents, etc: null, Bottom: 9320
Formation: BONE SPRING 3RD, Descriptions, Contents, etc: null, Bottom: 10595
Formation: WOLFCAMP, Descriptions, Contents, etc: null, Bottom: 10987

Attachments: 00S1

Log Attachments:
1) Cassidy_18_Fed_Com_778H_CBL_20220809103735.pdf
2) Cassidy_18_Fed_Com_778_Log_5in_MD_20220809104228.pdf
3) Cassidy_18_Fed_Com_778H_Final_Survey_Report_20220809103900.pdf
4) Cassidy_18_Fed_Com_778H_Final_PVA_20220809103920.pdf
5) Cassidy_18_Fed_Com_As_Completed_778H_20220809103939.pdf

Company	Petroleum Development Oman
Well	Yumna-1
Field	Yumna
County	Ghaba North
State	Sultanate of Oman
Other Services	Gamma Ray, Caliper, Temperature
Permanent Datum	Ground Level
Log Measured From	Kelly Bushing
Drilling Measured From	Kelly Bushing
Elevation	0 ft
Elevation	0 ft
Elevation	0 ft
Date	2-Jan-2006
Run Number	ONE
Depth Driller	1500 ft
Depth Logger	1500 ft
Bottom Logged Interval	1500 ft
Top Log Interval	0 ft
Casing Driller Size	9.625 in @ 0 ft
Casing Logger Size	9.625 in @ 0 ft
Bit Size	8.5 in
Type Fluid in Hole	Water
Density	1.0 g/cc
Viscosity	0 cp
Max Rec Temp	0 degF
Equipment	1500
Location	Ghaba North
Recorded By	Mohammed Al Ghafri
Witnessed By	Mr. Ali Al Ghafri

PETROLEUM DEVELOPMENT OMAN

Yumna-1

Ghaba North

Sultanate of Oman

Gamma Ray, Caliper, Temperature

THIS DOCUMENT IS THE PROPERTY OF PETROLEUM DEVELOPMENT OMAN. THE INFORMATION ON THIS DOCUMENT IS TO BE KEPT CONFIDENTIAL AND NOT DISCLOSED TO THIRD PARTIES WITHOUT THE PRIOR WRITTEN CONSENT OF PETROLEUM DEVELOPMENT OMAN.

COMPANY

PETROLEUM DEVELOPMENT OMAN

WELL

YUMNA-1

FIELD

GHABA NORTH (GHARAF SOUTH)

COUNTY

SULTANATE OF OMAN

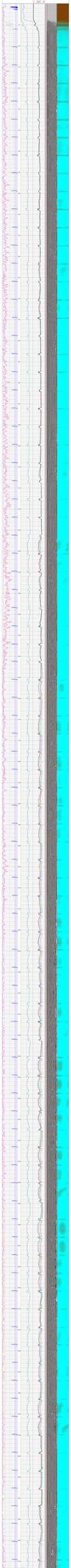
SERVICES

GAMMA RAY, CALIPER, TEMPERATURE

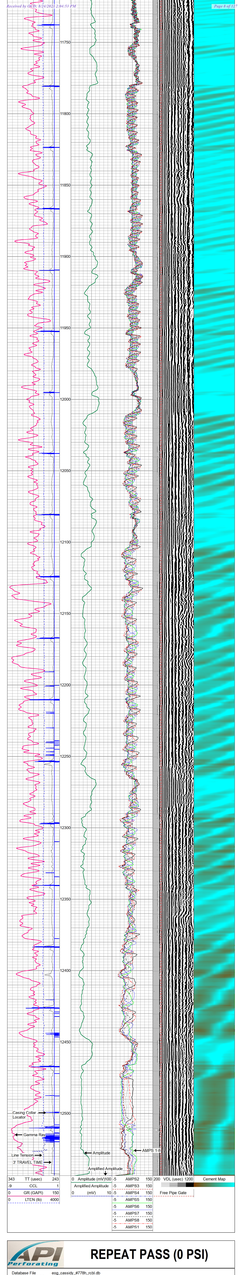
MAIN PASS (1500 PSI)

Company	PETROLEUM DEVELOPMENT OMAN
Well	YUMNA-1
Field	GHABA NORTH (GHARAF SOUTH)
County	SULTANATE OF OMAN
State	
Other Services	GAMMA RAY, CALIPER, TEMPERATURE
Permanent Datum	Ground Level
Log Measured From	Kelly Bushing
Drilling Measured From	Kelly Bushing
Elevation	0 ft
Elevation	0 ft
Elevation	0 ft
Date	2-Jan-2006
Run Number	ONE
Depth Driller	1500 ft
Depth Logger	1500 ft
Bottom Logged Interval	1500 ft
Top Log Interval	0 ft
Casing Driller Size	9.625 in @ 0 ft
Casing Logger Size	9.625 in @ 0 ft
Bit Size	8.5 in
Type Fluid in Hole	Water
Density	1.0 g/cc
Viscosity	0 cp
Max Rec Temp	0 degF
Equipment	1500
Location	Ghaba North
Recorded By	Mohammed Al Ghafri
Witnessed By	Mr. Ali Al Ghafri

Gamma Ray	0 GAPI	150 GAPI
Temperature	0 degF	100 degF
Caliper	6 in	16 in

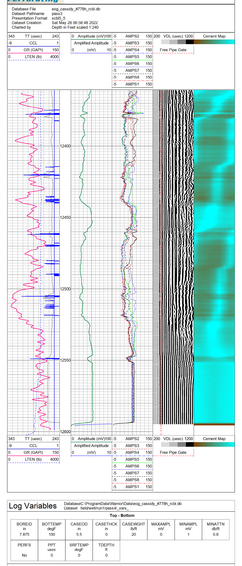


Recorded by GRAPHOLOG 7.08.01 PVI



REPEAT PASS (0 PSI)

Database File: eog_cassidy_#778h_cs9.db
Dataset Pathname: pass3
Presentation Format: gr_ccl
Dataset Created: Sat May 28 08:58:48 2022
Charted by: Depth in Feet scaled 1:240



Log Variables

Database:C:\Program Files\Geotech\Vertilog\Data\eog_cassidy_#778h_cs9.db
Dataset: /wellsite/run1/pass4_pass

Top - Bottom

BORE0 in	BOTTEMP degF	CASE0 in	CASETHICK in	CASEWGHT lb/ft	MAXAMPL mV	MINAMPL mV	MINATTN db/ft
0	100	5.5	0	20	0	1	0.8

PERF5	PPT rate	SRFTEMP degF	TDEPTH ft
No	0	0	0

Variable Description

BORE0 : Borehole I.D.	CASEWGHT : Casing Weight	PERF5 : Perforation Flag
BOTTEMP : Bottom Hole Temperature	MAXAMPL : Maximum Amplitude	PPT : Predicted Pipe Temp
CASE0 : Casing O.D.	MINAMPL : Minimum Amplitude	SRFTEMP : Surface Temperature
CASETHICK : Casing Thickness	MINATTN : Minimum Attenuation	TDEPTH : Total Depth

Calibration Report

Database File: eog_cassidy_#778h_cs9.db
Dataset Pathname: pass4
Dataset Created: Sat May 28 07:09:39 2022

Gamma Ray Calibration Report

Serial Number:	110874-jp
Tool Model:	Probe
Performed:	Wed Feb 17 09:25:18 2016
Calibrator Value:	1.0 GAPI
Background Reading:	0.0 cps
Calibrator Reading:	1.0 cps
Sensitivity:	1.0000 GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	090628_55	
Tool Model:	Probe	
Calibration Casing Diameter:	5.500	in
Calibration Depth:	-0.083	ft

Master Calibration: performed Fri May 27 13:50:25 2022

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
T	0.000	0.577	1.000	71.921	122.903	1.000
CAL	0.000	0.642				
T2	0.000	0.576	1.000	71.921	122.625	1.000
SUM						
S1	0.000	0.567	0.000	100.000	175.301	0.000
S2	0.000	0.576	0.000	100.000	172.964	0.000
S3	0.000	0.577	0.000	100.000	172.529	0.000
S4	0.000	0.577	0.000	100.000	173.244	0.000
S5	0.000	0.576	0.000	100.000	172.579	0.000
S6	0.000	0.577	0.000	100.000	173.244	0.000
S7	0.000	0.584	0.000	100.000	171.127	0.000
S8	0.000	0.579	0.000	100.000	172.652	0.000

Internal Reference Calibration, performed (Not Performed)

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	0.000	0.042	1.000	0.000

Air Zero Calibration, performed Fri May 27 13:50:45 2022

	Raw (v)		Calibrated (v)	Results
	Zero	Cal	Zero	Offset
T	0.000		0.000	0.000
T2	0.000		0.000	0.000
SUM				
S1	0.000		0.000	0.000
S2	0.000		0.000	0.000
S3	0.000		0.000	0.000
S4	0.000		0.000	0.000
S5	0.000		0.000	0.000
S6	0.000		0.000	0.000
S7	0.000		0.000	0.000
S8	0.000		0.000	0.000

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
WRF58	8.52		RST Probe 090628_55	8.75	0.00	
WRF57	8.52		Probe 2.5" Rate Bom Tool			
WRF56	8.52					
WRF55	8.52					
WRF54	8.52					
WRF53	8.52					
WRF52	8.52					
WRF51	8.52					
WXFCAL	8.52					
WXFXFT	8.52					
WXFSFT	7.52					
HEADVOLT	4.33					
CCL	3.64					
GR	0.90		GR Probe 110874-jp Probe 2.5" or Capsule Probe	4.33	2.75	30.00

Dataset: eog_cassidy_#778h_cs9.db: /wellsite/run1/pass4
Total length: 32.05 ft
Total weight: 30.00 lb
O.D.: 2.75 in

Geoscience

Company	EOG RESOURCES
Well	CASSIDY19 FED COM #778 H
Field	WOLF CAMP
County	LEA
State	NEW MEXICO
Country	U.S.A.

Stryker Energy Directional Services LLC.

1212 Old 105 W'
Conroe, TX 77304

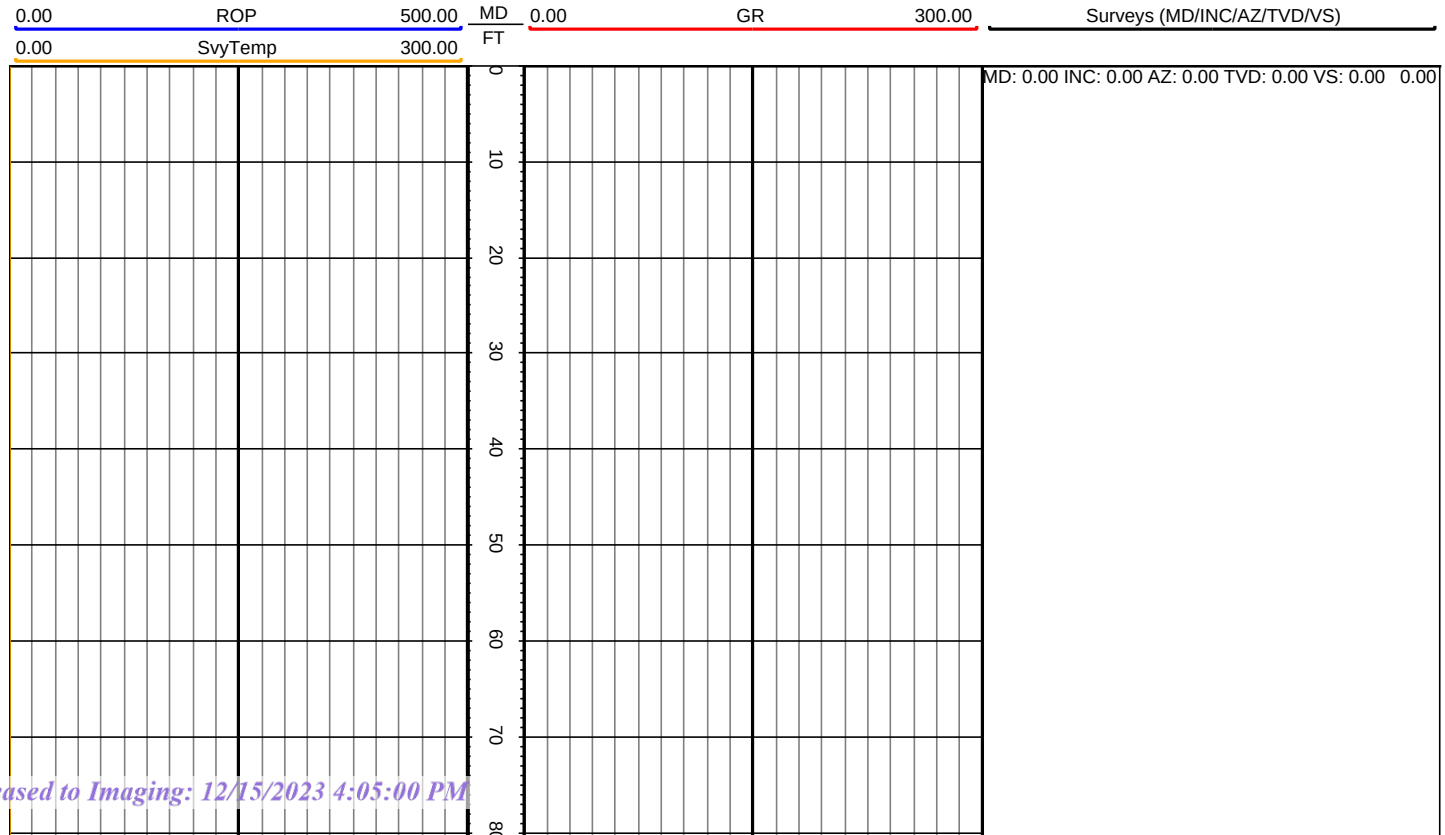
Cassidy 18 Fed Com #778H

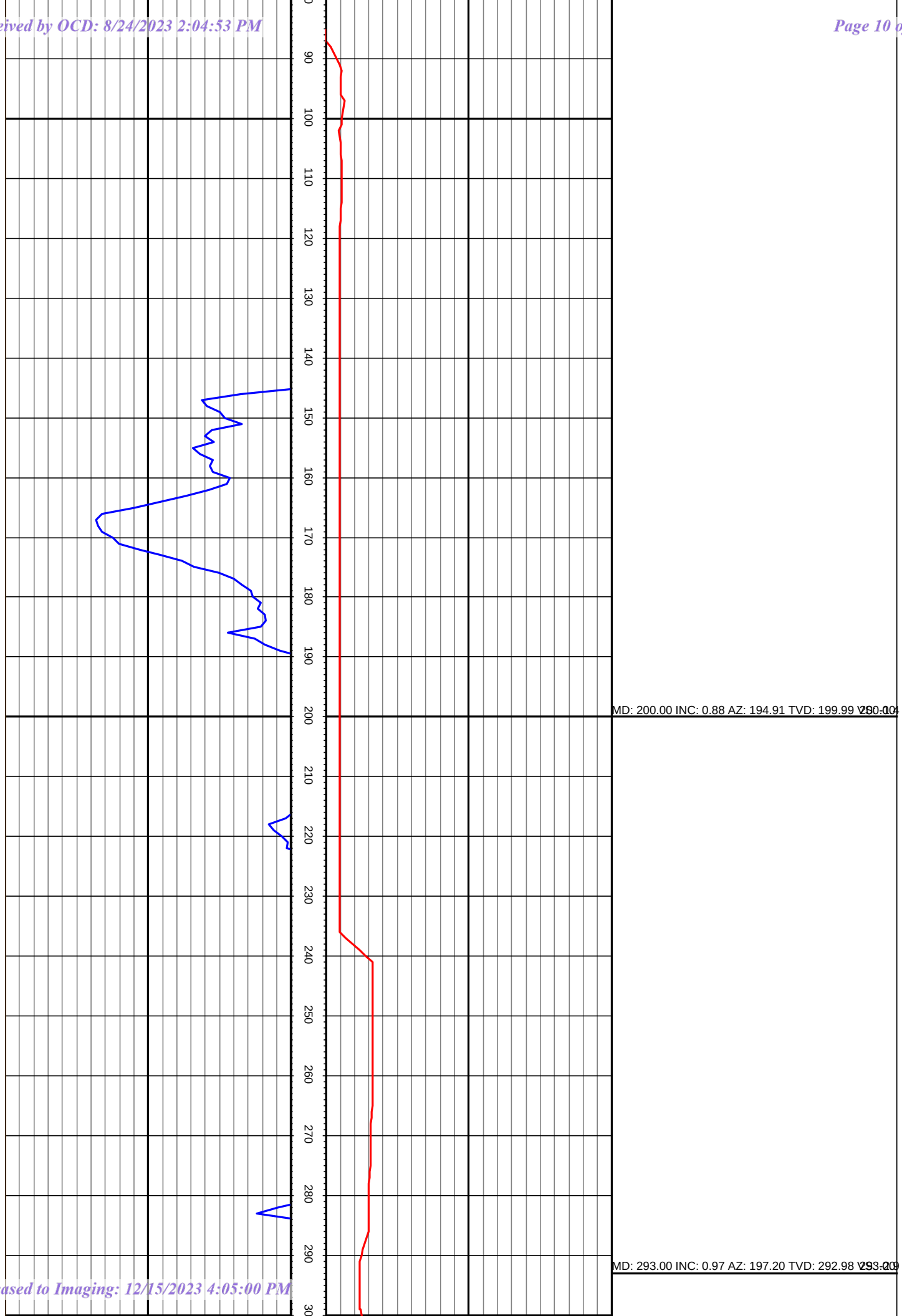
Scale 5":100' - MD

4/24/2022 5:37 PM

Oper. Company:	EOG Resources	**County:**	Eddy
Well:	Cassidy 18 Fed Com #778H	**Country:**	USA
Field:	Deleware	**Start Date:**	03/31/2022
Rig:	Patterson #885	**PBHL:**	22280.00
Well ID:	30-015-47948	**Last Svy MD:**	22227.00
Job Number:	M221140	**Last Calc. Date:**	4/24/2022
State:	NM	**Calculation Method:**	Minimum Curvature
Latitude:	32.037527	**Elev GL:**	3209'
Longitude:	-103.8231194		
Map System:	US State Plane 1983	**Map Zone:**	New Mexico Eastern Zone
Map Datum:	North American Datum 1983	**Declination:**	6.18
Ref Datum:	Mean Sea level		
Field Strength (nT):	47472.461	**IFR Corr:**	No
Magnetic Model:	IGRF 2020	**MSA Corr:**	No
Dip:	59.566	**SAG Corr:**	No
Day Hand:	Justin Fortenberry	**Night Hand:**	Tony Tripicchio

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not except in the case of gross or willful negligence on our part, be liable or responsible for any loss, cost damages or expenses incurred or sustained by anyone resulting from an interpretation made by any of our officers, agents, or employees.

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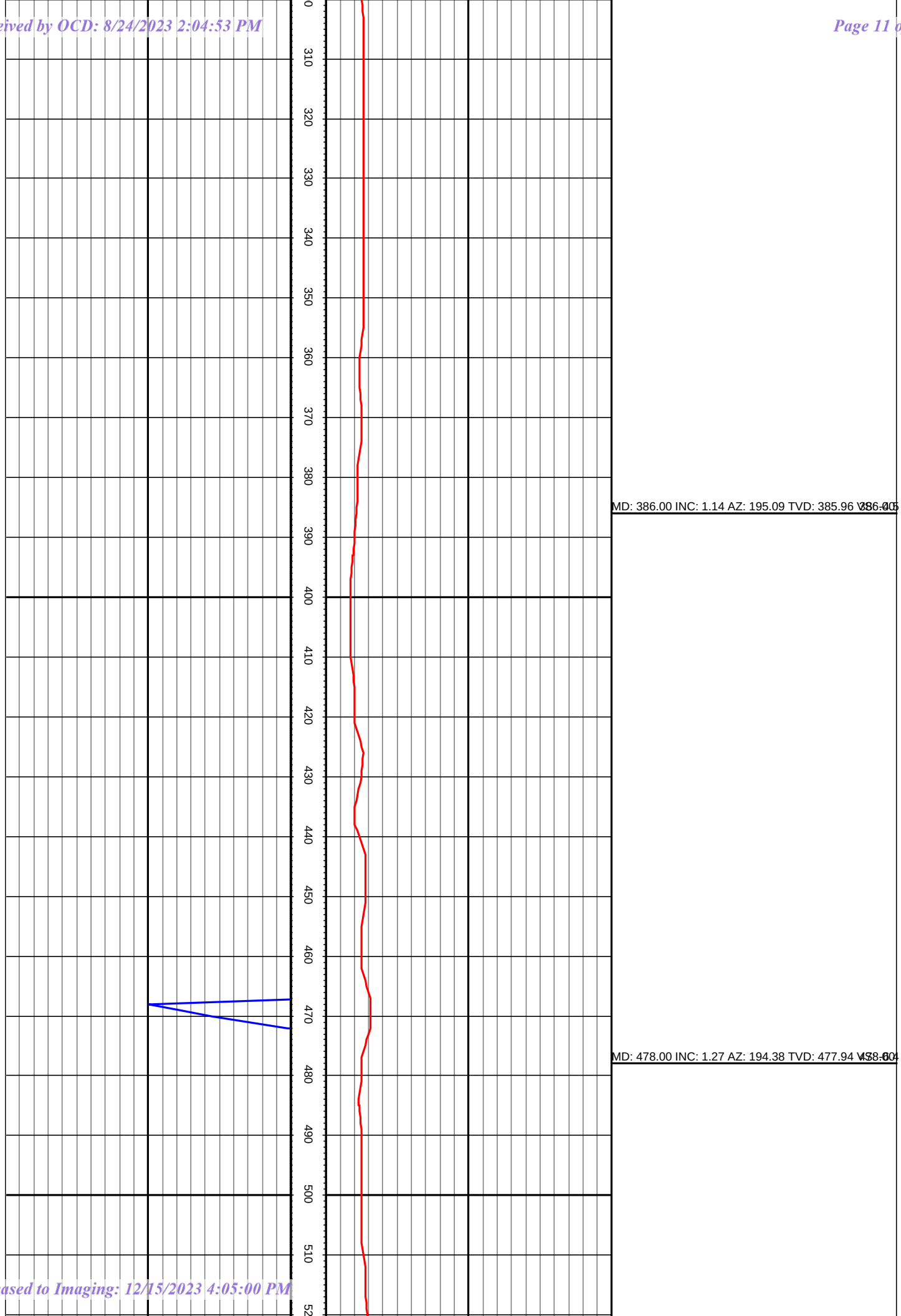
MD: 200.00 INC: 0.88 AZ: 194.91 TVD: 199.99 VS: 0.04
MD: 293.00 INC: 0.97 AZ: 197.20 TVD: 292.98 VS: 0.09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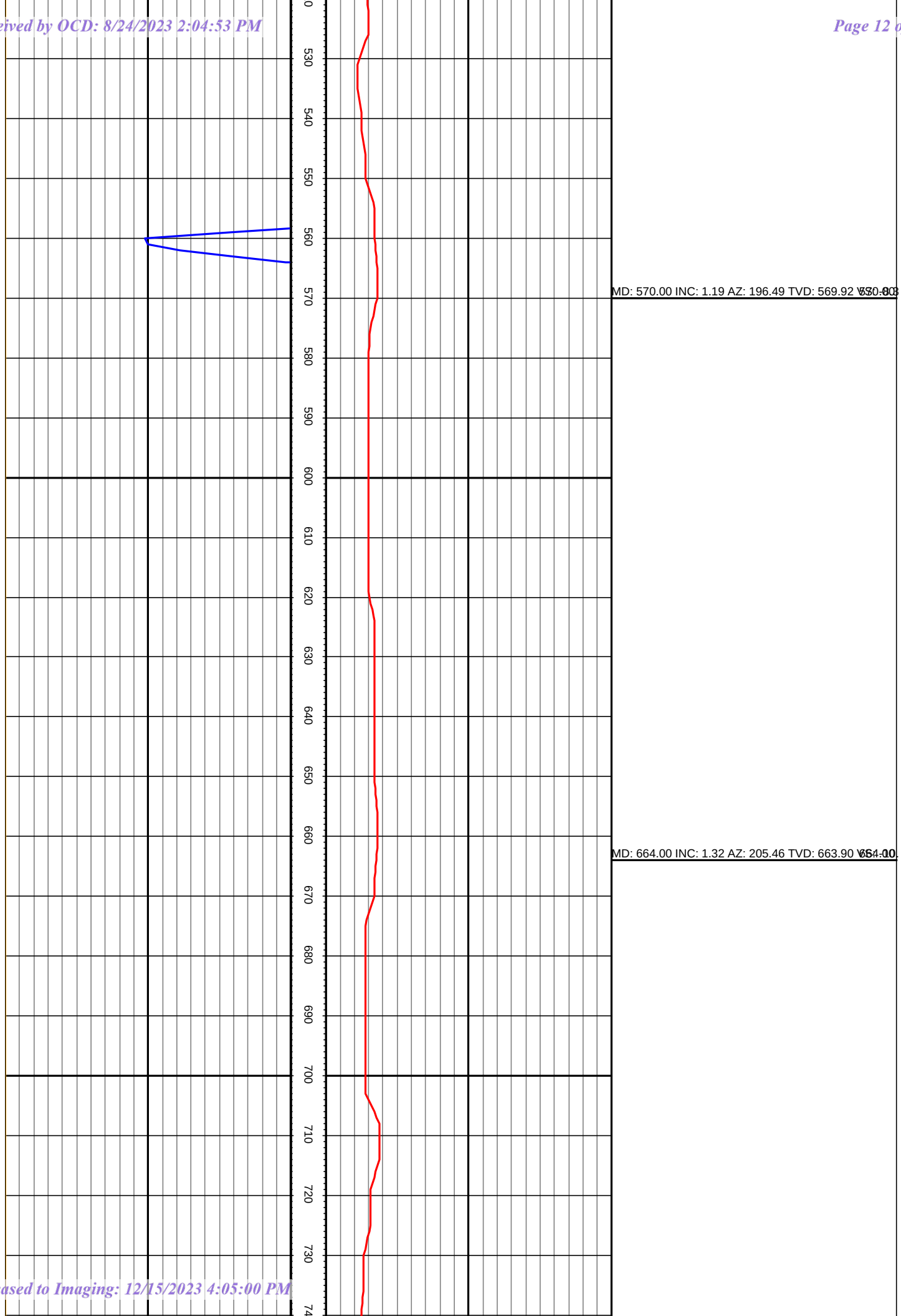
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630
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660
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680
690
700
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720
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MD: 570.00 INC: 1.19 AZ: 196.49 TVD: 569.92 VS: 0.03
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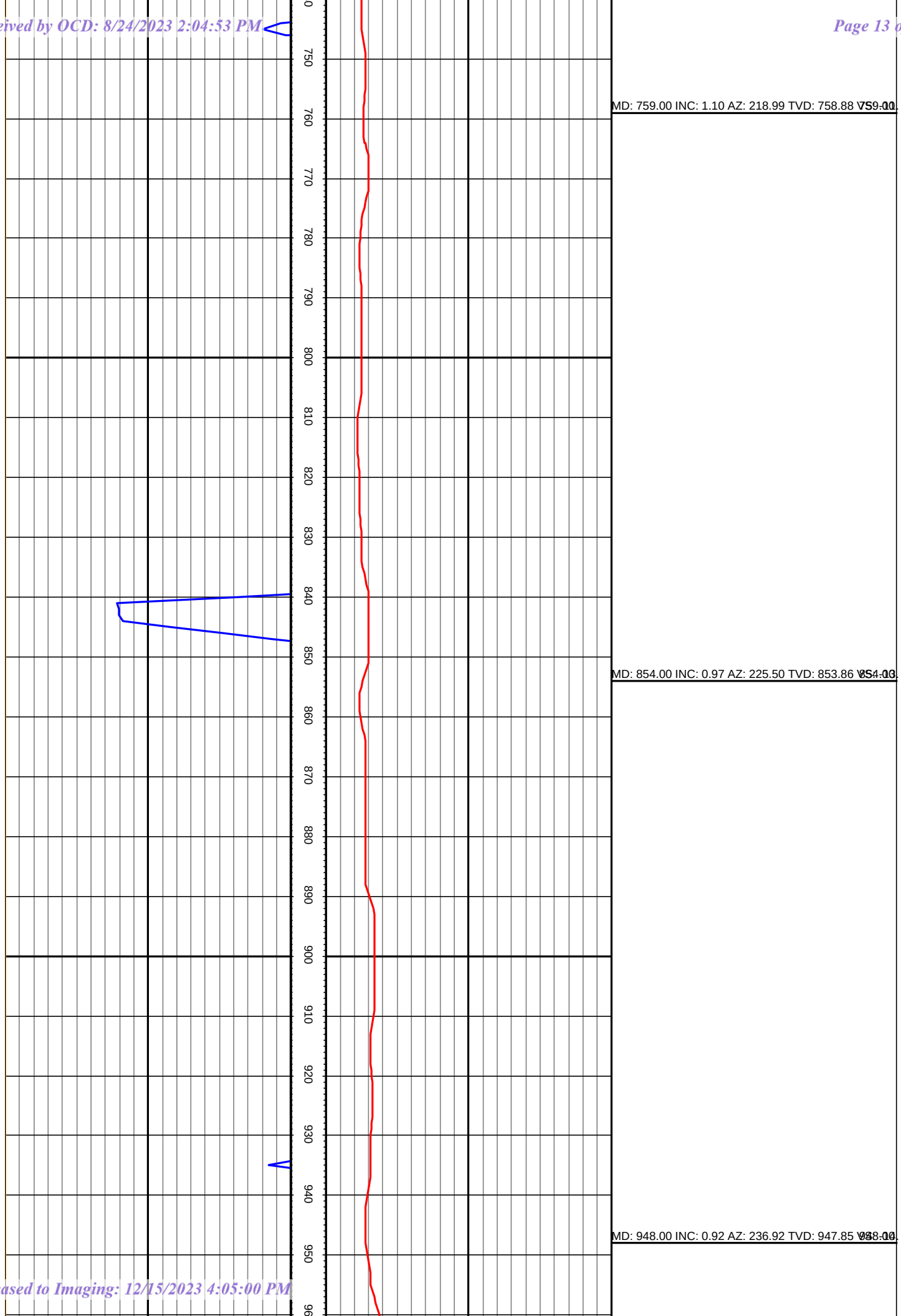
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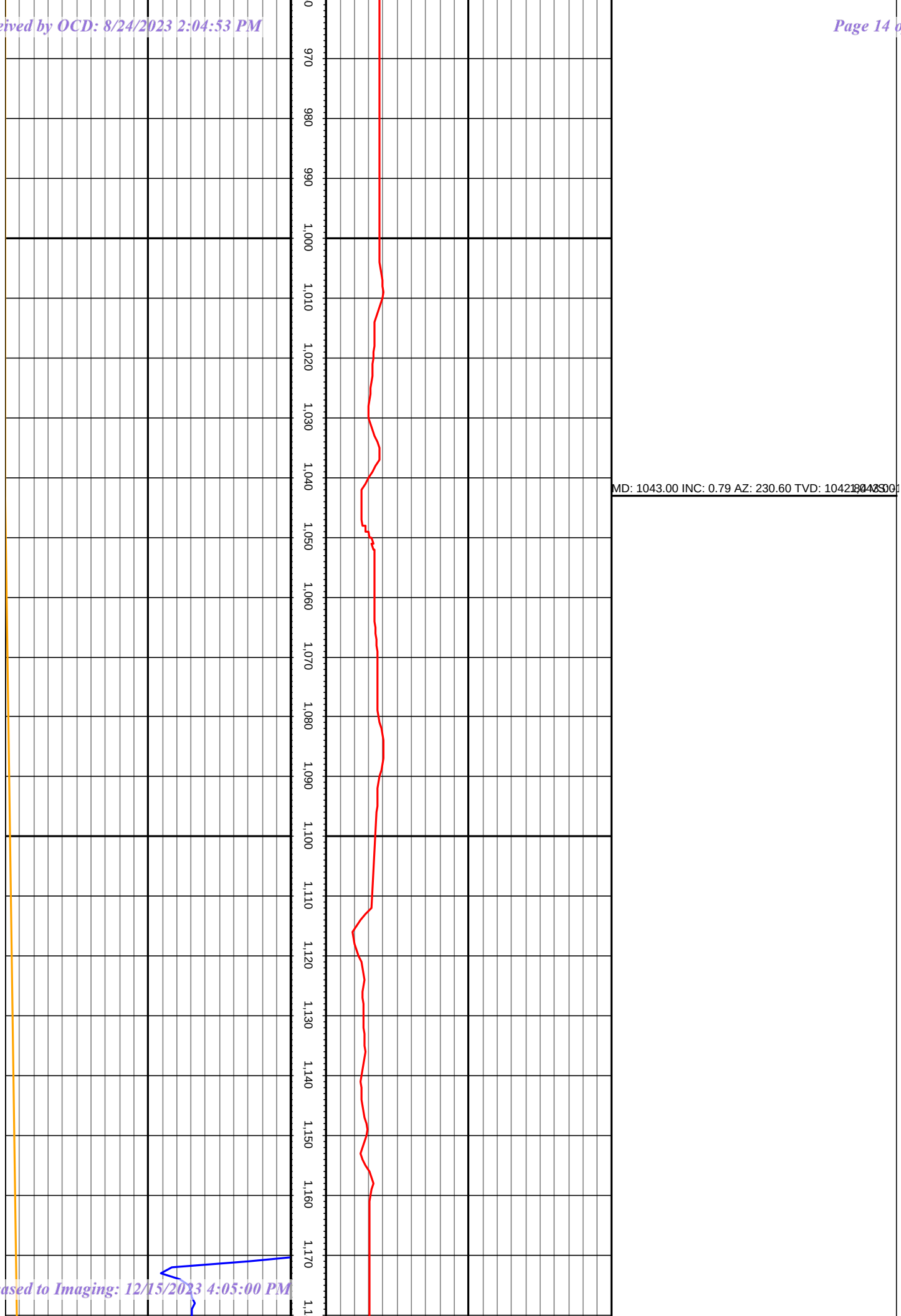
960
MD: 759.00 INC: 1.10 AZ: 218.99 TVD: 758.88 VS: 0.01
MD: 854.00 INC: 0.97 AZ: 225.50 TVD: 853.86 VS: 0.03
MD: 948.00 INC: 0.92 AZ: 236.92 TVD: 947.85 VS: 0.04


970
980
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1,000
1,010
1,020
1,030
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1,050
1,060
1,070
1,080
1,090
1,100
1,110
1,120
1,130
1,140
1,150
1,160
1,170
MD: 1043.00 INC: 0.79 AZ: 230.60 TVD: 1042.99

1,190
1,200
1,210
1,220
1,230
1,240
1,250
1,260
1,270
1,280
1,290
1,300
1,310
1,320
1,330
1,340
1,350
1,360
1,370
1,380
1,390
MD: 1243.00 INC: 1.19 AZ: 212.23 TVD: 1242.82
MD: 1340.00 INC: 4.44 AZ: 183.66 TVD: 1339.68

1,410
1,420
1,430
1,440
1,450
1,460
1,470
1,480
1,490
1,500
1,510
1,520
1,530
1,540
1,550
1,560
1,570
1,580
1,590
1,600
1,610
MD: 1435.00 INC: 8.35 AZ: 180.85 TVD: 1434.
MD: 1529.00 INC: 9.58 AZ: 177.77 TVD: 1526.

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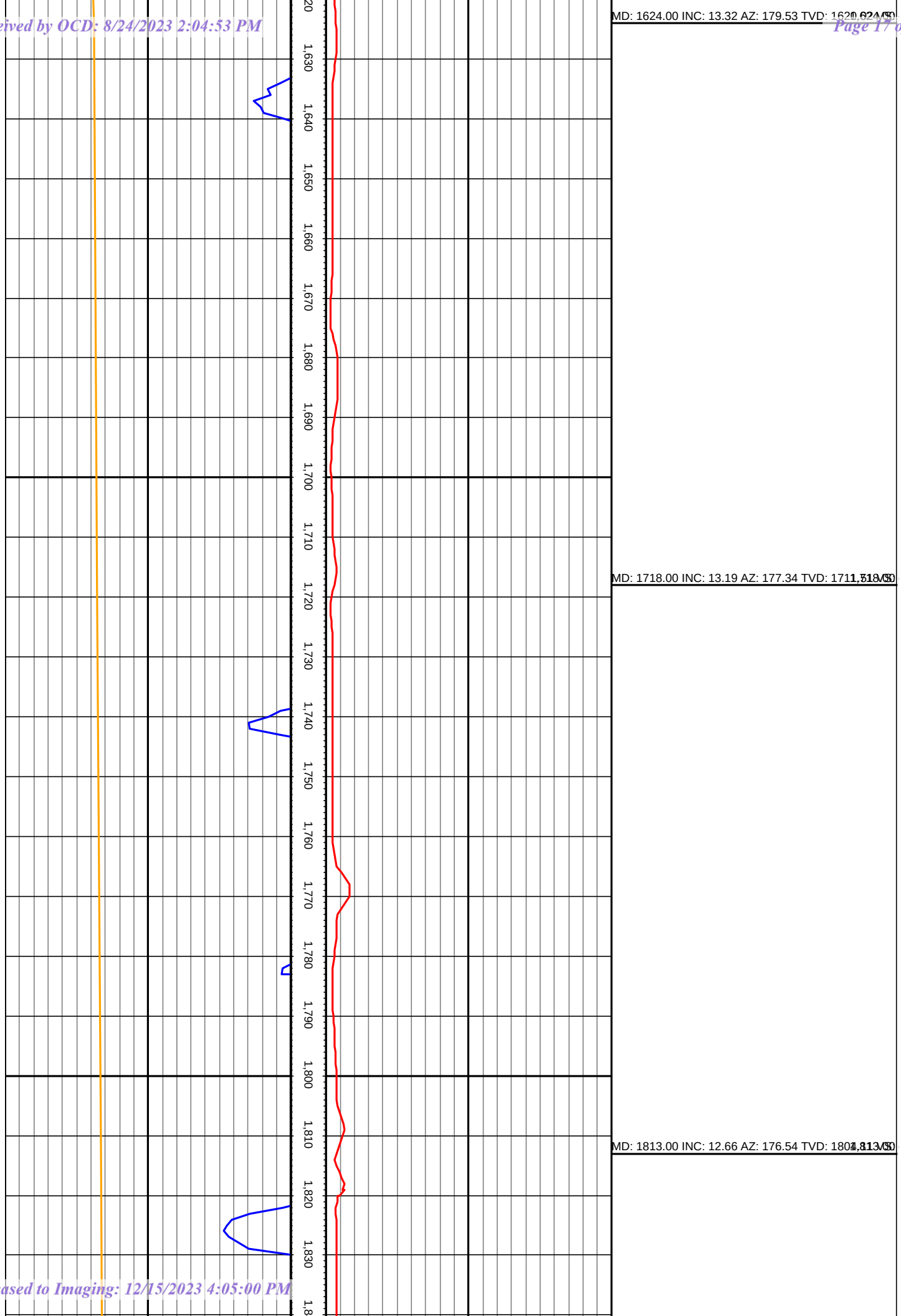

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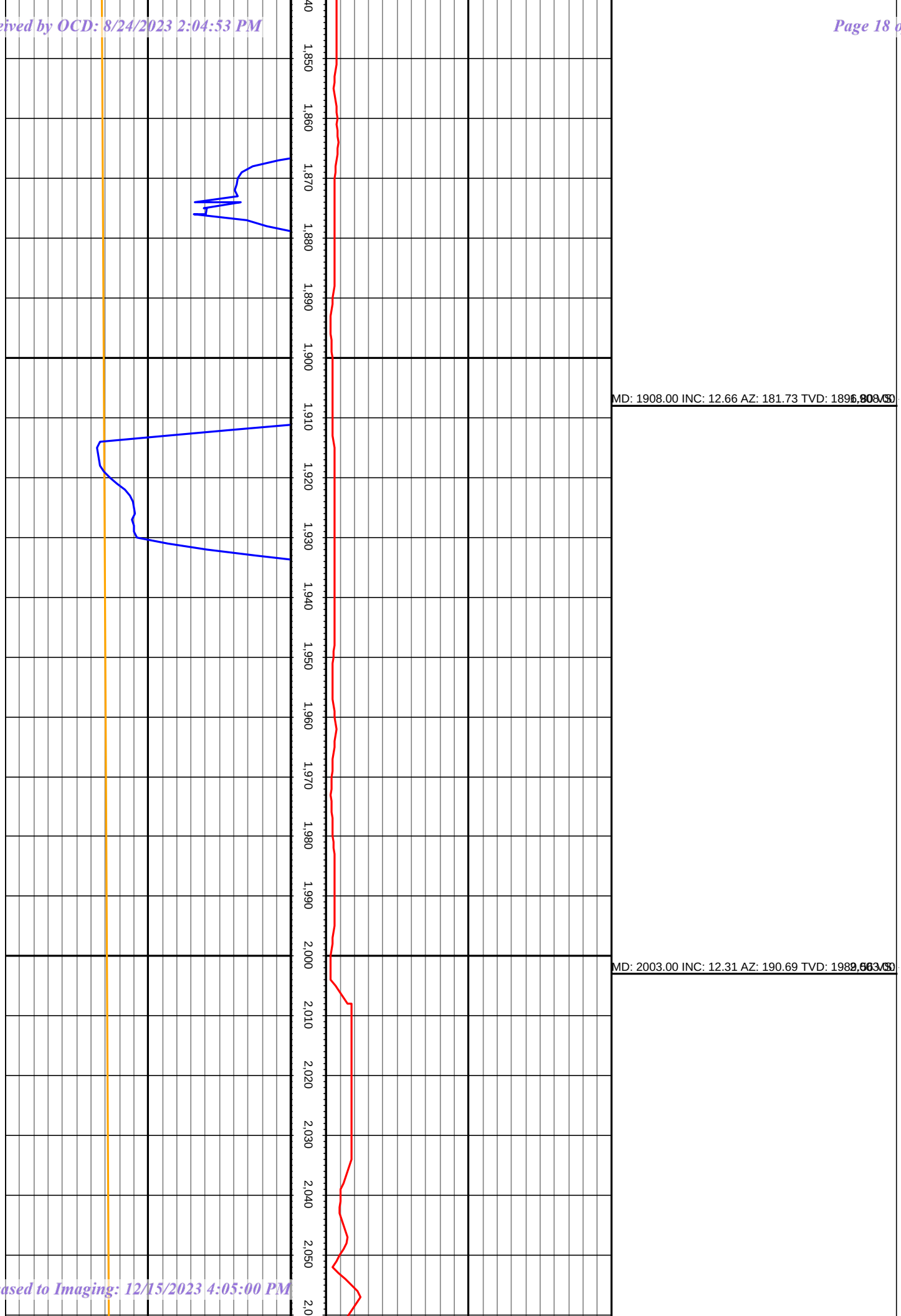
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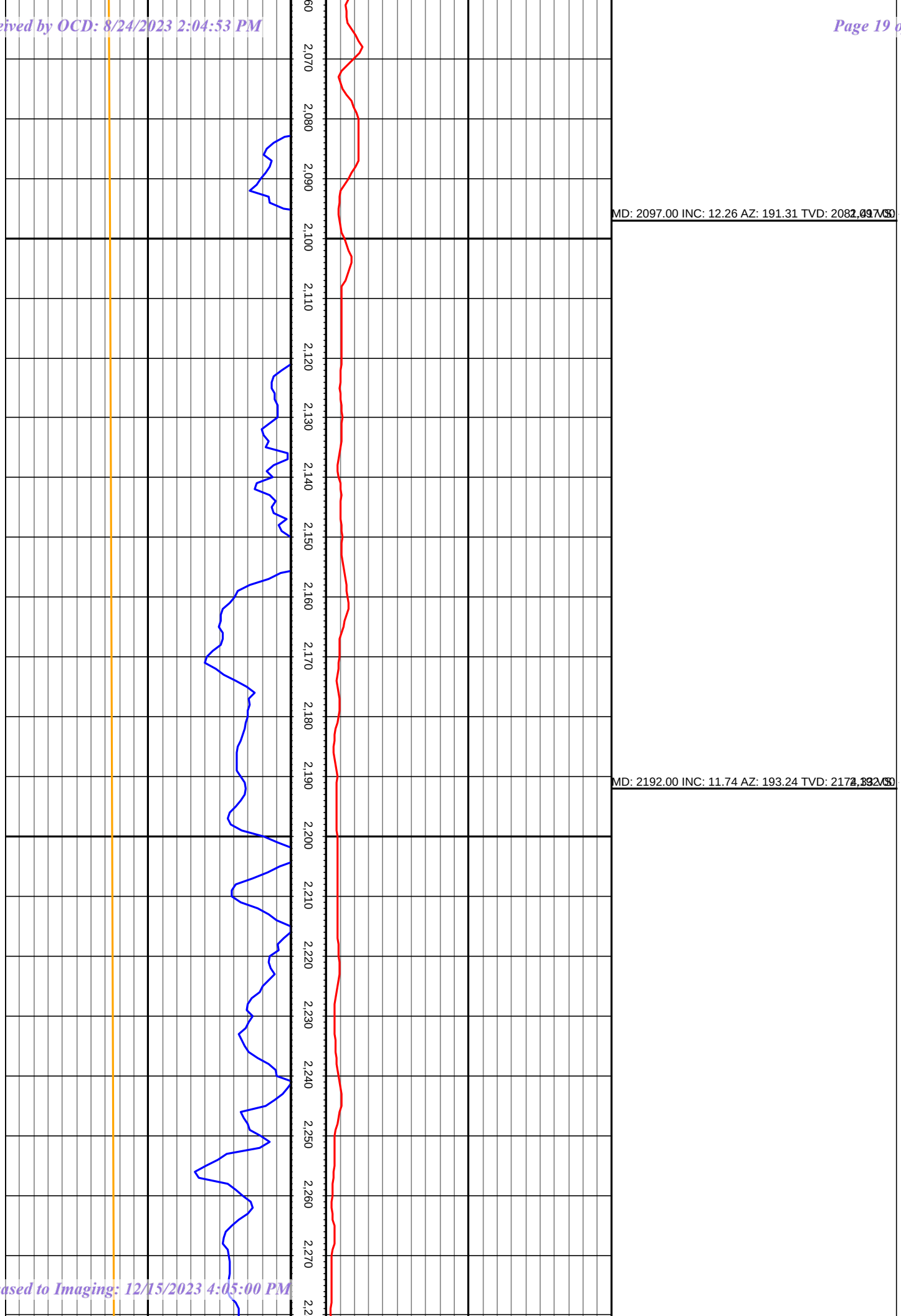
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MD: 2097.00 INC: 12.26 AZ: 191.31 TVD: 2082.49 VS: 2,097.00
MD: 2192.00 INC: 11.74 AZ: 193.24 TVD: 2174.39 VS: 2,192.00

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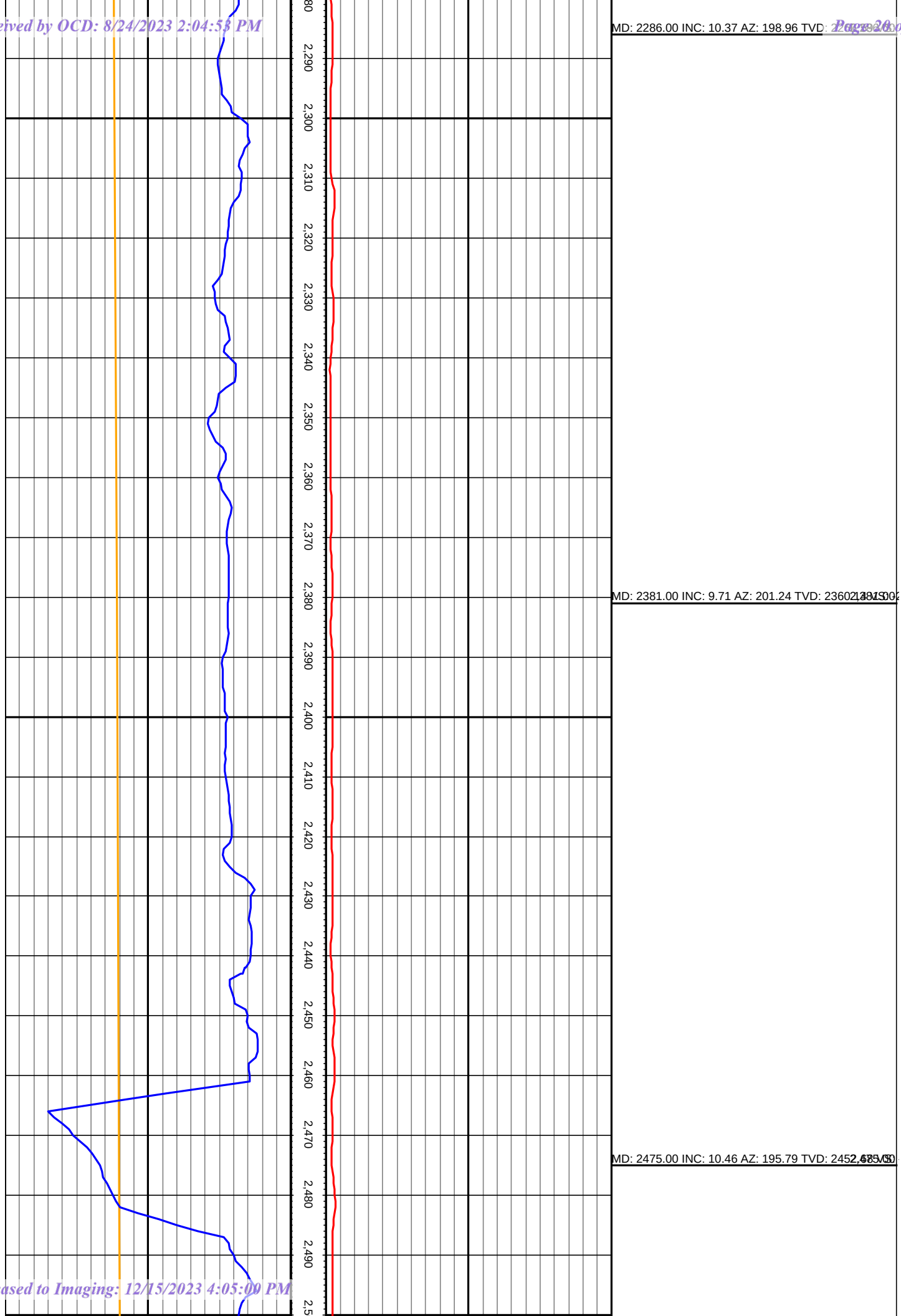

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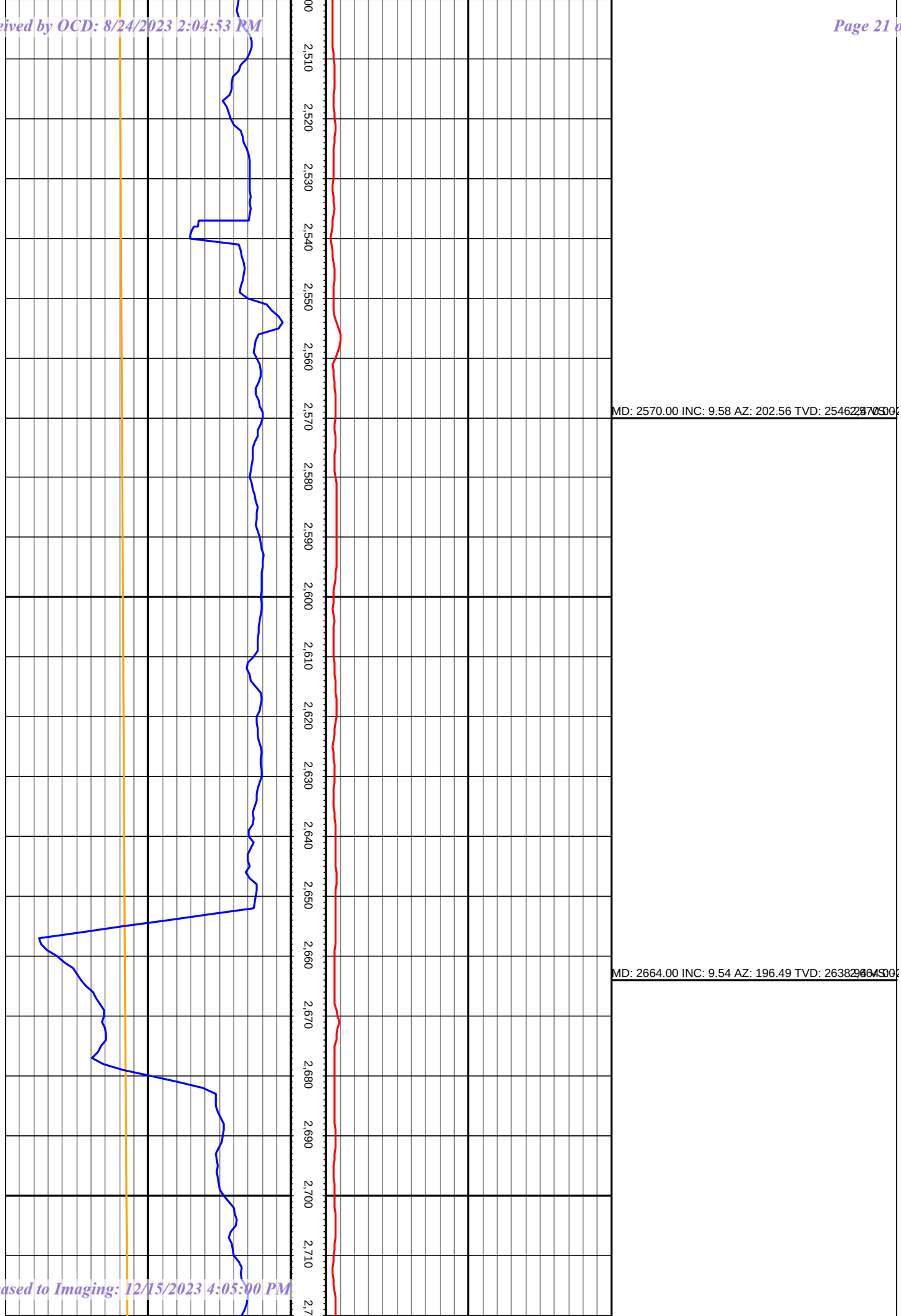
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MD: 2570.00 INC: 9.58 AZ: 202.56 TVD: 2546
MD: 2664.00 INC: 9.54 AZ: 196.49 TVD: 2638

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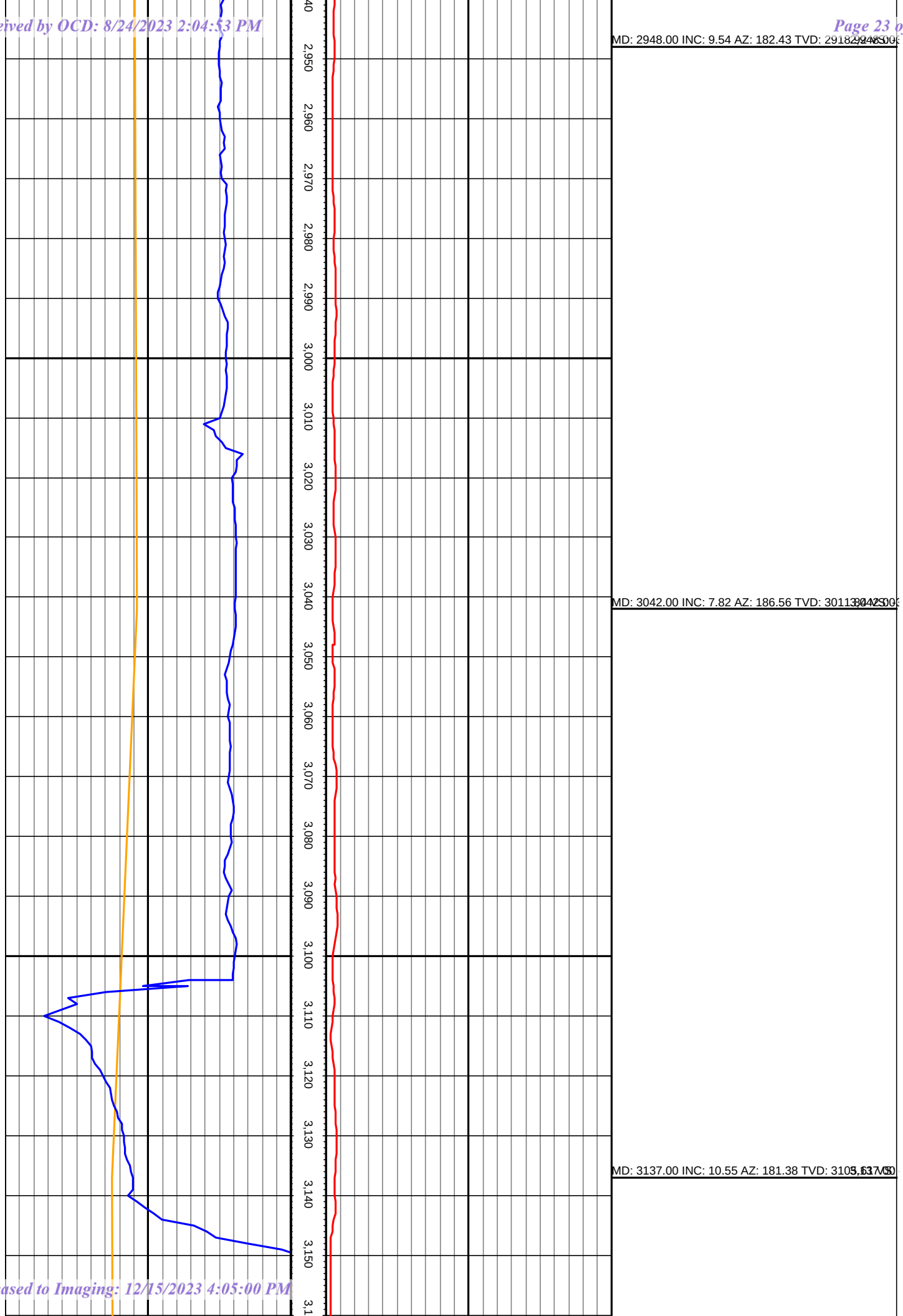
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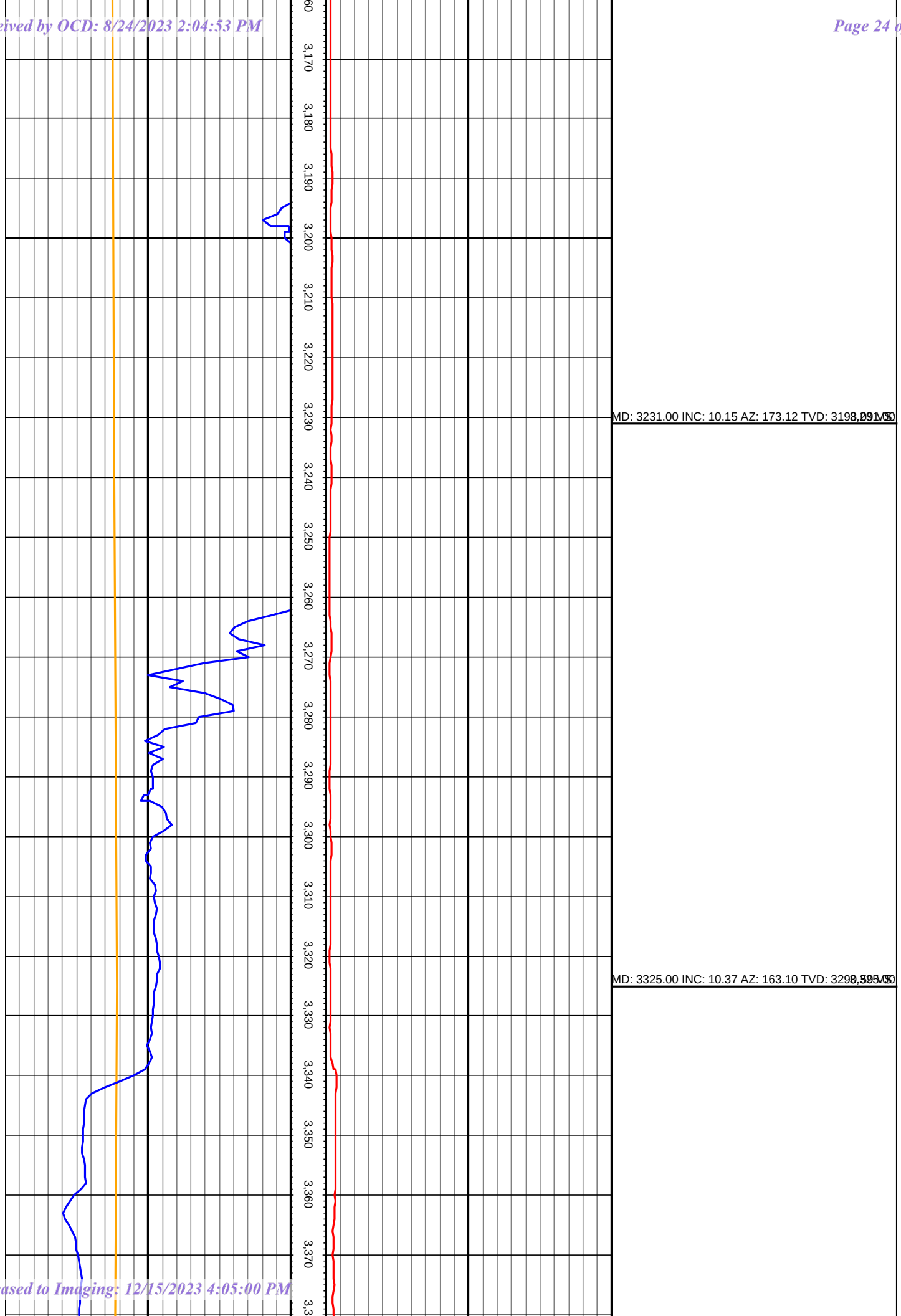
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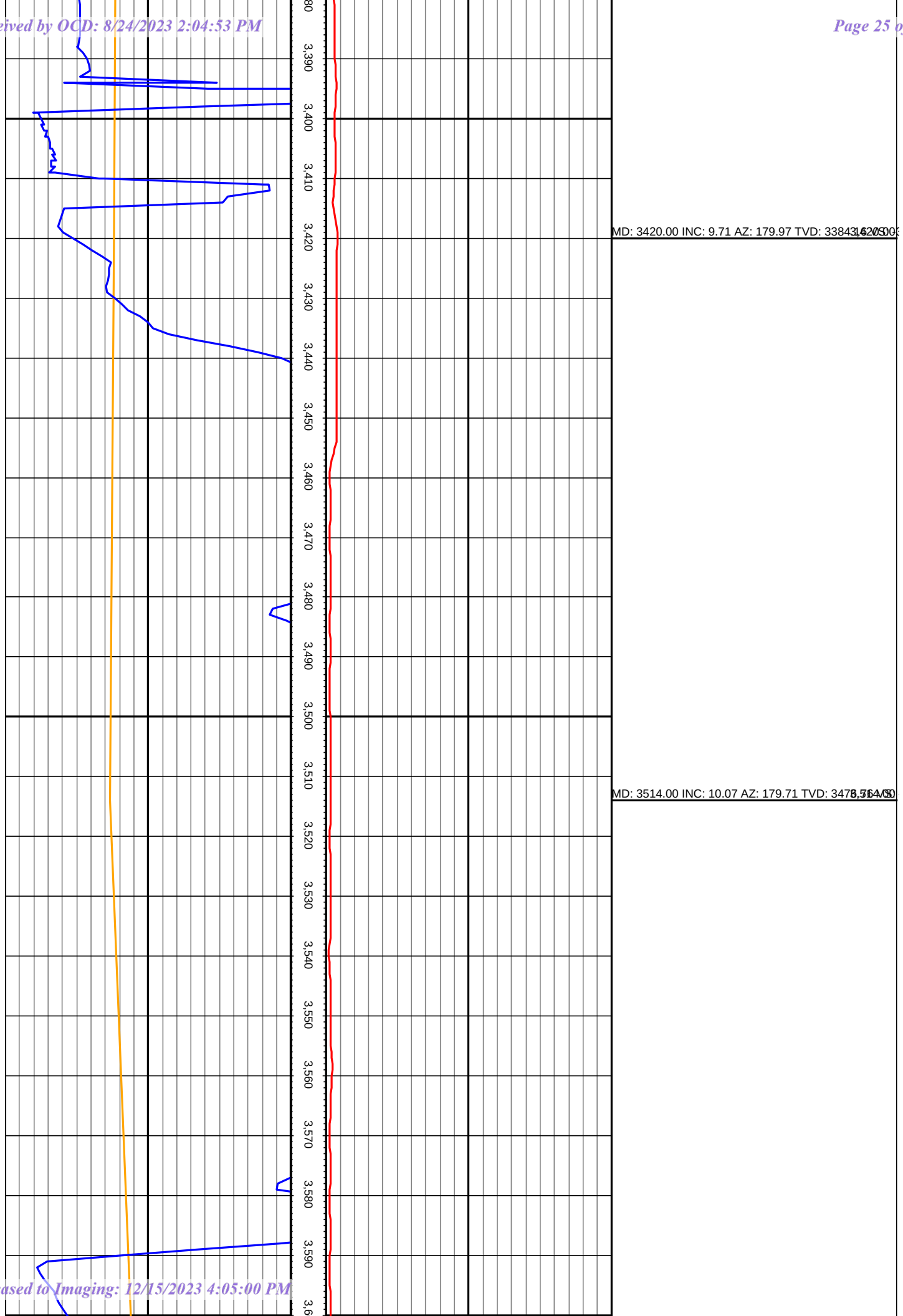
MD: 3325.00 INC: 10.37 AZ: 163.10 TVD: 3290.52 VS: 9.52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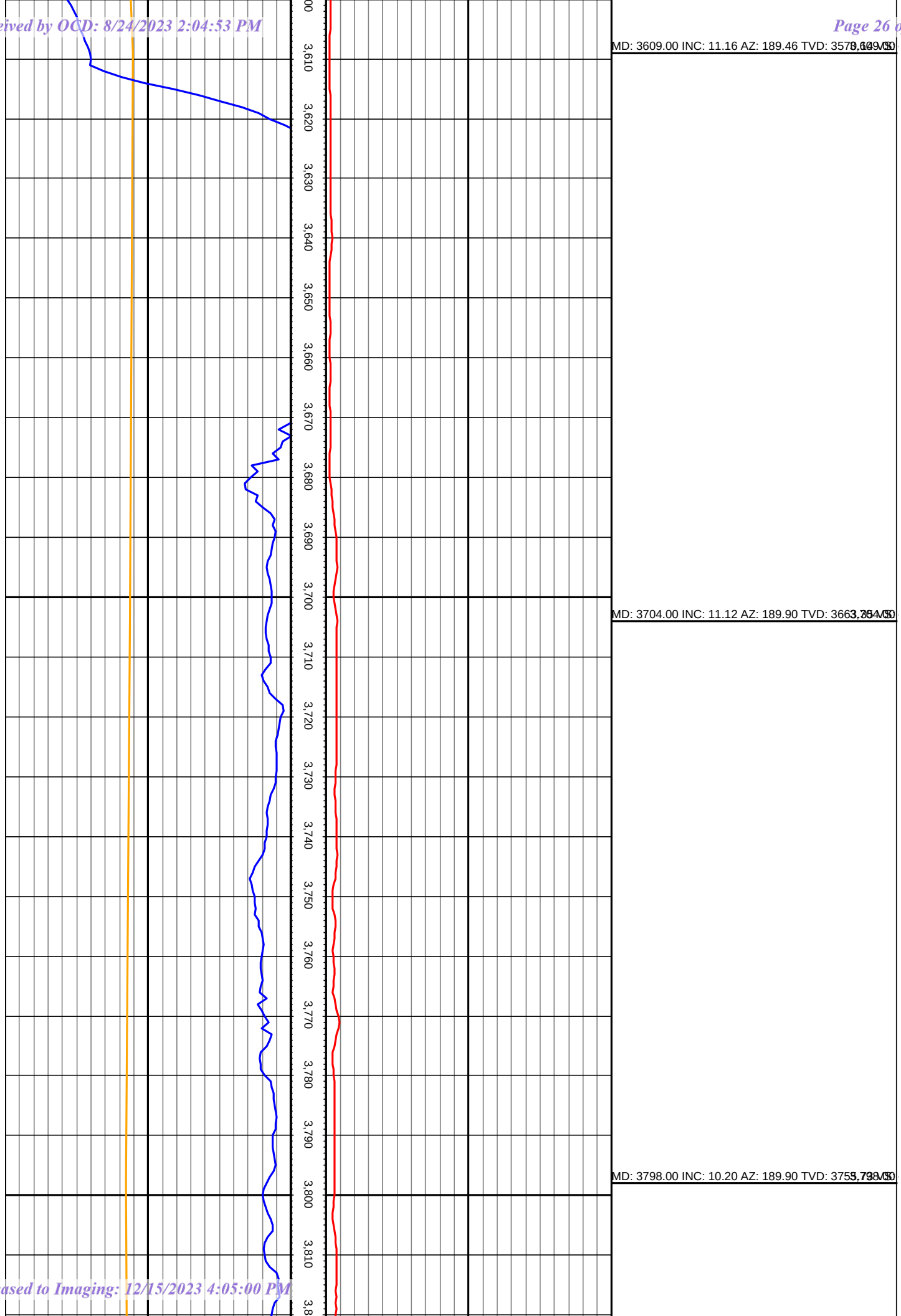
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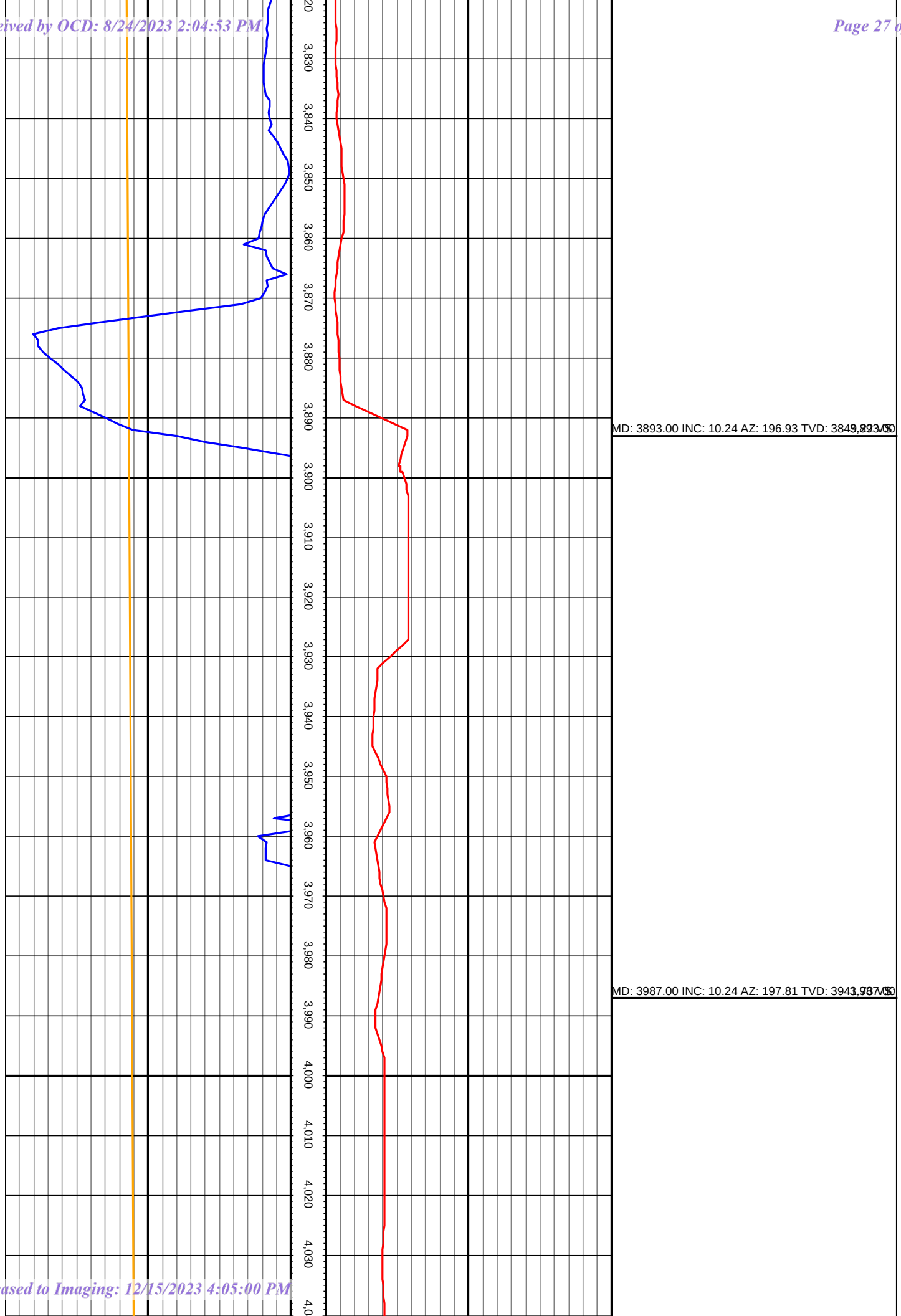
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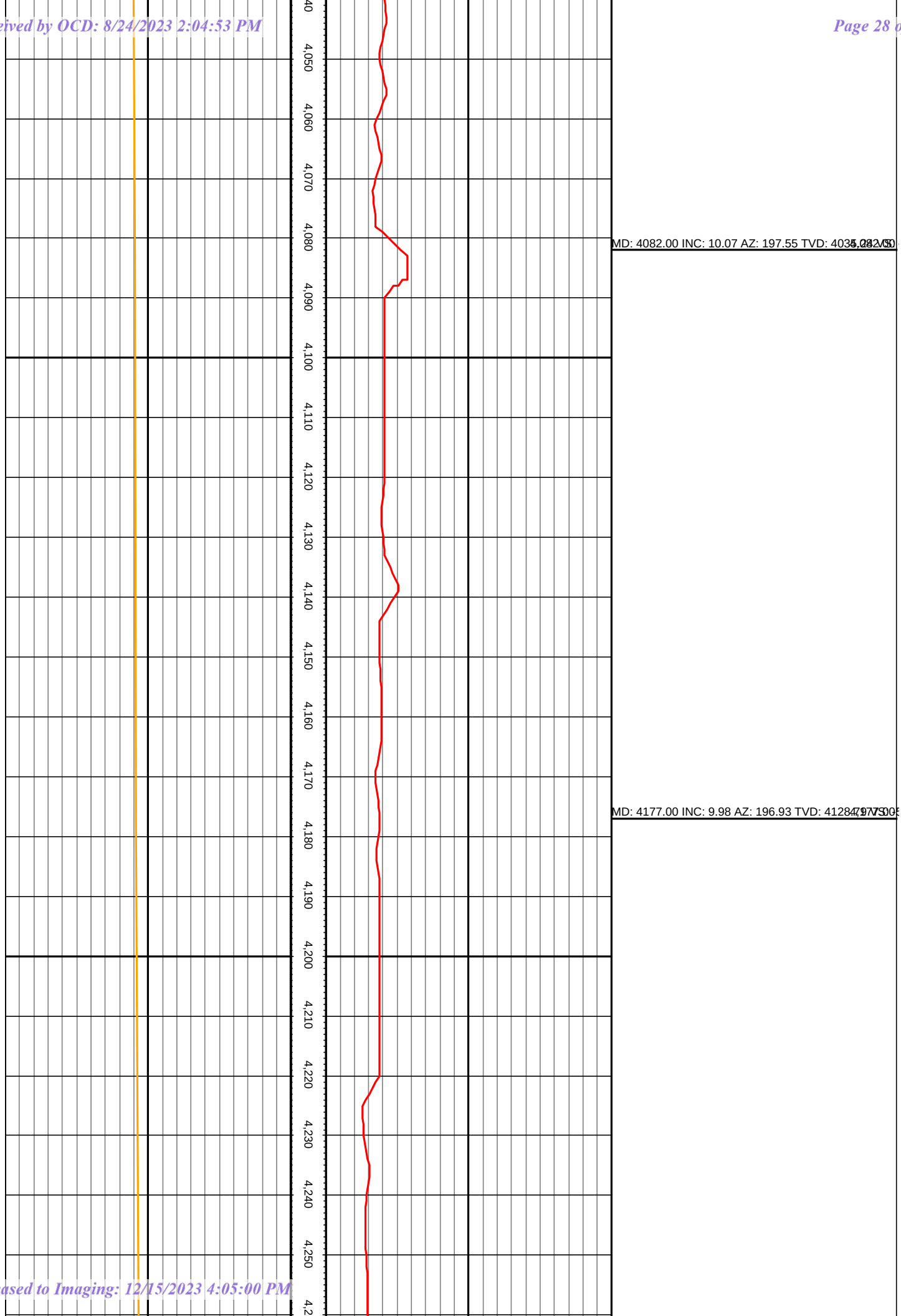
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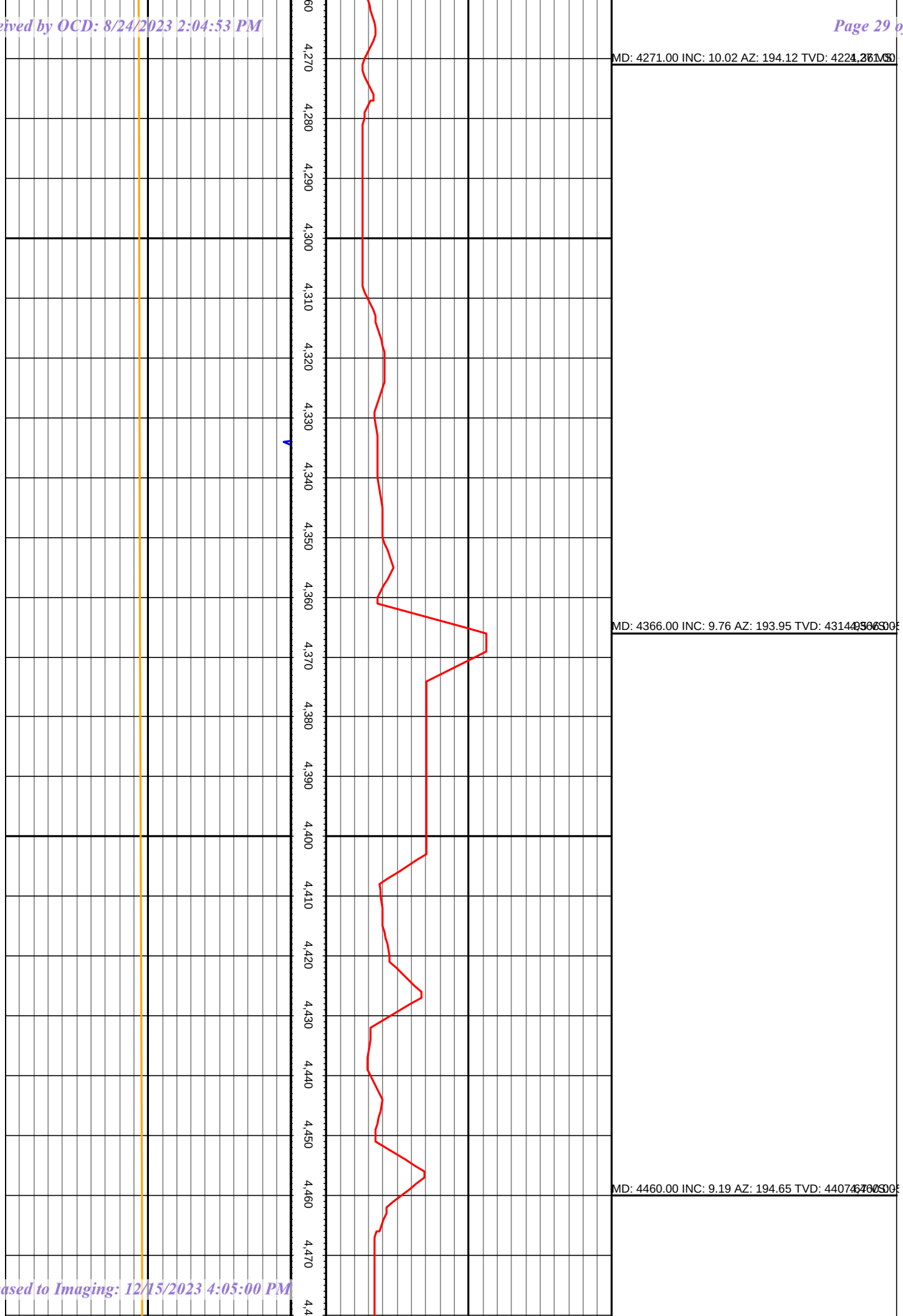
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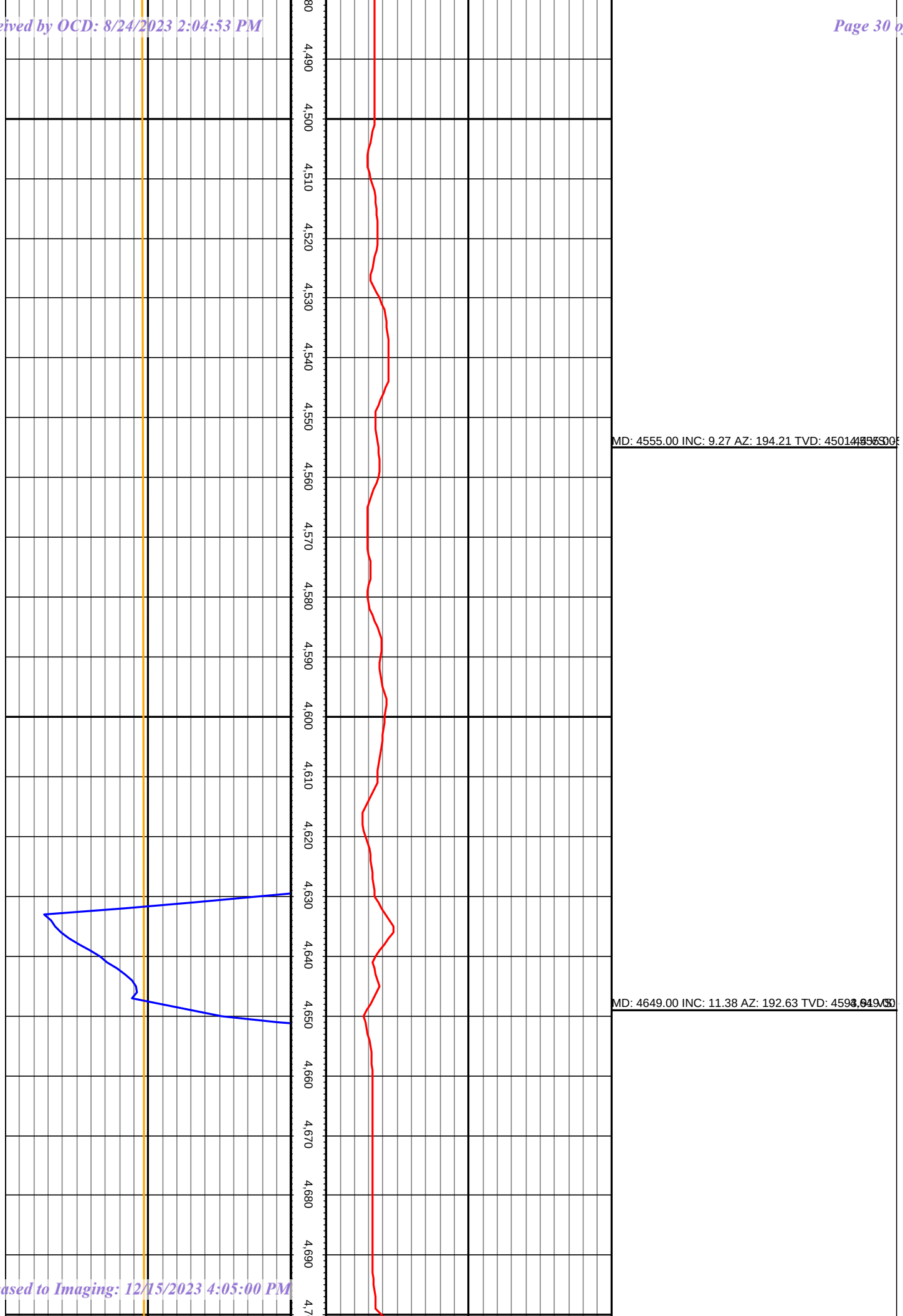
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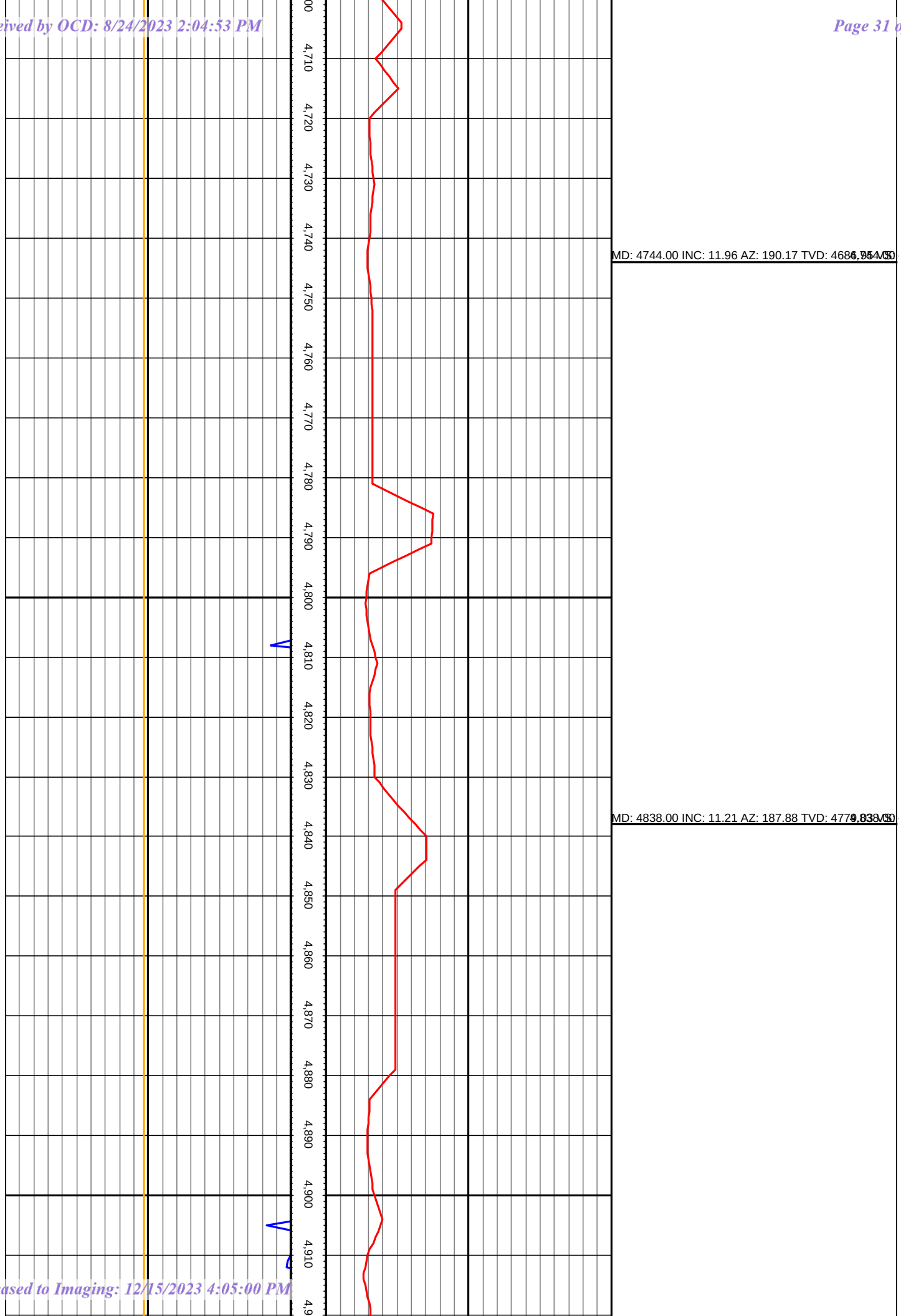
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MD: 4838.00 INC: 11.21 AZ: 187.88 TVD: 4779.83 VS: 9.33

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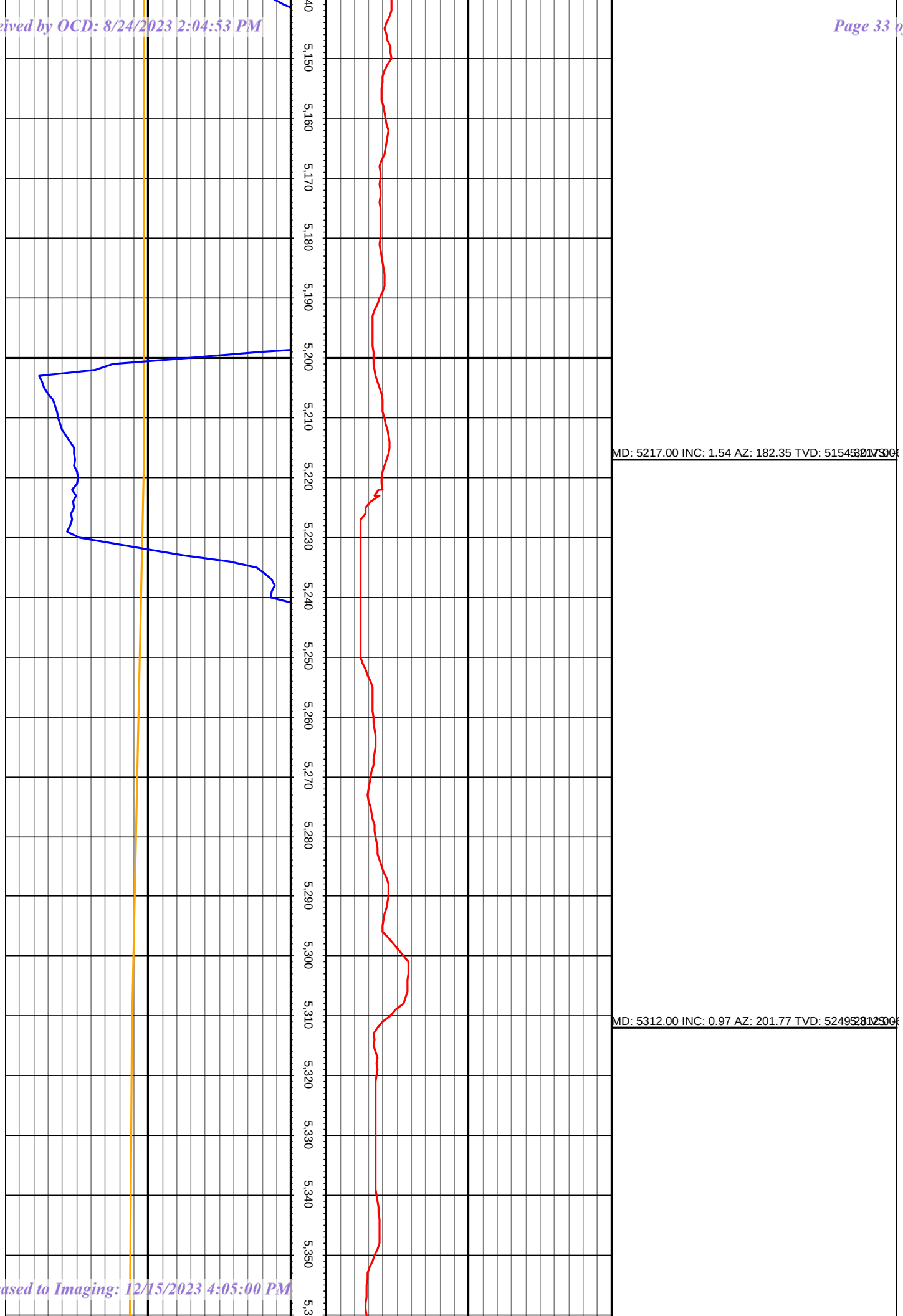
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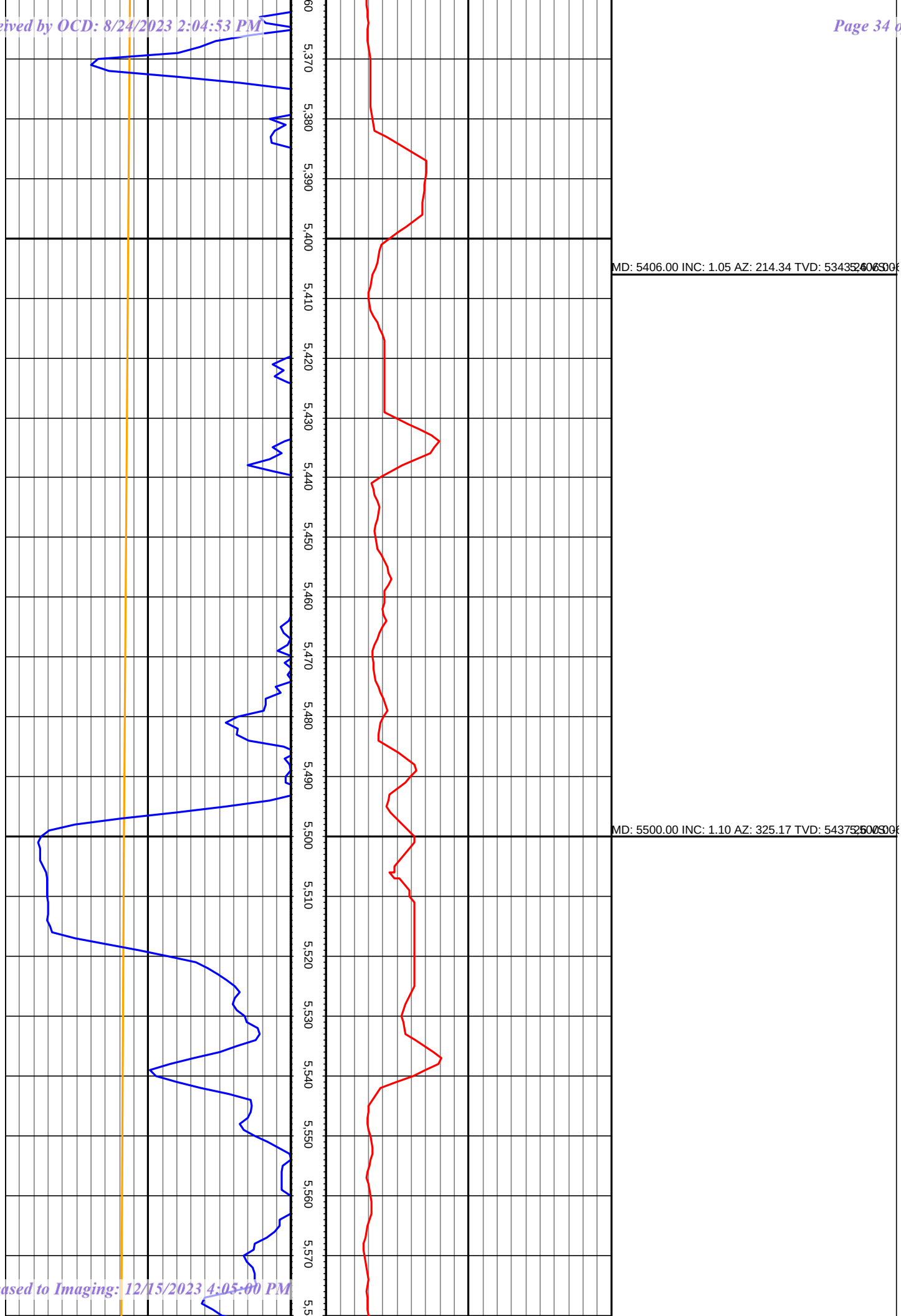
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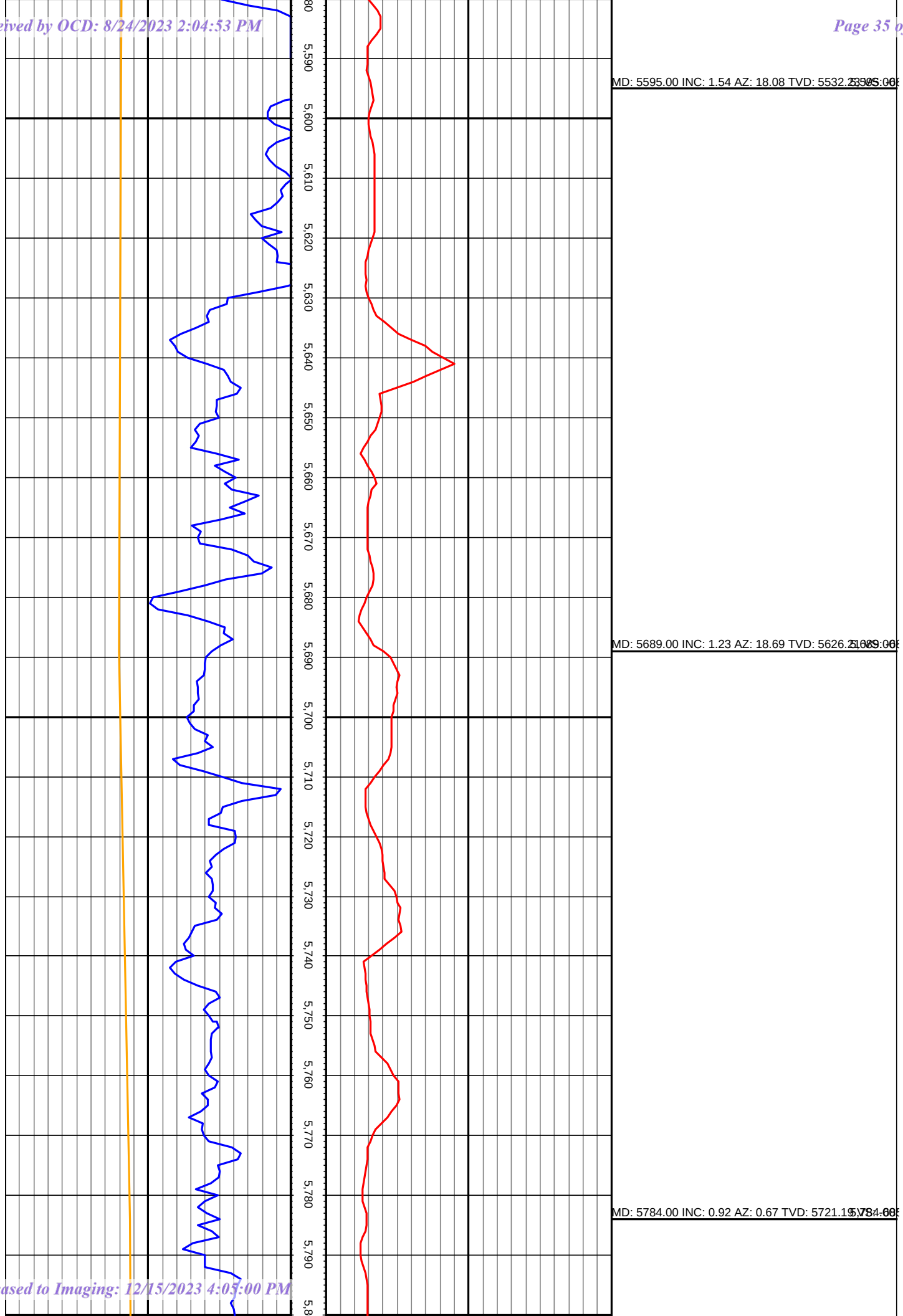
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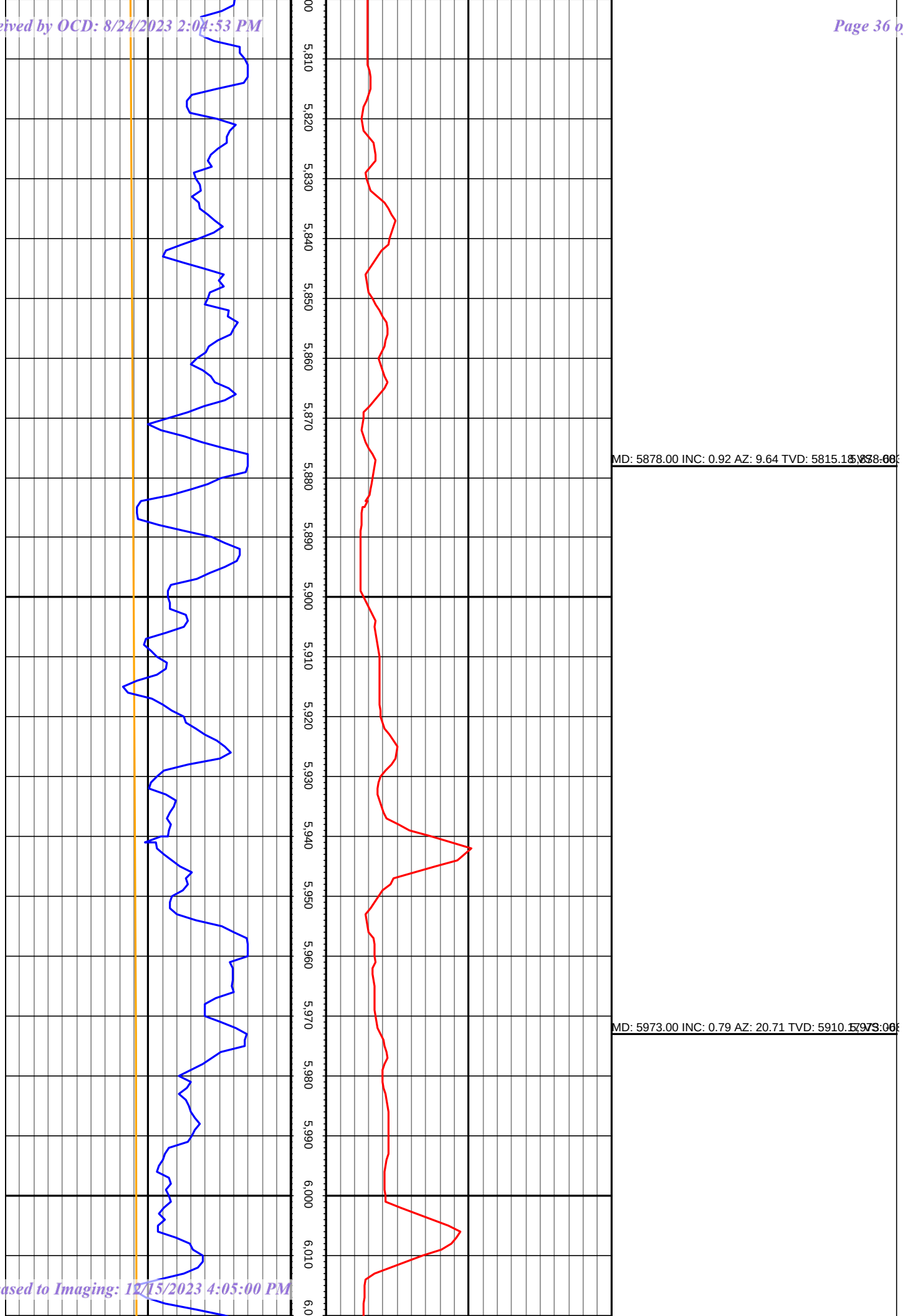
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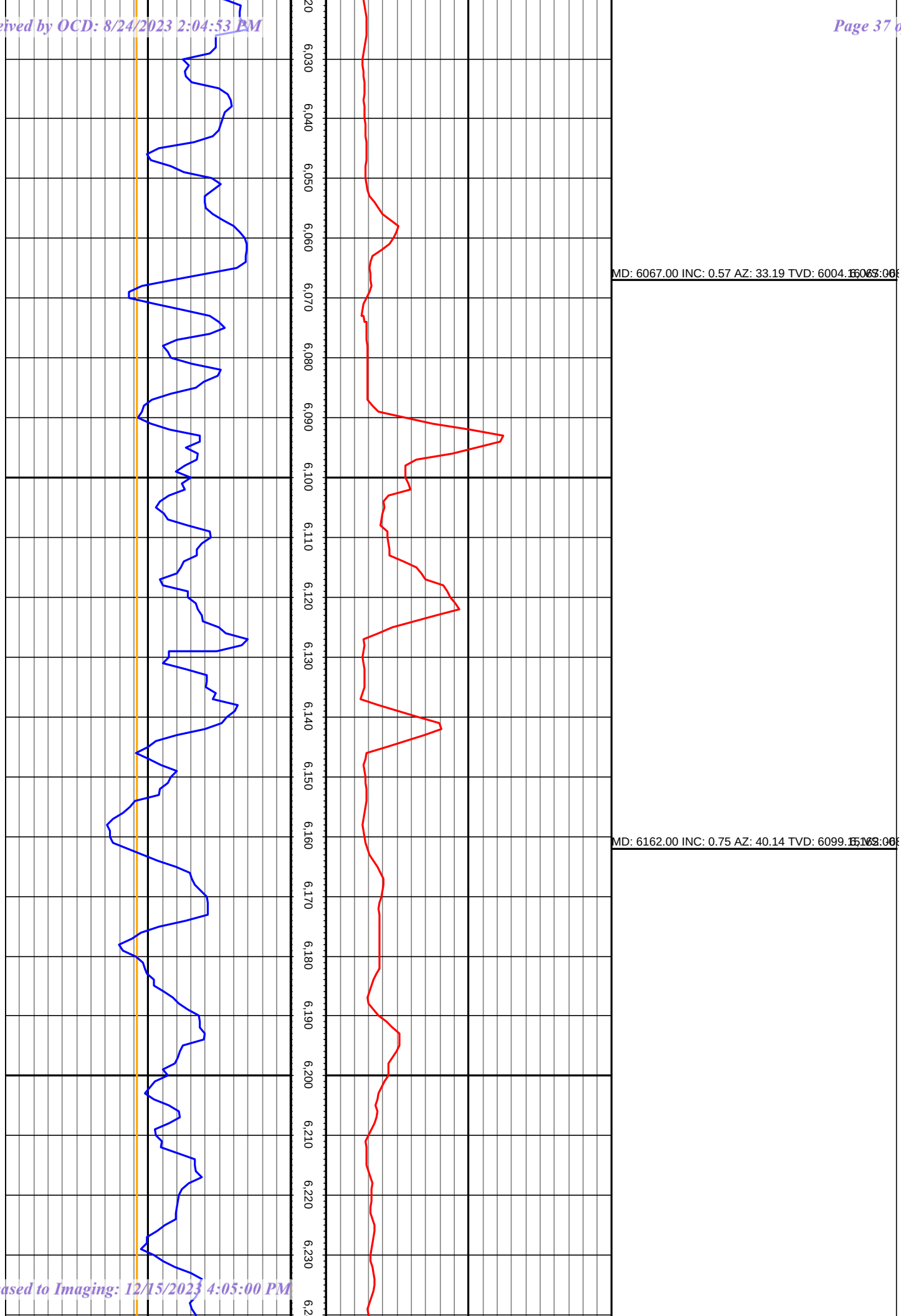
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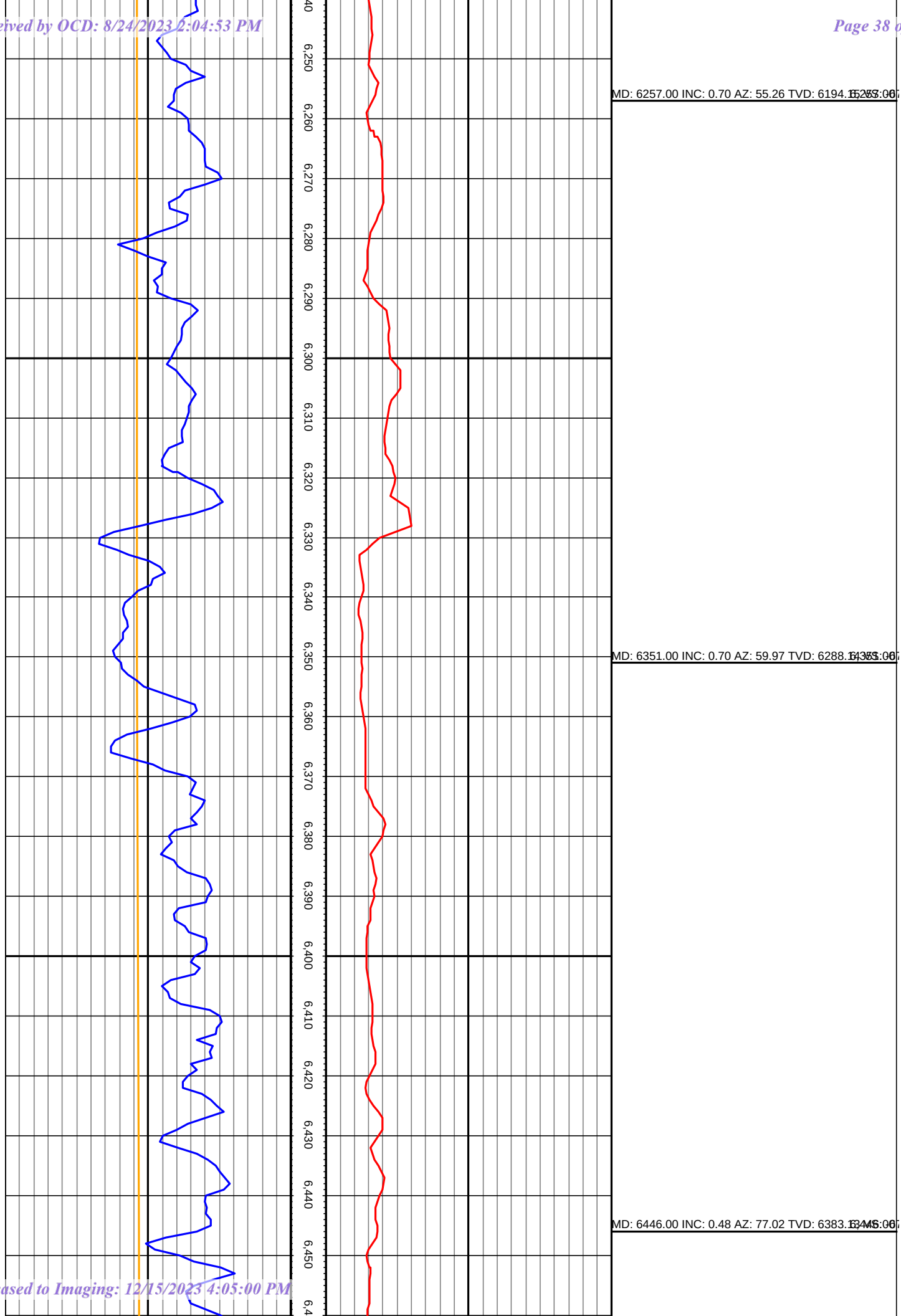
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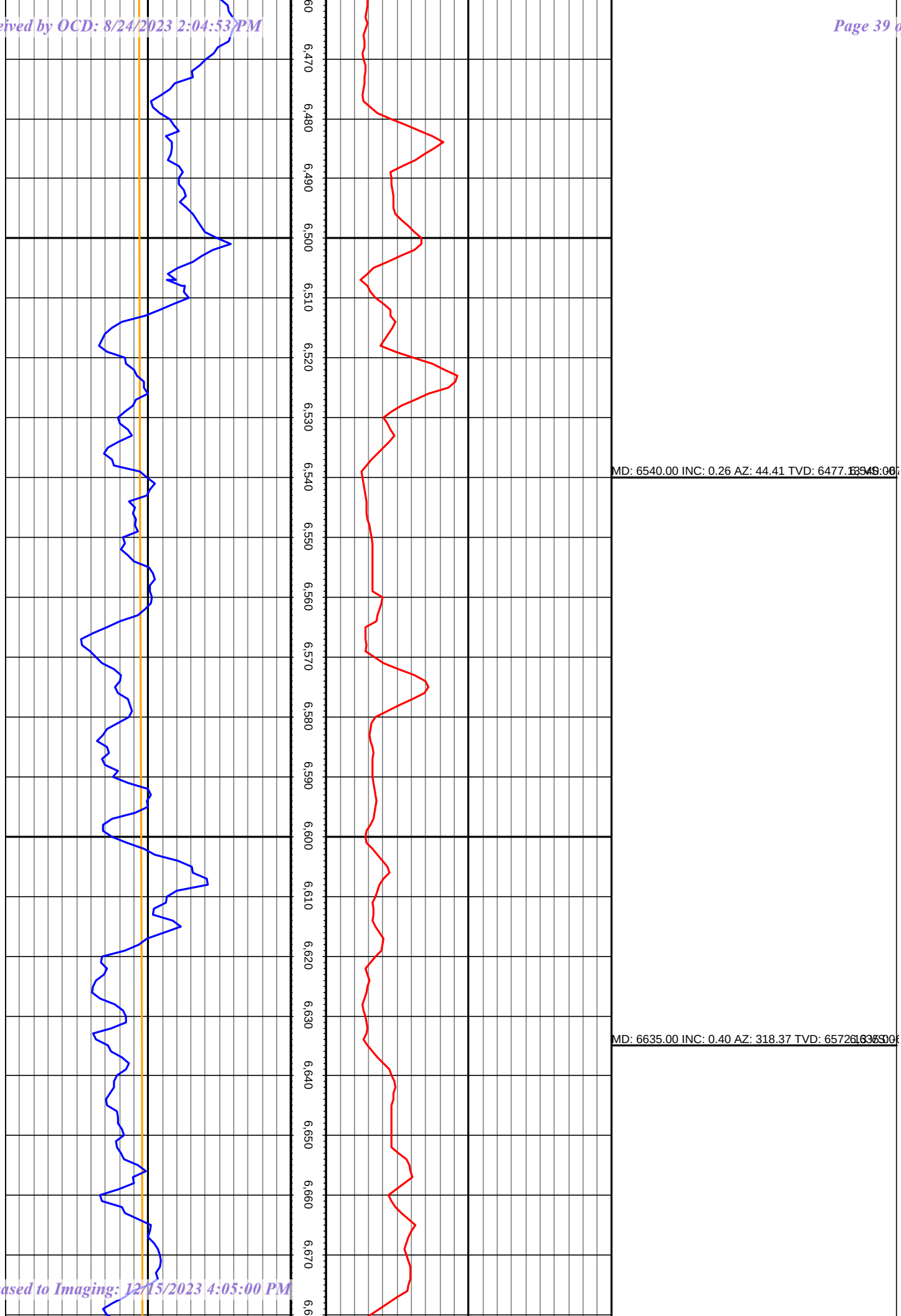
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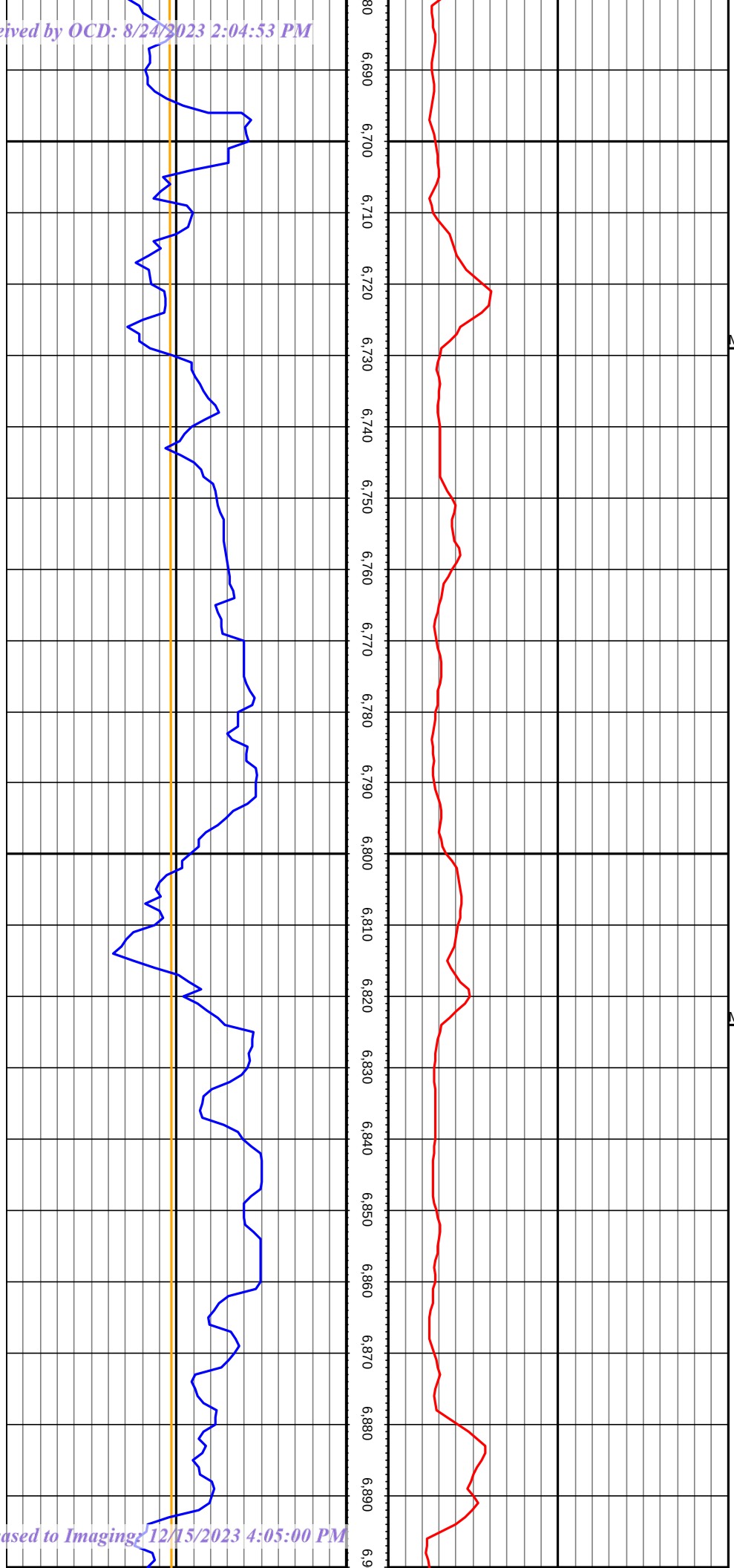
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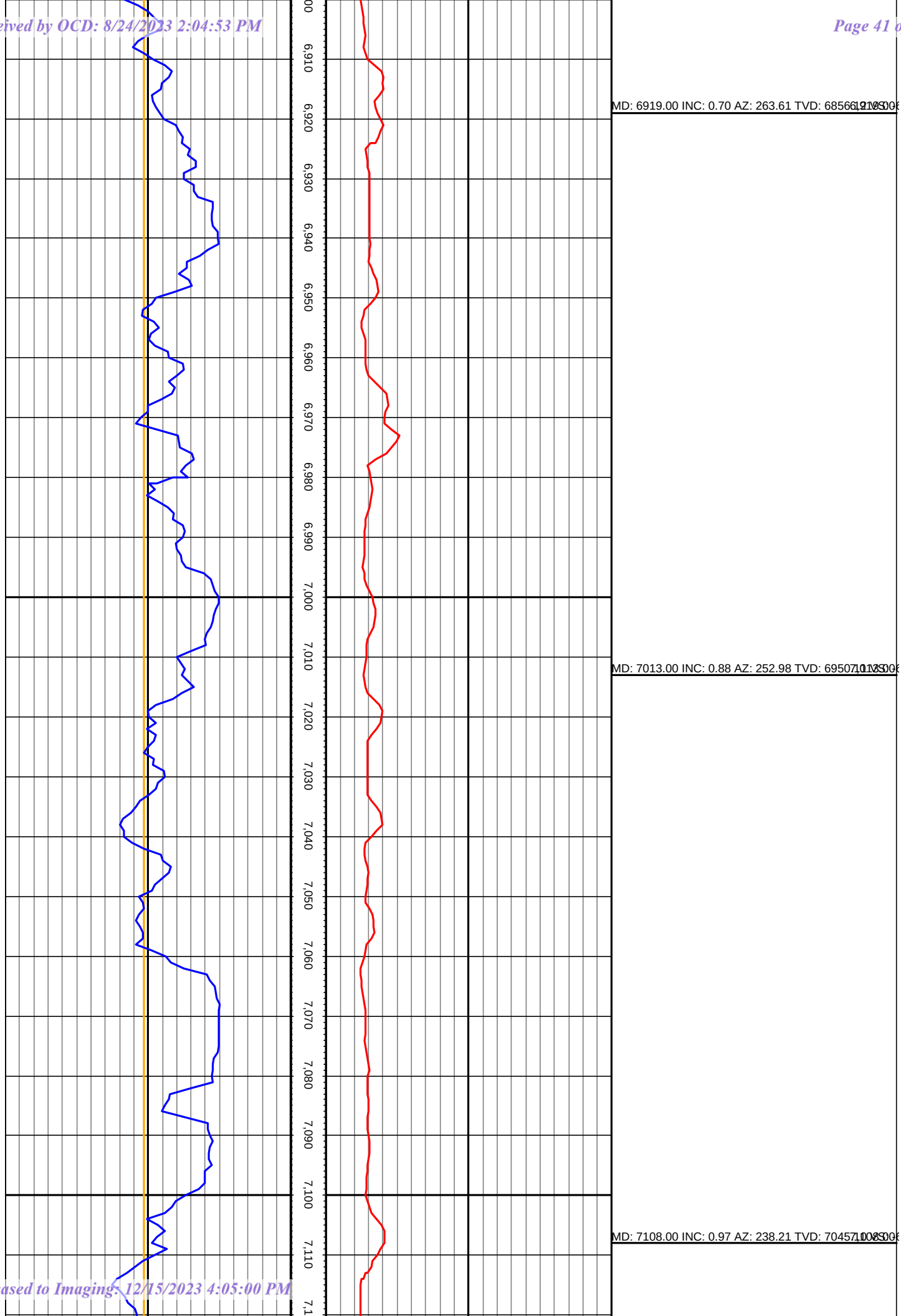
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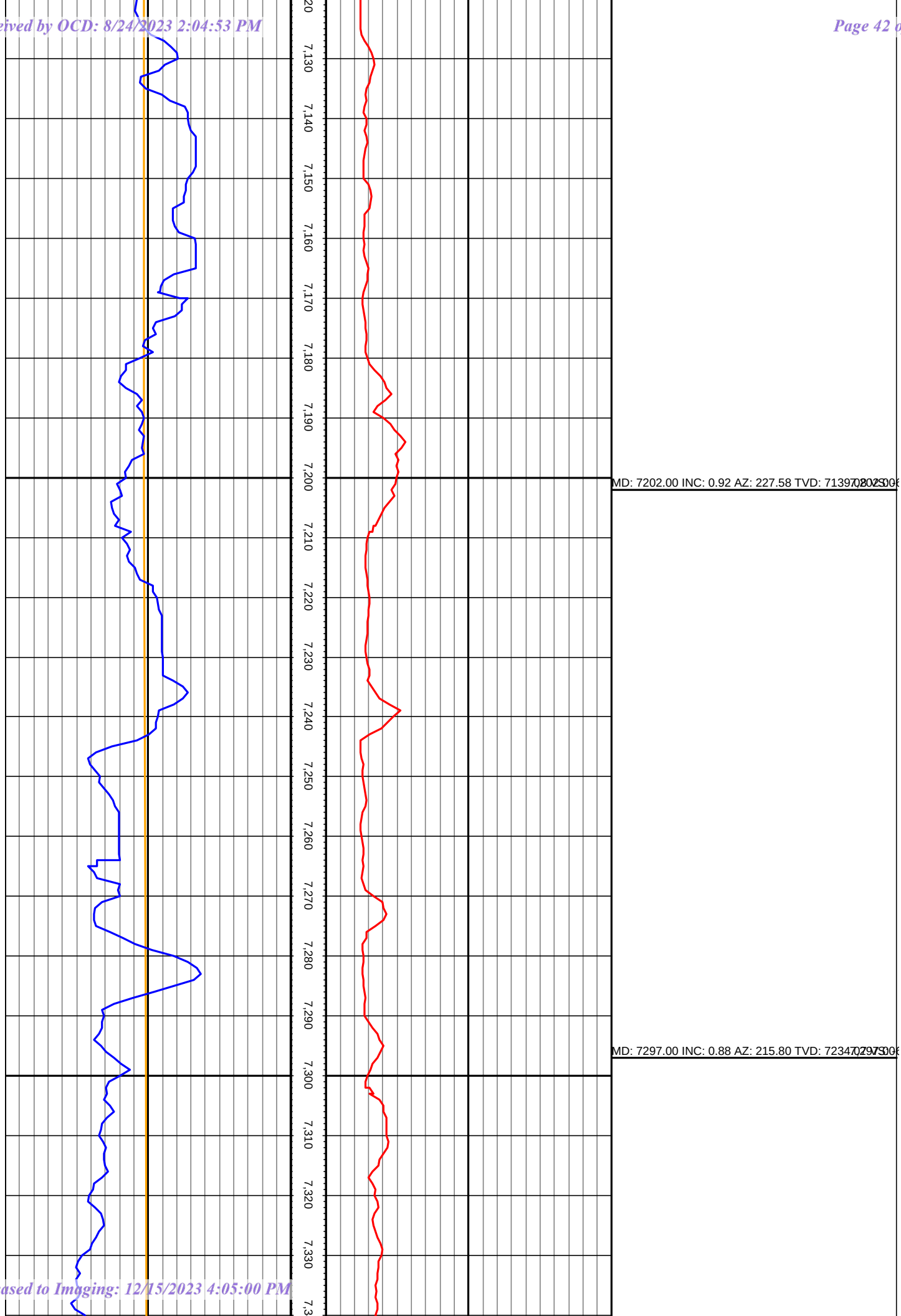
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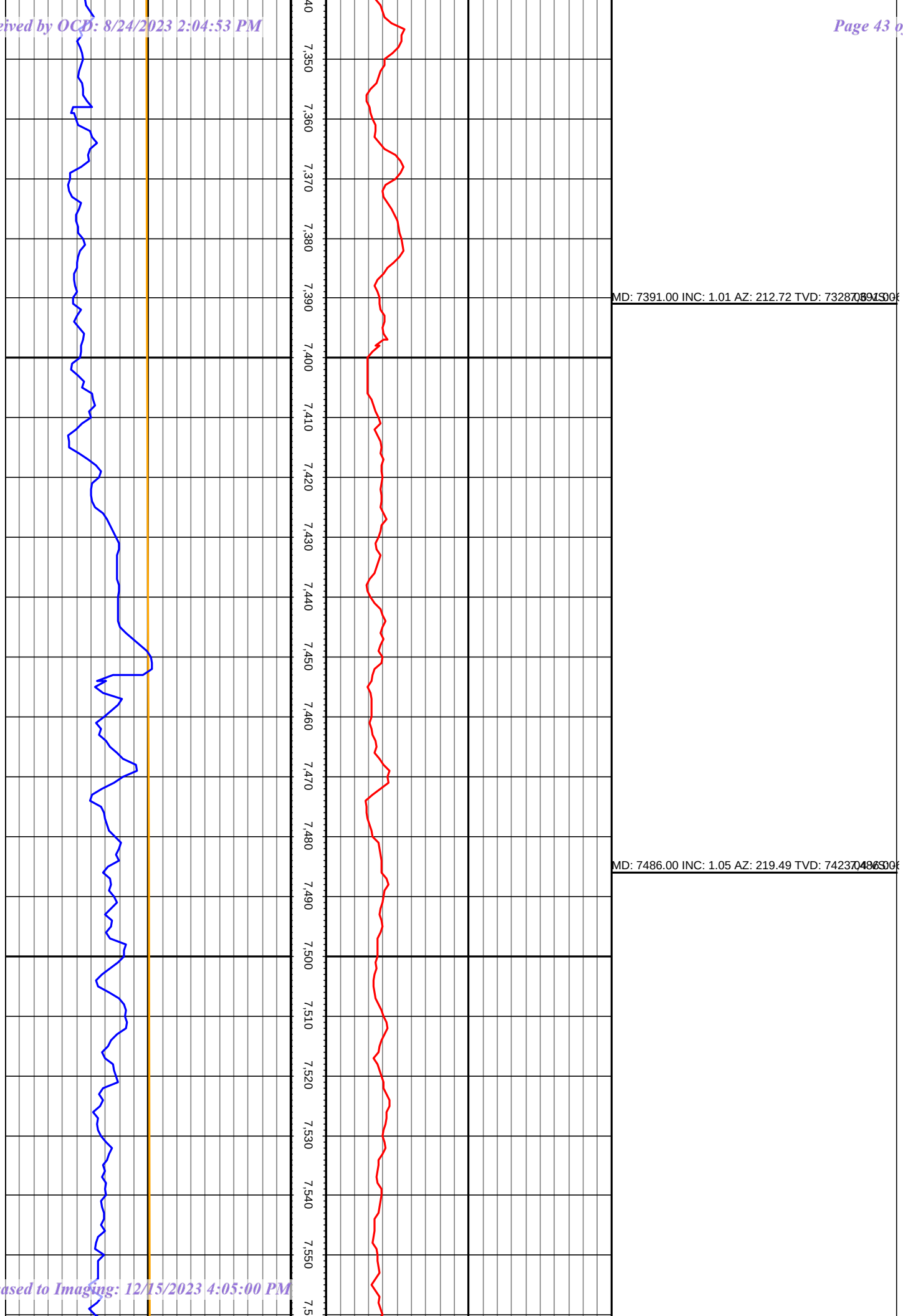
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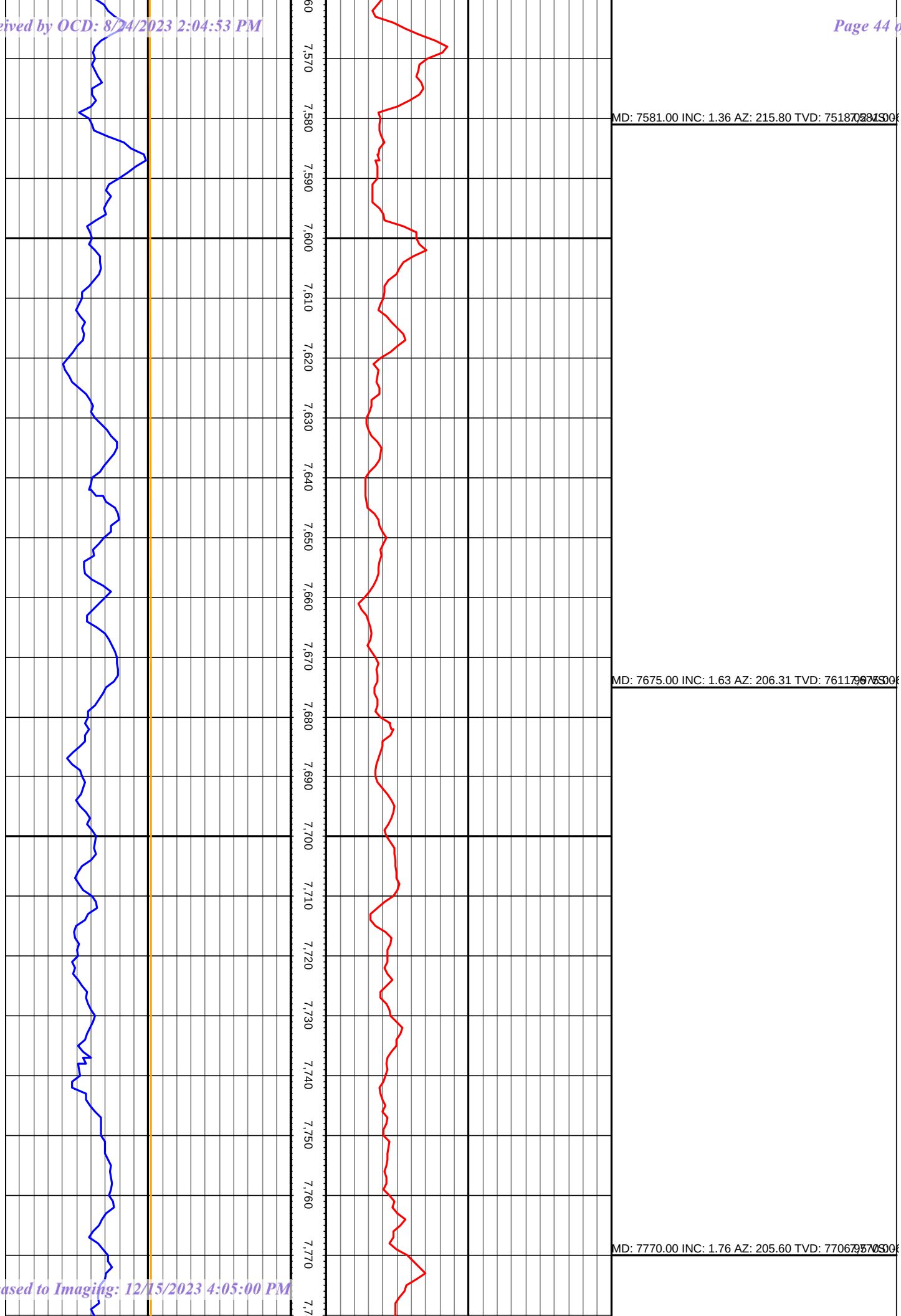
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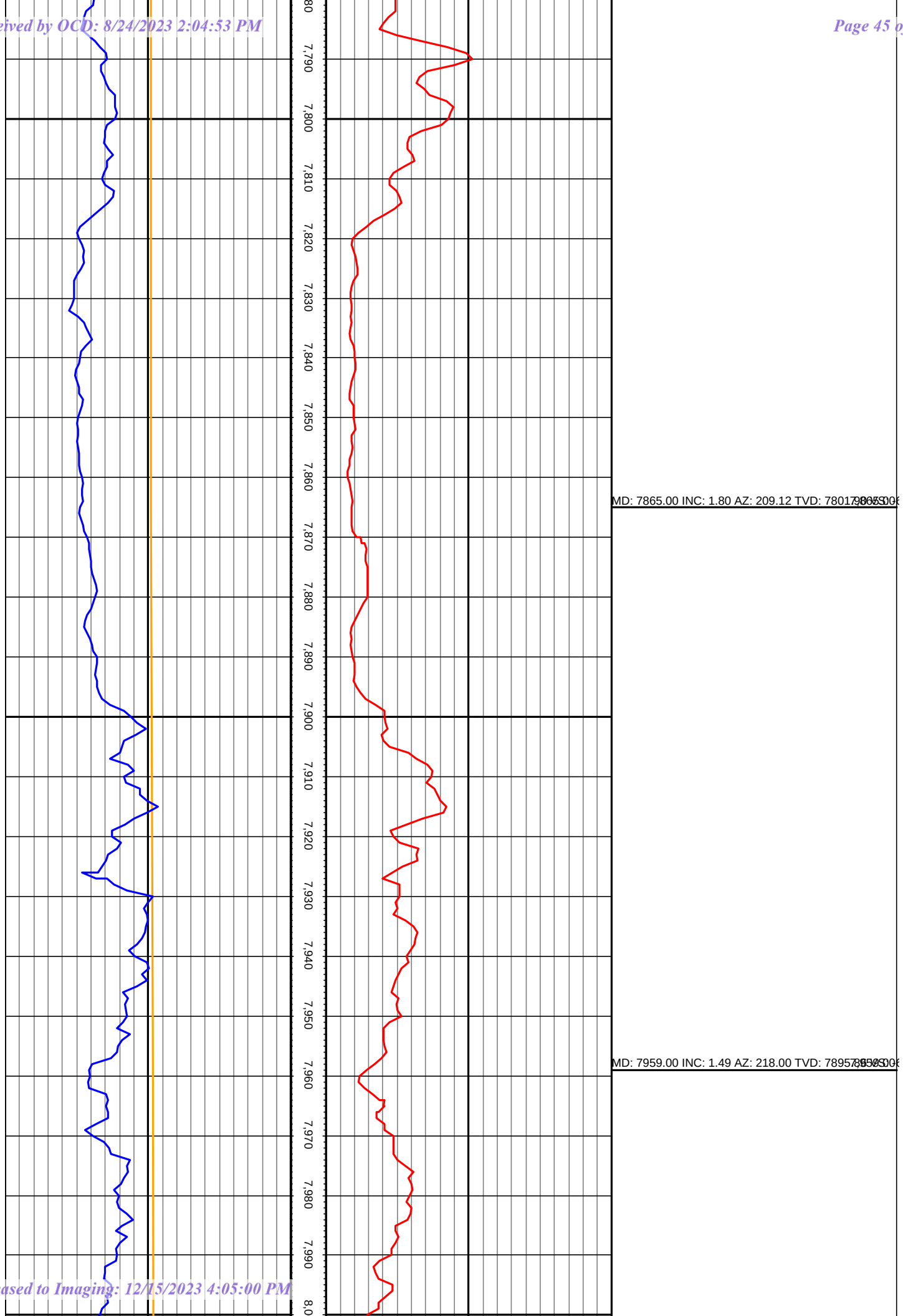
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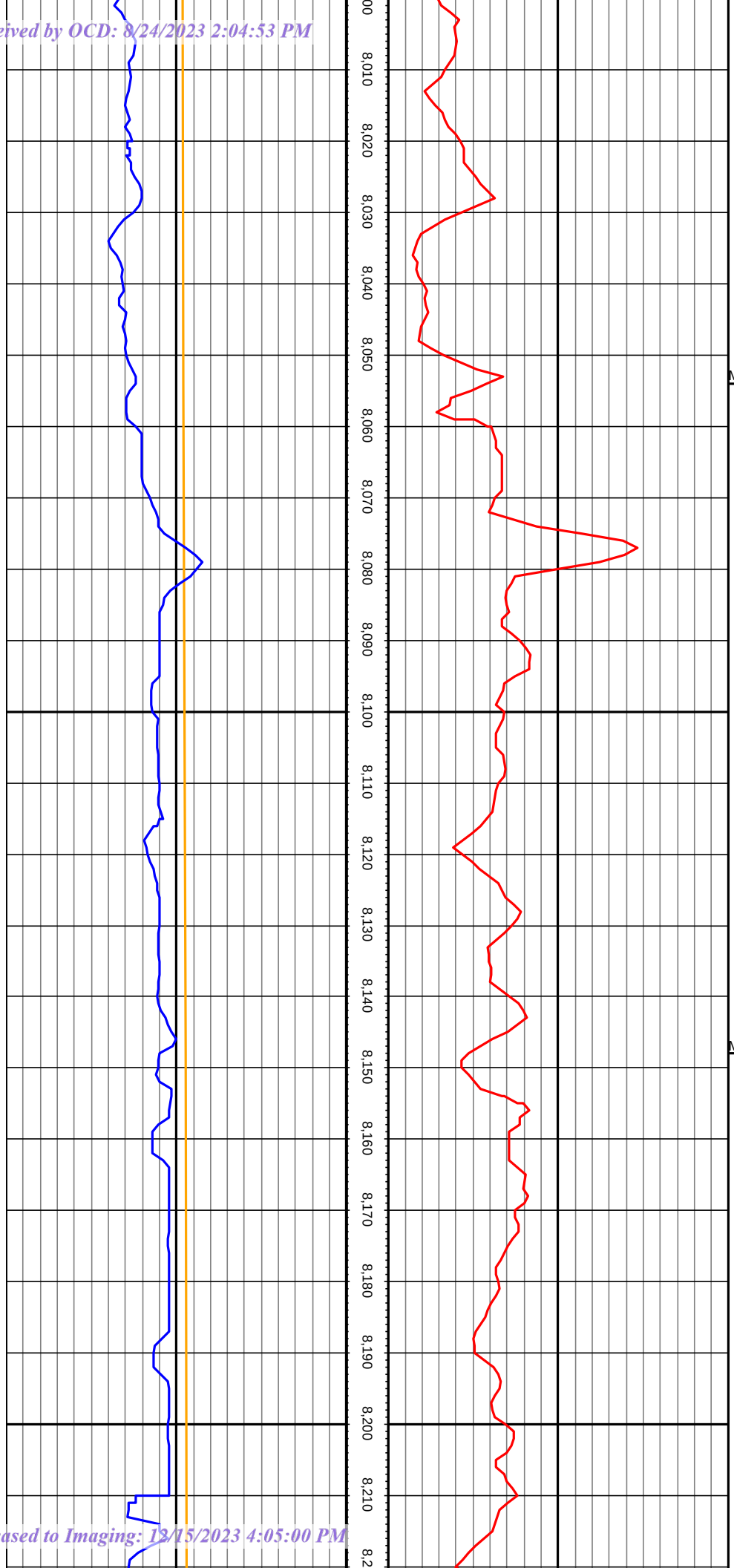
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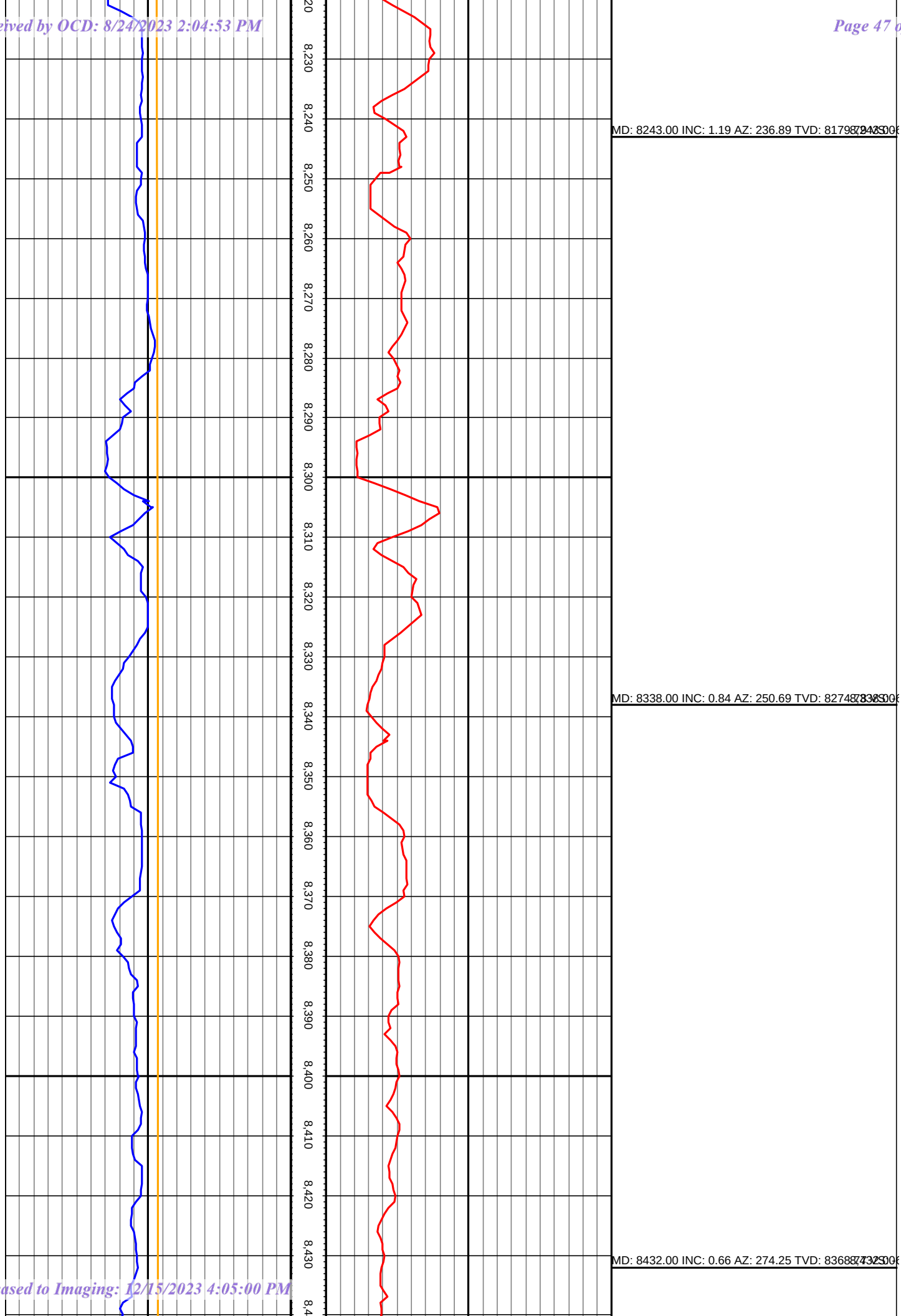
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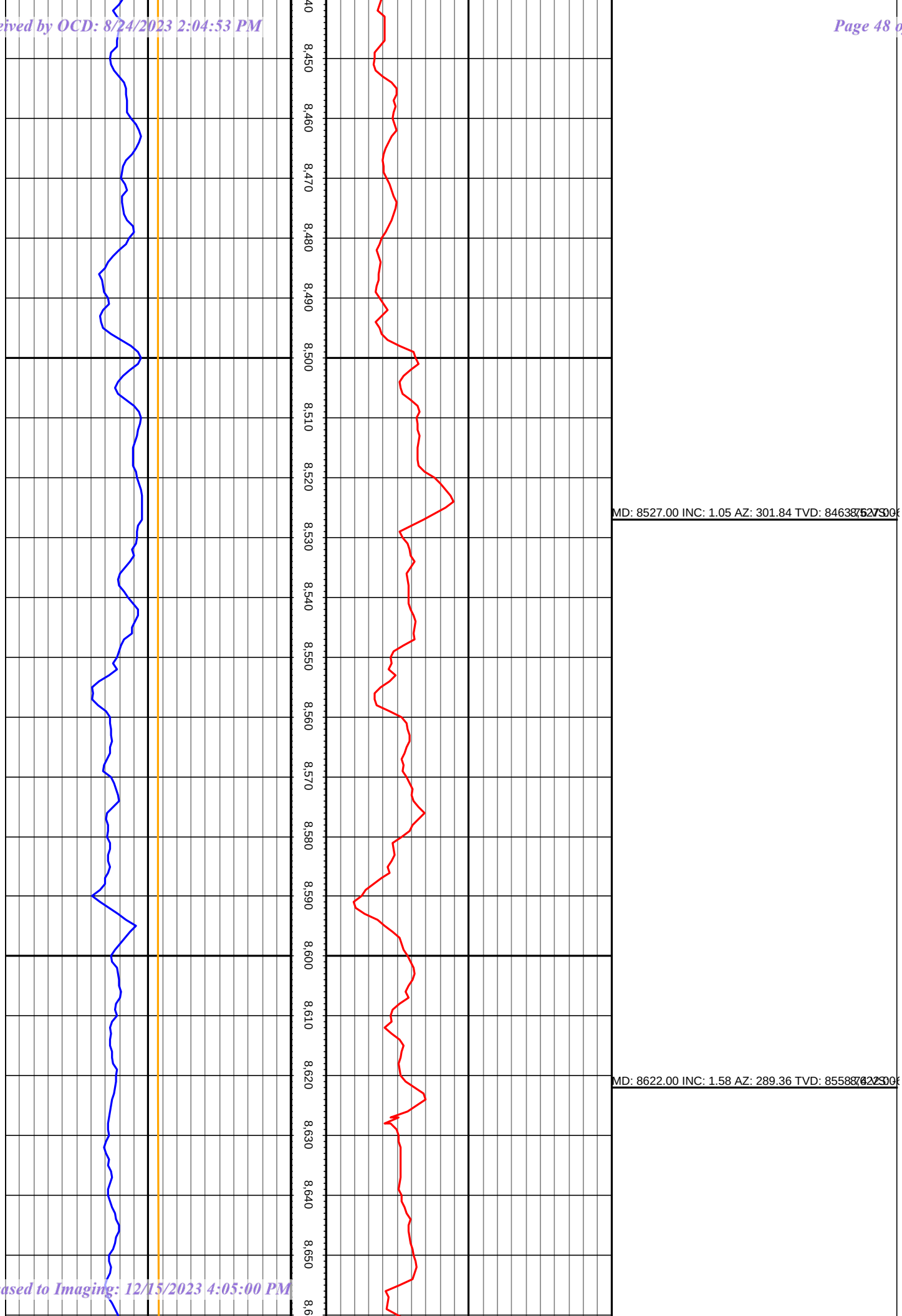
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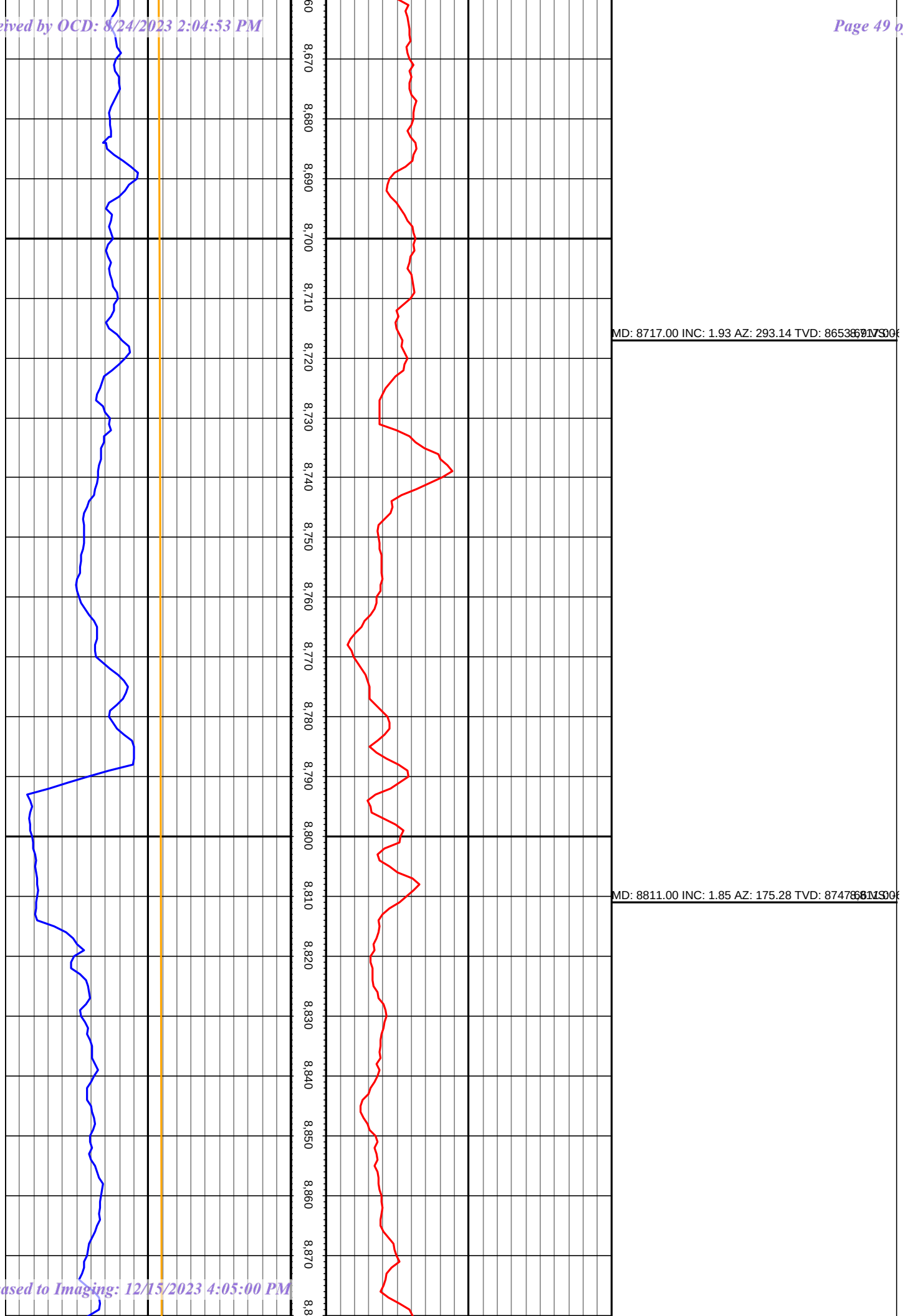
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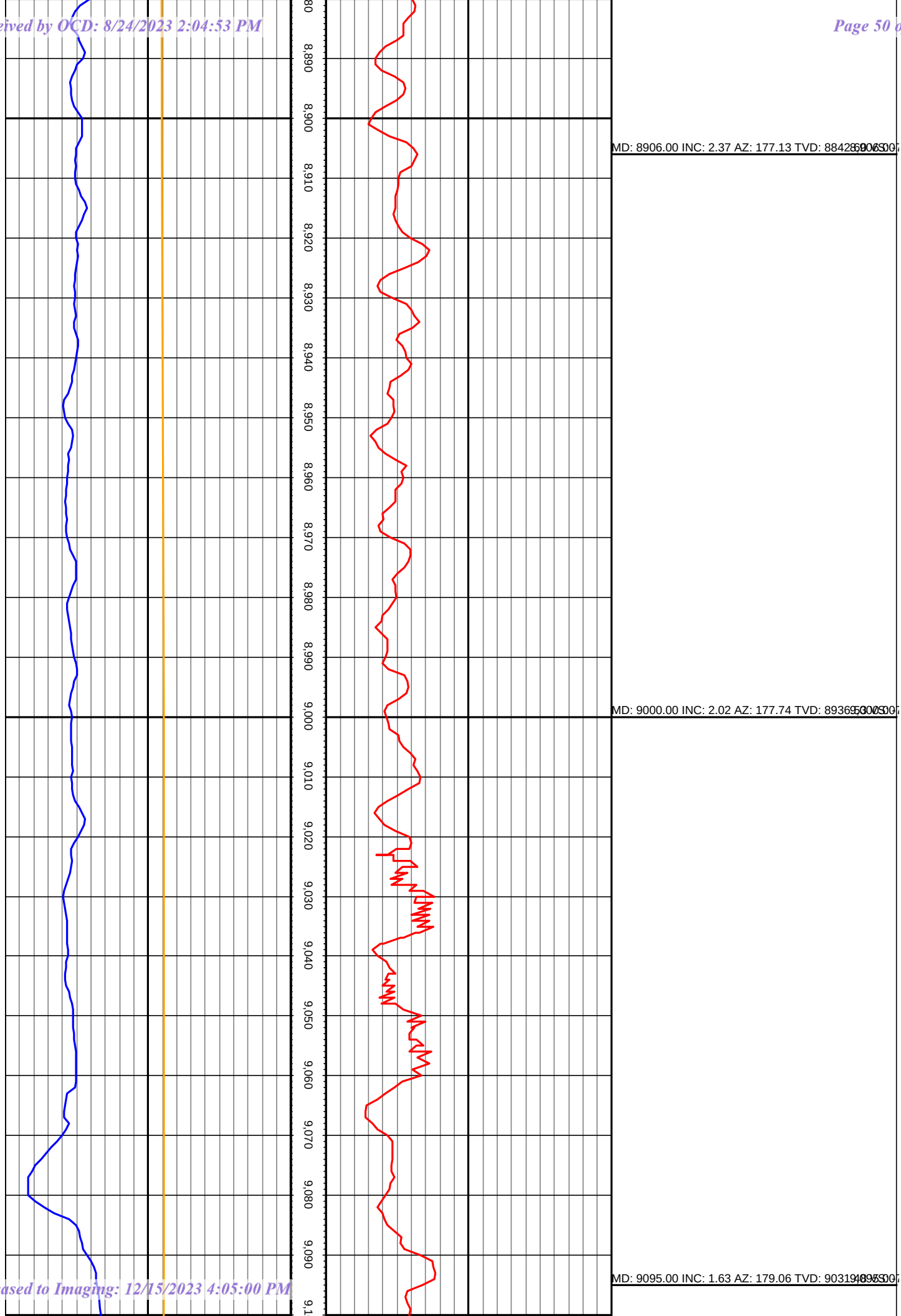
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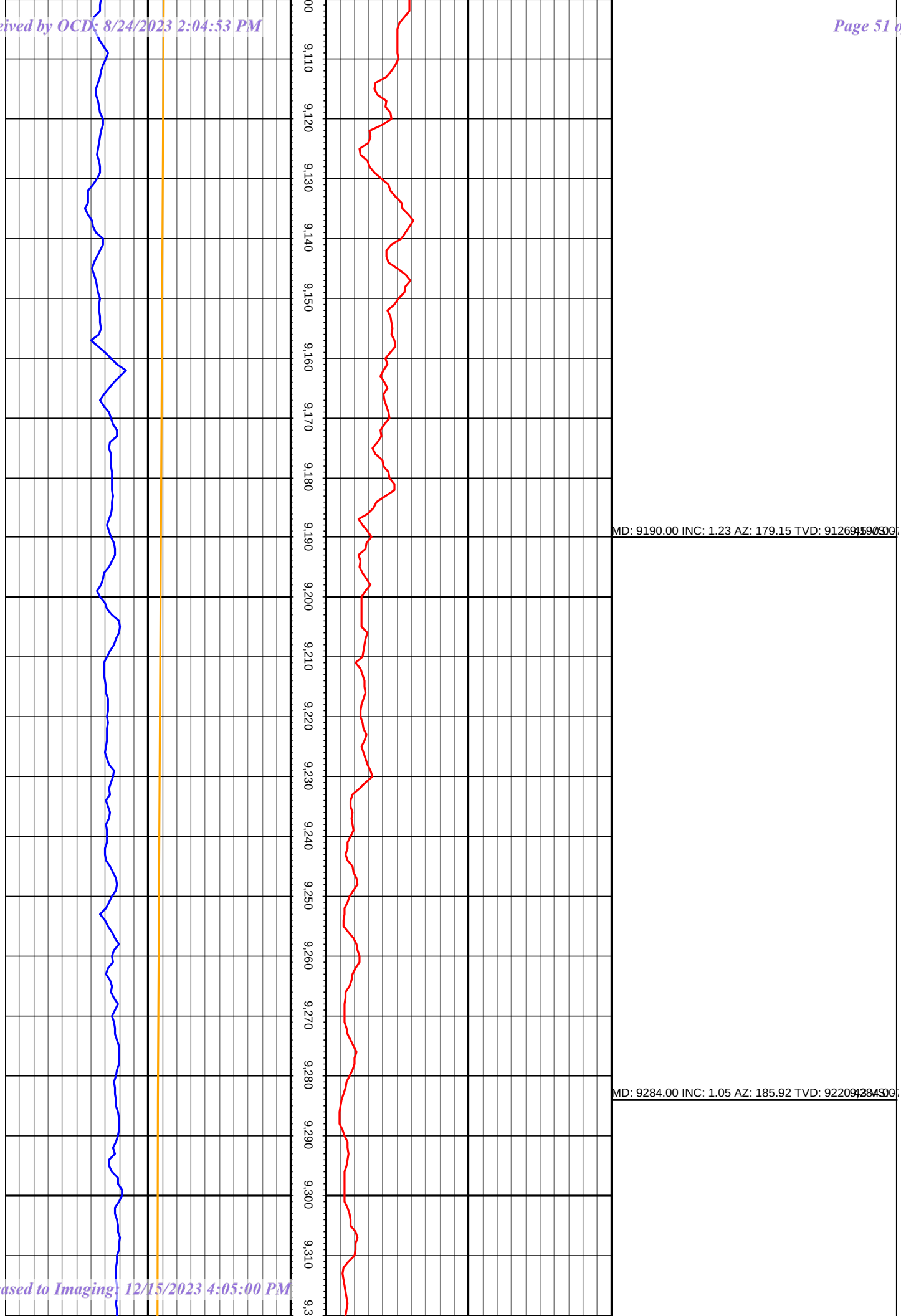
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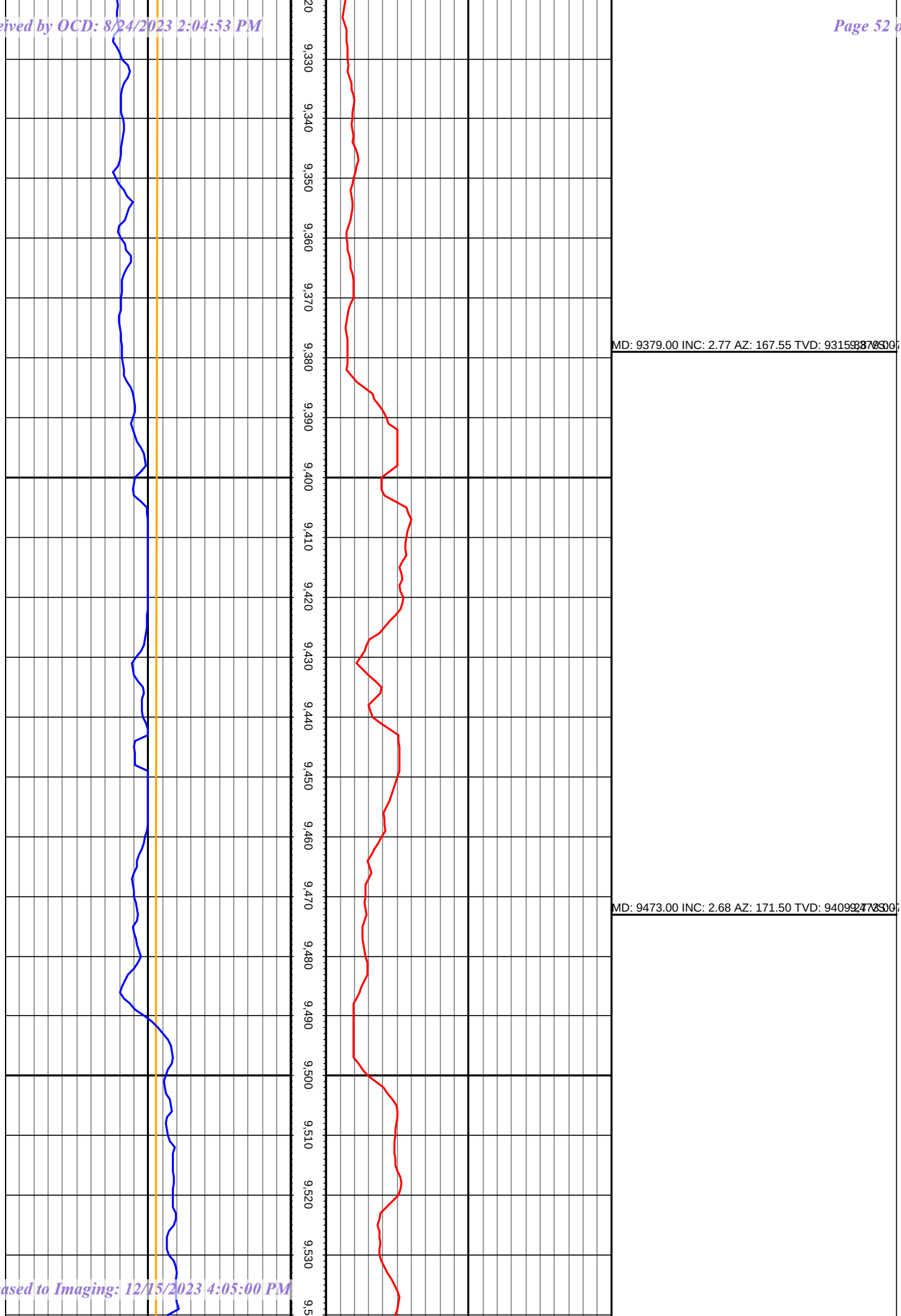
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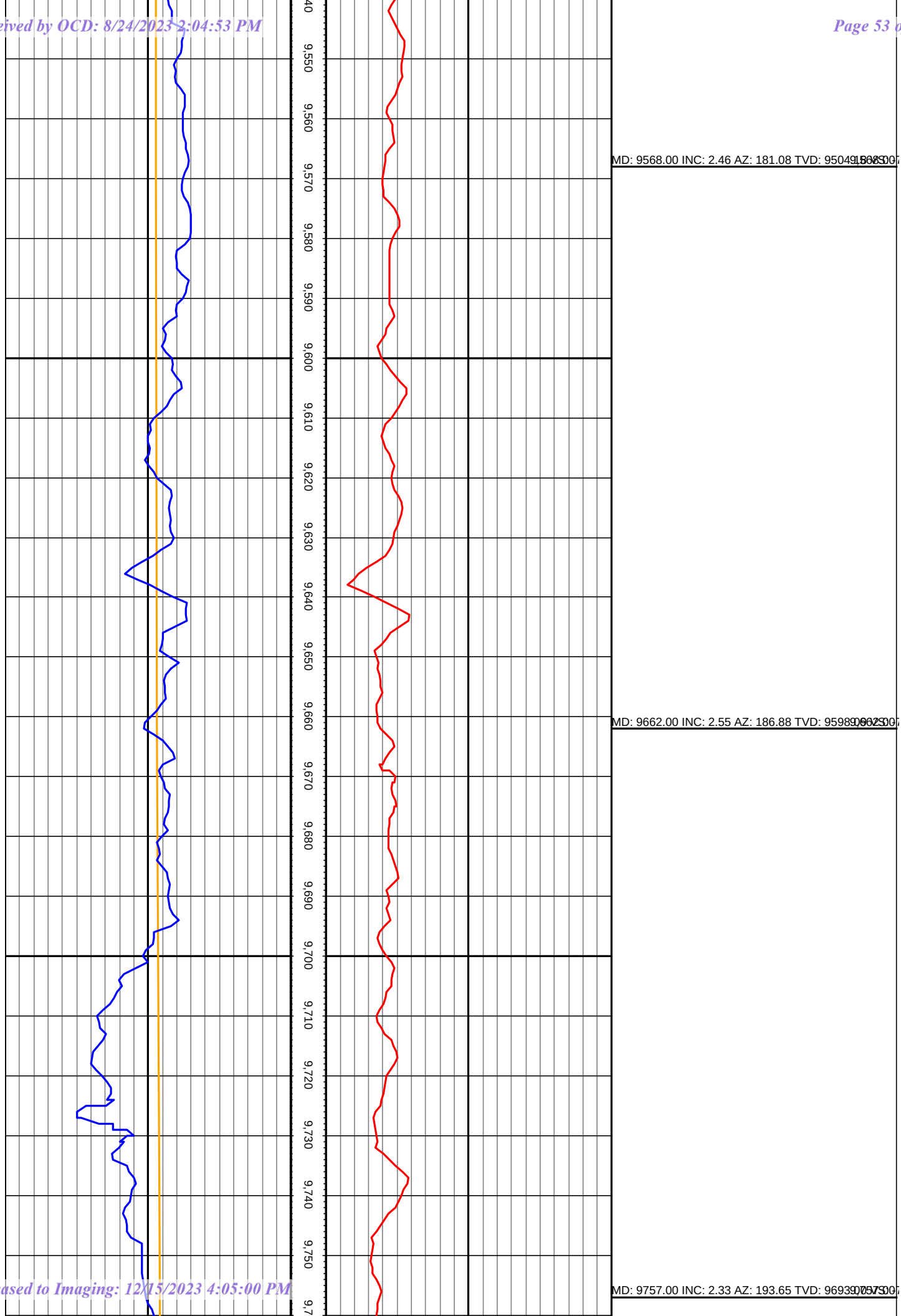
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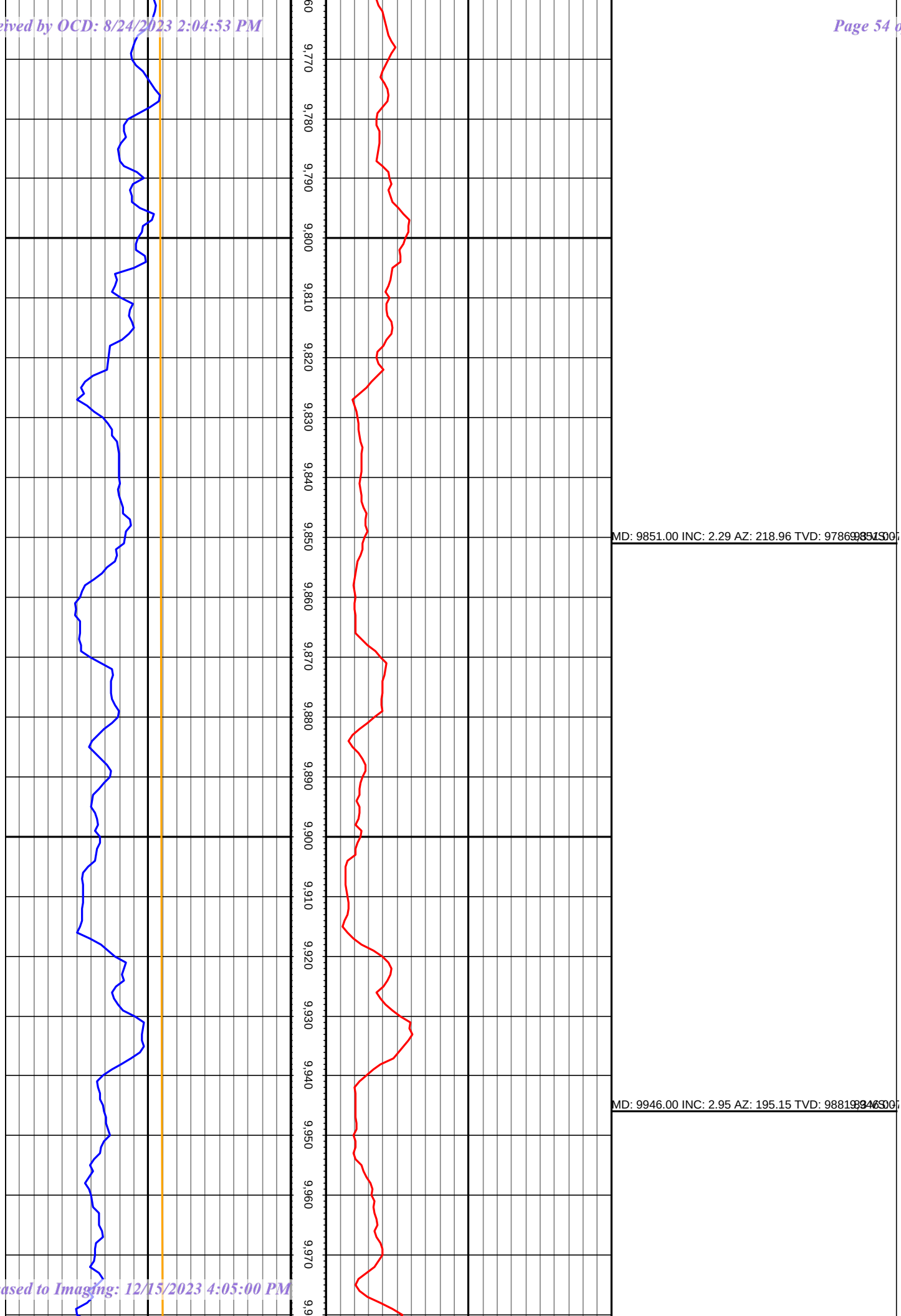
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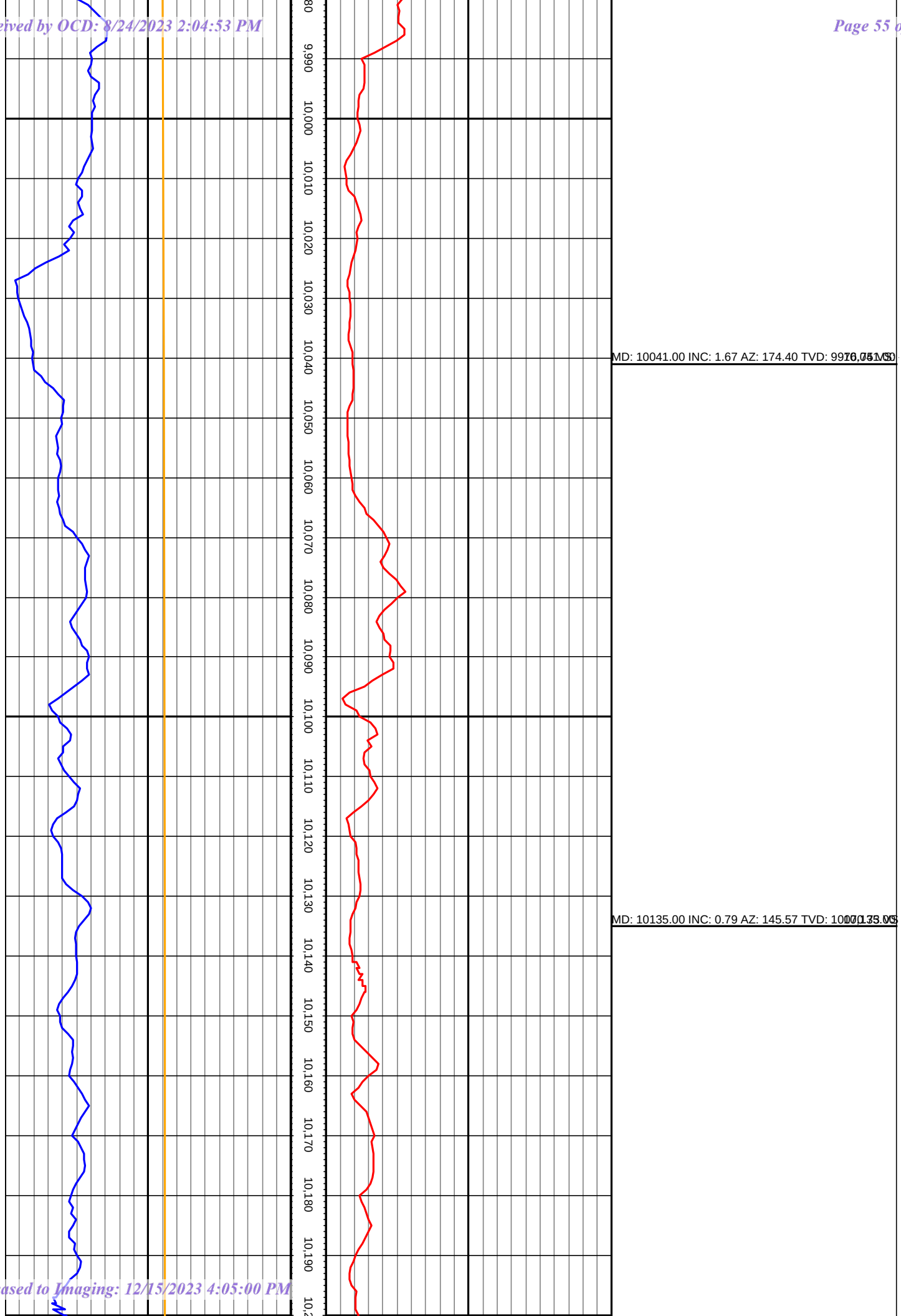
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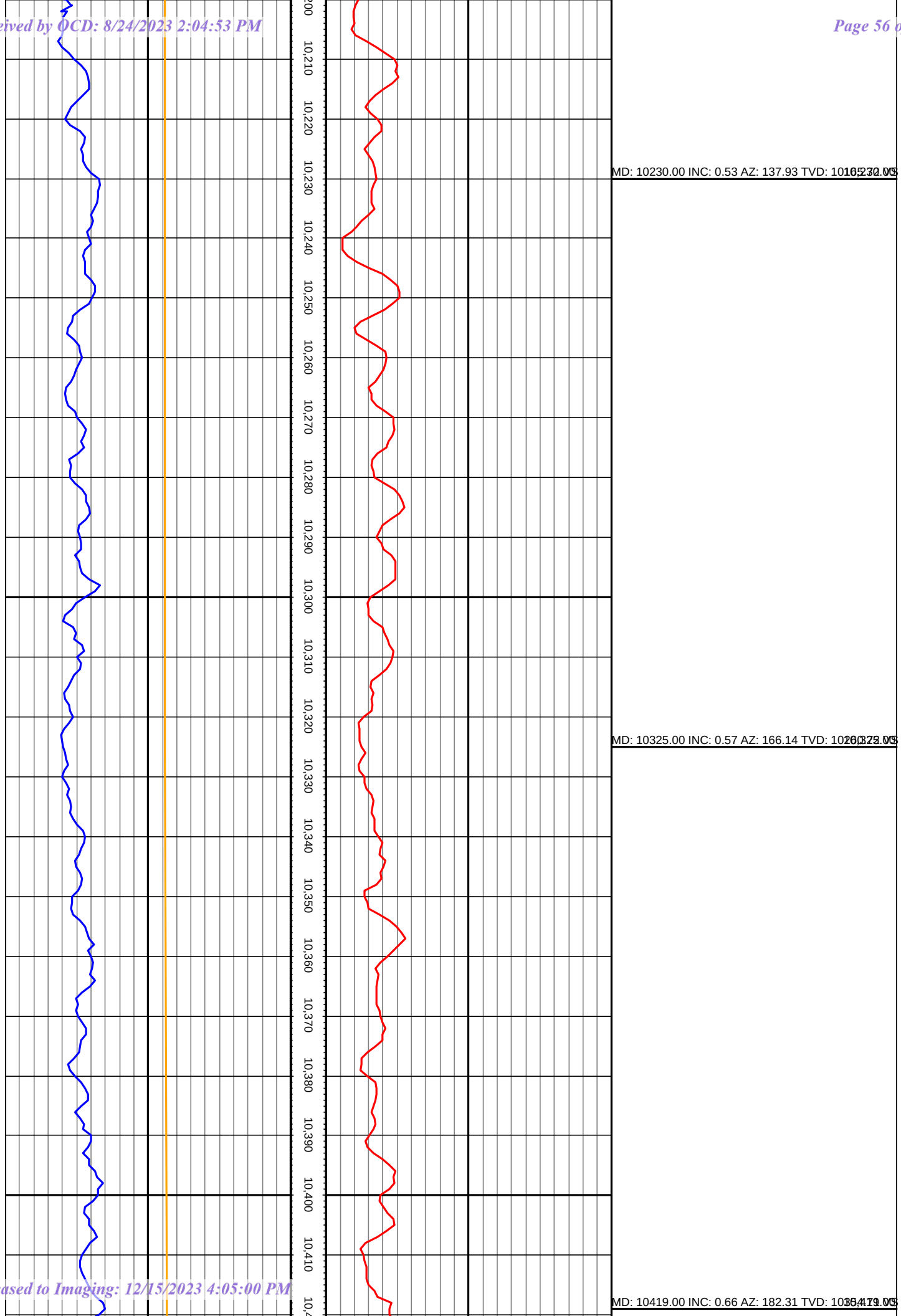
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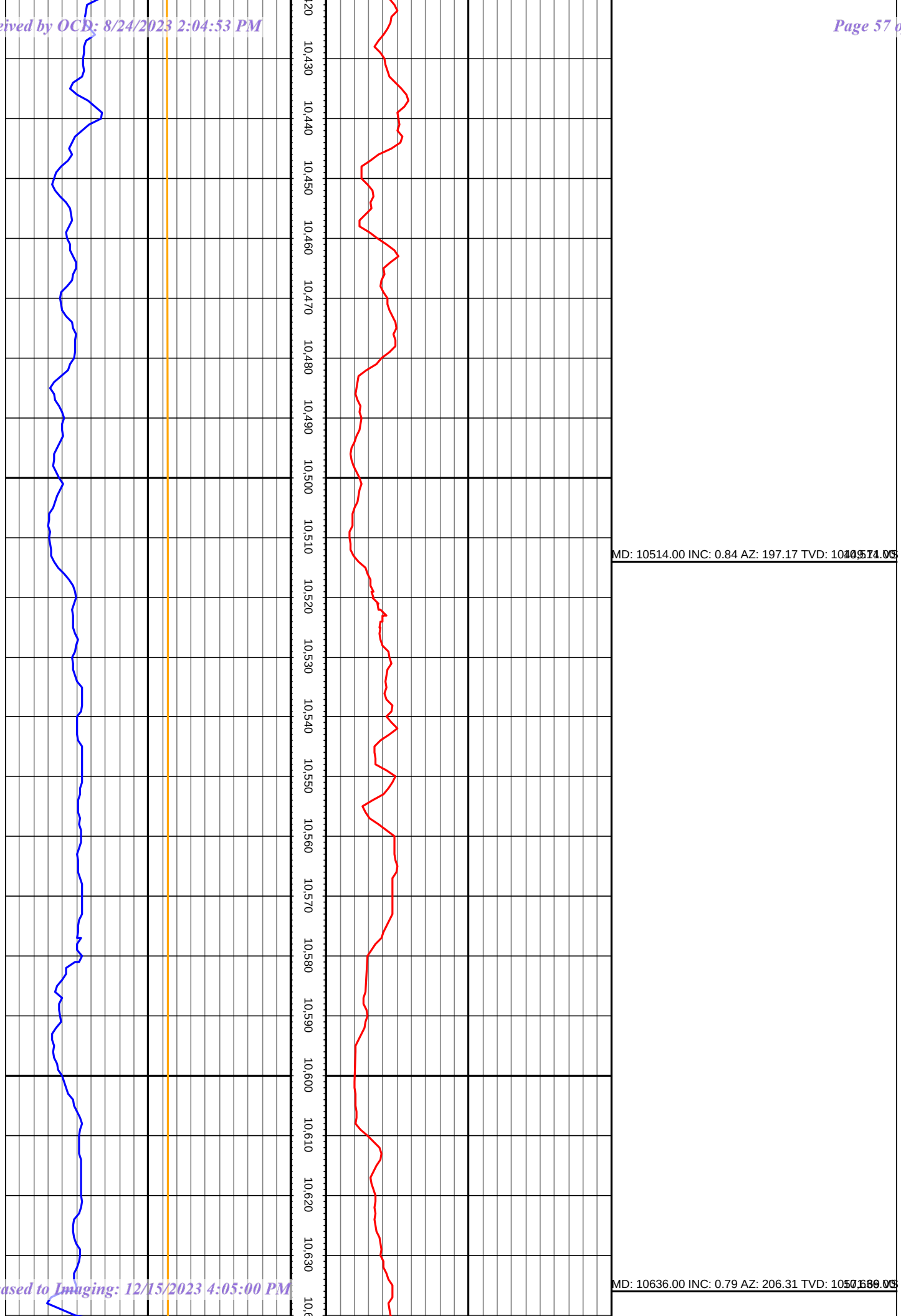
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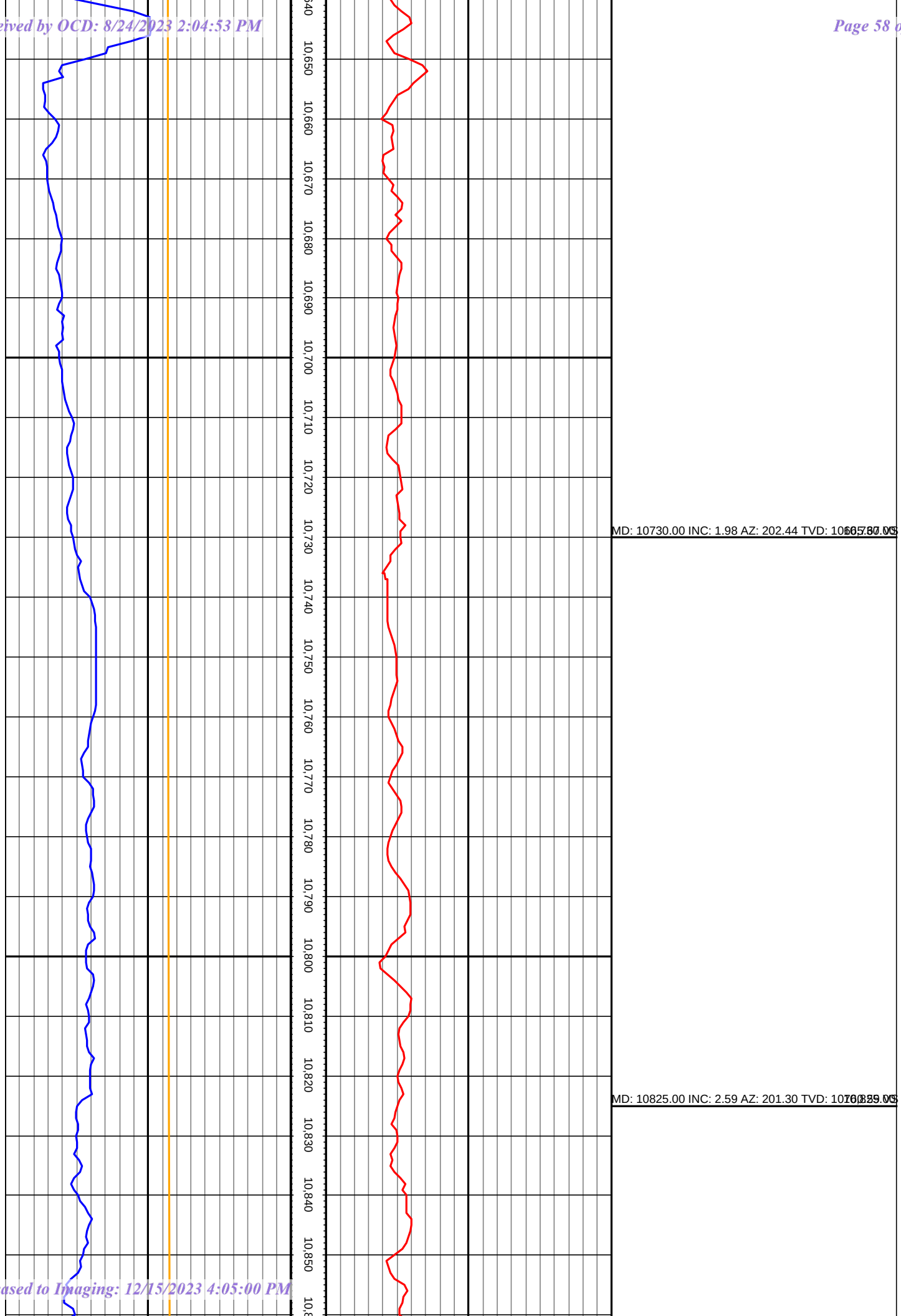
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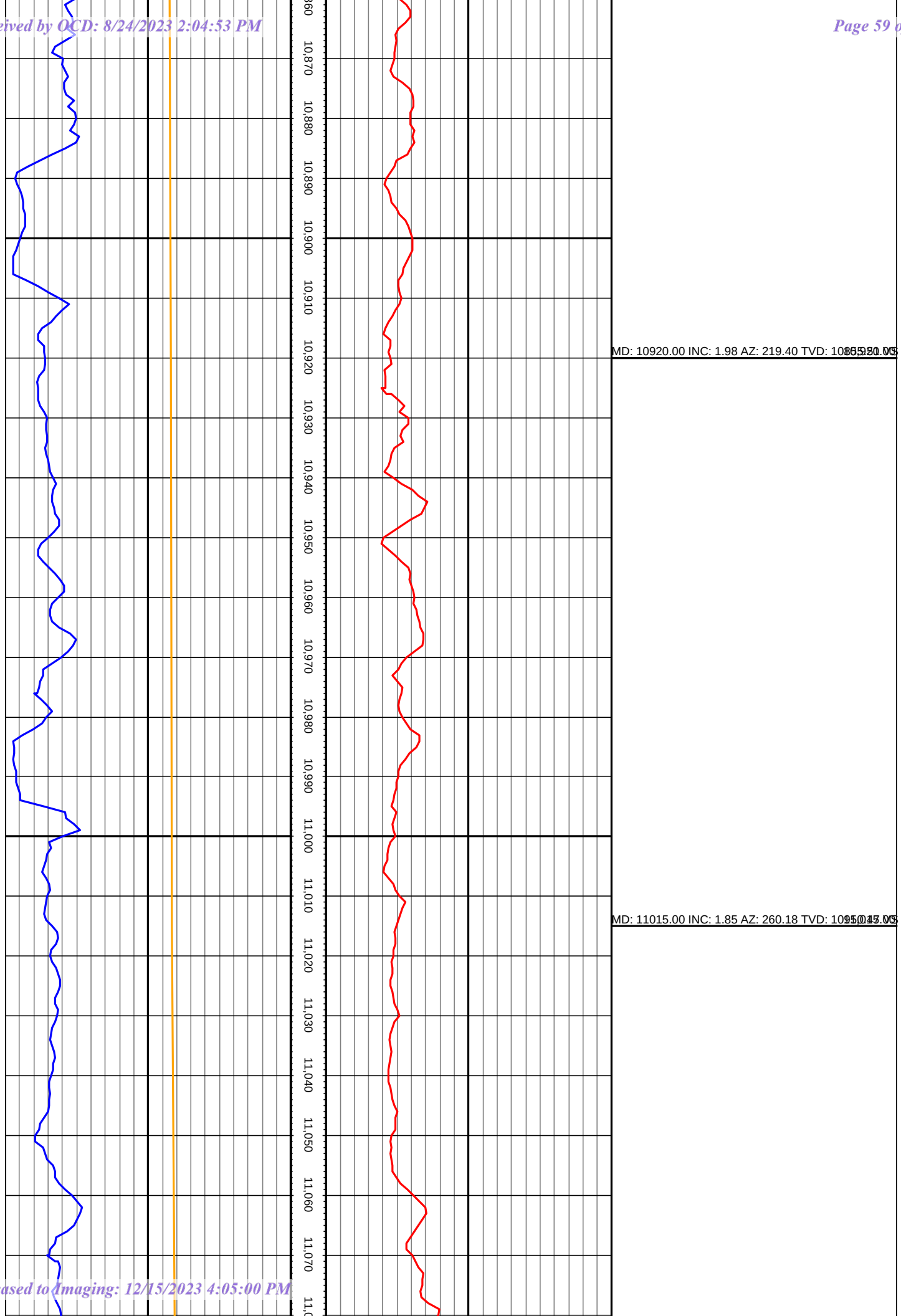
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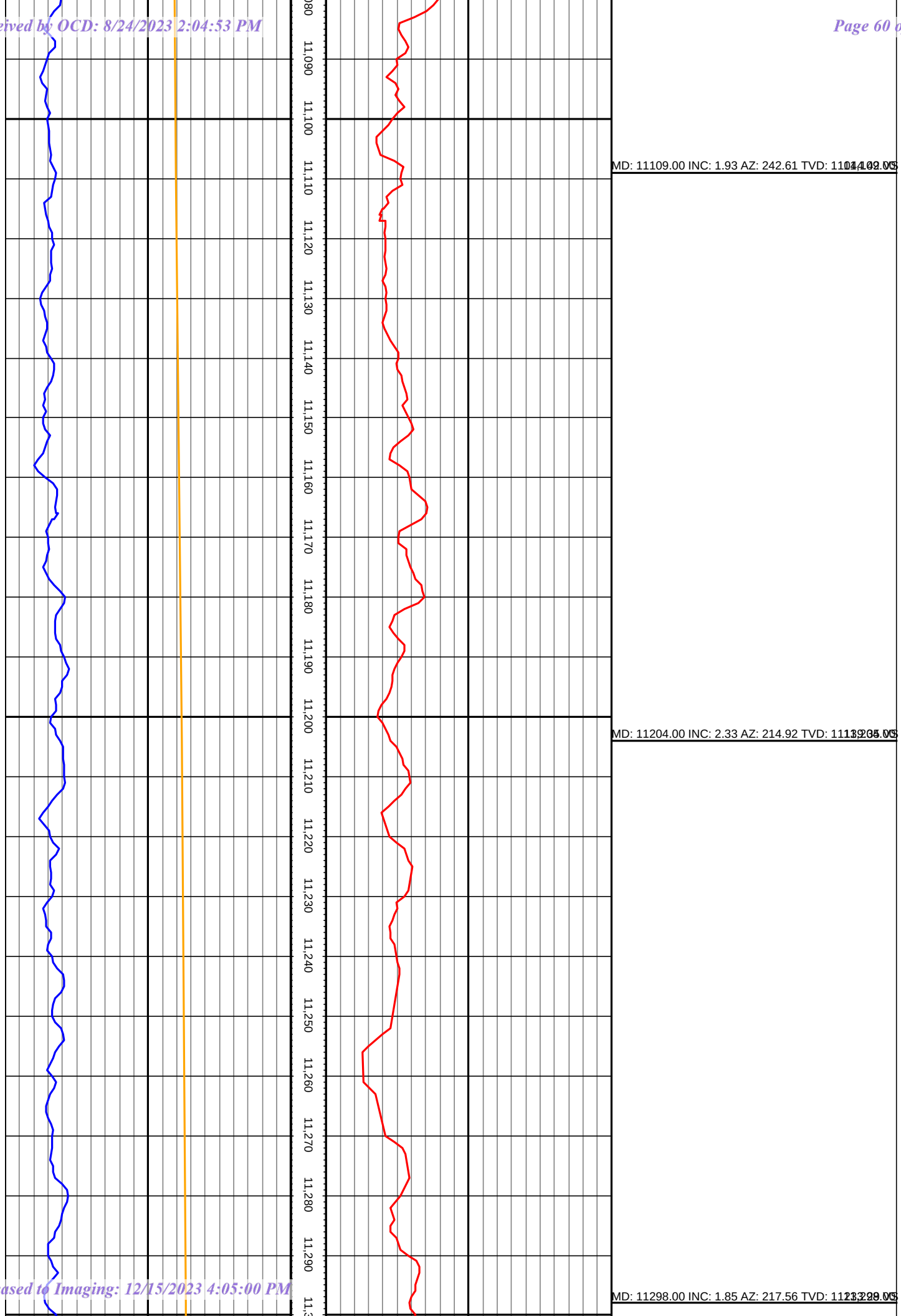
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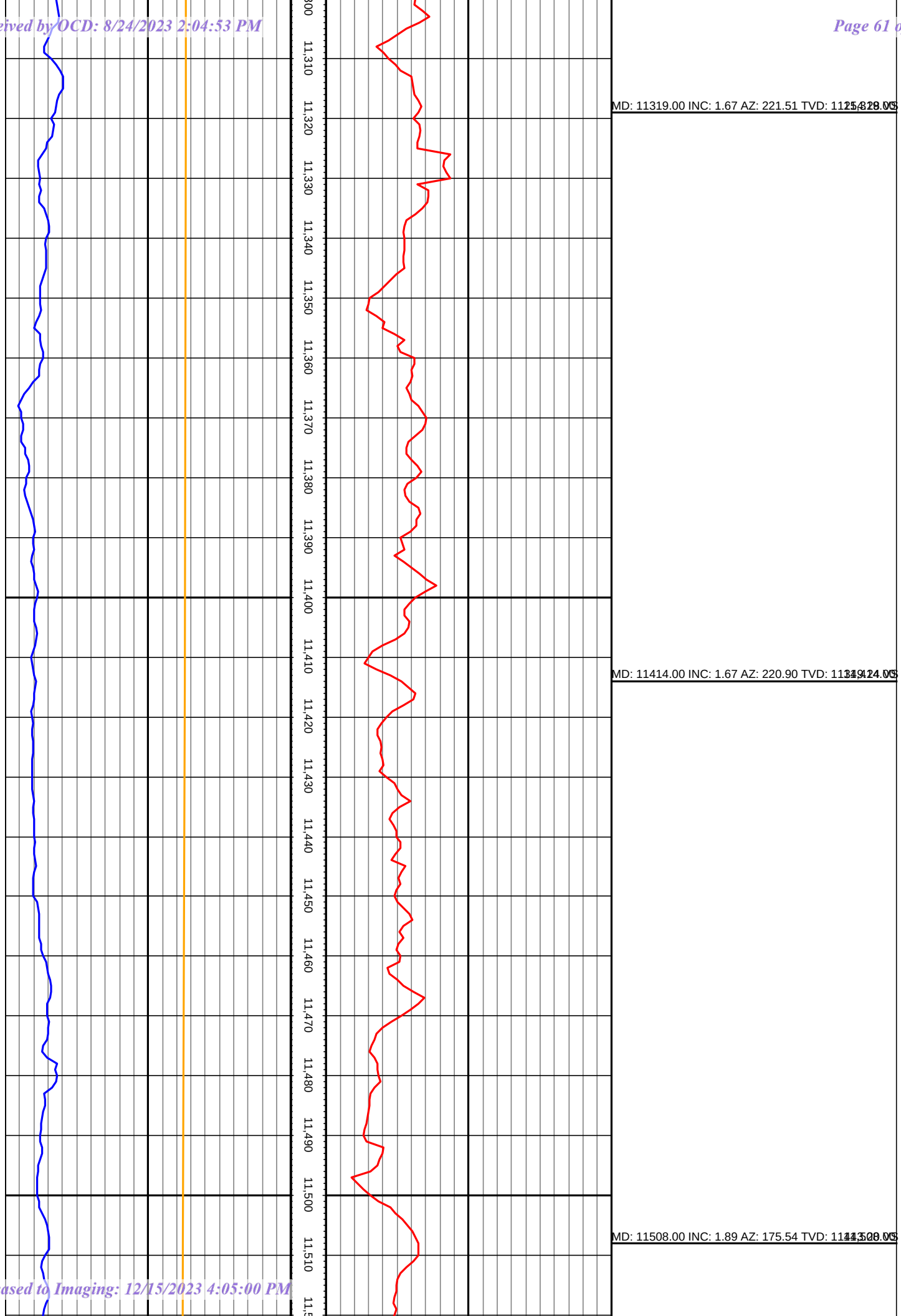
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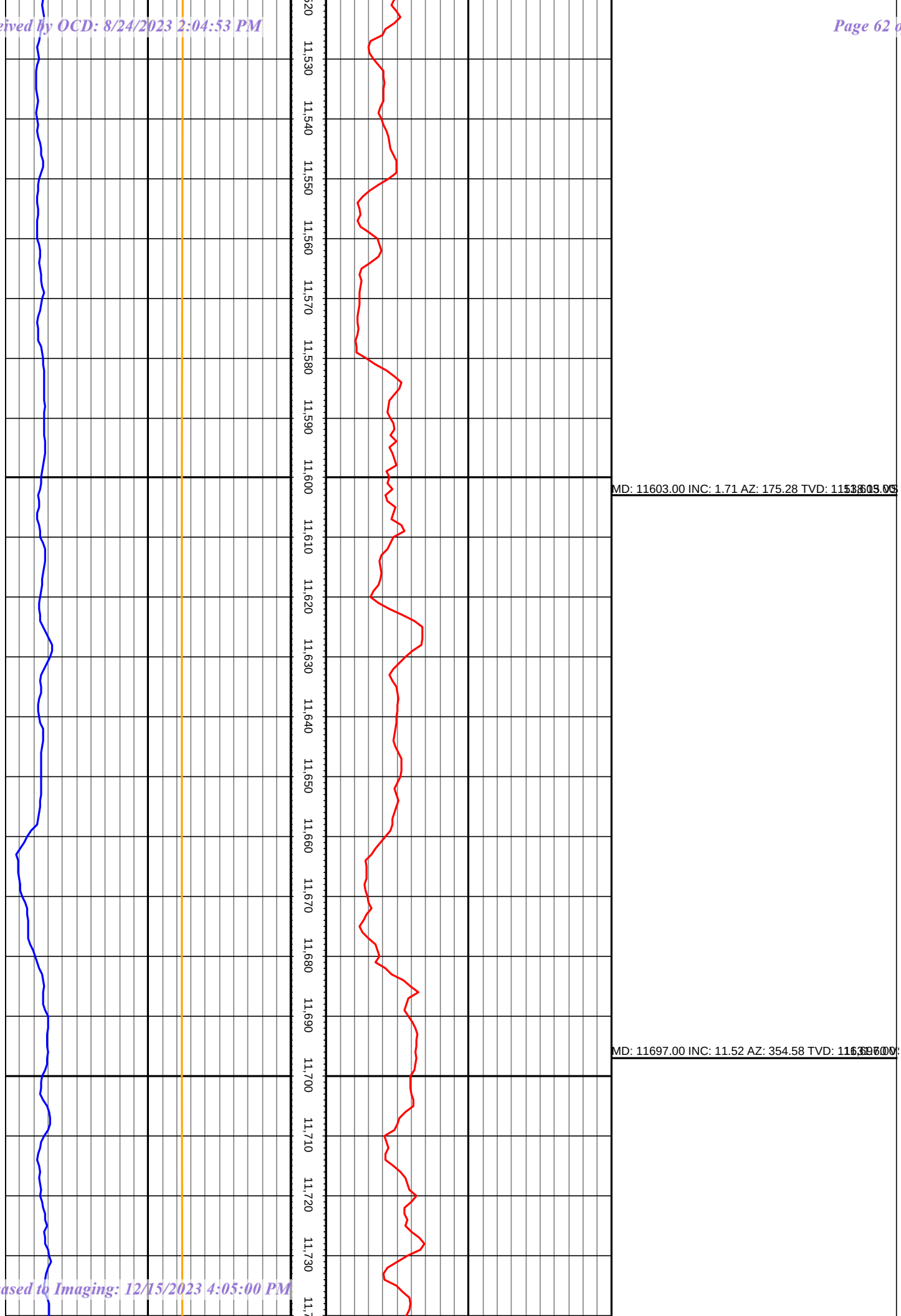
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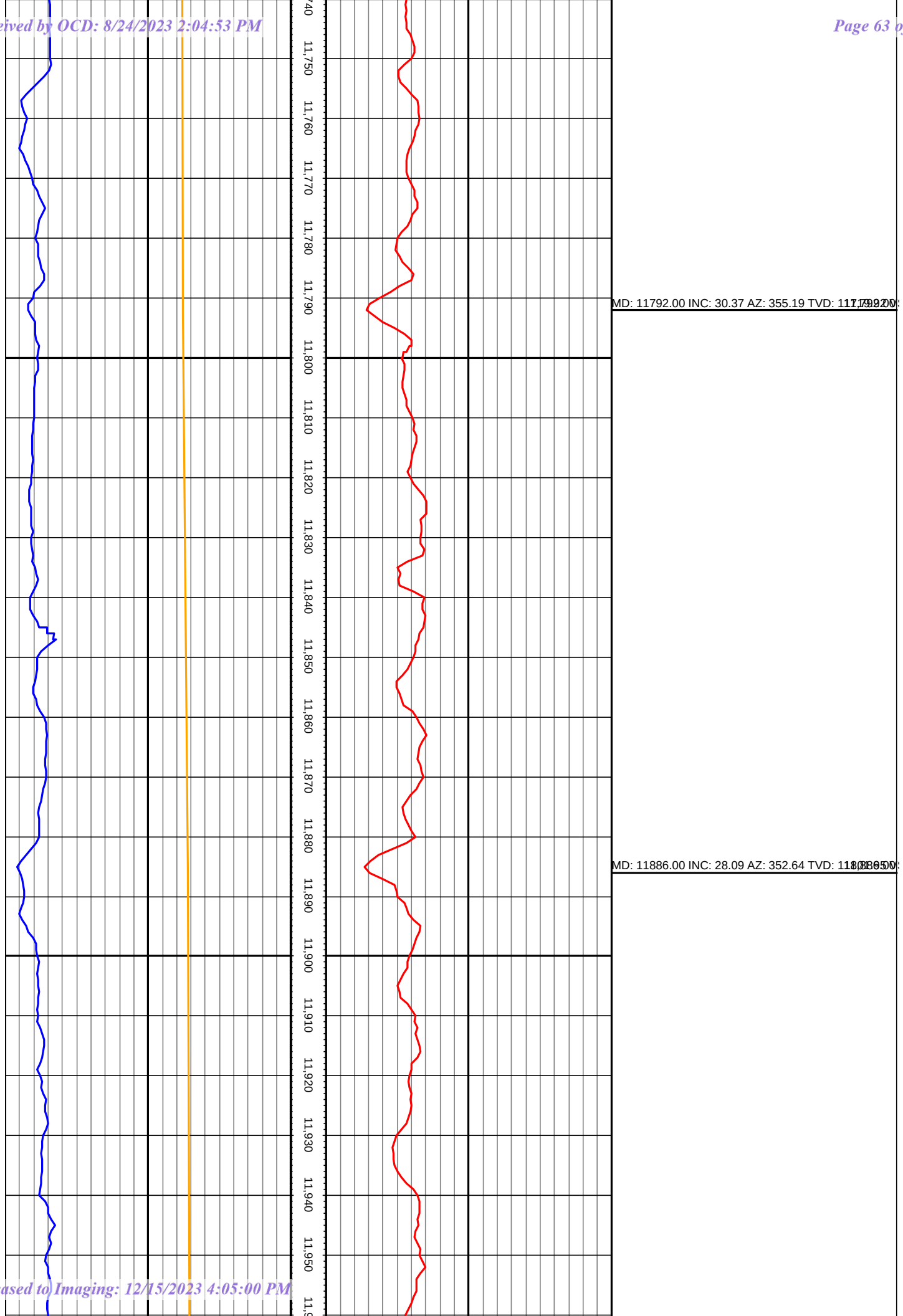
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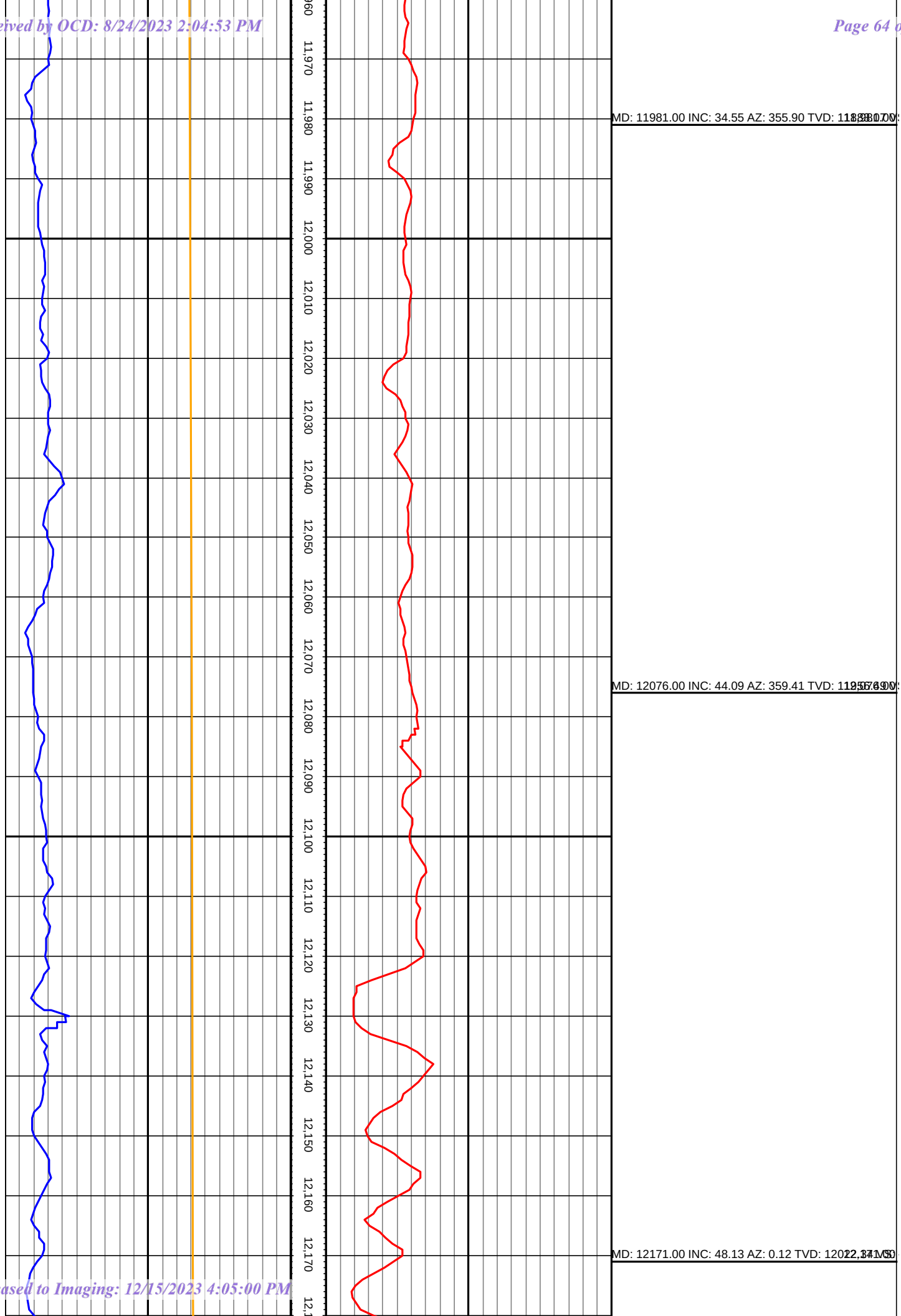
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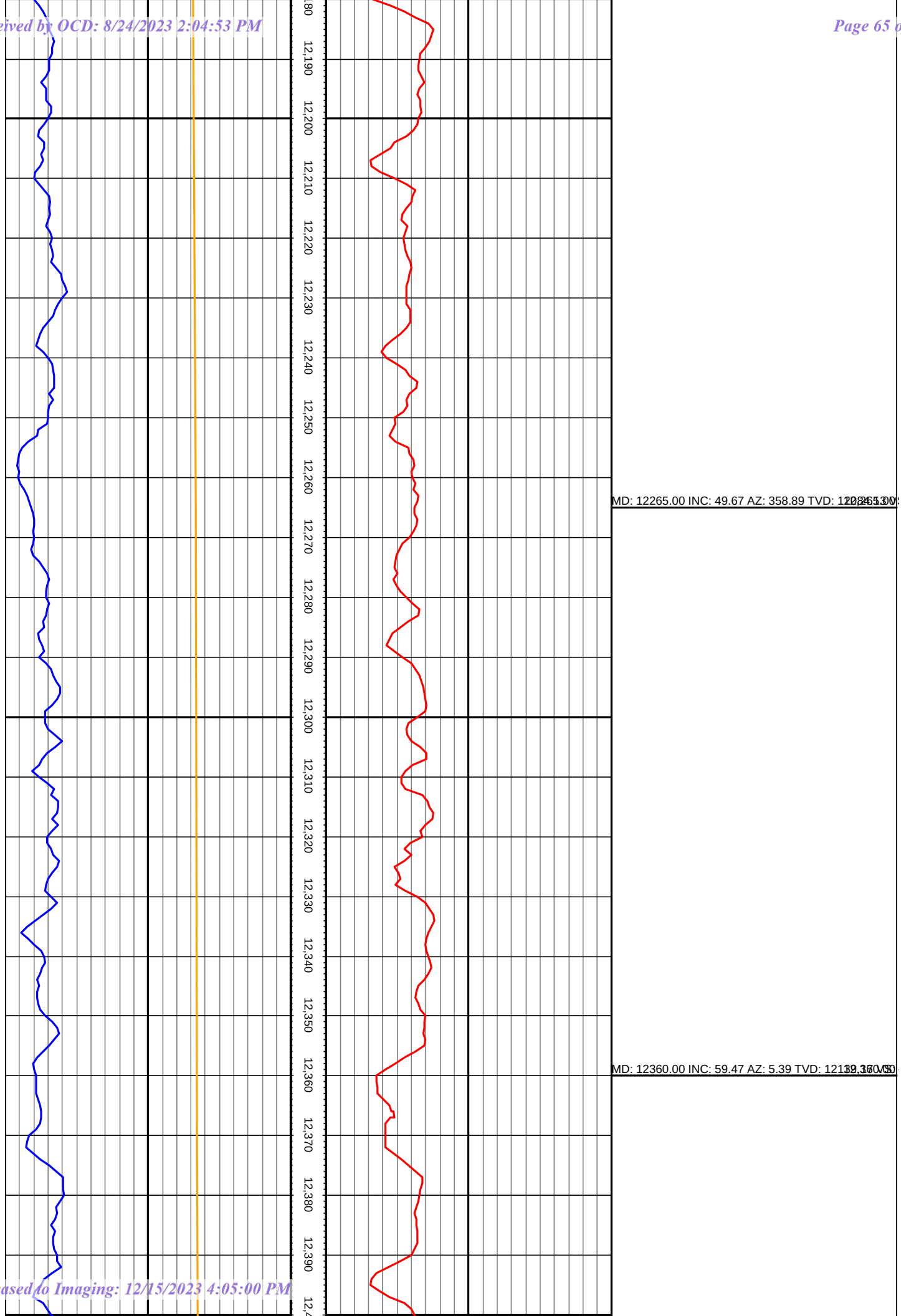
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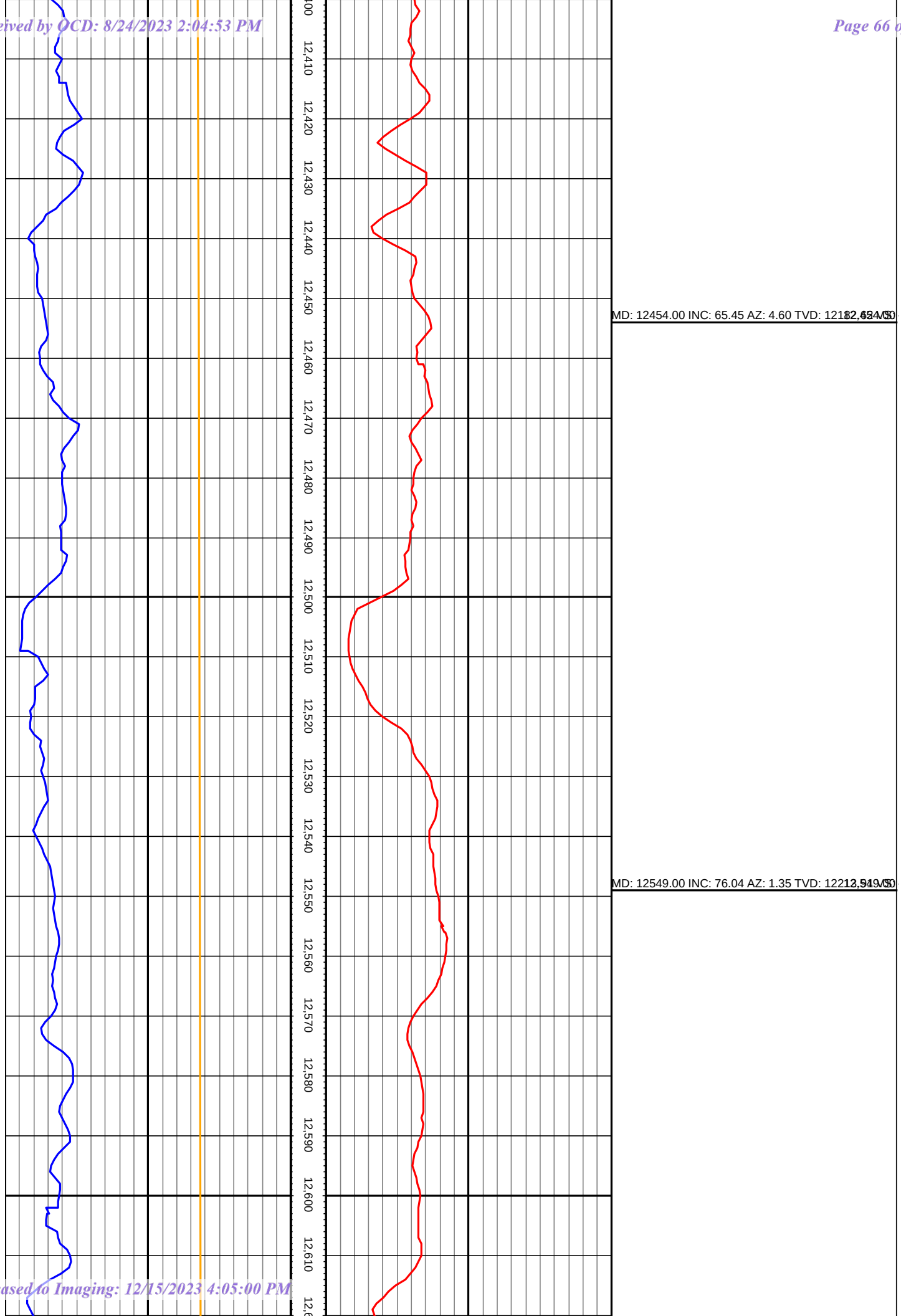
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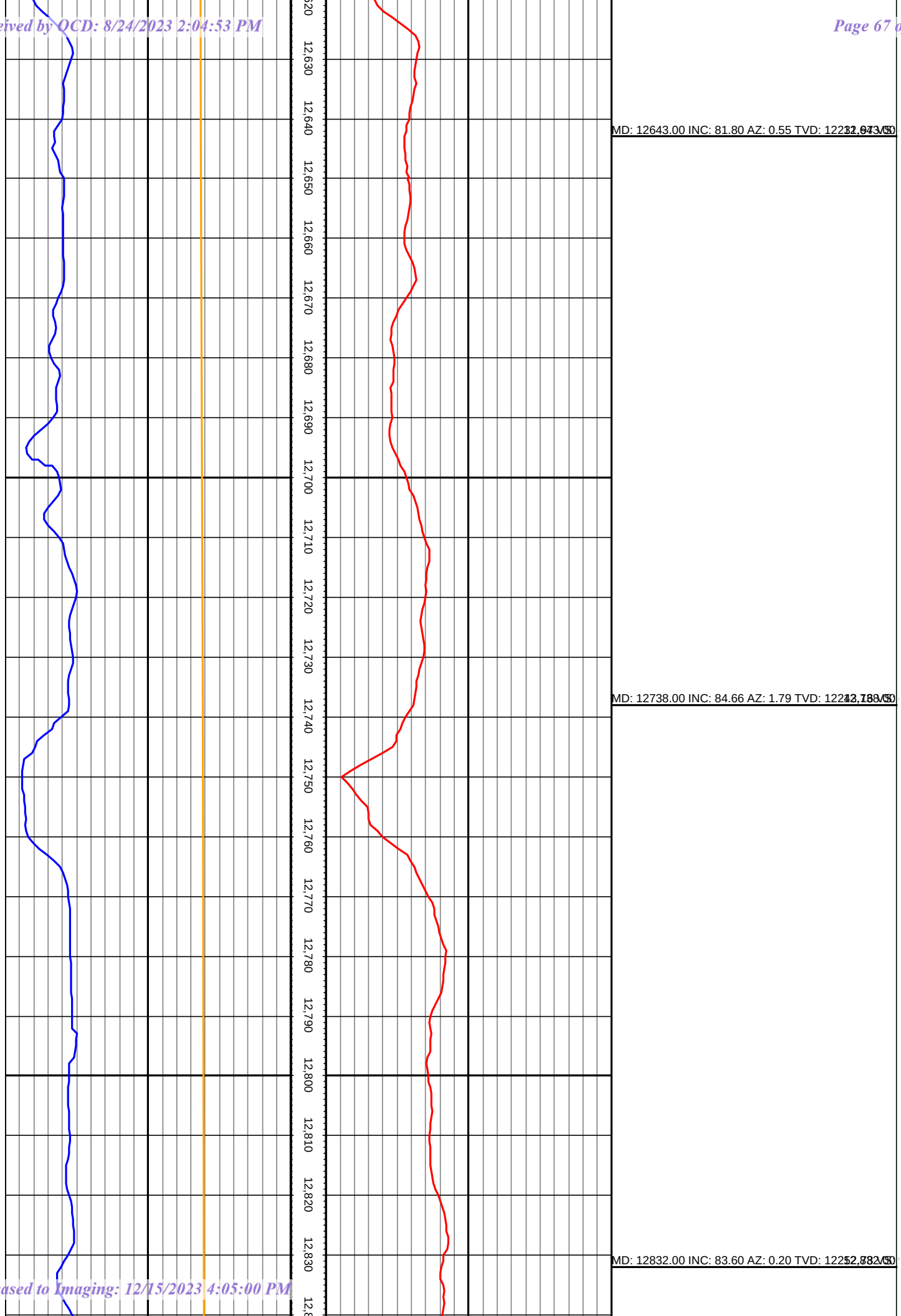
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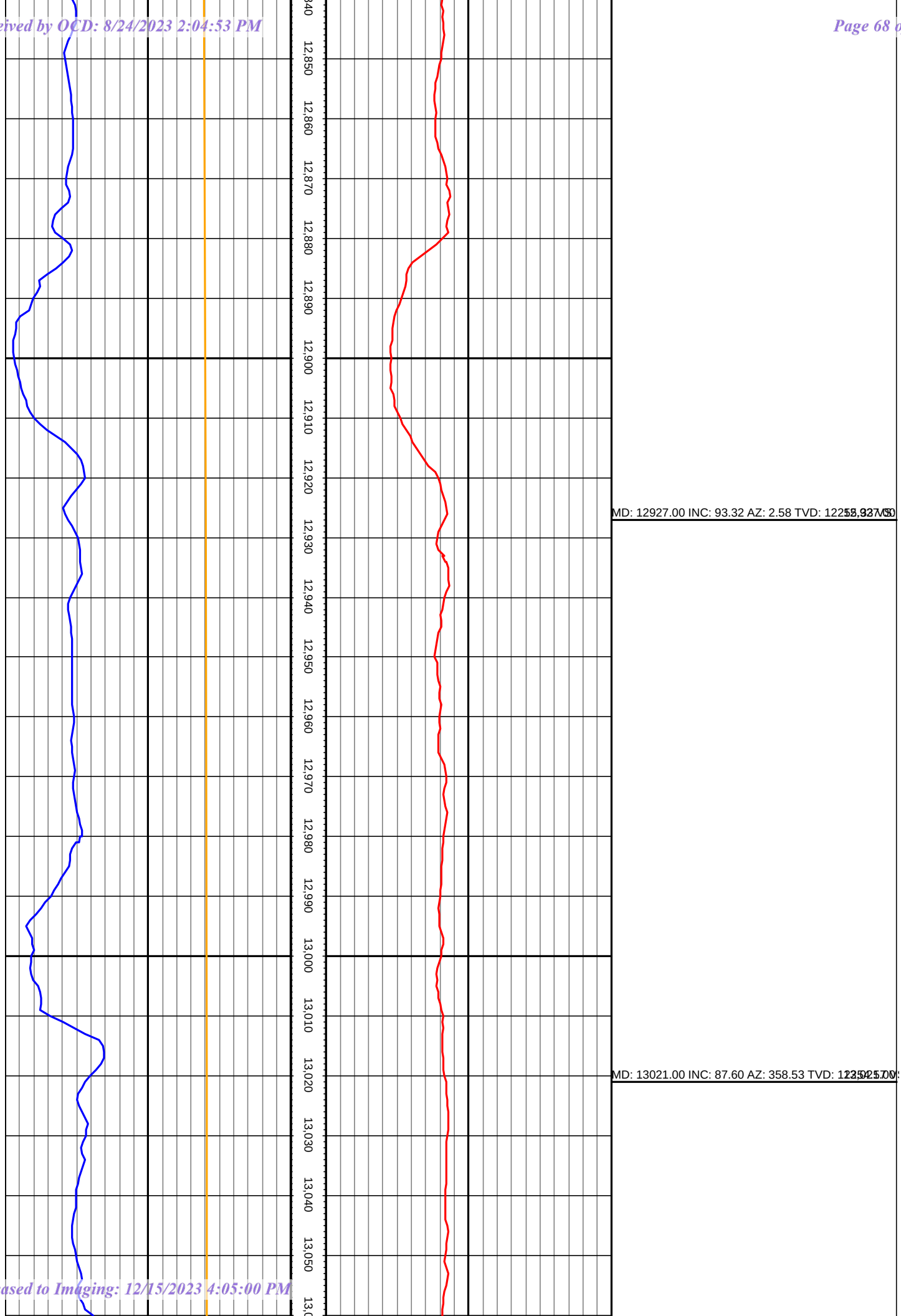
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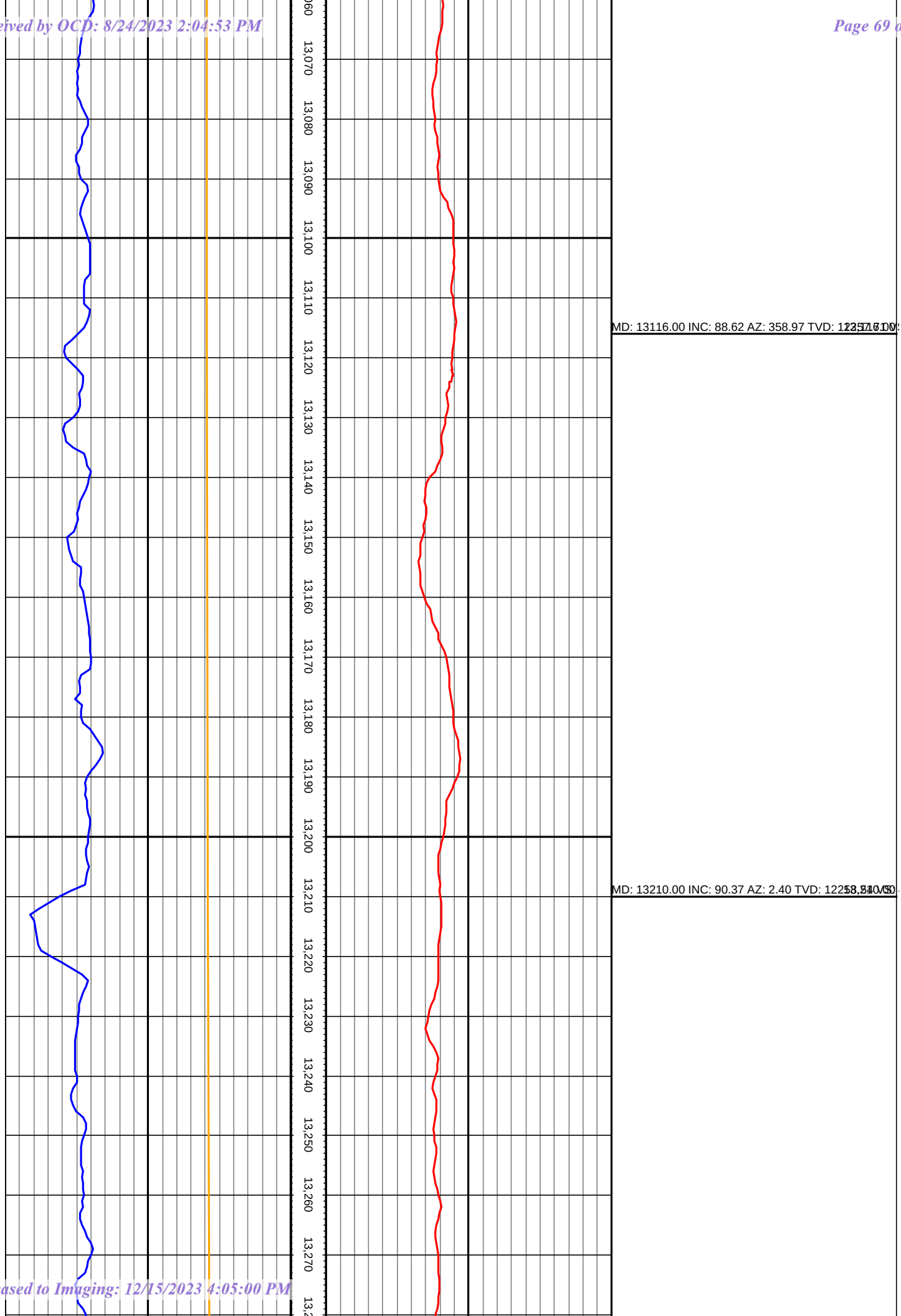
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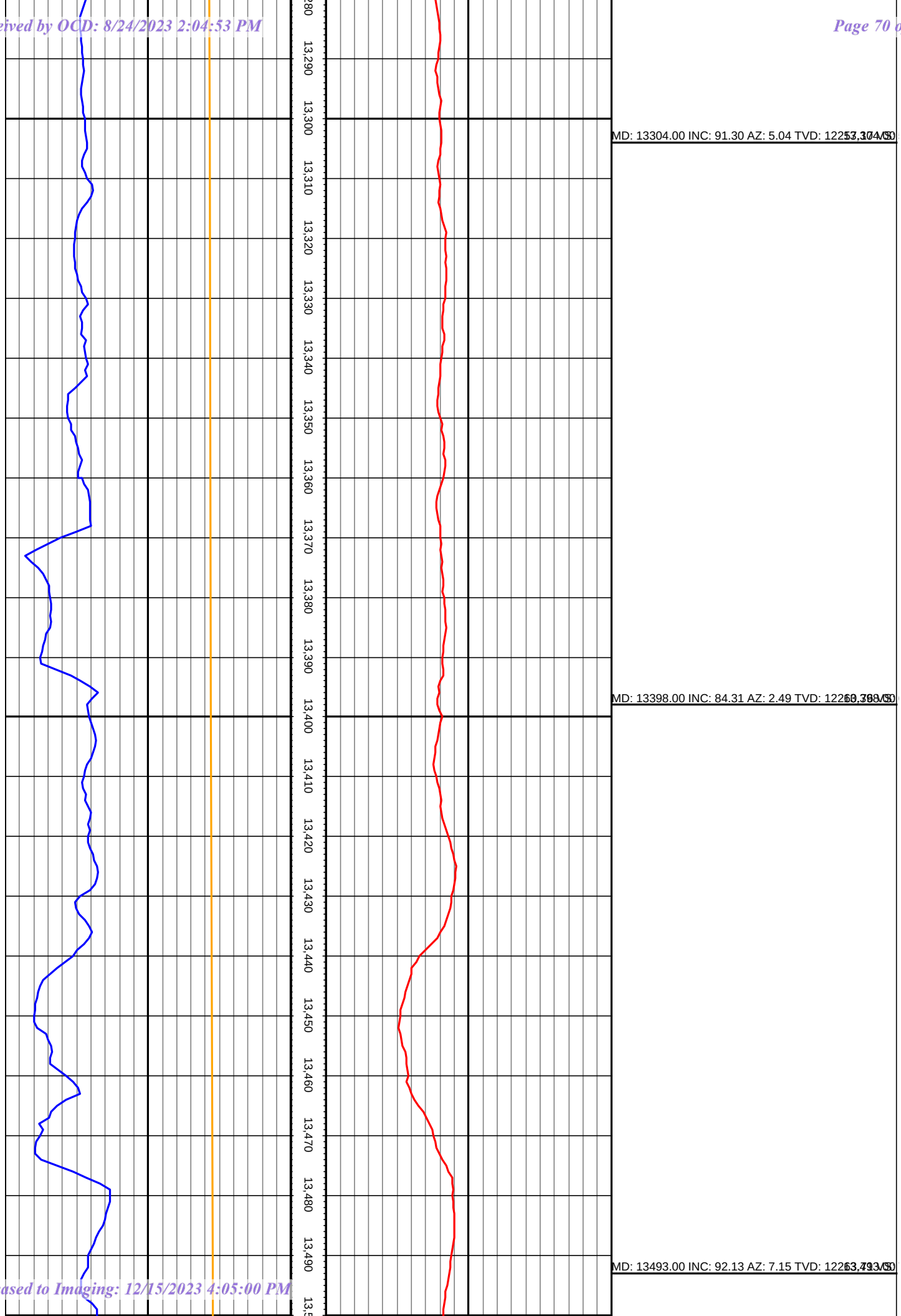
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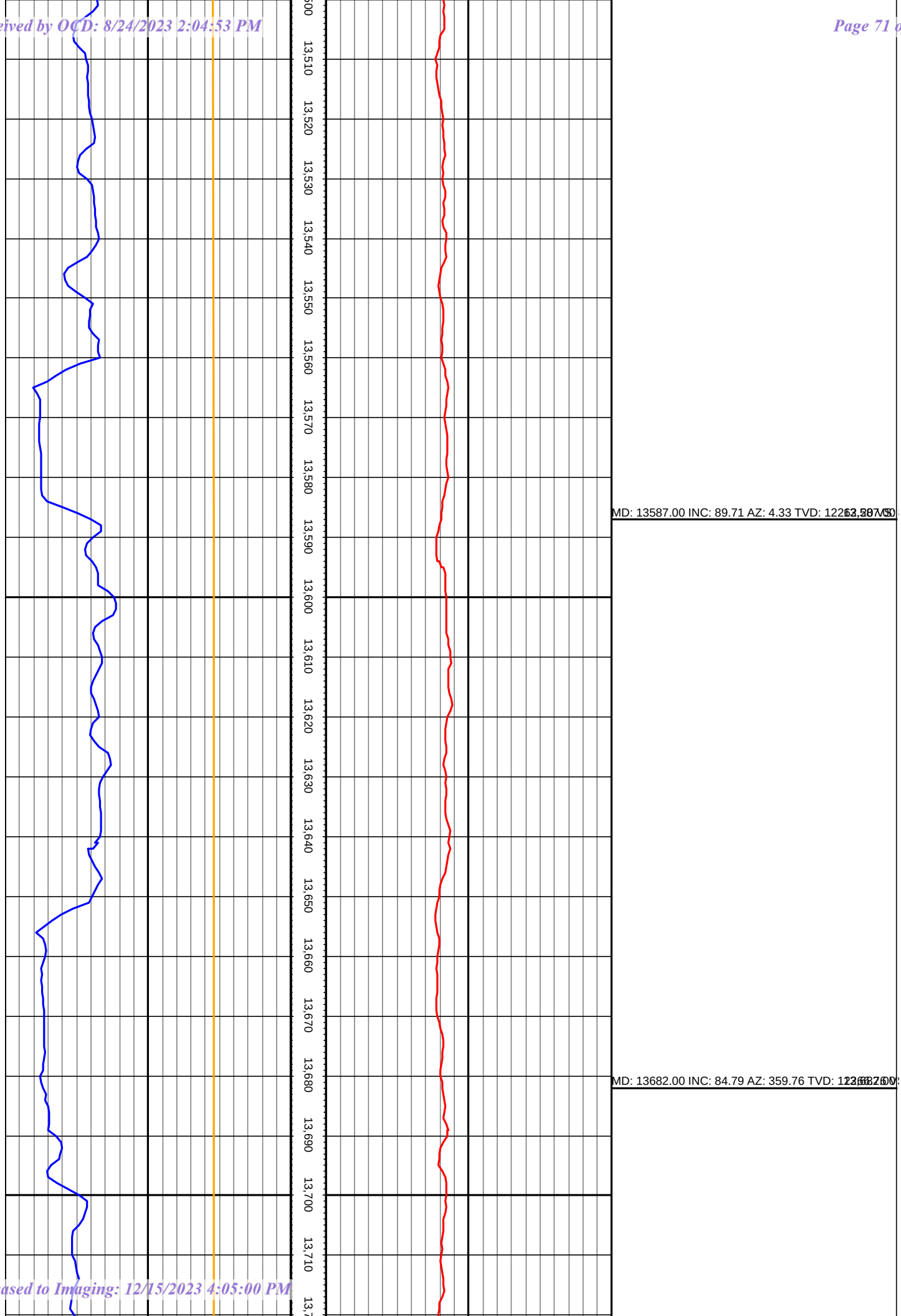
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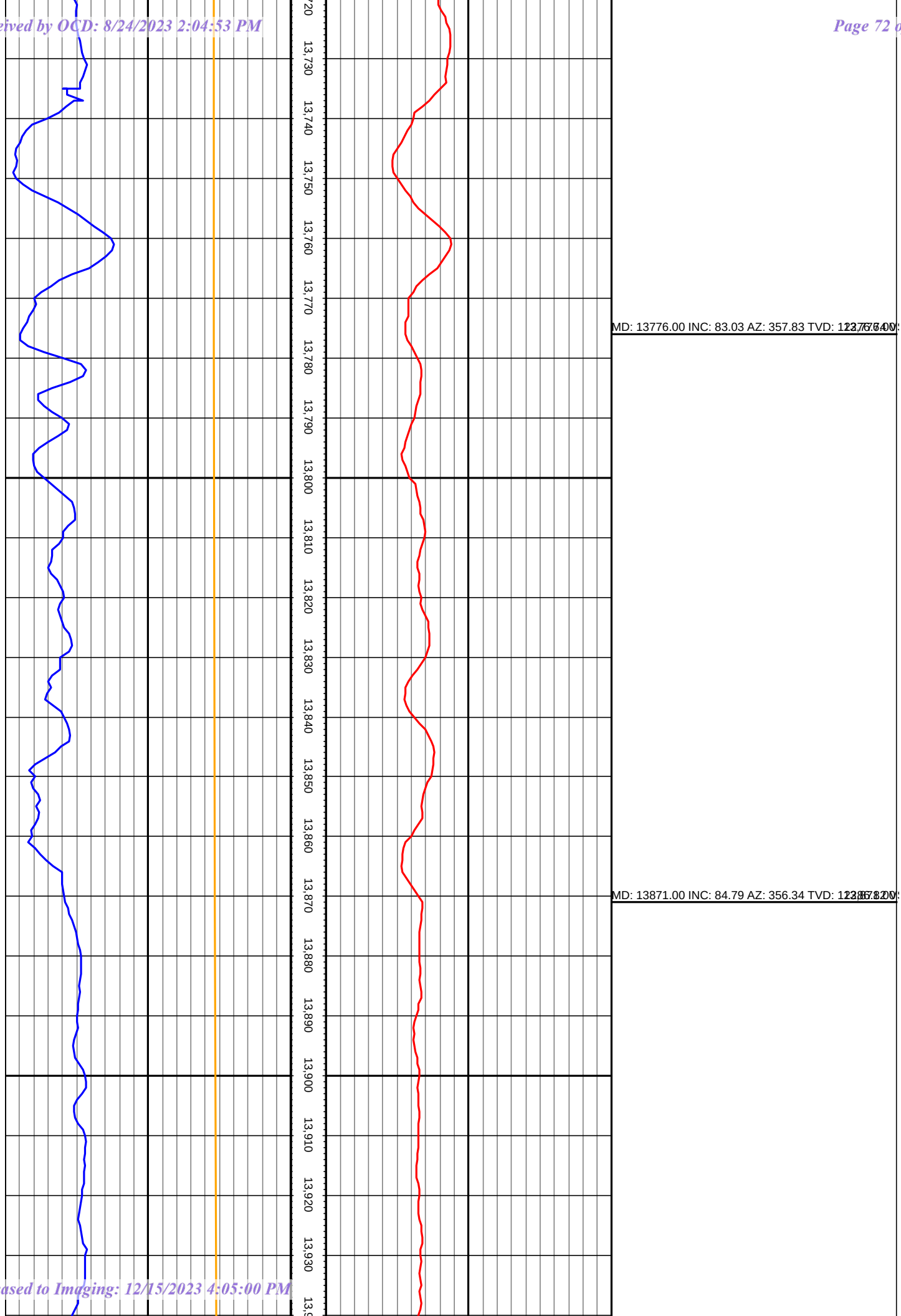
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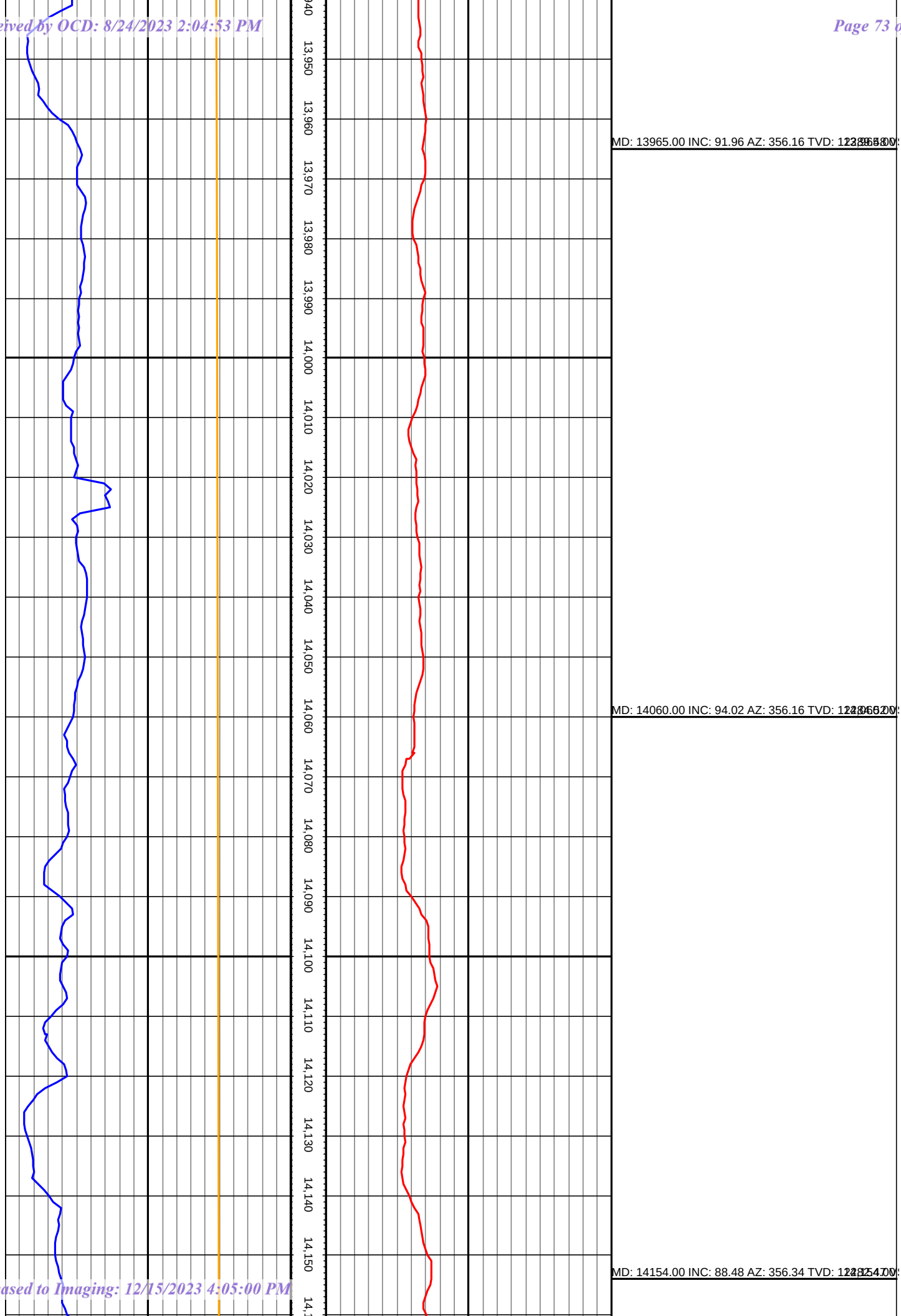
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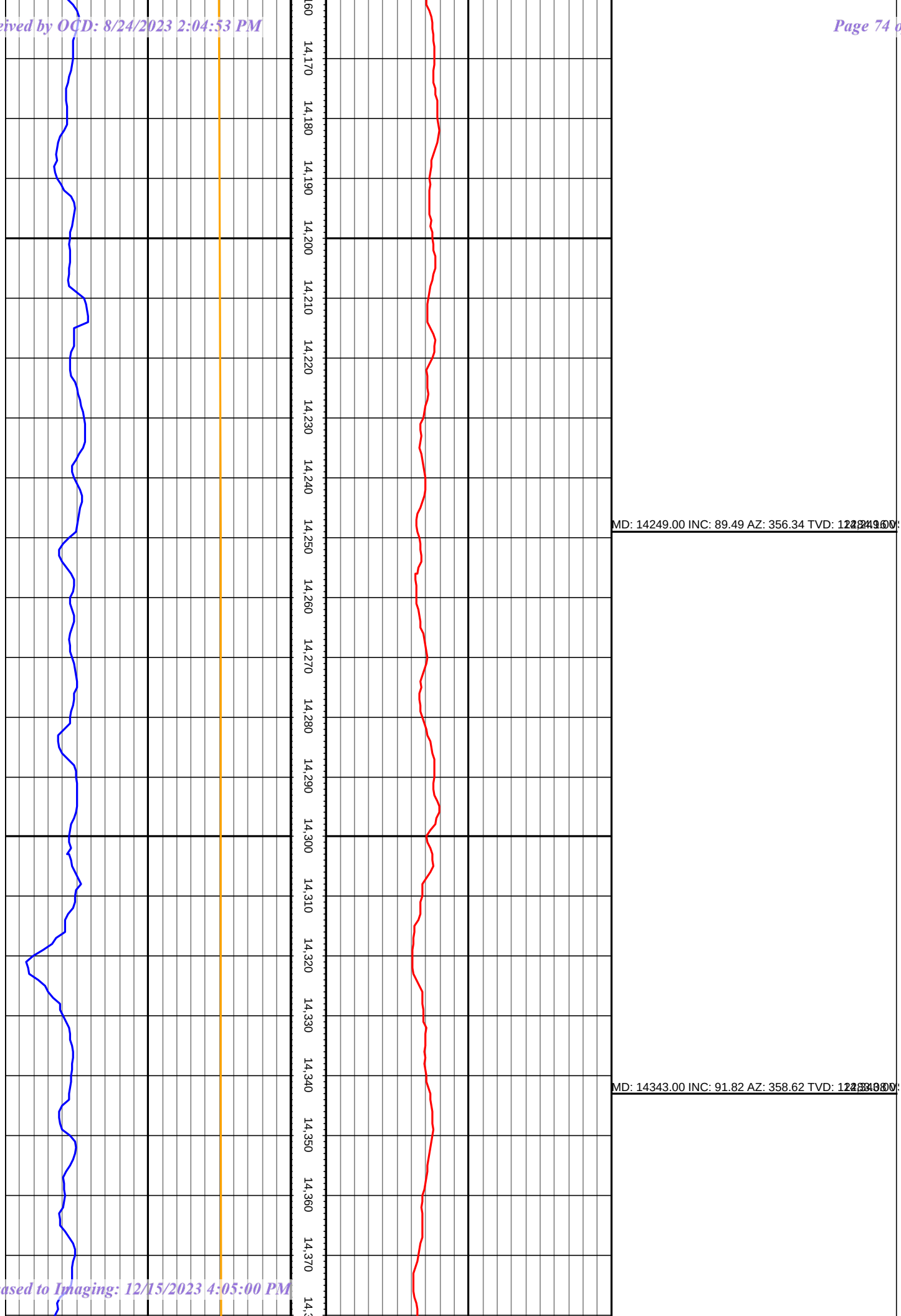
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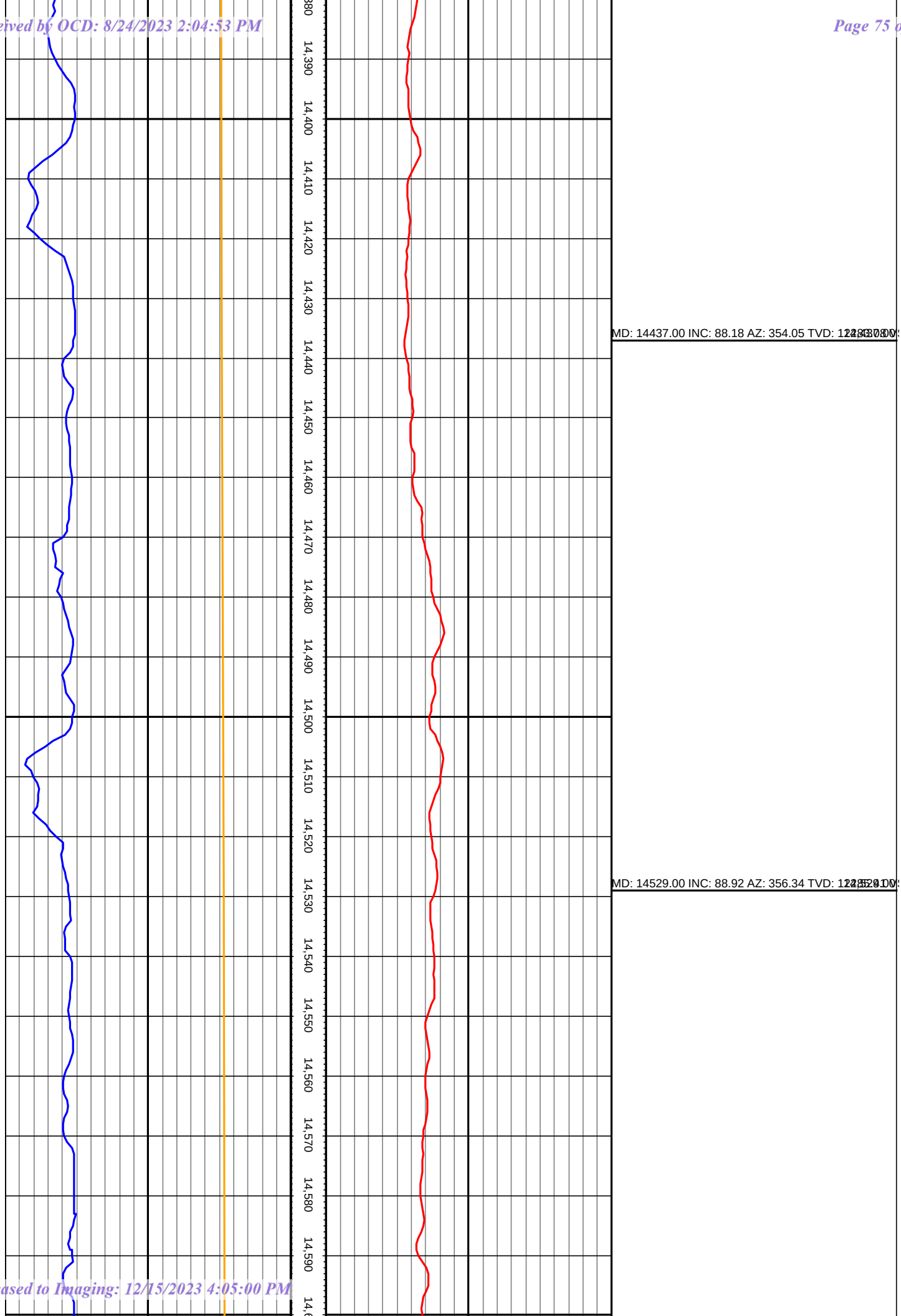
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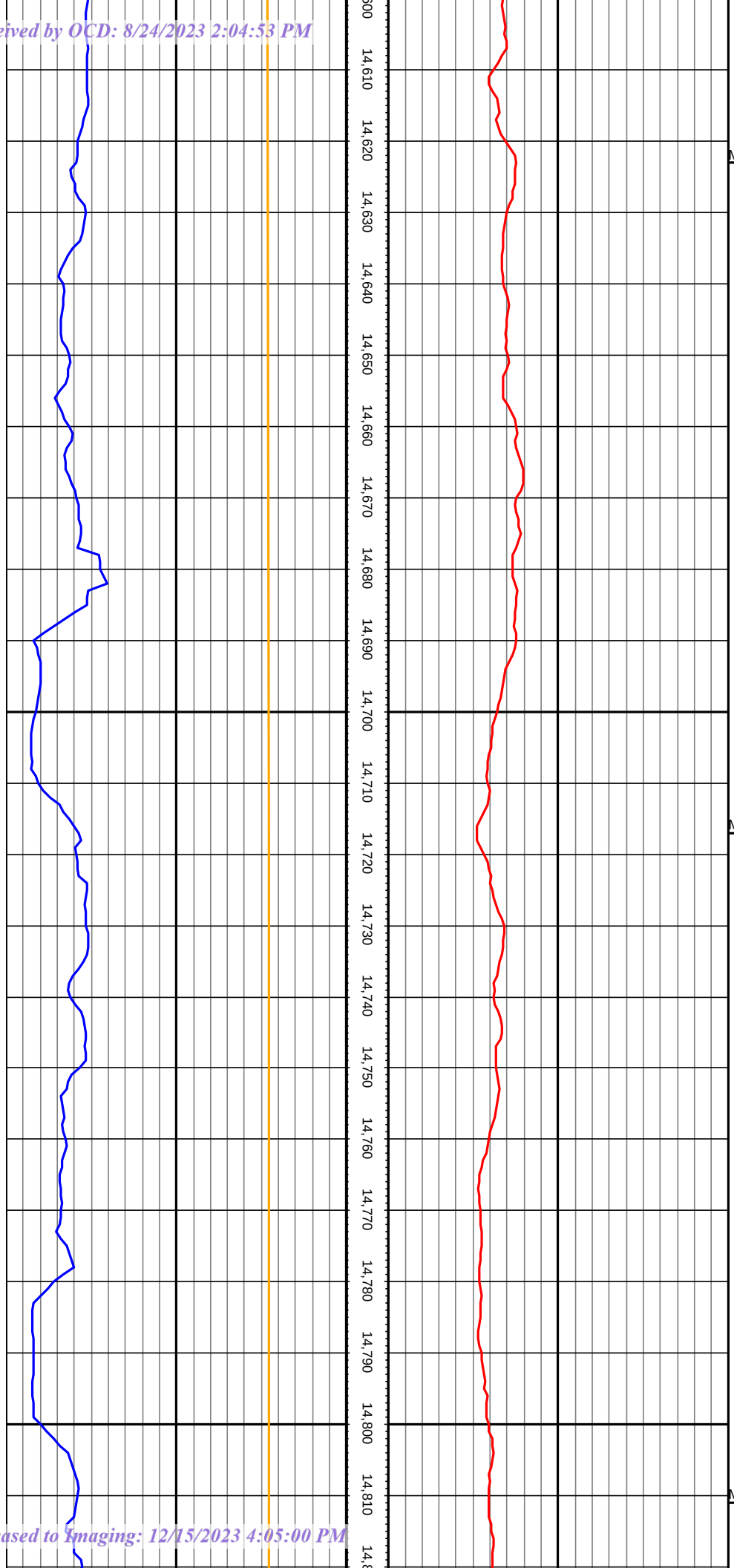
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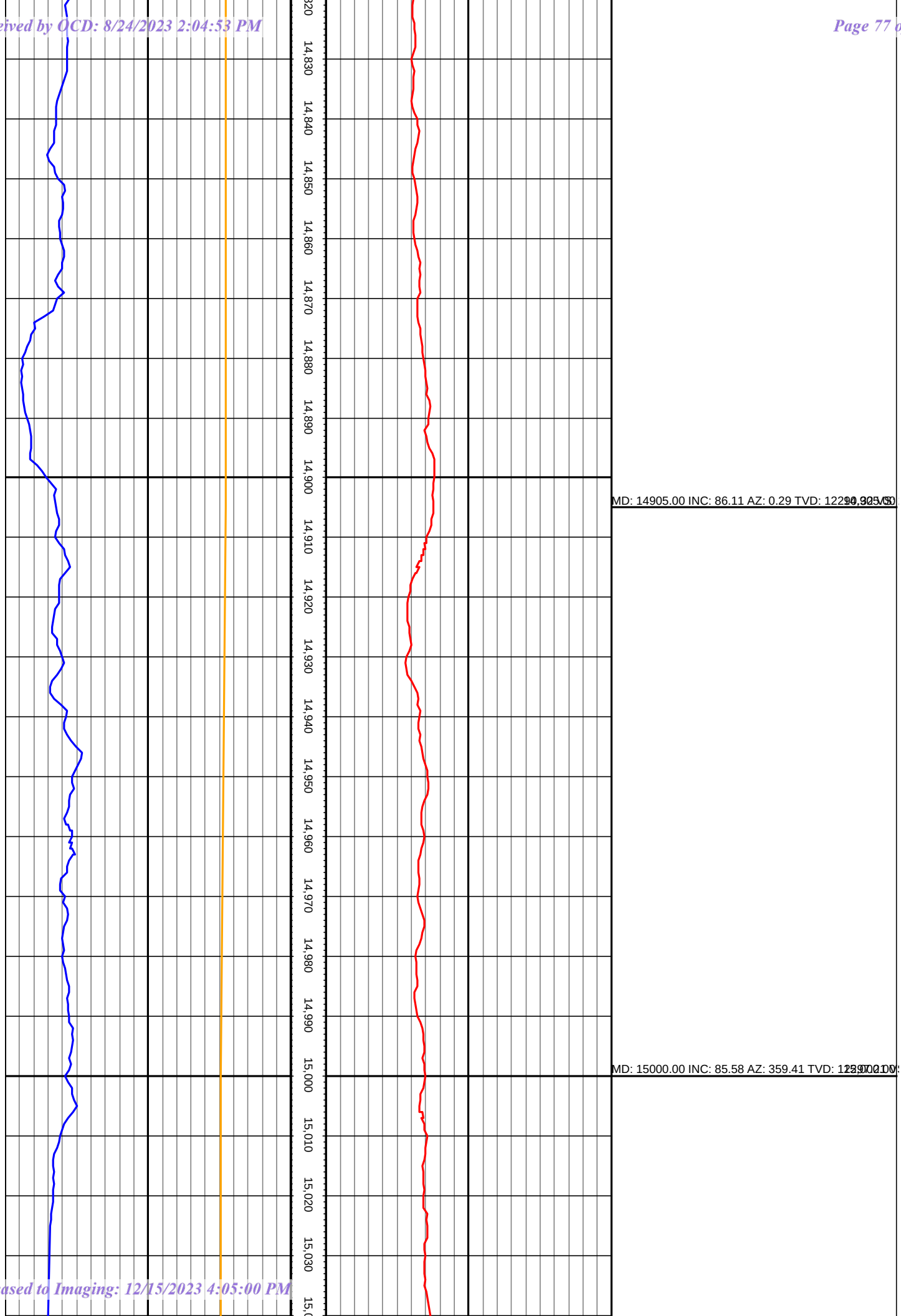
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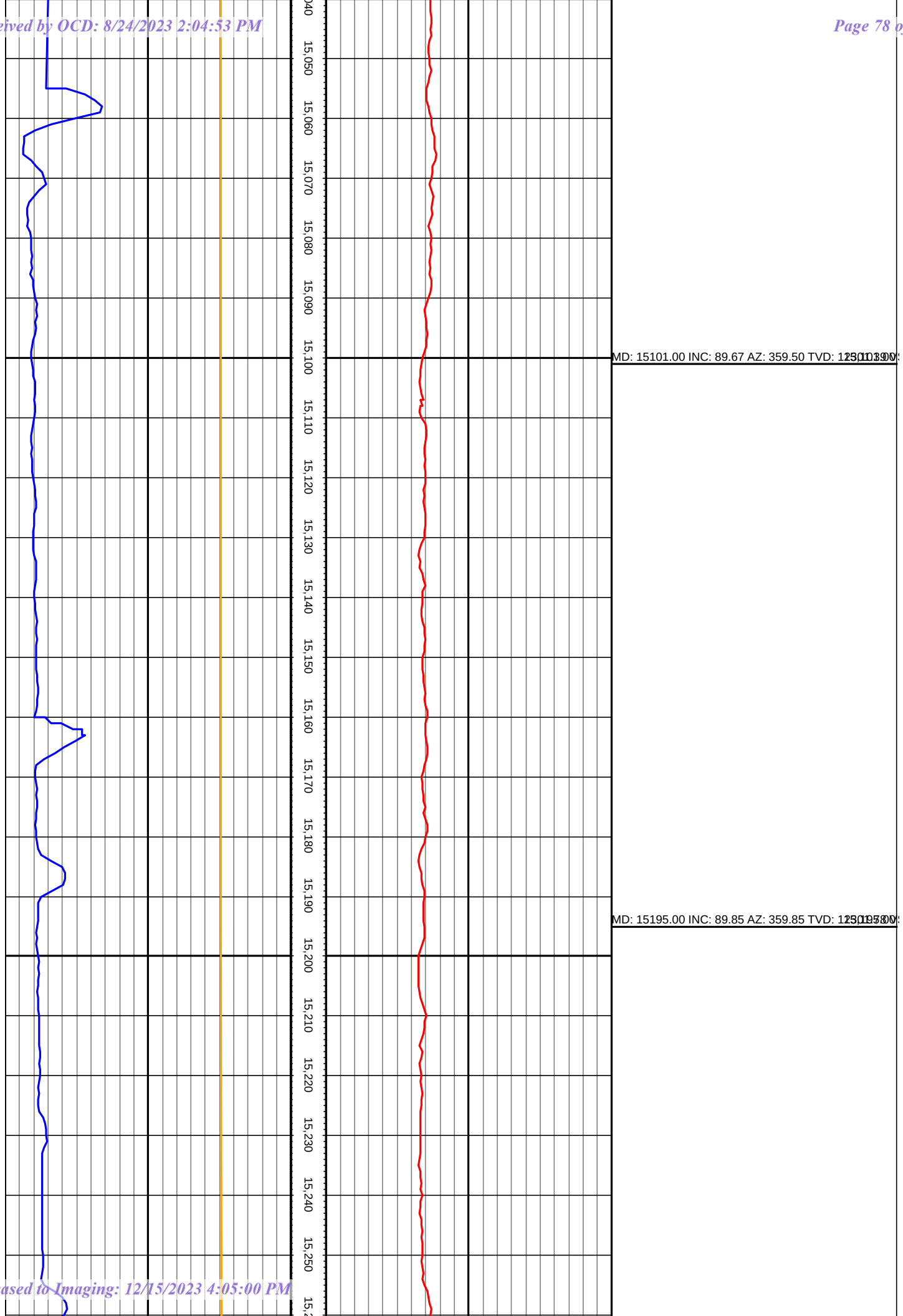
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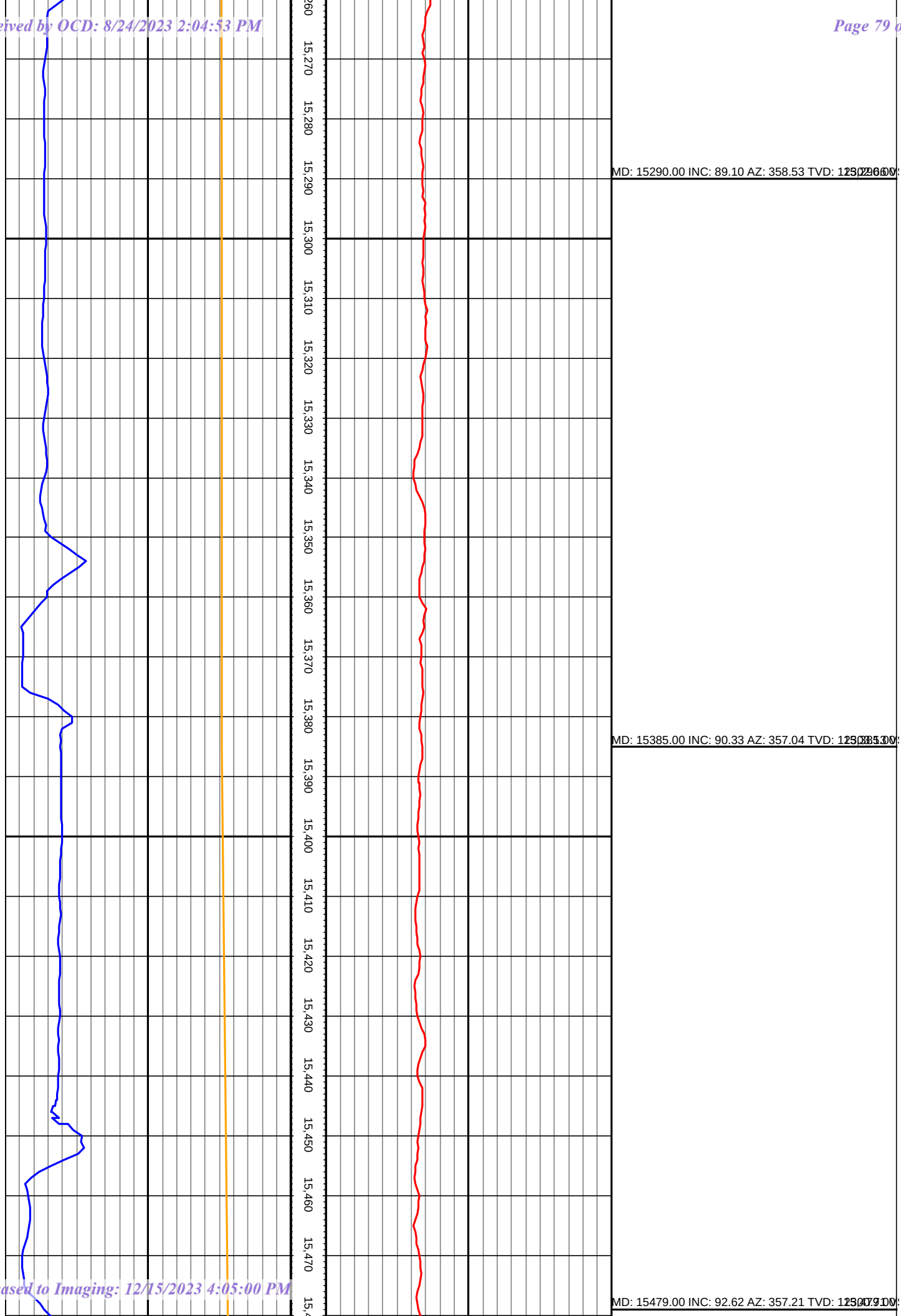
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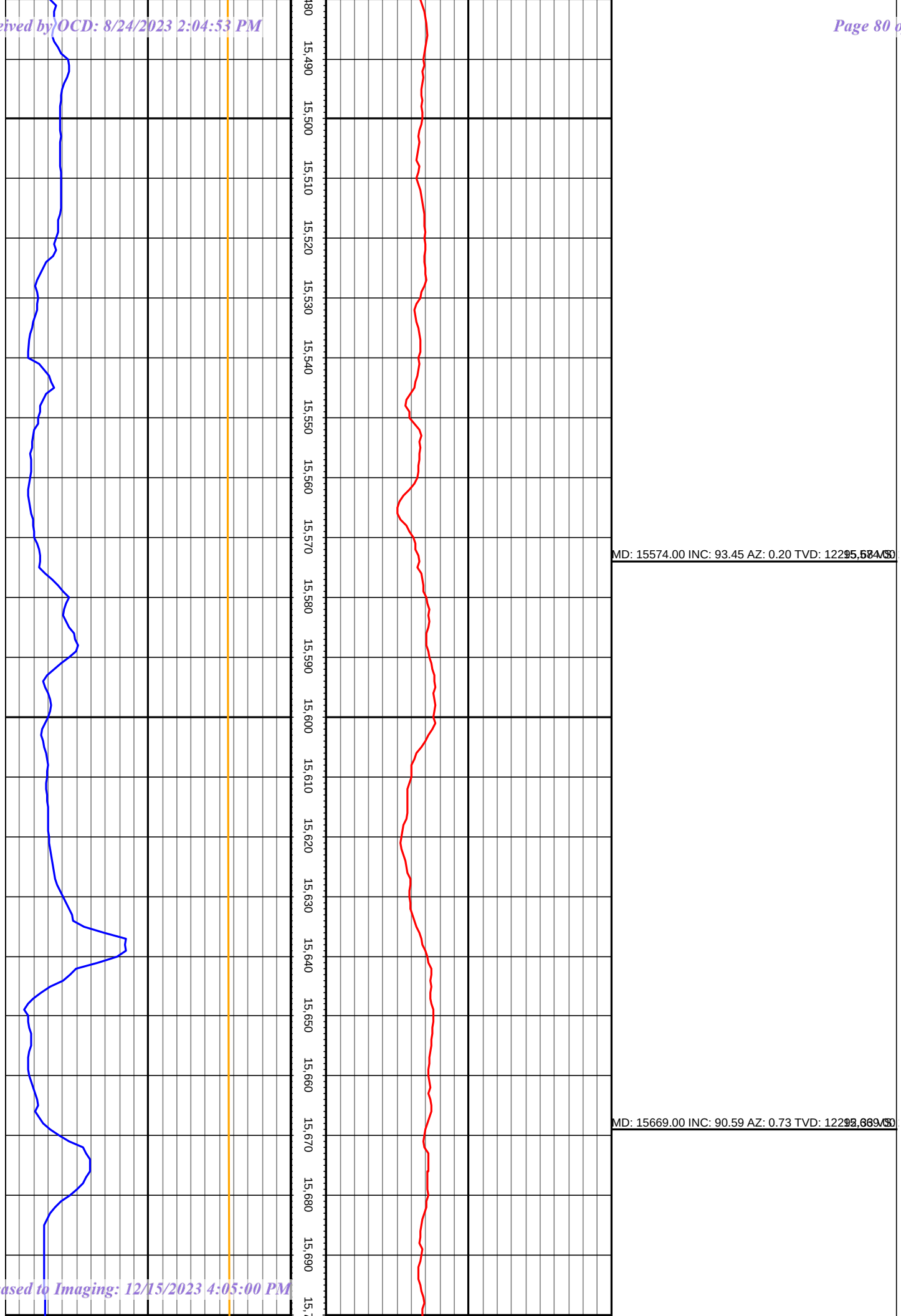
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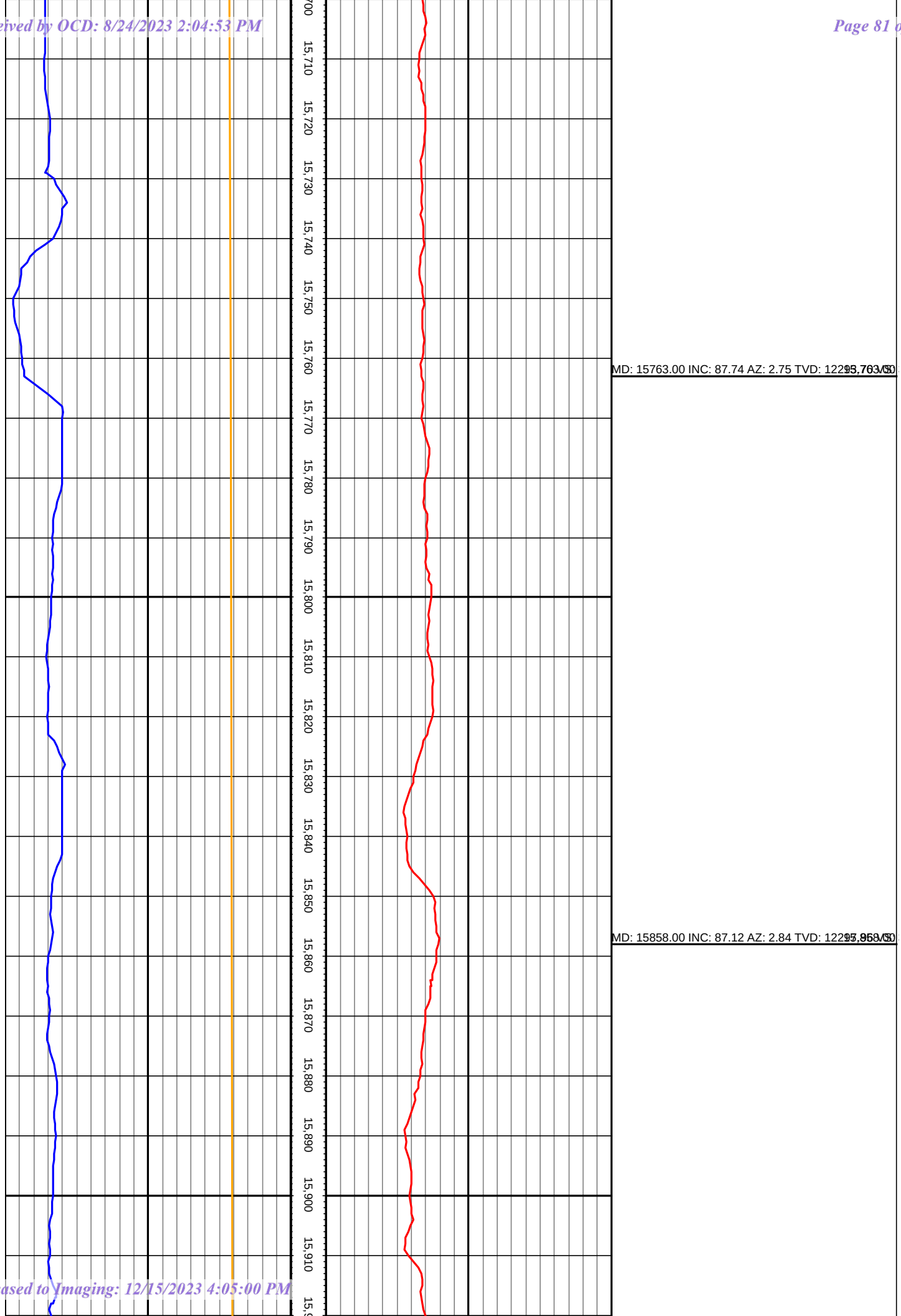
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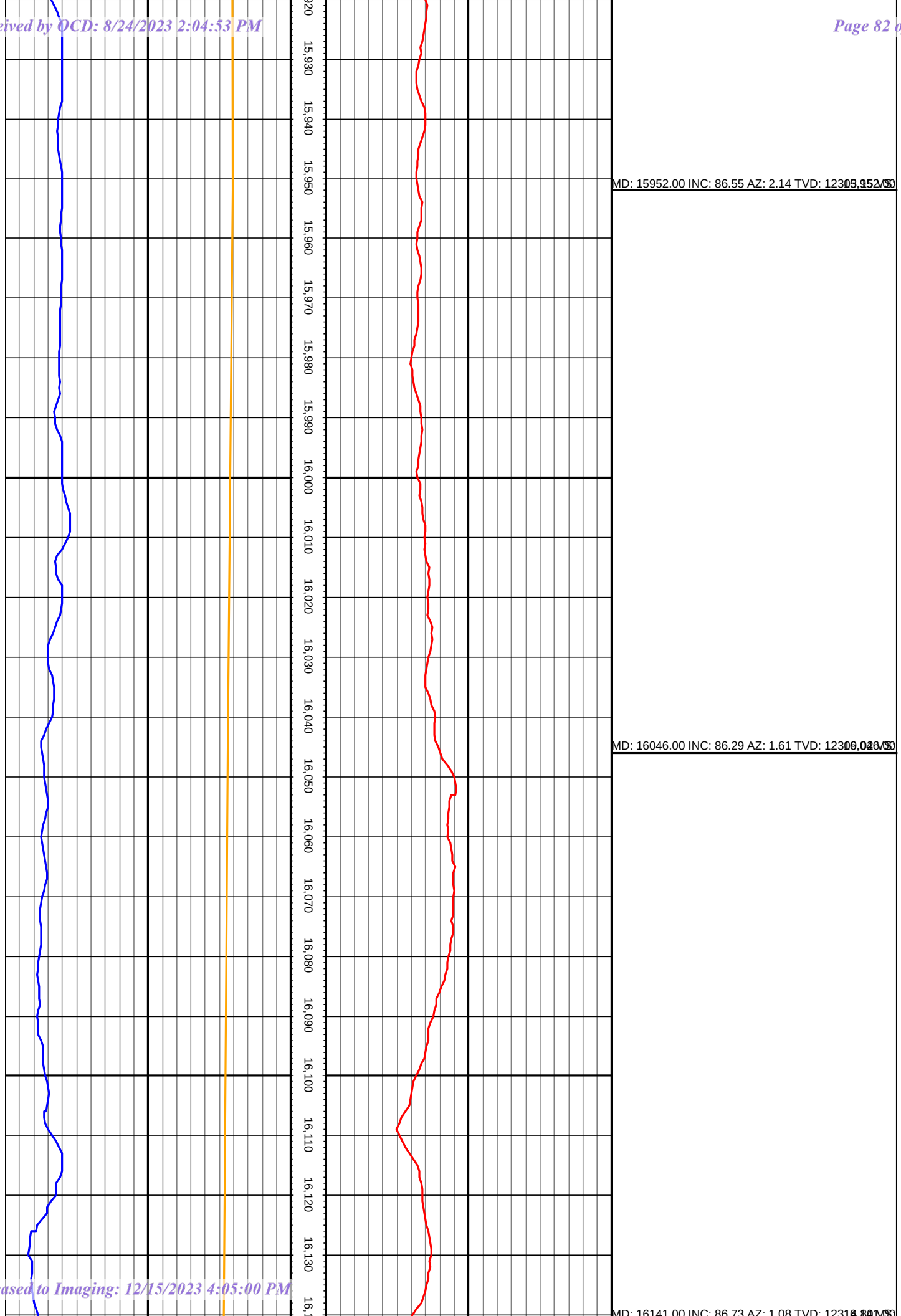
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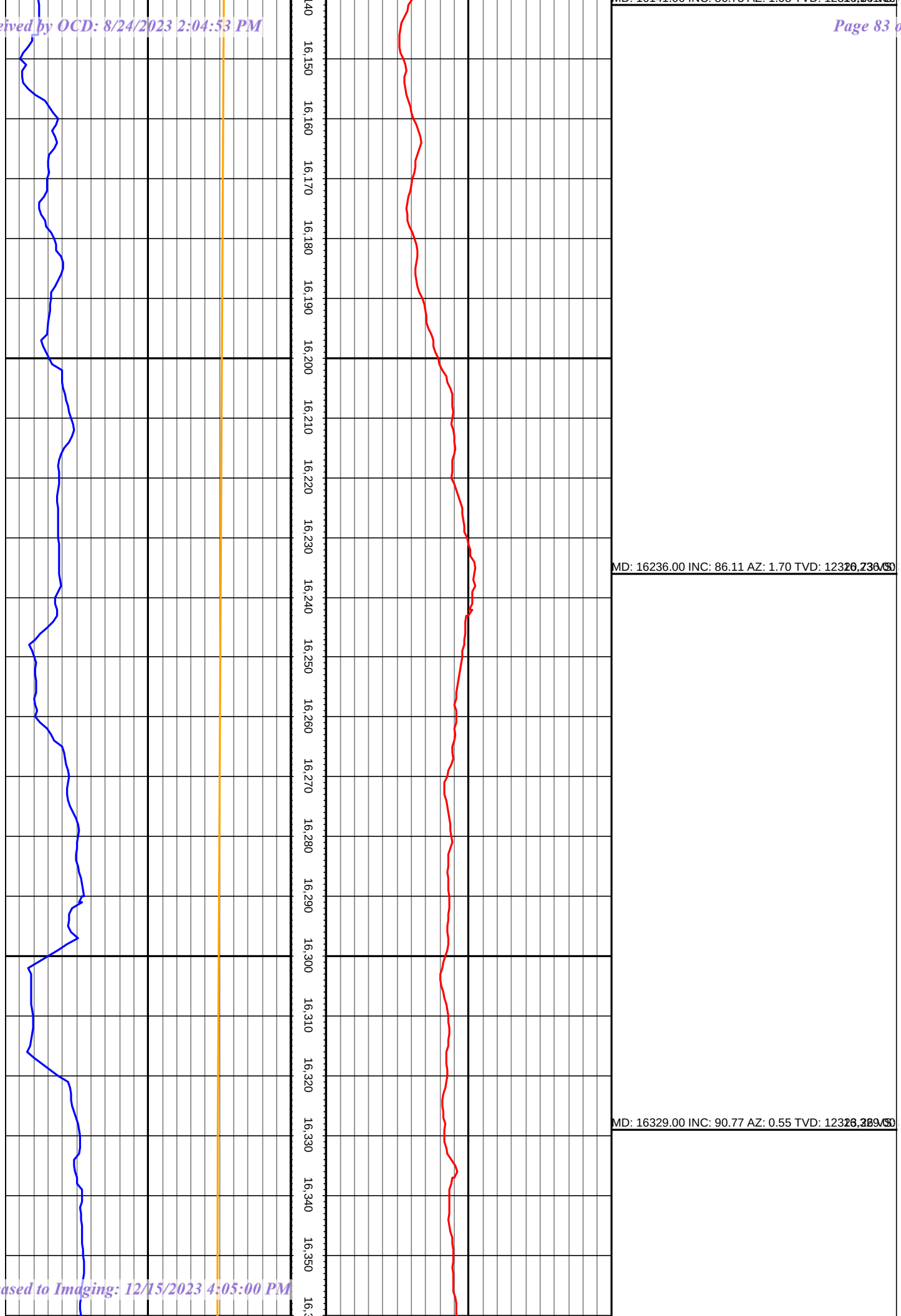
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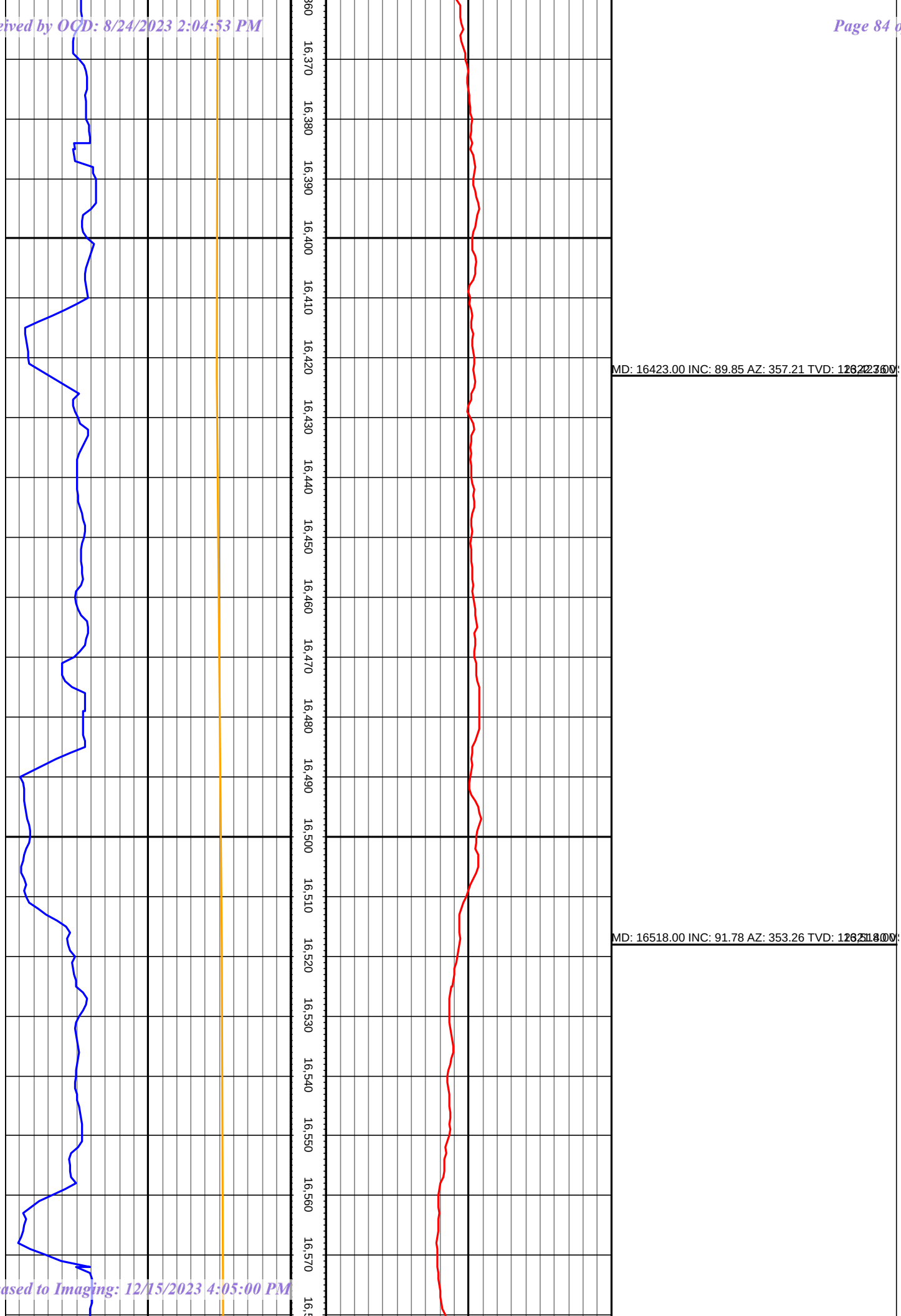
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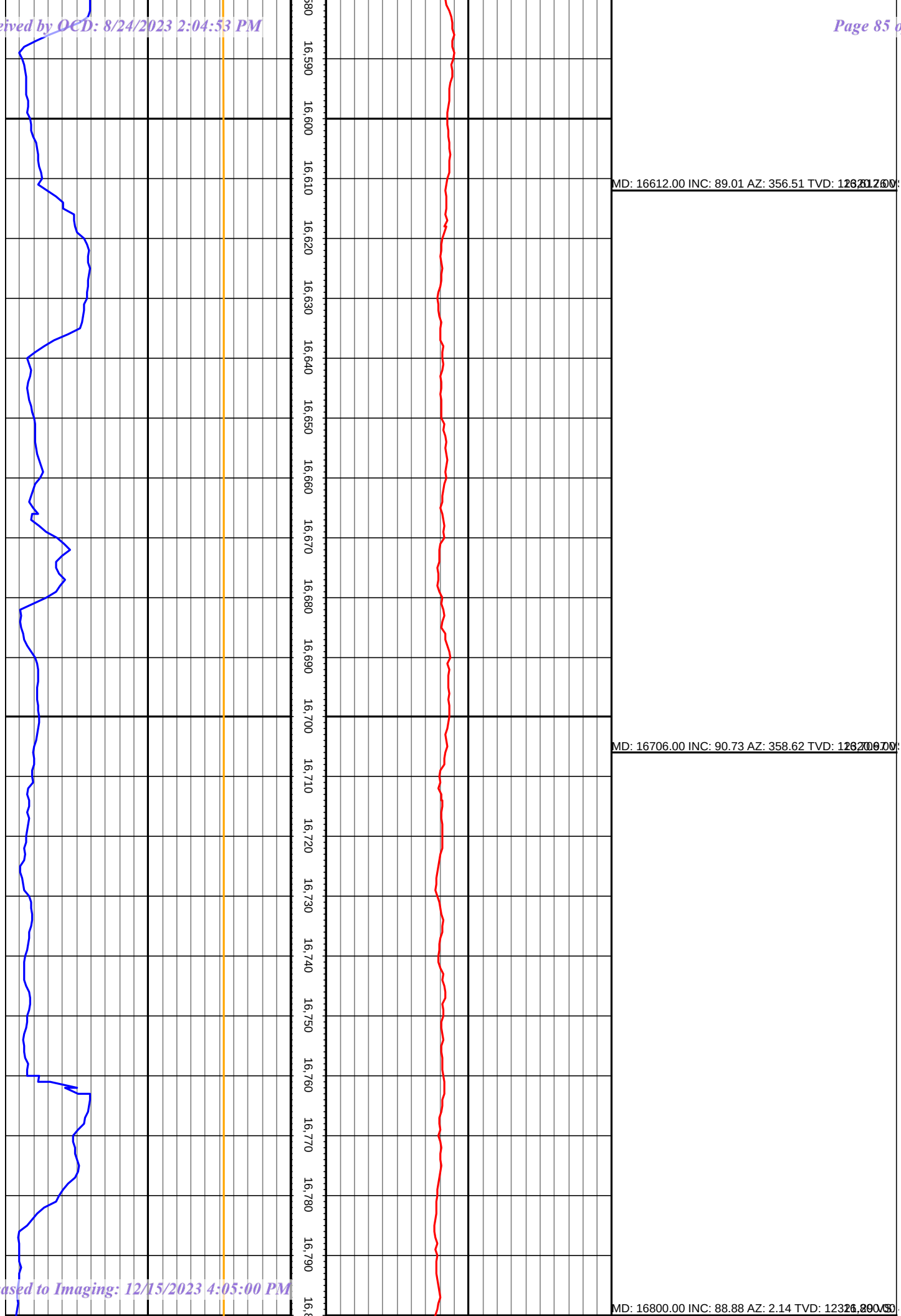
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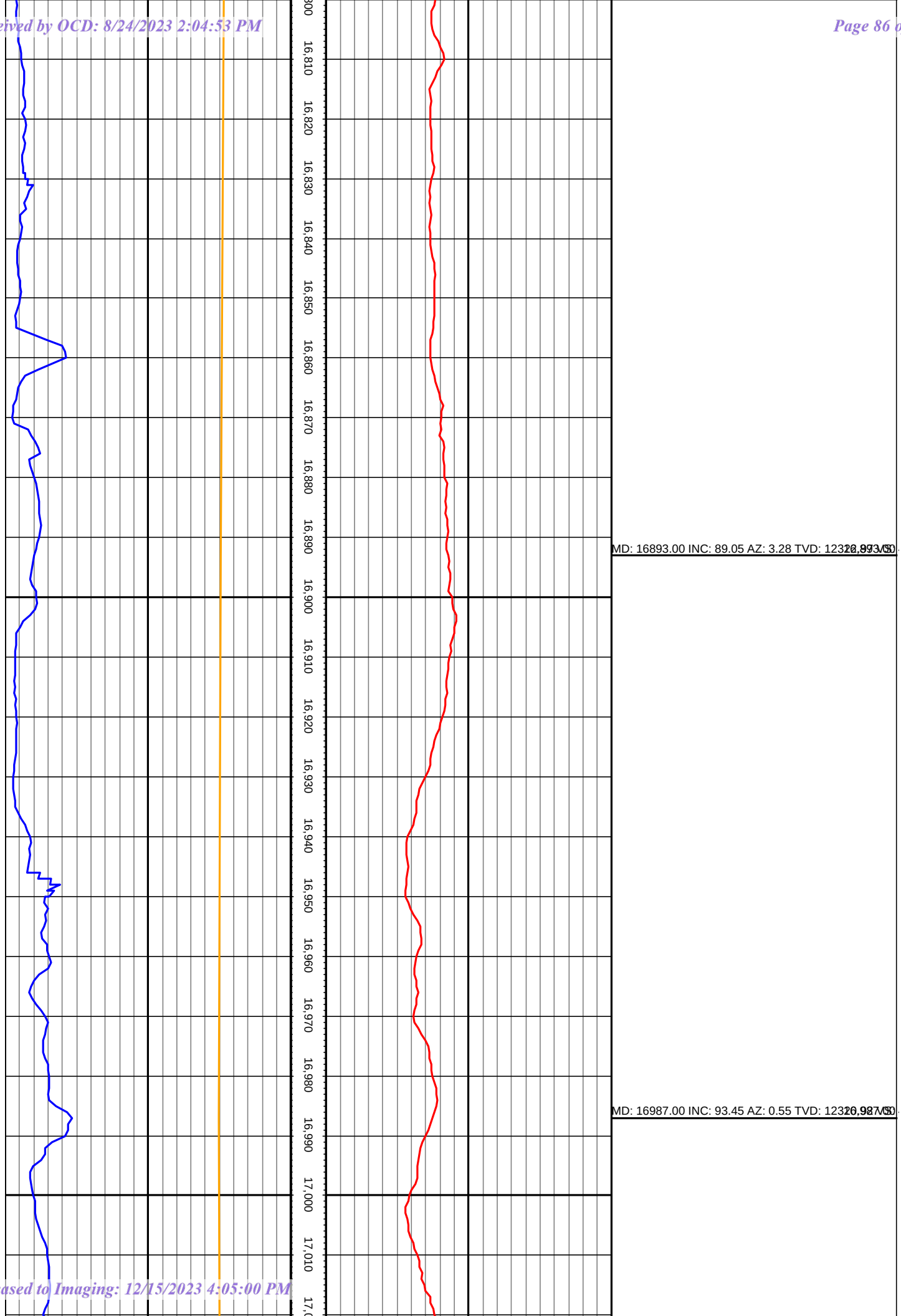
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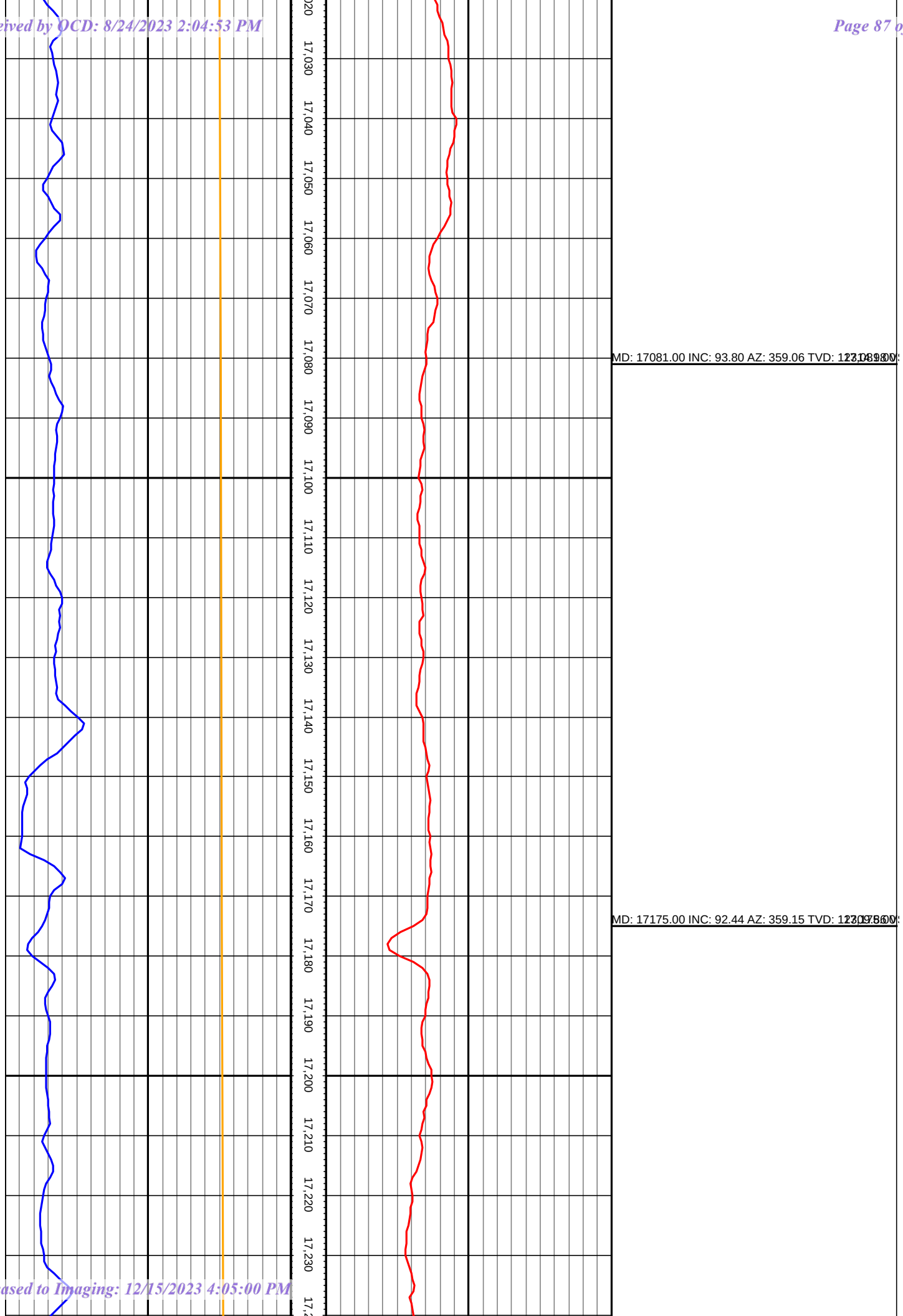
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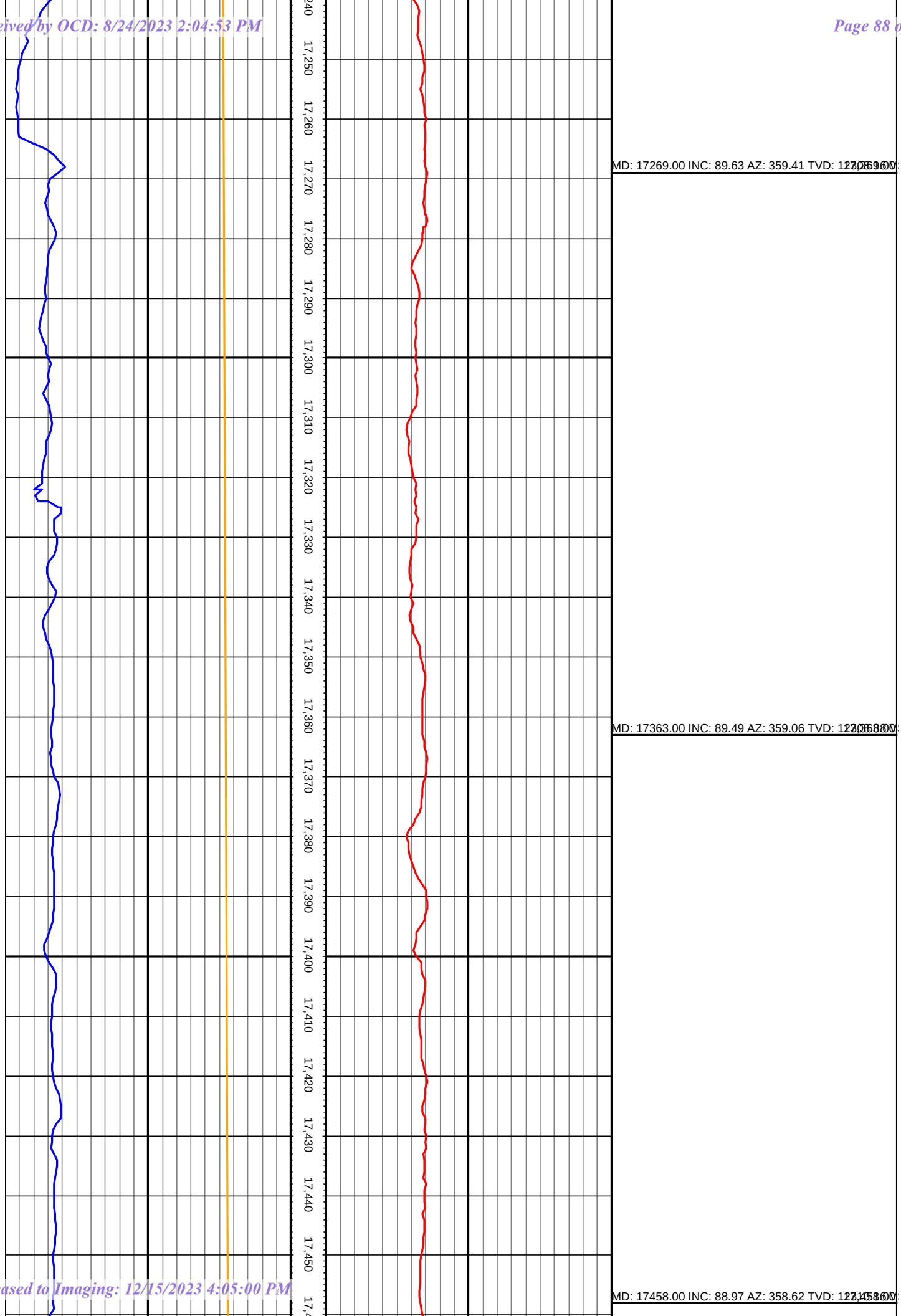
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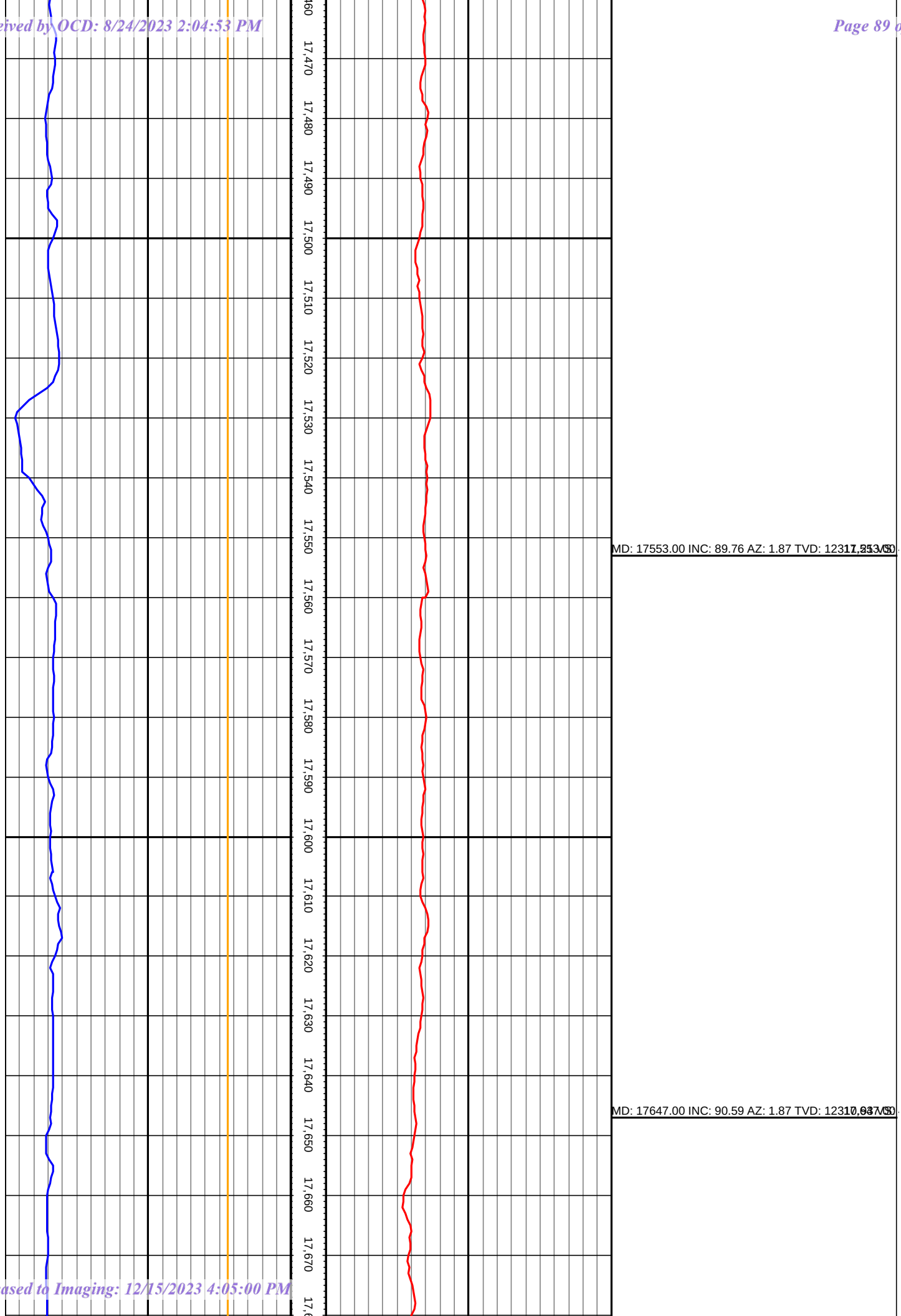
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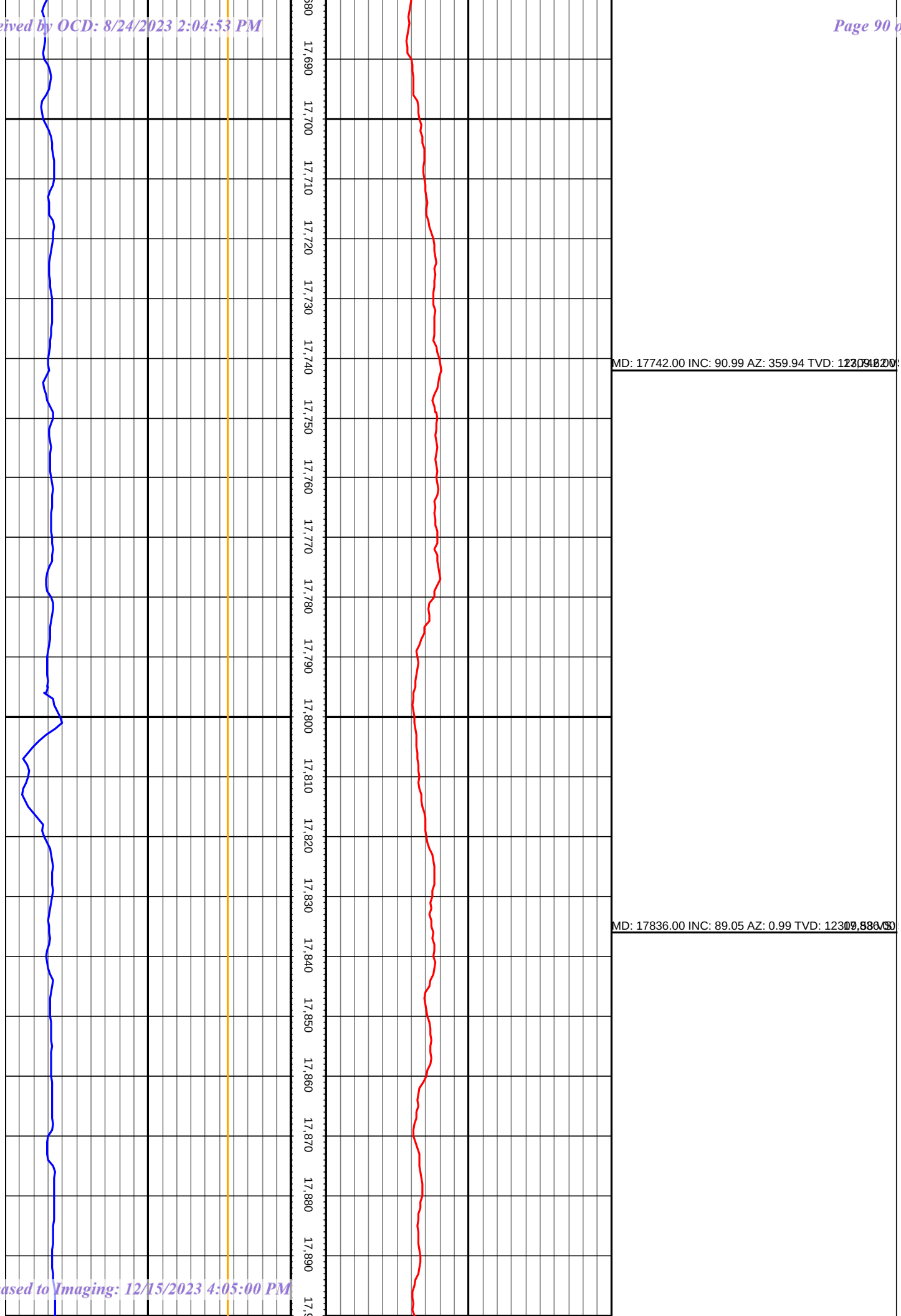
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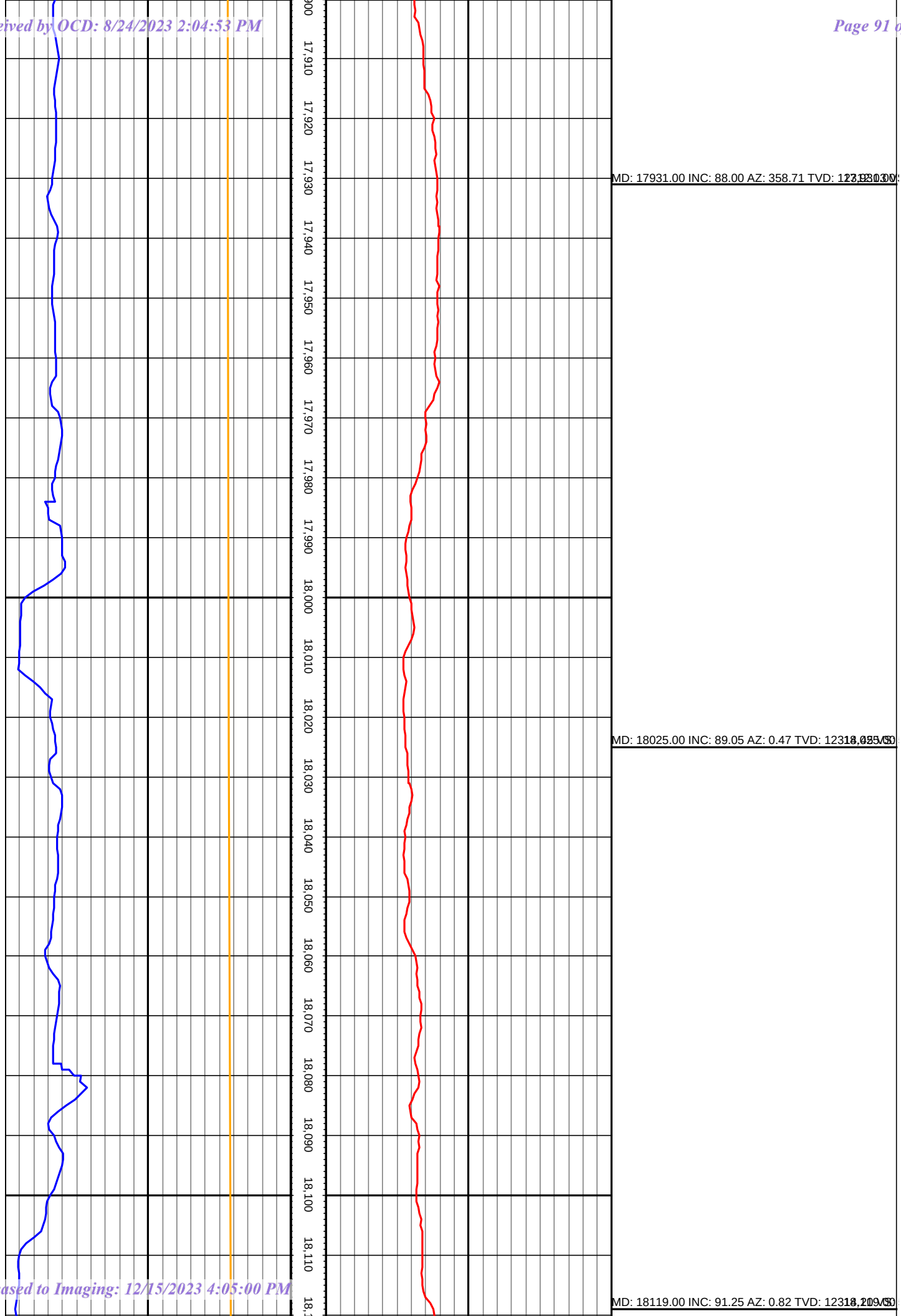
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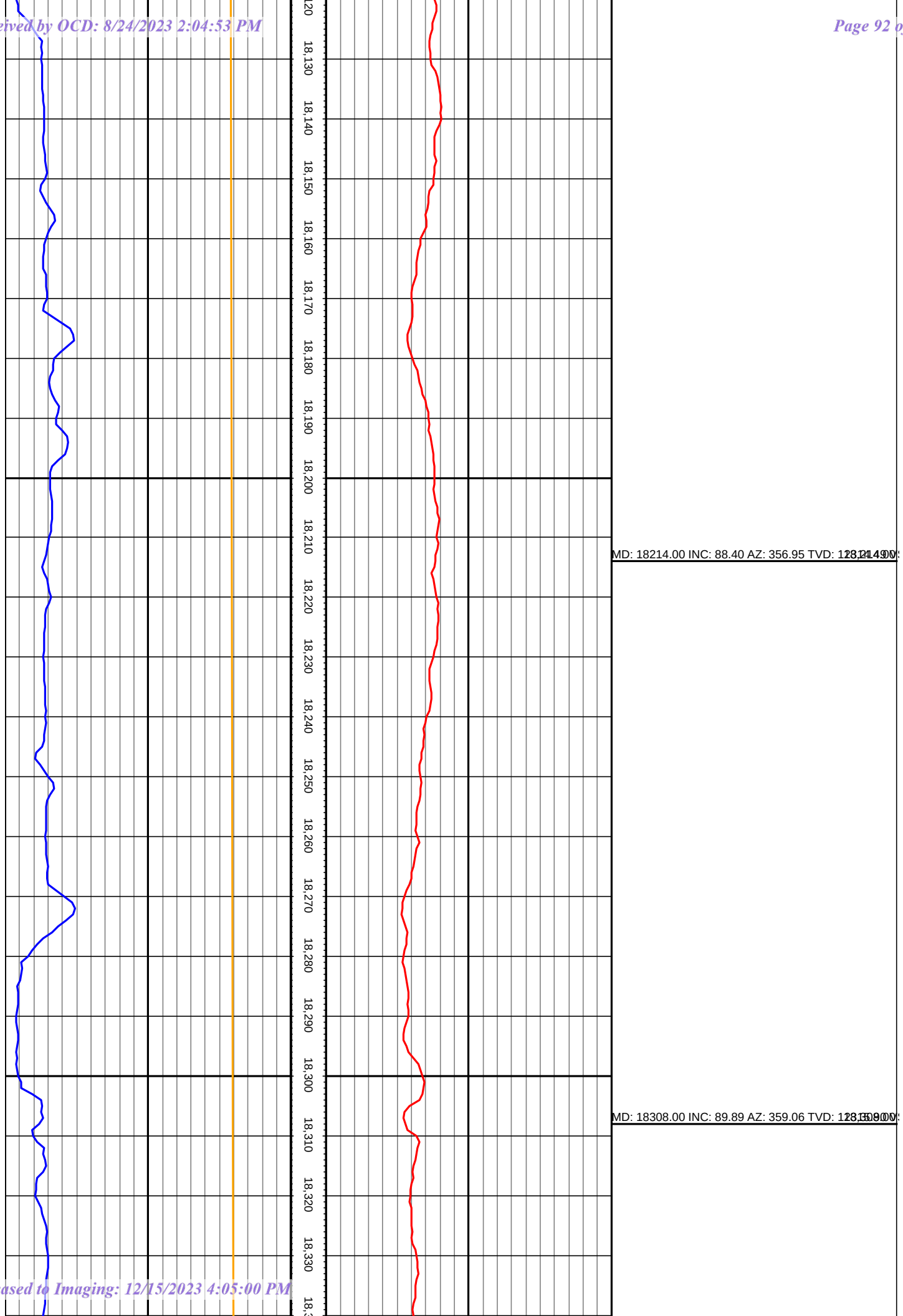
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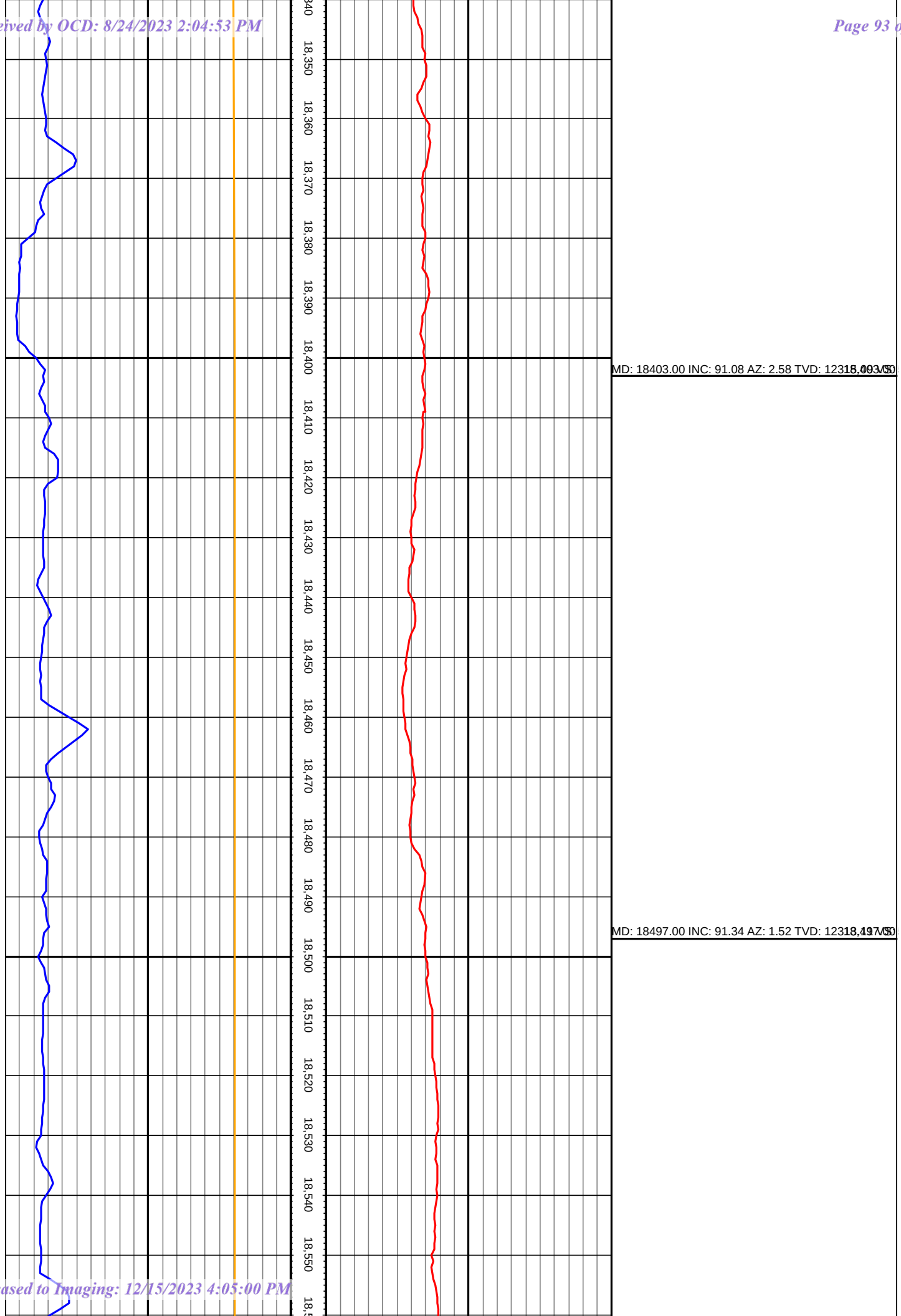
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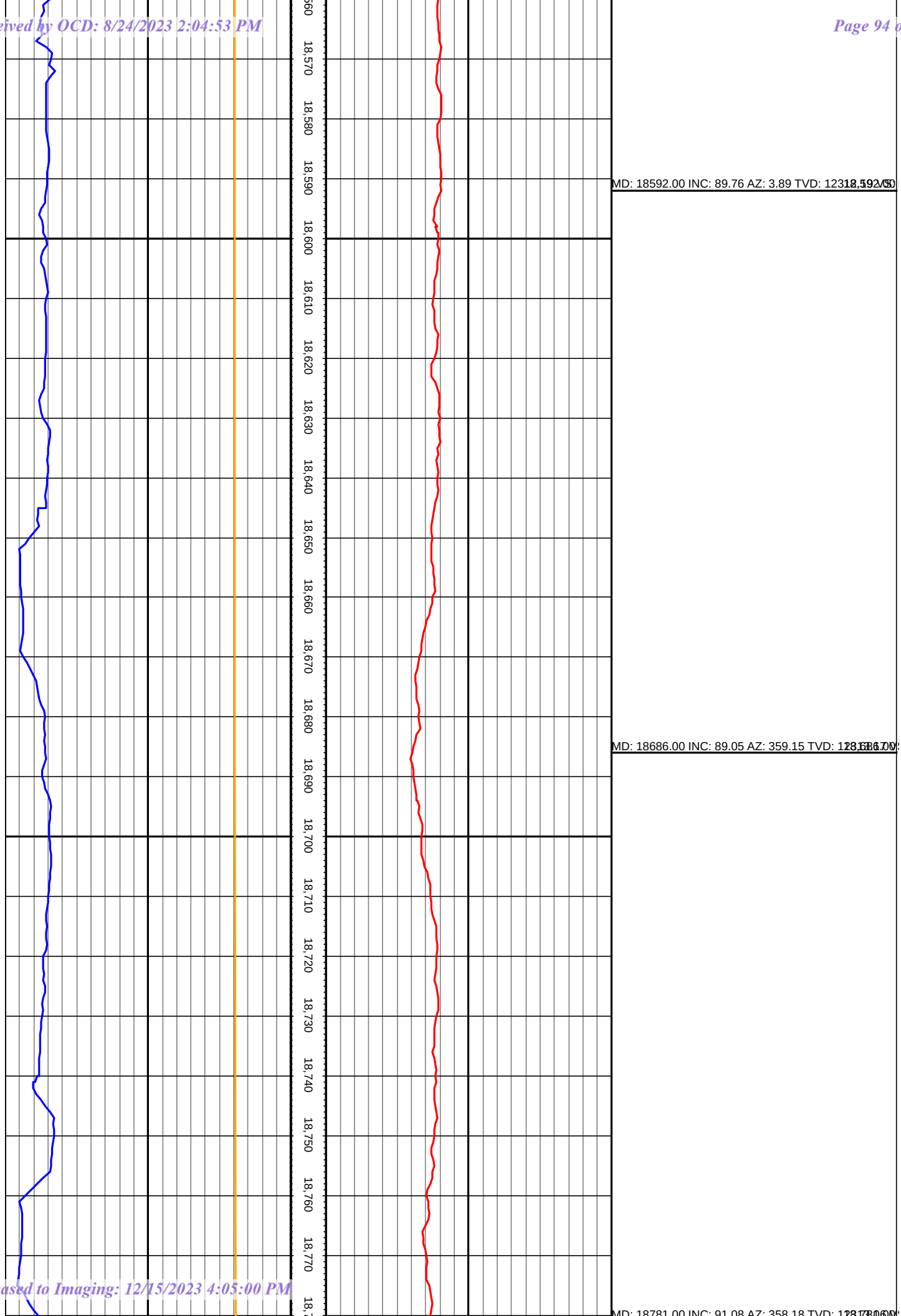
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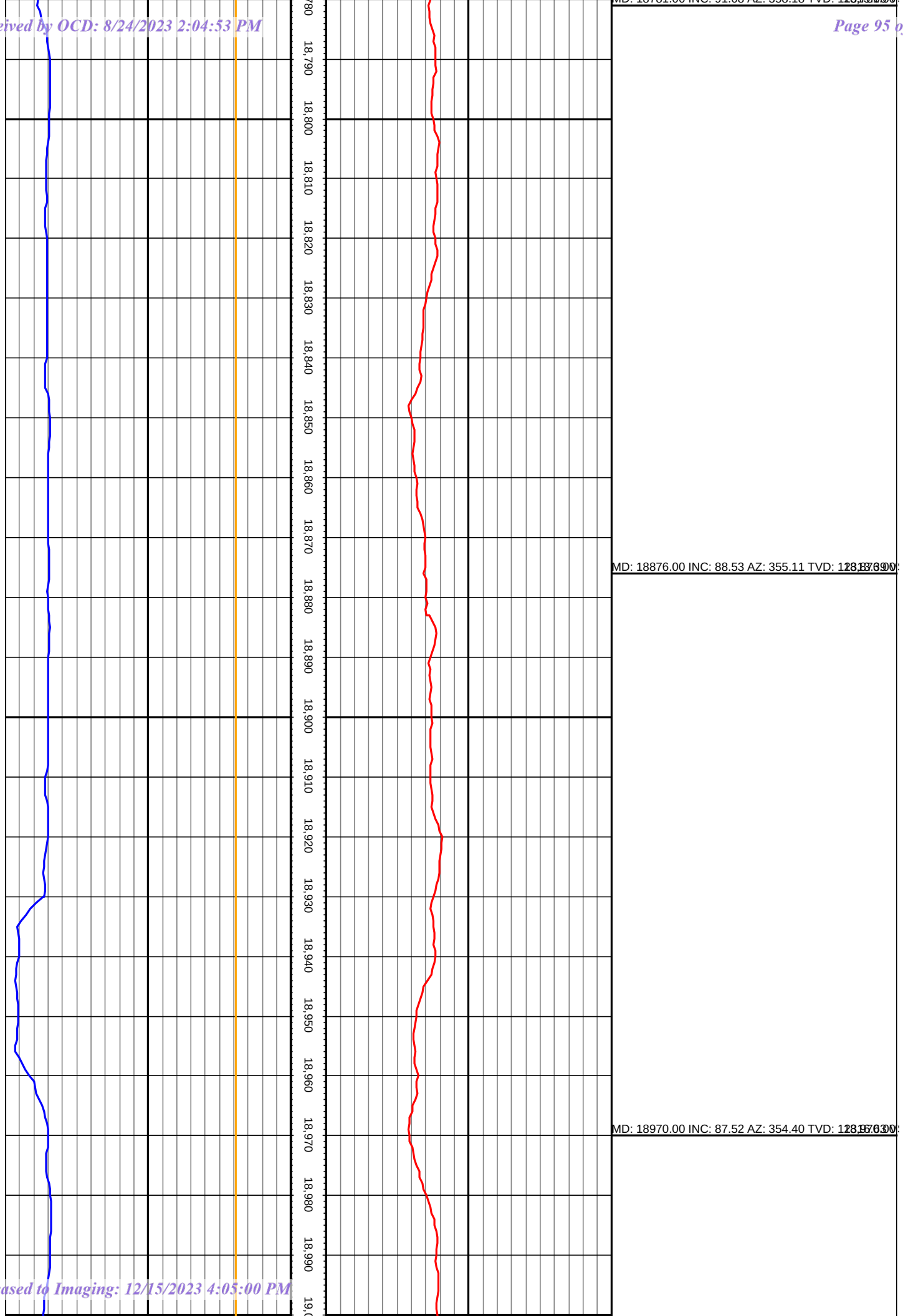
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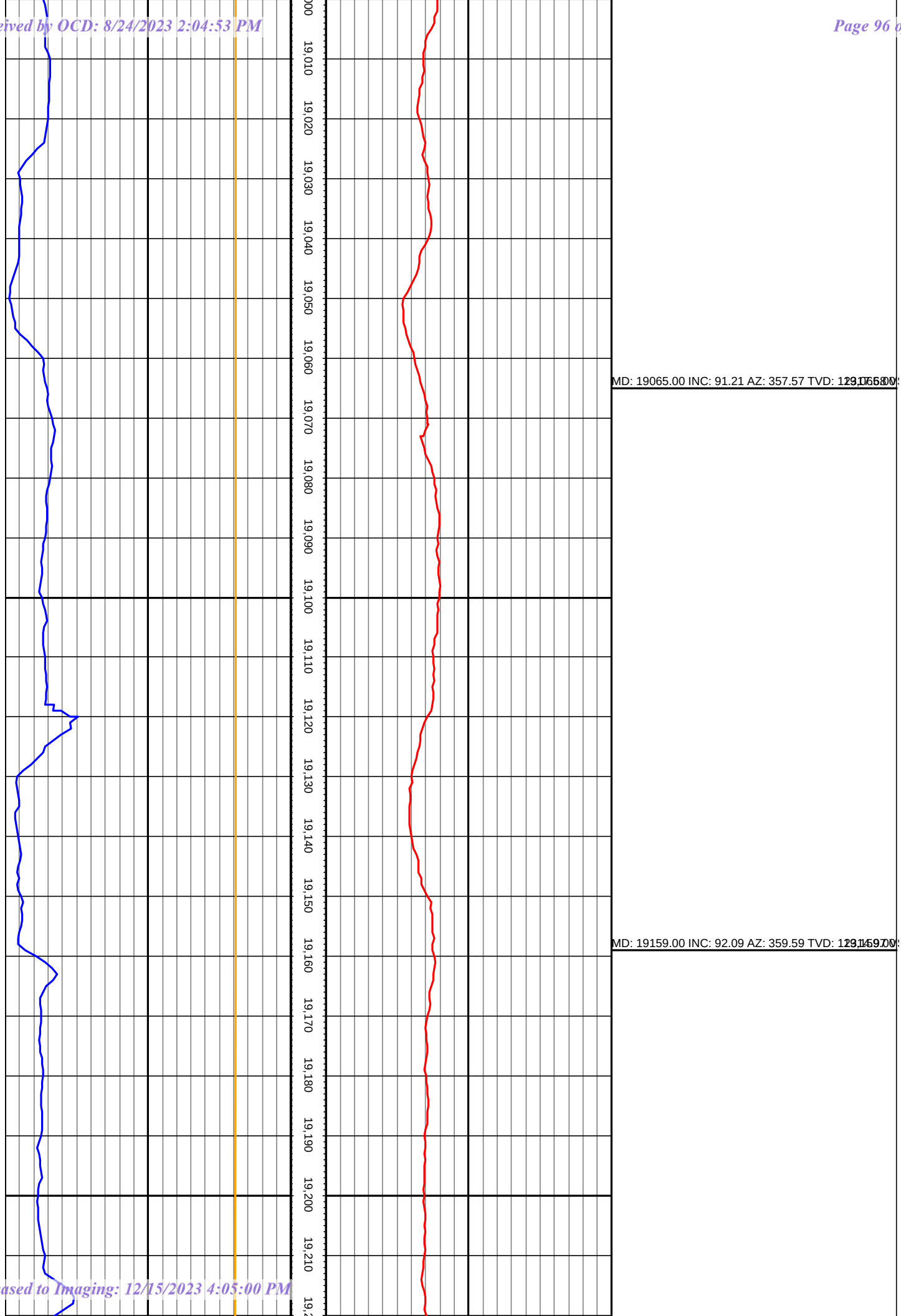
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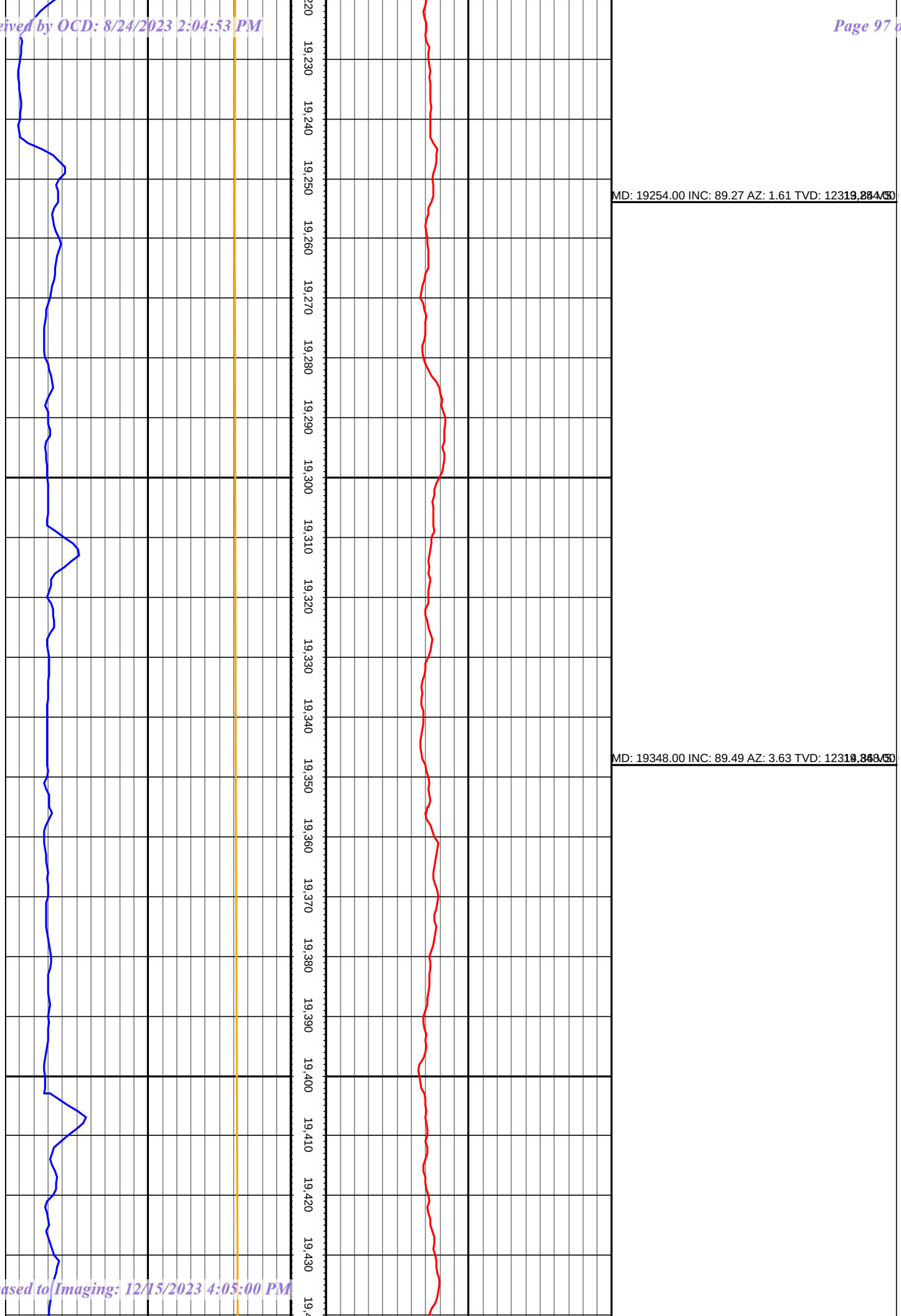
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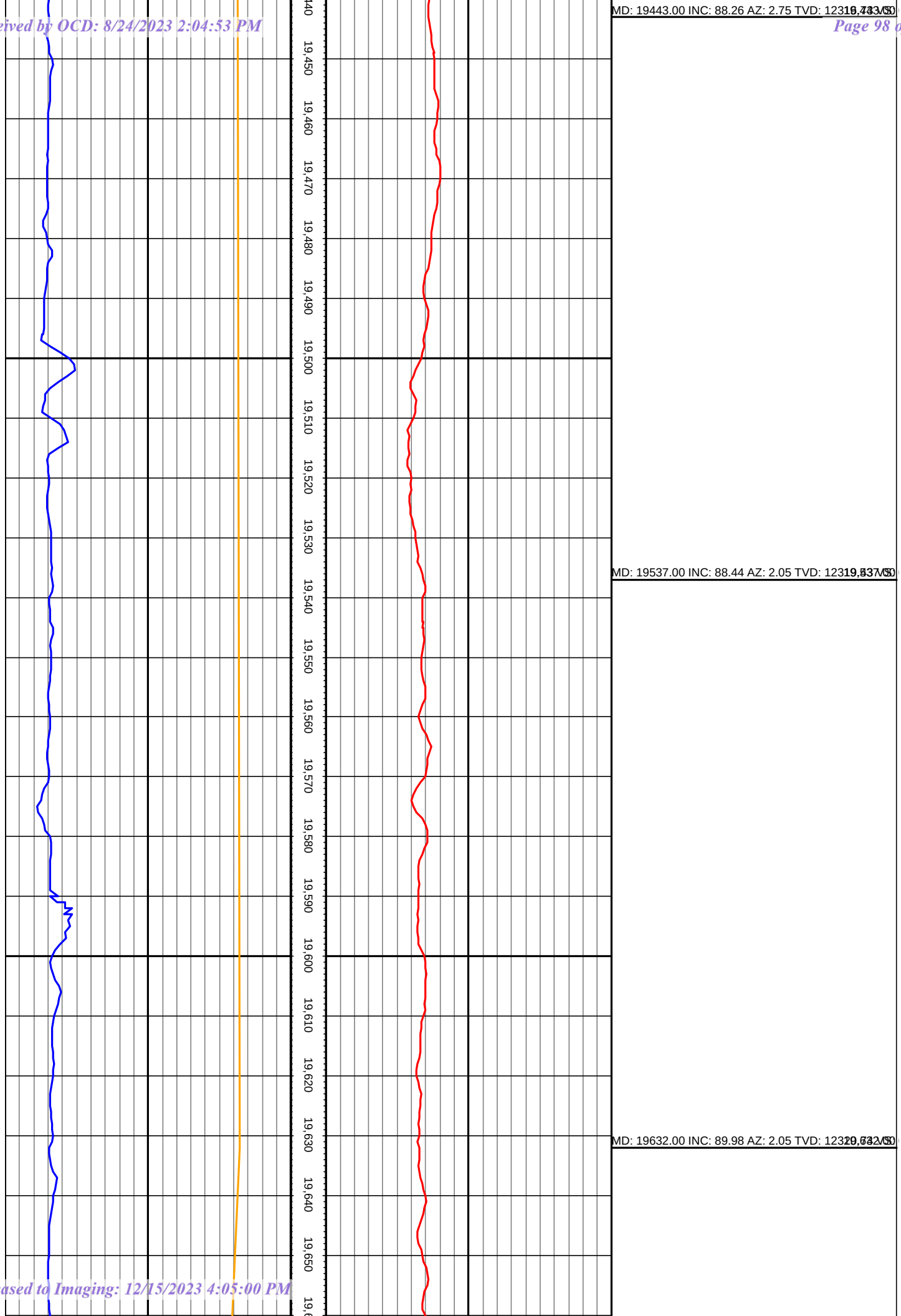
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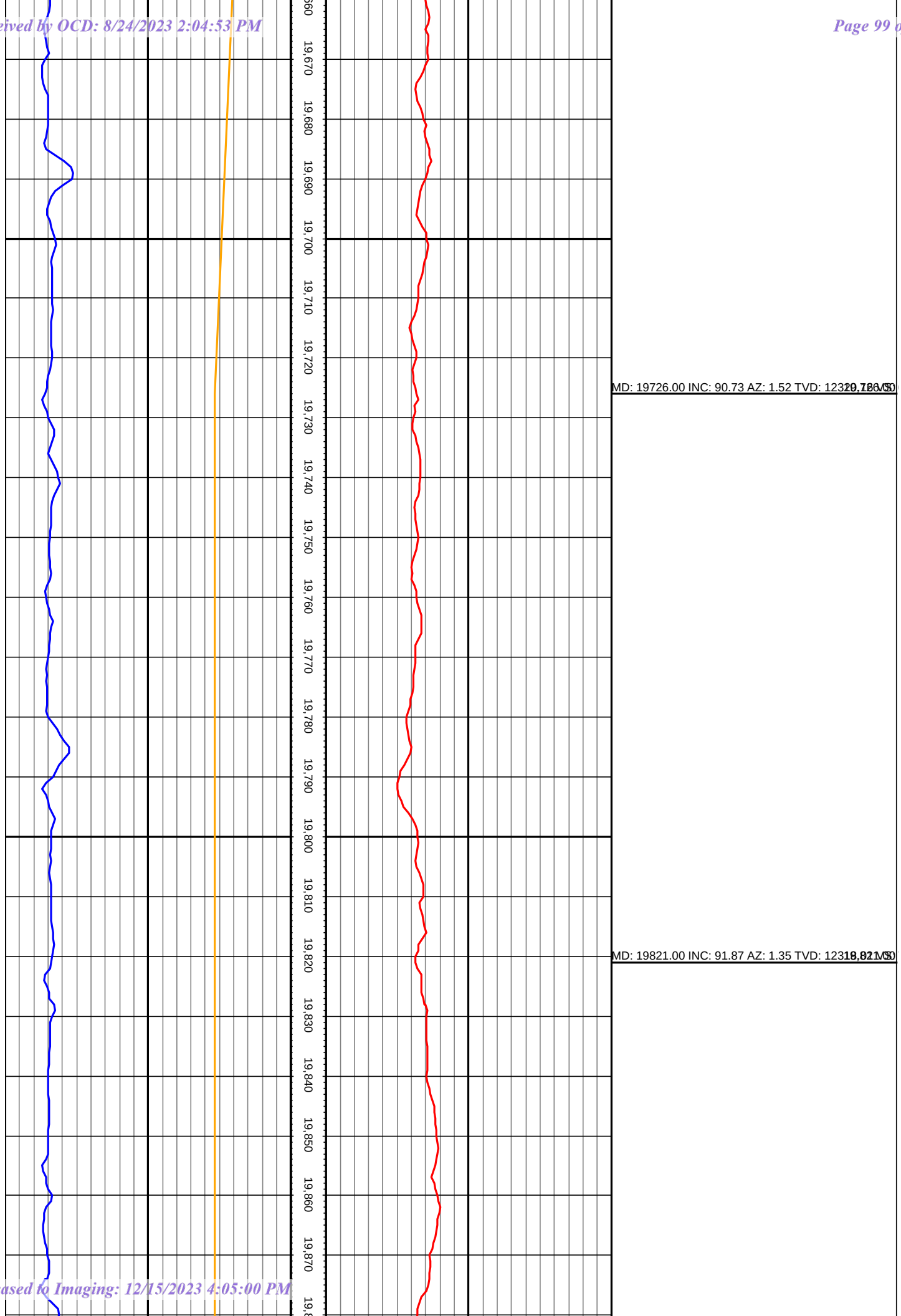
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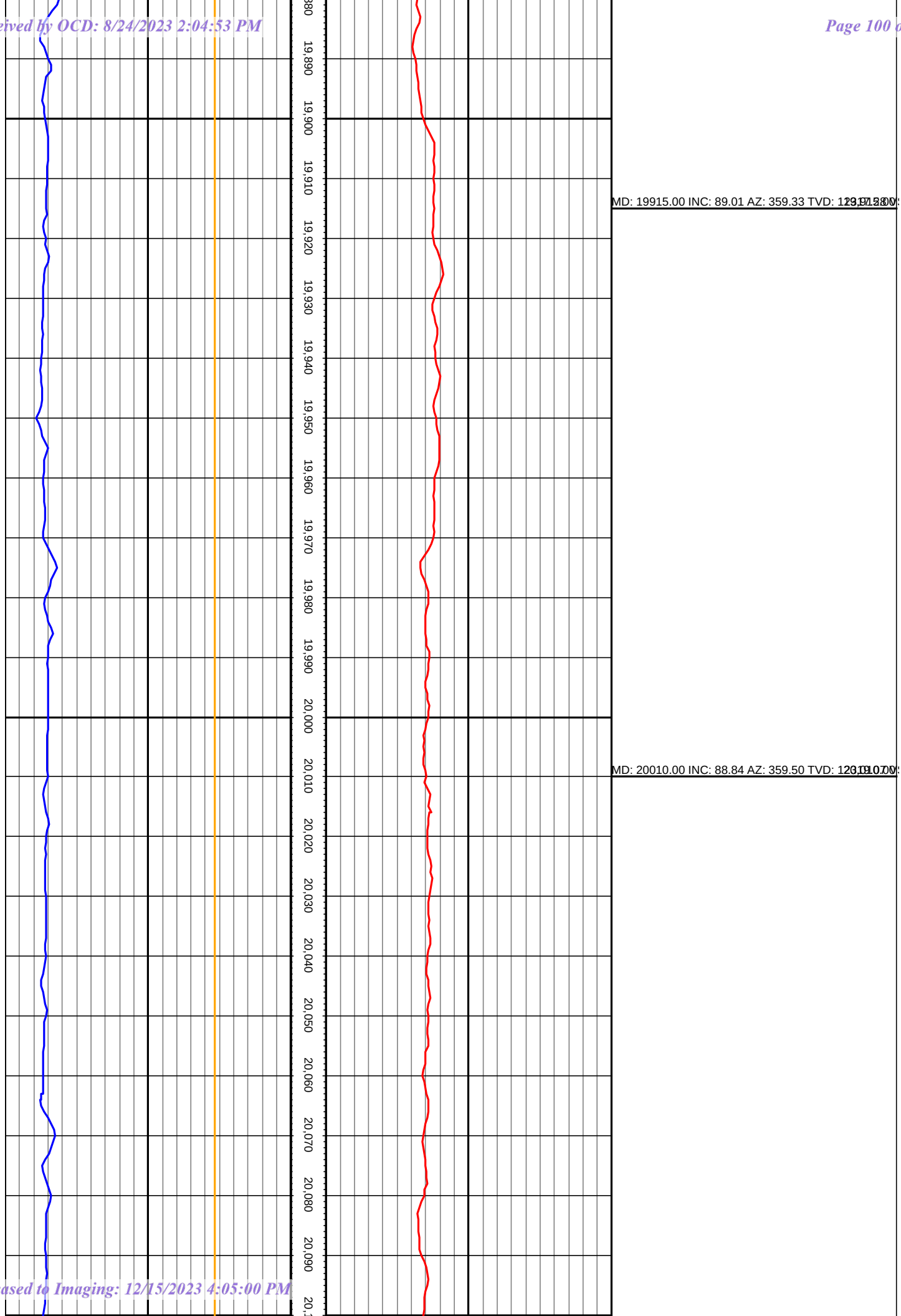
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MD: 20010.00 INC: 88.84 AZ: 359.50 TVD:

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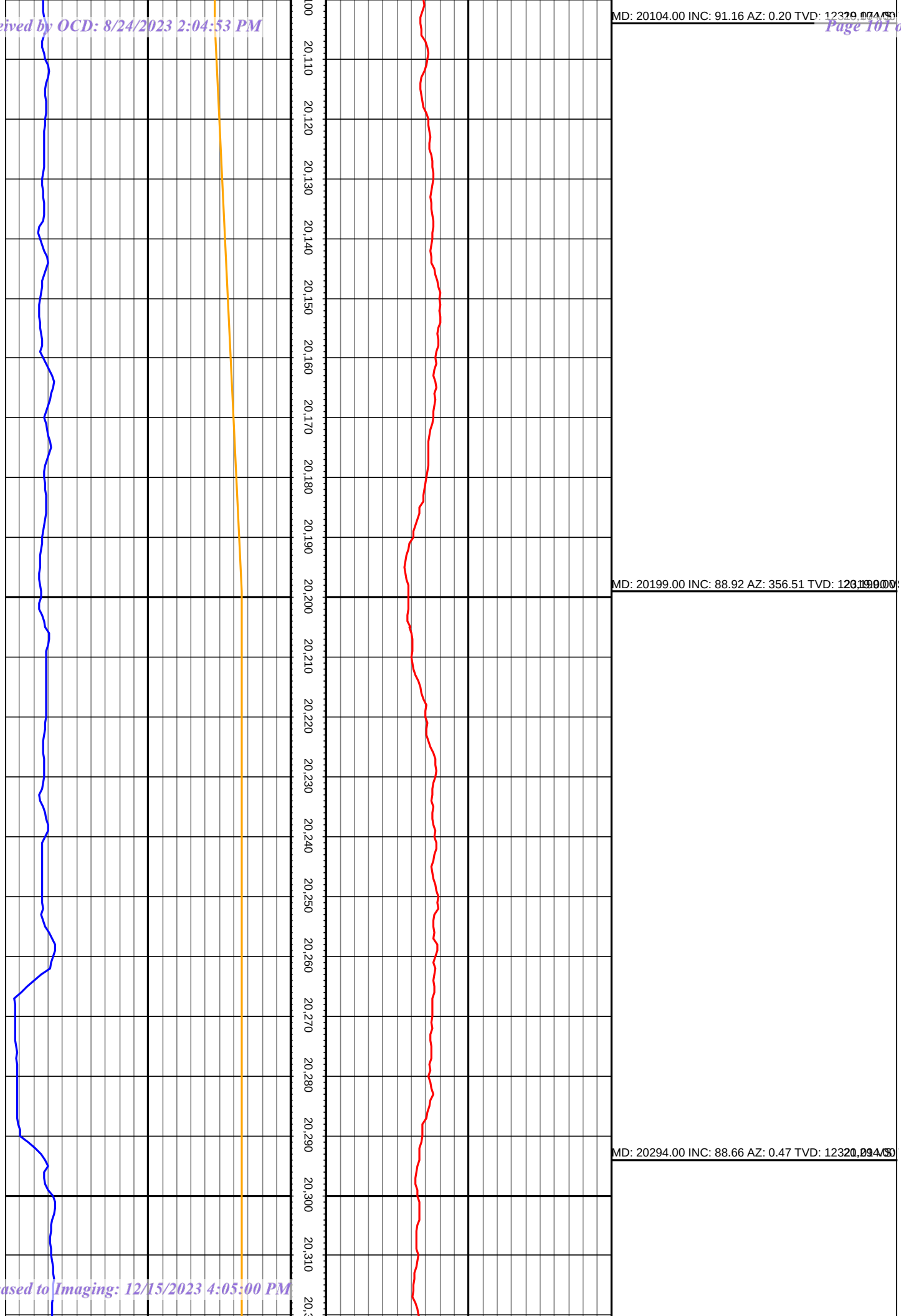

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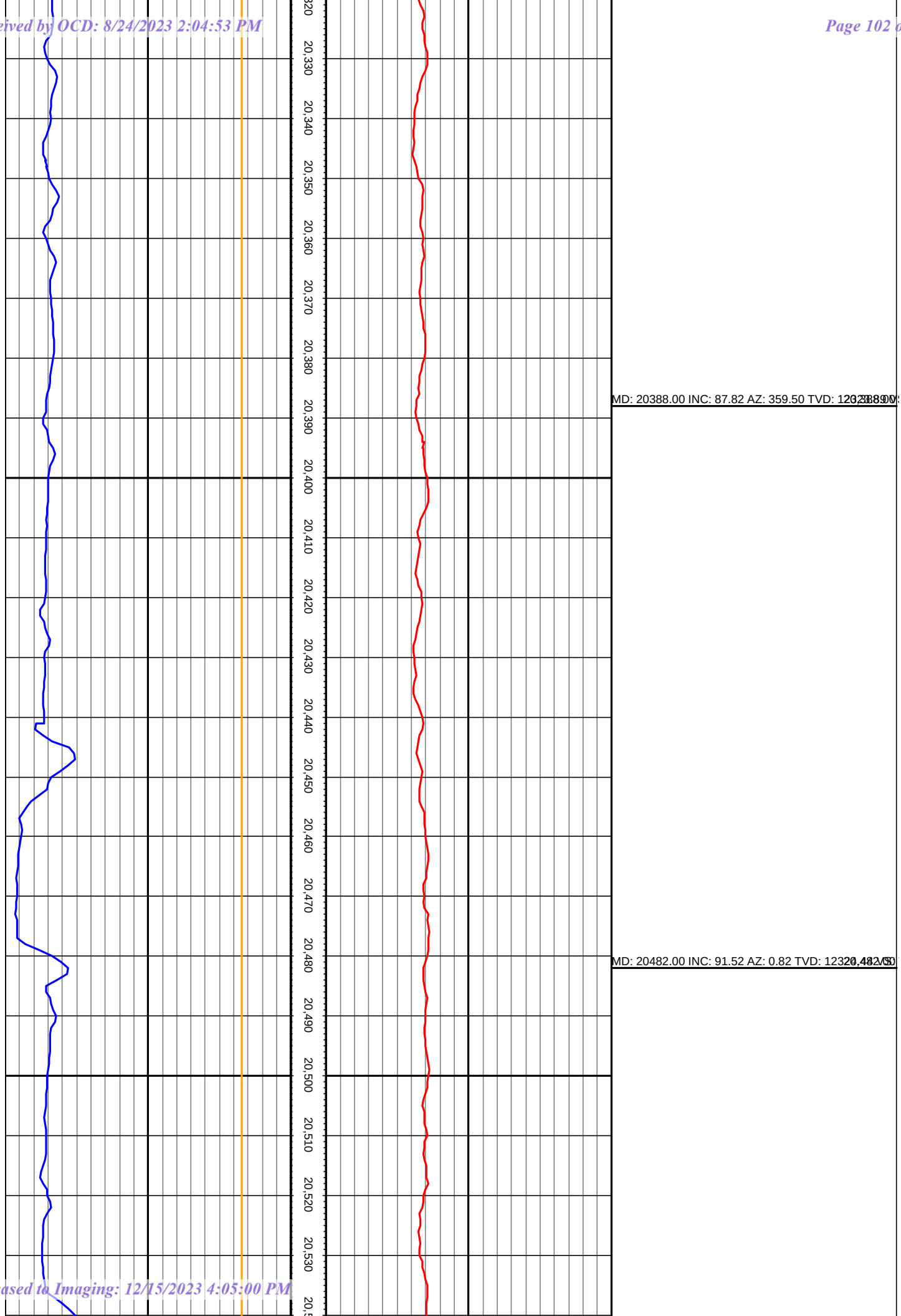
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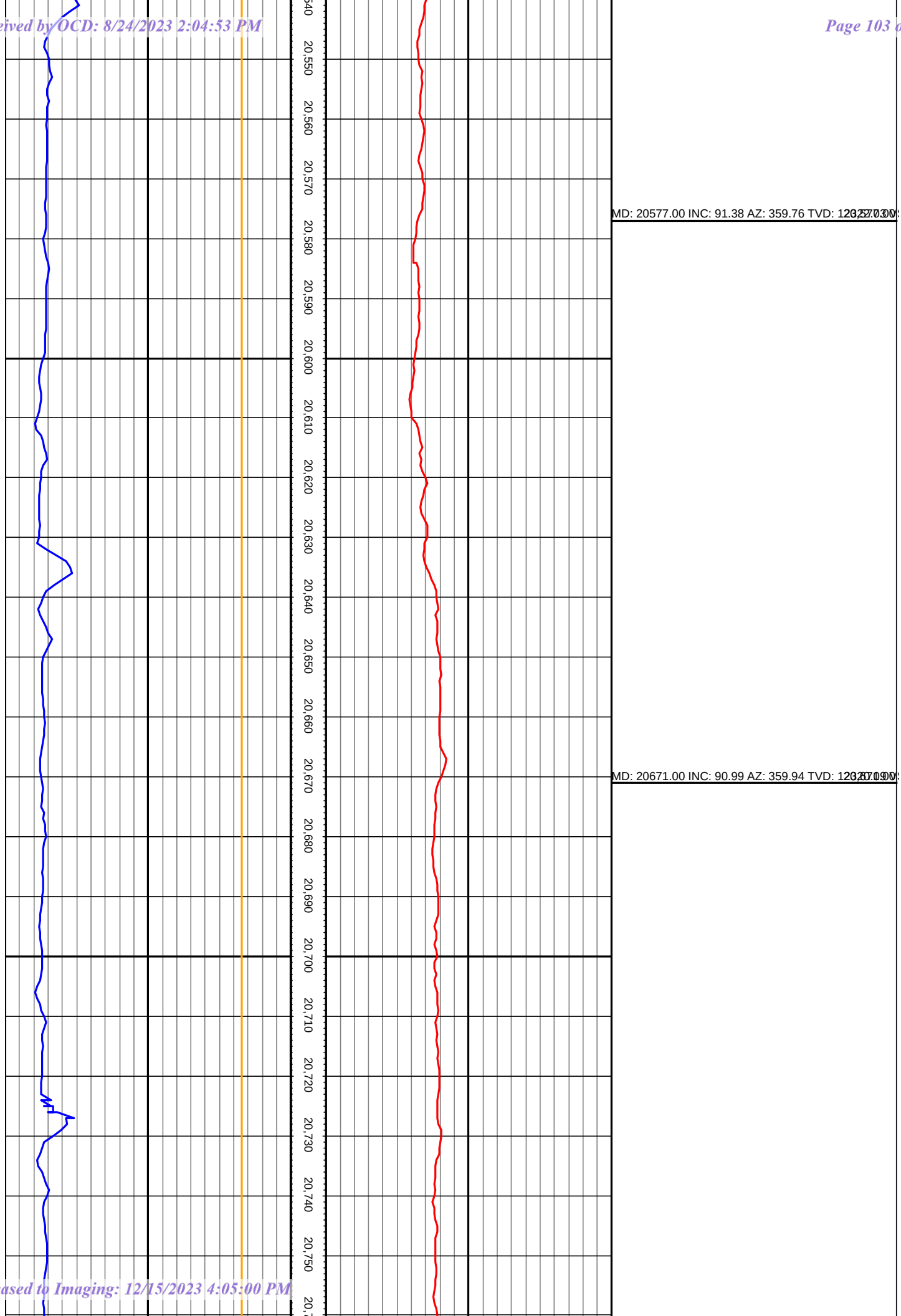
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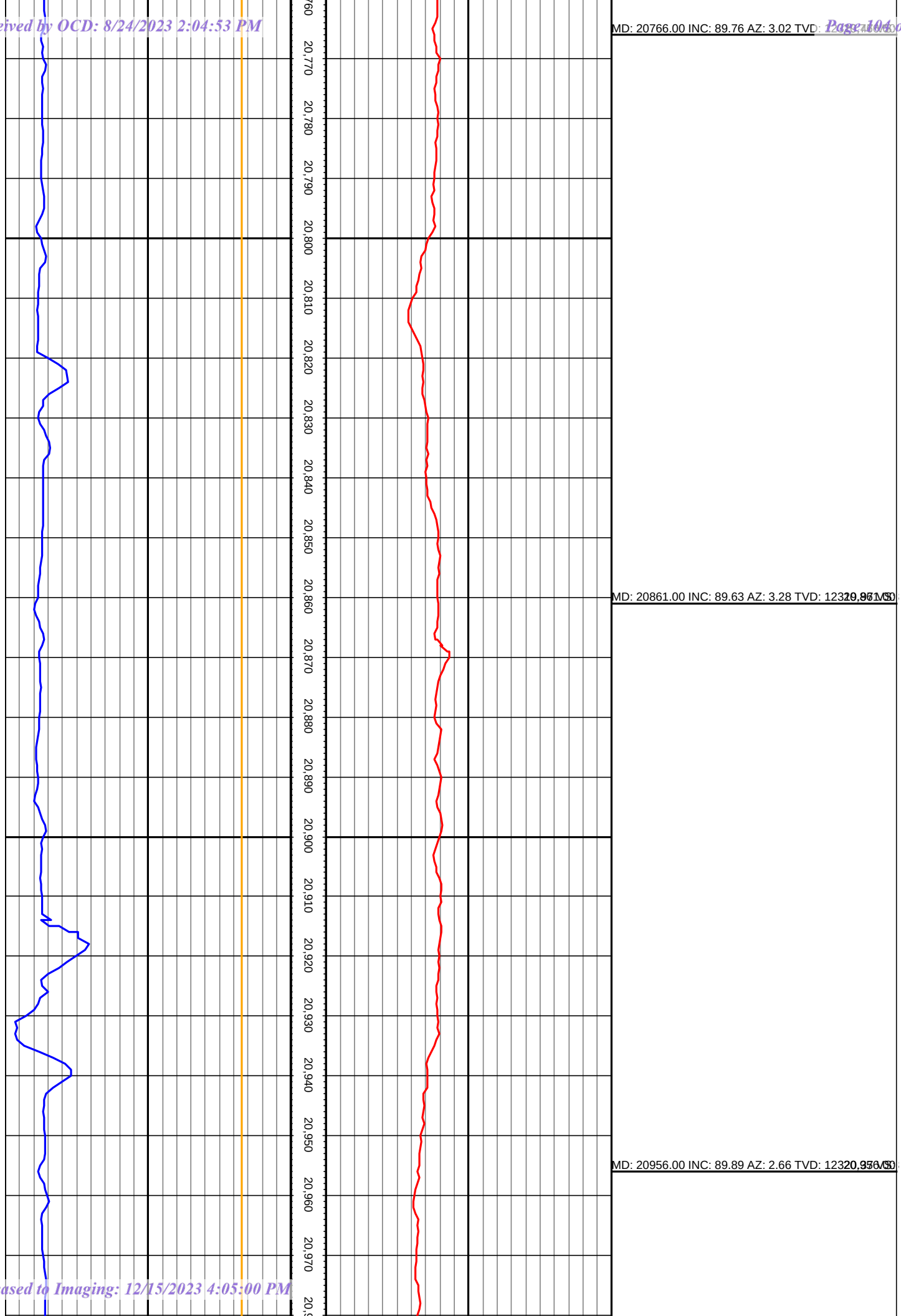

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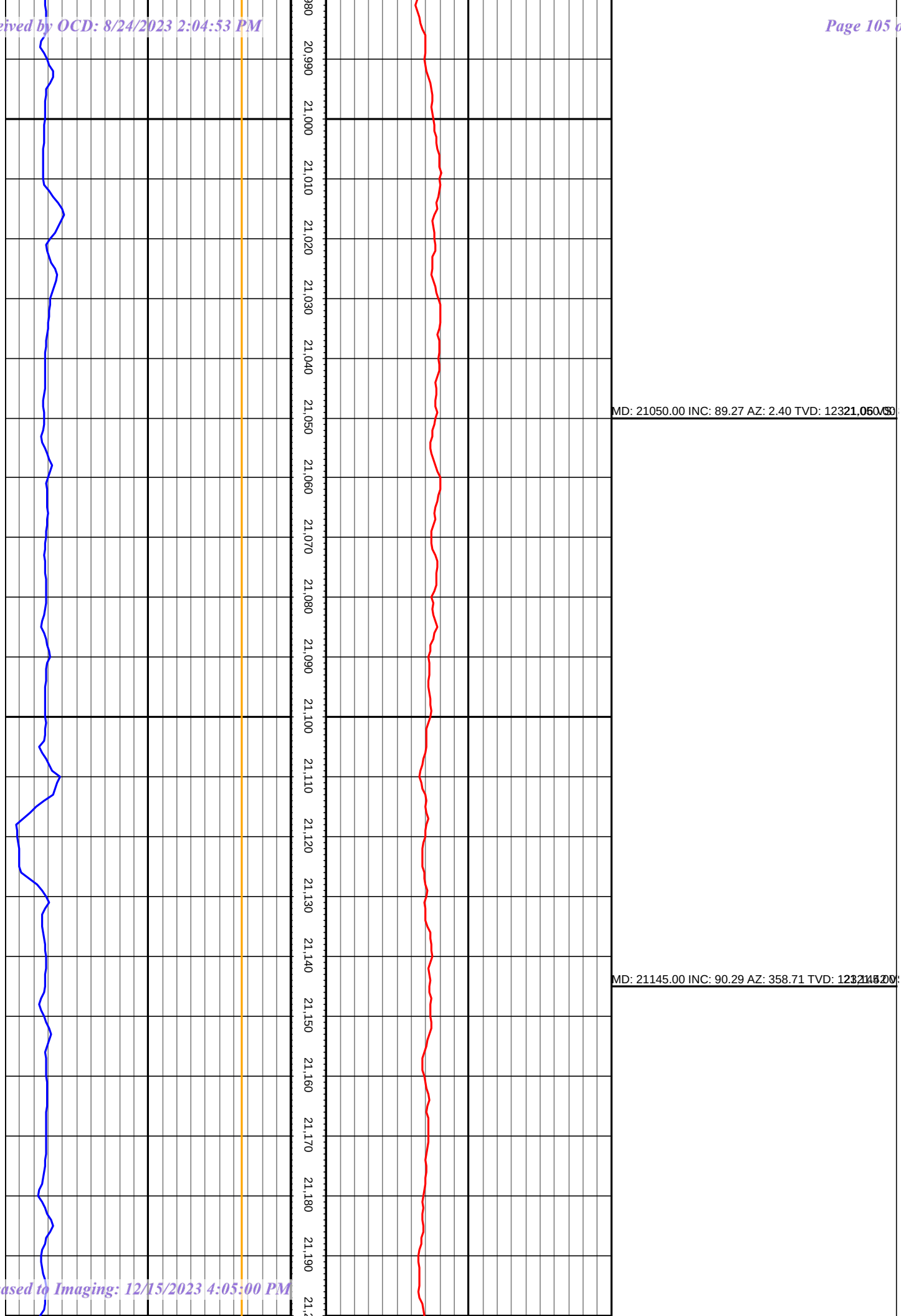
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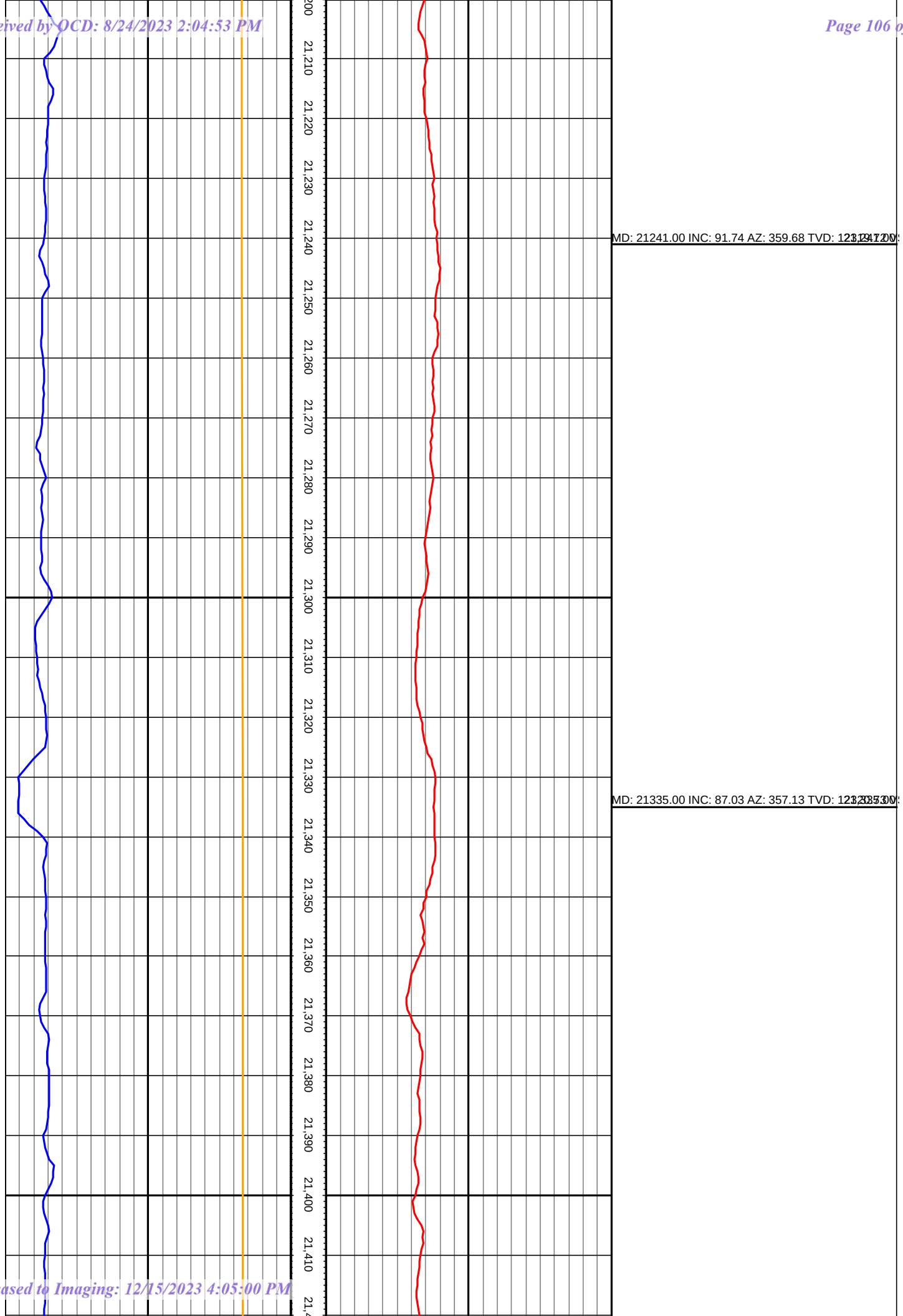
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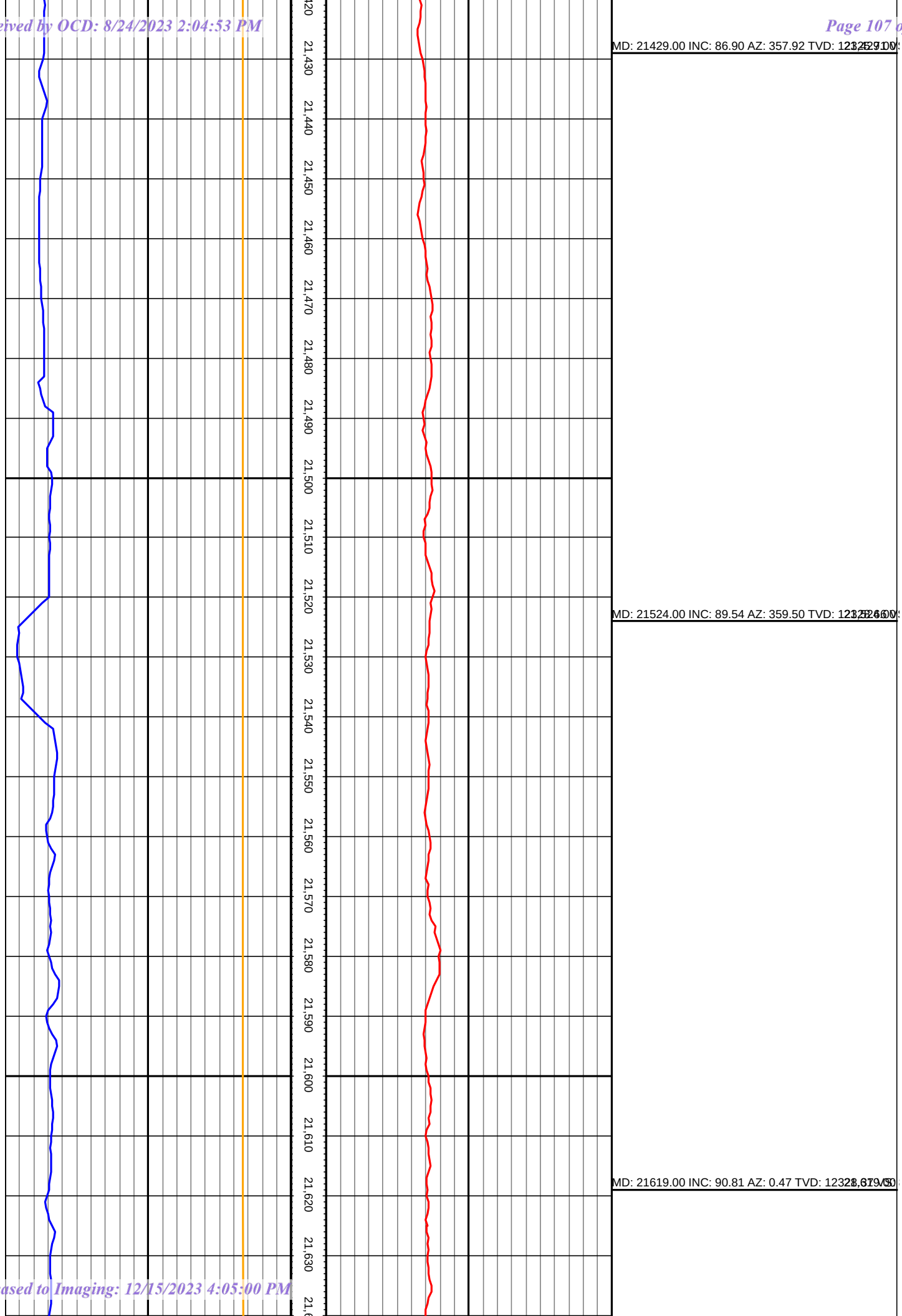
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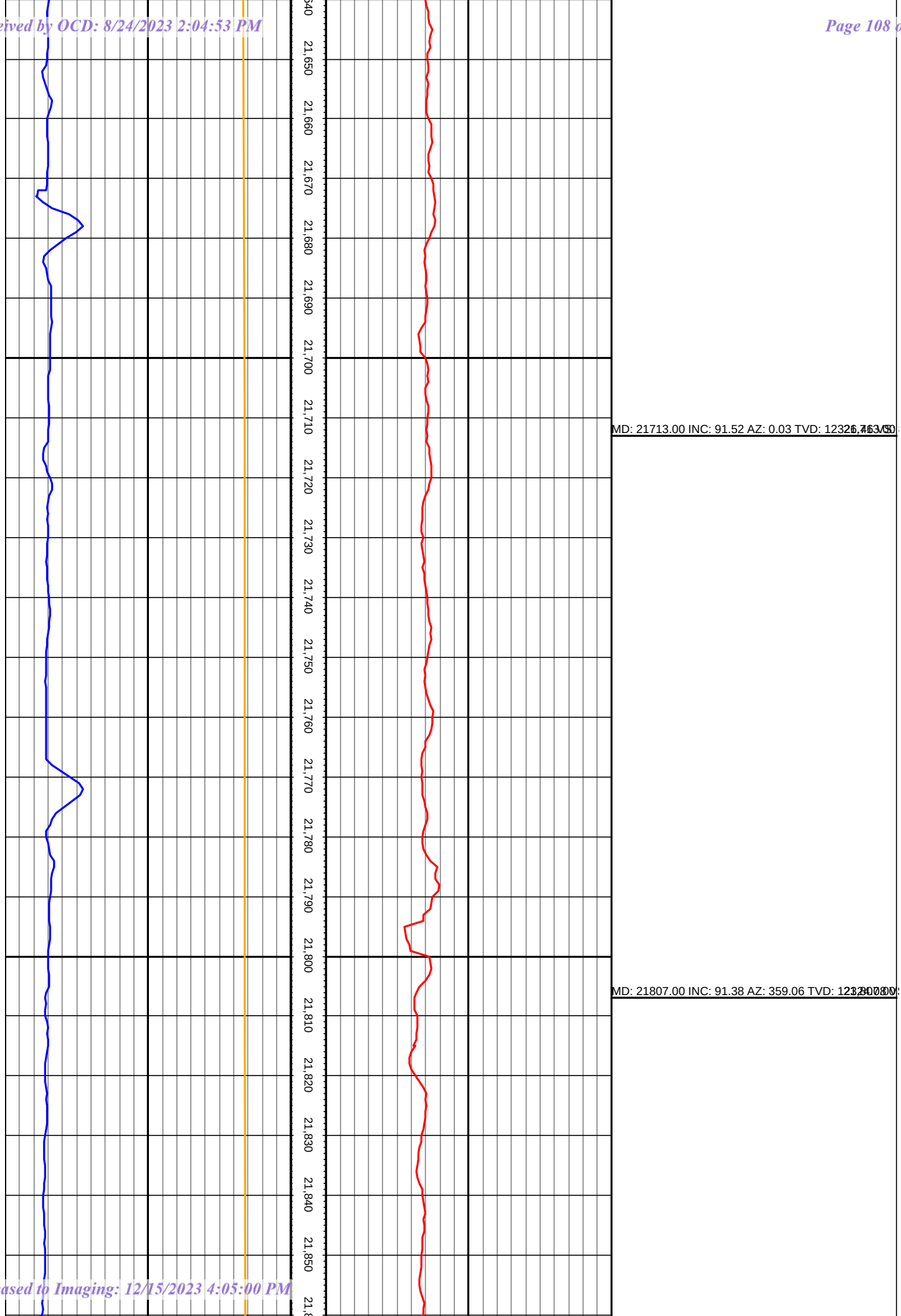
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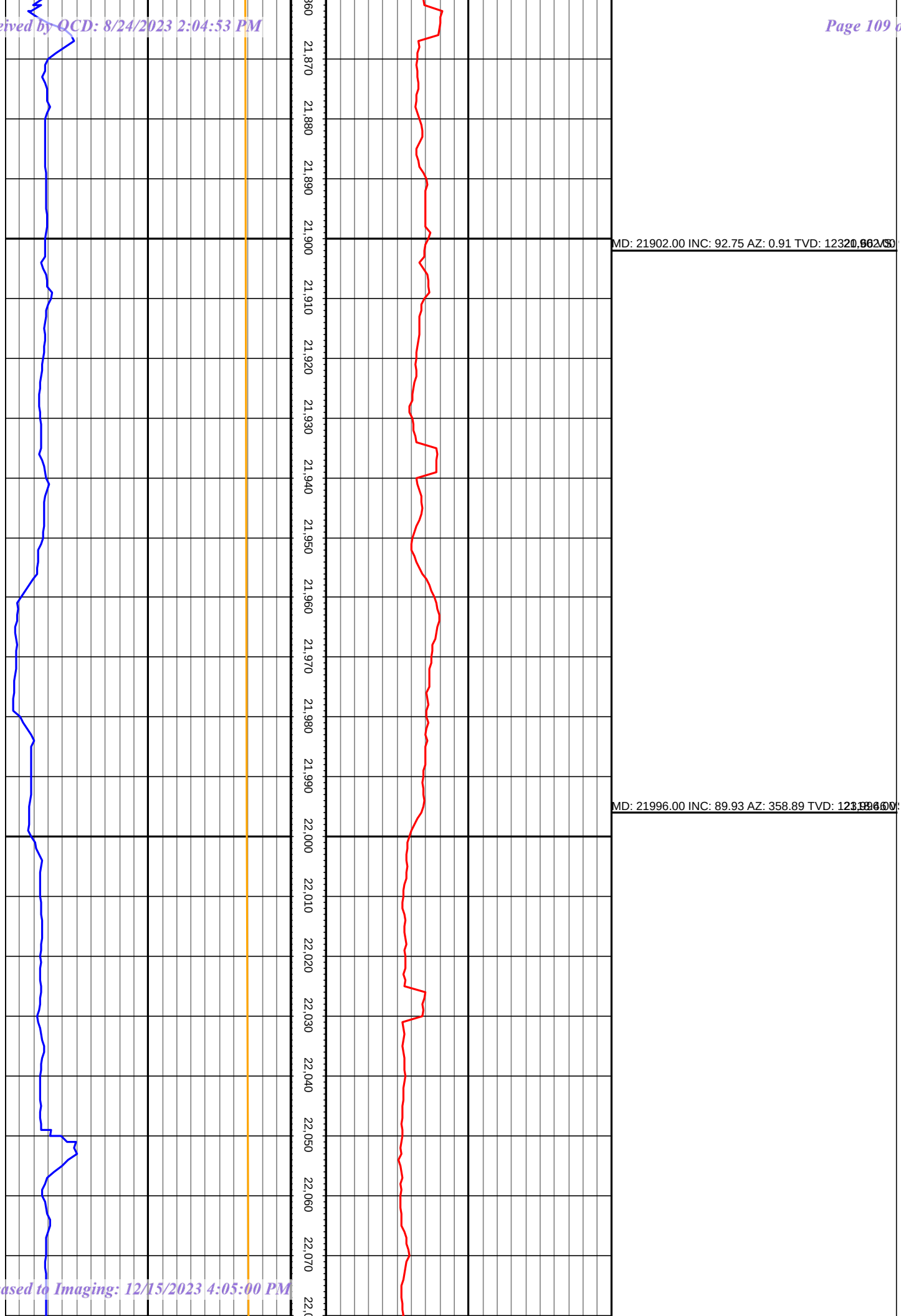
MD: 21807.00 INC: 91.38 AZ: 359.06 TVD: 12328.00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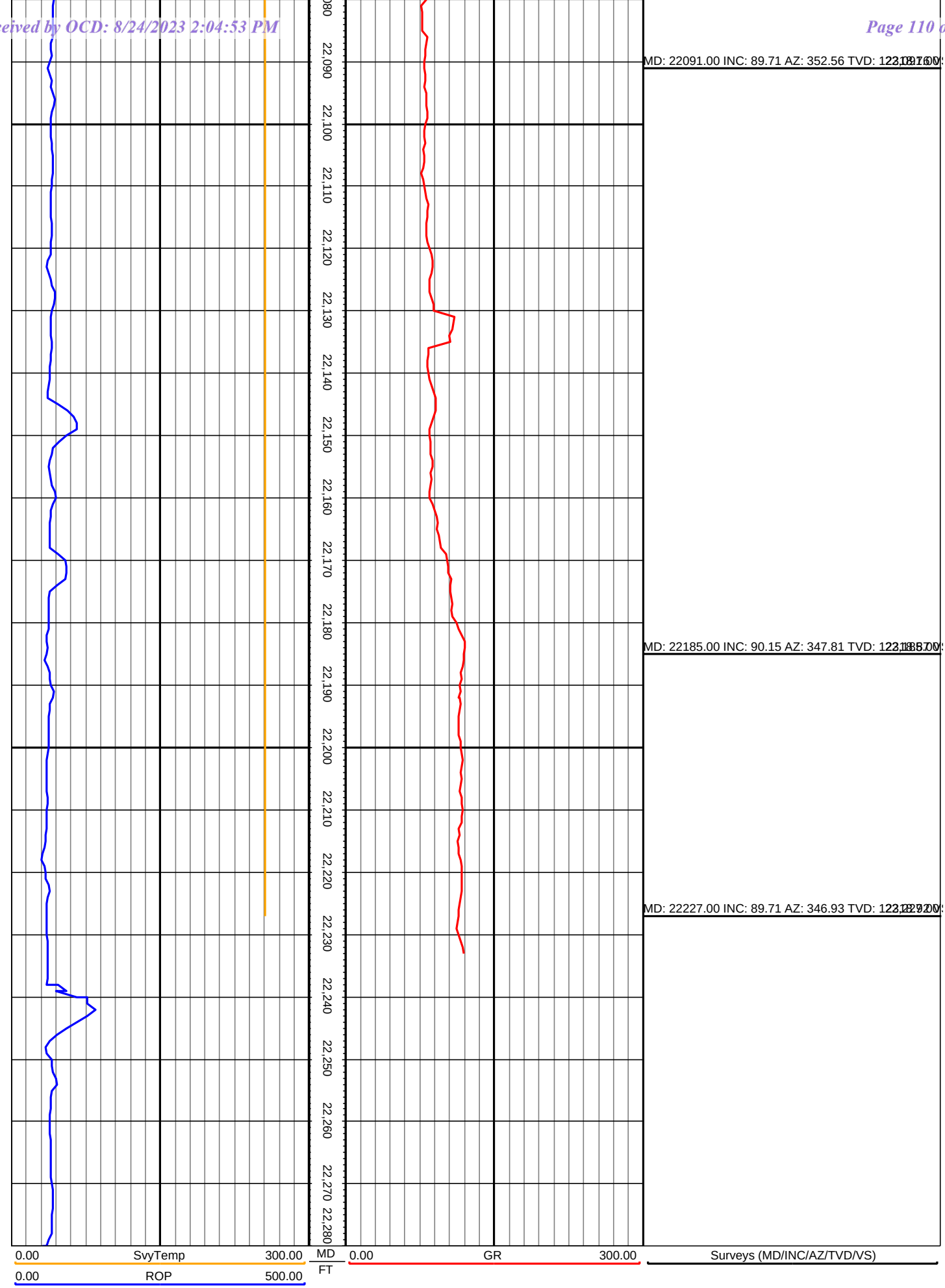
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MD: 22185.00 INC: 90.15 AZ: 347.81 TVD:
MD: 22227.00 INC: 89.71 AZ: 346.93 TVD:
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22,270
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0.00
SvyTemp
300.00
0.00
ROP
500.00
MD
FT
0.00
GR
300.00
Surveys (MD/INC/AZ/TVD/VS)

Midland

Eddy County, NM (NAD 83 NME)
Cassidy 18 Fed Com
#778H
OH

Design: OH

Final PVA

28 April, 2022

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Project Eddy County, NM (NAD 83 NME)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Cassidy 18 Fed Com

Site Position:		**Northing:**	377,185.00 usft	**Latitude:**	32° 2' 9.214 N
From:	Map	**Easting:**	702,663.00 usft	**Longitude:**	103° 48' 45.751 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.28 °

Well #778H

Well Position	**+N/-S**	0.0 usft	**Northing:**	377,764.00 usft	**Latitude:**	32° 2' 15.108 N
	+E/-W	0.0 usft	**Easting:**	699,176.00 usft	**Longitude:**	103° 49' 26.230 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,184.0 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2020	3/10/2022	6.56	59.67	47,283.10979187

Design OH

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.0	0.0	0.0	358.85

Survey Program **Date** 4/28/2022

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
200.0	22,280.0	Stryker Directional (OH)	EOG MWD+IFR1	MWD + IFR1

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.0	0.0
200.0	0.88	194.91	200.0	-1.5	-0.4	0.44	0.44	0.00	-1.5	0.0
293.0	0.97	197.20	293.0	-2.9	-0.8	0.10	0.10	2.46	-3.0	0.1
386.0	1.14	195.09	386.0	-4.6	-1.3	0.19	0.18	-2.27	-4.7	-0.1
478.0	1.27	194.38	477.9	-6.4	-1.8	0.14	0.14	-0.77	-6.7	-0.1
570.0	1.19	196.49	569.9	-8.3	-2.3	0.10	-0.09	2.29	-8.7	0.2
664.0	1.32	205.46	663.9	-10.3	-3.0	0.25	0.14	9.54	-10.6	1.7
759.0	1.10	218.99	758.9	-12.0	-4.1	0.38	-0.23	14.24	-11.9	4.3
854.0	0.97	225.50	853.9	-13.2	-5.2	0.18	-0.14	6.85	-13.0	5.8
948.0	0.92	236.92	947.9	-14.2	-6.4	0.21	-0.05	12.15	-13.1	8.4
1,043.0	0.79	230.60	1,042.8	-15.0	-7.6	0.17	-0.14	-6.65	-15.4	6.8
1,243.0	1.19	212.23	1,242.8	-17.7	-9.8	0.25	0.20	-9.18	-19.5	0.9
1,340.0	4.44	183.66	1,339.7	-22.3	-10.5	3.55	3.35	-29.45	-18.3	-8.5
1,435.0	8.35	180.85	1,434.1	-32.8	-10.9	4.13	4.12	-2.96	-21.6	-8.4
1,529.0	9.58	177.77	1,526.9	-47.5	-10.7	1.40	1.31	-3.28	-26.0	-7.7
1,624.0	13.32	179.53	1,620.0	-66.3	-10.3	3.95	3.94	1.85	-32.2	-4.1
1,718.0	13.19	177.34	1,711.5	-87.9	-9.7	0.55	-0.14	-2.33	-38.0	-2.0
1,813.0	12.66	176.54	1,804.1	-109.1	-8.5	0.59	-0.56	-0.84	-42.6	1.6
1,908.0	12.66	181.73	1,896.8	-129.9	-8.2	1.20	0.00	5.46	-46.2	8.9
2,003.0	12.31	190.69	1,989.6	-150.2	-10.4	2.07	-0.37	9.43	-47.6	17.5
2,097.0	12.26	191.31	2,081.4	-169.9	-14.2	0.15	-0.05	0.66	-50.4	17.9
2,192.0	11.74	193.24	2,174.3	-189.2	-18.4	0.69	-0.55	2.03	-52.4	19.1
2,286.0	10.37	198.96	2,266.6	-206.5	-23.4	1.87	-1.46	6.09	-51.5	22.7
2,381.0	9.71	201.24	2,360.1	-222.0	-29.1	0.81	-0.69	2.40	-50.2	21.9
2,475.0	10.46	195.79	2,452.7	-237.6	-34.2	1.29	0.80	-5.80	-51.5	14.8
2,570.0	9.58	202.56	2,546.2	-253.2	-39.6	1.55	-0.93	7.13	-49.1	18.1
2,664.0	9.54	196.49	2,638.9	-267.9	-44.8	1.07	-0.04	-6.46	-49.4	10.4

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
2,759.0	9.23	194.56	2,732.7	-282.9	-49.0	0.46	-0.33	-2.03	-48.0	7.3
2,854.0	10.20	183.22	2,826.3	-298.6	-51.4	2.25	1.02	-11.94	-47.3	-1.4
2,948.0	9.54	182.43	2,918.9	-314.7	-52.2	0.72	-0.70	-0.84	-46.6	0.2
3,042.0	7.82	186.56	3,011.8	-328.9	-53.2	1.95	-1.83	4.39	-43.6	5.3
3,137.0	10.55	181.38	3,105.6	-344.0	-54.2	3.00	2.87	-5.45	-42.0	3.6
3,231.0	10.15	173.12	3,198.1	-360.8	-53.4	1.63	-0.43	-8.79	-42.7	1.5
3,325.0	10.37	163.10	3,290.6	-377.1	-49.9	1.91	0.23	-10.66	-43.8	0.5
3,420.0	9.71	179.97	3,384.2	-393.3	-47.5	3.16	-0.69	17.76	-41.1	18.7
3,514.0	10.07	179.71	3,476.8	-409.5	-47.4	0.39	0.38	-0.28	-40.7	21.7
3,609.0	11.16	189.46	3,570.1	-426.8	-48.9	2.21	1.15	10.26	-36.7	30.0
3,704.0	11.12	189.90	3,663.4	-444.9	-52.0	0.10	-0.04	0.46	-37.6	30.5
3,798.0	10.20	189.90	3,755.7	-462.1	-55.0	0.98	-0.98	0.00	-38.0	30.7
3,893.0	10.24	196.93	3,849.2	-478.4	-58.9	1.31	0.04	7.40	-33.8	34.2
3,987.0	10.24	197.81	3,941.7	-494.4	-63.9	0.17	0.00	0.94	-33.1	32.7
4,082.0	10.07	197.55	4,035.2	-510.3	-68.9	0.19	-0.18	-0.27	-32.9	30.5
4,177.0	9.98	196.93	4,128.8	-526.1	-73.8	0.15	-0.09	-0.65	-32.7	28.2
4,271.0	10.02	194.12	4,221.4	-541.8	-78.2	0.52	0.04	-2.99	-33.3	25.1
4,366.0	9.76	193.95	4,314.9	-557.7	-82.2	0.28	-0.27	-0.18	-32.6	24.0
4,460.0	9.19	194.65	4,407.7	-572.7	-86.0	0.62	-0.61	0.74	-30.8	23.3
4,555.0	9.27	194.21	4,501.4	-587.4	-89.8	0.11	0.08	-0.46	-29.0	21.9
4,649.0	11.38	192.63	4,593.9	-603.8	-93.7	2.26	2.24	-1.68	-29.4	20.3
4,744.0	11.96	190.17	4,686.9	-622.7	-97.5	0.80	0.61	-2.59	-32.3	18.8
4,838.0	11.21	187.88	4,779.0	-641.3	-100.4	0.94	-0.80	-2.44	-35.0	18.0
4,933.0	10.86	186.21	4,872.3	-659.3	-102.7	0.50	-0.37	-1.76	-36.5	18.0
5,028.0	7.82	185.77	4,966.0	-674.7	-104.3	3.20	-3.20	-0.46	-34.9	19.1
5,122.0	4.53	181.29	5,059.4	-684.7	-105.0	3.53	-3.50	-4.77	-29.5	18.7
5,217.0	1.54	182.35	5,154.3	-689.8	-105.1	3.15	-3.15	1.12	-17.1	21.7

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
5,312.0	0.97	201.77	5,249.3	-691.8	-105.5	0.74	-0.60	20.44	5.8	23.2
5,406.0	1.05	214.34	5,343.3	-693.2	-106.3	0.25	0.09	13.37	24.5	14.9
5,500.0	1.10	325.17	5,437.3	-693.2	-107.3	1.88	0.05	117.90	-5.4	-37.8
5,595.0	1.54	18.08	5,532.2	-691.3	-107.4	1.31	0.46	55.69	-46.7	-16.2
5,689.0	1.23	18.69	5,626.2	-689.1	-106.7	0.33	-0.33	0.65	-57.4	-14.4
5,784.0	0.92	0.67	5,721.2	-687.4	-106.4	0.48	-0.33	-18.97	-57.0	-32.6
5,878.0	0.92	9.64	5,815.2	-685.9	-106.2	0.15	0.00	9.54	-64.9	-23.2
5,973.0	0.79	20.71	5,910.2	-684.5	-105.9	0.22	-0.14	11.65	-69.6	-10.2
6,067.0	0.57	33.19	6,004.2	-683.5	-105.4	0.28	-0.23	13.28	-71.3	5.2
6,162.0	0.75	40.14	6,099.2	-682.6	-104.7	0.21	0.19	7.32	-71.2	13.9
6,257.0	0.70	55.26	6,194.1	-681.8	-103.8	0.21	-0.05	15.92	-66.3	32.1
6,351.0	0.70	59.97	6,288.1	-681.2	-102.9	0.06	0.00	5.01	-64.6	37.5
6,446.0	0.48	77.02	6,383.1	-680.8	-102.0	0.29	-0.23	17.95	-51.7	55.0
6,540.0	0.26	44.41	6,477.1	-680.6	-101.4	0.32	-0.23	-34.69	-73.7	18.2
6,635.0	0.40	318.37	6,572.1	-680.2	-101.5	0.49	0.15	-90.57	-23.6	-72.5
6,729.0	0.48	301.49	6,666.1	-679.7	-102.1	0.16	0.09	-17.96	-2.3	-76.3
6,824.0	0.62	283.65	6,761.1	-679.4	-102.9	0.23	0.15	-18.78	20.3	-73.5
6,919.0	0.70	263.61	6,856.1	-679.4	-104.0	0.26	0.08	-21.09	43.2	-62.2
7,013.0	0.88	252.98	6,950.1	-679.6	-105.2	0.25	0.19	-11.31	52.7	-53.3
7,108.0	0.97	238.21	7,045.1	-680.3	-106.6	0.27	0.09	-15.55	63.0	-38.3
7,202.0	0.92	227.58	7,139.1	-681.2	-107.9	0.19	-0.05	-11.31	67.4	-26.2
7,297.0	0.88	215.80	7,234.1	-682.3	-108.8	0.20	-0.04	-12.40	69.9	-12.0
7,391.0	1.01	212.72	7,328.1	-683.6	-109.7	0.15	0.14	-3.28	68.9	-8.3
7,486.0	1.05	219.49	7,423.0	-685.0	-110.7	0.13	0.04	7.13	65.7	-16.2
7,581.0	1.36	215.80	7,518.0	-686.5	-111.9	0.34	0.33	-3.88	64.6	-12.0
7,675.0	1.63	206.31	7,612.0	-688.7	-113.2	0.39	0.29	-10.10	63.3	-1.4
7,770.0	1.76	205.60	7,706.9	-691.2	-114.4	0.14	0.14	-0.75	60.5	-0.6

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
7,865.0	1.80	209.12	7,801.9	-693.8	-115.8	0.12	0.04	3.71	57.4	-4.2
7,959.0	1.49	218.00	7,895.9	-696.0	-117.2	0.43	-0.33	9.45	53.4	-12.8
8,054.0	1.27	220.72	7,990.8	-697.8	-118.7	0.24	-0.23	2.86	50.4	-15.3
8,148.0	1.23	222.21	8,084.8	-699.4	-120.0	0.05	-0.04	1.59	48.0	-16.6
8,243.0	1.19	236.89	8,179.8	-700.7	-121.6	0.33	-0.04	15.45	40.2	-27.9
8,338.0	0.84	250.69	8,274.8	-701.4	-123.0	0.45	-0.37	14.53	30.8	-36.5
8,432.0	0.66	274.25	8,368.8	-701.6	-124.2	0.38	-0.19	25.06	12.4	-45.4
8,527.0	1.05	301.84	8,463.8	-701.1	-125.5	0.59	0.41	29.04	-11.4	-45.8
8,622.0	1.58	289.36	8,558.7	-700.2	-127.5	0.63	0.56	-13.14	-3.4	-47.3
8,717.0	1.93	293.14	8,653.7	-699.2	-130.2	0.39	0.37	3.98	-9.4	-46.9
8,811.0	1.85	175.28	8,747.7	-700.0	-131.5	3.44	-0.09	-125.38	45.1	12.2
8,906.0	2.37	177.13	8,842.6	-703.5	-131.3	0.55	0.55	1.95	42.0	10.8
9,000.0	2.02	177.74	8,936.5	-707.1	-131.1	0.37	-0.37	0.65	38.5	10.4
9,095.0	1.63	179.06	9,031.5	-710.2	-131.0	0.41	-0.41	1.39	35.7	9.5
9,190.0	1.23	179.15	9,126.5	-712.5	-131.0	0.42	-0.42	0.09	33.3	9.5
9,284.0	1.05	185.92	9,220.4	-714.4	-131.1	0.24	-0.19	7.20	32.4	5.6
9,379.0	2.77	167.55	9,315.4	-717.5	-130.7	1.90	1.81	-19.34	25.8	15.3
9,473.0	2.68	171.50	9,409.3	-721.9	-129.9	0.22	-0.10	4.20	22.3	13.6
9,568.0	2.46	181.08	9,504.2	-726.1	-129.6	0.51	-0.23	10.08	20.1	10.1
9,662.0	2.55	186.88	9,598.1	-730.2	-129.9	0.29	0.10	6.17	16.9	8.2
9,757.0	2.33	193.65	9,693.0	-734.2	-130.6	0.38	-0.23	7.13	13.7	6.4
9,851.0	2.29	218.96	9,786.9	-737.5	-132.2	1.08	-0.04	26.93	11.5	0.7
9,946.0	2.95	195.15	9,881.8	-741.3	-134.0	1.33	0.69	-25.06	6.0	4.5
10,041.0	1.67	174.40	9,976.8	-745.1	-134.5	1.59	-1.35	-21.84	0.4	5.5
10,135.0	0.79	145.57	10,070.7	-747.0	-134.0	1.12	-0.94	-30.67	-4.2	4.4
10,230.0	0.53	137.93	10,165.7	-747.8	-133.4	0.29	-0.27	-8.04	-5.8	3.7
10,325.0	0.57	166.14	10,260.7	-748.6	-133.0	0.29	0.04	29.69	-4.2	6.2

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
10,419.0	0.66	182.31	10,354.7	-749.6	-132.9	0.21	0.10	17.20	-3.3	7.3
10,514.0	0.84	197.17	10,449.7	-750.8	-133.1	0.28	0.19	15.64	-2.6	8.0
10,636.0	0.79	206.31	10,571.7	-752.4	-133.7	0.11	-0.04	7.49	-3.0	8.5
10,730.0	1.98	202.44	10,665.7	-754.5	-134.6	1.27	1.27	-4.12	-5.8	8.2
10,825.0	2.59	201.30	10,760.6	-758.0	-136.1	0.64	0.64	-1.20	-9.8	8.1
10,920.0	1.98	219.40	10,855.5	-761.3	-137.9	0.99	-0.64	19.05	-10.5	11.4
11,015.0	1.85	260.18	10,950.5	-762.8	-140.4	1.41	-0.14	42.93	-3.3	16.5
11,109.0	1.93	242.61	11,044.4	-763.8	-143.3	0.62	0.09	-18.69	-11.2	14.3
11,204.0	2.33	214.92	11,139.4	-766.1	-145.9	1.15	0.42	-29.15	-19.9	6.7
11,298.0	1.85	217.56	11,233.3	-768.9	-147.9	0.52	-0.51	2.81	-23.0	7.7
11,319.0	1.67	221.51	11,254.3	-769.4	-148.3	1.03	-0.86	18.81	-23.0	9.3
11,414.0	1.67	220.90	11,349.2	-771.5	-150.1	0.02	0.00	-0.64	-25.9	9.1
11,508.0	1.89	175.54	11,443.2	-774.1	-150.9	1.48	0.23	-48.26	-27.1	-13.0
11,603.0	1.71	175.28	11,538.2	-777.1	-150.6	0.19	-0.19	-0.27	-30.1	-13.2
11,656.0	5.75	354.49	11,591.1	-775.2	-150.8	14.07	7.62	338.13	28.0	13.6
KOP (MD=11656.0')										
11,697.0	11.52	354.58	11,631.6	-769.1	-151.4	14.07	14.07	0.22	21.8	13.7
11,792.0	30.37	355.19	11,719.9	-735.4	-154.4	19.84	19.84	0.64	-8.6	14.0
11,886.0	28.09	352.64	11,802.0	-689.8	-159.2	2.76	-2.43	-2.71	-40.6	14.5
11,981.0	34.55	355.90	11,883.1	-640.7	-164.0	7.03	6.80	3.43	-58.7	20.2
12,076.0	44.09	359.41	11,956.5	-580.6	-166.3	10.31	10.04	3.69	-72.6	25.4
12,171.0	48.13	0.12	12,022.3	-512.1	-166.5	4.29	4.25	0.75	-81.0	25.8
12,232.7	49.14	359.31	12,063.1	-465.8	-166.8	1.91	1.64	-1.32	-79.7	25.1
HL Crossing, MD:12232.7', TVD:12063.1',N/S:-465.8', E/W:-166.8', INC:49.14										
12,265.0	49.67	358.89	12,084.1	-441.3	-167.1	1.91	1.64	-1.29	-76.4	25.2
12,360.0	59.47	5.39	12,139.2	-364.1	-164.0	11.72	10.32	6.84	-61.7	24.7
12,454.0	65.45	4.60	12,182.6	-281.1	-156.8	6.41	6.36	-0.84	-44.8	15.6

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
12,549.0	76.04	1.35	12,213.9	-191.7	-152.2	11.60	11.15	-3.42	-24.6	9.7
12,643.0	81.80	0.55	12,232.0	-99.5	-150.7	6.18	6.13	-0.85	-7.3	7.5
12,738.0	84.66	1.79	12,243.2	-5.2	-148.7	3.28	3.01	1.31	3.5	5.1
12,832.0	83.60	0.20	12,252.8	88.3	-147.1	2.03	-1.13	-1.69	12.7	3.0
12,927.0	93.32	2.58	12,255.3	183.1	-144.8	10.53	10.23	2.51	14.8	0.2
13,021.0	87.60	358.53	12,254.6	277.0	-143.9	7.45	-6.09	-4.31	13.7	-1.2
13,116.0	88.62	358.97	12,257.7	372.0	-146.0	1.17	1.07	0.46	16.4	0.4
13,210.0	90.37	2.40	12,258.5	465.9	-144.8	4.10	1.86	3.65	16.8	-1.2
13,304.0	91.30	5.04	12,257.2	559.7	-138.7	2.98	0.99	2.81	15.0	-7.7
13,398.0	84.31	2.49	12,260.8	653.4	-132.6	7.91	-7.44	-2.71	18.2	-14.4
13,493.0	92.13	7.15	12,263.7	747.9	-124.6	9.58	8.23	4.91	20.9	-22.7
13,587.0	89.71	4.33	12,262.2	841.4	-115.2	3.95	-2.57	-3.00	18.9	-32.7
13,682.0	84.79	359.76	12,266.8	936.2	-111.8	7.06	-5.18	-4.81	22.9	-36.6
13,776.0	83.03	357.83	12,276.7	1,029.6	-113.8	2.77	-1.87	-2.05	32.5	-35.1
13,871.0	84.79	356.34	12,286.8	1,123.9	-118.6	2.42	1.85	-1.57	42.3	-30.7
13,965.0	91.96	356.16	12,289.5	1,217.6	-124.7	7.63	7.63	-0.19	44.5	-25.0
14,060.0	94.02	356.16	12,284.5	1,312.3	-131.1	2.17	2.17	0.00	39.1	-19.2
14,154.0	88.48	356.34	12,282.5	1,406.0	-137.2	5.90	-5.89	0.19	36.7	-13.4
14,249.0	89.49	356.34	12,284.2	1,500.8	-143.3	1.06	1.06	0.00	37.9	-7.9
14,343.0	91.82	358.62	12,283.1	1,594.7	-147.4	3.47	2.48	2.43	36.5	-4.2
14,437.0	88.18	354.05	12,283.1	1,688.5	-153.4	6.21	-3.87	-4.86	36.0	1.3
14,529.0	88.92	356.34	12,285.4	1,780.1	-161.1	2.62	0.80	2.49	38.0	8.6
14,623.0	90.86	356.07	12,285.6	1,873.9	-167.3	2.08	2.06	-0.29	37.8	14.3
14,717.0	88.70	358.18	12,286.0	1,967.8	-172.1	3.21	-2.30	2.24	37.7	18.6
14,811.0	89.93	0.64	12,287.1	2,061.8	-173.0	2.93	1.31	2.62	38.4	19.1
14,905.0	86.11	0.29	12,290.3	2,155.7	-172.3	4.08	-4.06	-0.37	41.3	17.9
15,000.0	85.58	359.41	12,297.2	2,250.4	-172.5	1.08	-0.56	-0.93	47.7	17.7

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
15,101.0	89.67	359.50	12,301.4	2,351.3	-173.5	4.05	4.05	0.09	51.5	18.1
15,195.0	89.85	359.85	12,301.8	2,445.3	-174.0	0.42	0.19	0.37	51.5	18.2
15,290.0	89.10	358.53	12,302.7	2,540.3	-175.3	1.60	-0.79	-1.39	51.9	19.0
15,385.0	90.33	357.04	12,303.1	2,635.2	-179.0	2.03	1.29	-1.57	52.0	22.2
15,479.0	92.62	357.21	12,300.7	2,729.1	-183.7	2.44	2.44	0.18	49.2	26.5
15,574.0	93.45	0.20	12,295.7	2,823.9	-185.9	3.26	0.87	3.15	43.7	28.2
15,669.0	90.59	0.73	12,292.3	2,918.8	-185.1	3.06	-3.01	0.56	40.0	26.9
15,763.0	87.74	2.75	12,293.7	3,012.8	-182.3	3.72	-3.03	2.15	41.0	23.5
15,858.0	87.12	2.84	12,298.0	3,107.6	-177.6	0.66	-0.65	0.09	44.8	18.5
15,952.0	86.55	2.14	12,303.1	3,201.3	-173.5	0.96	-0.61	-0.74	49.6	13.9
16,046.0	86.29	1.61	12,309.0	3,295.1	-170.5	0.63	-0.28	-0.56	55.0	10.4
16,141.0	86.73	1.08	12,314.8	3,389.9	-168.2	0.72	0.46	-0.56	60.4	7.7
16,236.0	86.11	1.70	12,320.7	3,484.7	-165.9	0.92	-0.65	0.65	65.9	4.9
16,329.0	90.77	0.55	12,323.3	3,577.6	-164.1	5.16	5.01	-1.24	68.0	2.7
16,423.0	89.85	357.21	12,322.8	3,671.6	-166.0	3.69	-0.98	-3.55	67.1	4.0
16,518.0	91.78	353.26	12,321.4	3,766.2	-173.9	4.63	2.03	-4.16	65.4	11.4
16,612.0	89.01	356.51	12,320.8	3,859.8	-182.2	4.54	-2.95	3.46	64.3	19.4
16,706.0	90.73	358.62	12,321.0	3,953.7	-186.2	2.90	1.83	2.24	64.1	22.9
16,800.0	88.88	2.14	12,321.3	4,047.7	-185.6	4.23	-1.97	3.74	64.0	21.8
16,893.0	89.05	3.28	12,323.0	4,140.6	-181.2	1.24	0.18	1.23	65.3	16.9
16,987.0	93.45	0.55	12,320.9	4,234.5	-178.1	5.51	4.68	-2.90	62.8	13.4
17,081.0	93.80	359.06	12,315.0	4,328.3	-178.4	1.63	0.37	-1.59	56.5	13.2
17,175.0	92.44	359.15	12,309.9	4,422.1	-179.8	1.45	-1.45	0.10	51.0	14.2
17,269.0	89.63	359.41	12,308.2	4,516.1	-181.0	3.00	-2.99	0.28	48.9	14.9
17,363.0	89.49	359.06	12,308.9	4,610.1	-182.3	0.40	-0.15	-0.37	49.2	15.7
17,458.0	88.97	358.62	12,310.2	4,705.0	-184.2	0.72	-0.55	-0.46	50.1	17.1
17,553.0	89.76	1.87	12,311.2	4,800.0	-183.8	3.52	0.83	3.42	50.7	16.2

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
17,647.0	90.59	1.87	12,310.9	4,894.0	-180.7	0.88	0.88	0.00	50.0	12.7
17,742.0	90.99	359.94	12,309.6	4,988.9	-179.2	2.07	0.42	-2.03	48.3	10.8
17,836.0	89.05	0.99	12,309.6	5,082.9	-178.5	2.35	-2.06	1.12	47.8	9.5
17,931.0	88.00	358.71	12,312.0	5,177.9	-178.7	2.64	-1.11	-2.40	49.9	9.3
18,025.0	89.05	0.47	12,314.4	5,271.9	-179.4	2.18	1.12	1.87	51.9	9.5
18,119.0	91.25	0.82	12,314.2	5,365.8	-178.3	2.37	2.34	0.37	51.2	8.0
18,214.0	88.40	356.95	12,314.5	5,460.8	-180.2	5.06	-3.00	-4.07	51.1	9.4
18,308.0	89.89	359.06	12,315.9	5,554.7	-183.4	2.75	1.59	2.24	52.1	12.2
18,403.0	91.08	2.58	12,315.1	5,649.7	-182.1	3.91	1.25	3.71	50.9	10.3
18,497.0	91.34	1.52	12,313.1	5,743.6	-178.7	1.16	0.28	-1.13	48.5	6.5
18,592.0	89.76	3.89	12,312.2	5,838.5	-174.2	3.00	-1.66	2.49	47.2	1.5
18,686.0	89.05	359.15	12,313.2	5,932.4	-171.8	5.10	-0.76	-5.04	47.7	-1.4
18,781.0	91.08	358.18	12,313.1	6,027.4	-174.0	2.37	2.14	-1.02	47.2	0.3
18,876.0	88.53	355.11	12,313.4	6,122.2	-179.5	4.20	-2.68	-3.23	47.1	5.4
18,970.0	87.52	354.40	12,316.6	6,215.8	-188.1	1.31	-1.07	-0.76	50.0	13.5
19,065.0	91.21	357.57	12,317.7	6,310.5	-194.8	5.12	3.88	3.34	50.6	19.7
19,159.0	92.09	359.59	12,315.0	6,404.4	-197.1	2.34	0.94	2.15	47.5	21.6
19,254.0	89.27	1.61	12,313.8	6,499.4	-196.1	3.65	-2.97	2.13	46.0	20.1
19,348.0	89.49	3.63	12,314.9	6,593.3	-191.8	2.16	0.23	2.15	46.6	15.3
19,443.0	88.26	2.75	12,316.7	6,688.1	-186.5	1.59	-1.29	-0.93	48.0	9.6
19,537.0	88.44	2.05	12,319.4	6,782.0	-182.6	0.77	0.19	-0.74	50.3	5.2
19,632.0	89.98	2.05	12,320.7	6,876.9	-179.2	1.62	1.62	0.00	51.0	1.3
19,726.0	90.73	1.52	12,320.2	6,970.9	-176.3	0.98	0.80	-0.56	49.8	-2.1
19,821.0	91.87	1.35	12,318.0	7,065.8	-173.9	1.21	1.20	-0.18	47.0	-4.9
19,915.0	89.01	359.33	12,317.3	7,159.8	-173.3	3.72	-3.04	-2.15	45.7	-5.9
20,010.0	88.84	359.50	12,319.1	7,254.8	-174.3	0.25	-0.18	0.18	46.8	-5.4
20,104.0	91.16	0.20	12,319.1	7,348.8	-174.5	2.58	2.47	0.74	46.2	-5.7

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	DLeg (°/100usft)	Build (°/100usft)	Turn (°/100usft)	High to Plan (usft)	Right to Plan (usft)
20,199.0	88.92	356.51	12,319.0	7,443.7	-177.3	4.54	-2.36	-3.88	45.5	-3.4
20,294.0	88.66	0.47	12,321.0	7,538.6	-179.8	4.18	-0.27	4.17	46.9	-1.4
20,388.0	87.82	359.50	12,323.9	7,632.6	-179.8	1.36	-0.89	-1.03	49.2	-1.8
20,482.0	91.52	0.82	12,324.4	7,726.6	-179.5	4.18	3.94	1.40	49.1	-2.6
20,577.0	91.38	359.76	12,322.0	7,821.5	-179.0	1.13	-0.15	-1.12	46.1	-3.5
20,671.0	90.99	359.94	12,320.1	7,915.5	-179.3	0.46	-0.41	0.19	43.6	-3.7
20,766.0	89.76	3.02	12,319.5	8,010.5	-176.8	3.49	-1.29	3.24	42.3	-6.7
20,861.0	89.63	3.28	12,320.0	8,105.3	-171.6	0.31	-0.14	0.27	42.2	-12.3
20,956.0	89.89	2.66	12,320.4	8,200.2	-166.7	0.71	0.27	-0.65	42.0	-17.7
21,050.0	89.27	2.40	12,321.1	8,294.1	-162.5	0.72	-0.66	-0.28	42.1	-22.3
21,145.0	90.29	358.71	12,321.4	8,389.1	-161.6	4.03	1.07	-3.88	41.8	-23.7
21,241.0	91.74	359.68	12,319.7	8,485.0	-163.0	1.82	1.51	1.01	39.5	-22.9
21,335.0	87.03	357.13	12,320.7	8,579.0	-165.6	5.70	-5.01	-2.71	39.9	-20.7
21,429.0	86.90	357.92	12,325.7	8,672.7	-169.6	0.85	-0.14	0.84	44.3	-17.1
21,524.0	89.54	359.50	12,328.7	8,767.7	-171.8	3.24	2.78	1.66	46.6	-15.5
21,619.0	90.81	0.47	12,328.4	8,862.7	-171.8	1.68	1.34	1.02	45.7	-15.9
21,713.0	91.52	0.03	12,326.5	8,956.6	-171.4	0.89	0.76	-0.47	43.1	-16.8
21,807.0	91.38	359.06	12,324.1	9,050.6	-172.1	1.04	-0.15	-1.03	40.2	-16.5
21,902.0	92.75	0.91	12,320.7	9,145.5	-172.2	2.42	1.44	1.95	36.1	-17.0
21,996.0	89.93	358.89	12,318.5	9,239.5	-172.3	3.69	-3.00	-2.15	33.3	-17.3
22,091.0	89.71	352.56	12,318.8	9,334.2	-179.4	6.67	-0.23	-6.66	33.0	-10.6
22,185.0	90.15	347.81	12,318.9	9,426.8	-195.4	5.07	0.47	-5.05	32.5	4.8
22,227.0	89.71	346.93	12,318.9	9,467.8	-204.6	2.34	-1.05	-2.10	32.4	13.6
Final MWD Survey (MD=22227.0')										
22,280.0	89.71	346.93	12,319.2	9,519.4	-216.6	0.00	0.00	0.00	32.5	25.3
Final Projection to Bit (MD=22280.0')										

eog resources

Final PVA

Company:	Midland	**Local Co-ordinate Reference:**	Well #778H
Project:	Eddy County, NM (NAD 83 NME)	**TVD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Site:	Cassidy 18 Fed Com	**MD Reference:**	KB = 25' @ 3209.0usft (Patterson 885)
Well:	#778H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	OH	**Database:**	PEDM

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
11,656.0	11,591.1	-775.2	-150.8	KOP (MD=11656.0')
12,232.7	12,063.1	-465.8	-166.8	HL Crossing, MD:12232.7', TVD:12063.1',N/S:-465.8', E/W:-166.8', INC:49.14
22,227.0	12,318.9	9,467.8	-204.6	Final MWD Survey (MD=22227.0')
22,280.0	12,319.2	9,519.4	-216.6	Final Projection to Bit (MD=22280.0')

Checked By: _____ Approved By: _____ Date: _____

I CERTIFY THIS SURVEY TO BE TRUE AND CORRECT TO THE BEST OF MY BELIEF AND KNOWLEDGE
KAY MADDOX 07/26/2022

Eddy County, NM (NAD 83 NME)

Cassidy 18 Fed Com #778H

Patterson 885

OH

PROJECT DETAILS: Eddy County, NM (NAD 83 NME)

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level

WELL DETAILS: #778H

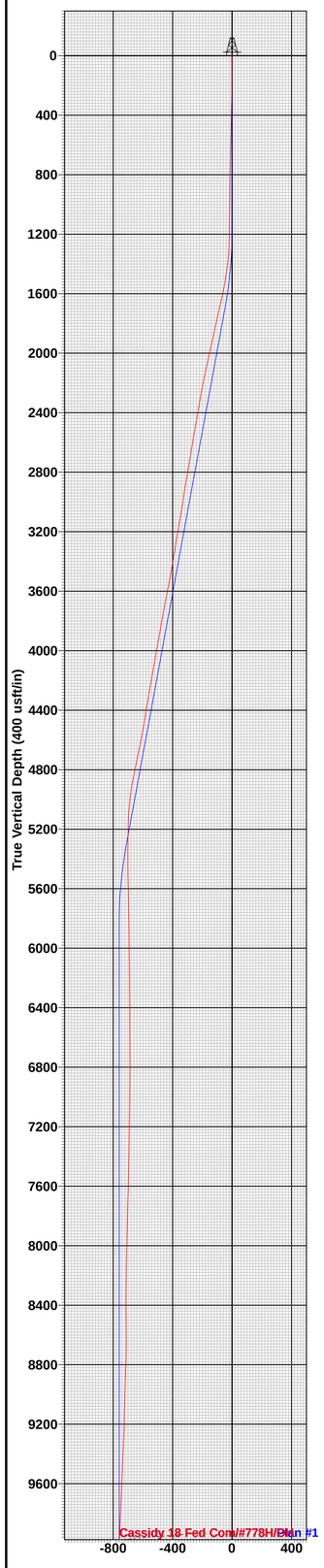
KB = 25' @ 3209.0usft (Patterson 885) 3184.0

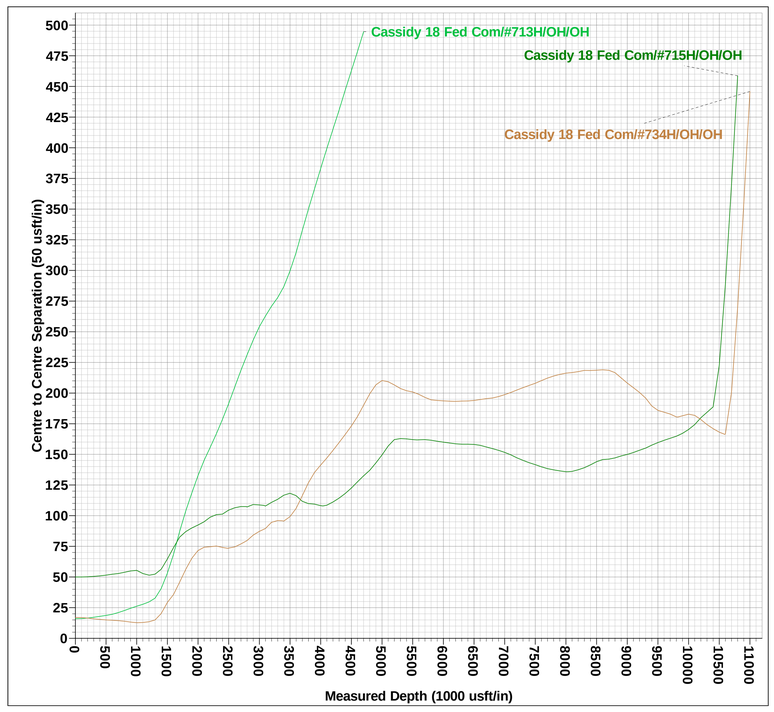
Northing	Easting	Latitude	Longitude
377764.00	699176.00	32° 2' 15.108 N	103° 49' 26.230 W

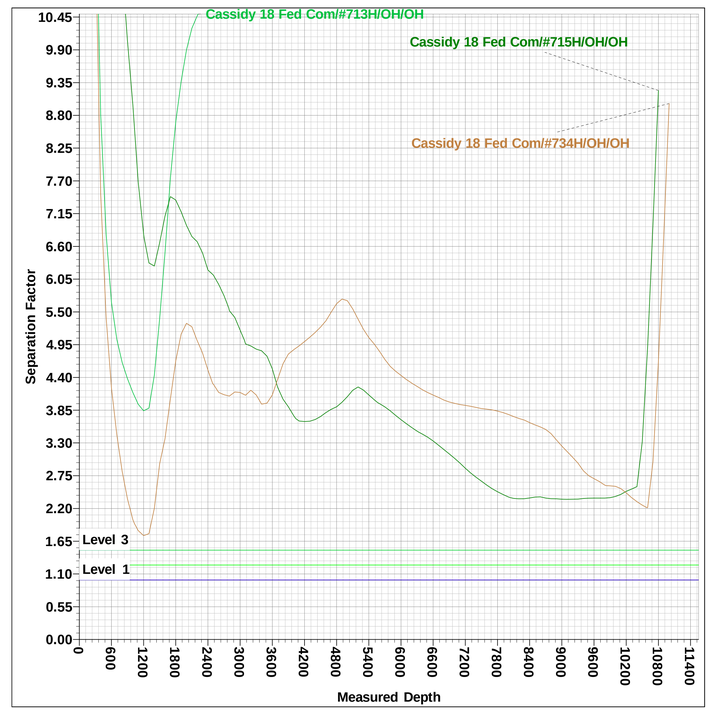
Azimuths to Grid North
True North: -0.27°
Magnetic North: 6.29°

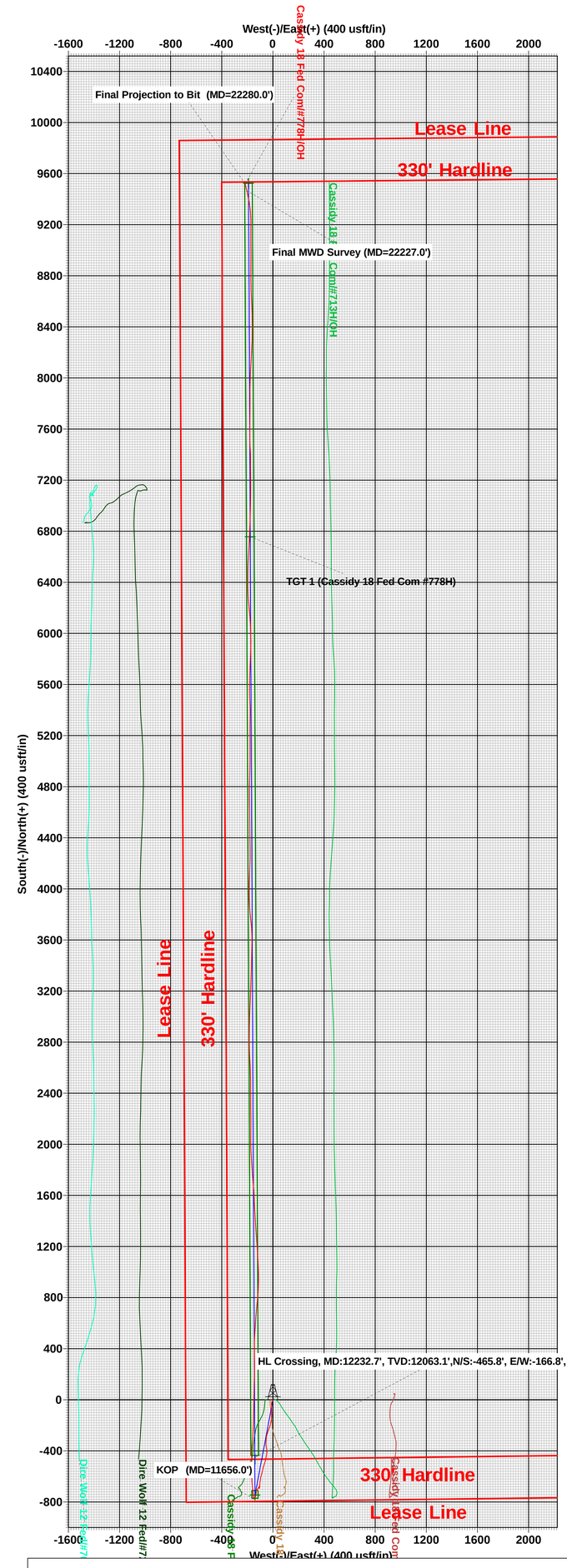
Magnetic Field
Strength: 47283.1nT
Dip Angle: 59.67°
Date: 3/10/2022
Model: IGRF2020

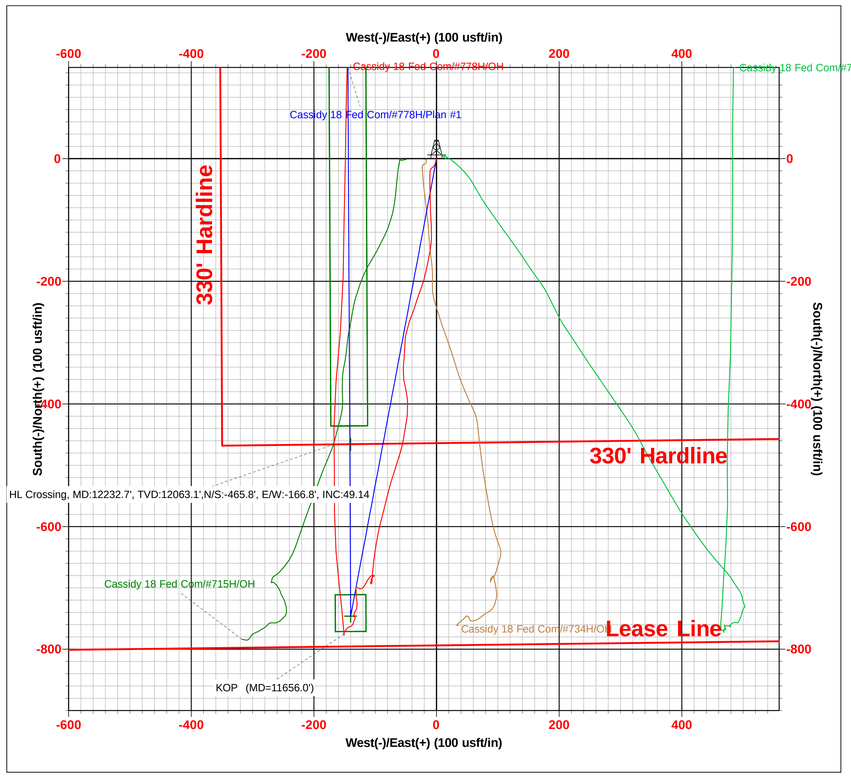
To convert a Magnetic Direction to a Grid Direction, Add 6.29°
To convert a Magnetic Direction to a True Direction, Add 6.56° East
To convert a True Direction to a Grid Direction, Subtract 0.27°

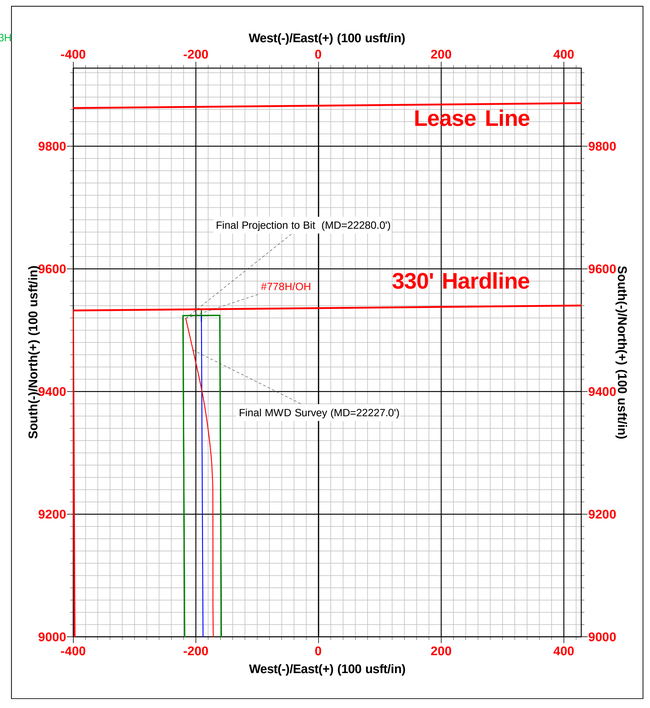


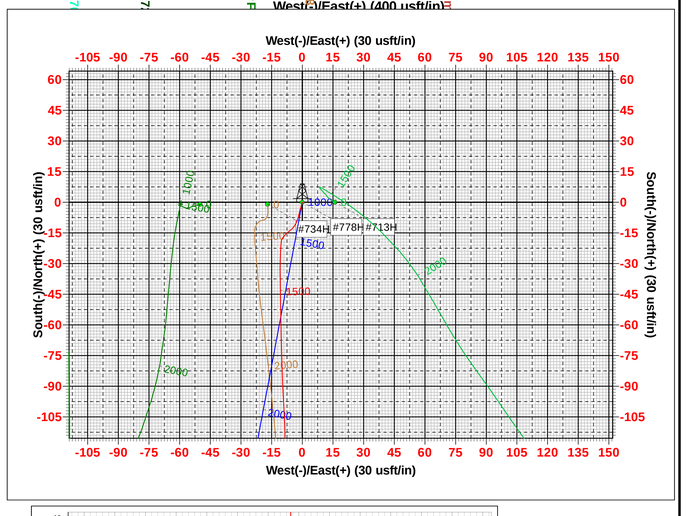


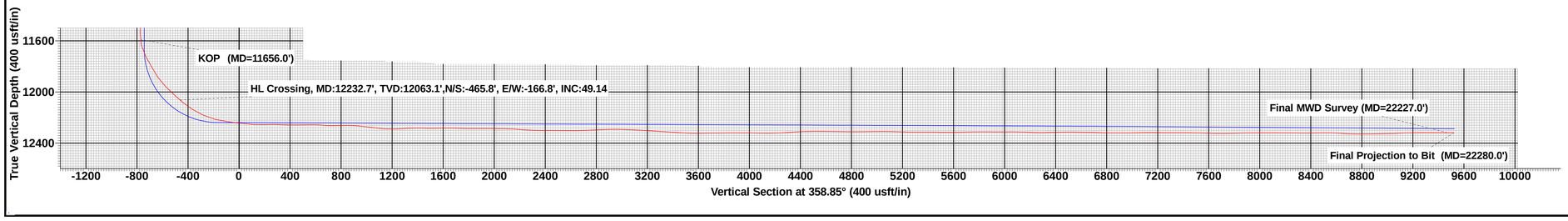


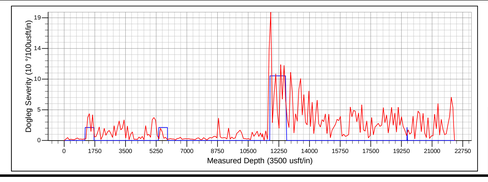












Eddy County, NM (NAD 83 NME)
Cassidy 18 Fed Com
#778H
Patterson 885
OH
OH
10:05, April 28 2022

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

As-Completed Plat
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

AS-COMPLETED PLAT

API Number	Pool Code	Pool Name
30-015- 47948	98220	PURPLE SAGE; WOLFCAMP (GAS)

Property Code	Property Name	Well Number
329880	CASSIDY 18 FED COM	778H

OGRID No.	Operator Name	Elevation
7377	EOG RESOURCES, INC.	3184'

Surface Location

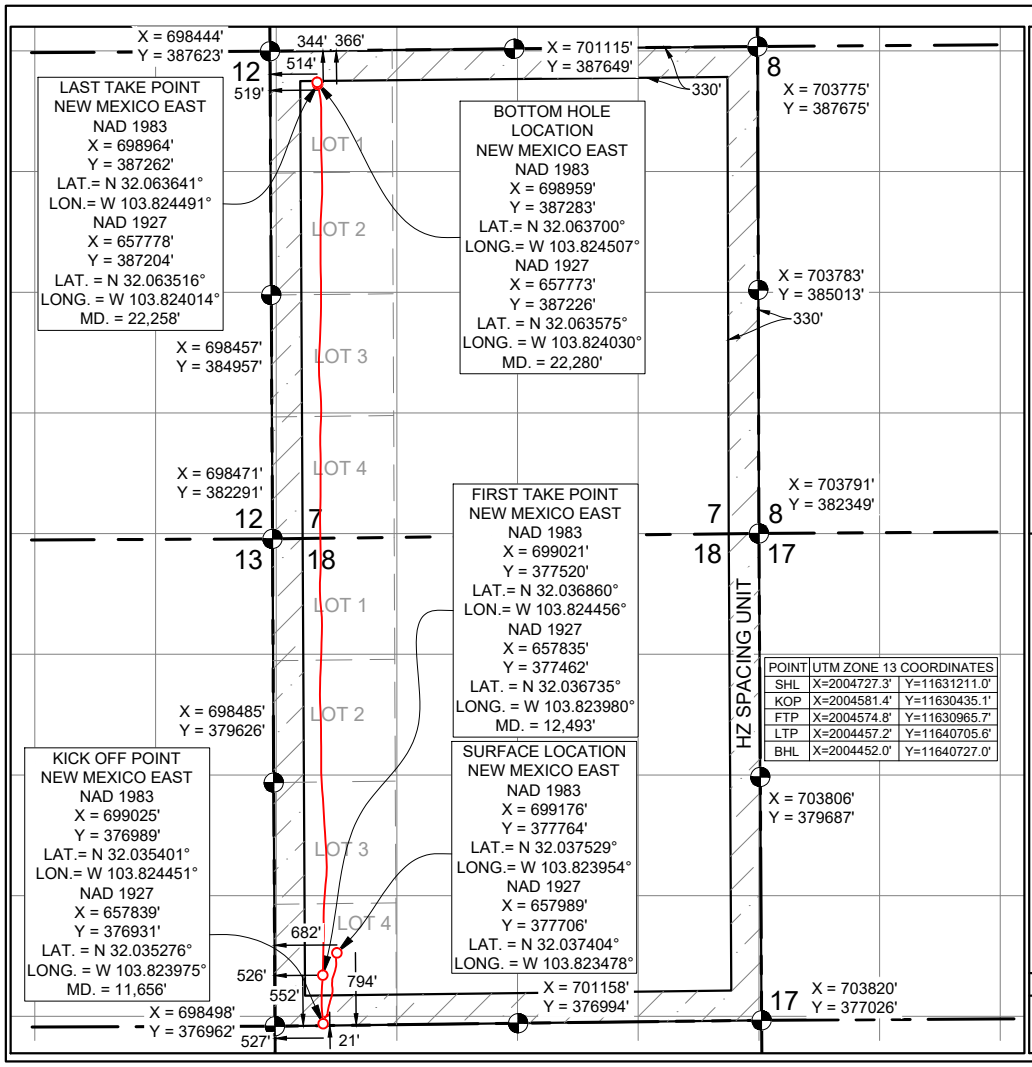
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	18	26 S	31 E		794	SOUTH	682	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	7	26 S	31 E		344	NORTH	514	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidated Code	Order No.
1280.4			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.



POINT	UTM ZONE 13 COORDINATES	
SHL	X=2004727.3'	Y=11631211.0'
KOP	X=2004581.4'	Y=11630435.1'
FTP	X=2004574.8'	Y=11630965.7'
LTP	X=2004457.2'	Y=11640705.6'
BHL	X=2004452.0'	Y=11640727.0'

OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Kay Maddox — Signature
07/27/2022 — Date

KAY MADDOX
Print Name

KAY_MADDOX@EOGRESOURCES.COM
E-mail Address

SURVEYORS CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MARCH 09, 2022
Date of Survey

BRANDON MOSER NEW MEXICO 22502 PROFESSIONAL SURVEYOR
07/13/2022

Job No.: EOG_B190018
BRANDON MOSER, N.M.P.L.S.
Certificate Number 22502

/home/projects/EOG_B190018P/ROD/As-Completed/Cassidy 18 Fed Com As-Completed 778H.dwg HLAWRENCE 7/13/2022 4:35 PM

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Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

ACKNOWLEDGMENTS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 257412
	Action Type: [C-105] Well (Re)Completion (C-105)

ACKNOWLEDGMENTS

☑	I hereby certify that the required Water Use Report has been, or will be, submitted for this wells completion.
☑	I hereby certify that the required FracFocus disclosure has been, or will be, submitted for this wells completion.

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

COMMENTS

Action 257412

COMMENTS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 257412
	Action Type: [C-105] Well (Re)Completion (C-105)

COMMENTS

Created By	Comment	Comment Date
dmcclure	Reported TOC for intermediate presumed to be in error	12/15/2023

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 257412

CONDITIONS

Operator: EOG RESOURCES INC P.O. Box 2267 Midland, TX 79702	OGRID: 7377
	Action Number: 257412
	Action Type: [C-105] Well (Re)Completion (C-105)

CONDITIONS

Created By	Condition	Condition Date
dmcclure	Submit all logs as a [UF-WL] EP Well Log Submission (WellLog)	12/15/2023