FORM 31 Rev 6/99

02617295

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

FOR OGCC USE ONLY
RECEIVED
JUN 10 2011
COGCC

UNDERGROUND INJECTION FORMATION PERMIT APPLICATION

1. Submit original and one copy of this form.
2. If data on this form is estimated, indicate as such.
3. Attachments – see checklist and explanation of attachments.
4. Aquifer exemption is required for all injection formations with water quality <10,000 TDS (Rule 322B). Immediately contact the Commission for further requirements if the total dissolved solids (TDS) as determined by water analysis for the injection zone is less than 10,000 ppm.
5. Attach a copy of the certified receipt to each notice to surface and mineral owner(s) or submit a sample copy of the notice and an affidavit of mailing or delivery with names and addresses of those notified. Each person notified shall be specified as either a surface or mineral owner as defined by C.R.S. 34-60-103(7).

Complete the Attachment Checklist

	Oper	OGCC
Form 31 Original & 1 Copy	✓	
Analysis fo Injection Zone Water	✓	
Analysis of Injection Water	✓	
Proposed Injection Program	✓	
Resistivity or Induction Log	✓	
Cement Bond Log	✓	
Surface or Salt Water Displ Agrmt	✓	
Notice to Surface/Mineral Owners	✓	
Remedial Correction Plan for Wells	✓	
Map Oil/Water Wells w/in 1/4 Mile	✓	
List Oil/Gas Wells w/in 1/2 Mile	✓	
Map Surface Owners w/in 1/4 Mile	✓	
List Surface Owners w/in 1/4 Mile	✓	
Map Mineral Owners w/in 1/4 Mile	✓	
List Mineral Owners w/in 1/4 Mile	✓	
Surface Facility Diagram	✓	
Wellbore Diagram	✓	
If Commercial Facility, Description of Ops & Area Served		
Unit Area Plat	✓	

Project Name: GM 239-36 Project Location: NESW Sec 36 T6S R96W 6th PM

Project Type: ☐ Enhanced Recovery ☑ Disposal ☐ Simultaneous Disposal

Single or Multiple Well Facility? ☑ Single ☐ Multiple

IF UNIT OPERATIONS, ATTACH PLAT SHOWING UNIT AREA

County: N/A Garfield Field Name and Number: N/A Grand Valley 31290

OGCC Operator Number: 96850

Name of Operator: Williams Production RMT

Address: 1058 County Road 215

City: Parachute State: CO Zip: 81635

Contact Name and Telephone:

Ryan Olson

No: (970) 987-4603

Fax: (866) 524-2064

Injection Fluid Type: ☑ Produced Water ☐ Natural Gas ☐ CO_2 ☐ Drilling Fluids ☐ Exempt Gas Plant Waste ☑ Used Workover Fluids ☐ Other Fluids (describe):

Commercial Facility? ☐ Yes ☑ No

If Yes, describe area of operation and types of fluids to be injected at this facility:

PROPOSED INJECTION FORMATIONS

FORMATION A (Name): Upper Mesaverde Porosity: 12% Avg (EST)

Formation TDS: ~~27,000 mg/l (EST)~~ 25595 Frac Gradient: ~~.71 (EST)~~ 0.793 psi/ft Permeability: .001 md (EST)

Proposed Stimulation Program: ☑ Acid ☑ Frac Treatment ☐ None

FORMATION B (Name): Porosity:

Formation TDS: Frac Gradient: psi/ft Permeability:

Proposed Stimulation Program: ☐ Acid ☐ Frac Treatment ☐ None

Anticipated Project Operating Conditions

Under normal operating conditions, estimated fluid injection rates and pressures:

FOR WATER: A minimum of 500 bbls/day @ 100 psi to a maximum of 8,500 bbls/day @ ~~1,500~~ 1411 psi.

FOR GAS: A minimum of mcf/day @ psi to a maximum of bbls/day @ psi.

Injection rates and pressures are estimates pending test results

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Karolina Blaney Signed: Karolina Blaney

Title: Environmental Specialist Date: 6/8/11

OGCC Approved: Denise M. Dougherson Title: UIC Supervisor Date: DEC 21 2011

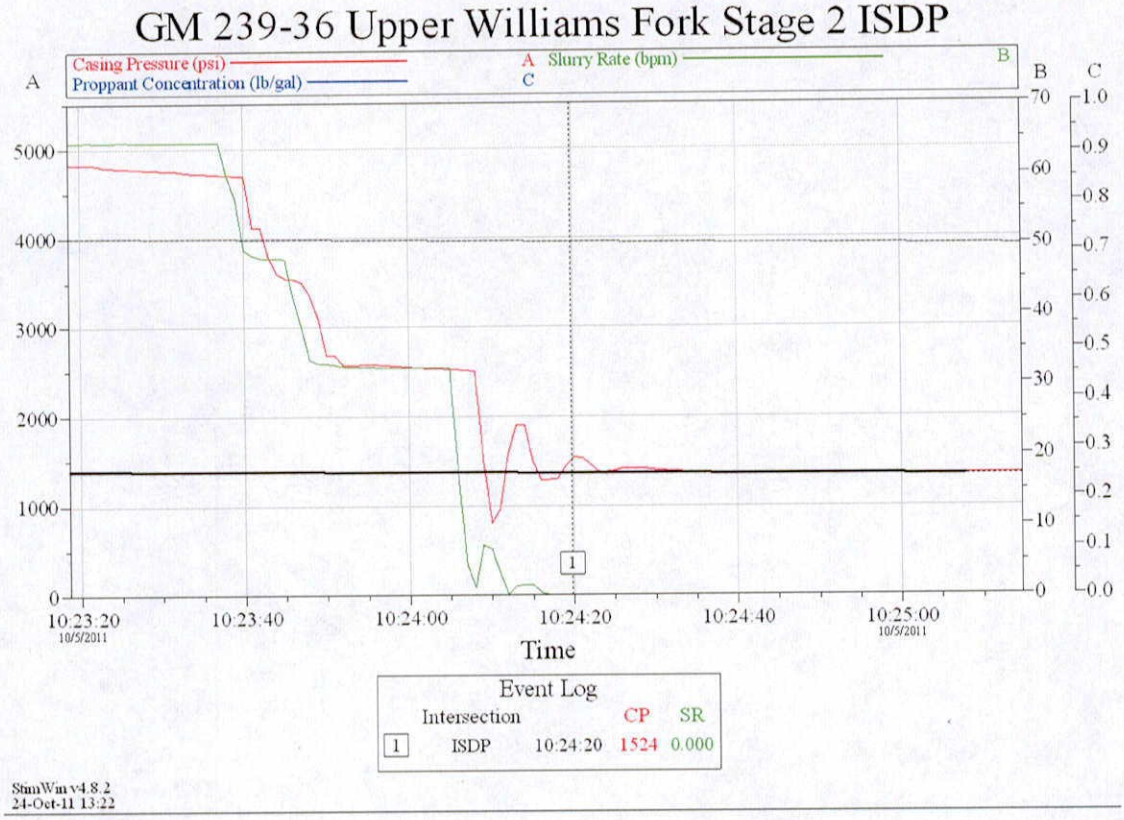
Order No:

UIC FACILITY NO: 159369

CONDITIONS OF APPROVAL, IF ANY:

UWF2 Frac Stage Analysis

The chart below shows the ISDP of the middle frac stage. Top perf is at 4,237 ft.



The ISDP is shown to be 1,524 psi. Frac gradient is calculated as:

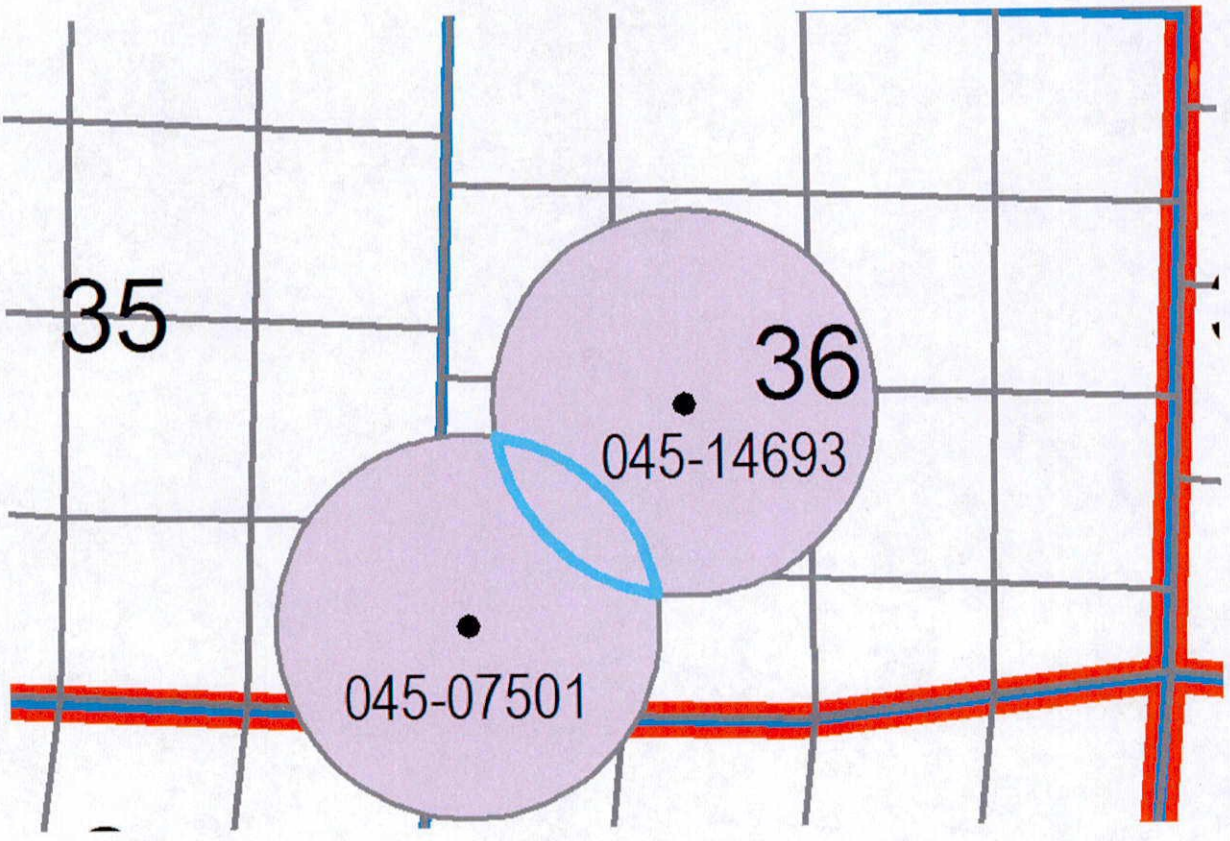
FG = (4,237*~~8.50*0.052~~ + 1,524) / 4,237 = ~~0.802~~ psi/ft

0.433 → 0.793

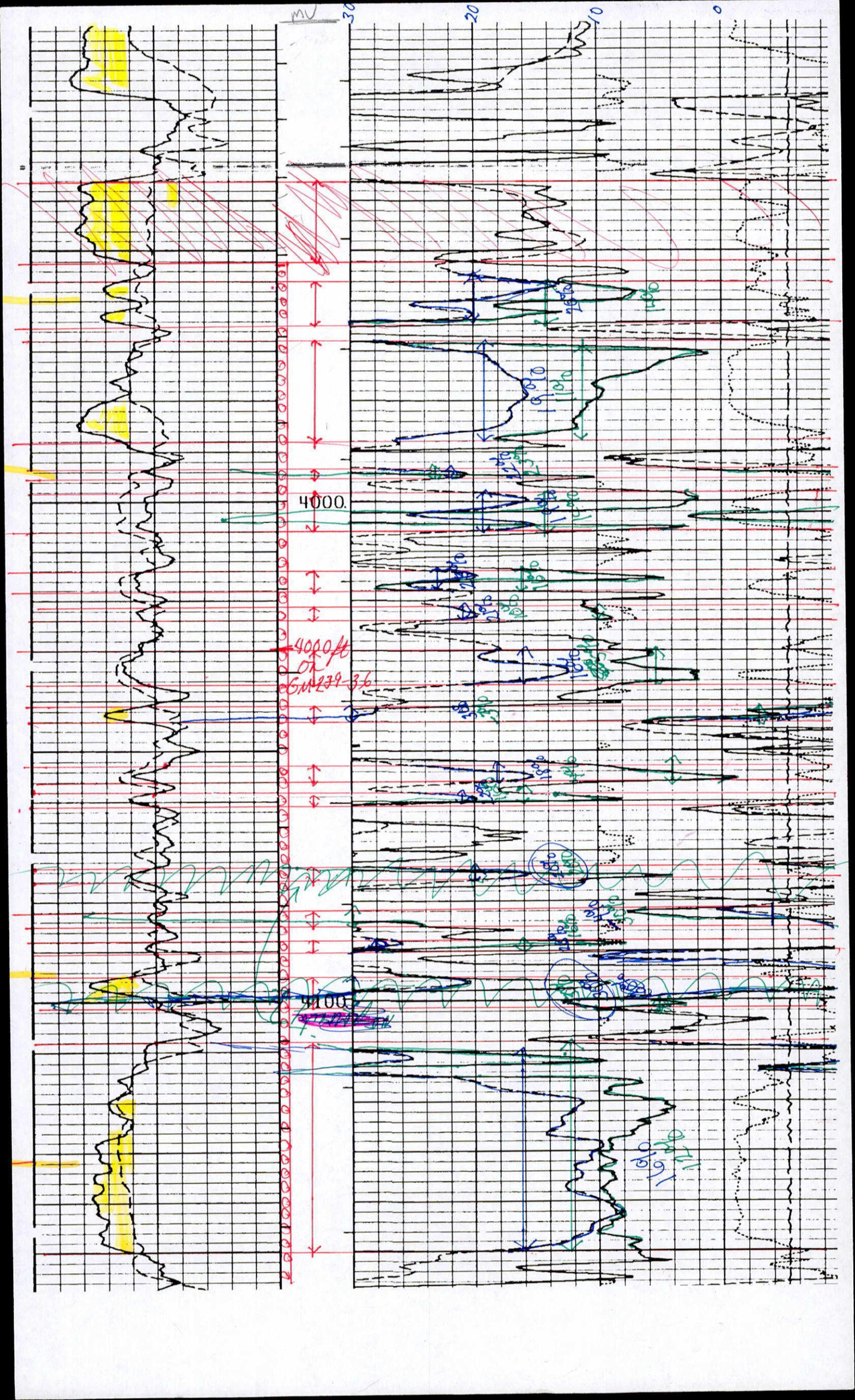
BHP = (4,237*8.50*0.052) + 1,524 = 3,397 psi

max surface injection
(0.793 − 0.433) psi/ft × 3923 ft = 1411 psi

9	0.17	1.53	maximum volume calculations from offset log (045-06620)
20	0.15	3	
2	0.225	0.45	4000 ft in injection well = 4030 feet in offset well
8	0.165	1.32	volume calculation (minus volume already allocated to 045-07501
4	0.195	0.78	81.945 ft X [(1320 ft)^2 X 3.14 - 526,8121 sq ft] = 405390031 sq ft
3	0.155	0.465	4.48 sq ft X 1 bbl/5.6146 bbl = 72202834 bbl
7	0.105	0.735	
3	0.135	0.405	
3	0.11	0.33	
3	0.19	0.57	
3	0.3	0.9	
3	0.13	0.39	
2	0.22	0.44	
6	0.3	1.8	
42	0.14	5.88	
5	0.25	1.25	
4	0.145	0.58	
4	0.13	0.52	
11	0.185	2.035	
5	0.115	0.575	
4	0.175	0.7	
25	0.125	3.125	
2	0.15	0.3	
4	0.105	0.42	
20	0.16	3.2	
7	0.165	1.155	
2	0.205	0.41	
6	0.19	1.14	
7	0.14	0.98	
23	0.215	4.945	
32	0.17	5.44	
30	0.17	5.1	
5	0.18	0.9	
4	0.16	0.64	
23	0.175	4.025	
50	0.175	8.75	
11	0.145	1.595	
19	0.11	2.09	
2	0.035	0.07	
44	0.11	4.84	
16	0.115	1.84	
55	0.115	6.325	
	Total	81.945	



Intersect Area = 526,812 sq ft


MV
30
20
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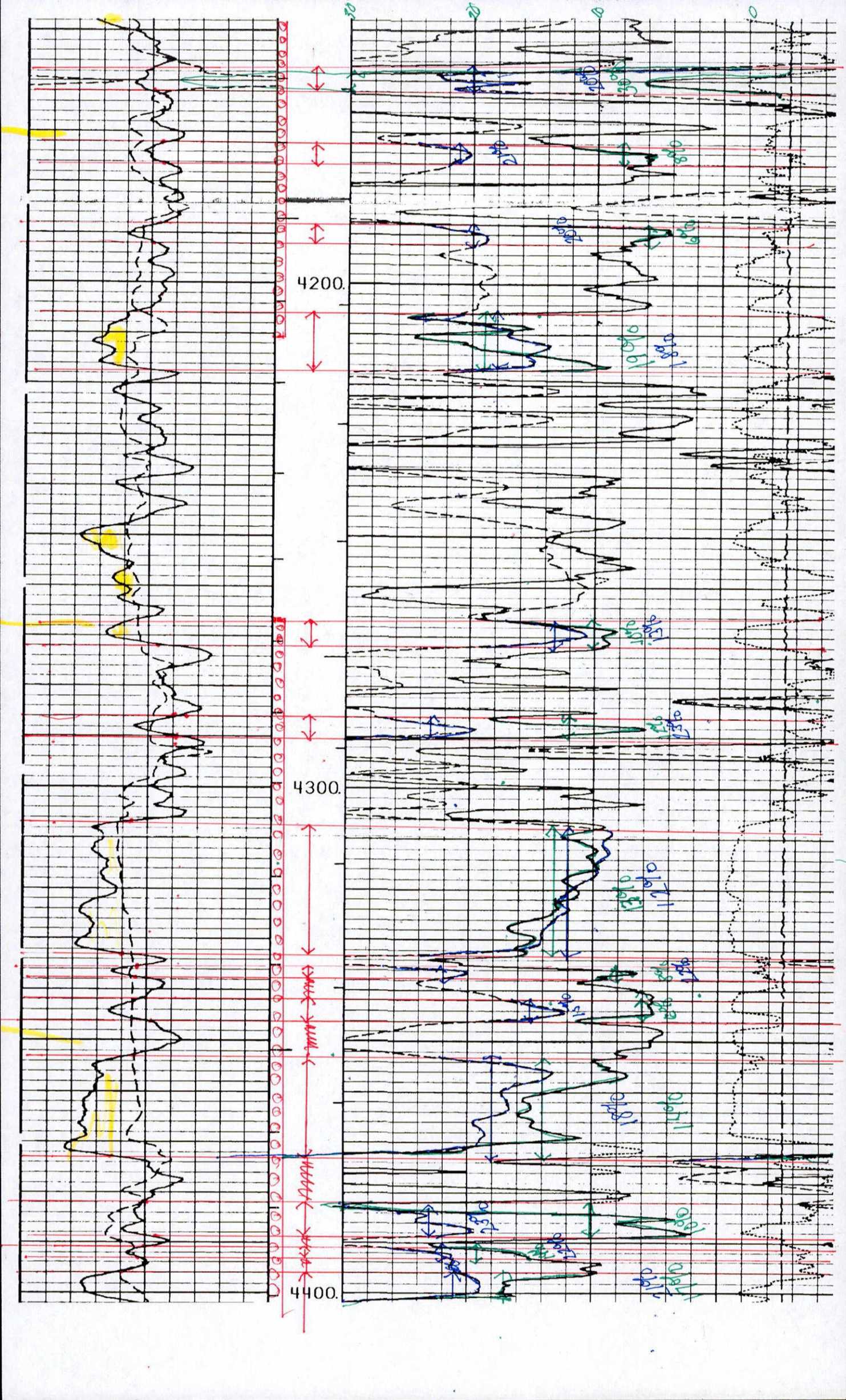
4000.
4000ft
or
GM239-36
4100.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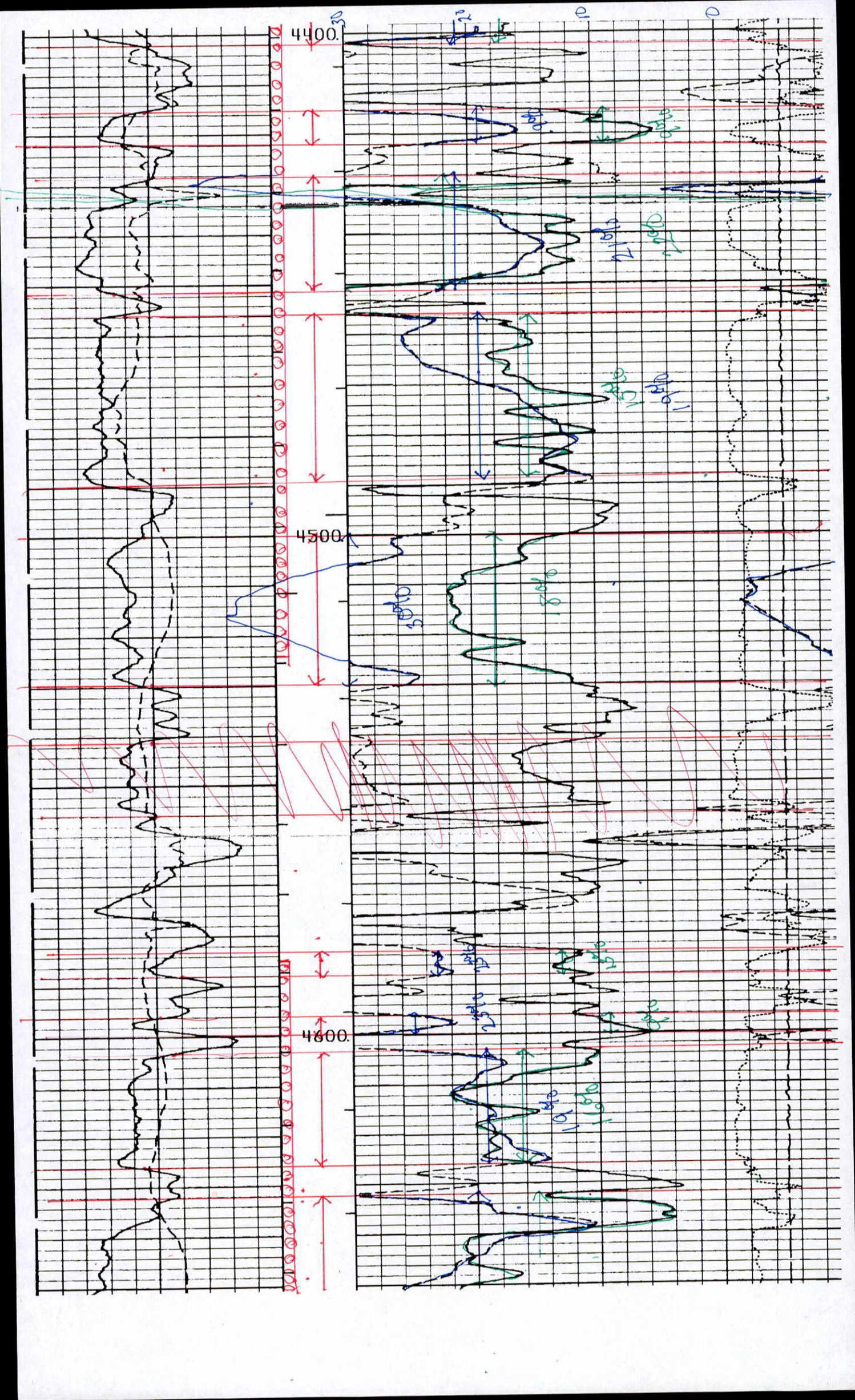
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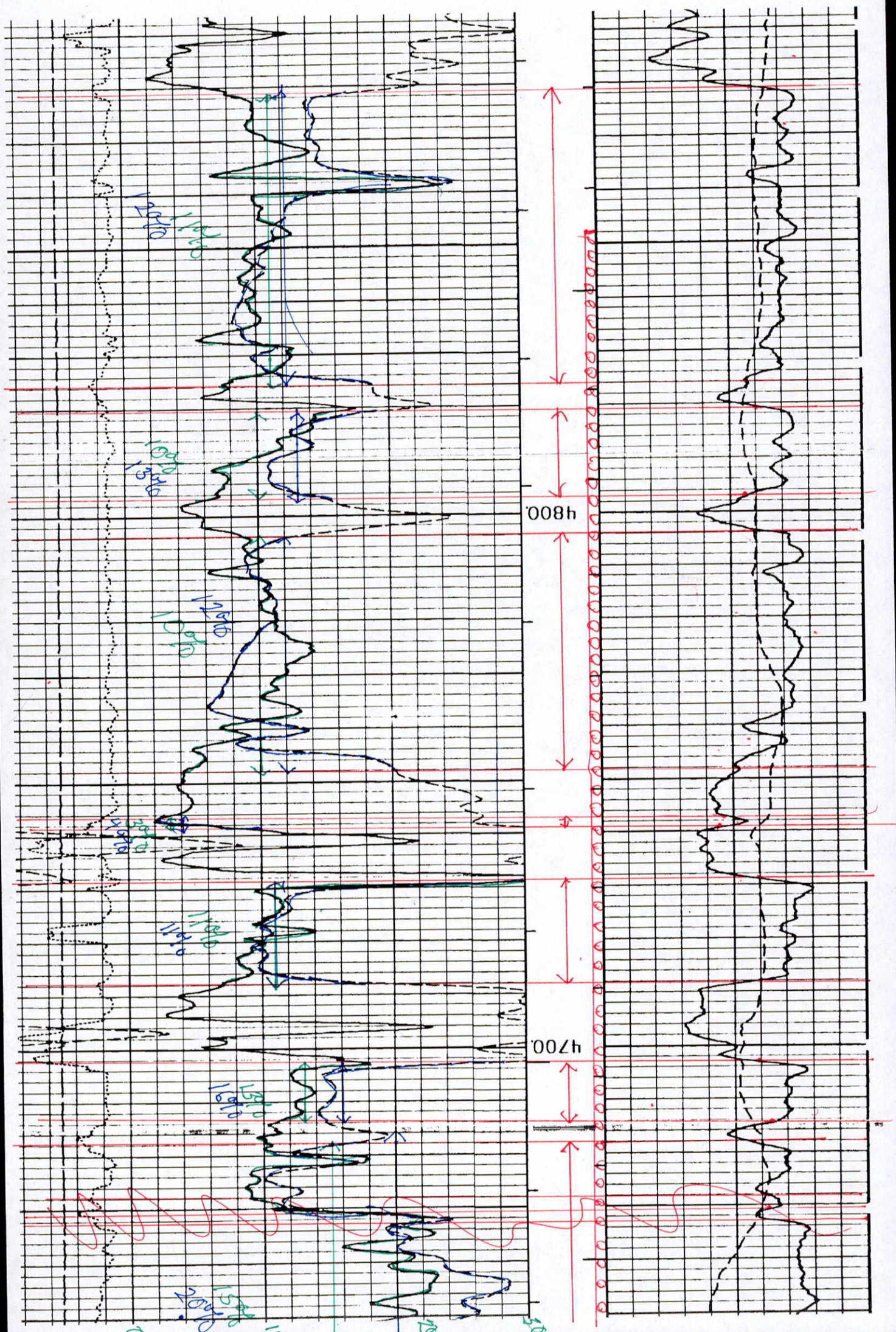
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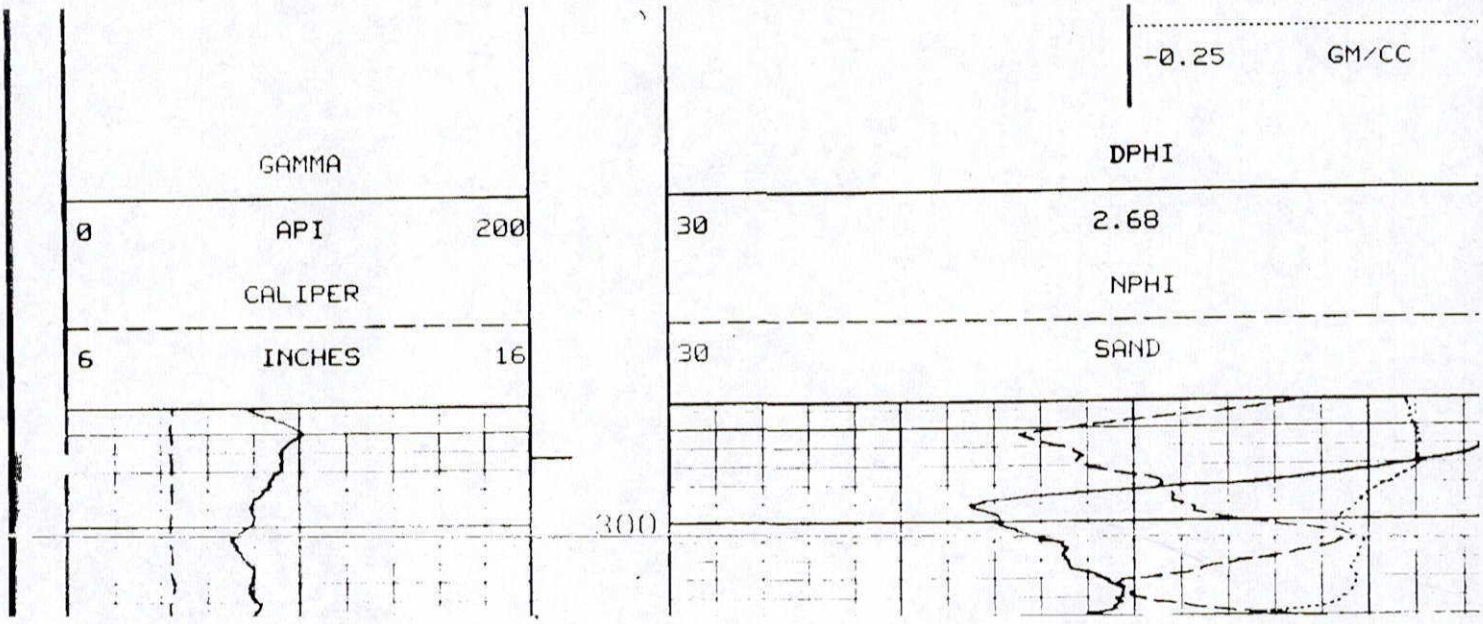
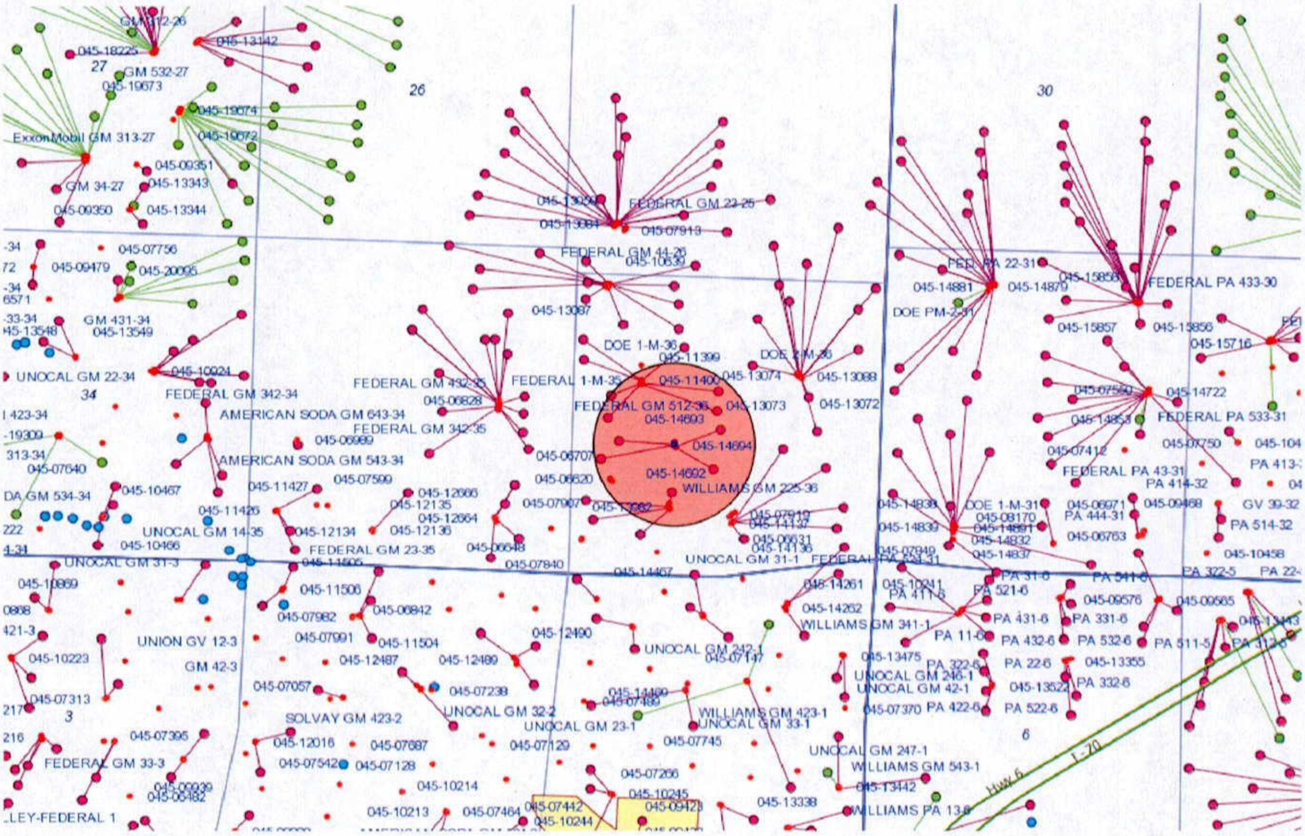


offset
log – 045-06620


FEDERAL GM 22-25
FEDERAL GM 44-26
DOE 1-M-36
FEDERAL 1-M-35
FEDERAL GM 512-36
045-14693
045-14694
045-14692
WILLIAMS GM 225-36
AMERICAN SODA GM 643-34
AMERICAN SODA GM 543-34
FEDERAL GM 342-35
FEDERAL GM 432-35
UNOCAL GM 22-34
UNOCAL GM 14-35
FEDERAL GM 23-35
UNOCAL GM 31-1
FEDERAL PA 433-30
FEDERAL PA 533-31
WILLIAMS GM 341-1
UNION GV 12-3
SOLVAY GM 423-2
UNOCAL GM 32-2
UNOCAL GM 23-1
WILLIAMS GM 423-1
UNOCAL GM 247-1
WILLIAMS GM 543-1
FEDERAL GM 33-3
I-70
26
30
34
3
6

Colorado
Oil & Gas Conservation Commission

COGCC Results

(Save as pdf)

Selected Items Report

Oil and Gas Wells Selected

Filter Results by Formation: Include | CMEOC, MNCS, MVRD, RLNS | Filter

WELL DESCRIPTION	LOCATION	WELL INFORMATION
05-045-06620, BARRETT ET AL GV 19-36 WILLIAMS PRODUCTION RMT COMPANY LLC	NWSW 36 6S -96W (6)	Sidetrack TD Formation Status 00 6990 CMEOC CM 00 6990 WFCM PR
05-045-06631, BARRETT ET AL GV 24-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 6900 WFCM PR
05-045-06707, BARRETT ET AL TW 8-36 WILLIAMS PRODUCTION RMT COMPANY LLC	NWSW 36 6S -96W (6)	Sidetrack TD Formation Status 00 2030 WSTC TA
05-045-06796, DOE 1-M-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7017 MVRD CM 00 7017 RLNS PR 00 7017 WFCM PR 00 7017 WMRCM CM
05-045-07502, BARRETT GM 24-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 6655 WFCM PR
05-045-07608, BARRETT GM 23-36 WILLIAMS PRODUCTION RMT COMPANY LLC	NESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 6904 WFCM PR 00 6904 WMFK PR
05-045-07918, BARRETT GM 238-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 6814 WFCM PR 00 6814 WMFK CM
05-045-07919, BARRETT GM 333-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 6832 WFCM PR 00 6832 WMFK CM
05-045-07920, BARRETT GM 33-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 6841 WFCM PR 00 6841 WMFK CM
05-045-10870, FEDERAL GM 322-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status AL
05-045-10871, FEDERAL GM 22-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7196 WFCM PR
05-045-10872, FEDERAL GM 312-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7067 WFCM PR

05-045-11396, FEDERAL GM 511-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7158 WFCM PR
05-045-11397, FEDERAL GM 422-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7185 WFCM PR
05-045-11398, FEDERAL GM 512-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7017 WFCM PR
05-045-11399, FEDERAL GM 412-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 9430 MNCS PR
05-045-11400, FEDERAL GM 421-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWNW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7144 WFCM PR
05-045-13979, WILLIAMS GM 523-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 6840 MVRD IJ 00 6840 WFCM IJ
05-045-13980, WILLIAMS GM 424-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 6854 WFCM PR
05-045-13981, WILLIAMS GM 225-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 6935 WFCM PR
05-045-13982, WILLIAMS GM 513-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7015 WFCM PR
05-045-14133, WILLIAMS GM 44-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 7265 WFCM PR
05-045-14134, WILLIAMS GM 433-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 7130 WFCM PR
05-045-14135, WILLIAMS GM 43-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 7271 WFCM PR
05-045-14136, WILLIAMS GM 444-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 7260 WFCM PR
05-045-14137, WILLIAMS GM 434-36 WILLIAMS PRODUCTION RMT COMPANY LLC	SWSE 36 6S -96W (6)	Sidetrack TD Formation Status 00 6885 WFCM PR
05-045-14691, WILLIAMS GM 423-36 WILLIAMS PRODUCTION RMT COMPANY LLC	NESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7102 WFCM PR
05-045-14692, WILLIAMS GM 323-36 WILLIAMS PRODUCTION RMT COMPANY LLC	NESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7135 WFCM PR
05-045-14693, Williams GM 239-36 WILLIAMS PRODUCTION RMT COMPANY LLC	NESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7116 WFCM PR
05-045-14694, WILLIAMS GM 413-36 WILLIAMS PRODUCTION RMT COMPANY LLC	NESW 36 6S -96W (6)	Sidetrack TD Formation Status 00 7189 WFCM PR

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Monday, December 19, 2011 9:56 AM
To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

Denise-

Sorry about all the log confusion last week with this permit. Do you have everything you need? Please let me know if there is anything further provide to hopefully get this permitted

Thanks,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 13, 2011 12:50 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

No, it's not attached.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 12:48 PM
To: Onyskiw, Denise
Subject: Re: Seismic data near GM 239-36 water injection well

Yeah, I forgot to attach it. You should have it now

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 13, 2011 01:47 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Ryan,
This one has no attachment and I did not get what I believe is a previous email. If the files are too big, send them to my personal email at donyskiw@yahoo.com

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 12:46 PM
To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

And here is the CBL, the files were too big to send together

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 13, 2011 12:42 PM

To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Yes, they would.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 12:40 PM
To: Onyskiw, Denise
Subject: Re: Seismic data near GM 239-36 water injection well

I have both the CBL and neutron density in PDF form if that will work

---

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 13, 2011 01:37 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Ryan,
I never got a response from anyone about whether the log for this well was available in a format other than LAS. I'm going to try to use another log for a nearby well. This is a longer process since I've got to correlate them.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 11:24 AM
To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

Denise-

Did you find the logs you needed on this well? I'm back in the office today so please let me know if there is anything further you need

Thanks,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 06, 2011 9:12 AM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Ryan,
I'm working on it but can't promise what day it will be done on.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Tuesday, December 06, 2011 8:25 AM
To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

Denise-

Sorry to bother you, but any word on our permit? Please let me know when you get a chance

Thanks,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Wednesday, November 23, 2011 12:37 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Ryan,
I never got the email Chris sent is below (computer gremlins). The info Bret put together is all that I need so I can proceed with your permit. It will probably be done next week but no promises because I can't predict emergencies.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Wednesday, November 23, 2011 11:33 AM
To: Onyskiw, Denise
Subject: FW: Seismic data near GM 239-36 water injection well

Denise-

Is this the e-mail about the memo from Vince Matthews? I didn't see the original memo, just this e-mail Chris cc'd me on. Is this seismic data holding up our permit approval?

Thanks,

Ryan

From: Caplis, Chris
Sent: Tuesday, November 01, 2011 9:53 AM
To: Onyskiw, Denise
Cc: Gunneson, Bret; Olson, Ryan; White, Paul
Subject: FW: Seismic data near GM 239-36 water injection well

Good morning Denise,

Bret Gunneson, our Senior Geoscientist, took time to review of our seismic data in the area of the GM 239-36 injection well. Per Bret's notes below, we don't have any seismic data within a couple miles of Section 36. However, he does provide a little insight into faults trending towards Section 36.

I hope this is what you had in mind Denise. If not let me know.

Also, if there is anything we can do to assist in expediting final approval to begin injection on the GM 239-36 let me know.

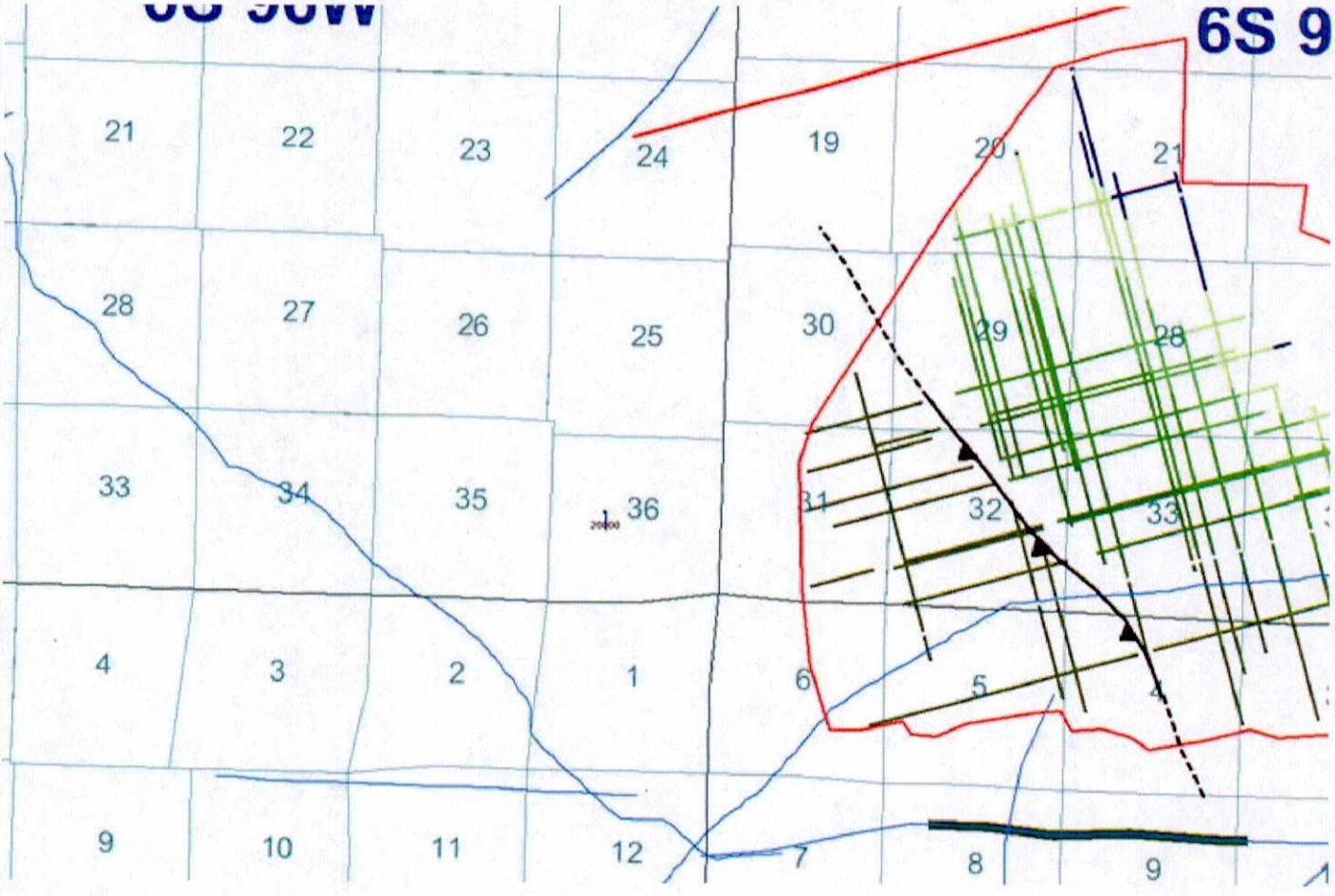
Regards,

Chris Caplis
Completions Engineer
Williams Production Co.
Ofc: 303-606-4041
Cell: 303-601-4884
chris.caplis@williams.com

From: Gunneson, Bret
Sent: Tuesday, November 01, 2011 9:23 AM
To: Caplis, Chris
Subject: RE: Seismic data near GM 239-36 water injection well

Hi Chris,

Unfortunately we don't have any seismic data within a couple of miles of that location:



You can see the Rulison 3D outline in red and our 2d lines in blue. On the data we have I don't see any big faults trending near section 36. But there sure could be something small.

Bret

Subject: Re:

From: Olson, Ryan (Ryan.Olson@williams.com)

To: donyskiw@yahoo.com;

Date: Tuesday, December 13, 2011 2:22 PM

Sounds good, I guess you were probably wanting the resistivity log for it, but we didn't run one on this well. Sorry

Thanks,

Ryan

From: Denise Onyskiw [mailto:donyskiw@yahoo.com]
Sent: Tuesday, December 13, 2011 03:20 PM
To: Olson, Ryan
Subject: Re:

Ryan and John,
This one came through. This is the log I already have and it wasn't the one I was hoping you had. I'll just use the one from the GM 323-36 so we can get this well permitted.

Denise

From: "Olson, Ryan" <Ryan.Olson@williams.com>
To: "donyskiw@yahoo.com" <donyskiw@yahoo.com>
Sent: Tuesday, December 13, 2011 2:04 PM
Subject: FW:

From: Berry, John
Sent: Tuesday, December 13, 2011 1:58 PM
To: Onyskiw, Denise; Olson, Ryan
Subject:

Ryan's email is not sending out emails right now. I am sending this out on behalf of Ryan.

Ryan Olson
Operations Engineer
Williams Production RMT
1058 County Road 215
Parachute, CO 81635
Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 12:48 PM
To: Onyskiw, Denise
Subject: Re: Seismic data near GM 239-36 water injection well

Yeah, I forgot to attach it. You should have it now

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 13, 2011 01:47 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Ryan,
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Denise

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To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

And here is the CBL, the files were too big to send together

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 13, 2011 12:42 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Yes, they would.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 12:40 PM
To: Onyskiw, Denise
Subject: Re: Seismic data near GM 239-36 water injection well

I have both the CBL and neutron density in PDF form if that will work

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Sent: Tuesday, December 13, 2011 01:37 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Ryan,
I never got a response from anyone about whether the log for this well was available in a format other than LAS. I'm going to try to use another log for a nearby well. This is a longer process since I've got to correlate them.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 11:24 AM
To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

Denise-

Did you find the logs you needed on this well? I'm back in the office today so please let me know if there is anything further you need

Thanks,

Ryan

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Sent: Tuesday, December 06, 2011 9:12 AM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

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From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
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To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

Denise-

Sorry to bother you, but any word on our permit? Please let me know when you get a chance

Thanks,

Ryan

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Sent: Wednesday, November 23, 2011 12:37 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Ryan,
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Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Wednesday, November 23, 2011 11:33 AM

To: Onyskiw, Denise
Subject: FW: Seismic data near GM 239-36 water injection well

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Thanks,

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Sent: Tuesday, November 01, 2011 9:53 AM
To: Onyskiw, Denise
Cc: Gunneson, Bret; Olson, Ryan; White, Paul
Subject: FW: Seismic data near GM 239-36 water injection well

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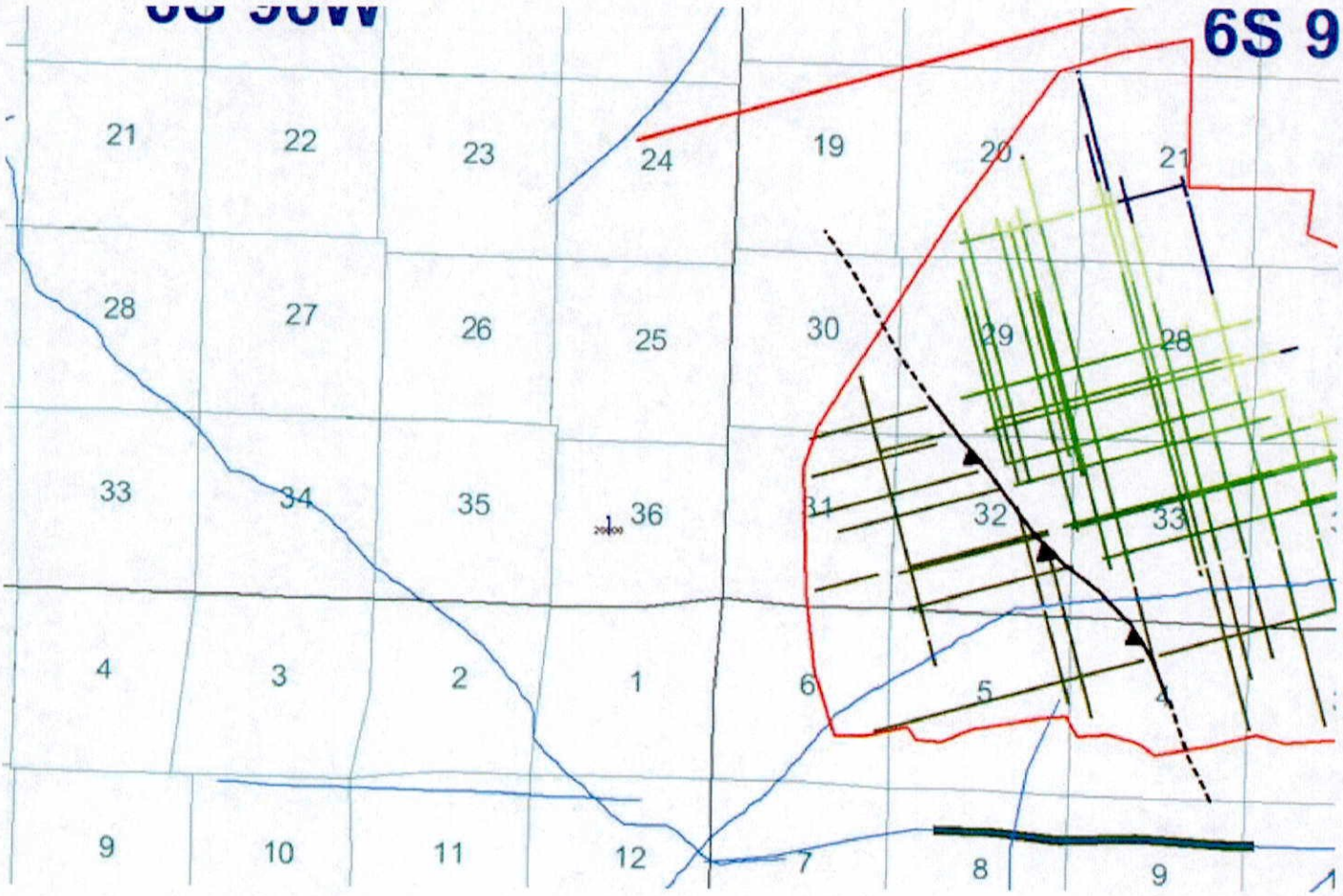

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From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Tuesday, December 06, 2011 9:15 AM
To: Onyskiw, Denise
Subject: Re: Seismic data near GM 239-36 water injection well

Sounds good, thanks Denise

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, December 06, 2011 10:11 AM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

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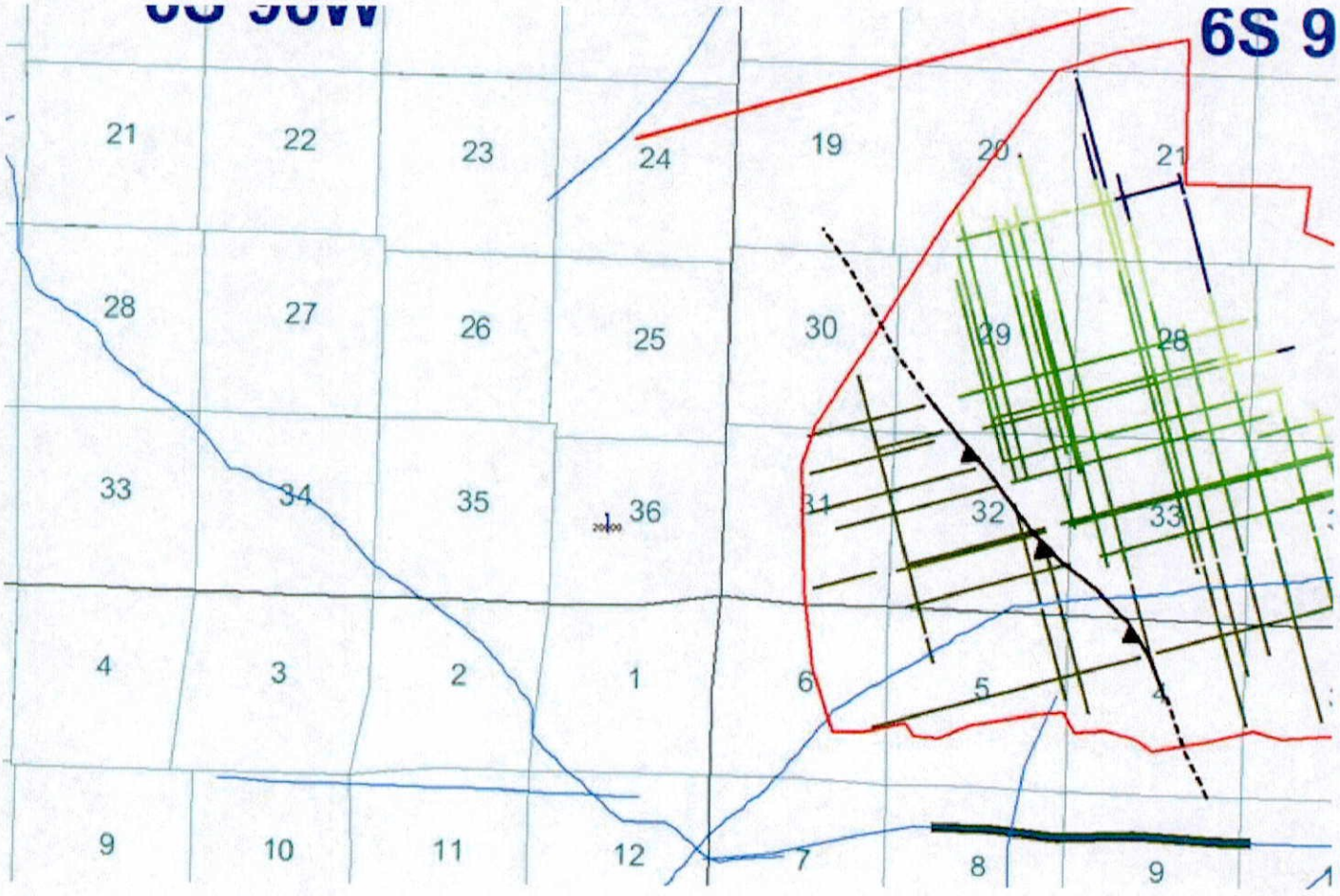

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Bret

Onyskiw, Denise

From: Onyskiw, Denise
Sent: Monday, December 05, 2011 10:16 AM
To: 'tony@singletreeresources.com'
Subject: injection well permit

Tony,
I have your injection well permit. I will call you tomorrow to discuss what additional things need to be done before we can go to public notice. I'm leaving for the field today and won't be back until close to five.

Denise M. Onyskiw, P.E.
Underground Injection Control Program Supervisor
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street
Denver, CO 80203
303-894-2100 ext. 5145
denise.onyskiw@state.co.us

STATE OF COLORADO
OIL & GAS
CONSERVATION COMMISSION

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Tuesday, December 13, 2011 11:24 AM
To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

Denise-

Did you find the logs you needed on this well? I'm back in the office today so please let me know if there is anything further you need

Thanks,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
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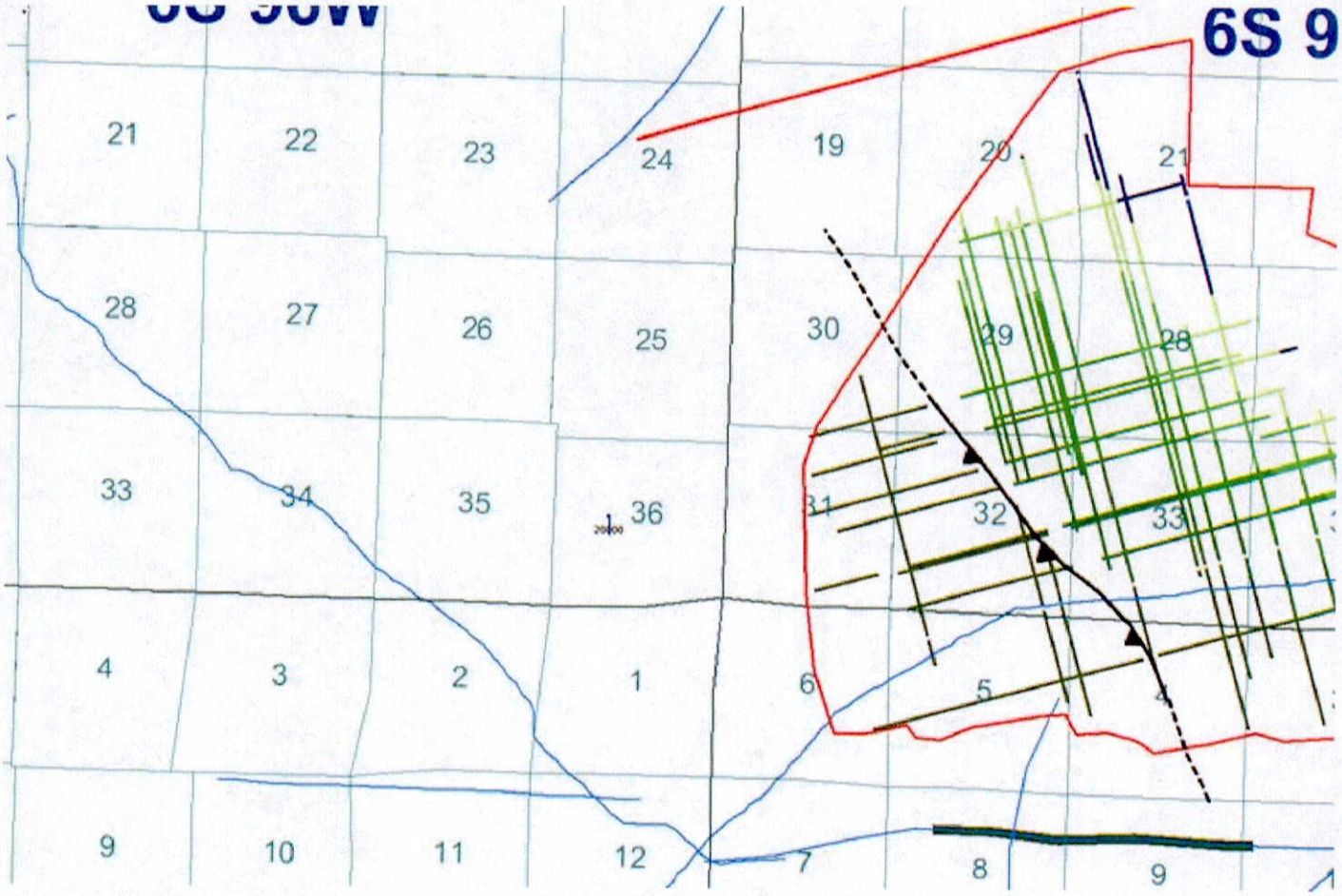

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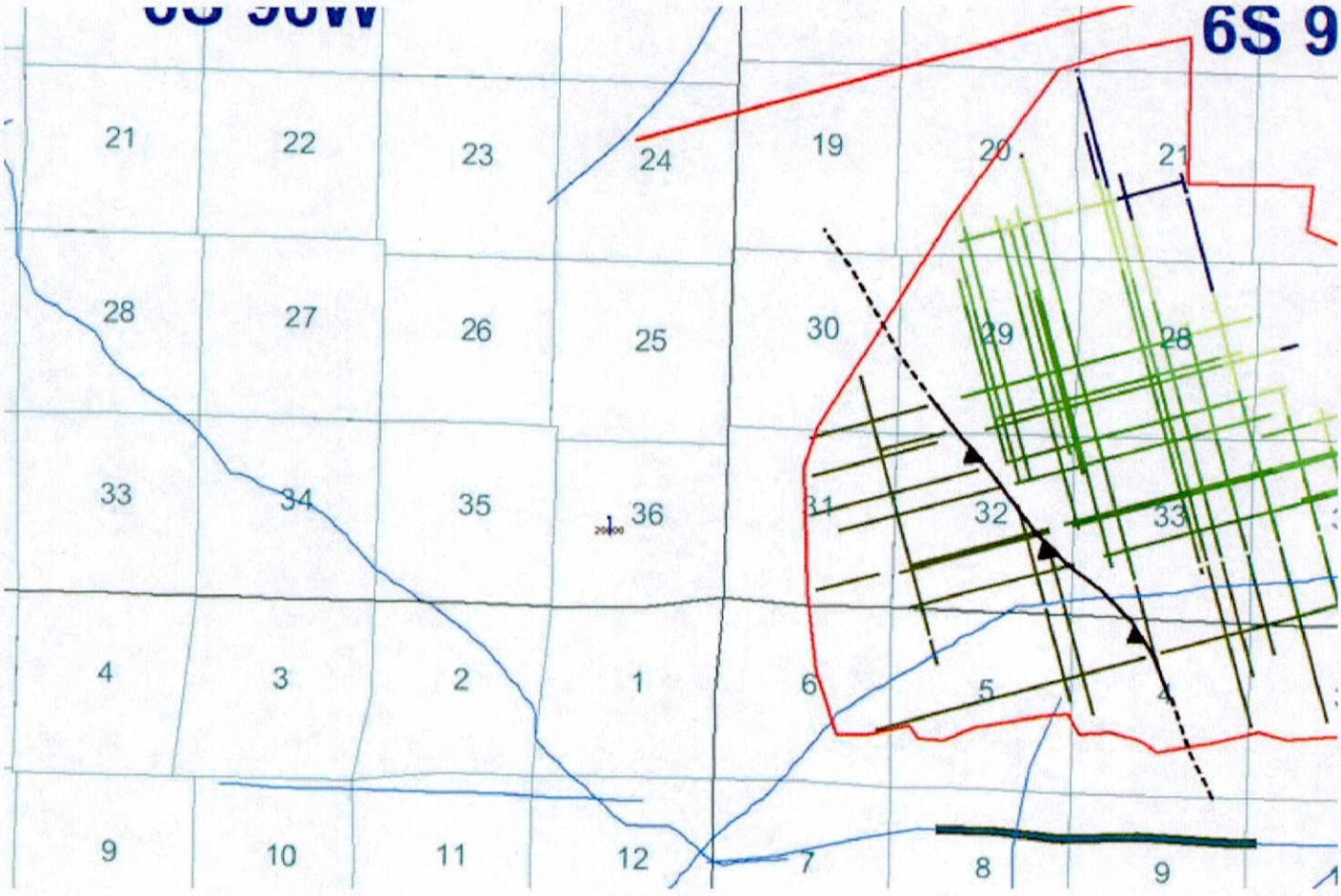

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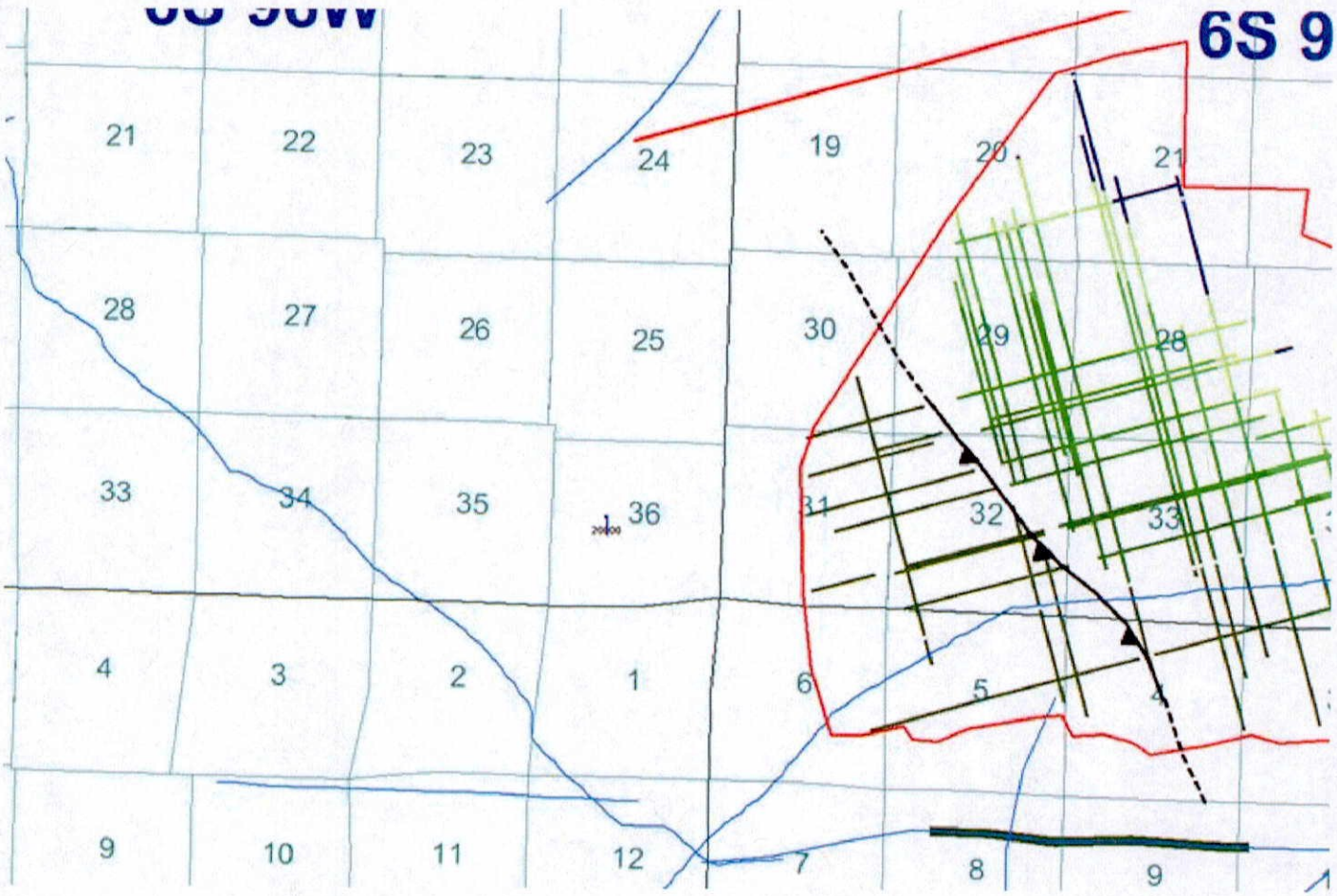

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Onyskiw, Denise

From: Neifert-Kraiser, Angela [Angela.Neifert-Kraiser@williams.com]
Sent: Tuesday, November 29, 2011 2:28 PM
To: Onyskiw, Denise
Subject: GM 239-36 5A

Hi Denise,

Just wanted you to know I am working on the form 5A for you for this well. thanks

Angela Neifert~Kraiser
303-606-4398

Onyskiw, Denise

From:	Pam Schultz [PSchultz@eaglevalleyenterprise.com]
Sent:	Tuesday, November 29, 2011 2:20 PM
To:	Onyskiw, Denise
Subject:	RE: proof of public notice
Attachments:	CustomReceipts.pdf; 6729282.pdf

This was done at another site and apparently the legal clerk didn't get to what you needed. Here is the Proof of Publication and the paid ad ticket.

Thank you

Please use this number
Your account number is: 1006421
Your ad ID number: 6729282
when requesting your publication or inquiring about your account or when using a Purchase Order Number. Thank you.

Deadlines for Thanksgiving Holiday

Eagle Valley Enterprise (11-24-2011) Deadline: Thursday, November 17, 2011, 3:00 PM

Eagle Valley Enteprise (12,-1-2011) Deadline: Friday, November 25, 2011, 1:00 PM

Vail Daily (11-25-2011) Deadline: Wednesday, November 23, 2011, 3:00 PM

Middle Park Times (12-1-2011) Deadline: Friday, November 25, 2011: 3:00 PM

****

NOTICE TO ALL CUSTOMERS
All payments For Legal Notices may be sent to :
Colorado Mountain News Media

PO Box 540
Gypsum, CO 81637

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Tuesday, November 29, 2011 1:53 PM
To: Pam Schultz
Subject: proof of public notice

Pam,
On July 1, 2011, I sent a public notice to be published and asked for a proof of publication to be sent with the invoice. I have not received the proof of publication. Would you please email it to me? The Copyline is 6729282 GN 239-36_07-01-11.

Denise M. Onyskiw, P.E.
Underground Injection Control Program Supervisor
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street
Denver, CO 80203
303-894-2100 ext. 5145
denise.onyskiw@state.co.us

STATE OF COLORADO
OIL & GAS
CONSERVATION COMMISSION

Receipt of Payment

11/29/11 1:18 PM

Swift Communications

Account 1006421
Name Colorado Oil & Gas Con
Phone (303)894-2100
Address 1120 Lincoln St 801 Ste
City Denver
State CO
Zip 80203

Credit Card
Type
Num
Auth
Expir
Country Code US

Start 07/07/11	Paytype B	Issues 1
Stop 07/07/11	Rate Code TCT	Class 0990
Copy 6729282 GN 239-36_07-01-11		

OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO

PUBLIC NOTICE
OF
PROPOSED UNDERGROUND INJECTION CONTROL PERMIT

PURPOSE OF PUBLIC NOTICE:

The purpose of this notice is to solicit public comment on the GM 239-36 disposal well, a Class II injection permit submitted by Williams Production RMT. The GM 239-36 disposal well has been drilled at a location 2122 feet from the south line and 1083 feet from the west line of Section 36, Township 6 South, Range 96 West, 6th P.M., Rio Blanco County, Colorado.

BACKGROUND

Class II injection wells are permitted and regulated in such a manner as to prevent the contamination of underground sources of drinking water and to ensure fluid emplacement and confinement within the permitted injection zones. Class II injection wells are permitted to inject waste generated from oil and gas exploratory and production operations. Williams Production RMT has proposed to inject these fluids into the Upper Mesaverde formation in the GM 239-36 well through perforations at depths of approximately 3,900-4,800 feet.

Public comments are encouraged and will be accepted, in writing at the Commission for a period of thirty (30) days after publication of this notice. If any data, information, or arguments submitted during the public comment period appear to raise substantial questions concerning proposed injection well permit, the Director may request that the Commission hold a hearing on the matter.

Additional information on the operation of the proposed injection well may be obtained at the Commission office.

IN THE NAME OF THE STATE OF COLORADO
OIL AND GAS CONSERVATION COMMISSION
OF THE STATE OF COLORADO
By
Derek M. Drysdale, P.E.
UIC Supervisor, COGCC

Dated at 1120 Lincoln Street, Suite 801
Denver, Colorado 80203
July 1, 2011

Published in the Citizen Telegram July 7, 2011.
(6729282)

Ad shown is not actual print size

Amount	30.36	Rep	8PI75
Tax	0.00	Ad #	6729282
Amount Paid	30.36	Paytype	Billed/Invoiced
Payment Due	0.00	Balance	0
		Receipt No	

293 Words

Ad Size 1 cols x 5.01 inches

Received by _____ Date _____

Original

Receipt of Payment

11/29/11 1:18 PM

Swift Communications

Account 1006421
Name Colorado Oil & Gas Con
Phone (303)894-2100
Address 1120 Lincoln St 801 Ste
City Denver
State CO
Zip 80203

Credit Card
Type
Num
Auth
Expir
Country Code US

Start 07/07/11	Paytype B	Issues 1
Stop 07/07/11	Rate Code TCT	Class 0990
Copy 6729282 GN 239-36_07-01-11		

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Ad Size 1 cols x 5.01 inches

Received by _____ Date _____

Customer Copy

Ad Name: 6729282A
Ad ID: 6729282

PROOF OF PUBLICATION

THE RIFLE CITIZEN TELEGRAM

STATE OF COLORADO, COUNTY OF GARFIELD

I, Jenna Weatherred, do solemnly swear that I am a Publisher of *The Rifle Citizen Telegram*, that the same weekly newspaper printed, in whole or in part and published in the County of Garfield, State of Colorado, and has a general circulation therein; that said newspaper has been published continuously and uninterruptedly in said County of Garfield for a period of more than fifty-two consecutive weeks next prior to the first publication of the annexed legal notice or advertisement; that said newspaper has been admitted to the United States mails as a periodical under the provisions of the Act of March 3, 1879, or any amendments thereof, and that said newspaper is a weekly newspaper duly qualified for publishing legal notices and advertisements within the meaning of the laws of the State of Colorado.

That the annexed legal notice or advertisement was published in the regular and entire issue of every number of said weekly newspaper for the period of 1 consecutive insertions; and that the first publication of said notice was in the issue of said newspaper dated **7/7/2011** and that the last publication of said notice was dated **7/7/2011** the issue of said newspaper.

In witness whereof, I have here unto set my hand this **11/29/2011**.

Jenna Weatherred, Publisher

Subscribed and sworn to before me, a notary public in and for the County of Garfield, State of Colorado this **11/29/2011**.

Mary E. Borkenhagen, Notary Public
My Commission expires: **September 12, 2015**

MARY E BORKENHAGEN NOTARY PUBLIC STATE OF COLORADO My Commission Expires 09-12-2015

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Also, if there is anything we can do to assist in expediting final approval to begin injection on the GM 239-36 let me know.

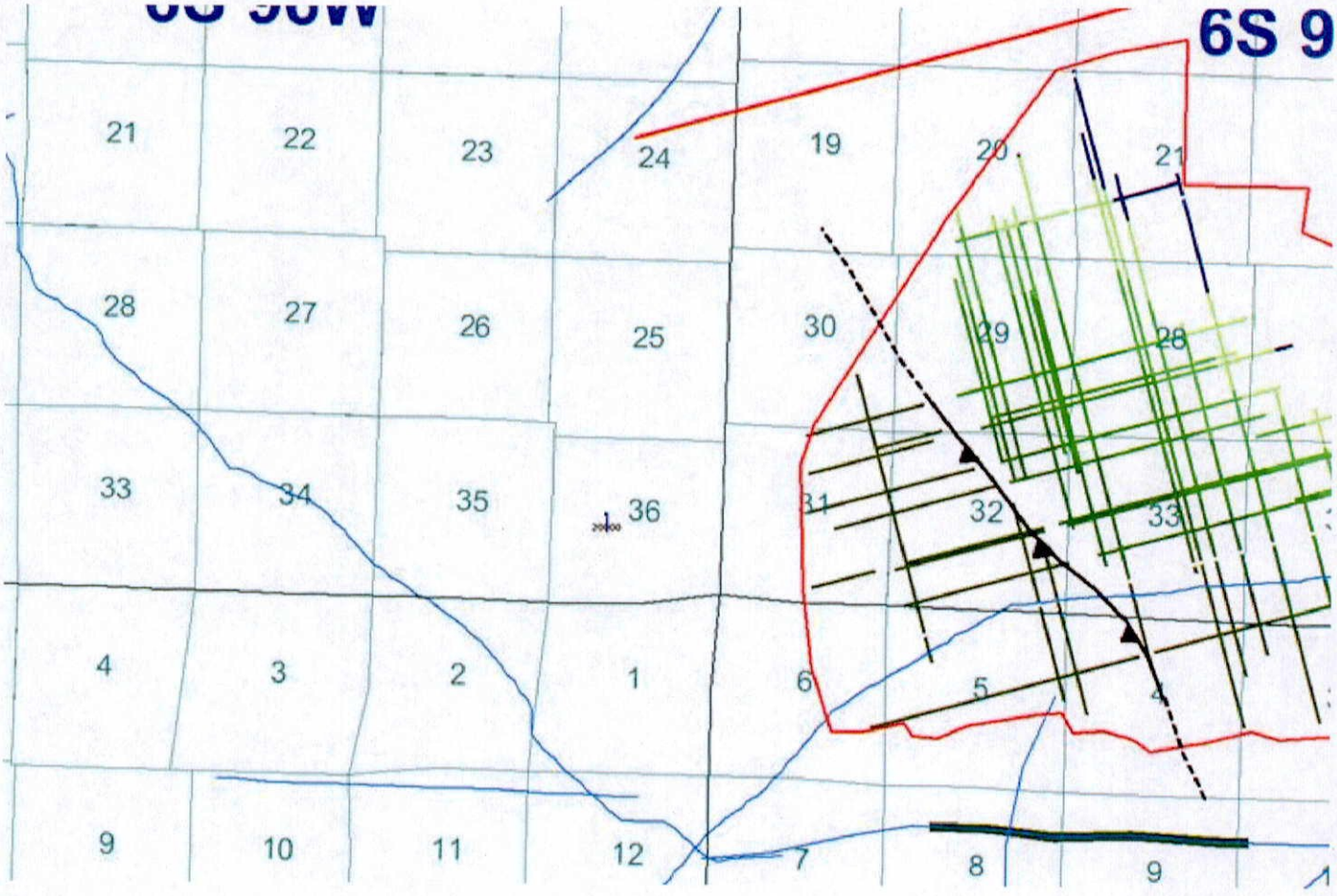
Regards,

Chris Caplis
Completions Engineer
Williams Production Co.
Ofc: 303-606-4041
Cell: 303-601-4884
chris.caplis@williams.com

From: Gunneson, Bret
Sent: Tuesday, November 01, 2011 9:23 AM
To: Caplis, Chris
Subject: RE: Seismic data near GM 239-36 water injection well

Hi Chris,

Unfortunately we don't have any seismic data within a couple of miles of that location:



You can see the Rulison 3D outline in red and our 2d lines in blue. On the data we have I don't see any big faults trending near section 36. But there sure could be something small.

Bret

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Wednesday, November 23, 2011 12:35 PM
To: Onyskiw, Denise
Subject: RE: Seismic data near GM 239-36 water injection well

You might have forwarded it to Chris Caplis, he was at the conference, but I never got anything

Thanks,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Wednesday, November 23, 2011 12:26 PM
To: Olson, Ryan
Subject: RE: Seismic data near GM 239-36 water injection well

Yes. I forwarded it to you when we were at the Tight Water Oil Management conference. I'll resend it to you.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Wednesday, November 23, 2011 11:33 AM
To: Onyskiw, Denise
Subject: FW: Seismic data near GM 239-36 water injection well

Denise-

Is this the e-mail about the memo from Vince Matthews? I didn't see the original memo, just this e-mail Chris cc'd me on. Is this seismic data holding up our permit approval?

Thanks,

Ryan

From: Caplis, Chris
Sent: Tuesday, November 01, 2011 9:53 AM
To: Onyskiw, Denise
Cc: Gunneson, Bret; Olson, Ryan; White, Paul
Subject: FW: Seismic data near GM 239-36 water injection well

Good morning Denise,

Bret Gunneson, our Senior Geoscientist, took time to review of our seismic data in the area of the GM 239-36 injection well. Per Bret's notes below, we don't have any seismic data within a couple miles of Section 36. However, he does provide a little insight into faults trending towards Section 36.

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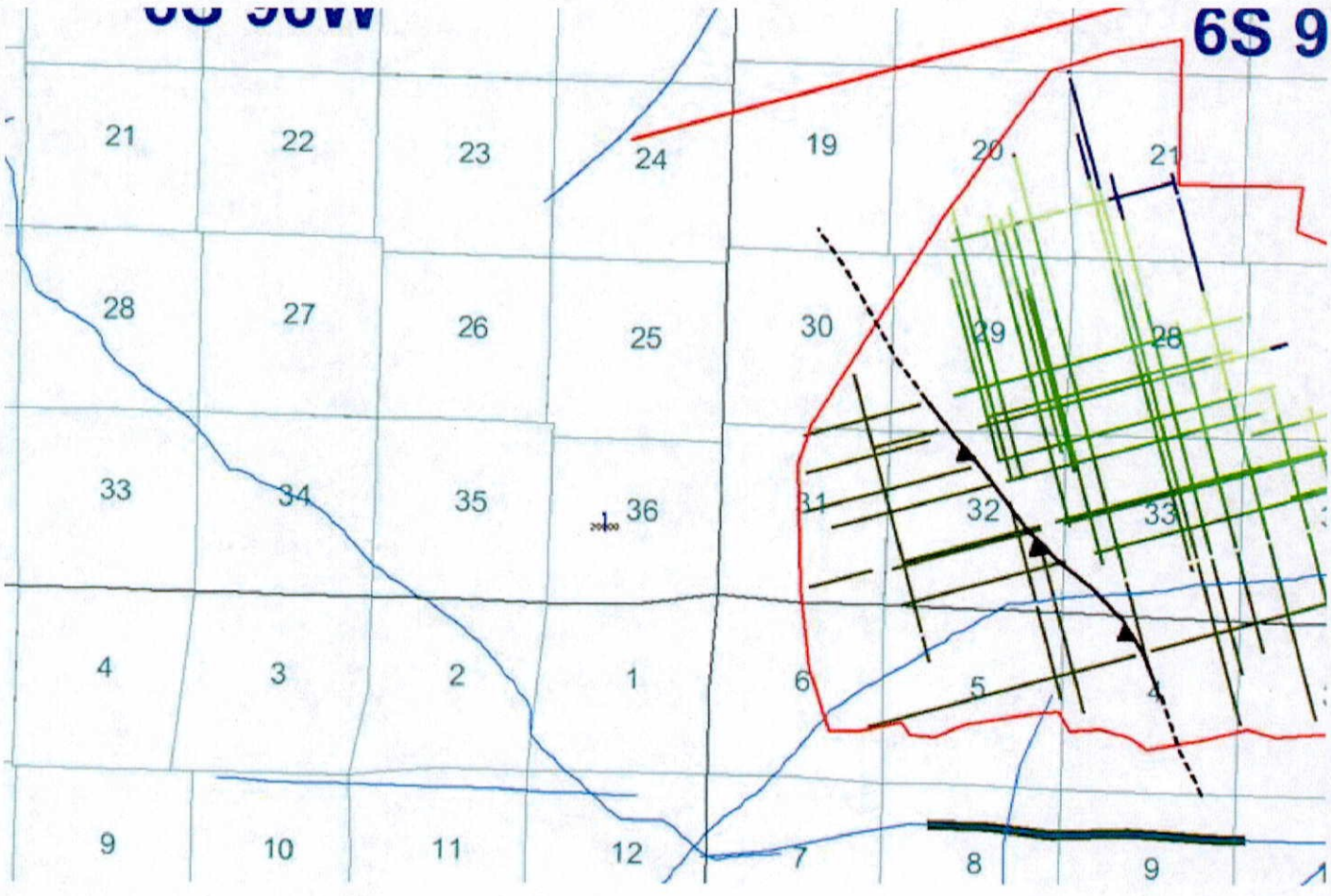


You can see the Rulison 3D outline in red and our 2d lines in blue. On the data we have I don't see any big faults trending near section 36. But there sure could be something small.

Bret

Onyskiw, Denise

From: Onyskiw, Denise
Sent: Wednesday, November 23, 2011 11:26 AM
To: 'Olson, Ryan'
Subject: RE: GM 239-36 Injection Conversion Permit

Ryan,
I forwarded a memo to Chris from Vince Matthews about having someone address subsurface seismic issues. Do you need me to send it to you?

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Wednesday, November 23, 2011 10:56 AM
To: Onyskiw, Denise
Cc: Caplis, Chris
Subject: RE: GM 239-36 Injection Conversion Permit

Denise-

Sorry to bother you, but I was going to see where we were as far as approval for this. Please let me know when you get a chance

Thanks and have a good Thanksgiving,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Friday, October 21, 2011 8:48 AM
To: Olson, Ryan
Cc: Caplis, Chris
Subject: RE: GM 239-36 Injection Conversion Permit

Usually, they are within 30 days. Often, much before that. But I can't make any promises on how much less than 30 days it can be because everyone then expects them within a shorter time and I can't always guarantee that.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Friday, October 21, 2011 8:46 AM
To: Onyskiw, Denise
Cc: Caplis, Chris
Subject: RE: GM 239-36 Injection Conversion Permit

Denise-

Is the 30 days a maximum amount of time? On our GM 523-36 we completed the official MIT on 4/22/09 and received the permit 5/7/09. Chris Caplis will probably submit the frac data to you

Thanks,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Friday, October 21, 2011 8:37 AM
To: Olson, Ryan
Subject: RE: GM 239-36 Injection Conversion Permit

Ryan,
Injection permits are issued up to 30 days after the application is complete. You can send me the frac data if it shows what the frac gradient of the formation is.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Friday, October 21, 2011 8:13 AM
To: Onyskiw, Denise
Subject: GM 239-36 Injection Conversion Permit

Denise-

We finished our recompletion and Mike Longworth witnessed our successful MIT on it yesterday. I was wondering how we get the max injection pressure from you and get the permit approved. Do we need to send you the frac data? Please let me know when you get a chance. You can call me if that is easier.

Thanks,

Ryan Olson
Operations Engineer
Williams Production RMT
1058 County Road 215
Parachute, CO 81635
Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

Onyskiw, Denise

From: Caplis, Chris [Chris.Caplis@Williams.com]
Sent: Tuesday, October 25, 2011 10:50 AM
To: Onyskiw, Denise
Cc: Olson, Ryan; White, Paul
Subject: GM 239-36 FG Determination, Recommended MASIP
Attachments: GM 239-36 Fracture Gradient Determiniation.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Hello again Denise,

Attached is the ISDP analysis for each of the 3 frac stages in the Upper Williams Fork of the GM 239-36 Injection well. As in the past, I also included our Frac Gradient analysis and Max Allowable Surface Injection Pressure analysis with recommendation.

If you have any questions please let me know.

Regards,

Chris Caplis
Completions Engineer
Williams Production Co.
Ofc: 303-606-4041
Cell: 303-601-4884
chris.caplis@williams.com

GM 239-36 Fracture Gradient Determination

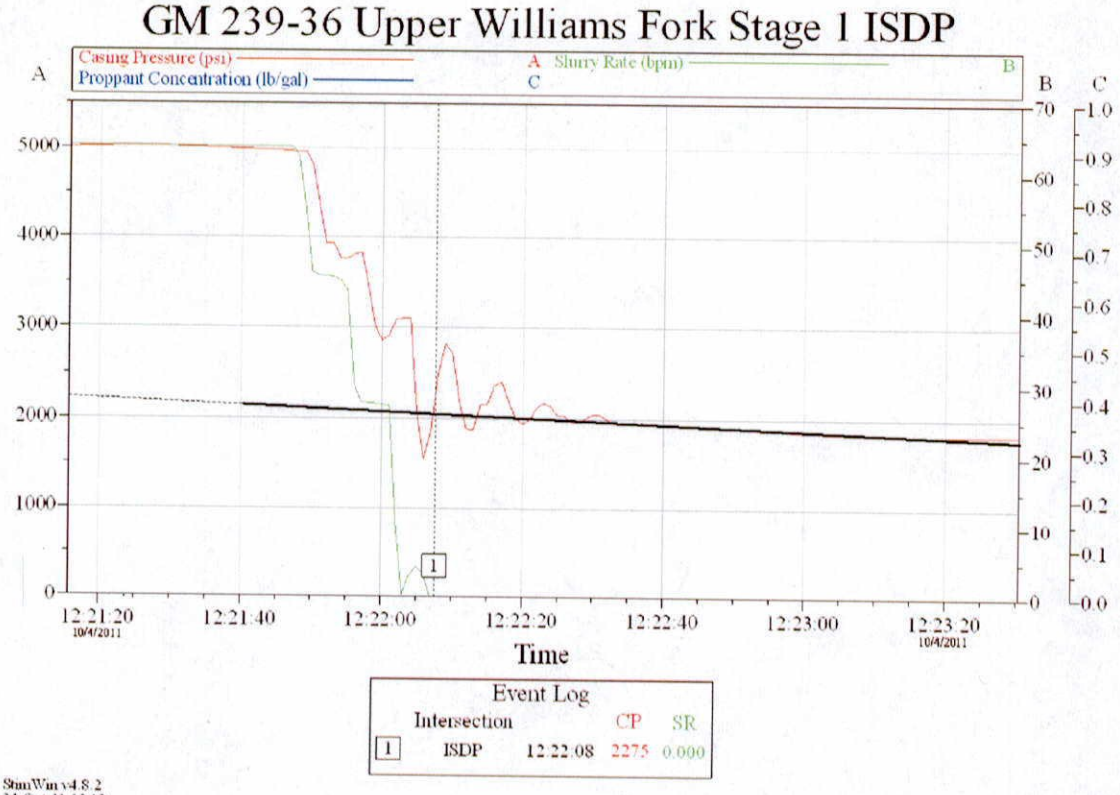
The following analysis will show the data from the ISDP's of the three frac stages performed on the subject well and how the frac gradients were calculated. An explanation of how the maximum surface injection pressure was determined is also given.

Summary of Calculations

Stage	Top Perf (ft)	Hydrostatic (psi)	ISDP (psi)	FG (psi/ft)	BHP (psi)
UWF1	4555	2013	2275	0.941	4288
UWF2	4237	1873	1528	0.802	3397
UWF3	3923	1734	1425	0.805	3159

UWF1 Frac Stage Analysis

The chart below shows the ISDP of the deepest frac stage. Top perf is at 4,555 ft.



The ISDP is shown to be 2,275 psi. Frac gradient is calculated as:

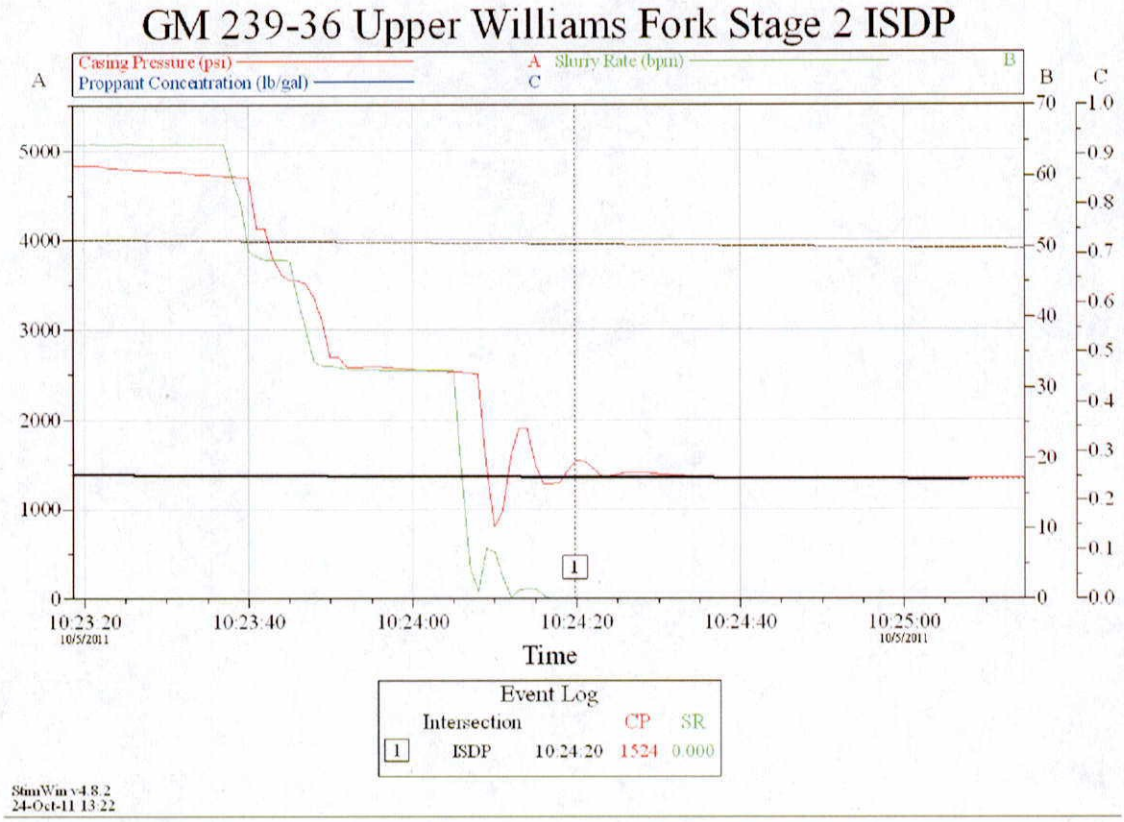
$$FG = (4{,}555*8.50*0.052 + 2{,}275) / 4{,}555 = 0.941 \text{ psi/ft}$$

$$BHP = (4{,}555*8.50*.052) + 2{,}275 \text{ psi} = 4{,}288 \text{ psi}$$

*Note: Halliburton uses mid-perf to calculate frac gradient, thus the slight discrepancy from 0.94 psi/ft (William's calculation) to 0.92 psi/ft (HES calculation). It is Williams' belief that using the top perf is more accurate in determining FG since this is the 'weakest' point in the interval due to reduced overburden.

UWF2 Frac Stage Analysis

The chart below shows the ISDP of the middle frac stage. Top perf is at 4,237 ft.



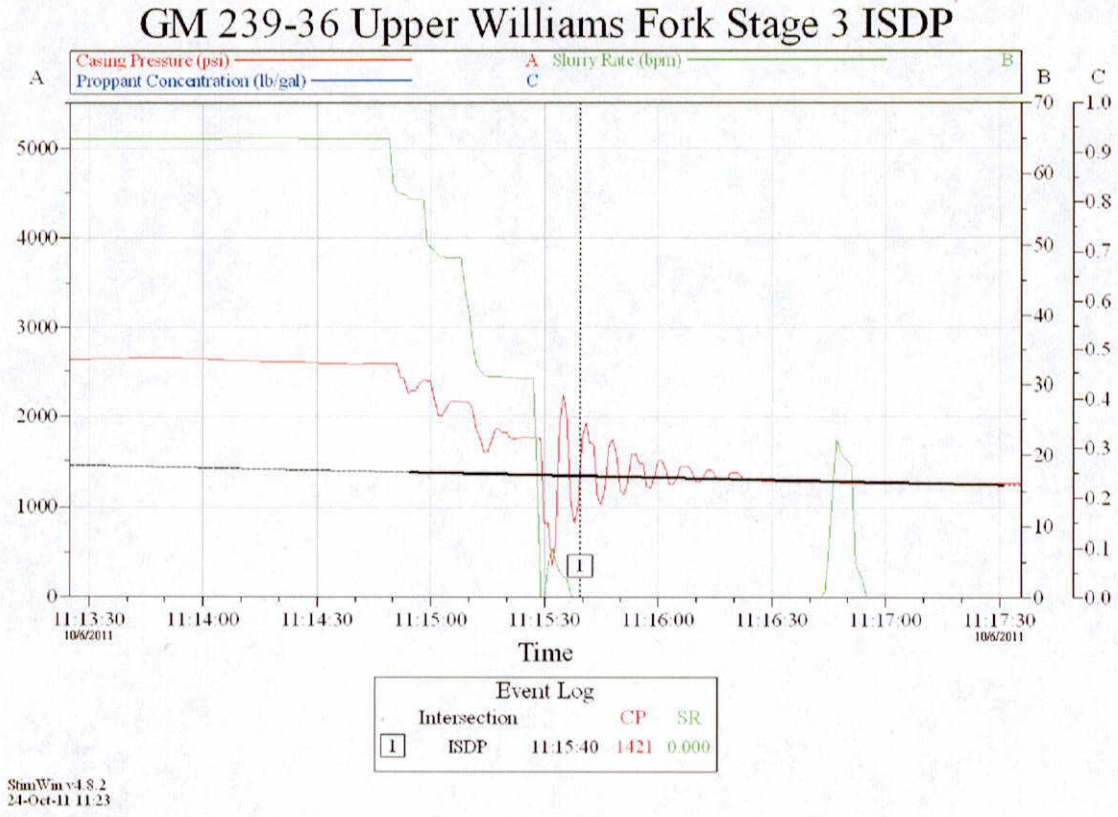
The ISDP is shown to be 1,524 psi. Frac gradient is calculated as:

$$FG = (4{,}237*8.50*0.052 + 1{,}524) / 4{,}237 = 0.802 \text{ psi/ft}$$

$$BHP = (4{,}237*8.50*0.052) + 1{,}524 = 3{,}397 \text{ psi}$$

UWF3 Frac Stage Analysis

The chart below shows the ISDP of the top frac stage. Top perf is at 3,923 ft.



The ISDP is shown to be 1,425 psi. Frac gradient is calculated as:

$$FG = (3{,}923*8.50*0.052 + 1{,}425) / 3{,}923 = 0.805 \text{ psi/ft}$$

$$BHP = (3{,}923*8.50*0.052) + 1{,}425 = 3{,}159 \text{ psi}$$

Max Injection Pressure Analysis

Since the lowest Frac Gradient was measured at the middle set of perfs, the following is proposed to determine the max allowable surface injection pressure:

Iteration #1:

Calculate the Effective UWF3 BHP by reducing the UWF2 BHP by the hydrostatic pressure difference between the top perfs of the stages. Determine an Effective UWF3 FG to be applied to the topmost injection perforation.

Hydrostatic Pressure to top perf = 3,923*8.50*0.052 = 1,734 psi

Translate UWF2 BHP to UWF3 Depth:

Effective UWF3 BHP = 3,397 psi – [(4,237'-3,923')*8.5*0.052] = 3,258 psi
Effective UWF3 FG = 3,258 psi/3,923' = 0.786 psi/ft

Max Surface Injection Pressure = 3,258 psi – 1,734 psi = 1,524 psi

Max Pressure QC Checks:

UWF3 Actual BHP = 3,159 psi

Effective UWF3 BHP = 3,258 psi

3,159 psi < 3,258 psi therefore measured UMV3 BHP is exceeded

QC Check of UWF1 zone unnecessary since we exceeded BHP on UWF3

Therefore, we will use UWF3 FG to estimate maximum allowable surface injection pressure:

Iteration #2

Since the UWF3 will be used for MASIP we have the following simple calculation:

Hydrostatic Pressure to top perf = 1,734 psi as calculated above

Max Surface Injection Pressure = UWF3 Actual BHP – Hydrostatic Pressure

Max Surface Injection Pressure = 3,159 psi – 1,734 psi = 1,425 psi

Max Pressure QC Checks:

UWF1 Actual BHP = 4,288 psi

UWF1 Actual BHP – Hydrostatic Pressure at UWF1 top perf = 4,288 psi – 2,013 psi = 2,275 psi

2,275 psi > 1,425 psi therefore UWF1 BHP not exceeded

UWF2 Actual BHP = 3,397 psi

UWF2 Actual BHP – Hydrostatic Pressure at UWF2 top perf = 3,397 psi – 1,873 psi = 1,524 psi

1,524 psi > 1,425 psi therefore UWF2 BHP not exceeded

Since no measured BHP's are exceeded, it is proposed that the Maximum Allowable Surface Injection Pressure be set at **1,425 psi**.

Onyskiw, Denise

From: Caplis, Chris [Chris.Caplis@Williams.com]
Sent: Friday, October 21, 2011 9:06 AM
To: Onyskiw, Denise; Olson, Ryan
Subject: RE: GM 239-36 Injection Conversion Permit

Denise,

I will send you the post-stim reports and our analysis similar to what Jeremy Conger did on previous injection wells.

Thanks,

Chris Caplis
Completions Engineer
Williams Production Co.
Ofc: 303-606-4041
Cell: 303-601-4884
chris.caplis@williams.com

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Friday, October 21, 2011 8:48 AM
To: Olson, Ryan
Cc: Caplis, Chris
Subject: RE: GM 239-36 Injection Conversion Permit

Usually, they are within 30 days. Often, much before that. But I can't make any promises on how much less than 30 days it can be because everyone then expects them within a shorter time and I can't always guarantee that.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Friday, October 21, 2011 8:46 AM
To: Onyskiw, Denise
Cc: Caplis, Chris
Subject: RE: GM 239-36 Injection Conversion Permit

Denise-

Is the 30 days a maximum amount of time? On our GM 523-36 we completed the official MIT on 4/22/09 and received the permit 5/7/09. Chris Caplis will probably submit the frac data to you

Thanks,

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Friday, October 21, 2011 8:37 AM
To: Olson, Ryan
Subject: RE: GM 239-36 Injection Conversion Permit

Ryan,

Injection permits are issued up to 30 days after the application is complete. You can send me the frac data if it shows what the frac gradient of the formation is.

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To: Onyskiw, Denise
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Thanks,

Ryan Olson
Operations Engineer
Williams Production RMT
1058 County Road 215
Parachute, CO 81635
Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Friday, October 21, 2011 8:56 AM
To: Onyskiw, Denise
Subject: Re: GM 239-36 Injection Conversion Permit

Sounds good, thanks Denise. Have a good weekend

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Friday, October 21, 2011 09:47 AM
To: Olson, Ryan
Cc: Caplis, Chris
Subject: RE: GM 239-36 Injection Conversion Permit

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To: Onyskiw, Denise
Cc: Caplis, Chris
Subject: RE: GM 239-36 Injection Conversion Permit

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Ryan

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Sent: Friday, October 21, 2011 8:37 AM
To: Olson, Ryan
Subject: RE: GM 239-36 Injection Conversion Permit

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Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

Onyskiw, Denise

From:	Longworth, Mike
Sent:	Friday, October 21, 2011 1:05 PM
To:	Olson, Ryan
Cc:	Onyskiw, Denise
Attachments:	Scan_Doc0009.pdf

MIT Form 21 UIC Williams GM 239-36 045-14693

THANK YOU!

MIKE LONGWORTH
FIELD INSPECTOR (GARFIELD AND RIO BLANCO COUNTIES)
OFFICE: 970.243.1183
FAX: 970.263.7338
mike.longworth@state.co.us

Doc# 2003263 11

FORM 21 Rev 6/99

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303) 894-2100 Fax: (303) 894-2109

FOR OGCC USE ONLY

MECHANICAL INTEGRITY TEST

Fill out Part II of this form if well tested is a permitted or pending injection well. Send original plus one copy.

1. Duration of the pressure test must be a minimum of 15 minutes.
2. A pressure chart must accompany this report if this test was not witnessed by a OGCC representative.
3. For production wells, test pressures must be at a minimum of 300 psig.
4. For injection wells, test pressures must be at 300 psig or minimum injection pressure, whichever is greater.
5. A minimum 300 psi differential pressure must be maintained between the tubing and tubing/casing annulus pressure.
6. Do not use this form if submitting under provisions of Rule 326.a. (1) B. or C.
7. OGCC notification must be provided prior to the test.
8. Packers or bridge plugs, etc., must be set within 250 feet of the perforated interval to be considered a valid test.

Complete the Attachment Checklist

	Oper	OGCC
Pressure Chart	✓	
Cement Bond Log	✓	
Tracer Survey		
Temperature Survey		

OGCC Operator Number: 96850
Name of Operator: Williams Production RMT
Address: 1058 County Road 215
City: Parachute **State:** CO **Zip:** 81635

Contact Name and Telephone
Ryan Olson
No: (970) 987-4603
Fax: (866) 524-2064

API Number: 05-045-14693 **Field Name:** Grand Valley **Field Number:** 31290
Well Name: Williams **Number:** GM 239-36
Location (QtrQtr, Sec, Twp, Rng, Meridian): NESW Sec 36 T6S 96W 6th PM

☐ **SHUT-IN PRODUCTION WELL** ☑ **INJECTION WELL** **Facility No.:** _____

Part I Pressure Test

☐ 5 -Year UIC Test ☐ Test to Maintain SI/TA Status ☐ Reset Packer
☐ Verification of Repairs ☐ Tubing/Packer Leak ☐ Casing Leak ☑ Other (Describe): Final MIT for Injection Permit

Describe Repairs:

NA - Not Applicable **Wellbore Data at Time Test**

Injection/Producing Zone(s)	Perforated Interval: ☐ NA	Open Hole Interval: ☐ NA
Upper Mesaverde	3923'-4822'	

Casing Test ☐ NA
Use when perforations or open hole is isolated by bridge plug or cement plug
Bridge Plug or Cement Plug Depth: CIBP @ 5003'

Tubing Casing/Annulus Test ☐ NA

Tubing Size:	Tubing Depth:	Top Packer Depth:	Multiple Packers?
2 7/8"	3883.92'	3877.25'	☐ YES ☑ NO

Test Data

Test Date	Well Status During Test	Date of Last Approved MIT	Casing Pressure Before Test	Initial Tubing Pressure	Final Tubing Pressure
10/20/11	SI	N/A	~~1400~~ 59	0	0

Starting Casing Test Pressure	Casing Pressure - 5 Min.	Casing Pressure - 10 Min.	Final Casing Test Pressure	Pressure Loss or Gain During Test
1498	1492	1488	1486	-12

Test Witnessed by State Representative? ☑ YES ☐ NO
OGCC Field Representative: Mike Longworth

Part II Wellbore Channel Test

Complete only if well is or will be an injection well.
Indicate method used for cement integrity test, attach appropriate records, charts, or logs unless previously submitted.

☐ Tracer Survey Run Date: _____
☑ CBL or Equivalent Run Date: 12/31/07
☐ Temperature Survey Run Date: _____

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Ryan Olson
Signed: _____ Title: Operations Engineer Date: 10/20/11
OGCC Approval: _____ Title: Field Insp. Date: 10-20-11
Conditions of Approval, if any:

Onyskiw, Denise

From: Caplis, Chris [Chris.Caplis@Williams.com]
Sent: Friday, October 21, 2011 9:52 AM
To: Onyskiw, Denise
Cc: Olson, Ryan
Subject: FW: GM 239-36 post-frac reports
Attachments: GM 239-36 Stg 1.zip; GM 239-36 Upper WF Stage 2 Post.zip; GM 239-36 Upper WF Stage 3 Post.zip

Hello again Denise,

Attached you will find the post-job stim reports from the three Upper-Williams Fork stages we pumped on the GM 239-36. I will follow (hopefully today) with my analysis and proposed Maximum Allowable Surface Injection Pressure for this well.

Questions, let me know.

Regards,

Chris Caplis
Completions Engineer
Williams Production Co.
Ofc: 303-606-4041
Cell: 303-601-4884
chris.caplis@williams.com

Company: Williams Prod RMT

Lease: GM 239-36 Injection Well

Formation: Upper WF Stg 1

HALLIBURTON

Import Design | Change File Path | 8520606

151° F

Date Pumped: 10/3/11

NESW 36-6S-96W

Stage	Fluid Schedule	Volume (gals)	Cumulative Volume (gals)	Proppant Type	Prop Conc (ppg)	Proppant Total (lbs)	Slurry Volume (bbls)	Rate (bpm)	Stage Time (h:min:sec)	Total Time (h:min:sec)	FR-66 (gal/Mgal)	LoSurf 300D (gal/Mgal)	BE-7 (gal/Mgal)	SWWF 1 (gal/Mlbs)	Stage
1	Pad	10,144	10,144				242	52	0:04:39	5:29:36	0.50	0.50	0.50		1
2	Water Frac	504,021	514,165	20/40 AIM Sand	0.50	252,011	12,272	64.51	3:10:14	5:24:57	0.50	0.50	0.50	0.50	2
3	Water Frac	84,023	598,188	20/40 AIM Sand	0.75	63,017	2,068	64.45	0:32:06	2:14:43	0.50	0.50	0.50	0.75	3
4	Water Frac	84,000	682,188	20/40 AIM Sand	1.00	84,000	2,090	64.15	0:32:35	1:42:37	0.50	0.50	0.50	1.00	4
5	Water Frac	83,989	766,177	20/40 AIM Sand	1.25	104,986	2,113	64.00	0:33:01	1:10:02	0.50	0.50	0.50	1.25	5
6	Water Frac	84,799	850,976	20/40 AIM Sand	1.50	127,199	2,156	64.01	0:33:41	0:37:01	0.50	0.50	0.50	1.50	6
7	Flush	8,938	859,914				213	63.78	0:03:20	0:03:20	0.50	0.50	0.50		7
	Totals	859,914				631,213	21,154		5:29:36		430.0	430.0	430.0	631.2	

Percent Pad: 60.42%

Pad + SLF: 850,976

Pad + SLF + Flush: 859,914

840000

Csg Size	Csg Weight	Pipe Friction
4.5	11.6	1,054

Callsheet Totals for Materials on Location - 25% Excess

FR-66	LoSurf 300D	BE-7	SWWF
537	537	537	789

Reservoir Pressure:	3,390	psi	Press Gradient:	0.72	psi/ft
BHTP:	2,860	psi	Temp Gradient:	1.95	° F/100 ft
Frac Gradient:	0.61	psi/ft	Treating Press:	2,837	psi
HHP:	4,519		Density:	8.43	lb/gal
Mid Perf:	4,689	feet	Gross Feet	265	
Number of Perfs:	28		Net Feet	203	
Perf Diameter:	0.35	inches			
Perf Friction:	978	psi			

Perf Zone #1	4,555	to	4,557	4	holes
Perf Zone #2	4,578	to	4,579	3	holes
Perf Zone #3	4,595	to	4,596	2	holes
Perf Zone #4	4,628	to	4,629	2	holes
Perf Zone #5	4,676	to	4,678	5	holes
Perf Zone #6	4,699	to	4,701	4	holes
Perf Zone #7	4,716	to	4,717	3	holes
Perf Zone #8	4,820	to	4,822	5	holes

Csg Size	Csg Weight	Pipe Friction
2476	9731	
452.4	905	
452	902.6	
451	901.6	
450.8	451.6	
451.8	903.2	

Weight Slips: 6,322

Change MM

Maximum Chemical Additive Rates - 70 bpm

FR-66	LoSurf 300D	BE-7	SWWF
1.47 gpm	1.47 gpm	1.47 gpm	4.41 gpm
41	41	41	14
Sec	Sec	Sec	Sec
Actual	Actual	Actual	Actual

Bucket Size (gals): 1

2 % KCL

Shut down for ISIP and perform perf calculations.

Monitor surface casing pressure.

Pump SWWF

@ 1 Gal / Mlbs

into the tub &

slave it off the screws

Initial Braden		ISIP		Break		
Max Braden		FG		Initial		
Pad		ISDP		Max		
SLF		FFG		Average		
Flush		Perfs		Final		
Design Sand		Call Sand			Pressure	Rate

Company: Williams Prod RMT

Lease: GM 239-36 Injection Well

Formation: Upper WF Stg 1

HALLIBURTON

151° F

Import Design | Change File Path | 8520606

Date Pumped: 10/3/11

NESW 36-6S-96W

Stage	Fluid Schedule	Volume (gals)	Cumulative Volume (gals)	Proppant Type	Prop Conc (ppg)	Proppant Total (lbs)	Slurry Volume (bbls)	Rate (bpm)	Stage Time (h:min:sec)	Total Time (h:min:sec)	FR-66 (gal/Mgal)	LoSurf 300D (gal/Mgal)	BE-7 (gal/Mgal)	SWWF 1 (gal/Mlbs)	Stage
1	Pad	10,000	10,000				238	70	0:03:24	5:01:50	0.50	0.50	0.50		1
2	Water Frac	504,000	514,000	20/40 AIM Sand	0.50	252,000	12,271	70.00	2:55:18	4:58:26	0.50	0.50	0.50	0.50	2
3	Water Frac	84,000	598,000	20/40 AIM Sand	0.75	63,000	2,068	70.00	0:29:32	2:03:08	0.50	0.50	0.50	0.75	3
4	Water Frac	84,000	682,000	20/40 AIM Sand	1.00	84,000	2,090	70.00	0:29:52	1:33:35	0.50	0.50	0.50	1.00	4
5	Water Frac	84,000	766,000	20/40 AIM Sand	1.25	105,000	2,113	70.00	0:30:11	1:03:43	0.50	0.50	0.50	1.25	5
6	Water Frac	84,000	850,000	20/40 AIM Sand	1.50	126,000	2,136	70.00	0:30:31	0:33:32	0.50	0.50	0.50	1.50	6
7	Flush	8,893	858,893				212	70.00	0:03:01	0:03:01	0.50	0.50	0.50		7
	Totals	858,893				630,000	21,129	70	5:01:50		429.4	429.4	429.4	630.0	

Percent Pad: 60.47%

Pad + SLF: 850,000

Pad + SLF + Flush: 858,893

840000

Csg Size	Csg Weight	Pipe Friction
4.5	11.6	1,200

Callsheet Totals for Materials on Location - 25% Excess

FR-66	LoSurf 300D	BE-7	SWWF
537	537	537	788

Reservoir Pressure: 3,390 psi

BHTP: 2,860 psi

Frac Gradient: 0.61 psi/ft

HHP: 5,417

Press Gradient: 0.72 psi/ft

Temp Gradient: 1.95 ° F/100 ft

Treating Press: 3,157 psi

Density: 8.43 lb/gal

Mid Perf: 4,689 feet

Number of Perfs: 28

Perf Diameter: 0.35 inches

Perf Friction: 1,152 psi

Gross Feet 265

Net Feet 203

Perf Zone #1	4,555	to	4,557	4	holes
Perf Zone #2	4,578	to	4,579	3	holes
Perf Zone #3	4,595	to	4,596	2	holes
Perf Zone #4	4,628	to	4,629	2	holes
Perf Zone #5	4,676	to	4,678	5	holes
Perf Zone #6	4,699	to	4,701	4	holes
Perf Zone #7	4,716	to	4,717	3	holes
Perf Zone #8	4,820	to	4,822	5	holes

2476	MM 2	MM 3	9731
452.4			905
452			902.6
451			901.6
450.8			451.6
451.8			903.2

Weight Slips: 6,322

Change MM

Maximum Chemical Additive Rates - 70 bpm

FR-66	LoSurf 300D	BE-7	SWWF
1.47 gpm	1.47 gpm	1.47 gpm	4.41 gpm
41	41	41	14
Sec	Sec	Sec	Sec
Actual	Actual	Actual	Actual

Bucket Size (gals): 1

2 % KCL

Shut down for ISIP and perform perf calculations.

Monitor surface casing pressure.

Pump SWWF

@ 1 Gal / Mlbs

Into the tub &

slave it off the screws

Initial Braden		ISIP		Break		
Max Braden		FG		Initial		
Pad		ISDP		Max		
SLF		FFG		Average		
Flush		Perfs		Final		
Design Sand		Call Sand			Pressure	Rate

Customer:	**Williams Prod RMT**
Well:	**GM 239-36 Injection Well**
Date:	**10/3/2011**
Formation:	**Upper WF Stg 1**
Ticket #:	**8520606**

MT. MOVER #1 **2476**

	BIN # 1	BIN # 2	BIN # 3	BIN # 4	BIN # 5	TOTAL
Sand Size	20/40 Sand	20/40 Sand	20/40 Sand	20/40 Sand	20/40 Sand	
Est. Amt. (sacks)	452.4	452	451	450.8	451.8	2258
Amt. Pumped (sacks)	452.4	452	451	450.8	451.8	2258
Amt. Returned (sacks)	0	0	0	0	0	0

Total	6,322
Pumped	6,272
Returned	50

On the fly water tes
Chlorides
Test 1
Test 2
Test 3

SAND SIEVE ANALYSIS **20/40 Sand**

Initial Weight (grams):	COM 1		COM 2		COM 3		COM 4		COM 5	
Sand Type:	Wt	%	Wt	%	Wt	%	Wt	%	Wt	%
Pan #16		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #20		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #25		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #30		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #35		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #40		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #50		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
PAN		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Total	0.00		0.00		0.00		0.00		0.00	
% Retained	*#DIV/0!*		*#DIV/0!*		*#DIV/0!*		*#DIV/0!*		*#DIV/0!*	

MT. MOVER #2 **9731**

	BIN # 1	BIN # 2	BIN # 3	BIN # 4	BIN # 5	TOTAL
Sand Size	20/40 Sand	20/40 Sand	20/40 Sand	20/40 Sand	20/40 Sand	
Est. Amt. (sacks)	905	902.6	901.6	451.6	903.2	4064
Amt. Pumped (sacks)	905	902.6	851.6	451.6	903.2	4014
Amt. Returned (sacks)	0	0	50	0	0	50

SAND SIEVE ANALYSIS **20/40 Sand**

Initial Weight (grams):	COM 1		COM 2		COM 3		COM 4		COM 5	
Sand Type:	Wt	%	Wt	%	Wt	%	Wt	%	Wt	%
Pan #16		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #20		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #25		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #30		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #35		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #40		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Pan #50		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
PAN		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!
Total	0.00		0.00		0.00		0.00		0.00	
% Retained	*#DIV/0!*		*#DIV/0!*		*#DIV/0!*		*#DIV/0!*		*#DIV/0!*	

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Friday, October 21, 2011 8:13 AM
To: Onyskiw, Denise
Subject: GM 239-36 Injection Conversion Permit

Denise-

We finished our recompletion and Mike Longworth witnessed our successful MIT on it yesterday. I was wondering how we get the max injection pressure from you and get the permit approved. Do we need to send you the frac data? Please let me know when you get a chance. You can call me if that is easier.

Thanks,

Ryan Olson
Operations Engineer
Williams Production RMT
1058 County Road 215
Parachute, CO 81635
Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

Onyskiw, Denise

From: Matthews, Vince
Sent: Wednesday, October 19, 2011 2:28 PM
To: Onyskiw, Denise
Attachments: Federal 8-21D.docx; GM 239-36.docx

Denise,

Attached are the final two reviews. Note that I have modified GM 239. Please replace the earlier one.

I think that this completes all of the locations that you sent me. Please let me know if that is incorrect.

Vince

Vincent Matthews
State Geologist of Colorado
Director of the Colorado Geological Survey
1313 Sherman Street, Room 715
Denver CO 80203
Office: 303-866-2611, Ext 8340
Cell: 303-882-6580

DEPARTMENT OF NATURAL RESOURCES
John W. Hickenlooper, Governor
1313 Sherman St. Suite 715
Denver, CO 80203
Phone: (303) 866-2611

MEMORANDUM

Revised 10/19/11; October 18, 2011

TO: Denise M. Onyskiw, P.E.
Oil and Gas Conservation Commission

FROM: Vincent Matthews, PhD.
Colorado Geological Survey

SUBJECT: Seismic Review: Federal 8-21D (NENW Section 8 Township 8 South, Range 95 West)

I have reviewed the location for this proposed injection well. No earthquakes within 10 miles of the location have been reported by the USGS. There is a surface fault mapped within 10 miles of the proposed location. I have not reviewed any subsurface data.

The USGS National Earthquake Hazard Map shows areas susceptible to ground shaking during fifty year intervals. This part of Colorado is an area that has been designated as being susceptible to higher PGA than most other parts of Colorado (approximately three times greater than the Front Range Urban Corridor). It is considered to lie within the active extensional fault system of Western Colorado.

Beginning about 9 miles southwest of the proposed location are several northwest-trending normal faults. Normal faults of this orientation are characteristic of the active extensional fault system in western Colorado.

Because the well site falls within the USGS hazard area of higher ground accelerations, and because faults of the active extensional system are nearby, it would be prudent to examine all subsurface data available to the operator to be sure that no normal faults lie within the area influenced by the injection.

Onyskiw, Denise

From: Onyskiw, Denise
Sent: Thursday, October 06, 2011 10:48 AM
To: Matthews, Vince
Subject: Seismic Information Request
Attachments: GM 239-36 CGS.docx

Vince,
Here is the last request I have for now. The rest will be sent when they are further along with their projects.

Denise M. Onyskiw, P.E.
Underground Injection Control Program Supervisor
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street
Denver, CO 80203
303-894-2100 ext. 5145
denise.onyskiw@state.co.us

STATE OF COLORADO
OIL & GAS
CONSERVATION COMMISSION

STATE OF COLORADO
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DEPARTMENT OF NATURAL RESOURCES
John W. Hickenlooper, Governor
1120 Lincoln St. Suite 801
Denver, CO 80203
Phone: (303) 894-2100
FAX: (303) 894-2109
www.colorado.gov/cogcc

MEMORANDUM

October 6, 2011

TO: Vincent Matthews, Ph.D.
Colorado Geological Survey

FROM: Denise M. Onyskiw, P.E.
Oil and Gas Conservation Commission

SUBJECT: Need for Seismic Information

The Oil and Gas Conservation Commission (OGCC) has received an application for a water injection project, summarized as follows:

LOCATION	COUNTY	FIELD
NESW Section 36 Township 6 South, Range 96 West, Garfield, Colorado, 6th P.M.	Garfield	Grand Valley

1	WELL NAME	GM 239-36	
2	INJECTION ZONE FORMATION	Upper Mesaverde	
3	DEPTH OF INJECTION INTERVAL	3900 to 4830	feet
4	PROPOSED INJECTION PRESSURE	100 to 1500	psig
5	FRAC GRADIENT OR PRESSURE (BHP)	0.71	psi/ft
6	VOLUME OF FLUID TO BE INJECTED	500 to 8500	bbl/day
7	TDS OF INJECTION ZONE FLUID	25,505	mg/l
8	TDS OF FLUID TO BE INJECTED	16,275 to 23,393	mg/l

WELL CONSTRUCTION DATA					
CASING STRING	CASING SIZE	HOLE SIZE	DEPTH	AMOUNT CEMENT	TOP OF CEMENT
Surface	9-5/8"	13-1/2"	1122'	325 sks	0'
1st	4-1/2"	7-7/8"	7092'	853 sks	2300'

Please furnish the OGCC with any concerns about faults in the area that may be affected by this underground injection control project. Thank you.

Onyskiw, Denise

From: Caplis, Chris [Chris.Caplis@Williams.com]
Sent: Monday, September 26, 2011 9:15 AM
To: Olson, Ryan
Cc: Hejl, Kent; White, Paul; Blaney, Karolina; Caplis, Chris; Onyskiw, Denise
Subject: FW: GM 239-36 Injection Zone Water Analysis
Attachments: Injection Zone Water Analysis GM 239-36.pdf

Ryan,

Denise Onyskiw agreed to use the water analysis (attached) from the GM 523-36 for the GM 239-36 since they are only 1,200' apart.

We are good to proceed.

Thanks,

Chris Caplis
Completions Engineer
Williams Production Co.
Ofc: 303-606-4041
Cell: 303-601-4884
chris.caplis@williams.com

From: Olson, Ryan
Sent: Monday, September 26, 2011 8:29 AM
To: Caplis, Chris
Subject: GM 239-36 Injection Zone Water Analysis

Ryan Olson
Operations Engineer
Williams Production RMT
1058 County Road 215
Parachute, CO 81635
Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

Analysis of Injection Zone Water

The attached water quality analysis was collected from nearby well GM 523-36 located approximately 1,200 feet southeast of proposed injection well GM 239-36. This sample is representative of the injection zone water from the Upper Mesaverde. After well GM 239-36 is tested, a water sample analysis will be provided.

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	March 18, 2009
Reported To	Kent Hejl	Date Tested	March 18, 2009
Reported By	Scott Lowe	Tested By	Scott Lowe

Sample Physical Characteristics

Well Name	GM 523-36		Temperature	72	°F
Location	1st Swab		pH	8.1	
Specific Gravity	1.013		Color	Brown	
Corrected SG	1.015	at 60°F	Turbidity	Heavy	
TDS (calculated)	25505	ppm	Resistivity	0.35	Ω·m

Sample Chemical Characteristics

Anions	Chloride	15200	mg/L	**Cations**	Total Iron	4.2	mg/L
	Sulfate	25	mg/L		Ferrous Iron	0.0	mg/L
	Bicarbonate	380	mg/L		Potassium	380	mg/L
	Carbonate	130	mg/L		Calcium	500	mg/L
	Hydroxide	0	mg/L		Magnesium	100	mg/L
					Sodium (calculated)	9118	mg/L

General Comments

Sample was filtered prior to testing. Sediment was viewed through a microscope at 1000X. It appears to be decomposed shale materials with some harder colored fragments.

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Wednesday, August 24, 2011 3:52 PM
To: Onyskiw, Denise; Andrews, David
Cc: King, Kevin
Subject: RE: GM 239-36 Injection Well Conversion

Sounds good, thanks Denise

Ryan

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Wednesday, August 24, 2011 3:49 PM
To: Olson, Ryan; Andrews, David
Cc: King, Kevin
Subject: RE: GM 239-36 Injection Well Conversion

Ryan, the Form 2 is still in public comment and LGD review until Thursday. The Form 4 will get approved at the same time.

Denise

From: Olson, Ryan [mailto:Ryan.Olson@williams.com]
Sent: Wednesday, August 24, 2011 11:49 AM
To: Andrews, David; Onyskiw, Denise
Cc: King, Kevin
Subject: GM 239-36 Injection Well Conversion

David/Denise-

We submitted the Form 2 and Form 4 on August 4th, and I was wondering where we stand with that so I can add it to our frac schedule for the recompletion portion. Please let me know when you get a chance, and if you need any additional information.

Thanks,

Ryan Olson
Operations Engineer
Williams Production RMT
1058 County Road 215
Parachute, CO 81635
Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

Onyskiw, Denise

From: Olson, Ryan [Ryan.Olson@williams.com]
Sent: Tuesday, August 02, 2011 8:21 AM
To: Onyskiw, Denise
Cc: Blaney, Karolina
Subject: RE: Williams GM 239-36 injection well permit application status and Form 26s for the GM 523-36, GM 14-36, GM 931-1D, GM 923-1D, GM 943-1D, SWD 9-12D, and Federal 299-27-5 injection wells

Denise-

It was my understanding that we will perform the MIT after the GM 239-36 has been re-completed as an injection well. When we re-complete the well, the first thing we will do is set a CIBP above the existing perfs and pressure test the casing to verify integrity. Once we have completed this test we will perf, frac, flowback and set the tbg/packer assembly. Once we set the packer we will perform an MIT to be witnessed by the COGCC.

We have not done any work on the well yet because the permit has not been approved. Please let me know if this is what you were talking about or if we need to do anything further for the permit.

Thanks,

Ryan Olson
Operations Engineer
Williams Production RMT
1058 County Road 215
Parachute, CO 81635
Office: (970)623-8991
Mobile: (970)987-4603
Fax: (970)285-9573

From: Onyskiw, Denise [mailto:Denise.Onyskiw@state.co.us]
Sent: Monday, August 01, 2011 1:05 PM
To: Blaney, Karolina
Subject: RE: Williams GM 239-36 injection well permit application status and Form 26s for the GM 523-36, GM 14-36, GM 931-1D, GM 923-1D, GM 943-1D, SWD 9-12D, and Federal 299-27-5 injection wells

Karolina,
Has an MIT been performed yet?

Denise

From: Blaney, Karolina [mailto:Karolina.Blaney@williams.com]
Sent: Monday, August 01, 2011 1:02 PM
To: Onyskiw, Denise
Subject: Williams GM 239-36 injection well permit application status and Form 26s for the GM 523-36, GM 14-36, GM 931-1D, GM 923-1D, GM 943-1D, SWD 9-12D, and Federal 299-27-5 injection wells

Denise,

The GM 239-36 injection well permit has not been approved yet. Do you know when we should be expecting that permit to be approved? Please let me know if there is anything that I could do to help with that process.

Also, attached are the Form 26s with the updated list of new source wells turned into production in the 2nd quarter of 2011 (April - June), for the following injection wells:

GM 14-36
GM 523-36
GM 923-1D
GM 931-1D
GM 943-1D
Federal 299-27-5
SWD 9-12D

Please let me know if you have any questions or concerns.
Thank you and have a great day,

Karolina Blaney
Environmental Specialist
Williams Production R.M.T.
Office: (970) 683-2295
Cell: (970) 589-0743
Fax: (970) 285-9573
karolina.blaney@williams.com

Onyskiw, Denise

From: Pottorff, Elizabeth
Sent: Thursday, July 07, 2011 3:55 PM
To: Onyskiw, Denise
Subject: RE: Hyrdrologic Information Request for Williams Underground Injection Control permit
Attachments: DOC007.PDF

From: Onyskiw, Denise
Sent: Friday, July 01, 2011 11:25 AM
To: Pottorff, Elizabeth
Subject: Hyrdrologic Information Request for Williams Underground Injection Control permit

Please provide hydrologic information for this proposed underground injection well.

Denise M. Onyskiw, P.E.
Underground Injection Control Program Supervisor
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street
Denver, CO 80203
303-894-2100 ext. 5145
denise.onyskiw@state.co.us

STATE OF COLORADO
OIL & GAS
CONSERVATION COMMISSION

DEPARTMENT OF NATURAL RESOURCES

DIVISION OF WATER RESOURCES

John W. Hickenlooper
Governor

Mike King
Executive Director

Dick Wolfe, P.E.
Director/State Engineer

July 7, 2011

MEMORANDUM

TO: Denise M Onyskiw, P.E.
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801

FROM: Elizabeth Pottorff

SUBJECT: Water Injection Project, Grand Valley Field, Garfield County

Your memo of July 1, 2011 describes a proposal to inject water into the Upper MesaVerde Formation in the interval between approximately 3900 feet to 4830 feet below the surface. The well, is located in the NE ¼ of the SW ¼ of Section 36, T6S, R96W, Sixth P.M. In the proposed injection well, surface casing is installed to a depth of 1122 feet, and the first casing was set to a depth of 7092 feet.

There are no water wells of record within ½ mile of the proposed injection well.

The injection zone for the proposed disposal well is in the Upper Mesa Verde Group. The Mesa Verde is broadly categorized as an aquifer along with the overlying Fort Union Formation. The Mesa Verde aquifer and Fort Union aquifer are not utilized as a ground water source at these depths. However, around the margins of the basin, where these aquifers are at relatively shallower depths, they can be a source of groundwater. The nearest exposures of the Mesa Verde Group are about 17 miles to the northeast in the Grand Hogback, and about 29 miles to the southwest.

This location is about 400 feet from an unnamed ephemeral tributary to Hayes Gulch and about 2 miles upgradient from the Colorado River.

The Division of Water Resources recommends that this well be plugged back to the injection interval. We also note that a plan to prevent runoff of surface spills would protect surface water. Based on the information you provided, it does not appear that there is any potential for injury to known or potential sources of fresh water in the area from a properly constructed injection well. If you have any questions or require additional information, please feel free to contact me.

Onyskiw, Denise

From: Onyskiw, Denise
Sent: Friday, July 01, 2011 1:53 PM
To: 'Pam Schultz'
Subject: RE:

Thanks, Pam. This looks good.

Denise

From: Pam Schultz [mailto:PSchultz@eaglevalleyenterprise.com]
Sent: Friday, July 01, 2011 1:47 PM
To: Onyskiw, Denise
Cc: Mary Borkenhagen
Subject:

VACATION: I will be out of the office from June 27, 2011 - June 30, 2011 and in on Friday July 1, 2011 for a limited time.
Early deadline for the July 7th publications of all papers are due in no later than 12:00 on July 1. All offices will be closed on Monday July 4, 2011 for the Holiday.
While I am gone please contact Mary Borkenhagen in Glenwood with any questions you may have or legal's you need to have published.
My email will be on forward to Mary and her numbers and email will be on that.

4TH OF JULY

LINE AD DEADLINES FOR LEGAL'S IN ALL PAPERS: FRIDAY JULY 1, 2011

*** Classified Deadline for Saturday papers will be Friday @ 12:00
*** Classified Deadline for Sunday papers will be Friday @ 4pm
*** Classified Deadline for Monday and Tuesday papers will be Friday @ 5:00

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Onyskiw, Denise

From: Onyskiw, Denise
Sent: Friday, July 01, 2011 11:25 AM
To: Pottorff, Elizabeth
Subject: Hyrdrologic Information Request for Williams Underground Injection Control permit
Attachments: GM 239-36 DWR.docx

Please provide hydrologic information for this proposed underground injection well.

Denise M. Onyskiw, P.E.
Underground Injection Control Program Supervisor
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street
Denver, CO 80203
303-894-2100 ext. 5145
denise.onyskiw@state.co.us

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DEPARTMENT OF NATURAL RESOURCES
John W. Hickenlooper, Governor
1120 Lincoln St. Suite 801
Denver, CO 80203
Phone: (303) 894-2100
FAX: (303) 894-2109
www.colorado.gov/cogcc

MEMORANDUM

July 1, 2011

TO: Elizabeth Pottorff
Division of Water Resources

FROM: Denise M. Onyskiw, P.E.
Oil and Gas Conservation Commission

SUBJECT: Need for Hydrologic Information

The Oil and Gas Conservation Commission (OGCC) has received an application to increase the radius for an existing water injection project, summarized as follows:

LOCATION	COUNTY	FIELD
NESW Section 36 Township 6 South, Range 96 West, Garfield, Colorado, 6th P.M.	Garfield	Grand Valley

1	WELL NAME	GM 239-36	
2	INJECTION ZONE FORMATION	Upper Mesaverde	
3	DEPTH OF INJECTION INTERVAL	3900 to 4830	feet
4	PROPOSED INJECTION PRESSURE	100 to 1500	psig
5	FRAC GRADIENT OR PRESSURE (BHP)	0.71	psi/ft
6	VOLUME OF FLUID TO BE INJECTED	500 to 8500	bbl/day
7	TDS OF INJECTION ZONE FLUID	25,505	mg/l
8	TDS OF FLUID TO BE INJECTED	16,275 to 23,393	mg/l

WELL CONSTRUCTION DATA					
CASING STRING	**CASING SIZE**	**HOLE SIZE**	**DEPTH**	**AMOUNT CEMENT**	**TOP OF CEMENT**
Surface	9-5/8"	13-1/2"	1122'	325 sks	0'
1st	4-1/2"	7-7/8"	7092'	853 sks	2300'

Please furnish the OGCC with the name and depth of any aquifer in the area that is a known or potential fresh water stratum. We would also like a list of the water wells within one half mile of this location. Any other information with regard to distance to streams, ditches or outcrops would be very helpful. Thank you.

Onyskiw, Denise

From: Onyskiw, Denise
Sent: Friday, July 01, 2011 11:12 AM
To: 'legals@postindependent.com'
Subject: Public Notice for Underground Injection Control Project
Attachments: GM 239-36_07-01-11 Pub.docx

Enclosed please find a "Public Notice of Proposed Underground Injection Control Permit" to be published in the Rifle-Citizen Telegram on your next publication date, one time only.
Please send a copy of the publication with our invoice as soon as possible after publication.

Denise M. Onyskiw, P.E.
Underground Injection Control Program Supervisor
Colorado Oil and Gas Conservation Commission
1120 Lincoln Street
Denver, CO 80203
303-894-2100 ext. 5145
denise.onyskiw@state.co.us

STATE OF COLORADO
OIL & GAS
CONSERVATION COMMISSION

WILLIAMS PRODUCTION RMT
GM 239-36
NESW SECTION 36 T6S R96W
GARFILED COUNTY, COLORADO
SINGLE-WELL, NON-COMMERCIAL UNDERGROUND INJECTION PERMIT CHECKLIST

1) Receipt & approval dates for Form 2 – Application for Permit to Drill (325.a.) 045-14693
2) Receipt & approval dates for Form 21 – Mechanical Integrity Test (325.e.) _____
   i) Test used to check for vertical fluid movement in channels adjacent to well bore (326.a.(2)) _____
3) Receipt & approval dates for Form 26 – Source of Prod. Water for Disposal (325.c.(5)) OK
4) Receipt & approval dates for Form 31 – Underground Inj. Form. Permit Ap. (325.a.) OK
5) Receipt & approval dates for Form 33 – Injection Well Permit Application (325.a.)M OK
6) Hearing date, if approval withheld (325.b.) N/A
7) Name, description, and depth of injection formation (325.c.(1)) Upper Mesaverde 3900-4830
8) Underground sources of drinking water (325.c.(1)) _____
9) Hydrologic information request to Division of Water Resources 7-1-11
10) Fracture gradient of the injection formation (325.c.(1)) 0.71
11) Water analysis of injection formation, TDS (mg/l) (325.c.(1)) 25505
12) If TDS < 10,000 mg/l, is an aquifer exemption attached? (324B.) N/A
   i) Was an aquifer exemption public notice published? (324B.b.) N/A
   ii) Was a public hearing held? (324B.c.) N/A
   iii) Was the aquifer exemption approved? (324B.d.) N/A
   iv) Notice of approved aquifer exemption to Water Quality Control Commission N/A
13) Base plat (¼-mile radius) with the following (325.c.(2)): OK
   i) Location of disposal well OK
   ii) location of all oil & gas wells OK
   iii) location of water wells with depths OK
   iv) name and address of surface owners OK
   v) name and address of mineral owners OK
14) Base plat (½-mile radius) with oil & gas wells producing from the disp. zone (325.c.(2)) OK
15) Base plat showing all surface and mineral owners of record if the well is part of a field-wide system (325.c.(2)) N/A
16) Remedial action plans for wells within ¼-mile of the disposal well (325.c.(2)) OK
17) A resistivity log, description of stratigraphy and/or testing data (325.c.(3)) OK
18) A wellbore schematic showing casing, cement, bridge plugs, packers, perforations and any other relevant information (325.c.(4)) OK
19) A surface facilities diagram showing pipelines, tanks and any other relevant information for the injection system (325.c.(4)) OK

WILLIAMS PRODUCTION RMT
GM 239-36
NESW SECTION 36 T6S R96W
GARFILED COUNTY, COLORADO
SINGLE-WELL, NON-COMMERCIAL UNDERGROUND INJECTION PERMIT CHECKLIST

20) Any proposed stimulation program (325.c.(6)) acid + frac treatment

21) Estimated daily minimum and maximum injection volume (325.c.(7)) 500-8500 bbls/day

22) Maximum injection pressure, calculated by COGCC (325.c.(7)) 1411

23) Names and addresses of persons notified and copies of the notices (325.i) OK

i) Surface and mineral owners within ¼-mile OK

ii) Owners and operators of wells producing in the inj. zone within ½-mile OK

iii) Owners of cornering or contiguous units producing in the inj. zone, if greater than ½-mile OK

24) Were the notices delivered by certified mail or personal delivery? (325.k.) certified

25) Do the notices include instructions on public hearing requests? (325.l.) yes

26) Publish public notice with brief description of disposal application, including legal location, proposed injection zone, depth of injection and other relevant information (325.n.) Rifle Citizen Telegram 7-7-11

27) Any written requests for public hearing as a result of the notices? (325.m. or 325.n.) no

28) Was a surface owner agreement submitted? owned by Williams

29) Was all information received by the 6-month deadline? (325.o.)

30) Was a 90-day extension granted? (325.o.)

FORM 31 Rev 6/99

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

FOR OGCC USE ONLY

UNDERGROUND INJECTION FORMATION PERMIT APPLICATION

1. Submit original and one copy of this form.
2. If data on this form is estimated, indicate as such.
3. Attachments – see checklist and explanation of attachments.
4. Aquifer exemption is required for all injection formations with water quality <10,000 TDS (Rule 322B). Immediately contact the Commission for further requirements if the total dissolved solids (TDS) as determined by water analysis for the injection zone is less than 10,000 ppm.
5. Attach a copy of the certified receipt to each notice to surface and mineral owner(s) or submit a sample copy of the notice and an affidavit of mailing or delivery with names and addresses of those notified. Each person notified shall be specified as either a surface or mineral owner as defined by C.R.S. 34-60-103(7).

Complete the Attachment Checklist

	Oper	OGCC
Form 31 Original & 1 Copy	✓	
Analysis fo Injection Zone Water	✓	
Analysis of Injection Water	✓	
Proposed Injection Program	✓	
Resistivity or Induction Log	✓	
Cement Bond Log	✓	
Surface or Salt Water Displ Agrmt	✓	
Notice to Surface/Mineral Owners	✓	
Remedial Correction Plan for Wells	✓	
Map Oil/Water Wells w/in 1/4 Mile	✓	
List Oil/Gas Wells w/in 1/2 Mile	✓	
Map Surface Owners w/in 1/4 Mile	✓	
List Surface Owners w/in 1/4 Mile	✓	
Map Mineral Owners w/in 1/4 Mile	✓	
List Mineral Owners w/in 1/4 Mile	✓	
Surface Facility Diagram	✓	
Wellbore Diagram	✓	
If Commercial Facility, Description of Ops & Area Served		
Unit Area Plat	✓	

Project Name: GM 239-36 Project Location: NESW Sec 36 T6S R96W 6th PM

Project Type: ☐ Enhanced Recovery ☑ Disposal ☐ Simultaneous Disposal

Single or Multiple Well Facility? ☑ Single ☐ Multiple

IF UNIT OPERATIONS, ATTACH PLAT SHOWING UNIT AREA

County: N/A Field Name and Number: N/A

OGCC Operator Number: 96850

Name of Operator: Williams Production RMT

Address: 1058 County Road 215

City: Parachute State: CO Zip: 81635

Contact Name and Telephone:

Ryan Olson

No: (970) 987-4603

Fax: (866) 524-2064

Injection Fluid Type: ☑ Produced Water ☐ Natural Gas ☐ CO_2 ☐ Drilling Fluids ☐ Exempt Gas Plant Waste ☑ Used Workover Fluids ☐ Other Fluids (describe):

Commercial Facility? ☐ Yes ☑ No

If Yes, describe area of operation and types of fluids to be injected at this facility:

PROPOSED INJECTION FORMATIONS

FORMATION A (Name): Upper Mesaverde Porosity: 12% Avg (EST)

Formation TDS: 27,000 mg/l (EST) Frac Gradient: .71 (EST) psi/ft Permeability: .001 md (EST)

Proposed Stimulation Program: ☑ Acid ☑ Frac Treatment ☐ None

FORMATION B (Name): Porosity:

Formation TDS: Frac Gradient: psi/ft Permeability:

Proposed Stimulation Program: ☐ Acid ☐ Frac Treatment ☐ None

Anticipated Project Operating Conditions

Under normal operating conditions, estimated fluid injection rates and pressures:

FOR WATER: A minimum of 500 bbls/day @ 100 psi to a maximum of 8,500 bbls/day @ 1,500 psi.

FOR GAS: A minimum of _____ mcf/day @ _____ psi to a maximum of _____ bbls/day @ _____ psi.

Injection rates and pressures are estimates pending test results

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Karolina Blaney Signed: Karolina Blaney

Title: Environmental Specialist Date: 6/8/11

OGCC Approved: Title: Date:

Order No:

UIC FACILITY NO:

CONDITIONS OF APPROVAL, IF ANY:

FORM 31 Rev 6/99

State of Colorado
Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109

FOR OGCC USE ONLY

UNDERGROUND INJECTION FORMATION PERMIT APPLICATION

1. Submit original and one copy of this form.
2. If data on this form is estimated, indicate as such.
3. Attachments – see checklist and explanation of attachments.
4. Aquifer exemption is required for all injection formations with water quality <10,000 TDS (Rule 322B). Immediately contact the Commission for further requirements if the total dissolved solids (TDS) as determined by water analysis for the injection zone is less than 10,000 ppm.
5. Attach a copy of the certified receipt to each notice to surface and mineral owner(s) or submit a sample copy of the notice and an affidavit of mailing or delivery with names and addresses of those notified. Each person notified shall be specified as either a surface or mineral owner as defined by C.R.S. 34-60-103(7).

Complete the Attachment Checklist

	Oper	OGCC
Form 31 Original & 1 Copy	✓	
Analysis fo Injection Zone Water	✓	
Analysis of Injection Water	✓	
Proposed Injection Program	✓	
Resistivity or Induction Log	✓	
Cement Bond Log	✓	
Surface or Salt Water Displ Agrmt	✓	
Notice to Surface/Mineral Owners	✓	
Remedial Correction Plan for Wells	✓	
Map Oil/Water Wells w/in 1/4 Mile	✓	
List Oil/Gas Wells w/in 1/2 Mile	✓	
Map Surface Owners w/in 1/4 Mile	✓	
List Surface Owners w/in 1/4 Mile	✓	
Map Mineral Owners w/in 1/4 Mile	✓	
List Mineral Owners w/in 1/4 Mile	✓	
Surface Facility Diagram	✓	
Wellbore Diagram	✓	
If Commercial Facility, Description of Ops & Area Served		
Unit Area Plat	✓	

Project Name: GM 239-36 Project Location: NESW Sec 36 T6S R96W 6th PM

Project Type: ☐ Enhanced Recovery ☑ Disposal ☐ Simultaneous Disposal

Single or Multiple Well Facility? ☑ Single ☐ Multiple

IF UNIT OPERATIONS, ATTACH PLAT SHOWING UNIT AREA

County: N/A Field Name and Number: N/A

OGCC Operator Number: 96850

Name of Operator: Williams Production RMT

Address: 1058 County Road 215

City: Parachute State: CO Zip: 81635

Contact Name and Telephone:

Ryan Olson

No: (970) 987-4603

Fax: (866) 524-2064

Injection Fluid Type: ☑ Produced Water ☐ Natural Gas ☐ CO_2 ☐ Drilling Fluids ☐ Exempt Gas Plant Waste ☑ Used Workover Fluids ☐ Other Fluids (describe):

Commercial Facility? ☐ Yes ☑ No

If Yes, describe area of operation and types of fluids to be injected at this facility:

PROPOSED INJECTION FORMATIONS

FORMATION A (Name): Upper Mesaverde Porosity: 12% Avg (EST)

Formation TDS: 27,000 mg/l (EST) Frac Gradient: .71 (EST) psi/ft Permeability: .001 md (EST)

Proposed Stimulation Program: ☑ Acid ☑ Frac Treatment ☐ None

FORMATION B (Name): Porosity:

Formation TDS: Frac Gradient: psi/ft Permeability:

Proposed Stimulation Program: ☐ Acid ☐ Frac Treatment ☐ None

Anticipated Project Operating Conditions

Under normal operating conditions, estimated fluid injection rates and pressures:

FOR WATER: A minimum of 500 bbls/day @ 100 psi to a maximum of 8,500 bbls/day @ 1,500 psi.

FOR GAS: A minimum of _____ mcf/day @ _____ psi to a maximum of _____ bbls/day @ _____ psi.

Injection rates and pressures are estimates pending test results

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Karolina Blaney Signed: Karolina Blaney

Title: Environmental Specialist Date: 6/8/11

OGCC Approved: Title: Date:

Order No:

UIC FACILITY NO:

CONDITIONS OF APPROVAL, IF ANY:

Analysis of Injection Zone Water

Analysis of Injection Zone Water

The attached water quality analysis was collected from nearby well GM 523-36 located approximately 1,200 feet southeast of proposed injection well GM 239-36. This sample is representative of the injection zone water from the Upper Mesaverde. After well GM 239-36 is tested, a water sample analysis will be provided.

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	March 18, 2009
Reported To	Kent Hejl	Date Tested	March 18, 2009
Reported By	Scott Lowe	Tested By	Scott Lowe

Sample Physical Characteristics

Well Name	GM 523-36		Temperature	72	°F
Location	1st Swab		pH	8.1	
Specific Gravity	1.013		Color	Brown	
Corrected SG	1.015	at 60°F	Turbidity	Heavy	
TDS (calculated)	25505	ppm	Resistivity	0.35	Ω·m

Sample Chemical Characteristics

Anions	Chloride	15200	mg/L	**Cations**	Total Iron	4.2	mg/L
	Sulfate	25	mg/L		Ferrous Iron	0.0	mg/L
	Bicarbonate	380	mg/L		Potassium	380	mg/L
	Carbonate	130	mg/L		Calcium	500	mg/L
	Hydroxide	0	mg/L		Magnesium	100	mg/L
					Sodium (calculated)	9118	mg/L

General Comments

Sample was filtered prior to testing. Sediment was viewed through a microscope at 1000X. It appears to be decomposed shale materials with some harder colored fragments.

Analysis of Injection Water

Analyses of Injection Water

The injection water consists of produced water and used workover fluids stored in the evaporation pond located at the Parachute Centralized E&P Waste Management Facility (Facility ID 149015). Six sample results that are representative of the fluids stored in the evaporation pond water are attached.

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	April 15, 2011
Reported To	Kyle Kohl	Date Tested	April 16, 2011
Reported By	Carter Tuttle	Tested By	Carter Tuttle

Sample Physical Characteristics

Well Name	Parachute Injection Water		Temperature	66	°F
Location			pH	7.5	
Specific Gravity	1.013		Color	Gray	
Corrected SG	1.014	at 60°F	Turbidity	306 FAU	
TDS (calculated)	17695	ppm	Resistivity	0.52	Ω·m

Sample Chemical Characteristics

Anions	Chloride	10416	mg/L	**Cations**	Total Iron	28.1	mg/L
	Sulfate	0	mg/L		Ferrous Iron	8.7	mg/L
	Bicarbonate	700	mg/L		Potassium	82	mg/L
	Carbonate	0	mg/L		Calcium	746	mg/L
	Hydroxide	0	mg/L		Magnesium	154	mg/L
					Sodium (calculated)	5791	mg/L

General Comments

Request ID W127

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	April 15, 2011
Reported To	Kyle Kohl	Date Tested	April 16, 2011
Reported By	Carter Tuttle	Tested By	Carter Tuttle

Sample Physical Characteristics

Well Name	Parachute Injection water		Temperature	66	°F
Location			pH	7.5	
Specific Gravity	1.012		Color	Gray	
Corrected SG	1.013	at 60°F	Turbidity	271 FAU	
TDS (calculated)	23393	ppm	Resistivity	0.51	Ω·m

Sample Chemical Characteristics

Anions	Chloride	13956	mg/L	**Cations**	Total Iron	24.7	mg/L
	Sulfate	0	mg/L		Ferrous Iron	5.4	mg/L
	Bicarbonate	674	mg/L		Potassium	62	mg/L
	Carbonate	0	mg/L		Calcium	814	mg/L
	Hydroxide	0	mg/L		Magnesium	186	mg/L
					Sodium (calculated)	7952	mg/L

General Comments

Request ID W128

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	April 15, 2011
Reported To	Kyle Kohl	Date Tested	April 16, 2011
Reported By	Carter Tuttle	Tested By	Carter Tuttle

Sample Physical Characteristics

Well Name	Parachute Injection Water		Temperature	66	°F
Location			pH	7.5	
Specific Gravity	1.013		Color	Gray	
Corrected SG	1.014	at 60°F	Turbidity	318 FAU	
TDS (calculated)	17681	ppm	Resistivity	0.51	Ω·m

Sample Chemical Characteristics

Anions	Chloride	10416	mg/L	**Cations**	Total Iron	23.8	mg/L
	Sulfate	0	mg/L		Ferrous Iron	8.3	mg/L
	Bicarbonate	740	mg/L		Potassium	102	mg/L
	Carbonate	0	mg/L		Calcium	760	mg/L
	Hydroxide	0	mg/L		Magnesium	240	mg/L
					Sodium (calculated)	5620	mg/L

General Comments

Request ID W129

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	April 15, 2011
Reported To	Kyle Kohl	Date Tested	April 16, 2011
Reported By	Carter Tuttle	Tested By	Carter Tuttle

Sample Physical Characteristics

Well Name	Parachute Injection water		Temperature	65	°F
Location			pH	7.5	
Specific Gravity	1.013		Color	Gray	
Corrected SG	1.014	at 60°F	Turbidity	334 FAU	
TDS (calculated)	16275	ppm	Resistivity	0.51	Ω·m

Sample Chemical Characteristics

Anions	Chloride	9543	mg/L	**Cations**	Total Iron	21.2	mg/L
	Sulfate	0	mg/L		Ferrous Iron	7.5	mg/L
	Bicarbonate	688	mg/L		Potassium	82	mg/L
	Carbonate	0	mg/L		Calcium	768	mg/L
	Hydroxide	0	mg/L		Magnesium	132	mg/L
					Sodium (calculated)	5244	mg/L

General Comments

Request ID W130

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	April 15, 2011
Reported To	Kyle Kohl	Date Tested	April 16, 2011
Reported By	Carter Tuttle	Tested By	Carter Tuttle

Sample Physical Characteristics

Well Name	Parachute Injection Water		Temperature	66	°F
Location			pH	7.4	
Specific Gravity	1.013		Color	Gray	
Corrected SG	1.014	at 60°F	Turbidity	281 FAU	
TDS (calculated)	19341	ppm	Resistivity	0.52	Ω·m

Sample Chemical Characteristics

Anions	Chloride	11415	mg/L	**Cations**	Total Iron	25.2	mg/L
	Sulfate	0	mg/L		Ferrous Iron	6.7	mg/L
	Bicarbonate	712	mg/L		Potassium	78	mg/L
	Carbonate	0	mg/L		Calcium	756	mg/L
	Hydroxide	0	mg/L		Magnesium	144	mg/L
					Sodium (calculated)	6455	mg/L

General Comments

Request ID W131

HALLIBURTON

Halliburton Energy Services
The Rockies NWA Regional Laboratory
Grand Junction, CO 970) 523-3692

Water Analysis Report

Contact Information

Company	Williams	Date Received	April 15, 2011
Reported To	Kyle Kohl	Date Tested	April 16, 2011
Reported By	Carter Tuttle	Tested By	Carter Tuttle

Sample Physical Characteristics

Well Name	Parachute Injection Water		Temperature	66	°F
Location			pH	7.5	
Specific Gravity	1.013		Color	Gray	
Corrected SG	1.014	at 60°F	Turbidity	269 FAU	
TDS (calculated)	17719	ppm	Resistivity	0.52	Ω·m

Sample Chemical Characteristics

Anions	Chloride	10416	mg/L	**Cations**	Total Iron	20.2	mg/L
	Sulfate	0	mg/L		Ferrous Iron	6.0	mg/L
	Bicarbonate	704	mg/L		Potassium	64	mg/L
	Carbonate	0	mg/L		Calcium	784	mg/L
	Hydroxide	0	mg/L		Magnesium	116	mg/L
					Sodium (calculated)	5840	mg/L

General Comments

Request ID W132

Proposed Injection Program

Williams GM 239-36 Injection Plan (Preliminary)

The Williams RMT injection program is required for disposal of produced and used workover fluids that are in excess of the storage capacity of the Parachute Centralized E&P waste Management Facility (Facility ID 149015). Stored fluids from the Facility will be piped to a two-stage filter system and then under a high pressure line injected into well GM 239-36 as shown on the Surface Facility Diagram accompanying this submittal.

Williams is currently putting together a permit package to be submitted to the COGCC to convert the GM 239-36 well from a hydrocarbon producer to an injection well. Based on previous injection testing in nearby well GM 14-36, located approximately 1,890 feet southwest of proposed well GM 239-36, Williams RMT anticipates the frac gradient to be approximately 0.71 psi/ft and the operating range of the proposed well to be a minimum of 500 bbls/day @ 100 psi up to 8,500 bbls/day @ 1,500 psi. Based on this estimate, Williams RMT anticipates that initially the injection well, GM 239-36, will operate at the lower rate of 3,000 bbls/day at startup, but may increase to the upper injection rate of 8,500 bbls/day during 2011 and thereafter.

Williams intends to utilize a central pumping unit to inject water into multiple injection wells. There will be a high pressure pipeline to each wellsite and wellhead monitoring of injection rates and pressure with independent controls/alarms to ensure each well stays within the approved rate and pressure limits. All water will be filtered at the injection pump. The source of water for injection will be from the water facility located in the same section as this well. All Williams operated wells have their produced water sent to this facility.

Notice to Surface/Mineral Owners

SENT VIA CERTIFIED MAIL

Williams Production RMT Company LLC
1058 CR #215
P.O. Box 370
Parachute, CO 81635-0370
970/285-9377
970/285-9573 fax

June 2nd, 2011

To: Minerals Management Service
Royalty Management Program
PO BOX 5810
Denver, CO 80217

Re: Application for GM 239-36 water injection well
Township 6 South, Range 96 West, 6th P.M.
Section 35: Lot 8: SE/4NE/4
Lot 9: NE/4SE/4
Lot 16: SE/4SE/4
Section 36: Lot 2: SW/4NW/4
Lot 3: NW/4SW/4
Lot 3: SE/4NW/4
Lot 4: SW/4SW/4
Lot 5: SE/4SW/4
Garfield County, Colorado

Dear Owner,

Williams Production RMT Company LLC is filing an application with the Colorado Oil and Gas Conservation Commission (the COGCC) to convert the GM 239-36 well to a salt water disposal well. Williams Production RMT Company LLC is filing the application as part of its efforts to reduce water hauling for its oil and gas operations in the area. In accordance with the rules and regulations of the COGCC, this letter has been sent as notice of Williams's application to convert the GM 239-36 to a dedicated water injection well which will target the Upper Williams Fork of the Mesaverde formation as the objective disposal interval.

Any person who would be directly and adversely affected or aggrieved by the authorization of the underground disposal into the proposed injection zone may file within fifteen (15) days of notification, a written request for a public hearing before the COGCC, provided such request meets protest requirements specified in subparagraph m of rule 325. Additional information on the operation of the proposed disposal well may also be obtained at the COGCC office.

If you have any questions concerning this application, please contact the undersigned at 970-263-2754.

Sincerely,

Williams Production RMT Company LLC

Bryan Hotard
Field Land Team Lead

SENDER: *COMPLETE THIS SECTION*

- Complete items 1, 2, and 3. Also complete item 4 if Restricted Delivery is desired.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

Minerals Management Service
Royalty Management Program
PO BOX 5810
Denver, CO 80217

COMPLETE THIS SECTION ON DELIVERY

A. Signature
X Beau C. Conkel
Agent for MMS[2]
☐ Agent
☐ Addressee

B. Received by *(Printed Name)* Date:

C. Date of Delive

D. Is delivery address different from item 1? ☐ Yes
If YES, enter delivery address below: ☐ No

3. Service Type
☐ Certified Mail ☐ Express Mail
☐ Registered ☐ Return Receipt for Merchandis
☐ Insured Mail ☐ C.O.D.

4. Restricted Delivery? *(Extra Fee)* ☐ Yes

2. Article Number
(Trans 7009 3410 0000 5548 8994

PS Form 3811, February 2004 Domestic Return Receipt 102595-02-M-15

UNITED STATES POSTAL SERVICE

First-Class Mail
Postage & Fees Paid
USPS
Permit No. G-10

• Sender: Please print your name, address, and ZIP+4 in this box •

Williams Production RMT COMPANY
Attn: Land Dept
PO BOX 370
Parachute, CO 81635

Received By
Williams Production
JUN 08 2011
Front Desk
Parachute Colorado

Surface or Salt Water Disposal Agreement

The land is owned by Williams Production RMT Company LLC; see Parcel Detail Information for confirmation

Account: R260001

Location

Parcel Number 2171-363-00-007
Situs Address
City Parachute
ZipCode 81635
Tax Area 046 - 16-BHFZ - 046
Legal Summary Section: 36 Township: 6 Range: 96 SEC 35 LOT 16, SEC 36 NE1/4SW1/4, NW1/4SE1/4, LOT 3,4,5,6 7-96 SEC 1 LOT 3, SEC 2 LOT 1

Owner Information

Owner Name WILLIAMS PRODUCTION RMT COMPANY
In Care Of Name SANDY HOTARD, MGR-LAND DEPT
Owner Address PO BOX 370 PARACHUTE, CO 81635

Assessment History

Actual (2011) $96,660
Primary Taxable $28,030
Tax Area: 046 **Mill Levy:** 36.4830

Type	Actual	Assessed	Acres	SQFT	Units
Land	$96,660	$28,030	313.830	0.000	0.000

Transfers

Sale Price	Sale Date	Doc Type	Book Page
	10/14/2008	EAS	
	10/27/2008	QCD	
	04/14/2008	EAS	
	04/20/1990	BOS	B: 0777 P: 0975

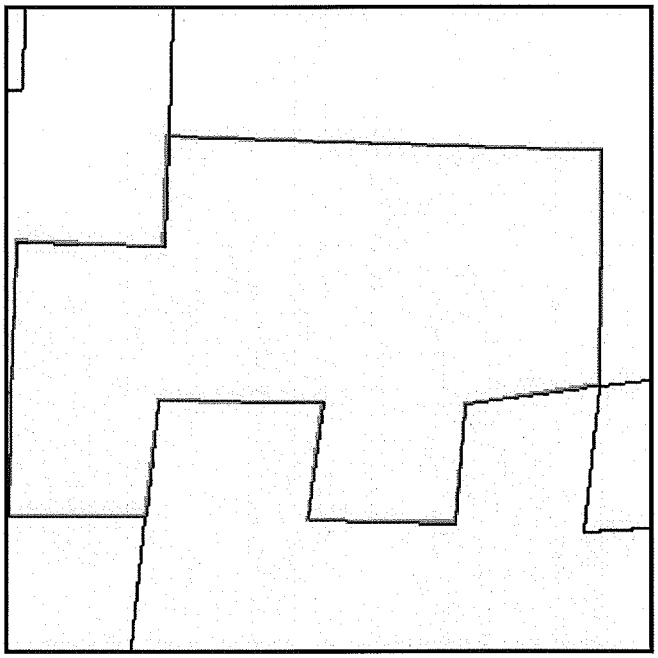
Tax History

Tax Year	Taxes
*2011	$1,022.60
2010	$1,328.72

* Estimated

Images

- GIS



Remedial Correction Plan for Wells

Remedial Corrective Action Plan for Wells

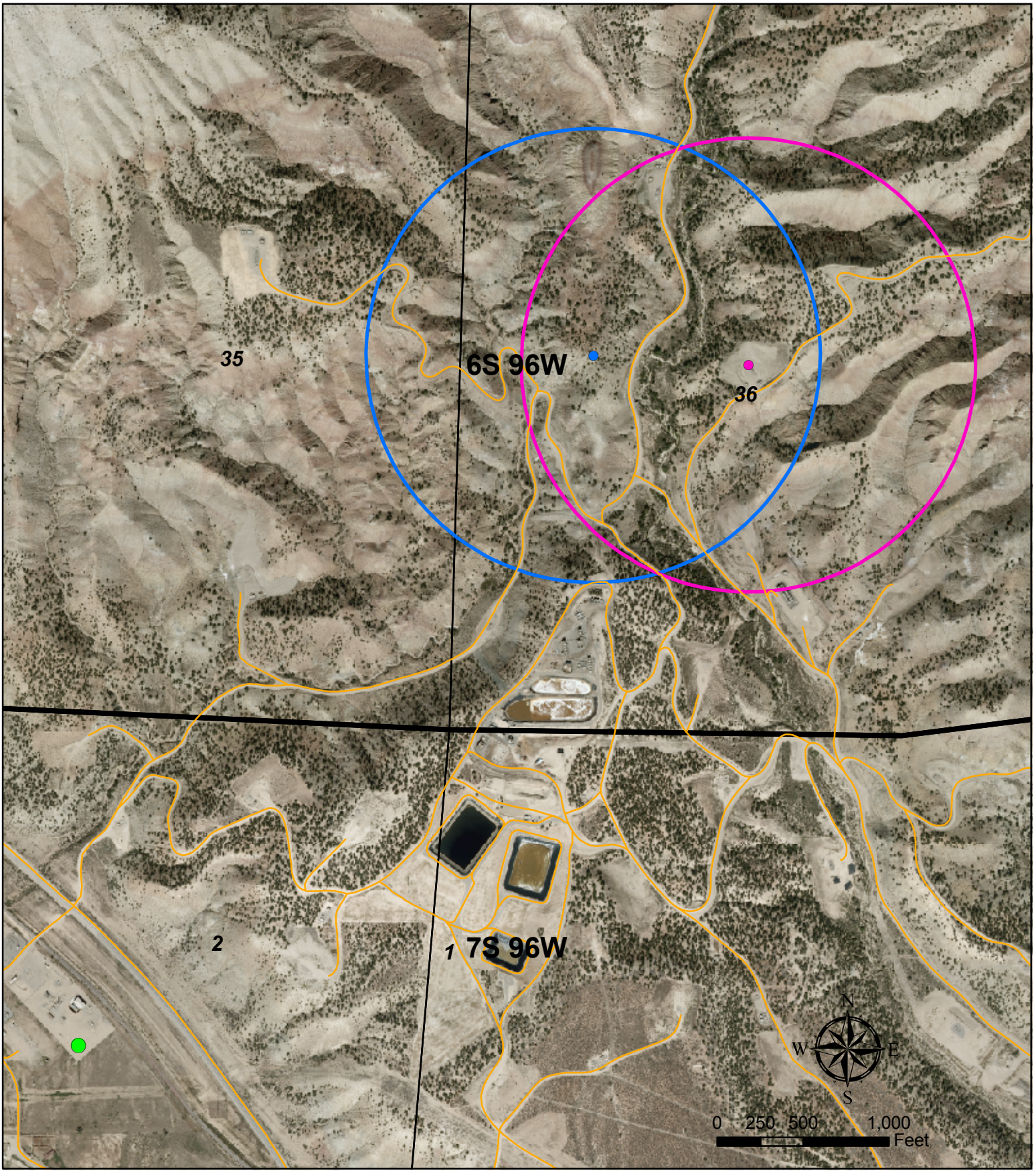
There are 19 wells within ¼ mile of the proposed injection well GM 239-36. All wells are owned by Williams RMT and 18 are currently gas producers completed in the Williams Fork Formation, with 1 currently injecting into the Upper Mesaverde. The proposed injection formation is the Upper Mesaverde. There are no other wells (water, irrigation, domestic, etc.) located within ¼ mile of the proposed injection well.

Williams has reviewed the cement bond logs and determined that none of the wells require remediation. However, 1 well shows minimal cement. Williams RMT proposed Remedial Corrective Action Plan is to visually monitor surface pressures as part of routine operations for this 1 well during injection. If changes in surface casing pressures indicate a potential issue then Williams will shut off production and squeeze the well.

Well ID	Well Type	Producing/ Injection Zone	Depth Below Ground Level (ft)			Is Remediation Required?	Comment
			Depth, Top of Cement	Depth, Top of Upper Mesaverde	Depth, Top Williams Fork Producing Zone		
GM 239-36	INJ	Upper Mesaverde Injection	2,338	3,903	5,183	No	Former producing well converted to injection well
GM 523-36	INJ	Upper Mesaverde Injection	2,326	3,693	4,942	No	Former producing well converted to injection well
DOE 1-M-36	GAS	Williams Fork Producing	2,050	3,808	4,862	No	
GM 22-36	GAS	Williams Fork Producing	1,900	3,999	5,376	No	
GM 225-36	GAS	Williams Fork Producing	2,530	3,827	5,104	No	
GM 23-36	GAS	Williams Fork Producing	3,222	3,840	5,107	No	
GM 24-36	GAS	Williams Fork Producing	3,210	3,681	5,007	No	
GM 312-36	GAS	Williams Fork Producing	2,450	3,911	5,446	No	
GM 323-36	GAS	Williams Fork Producing	3,070	3,908	5,260	No	
GM 412-36	GAS	Williams Fork Producing	3,890	3,824	5,360	No	Will monitor surface casing pressure while injecting

GM 413-36	GAS	Williams Fork Producing	2,900	3,970	5,224	No	
GM 421-36	GAS	Williams Fork Producing	1,700	3,927	5,613	No	
GM 422-36	GAS	Williams Fork Producing	3,068	3,968	5,273	No	
GM 423-36	GAS	Williams Fork Producing	2,440	3,884	5,235	No	
GM 424-36	GAS	Williams Fork Producing	3,030	3,727	4,966	No	
GM 511-36	GAS	Williams Fork Producing	2,610	3,956	5,300	No	
GM 512-36	GAS	Williams Fork Producing	1,350	3,836	5,149	No	
GM 513-36	GAS	Williams Fork Producing	2,910	3,886	5,208	No	
GV 19-36	GAS	Williams Fork Producing	1,554	3,704	4,964	No	

Map Oil/Water Wells within ¼ Mile



Legend

- Water Well (from Division of Water Resources)
- GM 239-36 Surface Hole
- GM 239-36 Bottom Hole
- Existing Road
- 1/4 Mile Buffer of Surface Location
- 1/4 Mile Buffer of Bottom Hole Location

Water Wells Inside 1/4 Mile Areas Surface and Bottom Hole Location Map for GM 239-36

Williams

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List Oil/Gas Wells within ½ Mile

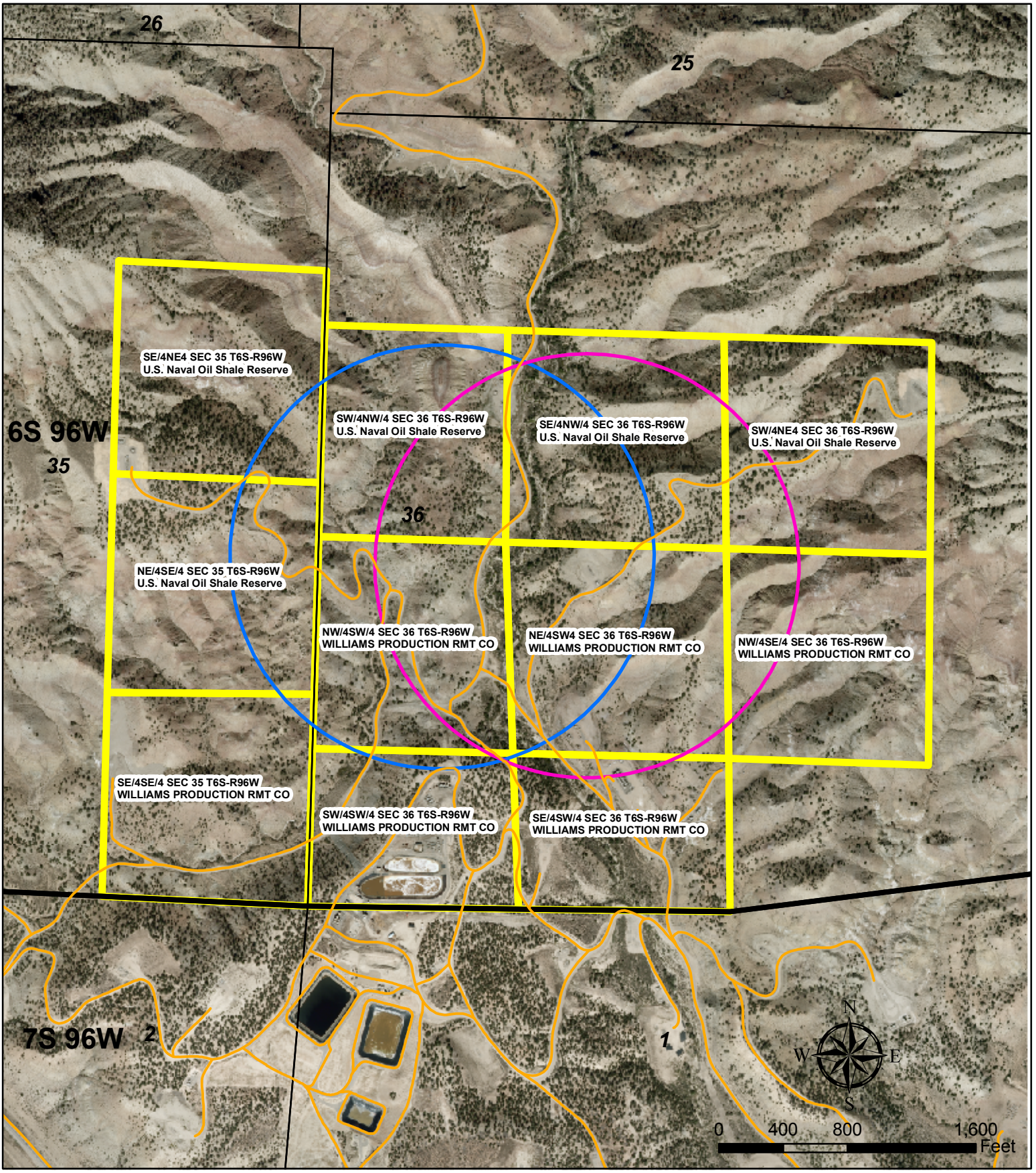
Wells Inside Half Mile Buffer

LABEL	OPERATOR	SYMCODE	X	Y	BOTX	BOTY	Location
DOE 1-M-35	WILLIAMS	GAS	2274412	1610262	2274175	1610760	Surface
DOE 1-M-35	WILLIAMS	GAS	2274412	1610262	2274175	1610760	Bottom
DOE 1-M-36	WILLIAMS	GAS	2276750	1610611	2276773	1610642	Surface
DOE 1-M-36	WILLIAMS	GAS	2276750	1610611	2276773	1610642	Bottom
DOE 2-M-36	WILLIAMS	GAS	2279343	1610690	2279285	1610634	Surface
DOE 2-M-36	WILLIAMS	GAS	2279343	1610690	2279285	1610634	Bottom
GM 11-1	WILLIAMS	GAS	2276012	1607056	2275977	1606978	Surface
GM 11-36	WILLIAMS	GAS	2276186	1612209	2275876	1612271	Surface
GM 14-25	WILLIAMS	GAS	2276193	1612206	2275839	1612556	Surface
GM 21-1	WILLIAMS	GAS	2277134	1607099	2277093	1607032	Surface
GM 21-1	WILLIAMS	GAS	2277134	1607099	2277093	1607032	Bottom
GM 21-36	WILLIAMS	GAS	2276228	1612193	2277273	1612171	Surface
GM 21-36	WILLIAMS	GAS	2276228	1612193	2277273	1612171	Bottom
GM 22-35R	WILLIAMS	GAS	2274412	1610254	2272976	1611440	Surface
GM 22-36	WILLIAMS	GAS	2276744	1610562	2277984	1610133	Surface
GM 22-36	WILLIAMS	GAS	2276744	1610562	2277984	1610133	Bottom
GM 225-36	WILLIAMS	GAS	2277221	1608555	2275966	1608368	Surface
GM 225-36	WILLIAMS	GAS	2277221	1608555	2275966	1608368	Bottom
GM 227-35	WILLIAMS	GAS	2274370	1608378	2274757	1608053	Surface
GM 227-35	WILLIAMS	GAS	2274370	1608378	2274757	1608053	Bottom
GM 23-36	WILLIAMS	GAS	2277296	1609565	2277283	1609459	Surface
GM 23-36	WILLIAMS	GAS	2277296	1609565	2277283	1609459	Bottom
GM 237-36	WILLIAMS	GAS	2277014	1607775	2277030	1607731	Surface
GM 237-36	WILLIAMS	GAS	2277014	1607775	2277030	1607731	Bottom
GM 238-36	WILLIAMS	GAS	2278218	1608303	2278630	1607764	Surface
GM 238-36	WILLIAMS	GAS	2278218	1608303	2278630	1607764	Bottom
GM 239-36	WILLIAMS	GAS	2277280	1609590	2276378	1609645	Surface
GM 239-36	WILLIAMS	GAS	2277280	1609590	2276378	1609645	Bottom
GM 24-36	WILLIAMS	GAS	2277215	1608569	2277245	1608470	Surface
GM 24-36	WILLIAMS	GAS	2277215	1608569	2277245	1608470	Bottom
GM 31-1	WILLIAMS	GAS	2278405	1607246	2278674	1607153	Surface
GM 311-36	WILLIAMS	GAS	2276207	1612201	2275924	1611594	Surface
GM 311-36	WILLIAMS	GAS	2276207	1612201	2275924	1611594	Bottom
GM 312-36	WILLIAMS	GAS	2276742	1610620	2275803	1610952	Surface
GM 312-36	WILLIAMS	GAS	2276742	1610620	2275803	1610952	Bottom
GM 31-35	WILLIAMS	GAS	2276175	1612202	2273600	1612799	Surface
GM 31-36	WILLIAMS	GAS	2279332	1610700	2278717	1611313	Surface
GM 31-36	WILLIAMS	GAS	2279332	1610700	2278717	1611313	Bottom
GM 321-36	WILLIAMS	GAS	2276217	1612186	2277360	1611459	Surface
GM 321-36	WILLIAMS	GAS	2276217	1612186	2277360	1611459	Bottom
GM 323-36	WILLIAMS	GAS	2277304	1609552	2278039	1609833	Surface
GM 323-36	WILLIAMS	GAS	2277304	1609552	2278039	1609833	Bottom
GM 331-35	WILLIAMS	GAS	2274421	1610262	2273167	1611767	Surface
GM 331-36	WILLIAMS	GAS	2279315	1610703	2278635	1611620	Surface
GM 331-36	WILLIAMS	GAS	2279315	1610703	2278635	1611620	Bottom

LABEL	OPERATOR	SYMCODE	X	Y	BOTX	BOTY	Location
GM 332-35	WILLIAMS	GAS	2274423	1610215	2274557	1611046	Surface
GM 332-35	WILLIAMS	GAS	2274423	1610215	2274557	1611046	Bottom
GM 333-35	WILLIAMS	GAS	2274414	1610185	2273288	1609421	Surface
GM 333-36	WILLIAMS	GAS	2278250	1608333	2278885	1608762	Surface
GM 333-36	WILLIAMS	GAS	2278250	1608333	2278885	1608762	Bottom
GM 33-35	WILLIAMS	GAS	2274413	1610207	2273568	1609774	Surface
GM 33-36	WILLIAMS	GAS	2278239	1608324	2278469	1608945	Surface
GM 33-36	WILLIAMS	GAS	2278239	1608324	2278469	1608945	Bottom
GM 341-35	WILLIAMS	GAS	2274422	1610246	2274564	1611707	Surface
GM 341-36	WILLIAMS	GAS	2279360	1610673	2280565	1612136	Surface
GM 342-35	WILLIAMS	GAS	2274422	1610254	2274353	1611374	Surface
GM 342-36	WILLIAMS	GAS	2279352	1610667	2279617	1609812	Surface
GM 342-36	WILLIAMS	GAS	2279352	1610667	2279617	1609812	Bottom
GM 34-25	WILLIAMS	GAS	2279321	1610711	2278894	1612807	Surface
GM 343-35	WILLIAMS	GAS	2274423	1610222	2274825	1610077	Surface
GM 343-35	WILLIAMS	GAS	2274423	1610222	2274825	1610077	Bottom
GM 34-35	WILLIAMS	GAS	2274366	1608400	2274218	1608622	Surface
GM 34-35	WILLIAMS	GAS	2274366	1608400	2274218	1608622	Bottom
GM 344-25	WILLIAMS	GAS	2279338	1610695	2279945	1613109	Surface
GM 411-1	WILLIAMS	GAS	2276027	1607054	2275703	1607367	Surface
GM 411-1	WILLIAMS	GAS	2276027	1607054	2275703	1607367	Bottom
GM 411-36	WILLIAMS	GAS	2276203	1612192	2275827	1611945	Surface
GM 411-36	WILLIAMS	GAS	2276203	1612192	2275827	1611945	Bottom
GM 412-36	WILLIAMS	GAS	2276736	1610578	2276251	1610377	Surface
GM 412-36	WILLIAMS	GAS	2276736	1610578	2276251	1610377	Bottom
GM 413-36	WILLIAMS	GAS	2277288	1609577	2276085	1609351	Surface
GM 413-36	WILLIAMS	GAS	2277288	1609577	2276085	1609351	Bottom
GM 41-35	WILLIAMS	GAS	2276164	1612217	2275084	1612741	Surface
GM 41-36	WILLIAMS	GAS	2279355	1610679	2279627	1611435	Surface
GM 421-1	WILLIAMS	GAS	2277752	1606703	2277619	1607320	Bottom
GM 421-36	WILLIAMS	GAS	2276753	1610626	2277617	1611046	Surface
GM 421-36	WILLIAMS	GAS	2276753	1610626	2277617	1611046	Bottom
GM 422-36	WILLIAMS	GAS	2276746	1610577	2278003	1610449	Surface
GM 422-36	WILLIAMS	GAS	2276746	1610577	2278003	1610449	Bottom
GM 423-36	WILLIAMS	GAS	2277312	1609539	2277923	1609191	Surface
GM 423-36	WILLIAMS	GAS	2277312	1609539	2277923	1609191	Bottom
GM 42-35	WILLIAMS	GAS	2274412	1610237	2274761	1610646	Surface
GM 42-35	WILLIAMS	GAS	2274412	1610237	2274761	1610646	Bottom
GM 42-36	WILLIAMS	GAS	2279365	1610668	2280041	1610109	Surface
GM 424-25	WILLIAMS	GAS	2276221	1612196	2277621	1612495	Surface
GM 424-36	WILLIAMS	GAS	2277227	1608542	2276739	1608133	Surface
GM 424-36	WILLIAMS	GAS	2277227	1608542	2276739	1608133	Bottom
GM 431-36	WILLIAMS	GAS	2279327	1610706	2279153	1611923	Surface
GM 432-35	WILLIAMS	GAS	2274412	1610245	2273442	1610731	Surface
GM 432-36	WILLIAMS	GAS	2279309	1610708	2278555	1610874	Surface
GM 432-36	WILLIAMS	GAS	2279309	1610708	2278555	1610874	Bottom

LABEL	OPERATOR	SYMCODE	X	Y	BOTX	BOTY	Location
GM 433-35	WILLIAMS	GAS	2274414	1610192	2273498	1610105	Surface
GM 433-36	WILLIAMS	GAS	2278268	1608349	2279067	1609523	Surface
GM 433-36	WILLIAMS	GAS	2278268	1608349	2279067	1609523	Bottom
GM 43-35	WILLIAMS	GAS	2274413	1610222	2274474	1609189	Surface
GM 43-35	WILLIAMS	GAS	2274413	1610222	2274474	1609189	Bottom
GM 43-36	WILLIAMS	GAS	2278262	1608344	2279765	1609224	Surface
GM 43-36	WILLIAMS	GAS	2278262	1608344	2279765	1609224	Bottom
GM 434-36	WILLIAMS	GAS	2278223	1608309	2278430	1608063	Surface
GM 434-36	WILLIAMS	GAS	2278223	1608309	2278430	1608063	Bottom
GM 441-35	WILLIAMS	GAS	2276182	1612199	2274104	1612423	Surface
GM 441-36	WILLIAMS	GAS	2279371	1610663	2280283	1611795	Surface
GM 442-35	WILLIAMS	GAS	2274422	1610237	2274842	1610355	Surface
GM 442-35	WILLIAMS	GAS	2274422	1610237	2274842	1610355	Bottom
GM 442-36	WILLIAMS	GAS	2279358	1610661	2279479	1610360	Surface
GM 442-36	WILLIAMS	GAS	2279358	1610661	2279479	1610360	Bottom
GM 44-25	WILLIAMS	GAS	2279349	1610684	2279433	1612524	Surface
GM 443-35	WILLIAMS	GAS	2274424	1610193	2274817	1609773	Surface
GM 443-35	WILLIAMS	GAS	2274424	1610193	2274817	1609773	Bottom
GM 44-36	WILLIAMS	GAS	2278245	1608329	2279950	1608246	Surface
GM 444-36	WILLIAMS	GAS	2278257	1608339	2280060	1608581	Surface
GM 511-36	WILLIAMS	GAS	2276743	1610628	2275789	1611280	Surface
GM 511-36	WILLIAMS	GAS	2276743	1610628	2275789	1611280	Bottom
GM 512-36	WILLIAMS	GAS	2276734	1610563	2276195	1610016	Surface
GM 512-36	WILLIAMS	GAS	2276734	1610563	2276195	1610016	Bottom
GM 513-36	WILLIAMS	GAS	2277208	1608582	2275850	1608685	Surface
GM 513-36	WILLIAMS	GAS	2277208	1608582	2275850	1608685	Bottom
GM 521-36	WILLIAMS	GAS	2276224	1612184	2277349	1611871	Surface
GM 521-36	WILLIAMS	GAS	2276224	1612184	2277349	1611871	Bottom
GM 531-36	WILLIAMS	GAS	2279316	1610716	2278982	1612192	Surface
GM 541-35	WILLIAMS	GAS	2276189	1612197	2273988	1612101	Surface
GM 541-36	WILLIAMS	GAS	2279363	1610656	2280282	1611134	Surface
GM 543-35	WILLIAMS	GAS	2274424	1610185	2274906	1609505	Surface
GM 543-35	WILLIAMS	GAS	2274424	1610185	2274906	1609505	Bottom
GM 544-35	WILLIAMS	GAS	2274367	1608393	2274302	1607716	Surface
GM 643-35	WILLIAMS	GAS	2274369	1608386	2274683	1608929	Surface
GM 643-35	WILLIAMS	GAS	2274369	1608386	2274683	1608929	Bottom
GV 19-36	WILLIAMS	GAS	2276184	1609101	2276142	1609043	Surface
GV 19-36	WILLIAMS	GAS	2276184	1609101	2276142	1609043	Bottom
GV 21-35	WILLIAMS	GAS	2274372	1608371	2274281	1608313	Surface
GV 21-35	WILLIAMS	GAS	2274372	1608371	2274281	1608313	Bottom
GV 24-36	WILLIAMS	GAS	2278228	1608314	2278253	1608364	Surface
GV 24-36	WILLIAMS	GAS	2278228	1608314	2278253	1608364	Bottom

Map Mineral Owners within ¼ Mile



Legend

- 1/4 Mile Buffer of Surface Location
- 1/4 Mile Buffer of Bottom Hole Location
- Existing Road
- Mineral Ownership

Mineral Ownership Map
GM 239-36 Injection Well

Williams

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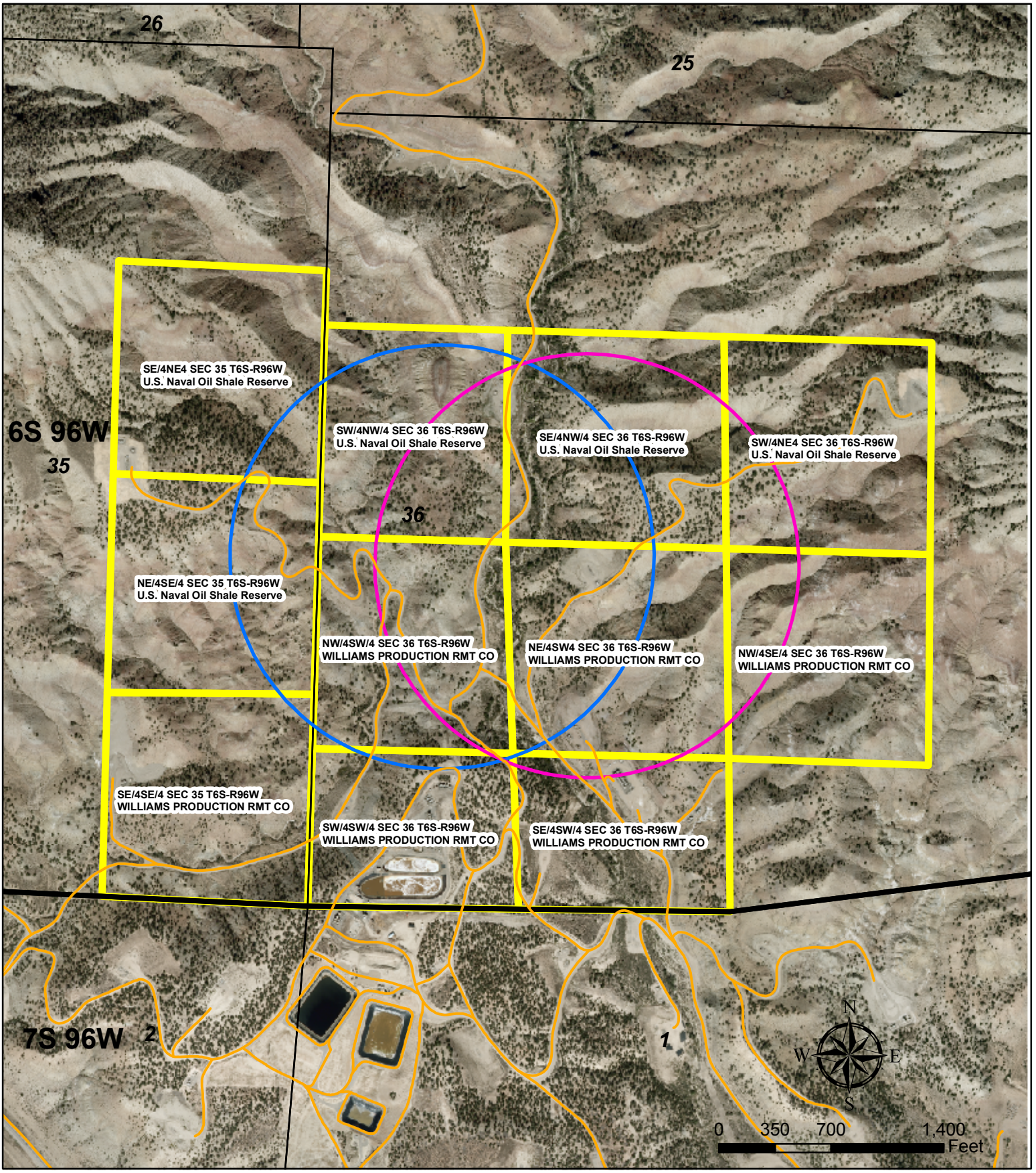
List Mineral Owners within ¼ Mile

Mineral Owners Adresses Within 1/4 Mile Radius
of GM 239-36

ID	LEGAL DESCRIPTION	MINERAL OWNER(S)	ADDRESS
1	SE/4NE4 SEC 35 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
2	SW/4NW/4 SEC 36 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
3	SE/4NW/4 SEC 36 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
4	SW/4NE4 SEC 36 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
5	NE/4SE/4 SEC 35 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
6	NW/4SW/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
7	NE/4SW4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
8	NW/4SE/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
9	SE/4SE/4 SEC 35 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
10	SW/4SW/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
11	SE/4SW/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202

Map Surface Owners within ¼ Mile



Legend

- 1/4 Mile Buffer of Surface Location
- 1/4 Mile Buffer of Bottom Hole Location
- Existing Road
- Surface Ownership

Surface Ownership Map
GM 239-36 Injection Well

Williams

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List Surface Owners within ¼ Mile

SURFACE OWNERS WITHIN 1/4 MILE RADIUS
OF GM 239-36

ID	LEGAL DESCRIPTION	SURFACE OWNER(S)	ADDRESS
1	SE/4NE4 SEC 35 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
2	SW/4NW/4 SEC 36 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
3	SE/4NW/4 SEC 36 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
4	SW/4NE4 SEC 36 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
5	NE/4SE/4 SEC 35 T6S-R96W	U.S. Naval Oil Shale Reserve	Minerals Management Service, Royalty Management Program, PO Box 5810, Denver, CO 80217
6	NW/4SW/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
7	NE/4SW4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
8	NW/4SE/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
9	SE/4SE/4 SEC 35 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
10	SW/4SW/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202
11	SE/4SW/4 SEC 36 T6S-R96W	WILLIAMS PRODUCTION RMT CO	1001 17th Street, Suite 1200, Denver, CO 80202

Cement Bond Log

HALLIBURTON

ACOUSTIC CEMENT BOND LOG

01351795

Company	WILLIAMS PRODUCTION CO
Well	GM 239-36
Field	GRAND VALLEY
County	GARFIELD State CO

Company	WILLIAMS PRODUCTION CO
Well	•GM 239-36
Field	GRAND VALLEY
County	GARFIELD
State	CO

RECEIVED
JAN 23 2009
COGCC

API No.: •05045146930000 Serv #: 5571137

Location: SURFACE:
•2122' FSL & 1638' FWL

BOTTOM:
•2169' FSL & 0784' FWL

•Sec: 36 Twp: 06S Rge: 96W

Other Services: RMTE

Permanent Datum	GROUND LEVEL	Elevation 5597'	Elevation	
Log Measured From	KB , 15 Ft. above perm. datum		K.B.	5612'
Drilling Measured From	KB		D.F.	5611'
			G.L.	5597'

Date @ Time Logged	31 DEC 2007 13:30 HRS	Type Fluid in Hole	FRESH WATER
Run No.	ONE	Density of Fluid	8.4 PPG
Depth - Driller	7116'	Fluid Level	FULL
Depth - Logger	7045'	Cement Top Est. Logged	2200'
Bottom - Logged Interval	7037'	Equipment / Location	10026060 / GJ
Top - Log Interval	SURFACE	Recorded by	J.ARRASCUE
Max. Recorded Temp.	220 DGF	Witnessed by	N/A

CEMENTING DATA	Surface String	Protection String	Production String	Liner
				CASING 1120 from G.R. RPK 1/13/09
Date / Time Cemented				
Primary / Squeeze				
Expected Compressive Strength	psi@ hrs	psi@ hrs	psi@ hrs	psi@ hrs
Cement Volume				TOC 2326 RPK 11/13/09
Cement Type / Weight	/	/	/	
Formulation				
Mud Type / Mud Wgt.	/	/	/	/

Borehole Record				Casing & Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To
ONE	13.5"	SURFACE	1115'	9.625"	32.3#	SURFACE	1115'
TWO	7.875"	1115'	7116'	4.5"	11.6#	SURFACE	7116'

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Comments

CBL-CCL-GR RAN IN COMBINATION

PRIMARY LOG FOR THIS WELL DATED 05 DEC 2007.

SHORT JOINT AT: 4001' - 4022'.

YOUR CREW TODAY: C.BROWNLEE,K.HOLLIDAY,J.STEWART
E.I.T. : R, ROUGHT
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES; GRAND JUNCTION, CO
(970) 523 - 3600

Service Ticket No.	5571137	API No.	05045146930000	PGM Ver	2007-0213

The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client

EQUIPMENT DATA

GAMMA RAY		CCL		CBL-MSG			
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	
Serial No.	400	Serial No.	400	Serial No.	400	Serial No.	
Model No.	CBL_DC	Model No.	CBL_DC	Model No.	CBL_DC	Model No.	
Diameter	3.25"	Diameter	3.25"	Diameter	3.25"	Diameter	

LOGGING DATA

General Data

Pass	Depths		Well Head	Speed	Logging Run Comments
No.	From	To	Pressure	Ft/Min	
ONE	7045'	6840'	0 PSI	60	REPEAT LOG SECTION
TWO	7045'	SURFACE	0 PSI	60	MAIN LOG SECTION

	GAMMA RAY		CCL		MSG			
Pass	Scale		Scale		Scale		Scale	
No.	L	R	L	R	L	R	L	L
ONE	0	200	-9	1	200	1200		

DIRECTIONAL INFORMATION

Maximum Deviation		deg. @		KOP		

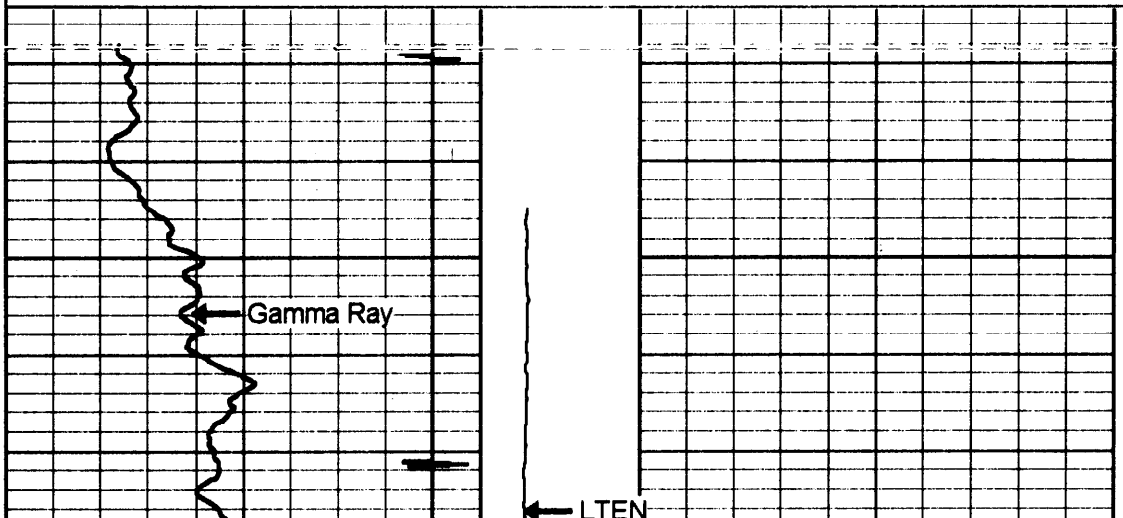
HALLIBURTON

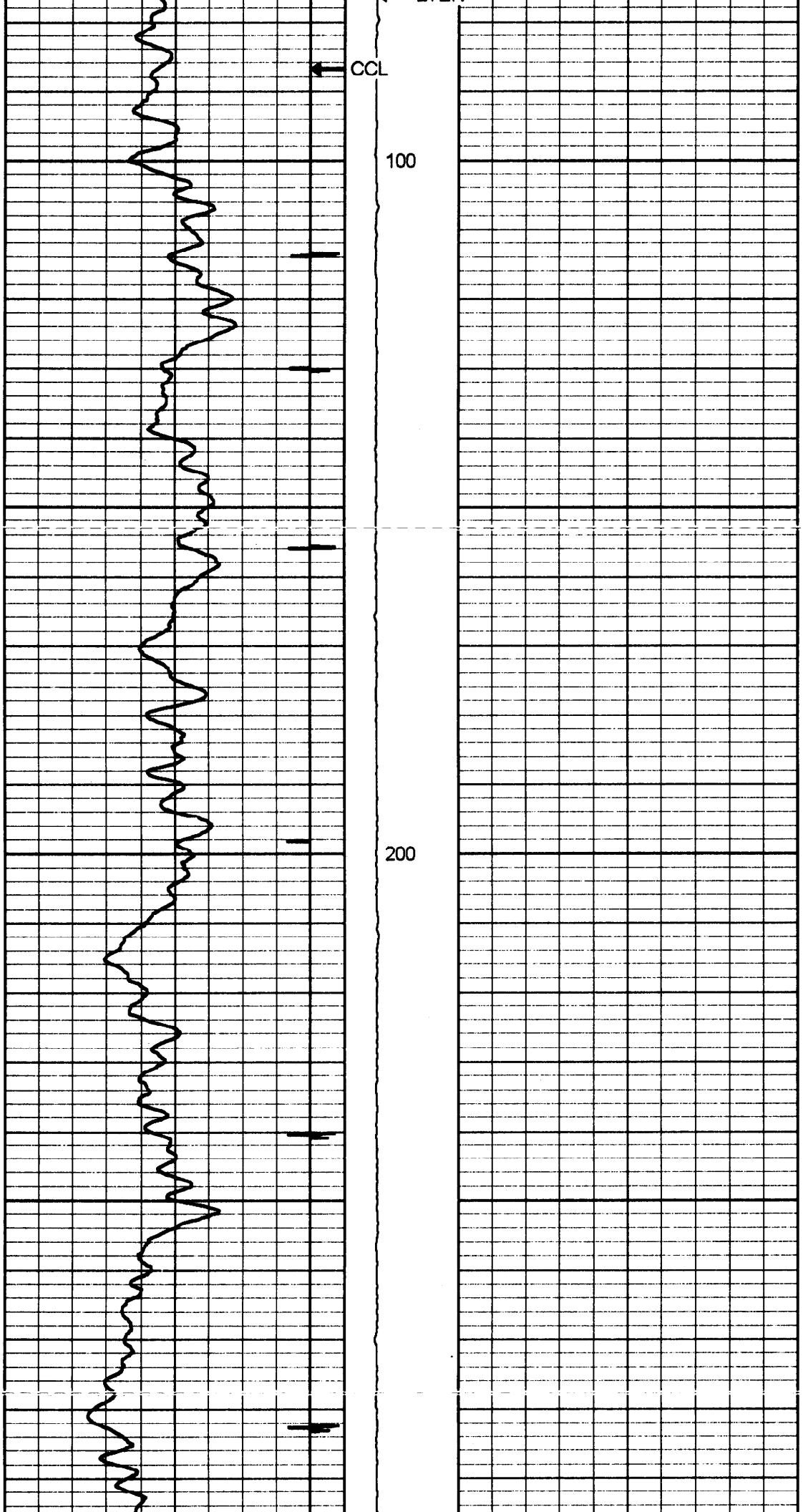
ACOUSTIC CEMENT BOND LOG

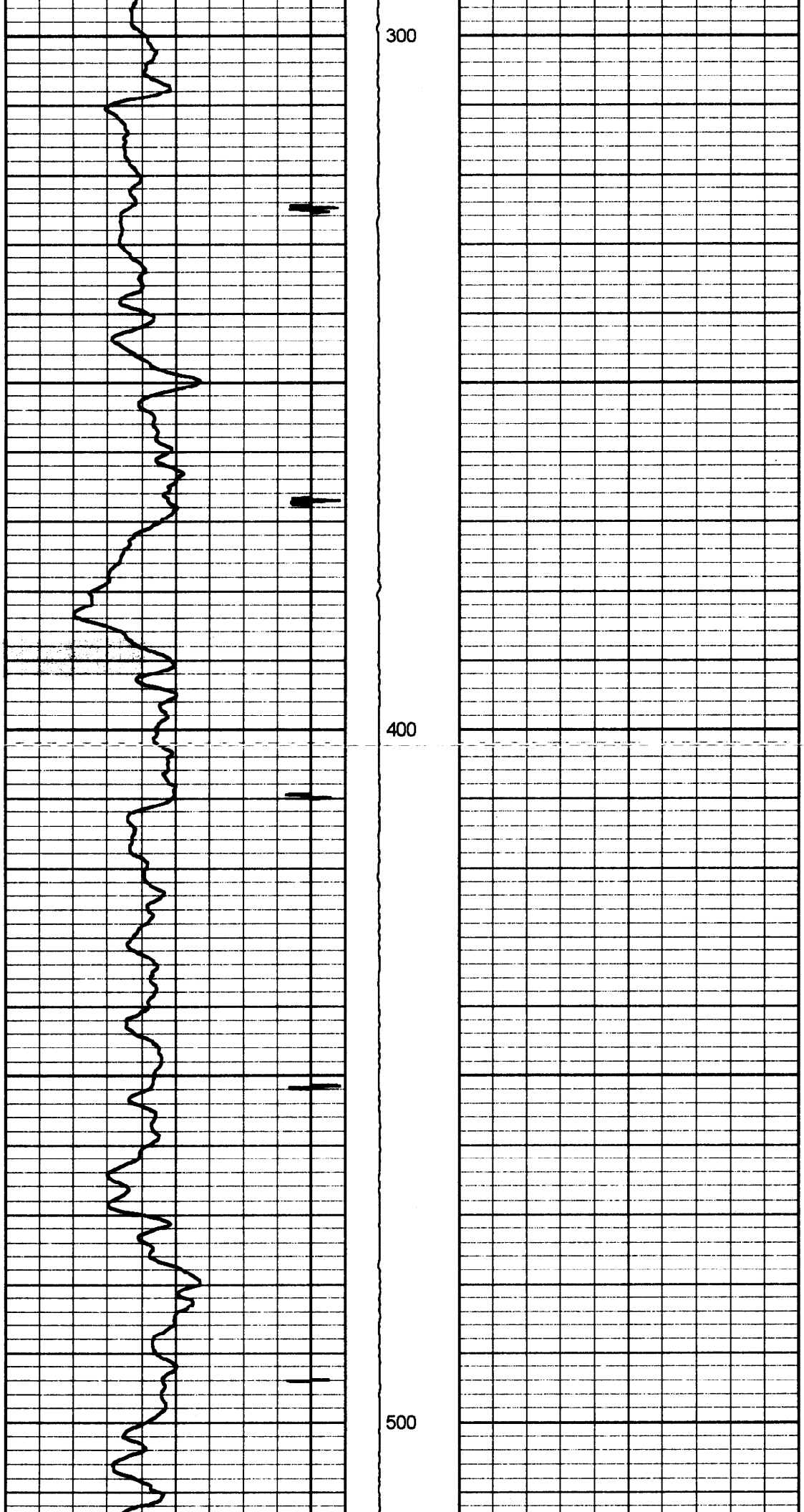
MAIN LOG SECTION
5"=100'

Database File: gm_239_36_cbl.db
Dataset Pathname: G_VALLEY/GM_239_36/run1/MAIN_CBL
Presentation Format: cbl_main
Dataset Creation: Mon Dec 31 15:30:28 2007
Charted by: Depth in Feet scaled 1:240

360 TRAVEL TIME (usec) 160	LTEN	0 AMP AMPLITUDE (mV) 10	200 MSG
-9 Collar Locator 1	0 (lb)2000	0 AMPLITUDE (mV) 100	
0 Gamma Ray (GAPI) 200			




CCL
100
200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400
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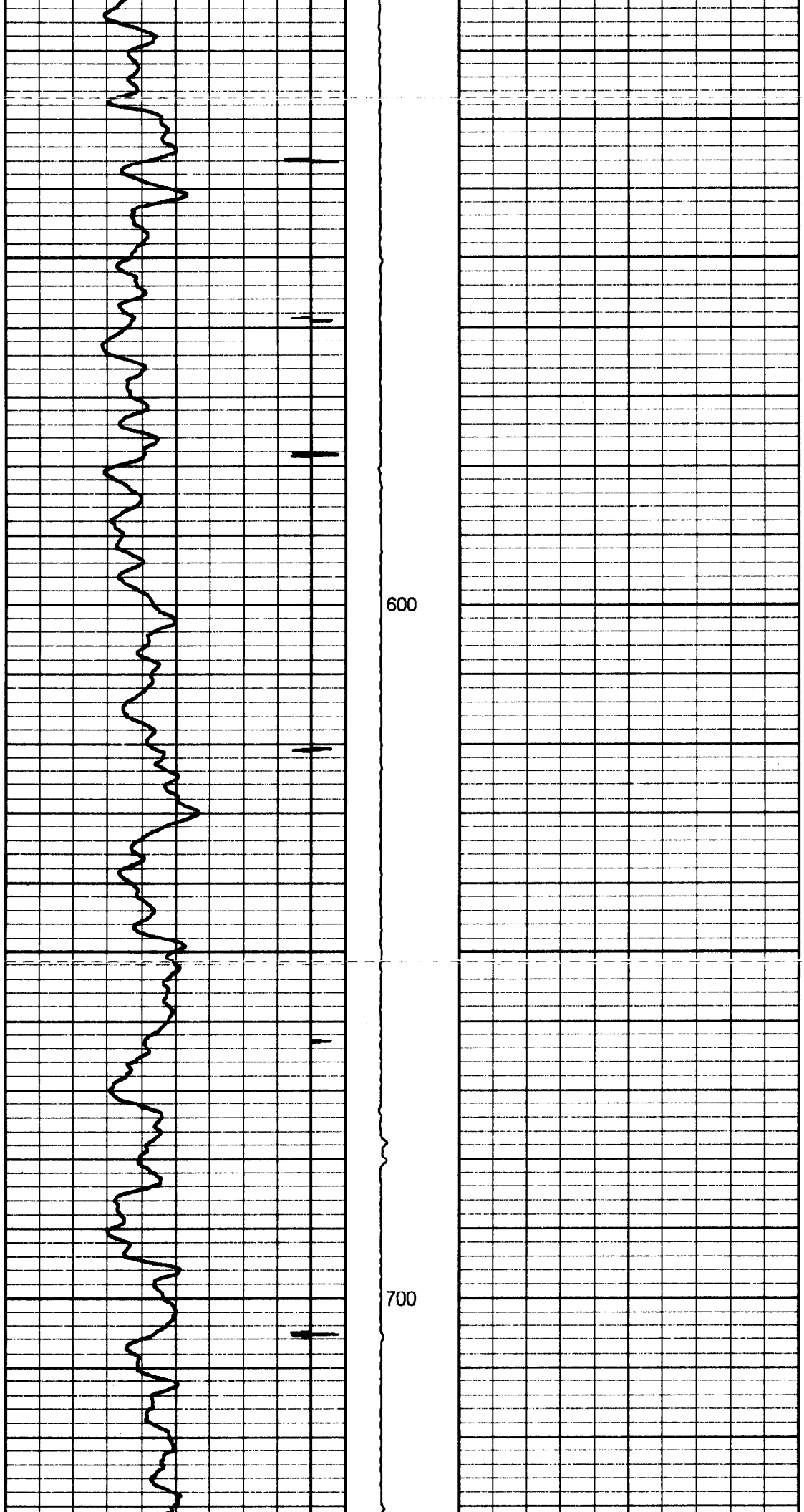
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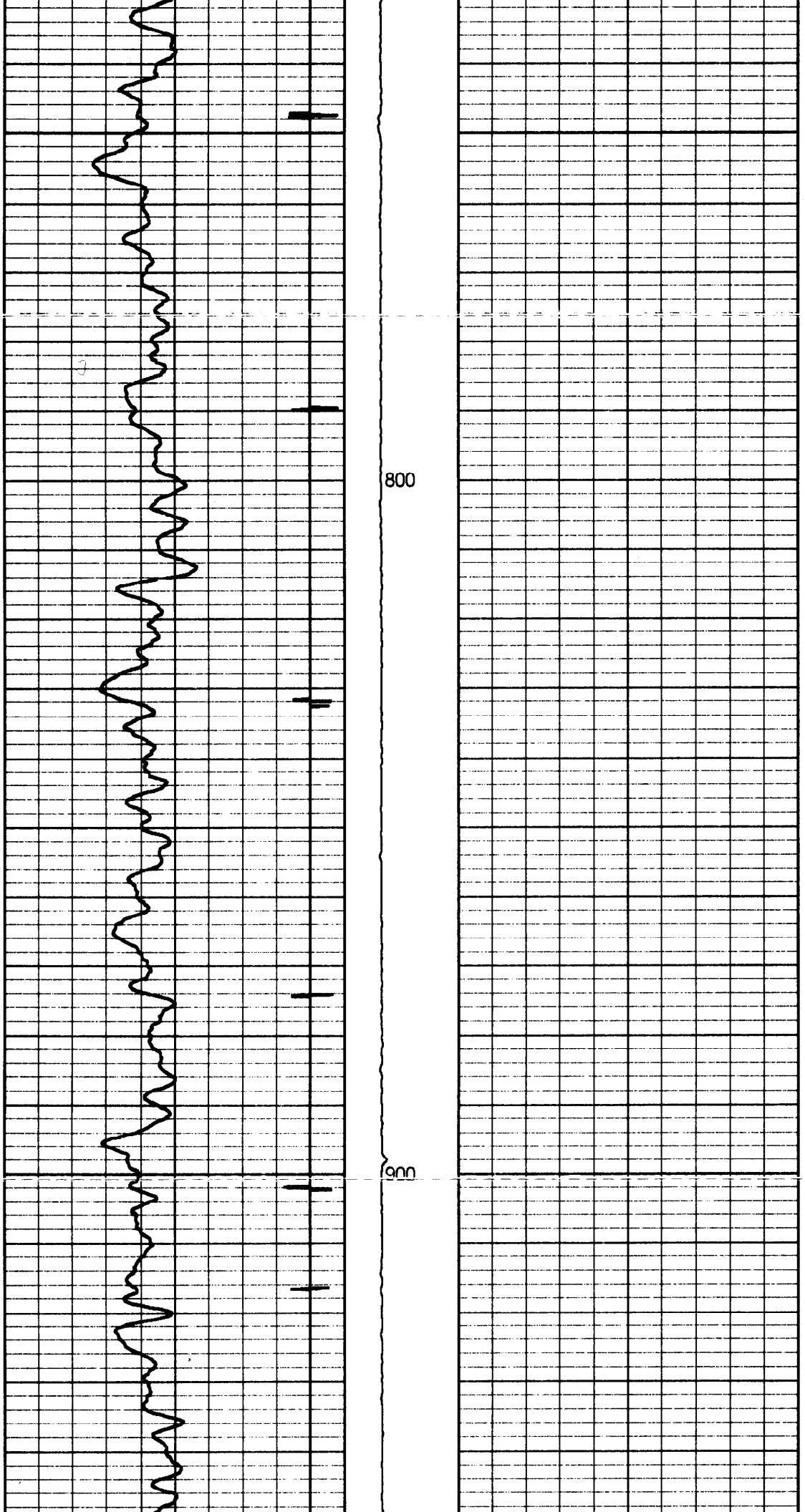
700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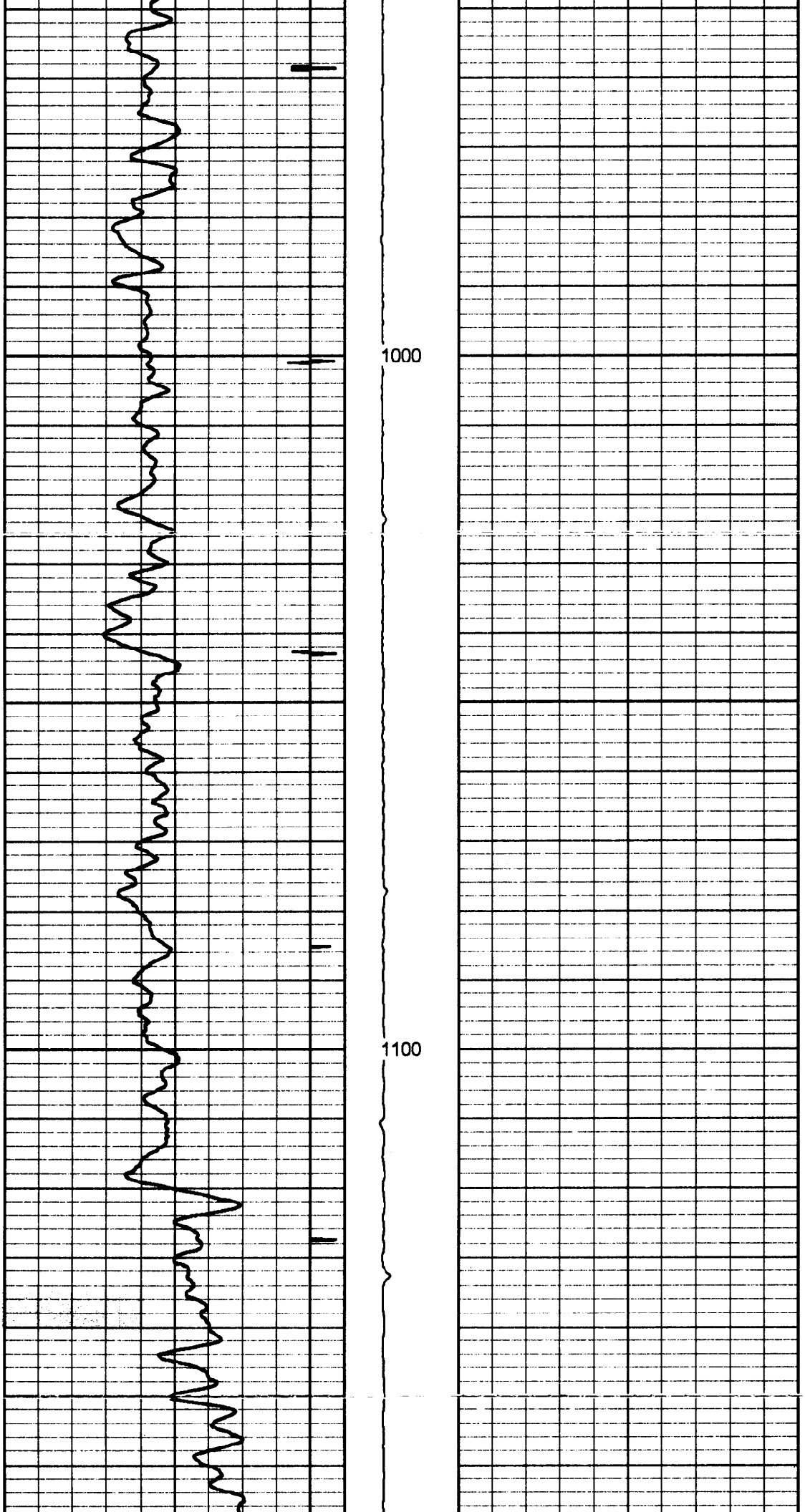
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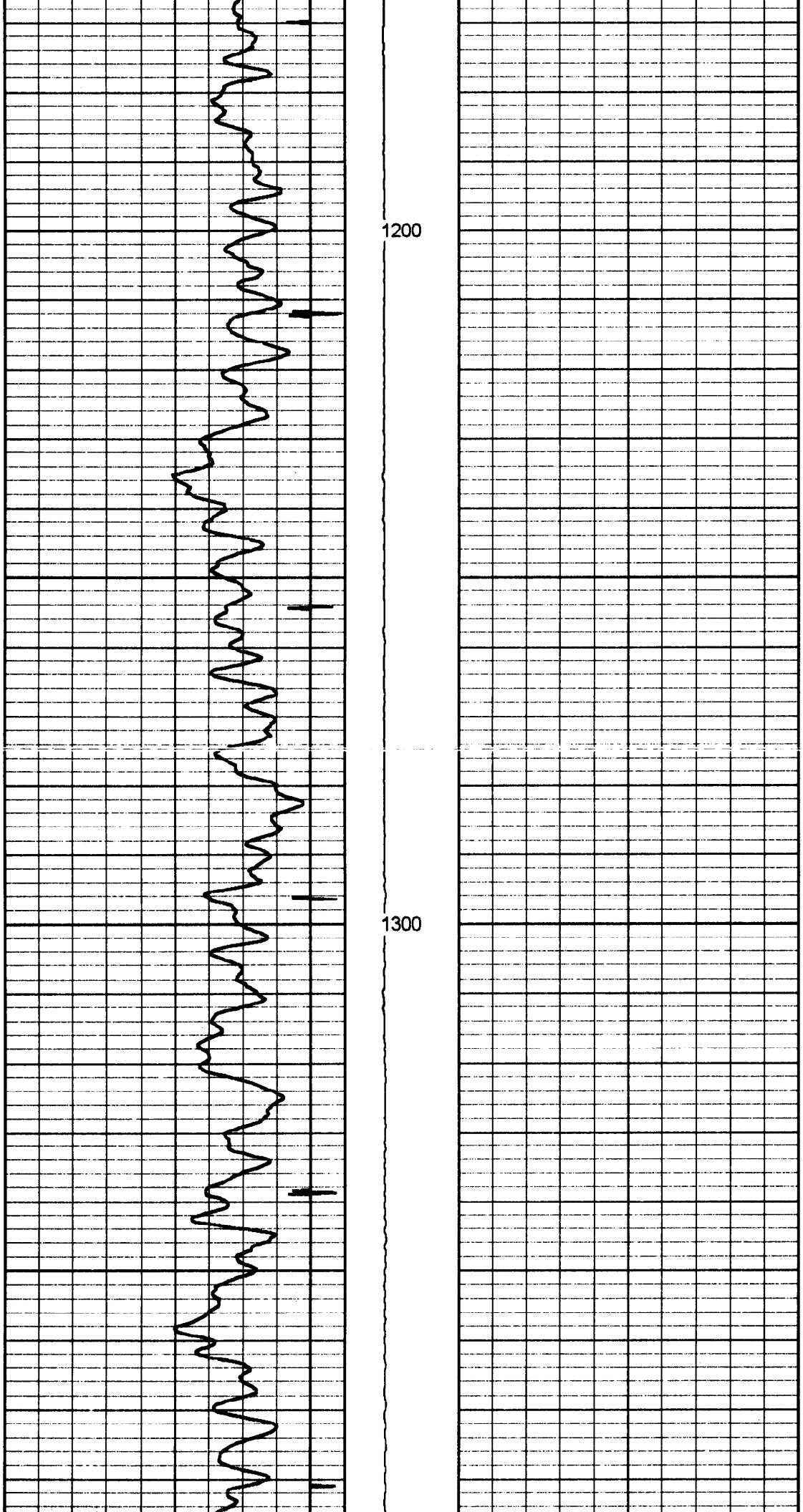
1100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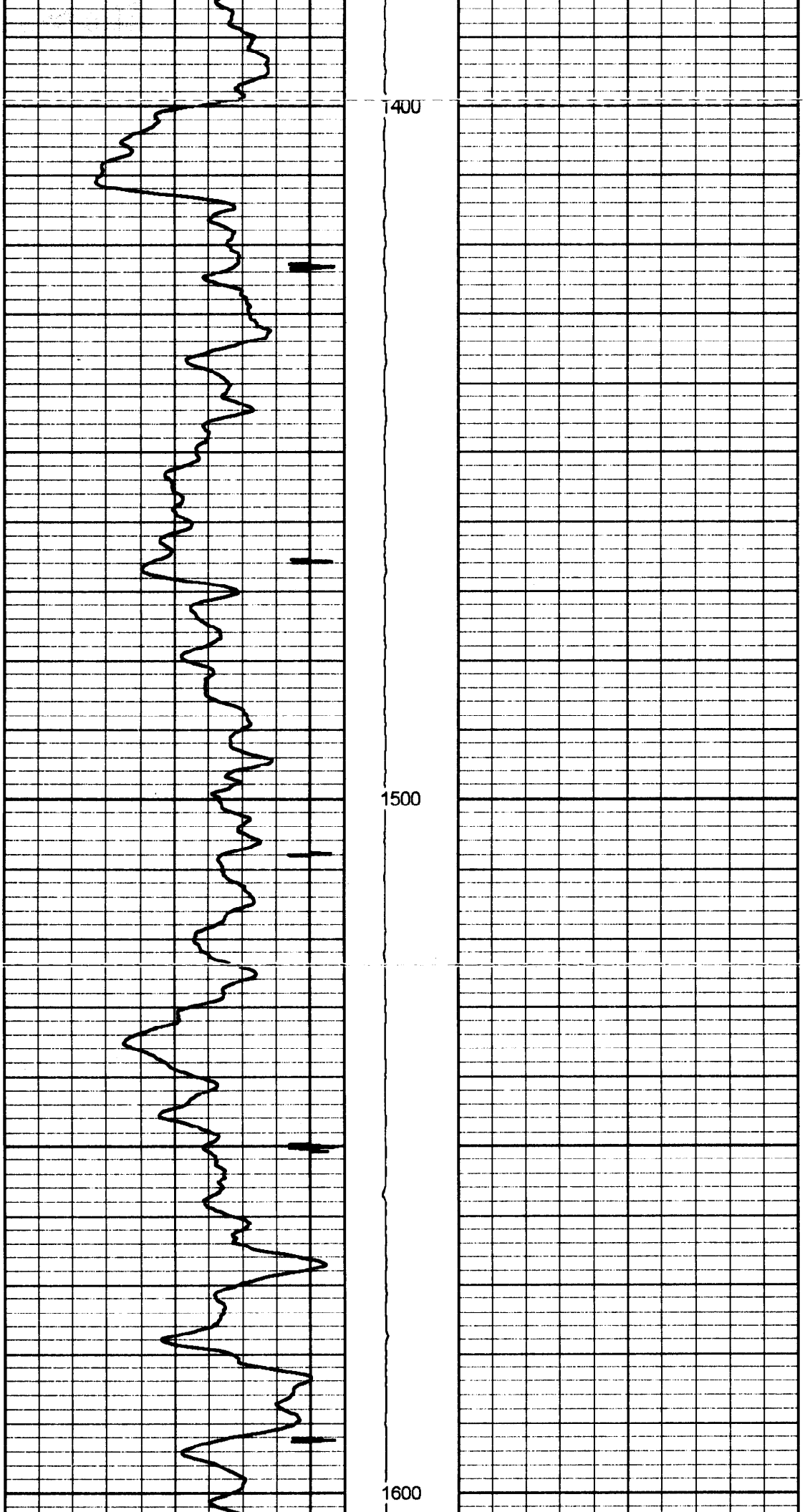
1300


1400
1500
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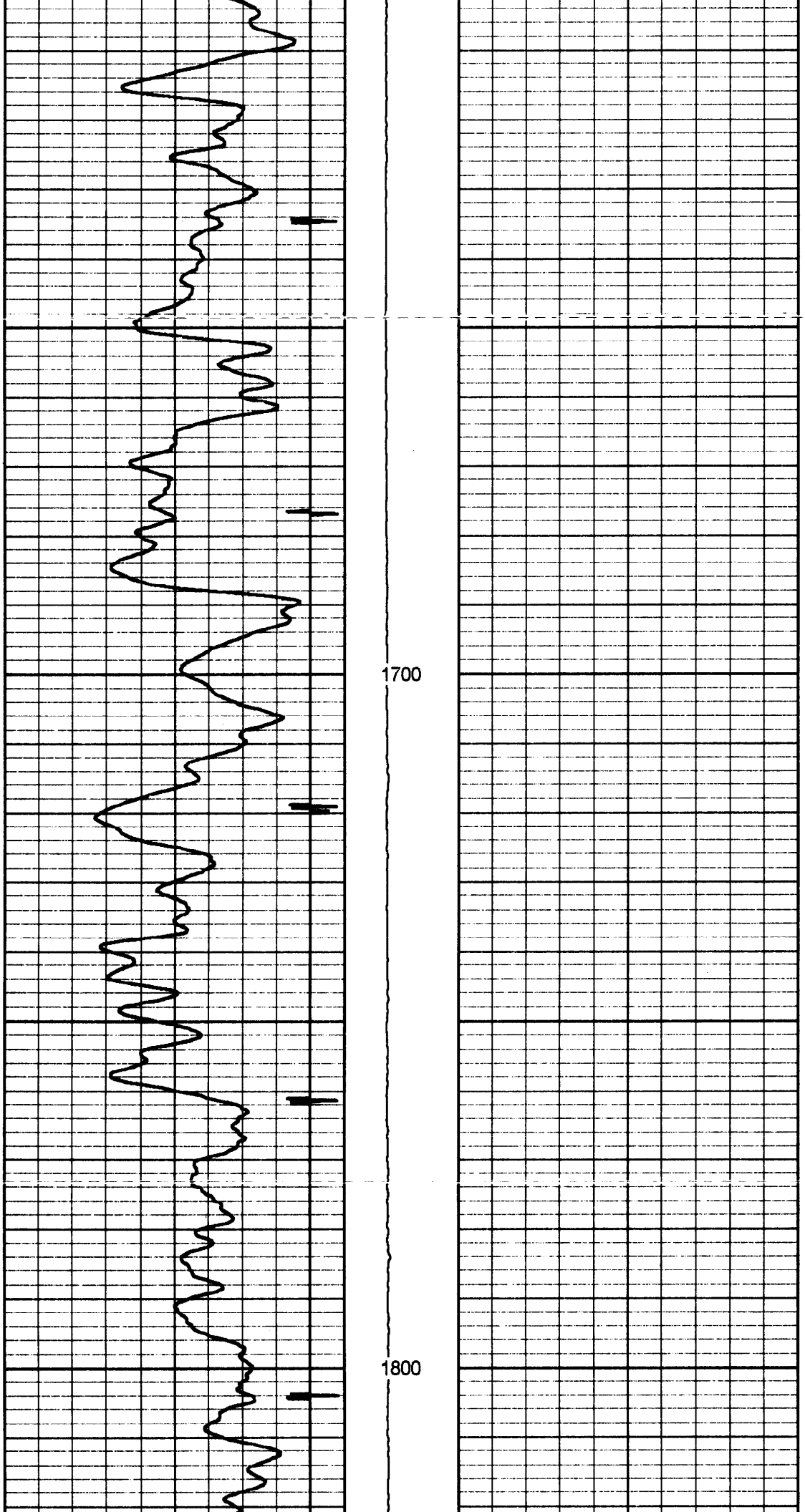
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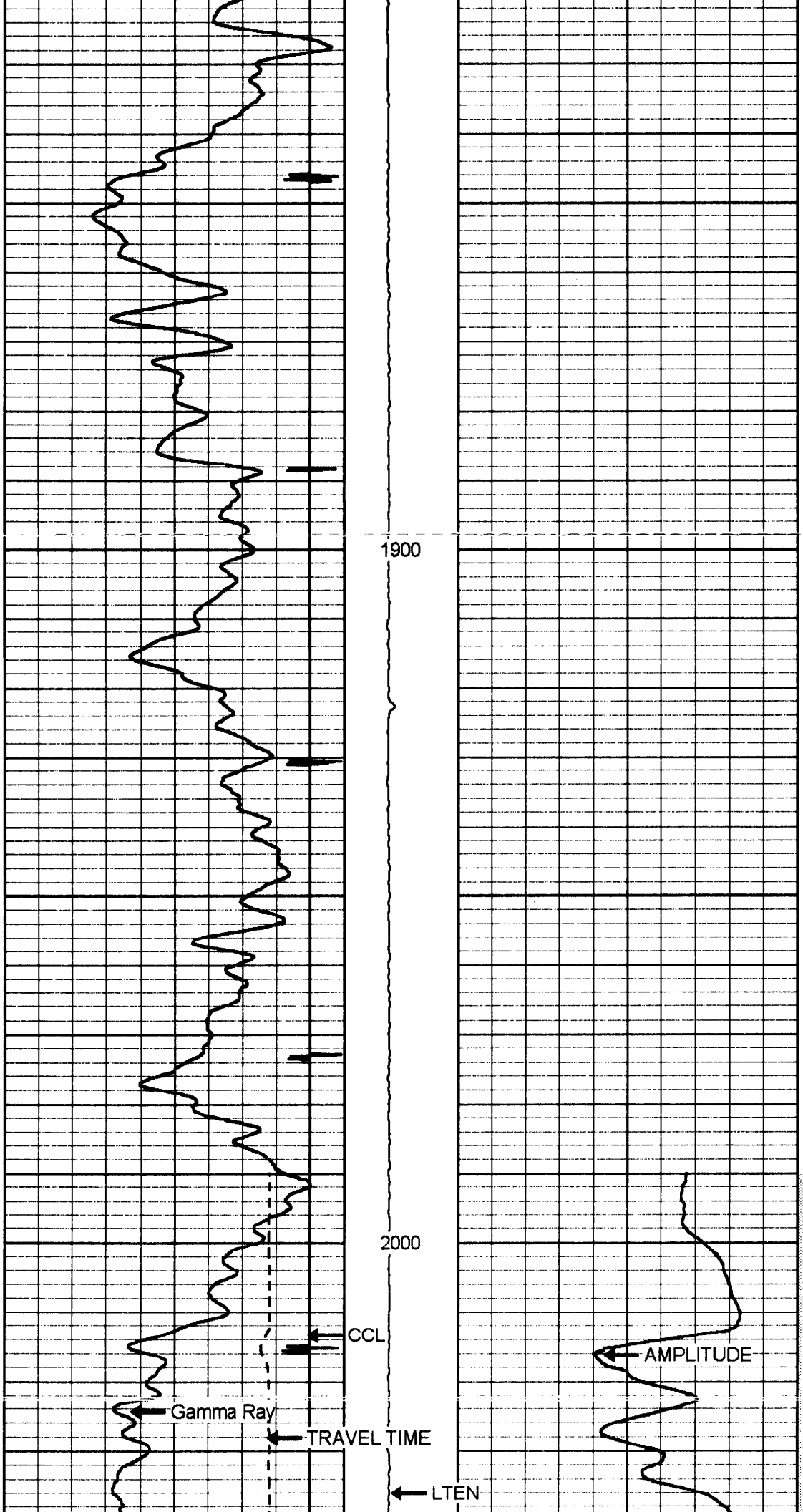
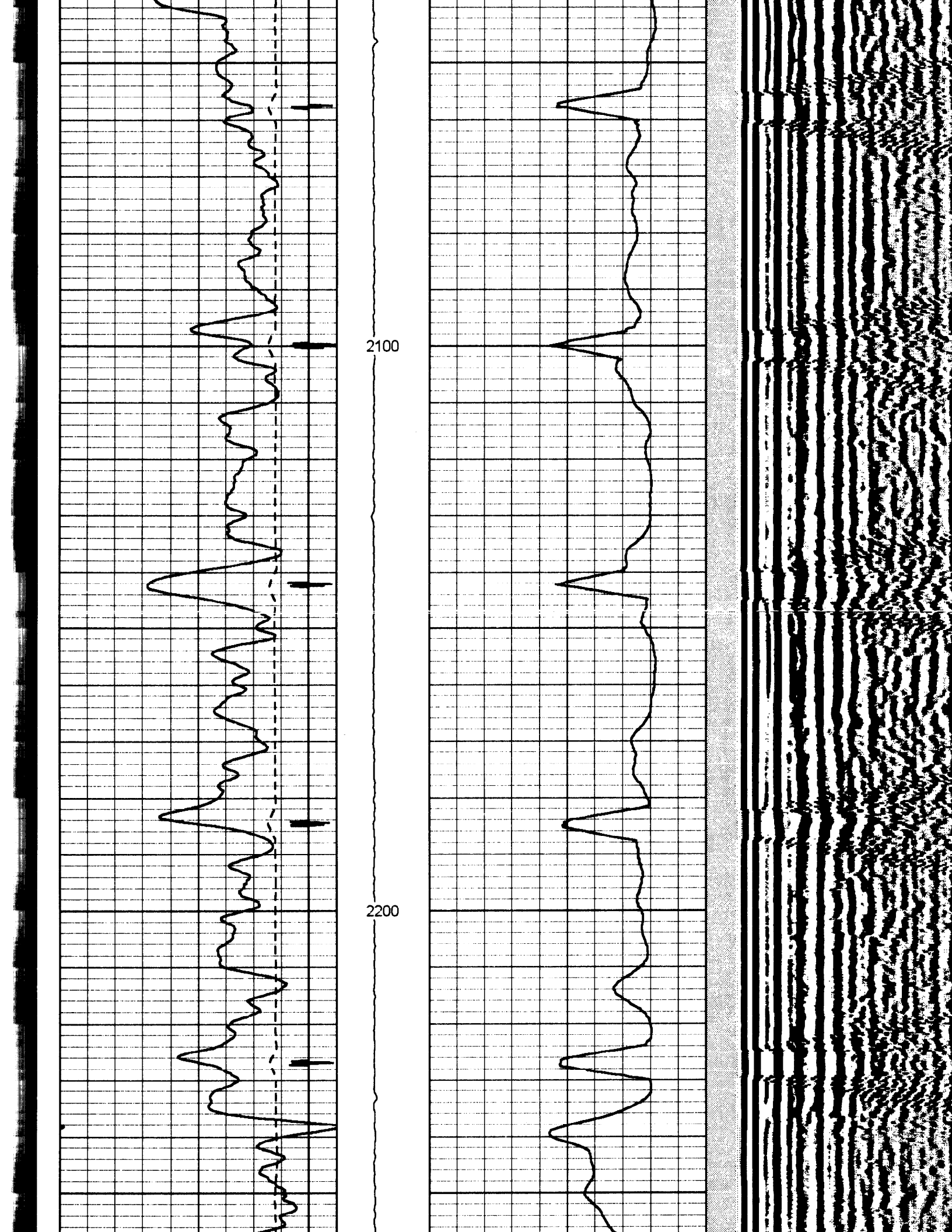
1800


1900
2000
CCL
Gamma Ray
TRAVEL TIME
LTEN
AMPLITUDE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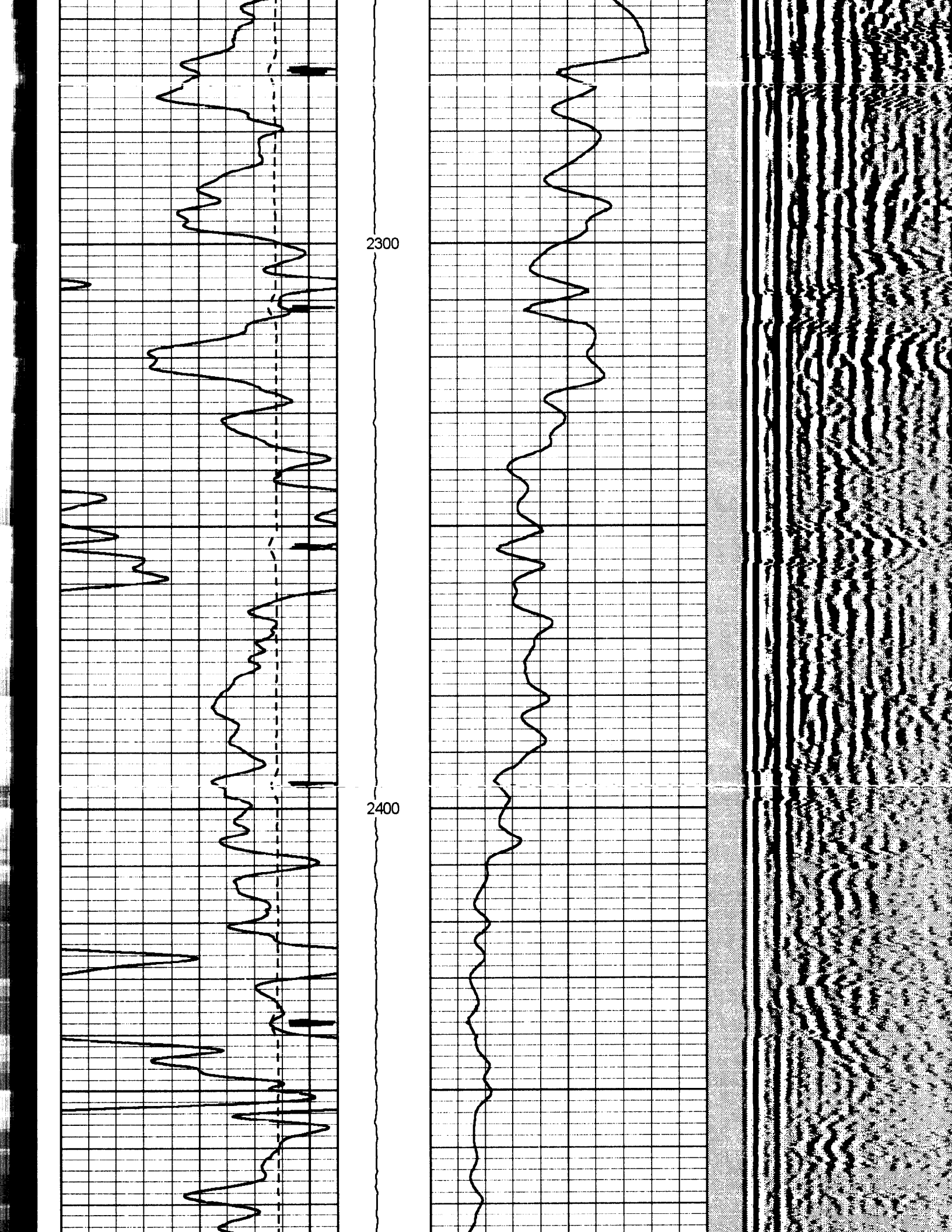
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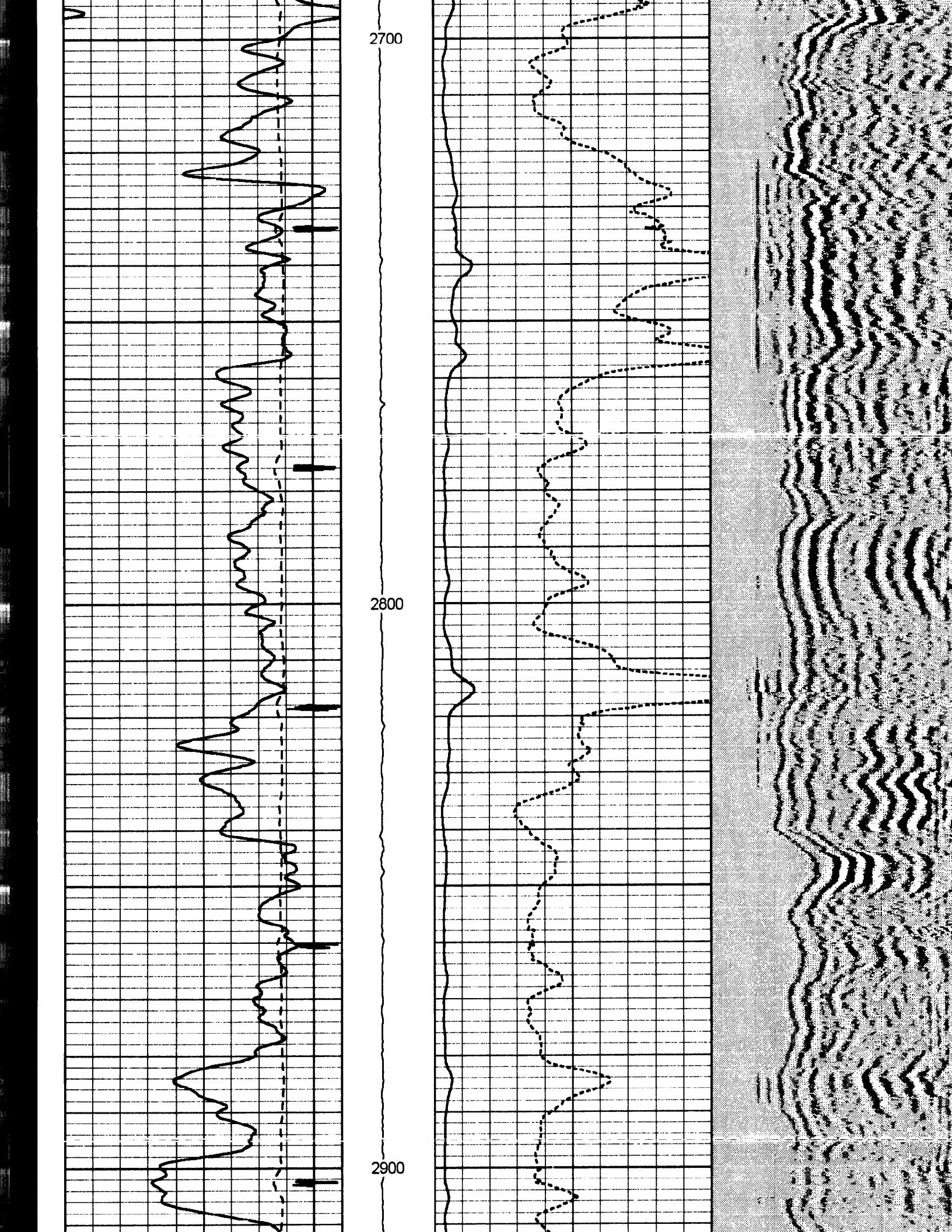
2400


2500
2600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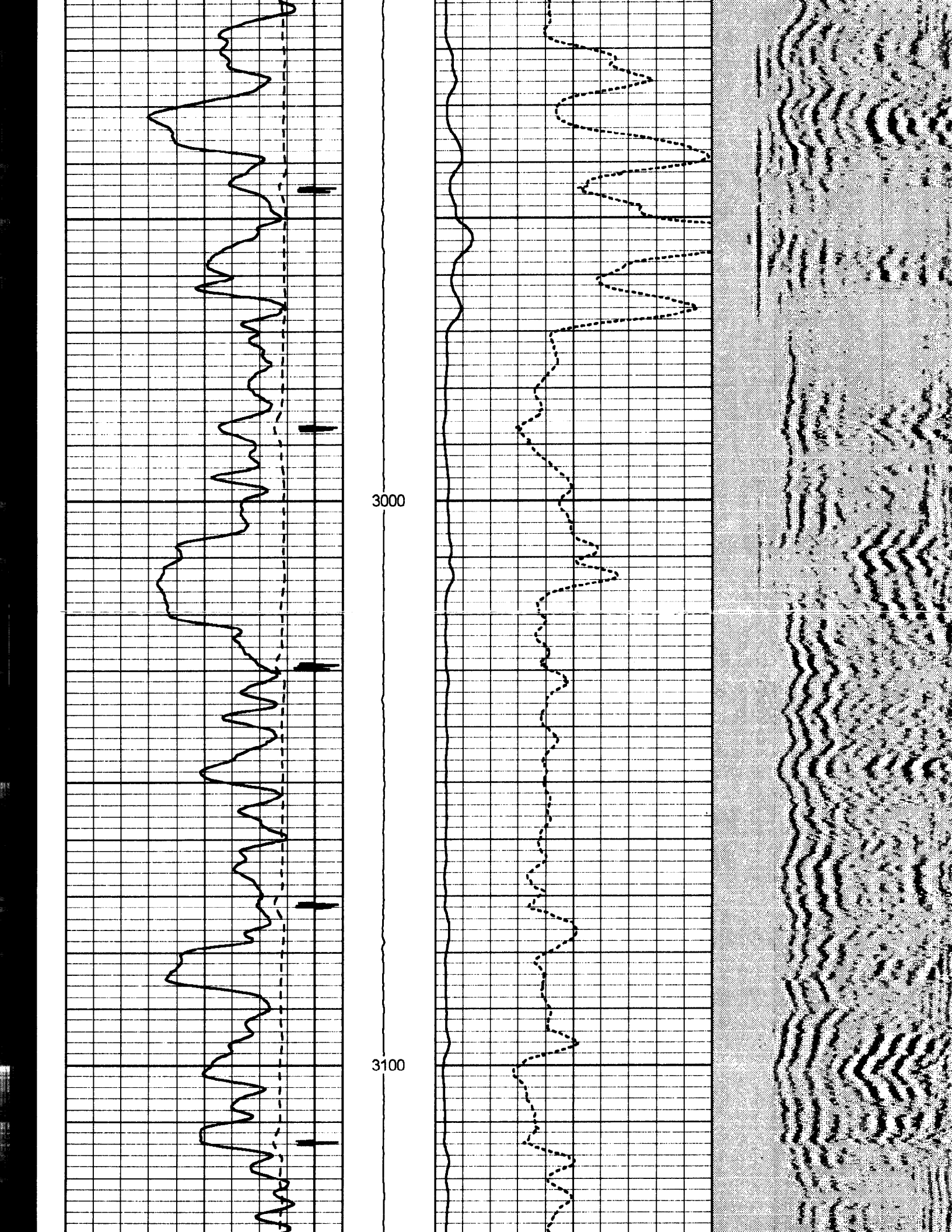
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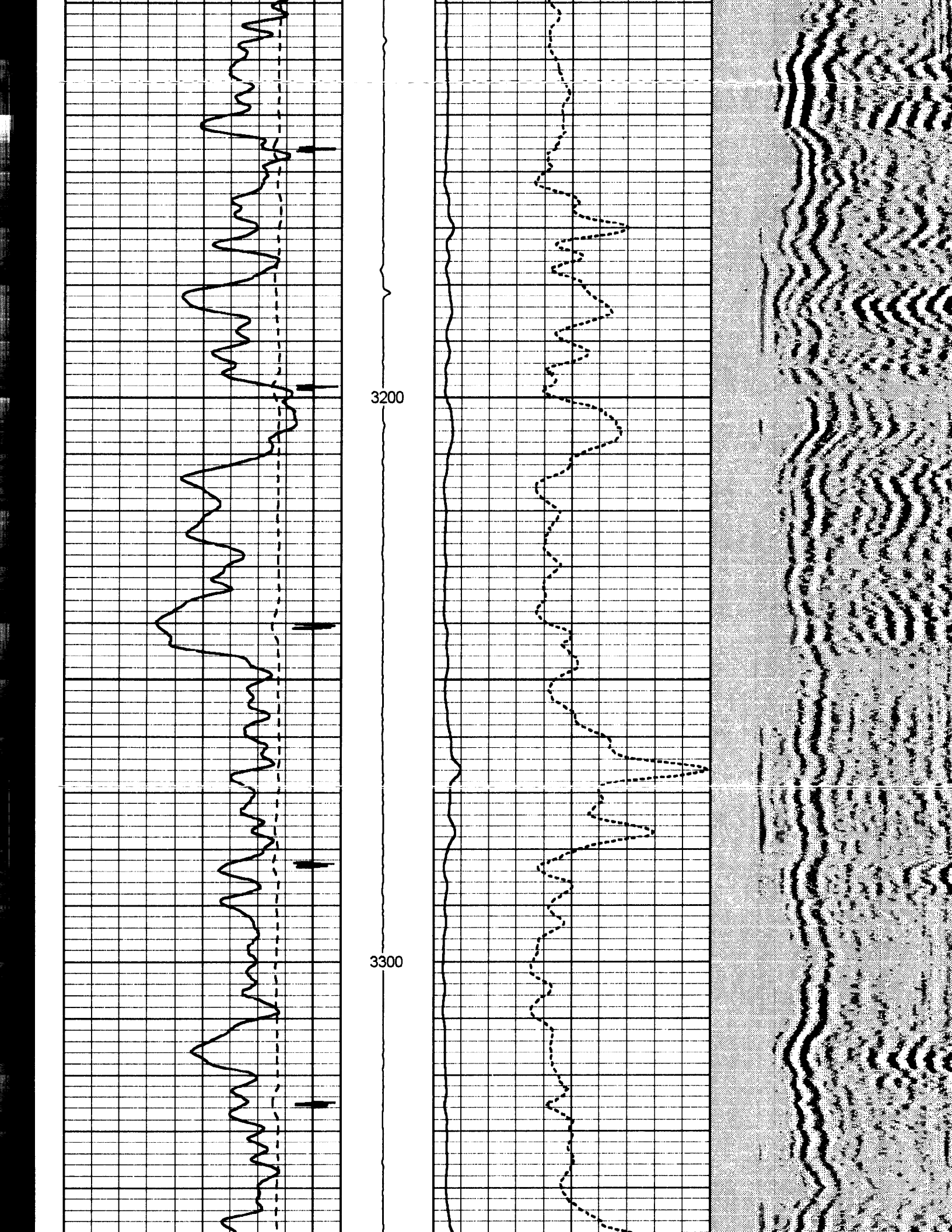
3100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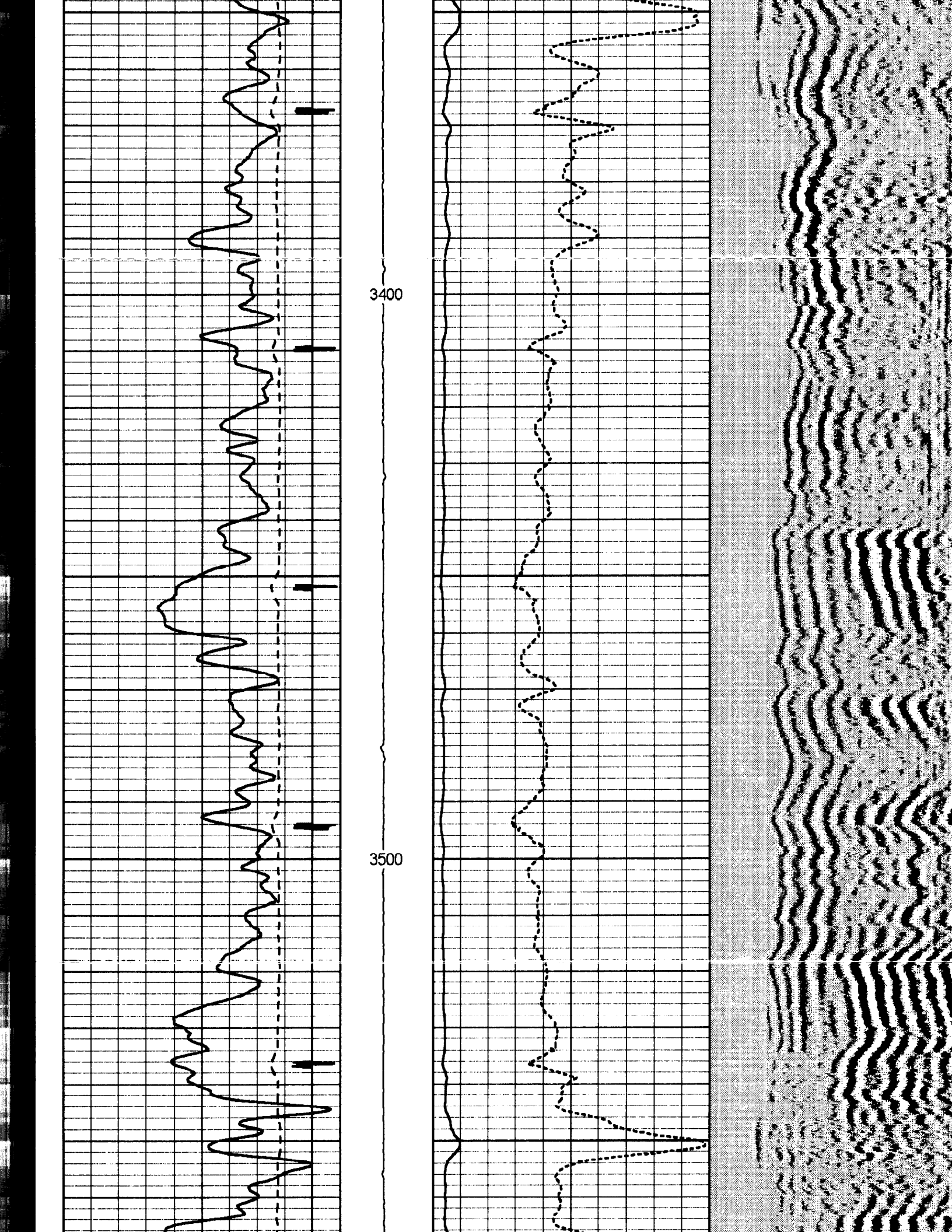
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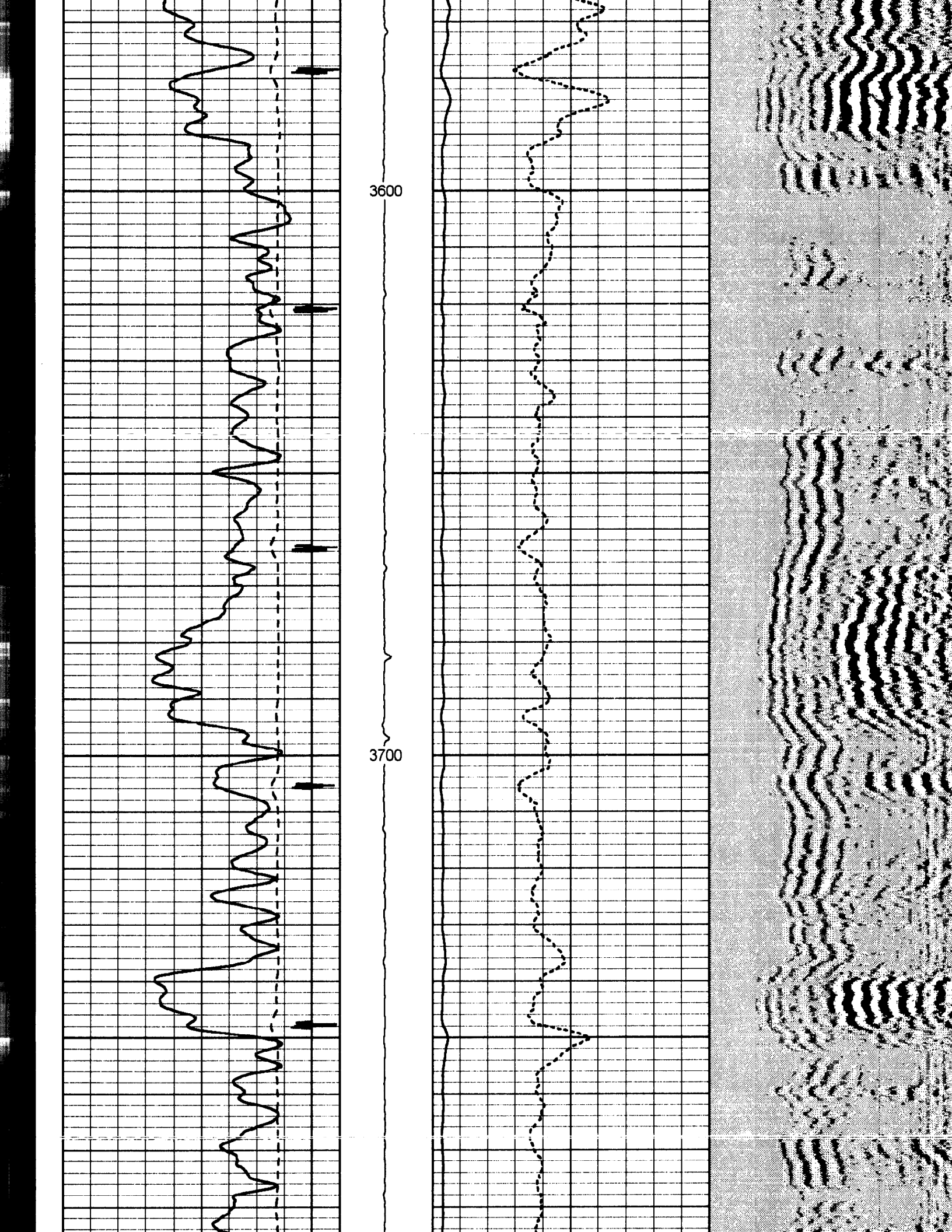
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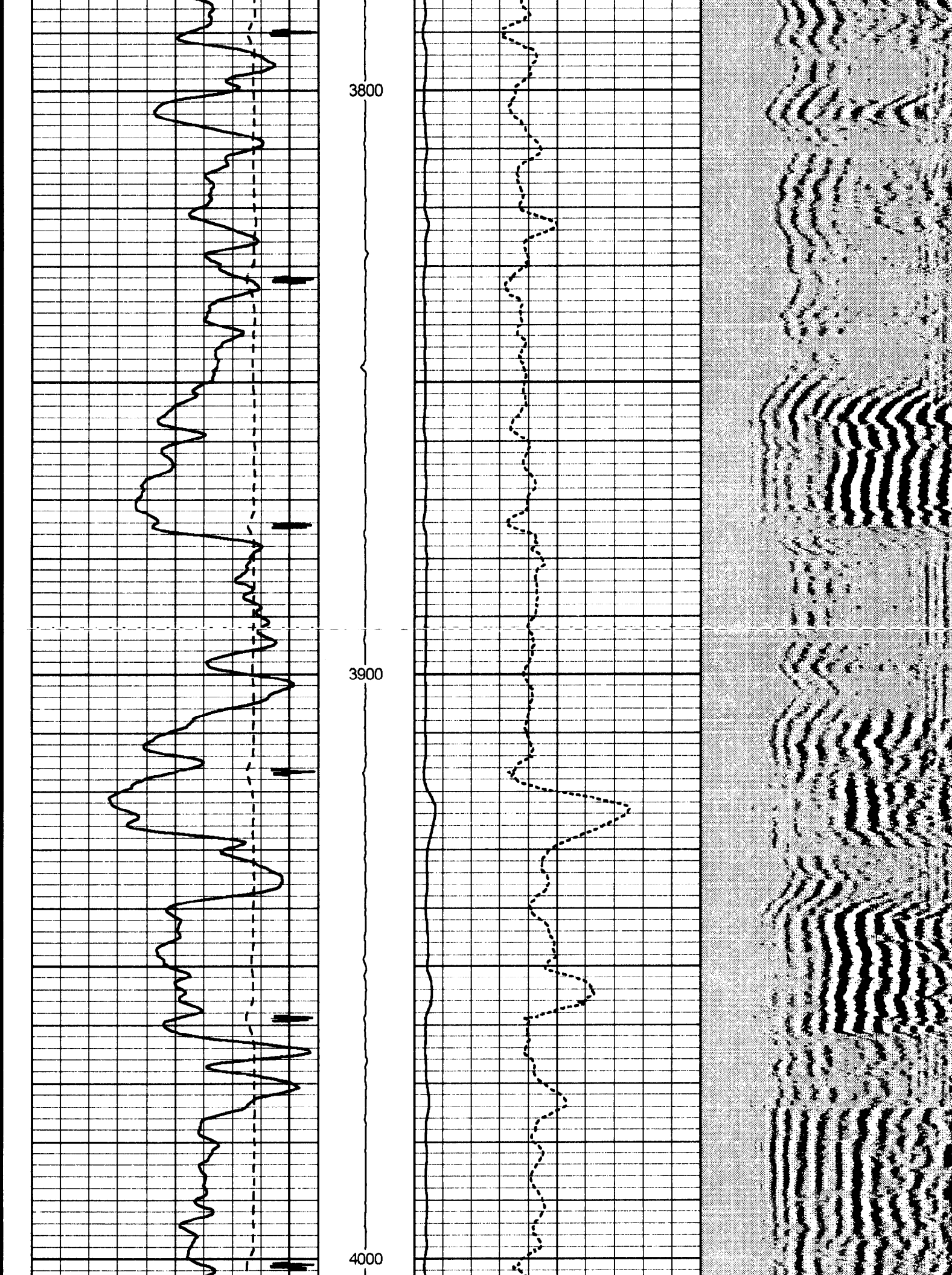
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3900
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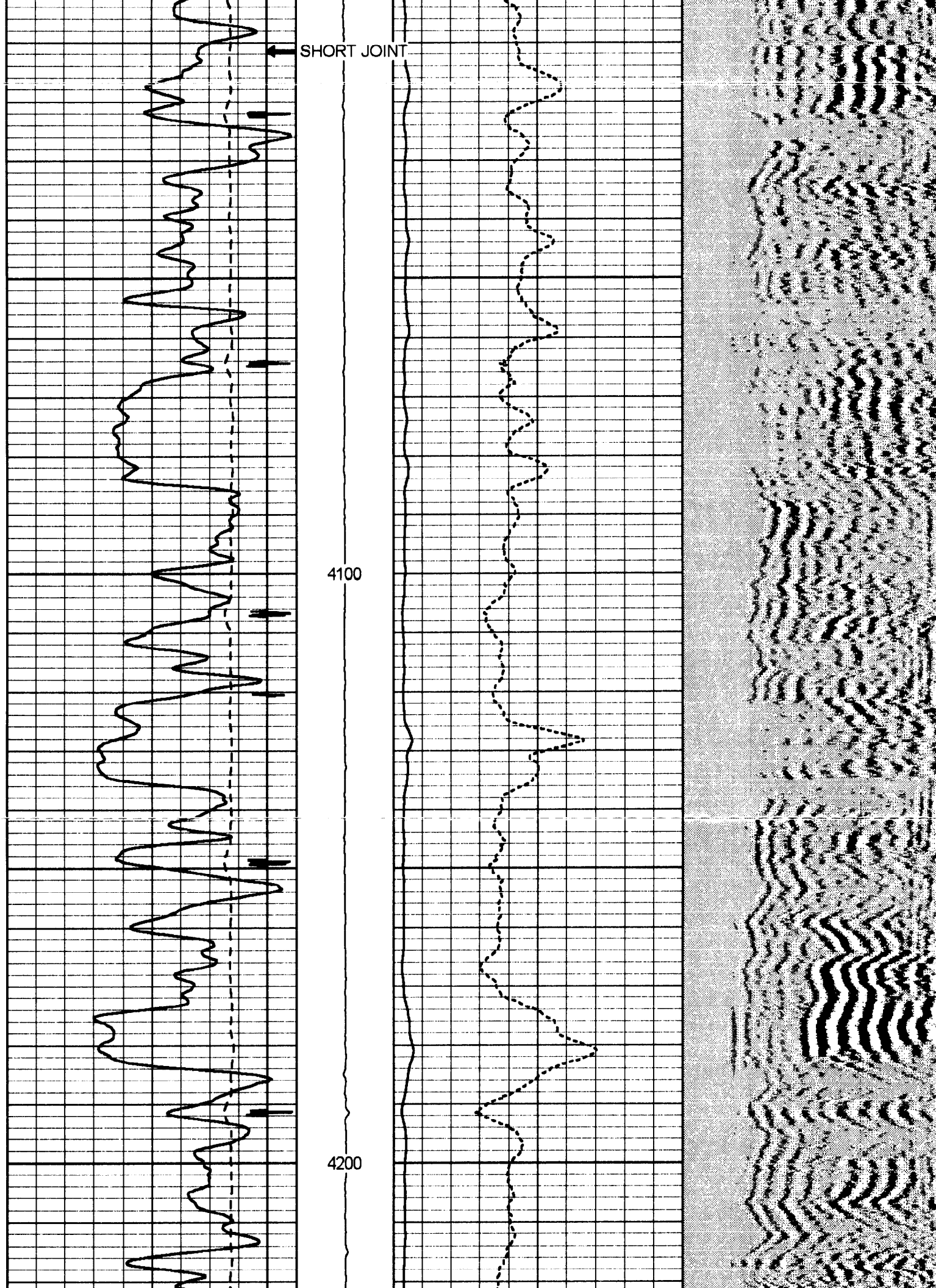
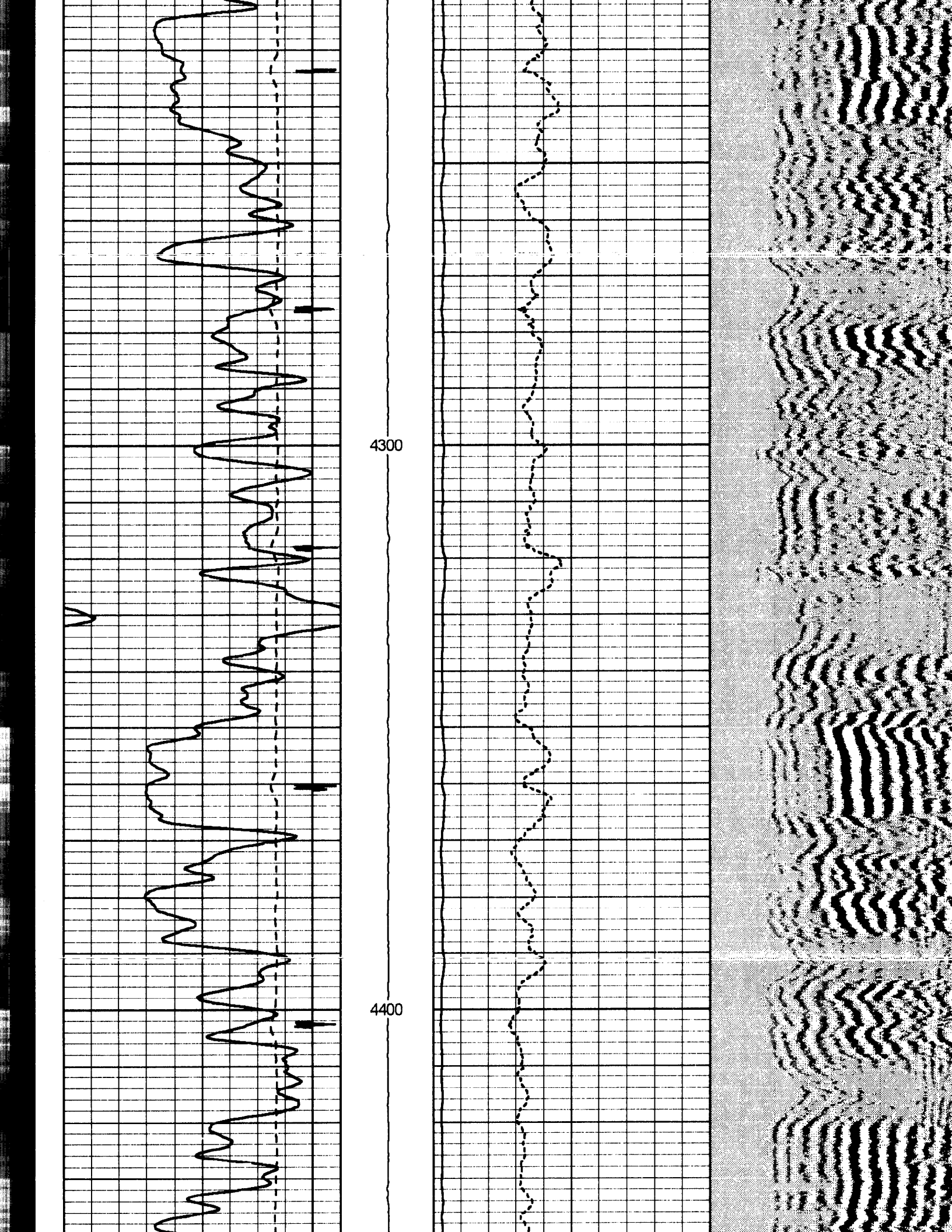

SHORT JOINT
4100
4200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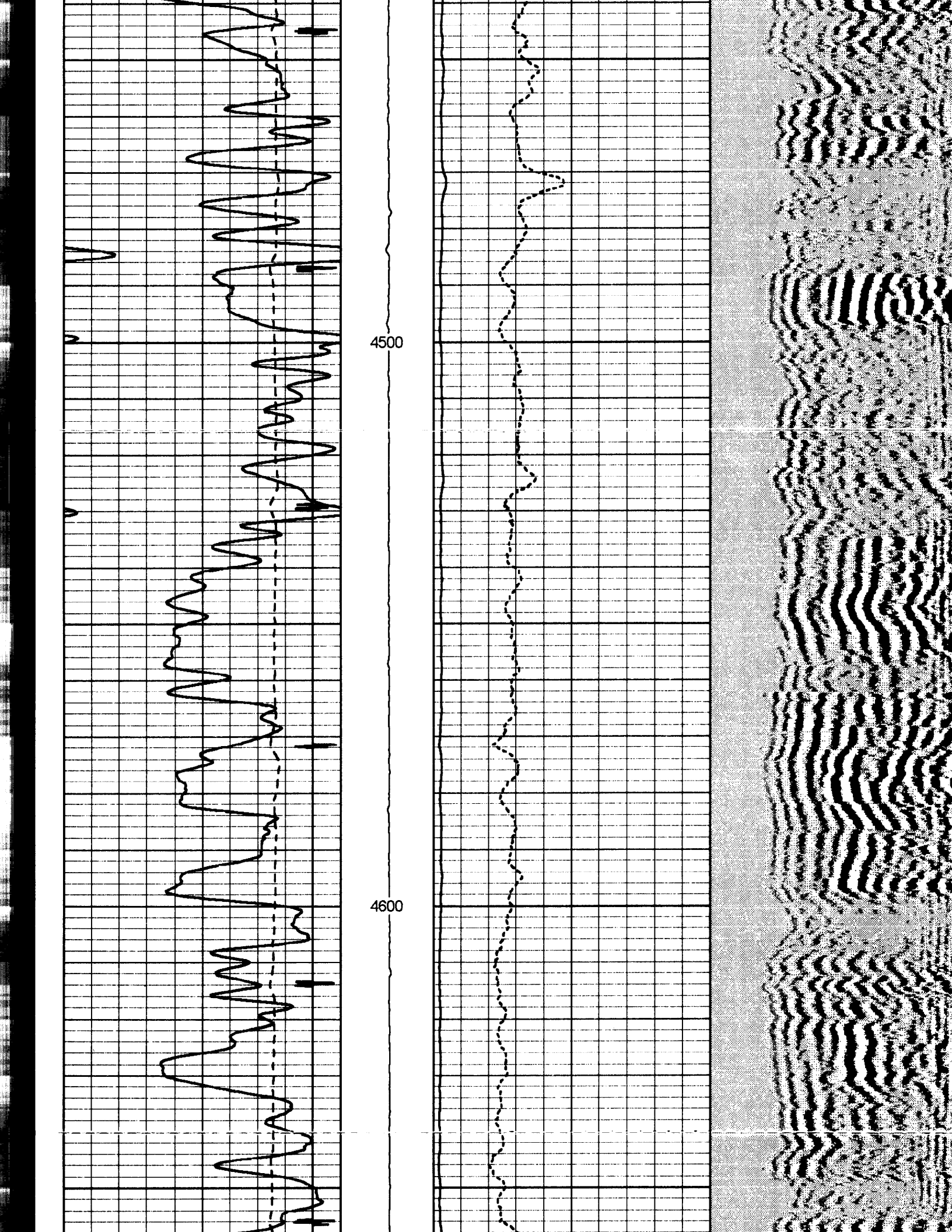
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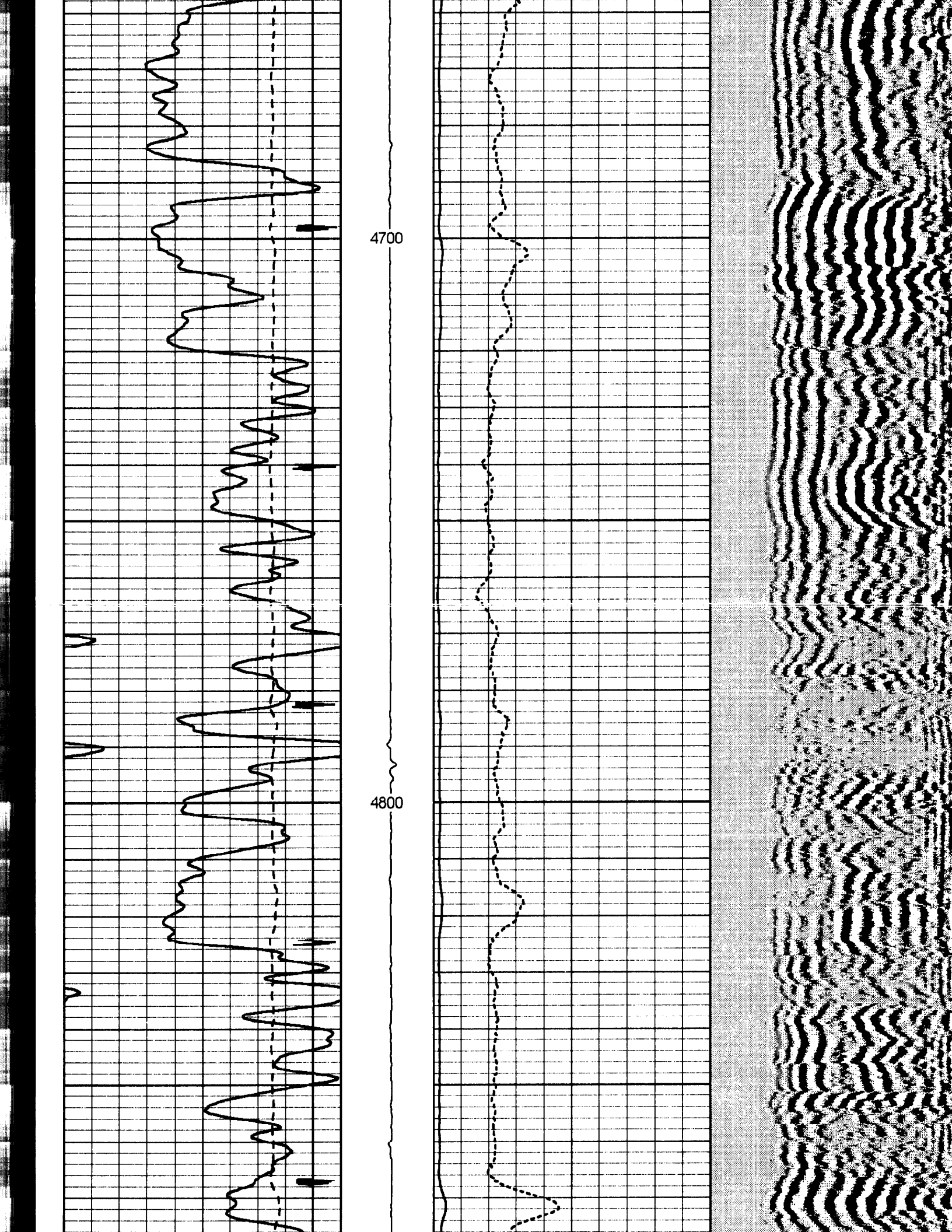
4600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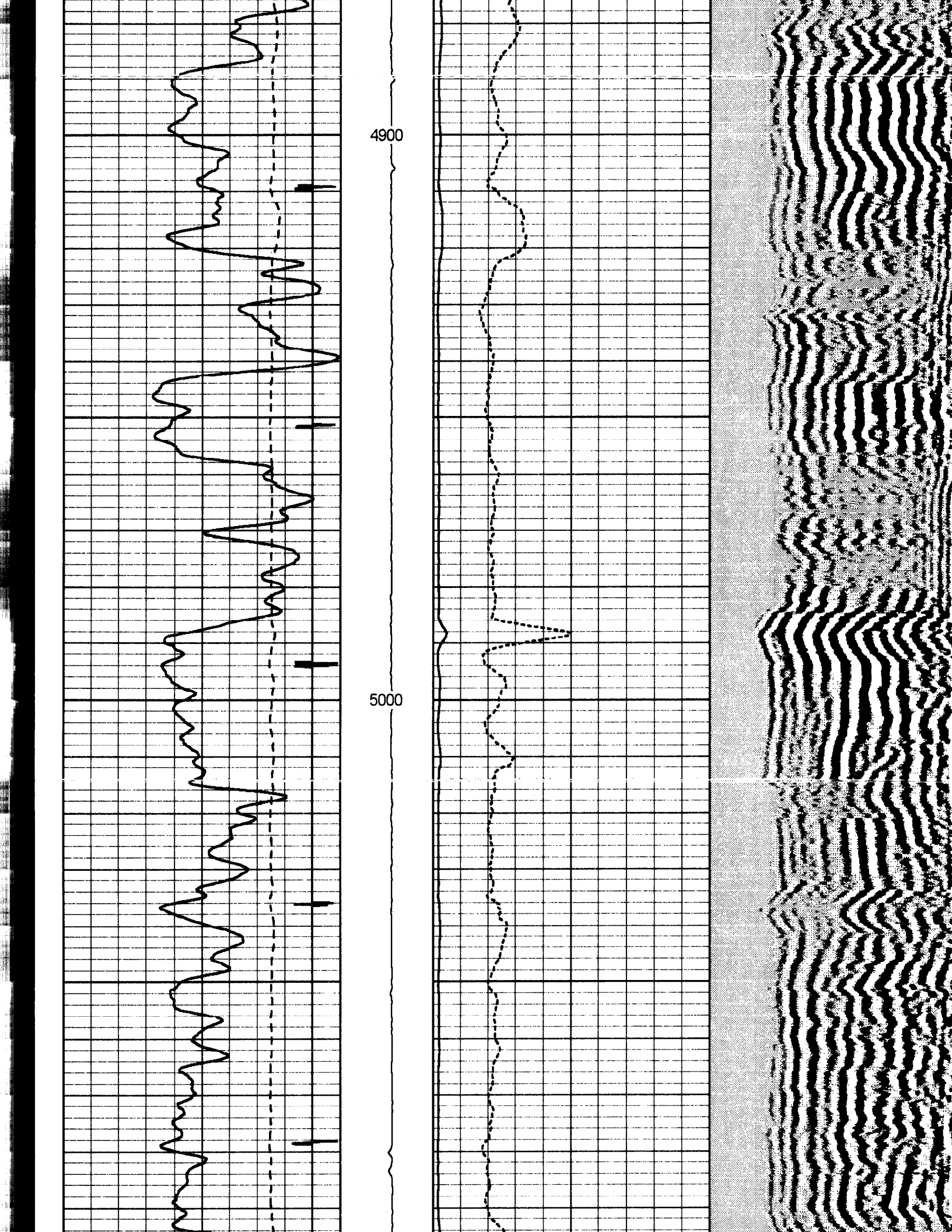
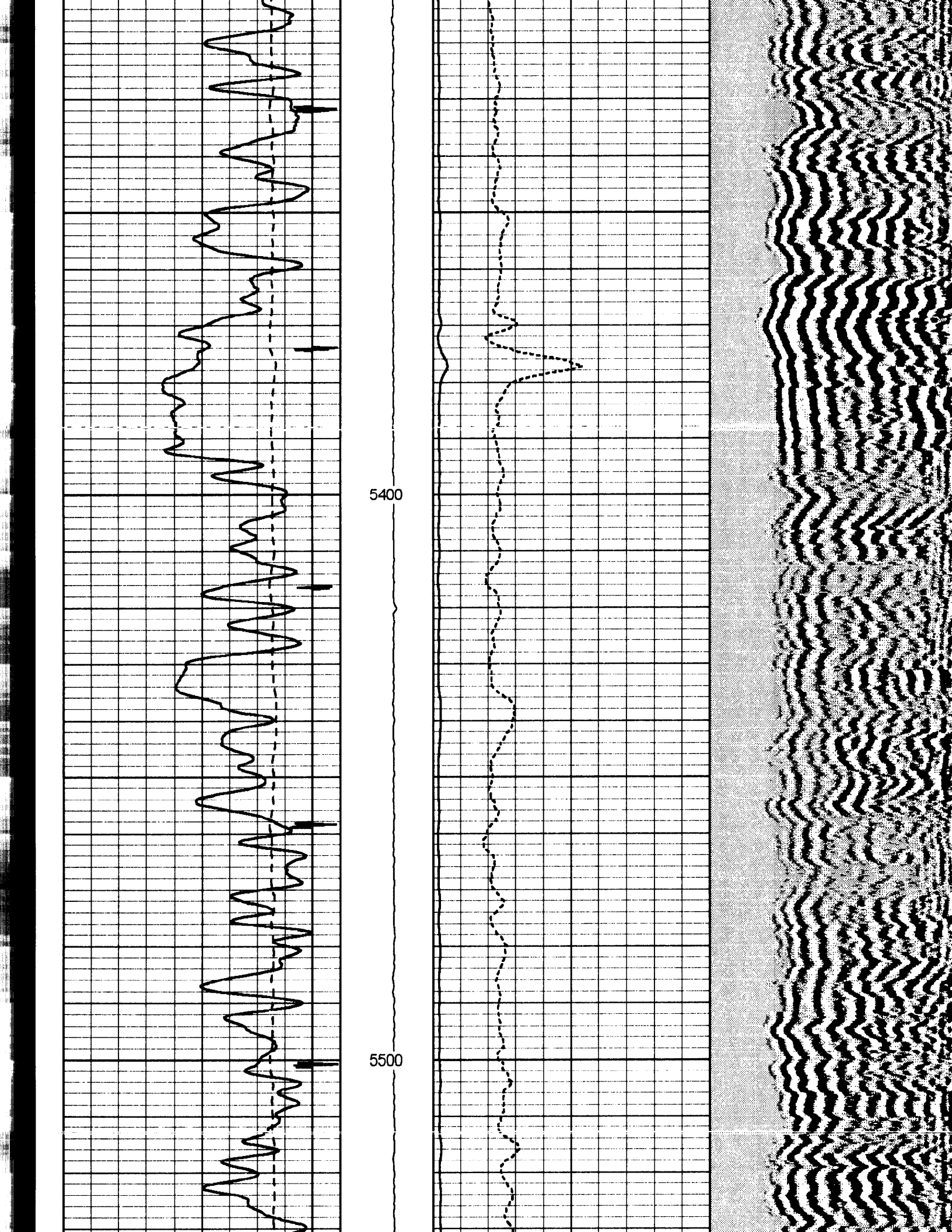

4900
5000


5100
5200
5300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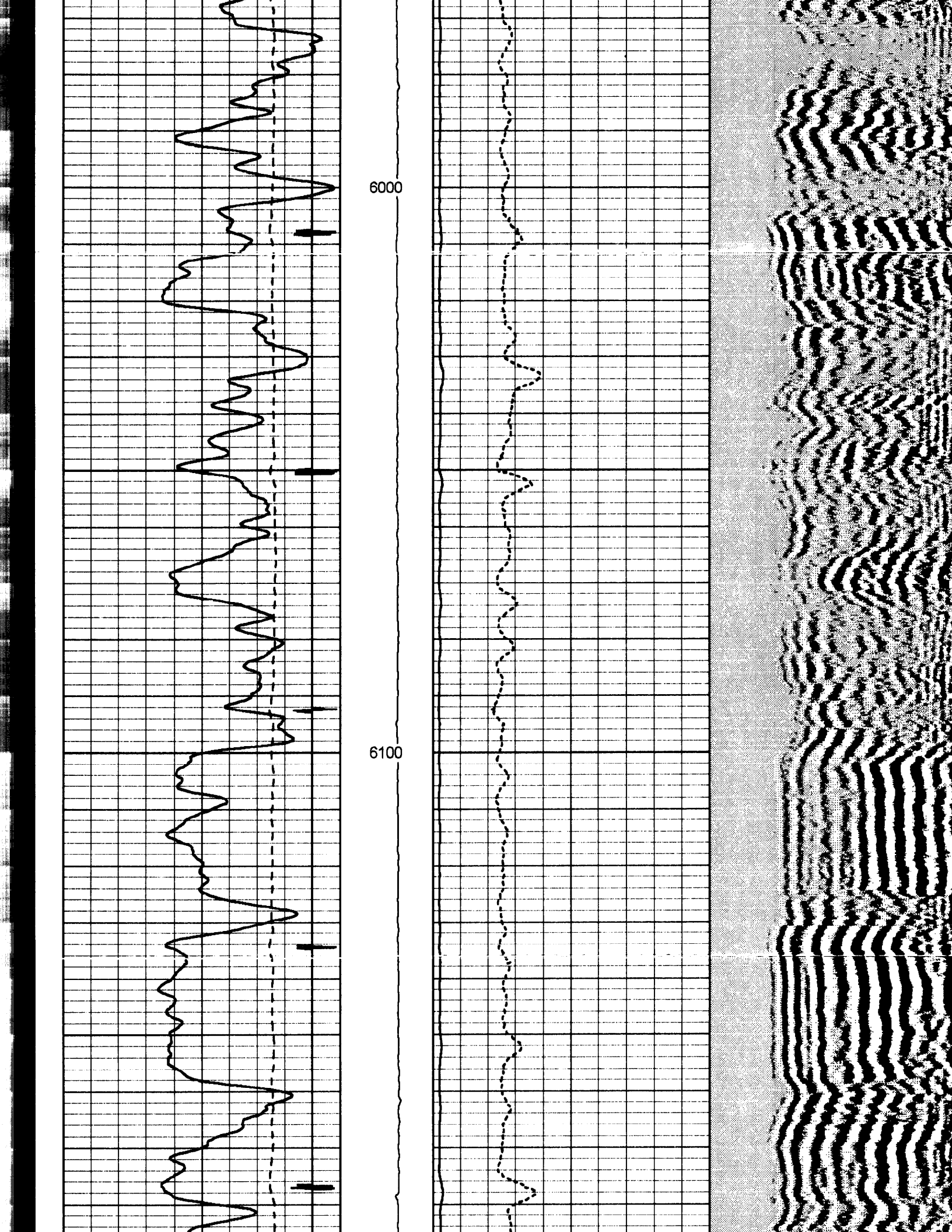
5500


5600
5700


5800
5900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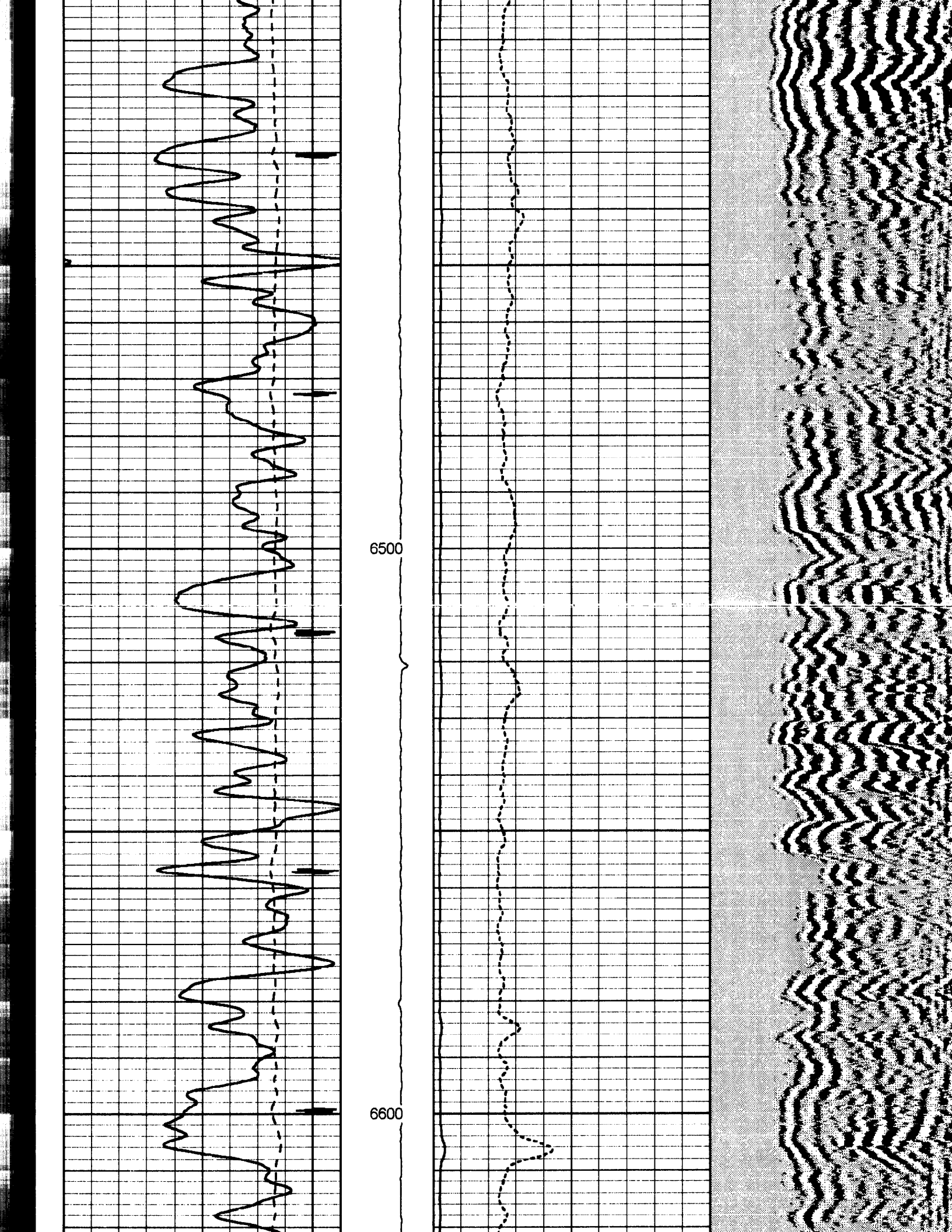
6100


6200
6300
6400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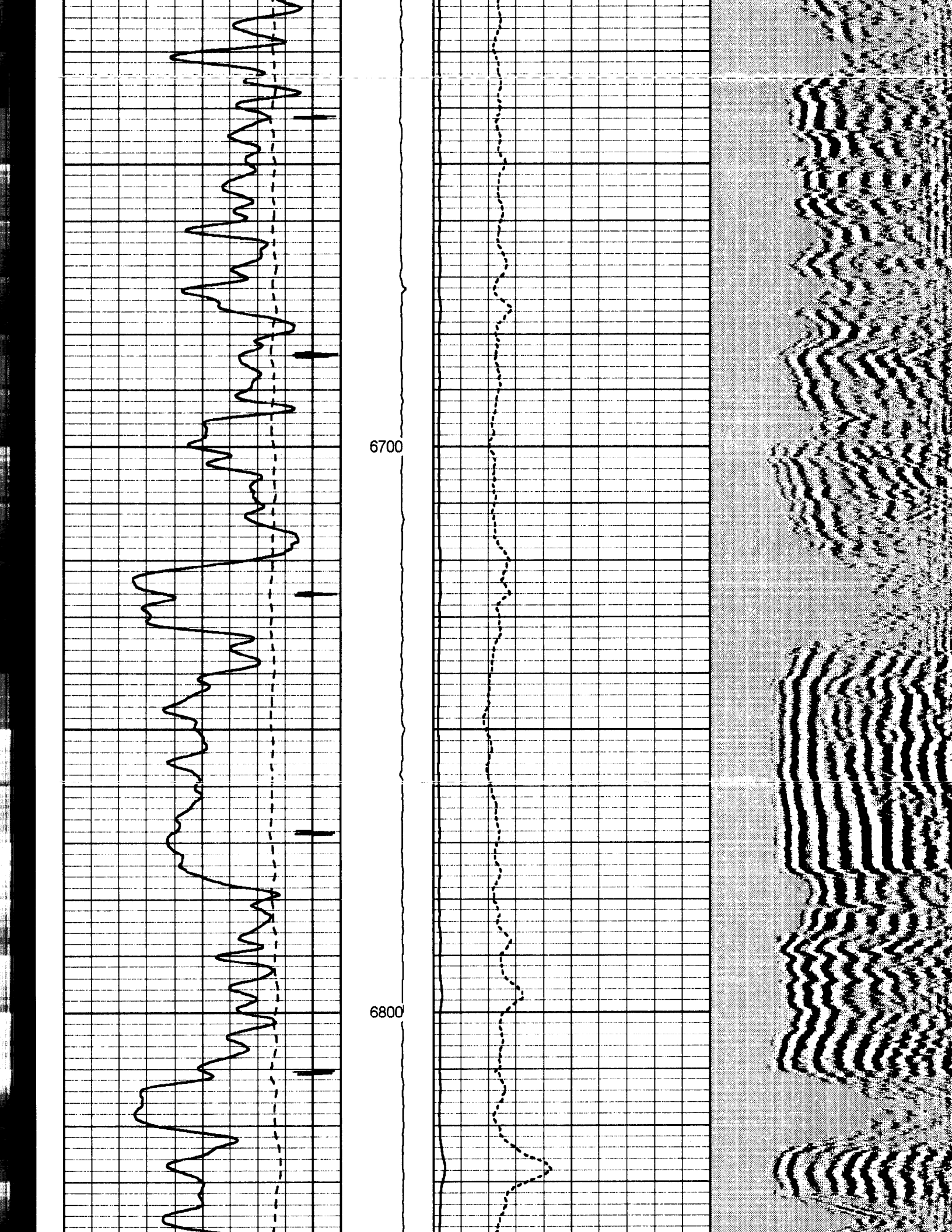
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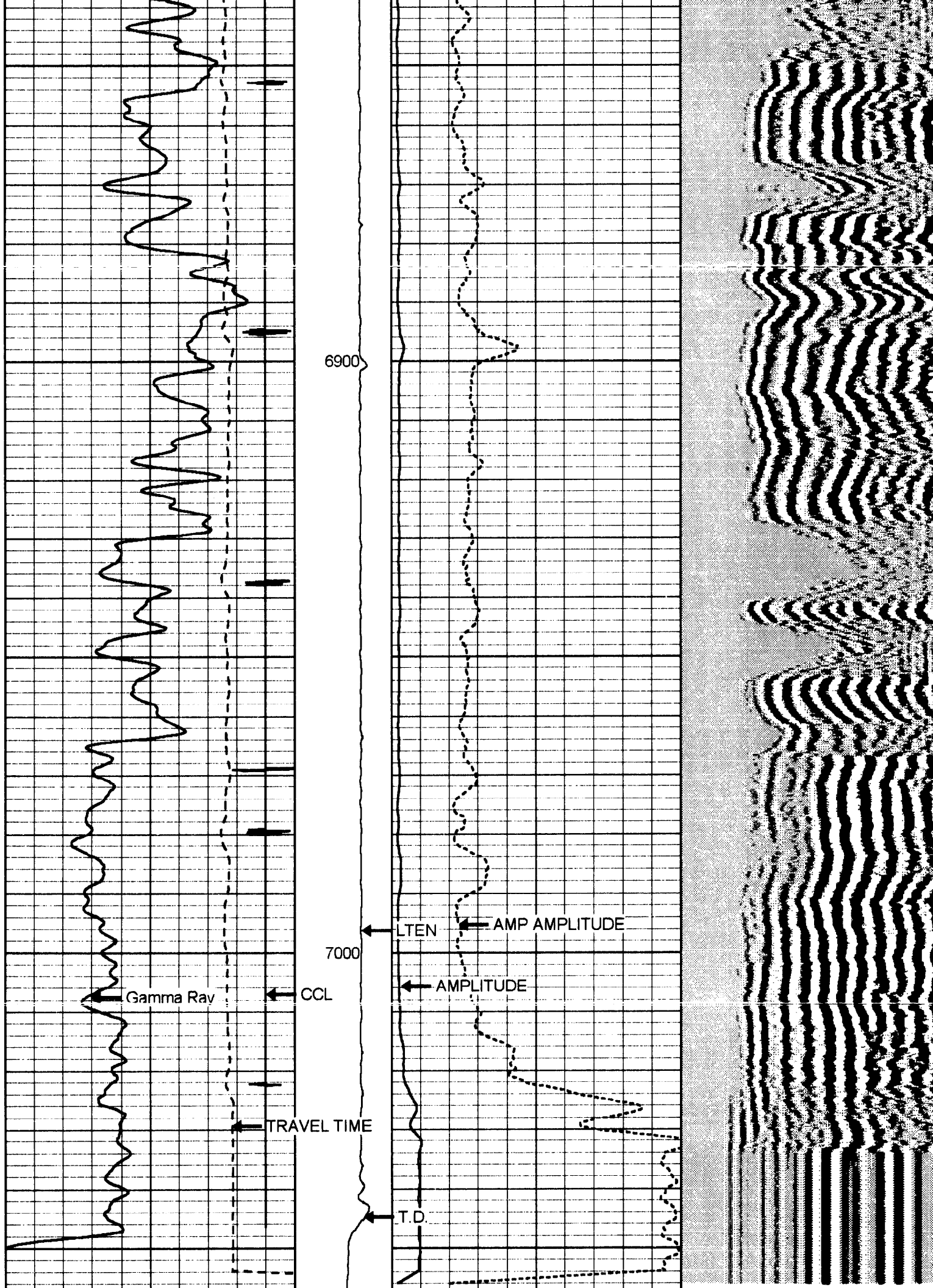
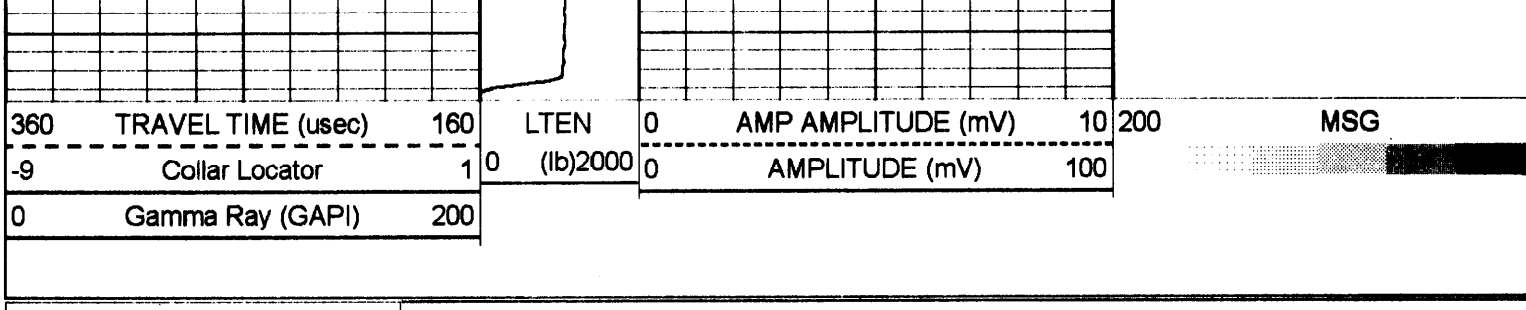

6900
7000
LTEN
AMP AMPLITUDE
AMPLITUDE
Gamma Ray
CCL
TRAVEL TIME
T.D.



HALLIBURTON

ACOUSTIC CEMENT BOND LOG

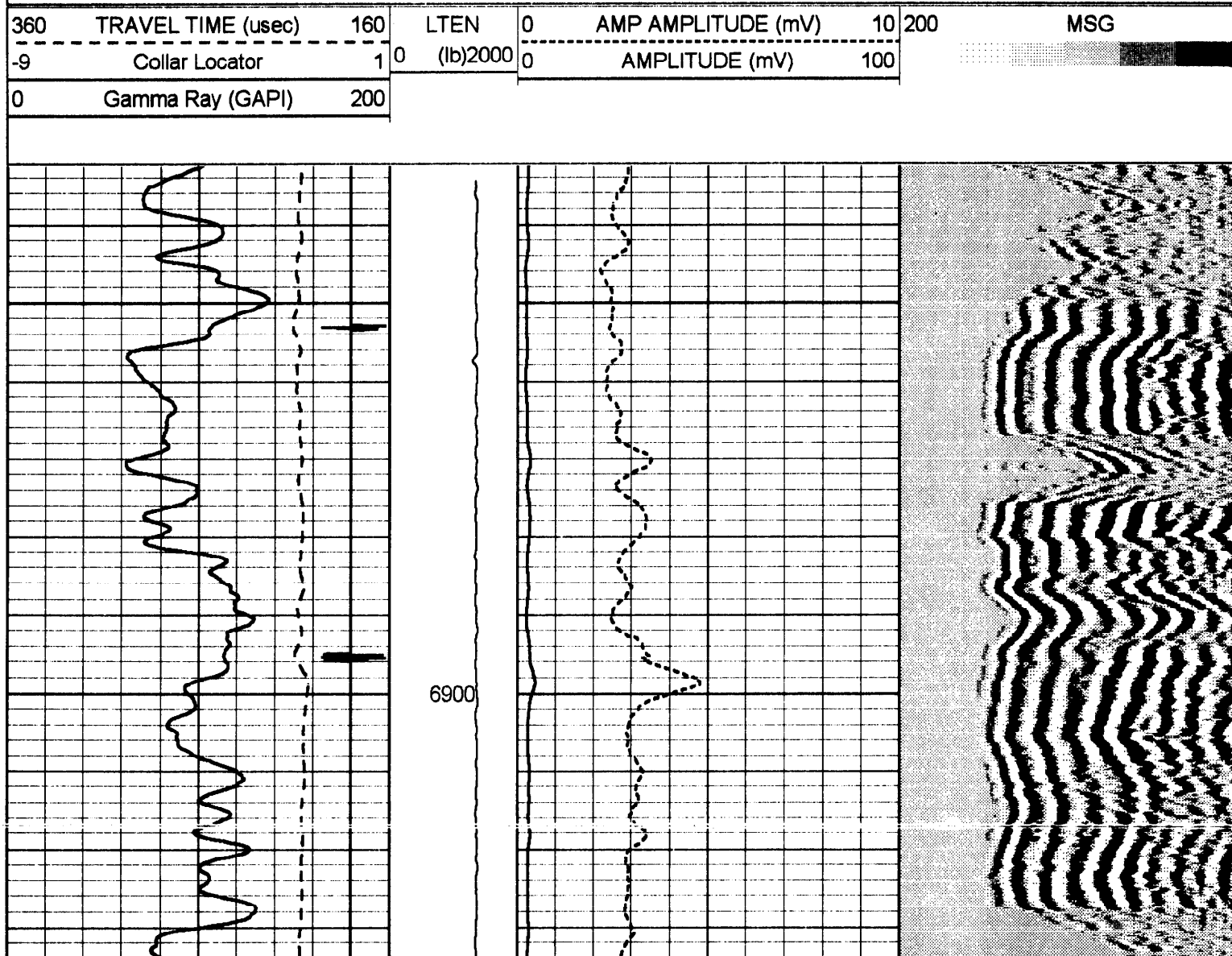
MAIN LOG SECTION
5"=100'

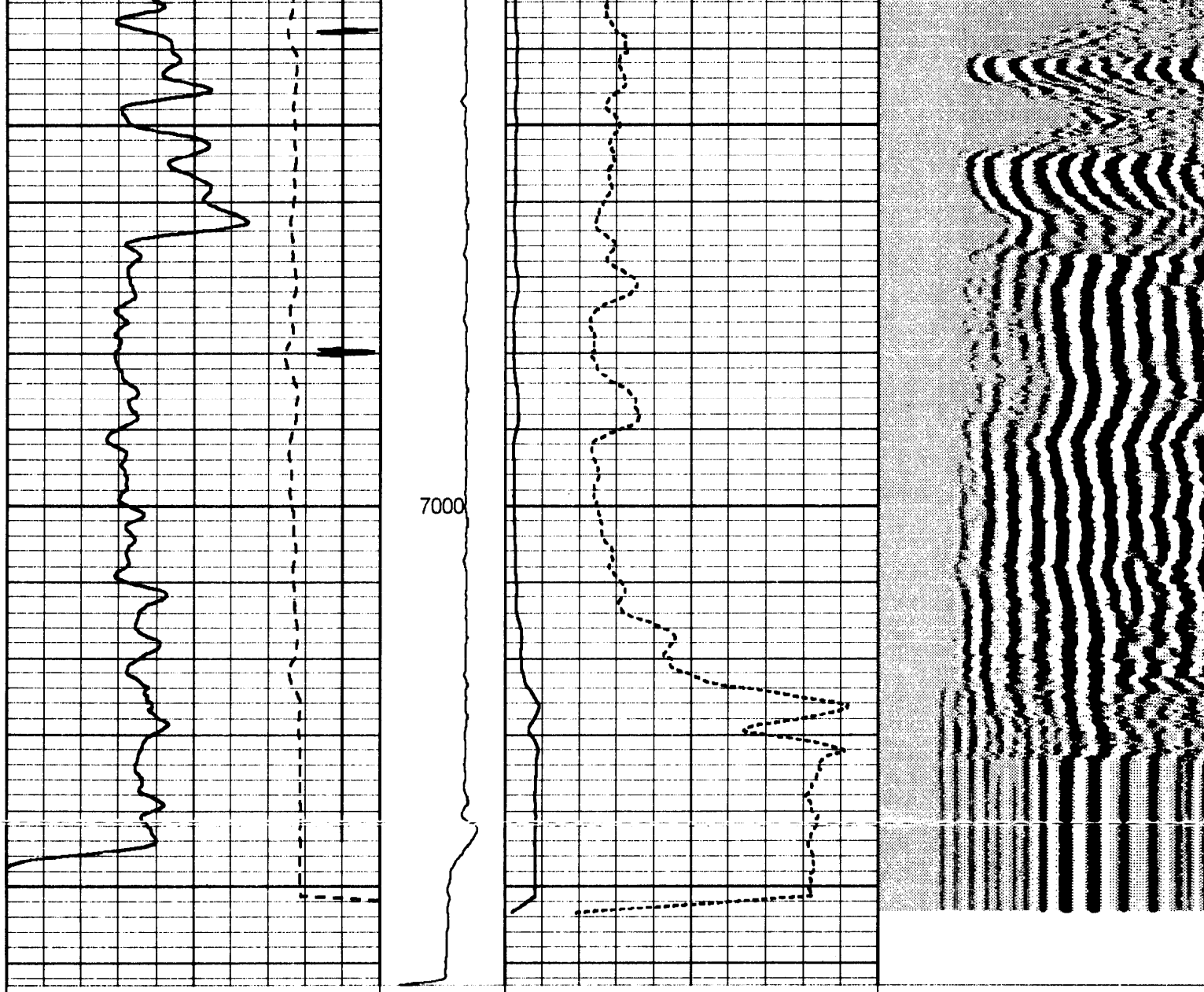
HALLIBURTON

ACOUSTIC CEMENT BOND LOG

REPEAT LOG SECTION
5"=100'

Database File:	gm_239_36_cbl.db
Dataset Pathname:	G_VALLEY/GM_239_36/run1/REPEAT2
Presentation Format:	cbl_main
Dataset Creation:	Mon Dec 31 13:38:21 2007 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240





HALLIBURTON

ACOUSTIC CEMENT BOND LOG

REPEAT LOG SECTION
5"=100'

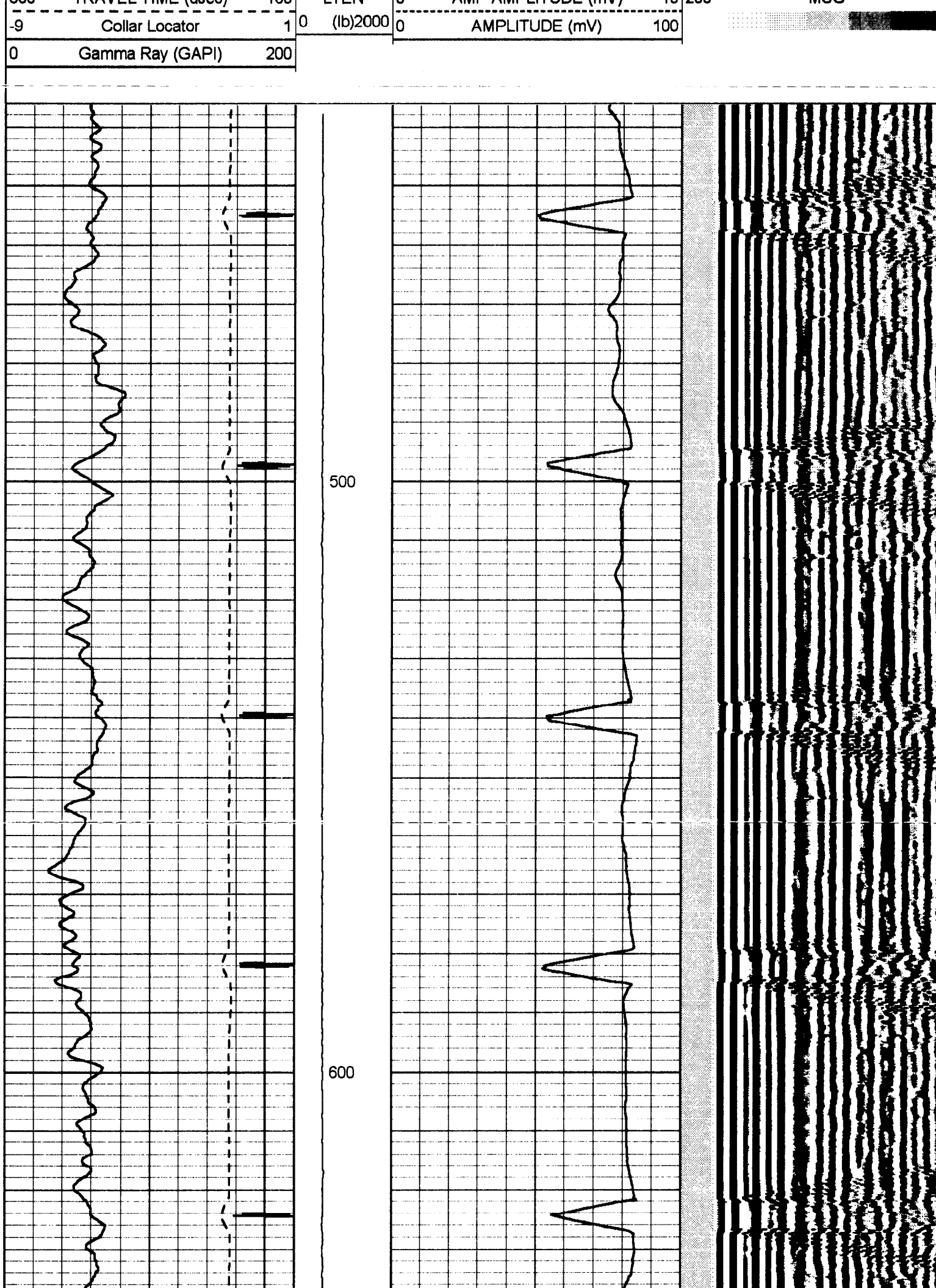
HALLIBURTON

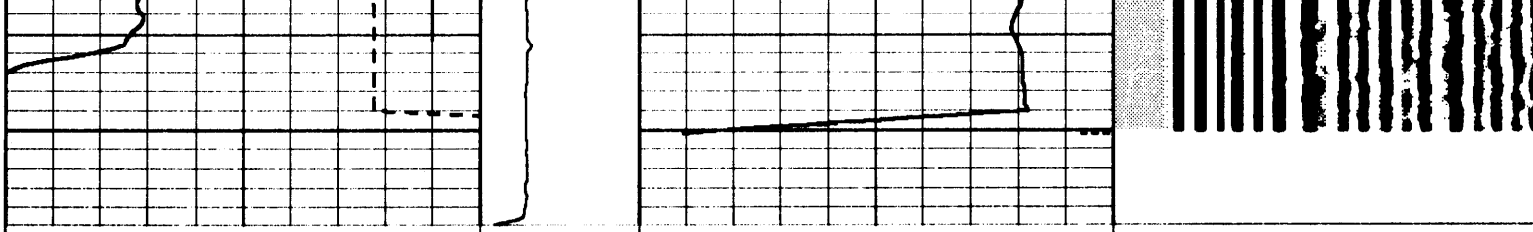
ACOUSTIC CEMENT BOND LOG

FREE PIPE LOG SECTION
5"=100'

Database File:	gm_239_36_cbl.db
Dataset Pathname:	G_VALLEY/GM_239_36/run1/LGD2
Presentation Format:	cbl_main
Dataset Creation:	Mon Dec 31 13:00:53 2007 by Log Halliburton Casedho
Charted by:	Depth in Feet scaled 1:240

360 TRAVEL TIME (usec) 160 | LTEN | 0 AMP AMPLITUDE (mV) 10 | 200 MSG


-9
Collar Locator
1
0
Gamma Ray (GAPI)
200
0
(lb)2000
0
AMPLITUDE (mV)
100
500
600



HALLIBURTON

ACOUSTIC CEMENT BOND LOG

FREE LOG SECTION
5"=100'

Calibration Report

Database File: gm_239_36_cbl.db
Dataset Pathname: G_VALLEY/GM_239_36/run1/MAIN_CBL
Dataset Creation: Mon Dec 31 15:30:28 2007

Gamma Ray Calibration Report

Serial Number:	641	
Tool Model:	CBL_DC	
Performed:	Mon Dec 31 13:00:49 2007	
Calibrator Value:	252.0	GAPI
Background Reading:	67.7	cps
Calibrator Reading:	271.5	cps
Sensitivity:	0.8600	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	641	
Tool Model:	CBL_DC	
Calibration Casing Diameter:	4.500	in
Calibration Depth:	645.353	ft

Master Calibration, performed Mon Dec 31 13:00:12 2007:

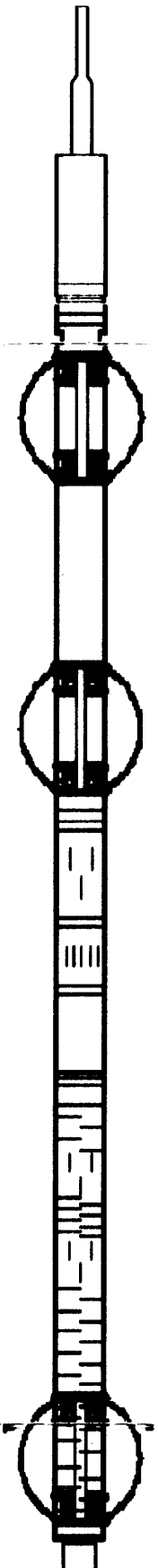
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3' CAL	0.017	1.472	2.000	82.000	48.476	1.079
5'	0.005	1.141	2.000	82.000	70.422	1.642

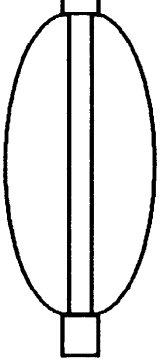
Internal Reference Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL						

Air Zero Calibration, performed Wed Dec 31 17:00:00 1969:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (
			HAL HAL Cable Head	1.92	1.44	10.(
			CBL_DC	1.92	3.25	5.0
CCL	19.00					
GR	16.83					
			CBT_CBL_DC-CBL_DC (641) G-Type 3 1/4" Standard CBL TOOL	16.08	3.25	200.
WVF3FT	10.59					
WVF5FT	9.59					
WVFSYNC	4.50					



		JLATCH	4.50	3.38	50.0
LLMTEN	0.00				

Dataset:	gm_239_36_cbl.db: G_VALLEY/GM_239_36/run1/MAIN_CBL
Total Length:	24.42 ft
Total Weight:	265.00 lb
O.D.	3.38 in

Company	WILLIAMS PRODUCTION CO
Well	GM 239-36
Field	GRAND VALLEY
County	GARFIELD
State	CO

HALLIBURTON

ACOUSTIC CEMENT
BOND LOG

Neutron Density Log

HALLIBURTON

RMTE
RECEIVED
JAN 23 2008
COGCC

01351796

COMPANY WILLIAMS PRODUCTION CO
WELL GM 239-36
FIELD GRAND VALLEY
COUNTY GARFIEDL STATE CO

COMPANY WILLIAMS PRODUCTION CO
WELL GM 239-36
FIELD GRAND VALLEY
COUNTY GARFIEDL STATE CO

API No. 05045146930000
Location ~~2122' FSL~~ & 1638' FWL

Other Services

Sect 36 Twp 06S Rge 96W

Permanent Datum GROUND LEVEL Elev 5597
Log measured from KB 15 above perm. datum
Drilling measured from KB

Elev.: K.B. 5612'
D.F. 5611'
G.L. 5597'

Date	12-31-07			
Run No.	ONE			
Depth – Driller	7116			
Depth – Logger	7045			
Bottom – Logged Interval	7037			
Top – Logged Interval	3803			
Type fluid in hole	WATER			
Salinity, PPM NaCl				
Density	8.4			
Level	FULL			
Max. rec. temp., deg F.	220 F			
Operating rig time				
Hoist Unit / Location	/	/	/	/
Inst. Unit / Location	/	/	/	/
Recorded by	ARRASCUE			
Witnessed by				

BOREHOLE RECORD			CASING & TUBING RECORD			
Bit	From	To	Size	Wgt.	From	To

Fold Here

Service Ticket No.: 5571137
API Serial No.: 05045146930000
PGM Version: XL v5.1

EQUIPMENT DATA

GAMMA		NEUTRON GENERATOR	
Run No.		Run No.	
Serial No.		Gen Hsg s/n	
Model No.		Inst Hsg s/n	
Diameter		Case Diameter	
Detector Model No.		Detector 1 s/n	
Type		Detector 2 s/n	
Length		Generator s/n	
Distance to Source		Fluid Excluder	

LOGGING DATA

GENERAL			GAMMA					NEUTRON GENERATOR				
Run No.	Depth		Speed	Filter	Scale			Input Filter	Output Filter	Borehole		Scale
	From	to	Ft / Min	Type	L	R		Type		Option		L
Date of Last Survey												

DIRECTIONAL INFORMATION

Maximum Deviation		deg. @		KOP	

Remarks:

CORRELATED TO HES CBL DATED 12-31-07

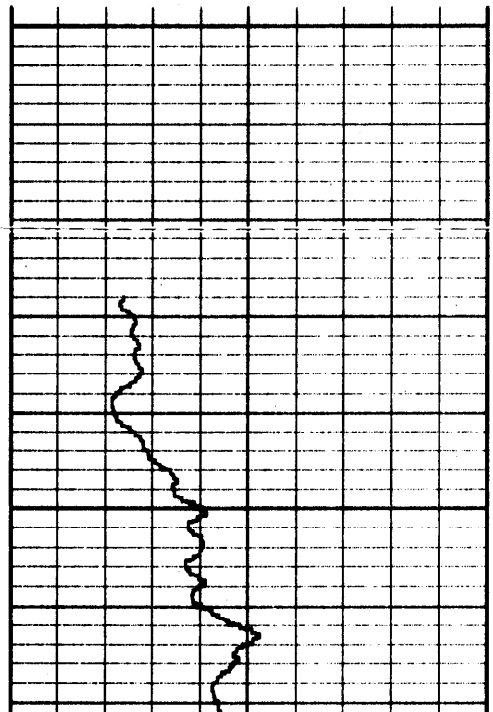
SHORT JOINT: 4001'-4022'

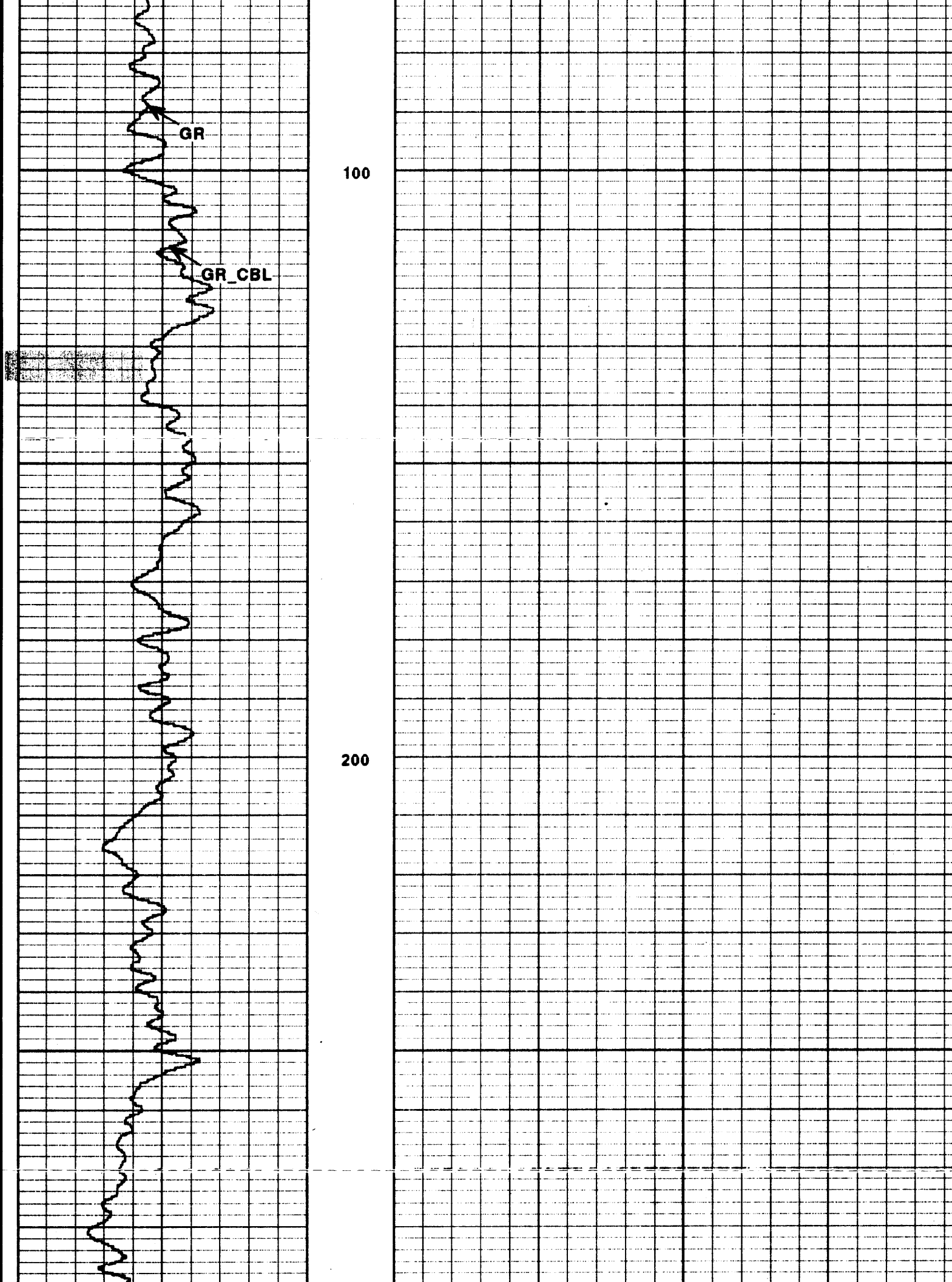
HALLIBURTON

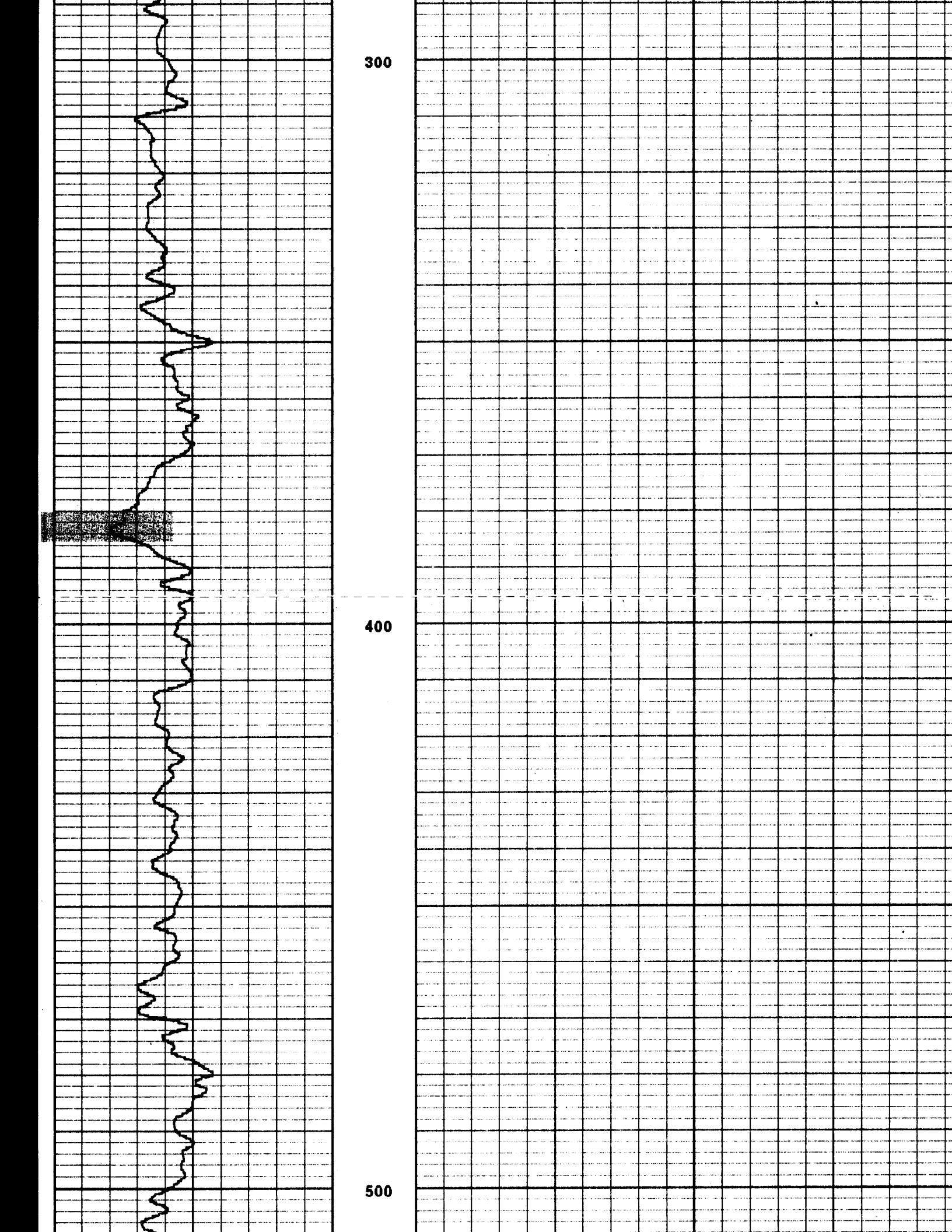
Version No: | hc:3.0
Data File: TEMP.cls
Format File: RMT_OVERLAY.spc
Plot Time: 2008-01-03 14:32:34
Database Time: 14:24:39

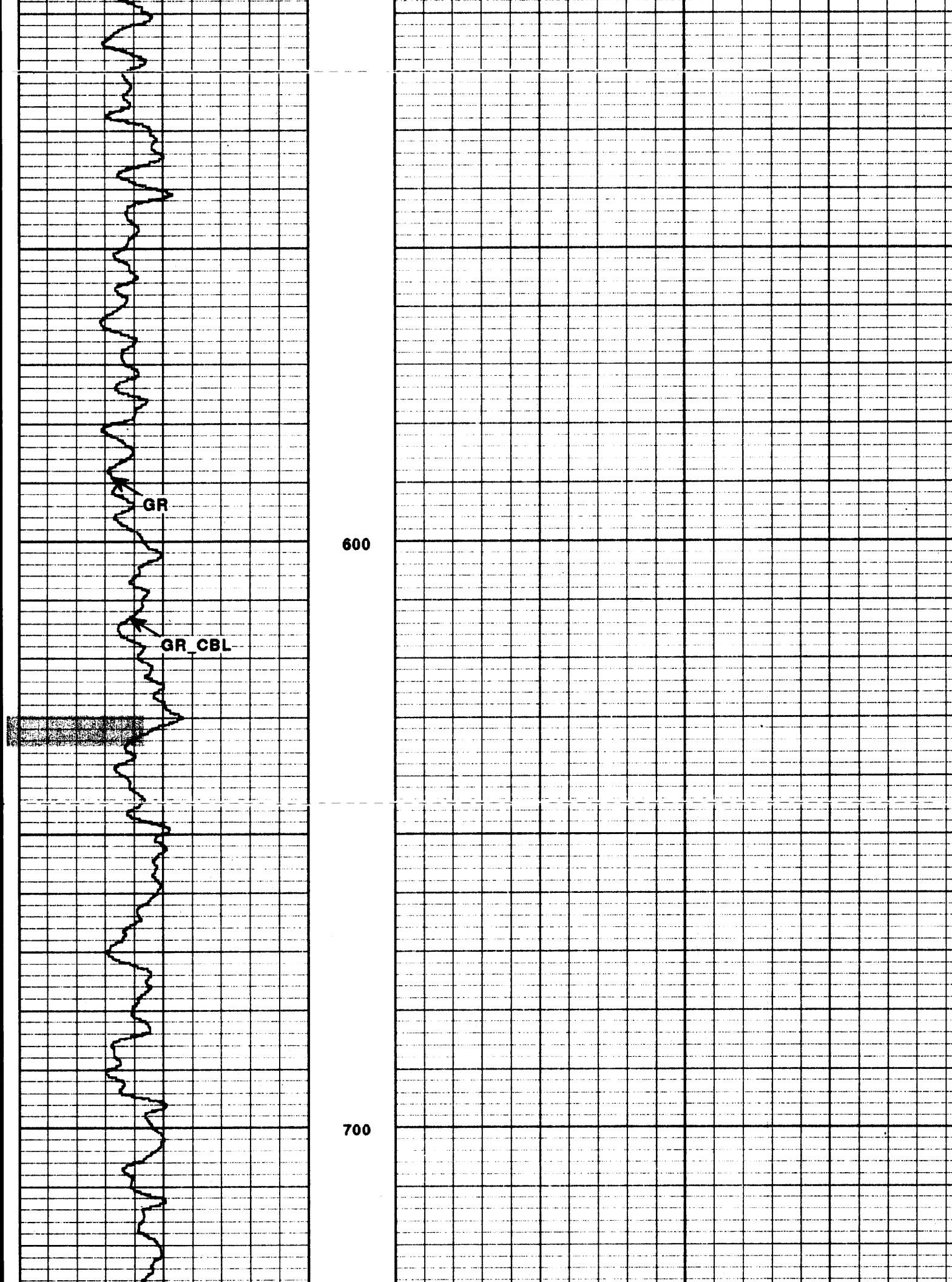
Top Depth: -1.91
Bottom Depth: 7075.29

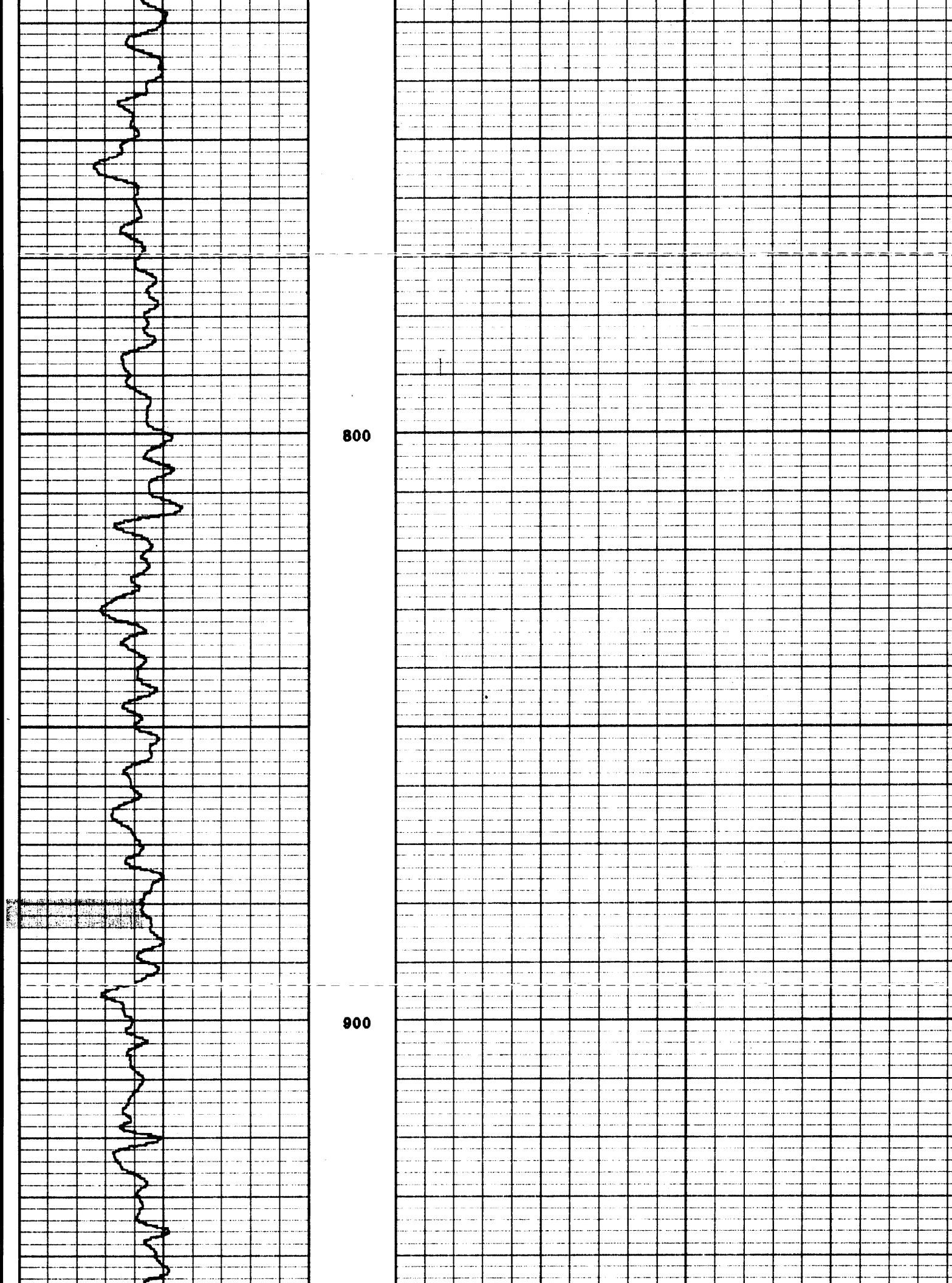
COAL		GAS	GAS / GAS
GR 0 – 200	1:240 FT.	RNF 0 – 8	RNF 8
CCL 500 – -50		SGFM 45 – 0	RIN 0
YH2 1 – 0			FCAP 70000
GR_CBL 0 – 200			NCAP 67000




GR
GR_CBL
100
200


300
400
500


GR
GR_CBL
600
700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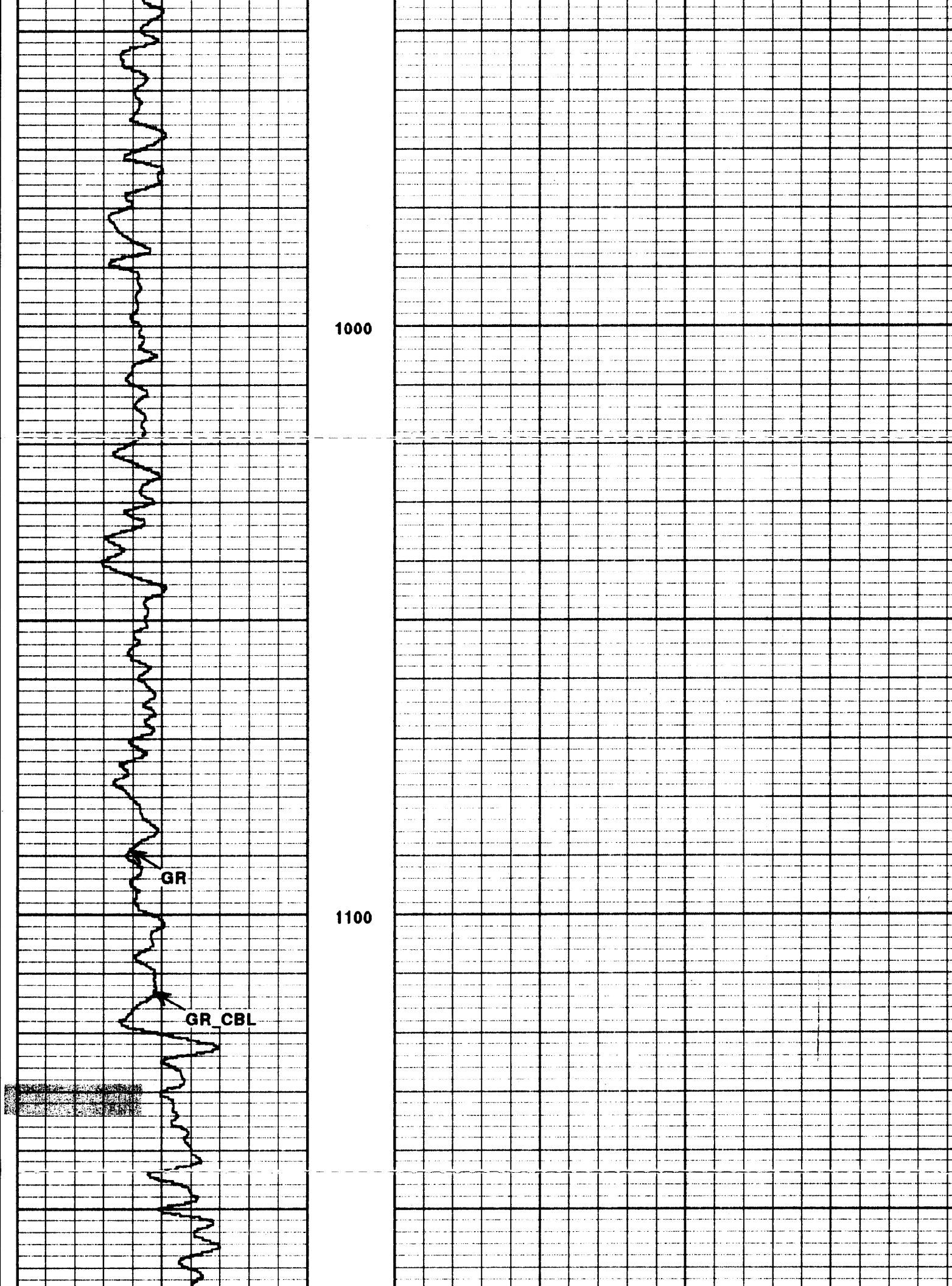
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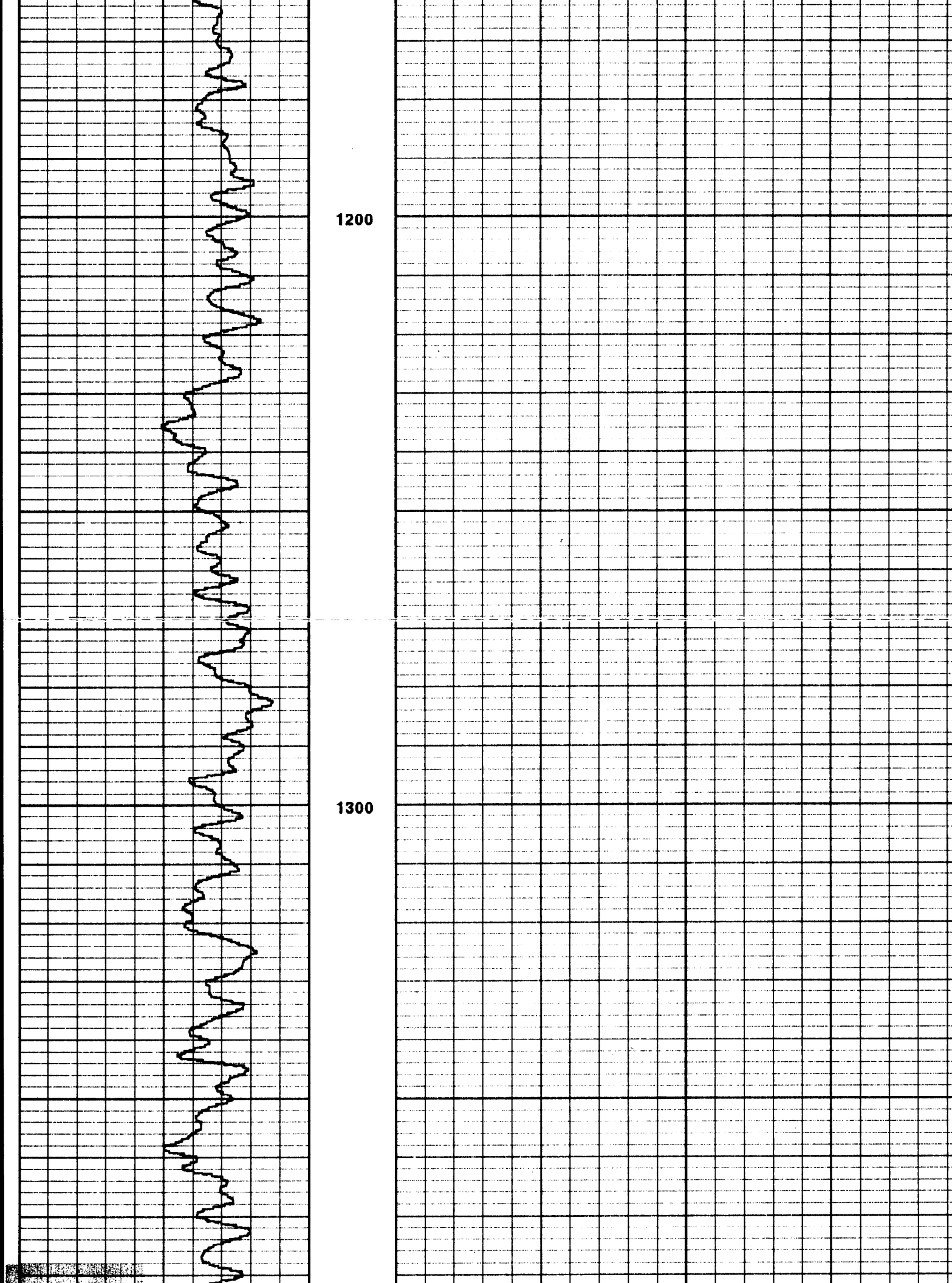
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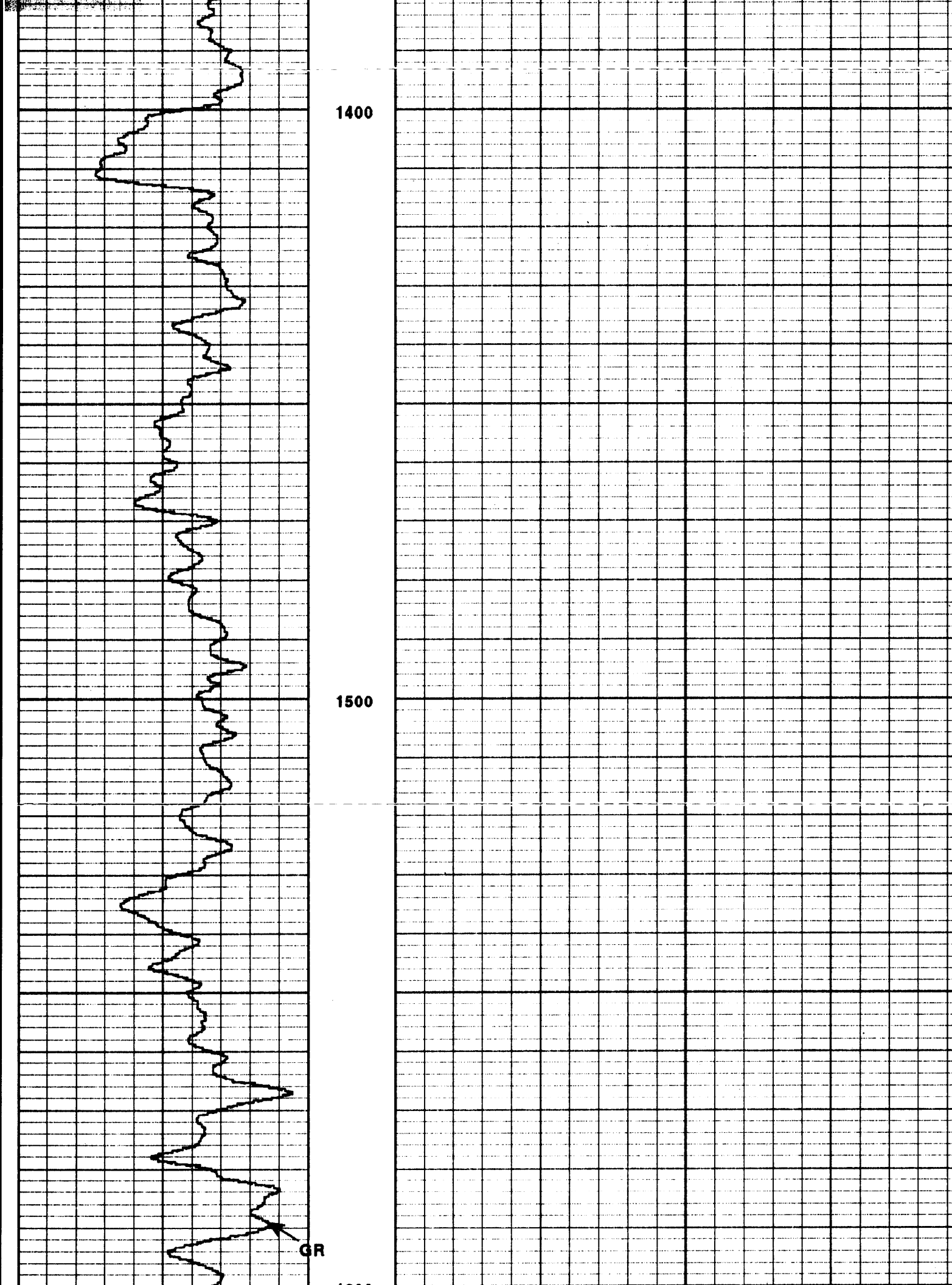
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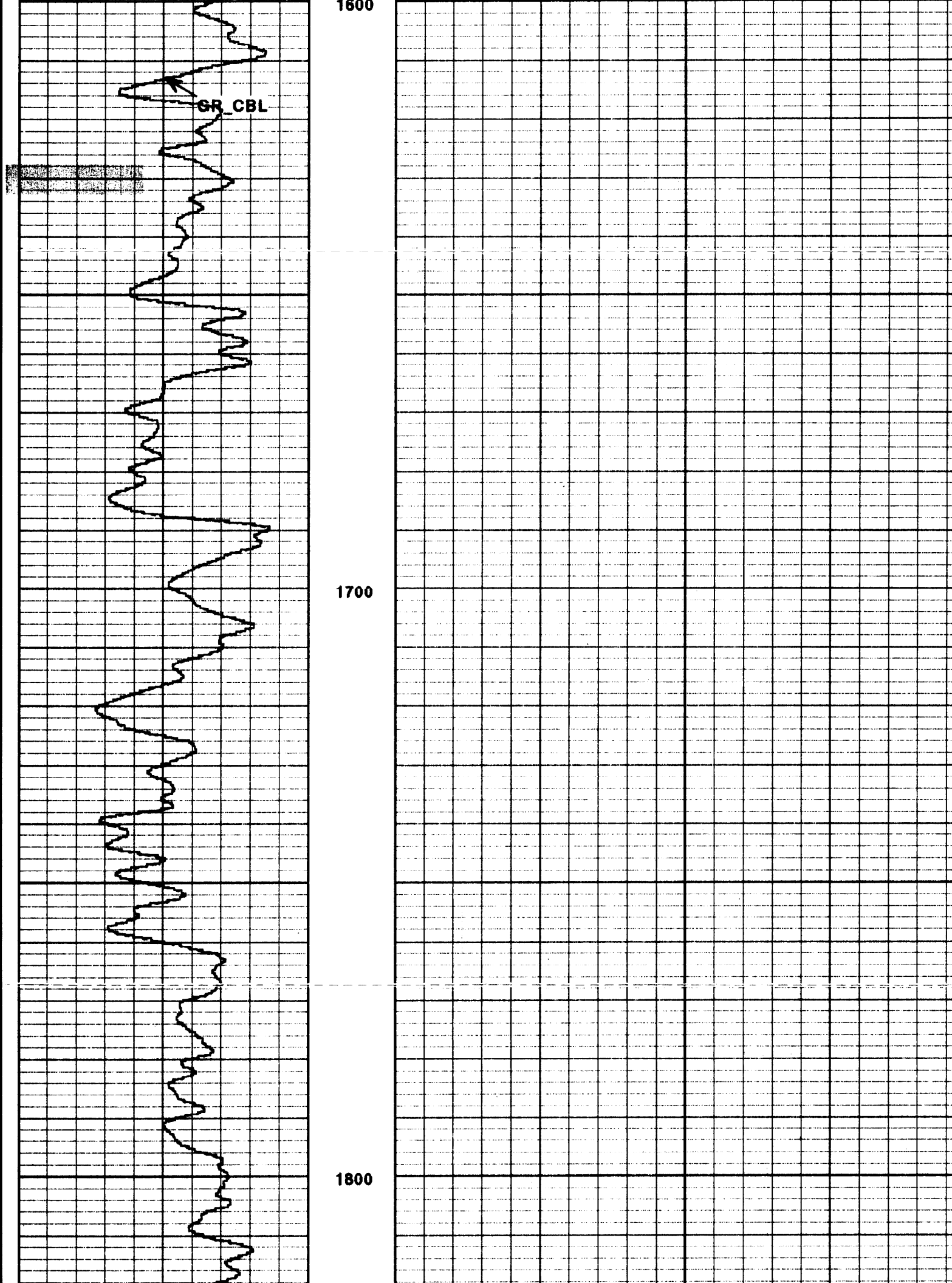
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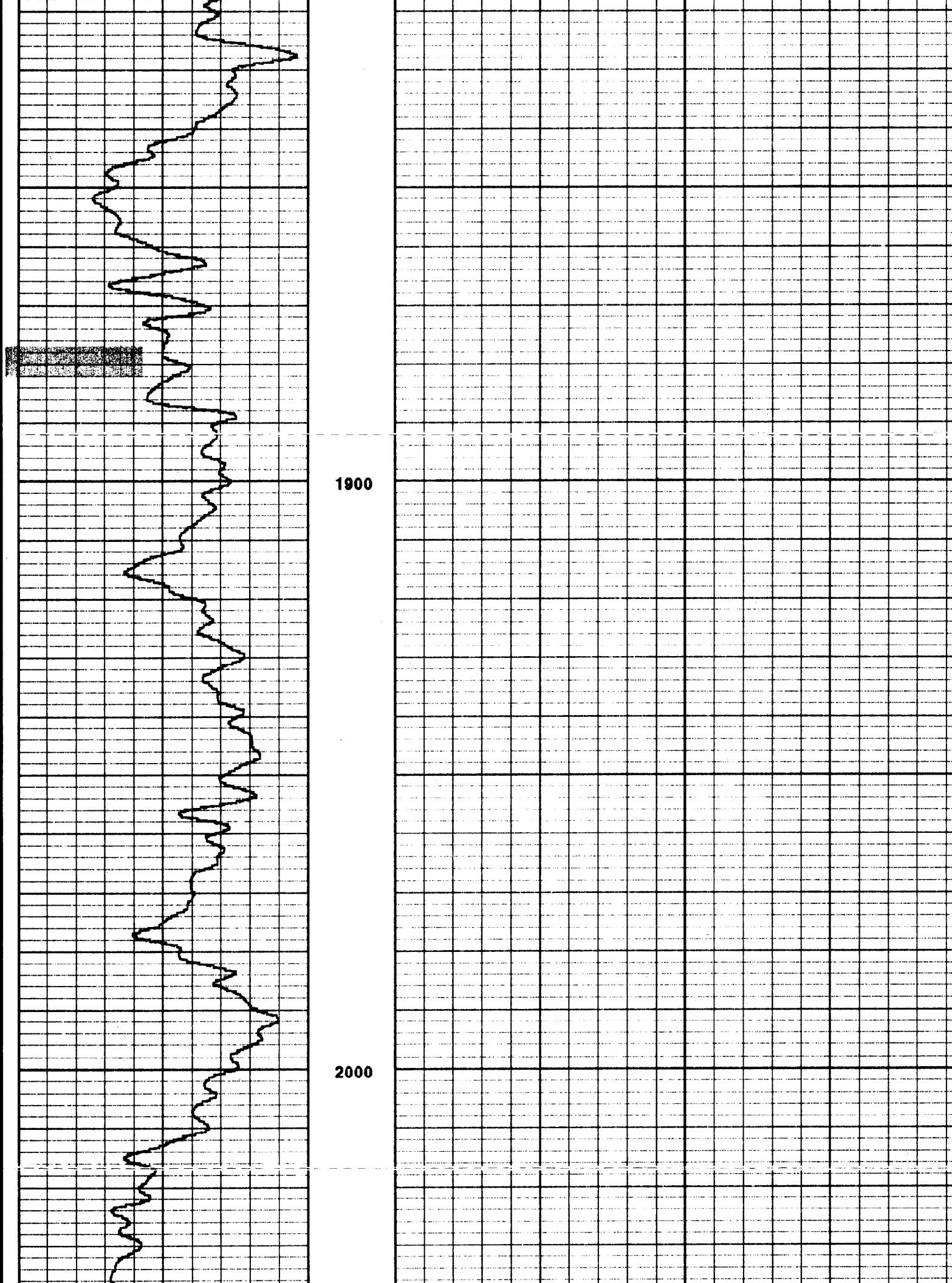
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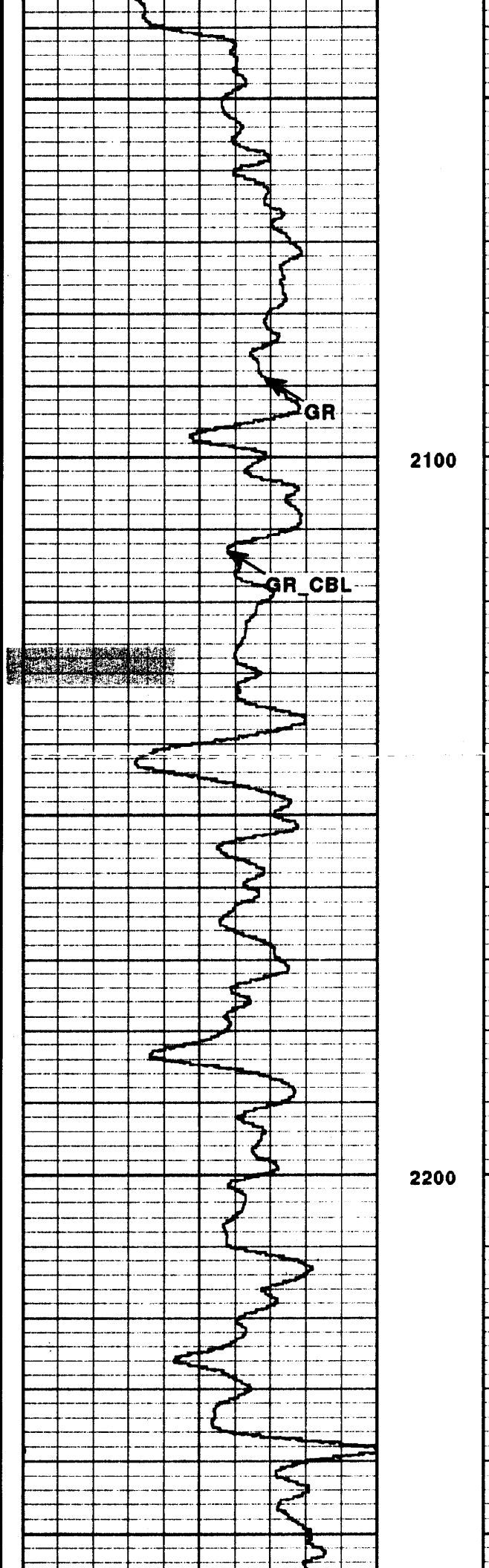
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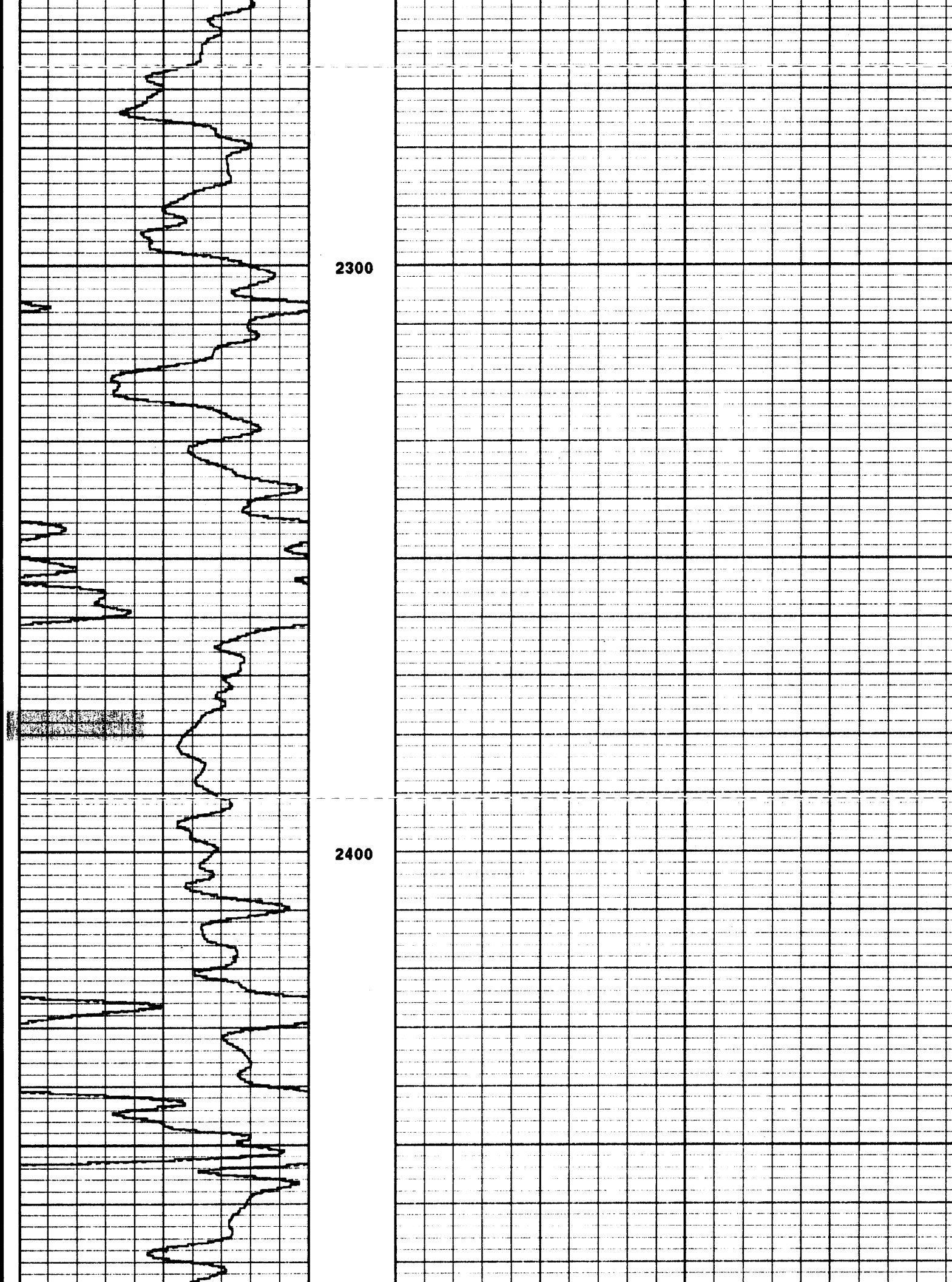
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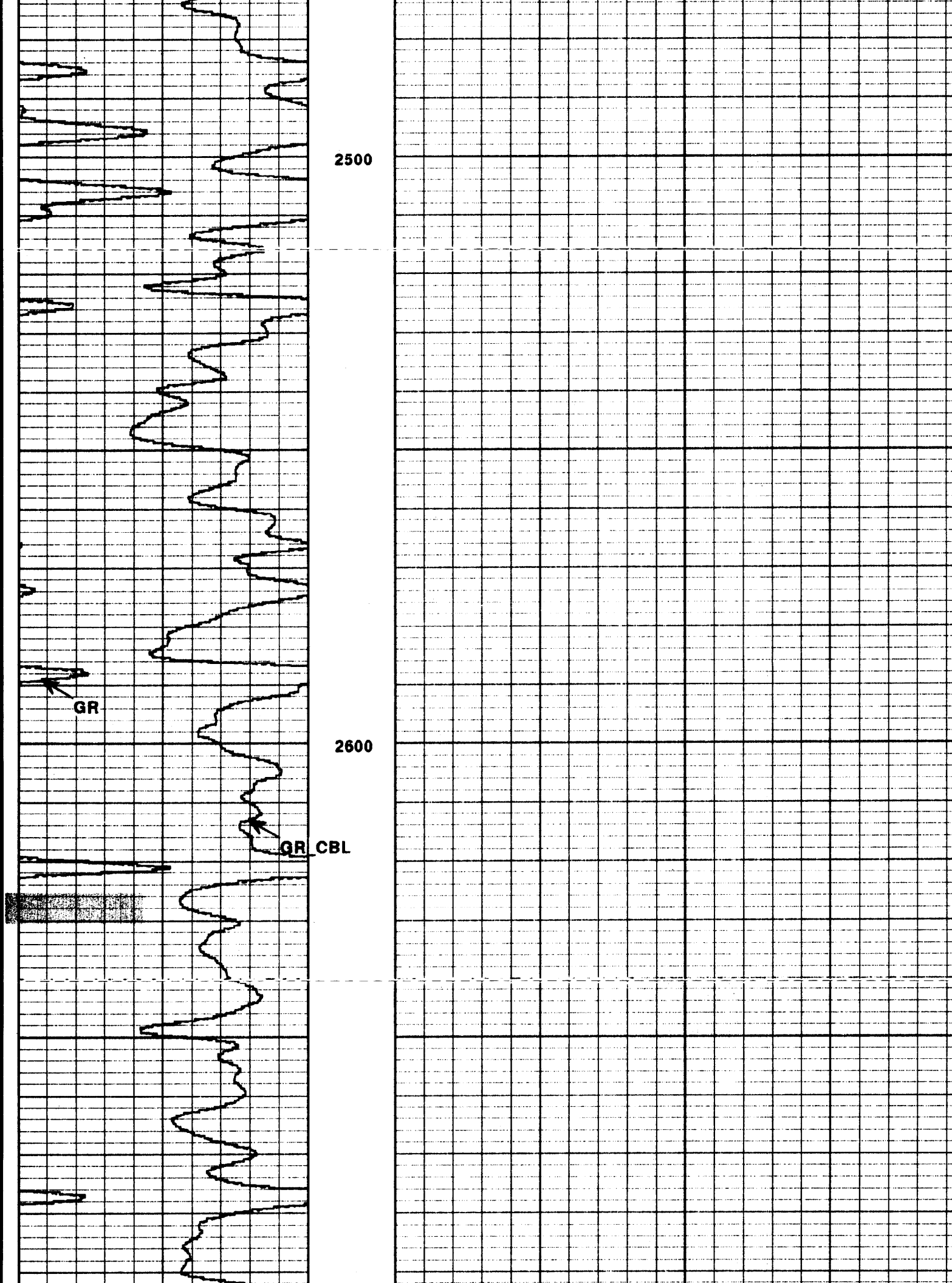
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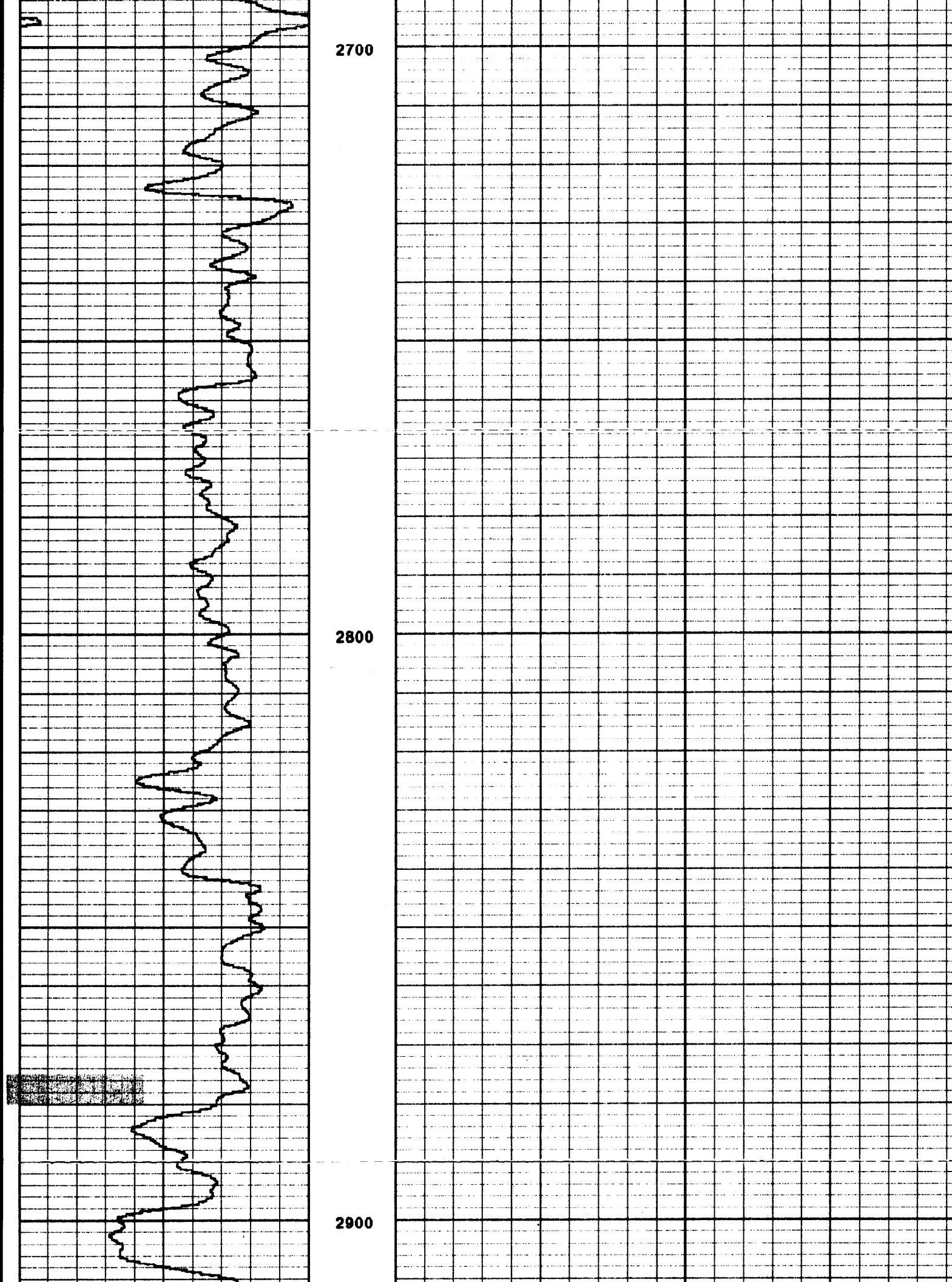
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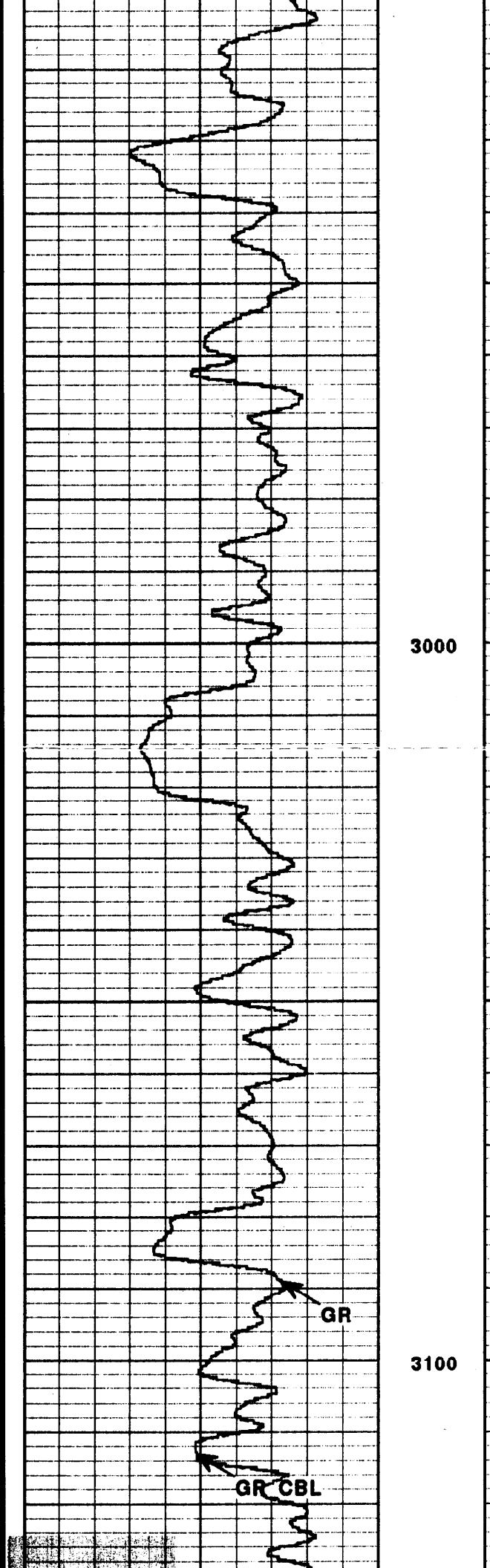
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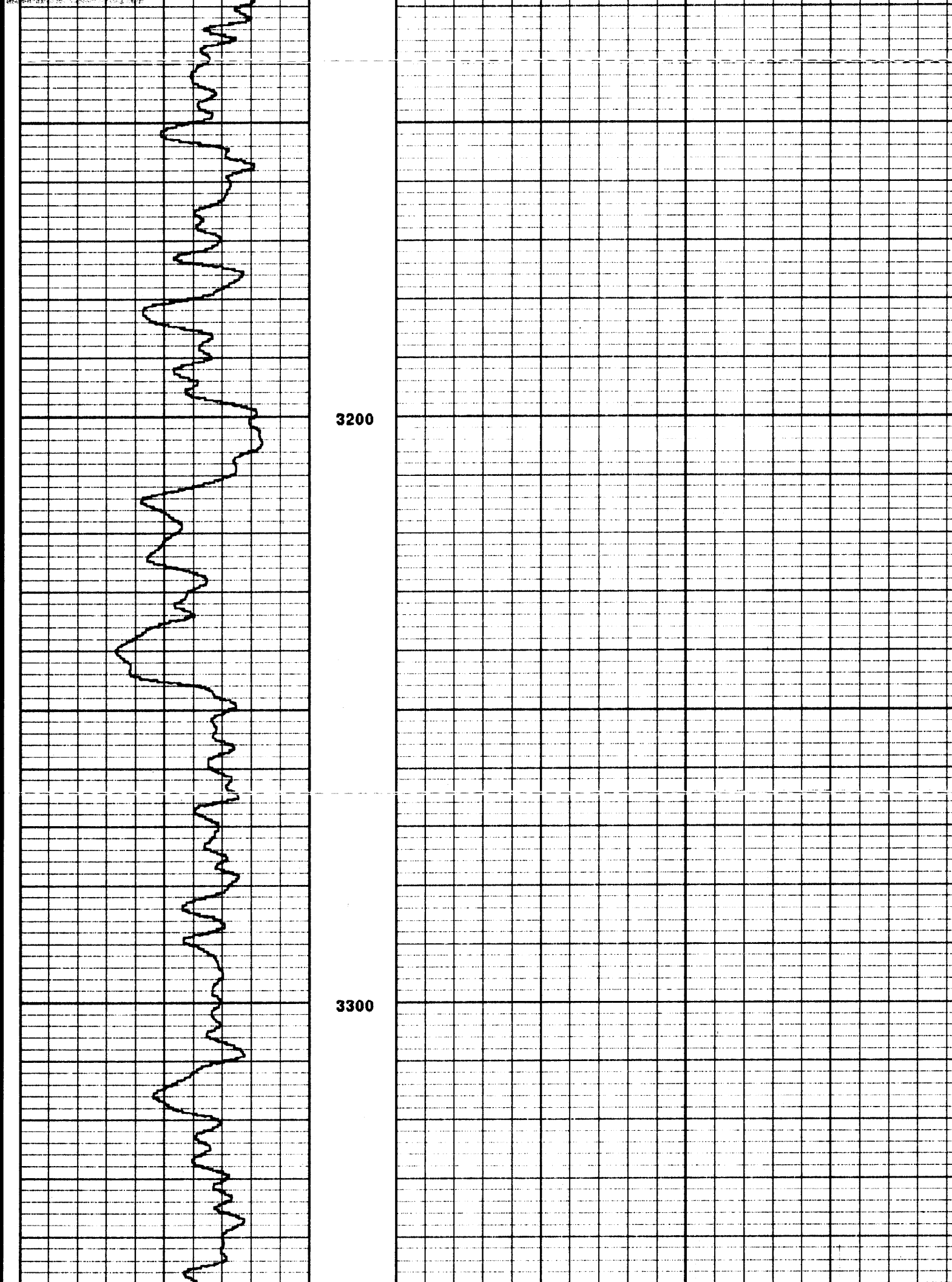
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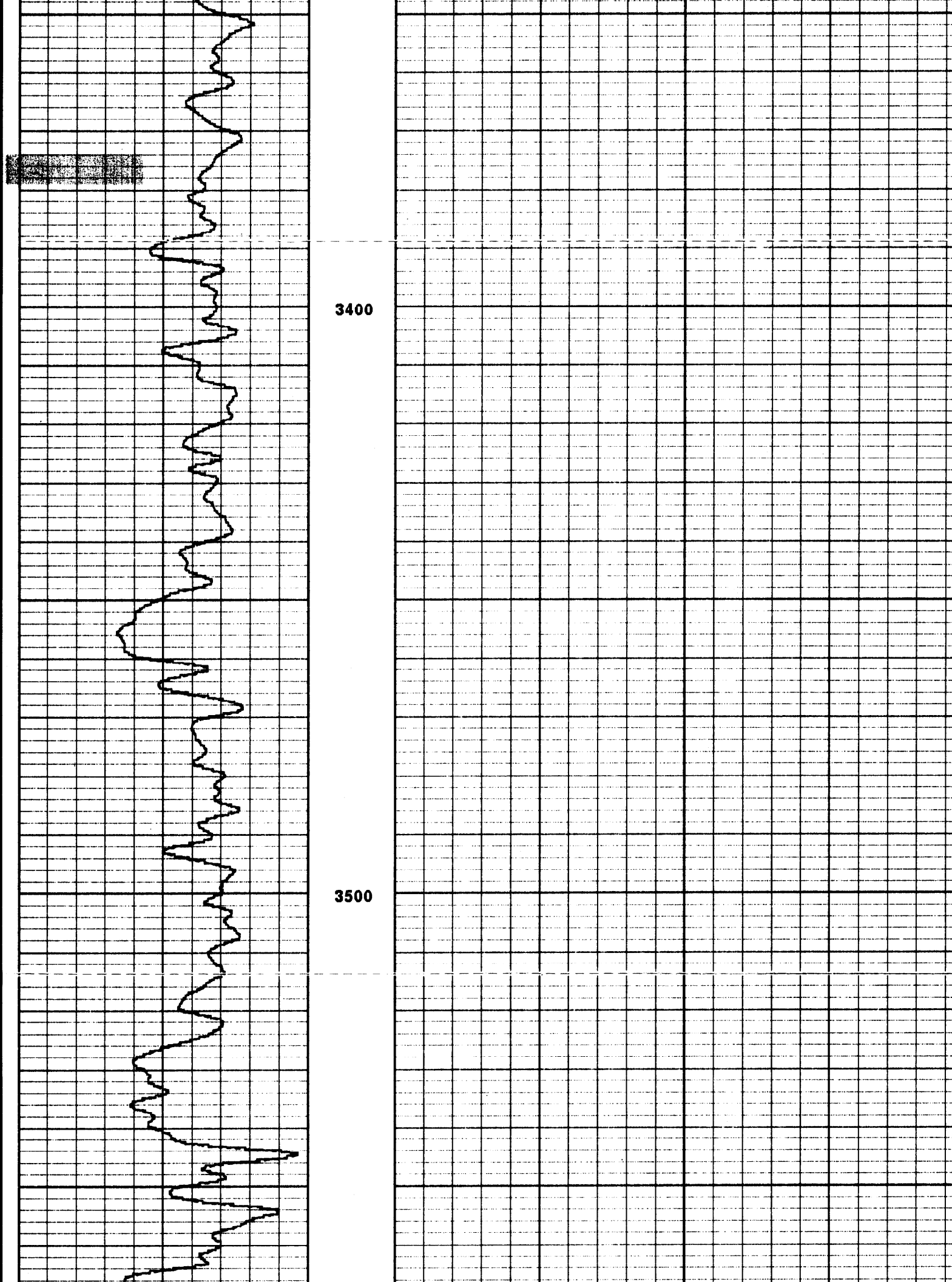
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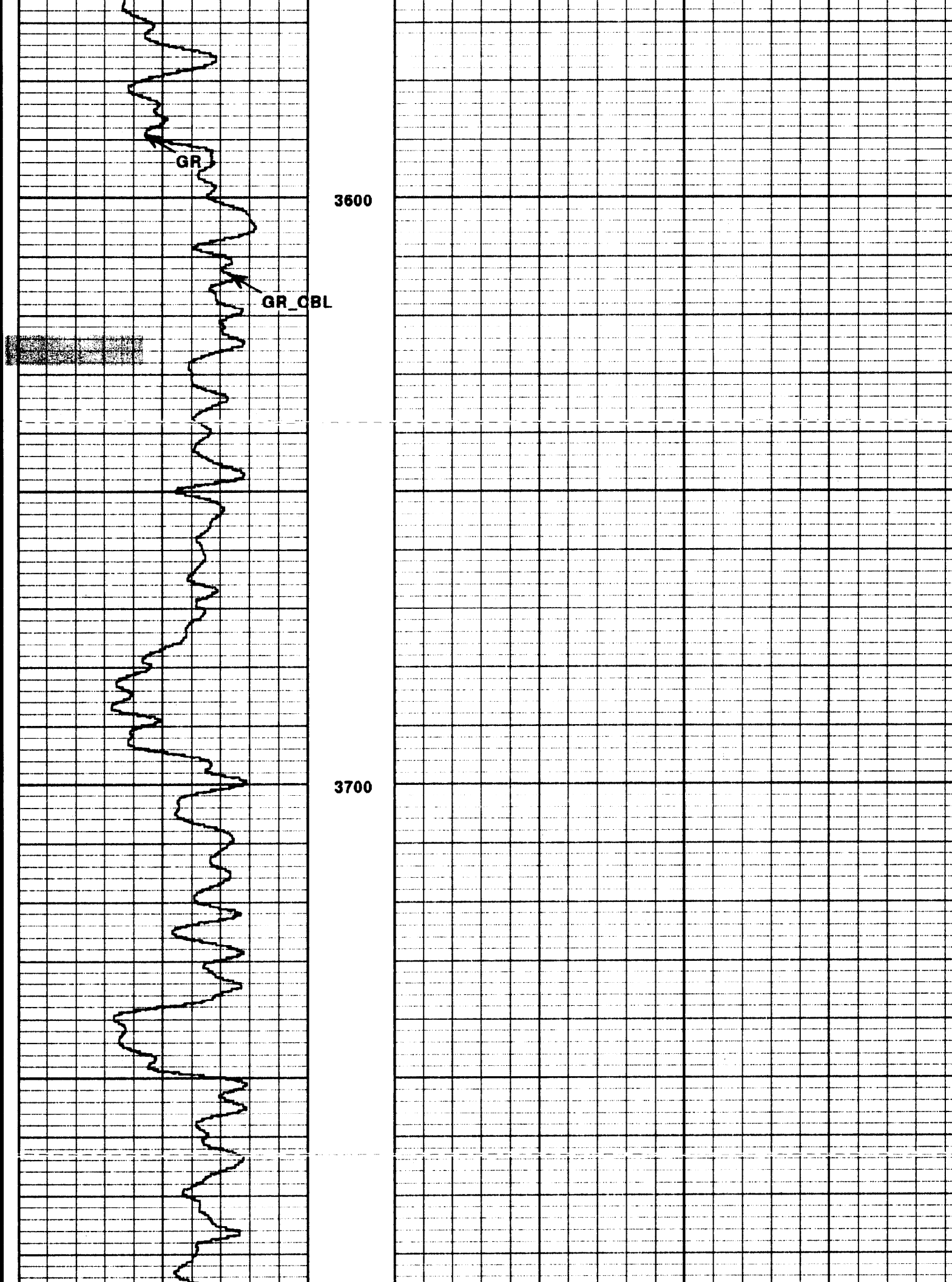
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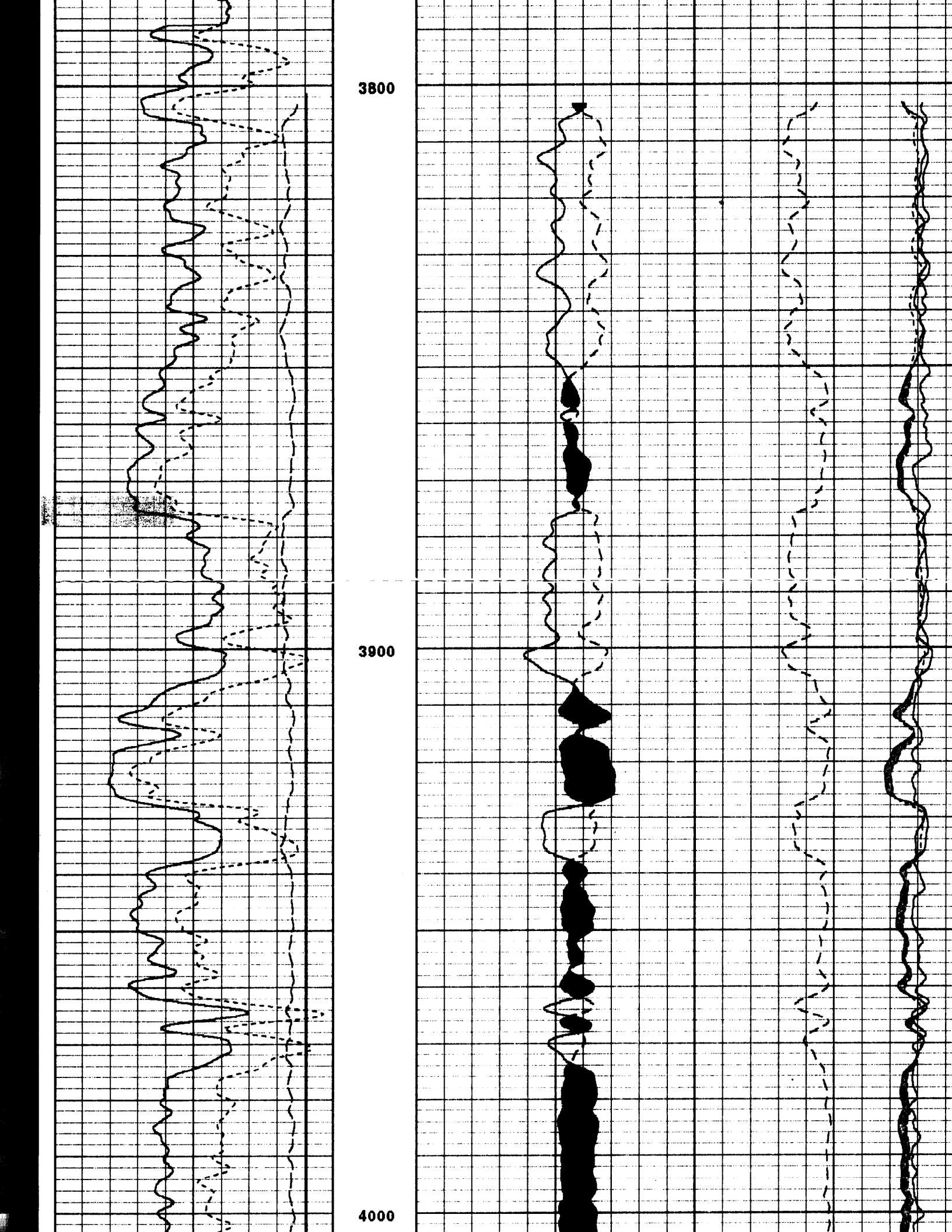
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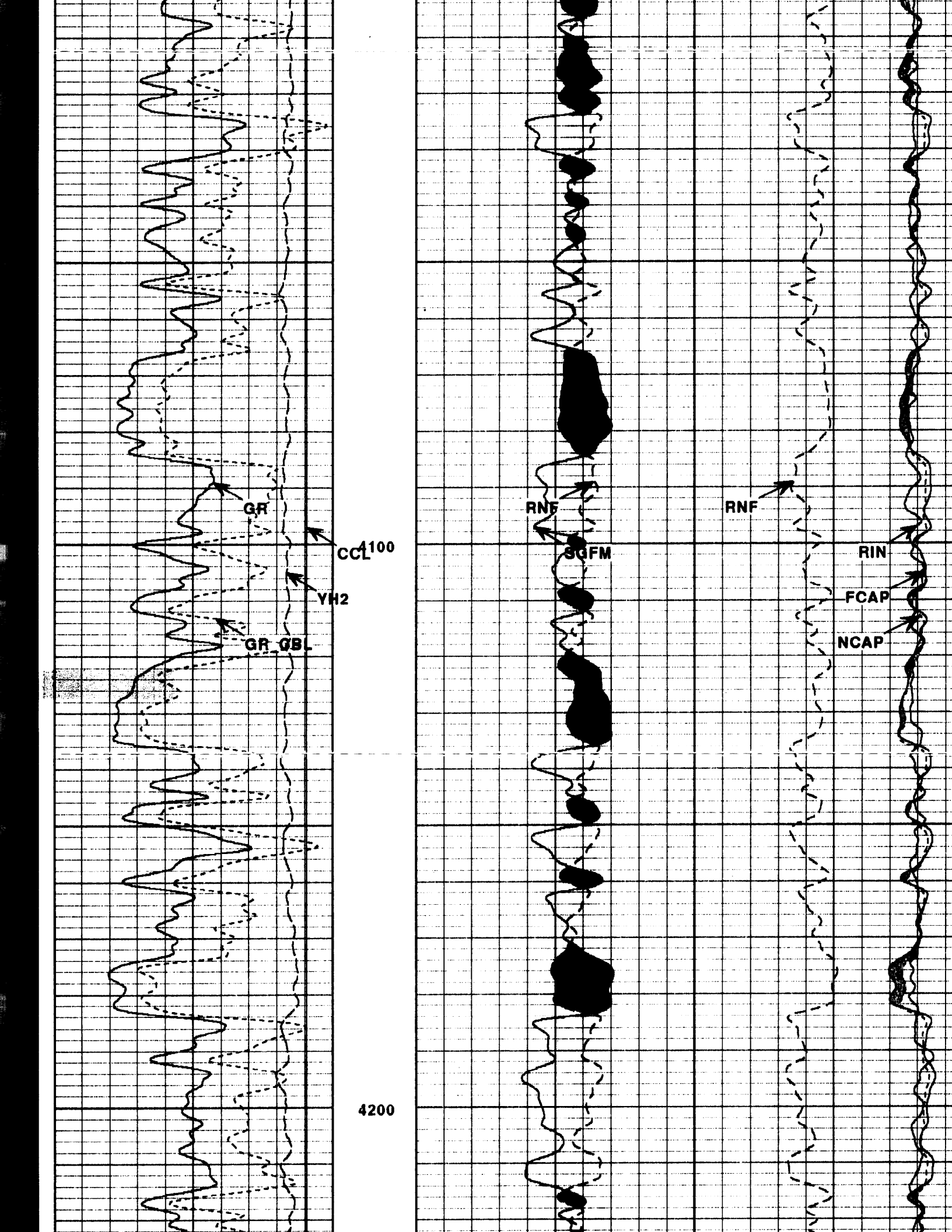
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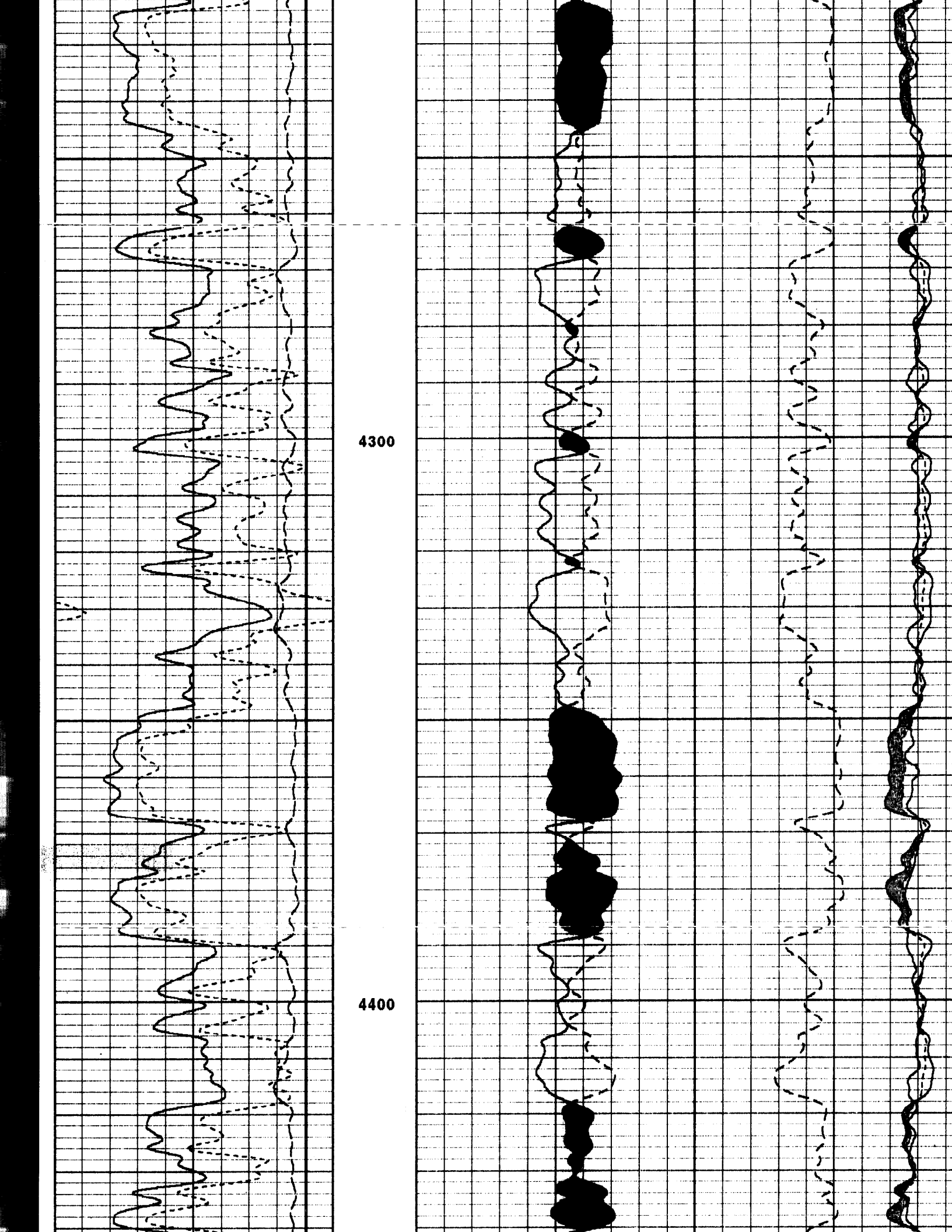
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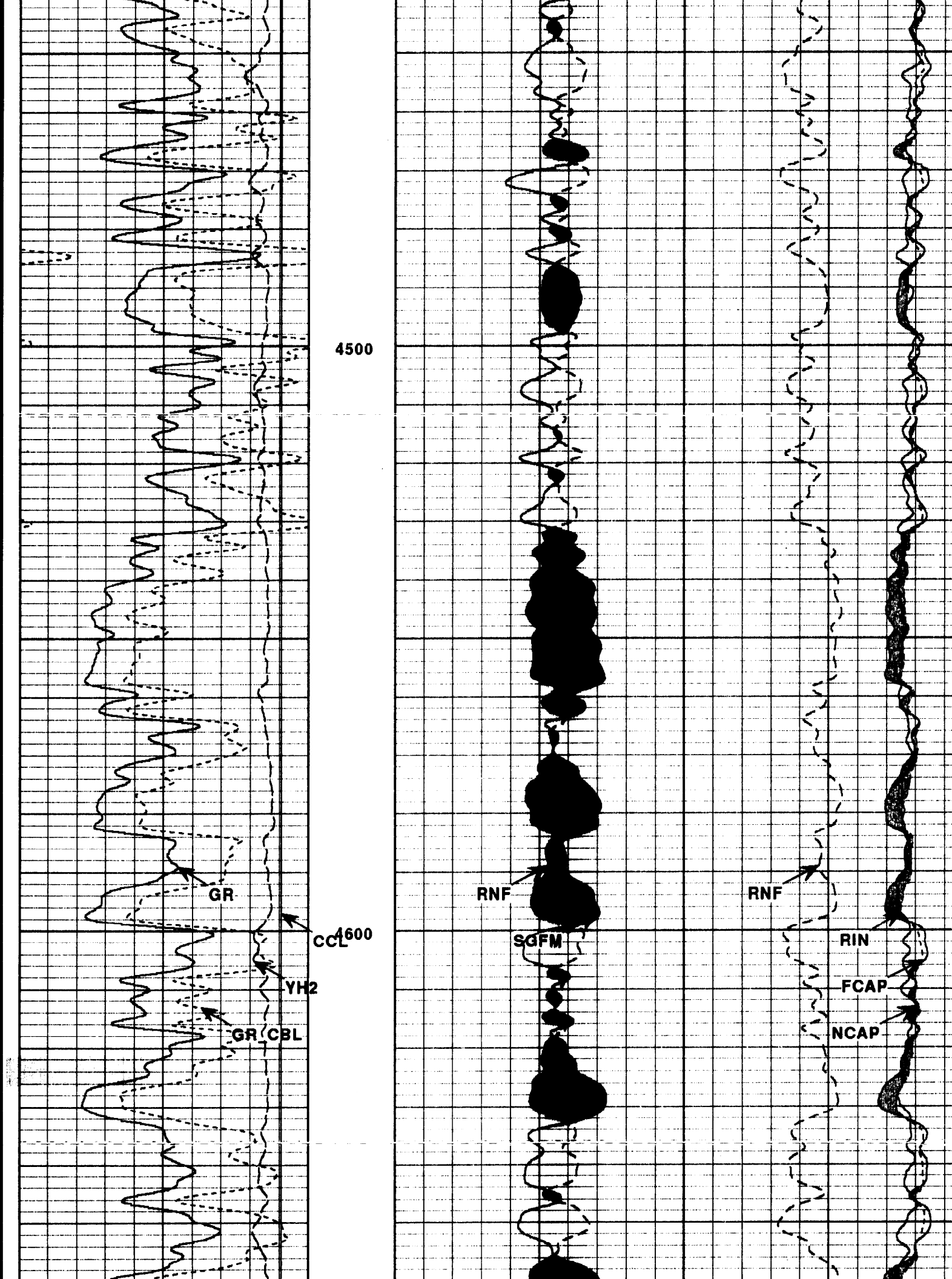
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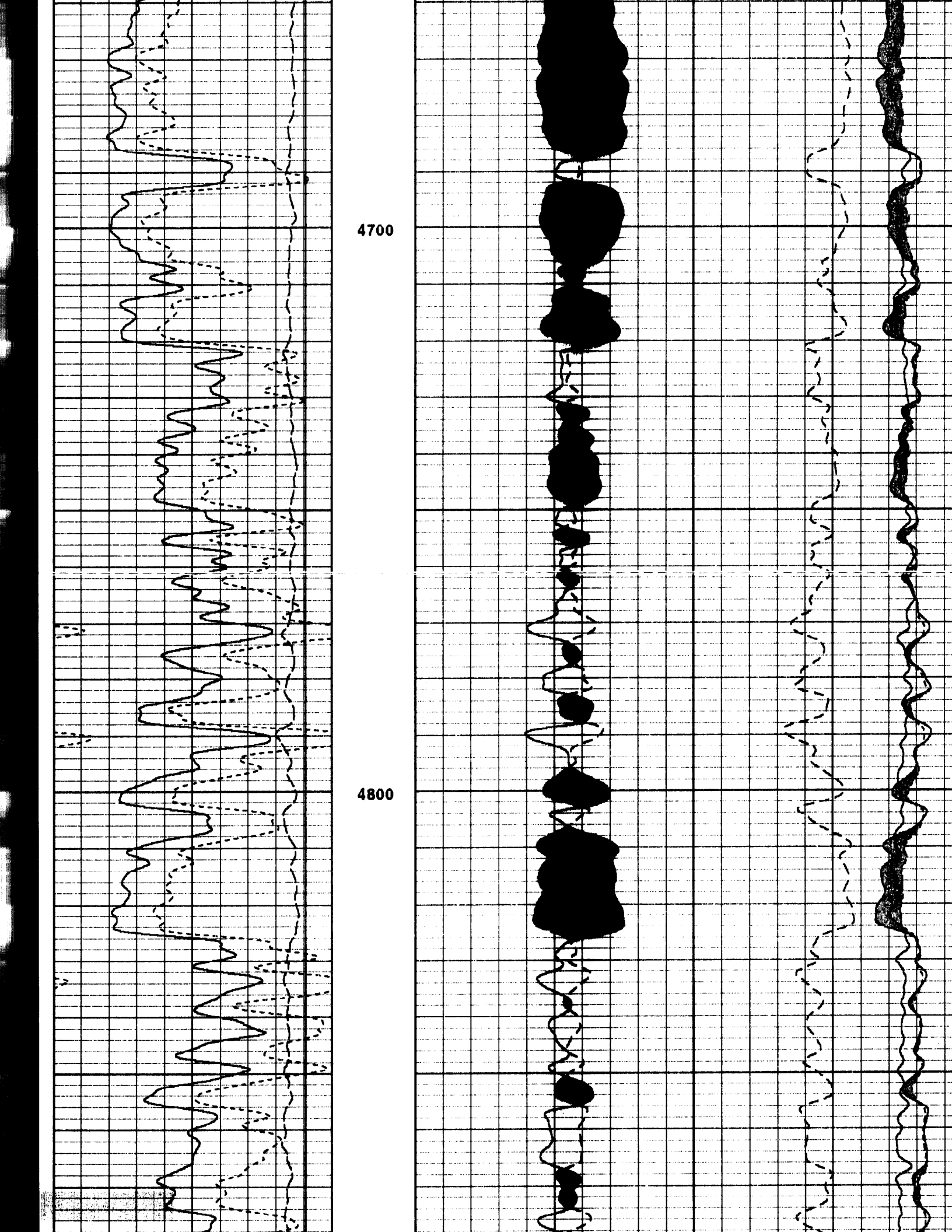
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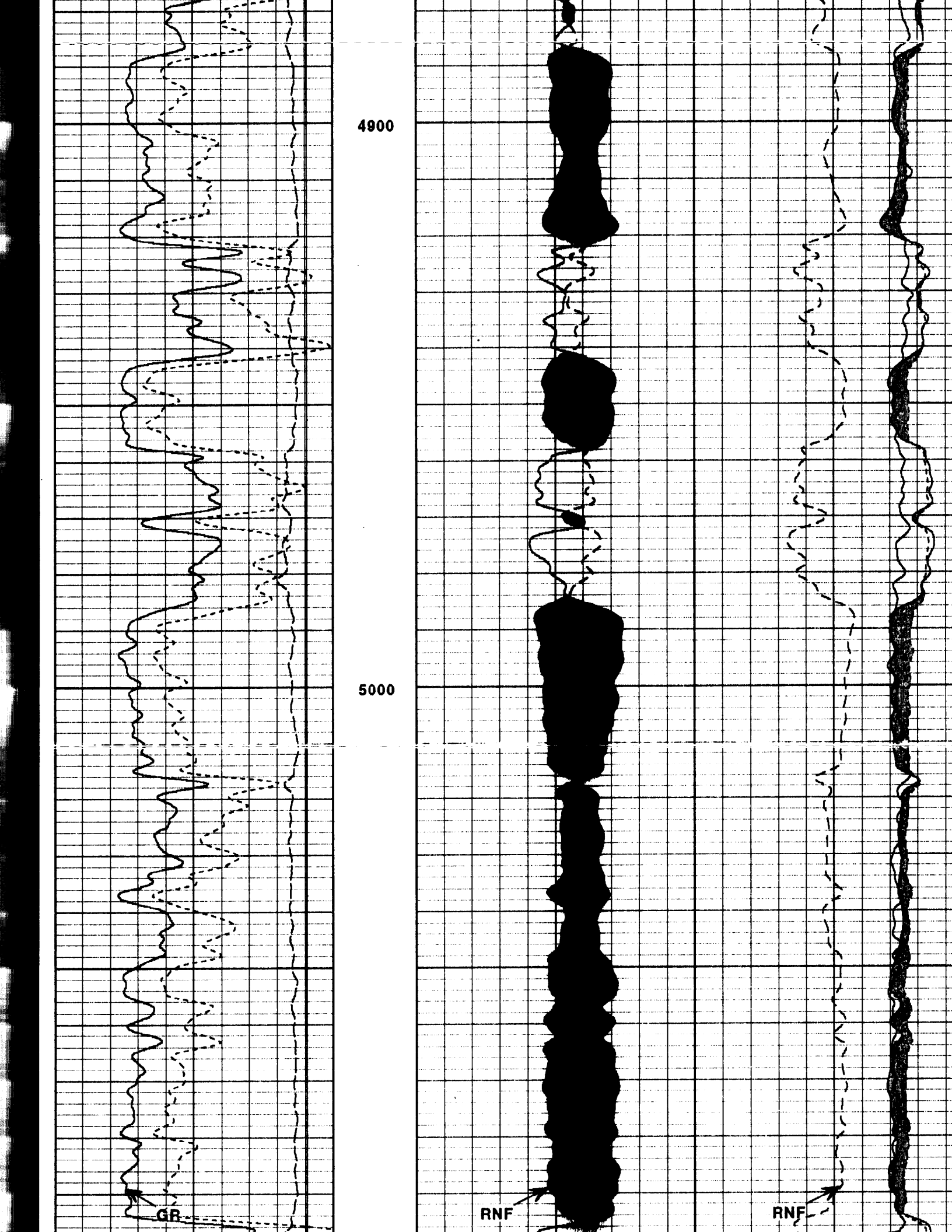
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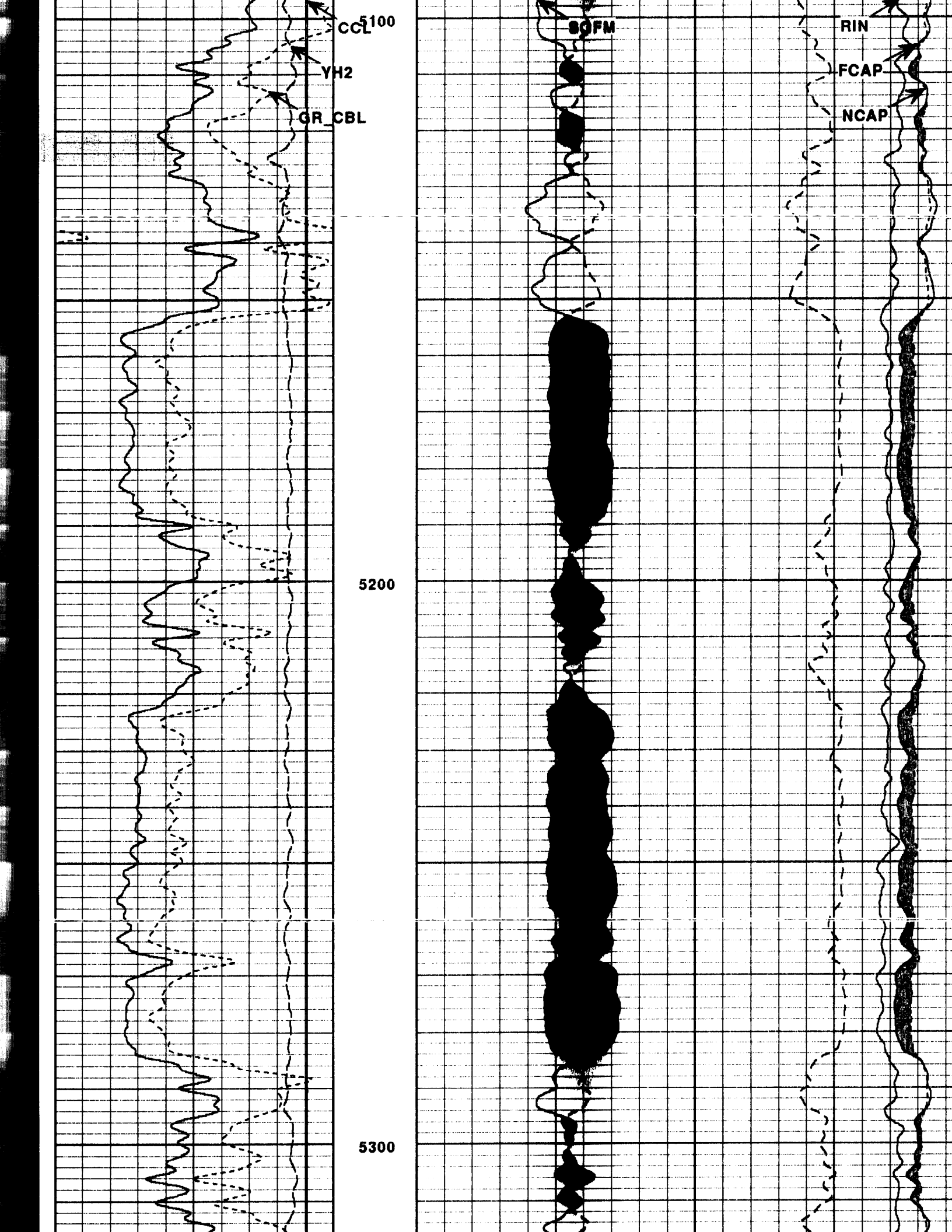
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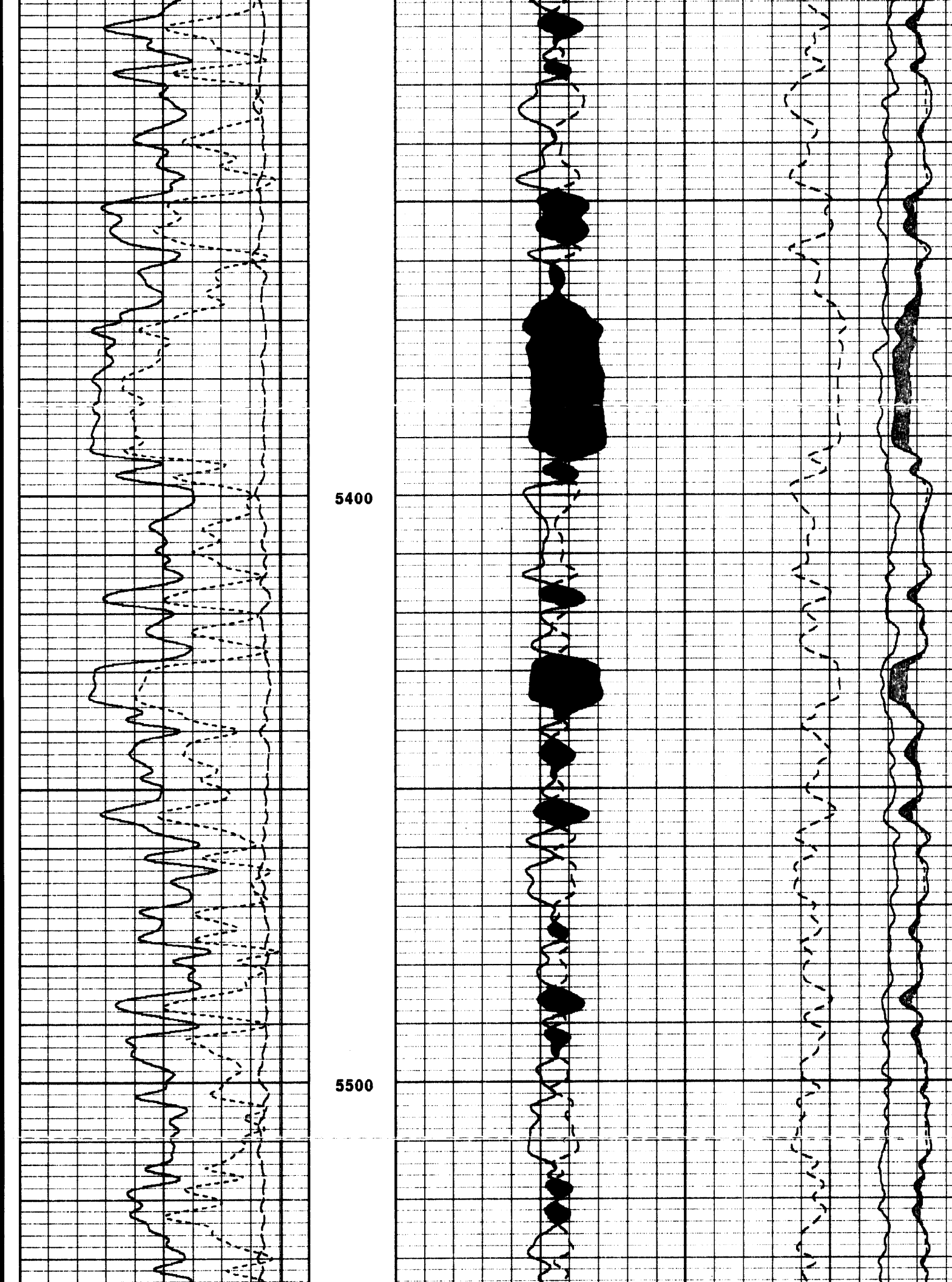
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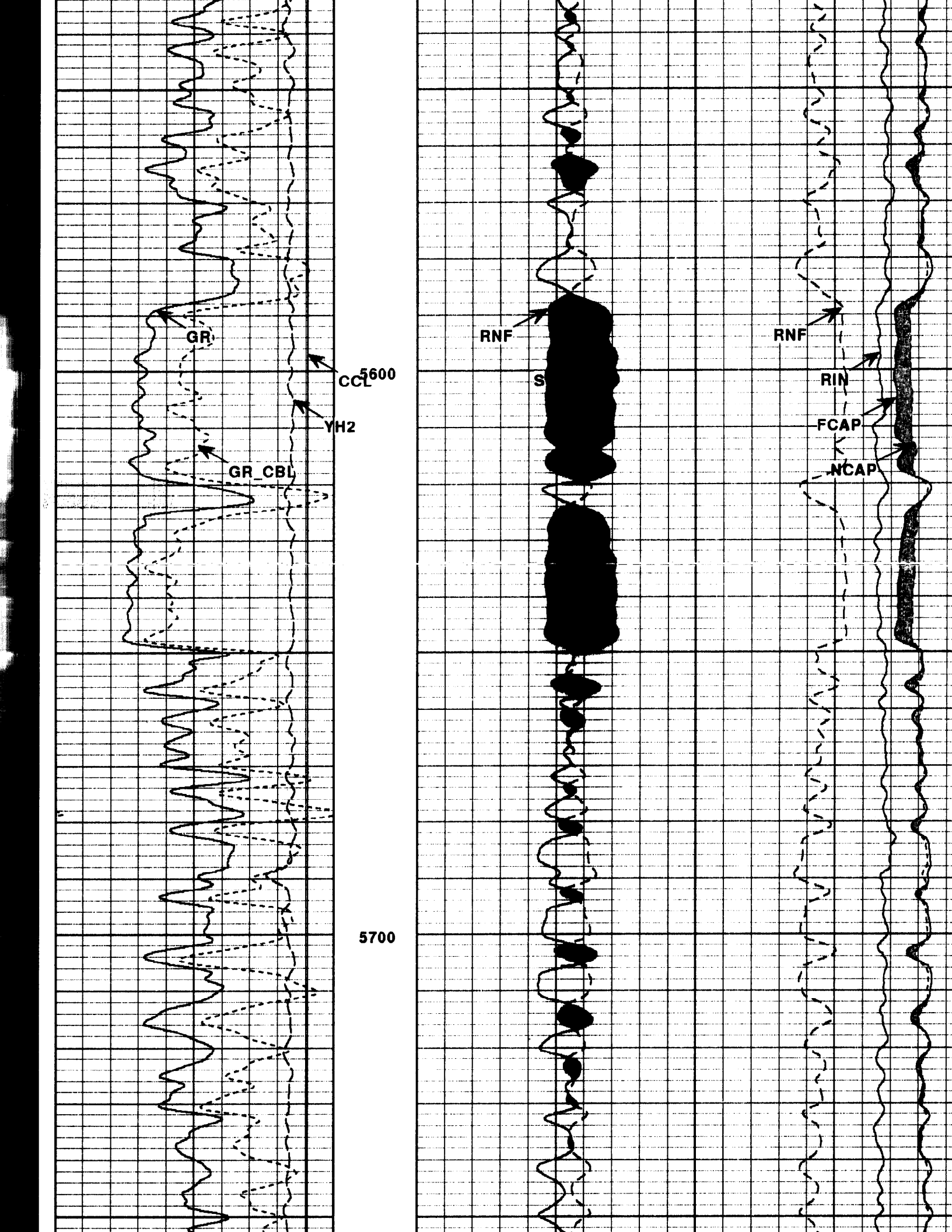
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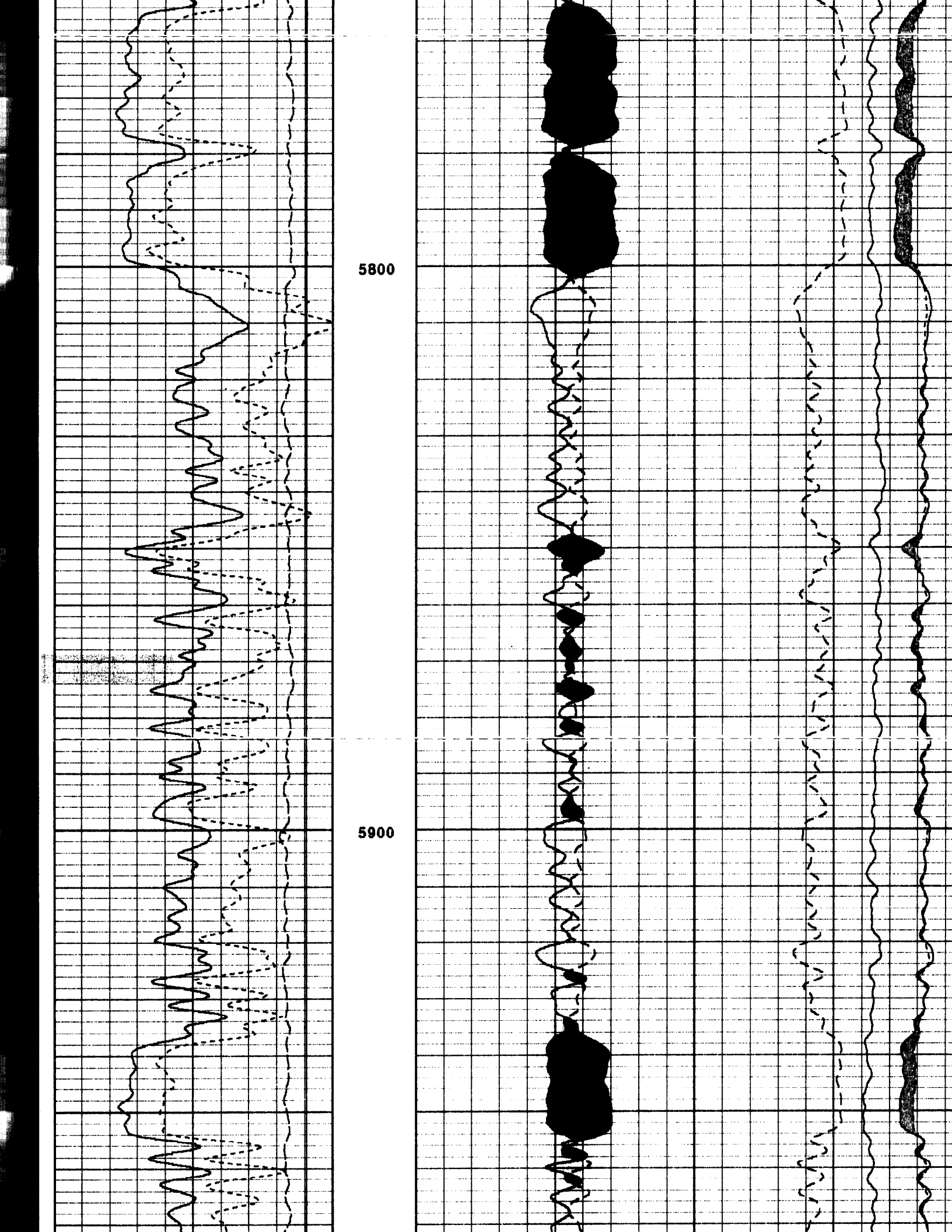
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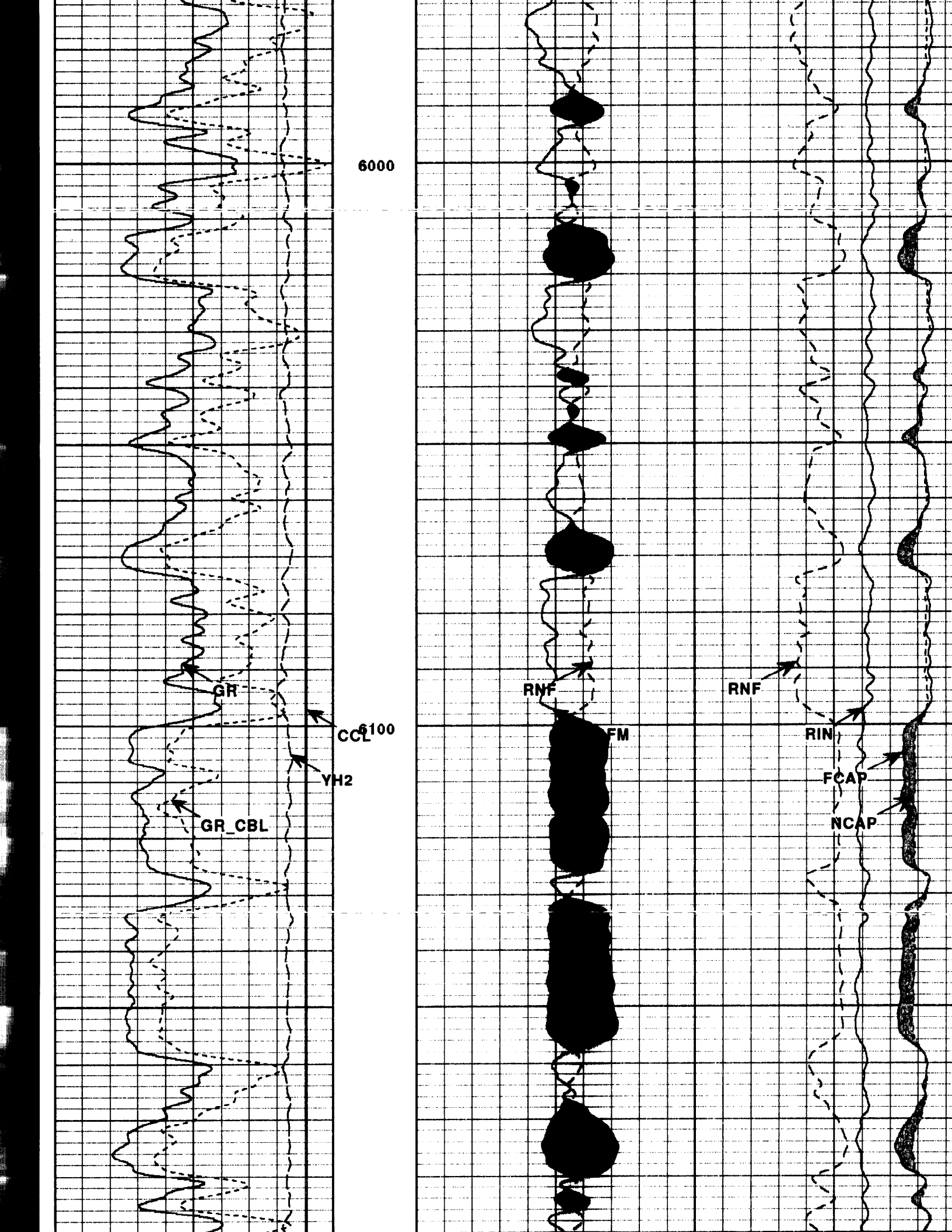
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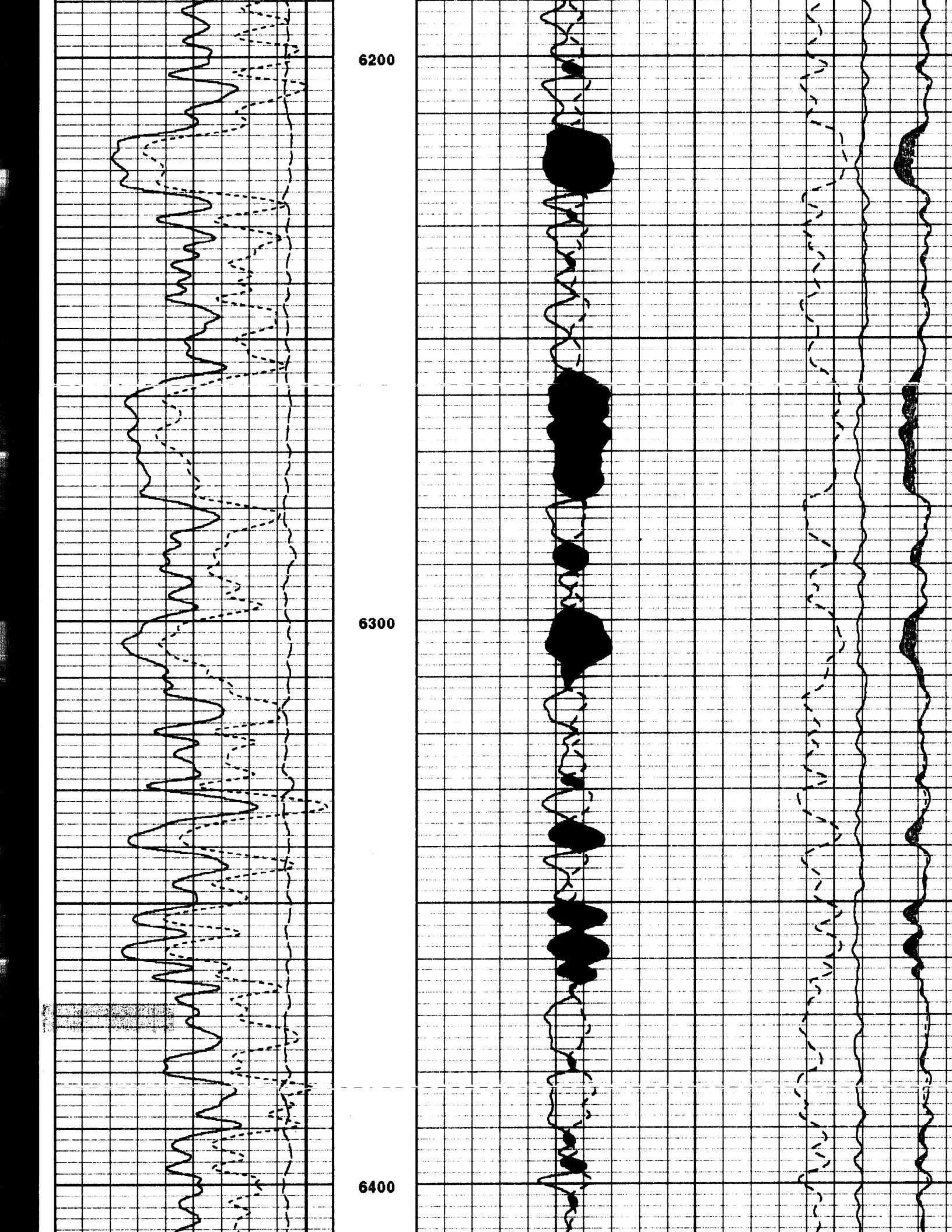
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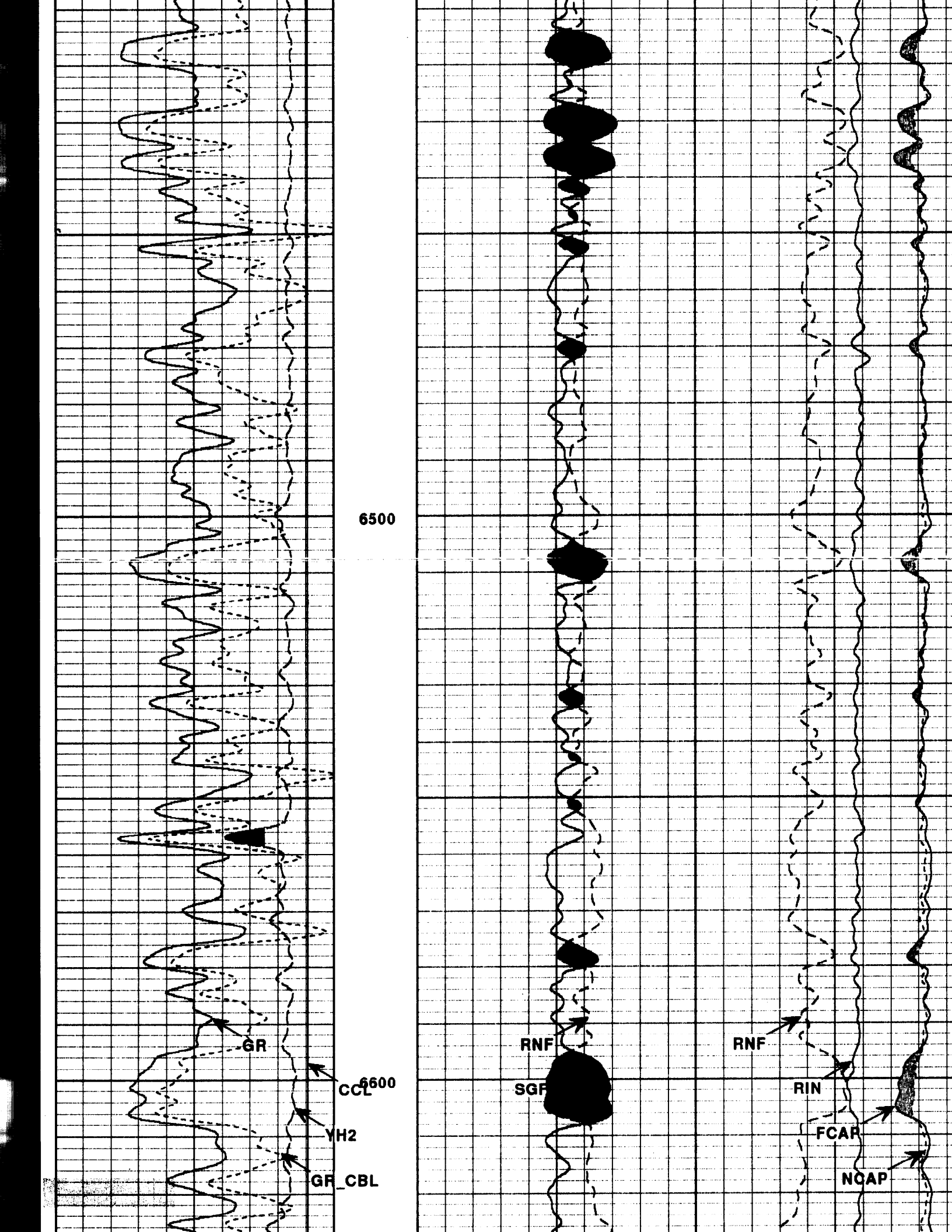
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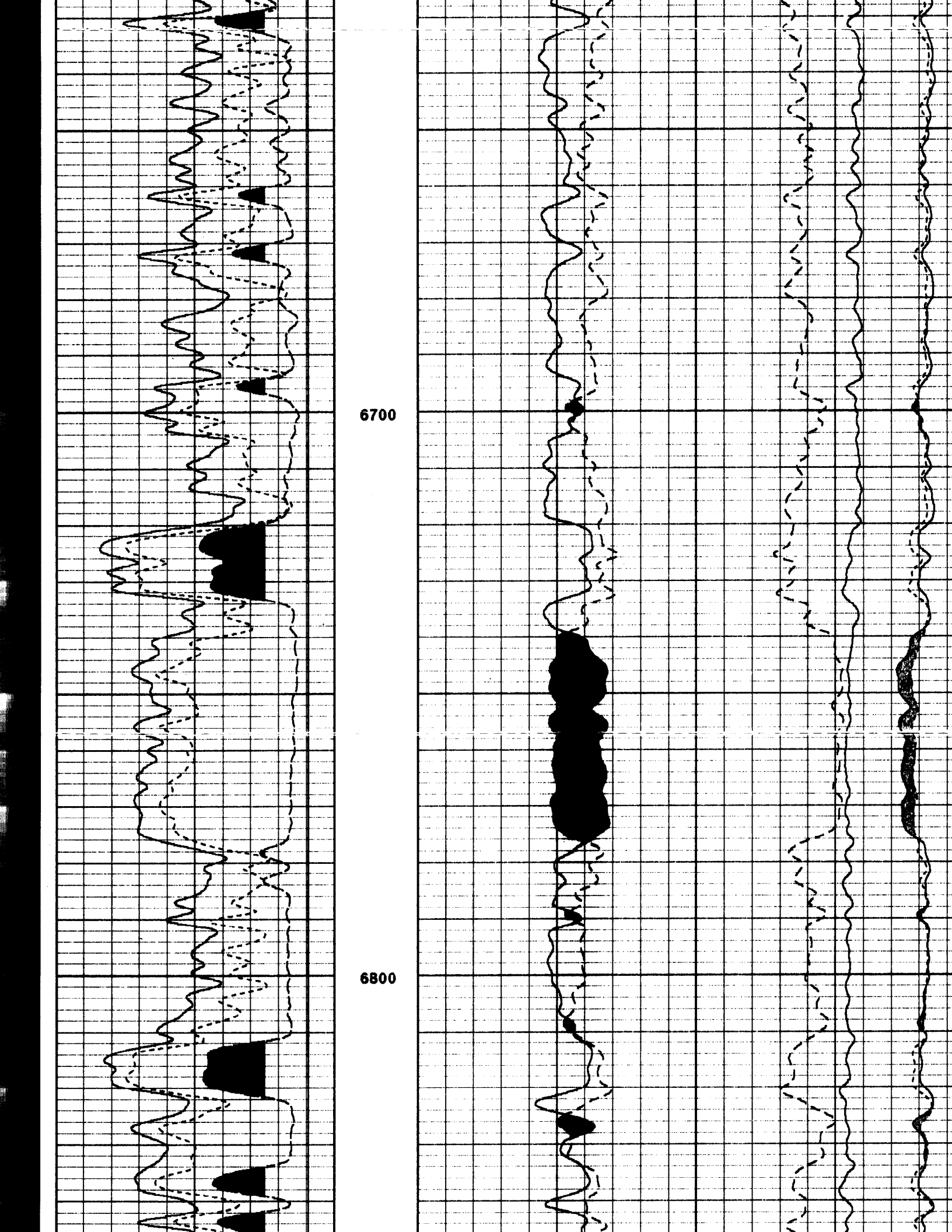
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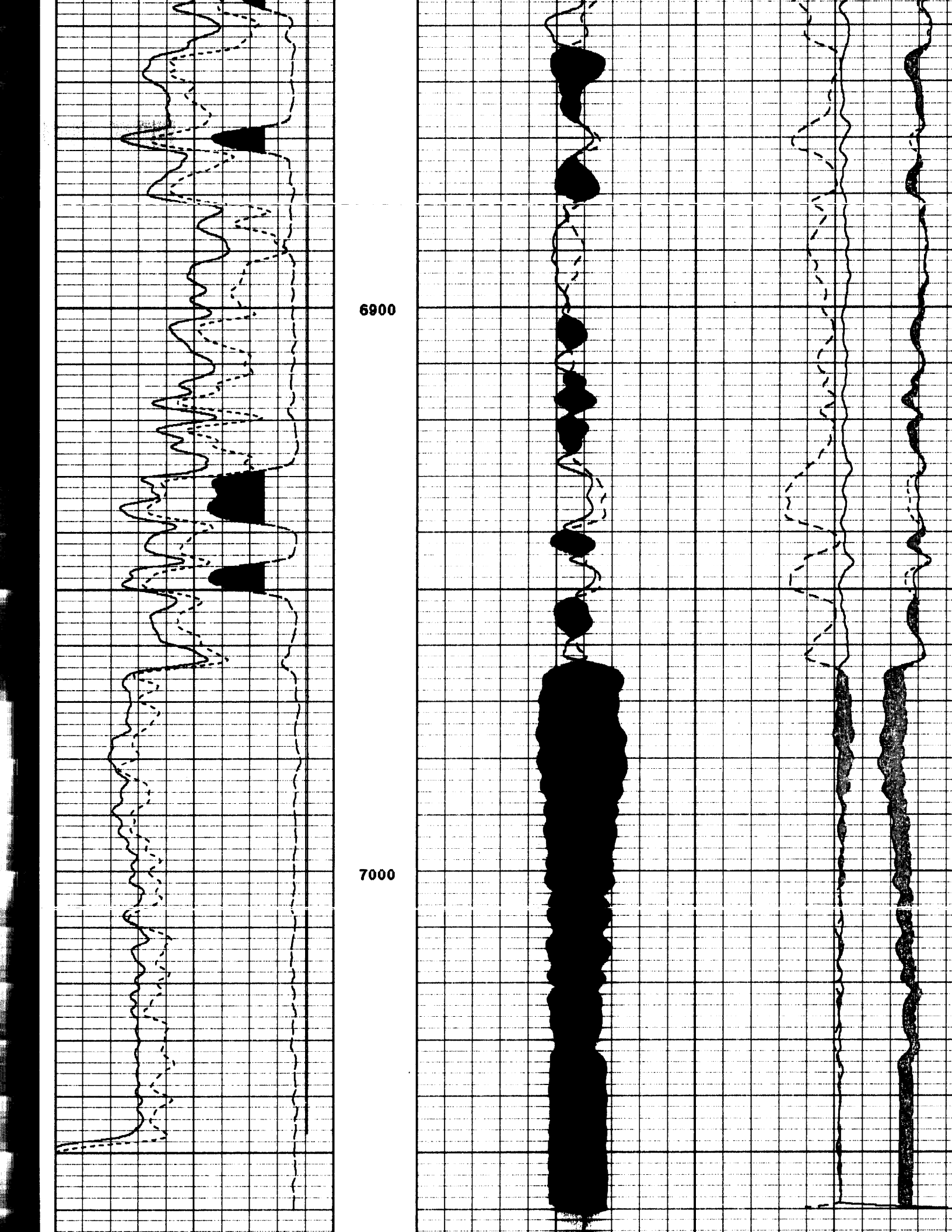
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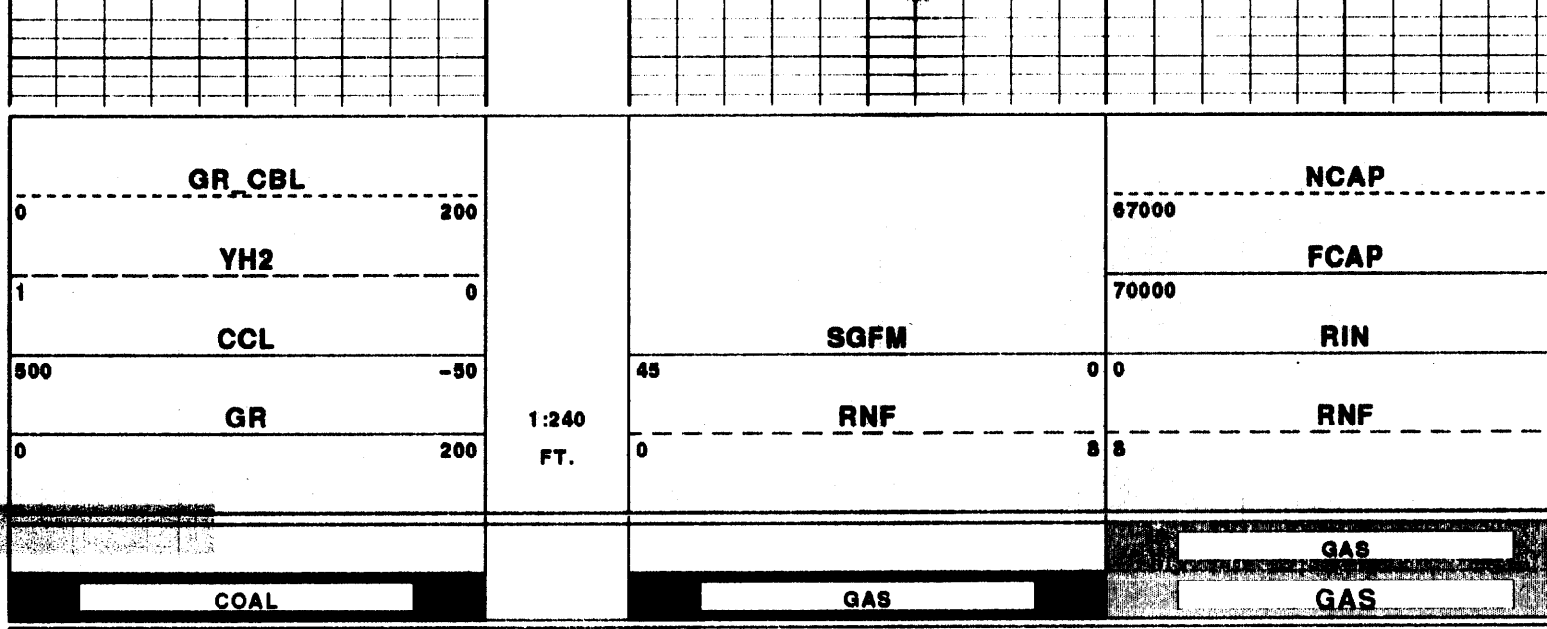

HALLIBURTON

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Format File: RMT_OVERLAY.spc
Plot Time: 2008-01-03 14:32:44
Database Time: 14:24:39

Top Depth: -1.91
Bottom Depth: 7075.29

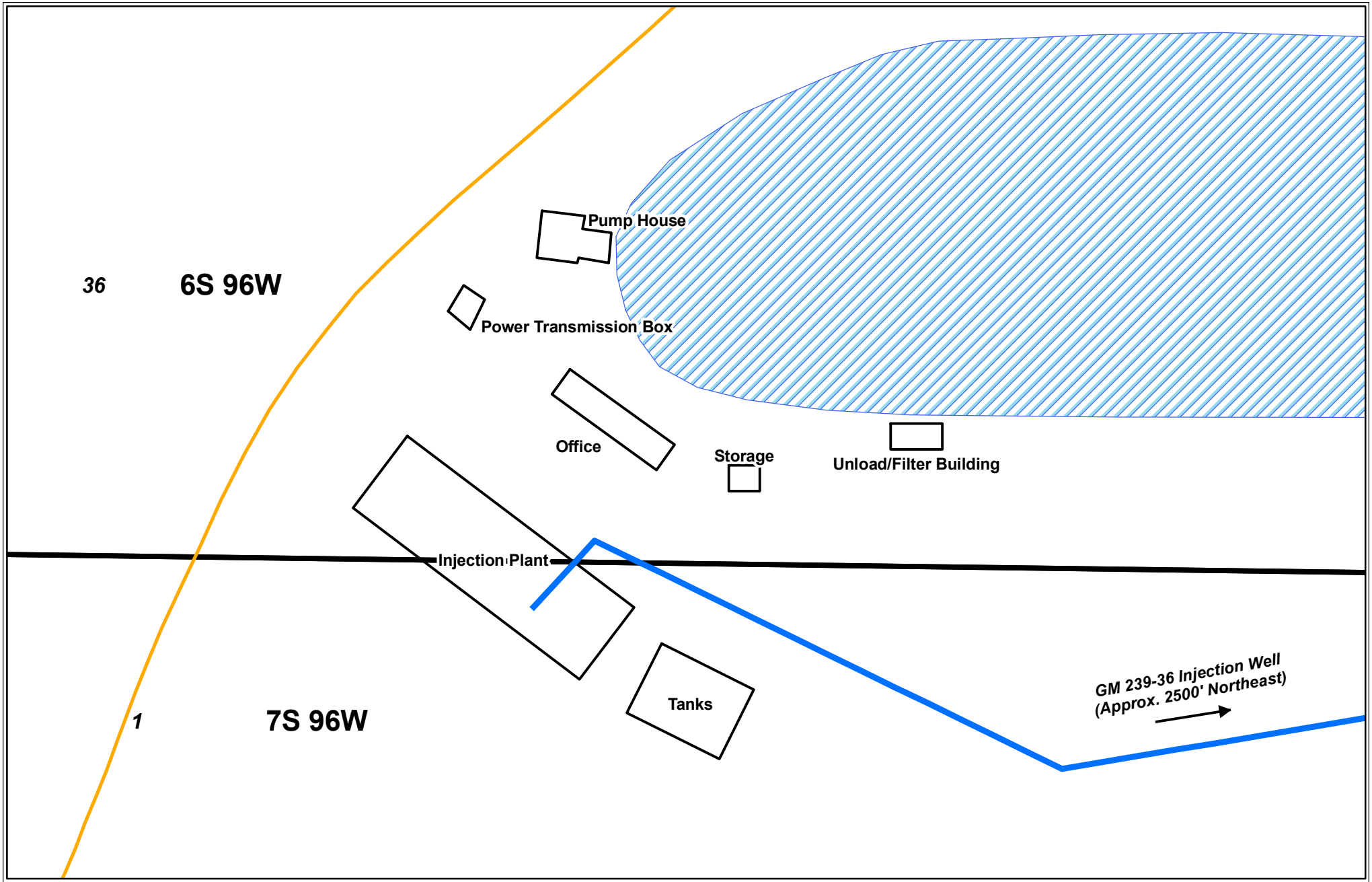
COMPANY	WILLIAMS PRODUCTION CO
WELL	GM 239-36
FIELD	GRAND VALLEY
COUNTY	GARFIEDL
STATE	CO

HALLIBURTON

RMTE

Schlumberger BlueView :

Surface Facility Diagram



Legend

- Buried Injection Line
- Existing Road
- Existing Pond
- Surface Facilities

GM 239-36
Surface Facility Diagram

N
W E
S

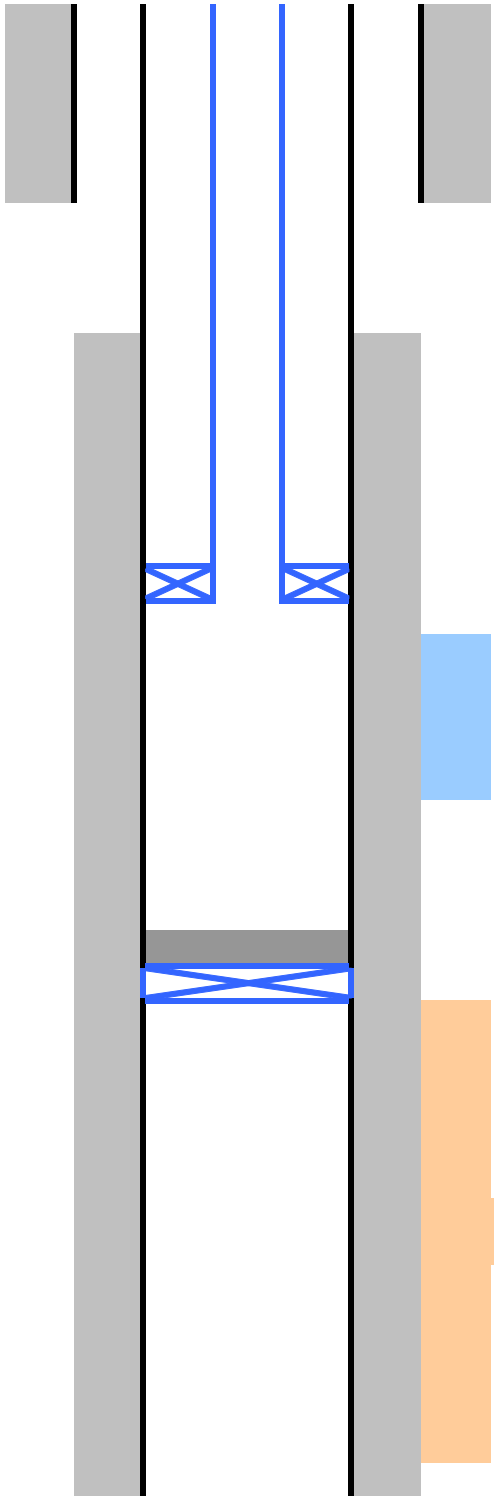
0 25 50 100 Feet

Williams

T:\Projects\PIC\GrandValley\11\0510_GM 239-36_Underground_Injection\Surface_Facility_Diagram_GM 239-36.mxd mreynold 5/17/2011 10:30:09 AM

Wellbore Diagram

GM 239-36 Wellbore Schematic
5/23/2011
Current and Proposed Configuration



Surface Csg Depth 1,121 ft
9 5/8", 36 lb/ft
325 sks Cement
Cement to Surface (Visual)

Top of Prod Cmt 2,300 ft (CBL run 12/31/2007)

Proposed 4 1/2" Packer Set at 3880 ft, 2 7/8" FJ Tubing

Proposed Williams Fork Perfs: 3900'-4190', 28 Shots

Proposed Williams Fork Perfs: 4210'-4500', 28 Shots

Proposed Williams Fork Perfs: 4530'-4830', 28 Shots

Proposed Cmt Dump Bailed on Top of
Proposed CIBP Set at 4850 ft

Existing MV Perfs from 5183 ft to 6861 ft
88 Holes - 4 Frac Stages
*MV Production to be Temporarily Abandoned

Prod Csg Depth 7092 ft
4 1/2", 11.6 lb/ft
853 sks Cement