Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

OCD Hobbs

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM20979

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
IGLOO 19-24 STATE FED COM 12H

2. Name of Operator
CAZA OPERATING LLC
Contact: STEVE MORRIS
E-Mail: steve.morris@mojoenergy.com

9. API Well No.
30-025-46411-00-X1

3a. Address
200 NORTH LORRAINE SUITE 1550
MIDLAND, TX 79701

3b. Phone No. (include area code)
Ph: 403-923-9750

10. Field and Pool or Exploratory Area
LEA

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 19 T20S R35E SWSE 400FSL 2514FEL
32.552479 N Lat, 103.496193 W Lon

11. County or Parish, State
LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☐ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☒ Subsequent Report	☒ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other DRILLING
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Intermediate casing and cement attached as it will not fit in the characters allotted here.

HOBBS OCD
DEC 05 2019
RECEIVED

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #493433 verified by the BLM Well Information System
For CAZA OPERATING LLC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 11/22/2019 (20PP0455SE)

Name *(Printed/Typed)* STEVE MORRIS — Title CONTRACT ENGINEER

Signature (Electronic Submission) — Date 11/22/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By — Title **Accepted for Record** — Date NOV 22 2019

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office **Jonathon Shepard**
Carlsbad Field Office

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

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

KZ

Oct 25 2019	MD:	5,584	TVD:		FOOTAGE:	MW:	8.4	LB	PTD: 18,998
	RIG SUPERVISOR:			Mark Kincaid / Chris Beebe					PBTD:
	PRESENT OPERATIONS:			Drilling cement retainer					

Wait for gyro tool to arrive. Load and strap drill pipe, make up stands in mousehole and rack back in derrick.;Break off single joint of drill pipe and drop Gyro down string. Wait for it to get to bottom.;Remove rotating head rubber and install trip nipple.;Trip out of hole from 5207' to surface. Remove gyro tool from last stand of drill collars. Break out bit and lay out.;Rig up wireline equipment. Run gauge ring down hole, pull out, run in hole with cement retainer and set at 5155'. Rig down wireline equipment.;Pressure test retainer to 500 psi = good test.;Make up X-O and stinger to stand of drill pipe. TIH to 5149' Sting into retainer to verify, unsting to rig up cement equipment.;Rig up cement crew, Hold PJSM with cementers, Blackhawk tool hand, and rig crews.;Pressure test lines to 2000 psi, Try and establish pump rate and PSI. Pumped 20 bbls of freshwater @ 249 psi, pumped and additional 10 bbls freshwater, Pressure climbed to 1700 psi. kicked pump out and pressure bled off, Tried to pressure up to 515 psi, kicked pumps out pressure bled off. Pulled out of stinger and pumped @ 5 bpms and 450 psi. Sting back into retainer, tried to establish 3 bpm rate, pressure climbed to 1000 psi. kicked pumps out. pressure bled off. Notified drilling engineer.;Rig down cementers.;Trip our of hole from 5149' to surface. Lay down stinger.;Pick up BHA, remove float, check and install float, M/U bit and junk basket.;TIH with 4 stds 6" DC's and 6 stds HWDP.;Trip in hole from 915' - 5150'.;Remove trip nipple and install rotating head rubber.;Drilling cement retainer while displacing with EVO mud. Build 60 bbl LCM pill. (20 ppb calcium carbonate, 5 ppb fiber seal, 3 ppb paper, 2 ppb nut plug).

GPM-509 RPM-93 SPP-1000, TQ-6K WOB-14-20

Full crews days and nights
No spill, or accidents

DAILY JOB COST:	$102,366	TOTAL JOB COST:	$2,403,960
TOTAL WELL COST:	$2,457,494		

Oct 24 2019	MD:	5,584	TVD:	5,584	FOOTAGE:	MW:	8.4	LB	PTD: 18,998
	RIG SUPERVISOR:			Mark Kincaid / Chris Beebe					PBTD:
	PRESENT OPERATIONS:			Dropping Gyro.					

TIH 0' - 3550';Circulate and condition. GPM-678 RPM-60, pump 2 20 bbl HI vis sweeps.;POOH 3550' - 0' Break bit off and junk basket.;Pick up BHA, make up packer tool assembly, function test tool.;TIH 0' - 3394'.;Circulate through tool, verifying returns and circulation through tool. Set pack with 85K string weight. Set packer and tested @ 3211' w/1500 psi, released packer. Tripped to 3397'. Tested to 453 psi. bled pressure off. Tripped to 3581' and tested to 1500 psi for 30 minutes. Initial SIDP: 1627psi, Final SIDP: 1602 PSI. Tripped to 3586'. Tested to 900 psi, staged up to 1500 psi in 100 psi increments. Released pressure.;POOH 3586' - 0'.;Lay down packer tool.;Rig up transfer pump from open top to trash tanks. Empty pony tanks, Rig up line from EVo mud tanks to pony tanks and fill pony tanks with evo mud.;Pick up BHA, Pull and check float, M/U bit.;TIH with 4 stdds 6" DC's and 6 stds HWDP.;TIH 911' - 5150';Remove trip nipple, install rotating head.;Fill pipe, record slow pump rate @ 30 spm = 160 psi.;Drill cement F/5150' - 5225'. Float collar @ 5163' shoe @ 5209'. No bit weight after drilling float collar.;Circulate 2 bottoms up.;Perform FIT, Pump rate: 1/4 bbls per minute. Pressured up to 212 psi, broke over and lost pressure. Kicked pump out, pressure bled down to 0 psi.

Notified drilling engineer, wireline and cement company.;Service top drive, grease draw works, check and adjust brakes.;Wait on VES gyro, Clear 2 7/8" tubing off pipe racks, clean and clear rig floor.

FULL CREWS: YES
0 ACCIDENTS
0 SPILLS

DAILY JOB COST:	$86,754	TOTAL JOB COST:	$2,301,594
TOTAL WELL COST:	$2,301,594		

Oct 23 2019	MD:	5,584	TVD:	5,583	FOOTAGE:	MW:	8.4	LB	PTD: 18,998
	RIG SUPERVISOR:			Mark Kincaid / Dan Thompson					PBTD:
	PRESENT OPERATIONS:			Trip in the with junk basket					

Finish circulating bottoms up prior to trip out of hole.;Trip out of hole from 5150' to surface. Break off bit and junk basket.;Rig up wireline equipment. Run CBL.;Wait on pack off to arrive on location.;Pick up and make up Pack off & TIH to 3,400'.;Circulate. (Test top side of 1st Perfs) Shut bag and open kill side & pump and pressure up to 507 psi and broke down, attempt to test bottom side with bag open and pumping down drill pipe and we got returns, due to packer not sealing, Trip in 100' & set packer, attempt to pressure to test, packer would not seal. POOH to 2,850' set packer & attempt to pressure test. Packer would not seal.;POOH F/ 2,850' T/ Packer. Found metal shavings inside packer. Break and lay down Packer. Pick up and make up junk basket.;TIH F/ Junk Basket T/ 1,300'

DAILY JOB COST:	$62,304	TOTAL JOB COST:	$2,214,841
TOTAL WELL COST:	$2,214,841		

Oct 22 2019	MD:	5,584	TVD:	5,583	FOOTAGE:				PTD: 18,998
	RIG SUPERVISOR:			Mark Kincaid / Dan Thompson					PBTD:
	PRESENT OPERATIONS:			POOH @ 5,150'					

Drill cement from 3456' to 3481'. Drill out cement retainer from 3481' to 3484'. Drill cement from 3484' to 3509'. Drill cement retainer from 3509'. Tried several different parameters with rpm, wob and gpm but would not drill off, decision was made to trip out of hole for bit.;Service rig.;Trip out of hole from 3514' to surface. Break off bit and lay out, clean out junk basket.;Make up new bit and junk basket and trip in hole to 3,514';Make his vis sweep & circulate back to surface. Change out shaker screens to keep shakers from running over due contaminated mud with cement, dump and fill up with fresh water.;Drill out retainer F/ 3,514' and cement T/ 5,150';Test casing to 1,450 psi & broke down;Circulate and monitor well for losses & circulate bottoms up. Prepare to POOH.

DAILY JOB COST:	$74,203	TOTAL JOB COST:	$2,152,537
TOTAL WELL COST:	$2,152,537		

Oct 21 2019	MD:	5,584	TVD:	5,583	FOOTAGE:	PTD:	18,998
	RIG SUPERVISOR:			Mark Kincaid / Dan Thompson		PBTD:	
	PRESENT OPERATIONS:			Drilling out reatiner @ 3.486'			

Make up packoff to setting tool on joint of drill pipe. Run in hole setting 25K on packoff and would not go all the way in. Well head tech said we needed more weight. Picked up a stand of HWDP out of derrick. Started slacking off setting 20K on it, while watching weight indicator derrickman stated the HWDP was bending, immediately shut down and picked up but the joints were bent. Took the stand of HWDP from the Drill pipe and put in mouse hole having trouble breaking out. Cleaned out well head with water hose. Ran packoff in hole and set 20K, verified with well head tech that packoff was set. Tested packoff to 2000psi = good test. Pull out setting tool and laid out.;Rig up wireline tools and run CBL with Temp survey. Estimated TOC 290'. Rig down wireline equipment.

Note: notified BLM of temp survey and was given the OK to proceed with operations.;Service rig.;Testing BOPE: Rig up test plug on joint of drill pipe and set in well head. Test choke manifold, blind rams, upper and lower pipe rams, mud lines to 250psi low & 5000psi high for 10 minutes each. Test annular to 250psi low and 2500psi high.
Had to change out 4" valve on rig floor & re-test.;Rig service & change out TDS dies;Make up Bit, junk basket & TIH to 3,278';Drill out retainer (3,278') & cement to 3,458' with 83-200 GPM, 5-25 WOB, 80-120 RPM, 4-11k TQ, 100-250 SPP

DAILY JOB COST:	$89,441	TOTAL JOB COST:	$2,078,334
TOTAL WELL COST:	$2,078,334		

Oct 20 2019	MD:	5,584	TVD:	5,583	FOOTAGE:	PTD:	18,998
	RIG SUPERVISOR:			Mark Kincaid / Dan Thompson		PBTD:	
	PRESENT OPERATIONS:			WOC -Install pack off in well head			

Drill out cement retainer @ 3311'. Wash down to 3480'.;Circulate bottoms up prior to trip out of hole to run wireline CBL.;Trip out of hole from 3480' to surface. Break off bit.;Rig up wireline equipment. Run CBL , showing some cement @ 3430'. Rig down wireline equipment.;Open lower casing valve and close blind rams. Pumped down kill line with 20 spm 89 psi and got returns through lower casing valve.;Make up cement stinger to wireline and run in hole and set retainer at 3278'. Pull out of hole and rig down wireline equipment.;Make up cement stinger and x- over sub to drill pipe and trip in hole to 3278'. Tagged retainer @ 3278'.;Open lower casing valve. Sting in and circulate down string getting returns through lower casing valve. Pumped 13 bbls with returns and shut down.;Wait on cement to arrive on location.

Note: Notified Patrick McKelvey with BLM of cement squeeze job @ 17:30 hrs 10-19-19.;Circulate and stop string from utube, PJSM & rig up cement tools and steel lines. Stab stinger into retainer. Open up casing valve.;Test lines to 4,000 psi. Pump 20 bbl spacer (8.4ppg), followed by lead cement 743 BBLS (1,766 sks, 11.9ppg, 2.36 yield), Tail cement 38 BBLS (161 sks, 14.8ppg, 1.32 yield), shut down wash out & displace with 59.5 BBLS of fresh water (8.4ppg)
* Full returns and no cement back to surface.;WOC - Pull out of stinger & circulate surface to surface, Rig down cement tools and steel lines.;WOC - POOH F/ 3,278' T/ Stinger Break and lay down stinger.;WOC - Wash out stack with fresh water & prepare to install pack-off.

Full Crews - yes, no accidents or spills.

DAILY JOB COST:	$144,098	TOTAL JOB COST:	$1,988,894
TOTAL WELL COST:	$1,988,894		

Oct 19 2019	MD:		TVD:		FOOTAGE:	PTD:	18,998
	RIG SUPERVISOR:			Mark Kincaid / Dan Thompson		PBTD:	
	PRESENT OPERATIONS:						

Rig up tubing handling tools. Load and strap 100 joints 2 7/8" tubing.;Make up cement stinger to 2 7/8" tubing, pick up tubing and run in hole.;Fill pipe and circulate above cement retainer.;Sting into retainer setting 10K on retainer. Slowly working pump up to 60 SPM with 541 psi without any returns.;Rig up Par Five cementing equipment to drill pipe using boatswain chair to install. Held PJSM with rig crew and Blackhawk service hands.;Pressure test lines to 2000 psi, pump 40 bbls FW for injection rate. Pump 16.6 bbls Thixotropic blend. pump 19.5 bbls FW displacement. Picked up out of retainer and washed up through tubing using cement pump truck.;Rig down cement equipment.

Note: Notified Patrick McKelvey with BLM of cement squeeze job @ 19:40 hrs 10-18-19.;Circulate bottoms up;Lay down tubing from 3,320' to stinger.;Install a joint of drill pipe and shut top pipe rams, break off kill line on B.O.P and install on well head, Pressure up to 250 psi (held), pressure up to 350 psi and the pressure held, bled off pressure and lay down joint. Install Kill line back on B.O.P.;Make up bit & trip in the hole to 3,311' (Retainer).;Drill out retainer with 200-350 GPM, 10-30 WOB, 20-30 RPM.

DAILY JOB COST:	$118,515	TOTAL JOB COST:	$1,844,796
TOTAL WELL COST:	$1,844,796		

Oct 18 2019	MD: 5,584	TVD: 5,583	FOOTAGE:			PTD:	18,998
	RIG SUPERVISOR:	Mark Kincaid / Dan Thompson				PBTD:	
	PRESENT OPERATIONS:	Rig down wire line tools and lubricator					

Trip out of hole from 2500' to surface. Break out cement stinger. WOC.;Slip and cut drill line. WOC;Service rig. WOC;PJSM & rig up wireline tools, run in hole with wireline. No fluid found until 400', pull wire line into the shoe, fill hole with trip tank, run wireline back into the hole, no cement was found, pull wire line out of hole and rig down.;Wait on tools to arrive on location, work on mud pumps.;Make up stinger & TIH to 3,486' @ 100'/FPM.;Circulate and fill up drill pipe and casing, Sting into retainer and could not get flow rates, due to retainer failure (seals), pull up out of stinger.;Break kill line off B.O.P and install flange and union on well head, install kill line on well head. Pump and 93 BBLS of water and pressure up to 250 psi. Turned pumps off and pressure bleed off less than one minute. Take off kill line and install back on B.O.P.;POOH F/ 3,384' T/ Stinger & lay down stinger;PJSM - Rig up wire line tools and lubricator.;RIH in hole with wire line to 3,360' & perforate casing, pull wire line out of hole and install retainer. Run in the hole with retainer to 3,320' & set retainer. Pull out of hole with wire line and rig down wire line tools and lubricator.
Move over and strap 2 7/8" tubing on pipe rack.

Full Crews Yes
No accident or spills
*Total losses of fresh water from 18:00 to 06:00 is 196 BBLS.

DAILY JOB COST:	$44,777	TOTAL JOB COST:	$1,726,281
TOTAL WELL COST:	$1,726,281		

Oct 17 2019	MD: 5,584	TVD: 5,583	FOOTAGE:			PTD:	18,998
	RIG SUPERVISOR:	Chris Williamson / Dan Thompson				PBTD:	
	PRESENT OPERATIONS:	WOC & POOH @ 2,500'					

PJSM - M/U cement retainer, TIH with cement retainer @ 70fpm. Break circulation @ 2,000' with minimal returns. Monitor for returns @ wellhead on casing valve. Check for returns 90' from setting depth @ 3,505'. Getting good returns from displacement but backside falling 5' 10' per minute.;Decision made to set retainer below perforations and attempt to re-set ECP with more pressure. Establish pickup / slack-off weights Set retainer with 20rpm, perform over pulls @ 115k, 125k and 140k, Slack off to 65k and 50k. attempt to pressure up, lost pressure @ 1,100psi. Retainer slipped up hole 6". Check setting of retainer by verifying weights. Pressure up second time to 2,150 and 2,300psi with pressure slowly bleeding off. Would hold 1,200 psi steady.
Release pressure and remover stinger from retainer with 12 right hand rotations.;TOH with stinger assembly, lay down same.
Decision made to run casing scrapper to ensure good set on back up retainer;Wait on tools. Cleaning and prepping for next tool run. Monitor the well on the trip tank with full returns.;Make up casing scrapper & TIH @ 70'FPM;Run 5 passes through retainer setting point while circulating 3 BPM;POOH F/ 3,492' T/ Scrapper & break and lay scrapper, Pick up and make up ret;TIH @ 70' FPM T/ 3,486';Establish pickup / slack-off weights Set retainer with 20rpm, perform over pulls @ 115k, 125k and 140k, Slack off to 65k and 50k.;Open casing valves & stage pumps up to 2bpm with a flow rate of 744 psi and circulate 234 bbls of fresh water with no returns.
Fill stack up with water and close top pipe rams and bull head with 3bpm at 142 psi.
Set slips and break out of string with TDS, shut top pipe rams, and try reverse circulate with 2.5 bpm with 366 psi, no returns.;PJSM with Par 5 & rig up cement tools and steel lines;Test lines to 2,000 psi (had leak and had to shut down and fix), test lines to 4,000 psi. Pump 30 BBLS (green dye) spacer (8.4ppg) to caught pressure at 250 psi, followed by 780 BBLS of lead cement (11.9 ppg, 2.36 yield), 40 BBLS of tail cement (14.8 ppg, 1.32 yield) & displaced drill pipe with 62 BBLS of fresh water (8.4ppg)

*Only had 16 bbls of fresh water of returns during the start of the lead cement and lost returns with no cement back to surface.
*Had to chase cement the whole cement job or the pressure would drop off. With 8.5 BPM only had 539 psi.;Pull out of retainer with stinger & circulate cement ouf of drill pipe and one bottoms up.;Rig down cement tools and steel lines;POOH F/ 3,482 T/ 2,500'

* BLM was notified @ 05:00, talk to Patrick McKelvey.
* Total looses of fresh water from 18:00 to 06:00 is 544 BLLS.

DAILY JOB COST:	$90,234	TOTAL JOB COST:	$1,681,504
TOTAL WELL COST:	$1,681,504		

Oct 16 2019	MD: 5,584	TVD: 5,584	FOOTAGE:		MW: 8.4	LB	PTD:	18,998
	RIG SUPERVISOR:	Chris Williamson / Dan Thompson					PBTD:	
	PRESENT OPERATIONS:	Rigging down wireline unit						

PJSM - Bleed pressure from 9 5/8" casing. Monitor returns.;Nipple down BOP's @ top of A-section. Install emergency slips and make final cut to accept pack-off seal assembly. Nipple up break and torque. Center BOP's, install turnbuckles and install trip nipple.;Pick up BHA. make up 8 3/4" Insert bit. TIH T/ 2,145' Tagged cement.;Work on pumps, clean out manifolds, suction screens. Pull and inspect valves both pumps. #2 mud pump keeps blowing pop off and pressuring up.;Drill cement F/ 2,145' T/ 3,515' (DV TOOL) WOB 33, RPM 50, GPM 381, SPP 350, TQ 3K;Circulate bottoms up;POOH F 3,515' T/ BHA.;Break bit and bit sub & clean rig floor.
Hole full and not taking down backside;PJSM with Allied wire line & rig up lubricator and wire line tools;Run in hole with guns to 3,505' & perforate casing and POOH with wire line and rig down wire line tools and lubricator.
Full Crews Yes
No accident or spills
BLM on location @ 0000hrs. Aware of upcoming cement op's.

DAILY JOB COST:	$41,616	TOTAL JOB COST:	$1,591,270
TOTAL WELL COST:	$1,591,270		

Oct 15 2019	MD:	5,584	TVD:	5,583	FOOTAGE:	MW:	8.4	LB PTD:	18,998
	RIG SUPERVISOR:			Chris Williamson / Dan Thompson				PBTD:	
	PRESENT OPERATIONS:			Monitor pressure on back side					

Monitor casing pressure on cement truck due to pressure gain while pumping displacement @ 161bbls gone of 391.
**Top of plug calculated @ 2,140'
** Contacted BLM @ 0627hrs regarding issue.;PJSM - Close cement head in and rig up to stand pipe to monitor pressure with rig.
** Waiting on Cement per BLM requirements**

Full Crews
No accidents or spills

DAILY JOB COST:	$66,223	TOTAL JOB COST:	$1,549,654
TOTAL WELL COST:	$1,549,654		

Oct 14 2019	MD:	5,584	TVD:	55,883	FOOTAGE:	MW:	8.4	LB PTD:	18,998
	RIG SUPERVISOR:			Chris Williamson / Dan Thompson				PBTD:	
	PRESENT OPERATIONS:			Monitor prssure on pump					

PJSM - Run caliper survey in hole T/ 1,913'. Unable to work through tight spot after numerous attempts. Decision made to rig down and run 9 5/8" casing.;Rig up casing crew and CRT.;Dry fit and mark Sweeco 9 5/8" landing joint;PJSM - Running casing. Make up shoe track, verify circulation. Run 9 5/8" 40# HCL80 BTC F/ 88' T/ 5,214' Total joints ran in 106 of 131. 9 joints on rack.
Wash casing F/ 4,404' T/ 5,214'
**Notified BLM @ 6:05am of Casing run, Stephen Bailey.
**Shoe Depth 5,214'
**FC 5,166'
**ECP 3,527'
**DV 3,515
** Total fresh water losses from 06:00 to 18:00 is 790 BLLS;Rig down casing crew and CRT;Install cement head and lines;Attempt to circulate, swedge kept leaking and had shut down and bleed off and knock off hose 3 times, New one on route to location;Circulate 3 bottoms up, stage pumps to 8bpm 428 psi, final pressure was 258 psi;Swap over steel lines to Par 5 and test lines to 4,000 psi,
Pumped 30 bbls spacer (8.3ppg) followed by lead cement 218 bbls (520 sks, 11.9 ppg, 2.36 yield, Tail cement 58 bbls (250 sacks, 14.8 ppg, 1.32 yield, shut down & displace a total of 110 bbls (fresh water 8.3 ppg) @ 8bpm with 294psi @ 120 gone pressure @ 900 psi.
Total disp pumped 161 pressure 2,380psi Top of DV @ 3,515'ECP @ 3,527'
500 compressive tail 5:31;Monitor pressure on pump truck.

* Total fresh water losses from 18:00 to 06:00 is 2,881 BBLS

DAILY JOB COST:	$341,703	TOTAL JOB COST:	$1,483,432
TOTAL WELL COST:	$1,483,432		

Oct 13 2019	MD:	5,584	TVD:	5,583	FOOTAGE:	MW:	8.4	LB PTD:	18,998
	RIG SUPERVISOR:			Chris Williamson / Dan Thompson				PBTD:	
	PRESENT OPERATIONS:			Run in hole with wire line and get caliper and directional survey.					

PJSM - TOH F/ 3,200' T/ BHA racking back 8 & 6 1/2" DC's.;Break bit, lay down motor, stabilizer, shock sub and pony NMDC.;Clean and organize rig floor.;PJSM - Rig crews and Allied on rigging up unit and lubricator.;Rig up wireline unit, lubricator and open hole pack off.;Run in hole with wire line and get caliper and directional survey. Wireline in T/ 2,000' open caliper and log up T/ 1,855'. Close caliper and wireline in, taking weight @ 1,913'. Work numerous times and still taking full tool weight of 657lbs. On surface tools functioned properly and no junk behind arm.
*Monitor well on trip tank during logging operations.
*Average hole size F/ 2,000' too shoe @ 1,885' was 17.6"
*Decision made to make clean up run.;PJSM - Rig down wireline unit, lubricator and open hole pack off.;Pick up bit and bit sub, make up BHA;TIH F/ BHA T/ 5,584' Monitor well on backside with trip tank. No returns and hole on vacuum.

Tight spot F/ 4,300 T/ 4,500' - (Wash and Ream with 500 GPM, 50 RPM, 350 SPP, 14k TQ)
Tight spot and tried to pack off F 5,000' T/ 5,156' - (Work pipe free and Wash & Ream with 544 GPM, 90 RPM, 400 SPP, 15k TQ)

Total losses of fresh water from 06:00 to 18:00 is 30 BBLS.;Pump 80 BLLS LCM & gel sweep followed by 4500 strokes;POOH F/ 5,584' T/ 1,765' BHA Monitor well on backside with trip tank. No returns and hole on vacuum.;Pull out rotating head;POOH F/ 1,765' T/ BHA Monitor well on backside with trip tank. No returns and hole on vacuum.;Break bit and bit sub and rack back collar.;PJSM & Rig up wireline unit, lubricator and open hole pack off & start to in hole with wire line and get caliper and directional survey.

Total losses of fresh water from 18:00 to 06:00 is 1,631 BBLS.
*Full Crews days and nights
*No spills
*No Accidents

DAILY JOB COST:	$69,601	TOTAL JOB COST:	$1,141,729
TOTAL WELL COST:	$1,141,729		

PAR FIVE

ENERGY SERVICES LLC

DESIGN - EXECUTE - EVALUATE - REPORT

0

CAZA OPERATING

IGLOO 19 24 STATE FED COM 12H

LEA County, NEW MEXICO

PRIMARY PUMP: 2060
SECONDARY PUMP: 2032

Prepared By: James Carns

SERVICE SUPERVISOR

ARTESIA DISTRICT

1-575-748-8610

10/15/2019

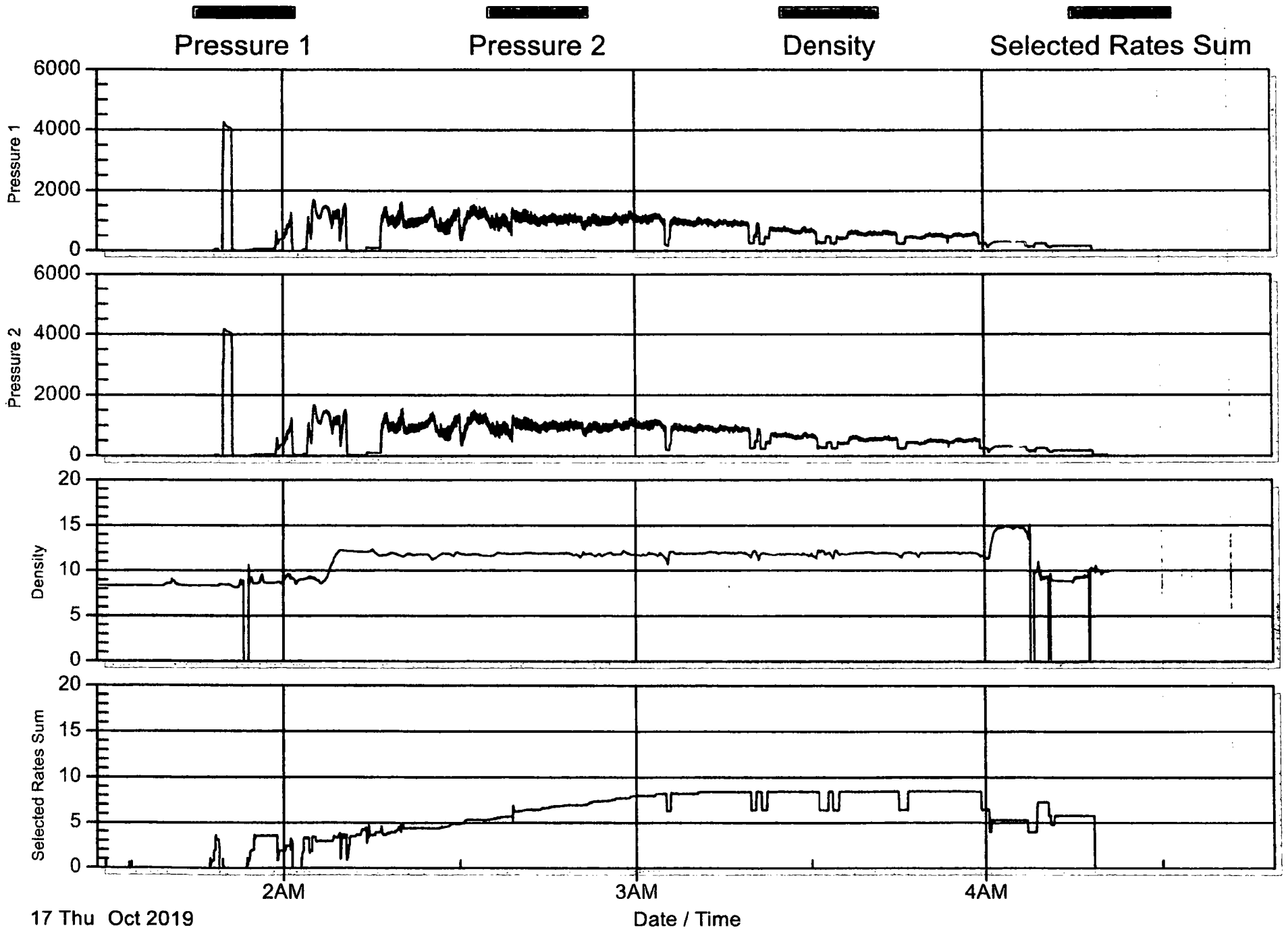
JOB LOG

PAR FIVE ENERGY SERVICES LLC

COMPANY NAME:	CAZA OPERATING	DATE:	10/15/2019
LEASE NAME:	IGLOO 19 24 STATE FED COM	TICKET NUMBER:	9622
WELL NUMBER:	12H	JOB TYPE:	
SCHEDULED LOCATION TIME:	21:30	DATE LEFT LOCATION:	10/17/2019
TIME ARRIVED ON LOCATION:	21:00	TIME LEFT LOCATION:	6:15

TIME	PRESSURE		VOLUME	RATE	LOG DETAILS
	RIG OR DP	CASING			
18:45					PRE-CONVOY MEETING
19:00					DEPARTURE FROM YARD
22:00					ARRIVE LOCATION
22:15					HAZZARD ASSESMENT
22:30					PRE-RIG UP MEETING
22:45					RIG UP
1:10					SAFETYING MEETING ON THE 10-17-2019
1:47		78	3	3	FILL LINES
1:49	4000		1	1	P.T.4000 PSI
1:53		72	20	3.5	DYE SPACER INJECTION RATE (NO RETURNS
2:05		1160	10	3	LEAD CMT @11.9
2:20		950	50	4.5	LEAD CMT @11.9
2:31		1210	100	5.5	LEAD CMT @11.9 GOT LITTLE RETURNS
2:40		1267	150	6.5	LEAD CMT @11.9
2:49		1188	200	7	LEAD CMT @11.9 NO RETURNS
2:54		1081	250	8	LEAD CMT @11.9
3:00		1003	300	8	LEAD CMT @11.9
3:07		1061	350	8.3	LEAD CMT @11.9
3:13		1057	400	8.5	LEAD CMT @11.9
3:19		1007	450	8.5	LEAD CMT @11.9
3:25		741	500	8.5	LEAD CMT @11.9
3:31		609	550	8.5	LEAD CMT @11.9
3:58		121	600	6.5	FINSH LEAD CMT
4:00		172	10	4	TAIL CMT @14.8
4:08		269	35	4	FINSH TAIL CMT
4:09		265	10	7	DISPLACE
4:10		265	20	7	DISPLACE
4:11		127	30	6	DISPLACE
4:14		176	40	5.5	DISPLACE
4:17		176	50	5.5	DISPLACE
4:19		174	62	5.5	SHUT DOWN (NO CMT TO SURFACE)
4:20		0			TURN OVER TO RIG TO STING OUT
4:25					RIG DOWN MEETING
4:30					RIG DOWN WASH PUMP
6:00					PRECONVOY MEETING
6:15					LEAVE LOC

IGLOO-19-24-STATE-FED-12H



WELL SUMMARY

PAR FIVE ENERGY SERVICES LLC

COMPANY NAME:	CAZA OPERATING		DATE: 10/15/2019		
LEASE NAME:	IGLOO 19 24 STATE FED COM		OPERATOR NAME:		
WELL NUMBER:	12H		TICKET NUMBER: 9622		
API NUMBER:	30-025-45289		AFE NUMBER:		
SECTION: 19		TOWNSHIP: 20S		RANGE: 35E	
COUNTY: LEA		STATE: NEW MEXICO			
RIG NAME: NABORS M51		COMPANY REP:		PHONE#:	

DIRECTIONS

Take 82 east to 360, turn right on 360 and go to 62-180, turn left on 62-180 and go to Marathon road, turn right on Marathon and go 5.5 miles, turn left go 1.6 miles turn right and go 0.2 miles, turn right to location. Nabors M51

NOTES

UPDATED BY DAMASIO 10-15-19

HSE

WEAR PROPER PPE

JOB PROCEDURE

CUSTOMER WILL PERF
TEST LINES

PUMP 20 BBLS FRESH WATER

2nd STG- PUMP 10 BBLS FRESH WATER
PUMP 1125 SKS2nd LEAD @ 11.9
PUMP 150 SKS 2nd TAIL @ 14.8
SHUT DOWN
DROP PLUG
DISPLACE WELL

WELL SUMMARY

PAR FIVE ENERGY SERVICES LLC

WELL /CASING DATA			
JOB TYPE:	INTERMEDIATE	HOLE SIZE:	12.25
TVD:		PREVIOUS CASING SIZE:	13 3/8
PREVIOUS CASING LB/FT:	54.5	PREVIOUS CASING DEPTH:	1930
CASING SIZE:	9 5/8		
CASING LB/FT:	40	CASING GRADE:	J55
FLOAT COLLAR DEPTH:		SHOE JOINT LENGTH:	
DV TOOL DEPTH:		SECOND DV TOOL DEPTH:	
TOTAL DEPTH:		TOTAL CASING :	

TUBULAR DATA			
TBG/D.P. SIZE:	5.5	TBG/D.P. DEPTH:	3515
TBG/D.P. LB/FT:		TOOL DEPTH:	3486
PACKER OR RETAINER:	3486	PERF/HOLE DEPTH:	3505

SURFACE EQUIPMENT			
CEMENT HEAD SIZE:	9 5/8	QUICK CONNECT SIZE:	9 5/8
DRILL PIN SIZE/TYPE:		THREAD:	BUTT
TUBING SWEDGE SIZE:		TAKE 2 -2 INCH REGULAR TUBING SWEDGES	

CHEMICALS NEEDED

400 LBS SUGAR

EQUIPMENT			
SUPERVISOR 1:	James Carns	FIELD REPRESENTATIVE:	Robert Gressett
SUPERVISOR 2:		SAFETY REPRESENTATIVE:	
PUMP OPERATOR:	Enmanuel Sanchez	UNIT NUMBER:	2060
E/O:	Alejandro Cardeno	UNIT NUMBER:	1044
E/O:	Isaac Hobbs	UNIT NUMBER:	1005
E/O:		UNIT NUMBER:	
E/O:		UNIT NUMBER:	
E/O:		UNIT NUMBER:	

FLUID DATA

1ST SLURRY:	50/50 PLiite/C+5%PF44(BWOW)(Salt)+10%PF20(Bentonite Gel)+0.2%PF13(Retarder)+0.1%PF153(Anti Settling)+3#/skPF62(Extender)+0.125#/skPF29(Celloflake)+3#/skPF42(Kolseal)+0.4#/skPF45(Defoamer)						
DENSITY: 11.9	YIELD:	2.36	MIX H2O:	12.833	SACKS:	1420	
2ND SLURRY:	C NEAT						
DENSITY: 14.8	YIELD:	1.32	MIX H2O:	6.304	SACKS:	150	
3RD SLURRY:							
DENSITY: 11.9	YIELD:	2.36	MIX H2O:	12/853	SACKS:		
4TH SLURRY:							
DENSITY: 14.8	YIELD:	1.32	MIX H2O:	6.3	SACKS:		
5TH SLURRY							
DENSITY:	YIELD:		MIX H2O:		SACKS:		
6TH SLURRY							
DENSITY:	YIELD:		MIX H2O:		SACKS:		

1st DISPLACEMENT TYPE :		1st DISPLACEMENT VOLUME:		MUD WEIGHT:	
2nd DISPLACEMENT TYPE :		2nd DISPLACEMENT VOLUME:			
3rd DISPLACEMENT TYPE :		3rd DISPLACEMENT VOLUME:			

WELL SUMMARY

PAR FIVE ENERGY SERVICES LLC

COMPANY NAME:	CAZA OPERATING		DATE: 10/19/2019		
LEASE NAME:	Igloo 19 24 State Fed Com		OPERATOR NAME:		
WELL NUMBER:	12H		TICKET NUMBER: 9572		
API NUMBER:	30-025-45289		AFE NUMBER:		
SECTION: 34		TOWNSHIP: 22S		RANGE: 35E	
COUNTY: LEA			STATE: NEW MEXICO		
RIG NAME: NABORS M51		COMPANY REP:		PHONE#:	

From Eunice go south on state highway 207 for +/- 2 miles to Delaware Basin Road, turn right on Delaware Basin road for 16.9 miles, turn right and go north for 0.1 mile and turn east to location.

UPDATED BY DAMASIO 8-20-19

WEAR PROPER PPE

TEST LINES

2nd STG- PUMP 10 BBLS FRESH WATER
PUMP 1450 SKS2nd LEAD @ 11.9
PUMP 150 SKS 2nd TAIL @ 14.8
SHUT DOWN
DROP PLUG
DISPLACE WELL

WELL SUMMARY

PAR FIVE ENERGY SERVICES LLC

JOB TYPE:	INTERMEDIATE RE-CEMENT	HOLE SIZE:	12.25
TVD:	5563	PREVIOUS CASING SIZE:	13 3/8
PREVIOUS CASING LB/FT:	54.5	PREVIOUS CASING DEPTH:	1885
CASING SIZE:	9 5/8		
CASING LB/FT:	40	CASING GRADE:	HCL80
FLOAT COLLAR DEPTH:		SHOE JOINT LENGTH:	
DV TOOL DEPTH:		SECOND DV TOOL DEPTH:	
TOTAL DEPTH:	5563	TOTAL CASING :	5563
TBG/D.P. SIZE:	5	TBG/D.P. DEPTH:	3278
TBG/D.P. LB/FT:		TOOL DEPTH:	
PACKER OR RETAINER:	3278	PERF/HOLE DEPTH:	3360
CEMENT HEAD SIZE:		QUICK CONNECT SIZE:	
DRILL PIN SIZE/TYPE:	4 1/2 IF	THREAD:	
TUBING SWEDGE SIZE:		TAKE 2 -2 INCH REGULAR TUBING SWEDGES	

400 LBS SUGAR ,

SUPERVISOR 1:	Keith Jackson	FIELD REPRESENTATIVE:	
SUPERVISOR 2:		SAFETY REPRESENTATIVE:	
PUMP OPERATOR:	Alfred Perches	UNIT NUMBER:	1037/2051
E/O:	Jose Nevarez	UNIT NUMBER:	1015/2037
E/O:	Jose Reyes	UNIT NUMBER:	1020/2029
E/O:		UNIT NUMBER:	
E/O:		UNIT NUMBER:	
E/O:		UNIT NUMBER:	

1ST SLURRY:	50/50 PLiite/C+5%PF44(BWOW)(Salt)+10%PF20(Bentonite Gel)+0.2%PF13(Retarder)+0.1%PF153(Anti Settling)+3#/skPF62(Extender)+0.125#/skPF29(Celloflake)+3#/skPF42(Kolseal)+0.4#/skPF45(Defoamer)						
DENSITY: 11.9	YIELD:	2.36	MIX H2O:	12.833	SACKS:	1450	
2ND SLURRY:	C NEAT						
DENSITY: 14.8	YIELD:	1.32	MIX H2O:	6.304	SACKS:	150	
3RD SLURRY:							
DENSITY:	YIELD:		MIX H2O:		SACKS:		
4TH SLURRY:							
DENSITY:	YIELD:		MIX H2O:		SACKS:		
5TH SLURRY							
DENSITY:	YIELD:		MIX H2O:		SACKS:		
6TH SLURRY							
DENSITY:	YIELD:		MIX H2O:		SACKS:		
1st DISPLACEMENT TYPE :	F/W		1st DISPLACEMENT VOLUME:		59.3	MUD WEIGHT:	8.34
2nd DISPLACEMENT TYPE :			2nd DISPLACEMENT VOLUME:				
3rd DISPLACEMENT TYPE :			3rd DISPLACEMENT VOLUME:				

JOB LOG

PAR FIVE ENERGY SERVICES LLC

COMPANY NAME:	CAZA OPERATING	DATE:	10/19/2019
LEASE NAME:	Igloo 19 24 State Fed Com	TICKET NUMBER:	9572
WELL NUMBER:	12H	JOB TYPE:	
SCHEDULED LOCATION TIME:	15:00	DATE LEFT LOCATION:	10/20/2019
TIME ARRIVED ON LOCATION:	19:45	TIME LEFT LOCATION:	3:00

18:00					PRE-CONVOY MEETING
18:15					DEPARTURE FROM YARD
19:45					ARRIVE LOCATION
19:55					HAZZARD ASSESMENT
20:05					PRE-RIG UP MEETING
21:30					RIG UP FLOOR
22:20					PRE JOB SAFETY MEETING
22:34	4680		2	1	LOAD AND TEST LINES
22:42	429		20	6	FRESH WATER WITH DYE
22:45	270		609	6.4	LEAD - 1450 SKS / 609 BBLS / 11.9#
0:37	180		35	5.4	TAIL - 150 SKS / 35 BBLS / 14.8#
0:45					SHUT DOWN, WASH PUMP TO OPEN TOP TANK
0:58	180		50	6.5	DISPLACEMENT
1:07	381		9.3	3	SLOW RATE
1:10	350				SHUT DOWN, FINAL LIFT 350 PSI
1:12					STING OUT OF RETAINER
1:10	276		20	5	PUMP 20 BBLS
1:21					GIVE TO RIG TO CIRCULATE BOTTOMS UP
					DID NOT CIRCULATE CEMENT TO SURFACE
1:50					RIG DOWN SAFETY MEETING
2:00					RIG DOWN PAR FIVE
2:50					PRE CONVOY MEETING
3:00					LEAVE LOCATION
					****NOTE - ALL TIMES ARE MOUNTAIN TIME ZONE****

WELL SUMMARY

PAR FIVE ENERGY SERVICES LLC

COMPANY NAME:	CAZA OPERATING LLC		DATE:	10/18/2019	
LEASE NAME:	IGLOO 19 24 STATE FED COM		OPERATOR NAME:		
WELL NUMBER:	12H		TICKET NUMBER:	9366	
API NUMBER:	30-025-46411		AFE NUMBER:	52064	
SECTION: 19		TOWNSHIP:	20S	RANGE:	35E
COUNTY: LEA		STATE:	NEW MEXICO		
RIG NAME: NABORS M51		COMPANY REP:		PHONE#:	

DIRECTIONS

NOTES

ENTERED 10-17-2019

INSIDE A 9 5/8 CASING WITHBA RETAINER SET @ 3320 PERFS @ 3360, WE ARE GOING TO TRU AND GET RATE AND GO

AFTER DISPLACEMENT , RIG PULLED UP AND COUPLE FEET AND WE PUMP 20 BBLS TO CLEAN STINGER AND TOP OF RETAINER

HSE

WEAR PROPER PPE

JOB PROCEDURE

RIG UP TEST LINES
20 BBLS FRES WATER

60 SACKS CEMENT

WELL SUMMARY

PAR FIVE

ENERGY SERVICES LLC

WELL /CASING DATA			
JOB TYPE: SQUEEZE		HOLE SIZE:	
TVD:		PREVIOUS CASING SIZE:	
PREVIOUS CASING LB/FT:		PREVIOUS CASING DEPTH:	
CASING SIZE:	9 5/8		
CASING LB/FT:	40	CASING GRADE:	
FLOAT COLLAR DEPTH	NA	SHOE JOINT LENGTH:	
DV TOOL DEPTH:		SECOND DV TOOL DEPTH:	
TOTAL DEPTH:	3340	TOTAL CASING :	NA
TUBULAR DATA			
TBG/D.P. SIZE:	2 7/8	TBG/D.P. DEPTH:	3320
TBG/D.P. LB/FT:	6.5	TOOL DEPTH:	3320
PACKER OR RETAINER	3320	PERF/HOLE DEPTH:	3360
SURFACE EQUIPMENT			
CEMENT HEAD SIZE:		QUICK CONNECT SIZE:	
DRILL PIN SIZE/TYPE:	4 1/2 IF	THREAD:	
TUBING SWEDGE SIZE	2 7/8	TAKE 2 -2 INCH REGULAR TUBING SWEDGES	
CHEMICALS NEEDED			
200# SUGAR			

EQUIPMENT			
SUPERVISOR:	Robert Nunez	FIELD REPRESENTATIVE:	
PUMP OPERATOR:	David Chavarria	UNIT NUMBER:	1021-2001
E/O:	Jose Velasquez	UNIT NUMBER:	1007-2017
E/O:		UNIT NUMBER:	
E/O:		UNIT NUMBER:	
E/O:		UNIT NUMBER:	

FLUID DATA							
1ST SLURRY:	RFC C+10%PF53(Gypsum)+2%PF1(Calcium Chloride)+0.125#/skPF29(Celloflake)+3#/skPF42(Kolsael)						
DENSITY:	14.4	YIELD:	1.56	MIX H2O:	7.517	SACKS:	60
2ND SLURRY:							
DENSITY:		YIELD:		MIX H2O:		SACKS:	
3RD SLURRY:							
DENSITY:		YIELD:		MIX H2O:		SACKS:	
4TH SLURRY:							
DENSITY:		YIELD:		MIX H2O:		SACKS:	
5TH SLURRY							
DENSITY:		YIELD:		MIX H2O:		SACKS:	

JOB LOG

PAR FIVE

ENERGY SERVICES LLC

COMPANY NAME:	CAZA OPERATING LLC	DATE:	10/18/2019
LEASE NAME:	IGLOO 19 24 STATE FED COM	TICKET NUMBER:	9366
WELL NUMBER:	12H	JOB TYPE:	SQUEEZE
SCHEDULED LOCATION TIME	5:00	DATE LEFT LOCATION	10/18/2019
TIME ARRIVED ON LOCATION	5:00	TIME LEFT LOCATION	20:00

TIME	PRESSURE		VOLUME	RATE	LOG DETAILS
	TBG OR D.P	CASING			
2:00					PRE-CONVOY MEETING
3:00					DEPARTURE FROM YARD
5:00					ARRIVE LOCATION
5:00					HAZZARD ASSESMENT
5:15					PRE-RIG UP MEETING
15:10					SAFETY MEETING WITH P-5 AND RIG PERSONNEL
15:38	2000		0.5	0.5	PRESSURE LINE TEST
15:40	510		40	4.5	H20-OBTAIN -INJECT RATE
16:09	475		16.6	4.5	CENMENT (RFC) @ 14.4 DENSITY
16:14	140-350		19.22	3	STRAIGHT TO DISPLACEMENT- TO RETAINER ONLY
16:20			19.22		SHUT DOWN - WASH UP
16:26			20	3	PULL UP TUBING -CLEAN STINGER
16:30					SHUT DOWN

Cement Bond Log

VAUGHN ENERGY SERVICES INC.

Company Caza Operating
Well Igloo 19-24 State Fed Com 12H
Field
County Lea State New Mexico

Company Caza Operating

Well Igloo 19-24 State Fed Com 12H

Field

County Lea State New Mexico

Location: API # : 30-025-46411

SEC TWP RGE

Other Services

Elevation

Permanent Datum Elevation

Log Measured From KB

Drilling Measured From KB

K.B. 28'
D.F.
G.L.

Date	10/22/19		
Run Number	One		
Depth Driller	5150		
Depth Logger	5150		
Bottom Logged Interval	5150		
Top Log Interval	Surface		
Open Hole Size			
Type Fluid	FW		
Density / Viscosity			
Max. Recorded Temp.	97		
Estimated Cement Top			
Time Well Ready	9:45am		
Time Logger on Bottom	11:00am		
Equipment Number	WL6		
Location			
Recorded By	Casey Gerhards		
Witnessed By			

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	9 5/8	40#	Surface	5150
Prot. String				
Production String				
Liner				

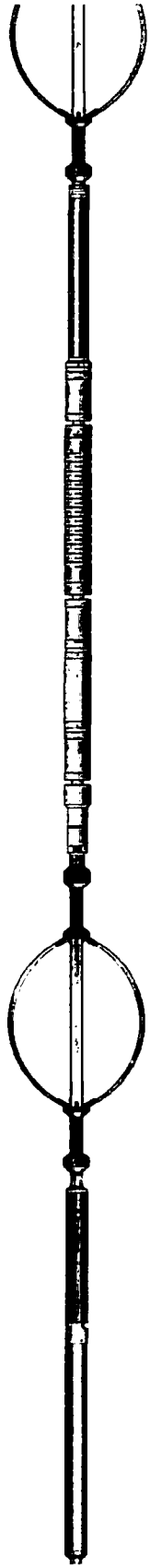
<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Length (ft)	O.D. (in)	Weight (lb	Description	Schematic

Sensor	Offset (ft)
ErrCt	23.58



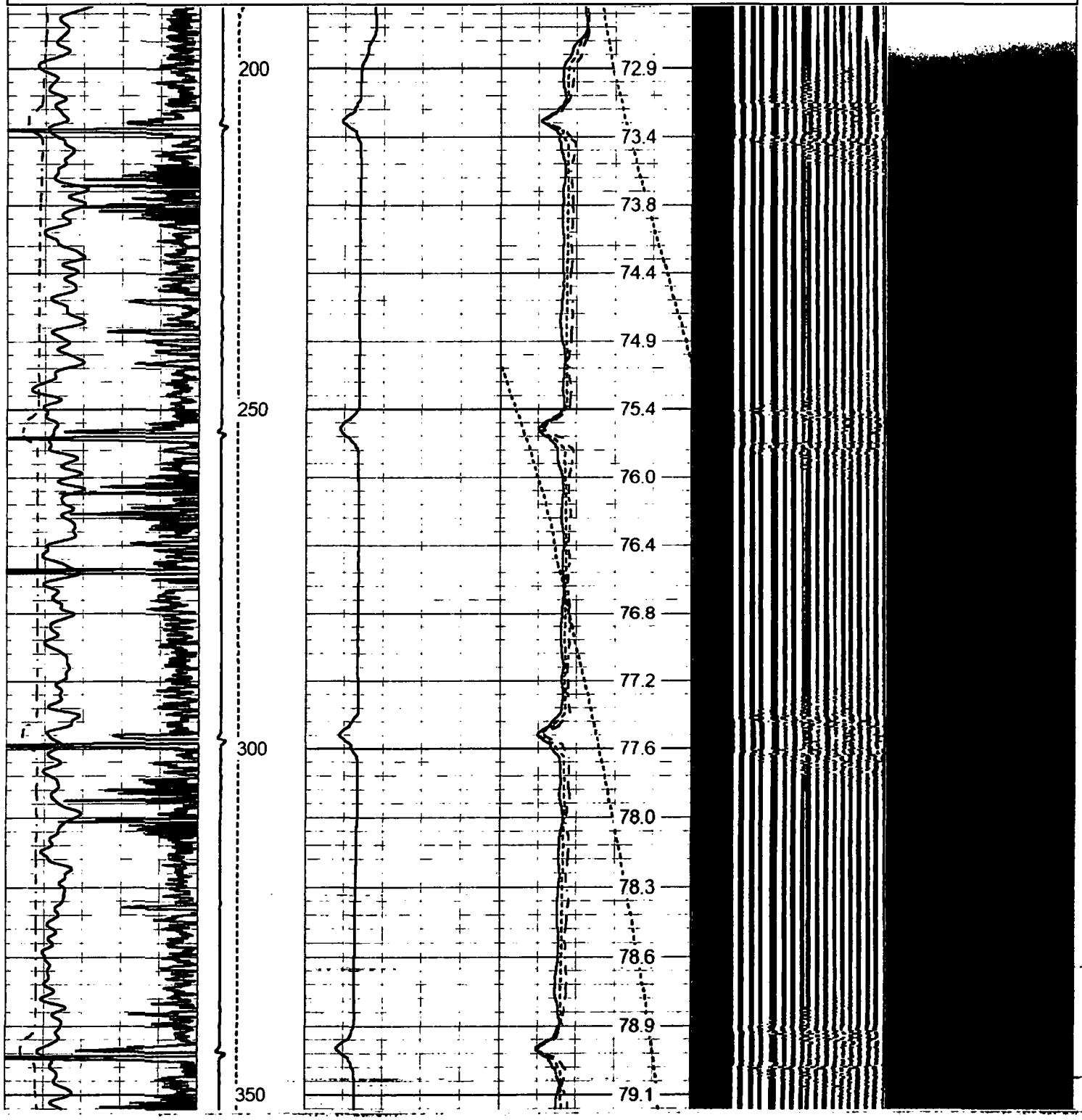
	CENT-CH_3.5IN FG010-BH01	4.47	3.50	46.00
IntTemp	18.18			
Headvolt	18.18			
RBT_ACCZ	16.85			
RBT_ACCY	16.85			
RBT_ACCX	16.85			
WVFS16	14.60			
WVFS15	14.60			
WVFS14	14.60			
WVFS13	14.60			
WVFS12	14.60			
WVFS11	14.60			
WVFS10	14.60			
WVFS9	14.60			
WVFS8	14.60			
WVFS7	14.60			
WVFS6	14.60			
WVFS5	14.60			
WVFS4	14.60			
WVFS3	14.60			
WVFS2	14.60			
WVFS1	14.60			
WVFCAL	14.60			
WVF3FT	14.60			
WVF5FT	13.60			
HEADVOLT	9.85			
	RBT16-PTS_350 (RBT350_Base) RADII-350A	9.27	3.50	175.00
	CENT-CH_3.5IN FG010-BH01	4.47	3.50	46.00
CCL$2	4.14			
CCL$1	4.14			
GCT_Temp	3.26			
GR	2.39			
	GC-GCT275-0BP0 (GCT275-0BP0_base) Probe GCT275-0BP0 w/Temp 6 Magnet	5.38	2.75	59.00

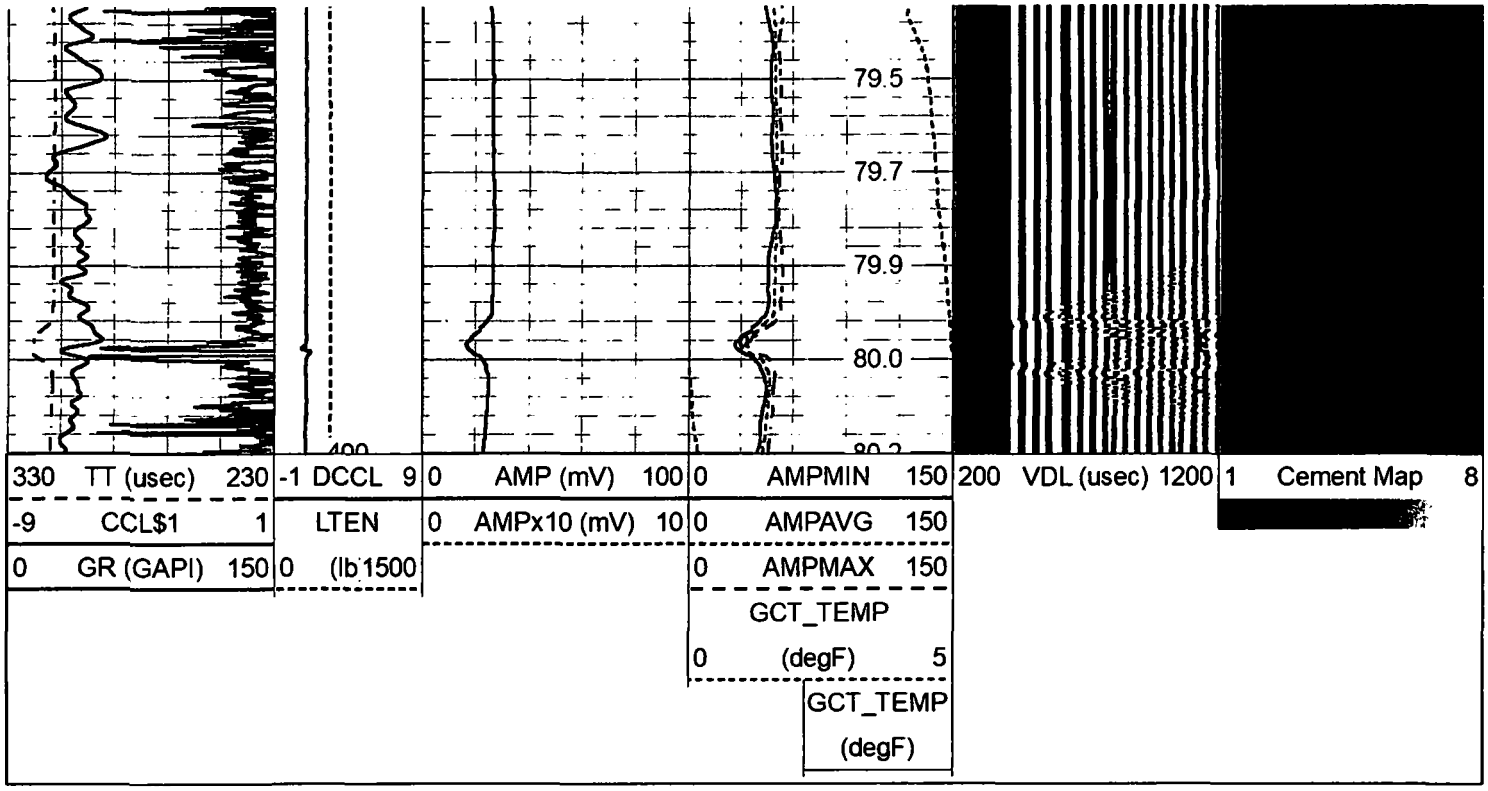
Dataset:	ves6016-2019.db: field/well/run1/pass1.8
Total length:	23.58 ft
Total weight:	326.00 lb
O.D.:	3.50 in

Free Pipe Pass

Database File	ves6016-2019.db
Dataset Pathname	pass1.6
Presentation Format	wl7_rbt 8sec gt
Dataset Creation	Tue Oct 22 10:03:52 2019
Charted by	Depth in Feet scaled 1:240

330 TT (usec) 230	-1 DCCL 9	0 AMP (mV) 100	0 AMPMIN 150	200 VDL (usec) 1200	1 Cement Map 8
-9 CCL$1 1	LTEN	0 AMPx10 (mV) 10	0 AMPAVG 150		
0 GR (GAPI) 150	0 (lb 1500		0 AMPMAX 150		
			GCT_TEMP		
			0 (degF) 5		
			GCT_TEMP (degF)		





Main Pass

Database File	ves6016-2019.db
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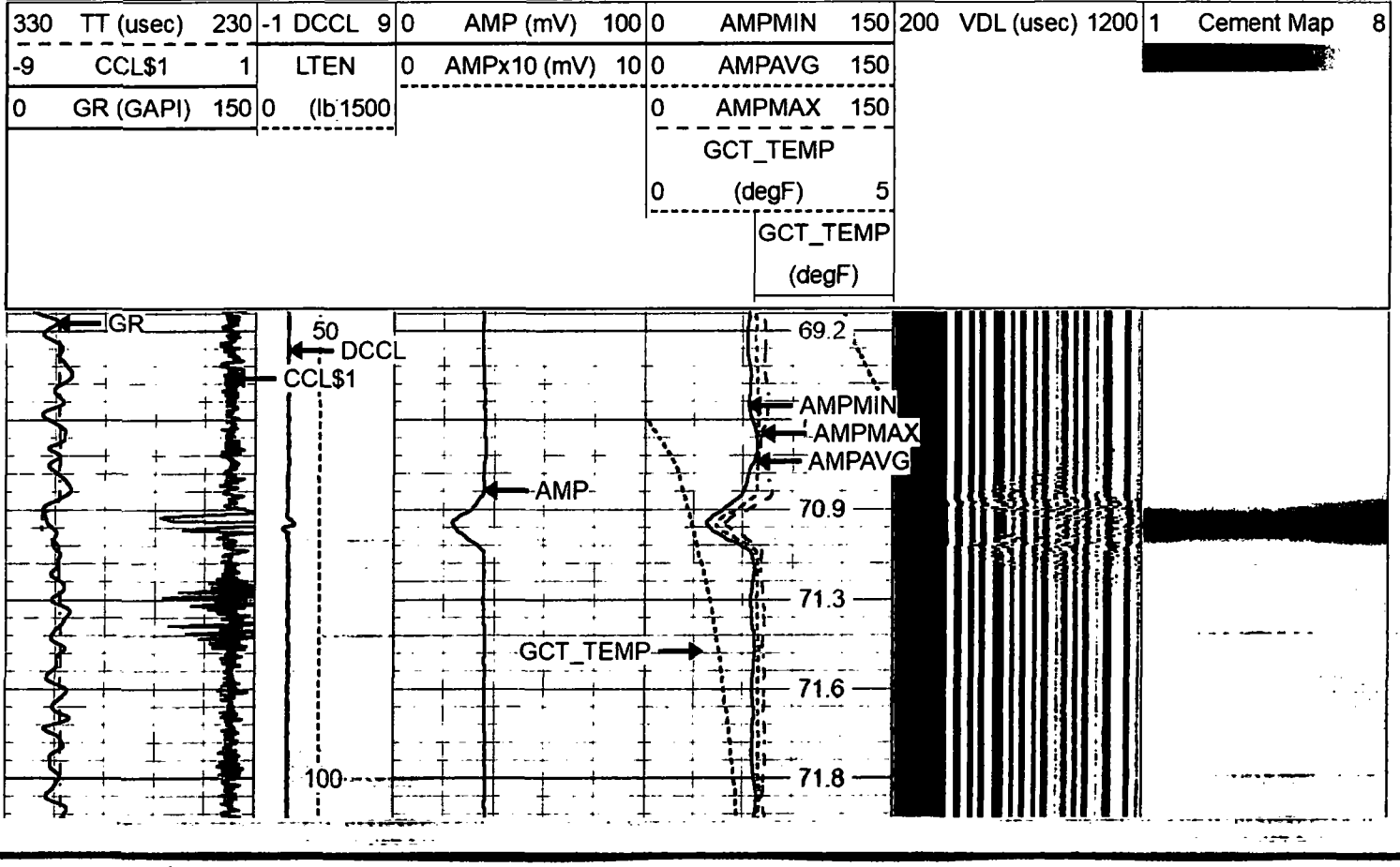
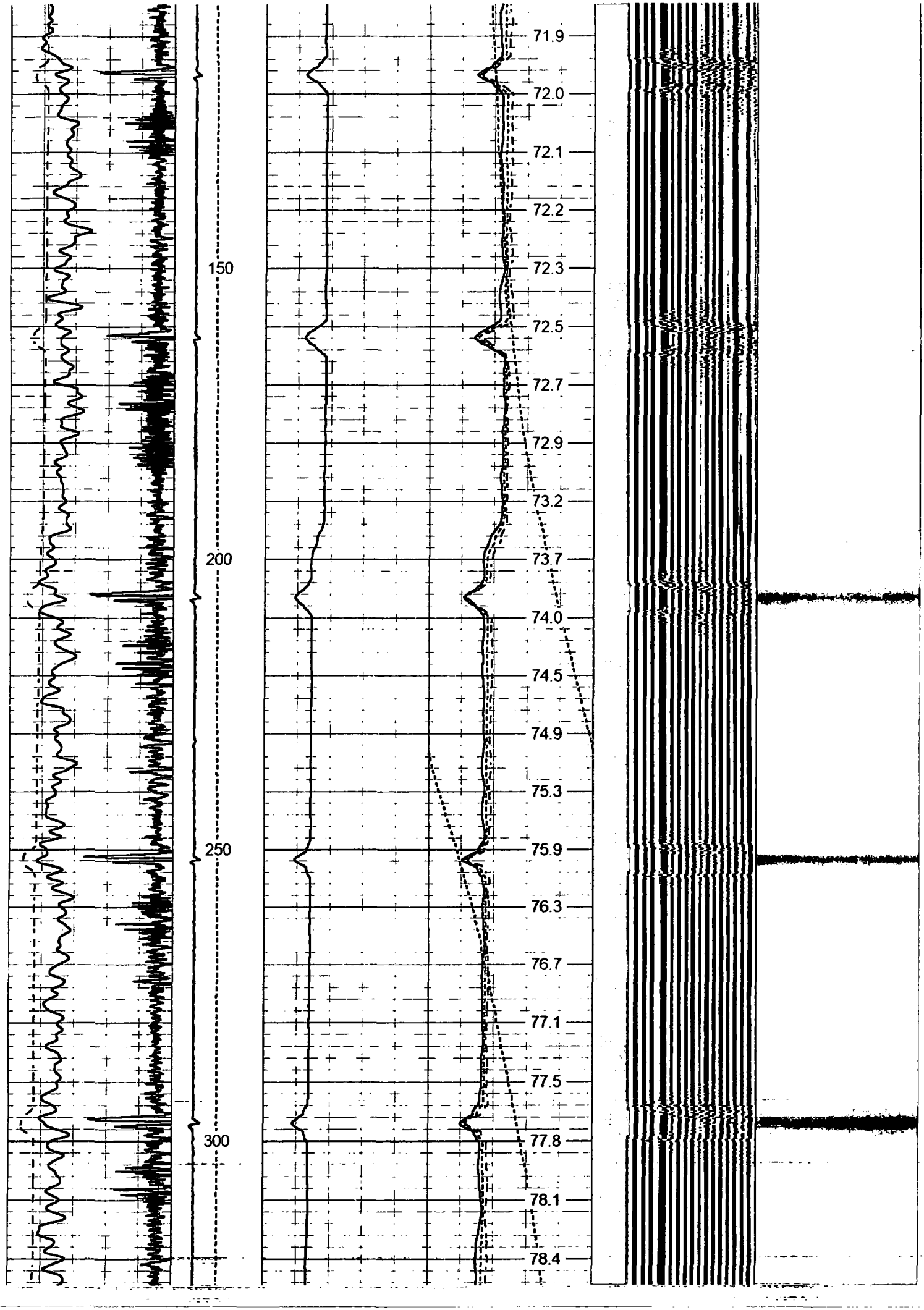
Presentation Format	wl7_rbt 8sec gt
Dataset Creation	Tue Oct 22 10:55:52 2019
Charted by	Depth in Feet scaled 1:240

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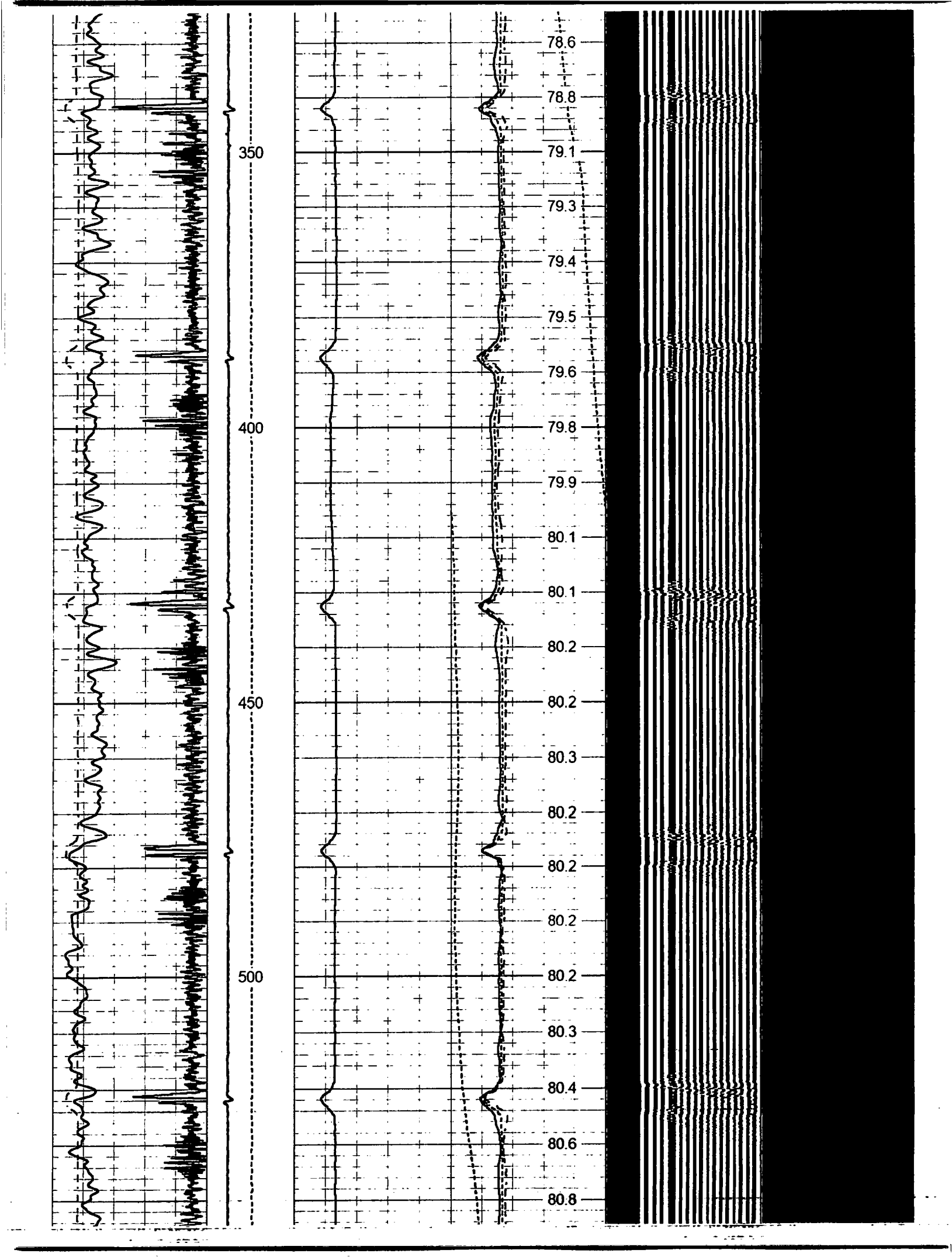
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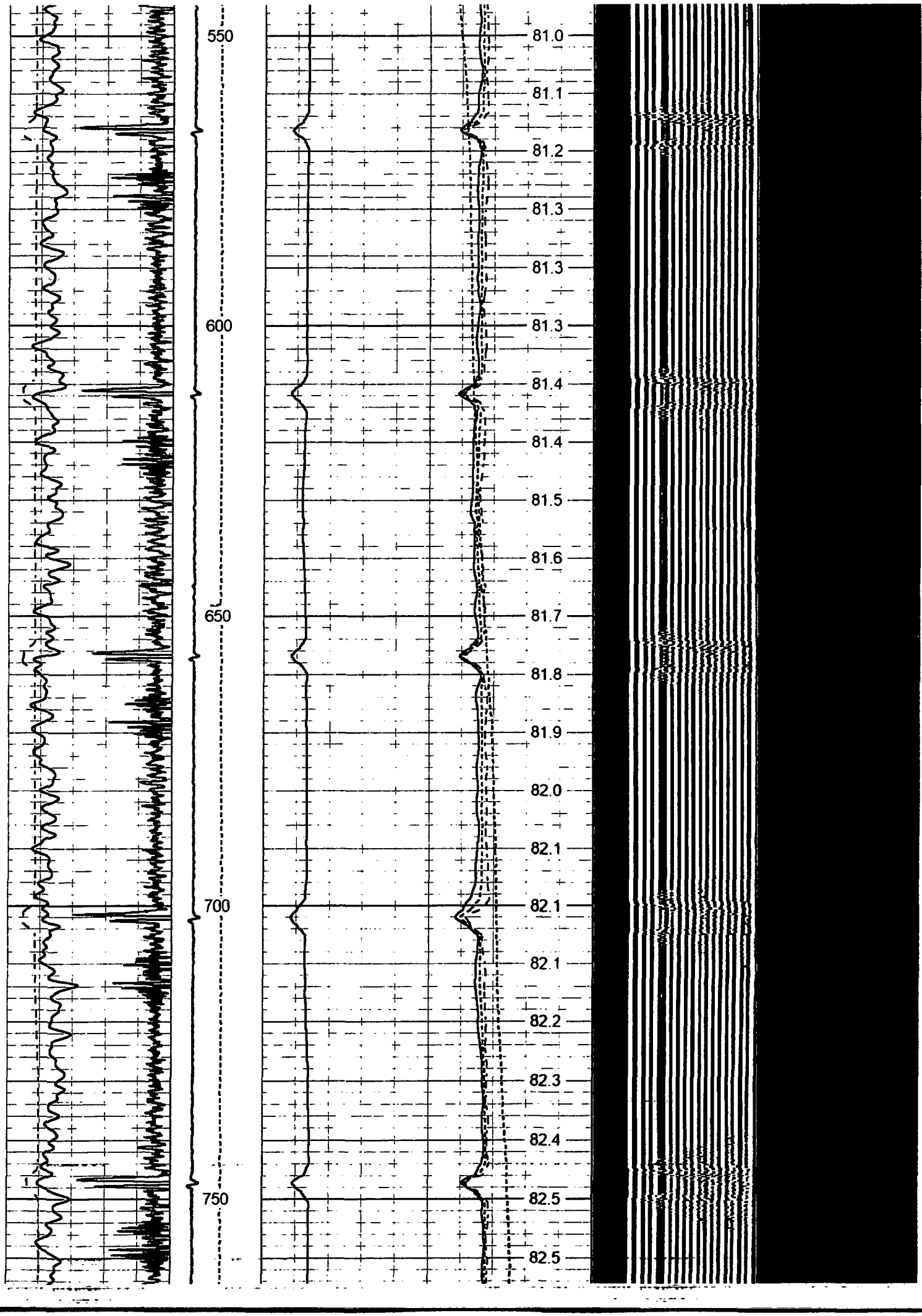
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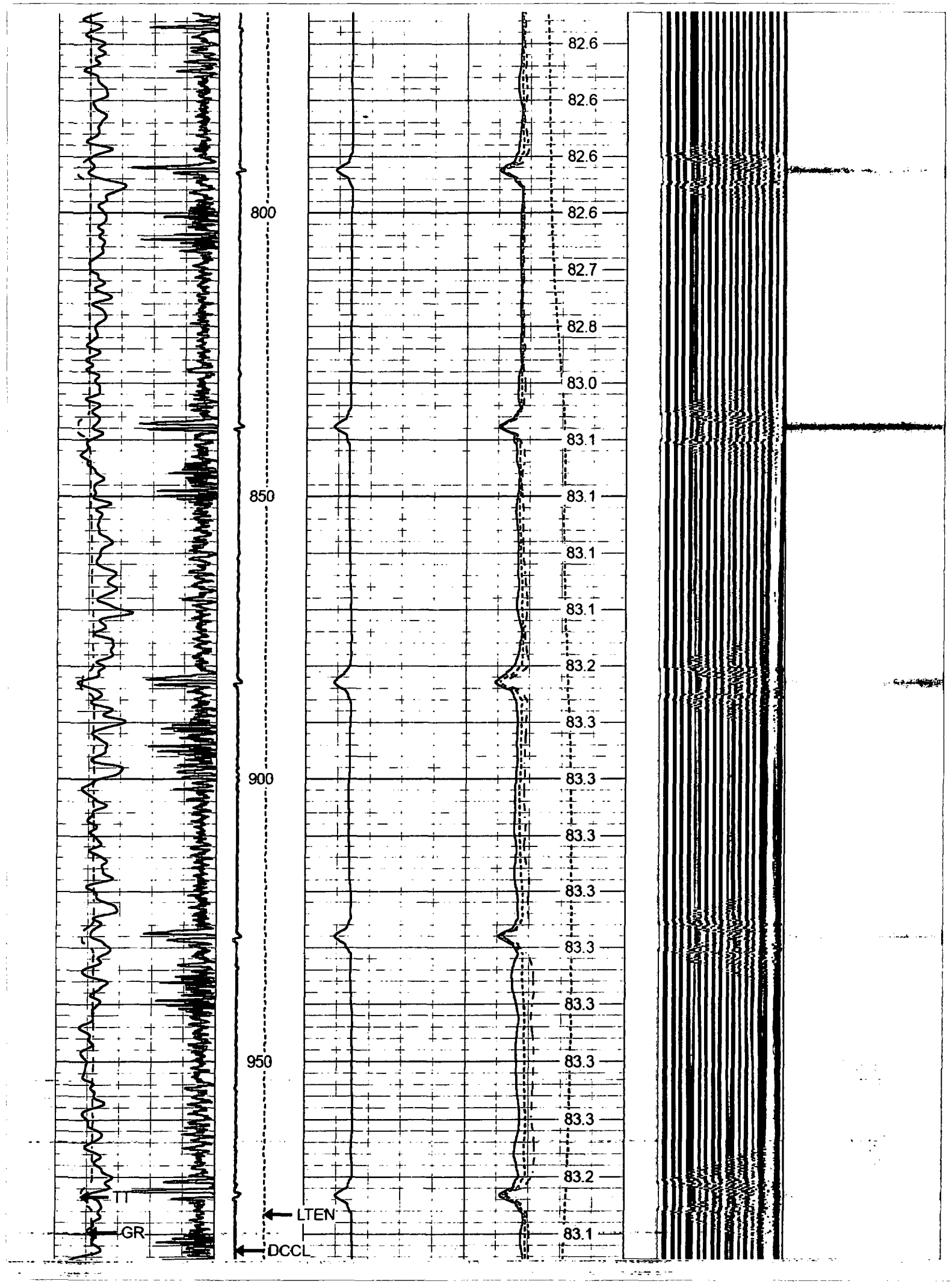
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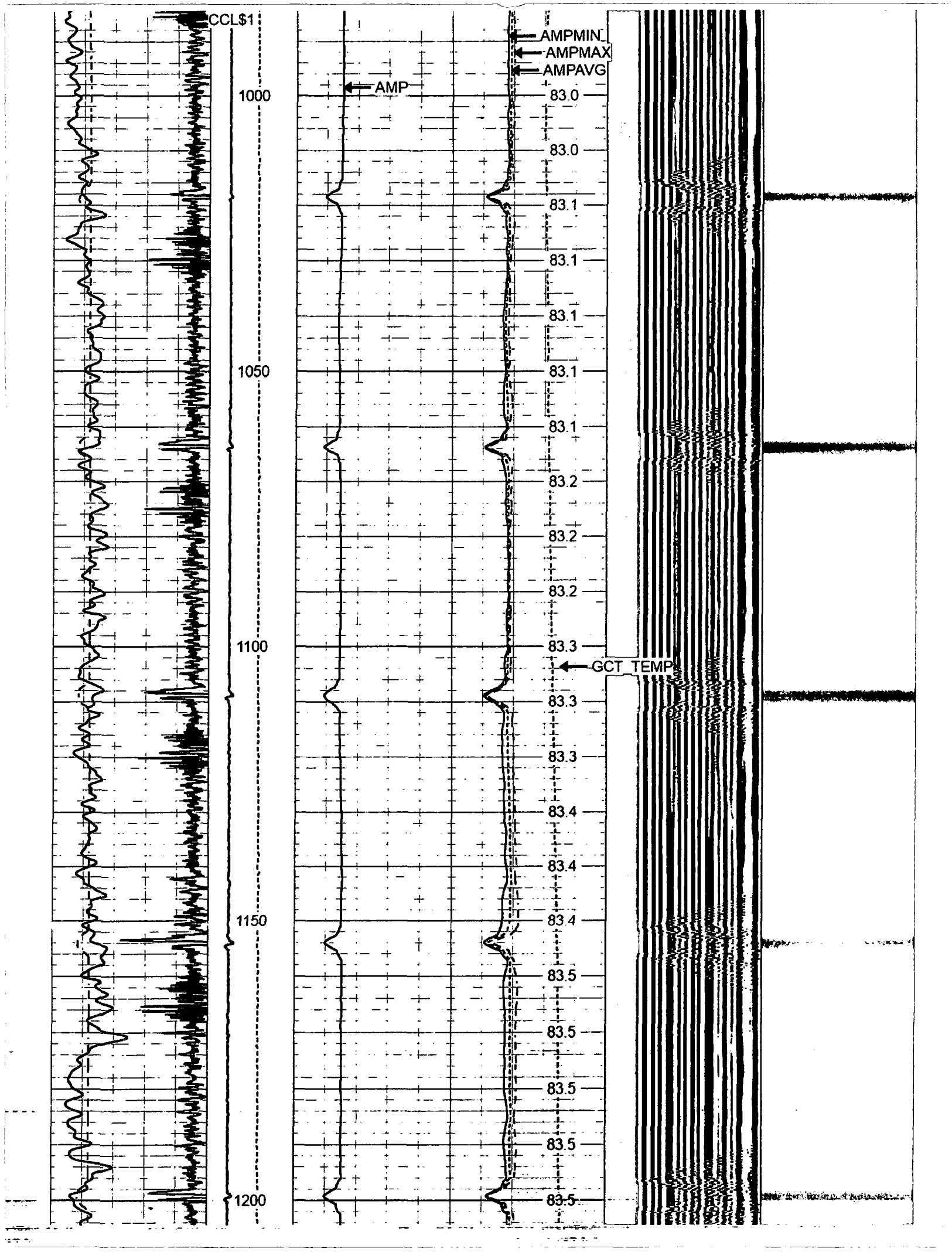
83.3
83.2
TT
GR
LTEN
DCCL
83.1


CCL$1
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AMPMIN
AMPMAX
AMPAVG
GCT_TEMP
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1050
1100
1150
1200
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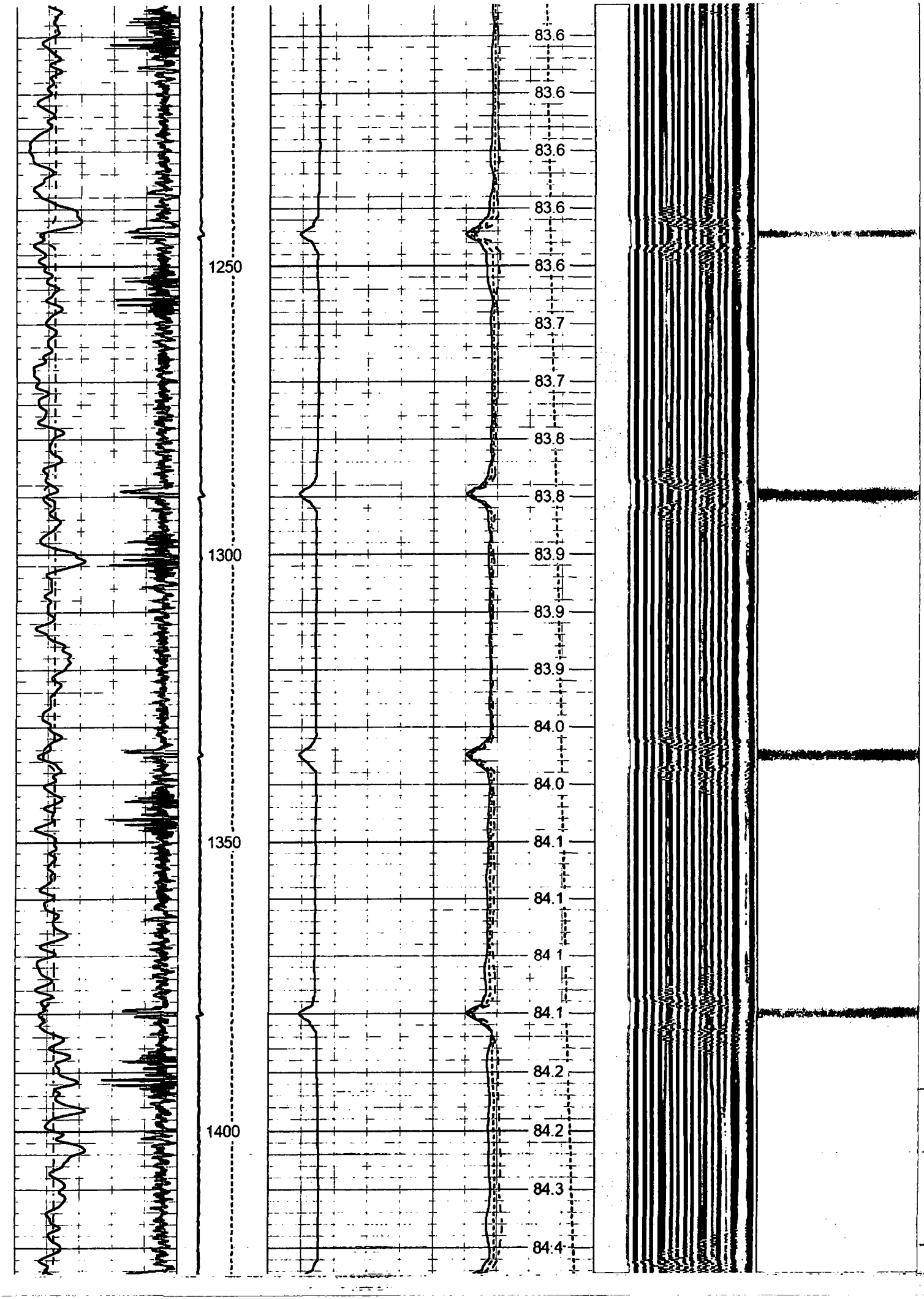
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84 1
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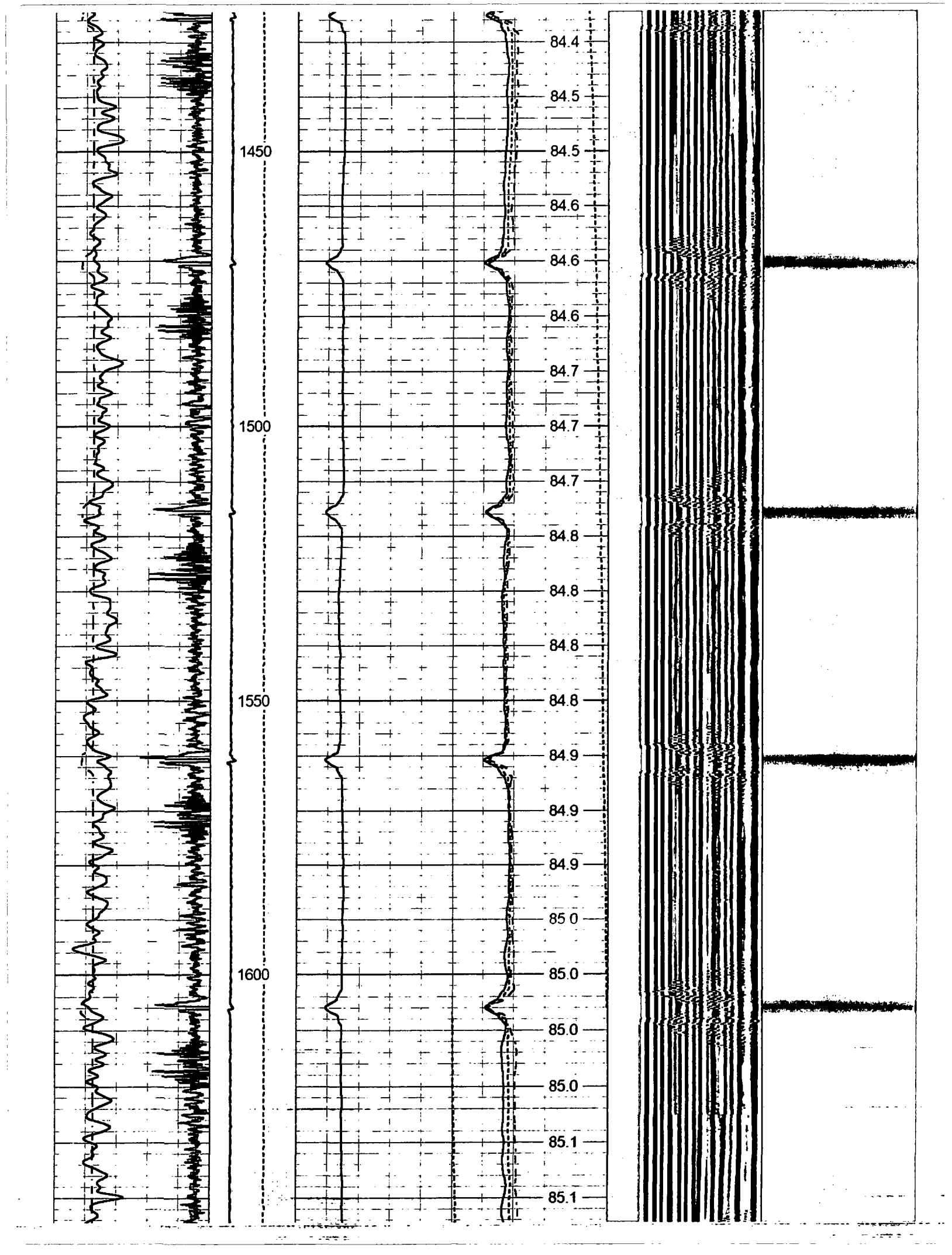
84.3
84:4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1500
1550
1600
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84.6
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84.7
84.7
84.7
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84.9
84.9
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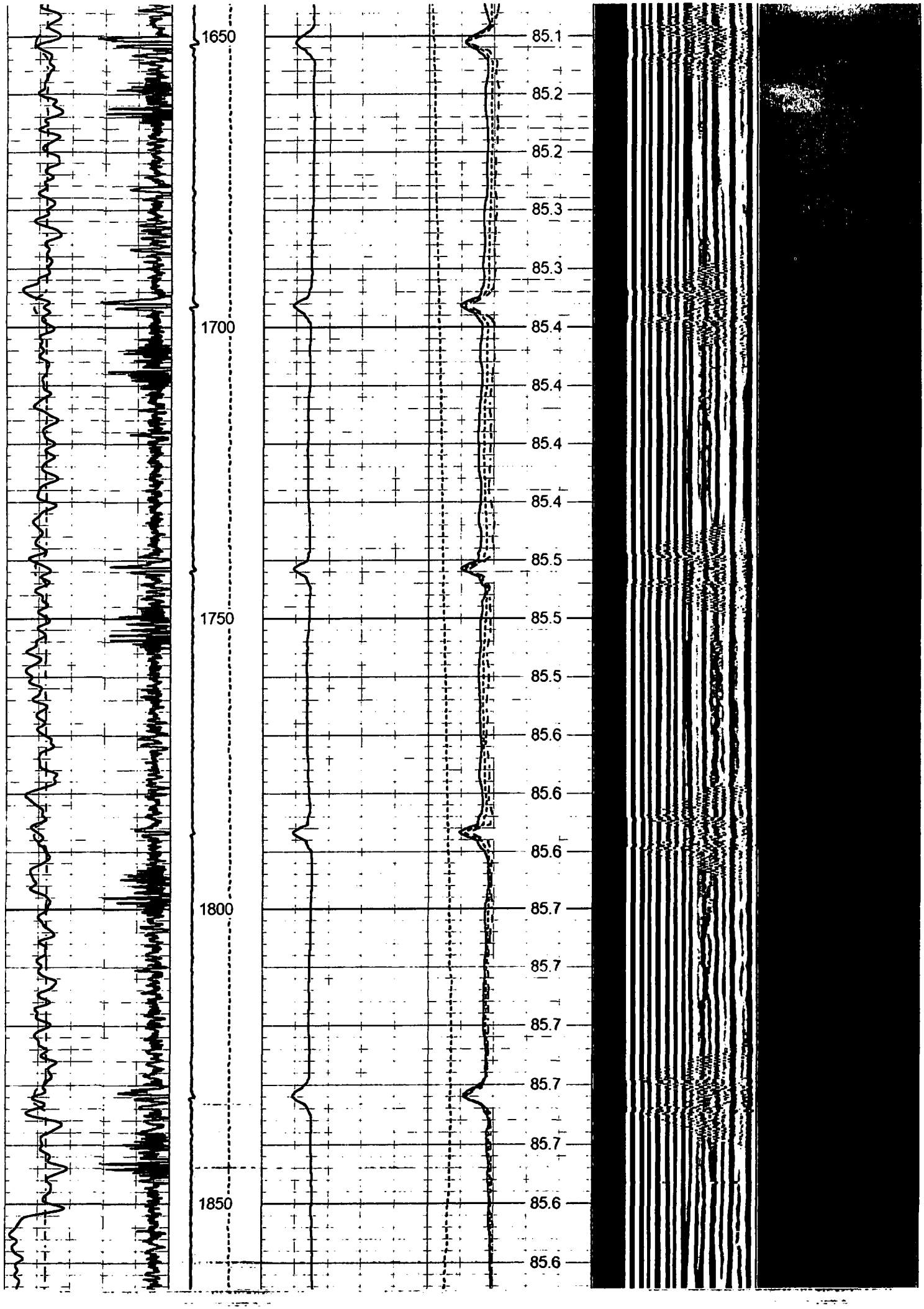
85.0
85.0
85.0
85.1
85.1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1800
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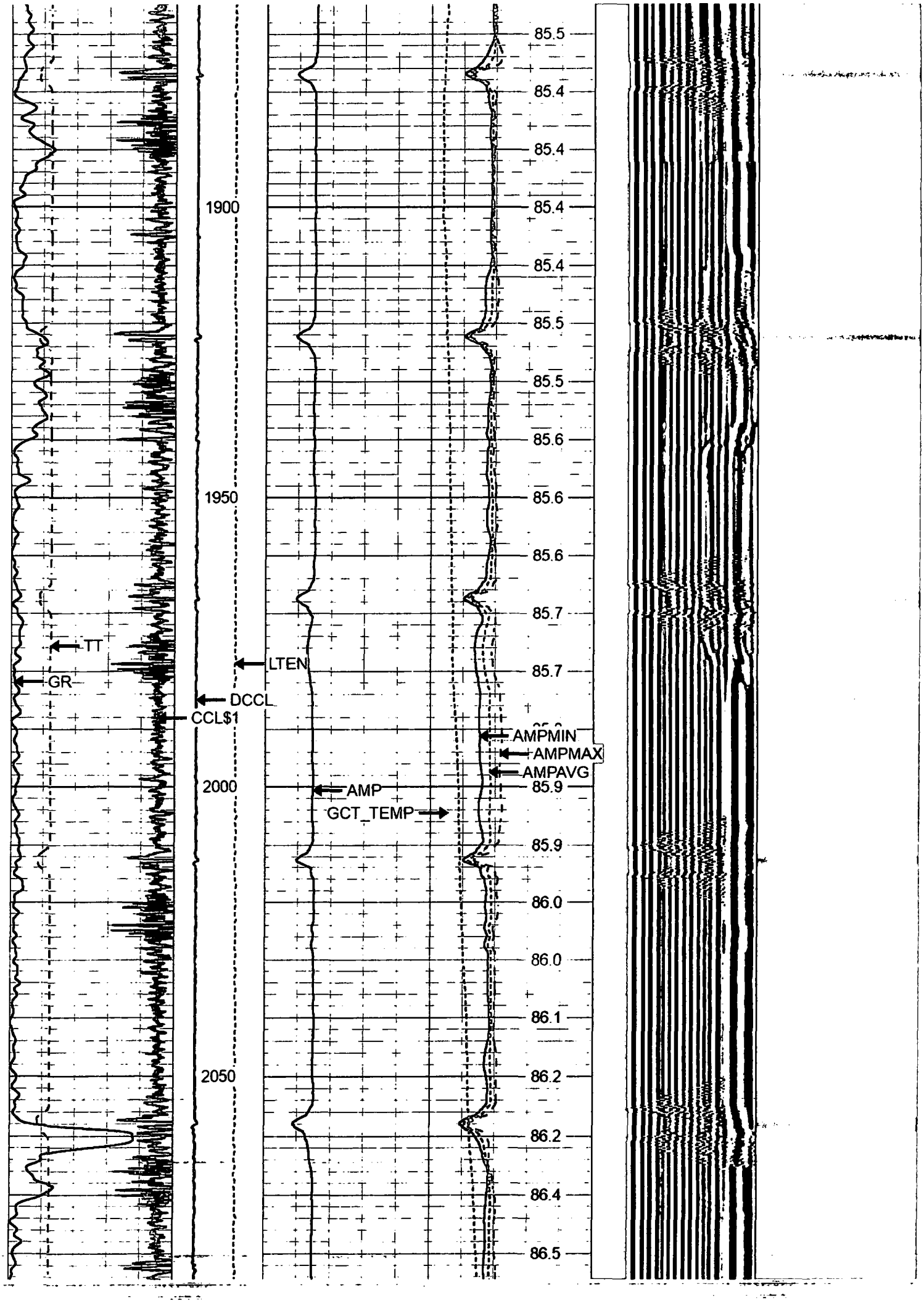
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1950
2000
2050
TT
GR
LTEN
DCCL
CCL$1
AMP
GCT_TEMP
AMPMIN
AMPMAX
AMPAVG
85.5
85.4
85.4
85.4
85.5
85.5
85.6
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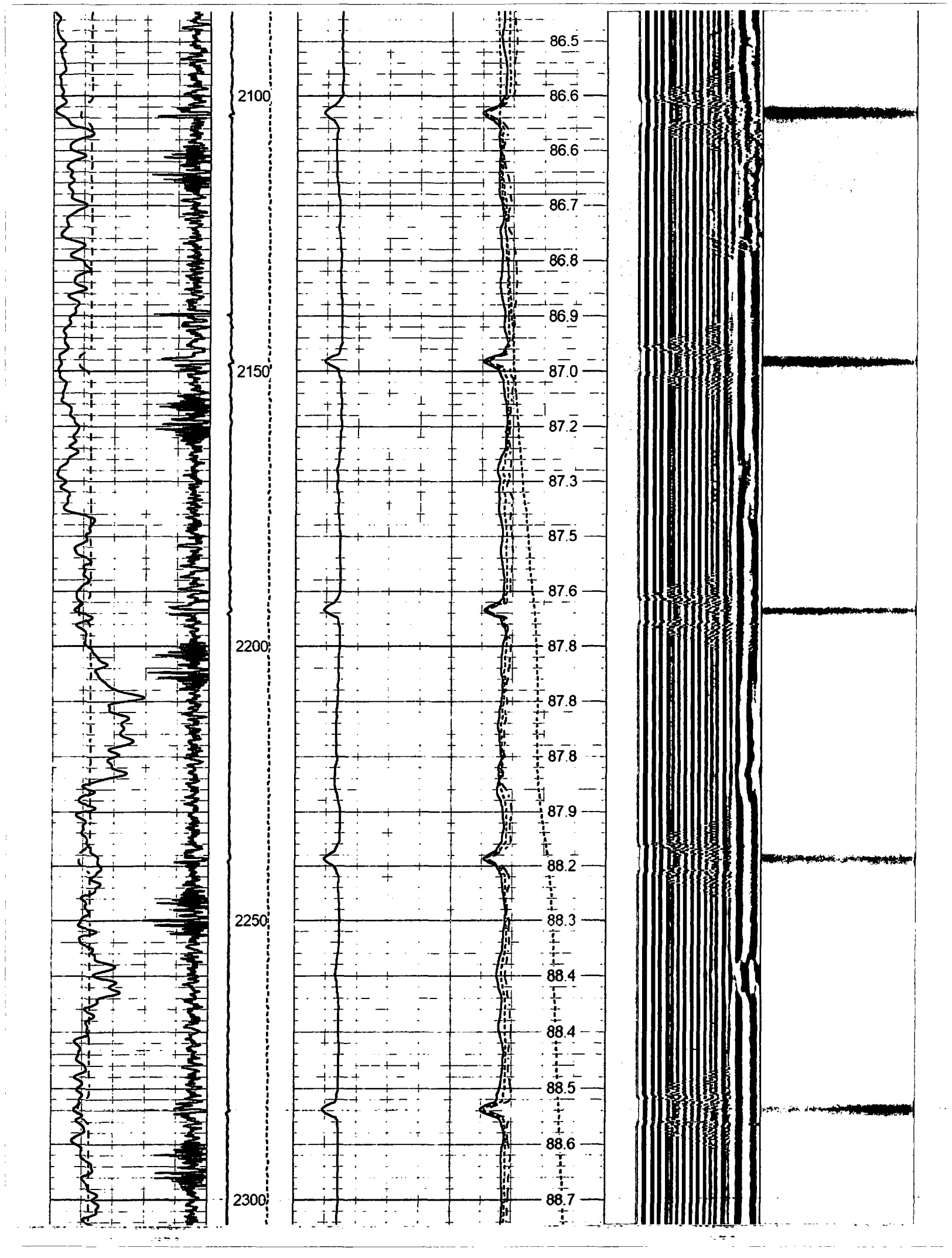
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2300
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87.3
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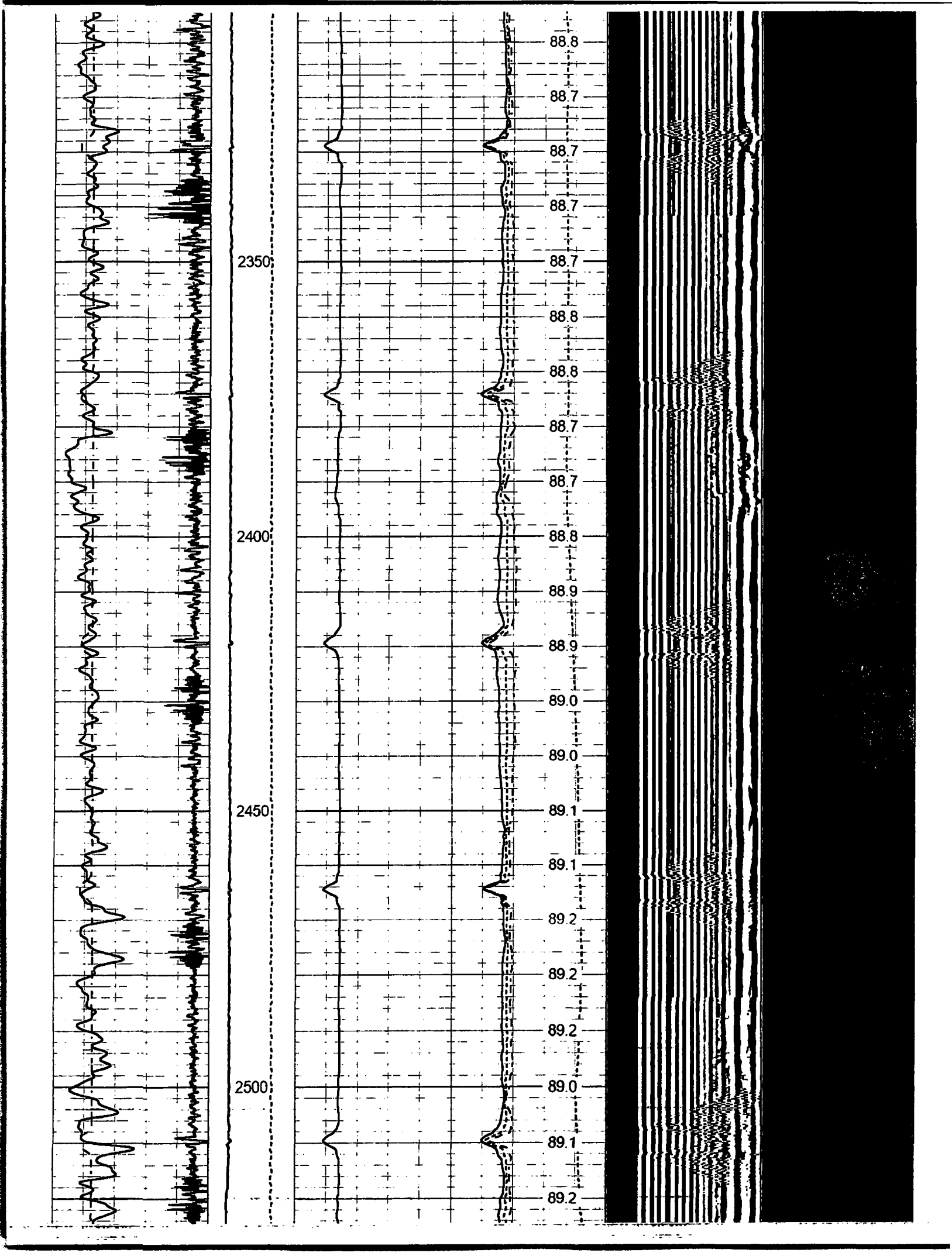
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88.7
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88.7
88.7
88.8
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89.0
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89.1
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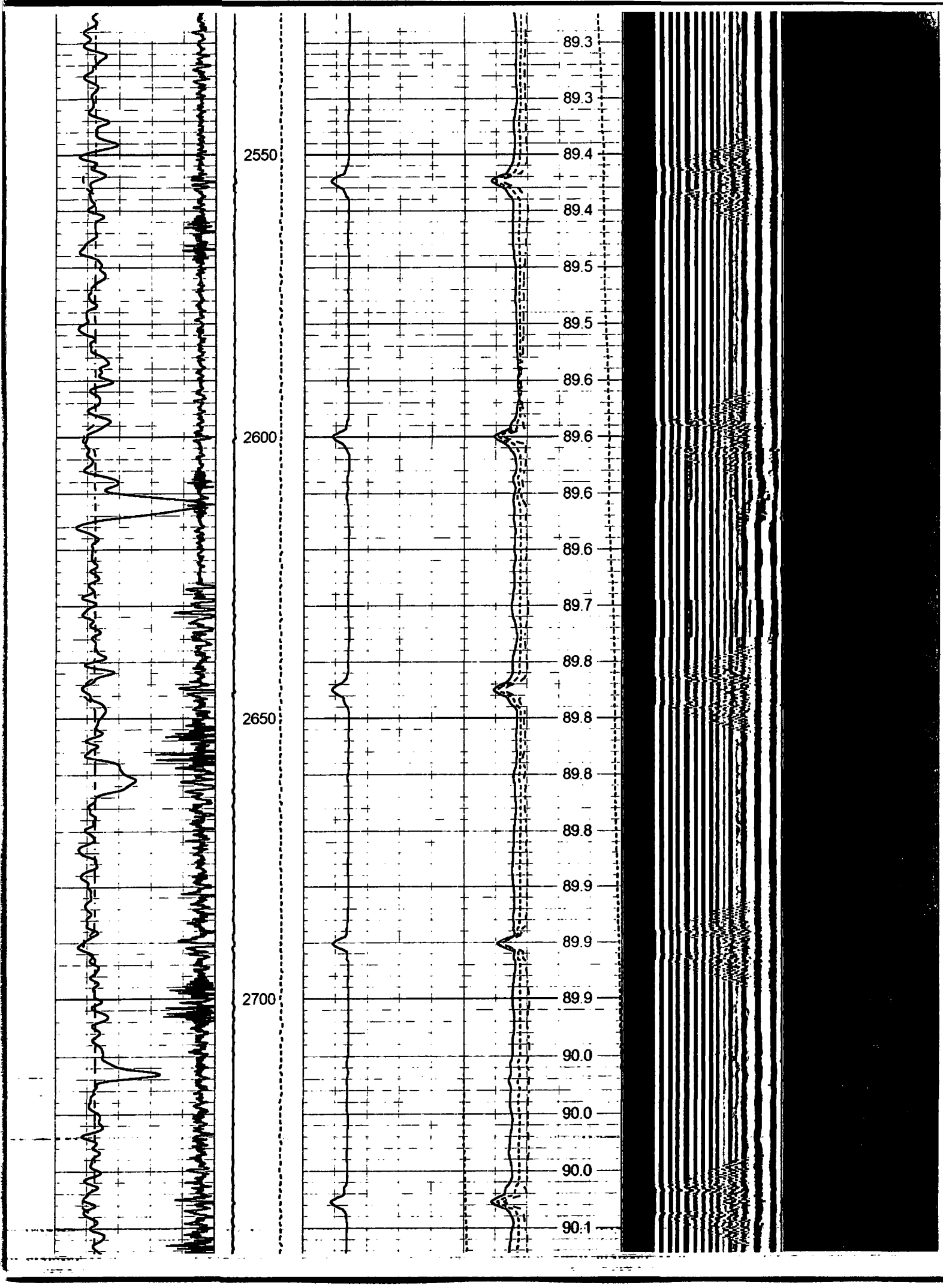
89.0
89.1
89.2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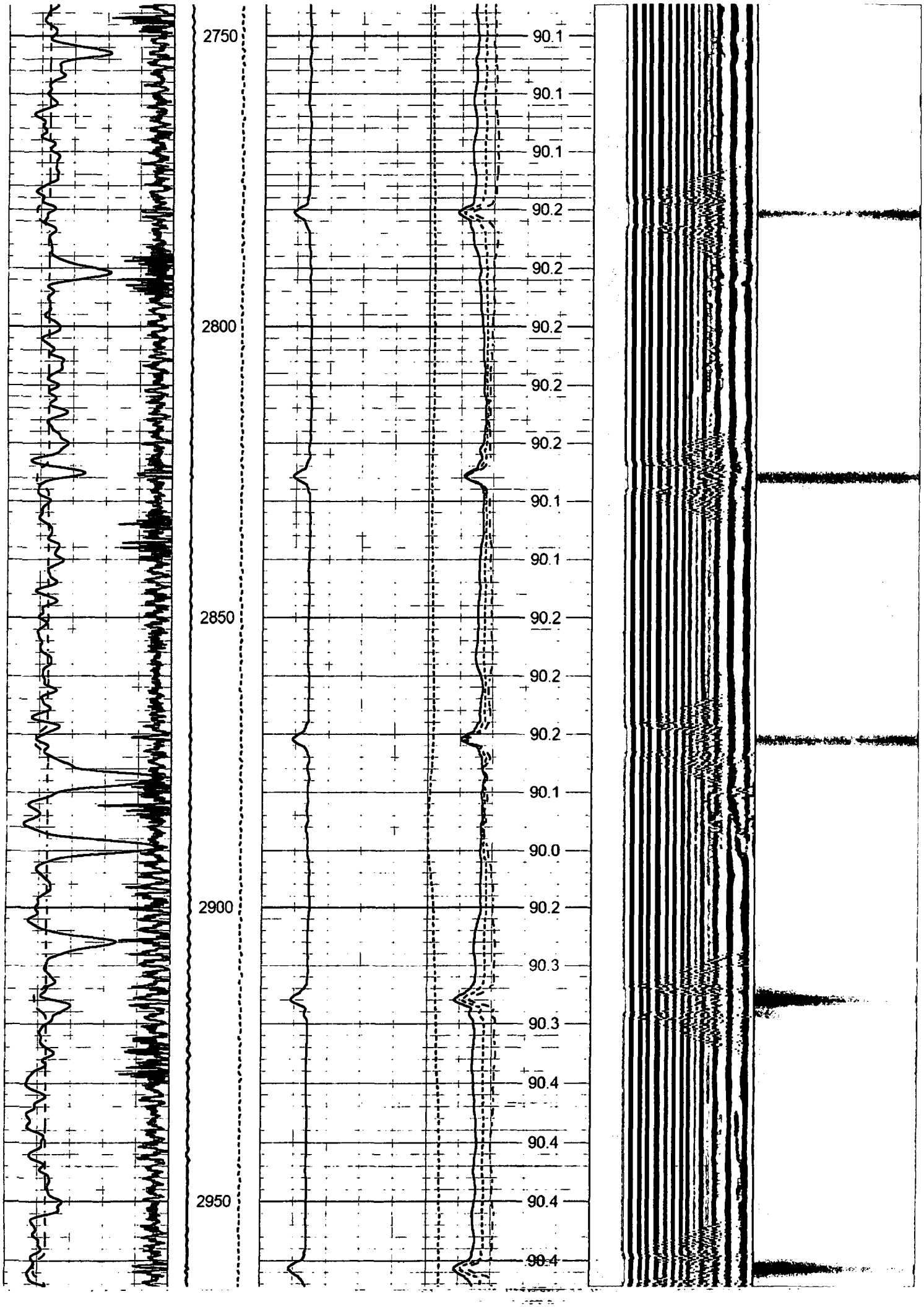
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2800
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2900
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90.1
90.1
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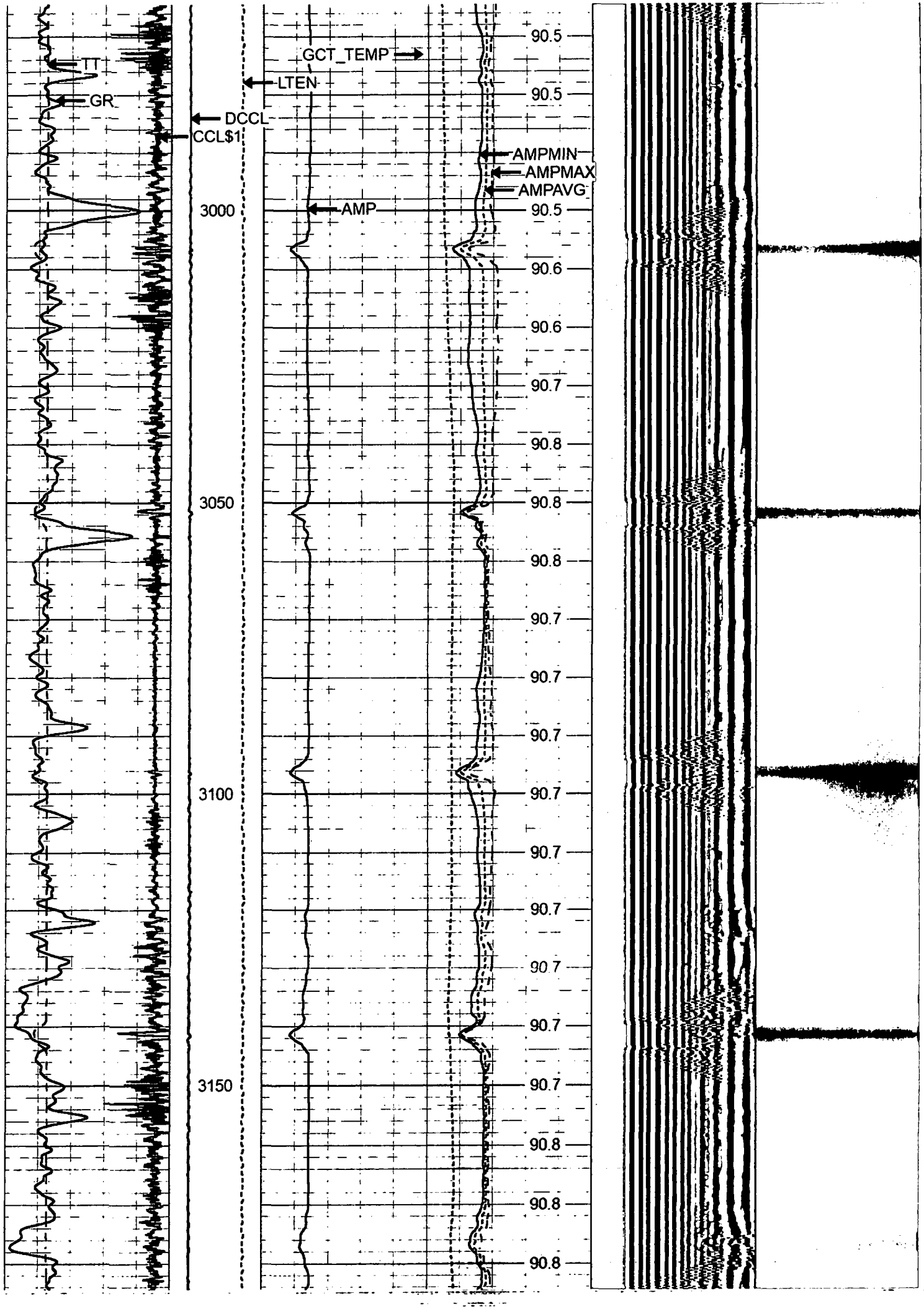
90.4


TT
GR
DCCL
CCL$1
GCT_TEMP
LTEN
AMPMIN
AMPMAX
AMPAVG
AMP
3000
3050
3100
3150
90.5
90.5
90.5
90.6
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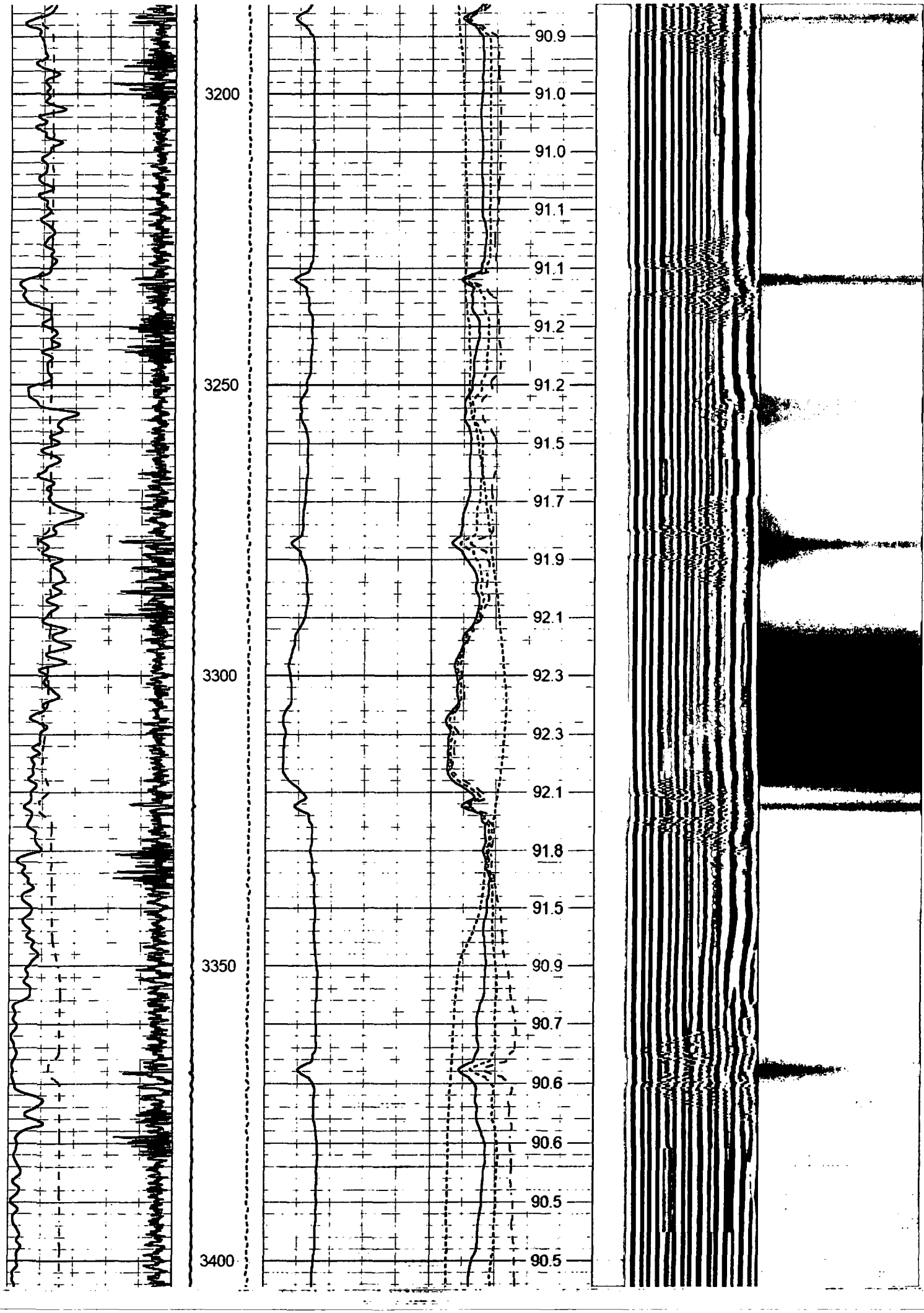
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91.1
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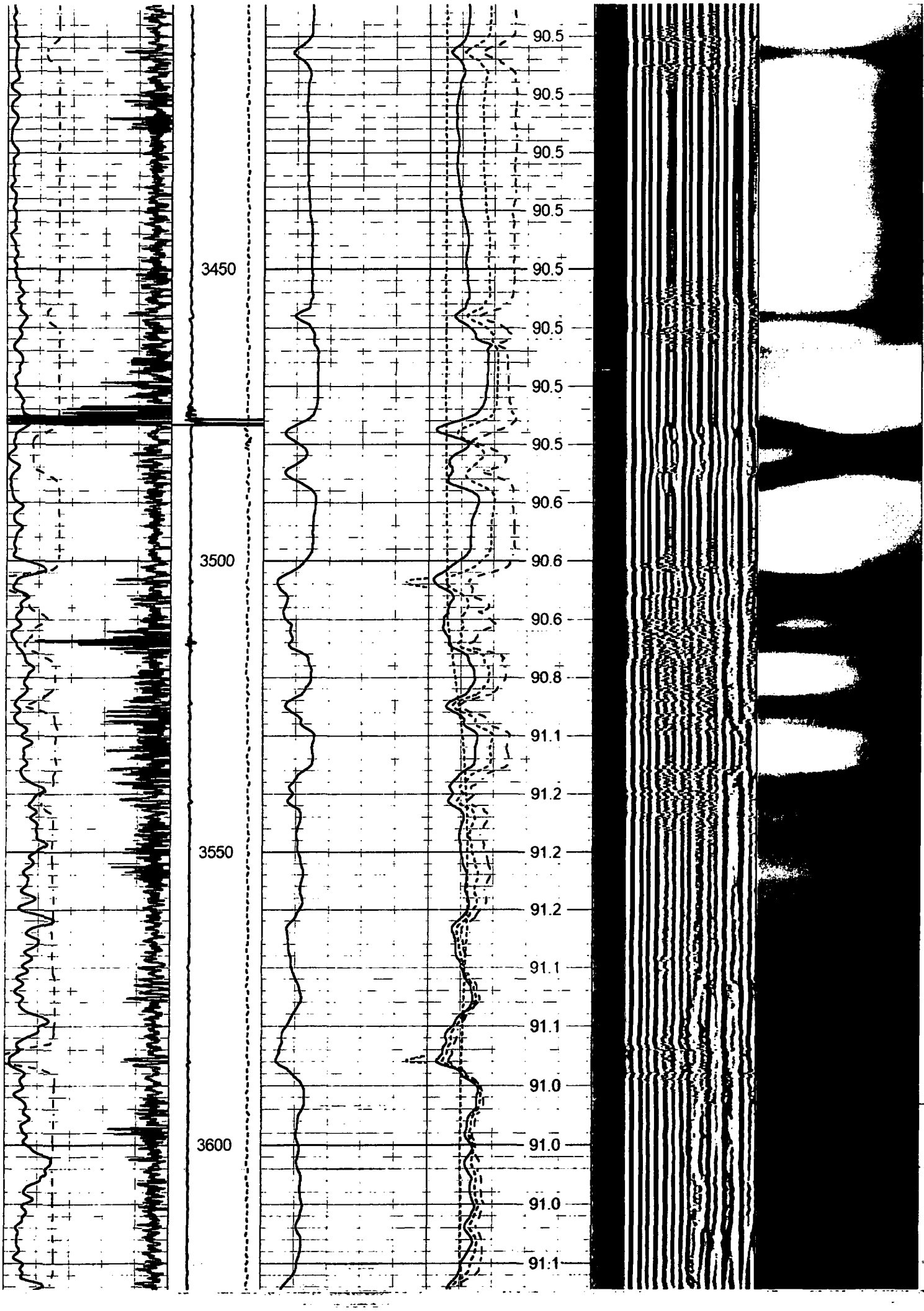
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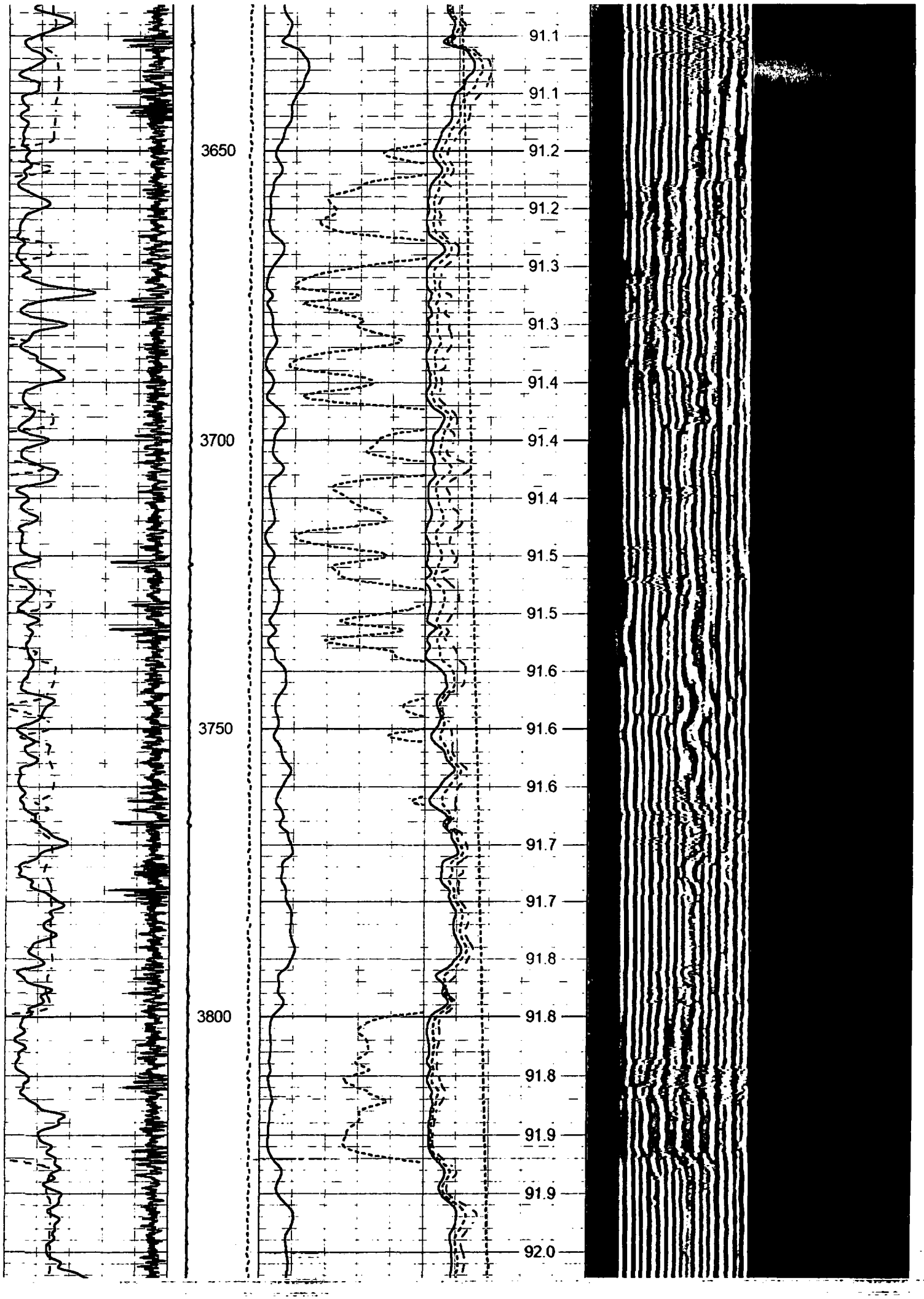
91.1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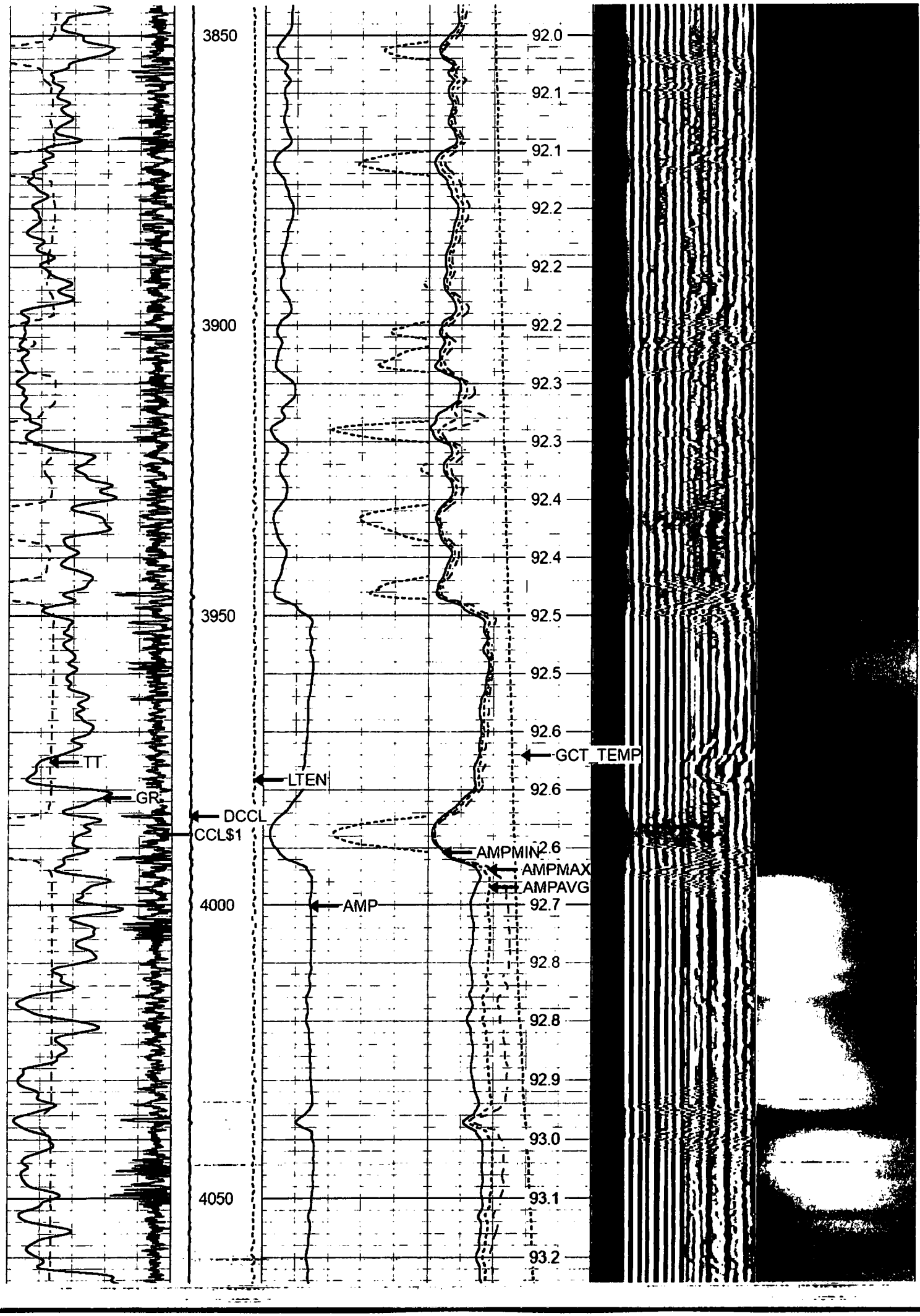
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92.7
92.8
92.8
92.9
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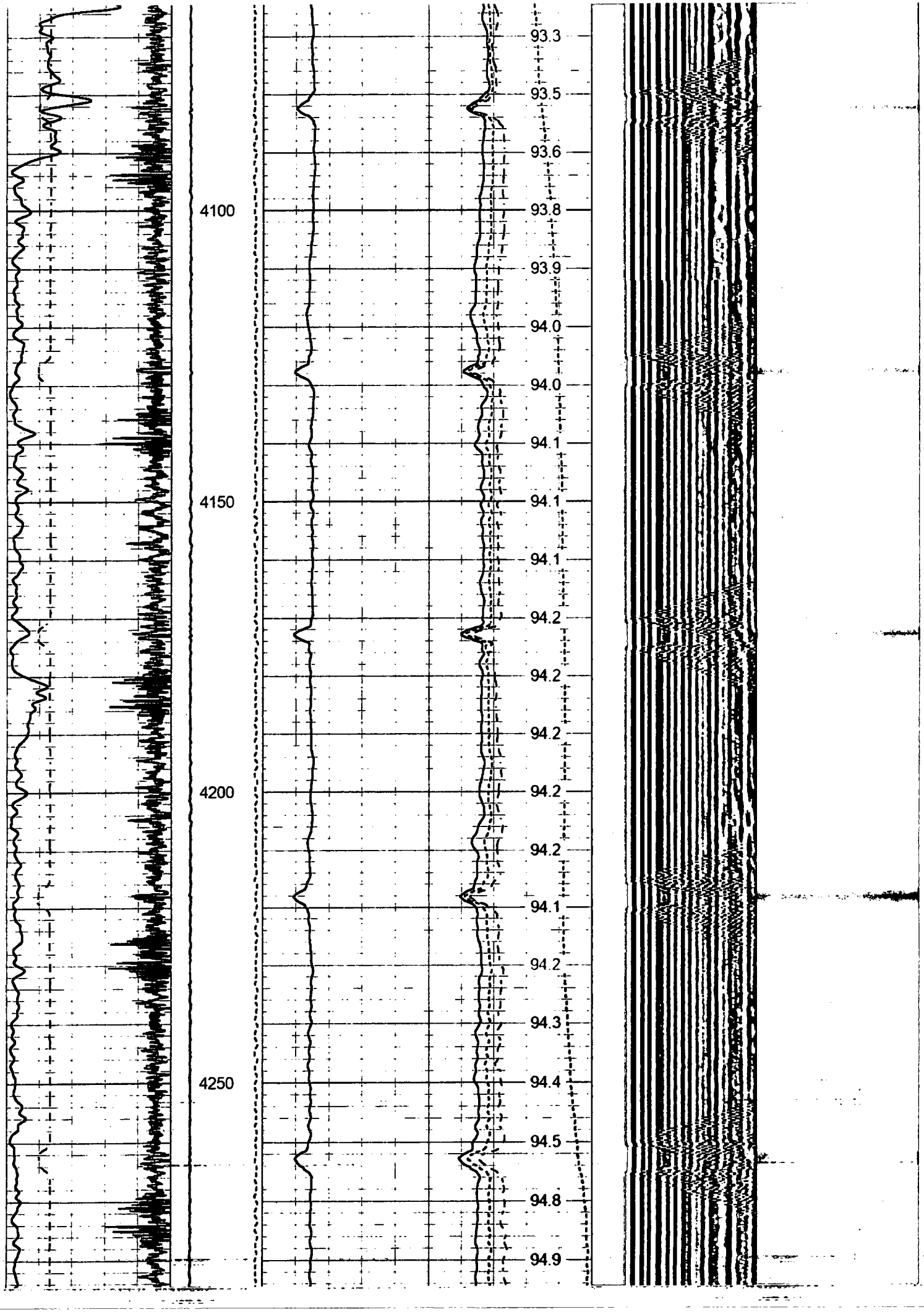
93.2
TT
GR
DCCL
CCL$1
LTEN
AMP
GCT_TEMP
AMPMIN
AMPMAX
AMPAVG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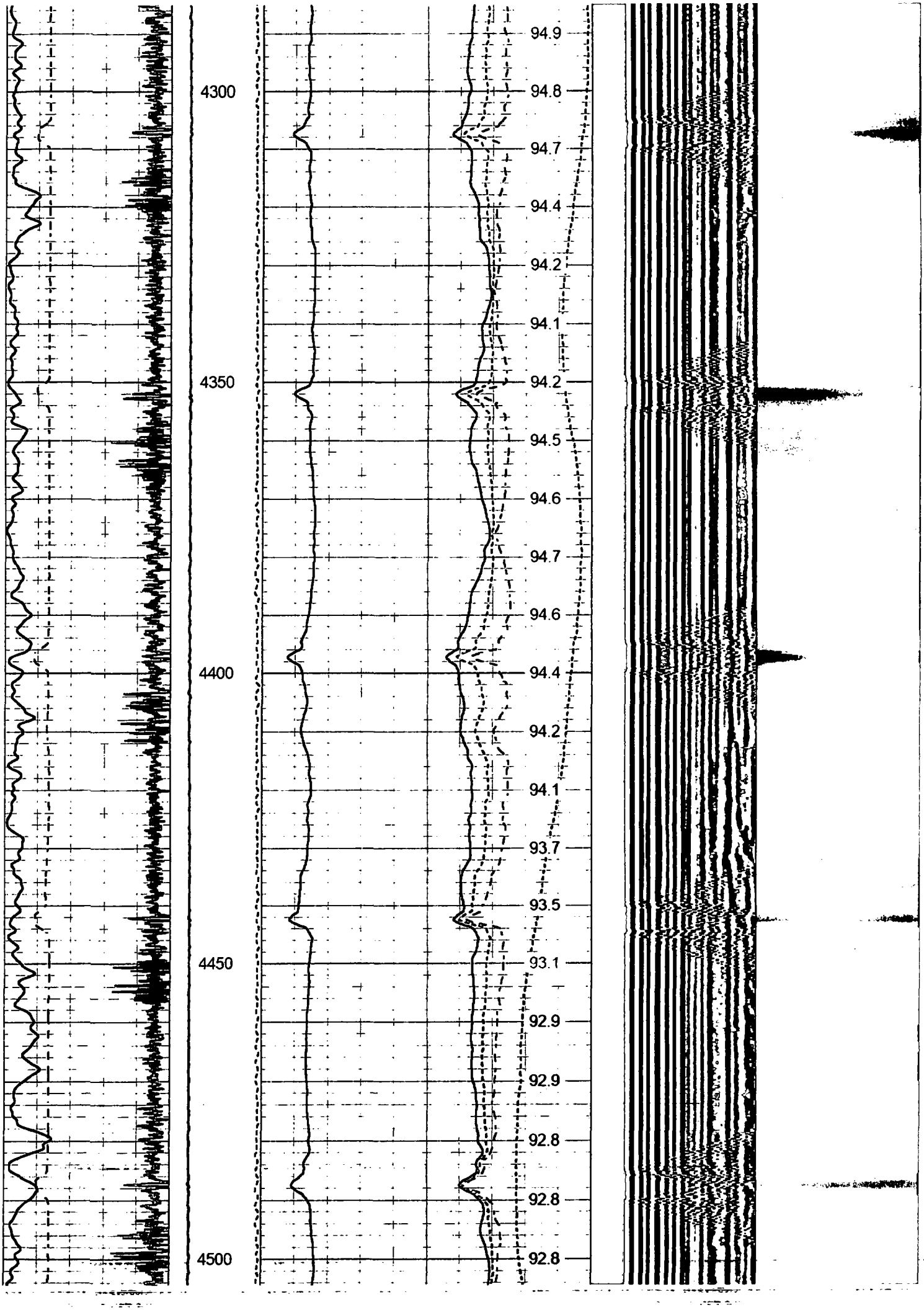
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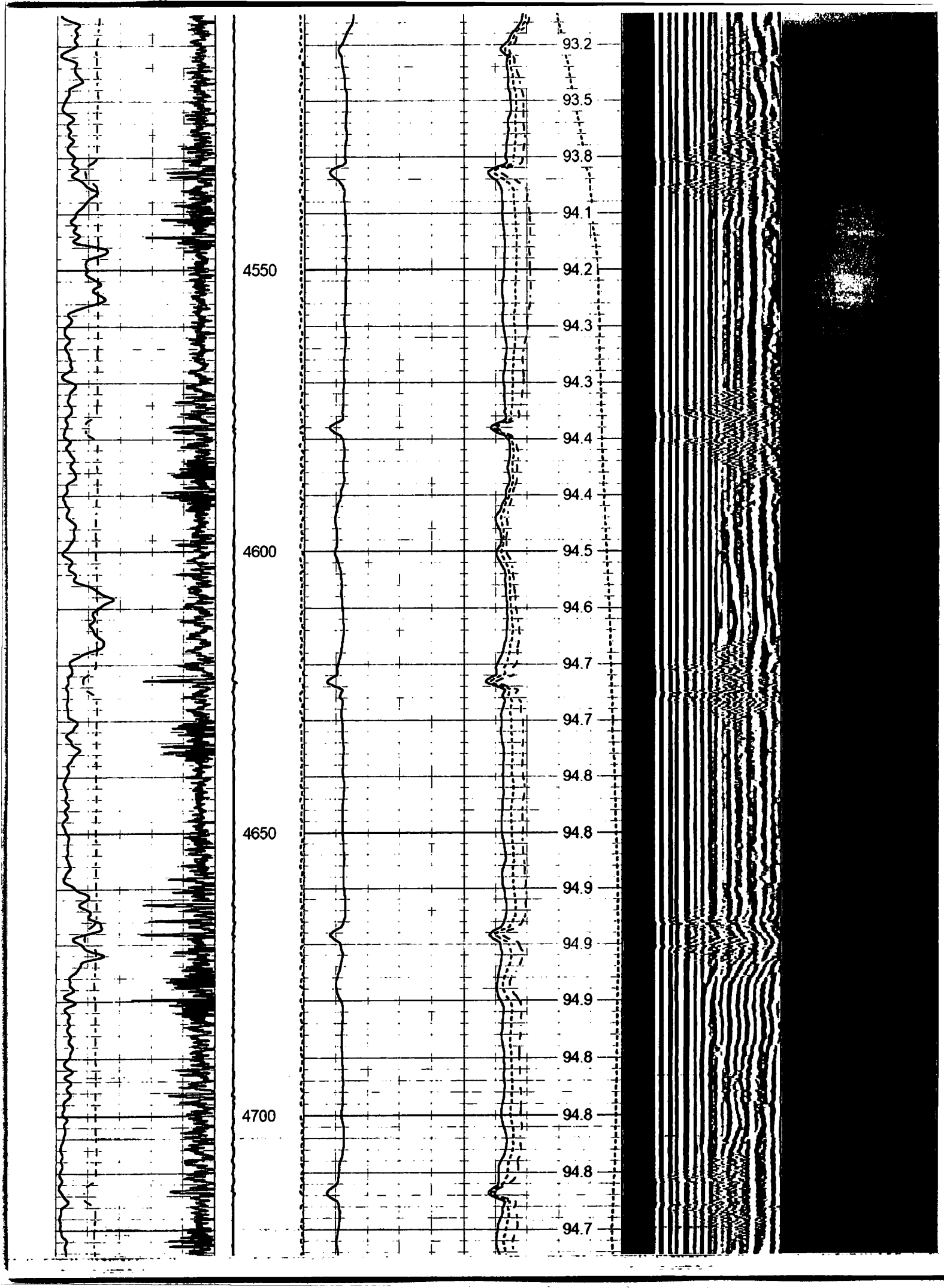
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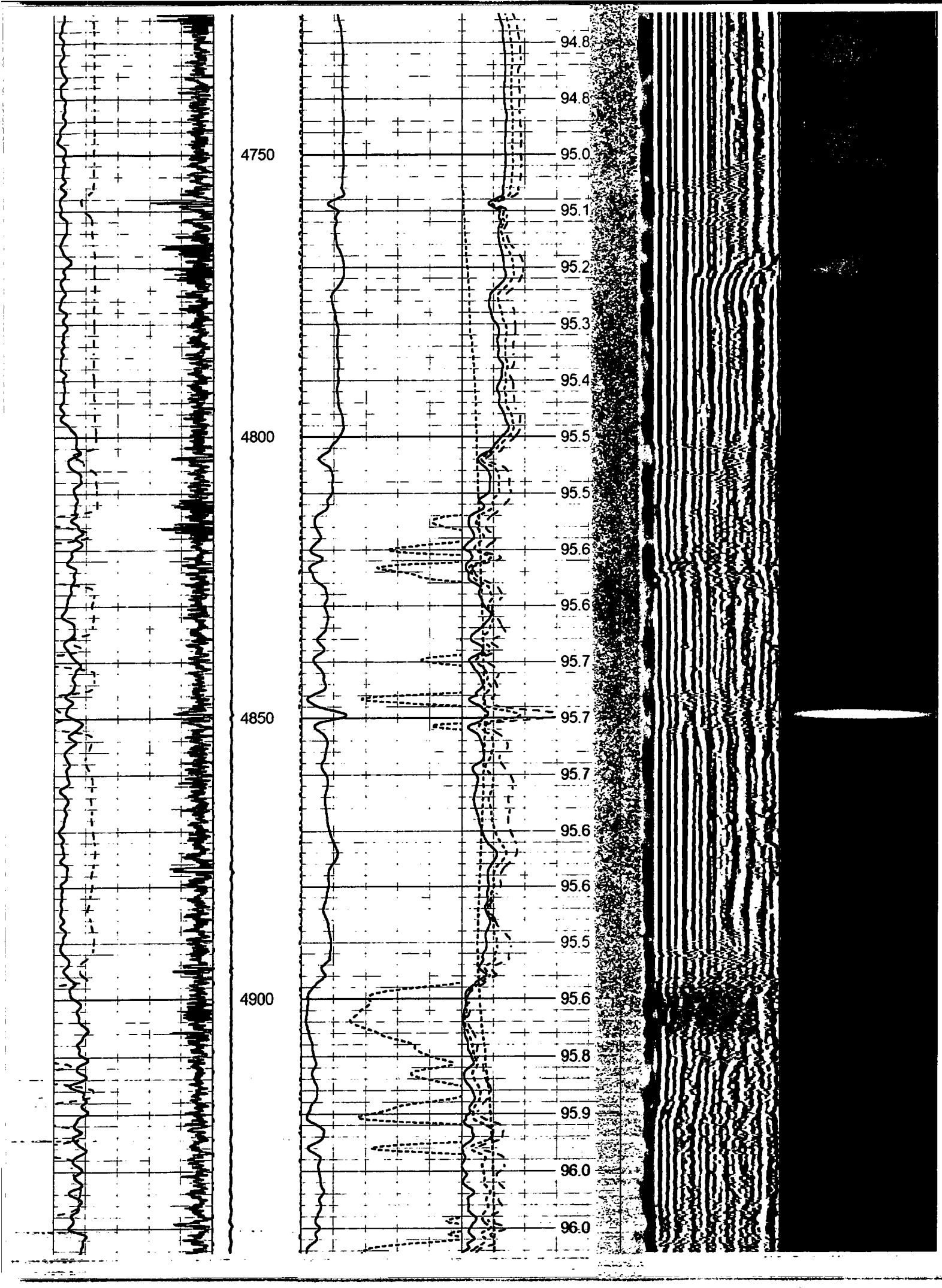
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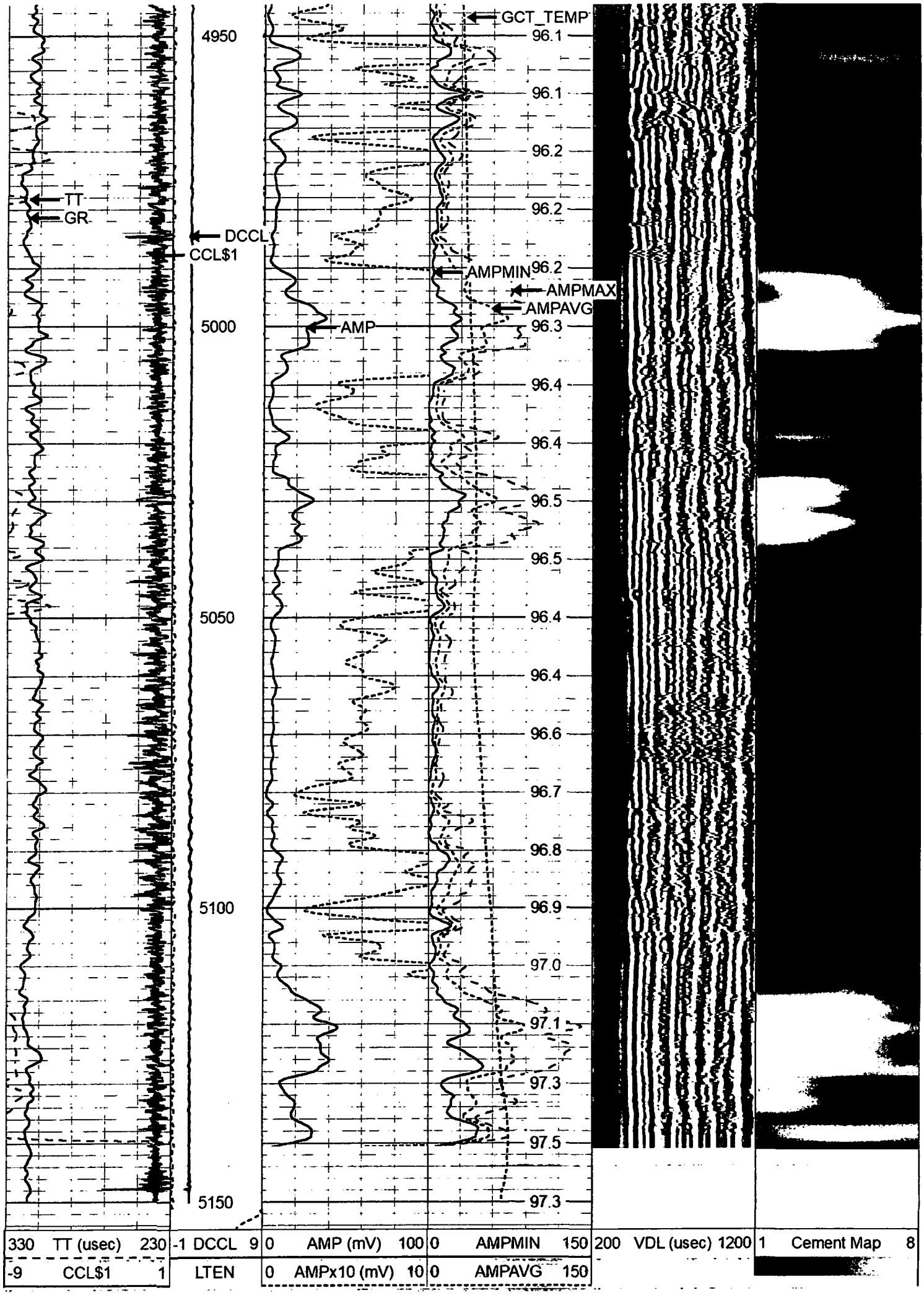
96.0


GCT_TEMP
TT
GR
DCCL
CCL$1
AMPMIN
AMPMAX
AMPAVG
AMP
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5050
5100
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96.1
96.2
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96.2
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96.4
96.5
96.5
96.4
96.4
96.6
96.7
96.8
96.9
97.0
97.1
97.3
97.5
97.3
330 TT (usec) 230
-1 DCCL 9
0 AMP (mV) 100
0 AMPMIN 150
200 VDL (usec) 1200
1 Cement Map 8
-9 CCL$1 1
LTEN
0 AMPx10 (mV) 10
0 AMPAVG 150

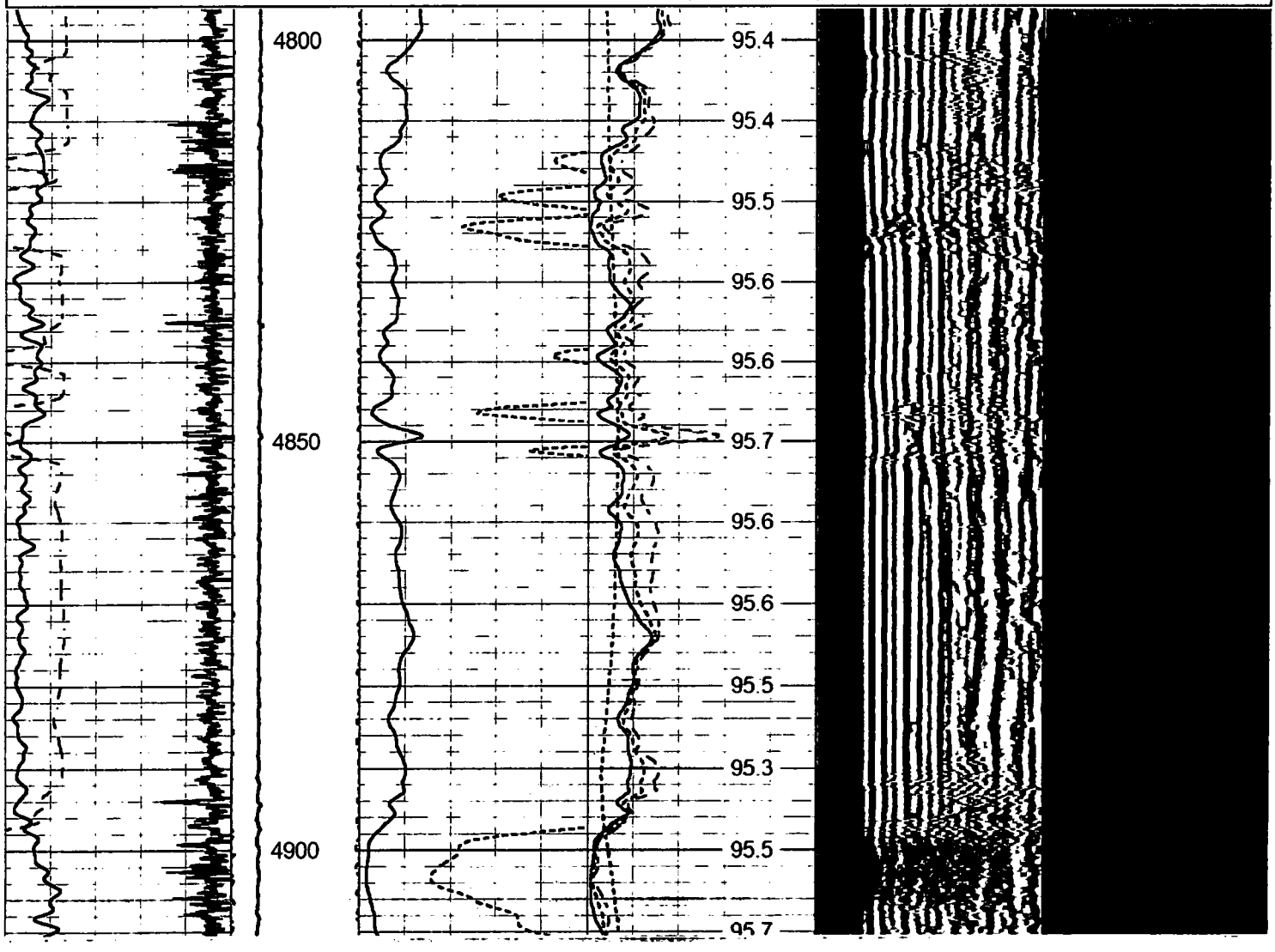
0 GR (GAPI) 150	0 (lb 1500

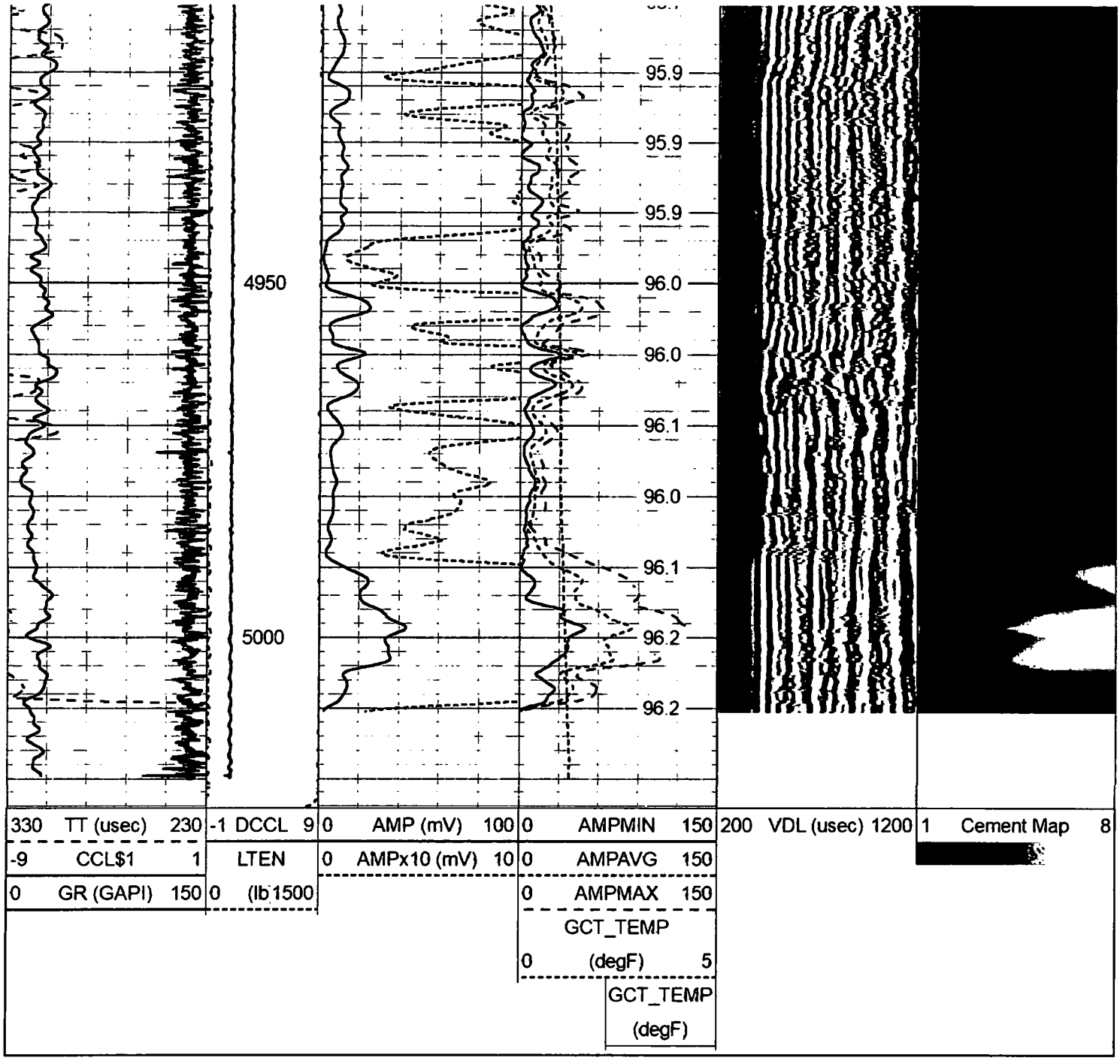
0 AMPMAX 150
GCT_TEMP
0 (degF) 5
GCT_TEMP (degF)

Repeat Pass

Database File	ves6016-2019.db
Dataset Pathname	pass1.7
Presentation Format	wl7_rbt 8sec gt
Dataset Creation	Tue Oct 22 10:48:01 2019
Charted by	Depth in Feet scaled 1:240

330 TT (usec) 230	-1 DCCL 9	0 AMP (mV) 100	0 AMPMIN 150	200 VDL (usec) 1200	1 Cement Map 8
-9 CCL$1 1	LTEN	0 AMPx10 (mV) 10	0 AMPAVG 150		
0 GR (GAPI) 150	0 (lb 1500		0 AMPMAX 150		
			GCT_TEMP		
			0 (degF) 5		
			GCT_TEMP (degF)		





Calibration Report

Database File	ves6016-2019.db
Dataset Pathname	pass1.8
Dataset Creation	Tue Oct 22 10:55:52 2019

Gamma Ray Calibration Report

Serial Number:	GCT275-0BP0_base	
Tool Model:	GCT275-0BP0	
Performed:	Wed Sep 19 12:09:24 2018	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	RBT350_Base	
Tool Model:	PTS_350	
Calibration Casing Diameter:	9.625	in
Calibration Depth:	191.017	ft

Master Calibration, performed Tue Oct 22 10:03:20 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	-0.006	1.029	1.700	51.280	47.924	1.983
CAL	-0.006	1.026				
5'	-0.006	1.391	1.700	51.280	35.493	1.908
SUM						
S1	-0.006	0.997	0.000	100.000	99.719	0.588
S2	-0.006	1.022	0.000	100.000	97.266	0.557
S3	-0.006	1.027	0.000	100.000	96.781	0.590
S4	-0.006	1.040	0.000	100.000	95.628	0.550
S5	-0.006	1.057	0.000	100.000	94.117	0.553
S6	-0.006	1.068	0.000	100.000	93.080	0.556
S7	-0.006	1.066	0.000	100.000	93.299	0.525
S8	-0.006	1.060	0.000	100.000	93.850	0.564

Internal Reference Calibration, performed (Not Performed):

	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	-0.006	1.026	1.000	0.000

Air Zero Calibration, performed Tue Oct 22 09:34:09 2019:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000

Inclinometer Calibration Report

Performed: (Not Performed)

	Low Read.	High Read.	Low Ref.	High Ref.	
X Accelerometer	0.00	1.00	0.00	1.00	gee
Y Accelerometer	0.00	1.00	0.00	1.00	gee
Z Accelerometer	0.00	1.00	0.00	1.00	gee

Temperature Survey

Company Caza Operating LLC
Well IGLOO 19-4 State Fed Com 12H
Field
County Lea
State New Mexico Country USA

Location: API # :

SEC TWP RGE

Other Services
Gamma Ray

Elevation
K.B. N/A
D.F. N/A
G.L. N/A

Permanent Datum	Ground Level	Elevation	
Log Measured From	Kelley Bushing		
Drilling Measured From	Kelley Bushing		

Date	10-20-19		
Run Number	3		
Depth Driller	5584'		
Depth Logger	3270'		
Bottom Logged Interval	3270'		
Top Log Interval	Surface		
Open Hole Size	N/A		
Type Fluid	KCL		
Density / Viscosity	N/A		
Max. Recorded Temp.	91.0 d F		
Estimated Cement Top	N/A		
Time Well Ready	10:00		
Time Logger on Bottom	10:45		
Equipment Number	WL 5		
Location	Odessa , Tx		
Recorded By	Jarrod Alley		
Witnessed By	N/A		

Borehole Record				Tubing Record			
Run Number	Bit	From	To	Size	Weight	From	To

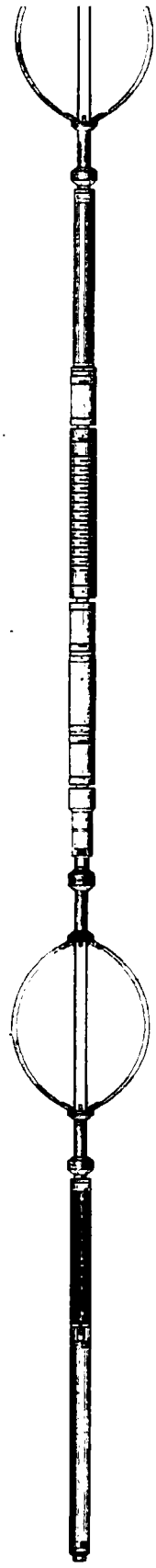
Casing Record	Size	Wgt/Ft	Top	Bottom
Surface String	9.625"	40#	Surface	5,584'
Prot. String				
Production String				
Liner				

<<< Fold Here >>>

Comments

Thank you for Choosing
Vaughn Energy Services

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb



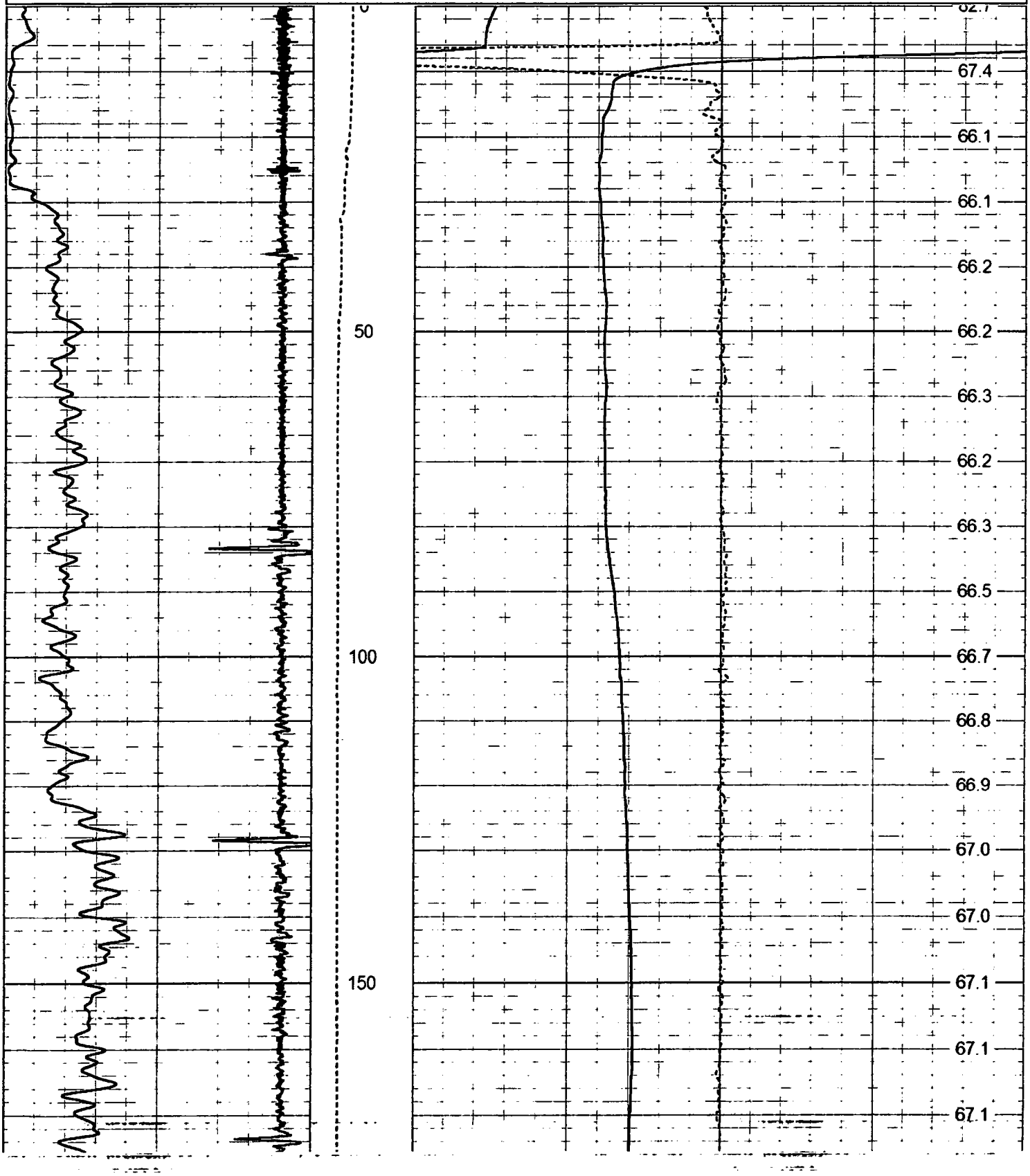
		CENT-CH_3.5IN FG010-BH01	4.47	3.50	46.00
IntTemp	18.1				
Headvolt	18.1				
RBT_ACCZ	16.77				
RBT_ACCY	16.77				
RBT_ACCX	16.77				
WVFS16	14.52	RBT16-PTS_350 (RBT350_Base) RADII-350A	9.27	3.50	175.00
WVFS15	14.52				
WVFS14	14.52				
WVFS13	14.52				
WVFS12	14.52				
WVFS11	14.52				
WVFS10	14.52				
WVFS9	14.52				
WVFS8	14.52				
WVFS7	14.52				
WVFS6	14.52				
WVFS5	14.52				
WVFS4	14.52				
WVFS3	14.52				
WVFS2	14.52	CENT-CH_3.5IN FG010-BH01	4.47	3.50	46.00
WVFS1	14.52				
WVFCAL	14.52				
WVF3FT	14.52				
WVF5FT	13.52				
HEADVOLT	9.77				
CCL$2	4.14				
CCL$1	4.14				
GCT_Temp	3.26				
GR	2.39	GR-GCT275_0BP2 (GCT_0BP2_Base) GCT275_0BP0 GR-CCL w/Temp 6 Magnet	5.31	2.75	59.00

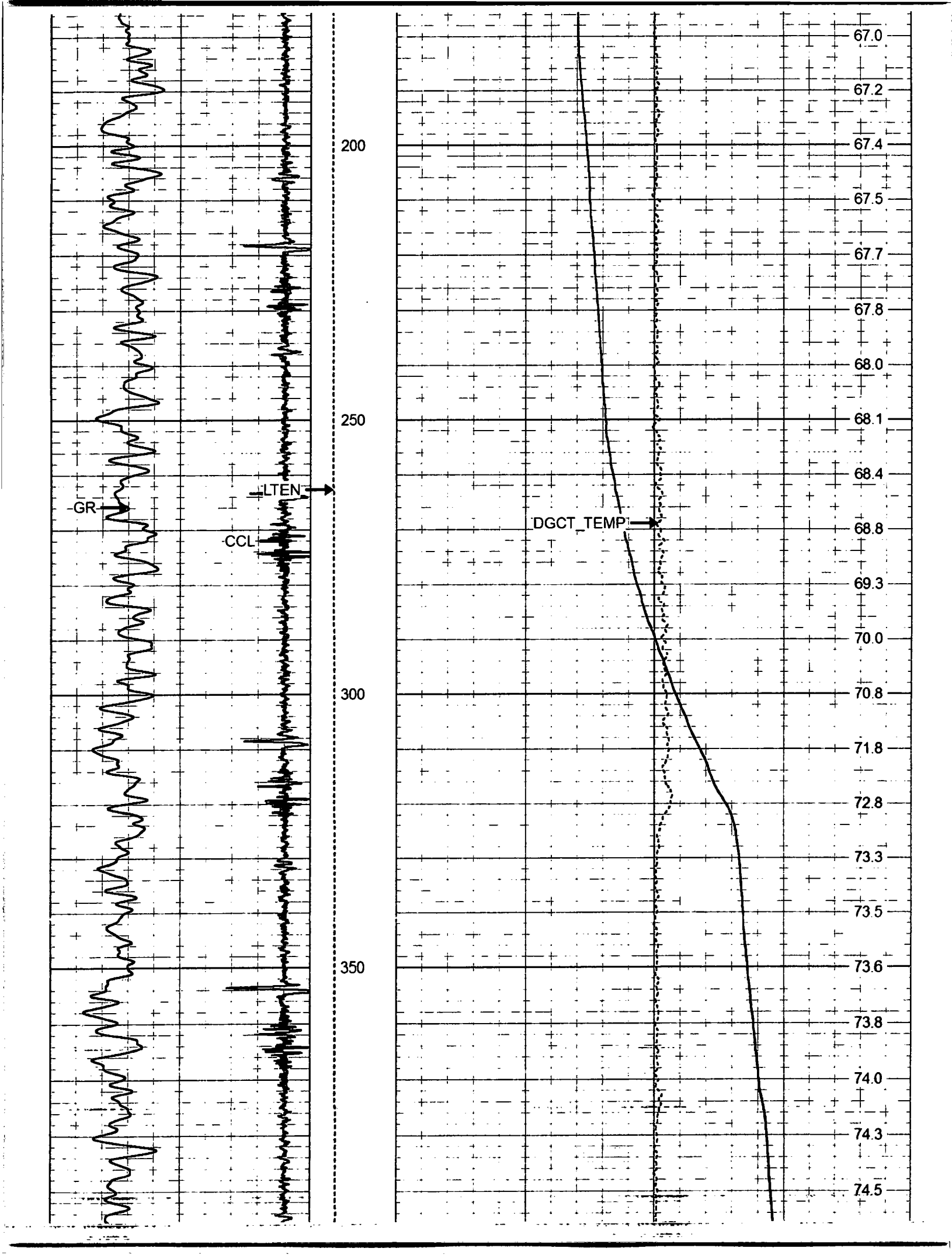
Dataset:	101719caza.db: field/igloo19-24/cbl2/pass8
Total length:	23.51 ft
Total weight:	326.00 lb
O.D.:	3.50 in

Temperature Survey

Database File	101719caza.db
Dataset Pathname	igloo19-24/cbl2/pass3
Presentation Format	wl7_2-75gammatemp
Dataset Creation	Sun Oct 20 11:22:29 2019
Charted by	Depth in Feet scaled 1:240

0 GR (GAPI) 150	-9 DCCL 1	0 GCT_Temp (degF) 20
-9 CCL 1	LTEN	-2 DGCT_TEMP (degF) 2
	0 (lb 1000	GCT_Temp (degF)




GR
LTEN
CCL
DGCT_TEMP
200
250
300
350
67.0
67.2
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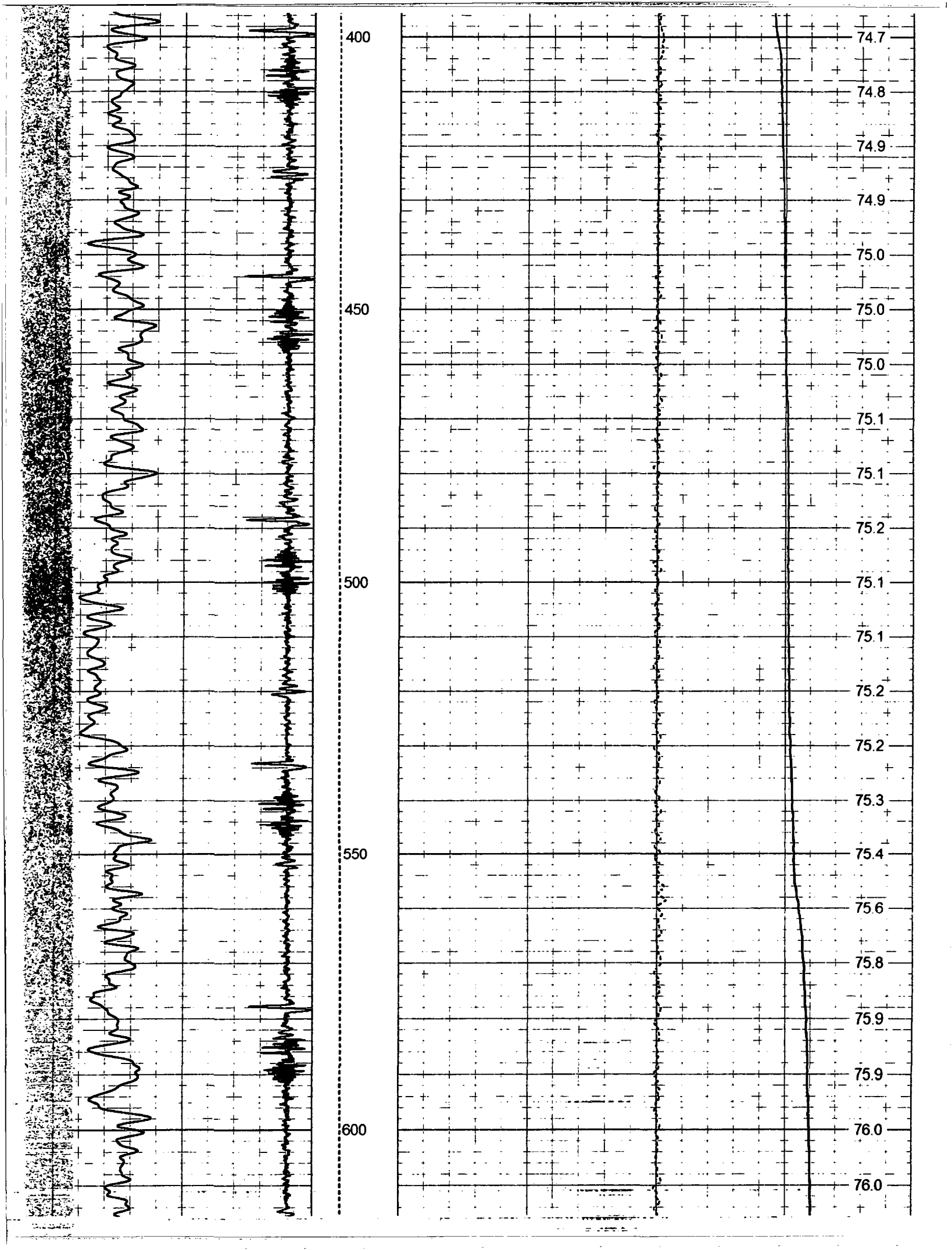
74.5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450
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550
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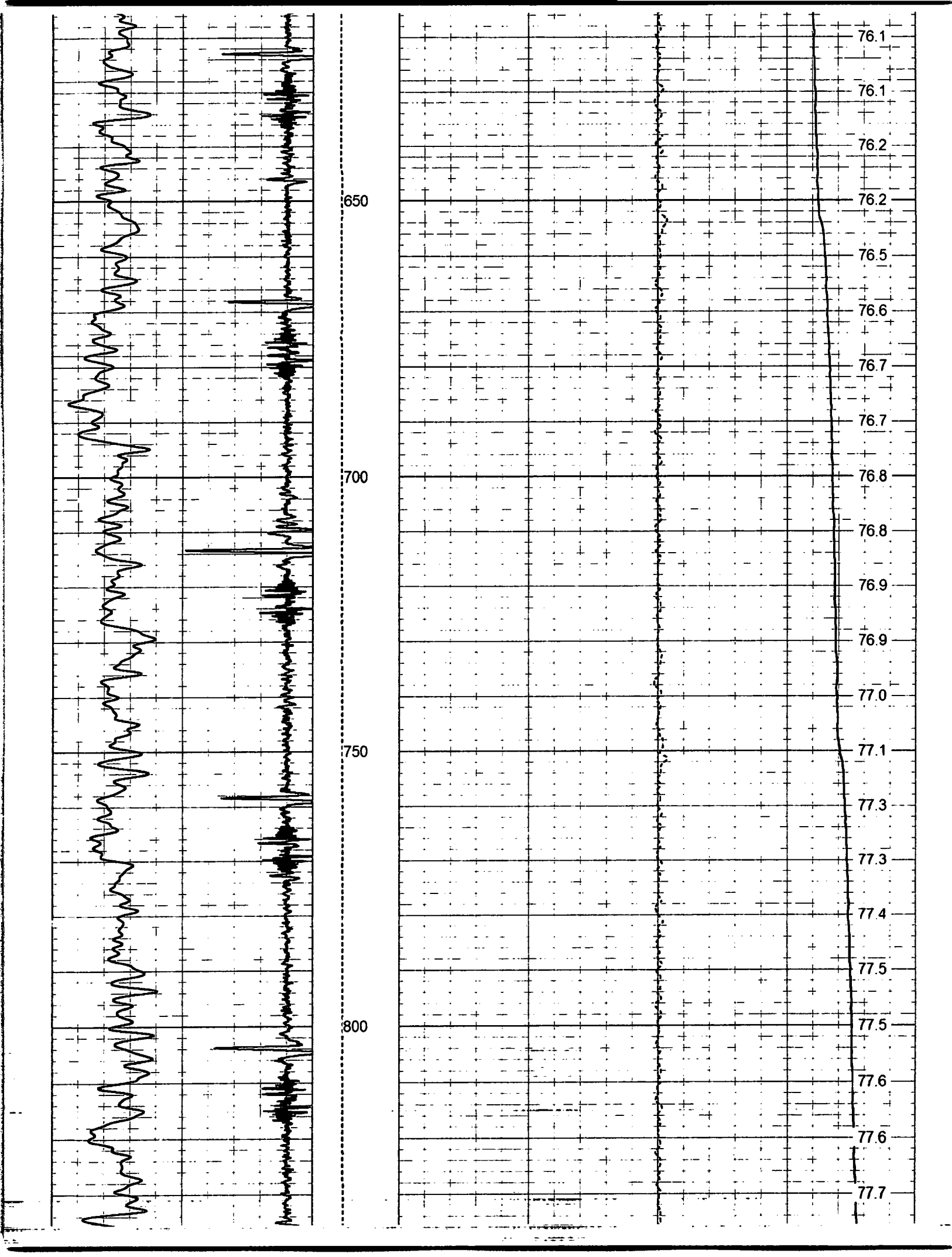
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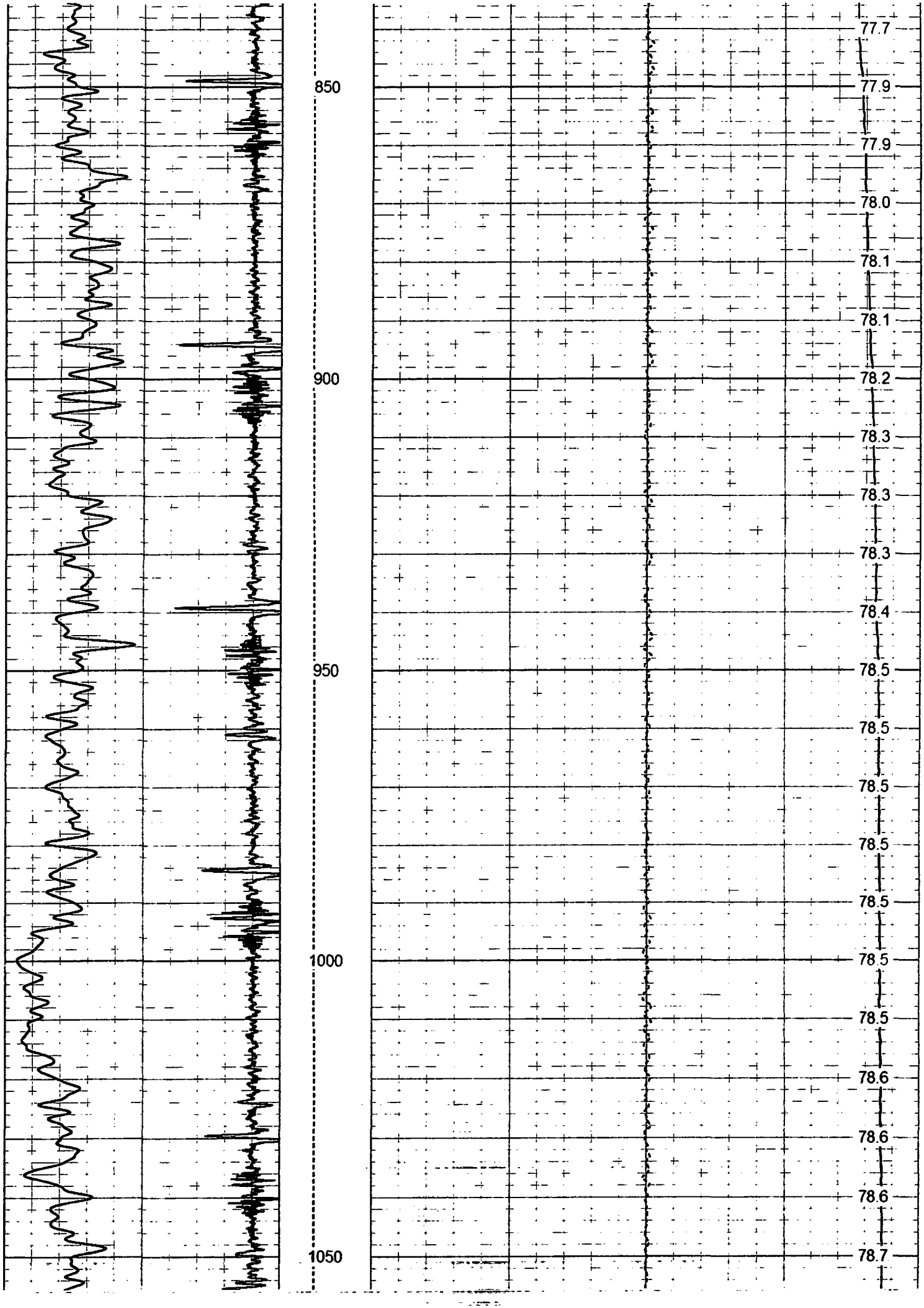
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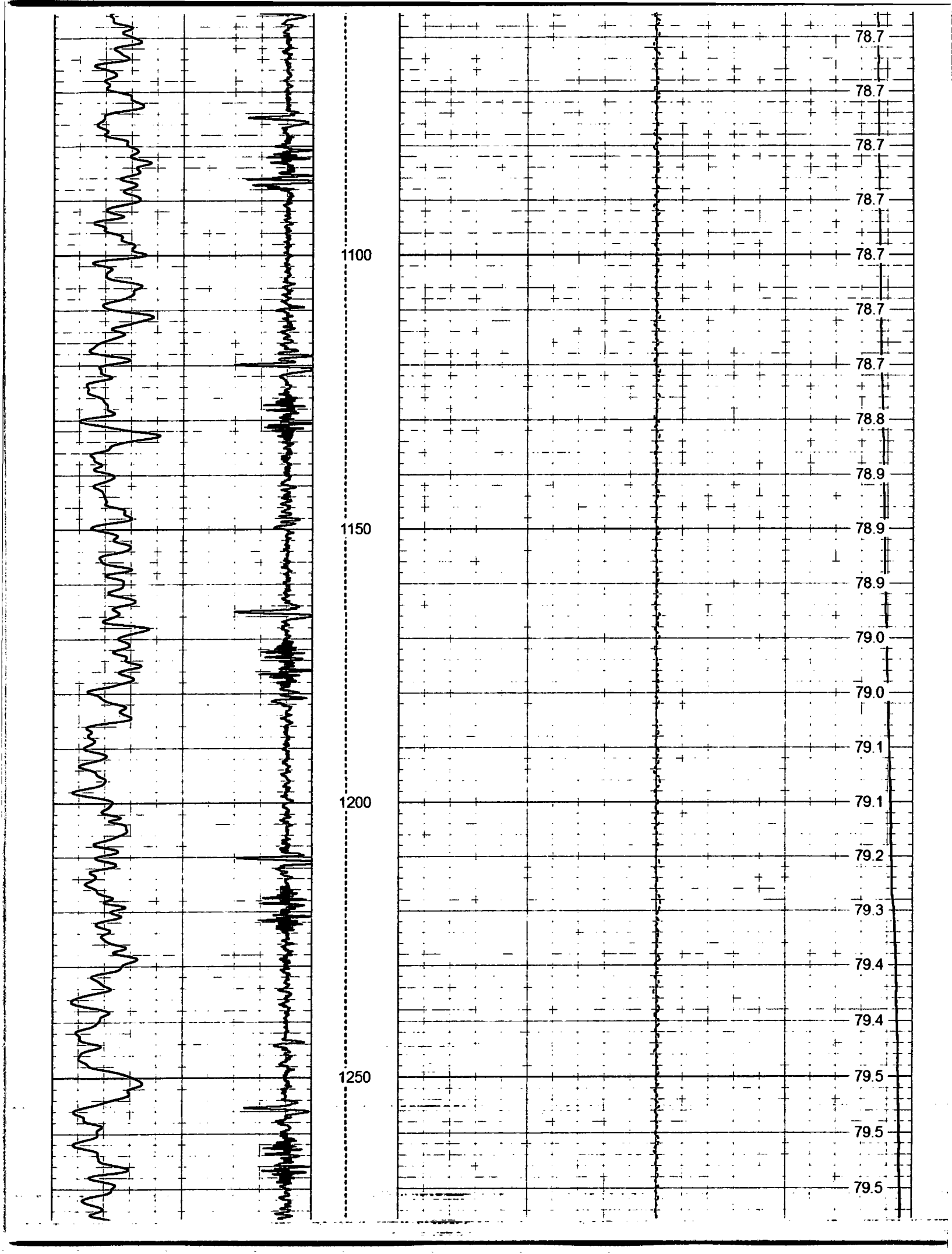
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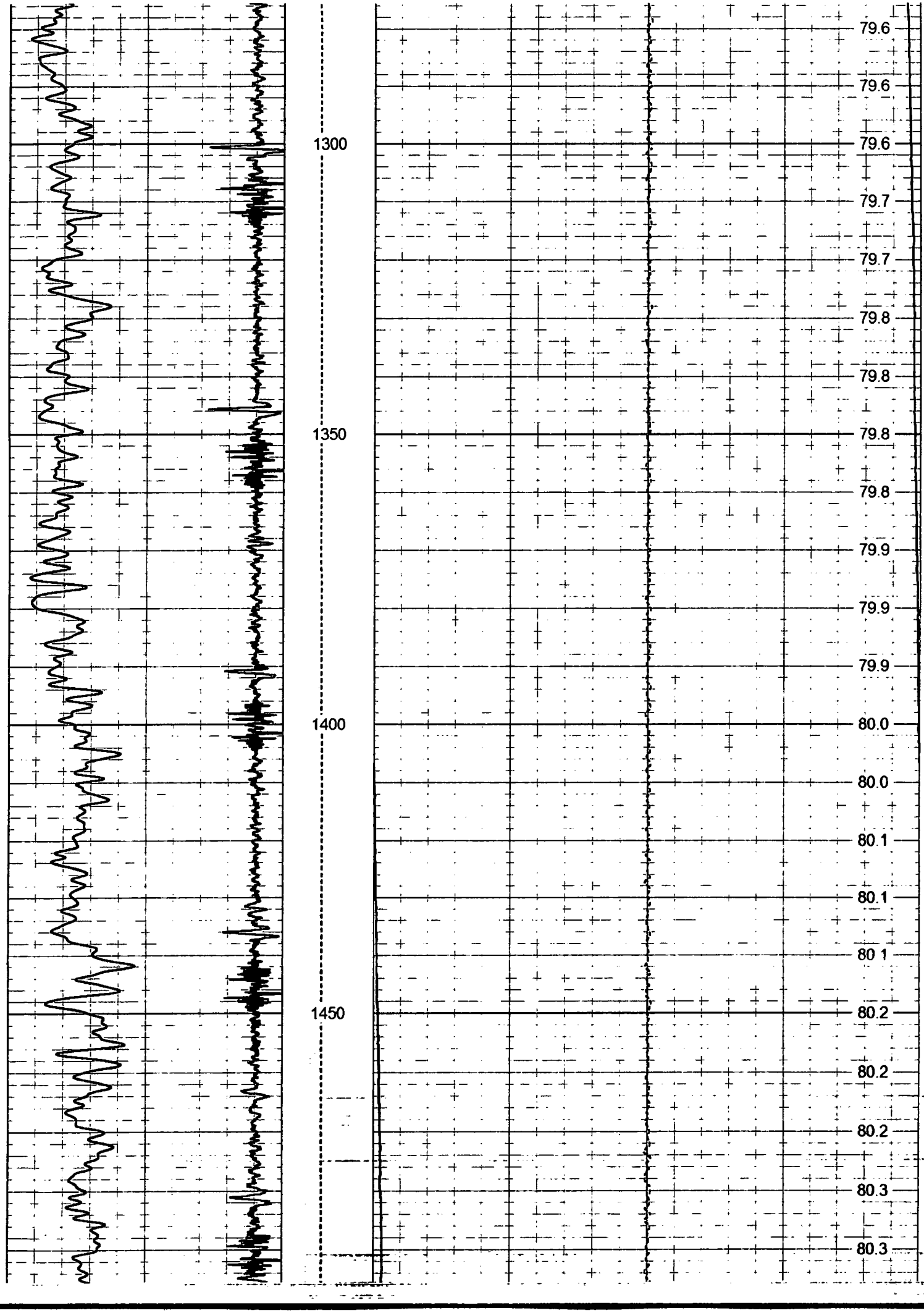
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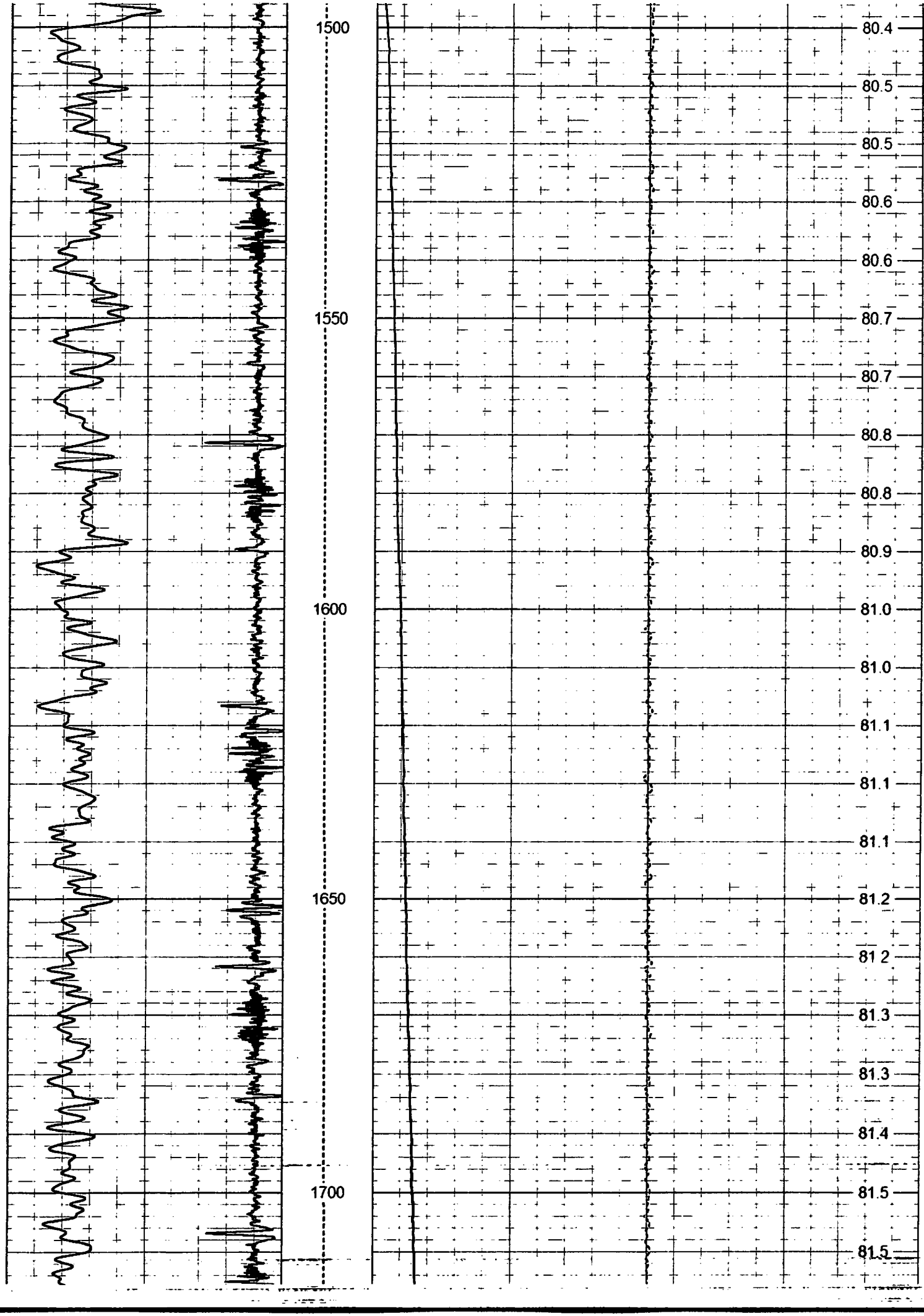
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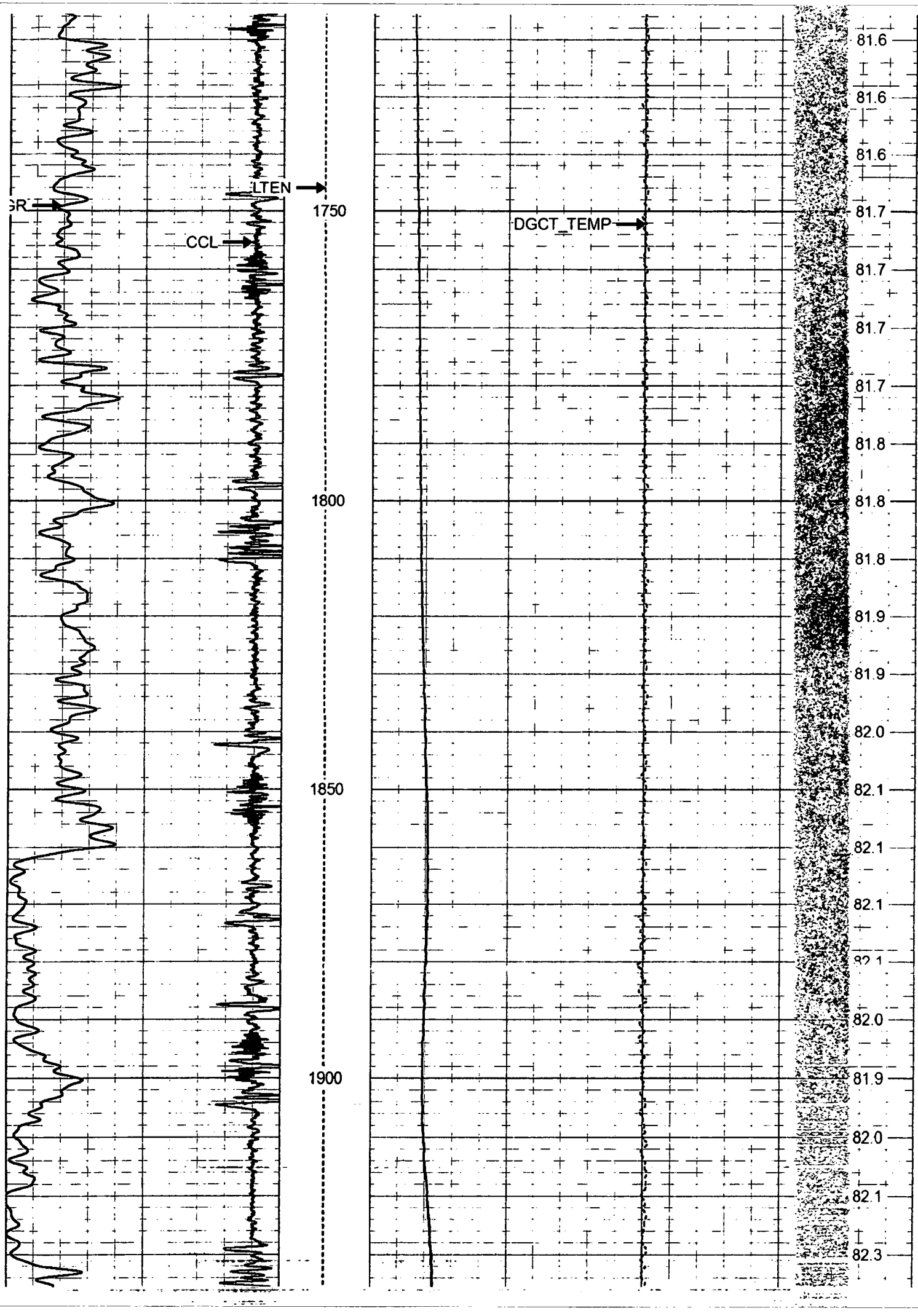
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DGCT_TEMP
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1900
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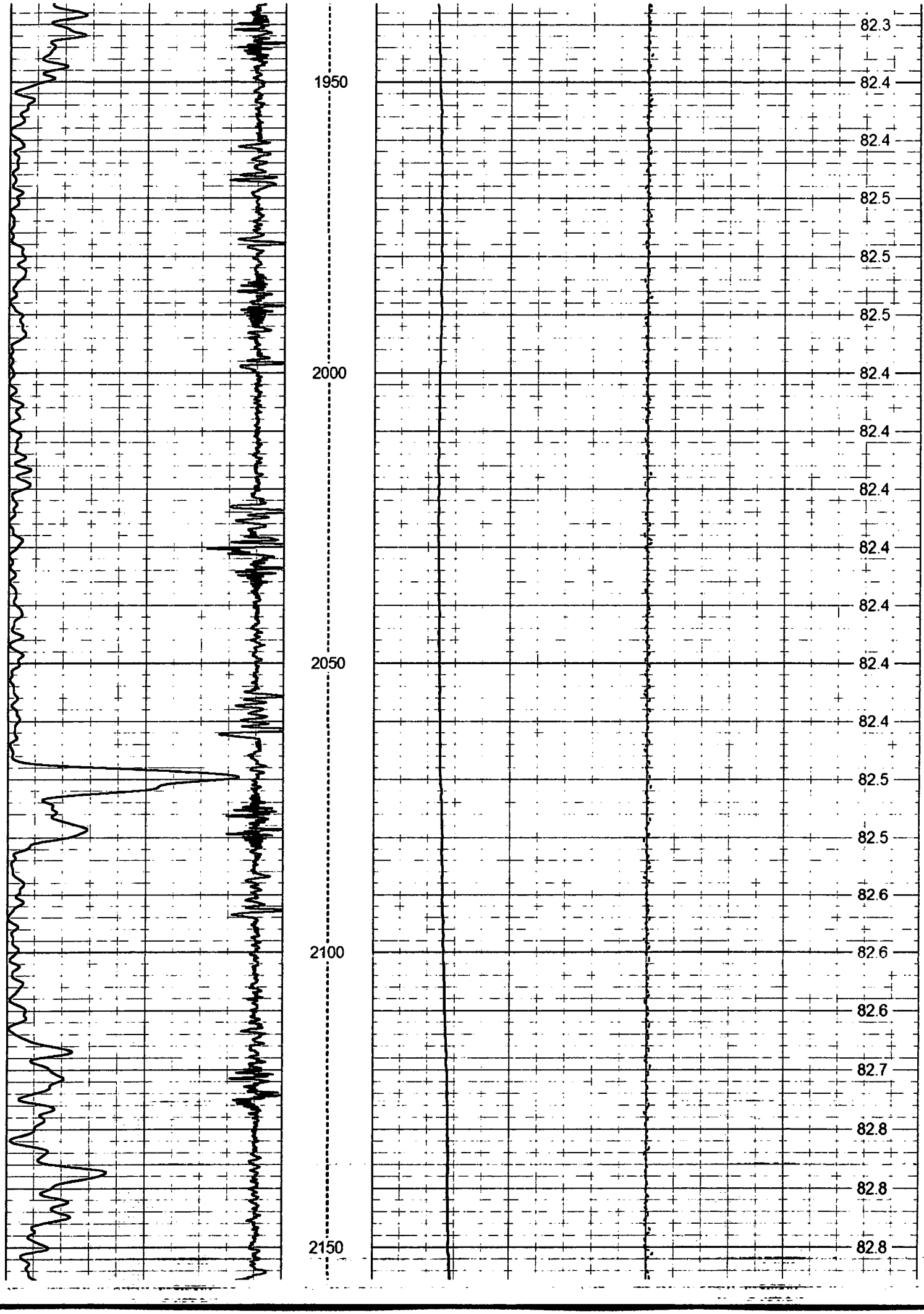
82.3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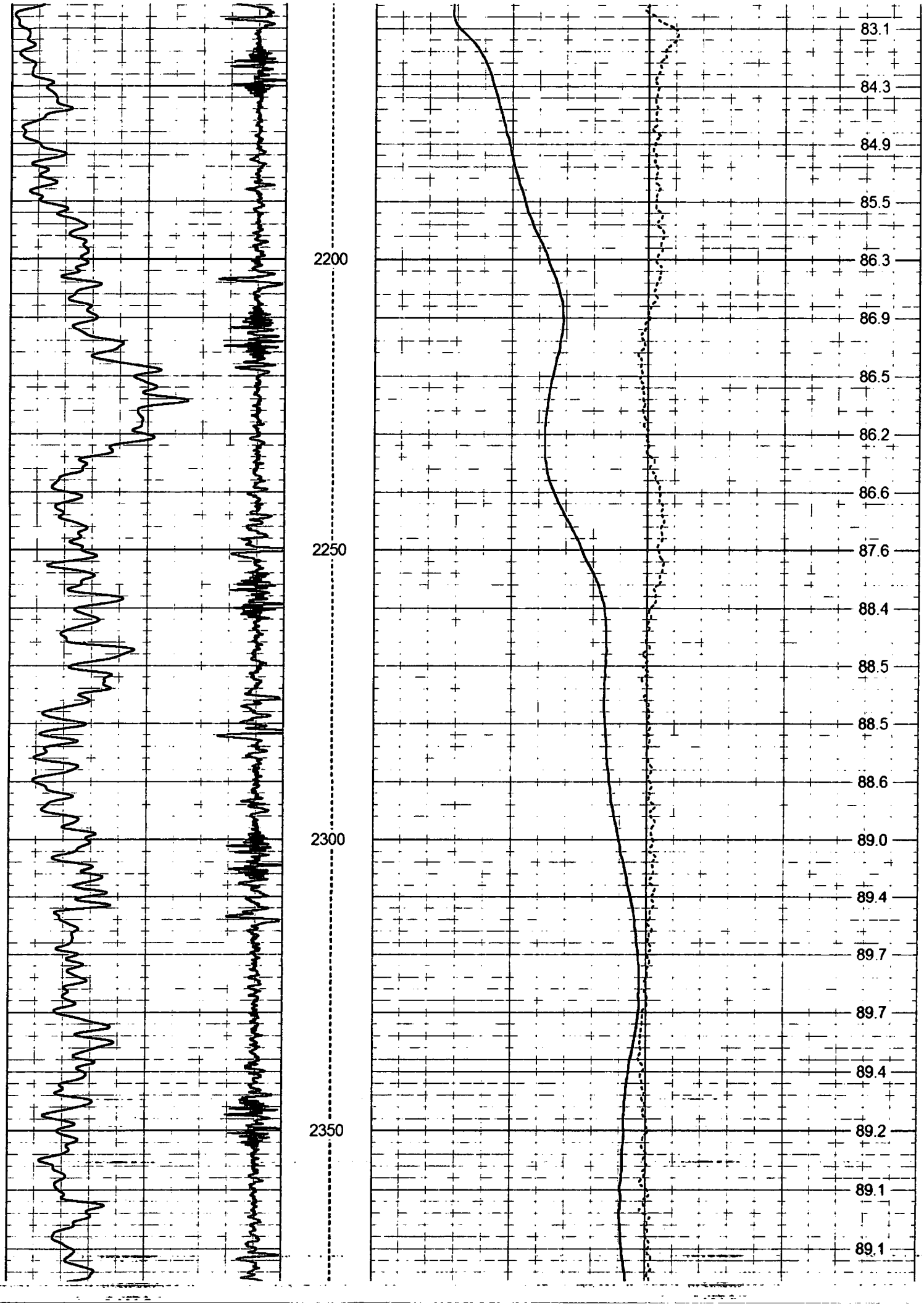
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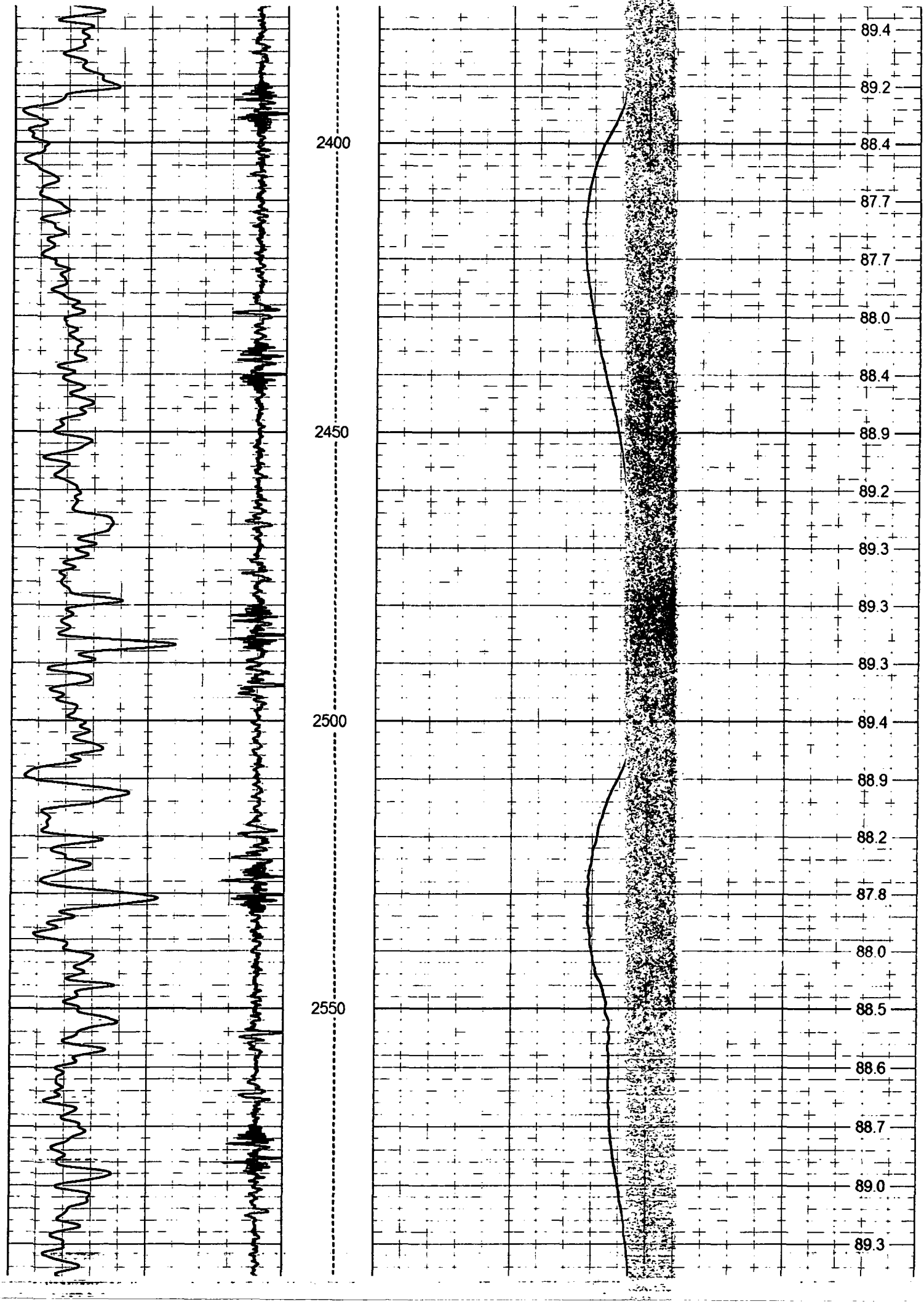
89.1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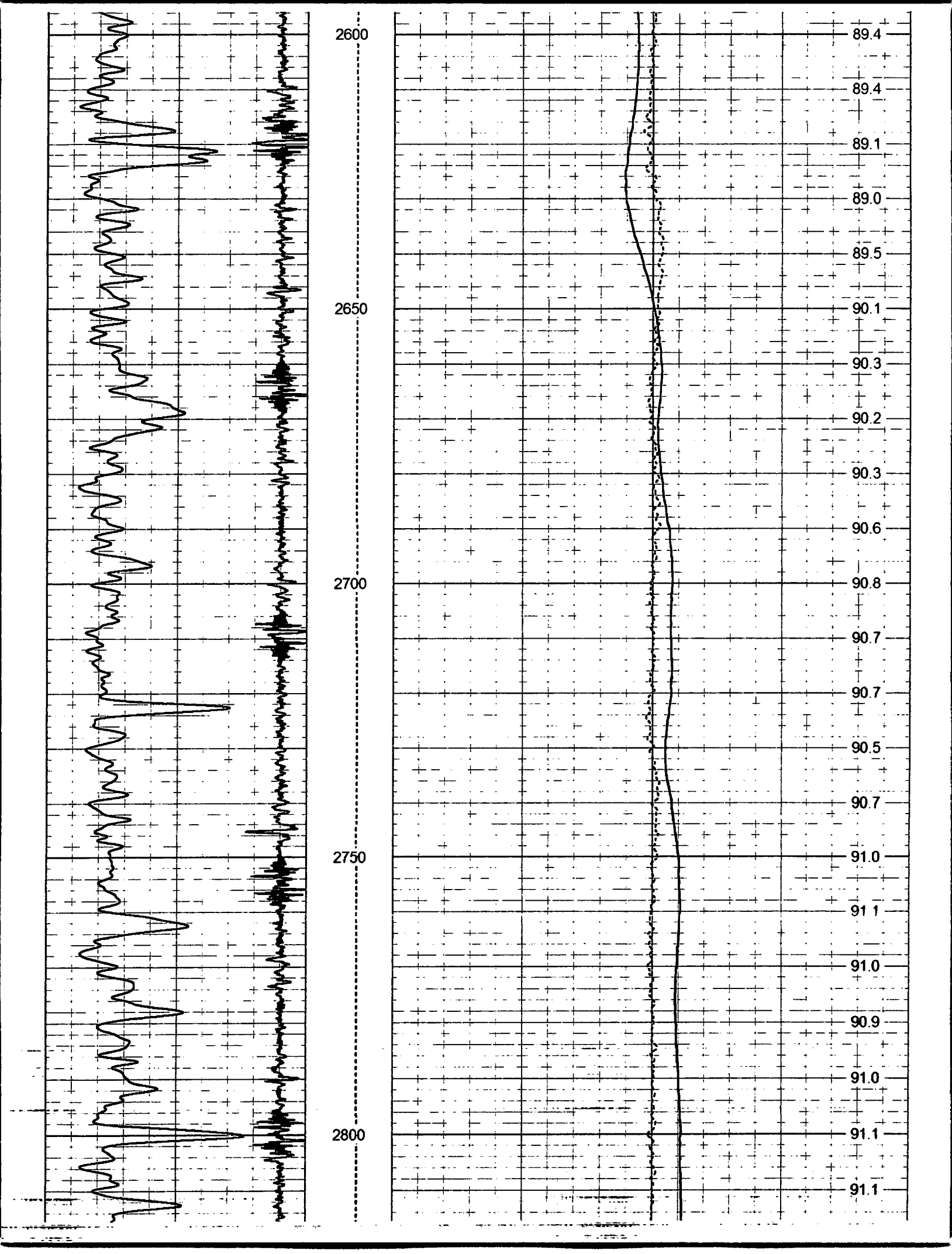
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2650
2700
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2800
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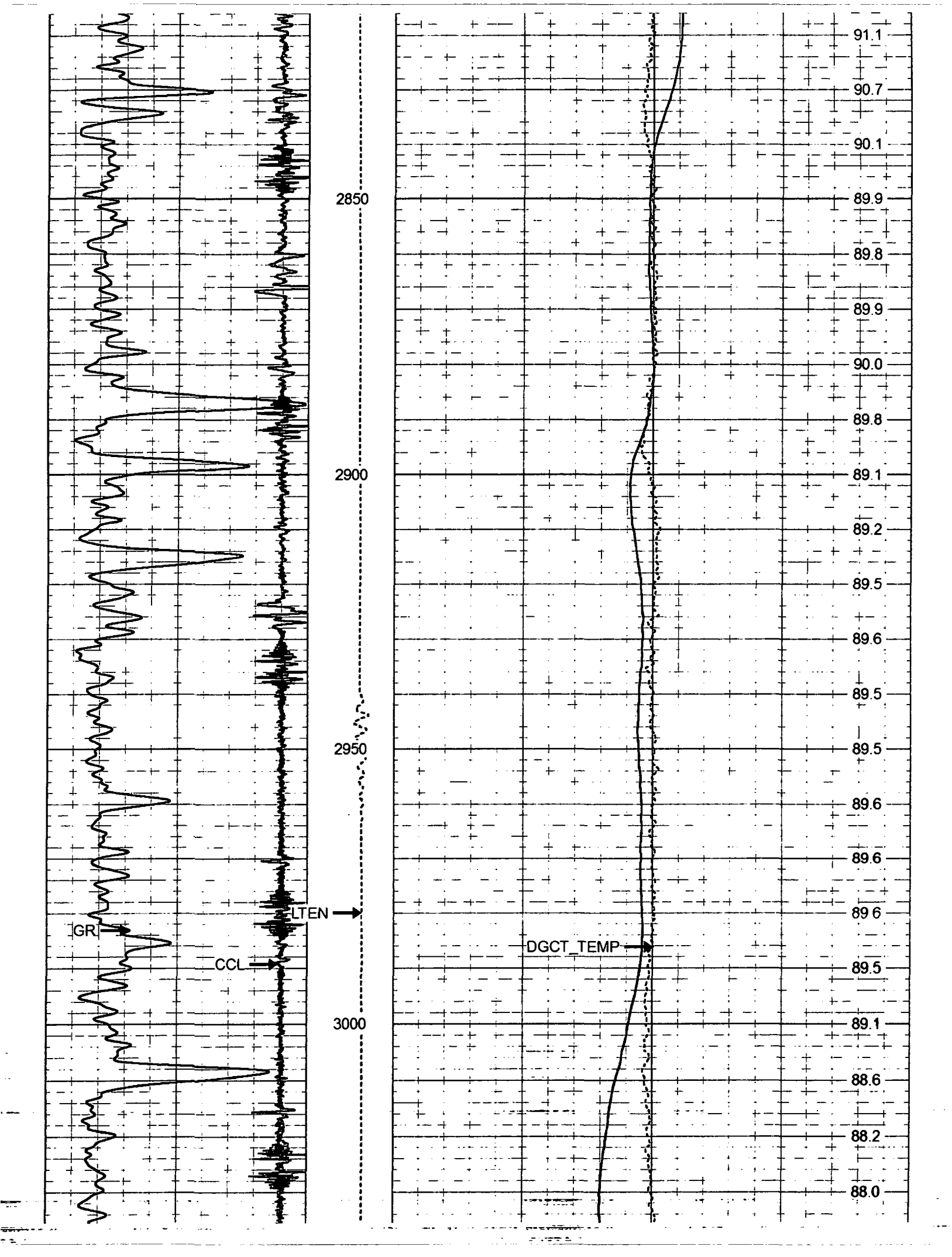
91.1


2850
2900
2950
3000
LTEN
GR
CCL
DGCT_TEMP
91.1
90.7
90.1
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89.8
89.9
90.0
89.8
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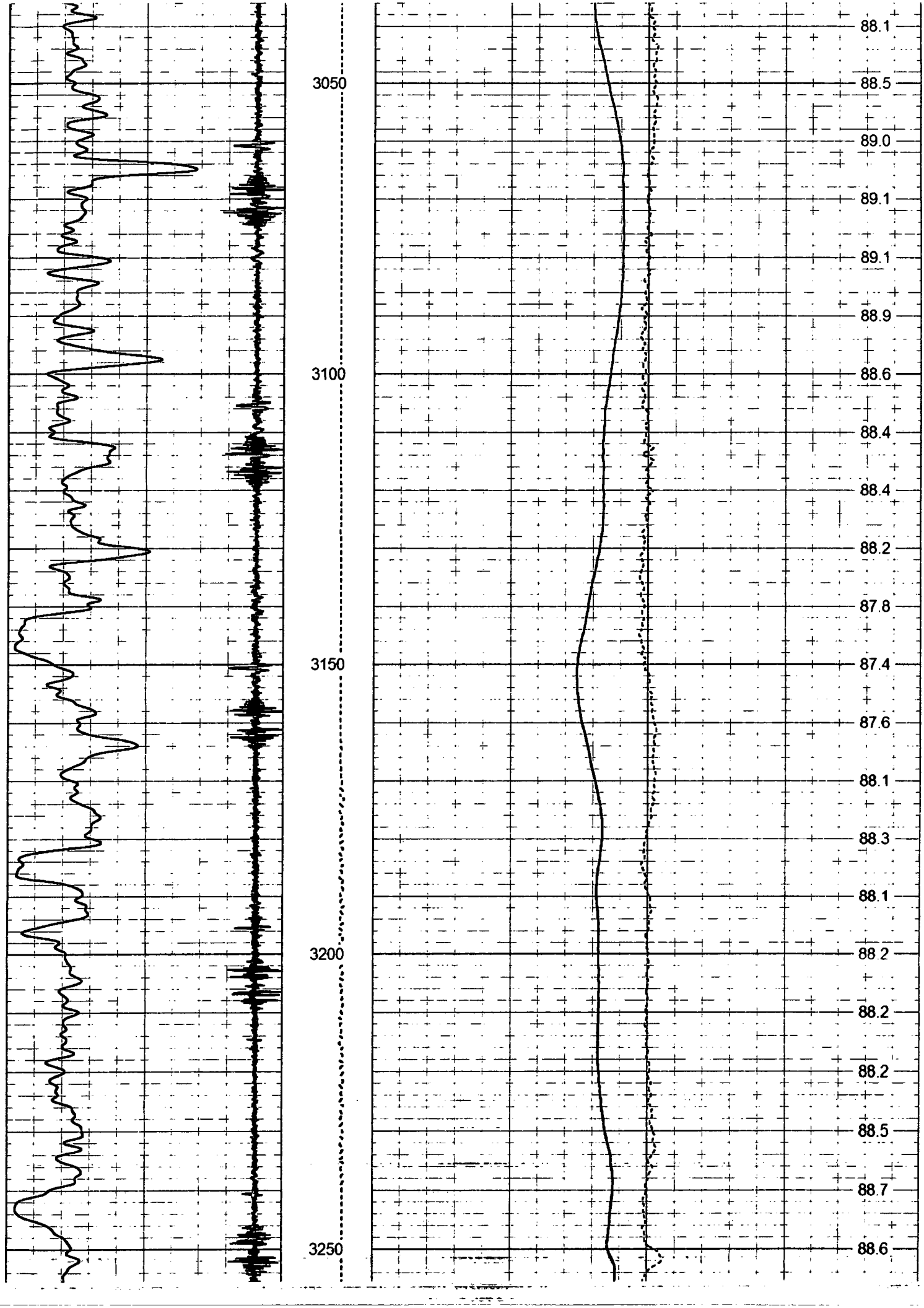
88.0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3150
3200
3250
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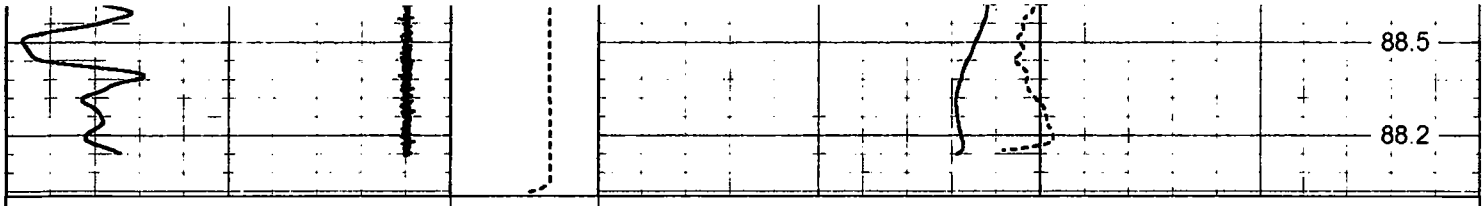
88.6



0	GR (GAPI)	150	-9 DCCL 1	0	GCT_Temp (degF) 20
-9	CCL	1	LTEN	-2	DGCT_TEMP (degF) 2
			0 (lb 1000		GCT_Temp (degF)

Calibration Report

Database File 101719caza.db
Dataset Pathname igloo19-24/cbl2/pass8
Dataset Creation Sun Oct 20 12:32:16 2019

Gamma Ray Calibration Report

Serial Number:	GCT_0BP2_Base	
Tool Model:	GCT275_0BP2	
Performed:	Sun Oct 20 11:13:00 2019	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps

Segmented Cement Bond Log Calibration Report

Serial Number:	RBT350_Base	
Tool Model:	PTS_350	
Calibration Casing Diameter:	9.625	in
Calibration Depth:	193.267	ft

Master Calibration, performed Sun Aug 04 15:36:35 2019:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.001	1.686	1.700	51.280	29.422	1.666
CAL	0.001	2.044				
5'	0.001	2.154	1.700	51.280	23.035	1.672
SUM						
S1	0.001	1.499	0.000	100.000	66.755	-0.097
S2	0.001	1.593	0.000	100.000	62.825	-0.080
S3	0.001	1.665	0.000	100.000	60.103	-0.070
S4	0.001	1.743	0.000	100.000	57.423	-0.081
S5	0.001	1.814	0.000	100.000	55.185	-0.082
S6	0.001	1.859	0.000	100.000	53.824	-0.057
S7	0.001	1.869	0.000	100.000	53.530	-0.067
S8	0.001	1.861	0.000	100.000	53.748	-0.034

Internal Reference Calibration, performed (Not Performed):

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

CAL	0.000	0.000	0.001	2.044	1.000	0.000

Air Zero Calibration, performed Sun Oct 20 11:20:34 2019:

	Raw (v)	Calibrated (v)	Results
	Zero	Zero	Offset
3'	0.015	0.000	-0.014
5'	-0.006	0.000	0.007
SUM			
S1	-0.001	0.000	0.003
S2	0.012	0.000	-0.011
S3	0.012	0.000	-0.011
S4	0.012	0.000	-0.011
S5	0.013	0.000	-0.012
S6	0.014	0.000	-0.013
S7	0.018	0.000	-0.017
S8	0.018	0.000	-0.017

Inclinometer Calibration Report

Performed: (Not Performed)

	Low Read.	High Read.	Low Ref.	High Ref.	
X Accelerometer	0.00	1.00	0.00	1.00	gee
Y Accelerometer	0.00	1.00	0.00	1.00	gee
Z Accelerometer	0.00	1.00	0.00	1.00	gee