

**FORMATION COMPACTIO
MONITORING TOOL
PROCESSED RESULTS
RUN 2 27-NOV-2013**

SHELL OIL COMPANY

OW 8122 BOART LK 12

PICEANCE CREEK BASIN

RIO BLANCO

8

Elevations:	K.B.:	R.T.:	G.L.:
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--- COMPUTER PROCESSED PRODUCT ---

PGM Version:

DIRECTIONAL INFORMATION

Remarks:

FCMT LOG RUN #2 DATED 11-27-2013 WAS CORRELATED TO TOP TAG OF RUN #1

HALLIBURTON

COMPANY NAME	:	
WELL NAME	:	
FIELD NAME	:	
COUNTY	:	
API NUMBER	:	
SERVICE TICKET	:	
LOG DATE	:	
FILE NAME	:	OW_8122_FCMT_RUN2_PASS1.G
FILE DATE	:	12-05-2013

ZONE #: 2.

TOP OF ZONE	:	1750.00 F
BOTTOM OF ZONE	:	2270.00 F

PARAMETERS

FITTING MODE	:	LORENTZIAN
COEF. OF THERMAL EXPANSION	:	6.7 E-6 IN/IN DEGF
BOTTOM OF ZONE TEMPERATURE	:	120.8 DEG F
SPACER 1	:	1.013 F
SPACER 2	:	18.961 F
SPACER 3	:	1.000 F

	THRESHOLD	BUFFER SIZE
GR 1	600.0	2.5 F
GR 2	600.0	2.5 F
GR 3	600.0	2.5 F
GR 4	600.0	2.5 F

TAGS RESULTS

TAG	GR1	GR2	GR3	GR4	PENETRATION
1	2198.862	2199.981	2218.926	2220.036	0.307
2	2131.949	2133.122	2151.884	2152.903	0.295
3	2112.199	2113.313	2132.272	2133.292	0.273
4	2092.446	2093.453	2112.490	2113.605	0.347
5	2072.717	2073.667	2092.841	2094.249	0.289
6	2052.989	2054.032	2072.981	2074.377	0.296
7	2033.393	2034.707	2053.224	2054.598	0.158
8	2013.483	2014.543	2033.744	2034.887	0.292
9	1993.887	1995.173	2013.779	2015.157	0.136
10	1973.984	1975.018	1993.916	1995.328	0.316
11	1954.097	1955.080	1974.280	1975.570	0.260
12	1914.742	1915.809	1934.837	1935.880	0.528
13	1895.406	1896.194	1915.420	1916.181	0.306
14	1875.657	1876.470	1895.732	1897.121	0.156
15	1855.892	1857.252	1875.786	1877.147	0.200
16	1836.077	1837.550	1856.061	1857.442	0.164
17	1816.195	1817.599	1836.388	1837.768	0.144
18	1799.720	1801.027	1819.869	1820.912	0.334

RESULTS SUMMARY

DISTANCE BETWEEN TAGS

TAG	DEPTH	1 GR	2 GRS	3 GRS	HFS METHOD	3GRS	4GRS	SPEED
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[illegible]

QUALITY CONTROL

	ACTUAL DIMENSION	MEASURED AVERAGE	STD DEV	DIFFERENCE	TOLERANCE	WARNING FLAG
SPACER 1	1.013	1.127	0.195	-0.114	0.391	
SPACER 2	18.961	18.913	0.253	0.048	0.507	
SPACER 3	1.000	1.224	0.194	-0.223	0.388	

HALLIBURTON

Version No: | hc:3.0

Data File: OW_8122_FCMT_RUN2_PASS1.G.cls

Format File: Shell_dvar_ac.spc

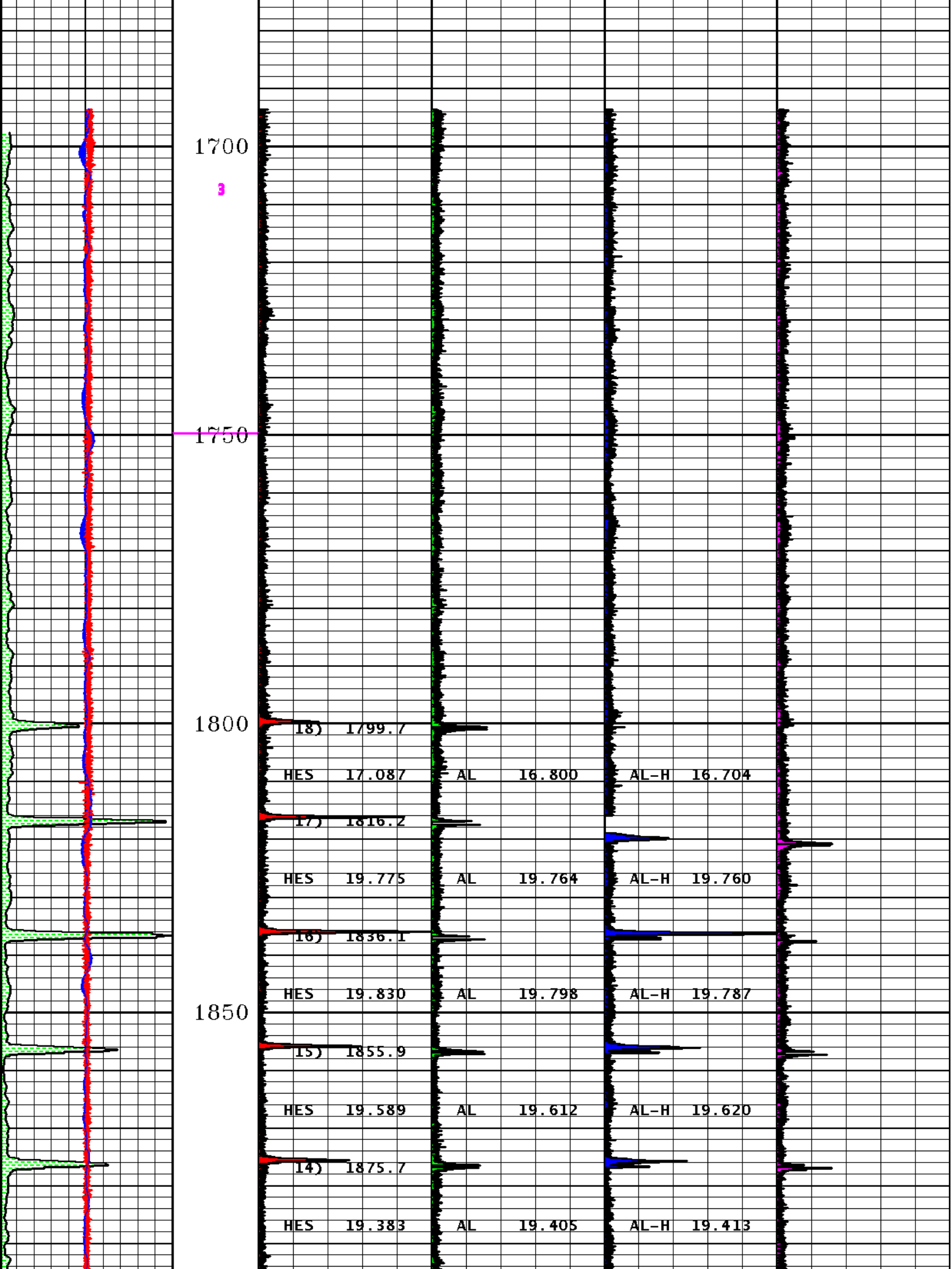
Plot Time: 2013-12-09 14:30:33

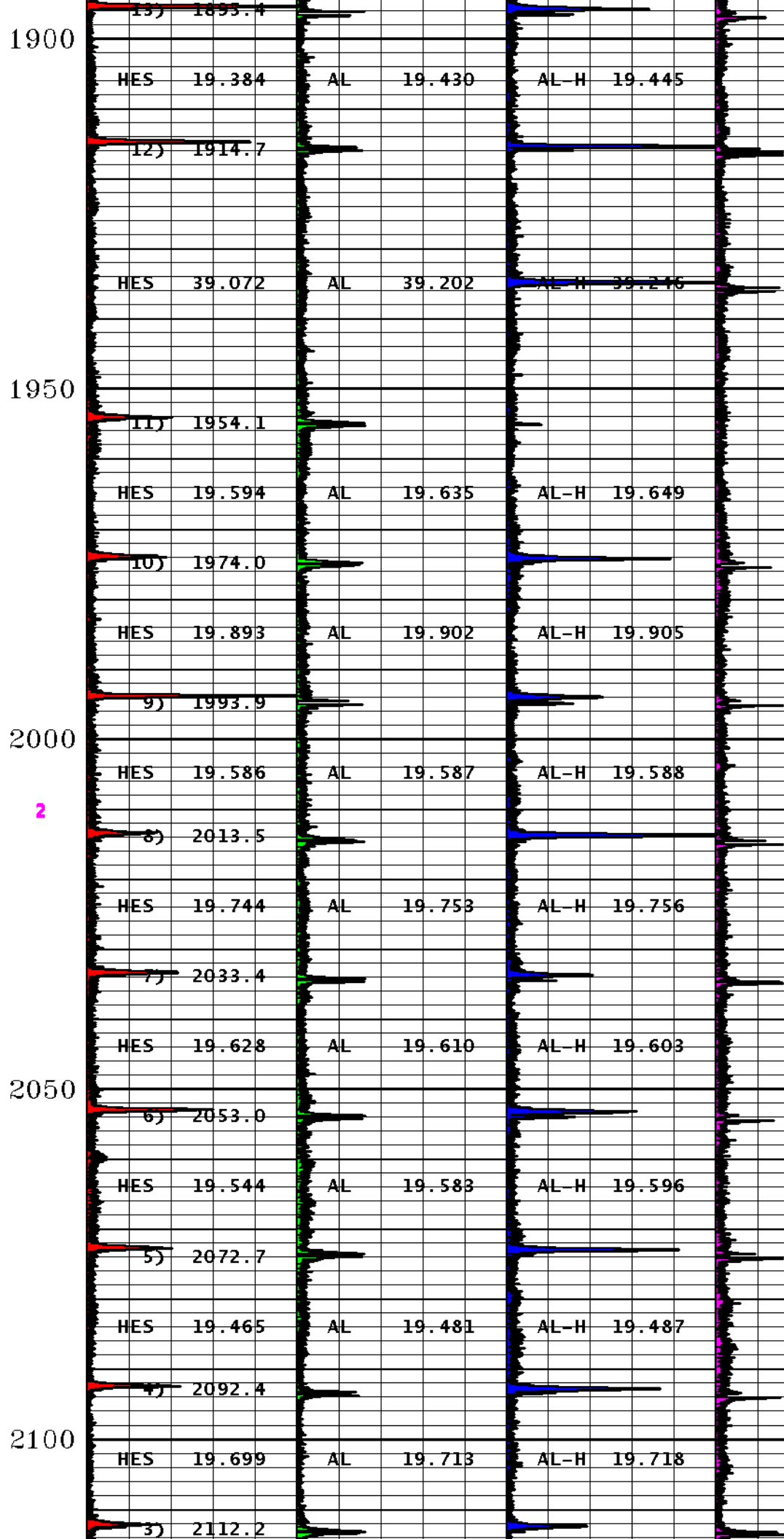
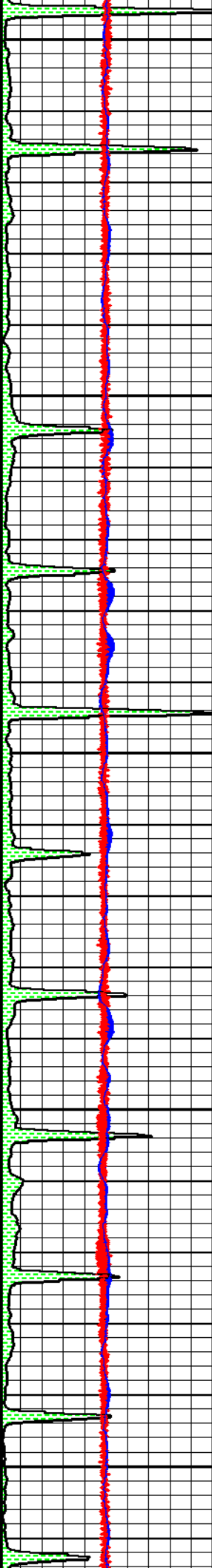
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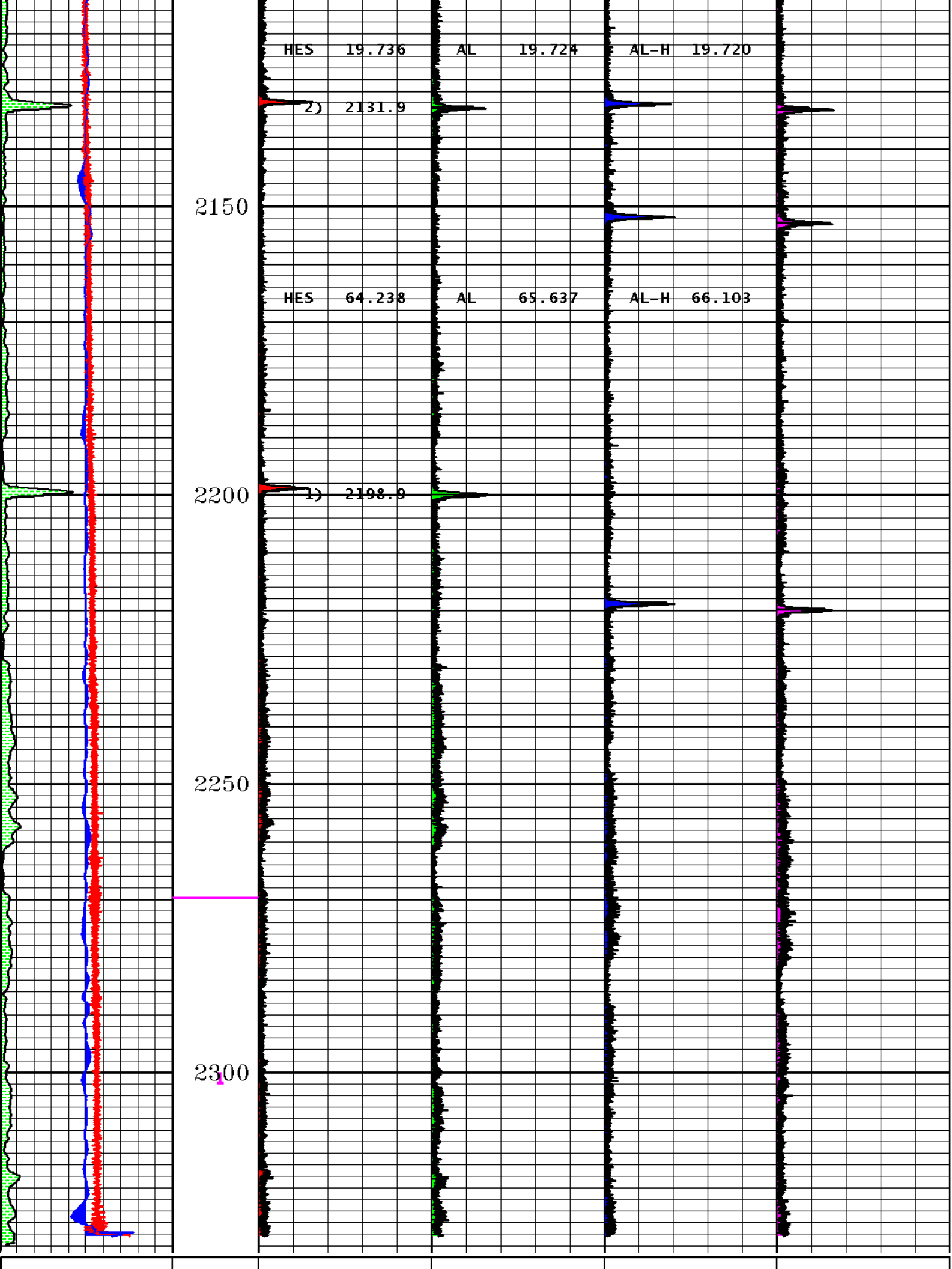
Top Depth: 1664.50

Bottom Depth: 2331.50

		HES	2GR 2-3	2GR 1-3	
DVAR					
DVAR					
GR		RGR01	RGR02	RGR03	RGR04
GR ACCE DVAR	1:240 FT.	RESULT1 RGR01	RGR02 RESULT2	RGR03 RESULT3	RGR04







DVAR	2.5				
ACCE	1.1		RGR01	RESULT2	RESULT3
GR	1000	1:240 FT.	RESULT1	RGR02	RGR03
					RGR04
DVAR					
DVAR					
GR			RGR01	RGR02	RGR03
			HES	2GR 2-3	2GR 1-3

Version No: 1 hc:3.0

Data File: OW_8122_FCMT_RUN2_PASS1.G.cls

Format File: Shell_dvar_ac.spc

Plot Time: 2013-12-09 14:30:42

Database Time: 09:28:40

Top Depth: 1664.50

Bottom Depth: 2331.50

HALLIBURTON

FCMT PROGRAM RESULTS

COMPANY NAME :
 WELL NAME :
 FIELD NAME :
 COUNTY :
 API NUMBER :
 SERVICE TICKET :
 LOG DATE :
 FILE NAME : OW_8122_FCMT_RUN2_PASS2.G
 FILE DATE : 12-05-2013

ZONE #: 2.

TOP OF ZONE : 1750.00 F
 BOTTOM OF ZONE : 2270.00 F

PARAMETERS

FITTING MODE : LORENTZIAN
 COEF. OF THERMAL EXPANSION : 6.7 E-6 IN/IN DEGF
 BOTTOM OF ZONE TEMPERATURE : 121.2 DEG F
 SPACER 1 : 1.013 F
 SPACER 2 : 18.961 F
 SPACER 3 : 1.000 F

	THRESHOLD	BUFFER SIZE
GR 1	600.0	2.5 F
GR 2	600.0	2.5 F
GR 3	600.0	2.5 F
GR 4	600.0	2.5 F

TAGS RESULTS

TAG	GR1	GR2	GR3	GR4	PENETRATION
1	2198.917	2199.933	2218.897	2219.924	0.323

Detailed Data Table: Depth vs. Distance and HES Method									
TAG	DEPTH	GRS AVERAGES				HES METHODS			
		1 GR AVERAGE	2 GRS AVERAGE	3 GRS GR123	HES METHOD GR124	GR134	GR234	3GRS HES TOTAL	4GRS HES METHOD
1	2198.92	66.889	66.936	66.795	66.831	68.547	68.585	67.689	67.661
2	2131.91	19.716	19.704	19.729	19.822	19.703	19.808	19.765	19.759
3	2112.21	19.747	19.636	19.740	19.589	19.771	19.638	19.685	19.679
4	2092.39	19.579	19.521	19.648	19.586	19.667	19.608	19.627	19.621
5	2072.79	19.728	19.741	19.774	19.833	19.762	19.825	19.798	19.792
6	2053.12	19.821	19.732	19.775	19.808	19.768	19.803	19.788	19.782
7	2033.26	19.819	19.642	19.705	19.661	19.717	19.674	19.689	19.683
8	2013.44	19.849	19.654	19.763	19.671	19.780	19.696	19.727	19.721
9	1993.62	19.802	19.696	19.935	19.486	19.948	19.634	19.751	19.751
10	1973.95	19.729	19.634	19.730	19.598	19.759	19.640	19.682	19.676
11	1954.11	39.382	39.303	38.687	38.667	38.321	38.301	38.494	38.487
12	1914.72	19.263	19.290	19.477	19.466	19.483	19.471	19.474	19.468
13	1895.42	19.791	19.636	19.710	19.723	19.707	19.720	19.715	19.709
14	1875.72	19.848	19.652	19.848	19.387	19.888	19.568	19.673	19.676
15	1855.97	19.583	19.484	19.751	19.076	19.841	19.433	19.525	19.546
16	1836.14	19.805	19.682	19.764	19.763	19.764	19.763	19.764	19.757
17	1816.37	16.780	16.763	17.256	17.504	16.362	16.696	16.955	17.011
18	1799.82								
RESULTS SUMMARY									
DISTANCE BETWEEN TAGS									
TAG	DEPTH	GRS AVERAGES				HES METHODS			
		1 GR AVERAGE	2 GRS AVERAGE	3 GRS GR123	HES METHOD GR124	GR134	GR234	3GRS HES TOTAL	4GRS HES METHOD
1	2198.92	66.889	66.936	66.795	66.831	68.547	68.585	67.689	67.661
2	2131.91	19.716	19.704	19.729	19.822	19.703	19.808	19.765	19.759
3	2112.21	19.747	19.636	19.740	19.589	19.771	19.638	19.685	19.679
4	2092.39	19.579	19.521	19.648	19.586	19.667	19.608	19.627	19.621
5	2072.79	19.728	19.741	19.774	19.833	19.762	19.825	19.798	19.792
6	2053.12	19.821	19.732	19.775	19.808	19.768	19.803	19.788	19.782
7	2033.26	19.819	19.642	19.705	19.661	19.717	19.674	19.689	19.683
8	2013.44	19.849	19.654	19.763	19.671	19.780	19.696	19.727	19.721
9	1993.62	19.802	19.696	19.935	19.486	19.948	19.634	19.751	19.751
10	1973.95	19.729	19.634	19.730	19.598	19.759	19.640	19.682	19.676
11	1954.11	39.382	39.303	38.687	38.667	38.321	38.301	38.494	38.487
12	1914.72	19.263	19.290	19.477	19.466	19.483	19.471	19.474	19.468
13	1895.42	19.791	19.636	19.710	19.723	19.707	19.720	19.715	19.709
14	1875.72	19.848	19.652	19.848	19.387	19.888	19.568	19.673	19.676
15	1855.97	19.583	19.484	19.751	19.076	19.841	19.433	19.525	19.546
16	1836.14	19.805	19.682	19.764	19.763	19.764	19.763	19.764	19.757
17	1816.37	16.780	16.763	17.256	17.504	16.362	16.696	16.955	17.011
18	1799.82								
QUALITY CONTROL									
		ACTUAL DIMENSION	AVERAGE	MEASURED STD DEV	DIFFERENCE		TOLERANCE	WARNING FLAG	
SPACER 1		1.013	1.194	0.171	-0.181		0.341		
SPACER 2		18.961	18.819	0.180	0.143		0.362		
SPACER 3		1.000	1.257	0.166	-0.257		0.333		

HALLIBURTON

Version No: | hc:3.0

Data File: OW_8122_FCMT_RUN2_PASS2.G.cls

Format File: Shell_dvar_ac.spc

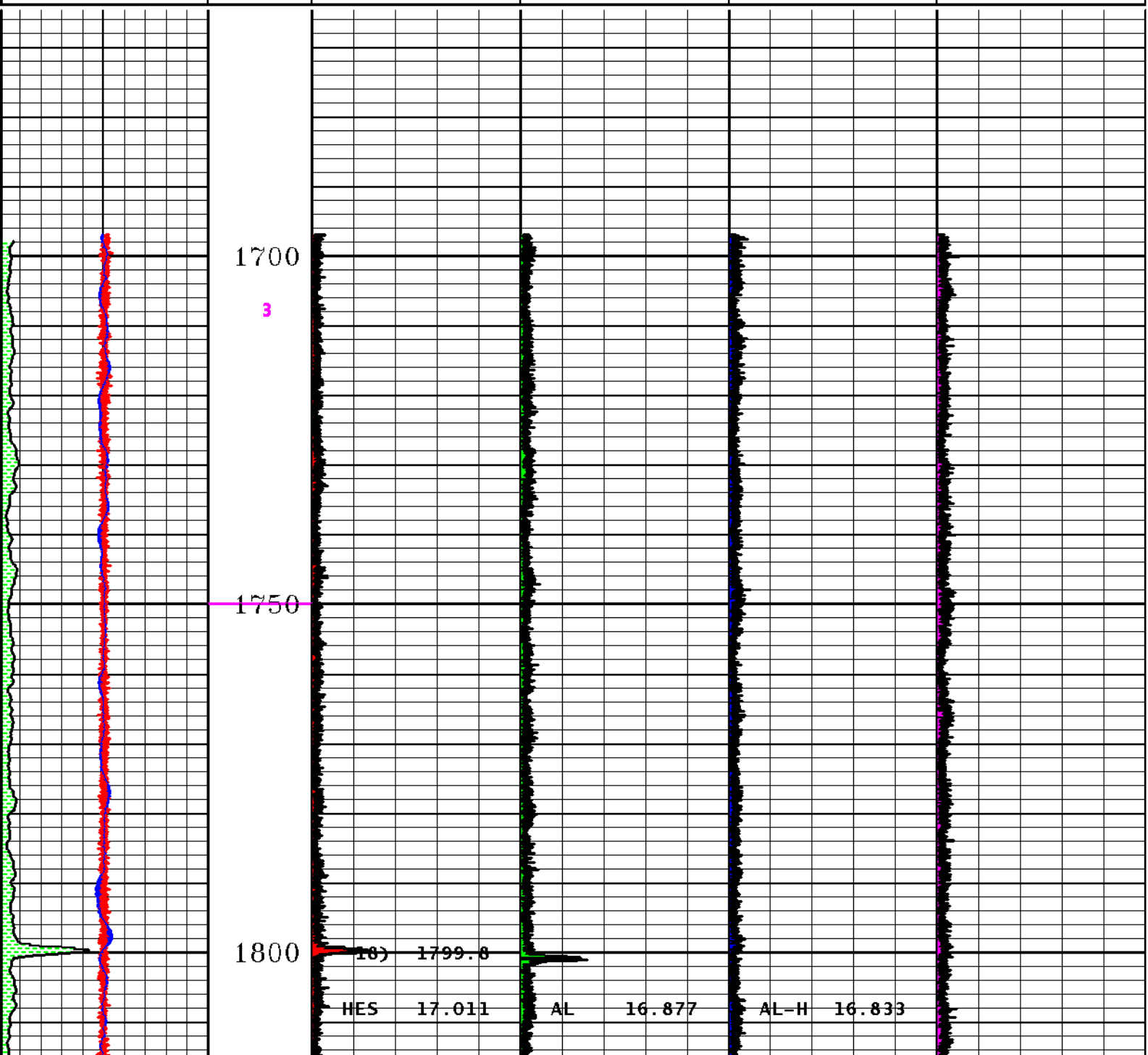
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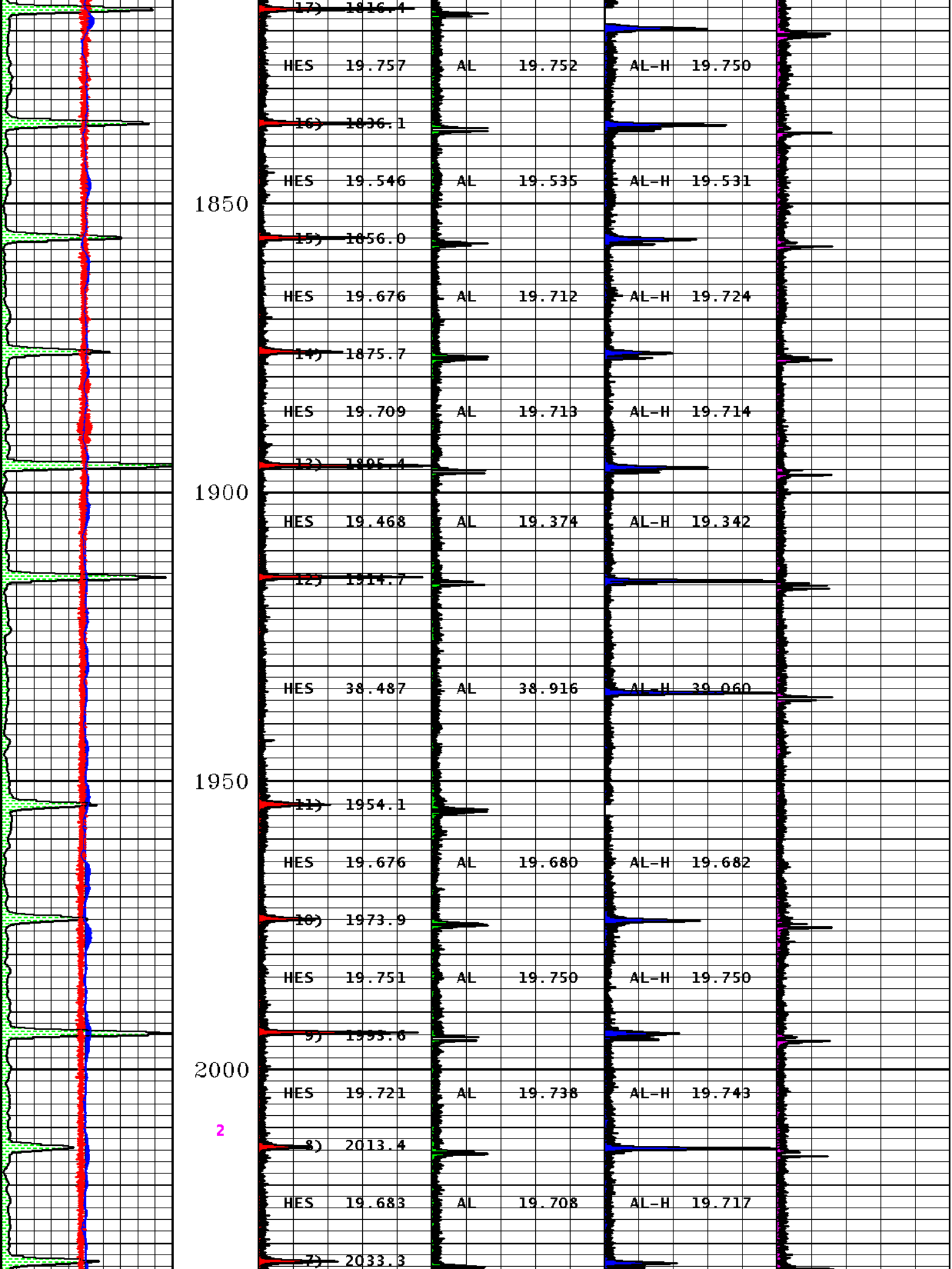
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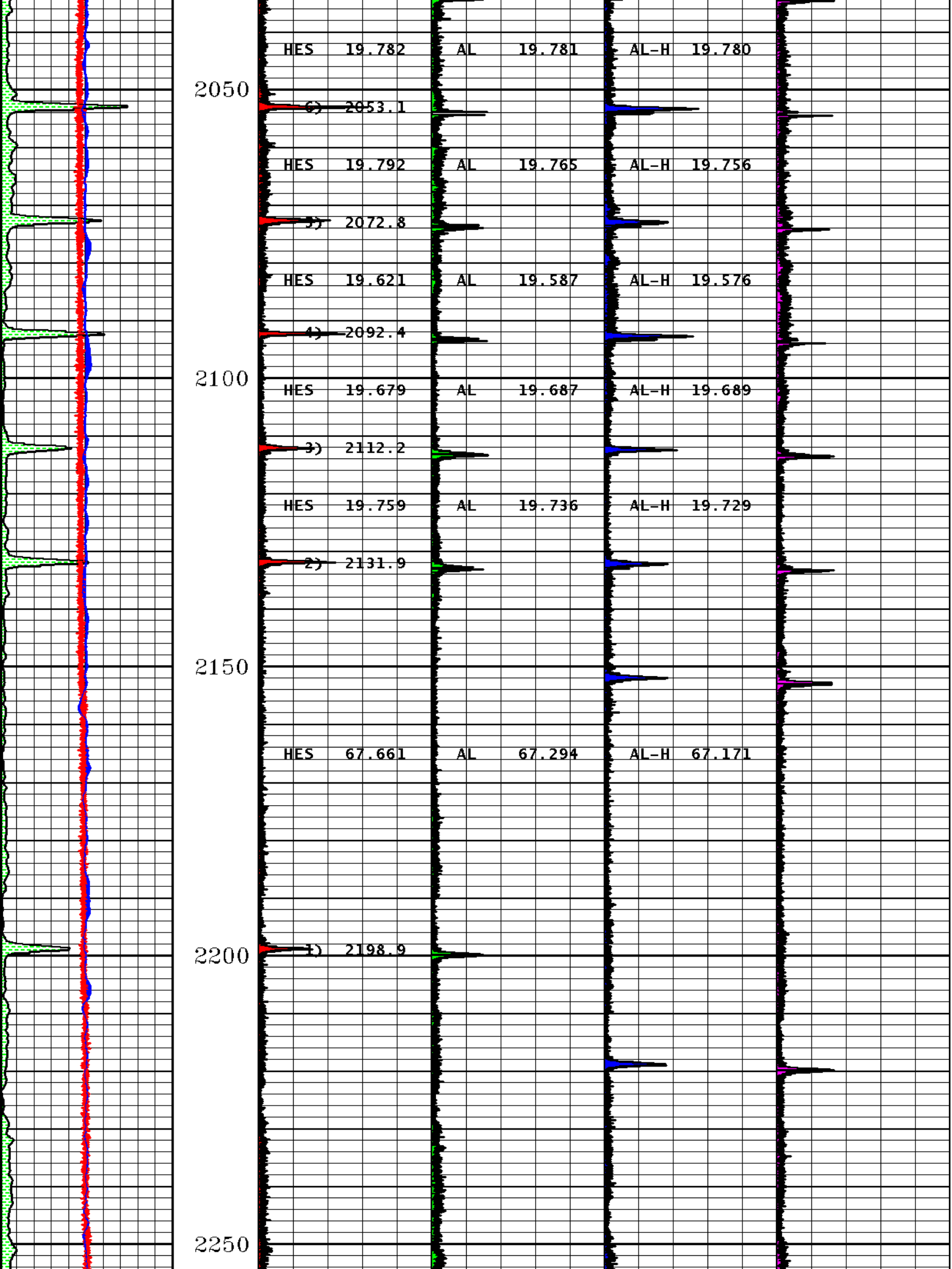
Top Depth: 1664.70

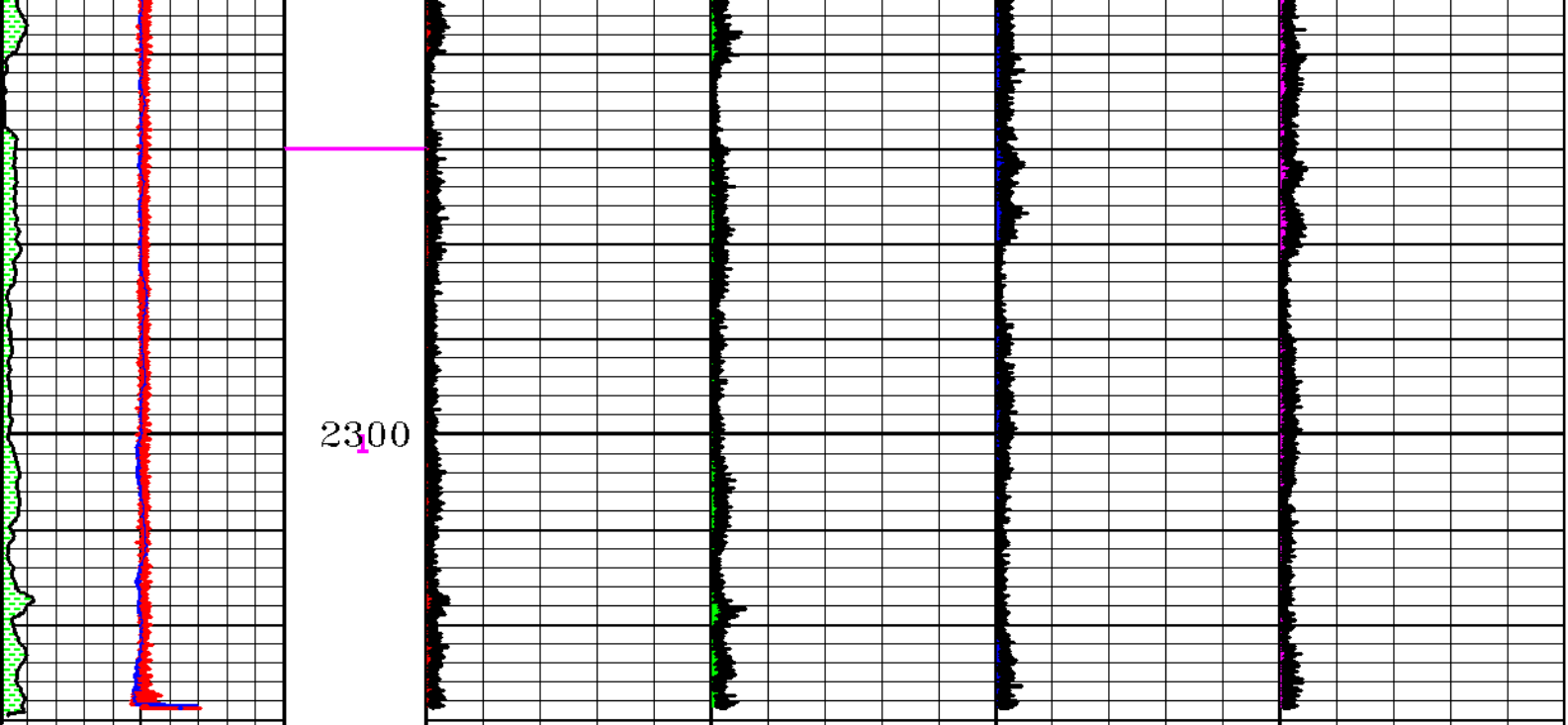
Bottom Depth: 2331.20

		HES	2GR 2-3	2GR 1-3	
DVAR					
DVAR					
GR		RGR01	RGR02	RGR03	RGR04
GR	1:240 FT.	RESULT1	RGR02	RGR03	RGR04
ACCE		RGR01	RESULT2	RESULT3	
DVAR					









DVAR ACCE GR	1:240 FT.	RGR01	RESULT2	RESULT3	RGR04
		RESULT1	RGR02	RGR03	
DVAR DVAR GR		RGR01	RGR02	RGR03	RGR04
		HES	2GR 2-3	2GR 1-3	

HALLIBURTON

Version No: | hc:3.0
 Data File: OW_8122_FCMT_RUN2_PASS2.G.cls
 Format File: Shell_dvar_ac.spc
 Plot Time: 2013-12-09 14:31:02
 Database Time: 09:33:12

Top Depth: 1664.70
 Bottom Depth: 2331.20

FCMT PROGRAM RESULTS

COMPANY NAME :
 WELL NAME :
 FIELD NAME :
 COUNTY :
 API NUMBER :
 SERVICE TICKET :
 LOG DATE :
 FILE NAME : OW_8122_FCMT_RUN2_PASS3.G
 FILE DATE : 12-05-2013

ZONE #: 2.

TOP OF ZONE : 1750.00 F
 BOTTOM OF ZONE : 2270.00 F

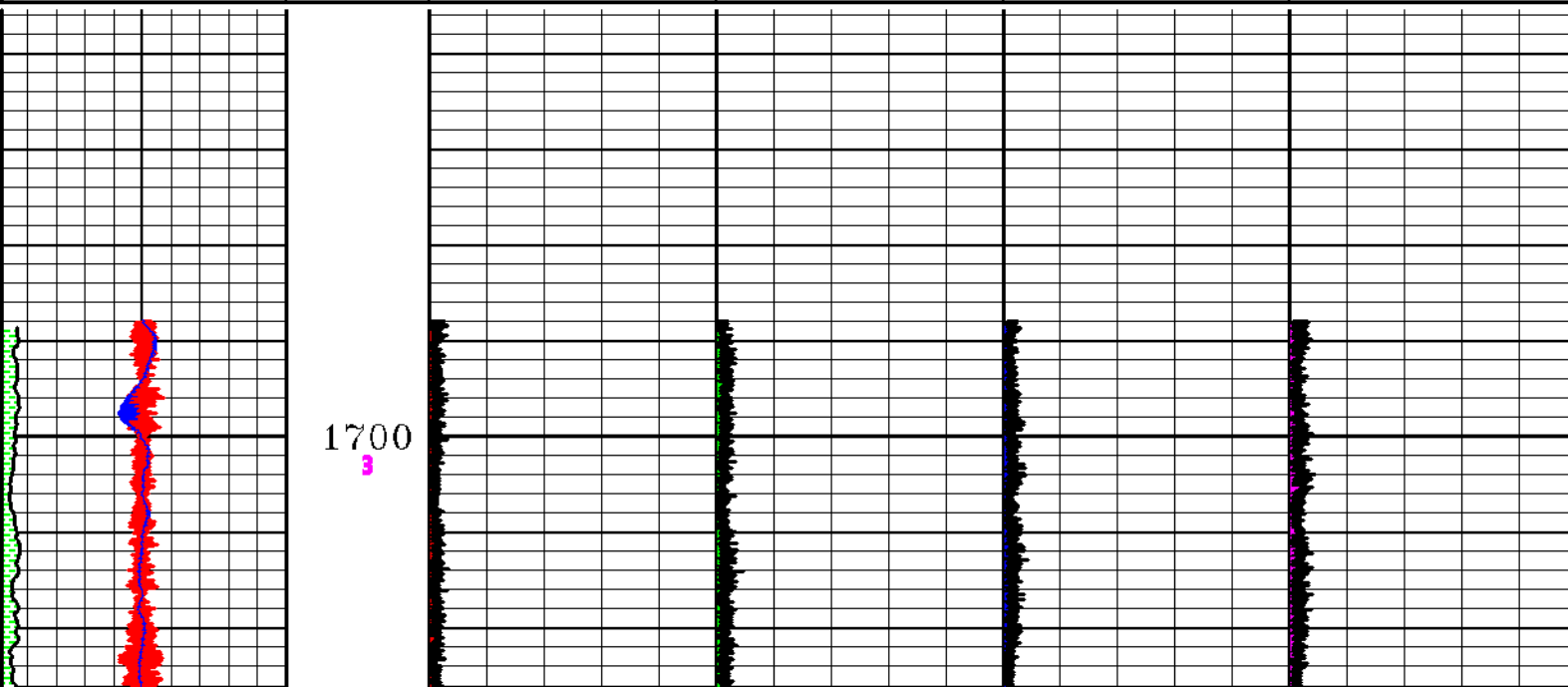
PARAMETERS										
FITTING MODE : LORENTZIAN COEF. OF THERMAL EXPANSION : 6.7 E-6 IN/IN DEGF BOTTOM OF ZONE TEMPERATURE : 120.8 DEG F SPACER 1 : 1.013 F SPACER 2 : 18.961 F SPACER 3 : 1.000 F										
THRESHOLD			BUFFER SIZE							
GR 1	600.0	2.5 F								
GR 2	600.0	2.5 F								
GR 3	600.0	2.5 F								
GR 4	600.0	2.5 F								
TAGS RESULTS										
TAG	GR1	GR2	GR3	GR4	PENETRATION					
1	2198.651	2199.688	2218.628	2219.691	0.274					
2	2131.659	2132.824	2151.676	2152.612	0.317					
3	2111.933	2113.054	2132.009	2133.169	0.261					
4	2092.178	2093.059	2112.190	2113.287	0.271					
5	2072.572	2073.686	2092.593	2093.971	0.335					
6	2052.850	2054.215	2072.880	2074.186	0.144					
7	2033.045	2033.942	2053.062	2054.459	0.291					
8	2013.414	2014.348	2033.347	2034.564	0.277					
9	1993.562	1994.260	2013.678	2015.008	0.237					
10	1973.769	1974.994	1993.602	1995.049	0.424					
11	1953.924	1954.760	1974.081	1975.459	0.313					
12	1914.515	1915.236	1934.772	1935.789	0.296					
13	1895.266	1896.612	1915.193	1916.525	0.109					
14	1875.680	1876.595	1895.610	1896.900	0.310					
15	1855.716	1856.748	1875.798	1877.121	0.496					
16	1835.906	1836.735	1855.982	1857.302	0.123					
17	1815.986	1817.433	1836.216	1837.622	0.148					
18	1799.634	1800.815	1819.616	1820.606	0.367					
RESULTS SUMMARY										
DISTANCE BETWEEN TAGS										
TAG	DEPTH	1 GR AVERAGE	2 GRS AVERAGE	3 GRS GR123	HES METHOD GR124 GR134 GR234	3GRS HES TOTAL	4GRS HES METHOD	SPEED RATIO		
1	2198.65									
		66.972	66.994	65.852	65.938	70.159	70.255	68.051	67.934	1.022
2	2131.66									
		19.651	19.620	19.670	19.661	19.673	19.664	19.667	19.661	0.866
3	2111.93									
		19.863	19.723	19.742	19.751	19.740	19.749	19.746	19.739	0.908
4	2092.18									
		19.473	19.305	19.497	18.912	19.674	19.300	19.346	19.370	0.938
5	2072.57									
		19.673	19.564	19.695	19.506	19.740	19.579	19.630	19.626	0.838
6	2052.85									
		19.906	19.740	19.817	19.780	19.822	19.786	19.801	19.795	0.729
7	2033.04									
		19.709	19.506	19.633	19.259	19.726	19.450	19.517	19.521	0.976
8	2013.41									
		19.791	19.506	19.688	19.246	19.776	19.465	19.544	19.551	0.918
9	1993.56									
		19.773	19.553	19.916	18.816	19.947	19.416	19.524	19.572	1.072
10	1973.77									
		19.797	19.580	19.717	19.577	19.748	19.624	19.666	19.661	0.776

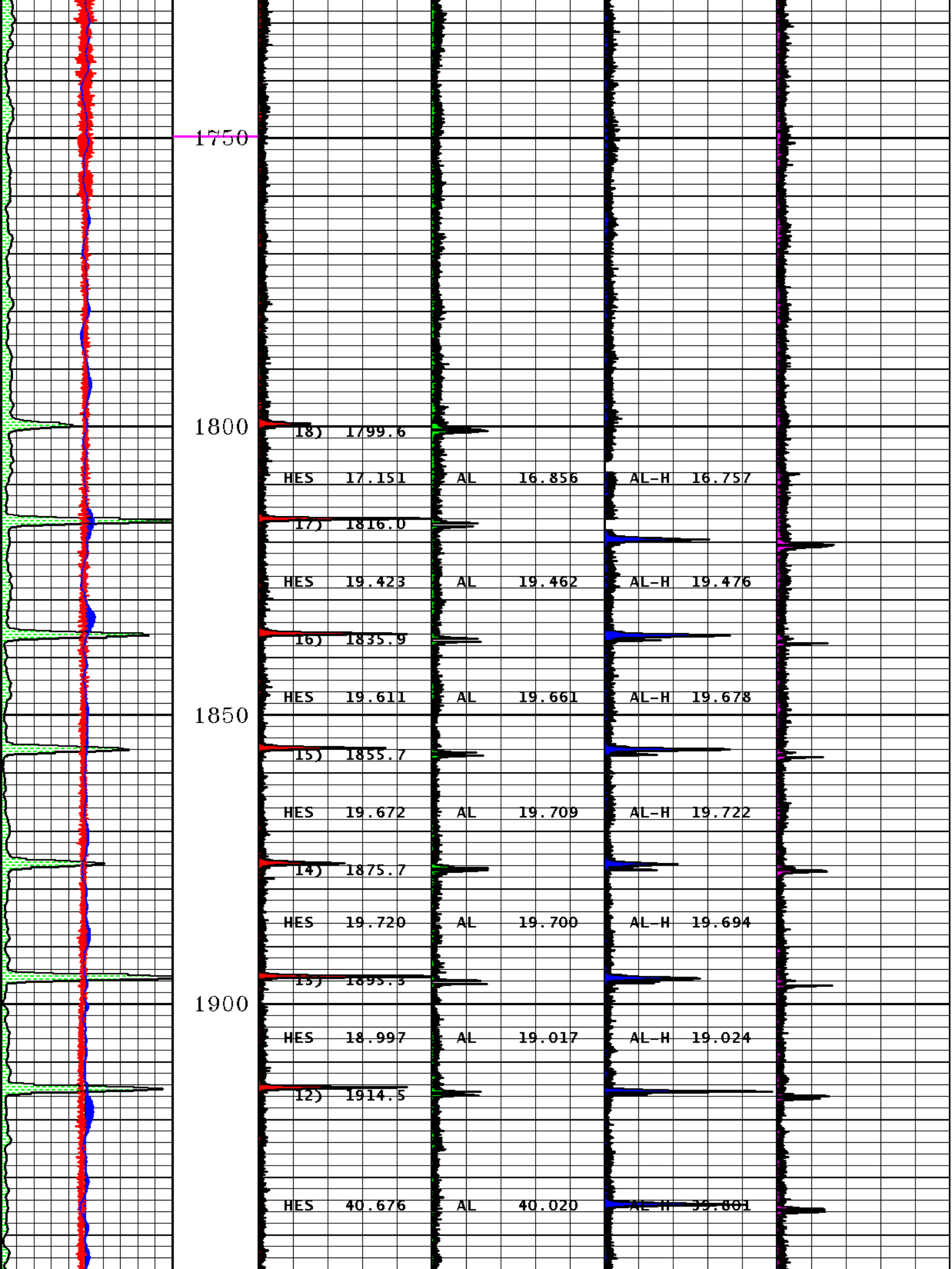
11	1953.92	19.797	19.580	19.717	19.577	19.748	19.624	19.688	19.661	0.776
		39.478	39.030	43.186	42.954	38.814	38.624	40.895	40.676	1.098
12	1914.52	19.179	18.984	19.021	18.149	19.465	18.993	18.907	18.997	1.079
13	1895.27	19.703	19.652	19.716	19.745	19.708	19.738	19.727	19.720	0.764
14	1875.68	19.850	19.646	19.844	19.380	19.885	19.564	19.668	19.672	0.932
15	1855.72	19.864	19.558	19.714	19.418	19.773	19.542	19.612	19.611	0.870
16	1835.91	19.667	19.370	19.596	18.877	19.755	19.331	19.390	19.423	0.967
17	1815.99	16.647	16.567	17.432	17.738	16.309	16.756	17.059	17.151	0.855
18	1799.63									

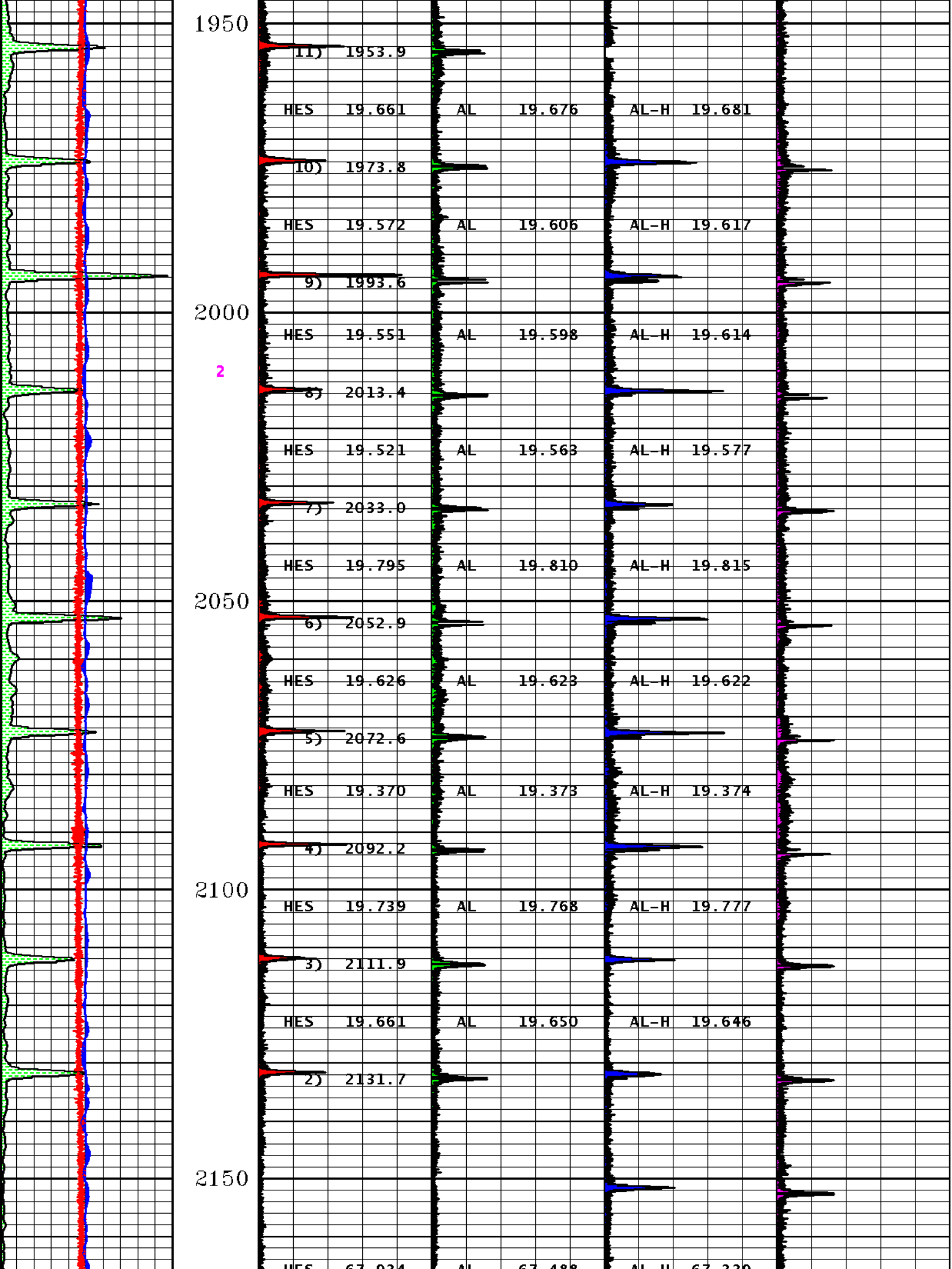
QUALITY CONTROL										
		ACTUAL DIMENSION		MEASURED AVERAGE	STD	DEV	DIFFERENCE	TOLERANCE	WARNING FLAG	
	SPACER 1	1.013		1.041	0.220		-0.028	0.440		
	SPACER 2	18.961		18.996	0.268		-0.035	0.538		
	SPACER 3	1.000		1.244	0.160		-0.244	0.319		

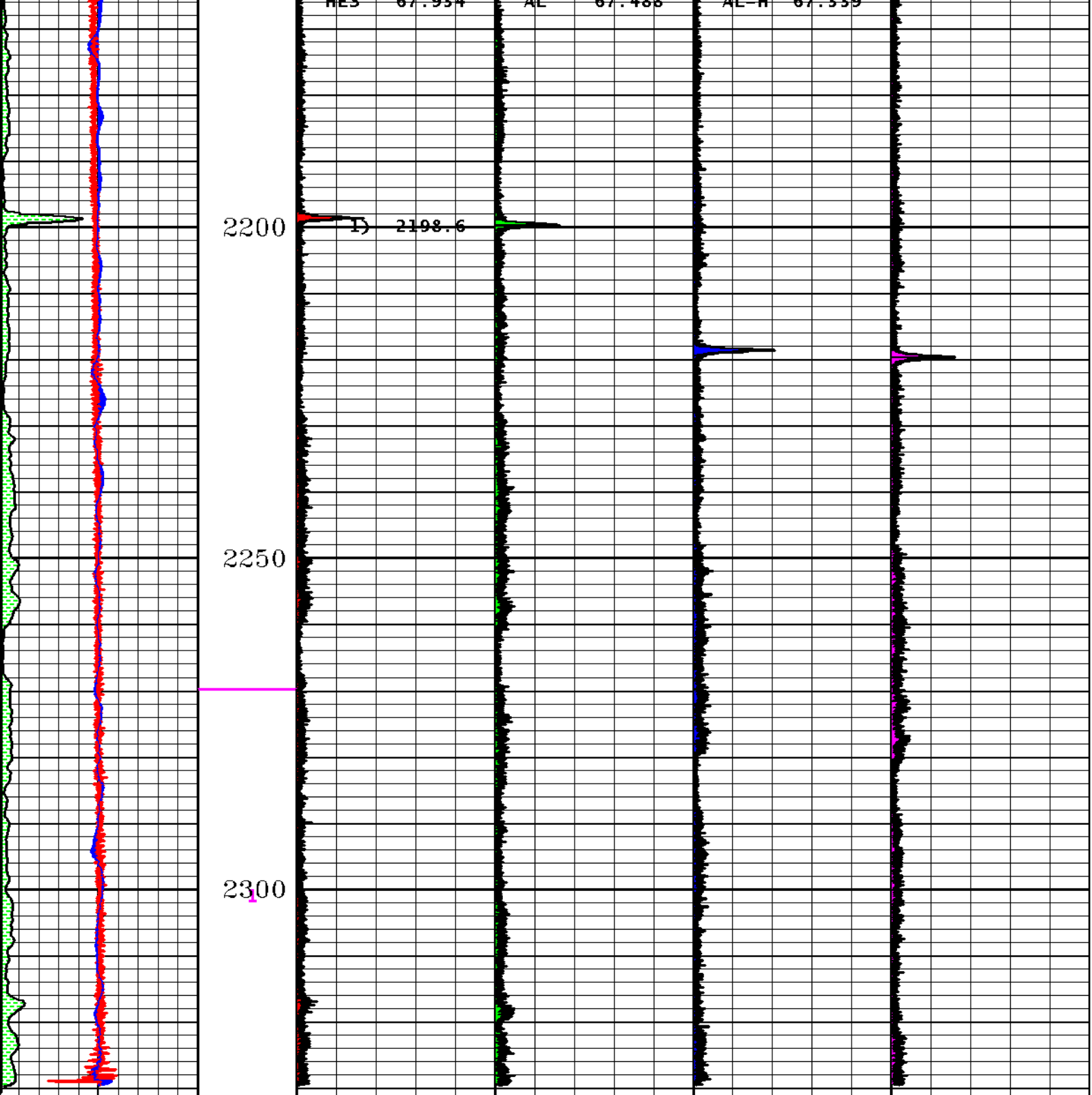
Version No: hc:3.0										
Data File: OW_8122_FCMT_RUN2_PASS3.G.cls										
Format File: Shell_dvar_ac.spc										
Plot Time: 2013-12-09 14:31:13										
Database Time: 09:35:58										
Top Depth: 1655.50										
Bottom Depth: 2331.50										

		HES	2GR 2-3	2GR 1-3	
DVAR					
DVAR					
GR		RGR01	RGR02	RGR03	RGR04
GR	1:240 FT.	RESULT1	RGR02	RGR03	RGR04
ACCE		RGR01	RESULT2	RESULT3	
DVAR					









DVAR ACCE GR	1:240 FT.	RGR01 RESULT1	RESULT2 RGR02	RESULT3 RGR03	RGR04
DVAR DVAR GR		RGR01	RGR02	RGR03	RGR04
		HES	2GR 2-3	2GR 1-3	

FCMT PROGRAM RESULTS

COMPANY NAME	:	
WELL NAME	:	
FIELD NAME	:	
COUNTY	:	
API NUMBER	:	
SERVICE TICKET	:	
LOG DATE	:	
FILE NAME	:	OW_8122_FCMT_RUN2_PASS4.G
FILE DATE	:	12-05-2013

ZONE #: 2.

TOP OF ZONE	:	1750.00 F
BOTTOM OF ZONE	:	2270.00 F

PARAMETERS

FITTING MODE	:	LORENTZIAN
COEF. OF THERMAL EXPANSION	:	6.7 E-6 IN/IN DEGF
BOTTOM OF ZONE TEMPERATURE	:	120.8 DEG F
SPACER 1	:	1.013 F
SPACER 2	:	18.961 F
SPACER 3	:	1.000 F

	THRESHOLD	BUFFER SIZE
GR 1	600.0	2.5 F
GR 2	600.0	2.5 F
GR 3	600.0	2.5 F
GR 4	600.0	2.5 F

TAGS RESULTS

TAG	GR1	GR2	GR3	GR4	PENETRATION
1	2198.210	2199.218	2218.245	2219.307	0.272
2	2131.364	2132.338	2151.339	2152.386	0.248
3	2111.645	2112.661	2131.677	2132.688	0.237
4	2091.856	2092.962	2111.850	2112.890	0.315
5	2072.179	2073.185	2092.272	2093.323	0.380
6	2052.515	2053.658	2072.467	2073.574	0.312
7	2032.722	2033.634	2052.808	2053.877	0.162
8	2012.905	2014.000	2033.030	2034.207	0.250
9	1993.128	1993.911	2013.175	2014.245	0.168
10	1973.374	1974.656	1993.191	1994.682	0.307
11	1953.740	1954.763	1973.654	1974.707	0.300
12	1914.207	1915.314	1934.267	1935.318	0.342
13	1895.036	1896.398	1914.856	1915.910	0.145
14	1875.175	1876.279	1895.398	1896.467	0.344
15	1855.326	1856.686	1875.270	1876.593	0.197
16	1835.659	1837.049	1855.409	1856.744	0.185
17	1815.872	1817.253	1835.929	1837.089	0.141
18	1799.388	1800.391	1819.294	1820.313	0.310

RESULTS SUMMARY

DISTANCE BETWEEN TAGS

TAG	DEPTH	1 GR AVERAGE	2 GRS AVERAGE	3 GRS GR123	HES METHOD GR124	GR134	GR234	3GRS HES TOTAL	4GRS HES METHOD	SPEED RATIO
1	2198.21	66.888	66.820	67.125	67.073	64.780	64.729	65.927	65.898	0.981
2	2131.36	19.689	19.637	19.649	19.597	19.665	19.615	19.632	19.625	1.015
3	2111.64	19.778	19.751	19.770	19.733	19.777	19.741	19.755	19.749	0.980
4	2091.86	19.650	19.580	19.594	19.631	19.579	19.618	19.605	19.599	0.934
5	2072.18	19.686	19.630	19.685	19.570	19.715	19.610	19.645	19.639	0.956
6	2052.51	19.793	19.712	19.715	19.768	19.700	19.757	19.735	19.729	0.911
7	2032.72	19.725	19.528	19.633	19.325	19.713	19.475	19.536	19.537	0.980
8	2012.90	19.921	19.711	19.725	19.735	19.722	19.733	19.729	19.722	0.930
9	1993.13	19.639	19.551	19.893	18.963	19.933	19.444	19.558	19.592	0.983
10	1973.37	19.760	19.803	19.753	19.922	19.708	19.914	19.824	19.819	0.870
11	1953.74	39.439	39.427	39.262	39.221	38.497	38.457	38.859	38.847	0.971
12	1914.21	19.227	19.346	19.381	19.416	19.359	19.396	19.388	19.382	0.932
13	1895.04	19.720	19.753	19.705	19.910	19.636	19.897	19.787	19.783	0.840
14	1875.17	19.861	19.764	19.887	19.674	19.903	19.724	19.797	19.792	0.837
15	1855.33	19.753	19.898	19.912	19.919	19.912	19.919	19.915	19.909	0.747
16	1835.66	19.680	19.813	19.778	19.933	19.741	19.928	19.845	19.839	0.796
17	1815.87	16.689	16.727	17.464	17.717	16.616	16.958	17.189	17.243	0.858
18	1799.39									

QUALITY CONTROL

	ACTUAL DIMENSION	MEASURED AVERAGE	STD DEV	DIFFERENCE	TOLERANCE	WARNING FLAG
SPACER 1	1.013	1.114	0.175	-0.101	0.351	
SPACER 2	18.961	18.876	0.257	0.085	0.514	
SPACER 3	1.000	1.122	0.131	-0.121	0.263	

HALLIBURTON

Version No: | hc:3.0

Data File: OW_8122_FCMT_RUN2_PASS4.G.cls

Format File: Shell_dvar_ac.spc

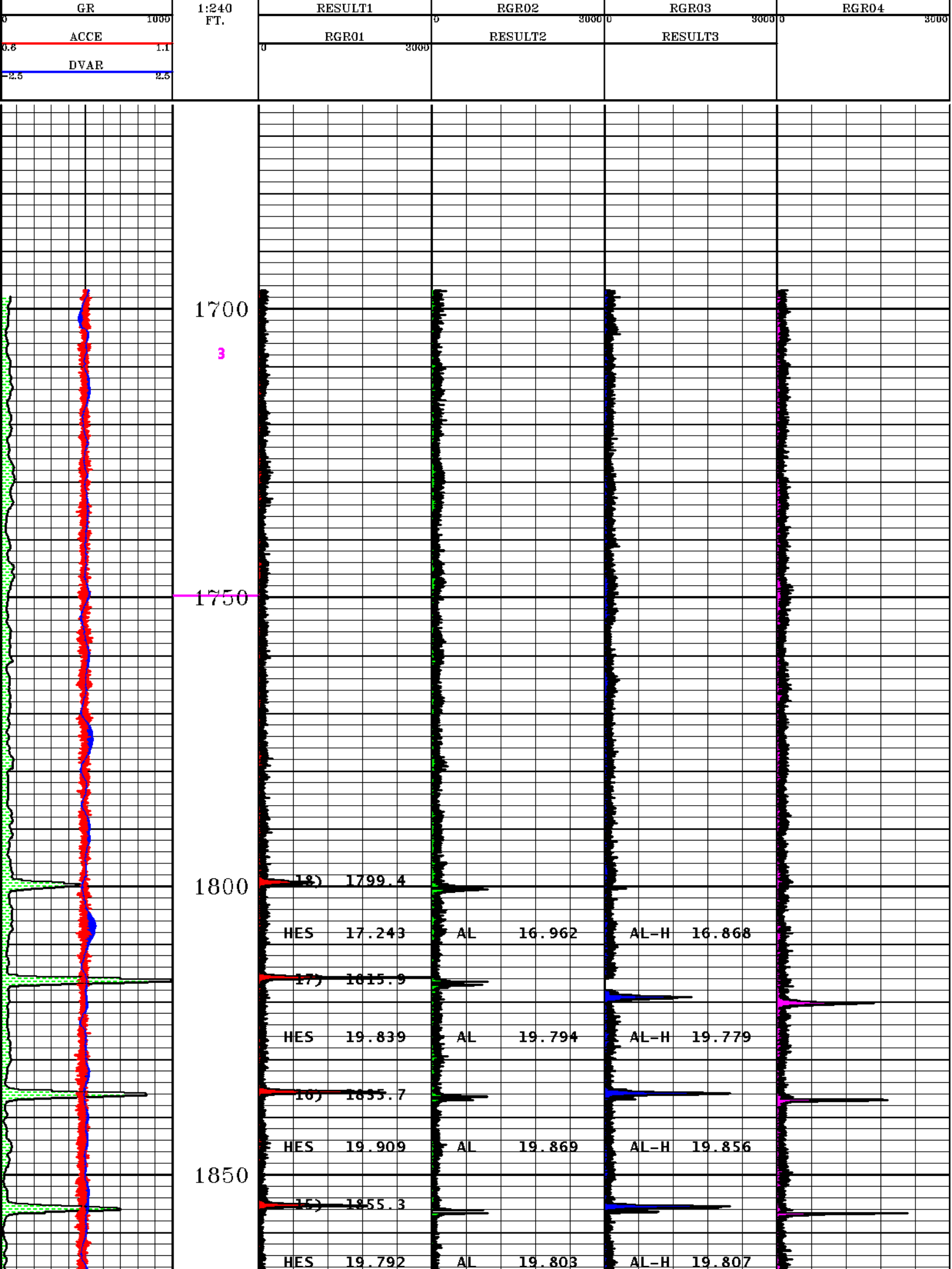
Plot Time: 2013-12-09 14:31:31

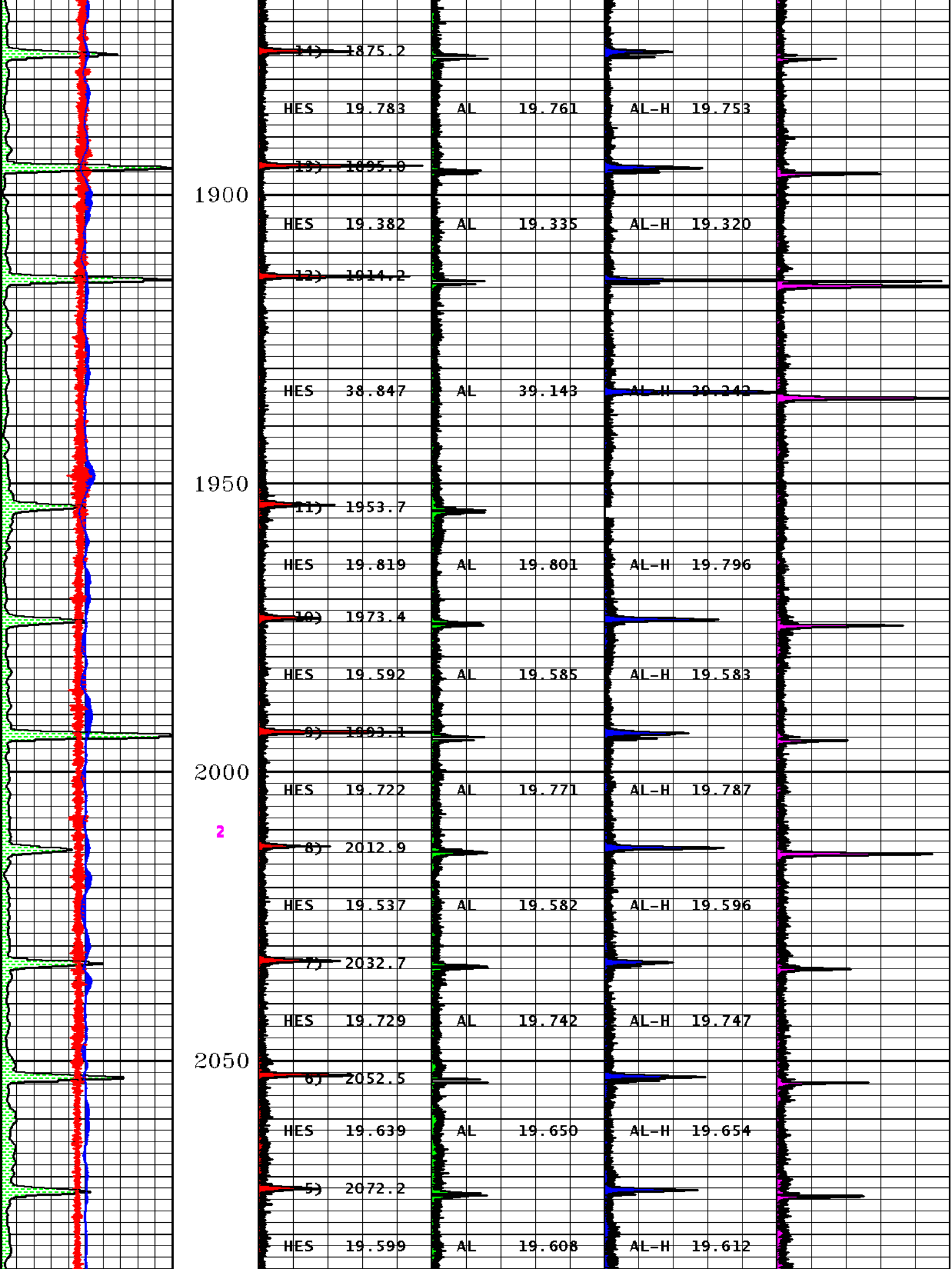
Top Depth: 1664.70

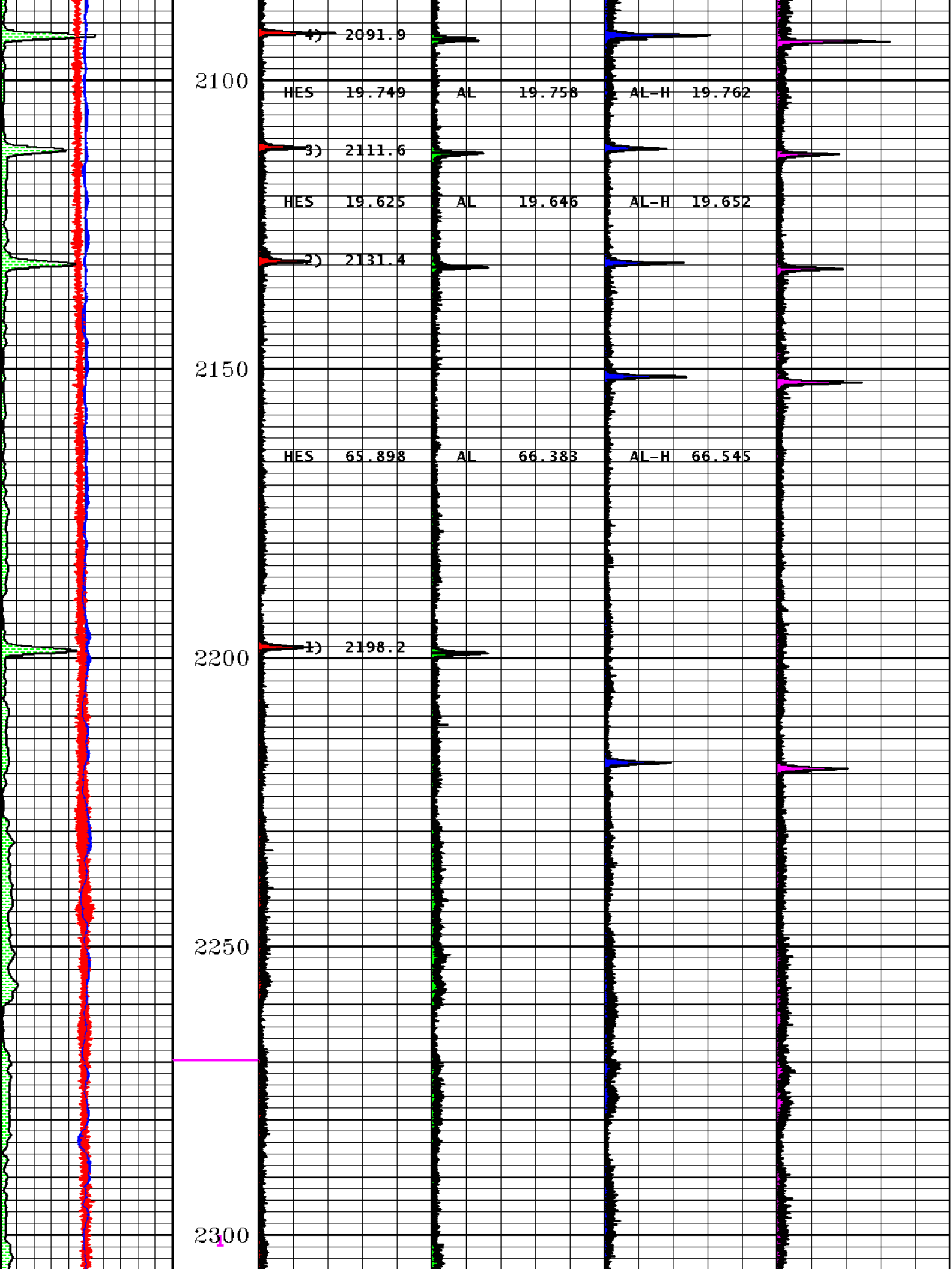
Database Time: 09:37:33

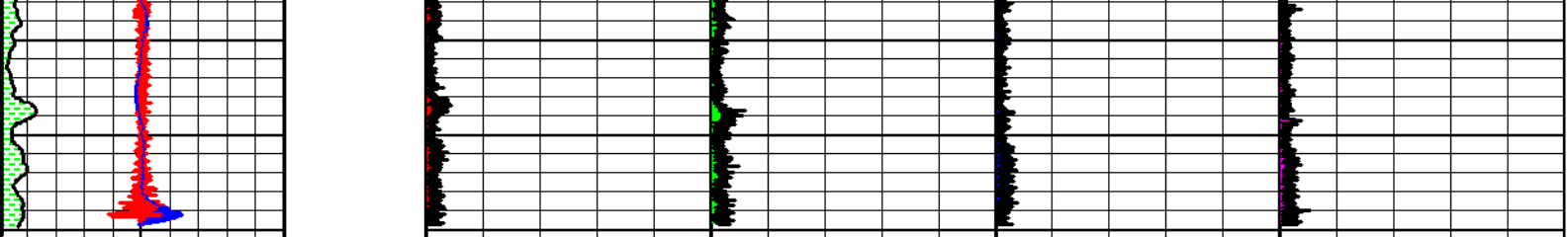
Bottom Depth: 2331.50

		HES	2GR 2-3	2GR 1-3	
DVAR					
DVAR					
GR		RGR01	RGR02	RGR03	RGR04









DVAR -2.5 2.5	1:240 FT.	RGR01 0 3000	RESULT2	RESULT3	RGR04 0 3000
ACCE 0.8 1.1		RESULT1	RGR02 0 3000	RGR03 0 3000	
GR 0 1000					
DVAR					
DVAR					
GR		RGR01	RGR02	RGR03	RGR04
		HES	2GR 2-3	2GR 1-3	

HALLIBURTON

Version No: | hc:3.0

Data File: OW_8122_FCMT_RUN2_PASS4.G.cls

Format File: Shell_dvar_ac.spc

Plot Time: 2013-12-09 14:31:39

Database Time: 09:37:33

Top Depth: 1664.70

Bottom Depth: 2331.50

COMPANY

SHELL OIL COMPANY

WELL

OW 8122 BOART LK 12

FIELD

PICEANCE CREEK BASIN

COUNTY

RIO BLANCO

STATE

CO

HALLIBURTON

FORMATION COMPACTION
MONITORING TOOL
PROCESSED RESULTS

RUN 2 27-NOV-2013