TarGOST® Investigation

BNSF Site
Wishram, Washington

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This report summarizes the field deployment of the Tar-Specific Green Optical Screening Tool (TarGOST®) at the BNSF Site near 521 Bridgeway Rd, Wishram, WA. It includes a project summary, general field observations, calibration of the TarGOST system, false positive -interference discussion, Waveform discussion, and a daily production and observations table.

Project Summary

Tuesday, July 9, 2013 - Dakota Technologies Inc. (Dakota) TarGOST operator, Tom Rudolph traveled to The Dalles, Oregon. This was a travel day only, no TarGOST data was collected.

Wednesday, July 10, 2013 – Tom Rudolph (Dakota) was on site at 7:35 AM and Holt Services' driller Carlos was on site at 8 AM. Joseph Sawdey of Kennedy Jenks conducted a safety meeting, then the TarGOST system was set up and peripheral devices were installed on the Holt rig. The fiber optic cable was strung through 25, 4 foot probe rods. Work began at 11:00 AM at location number TG-D05. Locations TG-D07, D03 and F05 were also logged with TarGOST before stopping for the day. Location F05 EC data was somewhat questionable. Rudolph left the site at 6:10 PM.

Thursday, July 11, 2013 – Dakota was on site at 6:55 AM. A safety meeting was conducted and the EC wires were repaired in a TarGOST probe. Work resumed with location TG-B05 at 8:05 AM. Location C05 started at 9:07AM and was advanced to 44.26'. After the push, the sapphire window was replaced because of an elevated background signal and the EC wires in the probe were re-taped. D06 started with refusal at the surface so we had to move over a few feet to start a new push. The new location was pushed to bedrock at 92.93' bgs. The EC connection was again repaired near the probe. Location E05 had EC problems in the 5 to 20' interval but was pushed to refusal at 84.8'. TG-D04 was started at 4PM. EC not working properly for this log, laser energy low but was able to cool system to improve laser output. Data was saved to USB drive and personnel left site at 5:30 PM.

Friday, July 12, 2013 - Dakota personnel was on site at 7AM. A safety meeting was conducted, and the TarGOST system was started. Light output was very low so TarGOST operator had to do some trouble shooting to get enough light for quality data. After cleaning some optics the system was ready to go again at 10 AM. Holt installed a temporary well during the time the TG system was not logging. TG-CR-01 was started at 10:27 AM. CR-02 began at 11:35 AM, with EC not working because of a broken wire. The EC problem was resolved and worked well for CR-03, CR-04 and CR-05. The data was saved and personnel left the site at 5:30 PM.

Saturday, July 13, 2013 – Dakota was on site at 7AM. Had a safety meeting and then started the TarGOST system. Operator had to replace cracked sapphire window in the probe. EC wire was snagged on brush moving to probe location TG-CR-G06. We had several shallow refusals before finally getting through rubble. Logged CR-G06 to 89.7' bgs. CR-G07 was started at 11AM and advanced to 80.8'. Before starting the next log, the depth measuring encoder was snagged and broken and had to be replaced before proceeding. TG-CR-G08 was started at 1:10 PM and pushed to 75.8', the probe rods were out of the ground by 3:30 and personnel left the site by 4 PM.

Sunday, July 14, 2013 – No work on site

Monday, July 15, 2013 – TarGOST operator was onsite at 7:00 AM as requested to attend a safety meeting. Holt Services arrived at 8 AM. The first location, TG-D01, and was started at 8:20 AM. Locations D02, D08, E08, E07 and E06 were logged before 4:15 PM. Holt went for fuel and then one more location, E01, was logged to 23.2' before ending for the day. The day's data was transferred to the client and personnel left the site at 5:40 PM.

Tuesday, July 16, 2013 – The TarGOST operator was on site at 7AM. A safety meeting was conducted, and the TarGOST system was started. TG-E02 was logging starting at 7:59 AM. E03, E04, F04, F03, F02, F01 and G01 were all logged during the day. It was an unremarkable day except for the heat. The data was saved and personnel left the site at 5:05 PM.

Wednesday, July 17, 2013 – Dakota was on site at 7 AM for safety meeting. Four worn rods were removed from the stack of probe rods, a new sapphire window was installed and the EC dipole point was removed and replaced with a solid, non-EC point. At 8:32 AM, location TG-G02 was started and logged to 42'. G03, G04, G05, F06, F07 were logged during the day. Personnel left the site at 5:20 PM.

Thursday, July 18, 2013 – TarGOST operator was on site at 7 AM for safety meeting. We began location TG-F08 at 8:15 AM, pushed to a total depth of 67.45' bgs. We logged C08, B08, A08 and A06. Laser energy was low because outdoor temperatures exceeding 100F. We pushed at location C06 before stopping for the day. The day's data was transferred to the client and personnel left the site at 4:50 PM. It was a very hot day.

Friday, July 19, 2013 – Dakota arrived on site at 7 AM for safety meeting. We began logging at location TG-G00 at 8:28 AM, pushed to 25.34'. As the rods were being pulled out of the ground Holt had some problems with their Geoprobe rig. TG-CR00 was logged next and completed at 10 AM. TarGOST operator changed all the probe hardware in an effort to get more signal. Signal was much better after the change and F00, E00, D00, C01, B01, A05 and A04 were logged throughout the day. Personnel left the site at 5PM.

Saturday, July 20 and Sunday 21 – There was no work on site over the weekend. Rudolph went back to Fargo and Steve Adamek traveled to Oregon to finish the work.

Monday, July 22, 2013 – TarGOST operator arrived on site at 6:50 AM. Joseph Sawdey conducted a safety meeting. The TarGOST system was setup in the front seat of the rental pickup so it could be operated under cooled temperatures. We set up at location A02 but got refusal immediately on concrete. We moved to A01 and began logging at 9:05 AM. TarGOST locations A03, A07 and B07 were also logged before lunch. B06 was started at 1:42 PM and was pushed to refusal at 50.07' bgs, rods were out of the ground at 2:30 PM. While setting up on the next location, it was found that there was not enough light to get an RE. Eventually it was determined that the return fiber (signal) was somehow crushed and was only allowing about 20% light through. We restrung rods with new optical fiber and installed probe on new cable. No TarGOST logging for approximately 2.5 hrs because of the broken fiber. Personnel left site at 5:15 PM.

Tuesday, July 23, 2013 - Dakota was on site at 7AM. A safety meeting was conducted, and the TarGOST system was started. We began logging at location B04 at 7:40 AM, pushed probe to 20.7'. B03 was pushed to 35.8'. B02 was started at 9:10 AM and was partially completed when the depth

encoding device failed. A spare device was installed and the log was restarted at 9:30. B02 was pushed to refusal at 25.6'. C00, C02, C03 and C04 were all logged without incident. C07 was started at 2:32 PM, and partway through the push, the encoder device again failed, leaving us without a way to measure depth. Replacement parts were ordered but would not be available until mid-day Wednesday. TarGOST operator left the site at 3:30 PM.

Wednesday, July 24, 2013 – No TarGOST work was done today. Parts for the depth encoders arrived at the hotel by 1 PM. TarGOST operator had both encoders repaired by 2 PM. Holt collected soil samples the entire day.

Thursday, July 25, 2013 – On site at 7 AM, Joe Sawdey conducted a safety meeting and TarGOST operator installed the repaired depth encoder device on the Holt rig. Provisions were made to improve how the device was positioned relative to the sliding peg in the probe rig foot. TG-C07 was started at 8:13 AM and pushed to refusal at 64.9' bgs. TG-E08-E25 was logged and upon removal of rods and probe from ground a bend was seen in the first rod. The optical fiber was detached and the first probe rod was replaced along with the rod to probe adapter. TG-CR05_5 hit refusal at the surface and had to be restarted at another location. After lunch E00-W25, D00-W25, E00-W50 and E00-W75 were all logged successfully. The data was saved and personnel left the site at 5:00 PM.

Friday, July 26, 2013 – On site at 6:55 AM, had safety briefing and got the TarGOST system operational. Replaced sapphire window and set up on location TG-F00-W25, began logging at 8:05 AM. Also logged F00-W50, F00-W75 and G00-W25. Had trouble getting enough light so mirror and window were changed in the probe with satisfactory results. After lunch A06-N25, A05-N25, A06-N60 and A05-N50 were logged with TarGOST. The data was saved and personnel left the site at 5:10 PM.

Saturday, July 27, 2013 – Steve was on site at 7 AM, Joe conducted a safety meeting and the TarGOST system was readied. The first location for the day was TG-NT01 which was advanced to refusal at 23.5' bgs. TG-NT12 was located near a monitoring well but no product signal was seen in the TarGOST log. A sample of NAPL from MW 8 was retrieved and run on the window in the field and produced a signal of 300% RE. The next location was NT12b, also near the well, and was advanced to 25' bgs. NT13, D00-W50, G00-W50, CR00-W25 and NT14 were all logged before leaving the site at 6 PM.

Sunday, July 28, 2013 – Dakota was on site at 7:30 AM as requested. A safety briefing was conducted and the TarGOST system was readied for logging. At 8:41 AM logging started at location TG-NT02 and was advanced to refusal at 26.3'. NT03, NT04, NT09, NT08, NT07, G00-W75 and D08-E25 were logged throughout the day. The data was given to the client and personnel left the site at 4:45 PM.

Monday, July 29, 2013 – Dakota was on site at 7 AM. A safety meeting was conducted. The first hole was CR04_5 which was started at 8 AM and pushed to refusal at 54.46' bgs. CR06_5 went to 77.74'. The sapphire window in the probe was replaced because a chip had formed at the edge. The next location was NT10 where refusal occurred at 12' bgs. NT11 and NT11-E40 had spiky (vertically narrow) signals that were a bit suspicious. After investigating potential problems inside the probe the false signals were eliminated and the last hole of the project NT15 produced a more realistic looking log. Data was transferred to the client and personnel left the site at 6:15 PM.

Tuesday, July 30, 2013 – Steve arrived on site to pack up the TarGOST equipment, including unstringing fiber optic cable from rods and removing devices from the Holt Services probe rig. Everything was packed up and Dakota left the site at 9:30 AM.

General Observations/Notes of Interest

Breakdowns/Standby: Overall production was slightly slower than typical because of several break downs related to site conditions. A day of downtime was incurred because Dakota ran out of spare parts and had to wait a day for a FedEx delivery. Fortunately, sampling could occur that day. A longer than normal fiber cable was needed for the job so EC wires were run externally to the cable. The EC proved unreliable with the constant hammering that the probe was subjected to because of the lithology. One fiber cable was broken when it was somehow crushed when moving between locations. Several depth encoding devices broke, some as a result of snagging on site vegetation or by the probe operator. One rod and adapter were bent while penetrating rubble or rock. Several sapphire windows were replaced because of scratches, cracks or chips. The laser light output decreased as temperatures rose to 100F and it was a constant battle to have enough light for logging. On site personnel also needed more breaks because of the excessive heat. It was the combination of all these things that decreased the overall productivity of the project.

Safety Incidents: NA

Validation/Sampling by Dakota: Dakota personnel were not present for confirmatory sampling.

General comments: As stated, production was slightly slower than normal, but not unreasonable given the circumstances (approx 300' / day). The TarGOST data collected at your site was of high quality and any anomalies in the data have been noted.

In areas where the near-surface was pre-probed to get through rubble or compacted material, usually to 3' at this site, the TarGOST data may not represent contaminant distribution or concentration levels in that interval.

Calibration of the TarGOST

Prior to conducting each log, two measurements (RE and Background) are recorded.

Reference Emitter (RE): The RE is a standard substance that is used to calibrate the TarGOST instrument prior to every log. It serves two main purposes:

1) **Qualitatively examine the performance of the instrument -** RE needs to be the correct shape so we know all channels (filters, etc.) are intact and functioning. A bad or misshapen RE waveform indicates potential damage of the detection system optics.

2) **Quantitatively "calibrate" the instrument -** RE sets the proper signal intensity (by adjusting laser energy). An RE in the proper range keeps us in the optimum range of the light detectors... not too low, not too high. The RE is a calibration for the response of the system to a known fluorescence signature,

not a method of converting fluorescence to a known concentration. Basically all measurements are normalized to a percentage of a known consistently fluorescing and scattering substance – RE. A 100% RE reading means that a measured material has a fluorescence/scatter signal identical to RE. A 200% RE means a substance has a fluorescence/scatter signal twice that of RE, and so forth.

RE range: RE area's typically fall between 1,600 and 2,000 pVs for TarGOST (picovolt-seconds, a measure of waveform area). Precise RE intensity 'tuning' to a certain value is not needed because all signals are reported as a percent of this signal (%RE).

Background: The background is a measure of the optical quality of the setup. Sources of signal in the background include fiber and filter auto-fluorescence, mirror and window fluorescence, and reflection/scatter from worn windows. The background waveform has no mathematical impact on the data collected (i.e. it is not subtracted) and is taken only as a data quality measure and to assure the operator that there is no significant defects on the optics (mirror, window, fiber, etc).

Background range:
Background values can vary widely (in terms of relative percent difference) from 0.1% of the RE signal to 10%. In terms of area, the values can range from 0 to 50 pVs. As the background increases beyond 10% for TarGOST, a new window and a re-assembly of the probe may be needed. However, there is no hard cut-off value and a balance must be struck between site needs and available time.

False Positives / Interference

In some cases TarGOST will respond to naturally fluorescent minerals, biogenic minerals (shells) and organic matter like peat or wood. Most often this response shows a very different signature or waveform and is of relatively low response compared to LNAPL and DNAPL. No known or confirmed natural organics were found on the site. Feel free to call Dakota to discuss co-sampling locations or interpretation of the co-sampling results.

Waveform Discussion

Careful co-sampling, examination, and analysis of soil cores are required to determine what benefit waveforms (three-dimensional fluorescence signatures) may or may not provide toward the site conceptual model. Several waveform patterns were observed at this site, indicating a degree of heterogeneity of fluorescing materials. A recently developed classification analysis method is the fastest method we have found to quickly survey for differences in waveforms between differing logs or differing response horizons within a single log (attached in a PDF named "Wishram TarGOST Classification Plots Sept 2013.pdf").

All the waveforms from a TarGOST log are plotted on a "classification" plot, allowing a spatial method of matching or identifying unique fluorescence signatures. Below is a description of the classification plots and examples of how to employ them.

X-Axis: Wavelength

The "center of gravity" of the four peaks of the waveform determines the x-axis position. For example, a clean waveform dominated by the blue (laser scatter peak) plots to the left – while a waveform plotted heavily toward the orange and red peaks will plot further to the right. Imagine placing a fulcrum under the waveform and determining the center of balance on the time axis of the waveform.

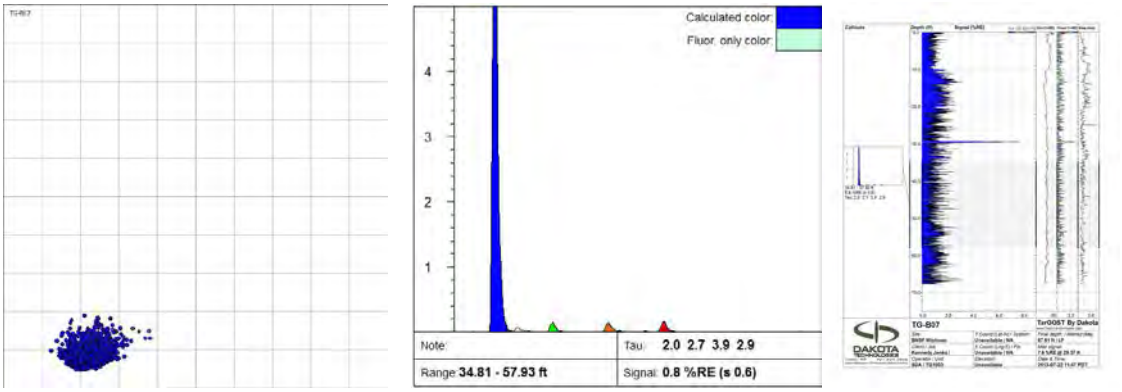
Y-Axis: Lifetime

The average lifetime (width of the peaks on the x-axis) of the 4 peaks determines the position on the y-axis. Short lifetimes (near zero) are plotted very low. The longer the lifetimes get (the "wider" they get) the higher on the y-axis that waveform's oval data point is plotted. Laser scatter (blue channel) domination causes baseline data points to be plotted near the bottom while LNAPLs have longer lifetimes and plot up to three to four units high on the y-axis.

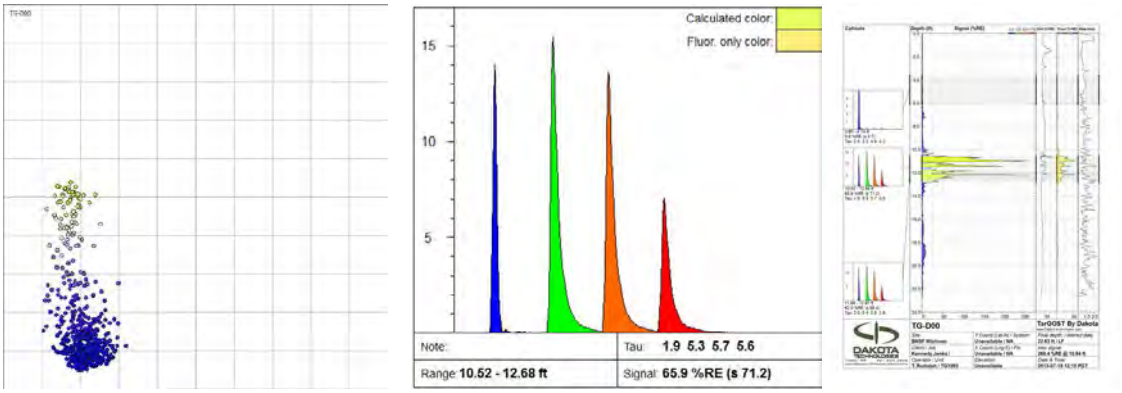
Color

The fill colors used in the log's fill of the Signal (%RE) on the standard TarGOST logs are also used to fill the ovals that represent each waveform. Use the fill color to find the depth along the TarGOST log where certain ovals originated. For instance, if the fill color of some plotted classification ovals are pink, look for where in the log (feet) the Signal (%RE) was filled with pink. This allows you to target where on the log to make further examination of the waveform to locate sampling depths or otherwise investigate your TarGOST data more fully.

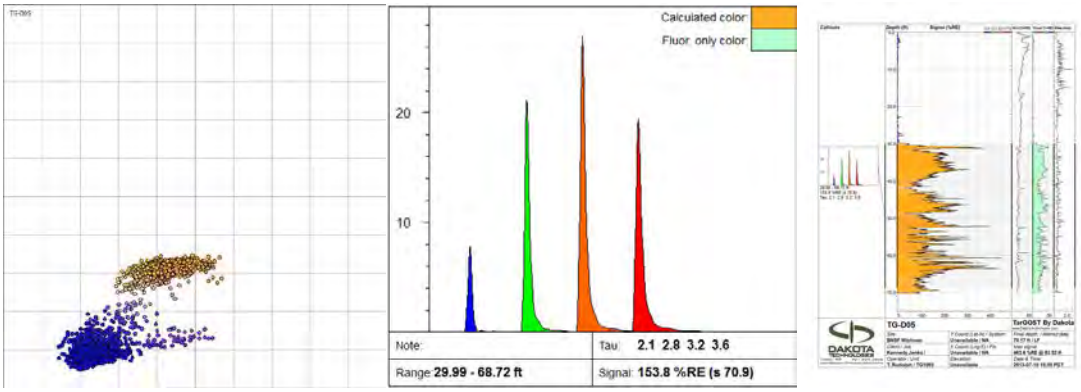
Interesting classification plots to consider as examples include:



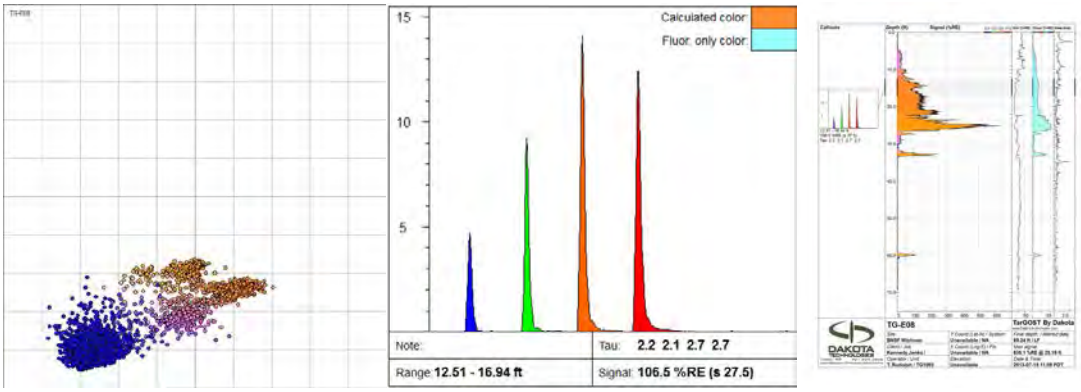
All "clean soils" (no fluorescence) are plotted in the lower left corner – this is because only the scatter provides significant contribution to both the x- and y-axis of the data set. Notice the blue data points match the blue fill of the baseline's low Signal (%RE) of the log. An example waveform from TG-B07 is shown next to the classification plot above so that you can get a "feel" for why the data is plotting where it is on the classification chart.



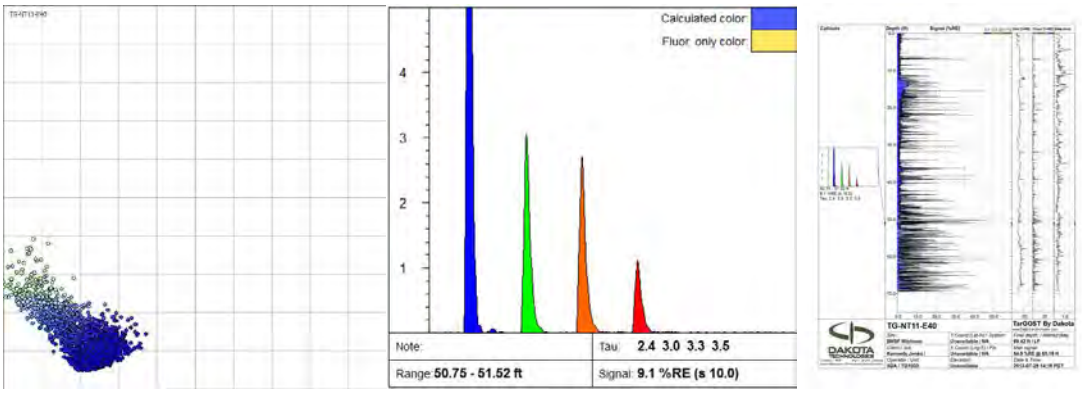
TG-D00 is an example of many logs in that it had a fluorescence detection at depth that is uncommon for DNAPL. This "LNAPL" fluorescence signature is characterized by dominance in the green channel and decreasing fluorescence in subsequent channels. In addition the lifetimes (decaying fluorescence to the right of the three fluorescence peaks) are much longer than those observed to be typical of coal tars or heavy DNAPL type hydrocarbons. With this in mind it is fairly easy to locate any logs that contain this potential LNAPL (or at least what we are assuming to be an LNAPL). Logs that contain bright yellow Signal and/or pale yellow-orange Fluor fill colors are likely to have LNAPL contamination. In addition, those logs with data points in the upper left quadrants of the classification charts are also indicators of this "LNAPL" product.



Another commonly encountered fluorescence signature is represented by that observed in TG-D05. Compared to coal tars and creosotes it still possesses a longer lifetime than is commonly encountered with TarGOST, but the lifetimes are considerably shorter than the "LNAPL" encountered in others. In addition the waveform is shifted to the right – a position more typical of heavy DNAPL type hydrocarbons. Notice the fill color is orange for Signal and blue-green for Fluor and the waveform and classification chart are different than those of the "LNAPL" signature.



Signals more typical of "pure heavy" materials like bunker, creosote, and coal tar were observed, with upper portions of TG-E08 as a classic example. Notice the very "skinny" peaks (short lifetimes) and the dominance by the middle and right-most peaks. Fill Signal colors are a darker orange and the Fluor fill is a baby blue color. These more purely "DNAPL" looking data points are plotting right-most on the classification chart above. Similar products in other logs can be identified by looking for this fill colors, classification chart location and waveform.



And finally we have the waveform that resulted when a rubber shock isolation material inadvertently entered the LIF analysis light path (an event we've never encountered before) in logs TG-NT11, TG-NT10, and TG-NT11E40. While the polymer had an "LNAPL-like" waveform, its shape (influenced by very high scatter), fill colors, and location on the logs made it clear that this was an instrumental artifact not related to NAPL on site. Non-negative least squares analysis readily eliminated this polymer fluorescence without removing the true in-situ formation fluorescence and the incident did not affect the validity of the two logs affected.

What we have just described is the general description of the main classes of fluorescence and what we feel they potentially represent. We suspect that "blending" or co-mingling has occurred based on what appears to be a "continuum" of waveform shapes, especially in logs located at boundaries between the two main fluorescence type bodies. This made "decisive" non-negative least square fitting difficult since the NAPL bodies aren't discrete and isolated. While they are, in general, occupying different areas of the site, the co-mingling made discrete and tidy isolation of the two NAPL types messy and yielded a blurred result (and perhaps rightfully so) with many logs containing shades of both types of NAPL signatures or what appeared to be a blend.

Table of Production and Observations

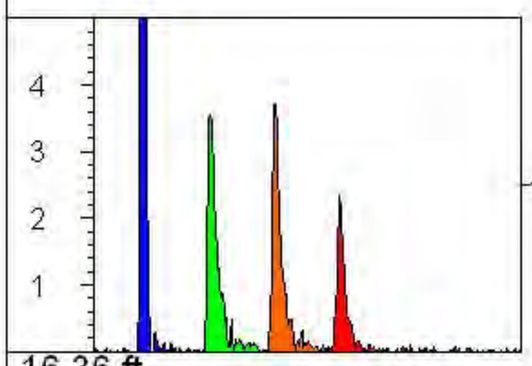
File	Date/Time	Final Depth	Max Signal	Max Signal Depth	Notes
TG-D05	7/10/2013 10:55	70.2	510.7	63.5	EC working
TG-D07	7/10/2013 14:04	65.4	353.4	35.7	EC working
TG-D03	7/10/2013 15:33	37.8	550.4	33.2	EC working
TG-F05	7/10/2013 16:40	78.9	70.6	48.0	EC questionable
TG-B05	7/11/2013 8:06	32.1	103.3	26.9	EC working
TG-C05	7/11/2013 9:04	44.3	213.3	42.1	EC questionable
TG-D06	7/11/2013 10:31	92.9	457.4	69.9	EC questionable, product on rods
TG-E05	7/11/2013 14:02	84.9	310.8	53.0	EC questionable
TG-D04	7/11/2013 15:57	74.9	562.1	37.3	EC questionable
TG-CR-01	7/12/2013 10:23	38.5	10.2	32.0	EC working
TG-CR-02	7/12/2013 11:27	44.6	61.1	12.7	EC not working
TG-CR-03	7/12/2013 13:19	42.1	42.5	12.1	EC working
TG-CR-04	7/12/2013 14:25	56.4	49.3	7.8	EC working
TG-CR-05	7/12/2013 15:57	51.8	50.1	6.0	EC working
TG-CR-G06	7/13/2013 9:17	89.7	23.7	12.1	No more EC. New sapphire
TG-CR-G07	7/13/2013 10:58	80.8	17.4	1.2	
TG-CR-G08	7/13/2013 13:24	75.8	9.4	71.3	Broke depth encoder
TG-D01	7/15/2013 8:22	21.8	213.5	11.4	
TG-D02	7/15/2013 9:01	25.0	26.8	11.4	
TG-D08	7/15/2013 9:37	69.5	18.1	1.4	
TG-E08	7/15/2013 11:09	69.2	631.8	25.2	
TG-E07	7/15/2013 13:29	63.9	203.1	35.8	
TG-E06	7/15/2013 14:36	85.8	241.9	33.7	
TG-E01	7/15/2013 16:57	23.2	75.9	23.2	
TG-E02	7/16/2013 7:54	25.1	68.2	10.6	
TG-E03	7/16/2013 8:46	37.0	493.4	33.9	
TG-E04	7/16/2013 9:28	85.1	274.2	69.8	Diesel fuel? on rods
TG-F04	7/16/2013 11:14	38.4	8.2	26.4	
TG-F03	7/16/2013 12:44	36.2	189.0	35.8	
TG-F02	7/16/2013 13:35	39.0	174.3	33.0	
TG-F01	7/16/2013 14:48	25.7	15.1	24.9	
TG-G01	7/16/2013 15:32	41.7	78.0	12.1	
TG-G02	7/17/2013 8:33	42.0	192.2	10.9	New sapphire and mirror
TG-G03	7/17/2013 9:25	39.2	8.5	0.8	
TG-G04	7/17/2013 10:19	52.1	54.9	1.2	
TG-G05	7/17/2013 11:24	66.7	6.3	20.8	
TG-F06	7/17/2013 13:28	78.8	209.1	46.0	
TG-F07	7/17/2013 15:12	80.7	154.9	37.7	
TG-F08	7/18/2013 8:13	67.5	27.7	21.9	
TG-C08	7/18/2013 9:34	64.4	5.4	16.7	
TG-B08	7/18/2013 10:43	64.3	6.0	0.3	
TG-A08	7/18/2013 11:49	66.1	7.8	0.0	
TG-A06	7/18/2013 14:12	50.7	199.7	34.6	
TG-C06	7/18/2013 15:27	53.1	167.6	34.4	
TG-G00	7/19/2013 8:28	25.3	10.7	20.8	
TG-CR00	7/19/2013 9:32	26.0	8.3	24.9	

TG-F00	7/19/2013 10:37	25.4	13.0	11.5	New SPOC
TG-E00	7/19/2013 11:17	24.0	170.4	21.2	
TG-D00	7/19/2013 12:15	22.6	309.4	10.9	
TG-C01	7/19/2013 13:48	21.7	101.4	21.7	
TG-B01	7/19/2013 14:21	21.9	11.5	18.6	
TG-A05	7/19/2013 15:19	34.5	157.0	23.0	
TG-A04	7/19/2013 16:07	19.6	8.3	13.7	
TG-A01	7/22/2013 9:02	22.1	18.6	16.4	
TG-A03	7/22/2013 9:46	19.1	7.5	10.5	
TG-A07	7/22/2013 10:19	67.3	4.5	1.2	
TG-B07	7/22/2013 11:47	67.6	8.9	29.4	
TG-B06	7/22/2013 13:39	50.1	239.2	38.4	Fiber broke after this hole
TG-B04	7/23/2013 7:38	20.7	6.9	18.1	
TG-B03	7/23/2013 8:21	35.8	3.6	30.5	
TG-B02	7/23/2013 9:28	25.6	54.2	22.9	Depth encoder failed
TG-C00	7/23/2013 10:22	22.5	8.6	10.7	
TG-C02	7/23/2013 11:07	24.1	3.8	17.0	
TG-C03	7/23/2013 11:47	42.1	189.3	40.7	
TG-C04	7/23/2013 13:33	33.1	94.5	30.9	Encoder failure at C07 start
TG-C07	7/25/2013 8:10	64.9	41.9	40.2	
TG-E08-E25	7/25/2013 9:44	69.3	7.1	17.0	Adapter and 1st rod bent
TG-CR-5_5	7/25/2013 12:00	63.5	5.3	1.2	
TG-E00-W25	7/25/2013 14:10	23.8	199.2	22.7	
TG-D00-W25	7/25/2013 14:46	23.0	7.2	5.2	
TG-E00-W50	7/25/2013 15:26	25.0	58.4	22.1	
TG-E00-W75	7/25/2013 16:18	25.3	18.9	1.8	
TG-F00-W25	7/26/2013 8:01	24.2	12.8	24.2	New sapphire
TG-F00-W50	7/26/2013 8:53	26.2	52.2	25.1	
TG-F00-W75	7/26/2013 9:38	47.4	5.9	1.7	
TG-G00-W25	7/26/2013 10:57	24.1	13.8	3.8	
TG-A06-N25	7/26/2013 13:45	34.0	123.2	33.7	New sapphire and mirror
TG-A05-N25	7/26/2013 14:39	32.3	82.7	26.3	
TG-A06-N60	7/26/2013 15:42	33.3	7.4	33.3	
TG-A05-N50	7/26/2013 16:27	25.7	3.1	20.4	
TG-NT01	7/27/2013 8:07	23.5	19.7	0.3	
TG-NT12	7/27/2013 8:56	45.9	5.1	15.4	Near MW 8
TG-MW8	7/27/2013 10:08	6.9	355.8	3.4	This is a product sample from MW 8
TG-NT12b	7/27/2013 10:30	25.0	4.9	14.3	Near MW 8
TG-NT13	7/27/2013 11:34	29.3	7.3	14.4	
TG-D00-W50	7/27/2013 13:34	23.1	5.4	6.6	
TG-G00-W50	7/27/2013 14:25	24.9	41.7	24.6	
TG-CR00-W25	7/27/2013 15:34	36.2	3.9	2.0	
TG-NT14	7/27/2013 16:48	21.9	4.7	9.9	
TG-NT02	7/28/2013 8:39	26.2	4.0	23.6	
TG-NT03	7/28/2013 9:32	18.8	4.1	15.9	
TG-NT04	7/28/2013 10:12	15.1	3.2	7.7	
TG-NT09	7/28/2013 10:55	17.0	3.5	15.5	
TG-NT08	7/28/2013 11:37	27.5	4.3	15.3	
TG-NT07	7/28/2013 13:32	27.8	4.5	2.1	
TG-G00-W75	7/28/2013 14:50	35.3	5.5	18.4	

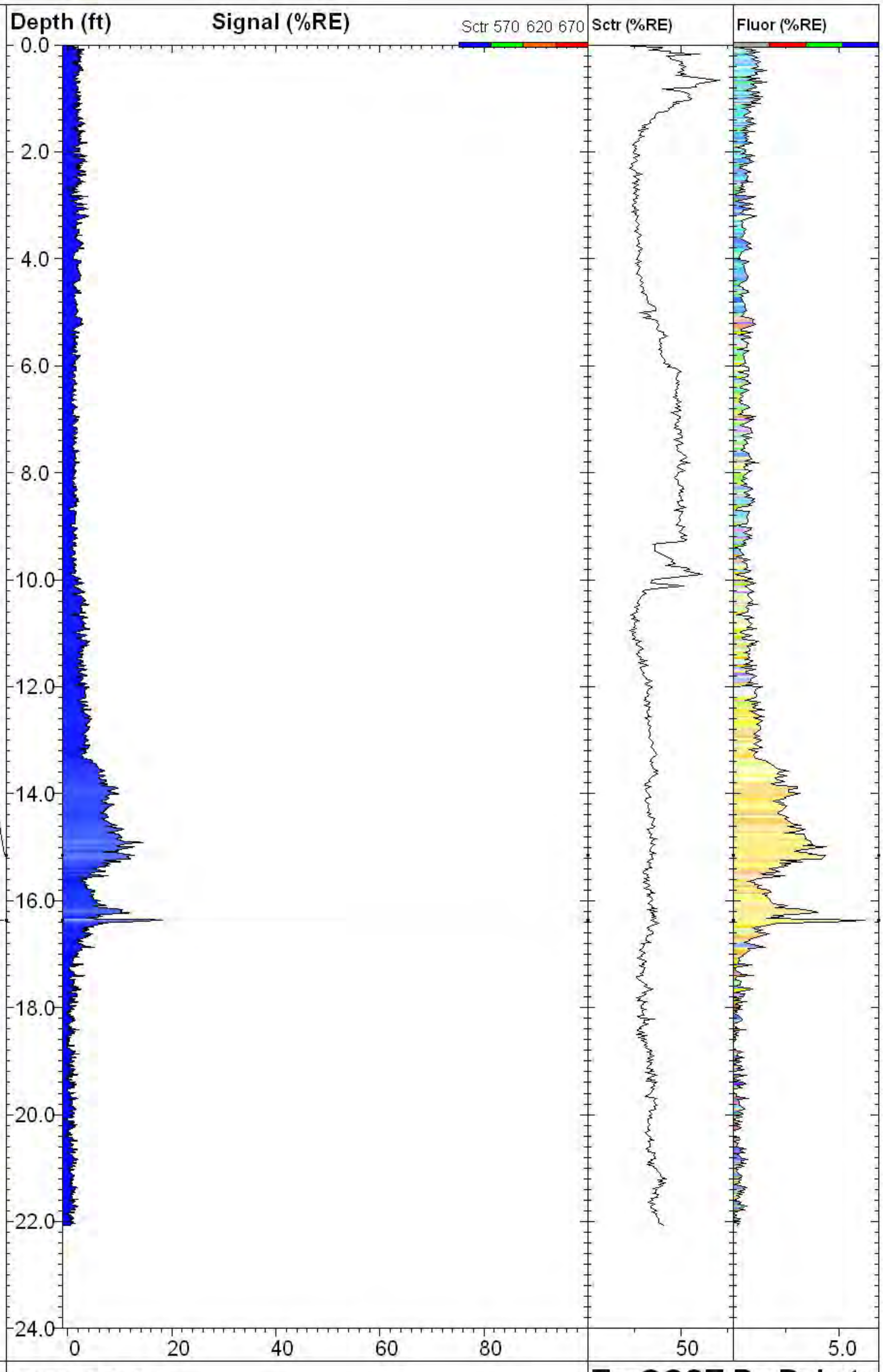
TG-D08-E25	7/28/2013 15:35	59.0	6.1	2.1	
TG-CR-04_5	7/29/2013 7:54	54.5	24.6	6.7	
TG-CR-06_5	7/29/2013 9:31	77.7	14.1	0.1	
TG-NT10	7/29/2013 11:49	12.0	51.0	1.8	New sapphire, spiky signals in log
TG-NT11	7/29/2013 13:43	11.7	56.2	1.6	Spiky signals in log
TG-NT11-E40	7/29/2013 14:16	69.4	55.6	65.2	Spiky signals in log
TG-NT15	7/29/2013 16:14	67.5	6.7	0.2	Resolved spiky signal problem

Callouts

15.15 ft
12.7 %RE



16.36 ft
18.6 %RE



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TG-A01

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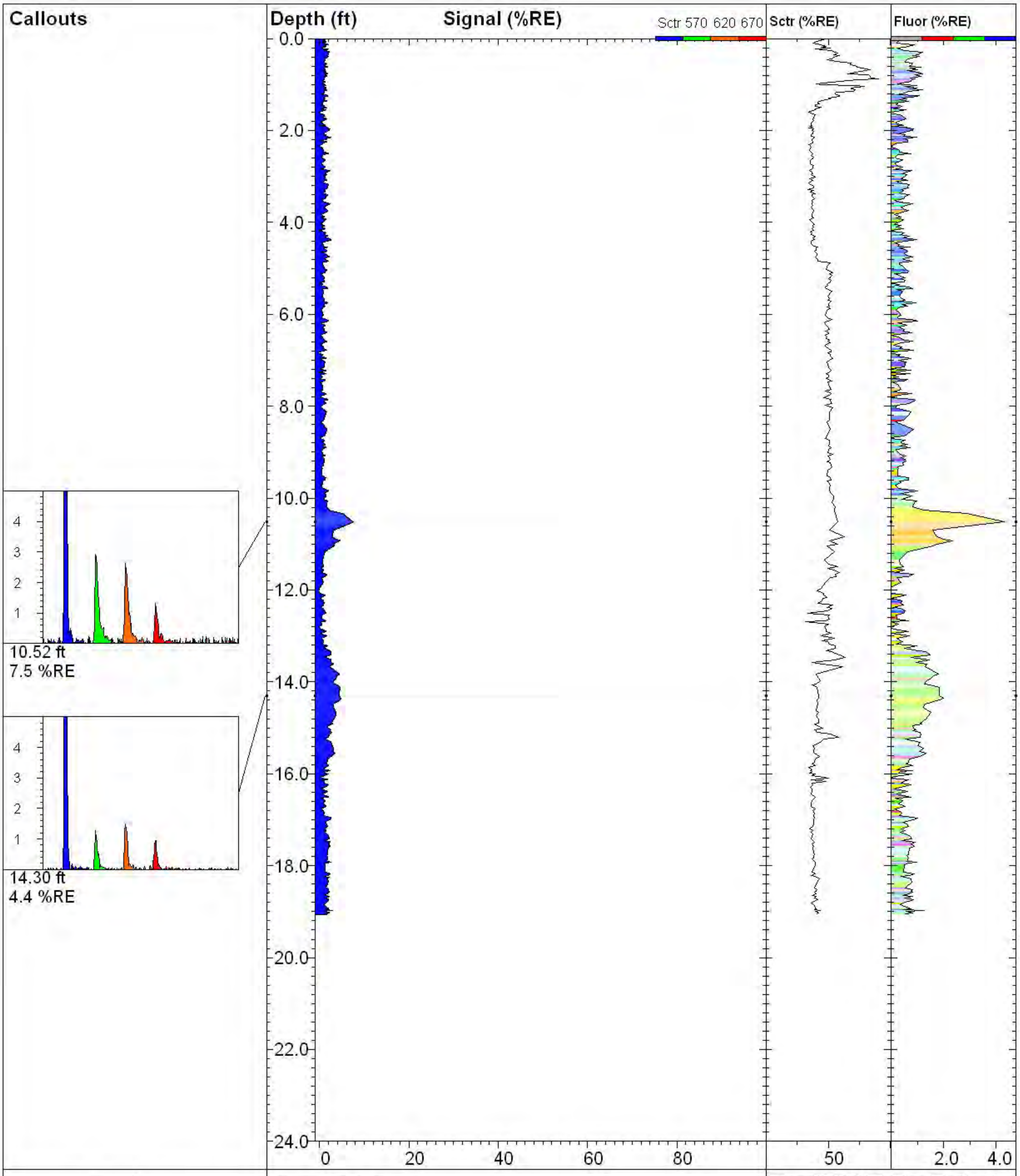
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.07 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **18.6 %RE @ 16.36 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-22 09:02 PDT**



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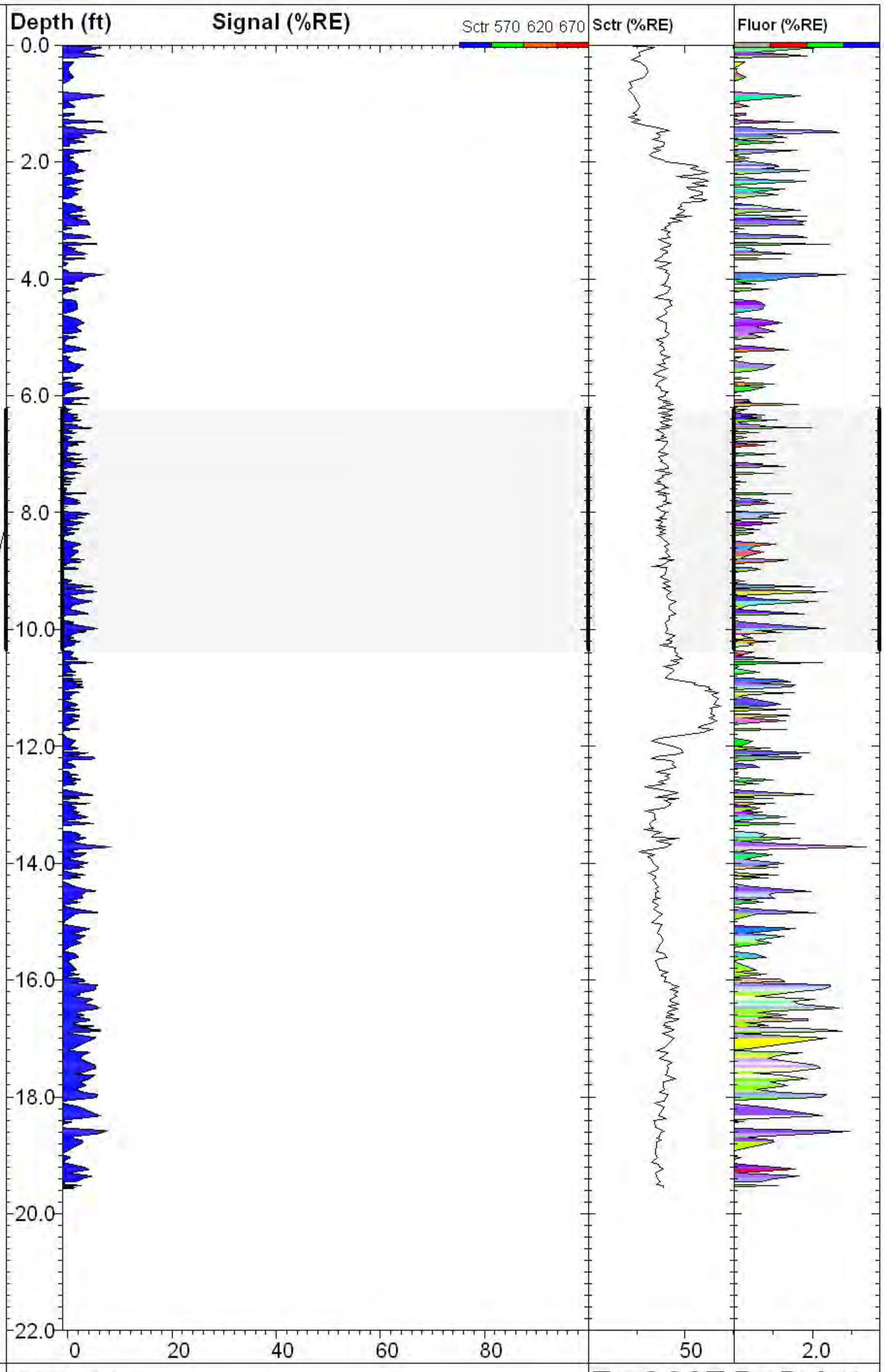
	Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.06 ft**
	Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.5 %RE @ 10.52 ft**
	Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-22 09:46 PDT**

Callouts

6.24 - 10.36 ft
0.6 %RE (s 2.0)



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TG-A04

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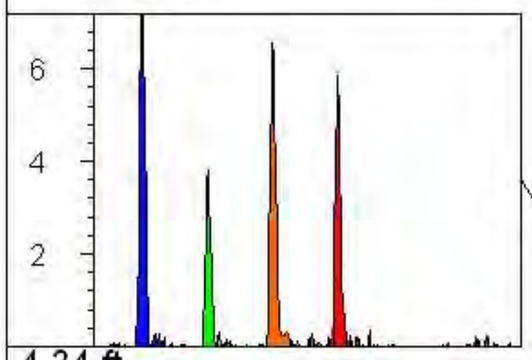
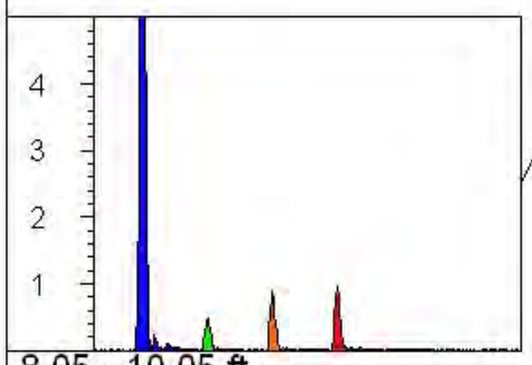
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.56 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **8.3 %RE @ 13.73 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 16:07 PDT**

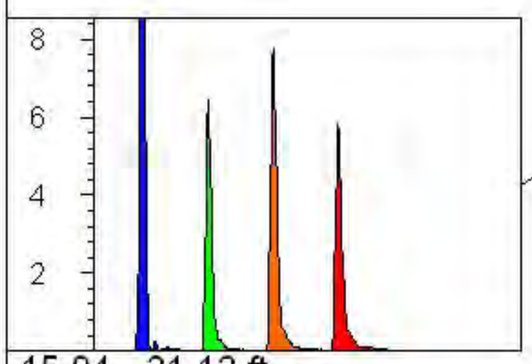
Callouts



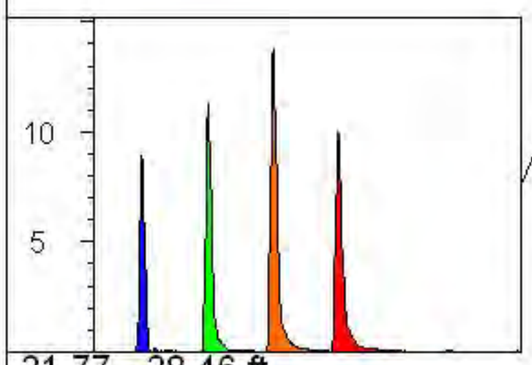
4.34 ft
24.4 %RE



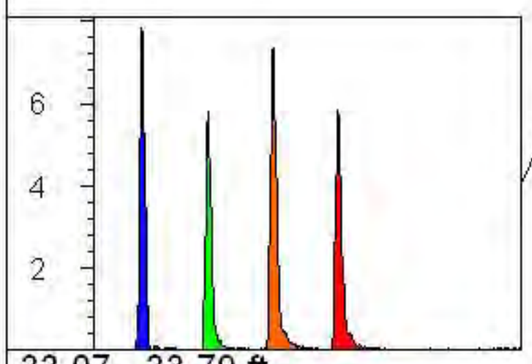
8.05 - 10.05 ft
3.0 %RE (s 2.5)



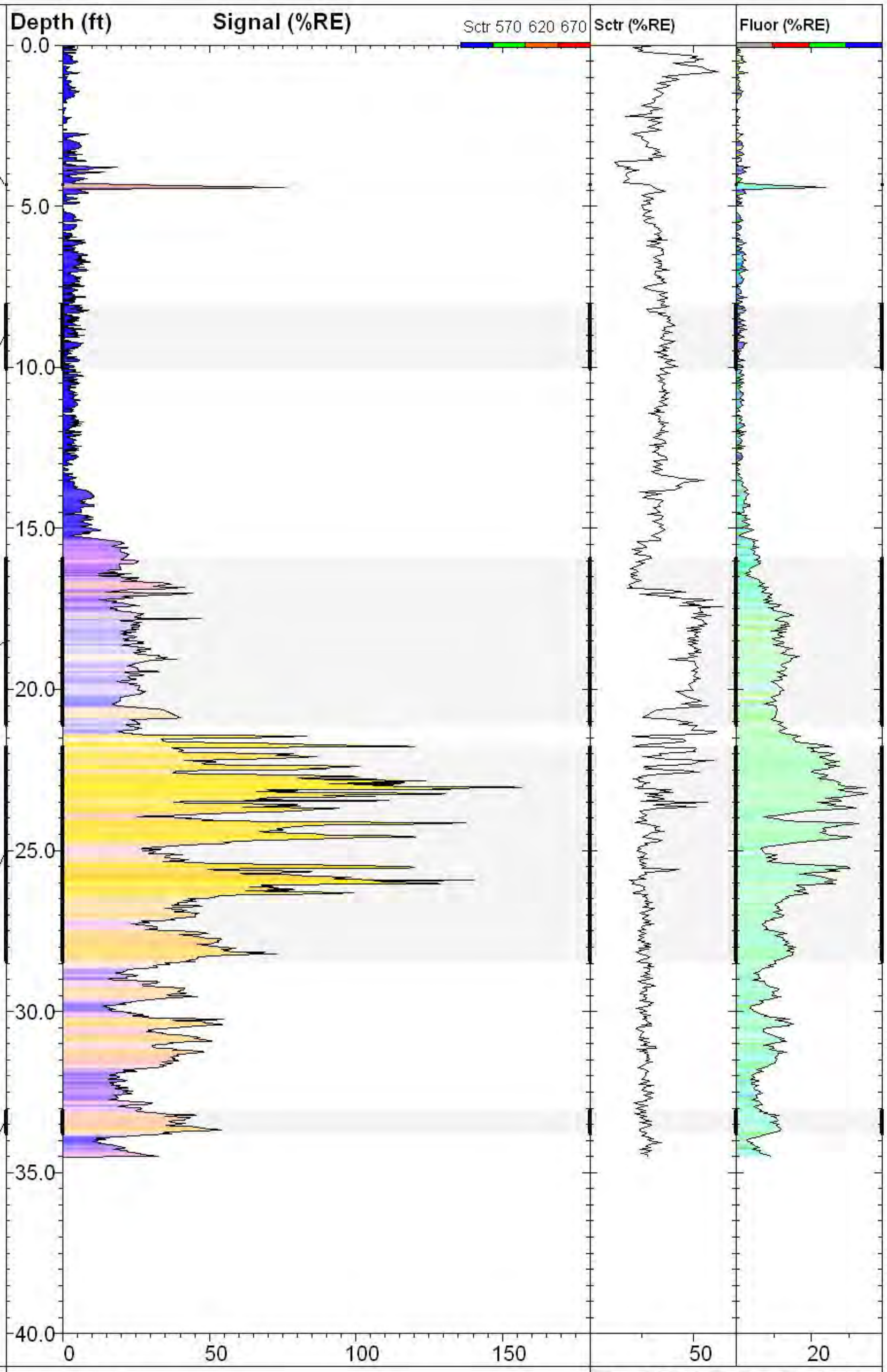
15.94 - 21.12 ft
24.4 %RE (s 6.0)



21.77 - 28.46 ft
65.9 %RE (s 29.8)



33.07 - 33.79 ft
38.7 %RE (s 7.4)



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TG-A05

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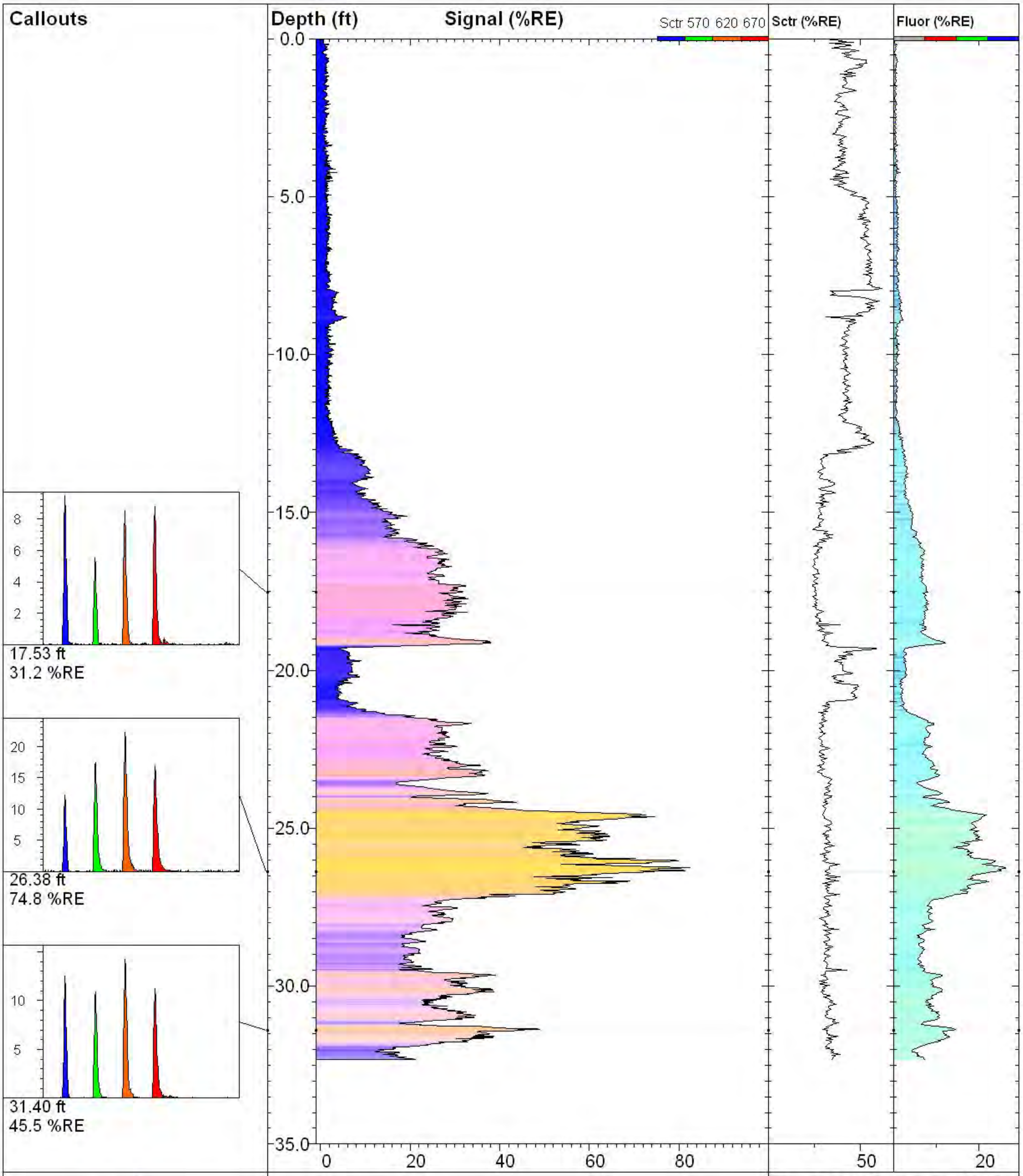
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **34.51 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **157.0 %RE @ 23.04 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 15:19 PDT**



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TG-A05-N25

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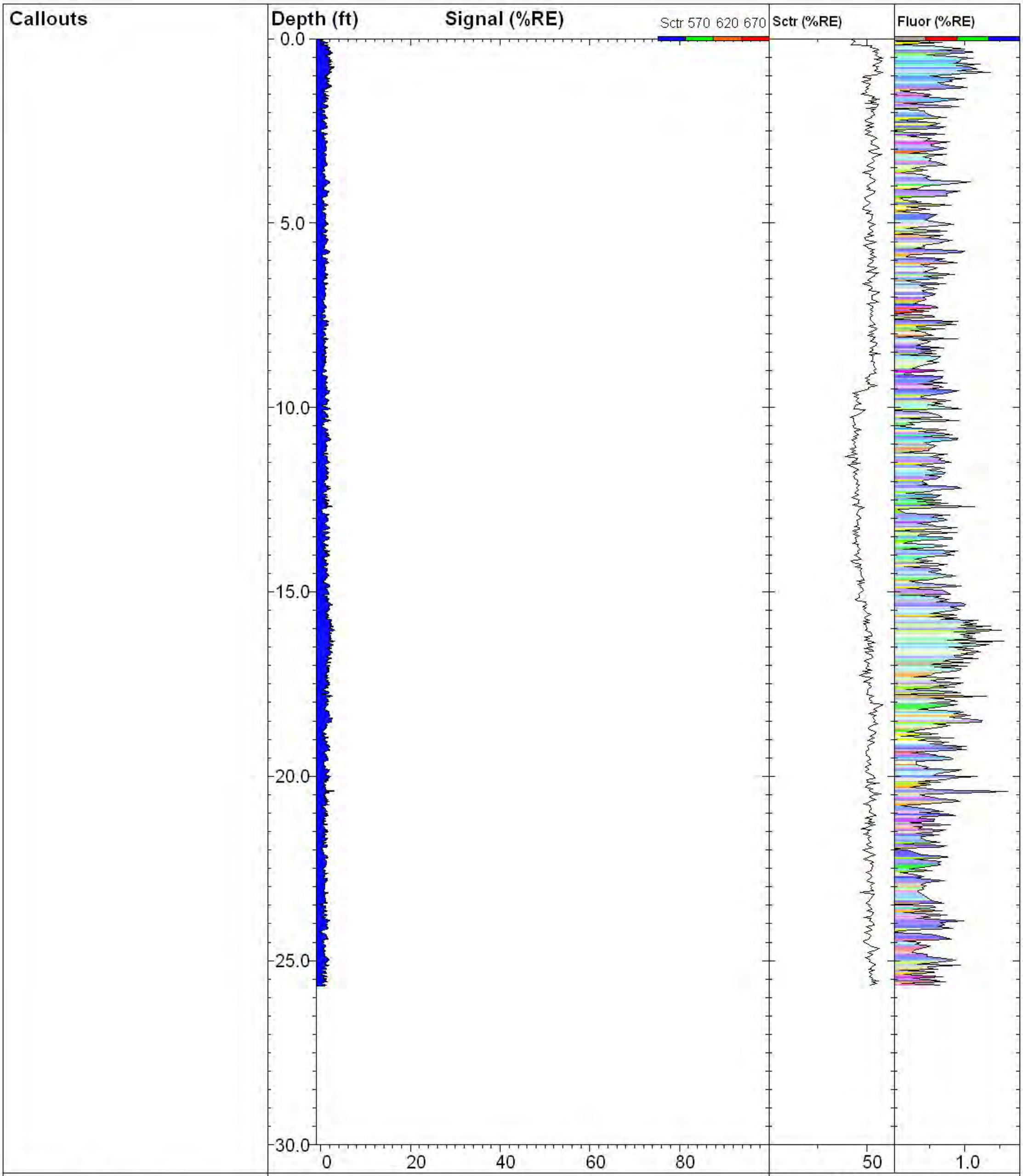
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **32.33 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **82.7 %RE @ 26.25 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 14:39 PDT**



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TG-A05-N50

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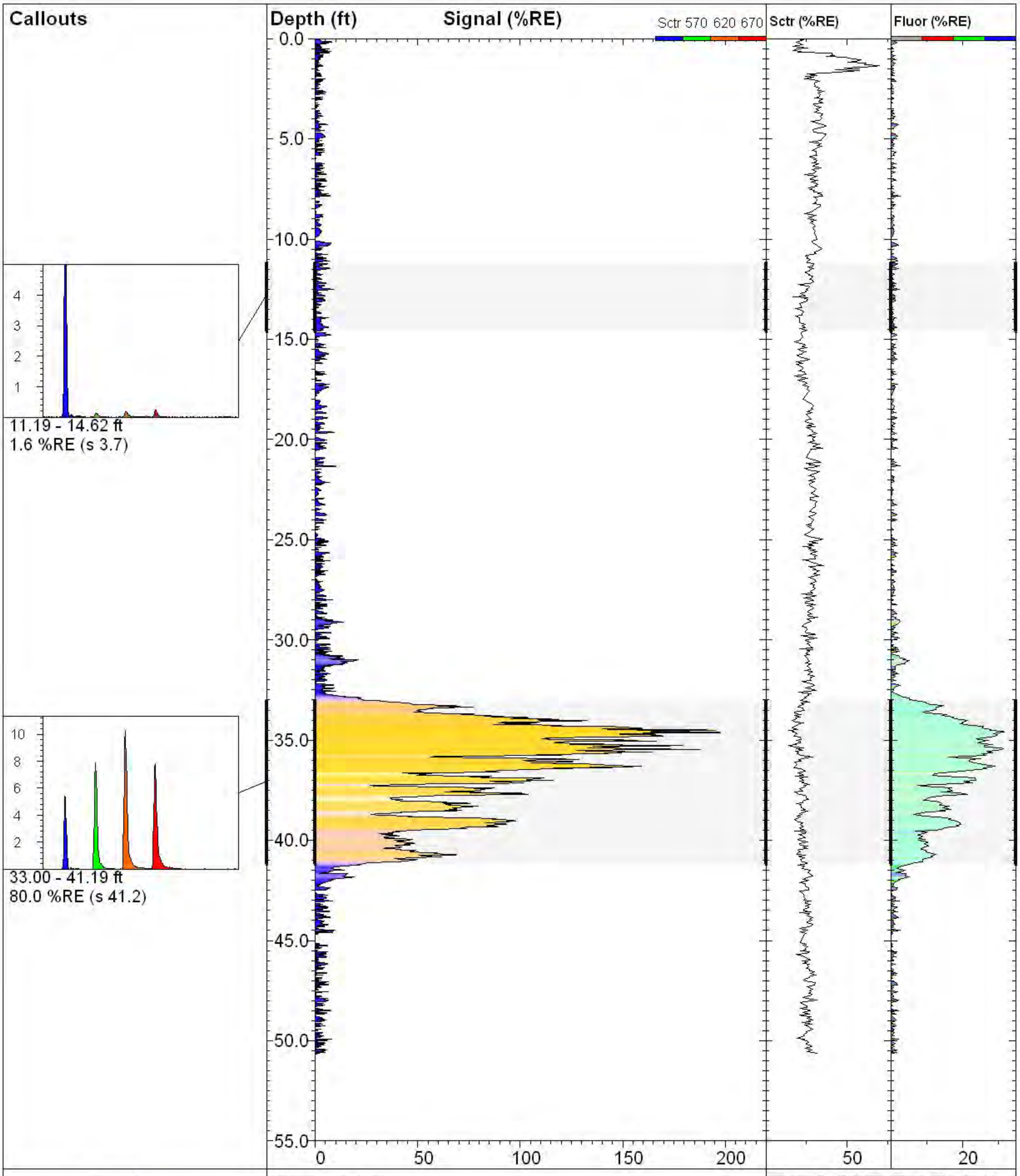
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.69 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.1 %RE @ 20.40 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 16:27 PDT**



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TG-A06

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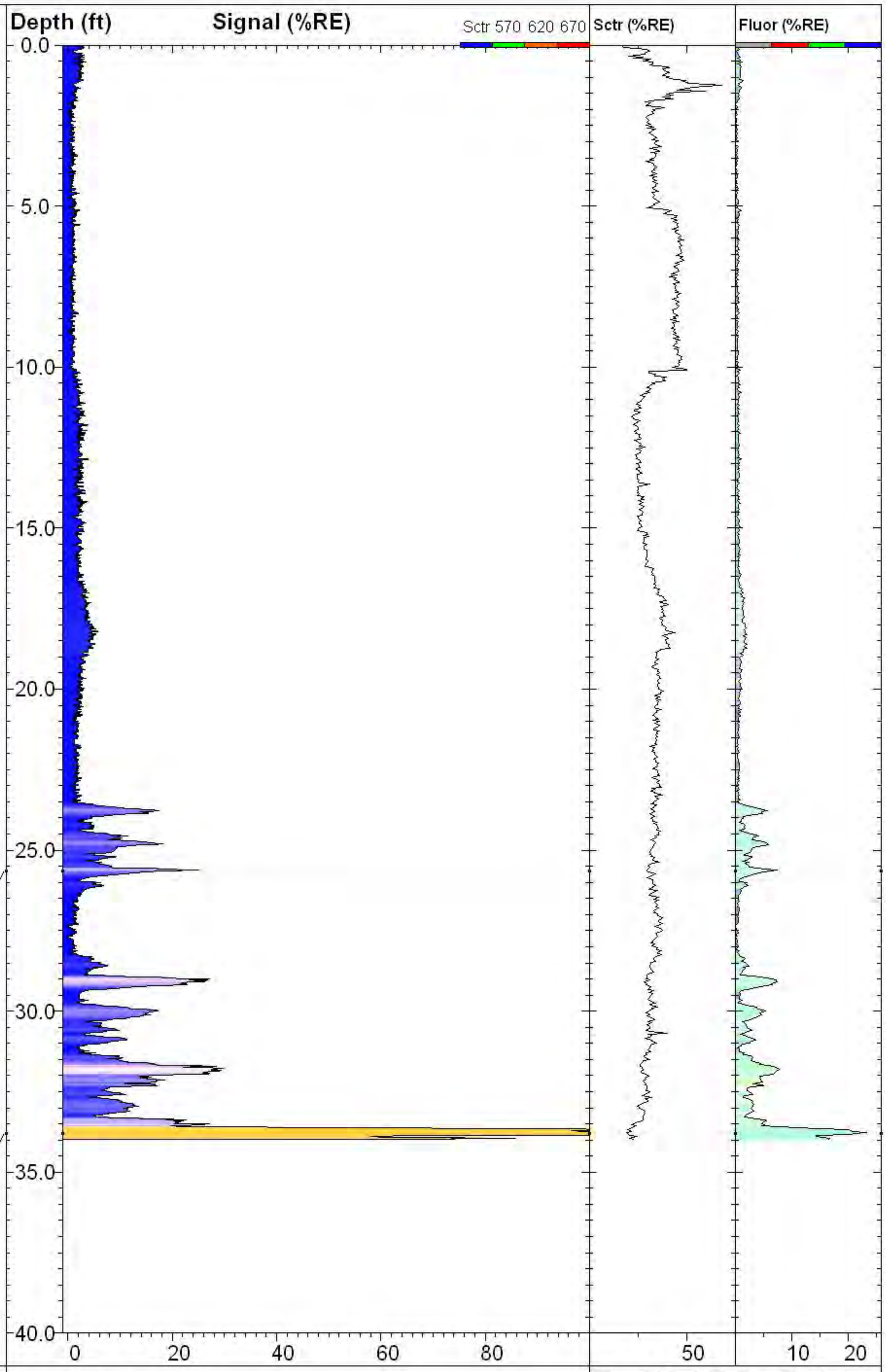
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **50.66 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **199.7 %RE @ 34.62 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-18 14:12 PDT**

Callouts

25.64 ft
20.1 %RE

33.80 ft
108.7 %RE



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TG-A06-N25

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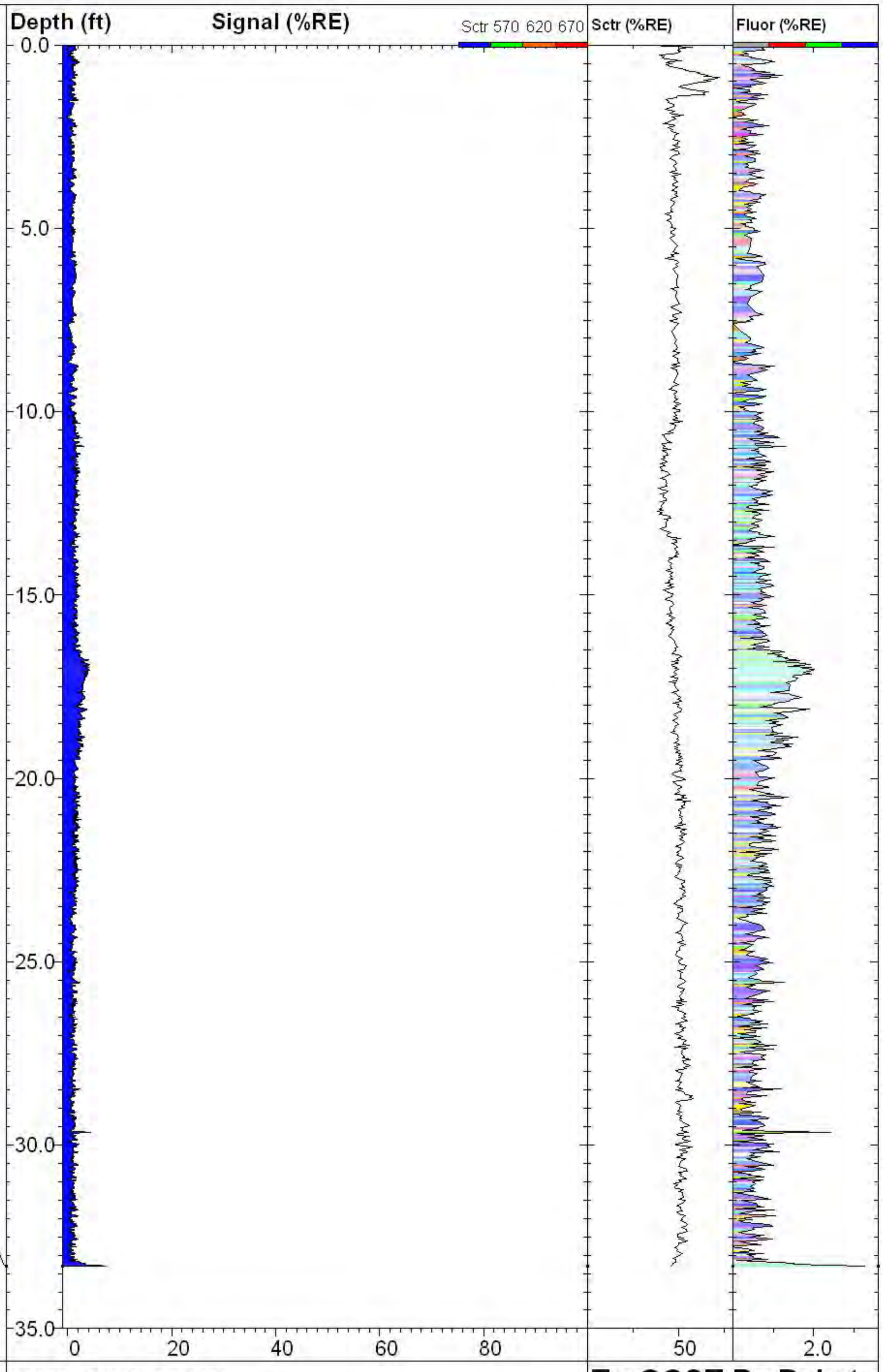
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **33.97 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **123.2 %RE @ 33.74 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 13:45 PDT**

Callouts



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TG-A06-N60

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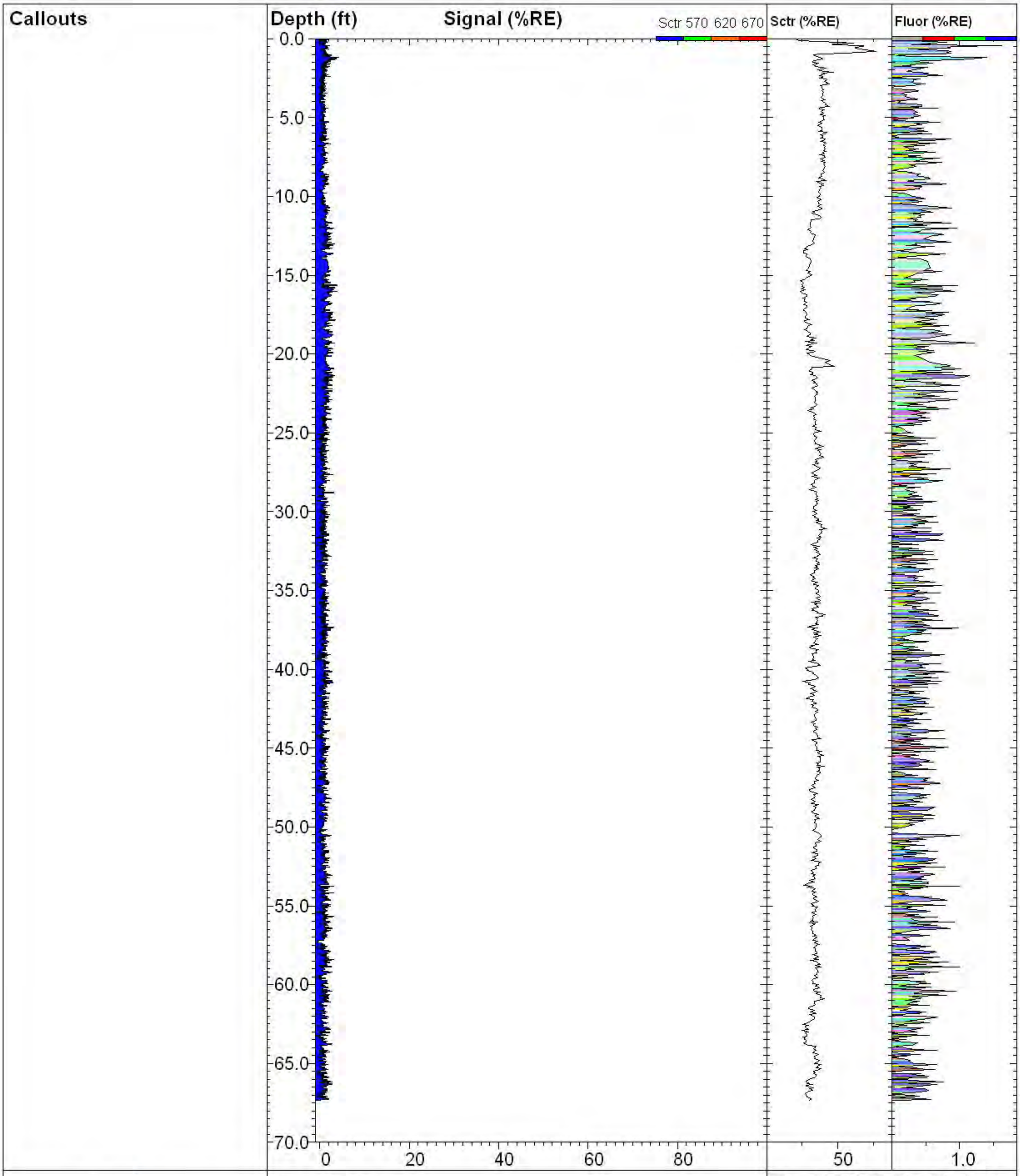
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **33.30 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.4 %RE @ 33.29 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 15:42 PDT**



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TG-A07

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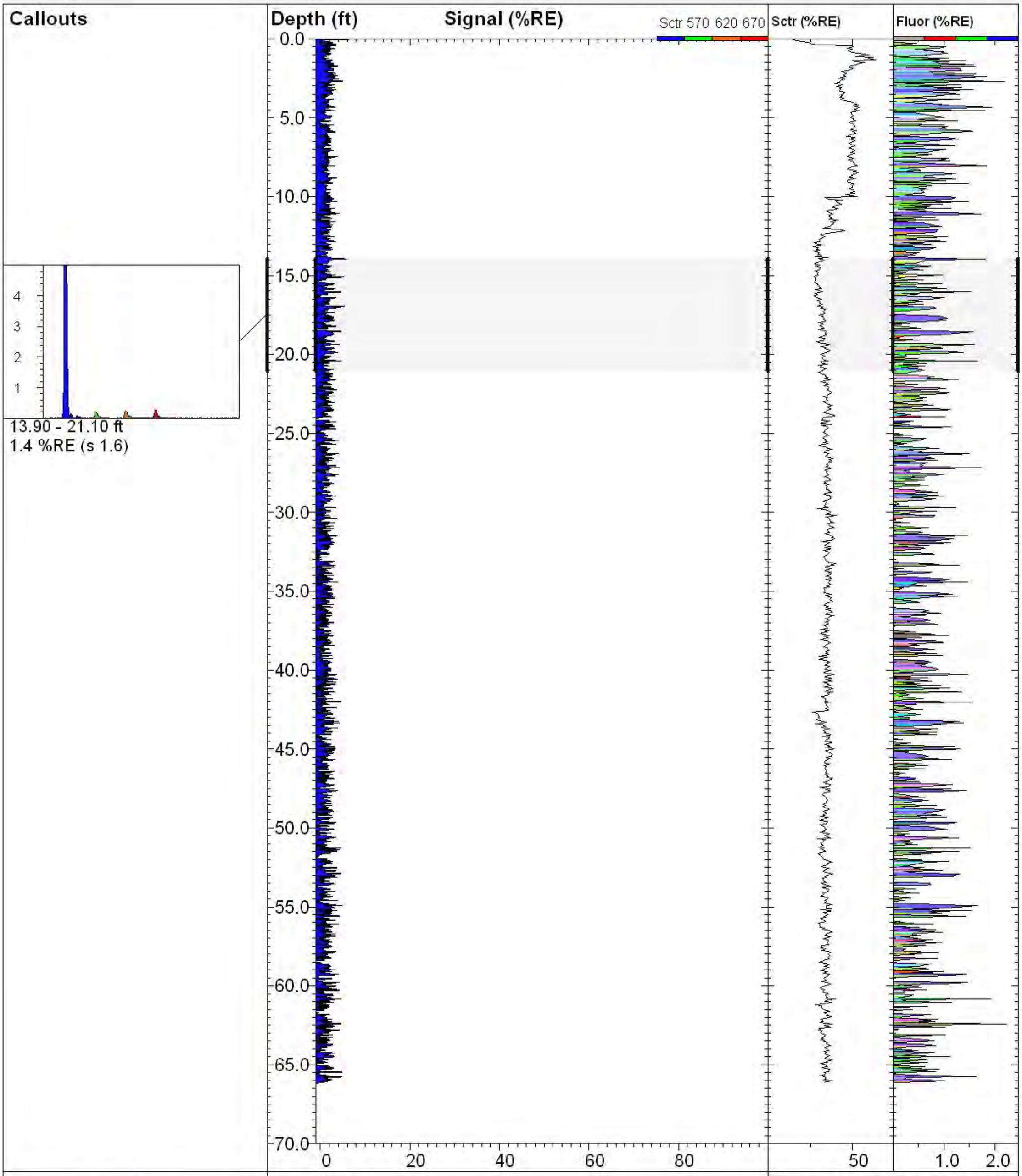
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **67.32 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.5 %RE @ 1.19 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-22 10:19 PDT**



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TG-A08

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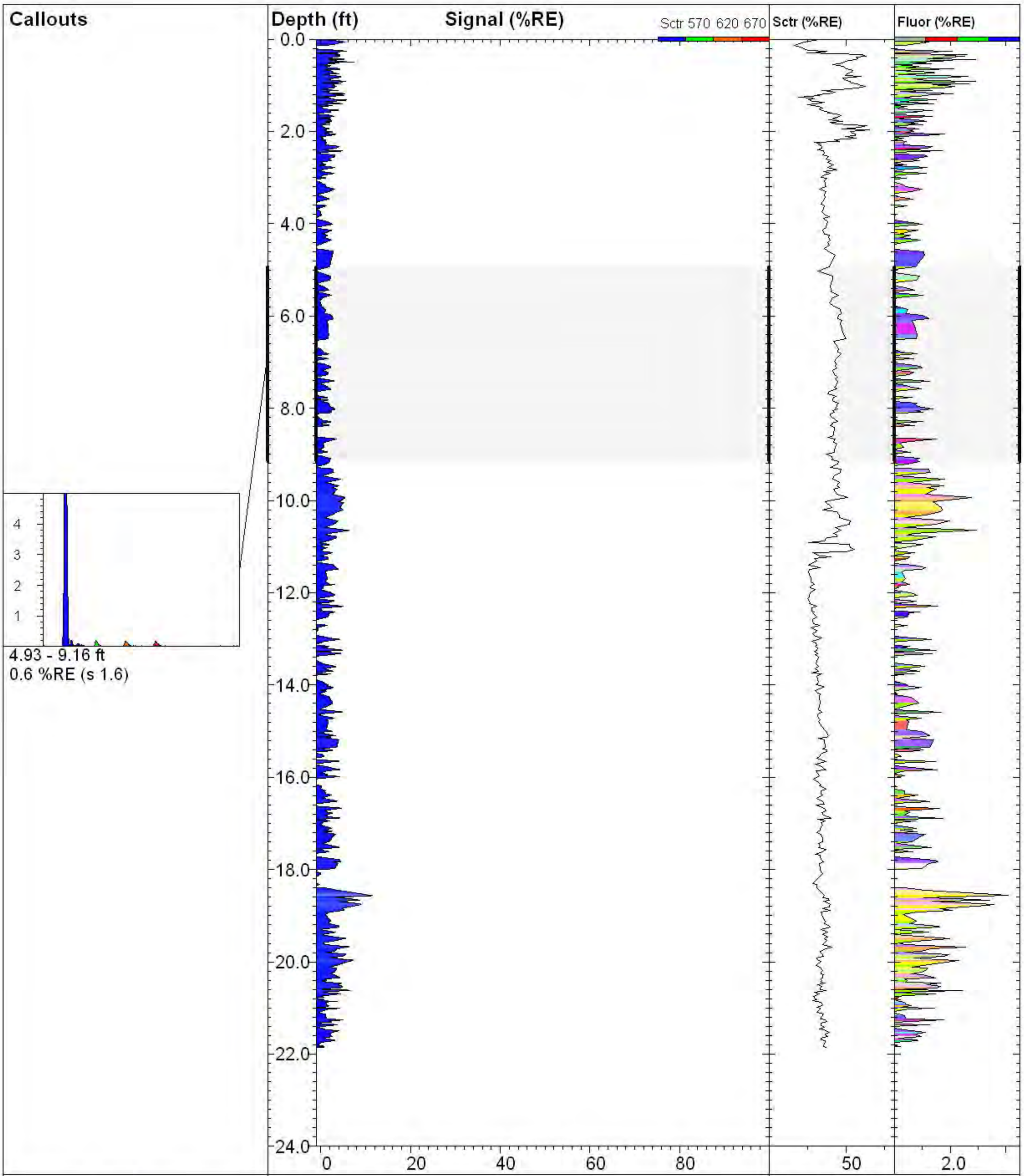
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **66.15 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.8 %RE @ 0.00 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-18 11:49 PDT**



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TG-B01

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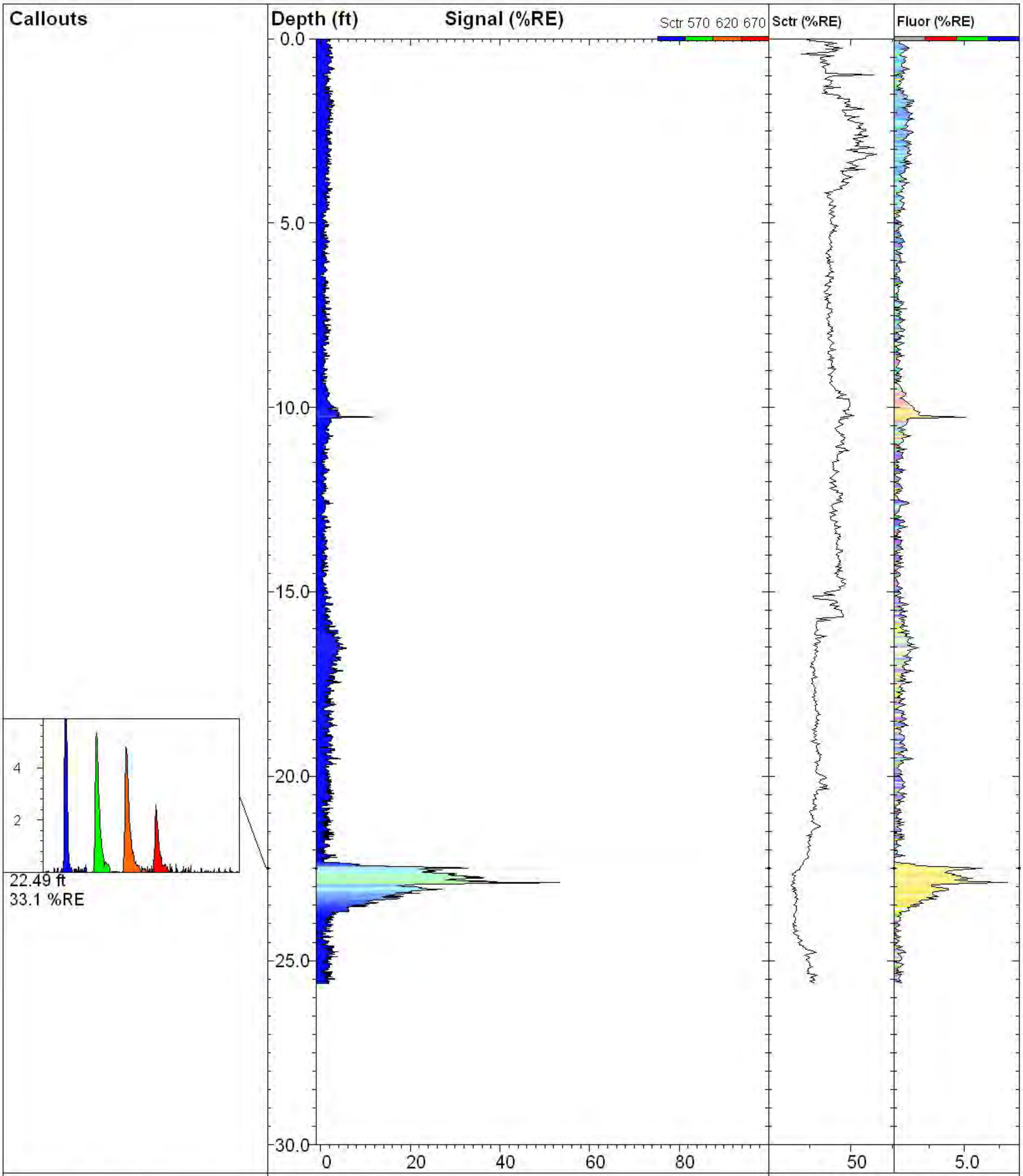
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.85 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **11.5 %RE @ 18.57 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 14:21 PDT**



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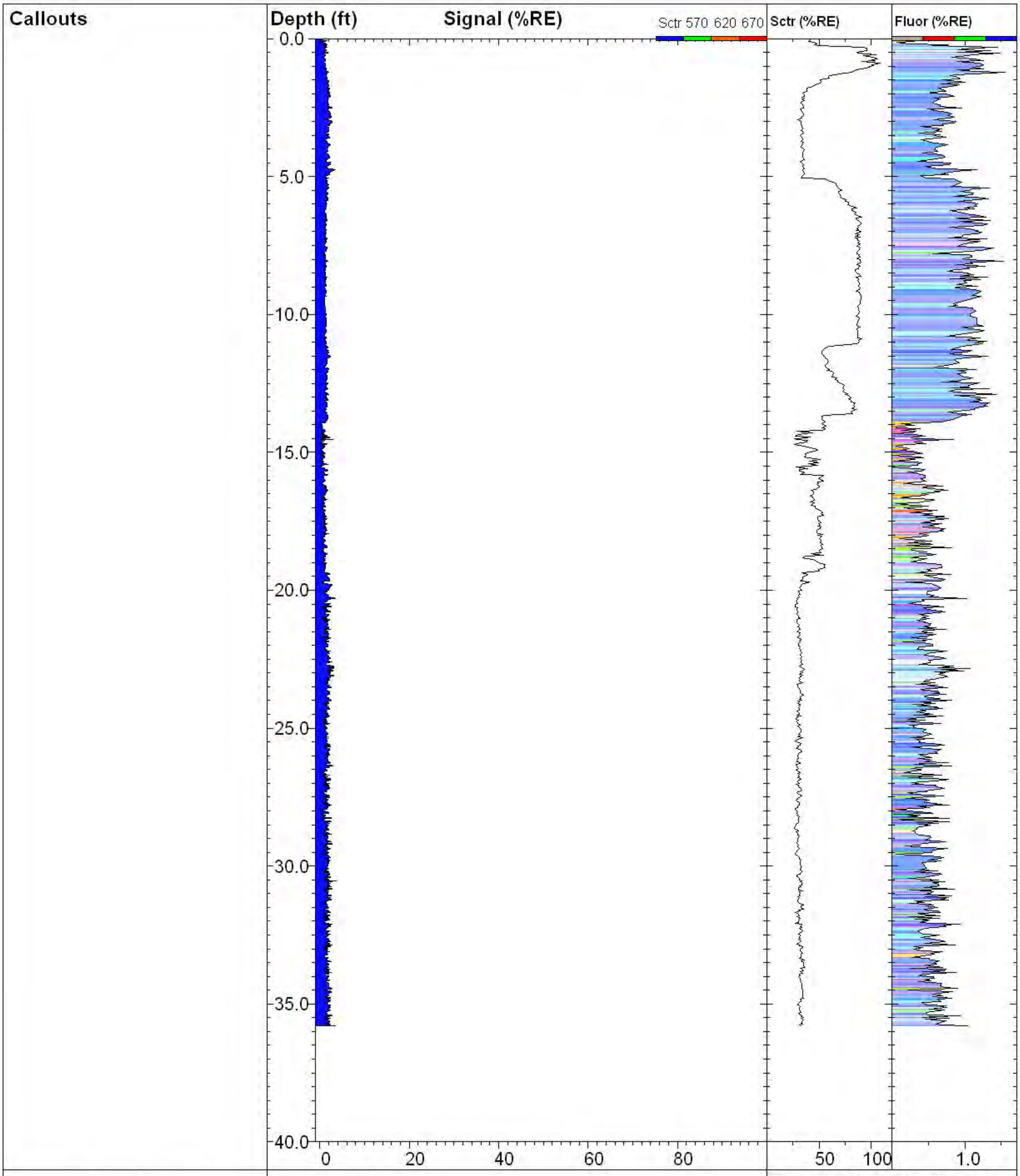
	Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.62 ft**
	Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **54.2 %RE @ 22.89 ft**
	Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-23 09:28 PDT**



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TG-B03

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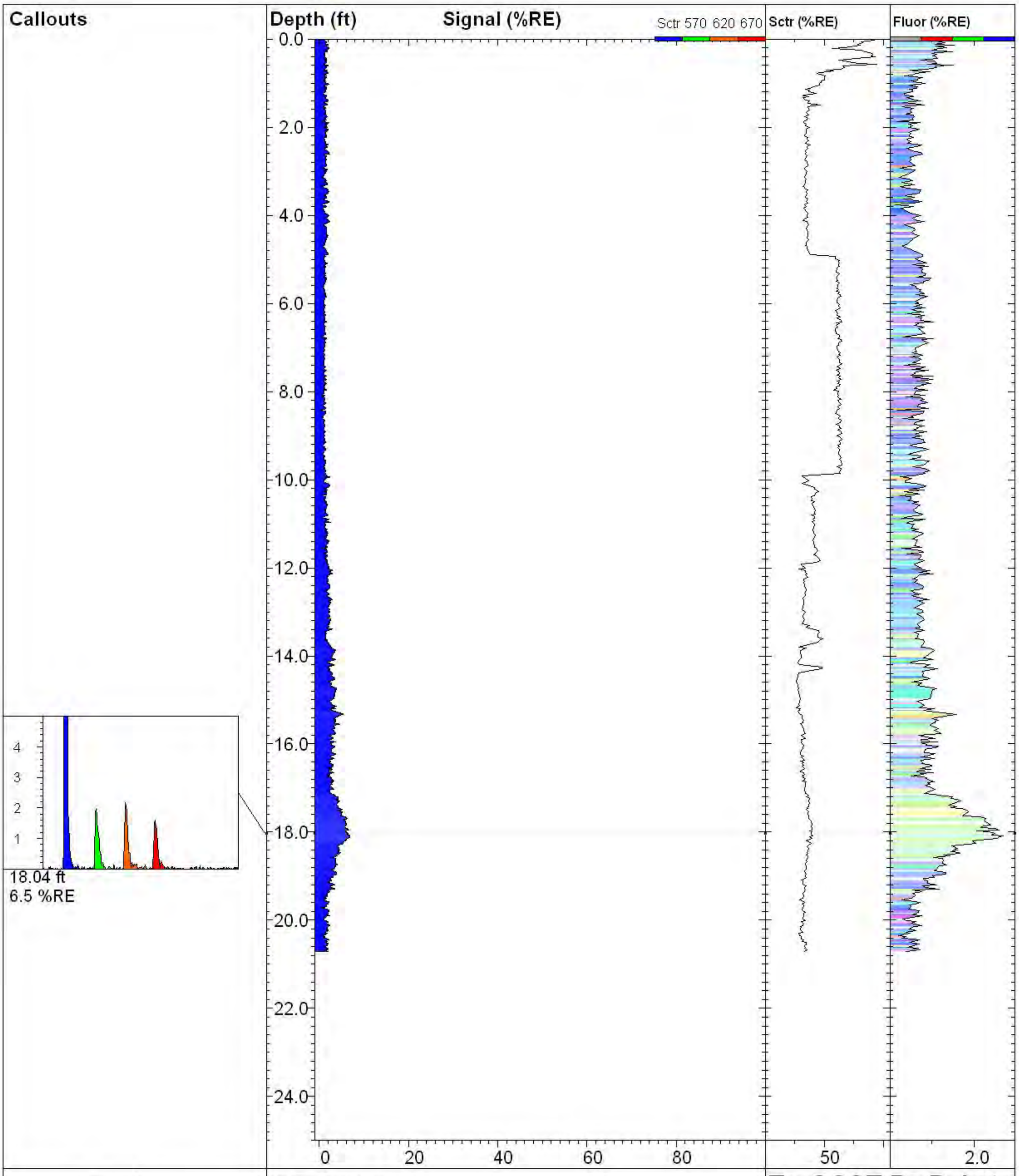
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **35.80 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.6 %RE @ 30.55 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-23 08:21 PDT**

Callouts



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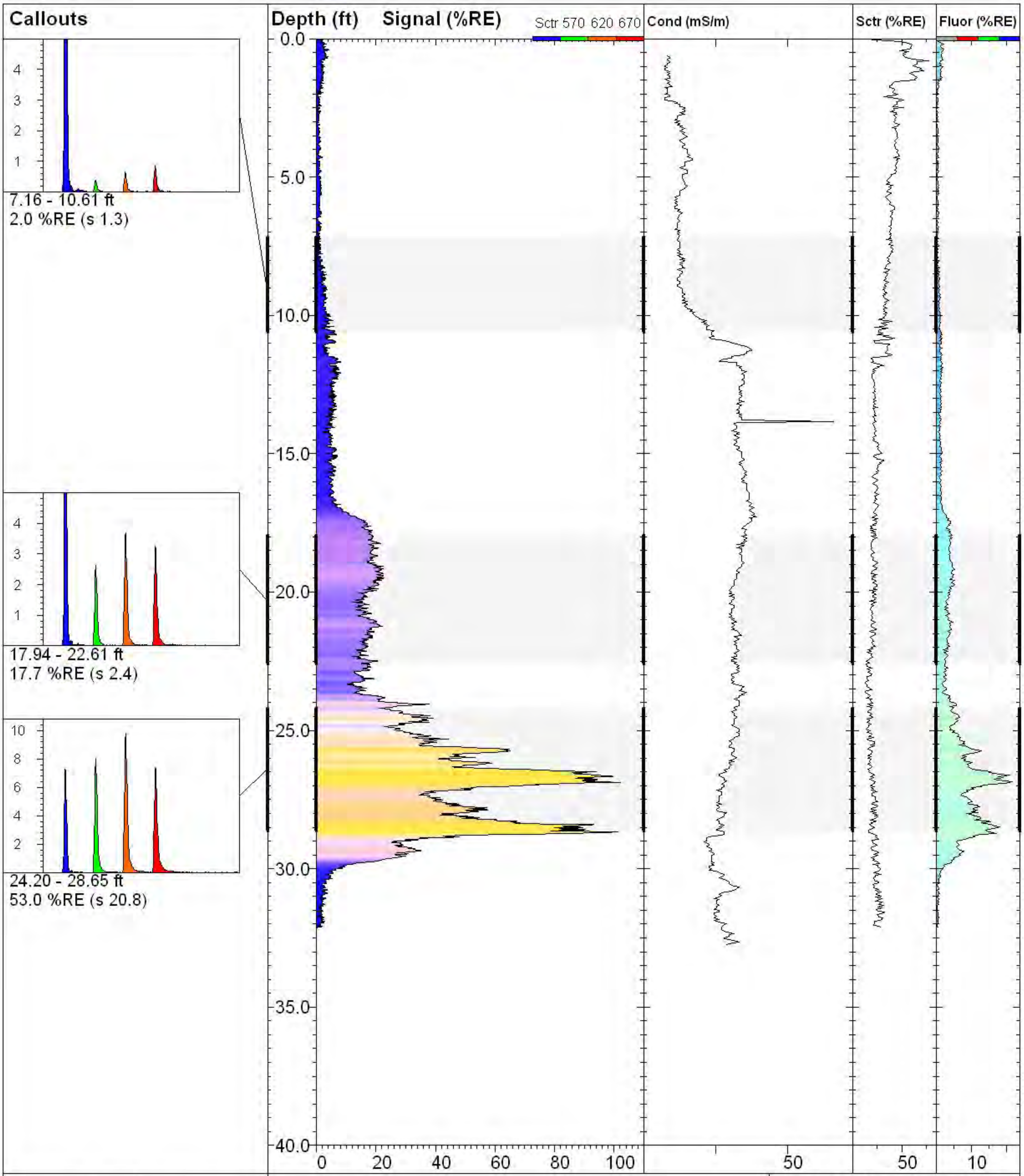
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.71 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.9 %RE @ 18.11 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-23 07:38 PDT**



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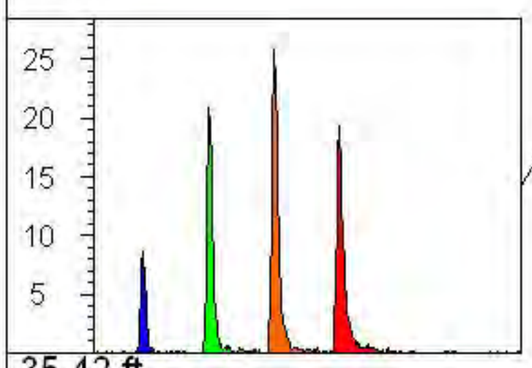
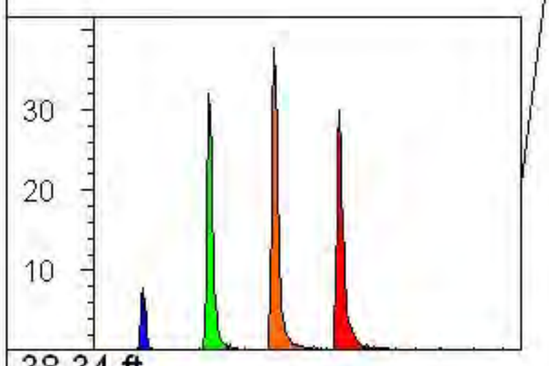
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **32.12 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **103.3 %RE @ 26.88 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-11 08:06 PDT**

Callouts

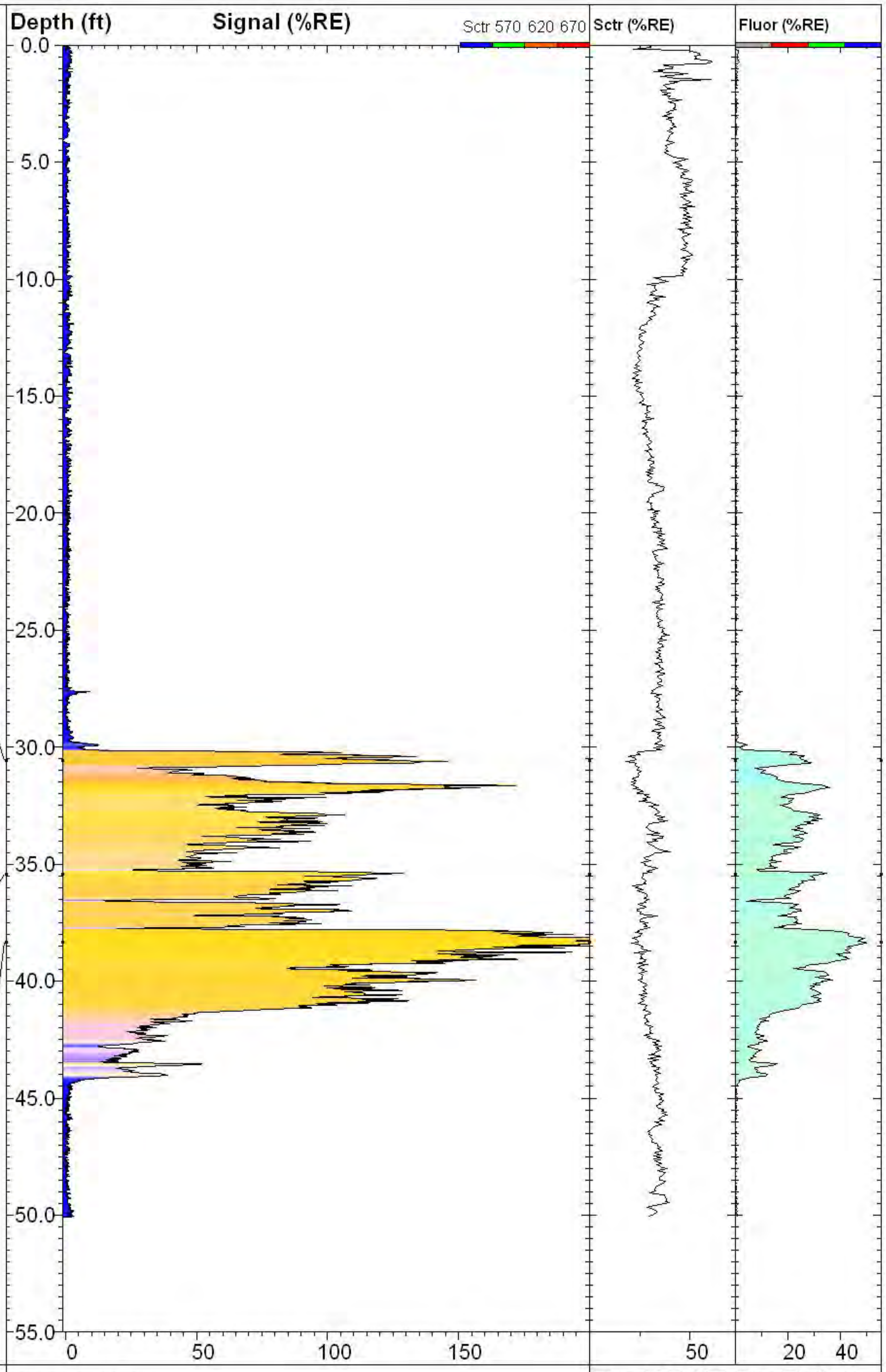
30.57 ft
118.1 %RE



35.42 ft
120.0 %RE



38.34 ft
204.2 %RE



TG-B06

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Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **50.07 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **239.2 %RE @ 38.39 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-22 13:39 PDT**

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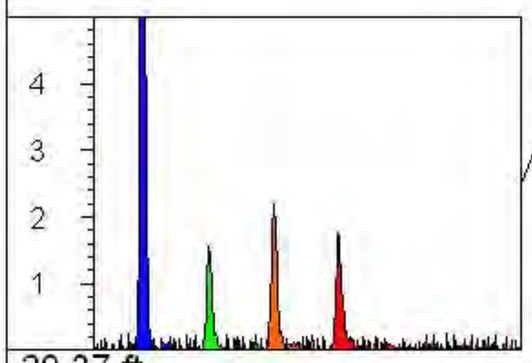
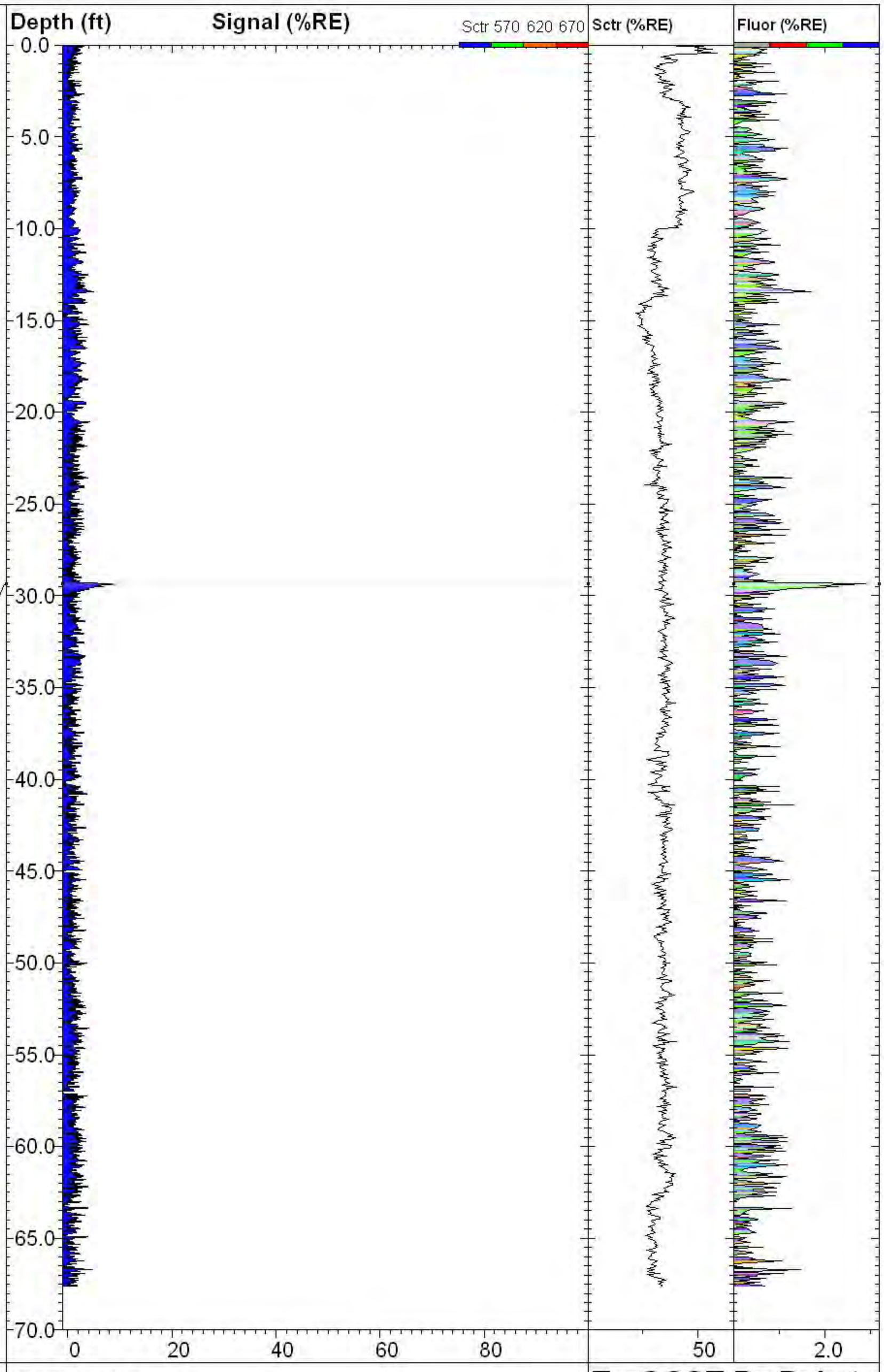
Callouts



29.37 ft
8.9 %RE



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TG-B07

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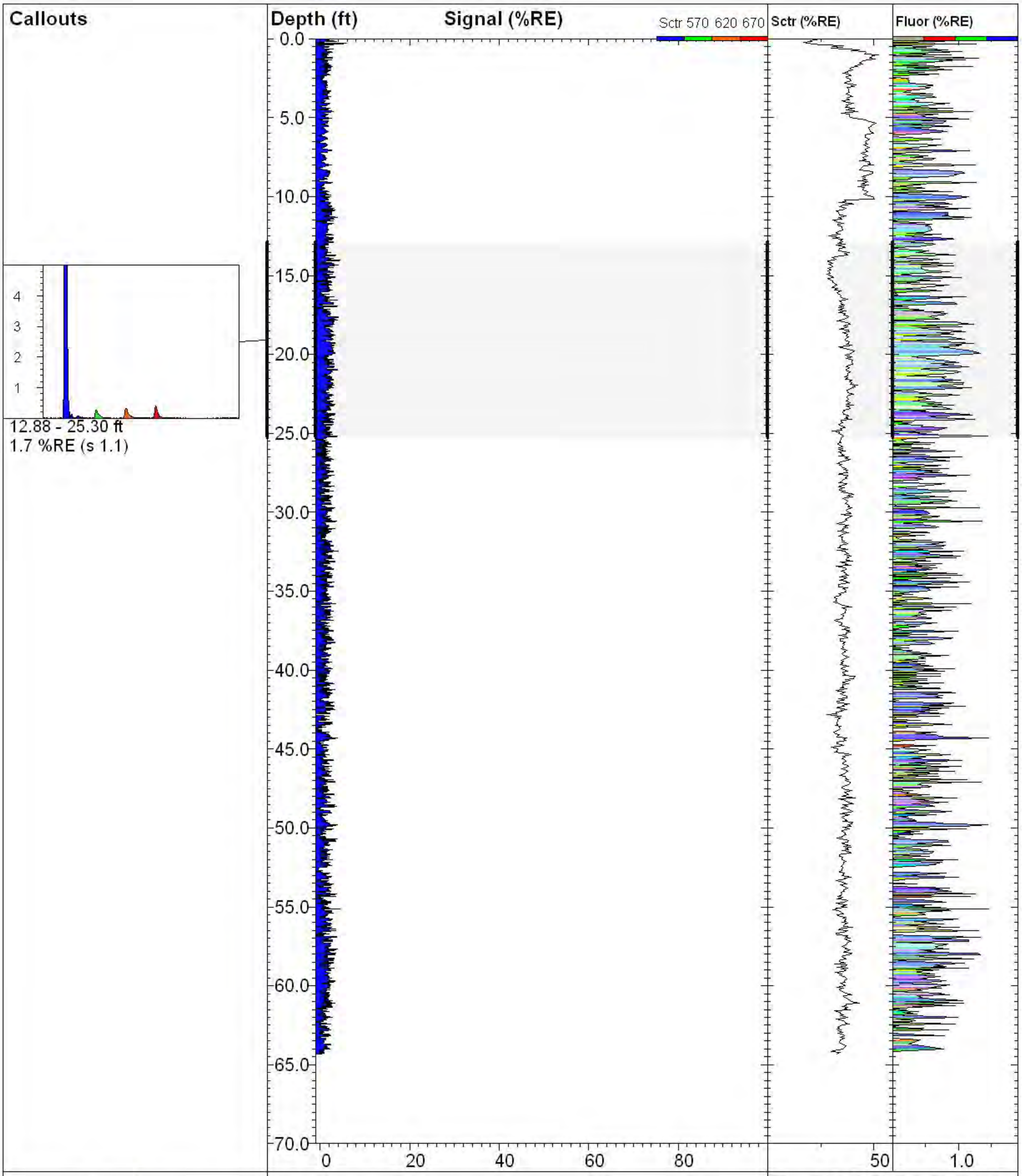
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **67.61 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **8.9 %RE @ 29.37 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-22 11:47 PDT**



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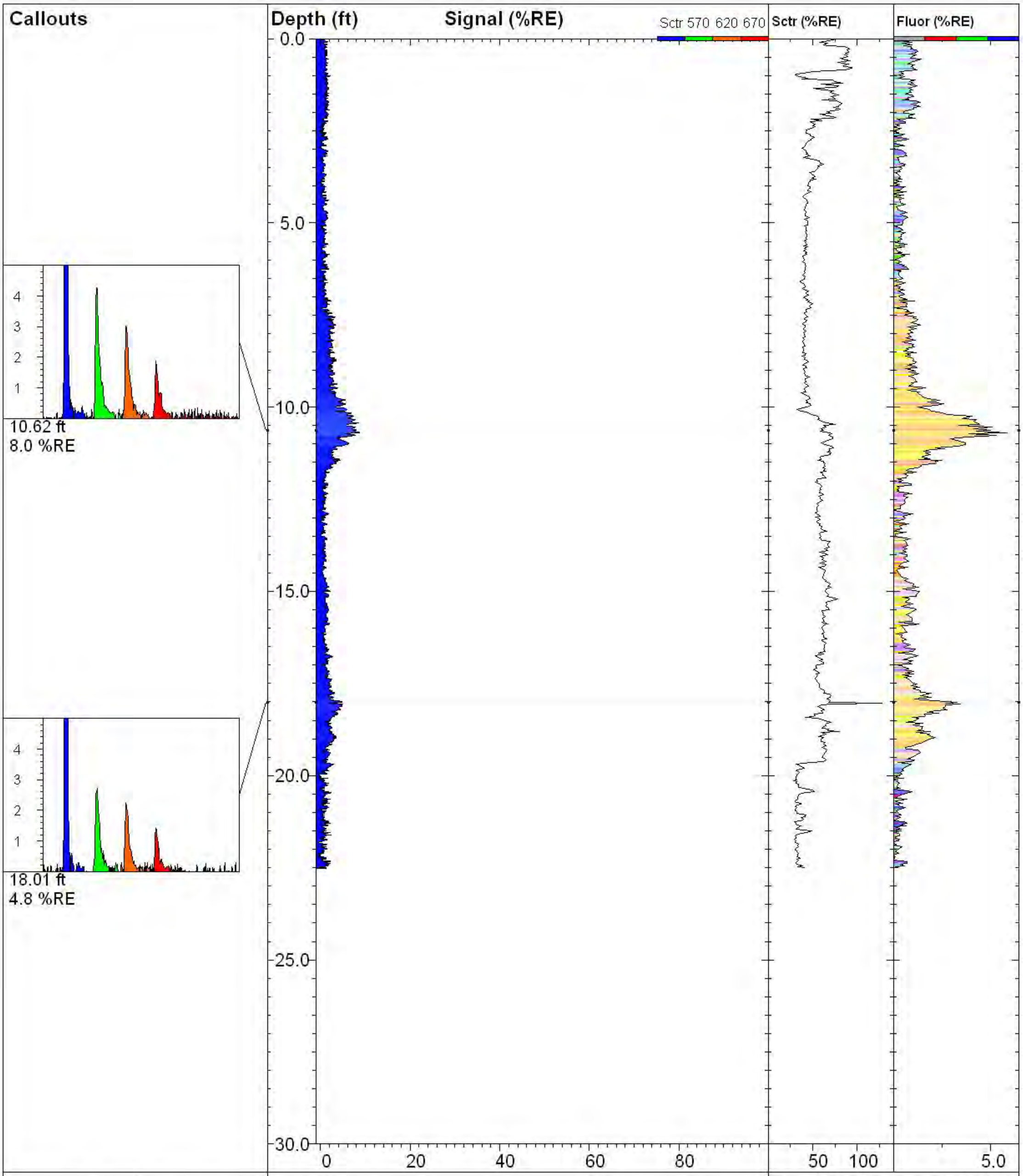
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **64.33 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.0 %RE @ 0.31 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-18 10:43 PDT**



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TG-C00

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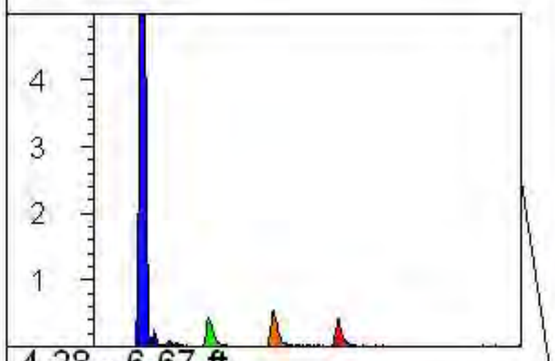
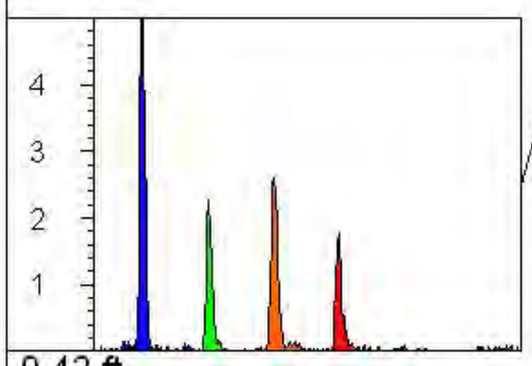
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.51 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **8.6 %RE @ 10.69 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-23 10:22 PDT**

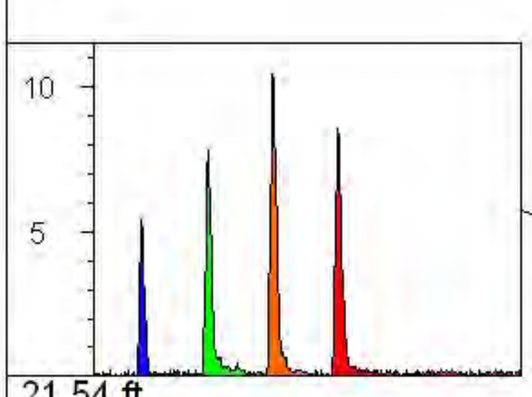
Callouts



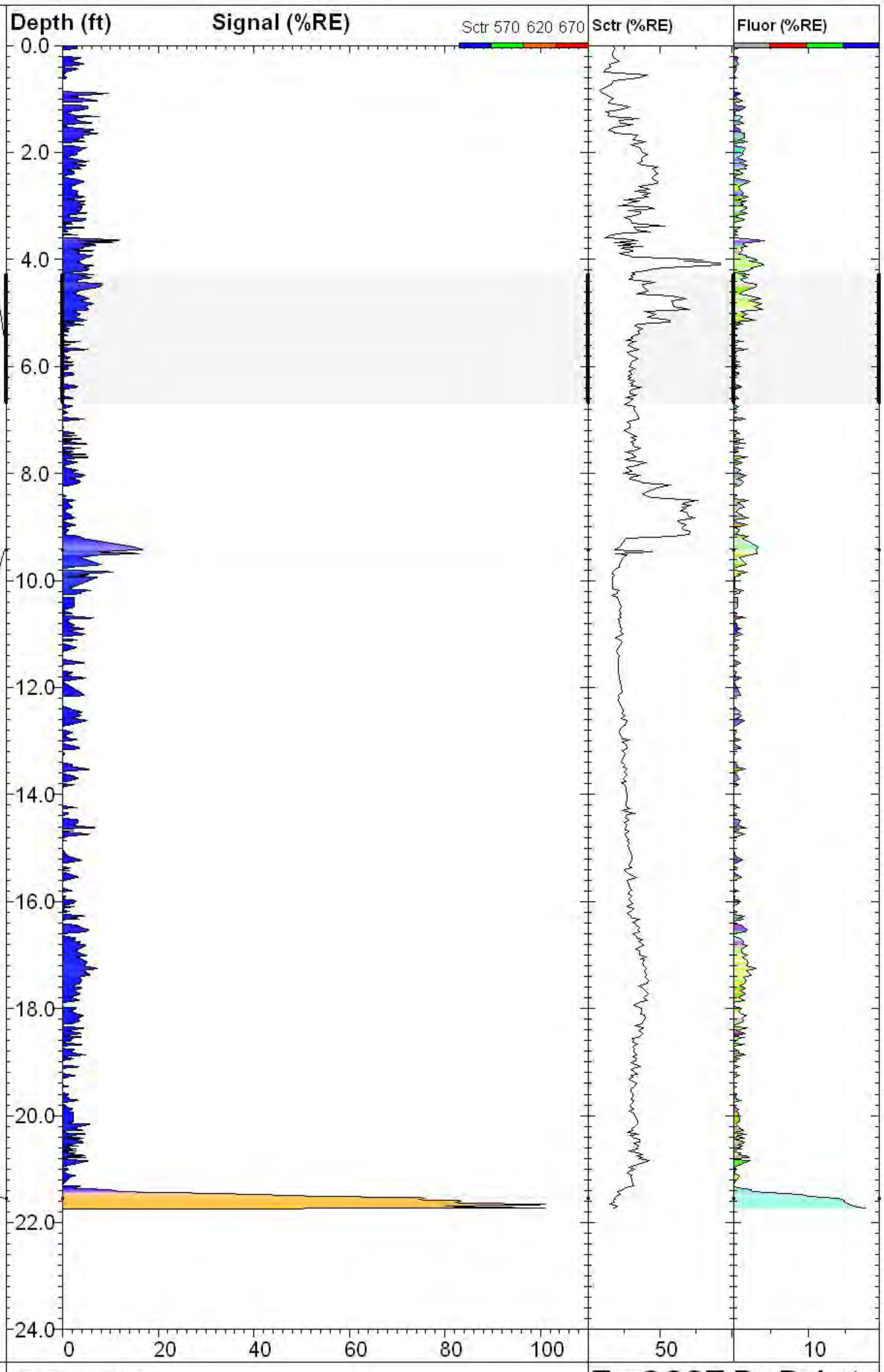
4.28 - 6.67 ft
1.7 %RE (s 2.8)



9.42 ft
16.7 %RE



21.54 ft
75.8 %RE



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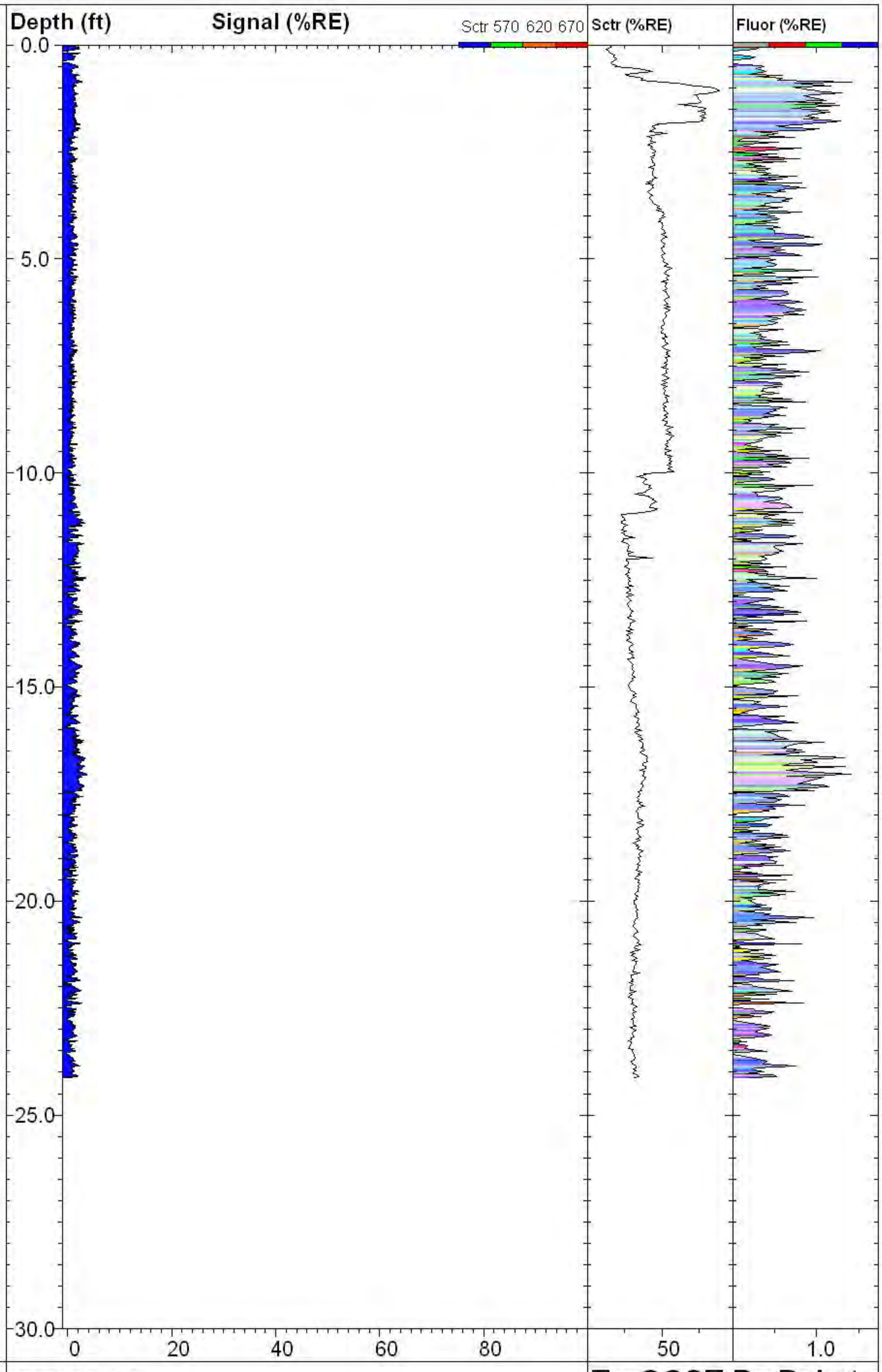
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.74 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **101.4 %RE @ 21.74 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 13:48 PDT**

Callouts



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TG-C02

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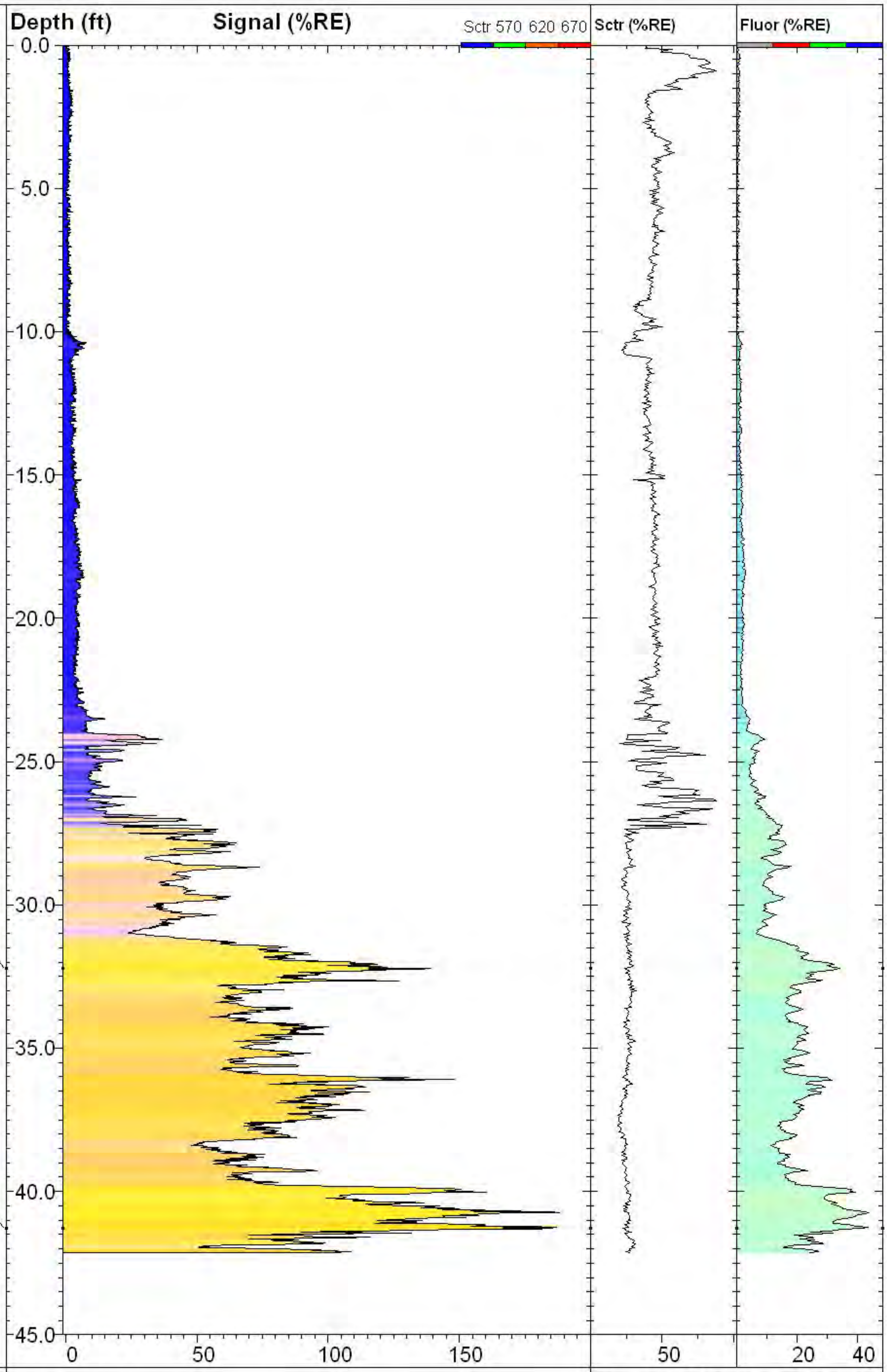
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.13 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.8 %RE @ 17.05 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-23 11:07 PDT**

Callouts



TG-C03

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Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **42.14 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **189.3 %RE @ 40.73 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-23 11:47 PDT**

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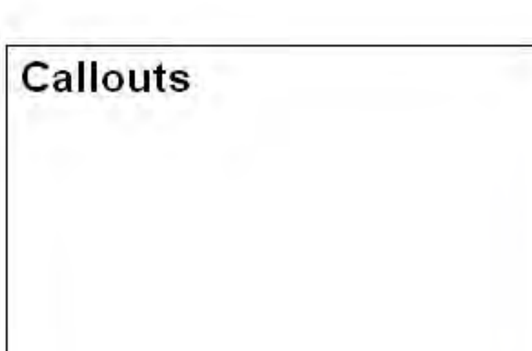
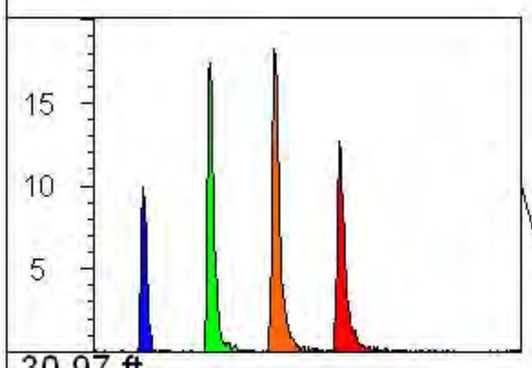
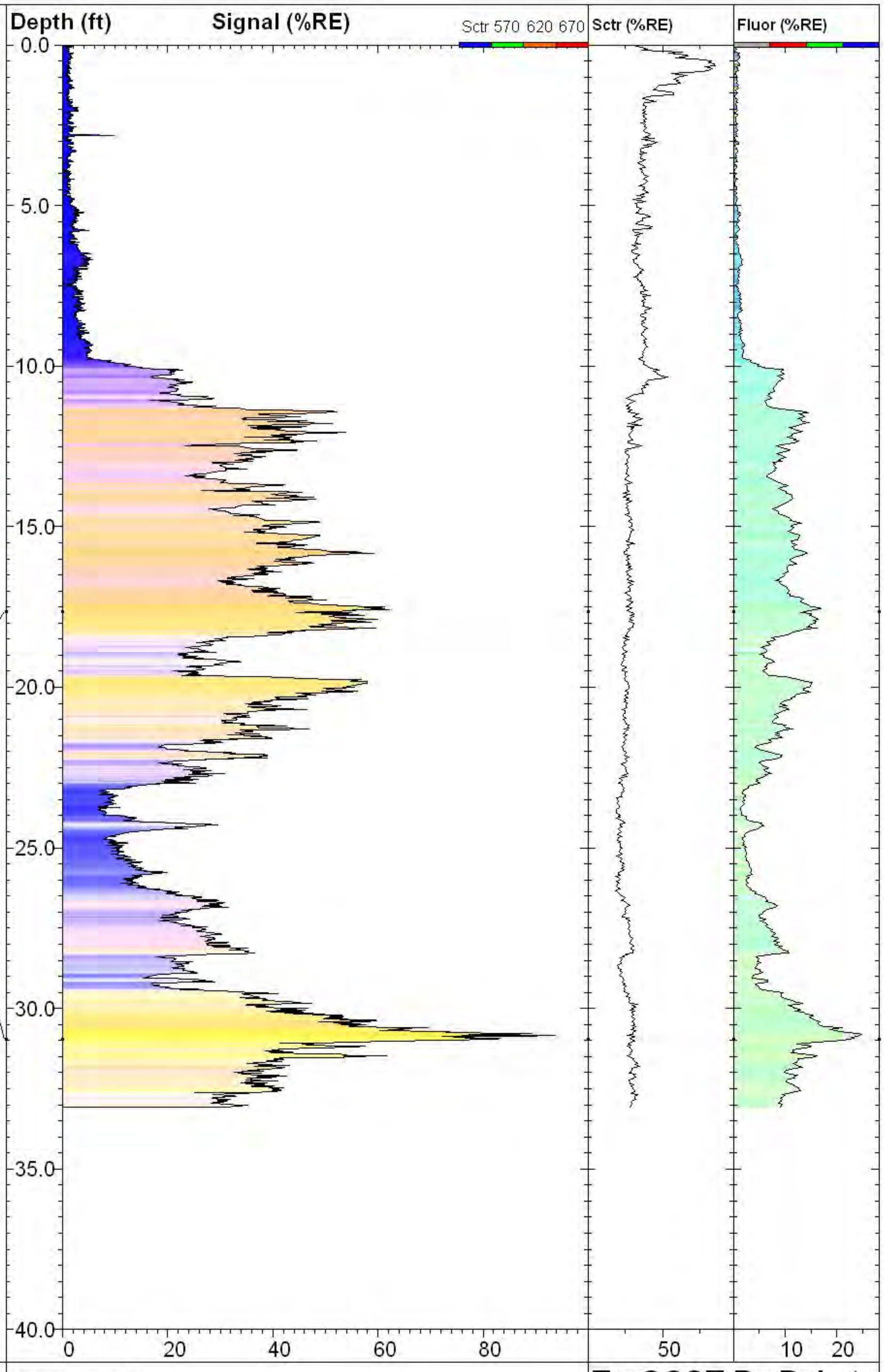
Callouts



17.65 ft
48.1 %RE



30.97 ft
78.5 %RE



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TG-C04

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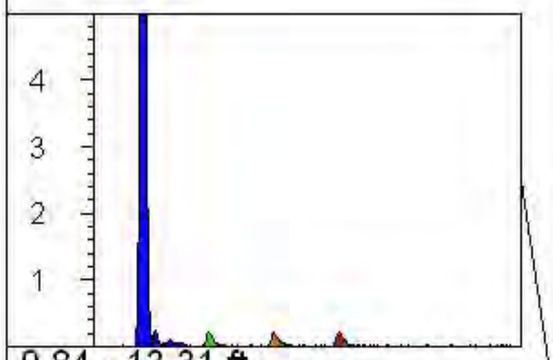
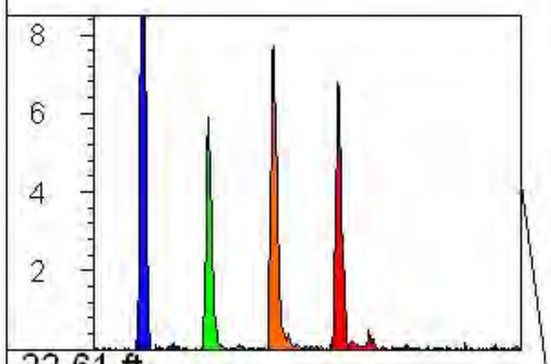
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **33.09 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **94.5 %RE @ 30.86 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-23 13:33 PDT**

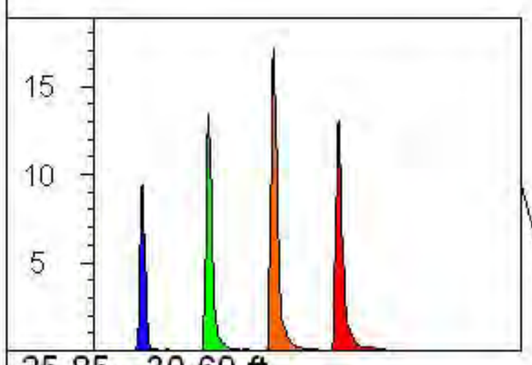
Callouts



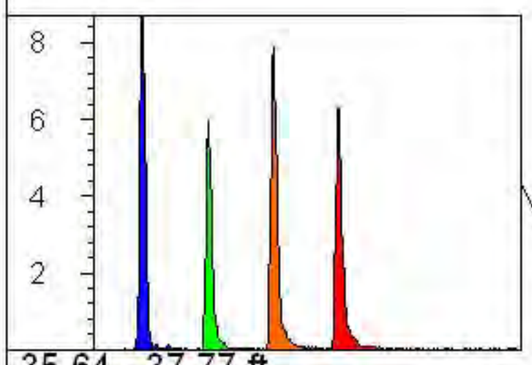
9.84 - 13.31 ft
1.1 %RE (s 0.8)



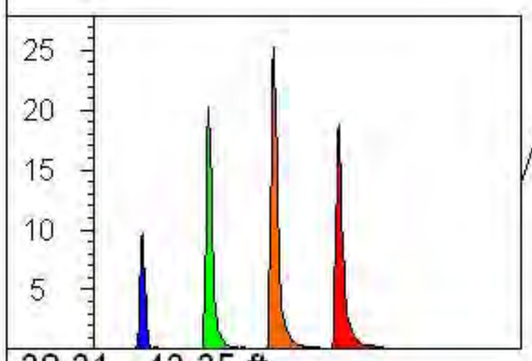
22.61 ft
23.8 %RE



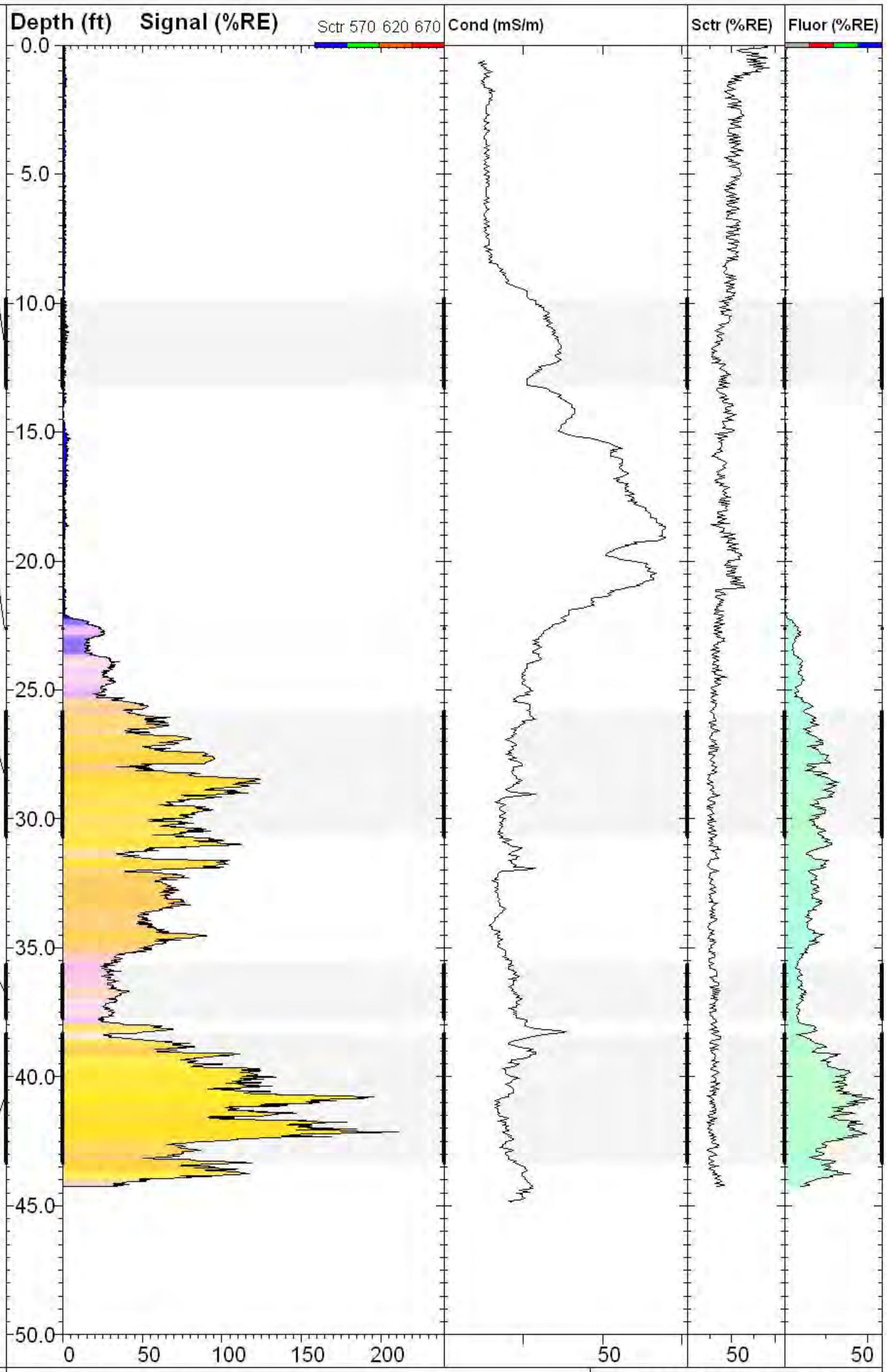
25.85 - 30.69 ft
72.6 %RE (s 19.2)



35.64 - 37.77 ft
30.4 %RE (s 3.9)



38.31 - 43.35 ft
108.1 %RE (s 38.6)



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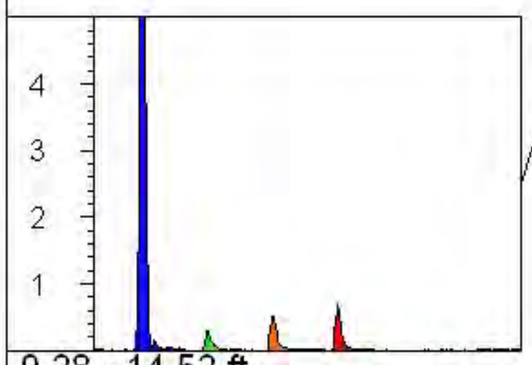
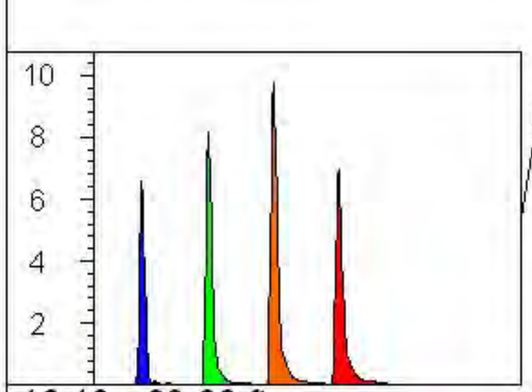
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **44.26 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **213.3 %RE @ 42.14 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-11 09:04 PDT**

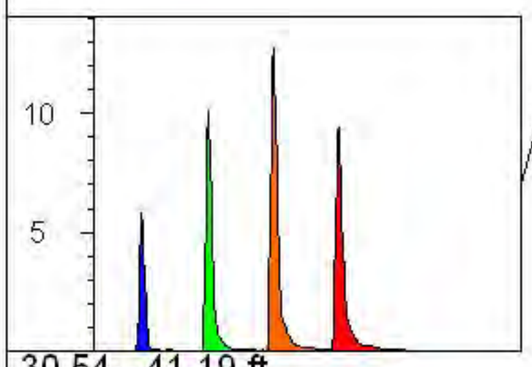
Callouts



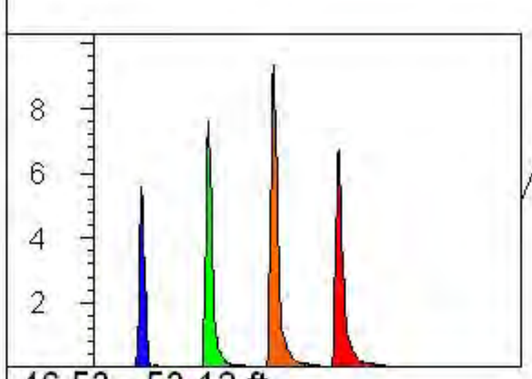
9.28 - 14.52 ft
2.6 %RE (s 2.8)



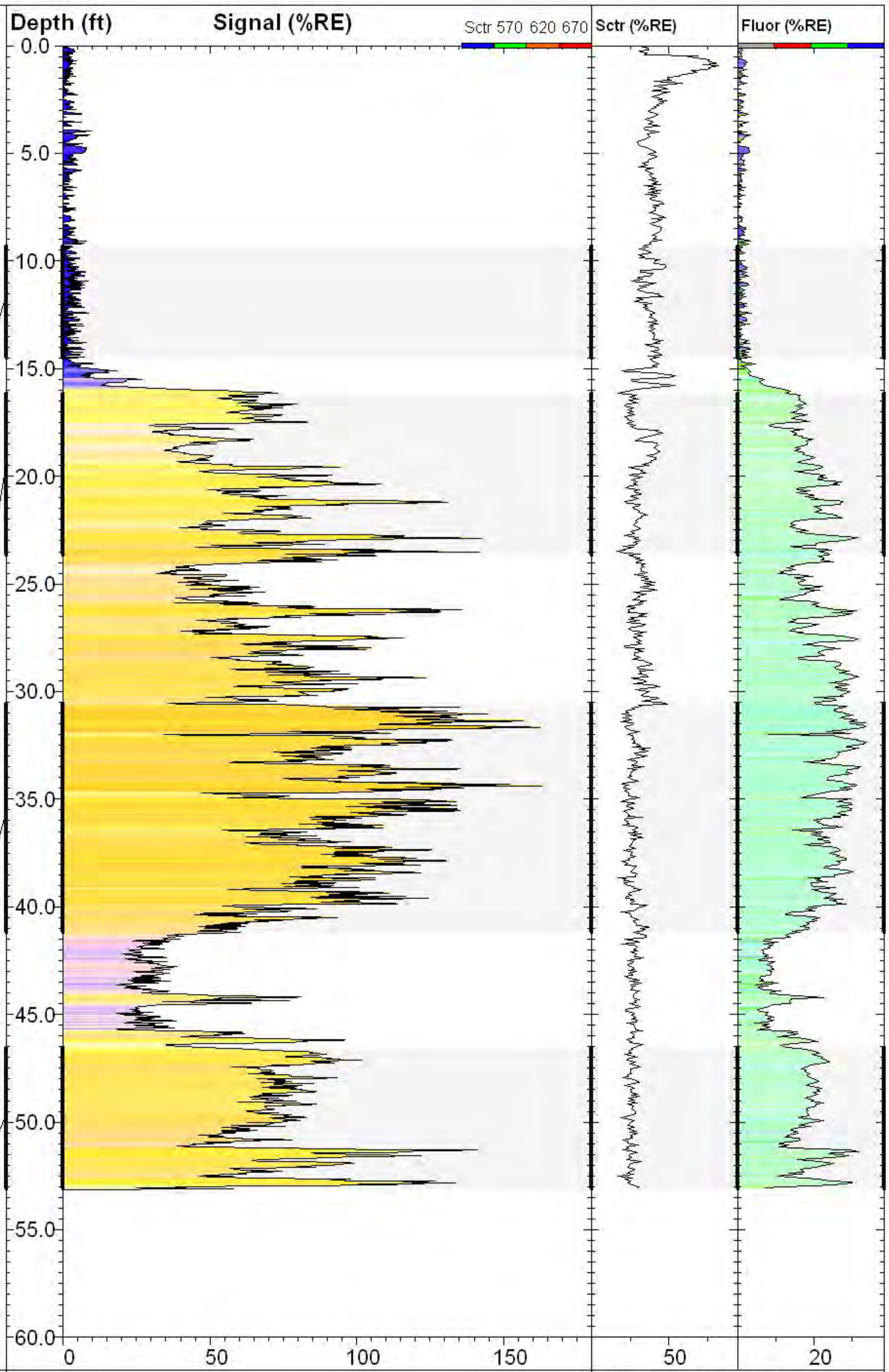
16.13 - 23.66 ft
62.7 %RE (s 22.8)



30.54 - 41.19 ft
92.5 %RE (s 24.4)



46.53 - 53.12 ft
71.9 %RE (s 19.7)



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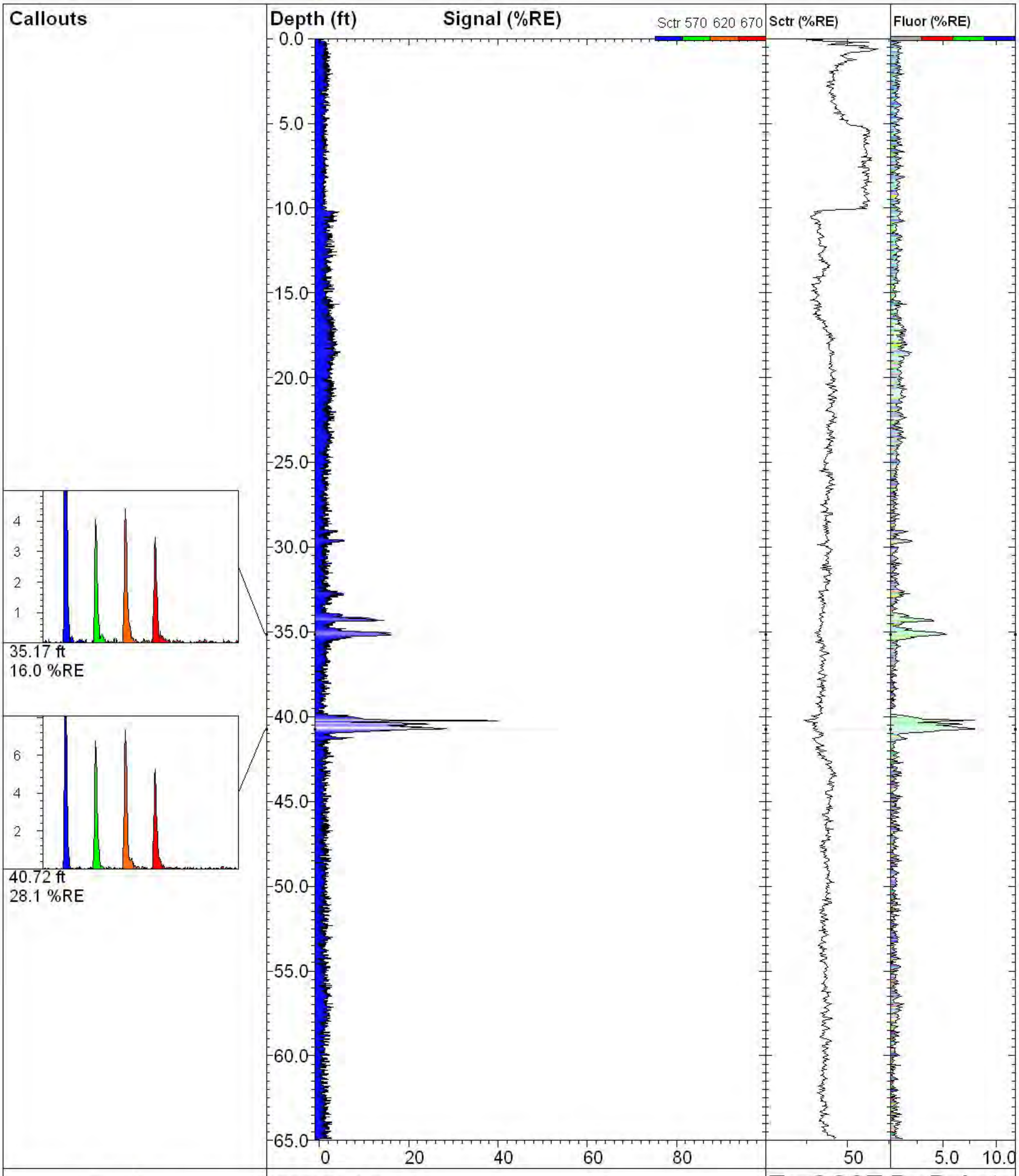
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **53.12 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **167.6 %RE @ 34.38 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-18 15:27 PDT**



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TG-C07

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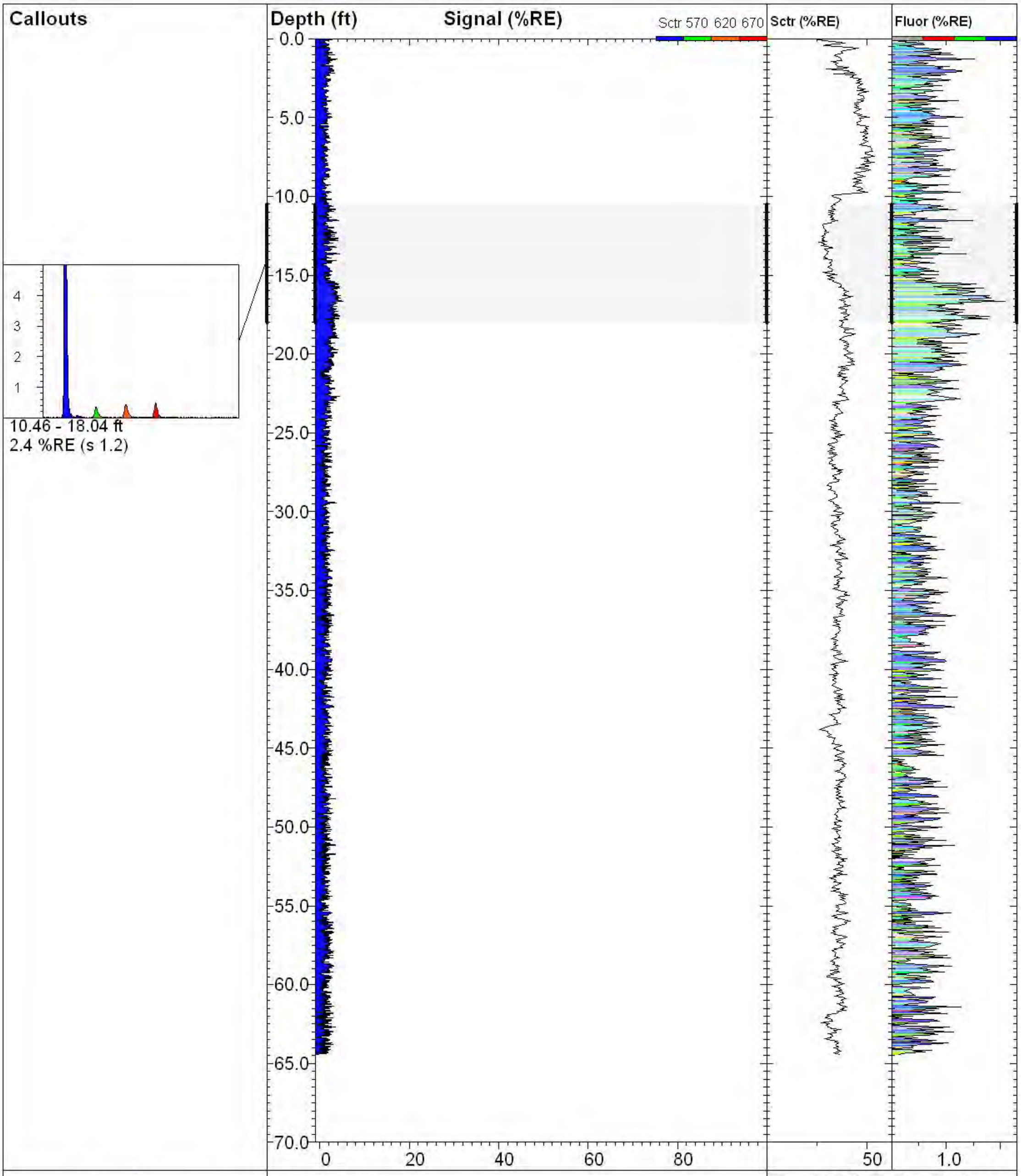
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **64.91 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **41.9 %RE @ 40.24 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-25 08:10 PDT**



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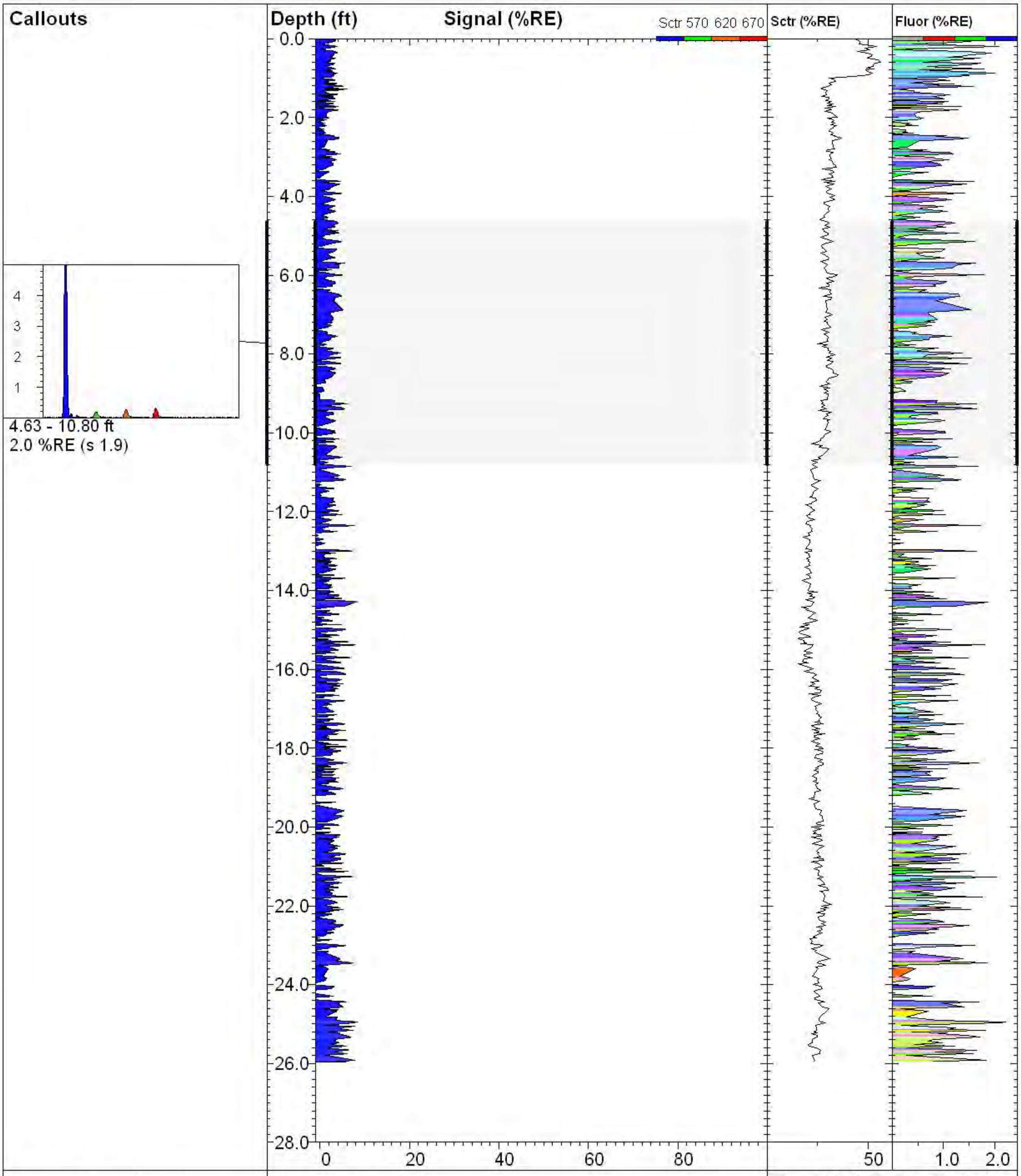
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **64.41 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.4 %RE @ 16.66 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-18 09:34 PDT**



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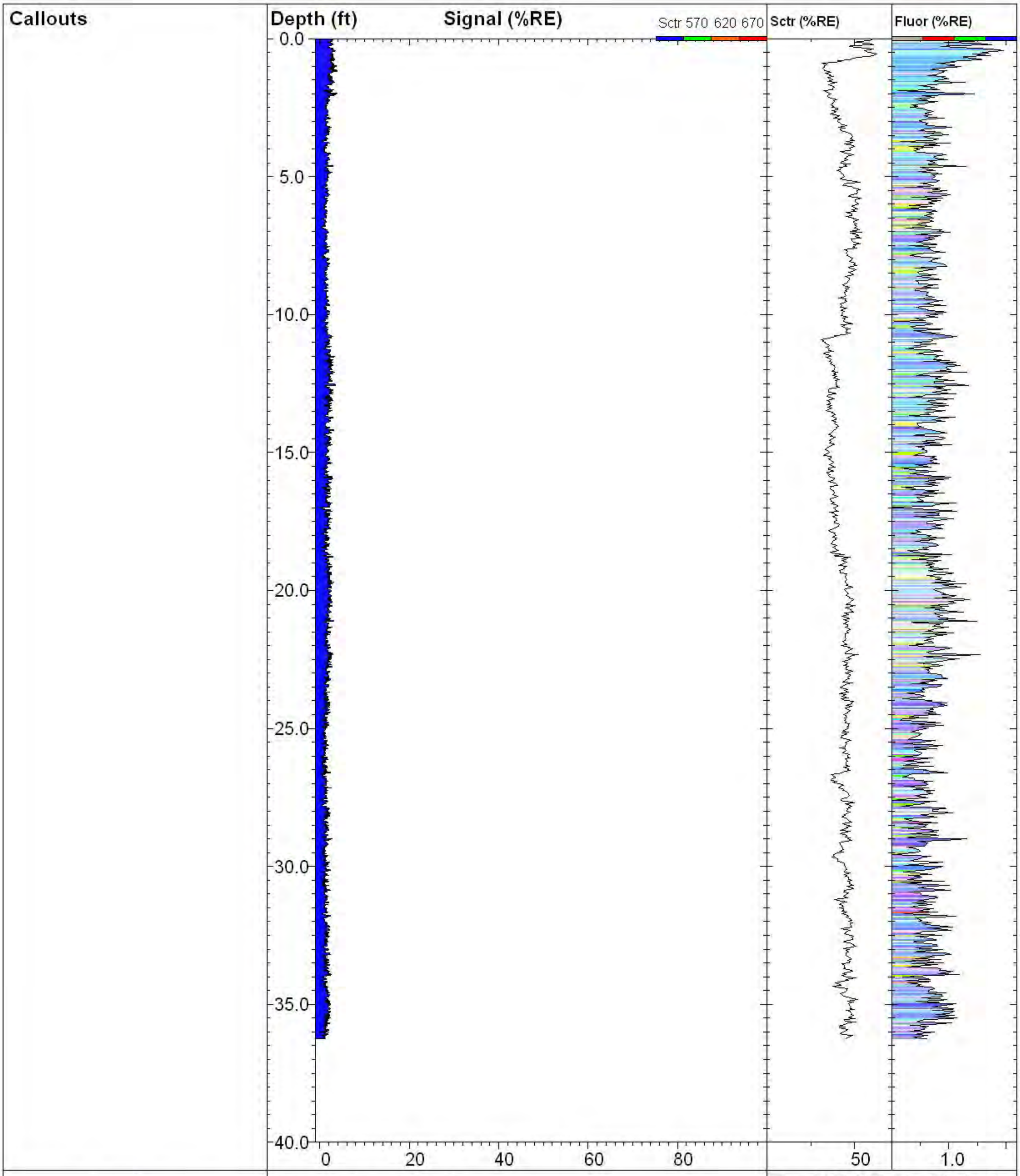
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.96 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **8.3 %RE @ 24.94 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 09:32 PDT**



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TG-CR00-W25

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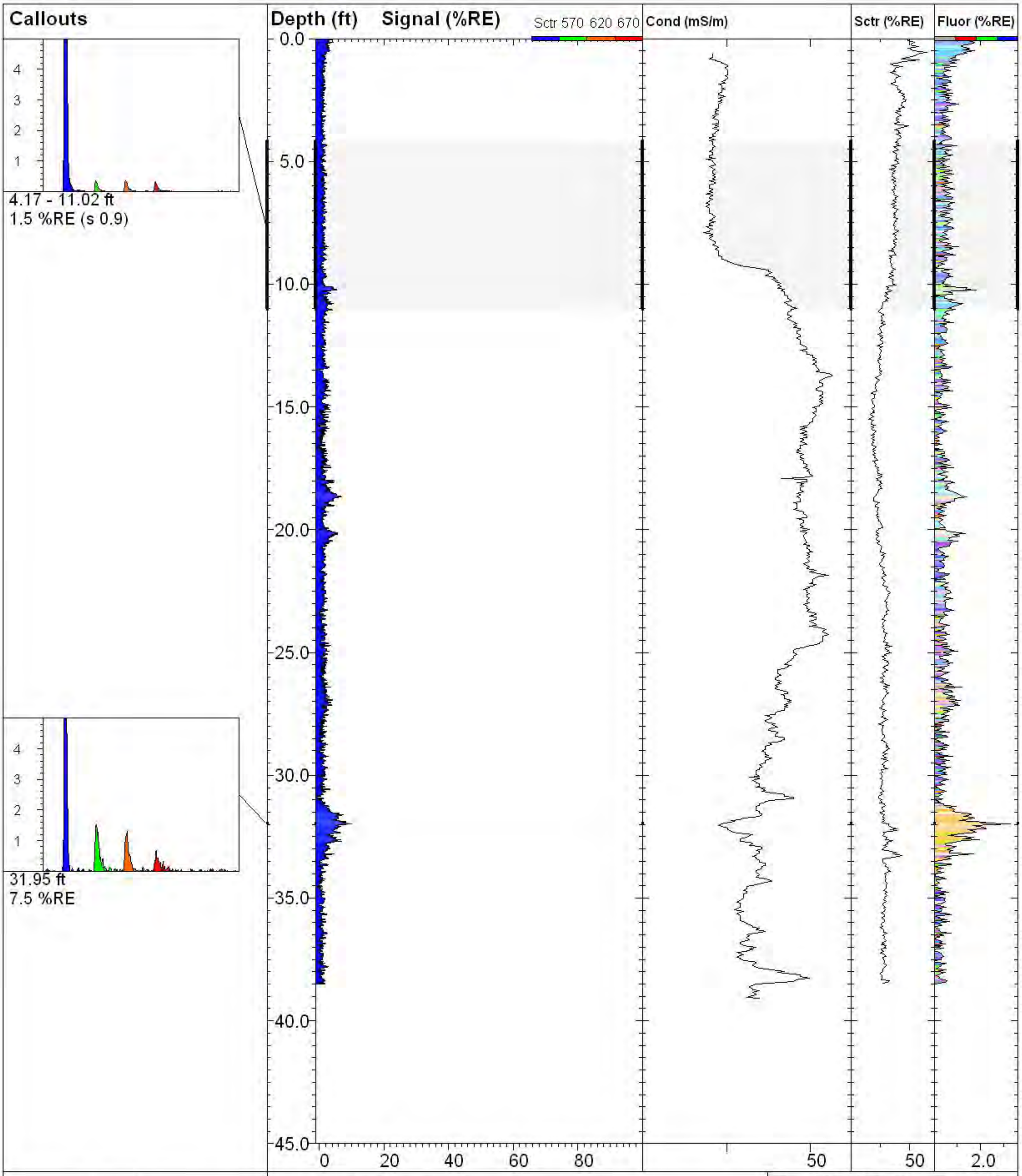
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **36.24 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.9 %RE @ 1.99 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 15:34 PDT**



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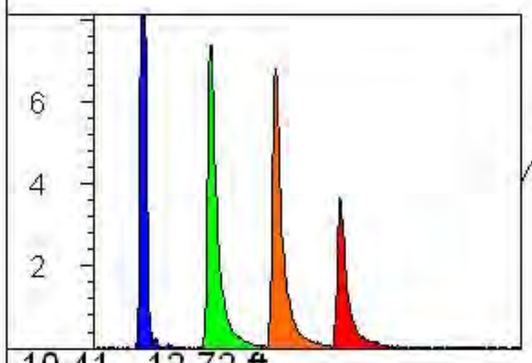
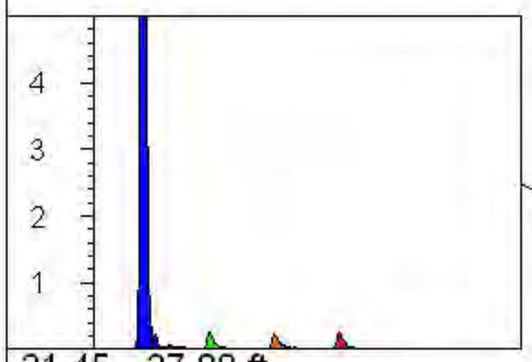
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **38.49 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **10.2 %RE @ 31.98 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-12 10:23 PDT**

Callouts

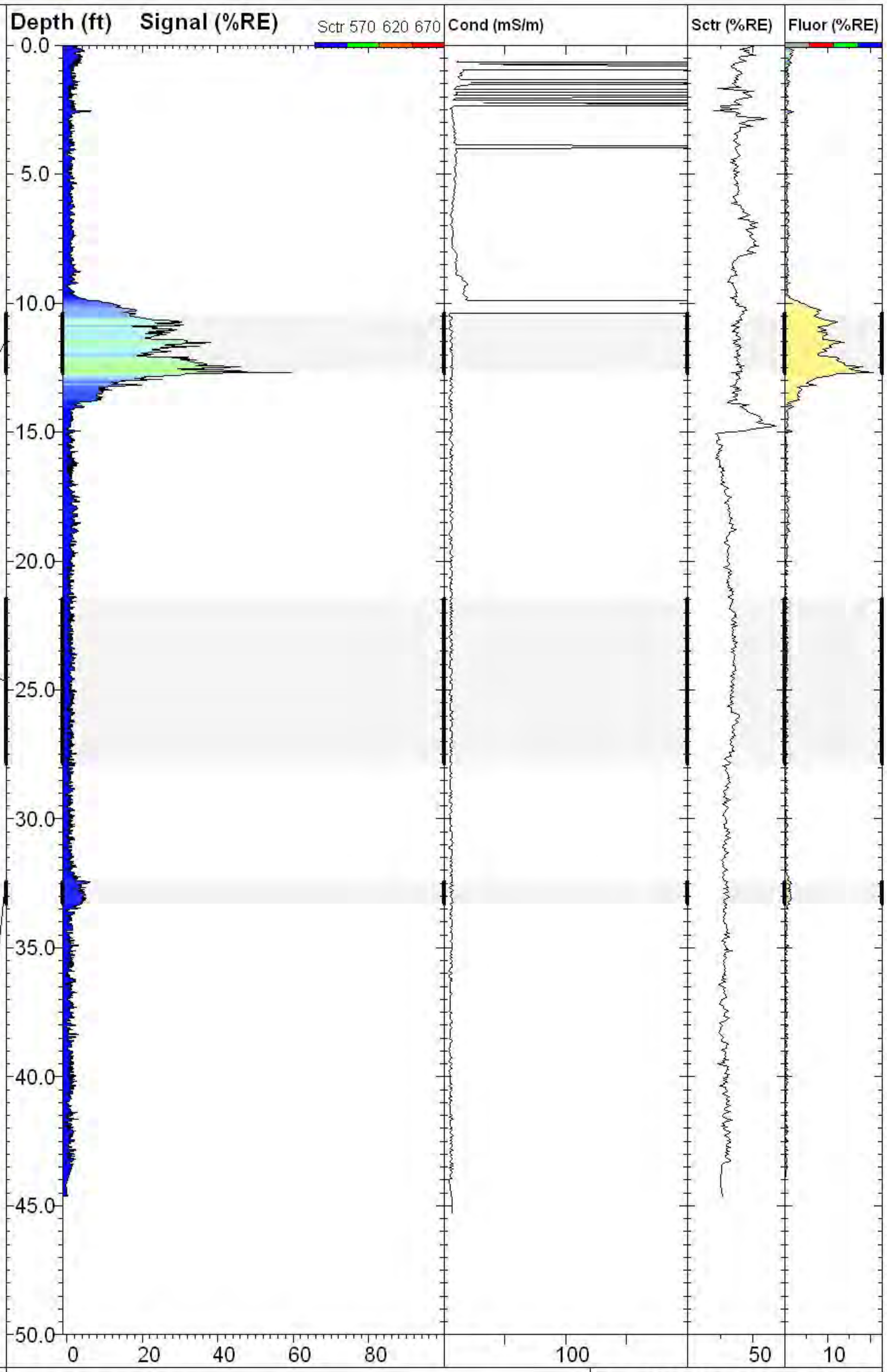


10.41 - 12.72 ft
28.0 %RE (s 7.4)



21.45 - 27.88 ft
1.1 %RE (s 0.6)

32.42 - 33.29 ft
4.2 %RE (s 0.9)



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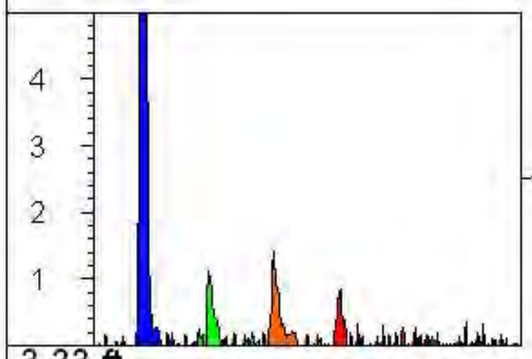
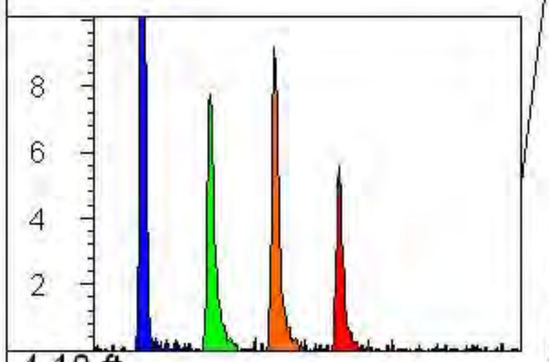
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **44.63 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **61.1 %RE @ 12.69 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-12 11:27 PDT**

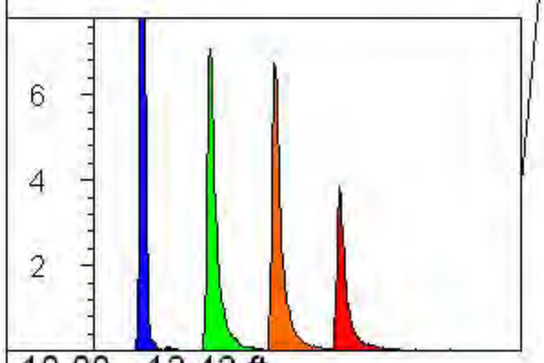
Callouts



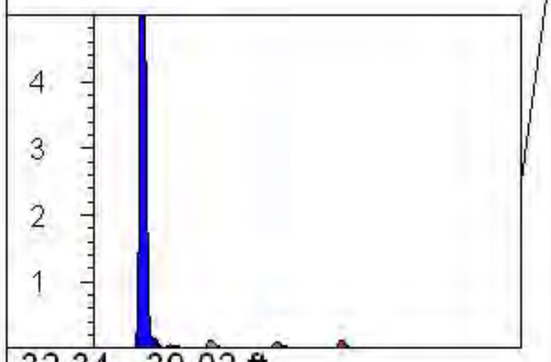
3.33 ft
3.5 %RE



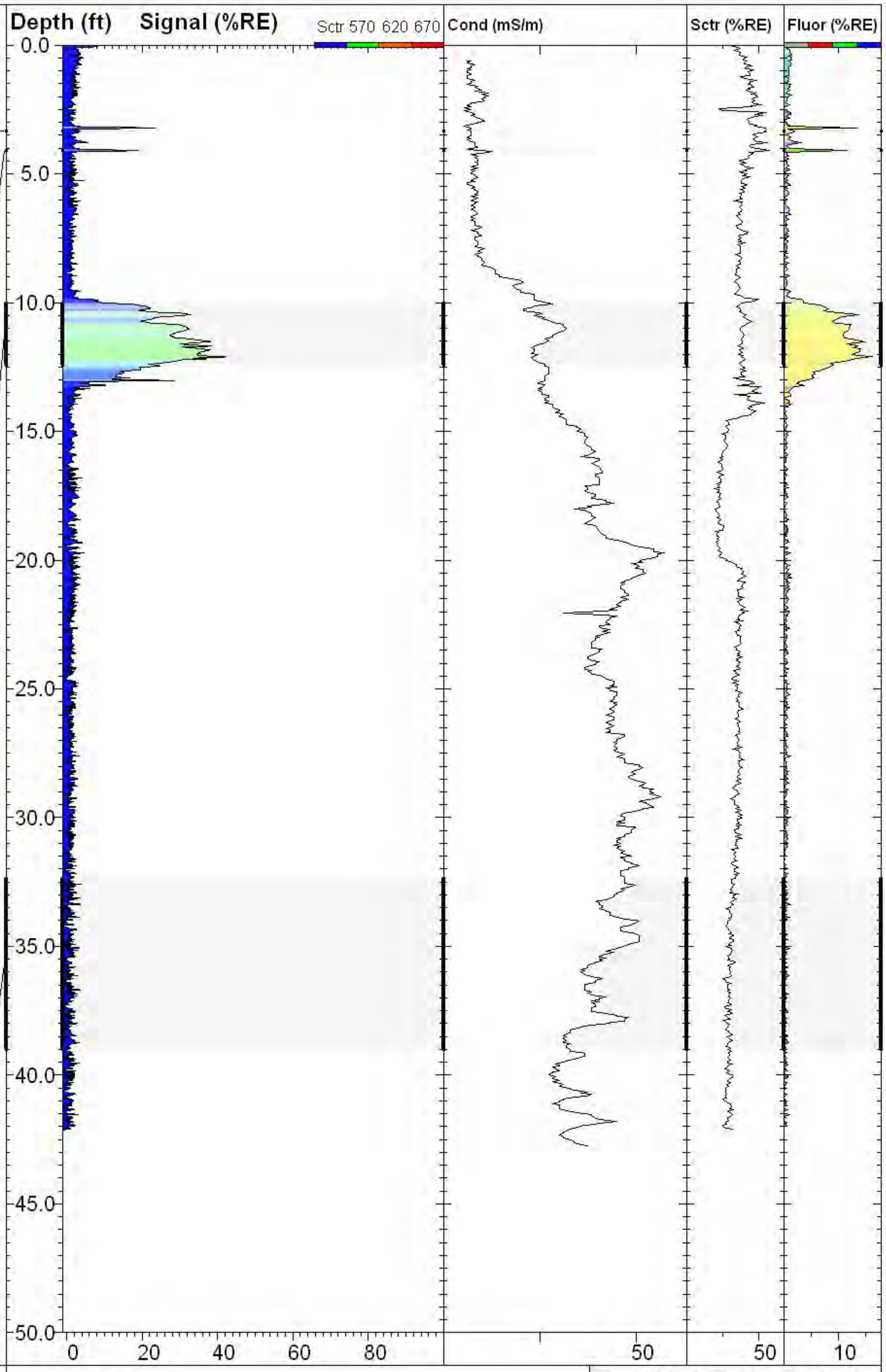
4.10 ft
20.1 %RE



10.00 - 12.42 ft
29.2 %RE (s 6.8)



32.34 - 39.02 ft
0.8 %RE (s 1.2)



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TG-CR-03

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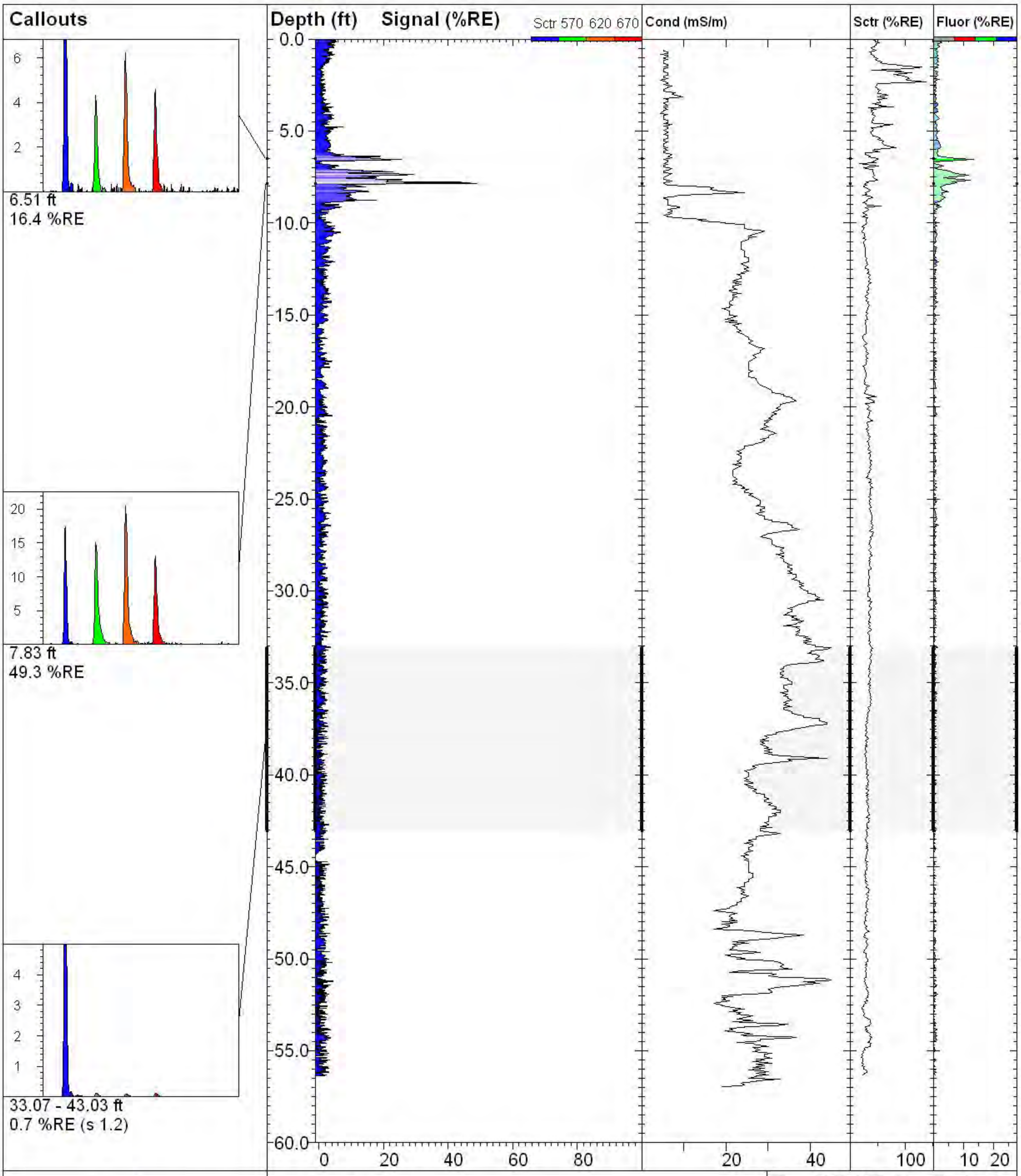
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **42.12 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **42.5 %RE @ 12.11 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-12 13:19 PDT**



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TG-CR-04

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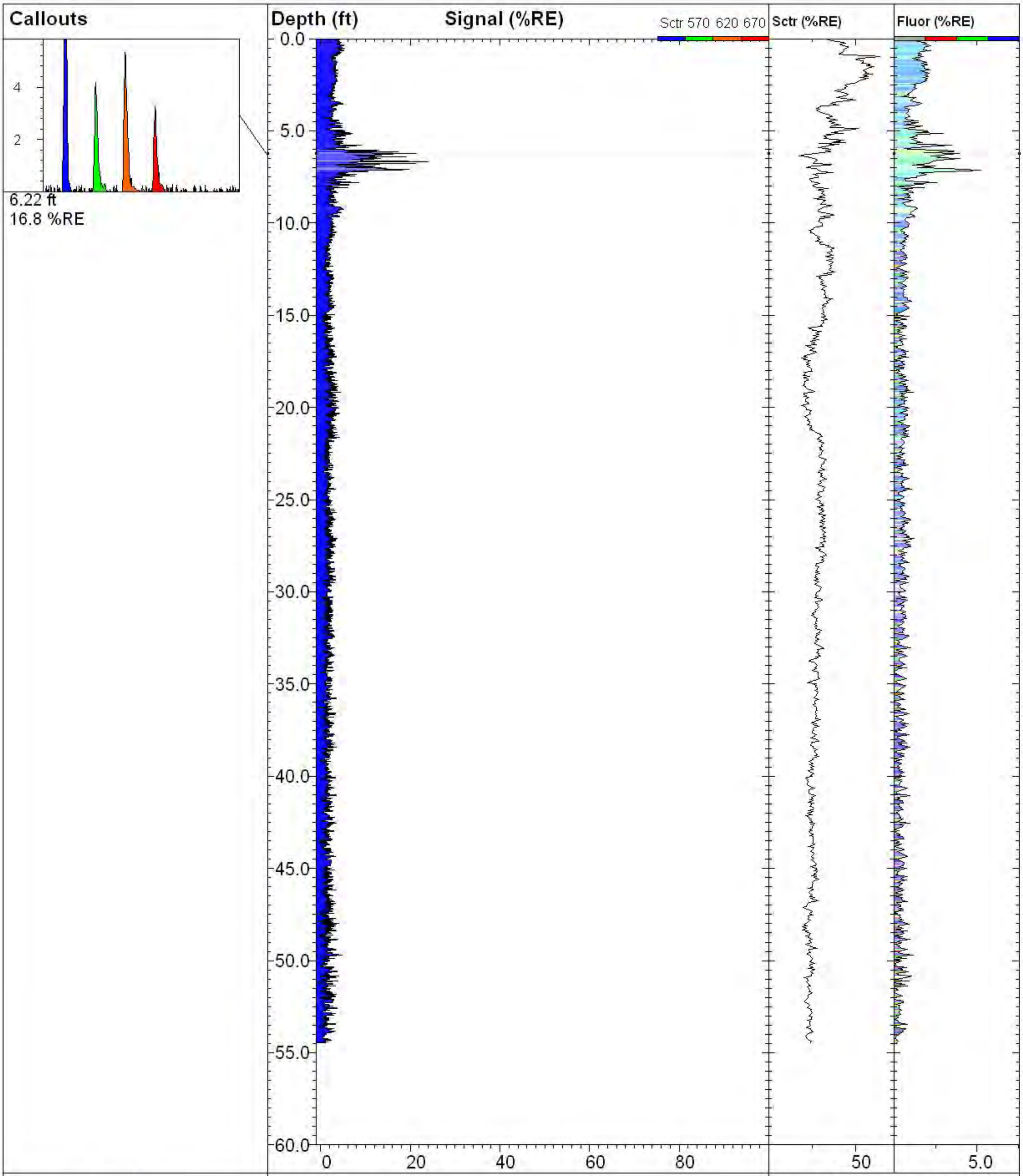
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **56.36 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **49.3 %RE @ 7.83 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-12 14:25 PDT**



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TG-CR-04_5

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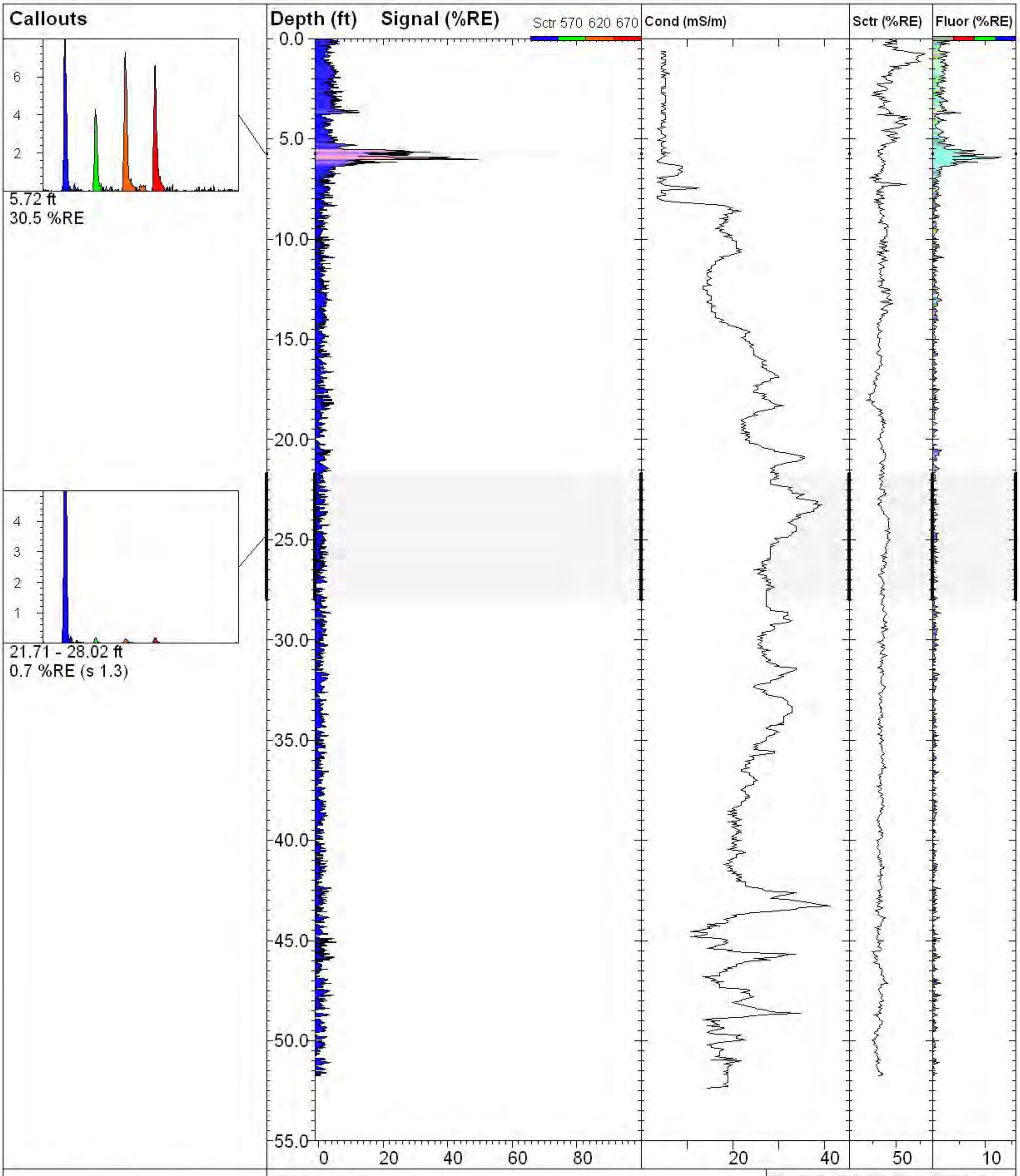
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **54.46 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **24.6 %RE @ 6.66 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-29 07:54 PDT**



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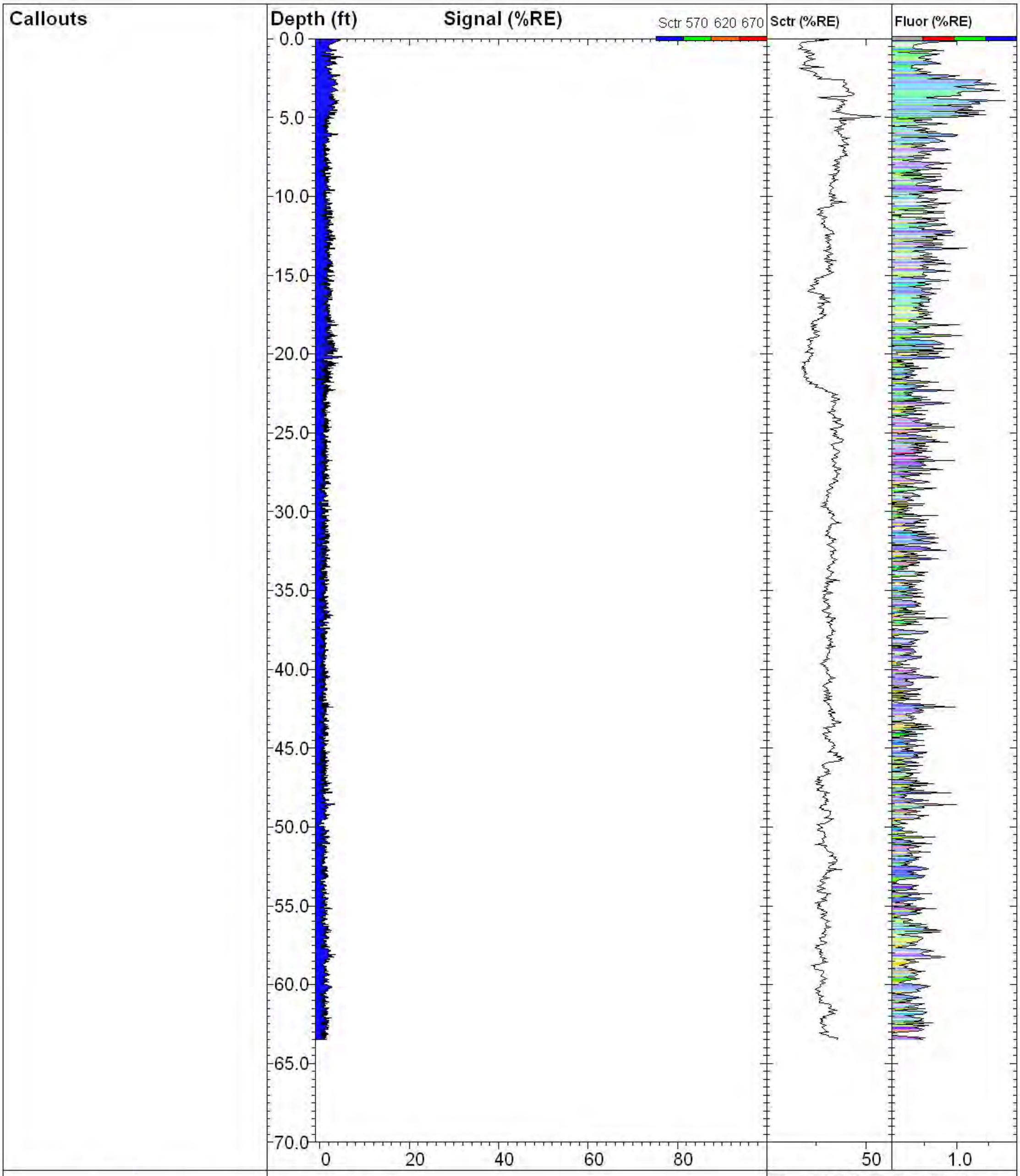
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **51.76 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **50.1 %RE @ 6.02 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-12 15:57 PDT**



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TG-CR-5_5

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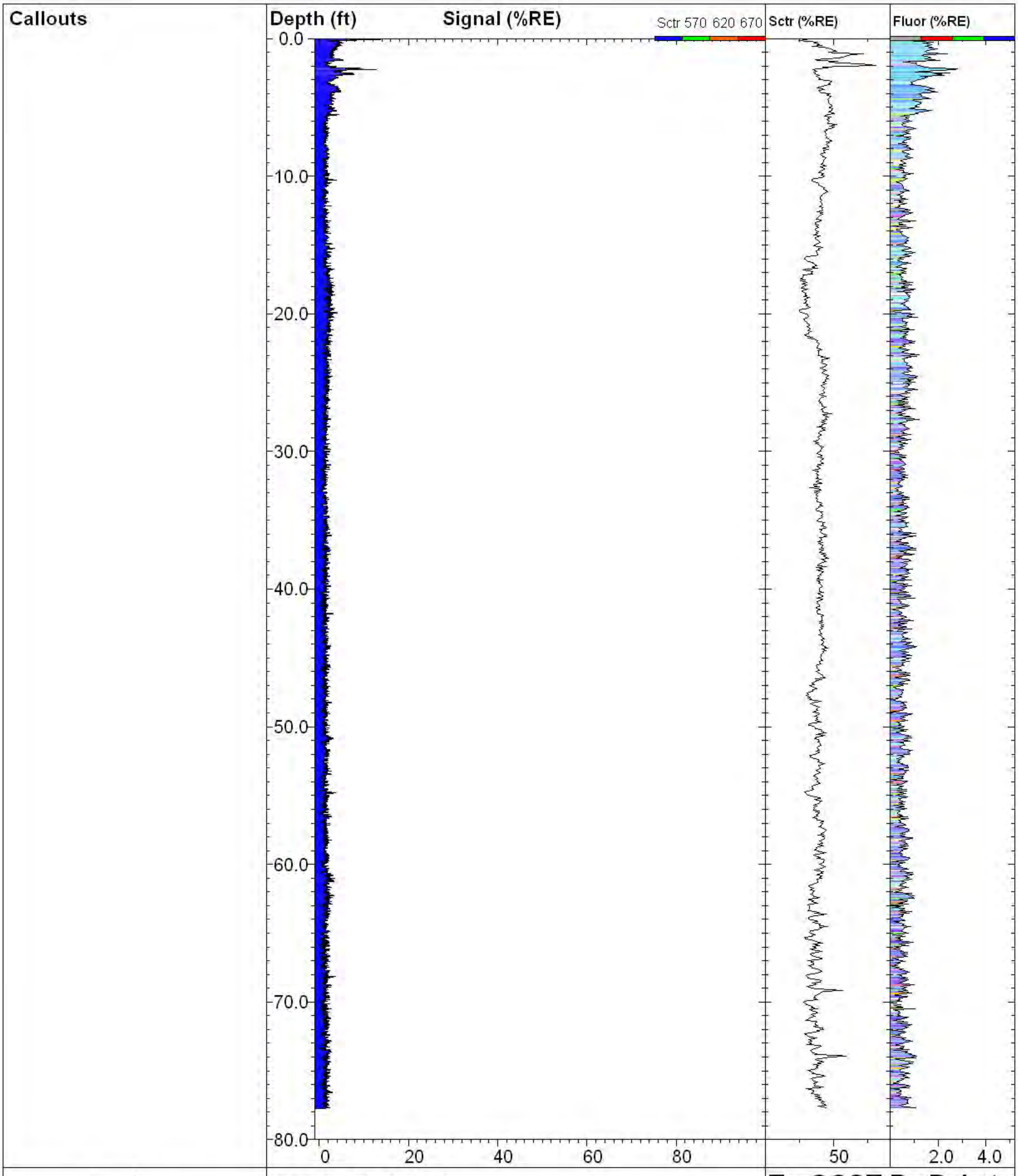
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **63.50 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.3 %RE @ 1.17 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-25 12:00 PDT**



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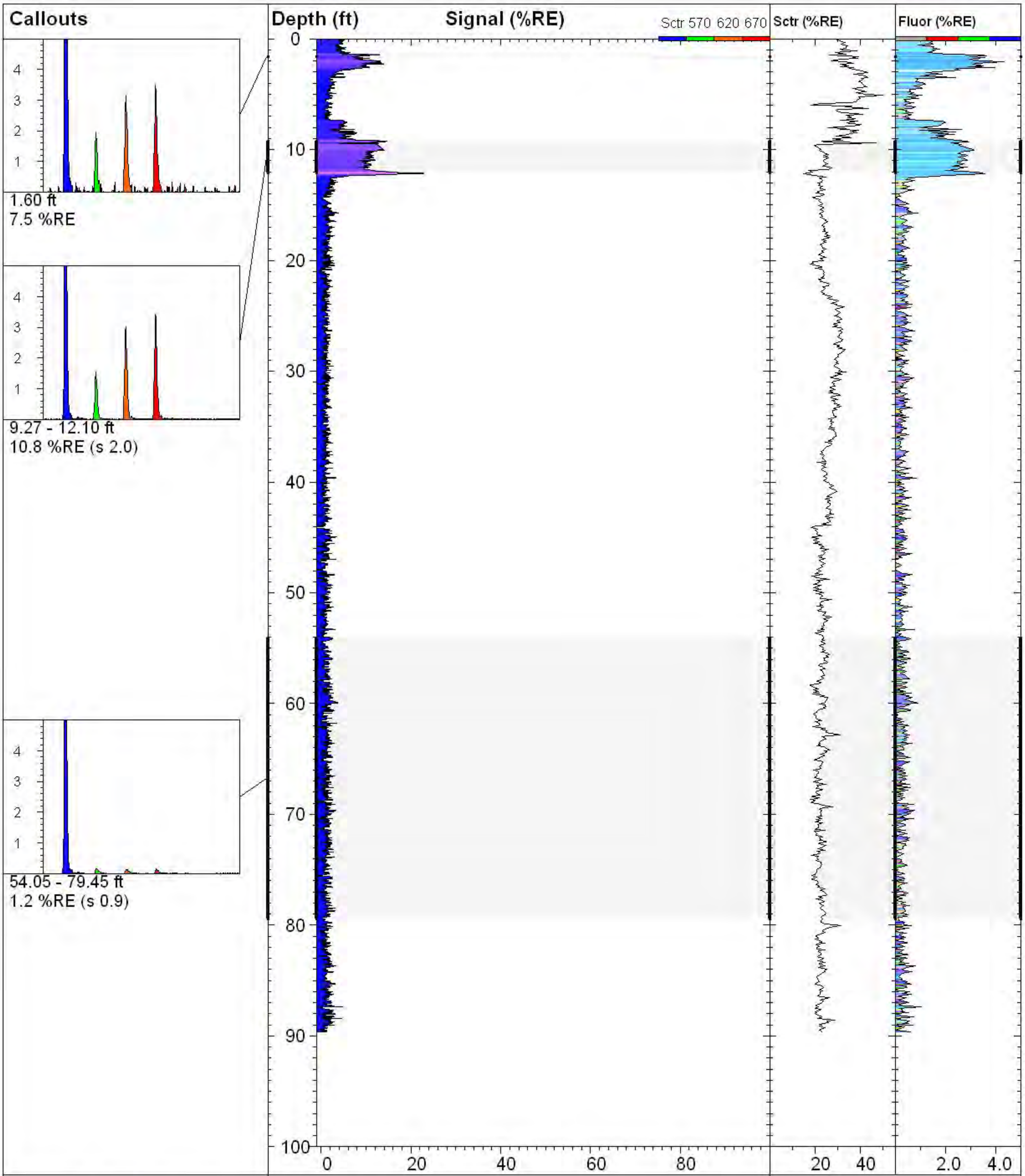
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **77.74 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **14.1 %RE @ 0.10 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-29 09:31 PDT**



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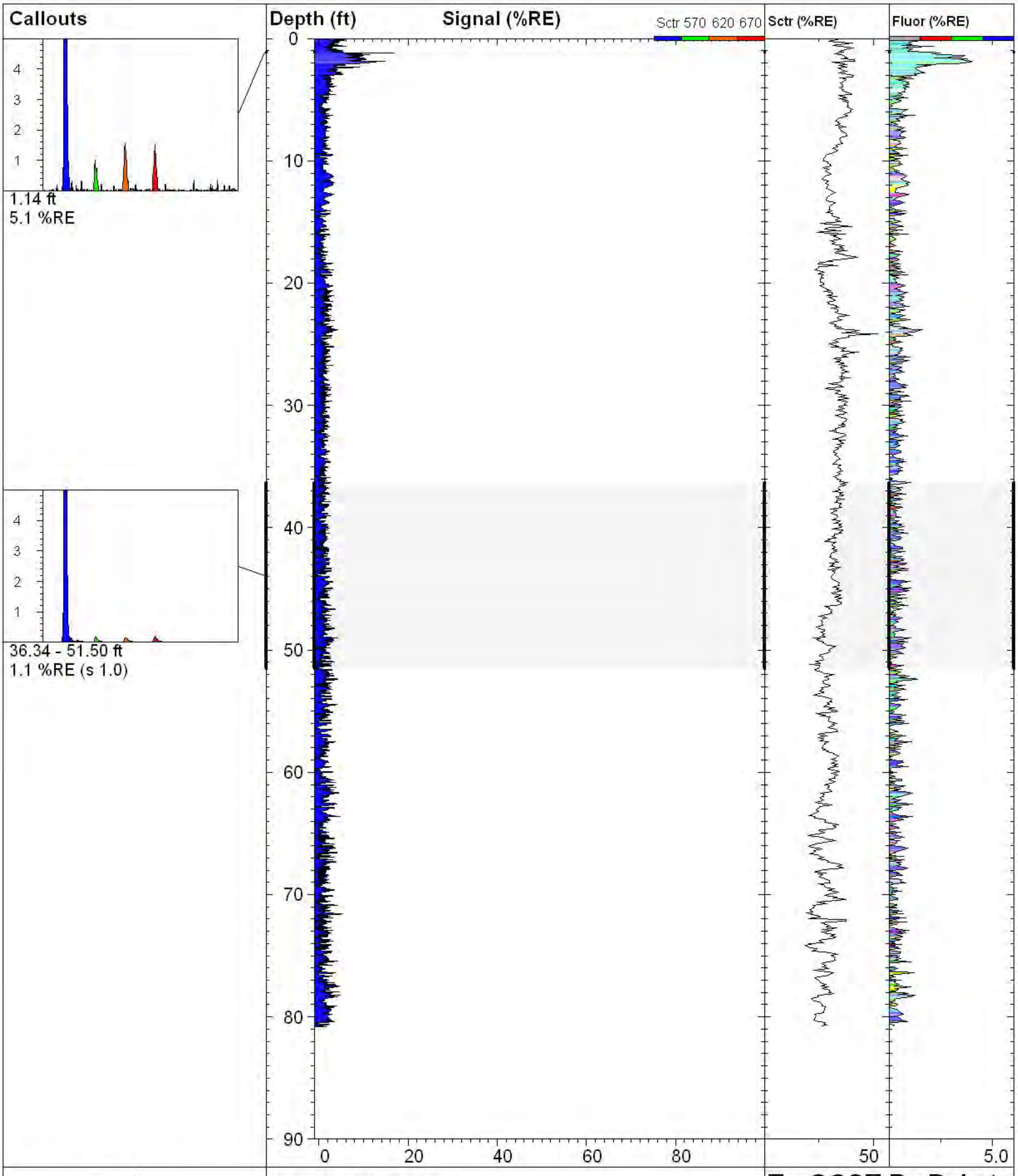
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **89.66 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **23.7 %RE @ 12.15 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-13 09:17 PDT**



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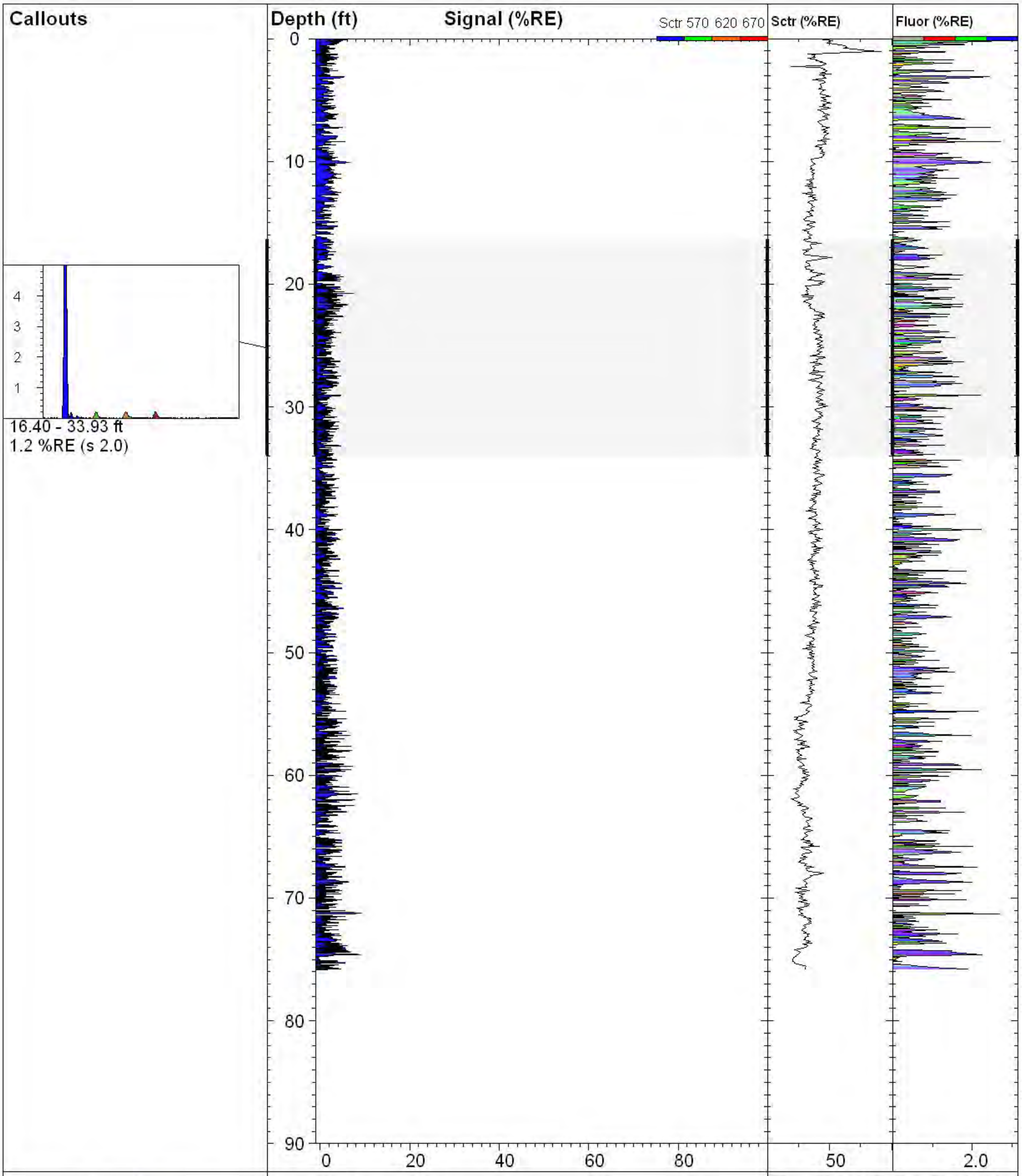
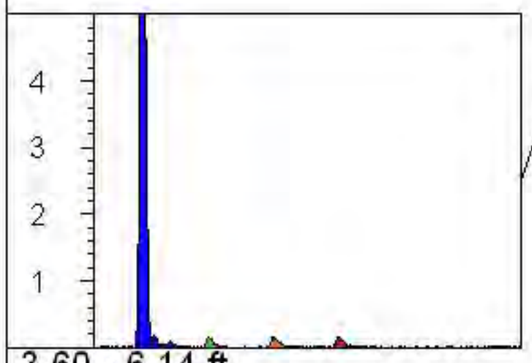
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **80.81 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **17.4 %RE @ 1.19 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-13 10:58 PDT**

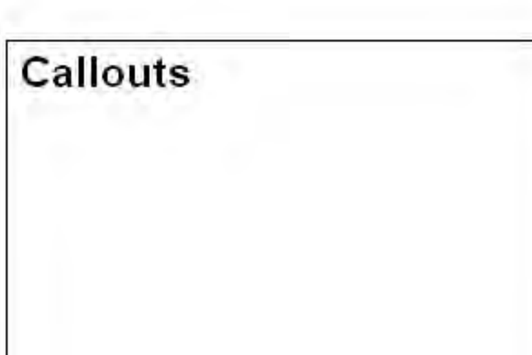


DAKOTA TECHNOLOGIES Fargo, ND 701.237.4908 www.DakotaTechnologies.com	**TG-CR-G08**		**TarGOST By Dakota** www.DakotaTechnologies.com
	Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **75.82 ft**
	Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.4 %RE @ 71.26 ft**
	Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-13 13:24 PDT**

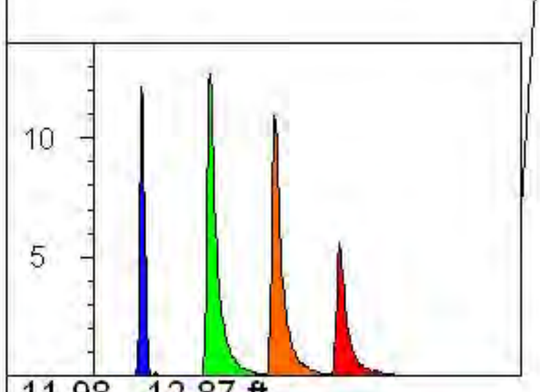
Callouts



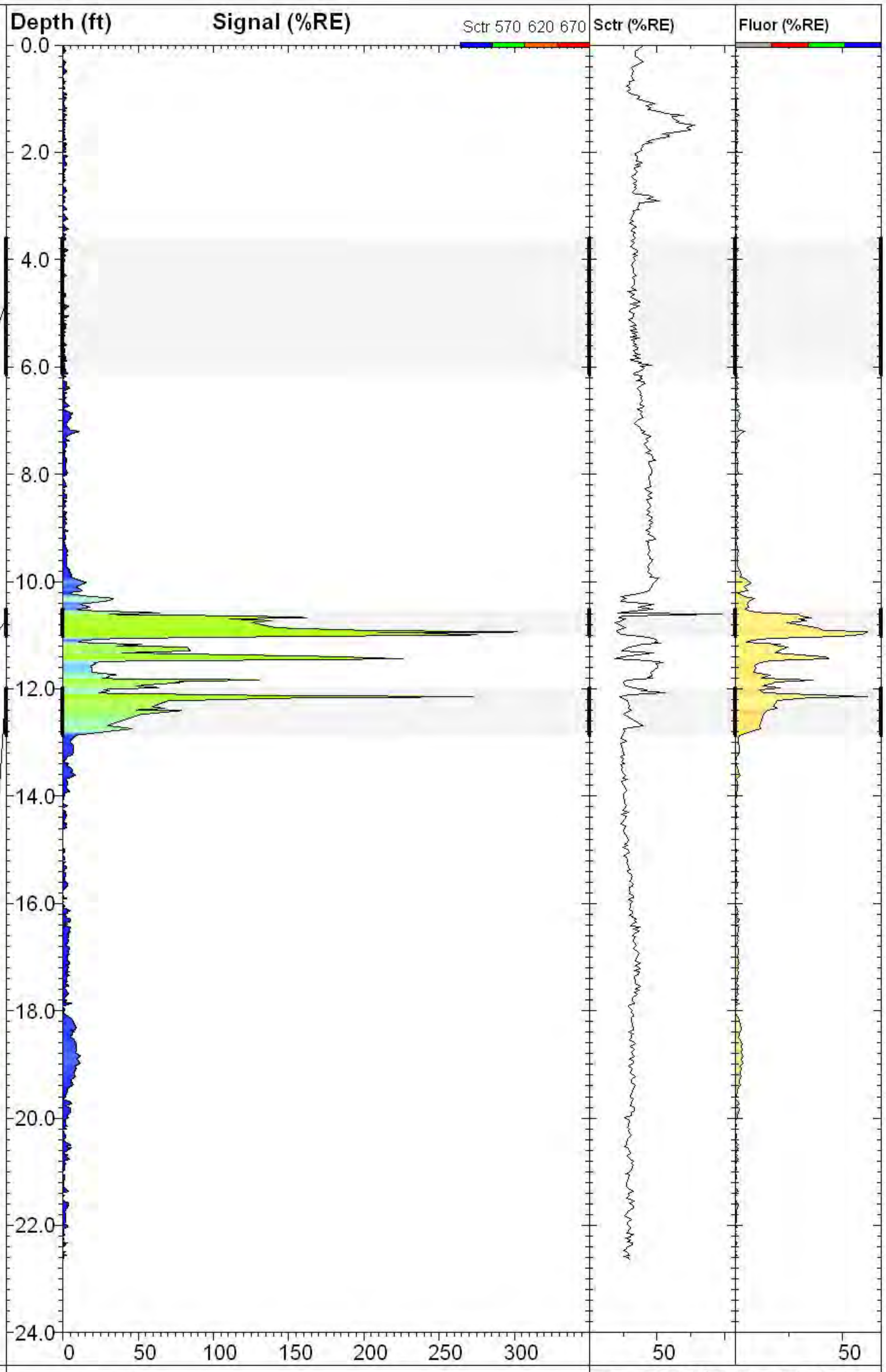
3.60 - 6.14 ft
0.6 %RE (s 1.4)



10.52 - 11.03 ft
118.5 %RE (s 89.7)



11.98 - 12.87 ft
62.0 %RE (s 62.1)



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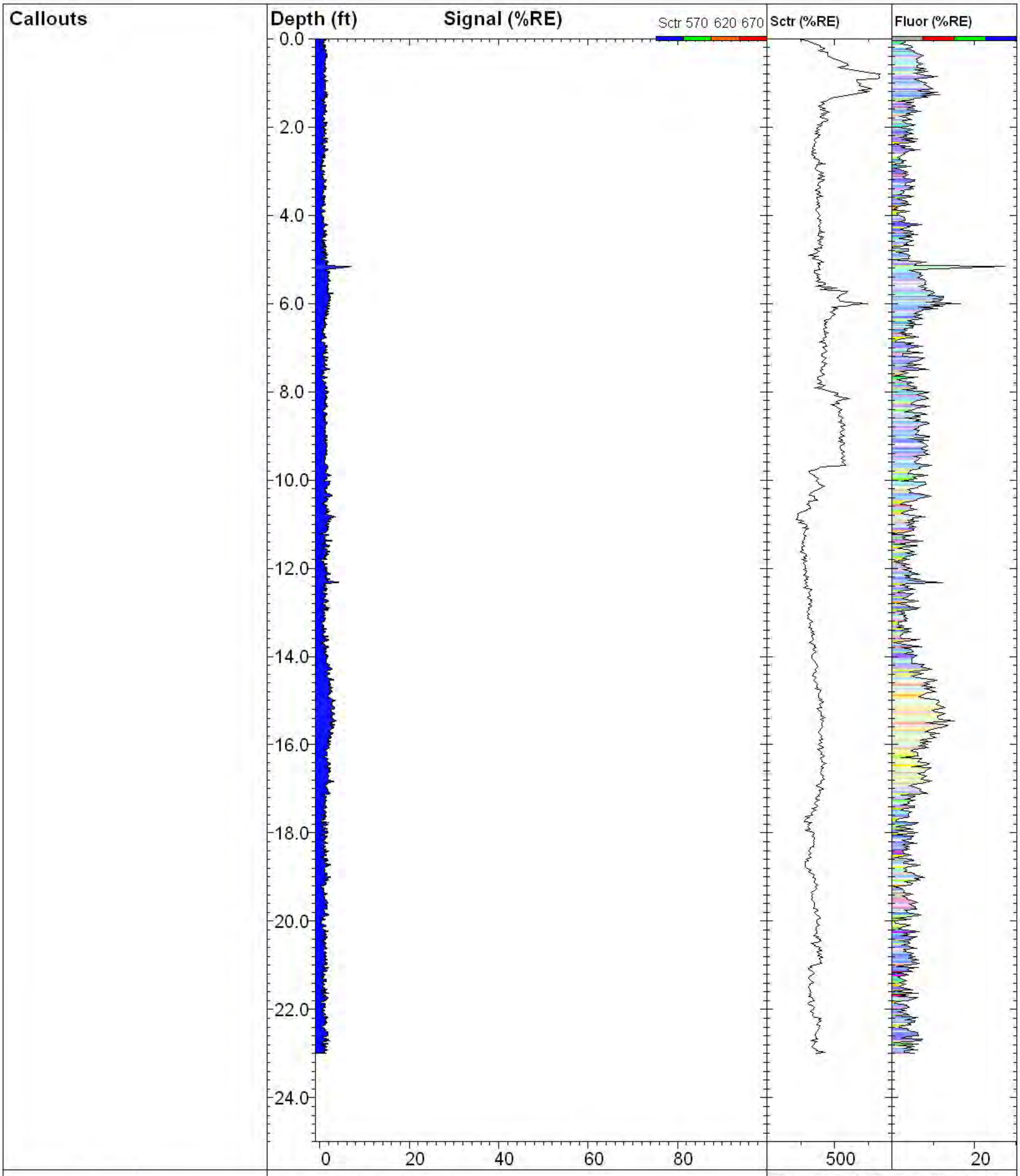
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.63 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **309.4 %RE @ 10.94 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 12:15 PDT**



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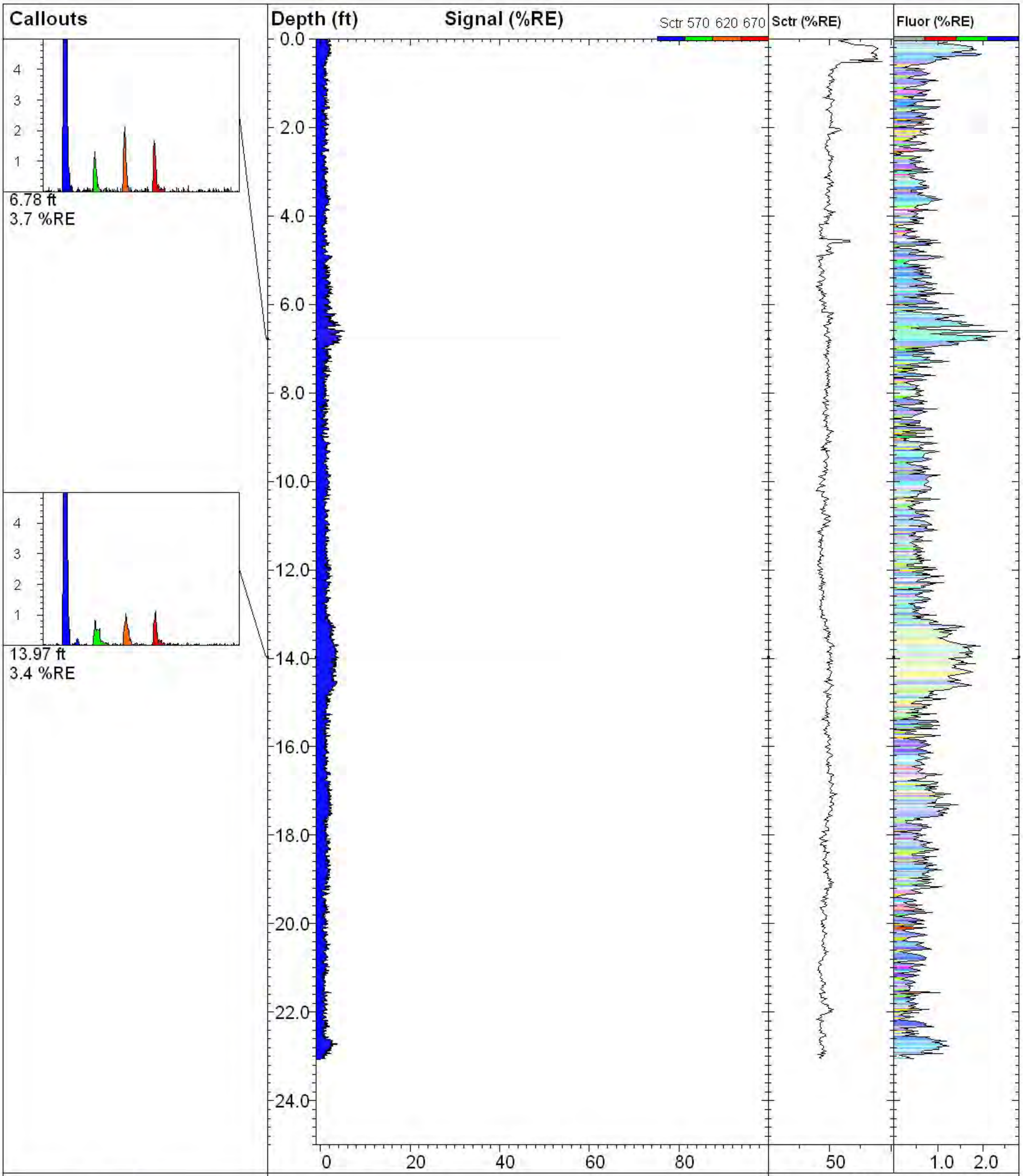
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.99 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.2 %RE @ 5.16 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-25 14:46 PDT**



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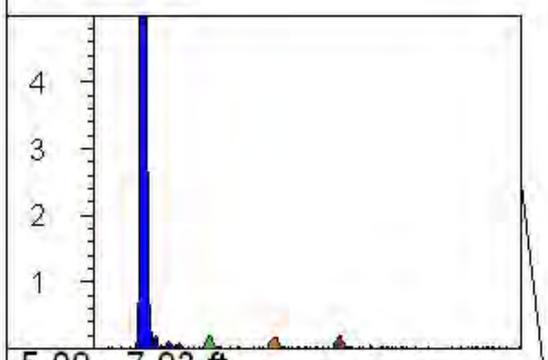
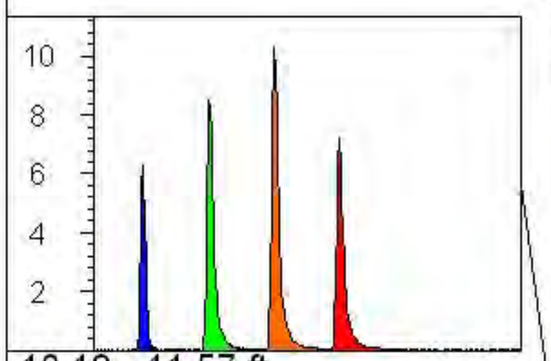
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.06 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.4 %RE @ 6.61 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 13:34 PDT**

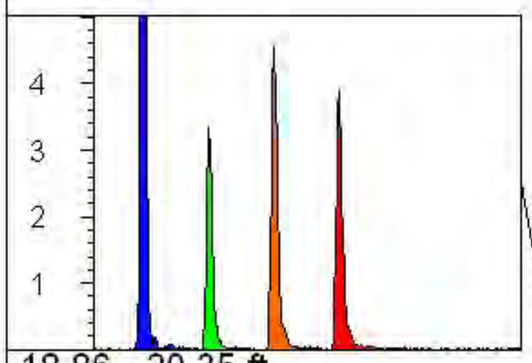
Callouts



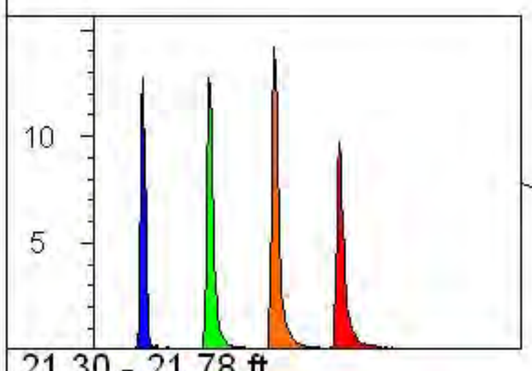
5.09 - 7.93 ft
0.8 %RE (s 0.9)



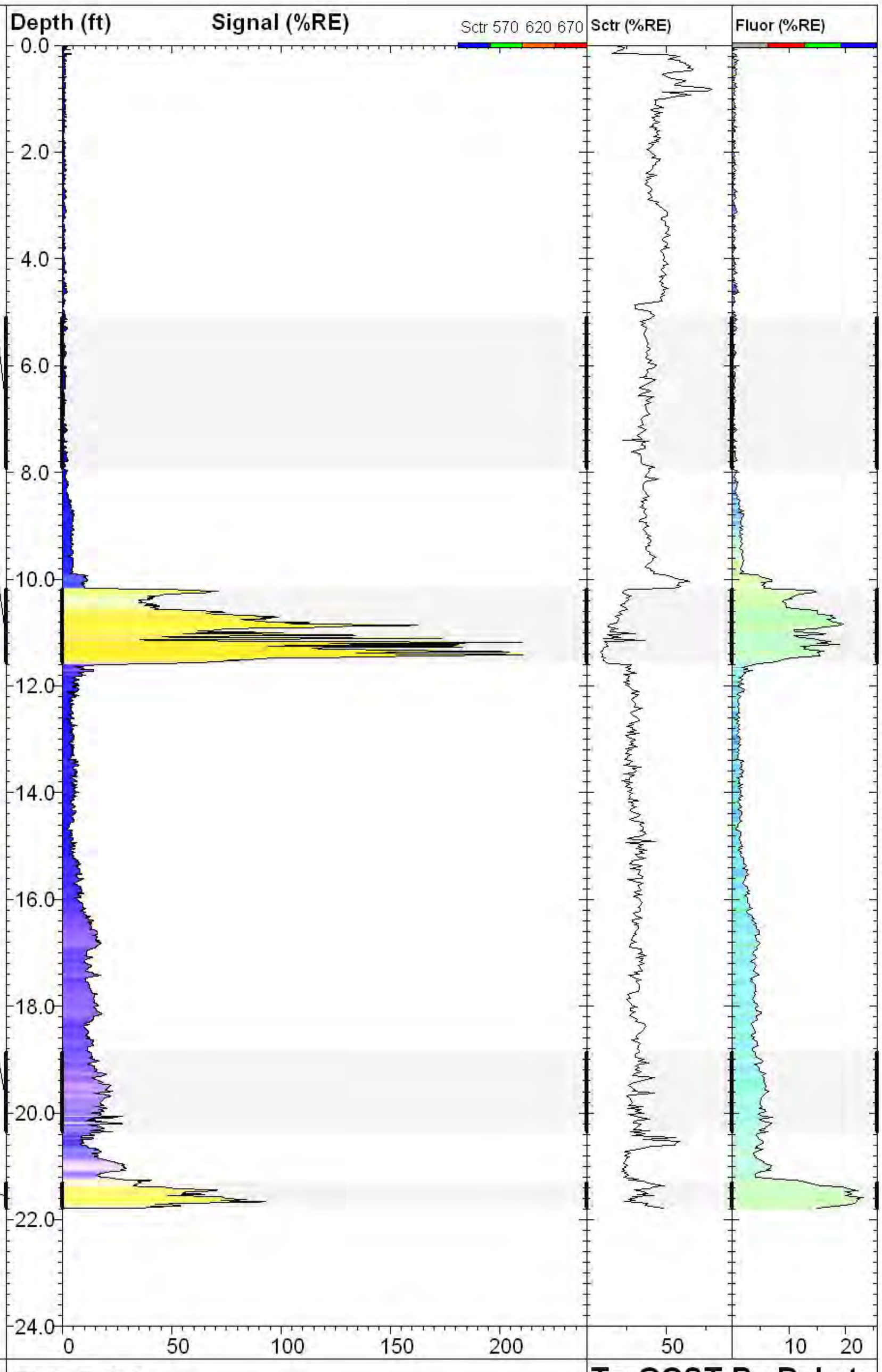
10.18 - 11.57 ft
75.0 %RE (s 46.8)



18.86 - 20.35 ft
16.7 %RE (s 3.9)



21.30 - 21.78 ft
52.3 %RE (s 17.7)



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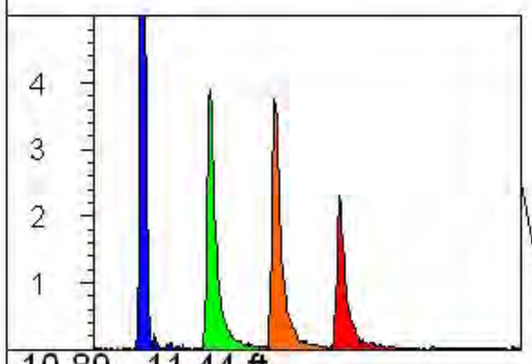
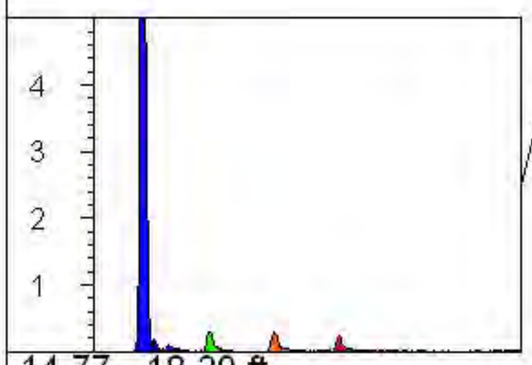
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.78 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **213.5 %RE @ 11.41 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-15 08:22 PDT**

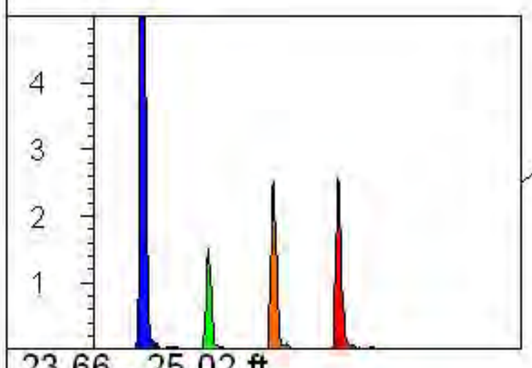
Callouts



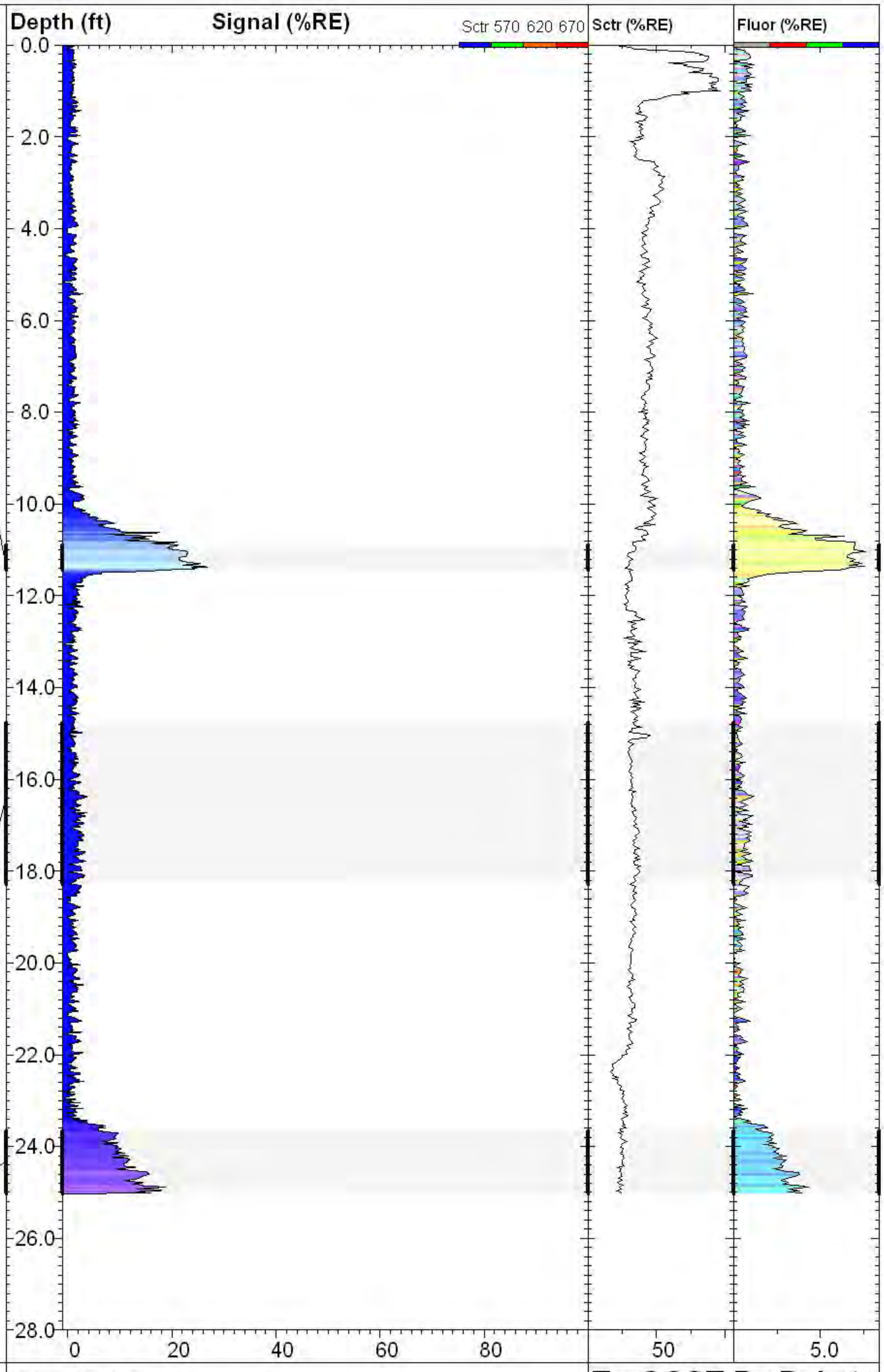
10.89 - 11.44 ft
22.4 %RE (s 2.3)



14.77 - 18.29 ft
1.6 %RE (s 0.9)



23.66 - 25.02 ft
11.3 %RE (s 3.1)



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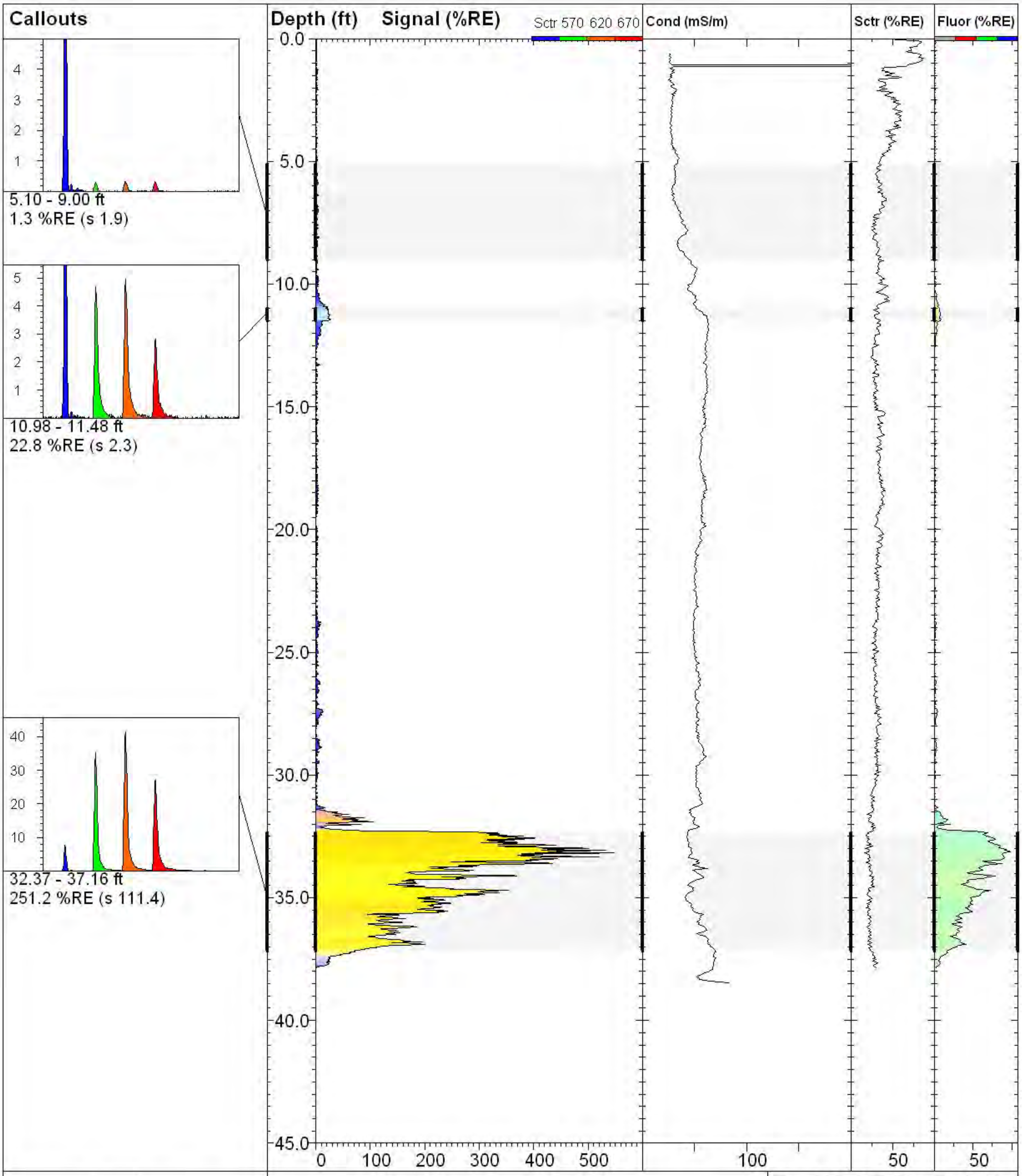
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.02 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **26.8 %RE @ 11.38 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-15 09:01 PDT**



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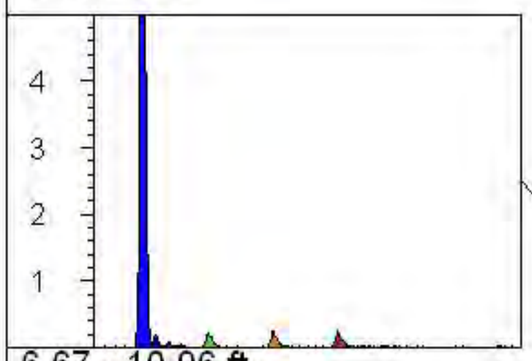
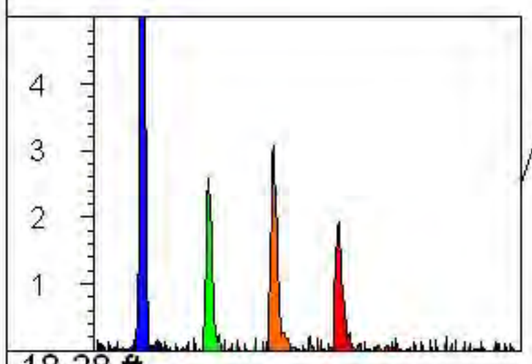
	Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **37.84 ft**
	Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **550.4 %RE @ 33.18 ft**
	Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-10 15:33 PDT**

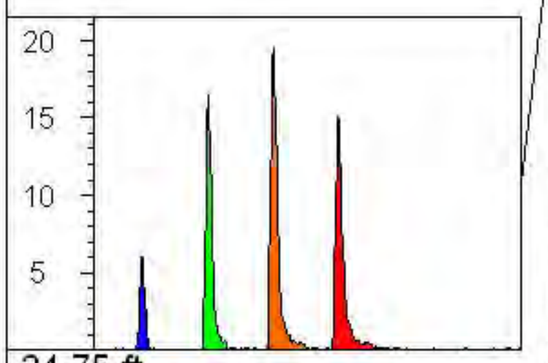
Callouts



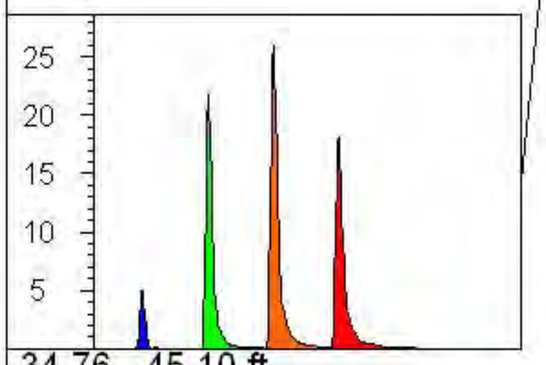
6.67 - 10.96 ft
1.2 %RE (s 1.8)



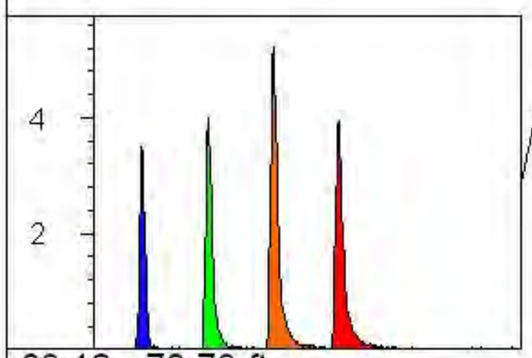
18.28 ft
13.6 %RE



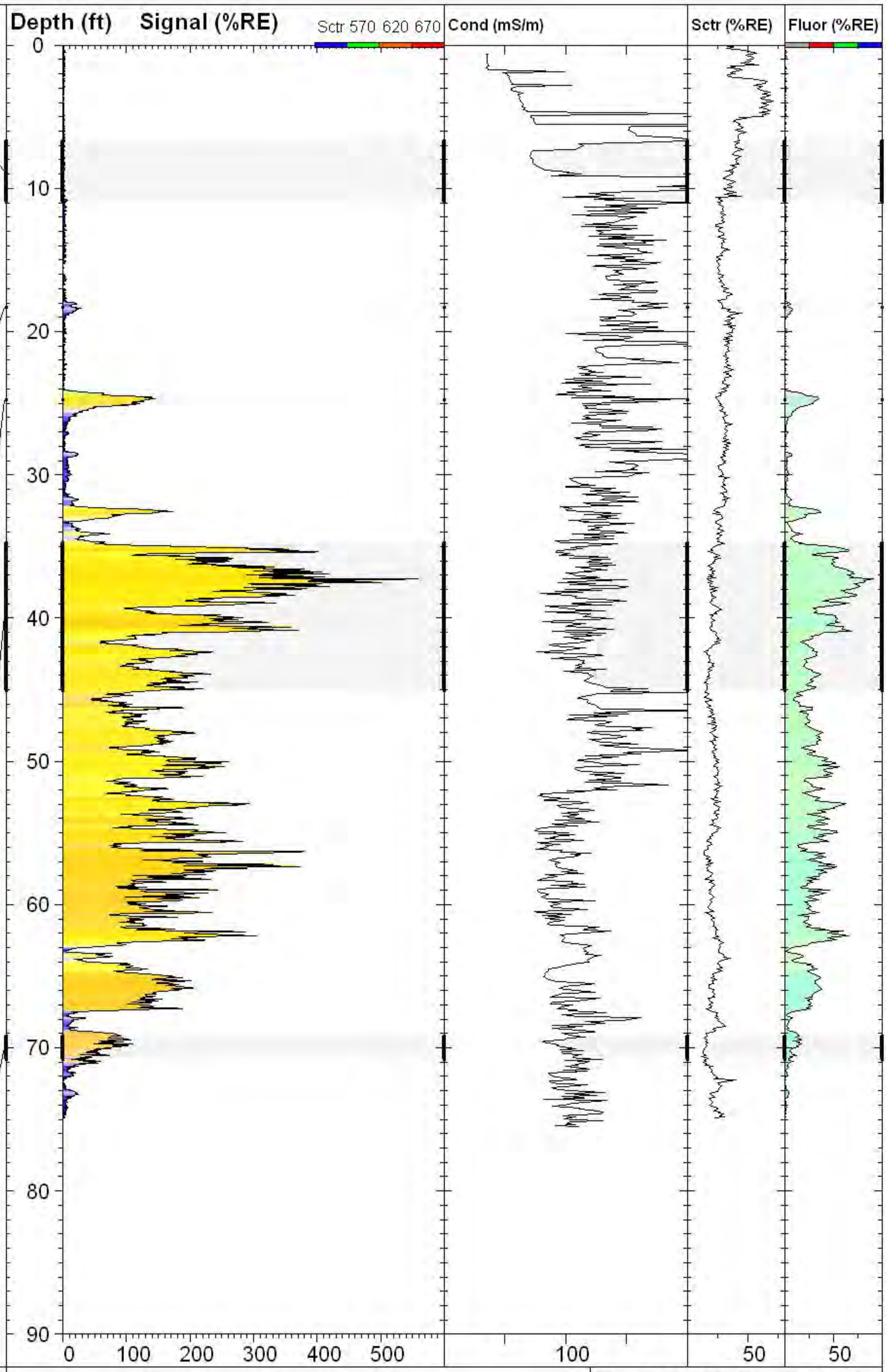
24.75 ft
135.6 %RE



34.76 - 45.10 ft
227.9 %RE (s 96.6)



69.18 - 70.79 ft
63.1 %RE (s 24.5)



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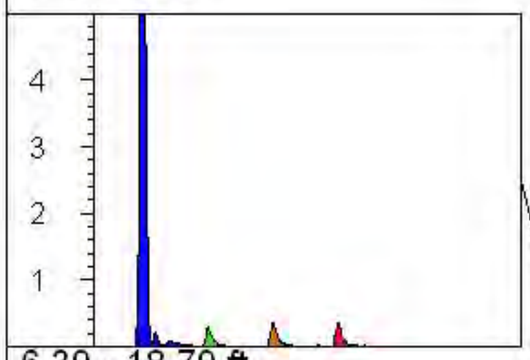
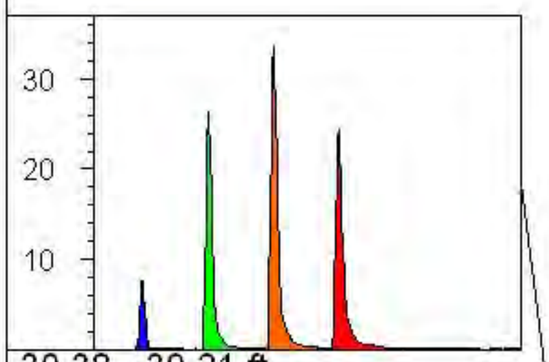
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **74.94 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **562.1 %RE @ 37.28 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-11 15:57 PDT**

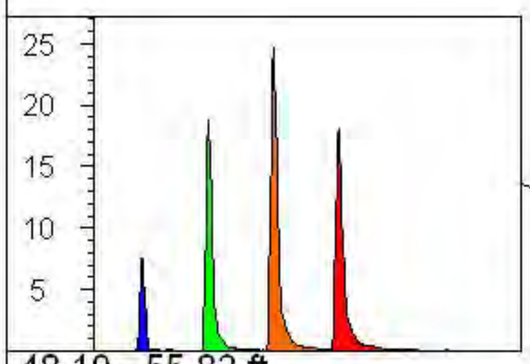
Callouts



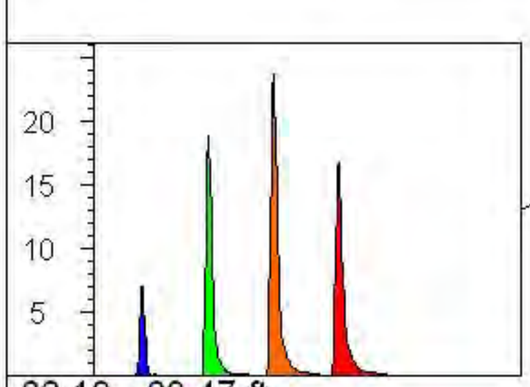
6.39 - 18.79 ft
1.6 %RE (s 1.3)



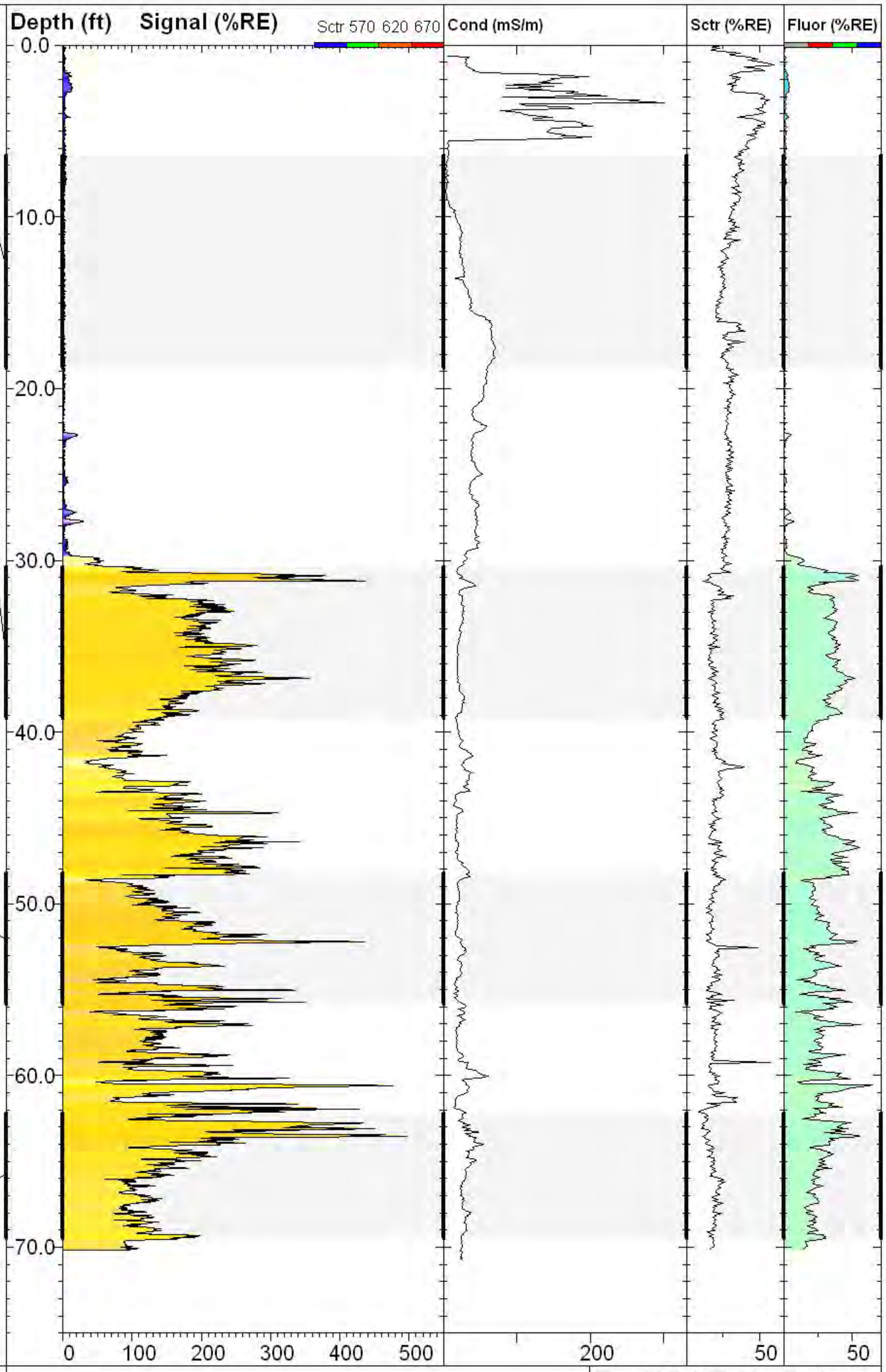
30.38 - 39.21 ft
190.9 %RE (s 60.6)



48.19 - 55.82 ft
144.6 %RE (s 67.0)



62.19 - 69.47 ft
148.1 %RE (s 87.5)



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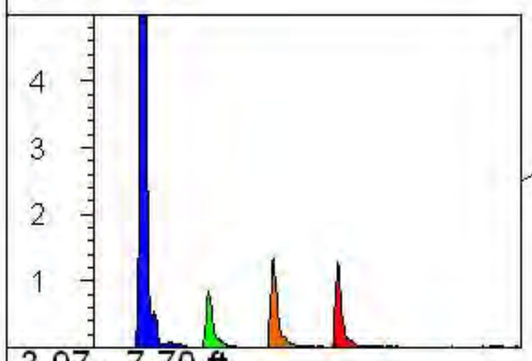
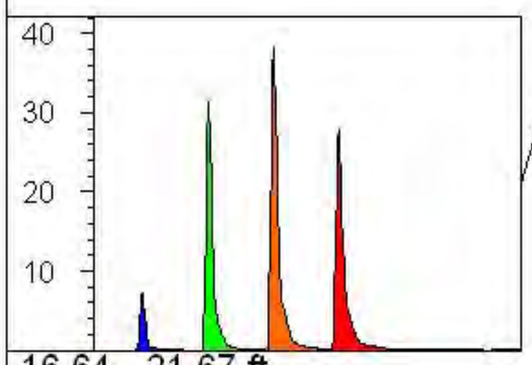
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **70.17 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **510.7 %RE @ 63.52 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-10 10:55 PDT**

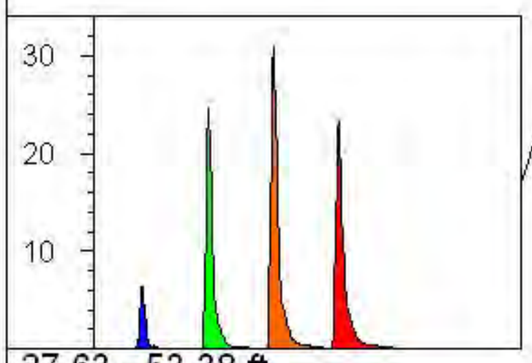
Callouts



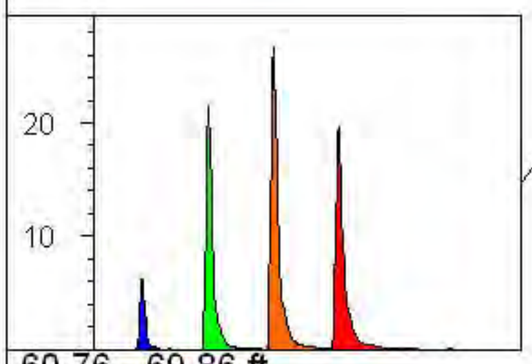
3.97 - 7.70 ft
4.6 %RE (s 2.9)



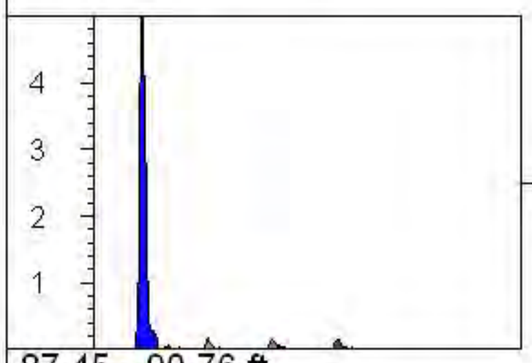
16.64 - 21.67 ft
230.4 %RE (s 60.4)



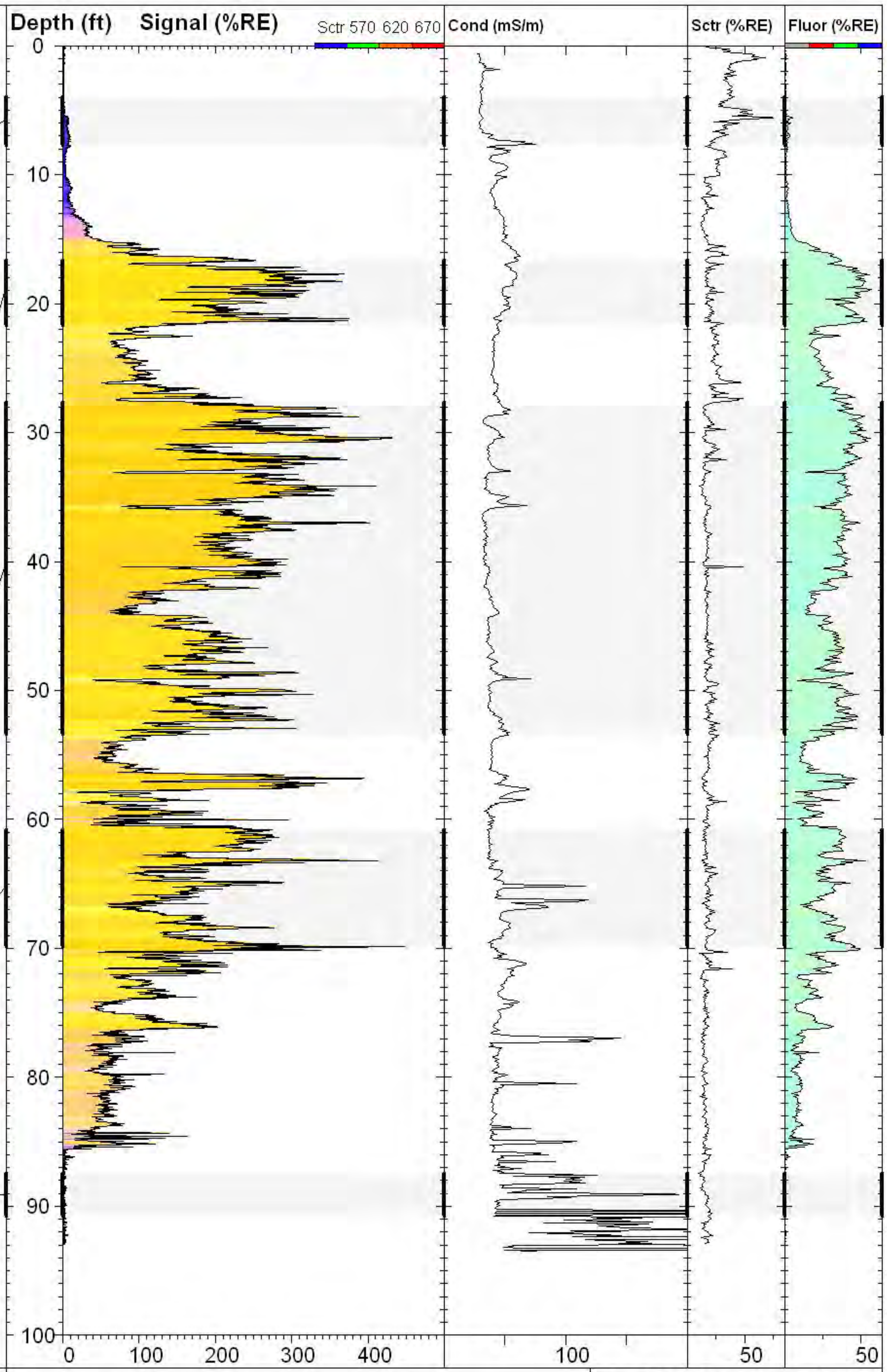
27.63 - 53.38 ft
205.8 %RE (s 69.2)



60.76 - 69.86 ft
181.6 %RE (s 63.4)



87.45 - 90.76 ft
1.4 %RE (s 1.5)



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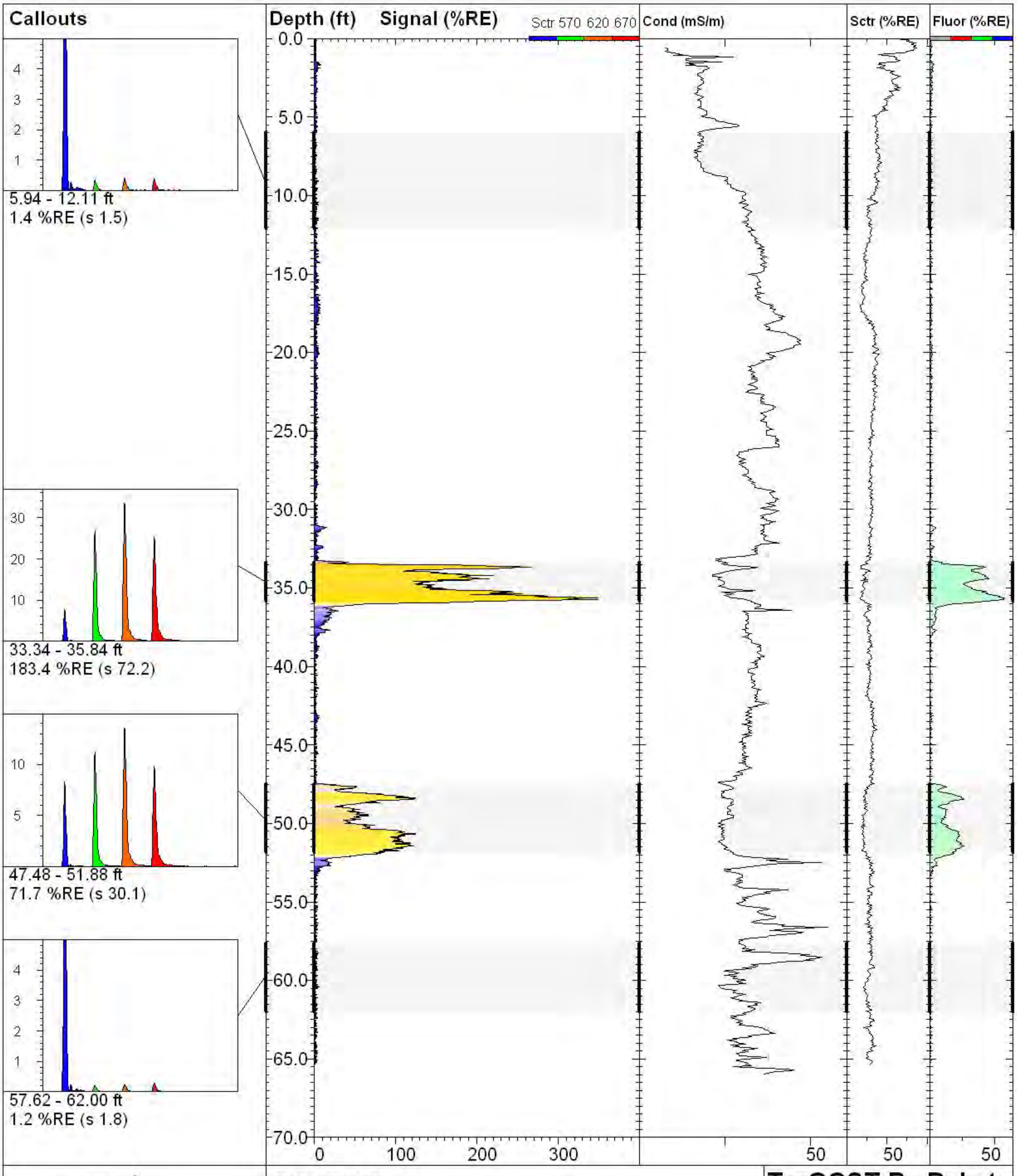
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **92.93 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **457.4 %RE @ 69.85 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-11 10:31 PDT**



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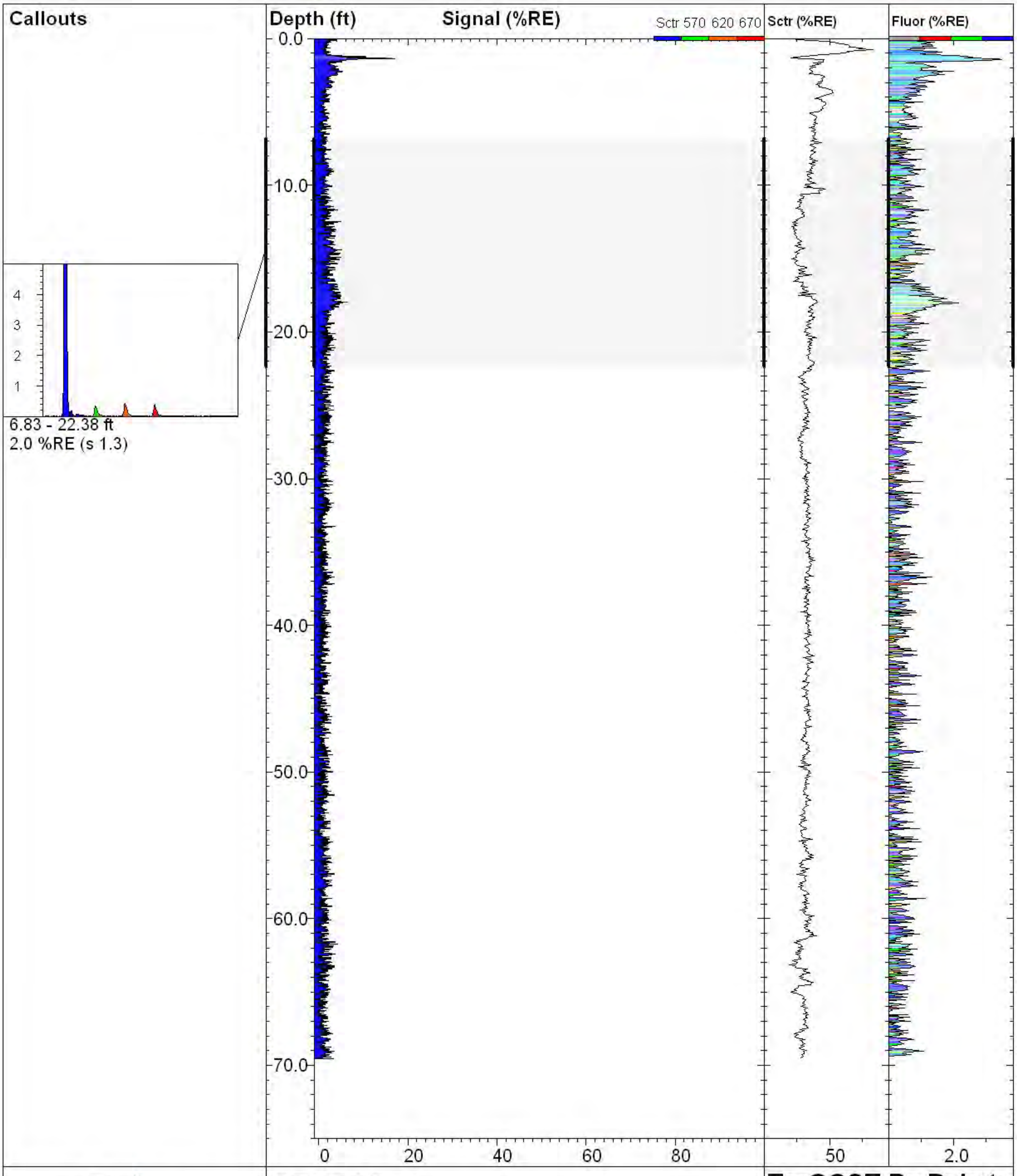
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **65.36 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **353.4 %RE @ 35.74 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-10 14:04 PDT**



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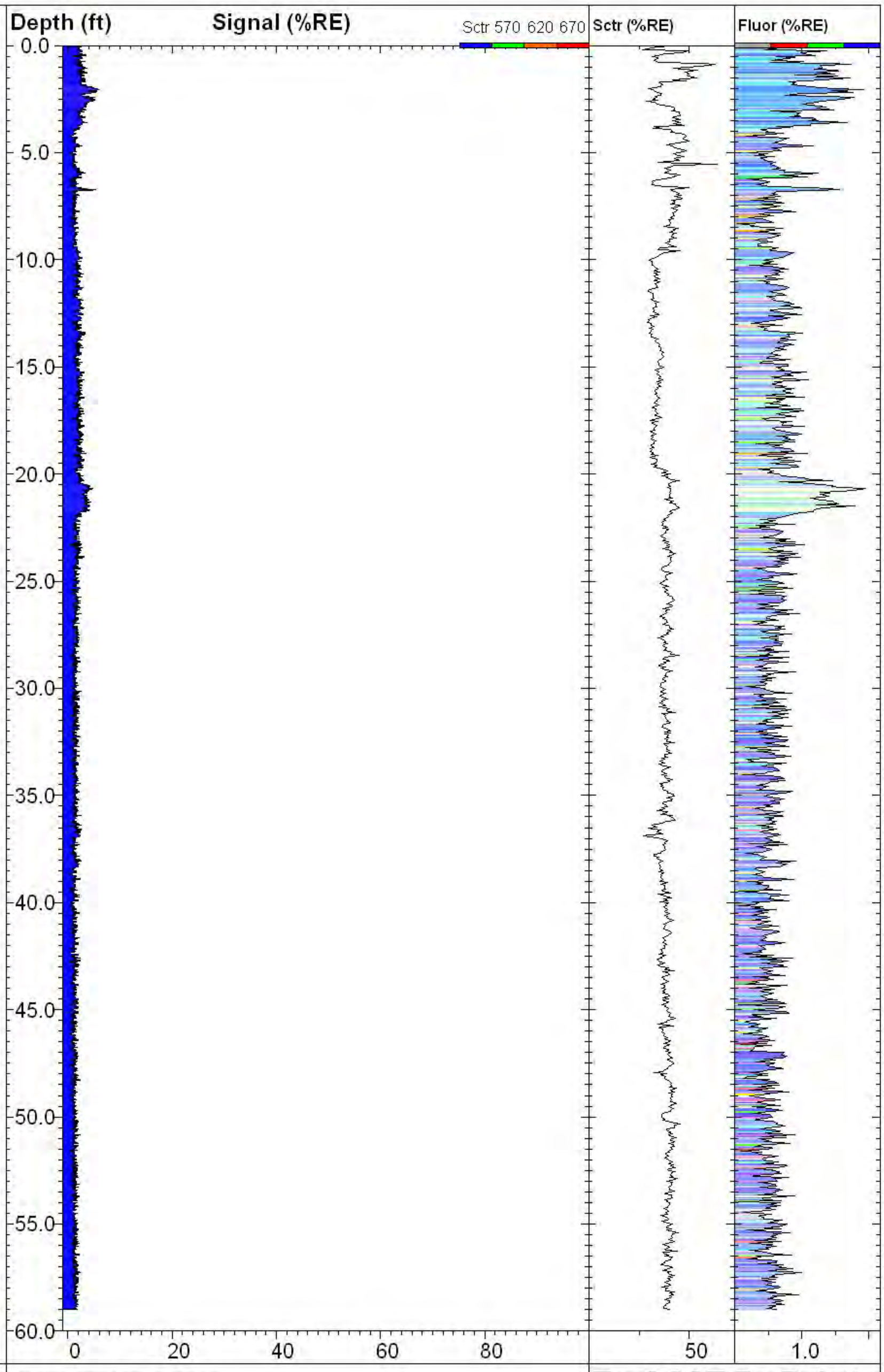
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **69.53 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **18.1 %RE @ 1.36 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-15 09:37 PDT**

Callouts



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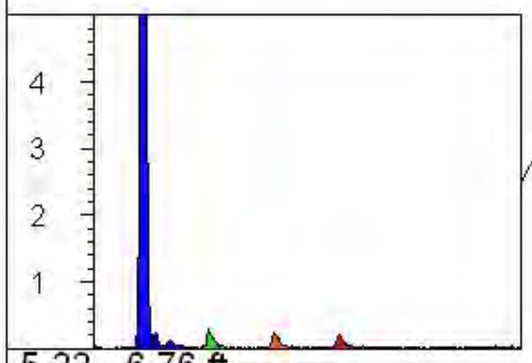
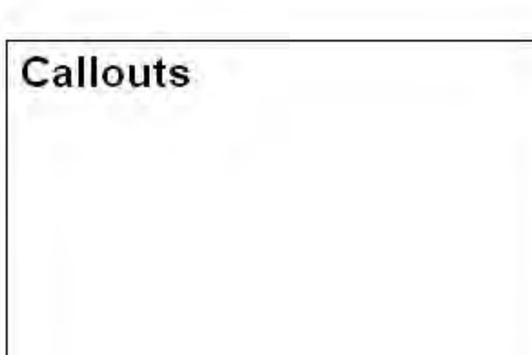
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **58.99 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.1 %RE @ 2.07 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 15:35 PDT**

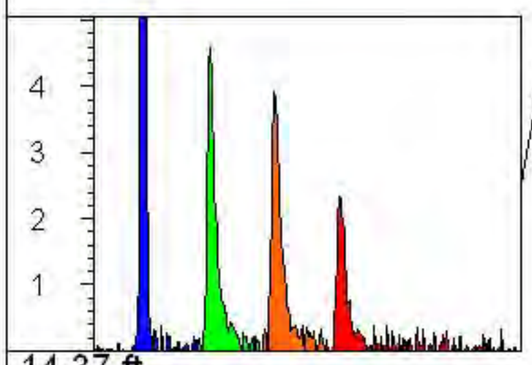
Callouts



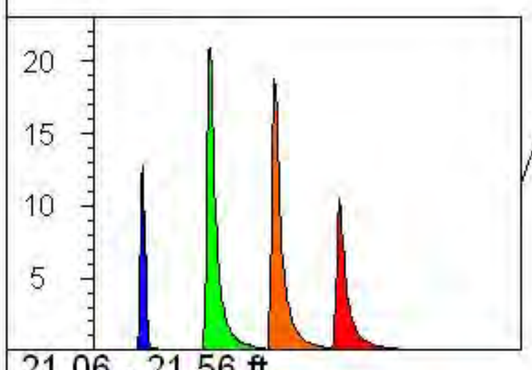
5.22 - 6.76 ft
1.0 %RE (s 0.7)



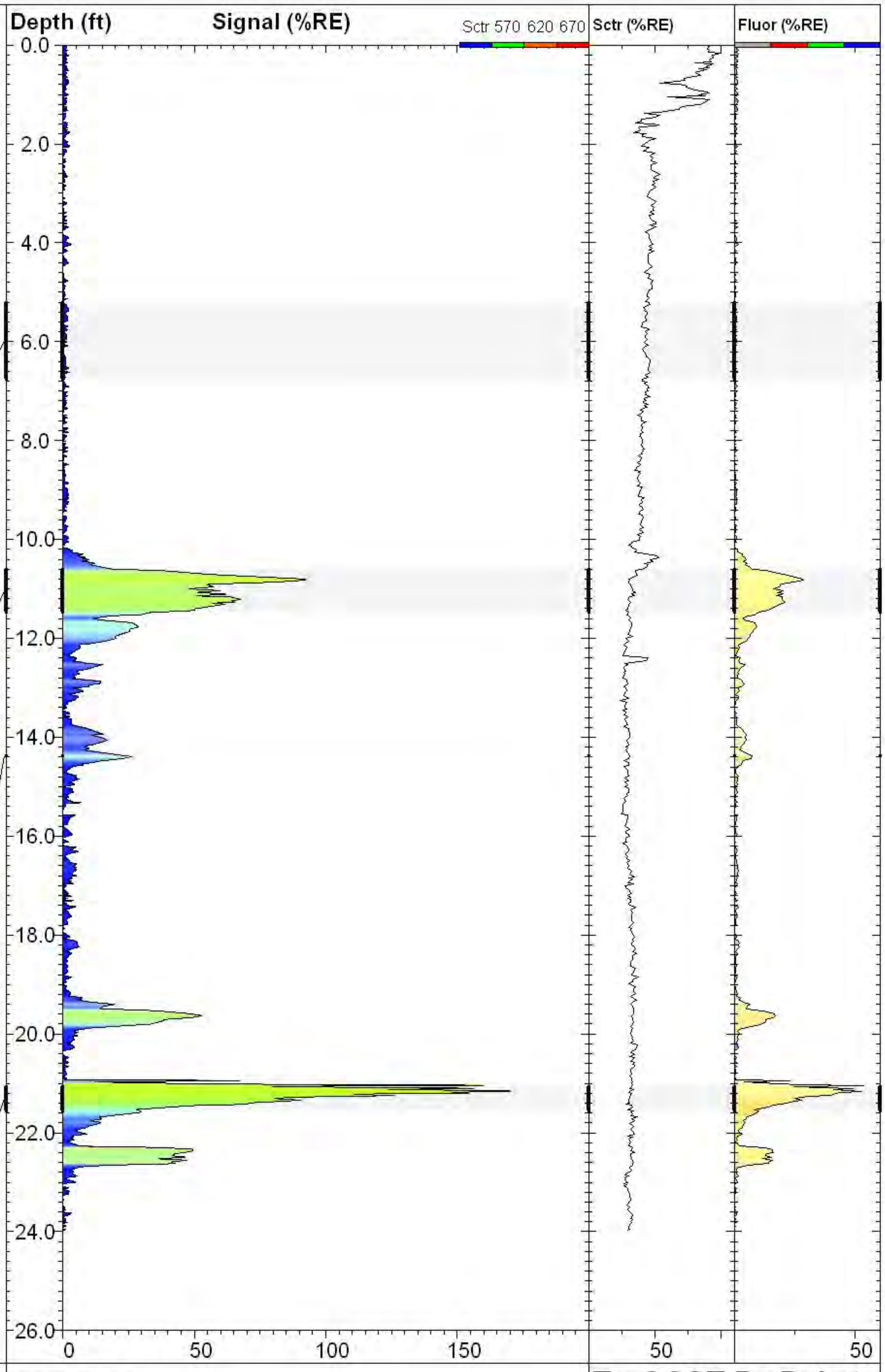
10.60 - 11.48 ft
56.8 %RE (s 16.2)



14.37 ft
23.4 %RE



21.06 - 21.56 ft
97.1 %RE (s 44.4)



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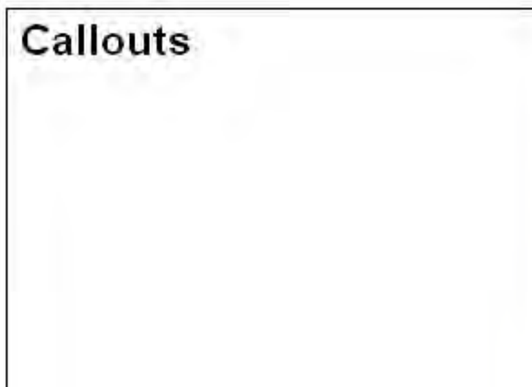
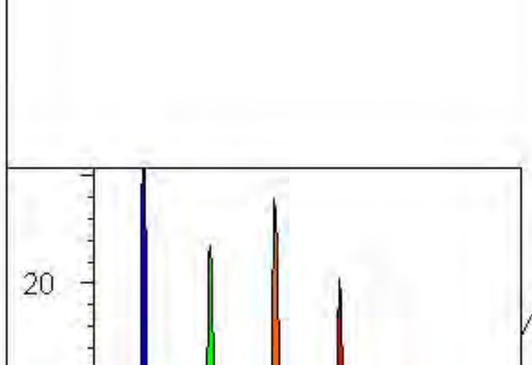
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.97 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **170.4 %RE @ 21.16 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 11:17 PDT**

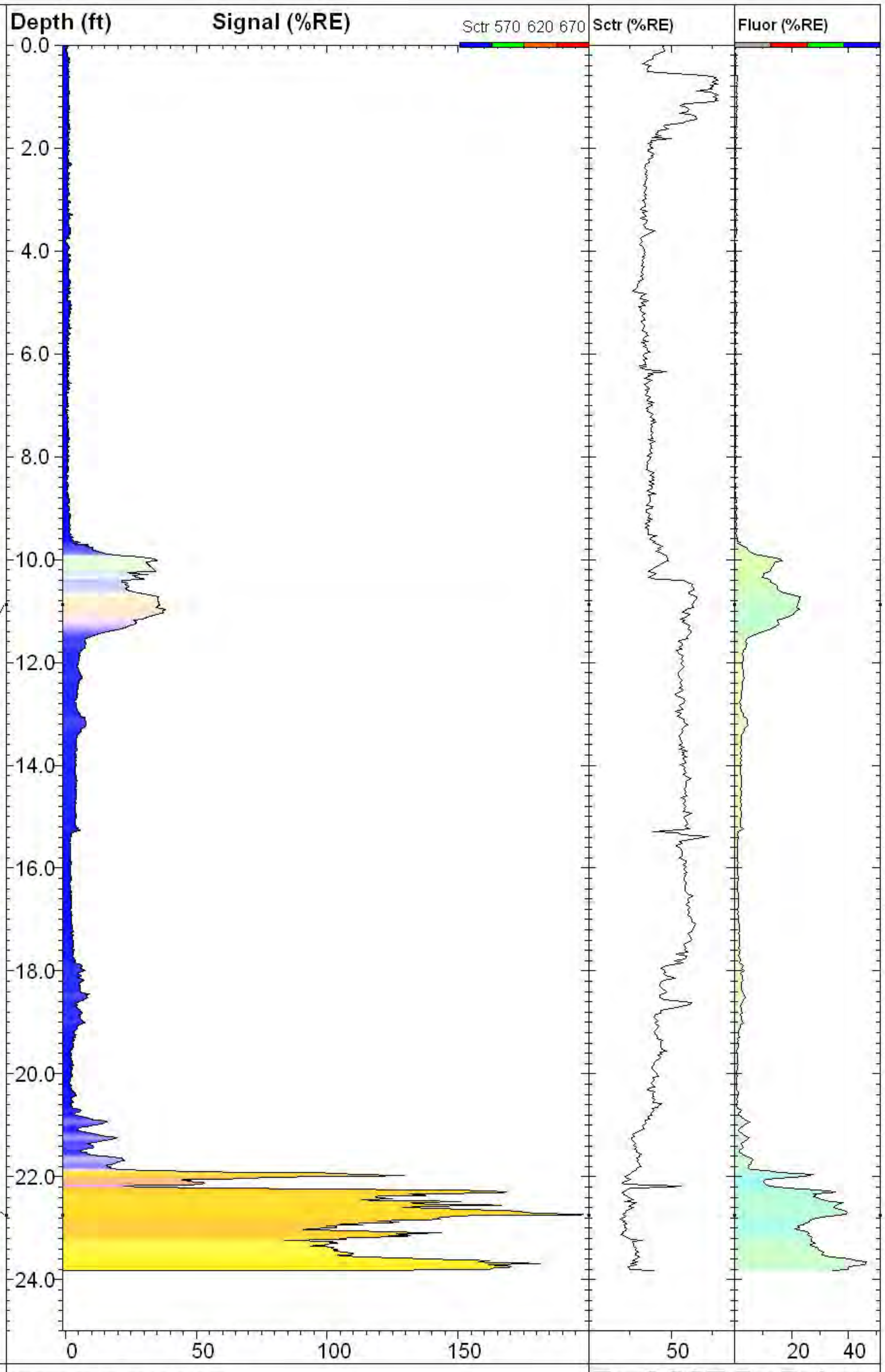
Callouts



10.89 ft
35.9 %RE



22.74 ft
199.2 %RE



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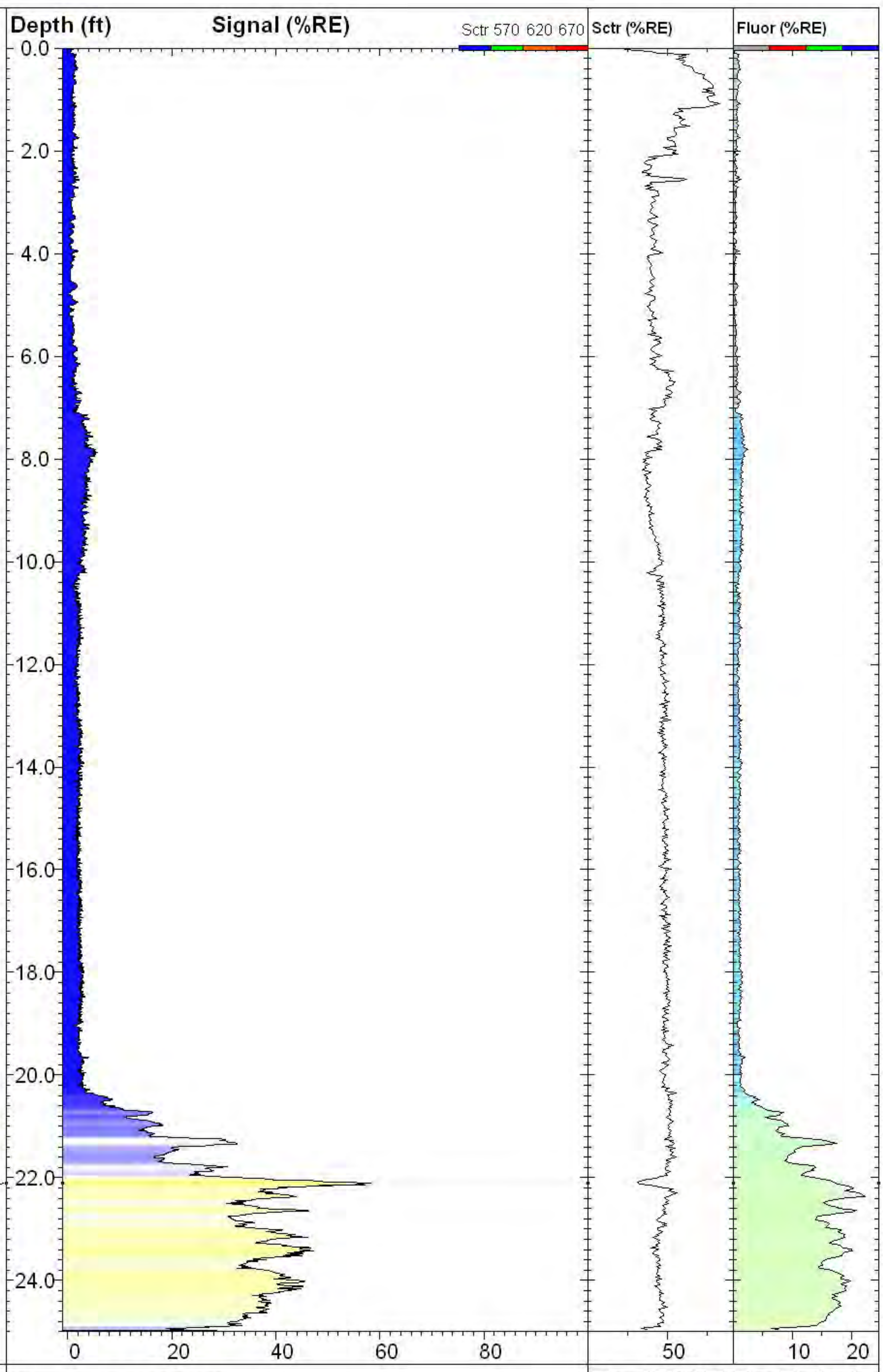
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.82 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **199.2 %RE @ 22.74 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-25 14:10 PDT**

Callouts

22.11 ft
58.4 %RE



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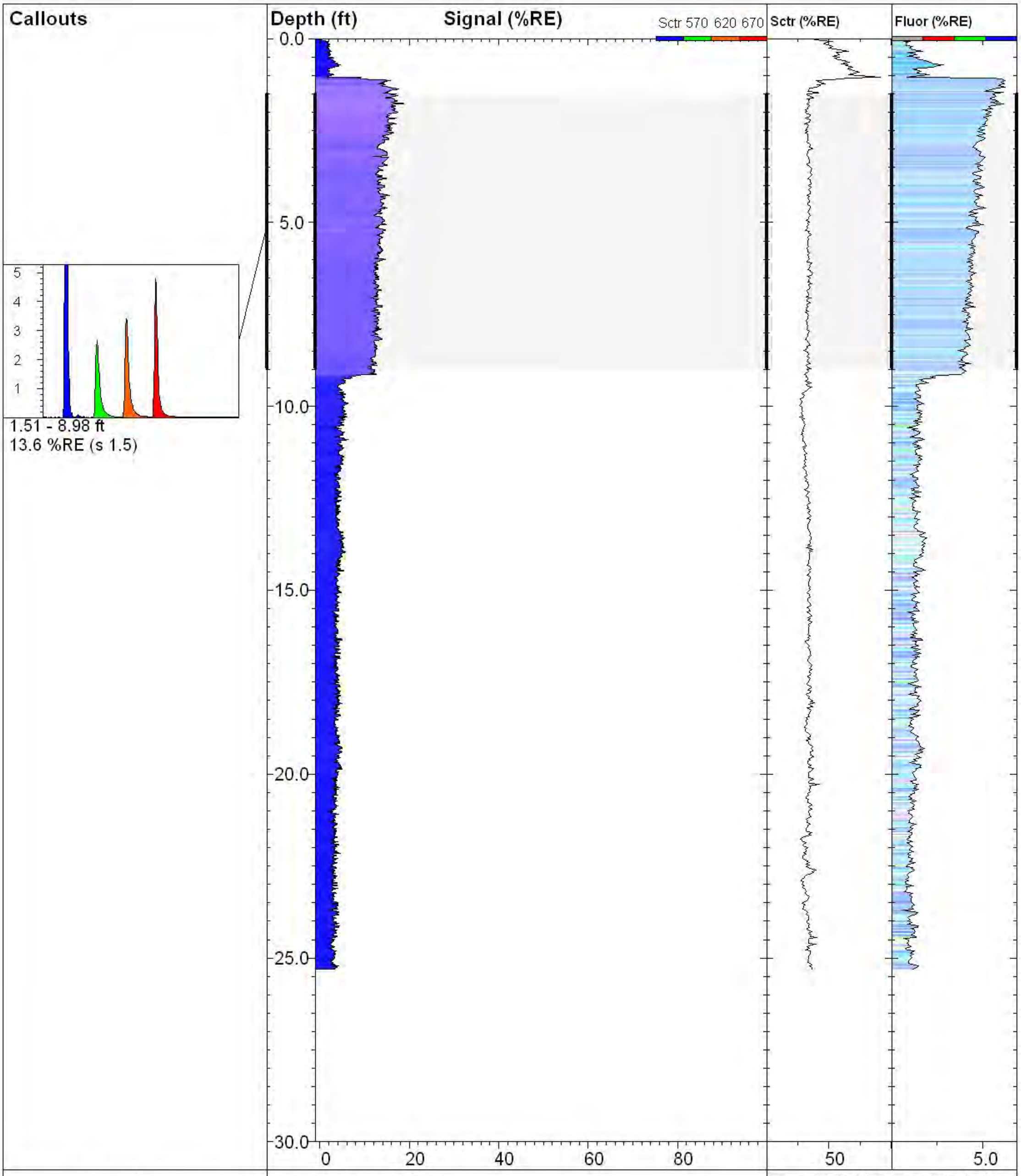
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.98 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **58.4 %RE @ 22.11 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-25 15:26 PDT**



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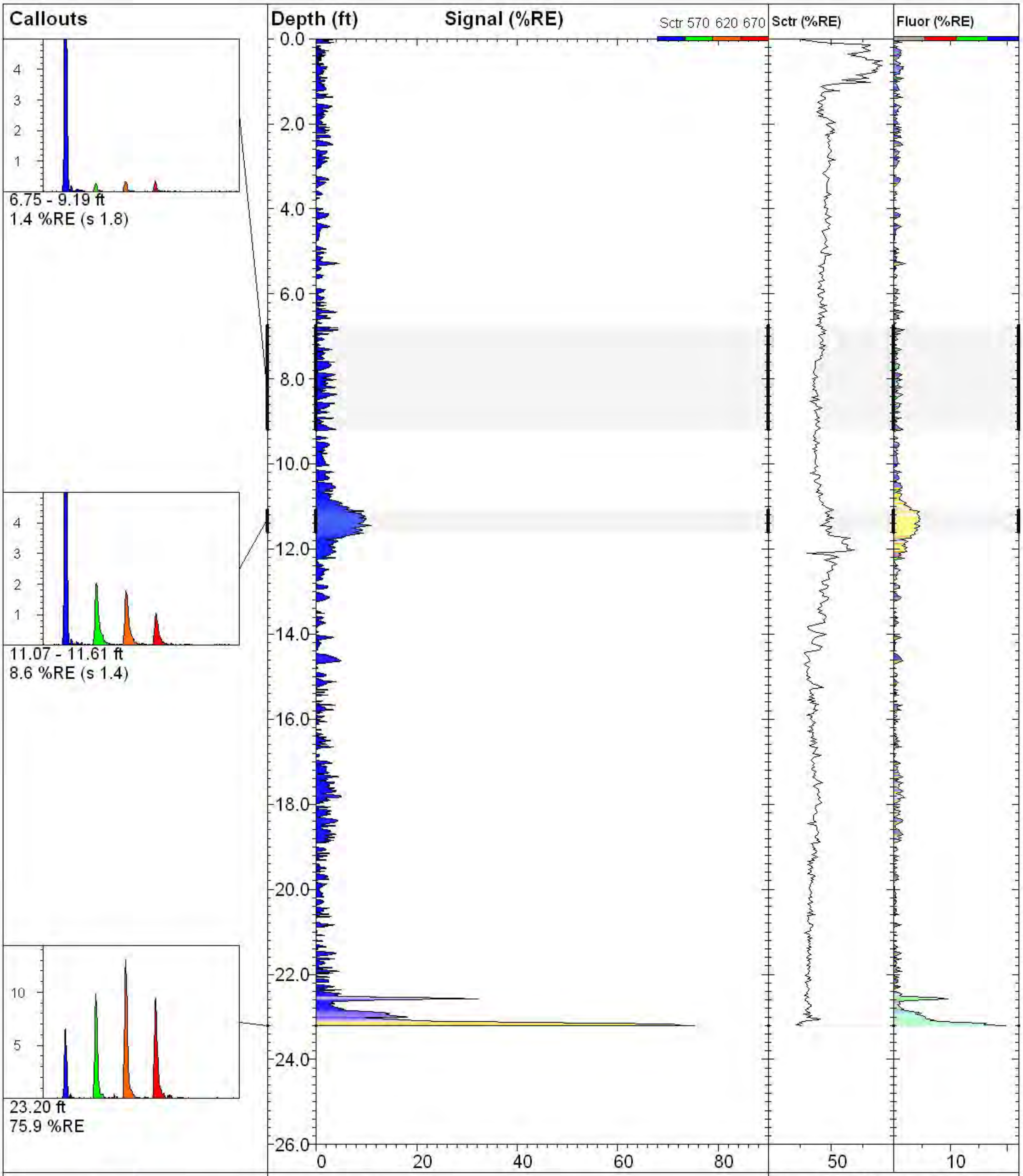
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.30 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **18.9 %RE @ 1.77 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-25 16:18 PDT**



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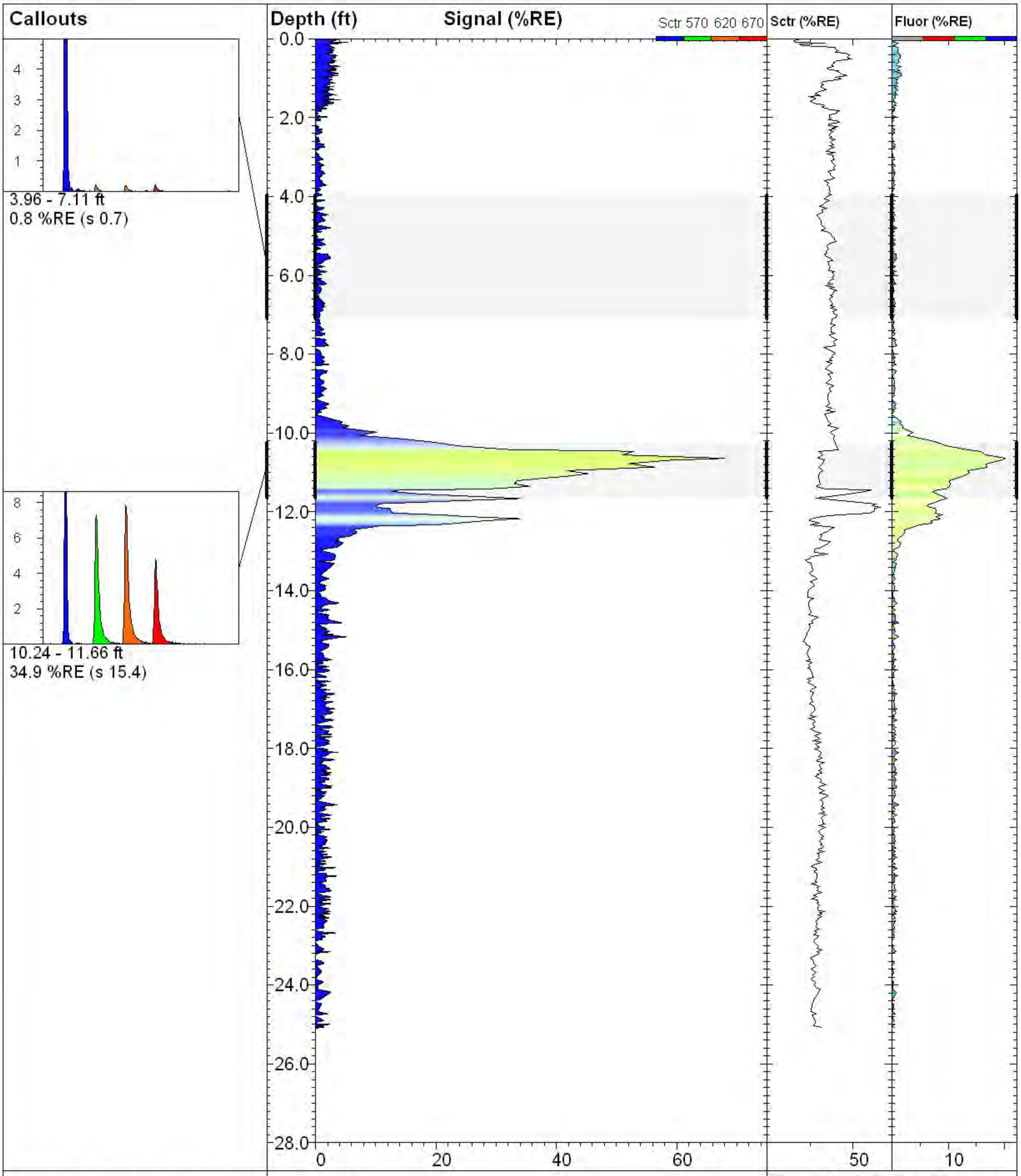
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.20 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **75.9 %RE @ 23.20 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-15 16:57 PDT**



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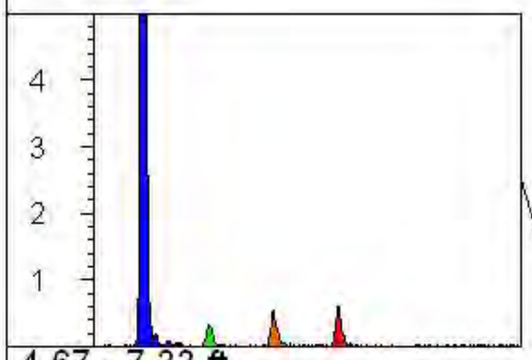
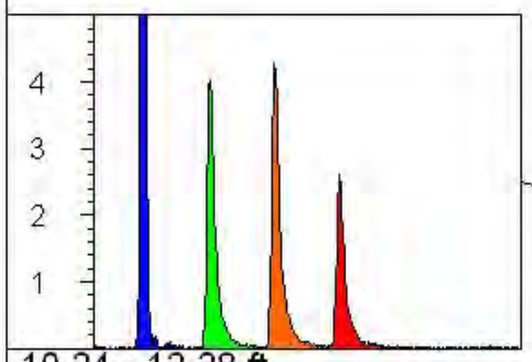
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.08 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **68.2 %RE @ 10.64 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 07:54 PDT**

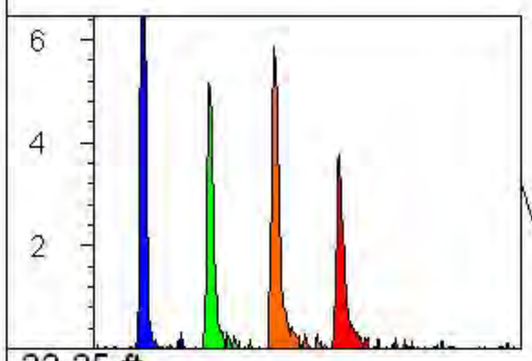
Callouts



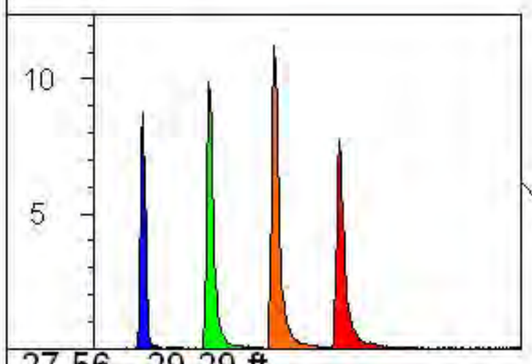
4.67 - 7.33 ft
2.0 %RE (s 1.0)



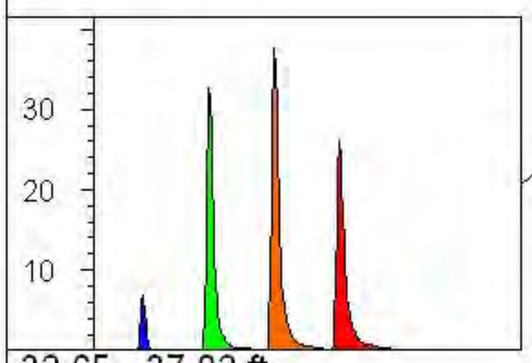
10.24 - 12.28 ft
21.2 %RE (s 7.0)



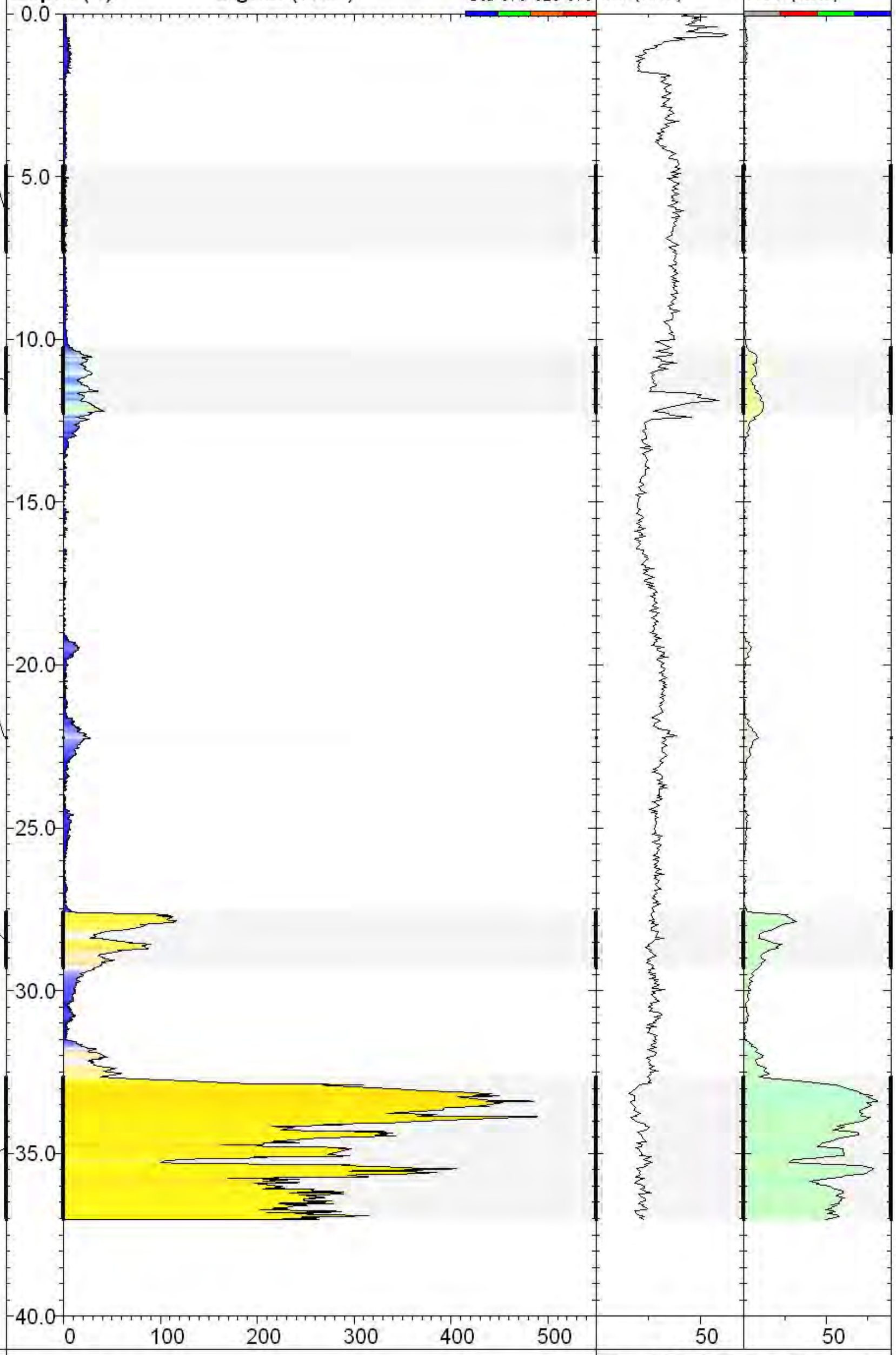
22.25 ft
27.7 %RE



27.56 - 29.29 ft
63.6 %RE (s 30.0)



32.65 - 37.02 ft
270.5 %RE (s 85.7)



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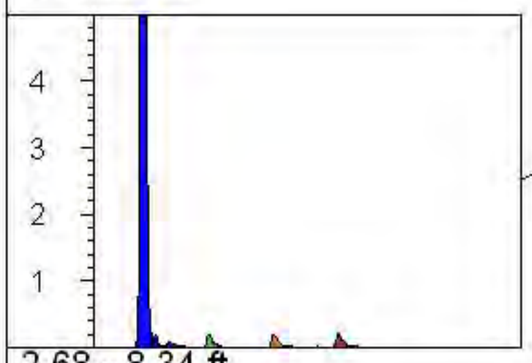
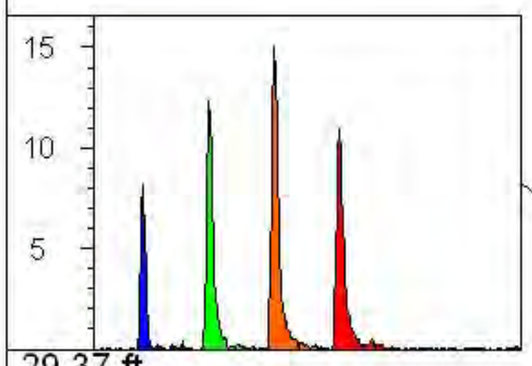
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **37.02 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **493.4 %RE @ 33.87 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 08:46 PDT**

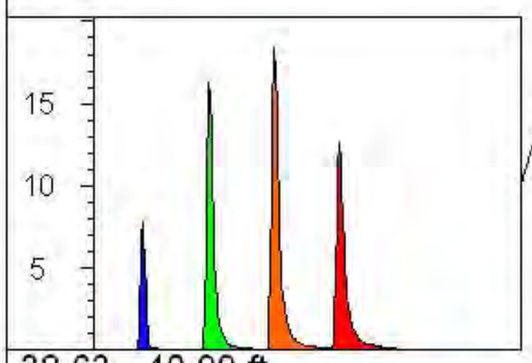
Callouts



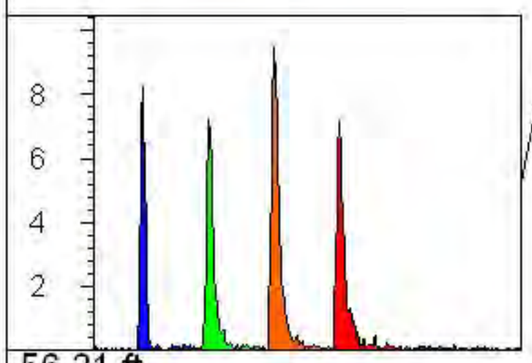
2.68 - 8.34 ft
0.9 %RE (s 0.9)



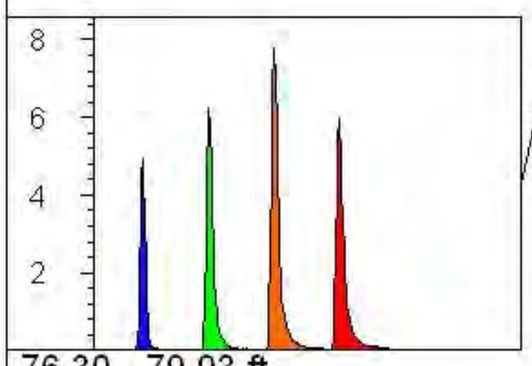
29.37 ft
82.8 %RE



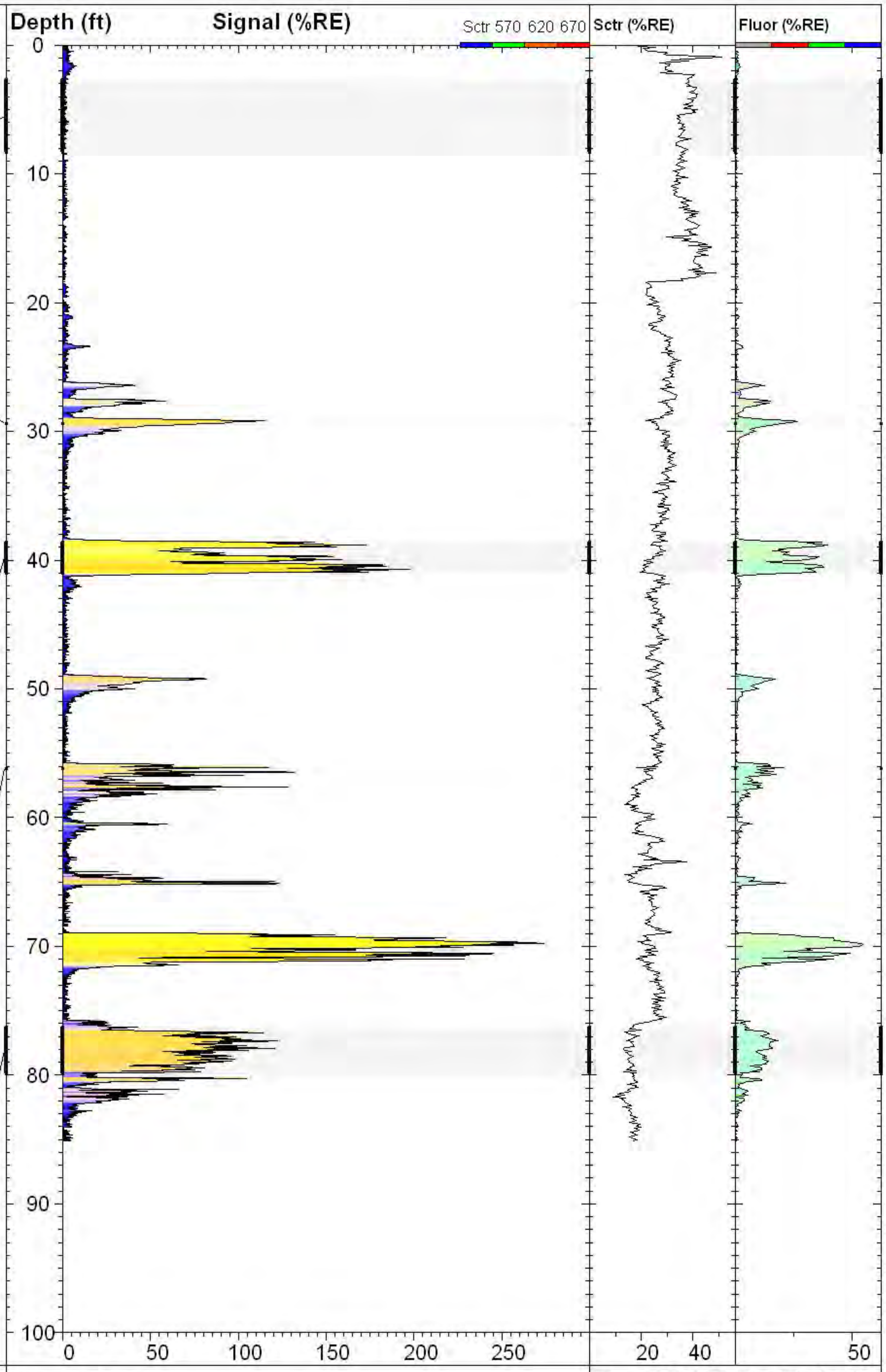
38.63 - 40.99 ft
118.8 %RE (s 36.3)



56.21 ft
56.7 %RE



76.30 - 79.93 ft
73.9 %RE (s 25.5)



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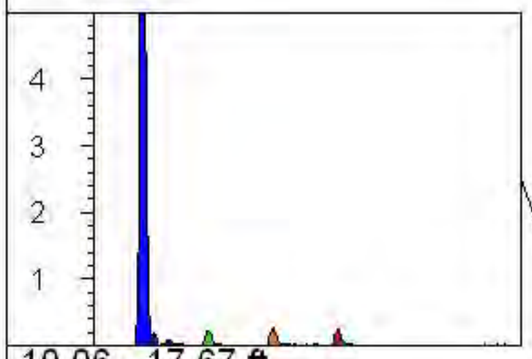
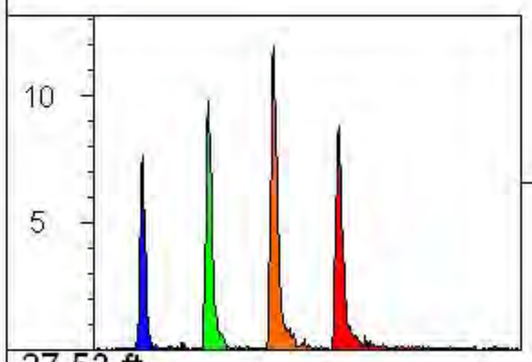
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **85.10 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **274.2 %RE @ 69.76 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 09:28 PDT**

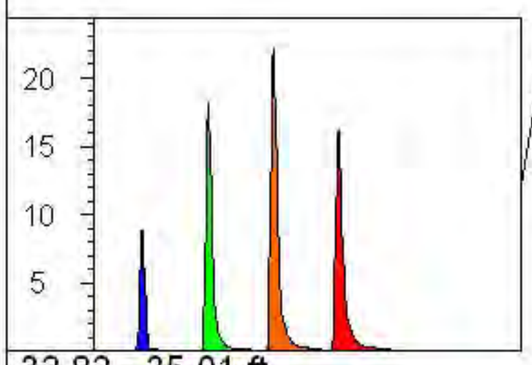
Callouts



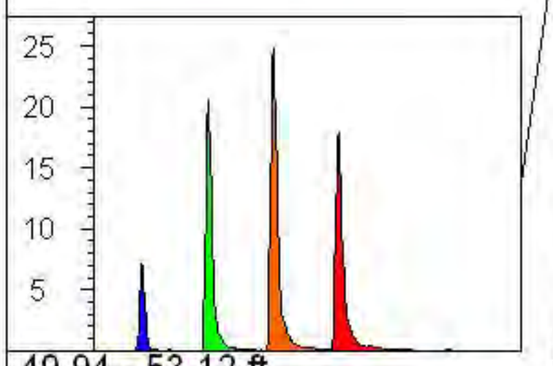
10.06 - 17.67 ft
1.2 %RE (s 1.1)



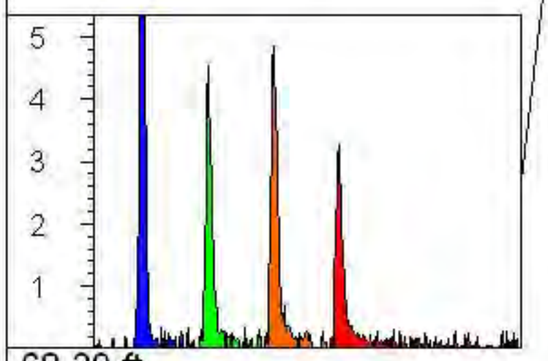
27.53 ft
63.3 %RE



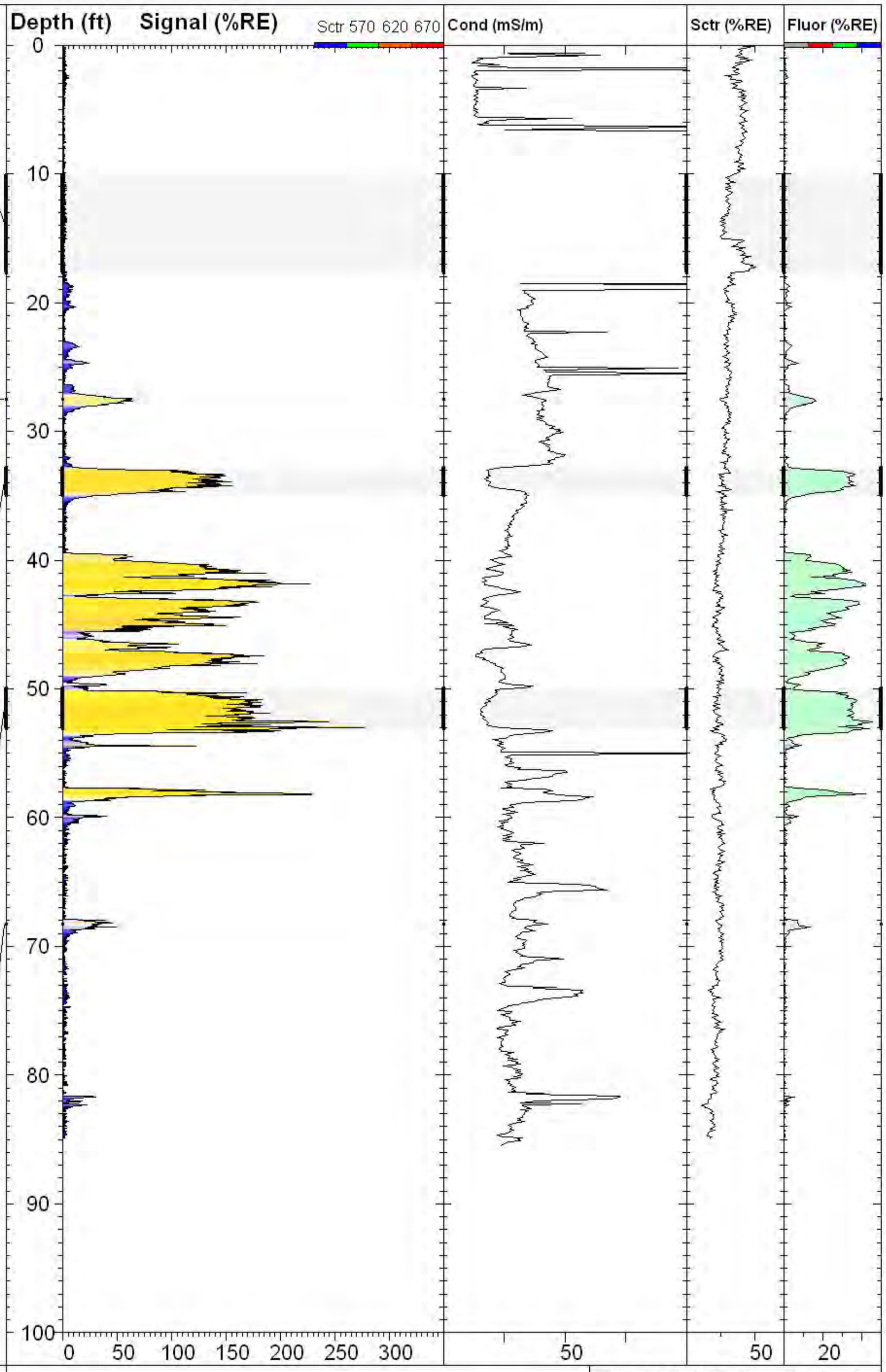
32.82 - 35.01 ft
104.6 %RE (s 38.2)



49.94 - 53.12 ft
144.7 %RE (s 52.4)



68.29 ft
26.1 %RE



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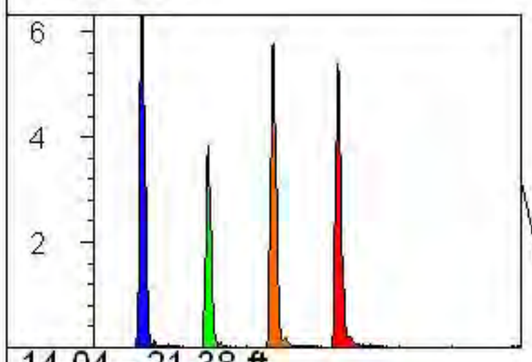
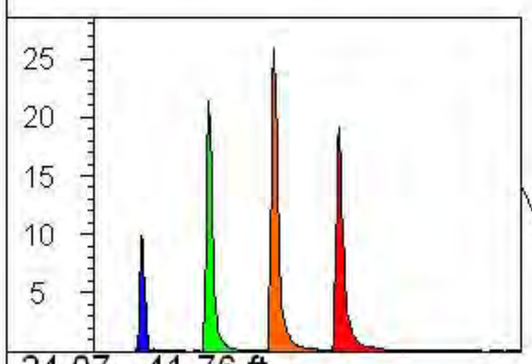
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **84.86 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **310.8 %RE @ 52.99 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-11 14:02 PDT**

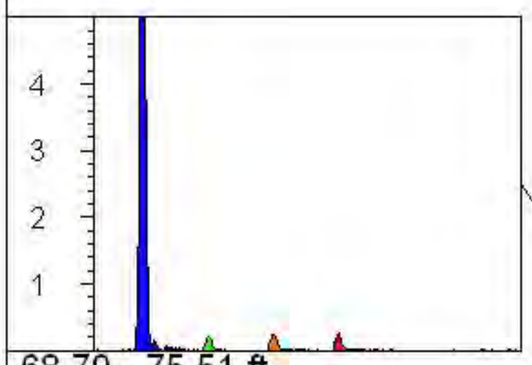
Callouts



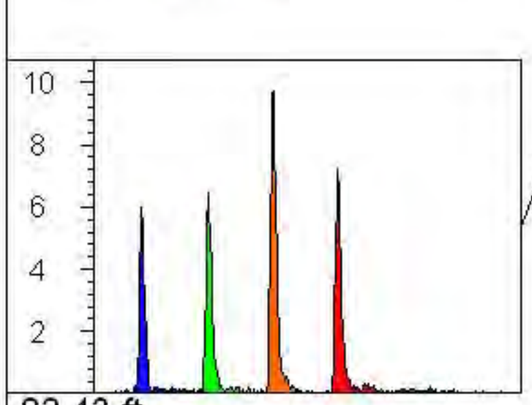
14.04 - 21.38 ft
28.9 %RE (s 4.9)



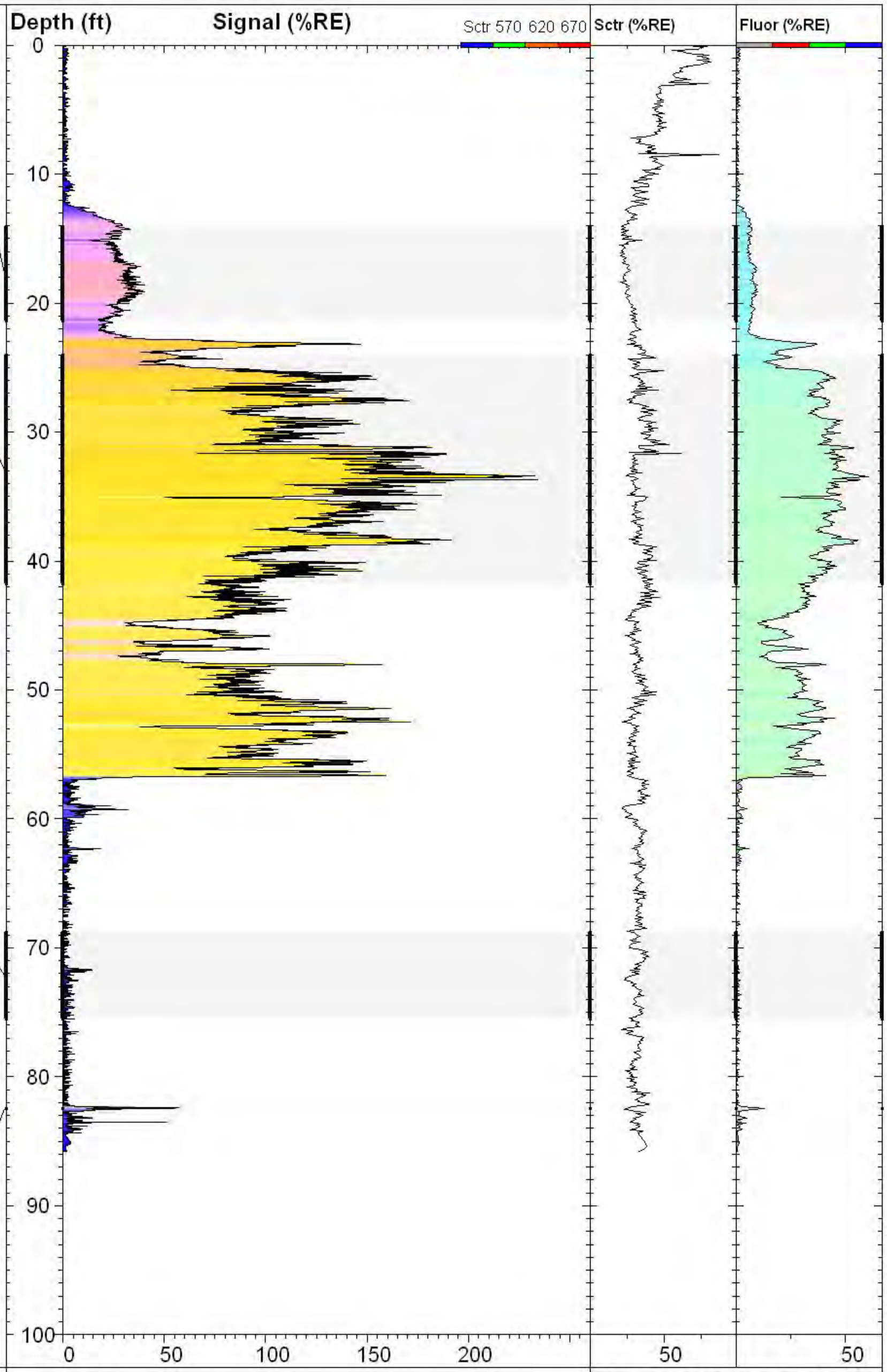
24.07 - 41.76 ft
120.4 %RE (s 32.8)



68.79 - 75.51 ft
1.3 %RE (s 2.5)



82.43 ft
53.7 %RE



TG-E06

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Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **85.80 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **241.9 %RE @ 33.69 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-15 14:36 PDT**

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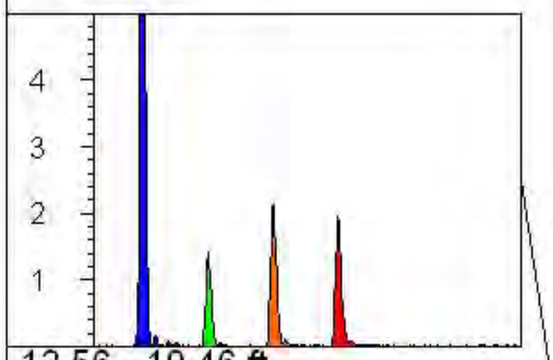
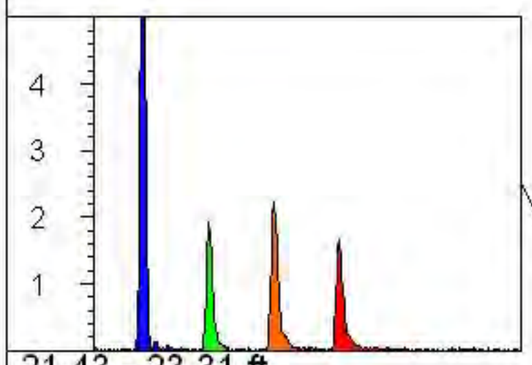
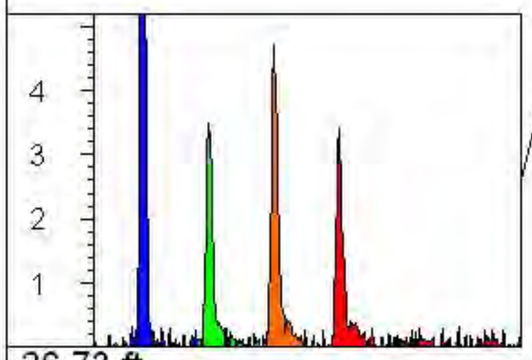
Callouts



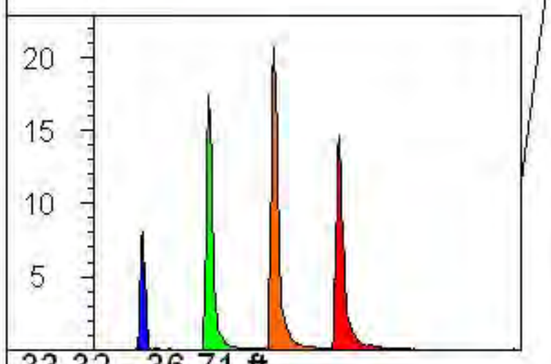
12.56 - 19.46 ft
9.8 %RE (s 2.2)



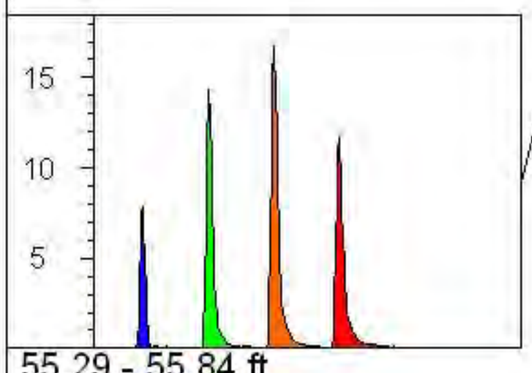
21.43 - 23.31 ft
13.1 %RE (s 4.0)



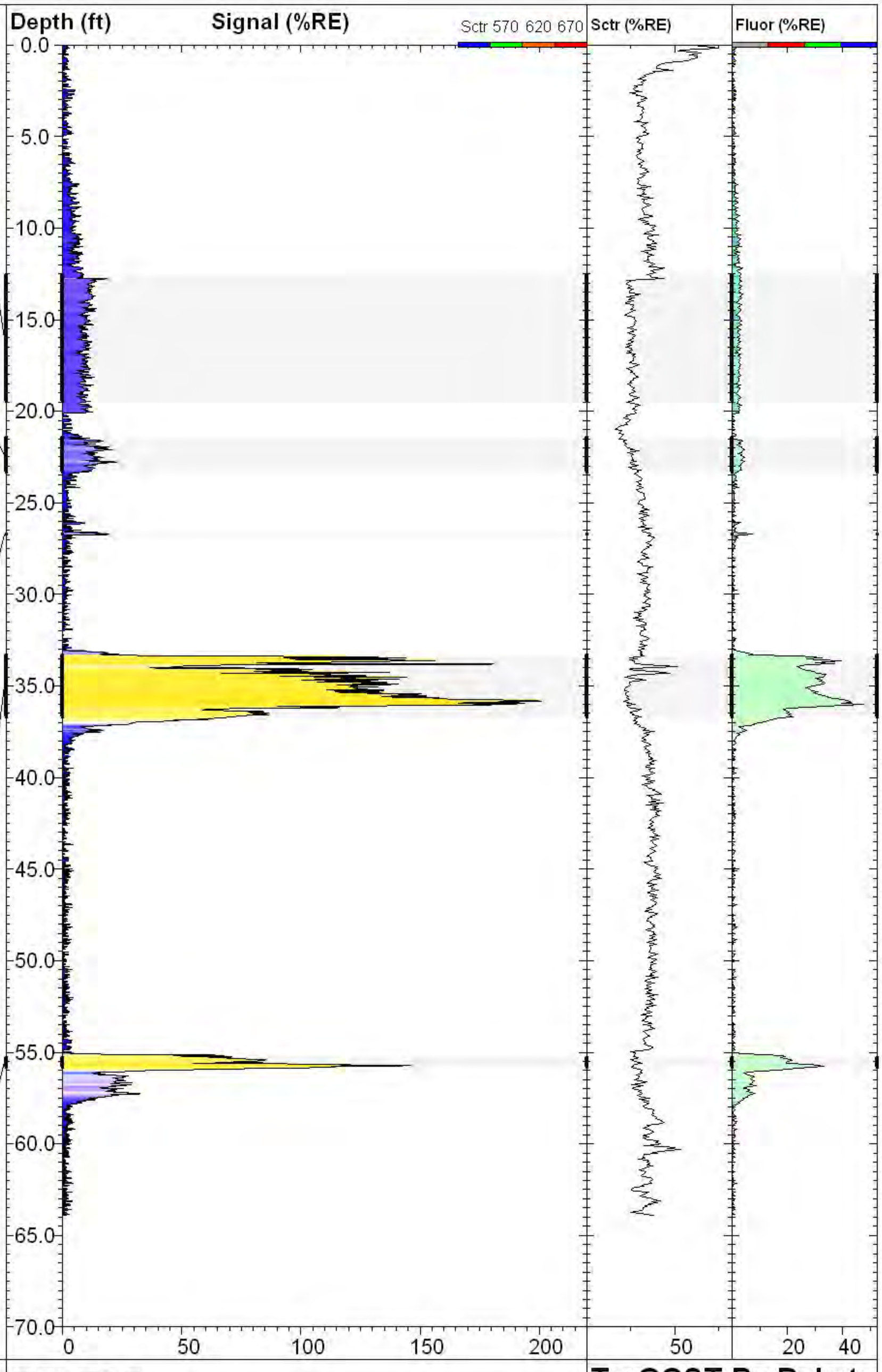
26.73 ft
19.9 %RE



33.32 - 36.71 ft
111.9 %RE (s 36.6)



55.29 - 55.84 ft
90.4 %RE (s 25.7)



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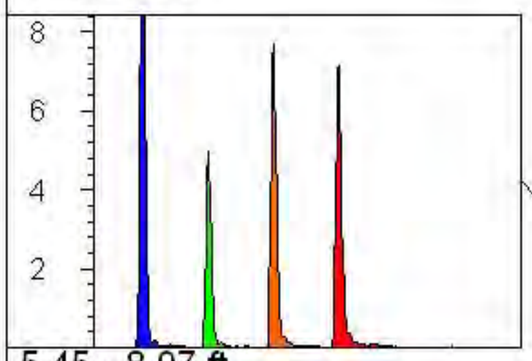
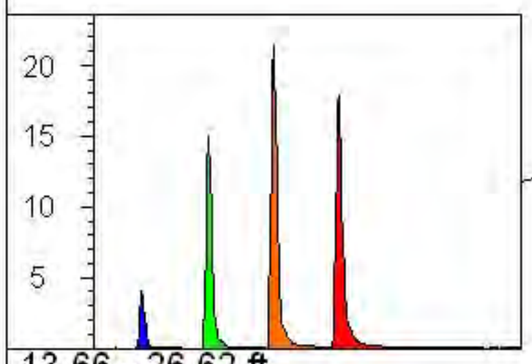
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **63.89 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **203.1 %RE @ 35.82 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-15 13:29 PDT**

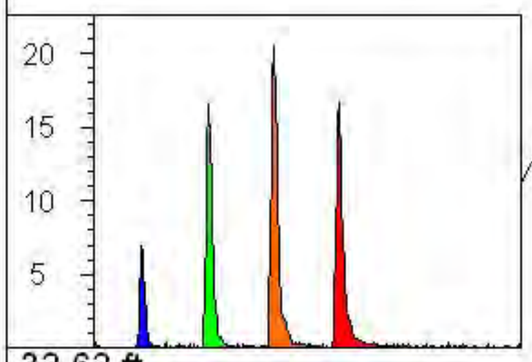
Callouts



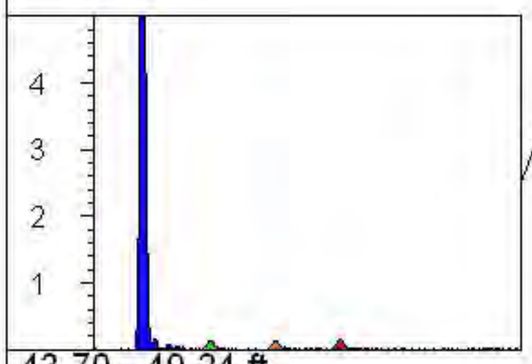
5.45 - 8.97 ft
23.8 %RE (s 3.8)



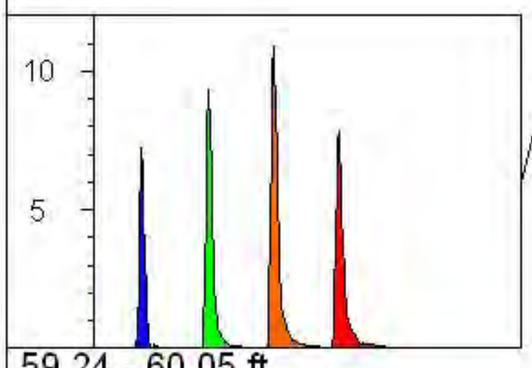
13.66 - 26.62 ft
201.5 %RE (s 118.9)



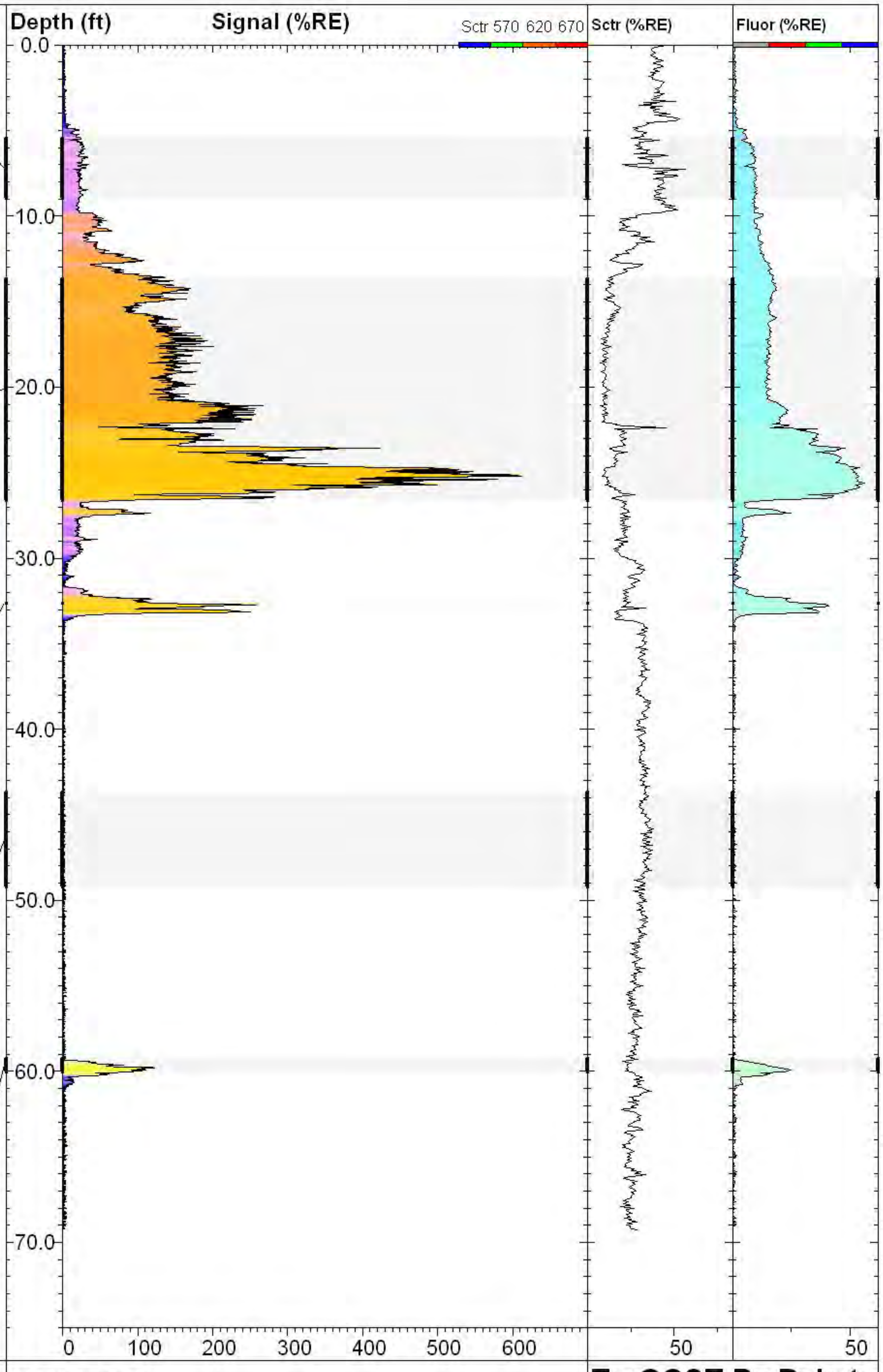
32.62 ft
120.6 %RE



43.70 - 49.24 ft
1.0 %RE (s 1.4)



59.24 - 60.05 ft
66.6 %RE (s 38.4)



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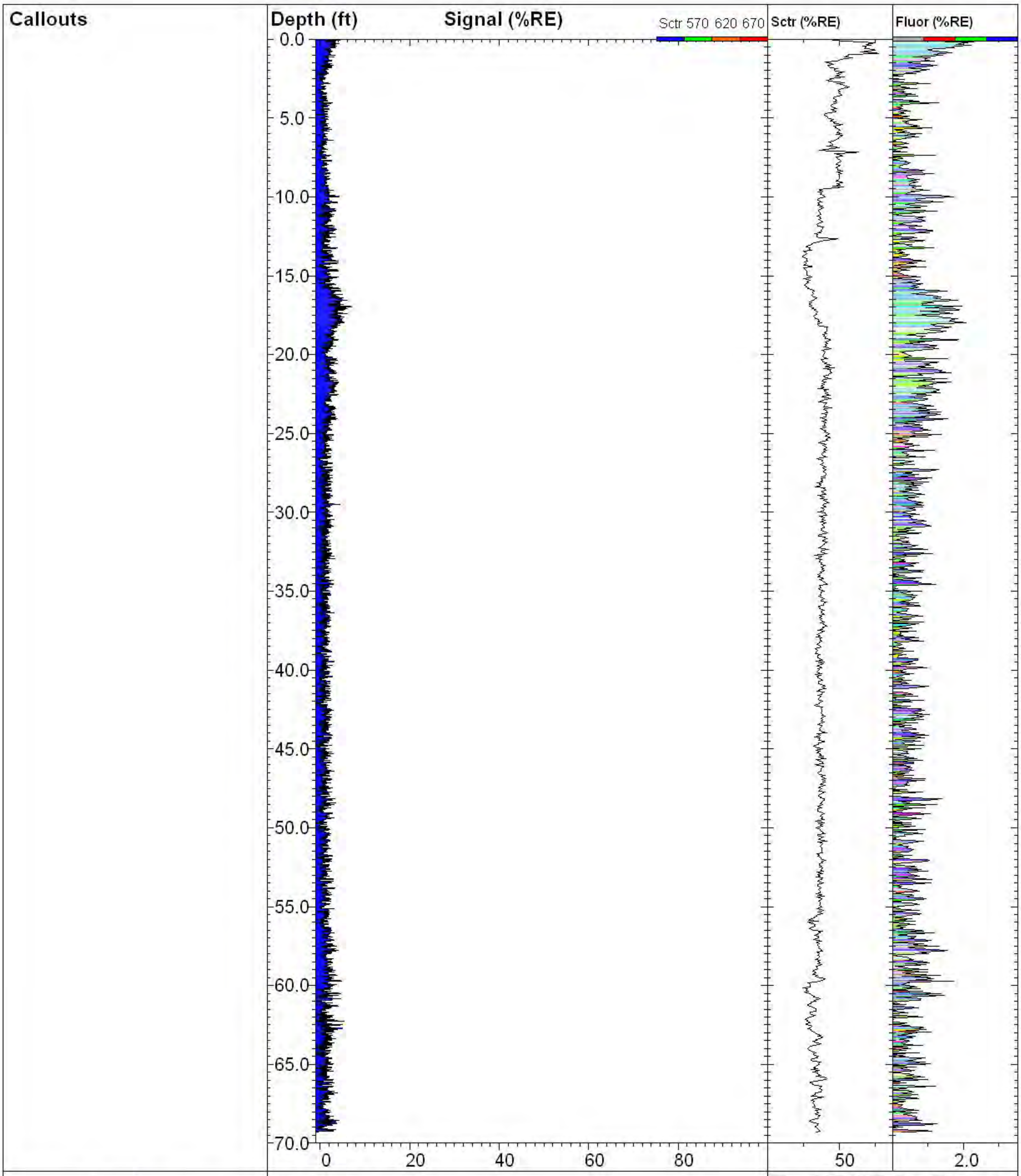
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **69.24 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **631.8 %RE @ 25.19 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-15 11:09 PDT**



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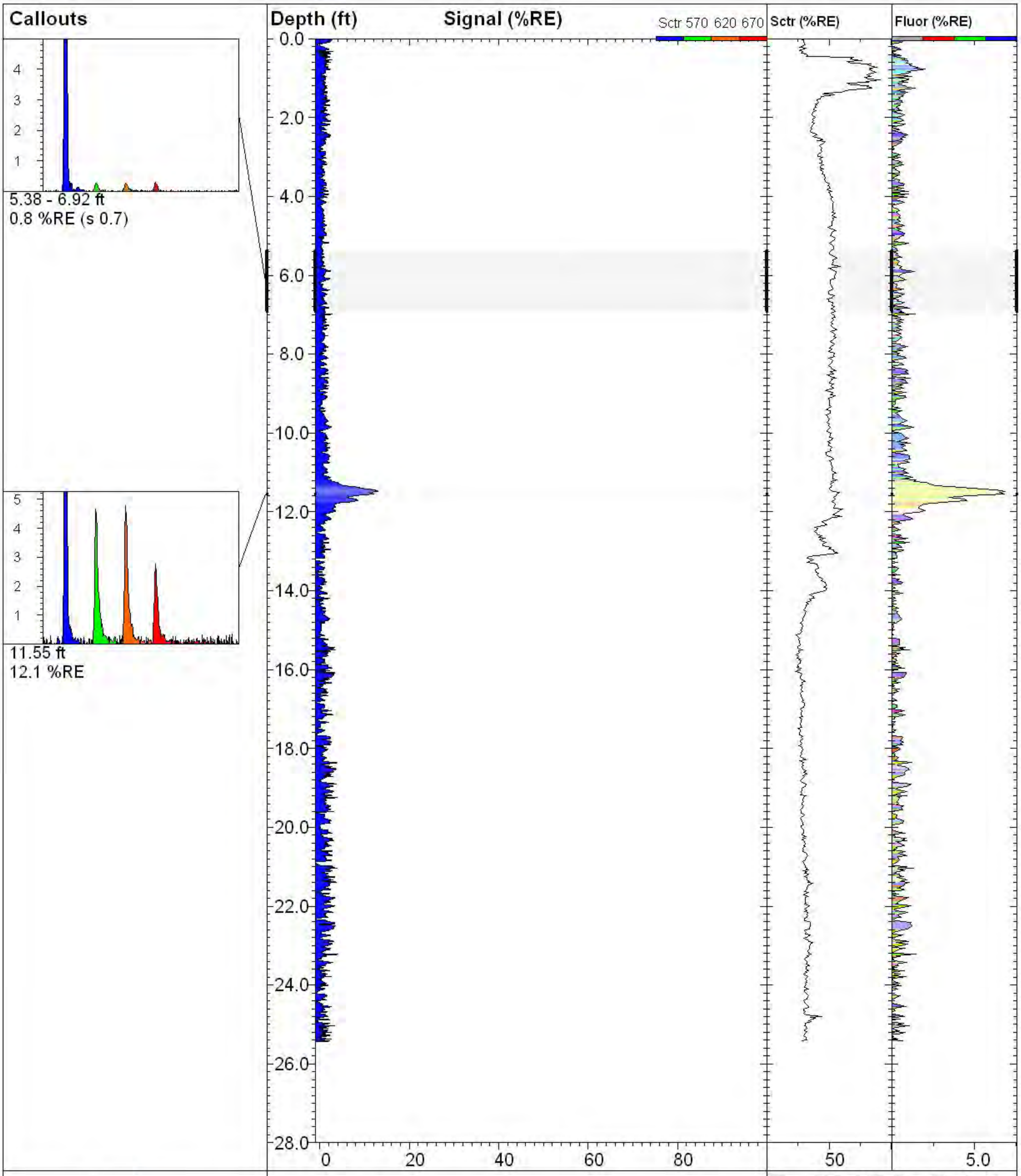
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **69.28 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.1 %RE @ 16.97 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-25 09:44 PDT**



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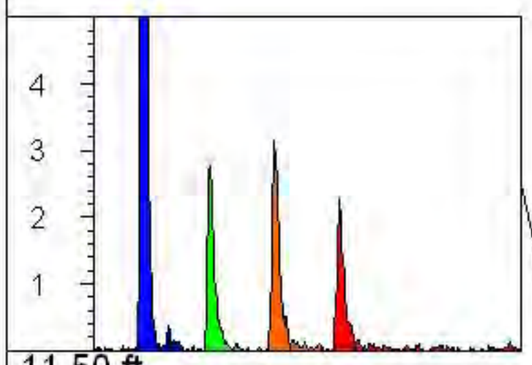
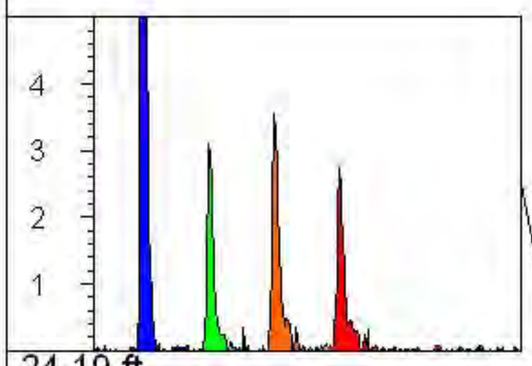
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.43 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **13.0 %RE @ 11.48 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 10:37 PDT**

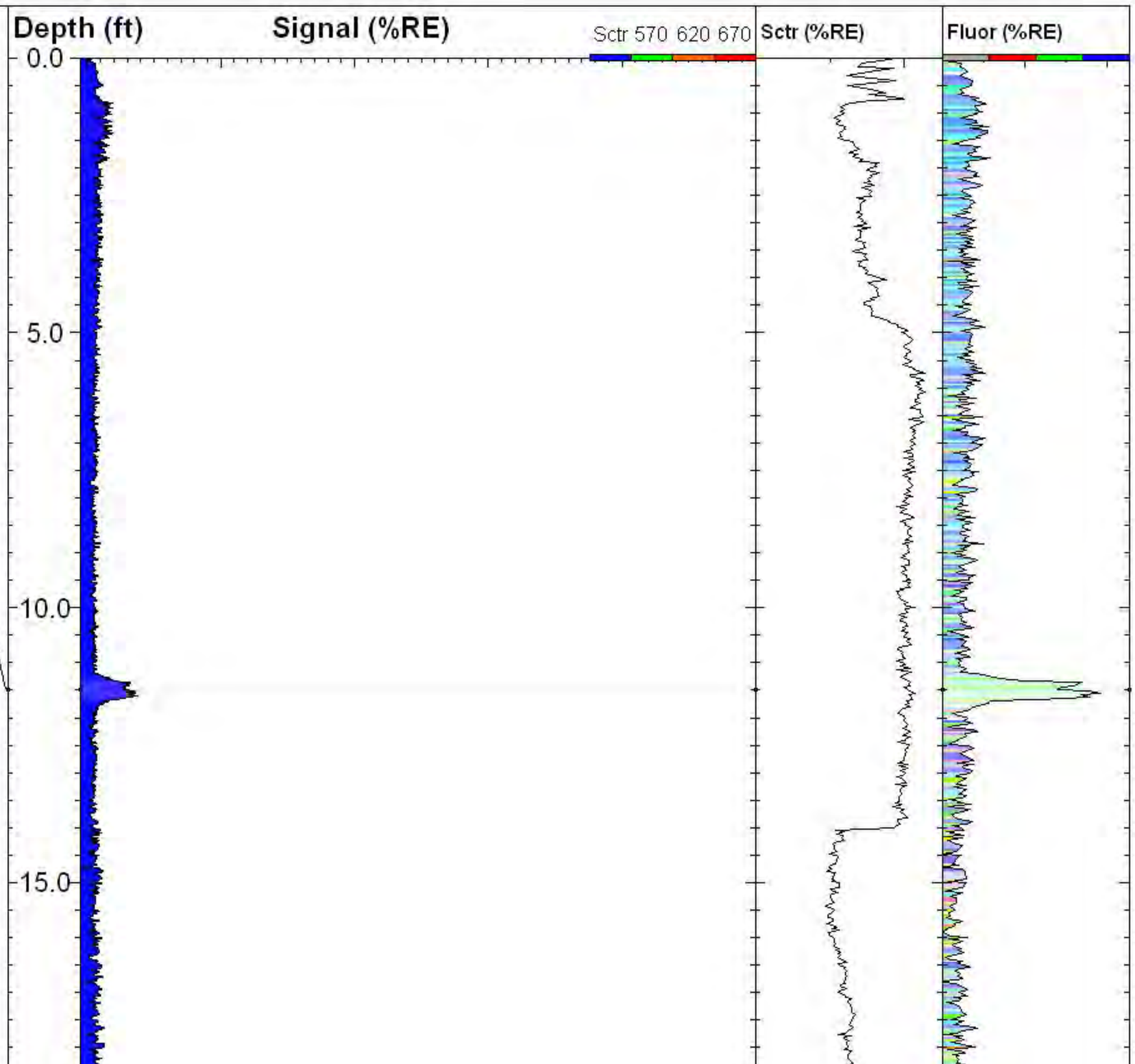
Callouts



11.50 ft
6.3 %RE



24.19 ft
12.8 %RE



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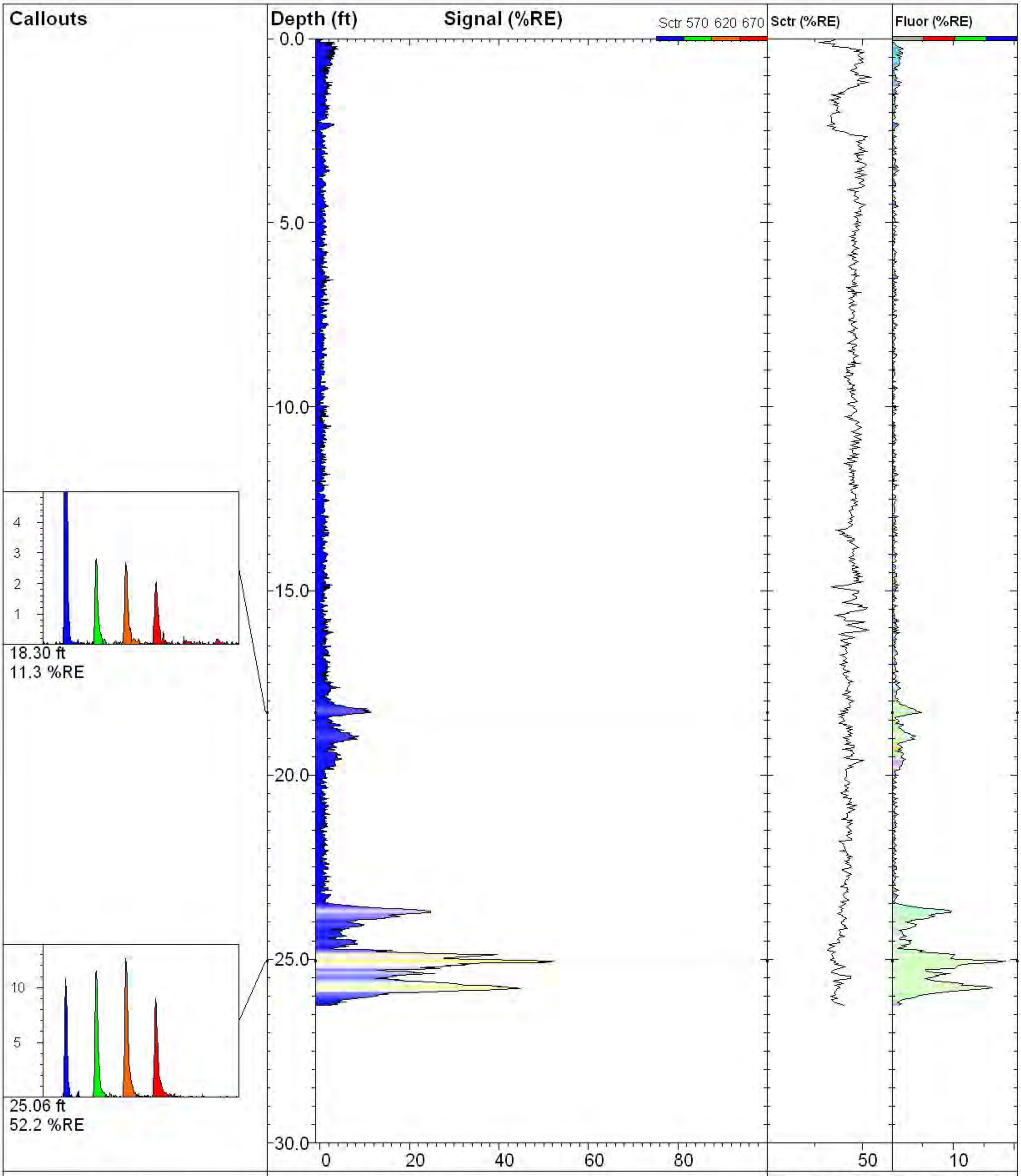
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.19 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **12.8 %RE @ 24.19 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 08:01 PDT**



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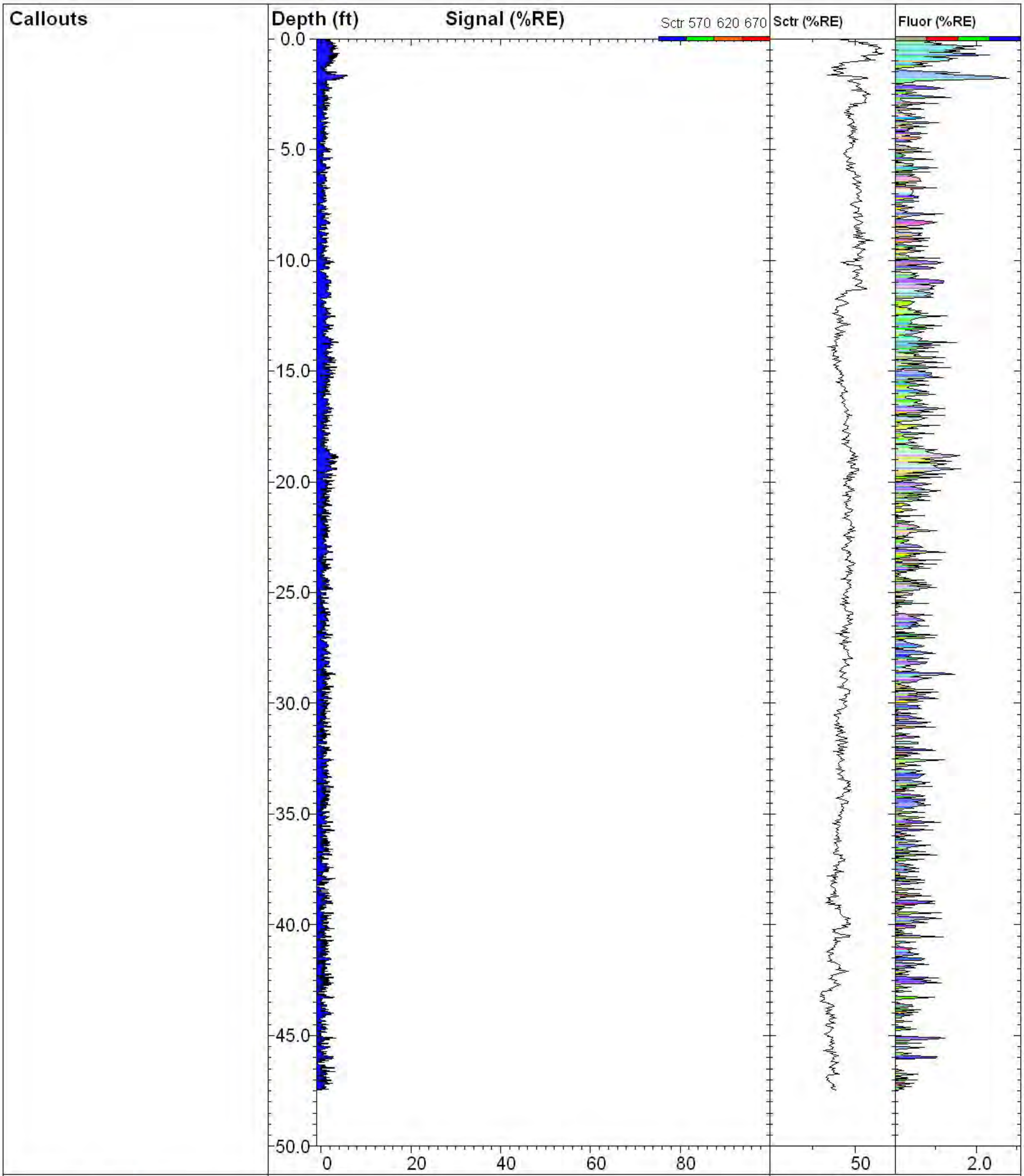
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.25 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **52.2 %RE @ 25.06 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 08:53 PDT**



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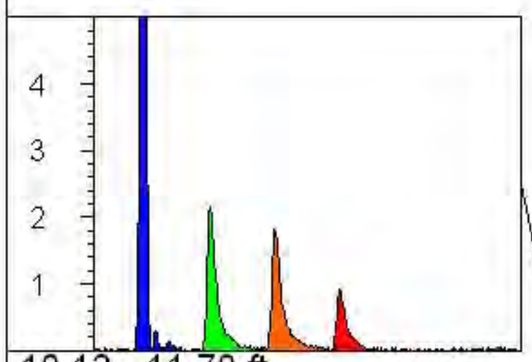
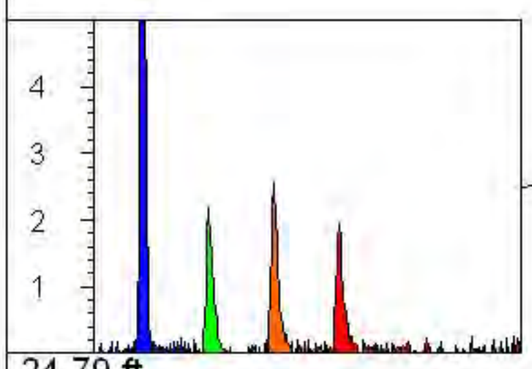
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **47.44 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.9 %RE @ 1.67 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 09:38 PDT**

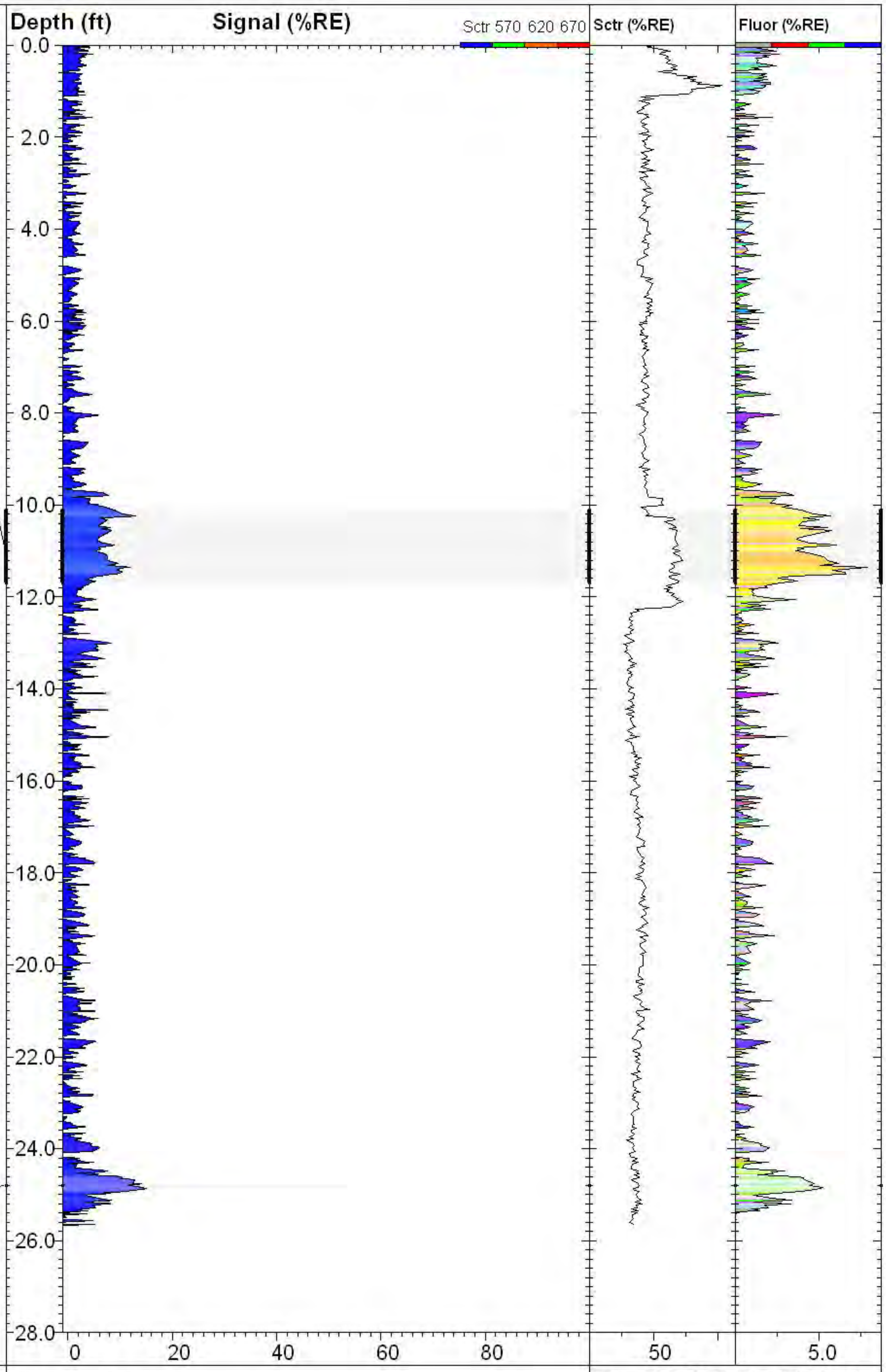
Callouts



10.12 - 11.70 ft
7.3 %RE (s 2.2)



24.79 ft
11.6 %RE



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TG-F01

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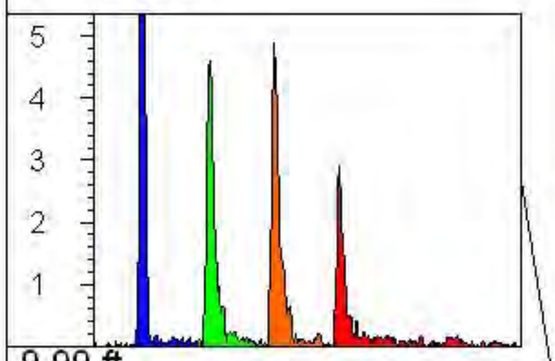
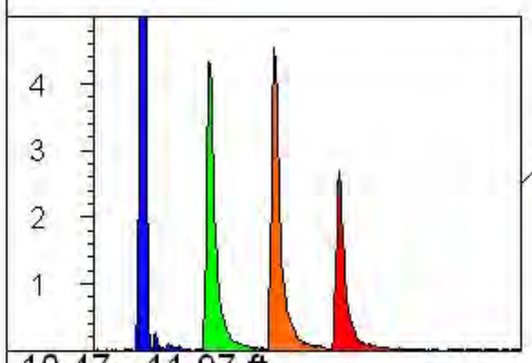
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.66 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **15.1 %RE @ 24.87 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 14:48 PDT**

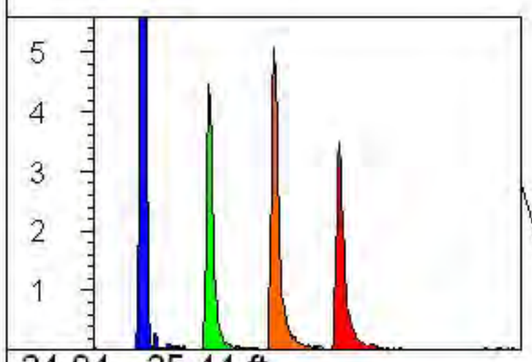
Callouts



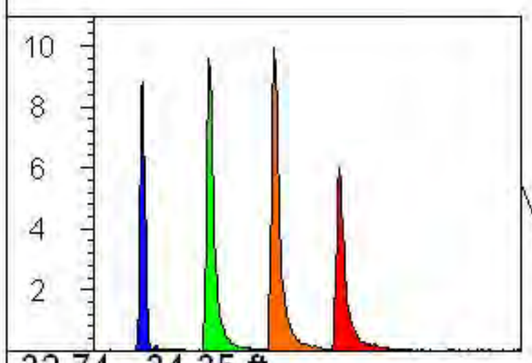
9.99 ft
29.7 %RE



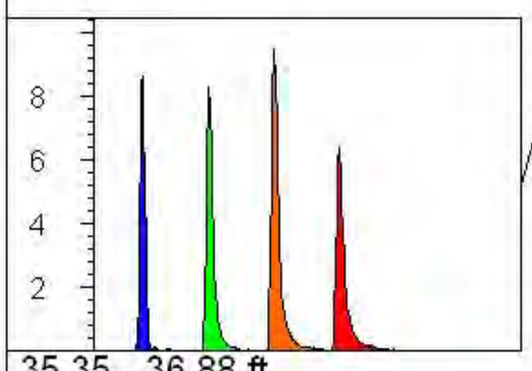
10.47 - 11.97 ft
17.1 %RE (s 2.9)



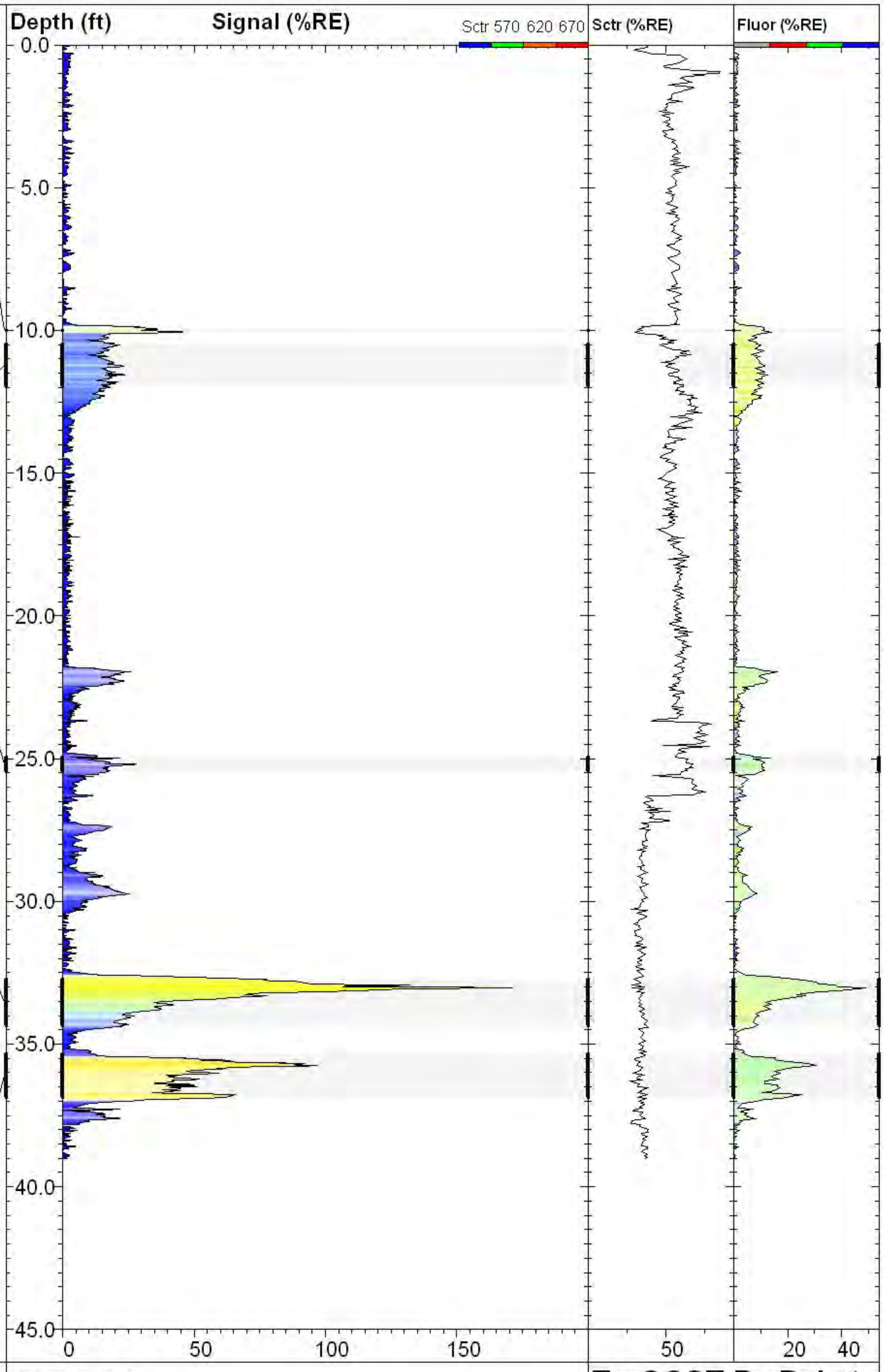
24.94 - 25.44 ft
14.7 %RE (s 5.3)



32.74 - 34.35 ft
58.3 %RE (s 37.7)



35.35 - 36.88 ft
51.8 %RE (s 19.3)



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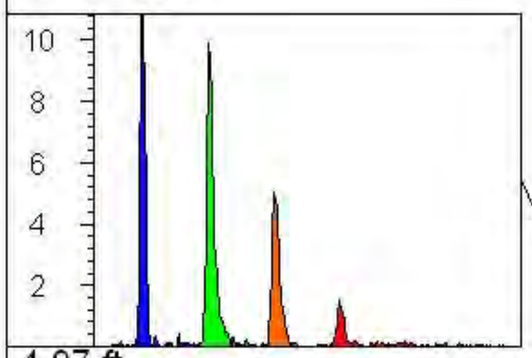
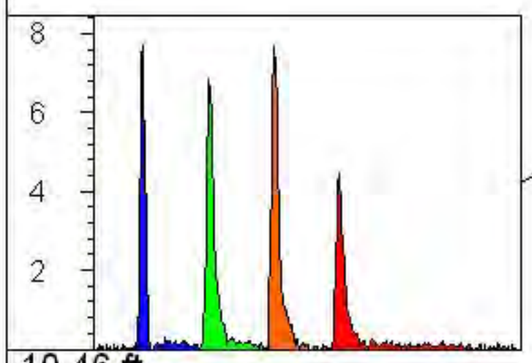
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **39.01 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **174.3 %RE @ 33.03 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 13:35 PDT**

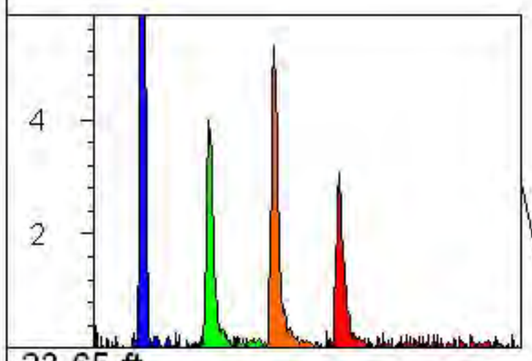
Callouts



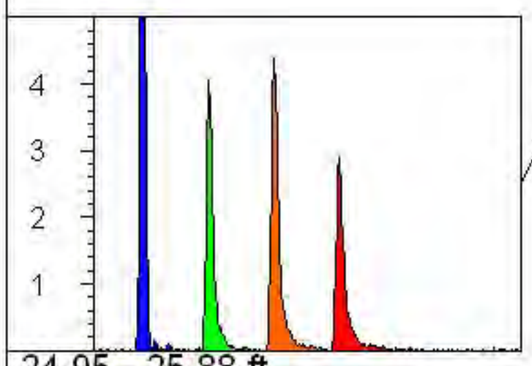
4.97 ft
24.2 %RE



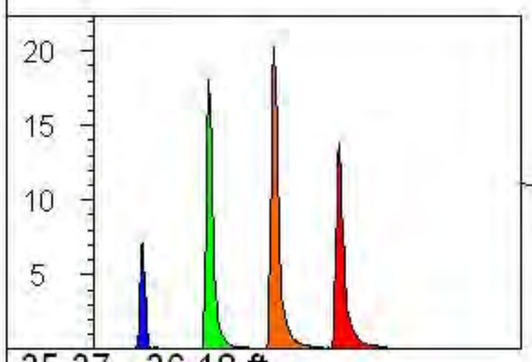
10.46 ft
47.4 %RE



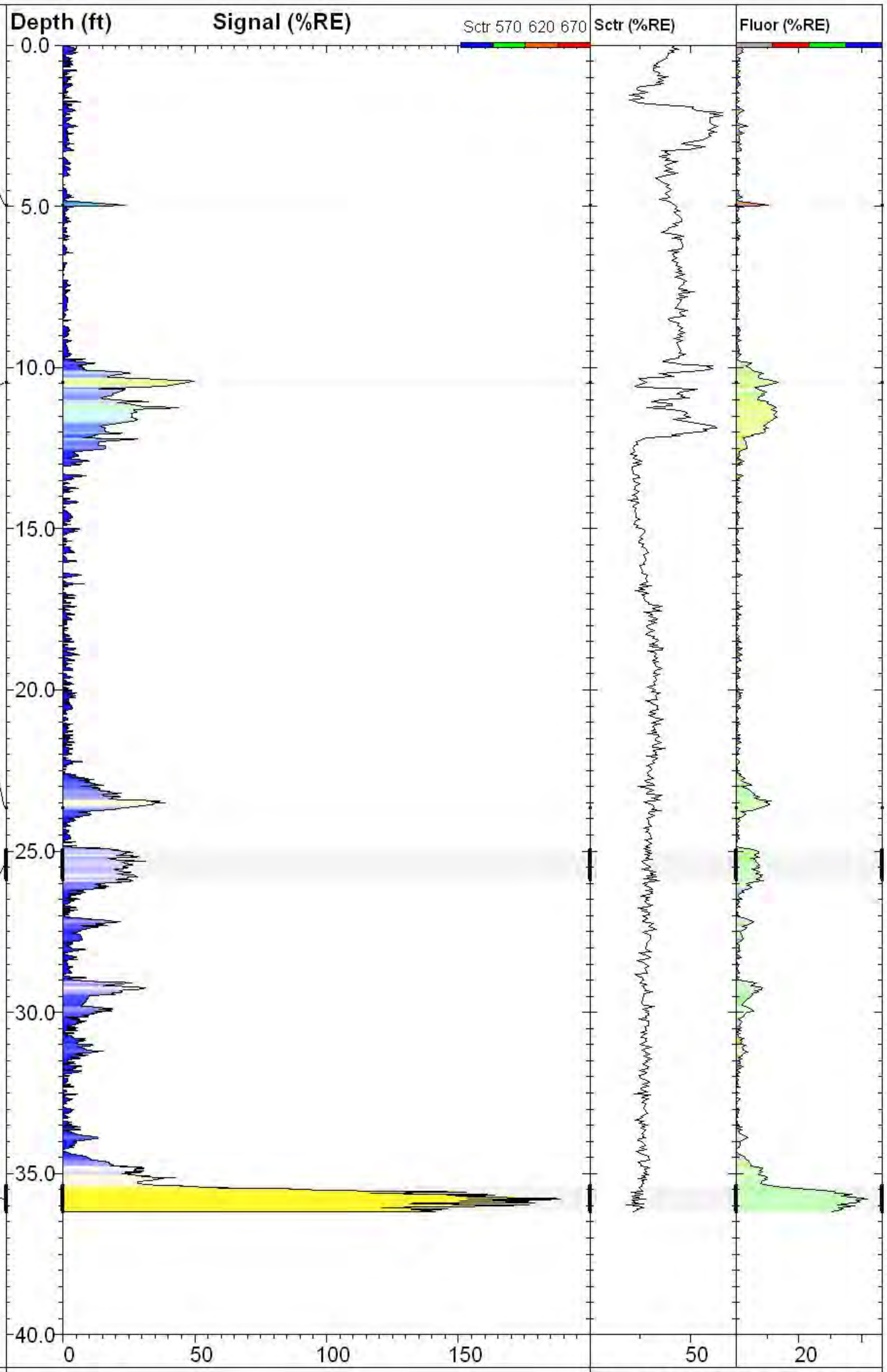
23.65 ft
24.5 %RE



24.95 - 25.88 ft
23.8 %RE (s 3.0)



35.37 - 36.18 ft
133.7 %RE (s 36.5)



TG-F03

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Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **36.18 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **189.0 %RE @ 35.78 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 12:44 PDT**

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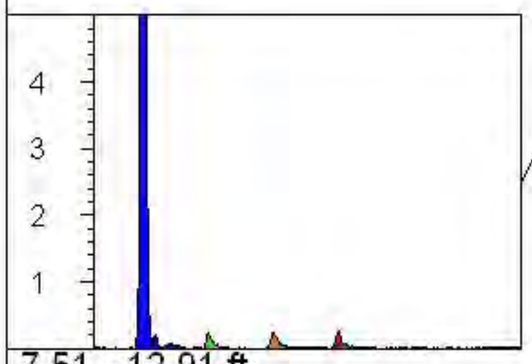
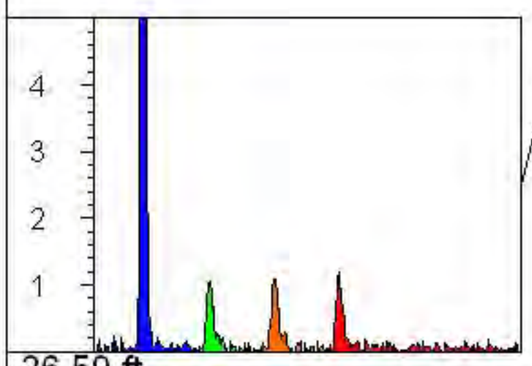
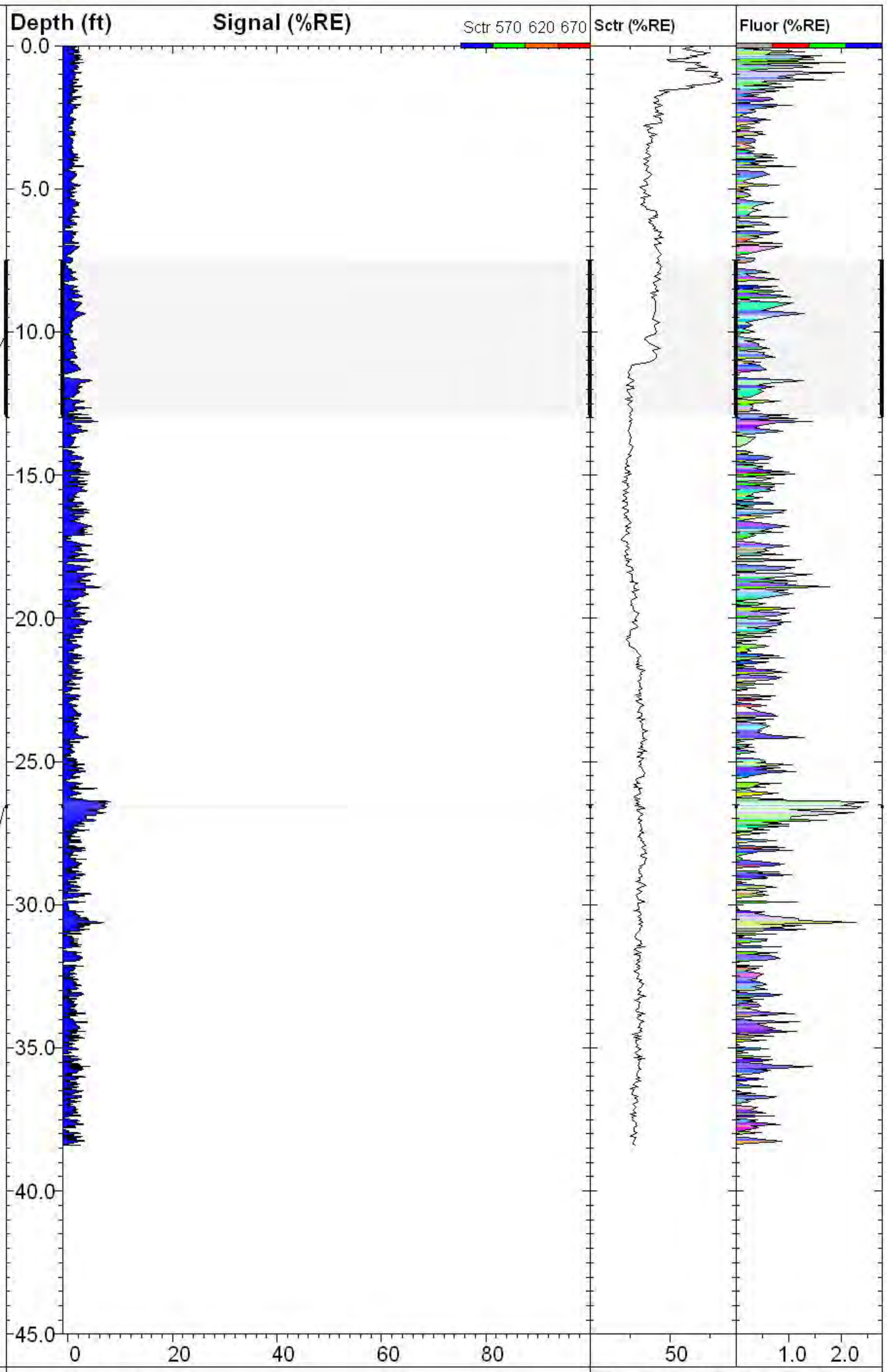


7.51 - 12.91 ft
1.0 %RE (s 1.2)



26.59 ft
7.4 %RE



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TG-F04

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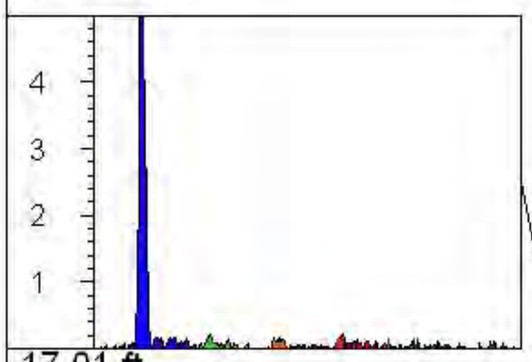
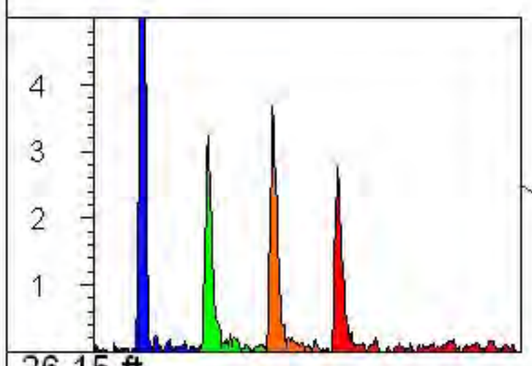
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **38.41 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **8.2 %RE @ 26.40 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 11:14 PDT**

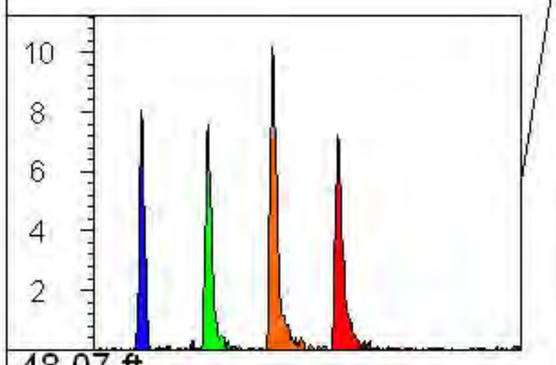
Callouts



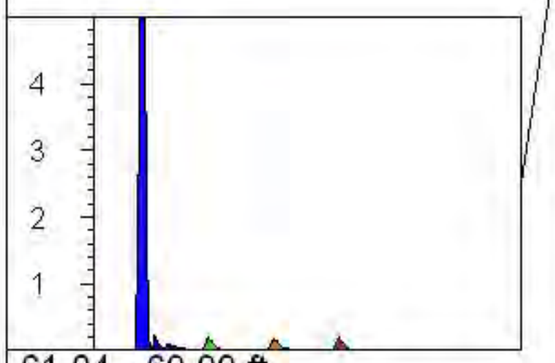
17.01 ft
2.3 %RE



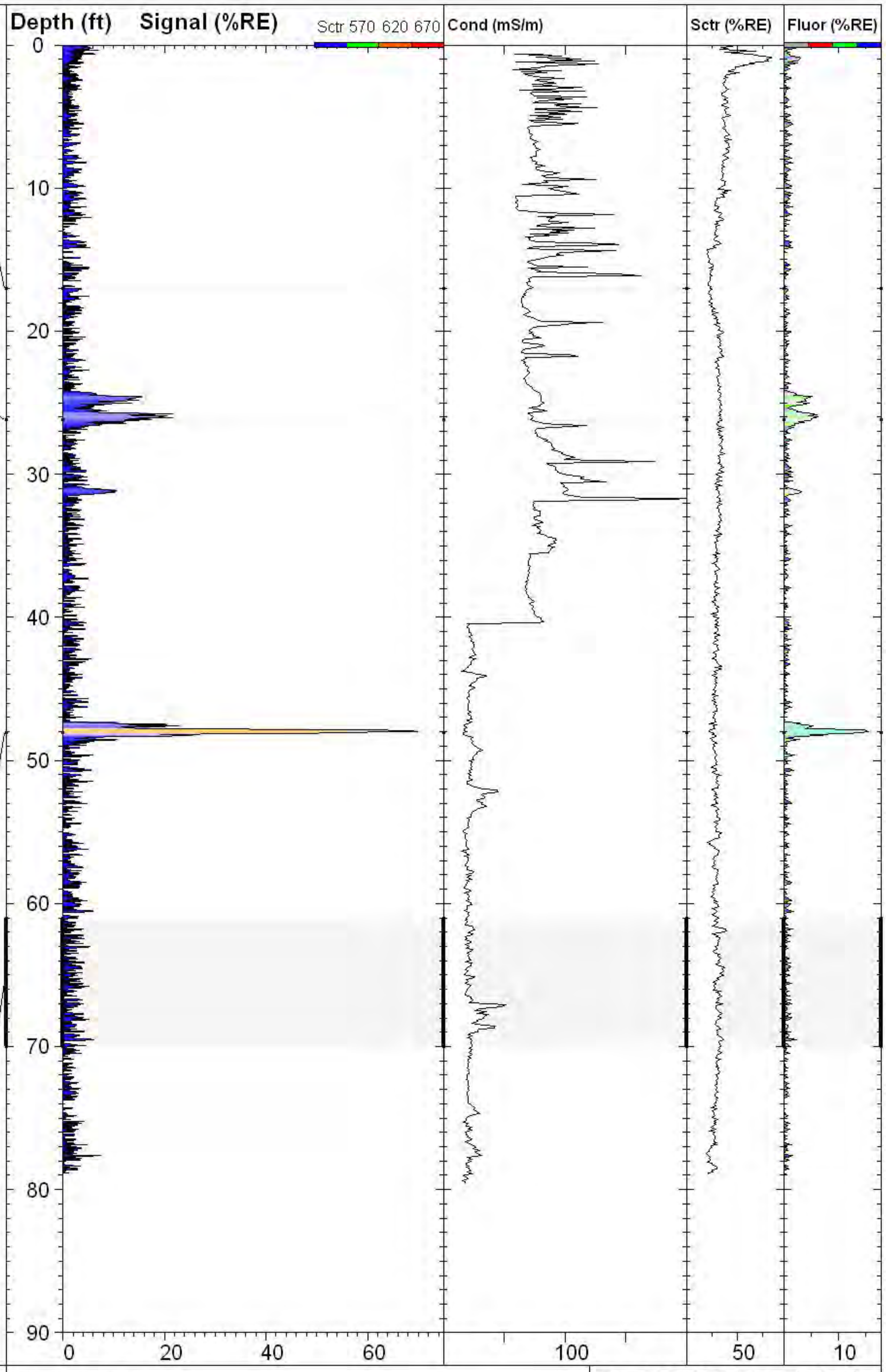
26.15 ft
17.5 %RE



48.07 ft
53.8 %RE



61.04 - 69.99 ft
1.3 %RE (s 1.9)



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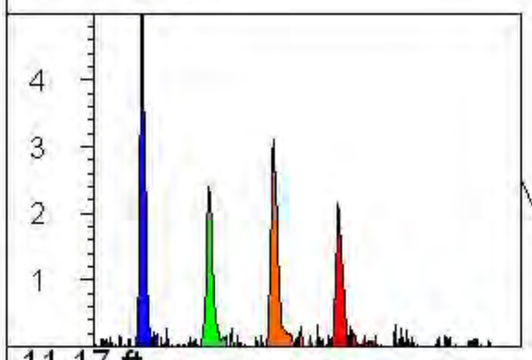
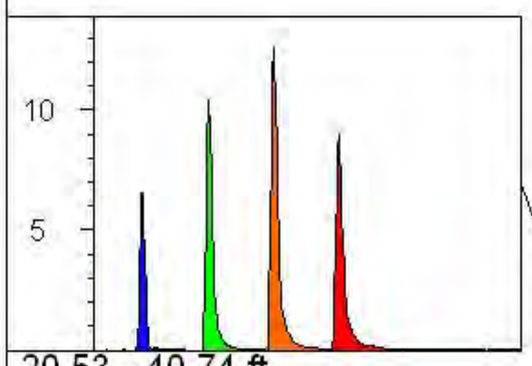
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **78.89 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **70.6 %RE @ 47.96 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-10 16:40 PDT**

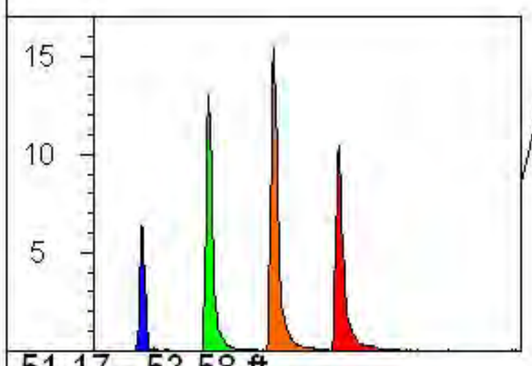
Callouts



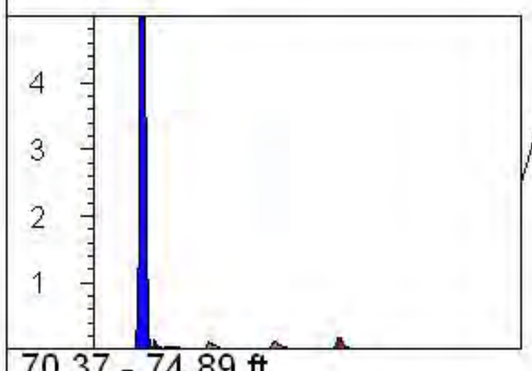
11.17 ft
24.1 %RE



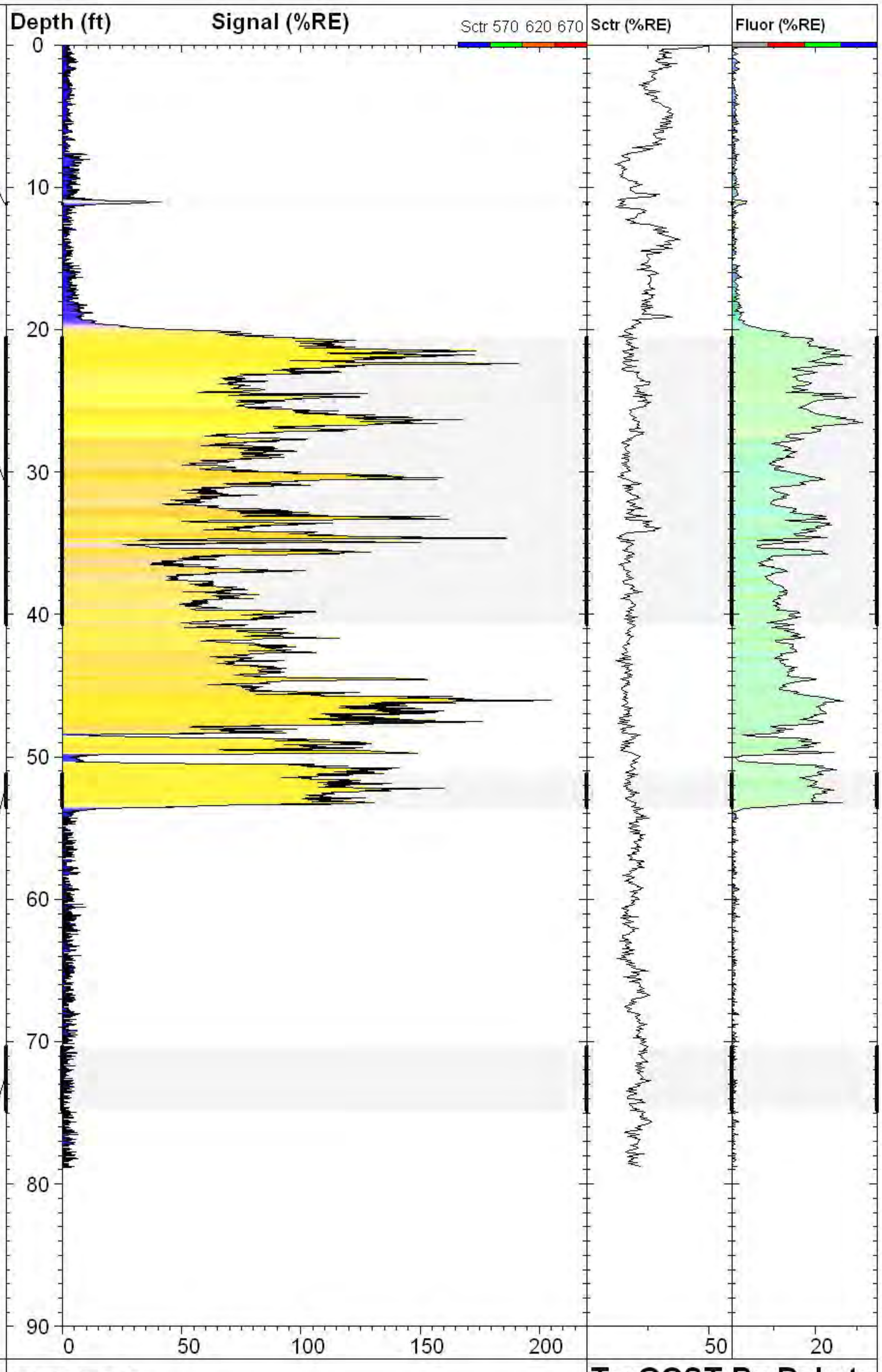
20.53 - 40.74 ft
85.9 %RE (s 31.3)



51.17 - 53.58 ft
109.3 %RE (s 21.6)



70.37 - 74.89 ft
0.8 %RE (s 2.7)



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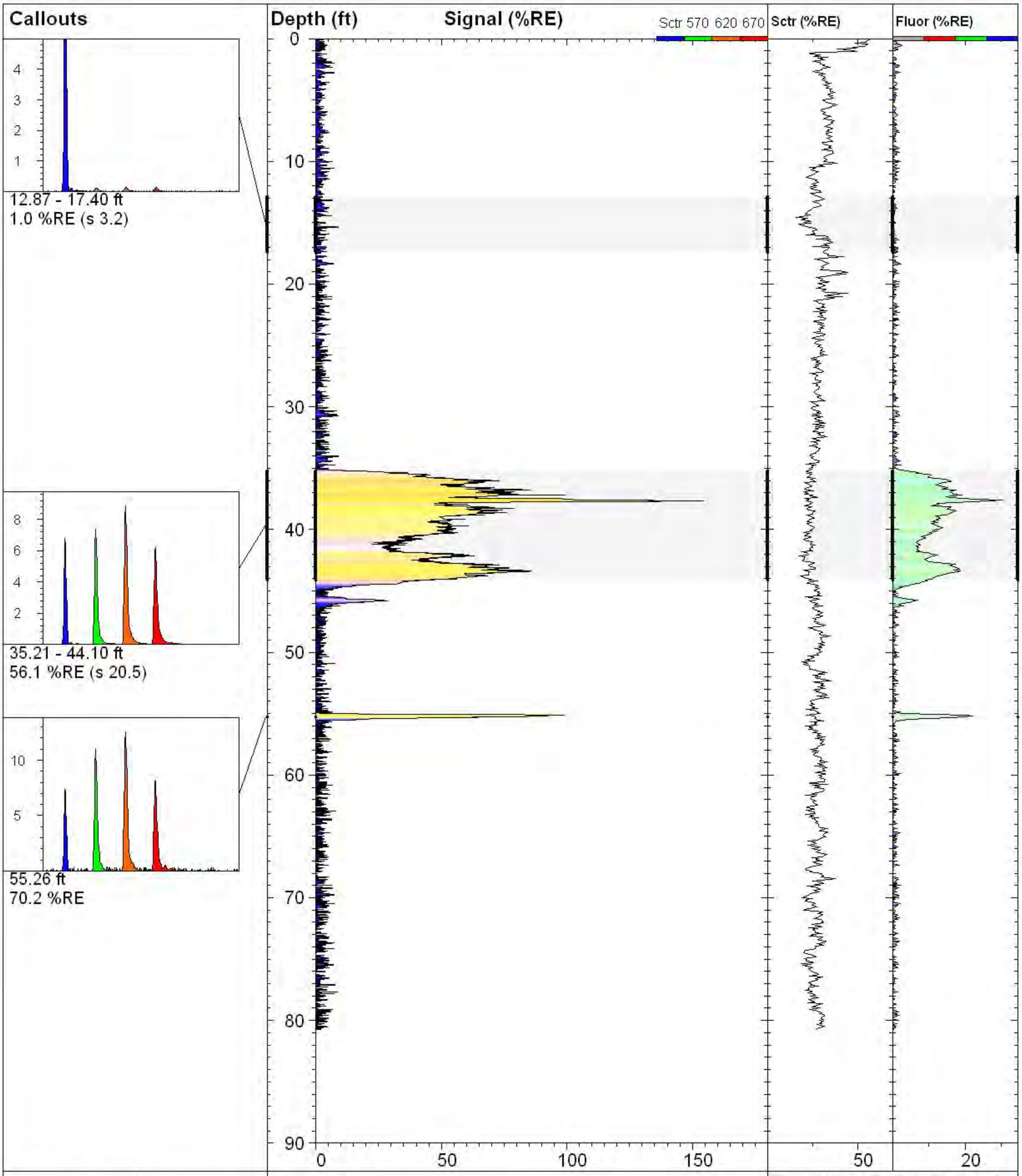
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **78.85 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **209.1 %RE @ 46.03 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-17 13:28 PDT**



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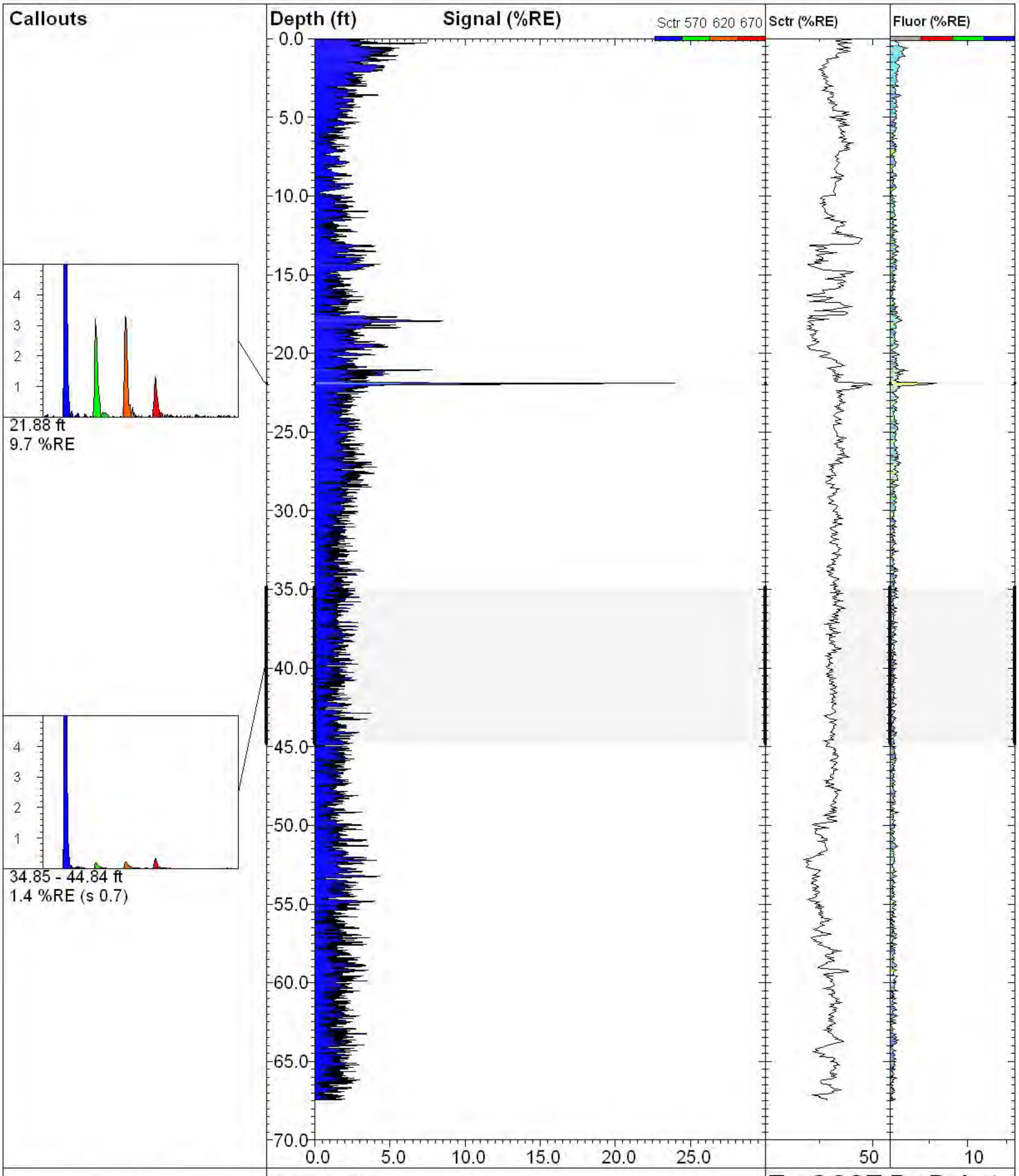
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **80.73 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **154.9 %RE @ 37.69 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-17 15:12 PDT**



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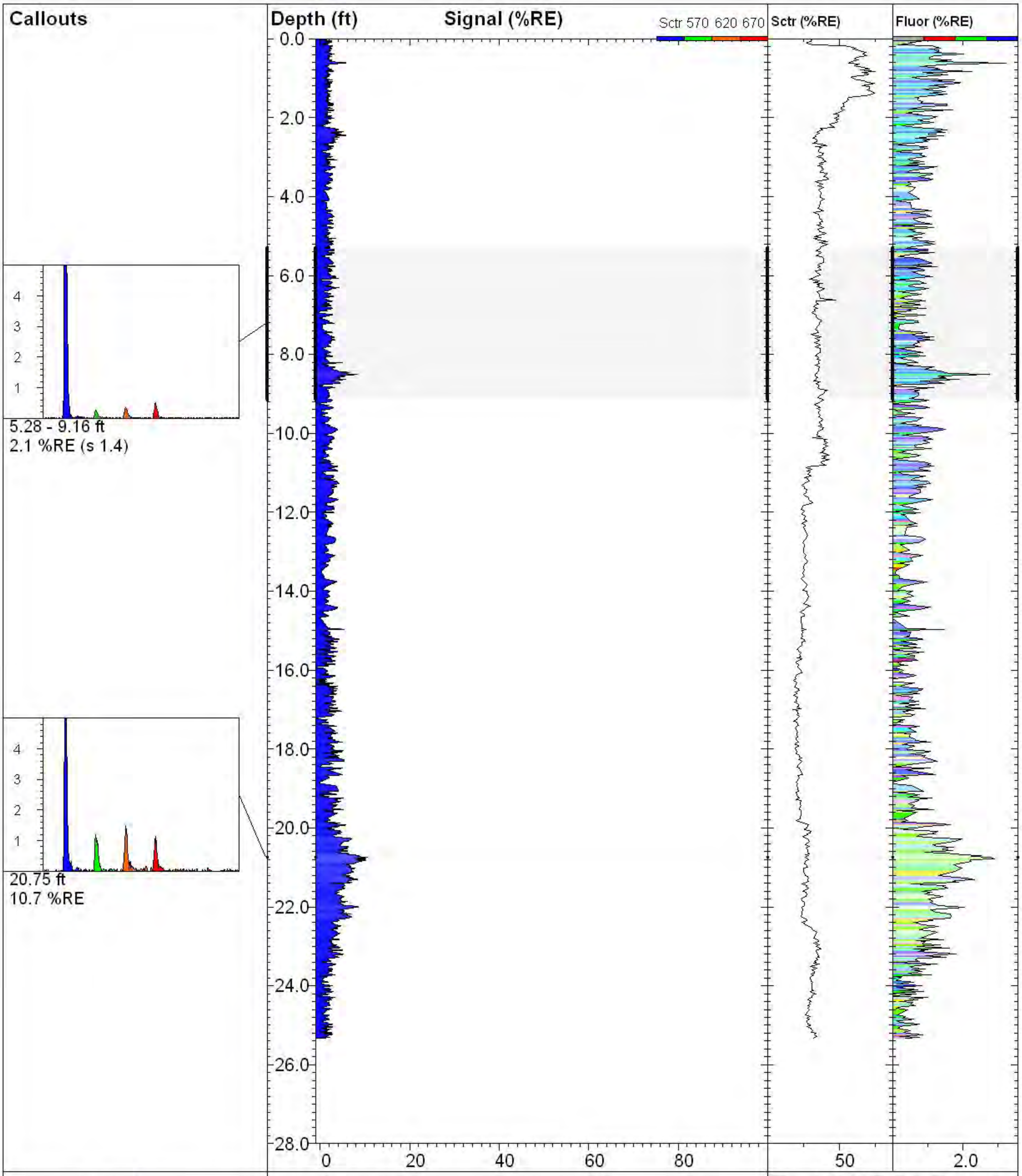
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **67.45 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **27.7 %RE @ 21.90 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-18 08:13 PDT**



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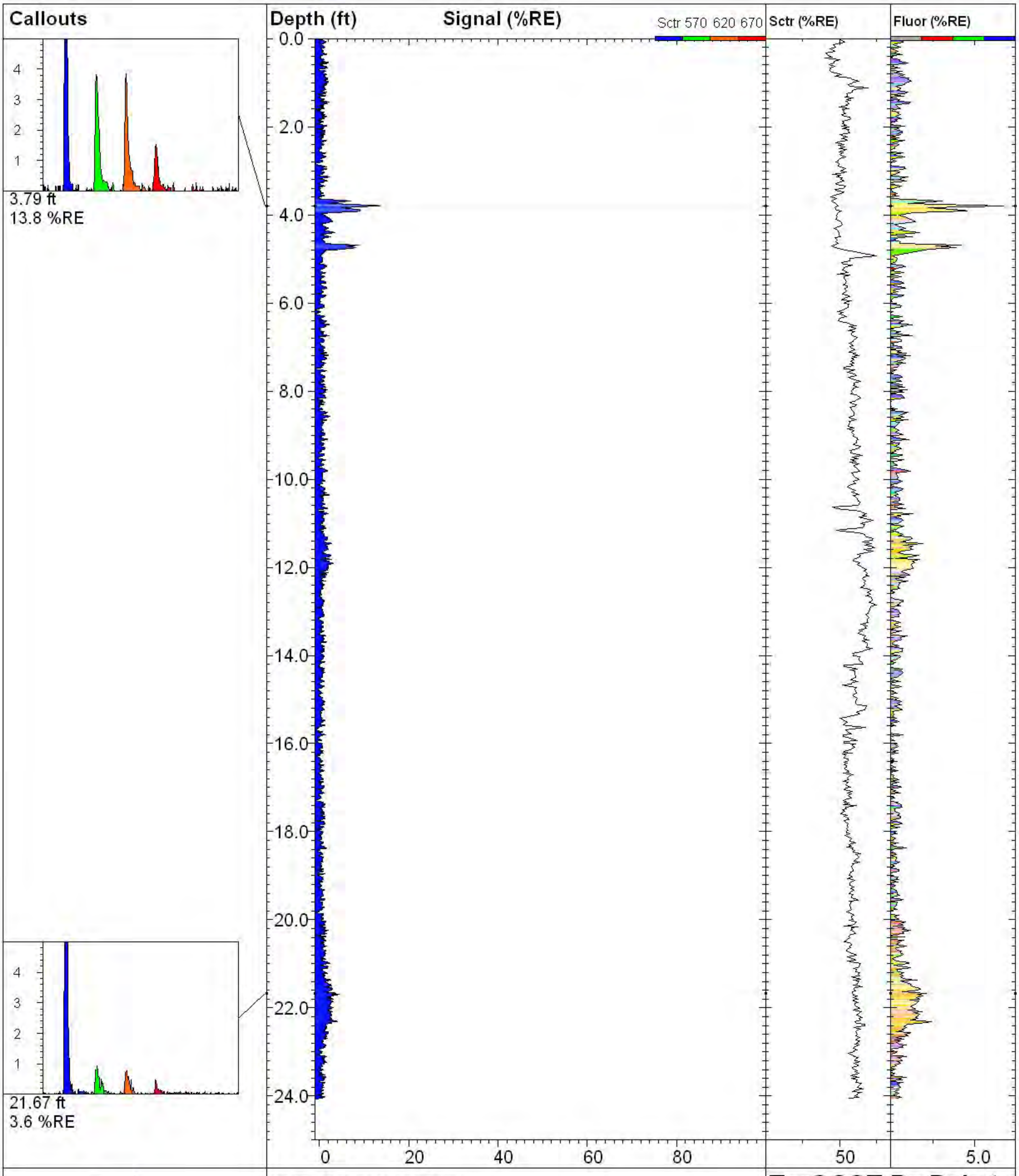
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.34 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **10.7 %RE @ 20.75 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-19 08:28 PDT**



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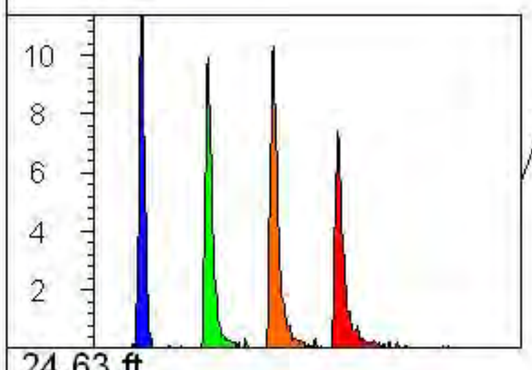
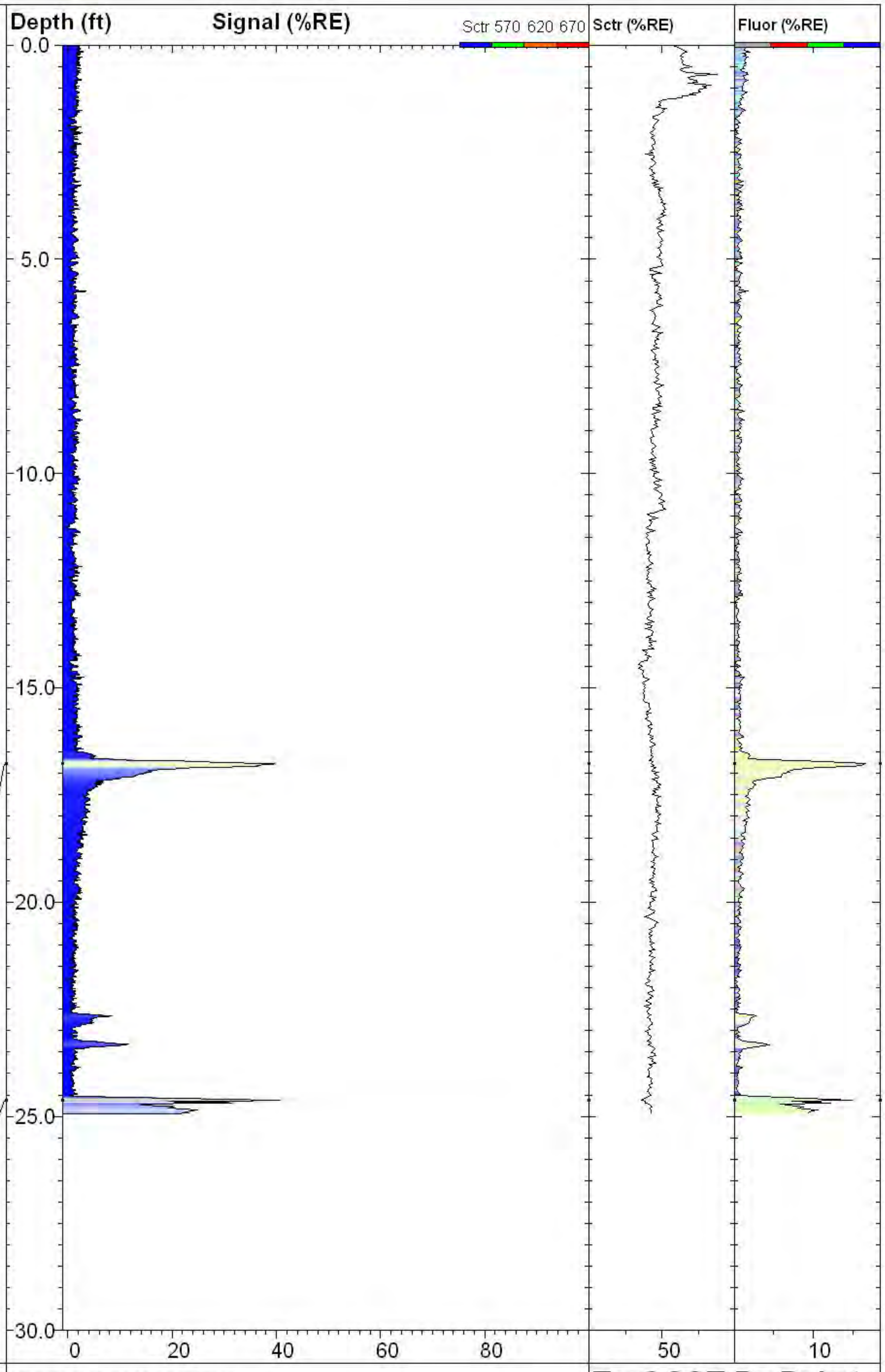
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.06 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **13.8 %RE @ 3.79 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-26 10:57 PDT**

Callouts

16.77 ft
39.7 %RE



24.63 ft
41.7 %RE



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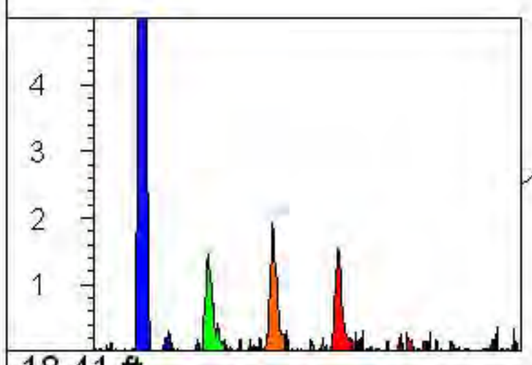
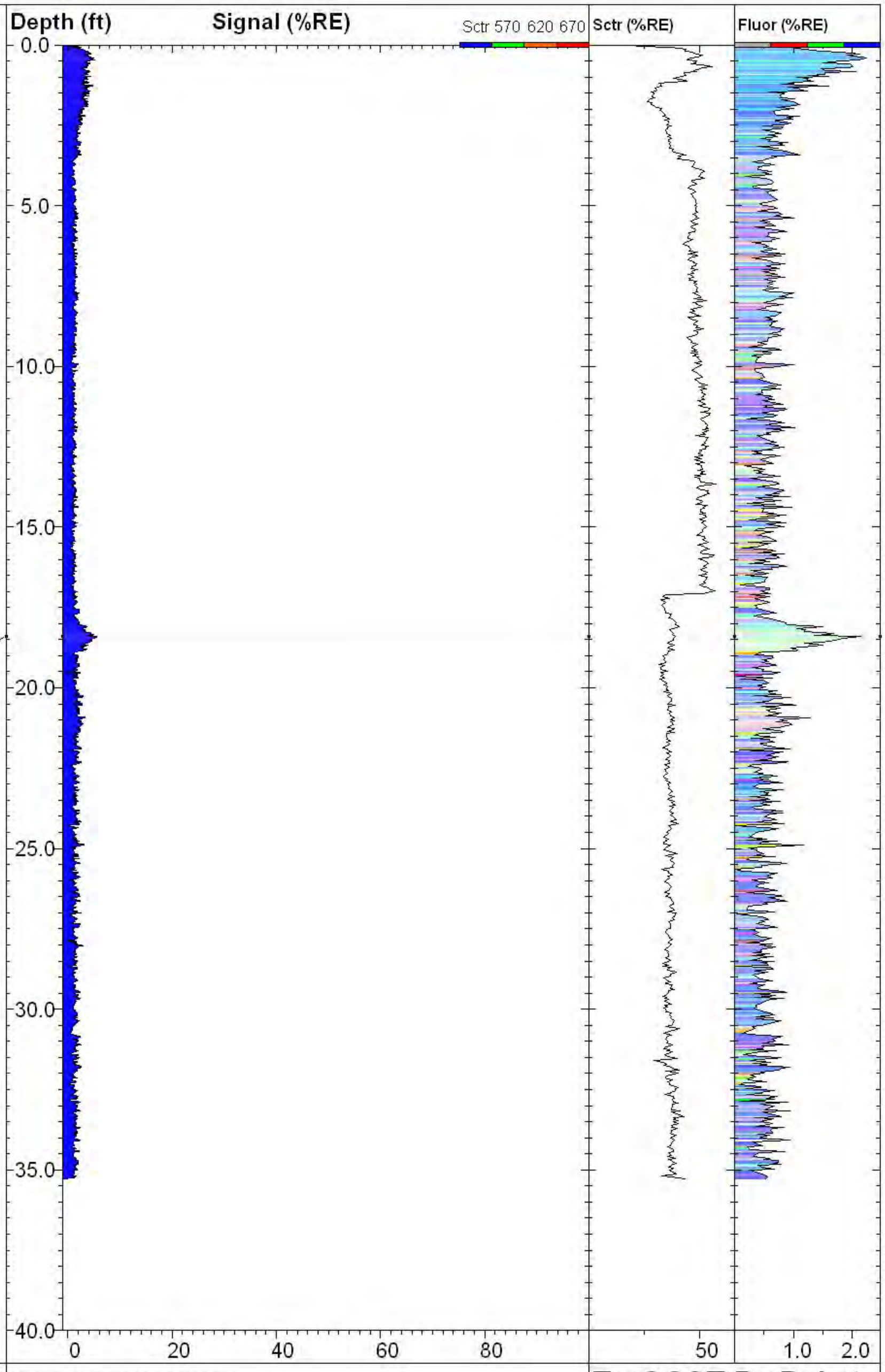
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.93 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **41.7 %RE @ 24.63 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 14:25 PDT**

Callouts



18.41 ft
5.5 %RE



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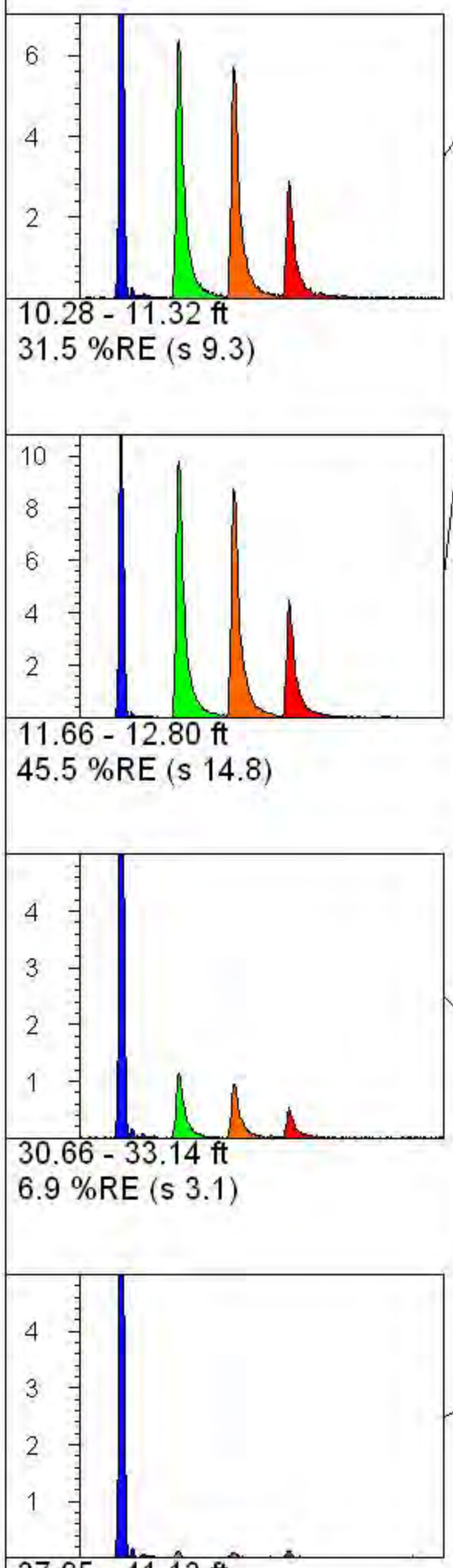
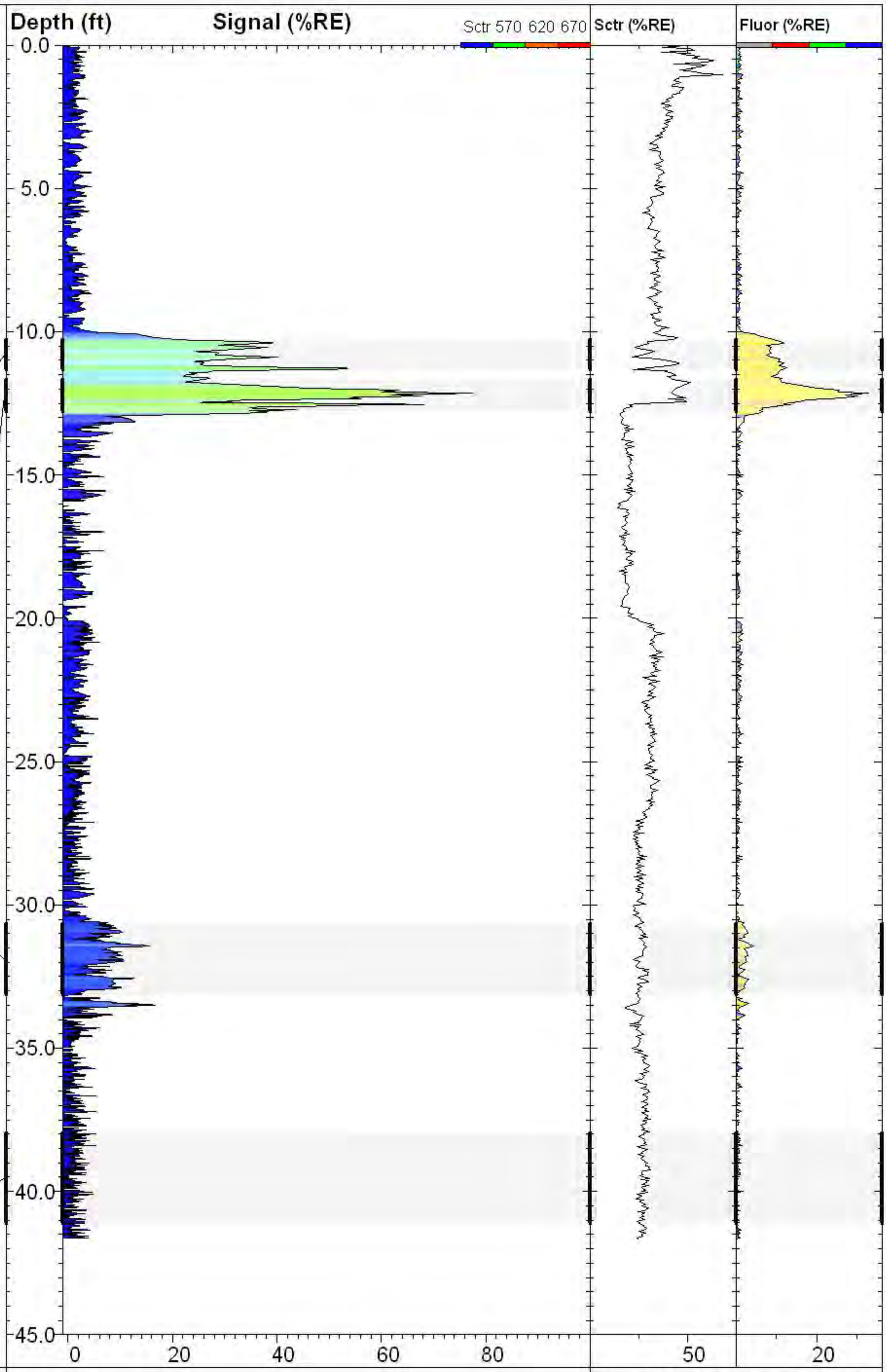
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **35.26 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.5 %RE @ 18.41 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 14:50 PDT**

Callouts





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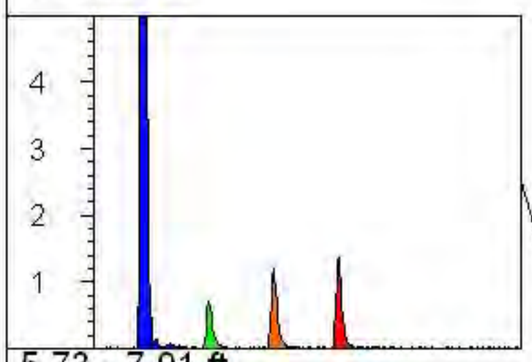
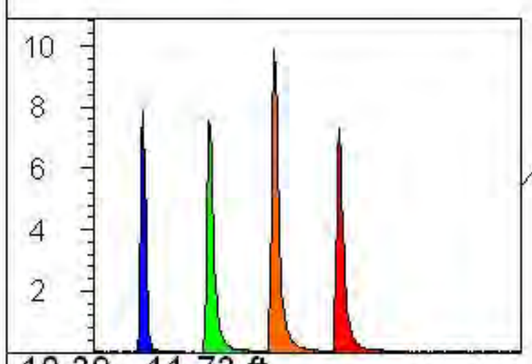
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **41.66 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **78.0 %RE @ 12.15 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-16 15:32 PDT**

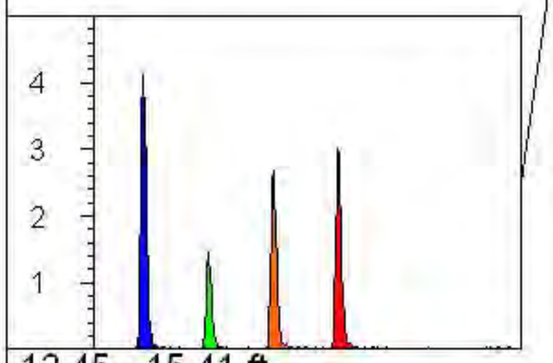
Callouts



5.73 - 7.91 ft
3.5 %RE (s 1.0)

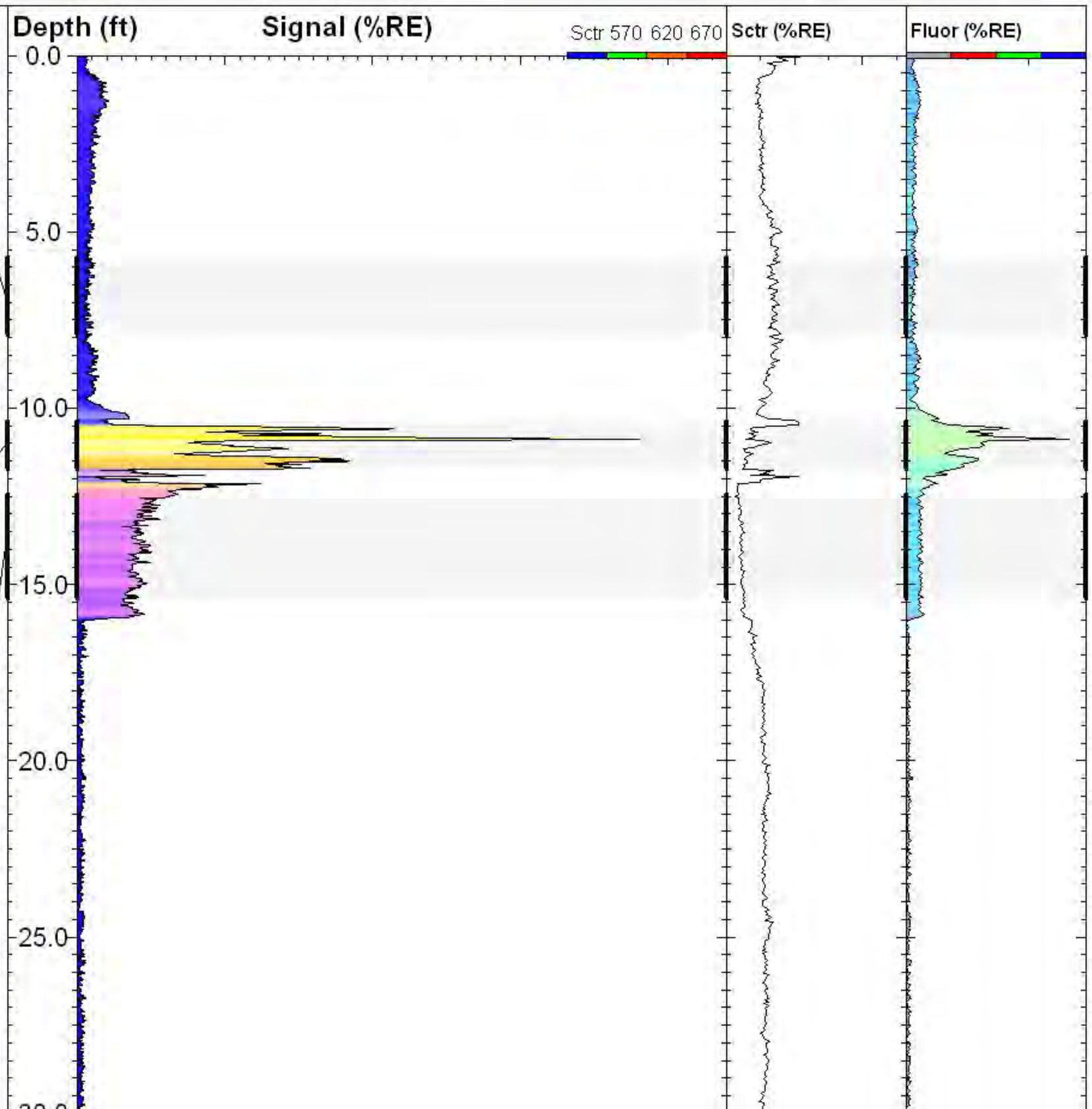


10.39 - 11.73 ft
55.3 %RE (s 29.6)



12.45 - 15.41 ft
21.3 %RE (s 3.6)

31.03 - 39.70 ft
1.1 %RE (s 0.8)



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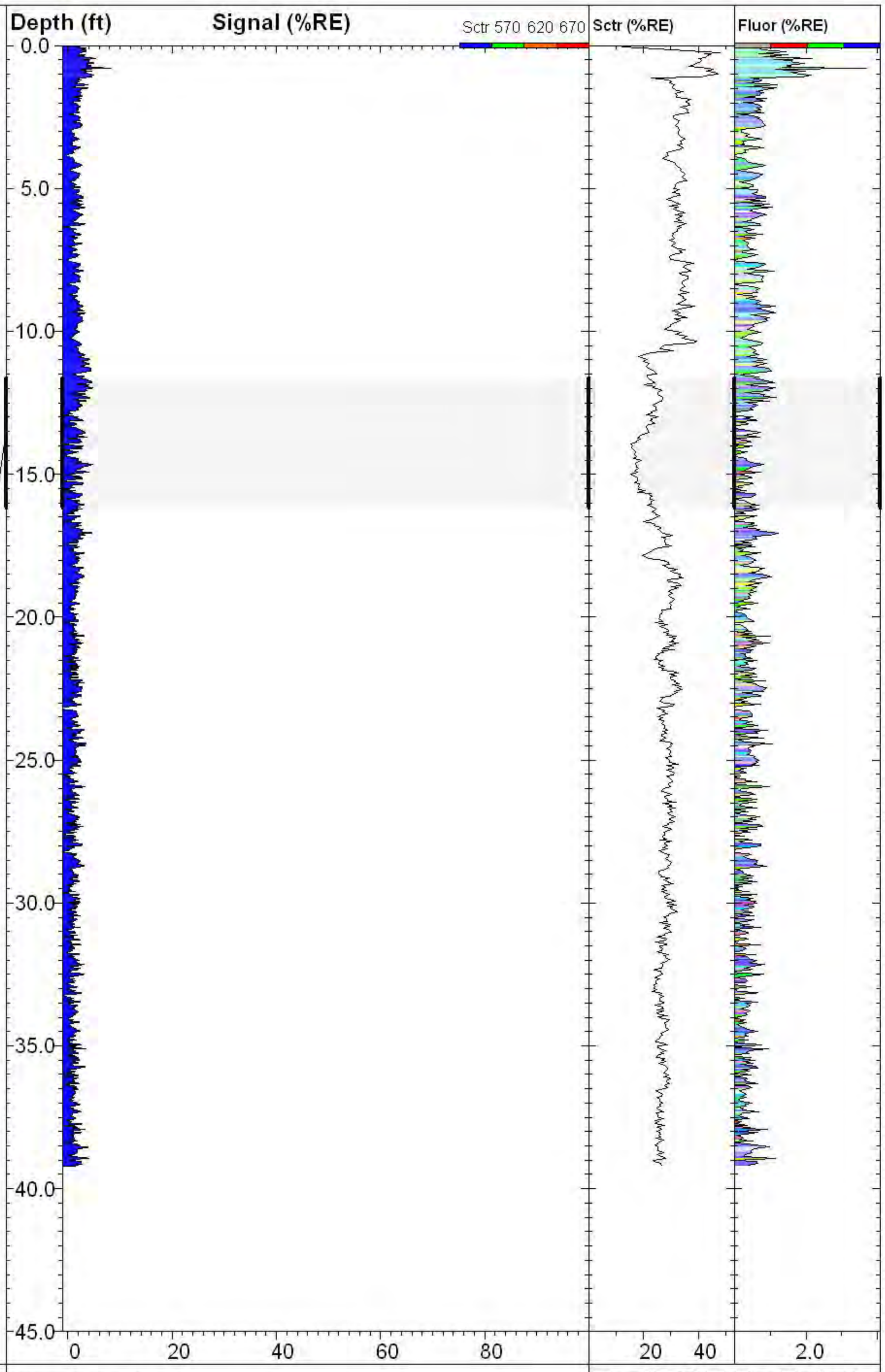
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **41.96 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **192.2 %RE @ 10.89 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-17 08:33 PDT**

Callouts

11.64 - 16.19 ft
1.8 %RE (s 1.6)



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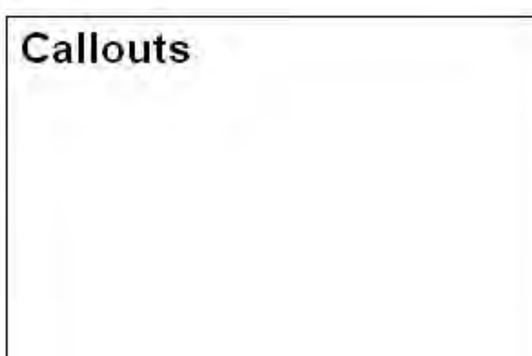
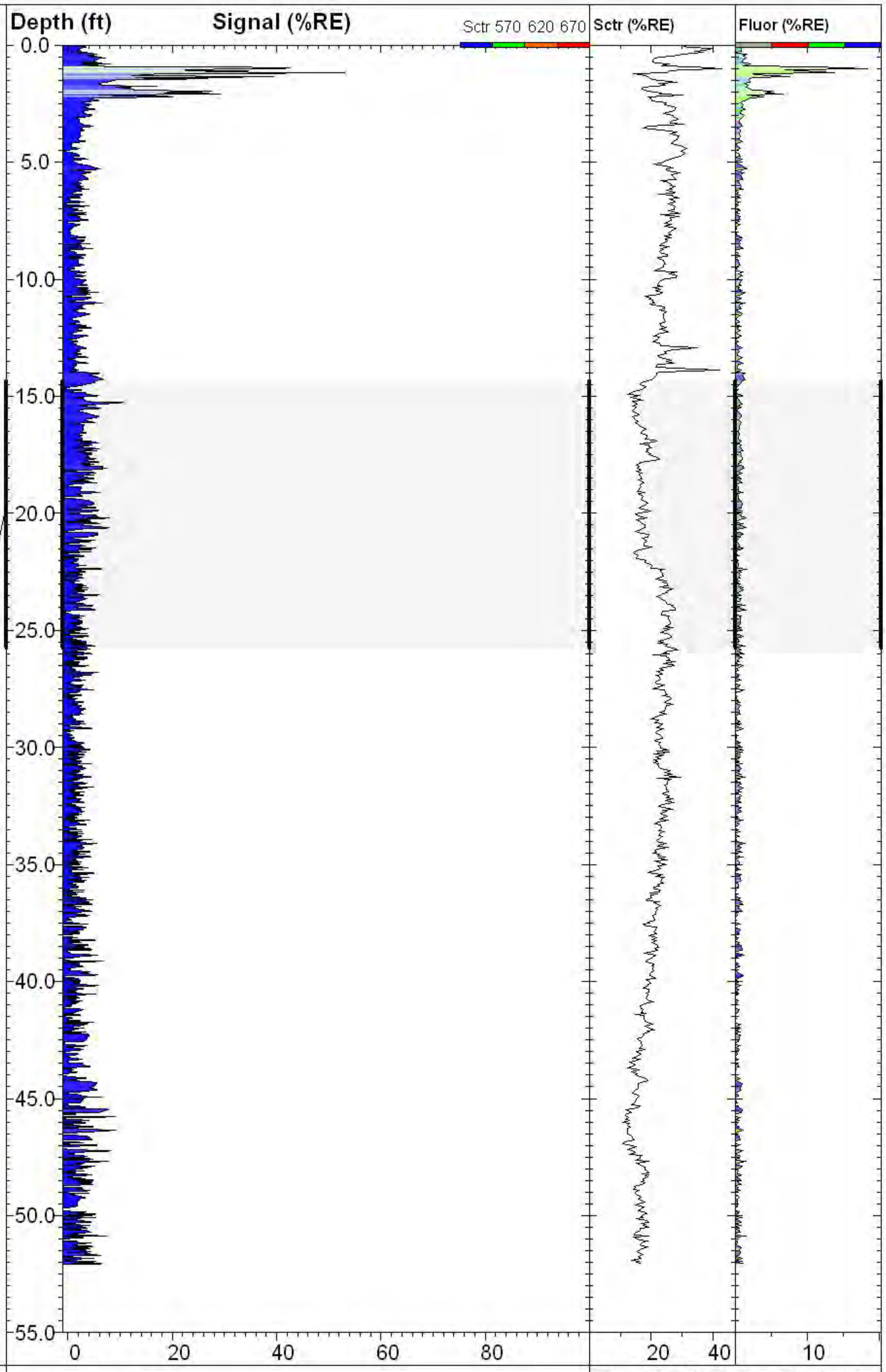
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **39.21 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **8.5 %RE @ 0.79 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-17 09:25 PDT**

Callouts



14.35 - 25.74 ft
2.5 %RE (s 2.1)



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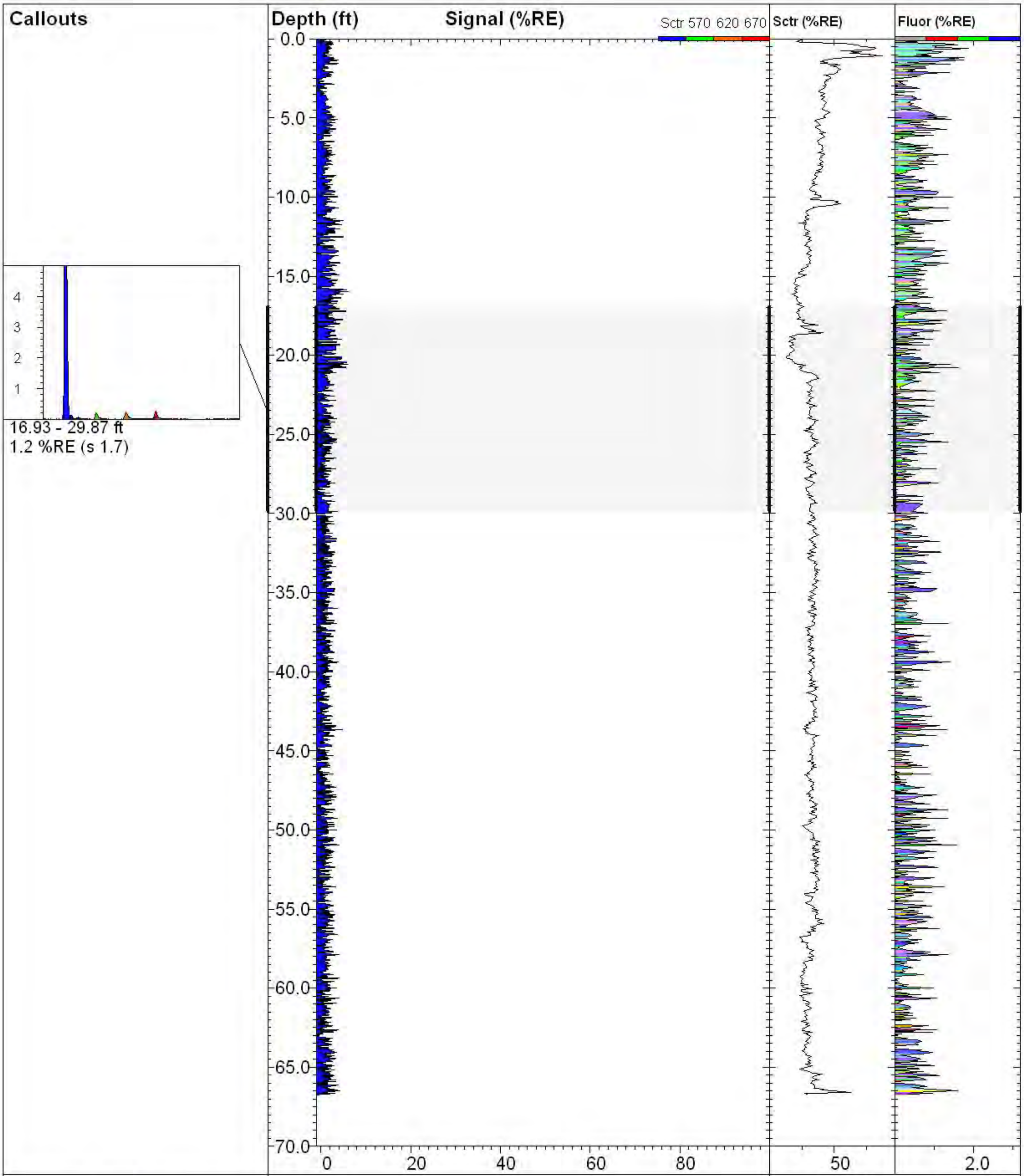
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **52.07 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **54.9 %RE @ 1.19 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-17 10:19 PDT**



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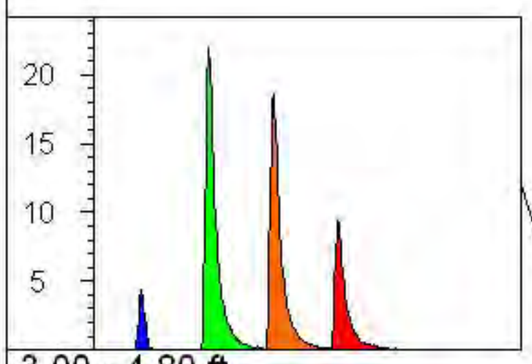
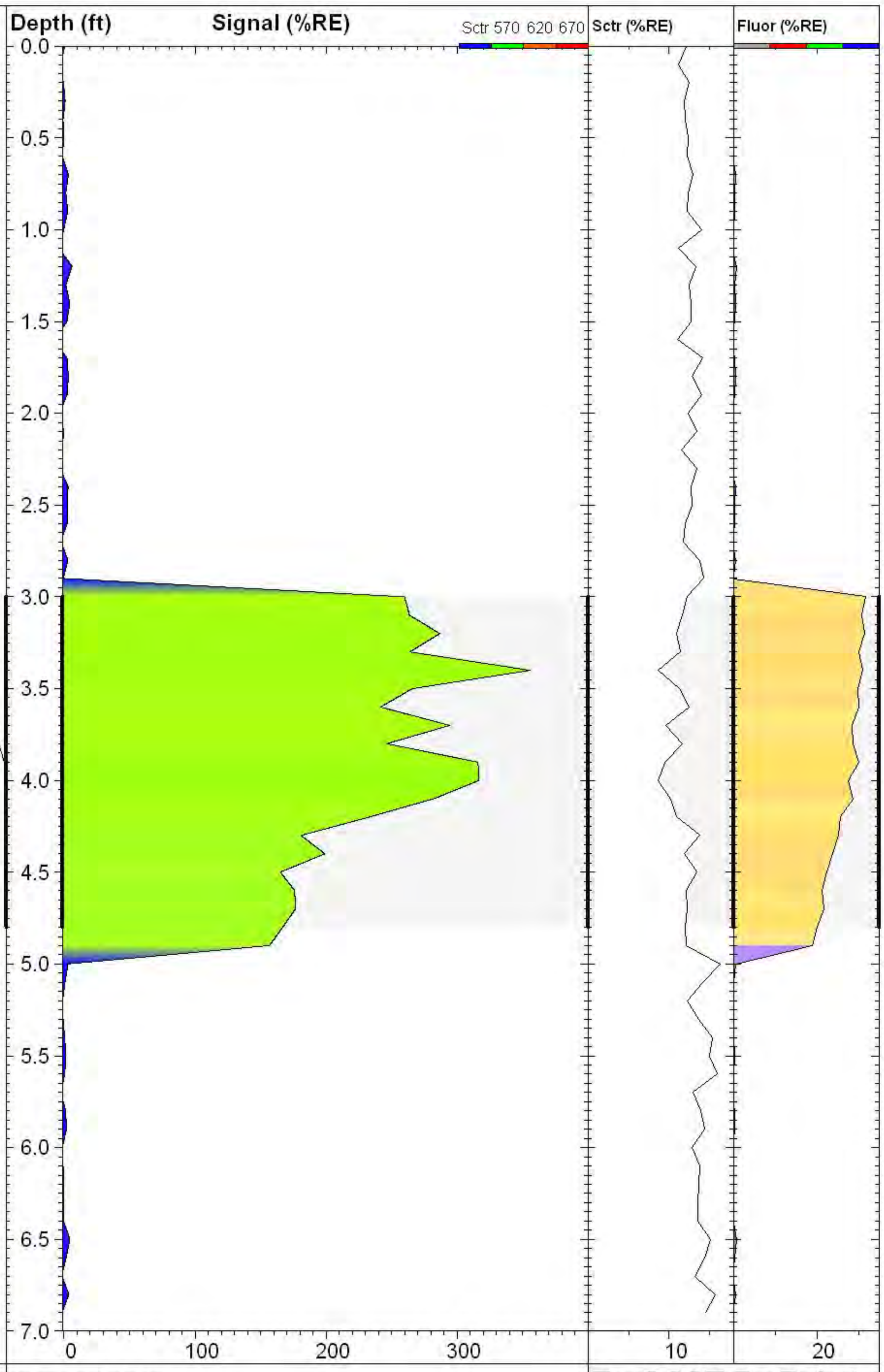
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **66.73 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.3 %RE @ 20.77 ft**
Operator / Unit: **T. Rudolph / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-17 11:24 PDT**

Callouts



3.00 - 4.80 ft
240.9 %RE (s 56.6)
Product from well



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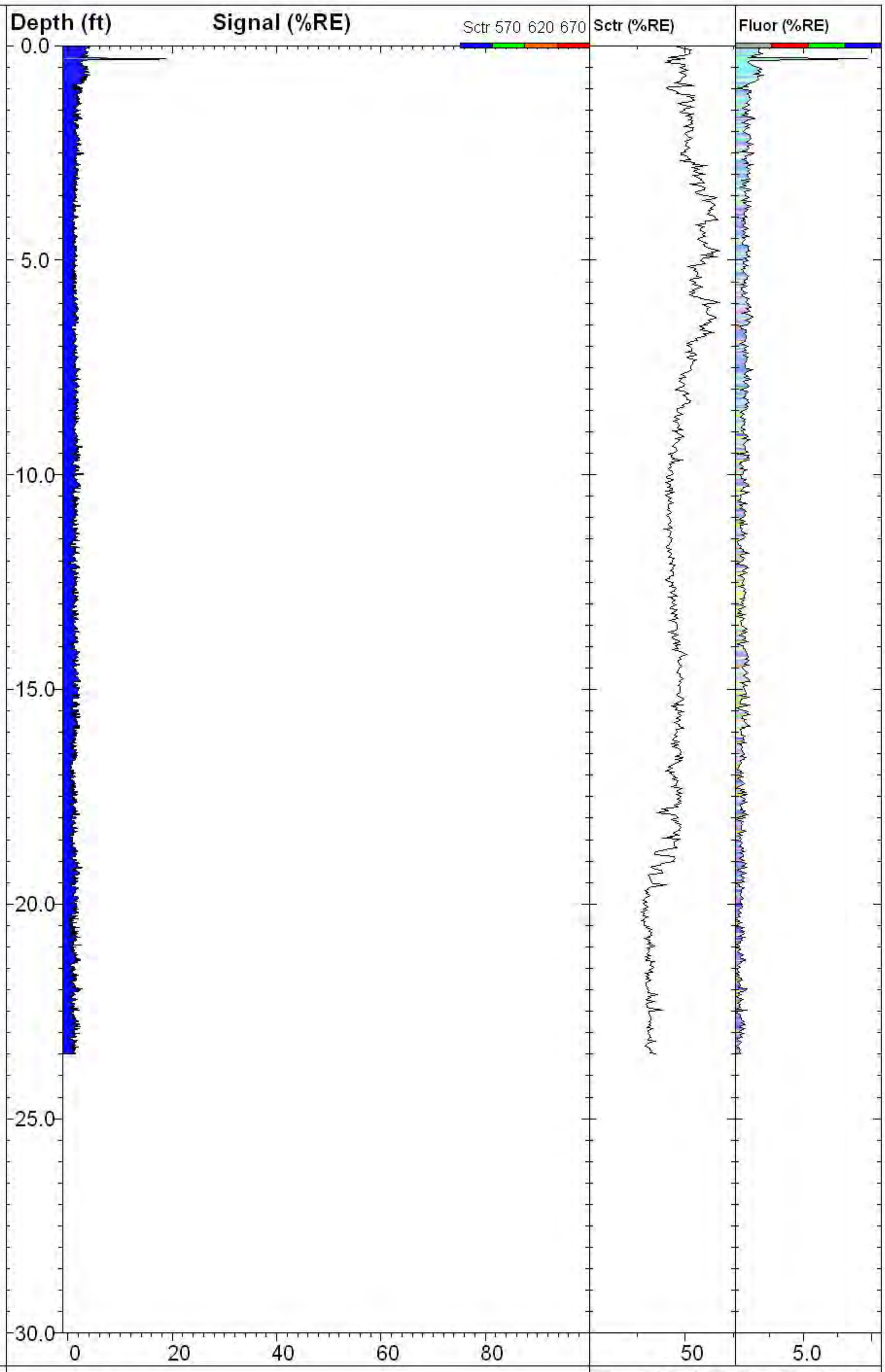
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **6.90 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **355.8 %RE @ 3.40 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 10:08 PDT**

Callouts



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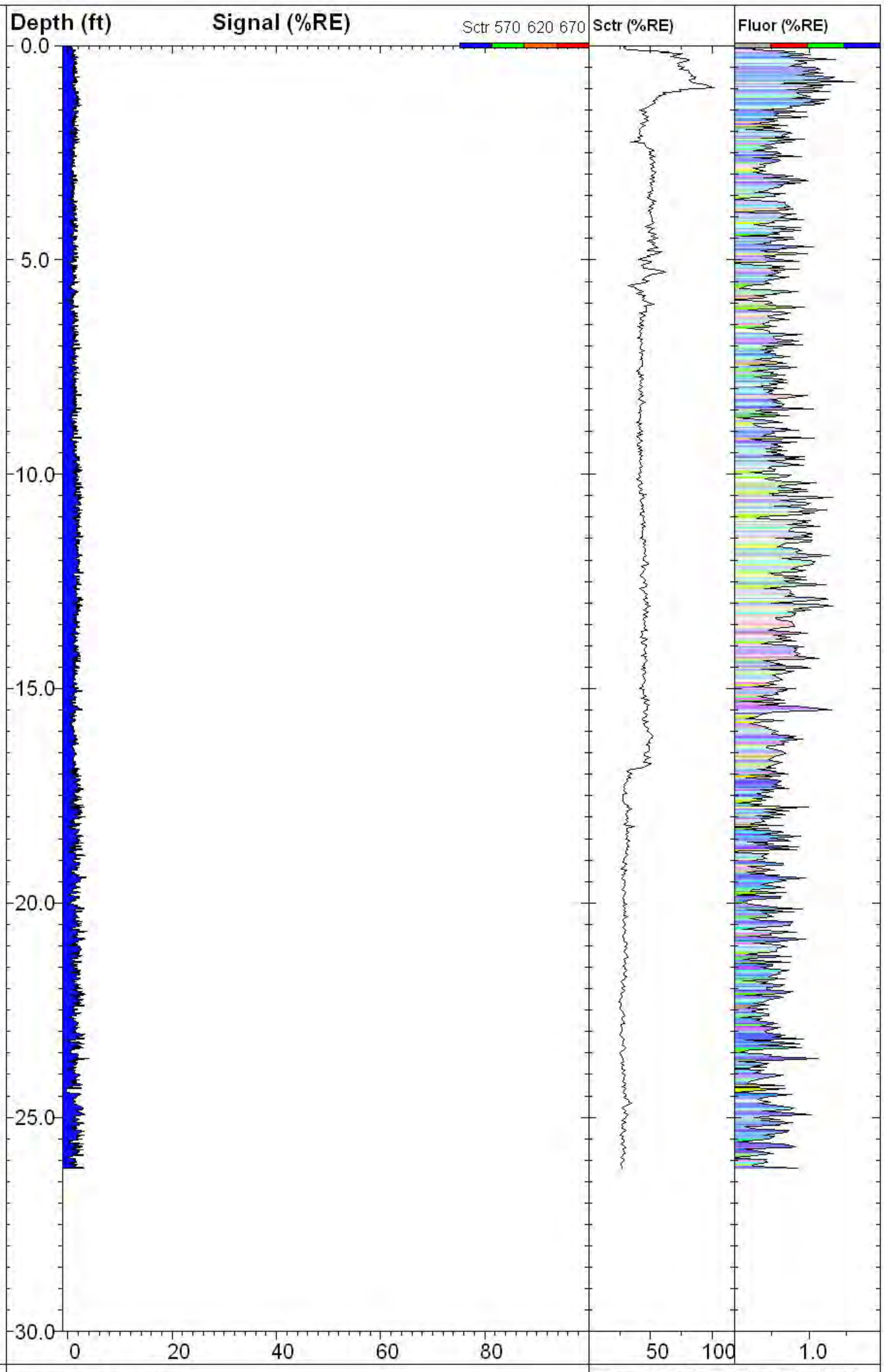
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.50 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **19.7 %RE @ 0.31 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 08:07 PDT**

Callouts



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TG-NT02

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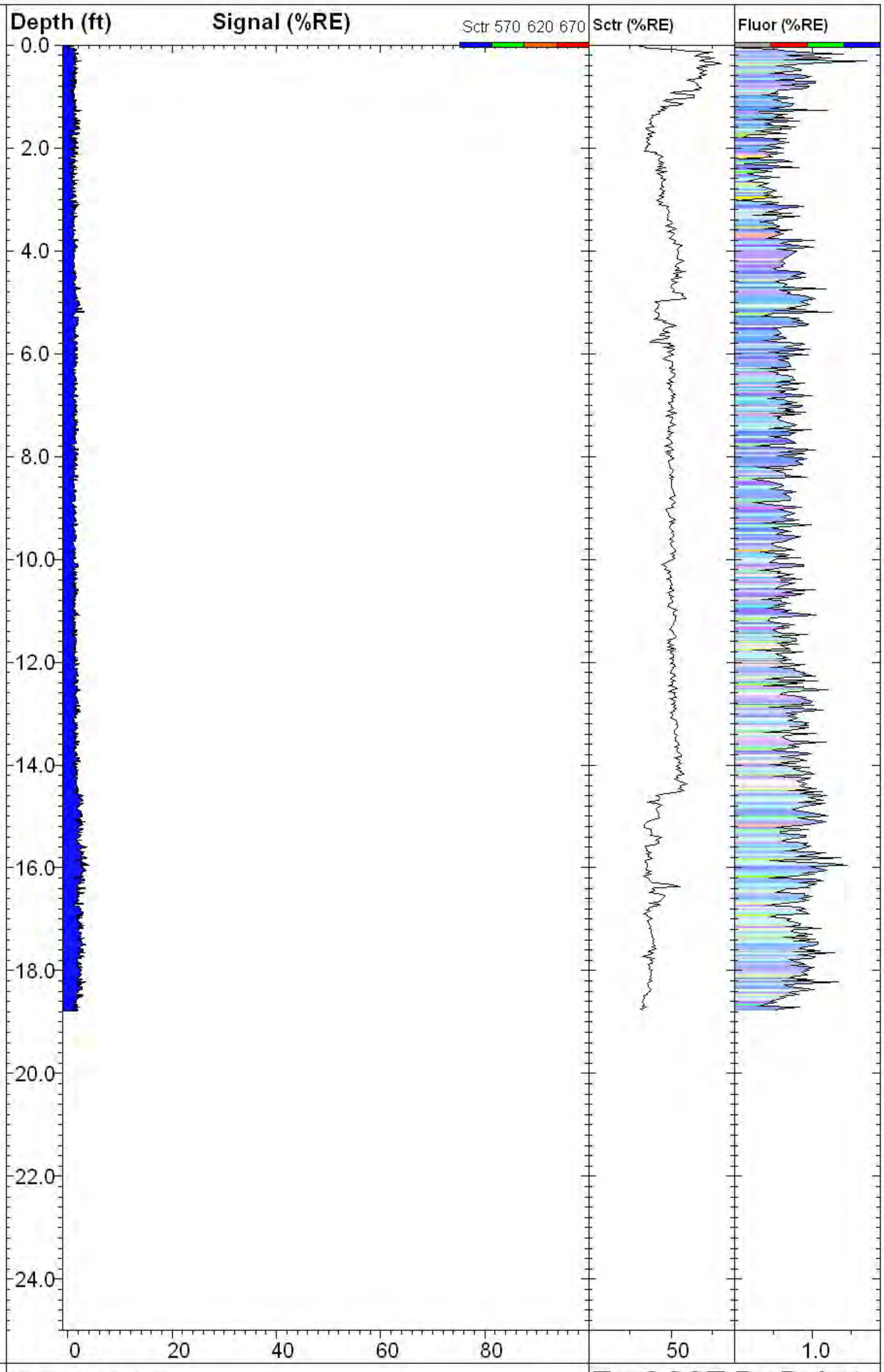
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.19 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.0 %RE @ 23.63 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 08:39 PDT**

Callouts



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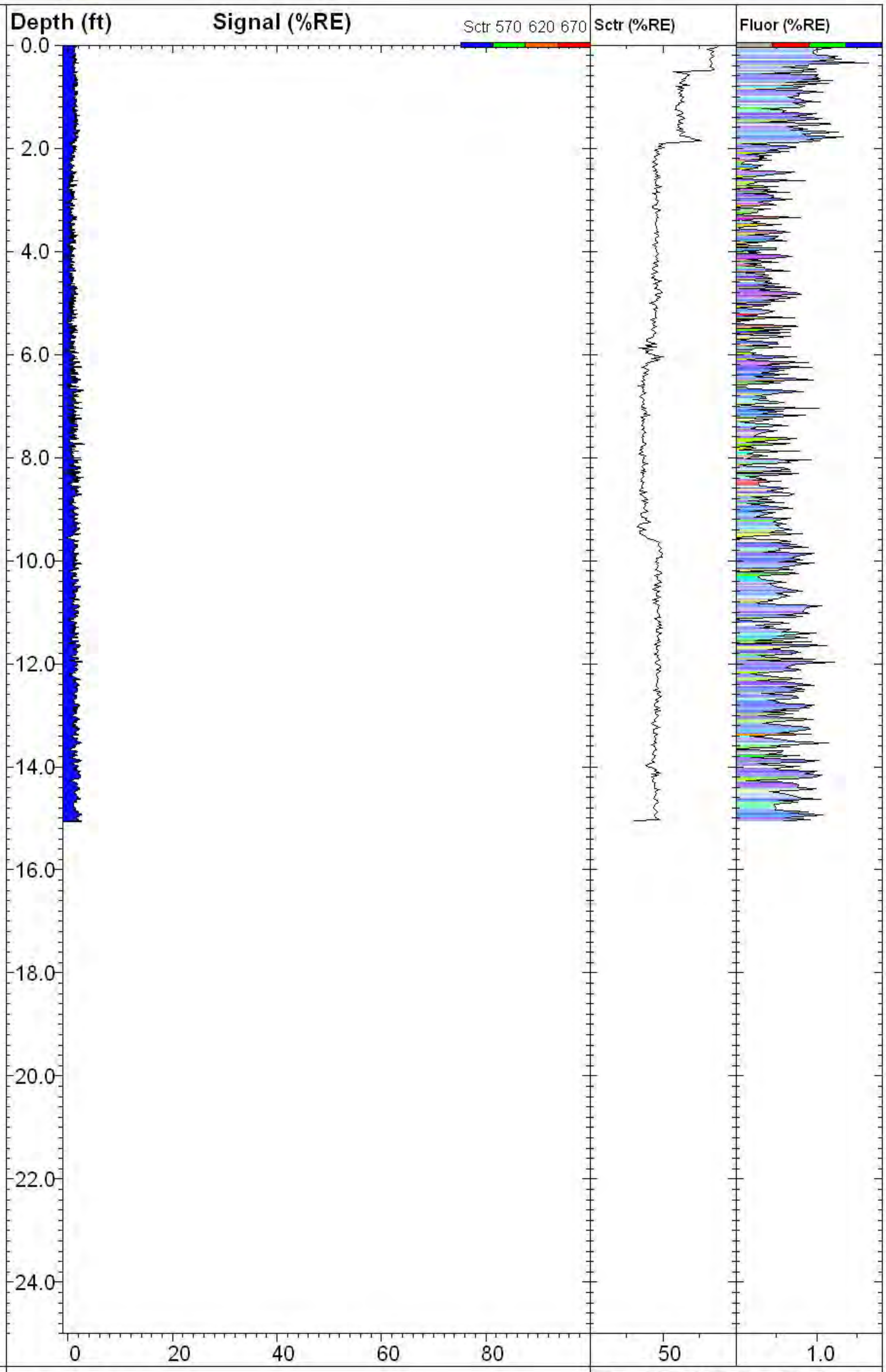
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.78 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.1 %RE @ 15.95 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 09:32 PDT**

Callouts



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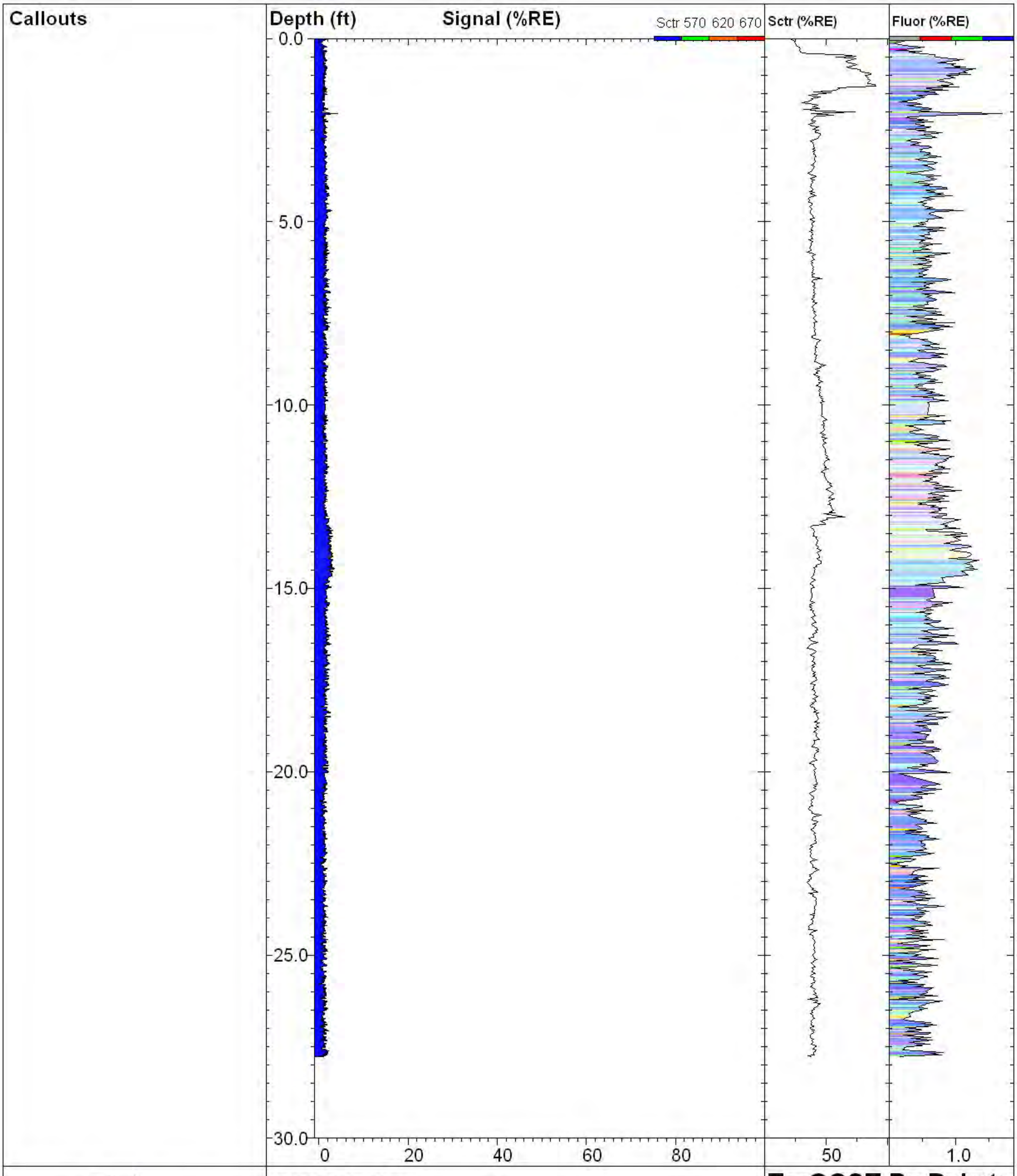
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **15.07 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.2 %RE @ 7.74 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 10:12 PDT**



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TG-NT07

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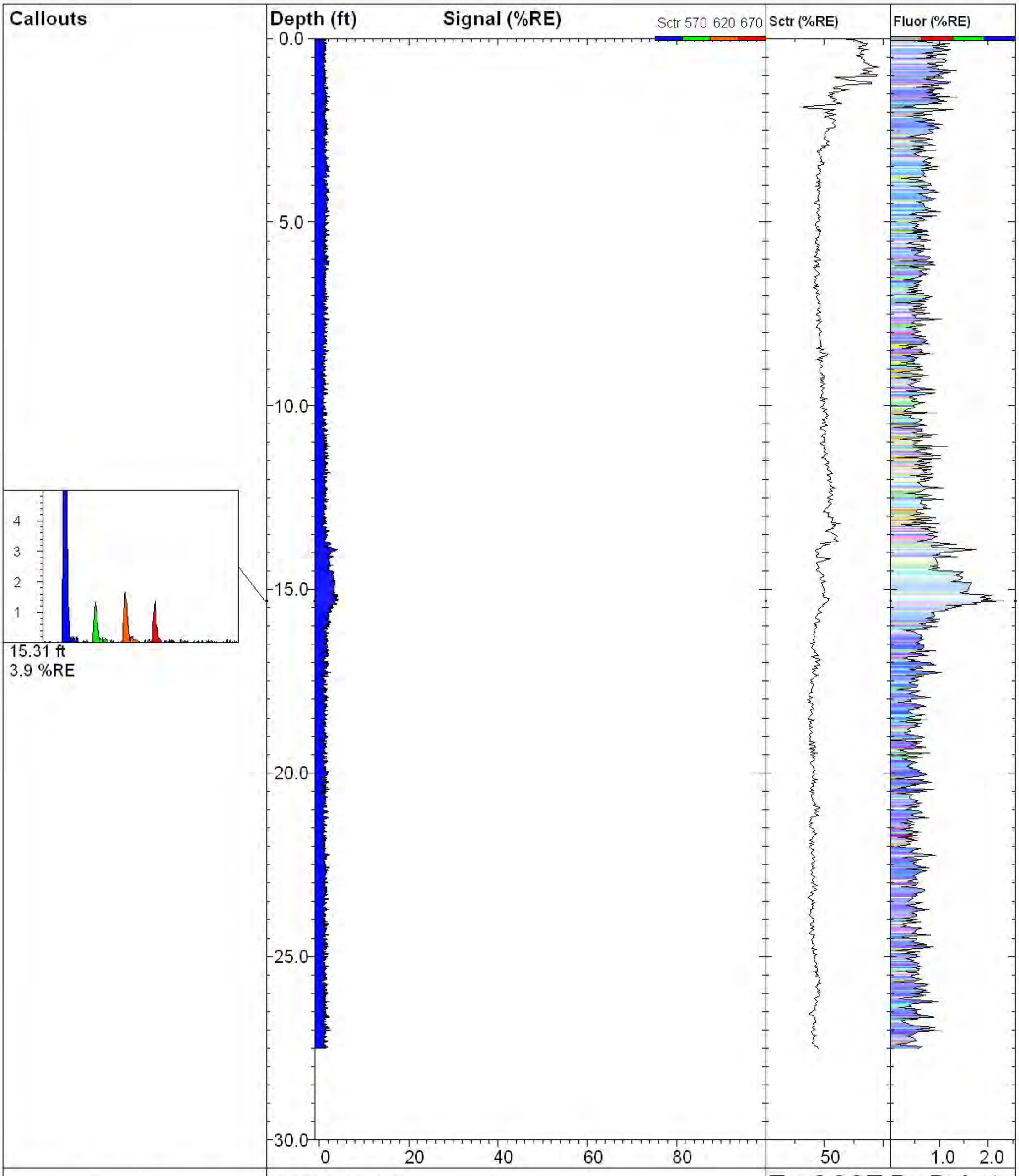
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **27.78 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.5 %RE @ 2.05 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 13:32 PDT**



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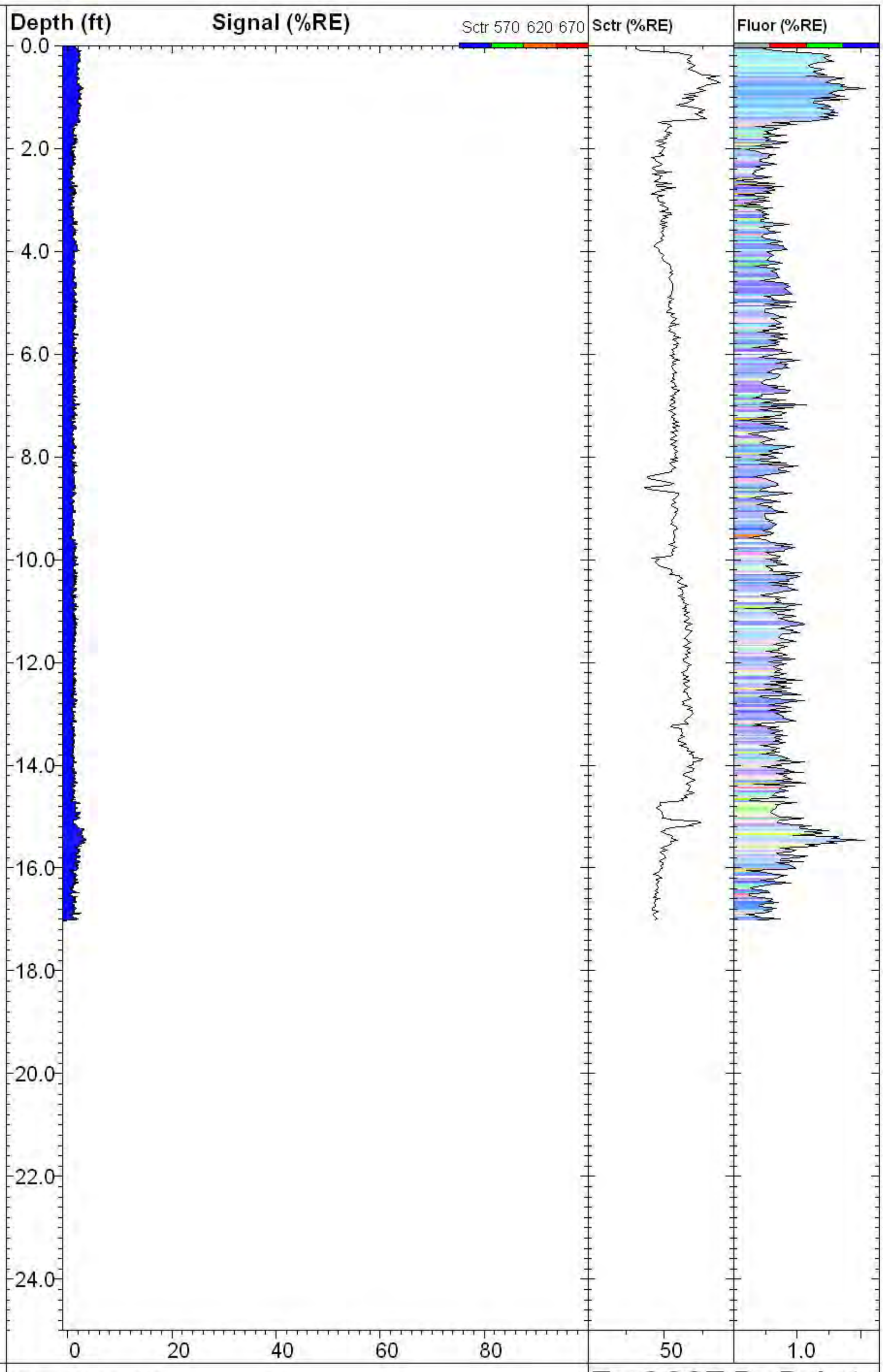
	Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **27.50 ft**
	Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.3 %RE @ 15.32 ft**
	Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 11:37 PDT**

Callouts



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TG-NT09

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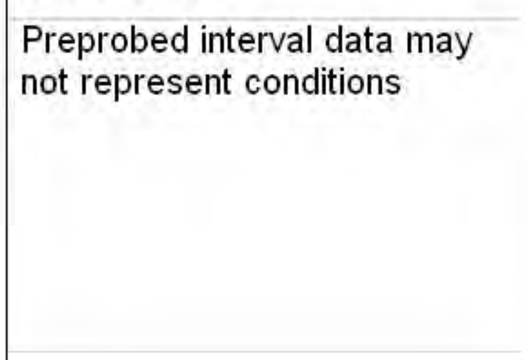
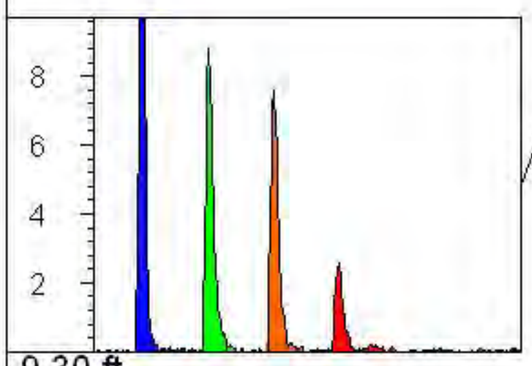
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.02 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.5 %RE @ 15.46 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-28 10:55 PDT**

Callouts

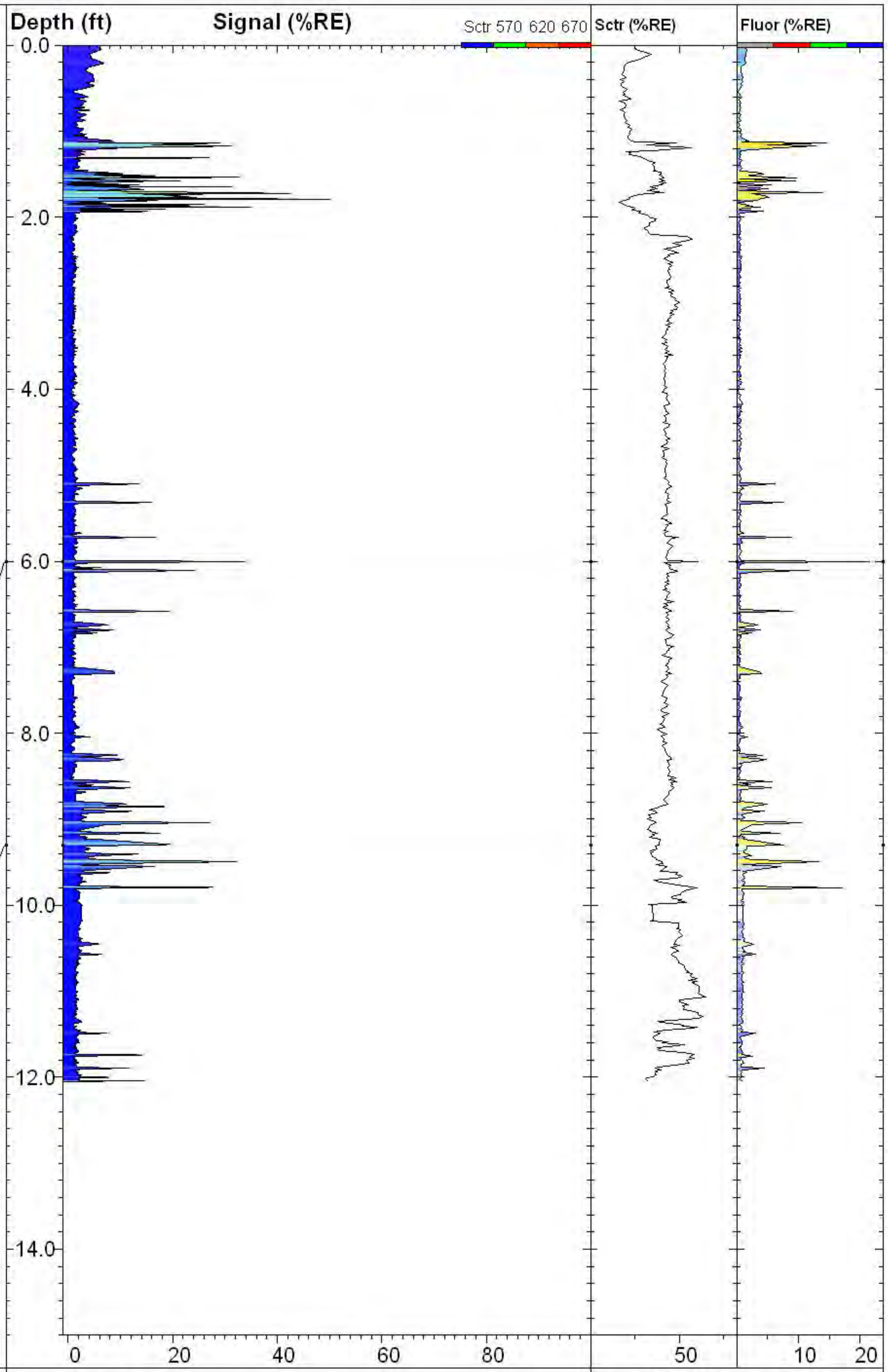
Preprobed interval data may not represent conditions



6.01 ft
35.7 %RE



9.30 ft
19.5 %RE



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TG-NT10

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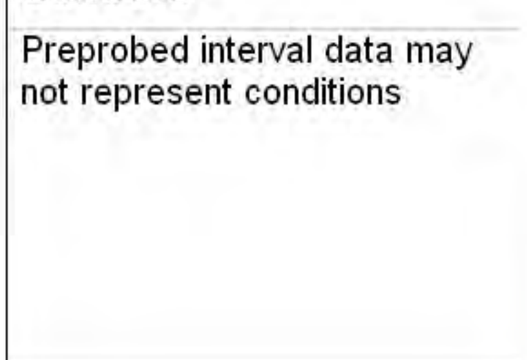
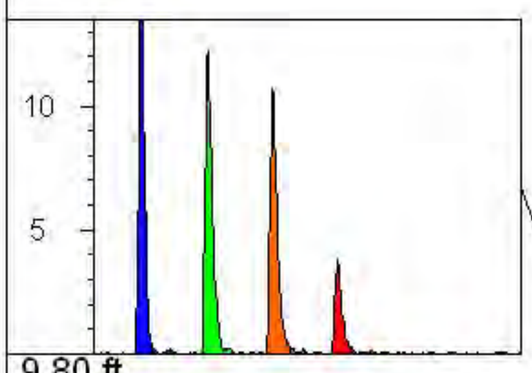
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **12.05 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **51.0 %RE @ 1.79 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-29 11:49 PDT**

Callouts

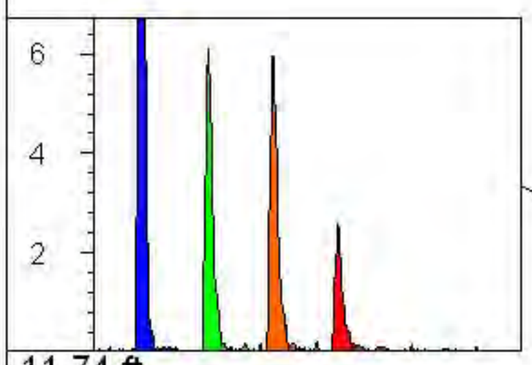
Preprobed interval data may not represent conditions



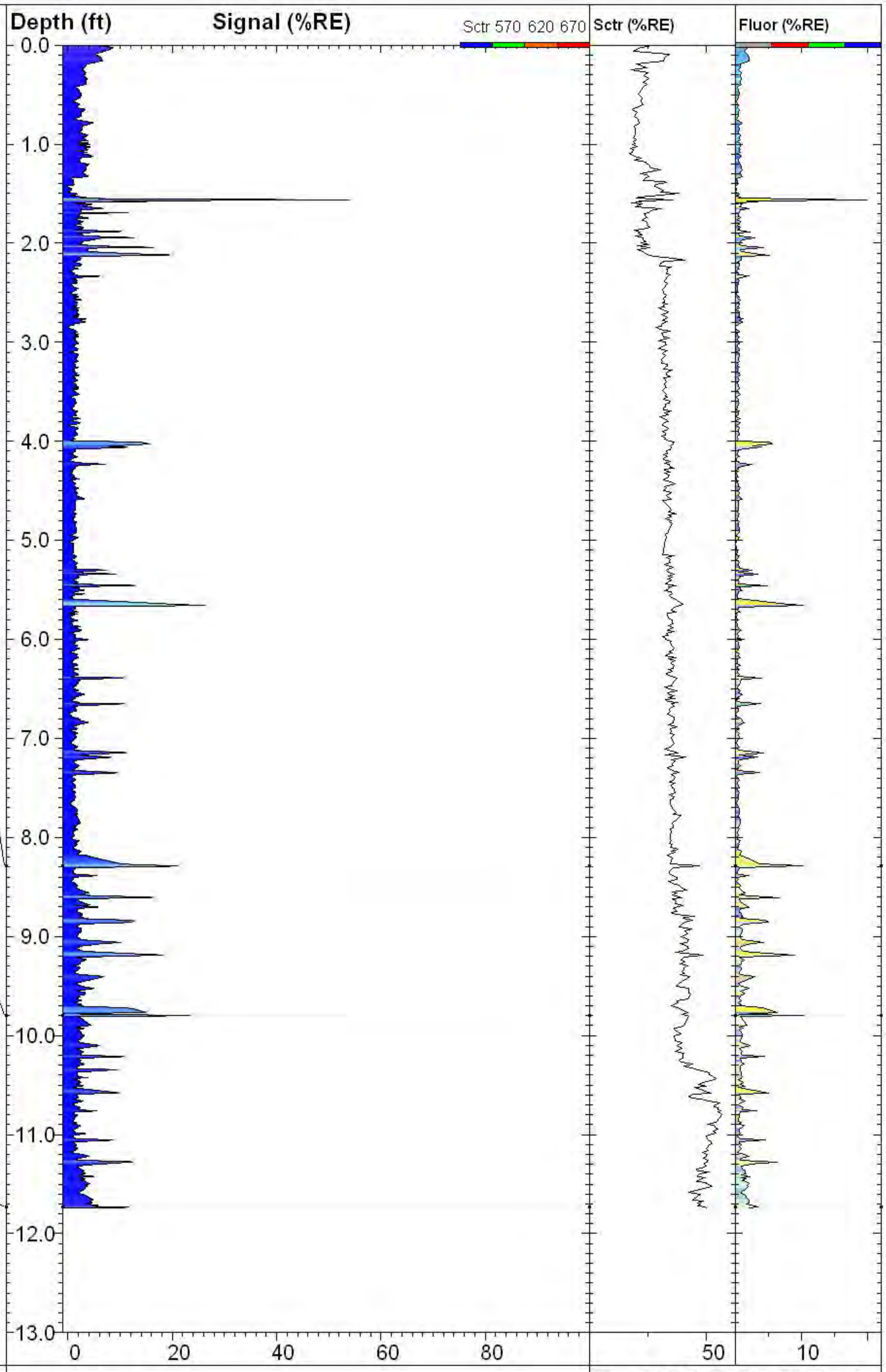
8.29 ft
21.5 %RE



9.80 ft
24.7 %RE



11.74 ft
12.3 %RE



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TG-NT11

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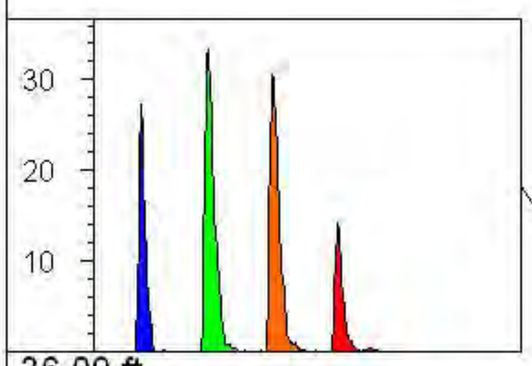
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **11.74 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **56.2 %RE @ 1.56 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-29 13:43 PDT**

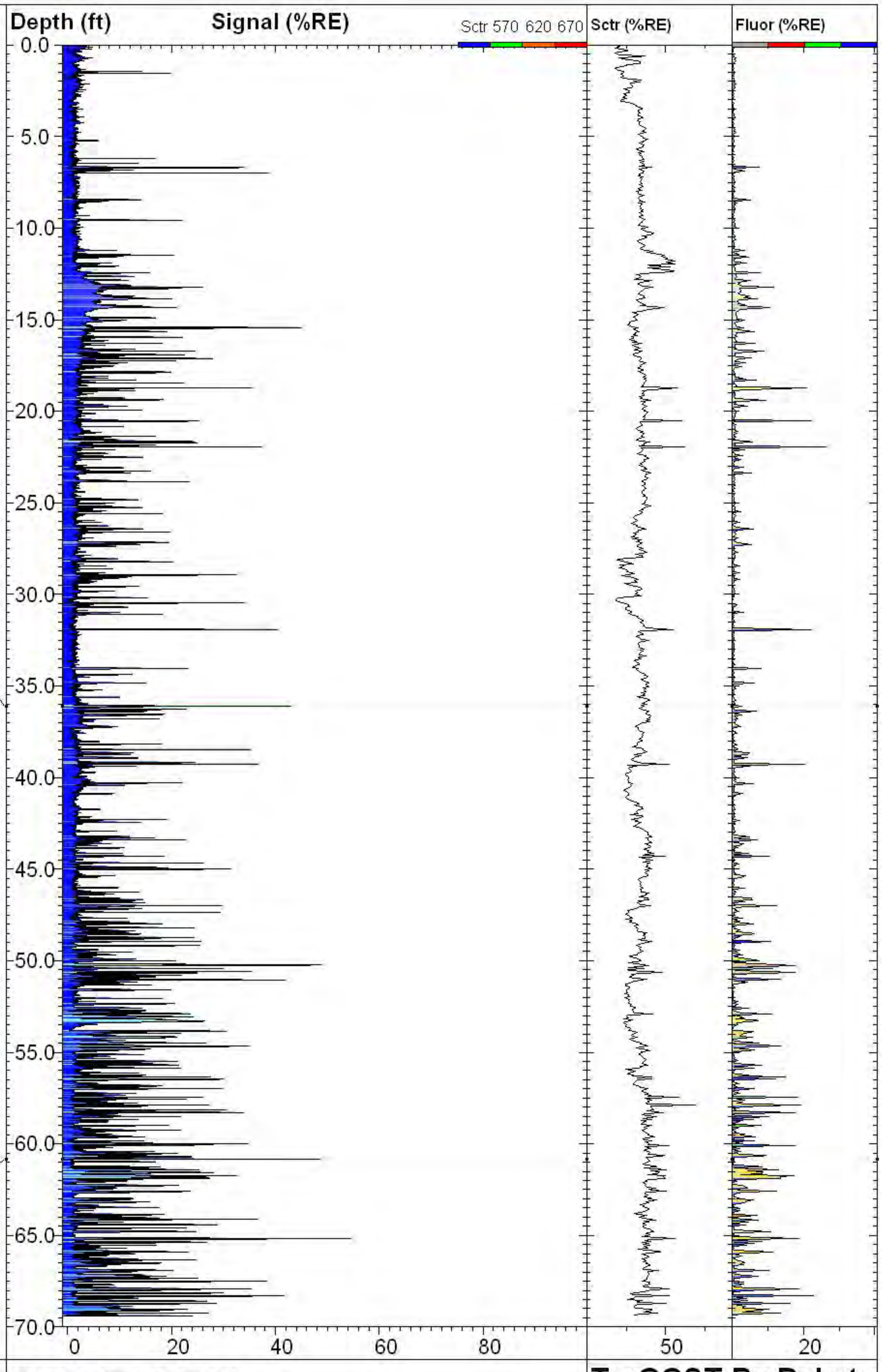
Callouts

Preprobed interval data may not represent conditions



36.09 ft
50.4 %RE

60.83 ft
52.3 %RE



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TG-NT11-E40

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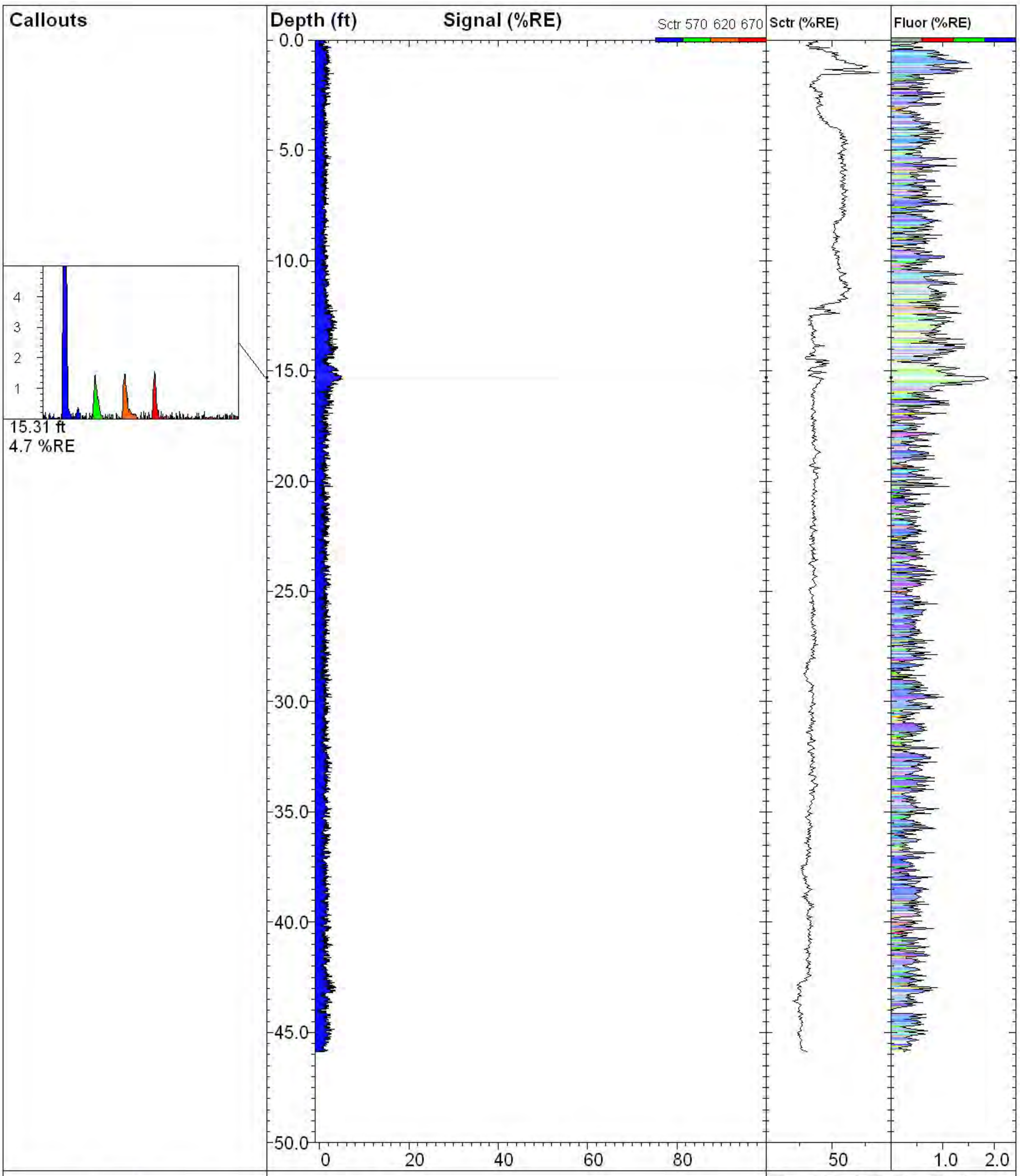
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **69.42 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **55.6 %RE @ 65.19 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-29 14:16 PDT**



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TG-NT12

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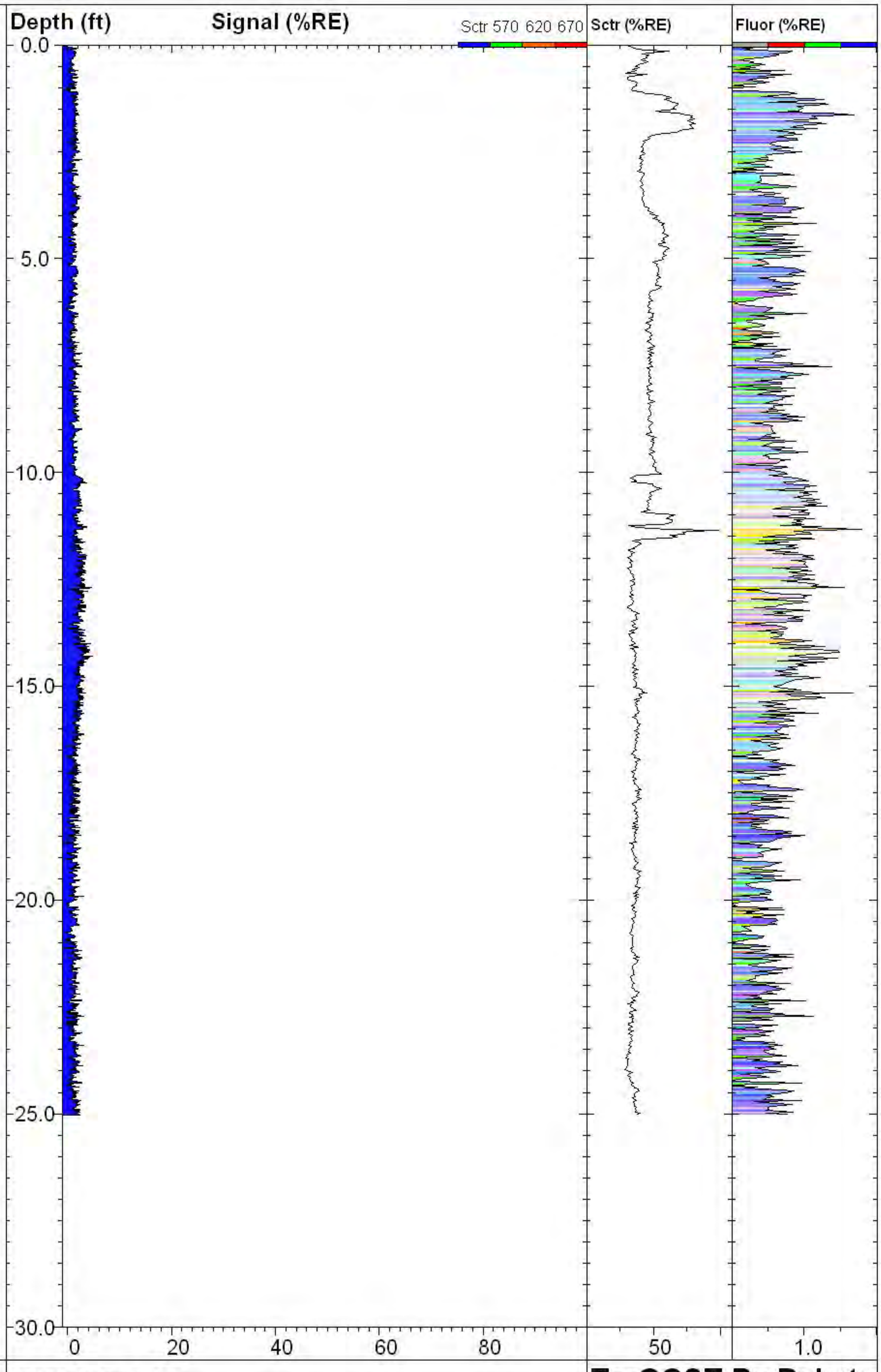
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **45.88 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.1 %RE @ 15.38 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 08:56 PDT**

Callouts



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TG-NT12b

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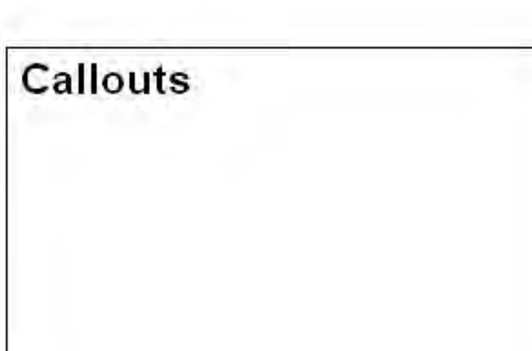
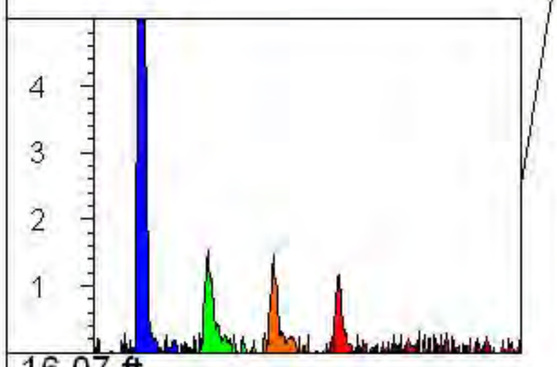
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.03 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.9 %RE @ 14.30 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 10:30 PDT**

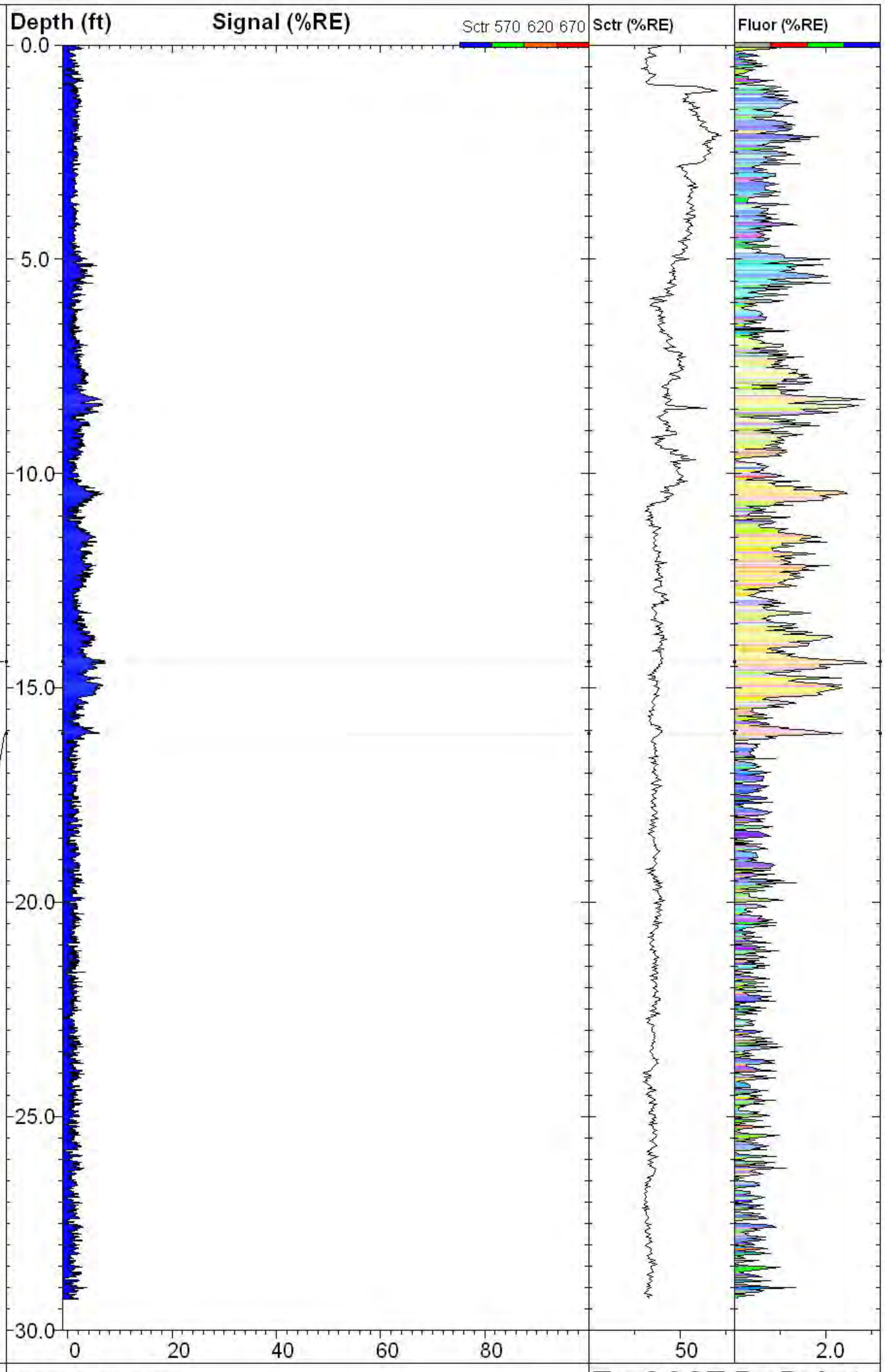
Callouts



14.38 ft
7.0 %RE



16.07 ft
6.0 %RE



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TG-NT13

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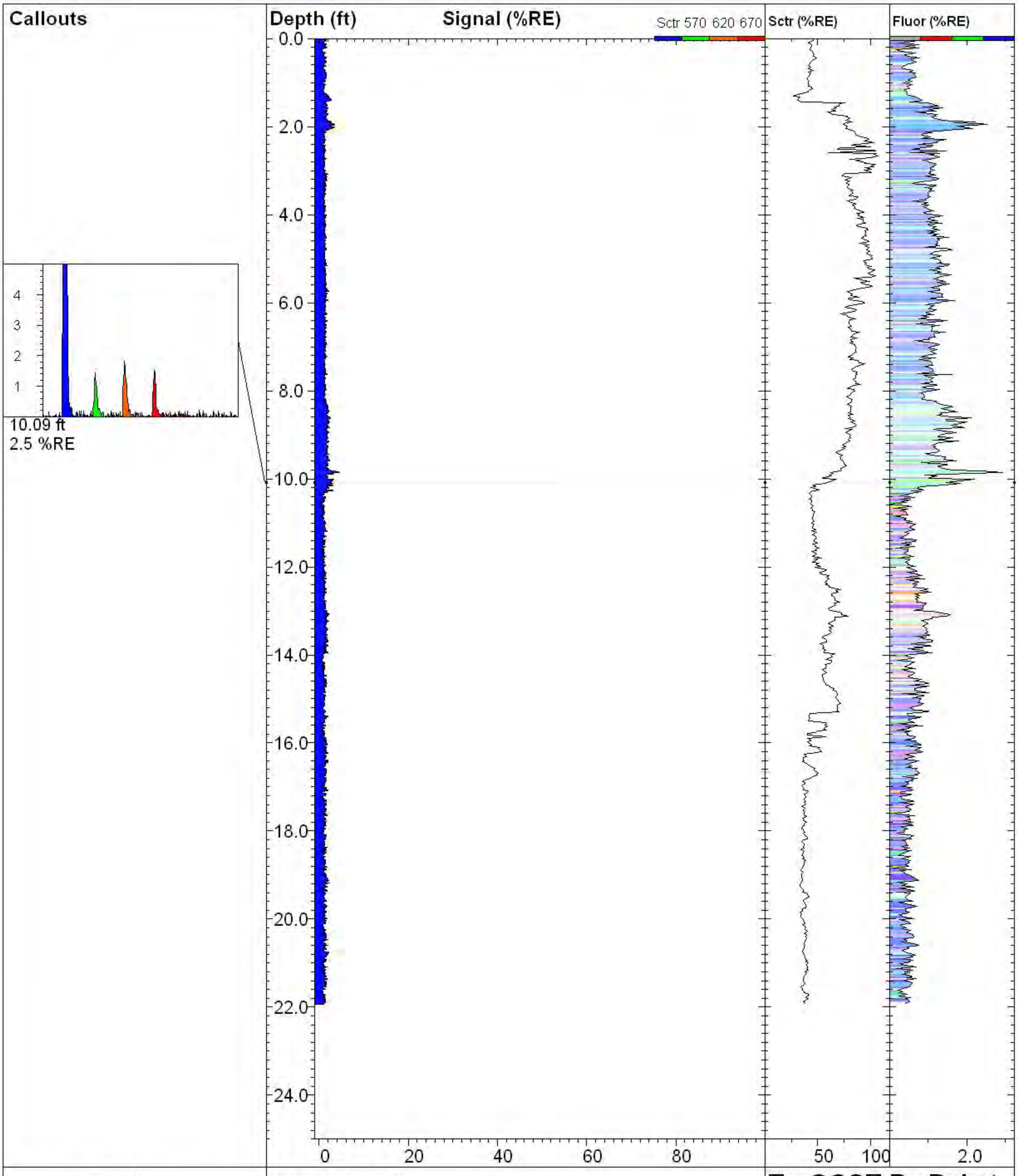
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.27 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.3 %RE @ 14.43 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 11:34 PDT**



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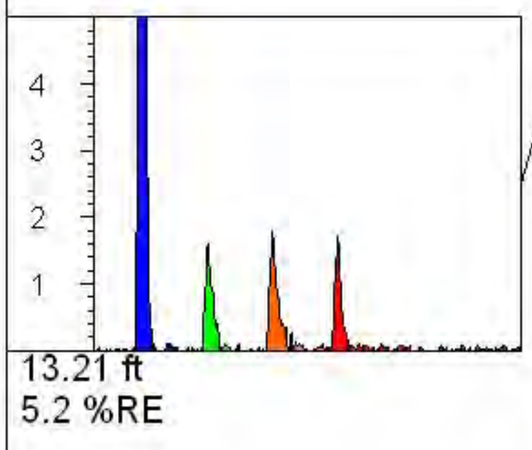
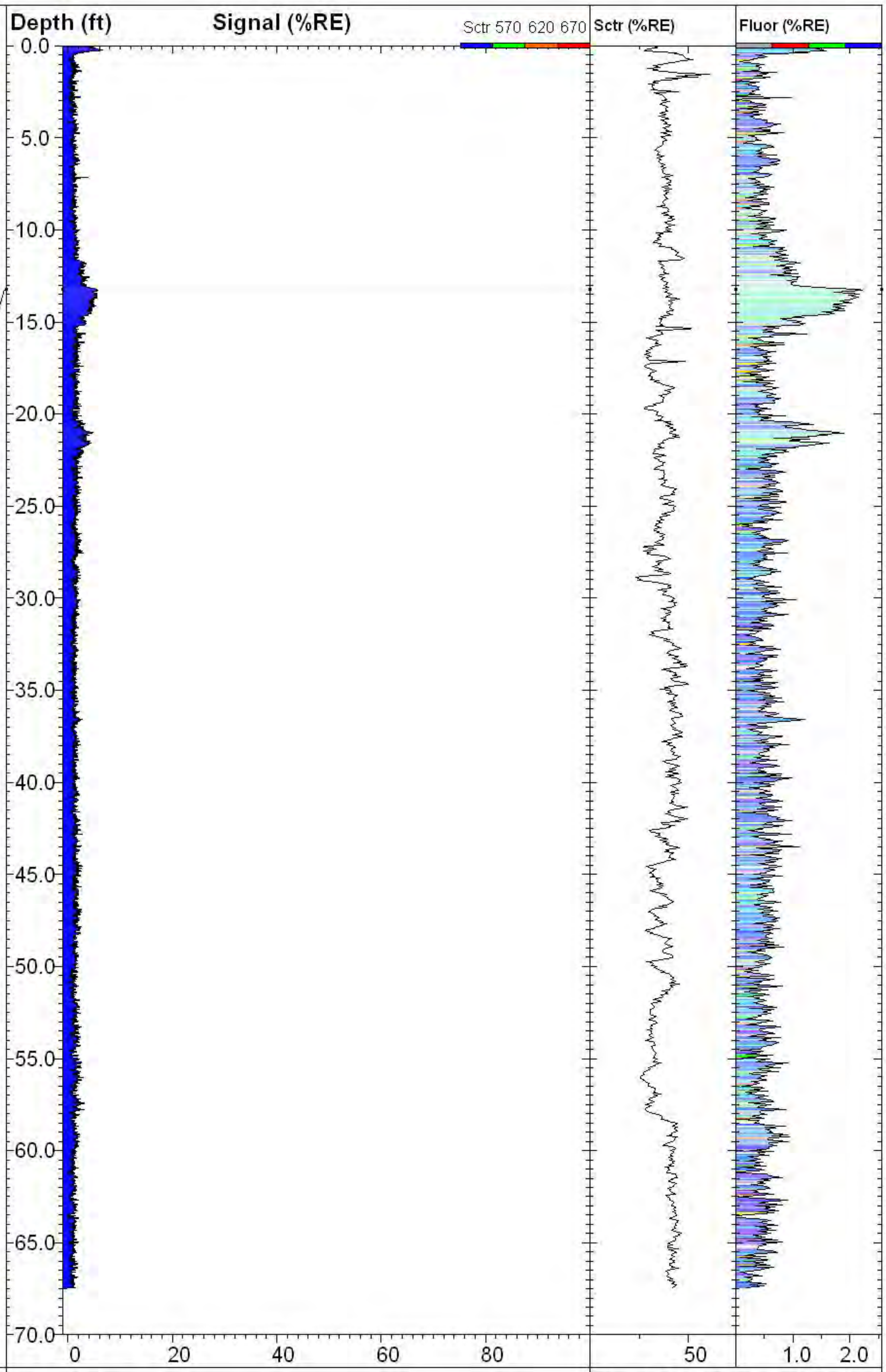
	Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.93 ft**
	Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.7 %RE @ 9.86 ft**
	Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-27 16:48 PDT**

Callouts

Preprobed interval data may not represent conditions



13.21 ft
5.2 %RE



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TG-NT15

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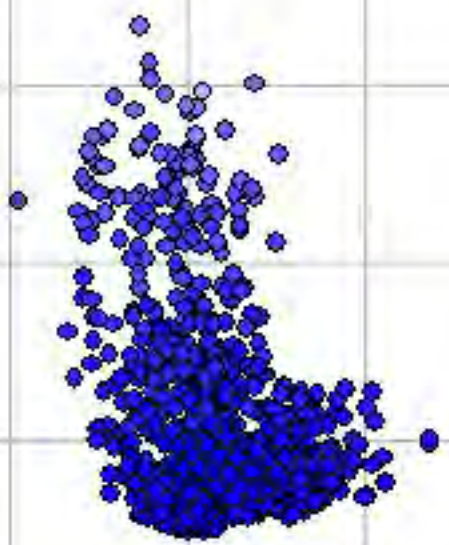
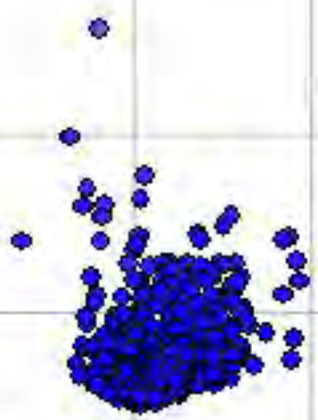
Site: **BNSF Wishram**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **67.47 ft**
Client / Job: **Kennedy Jenks /**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.7 %RE @ 0.25 ft**
Operator / Unit: **SDA / TG1003**	*Elevation:* **Unavailable**	*Date & Time:* **2013-07-29 16:14 PDT**

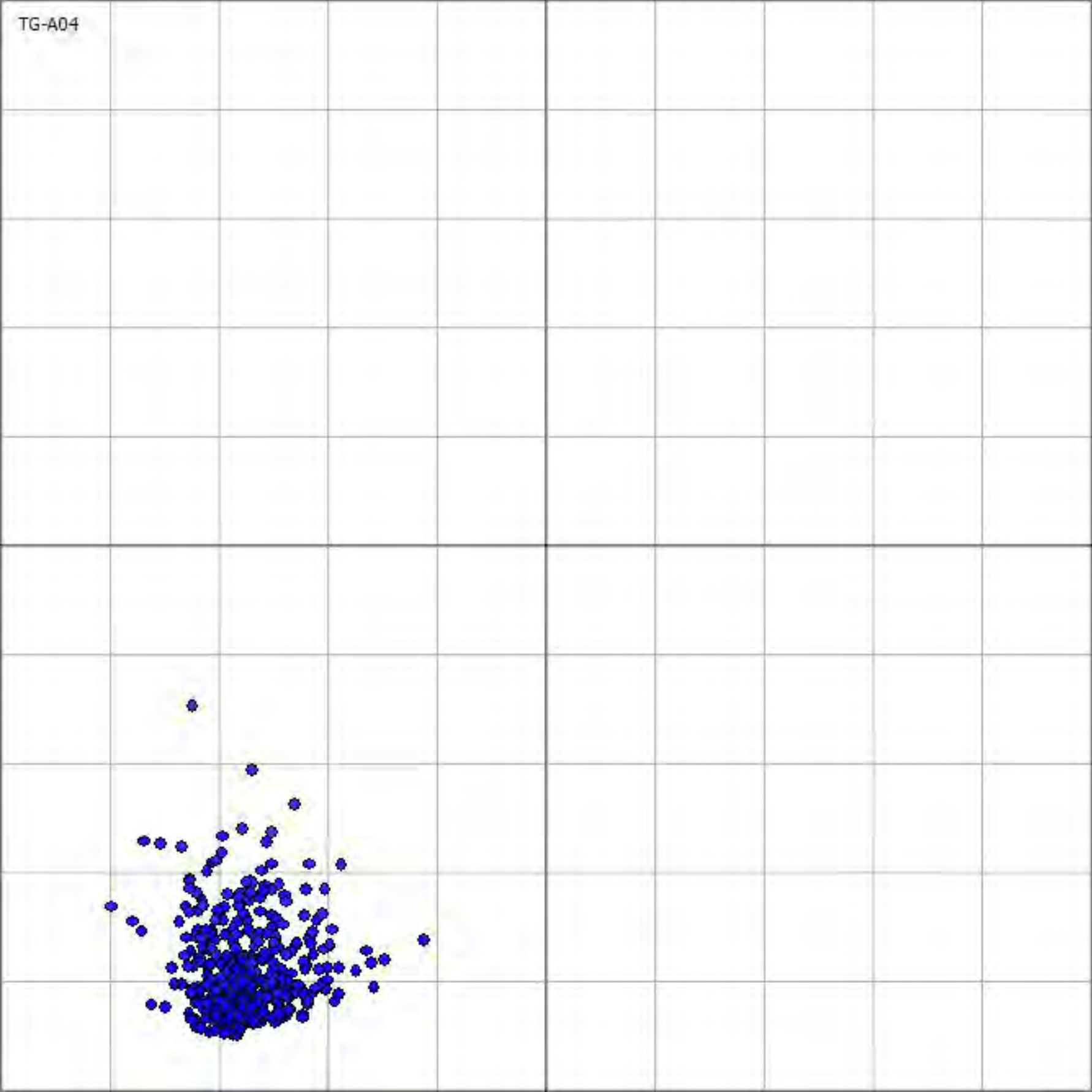
TG-A01



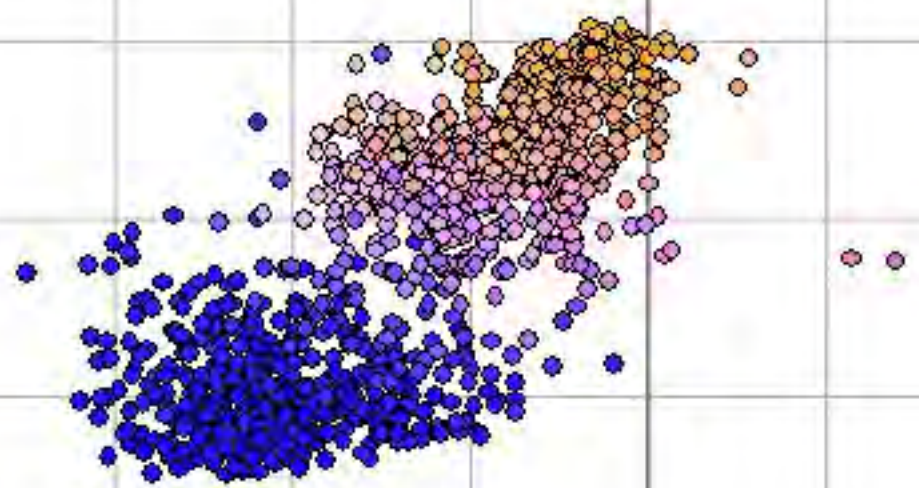
TG-A03



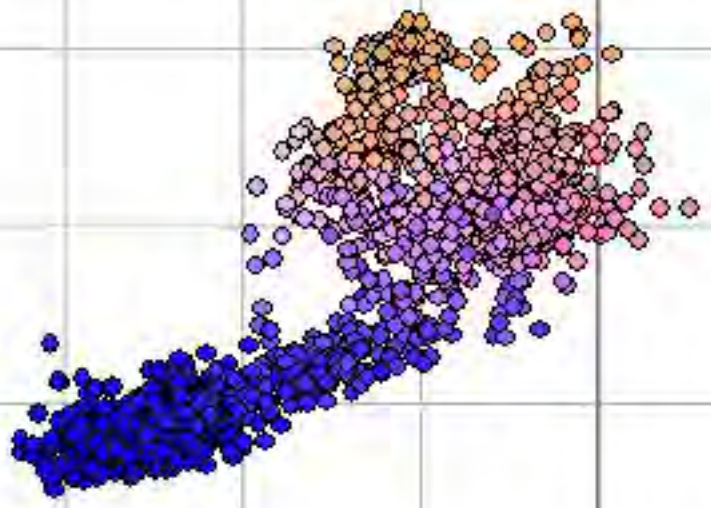
TG-A04



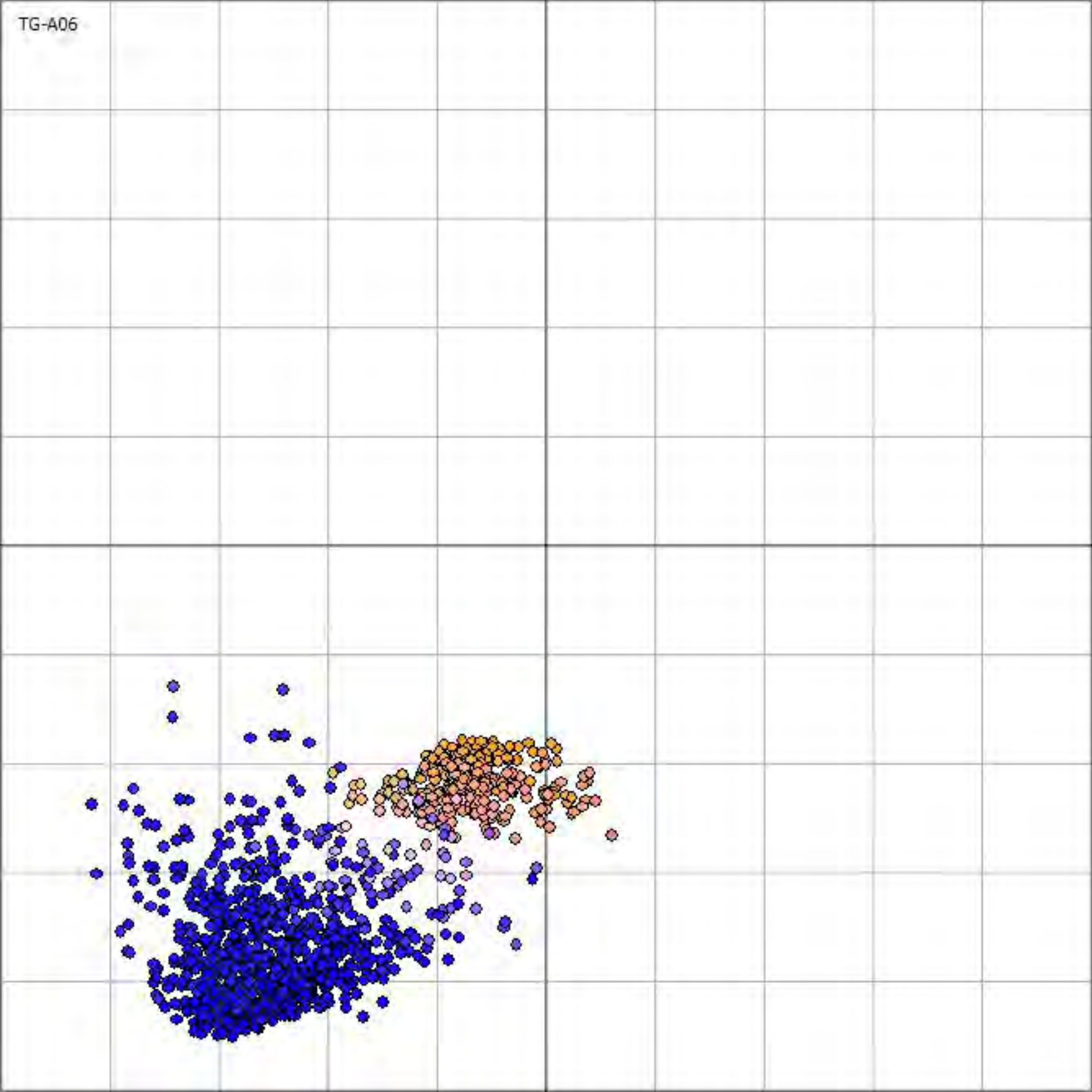
TG-A05



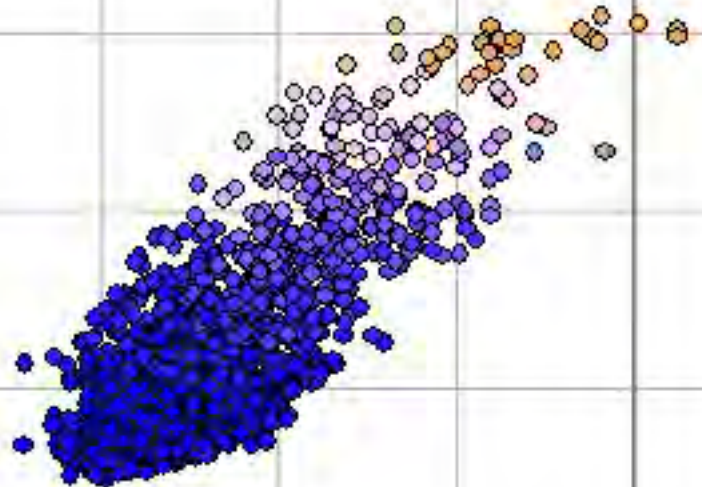
TG-A05-N25



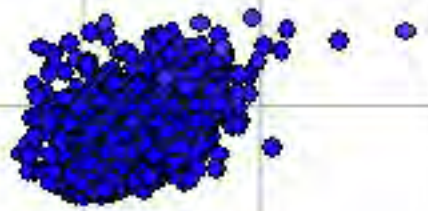
TG-A05-N50


TG-A06

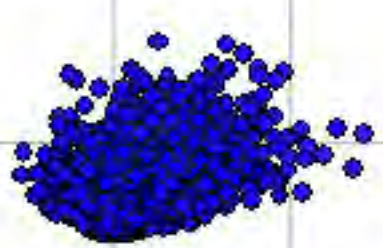
TG-A06-N25



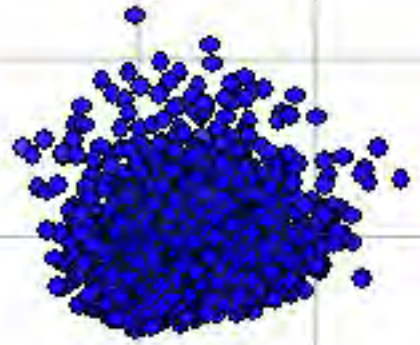
TG-A06-N60



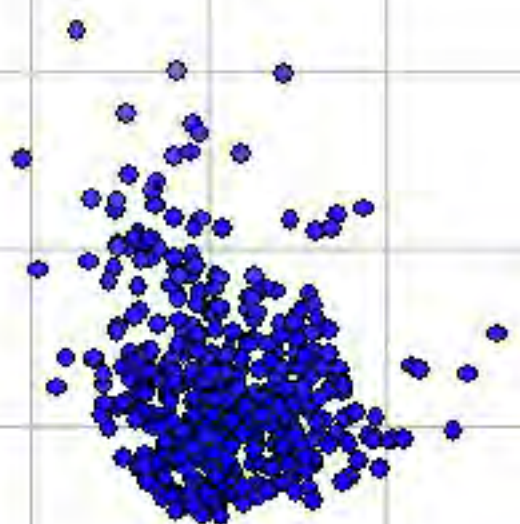
TG-A07



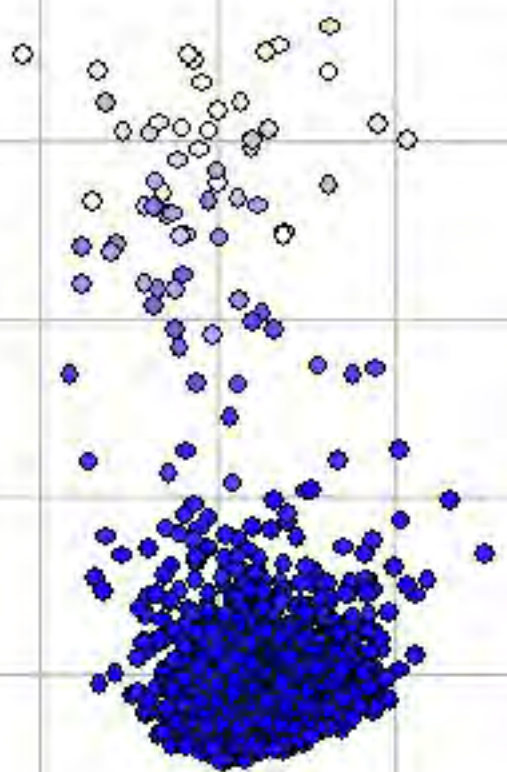
TG-A08



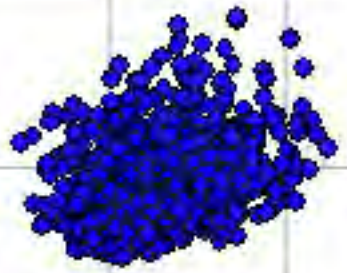
TG-B01



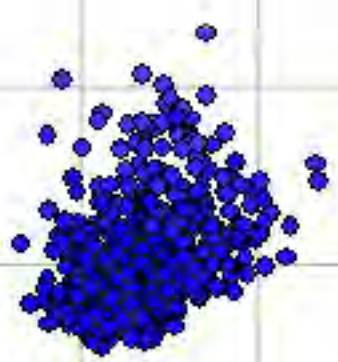
TG-B02



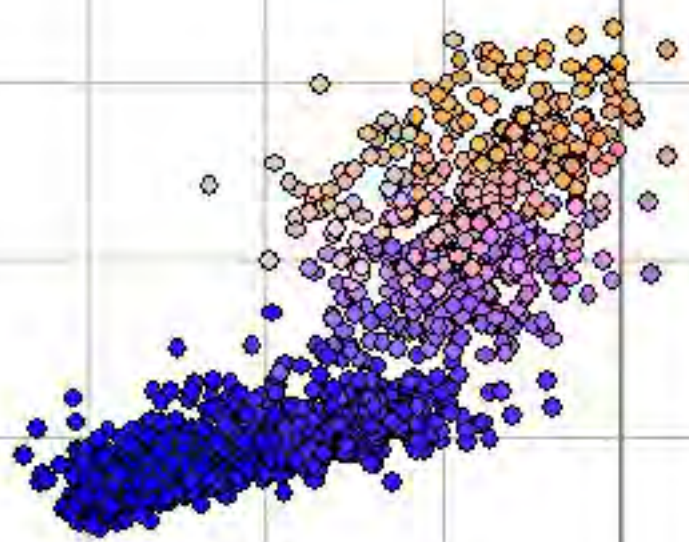
TG-B03



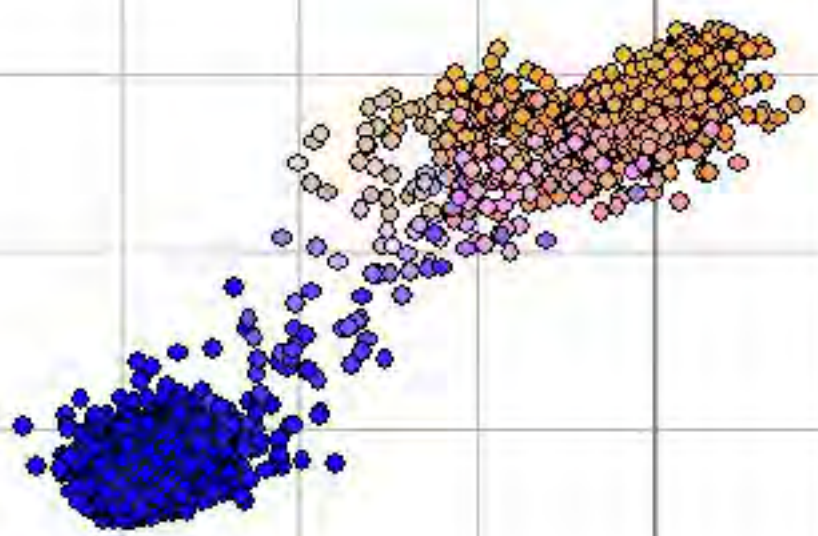
TG-B04



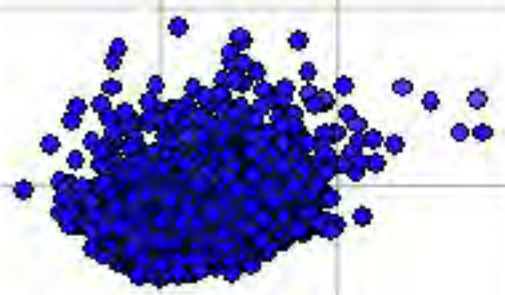
TG-B05



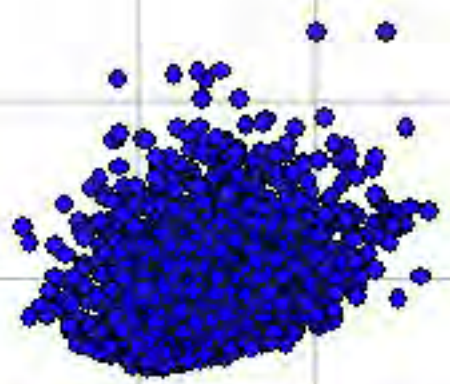
TG-B06



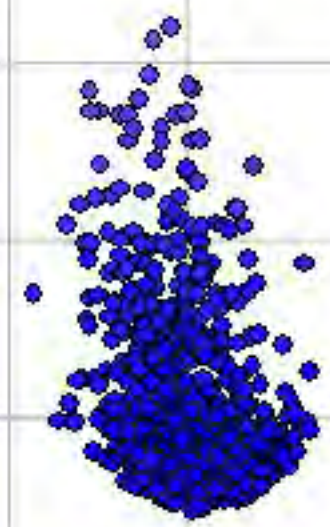
TG-B07

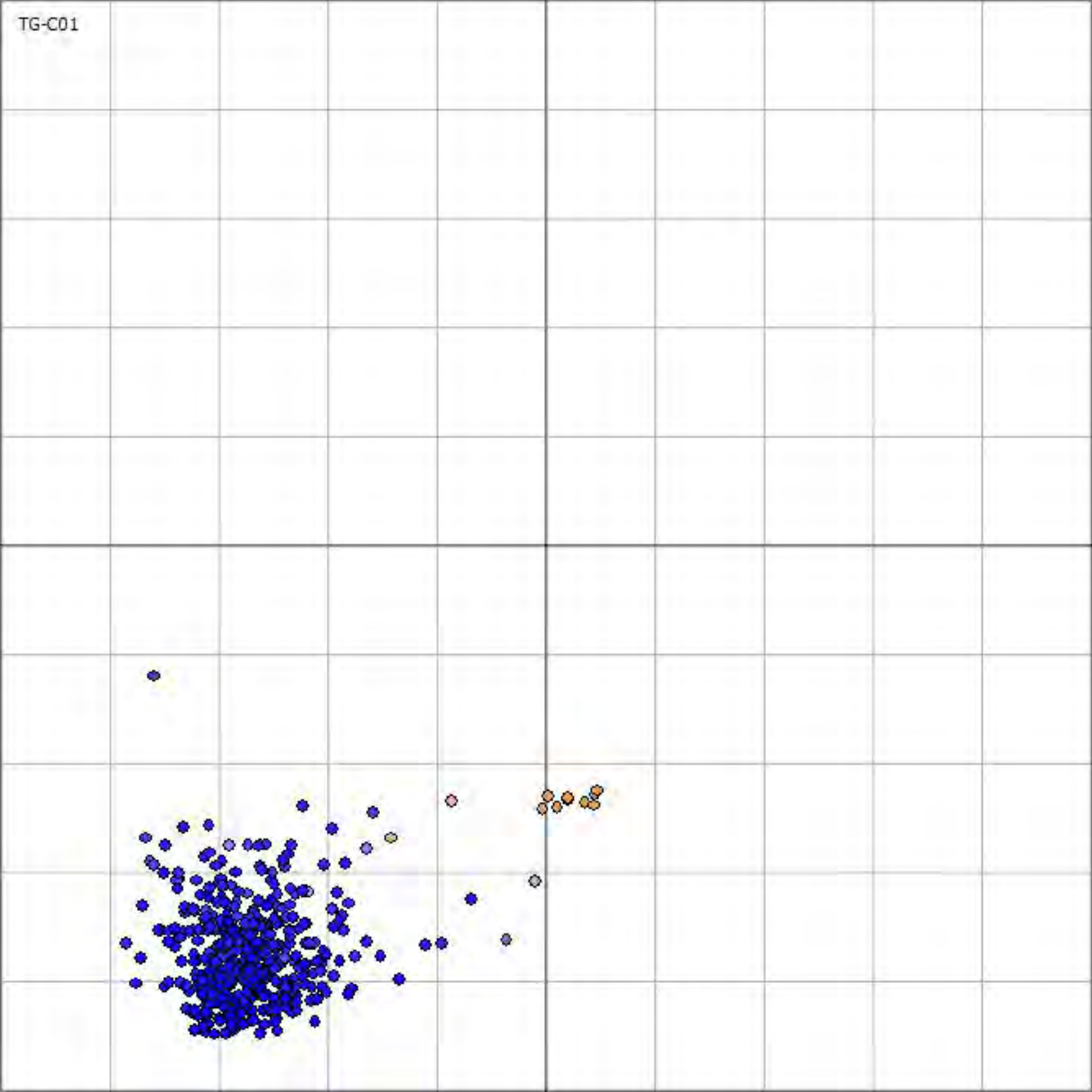


TG-B08

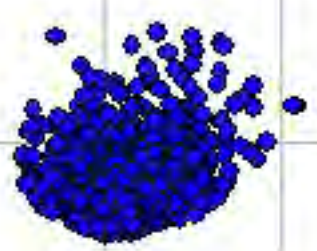


TG-C00

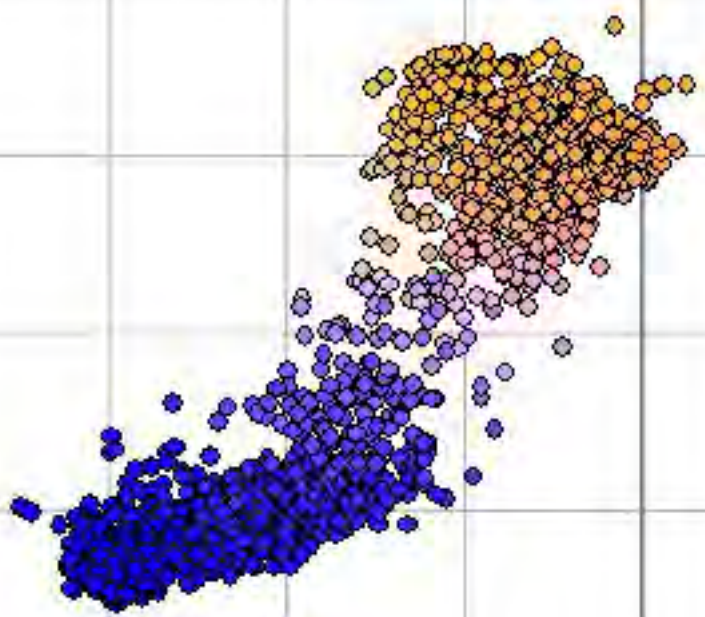



TG-C01

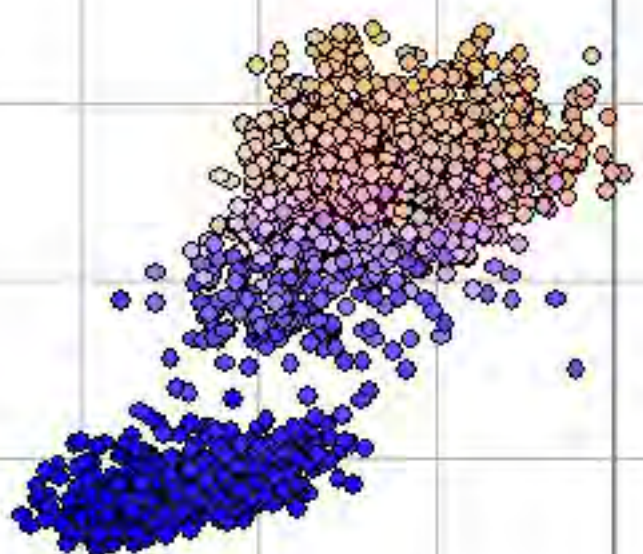
TG-C02



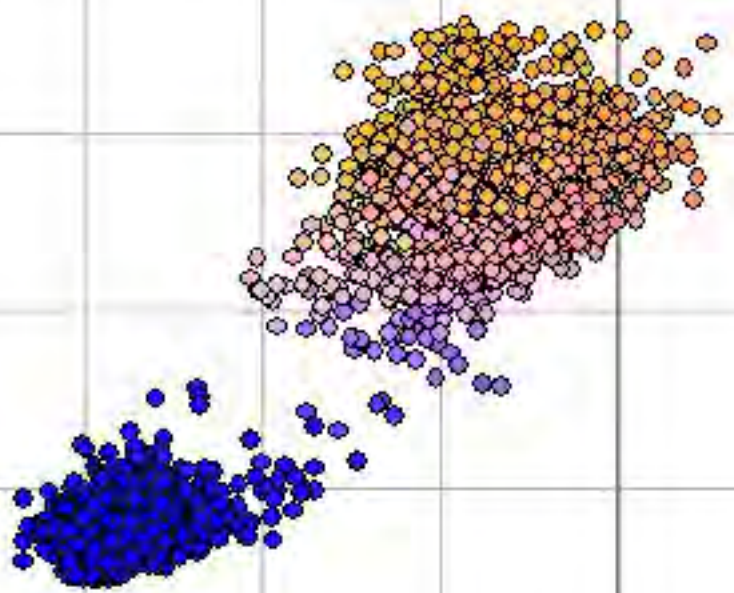
TG-C03



TG-C04



TG-C05



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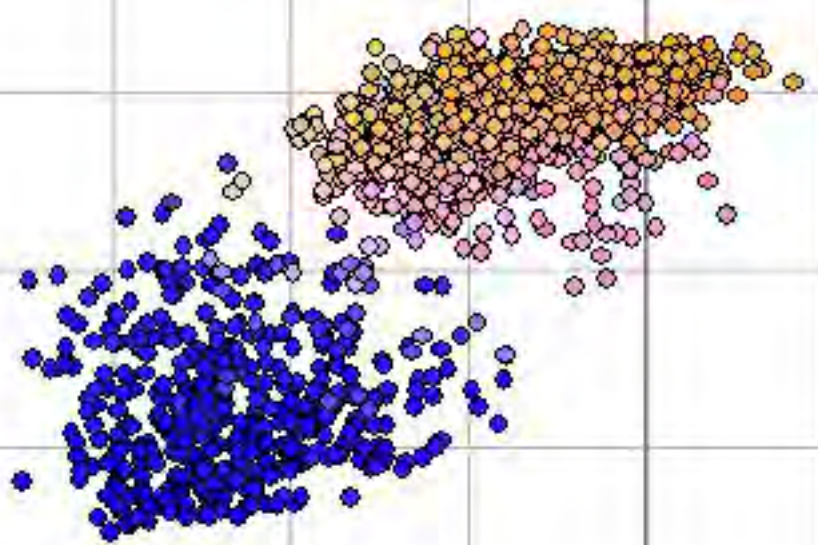

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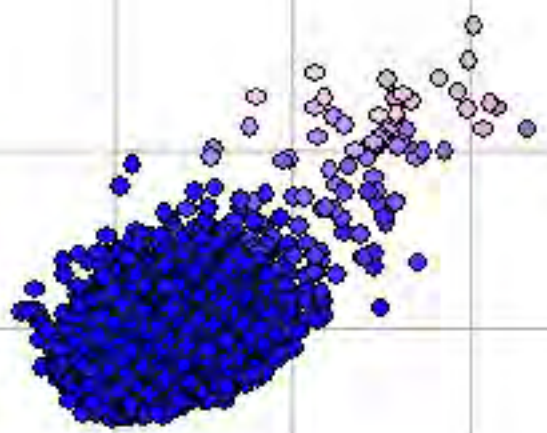

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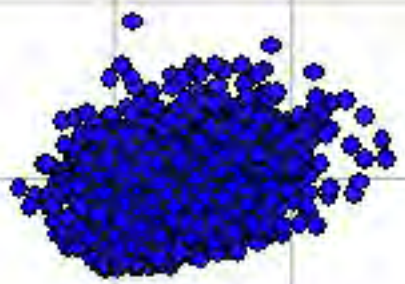

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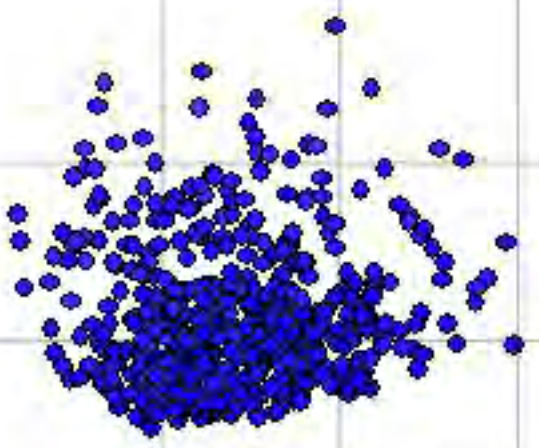

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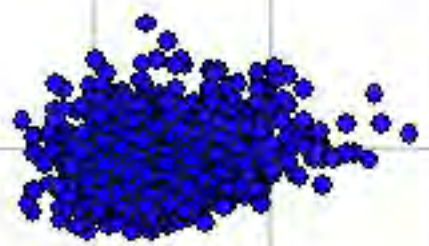

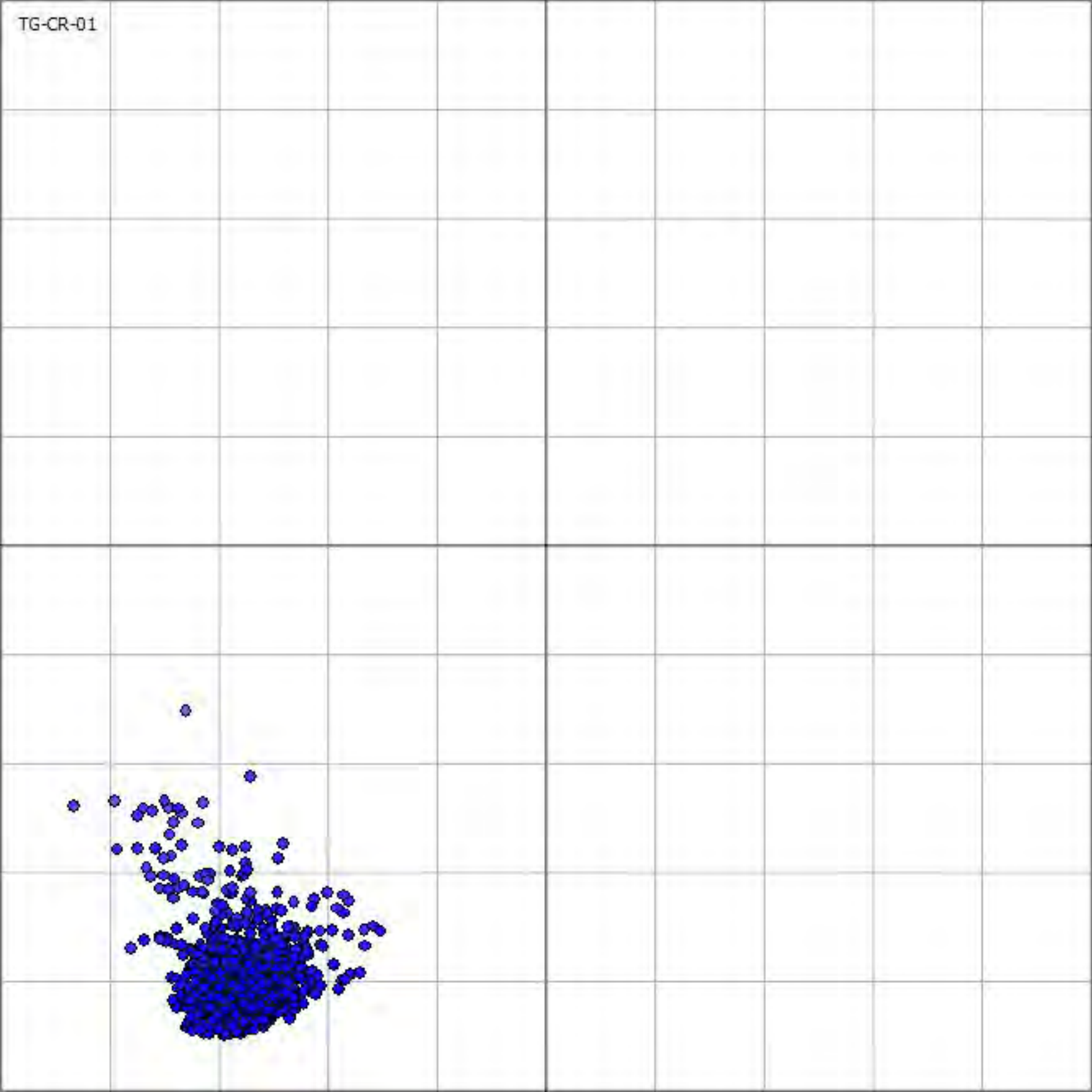
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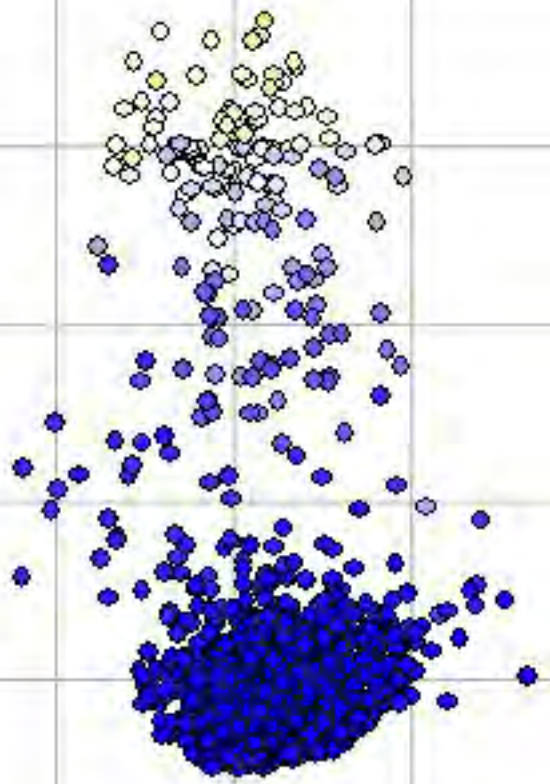

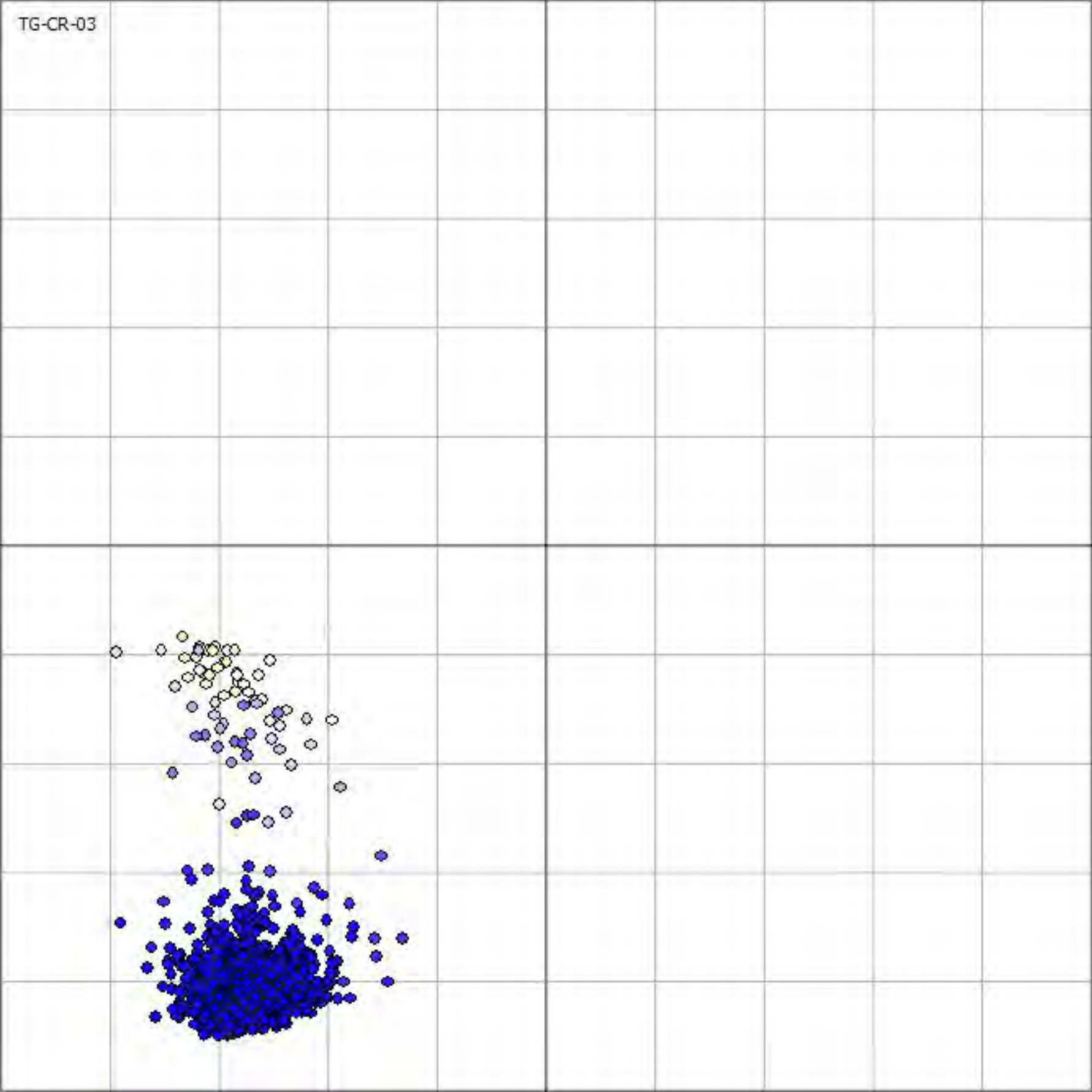
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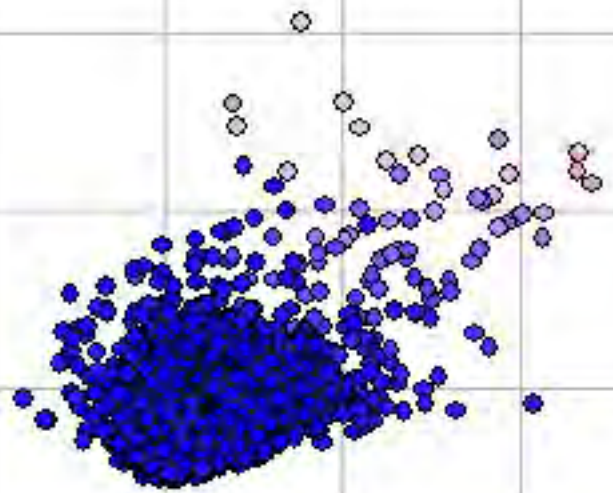

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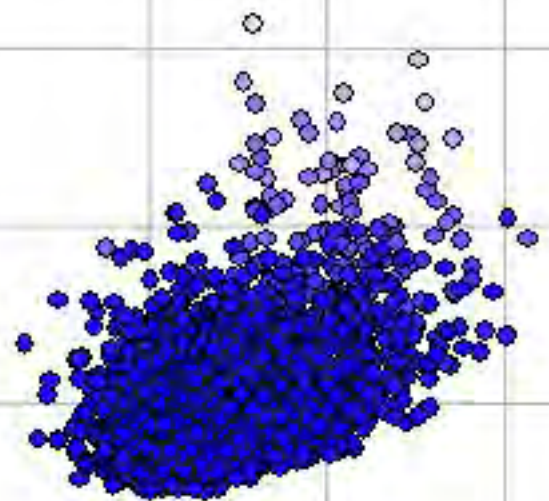

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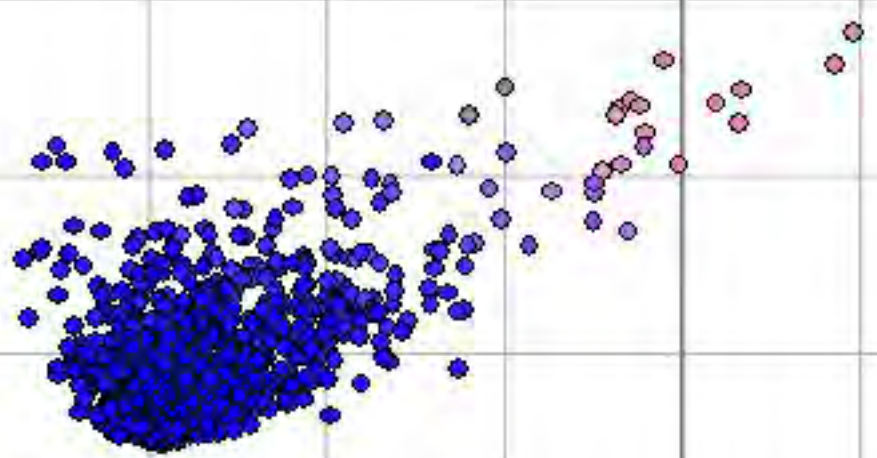

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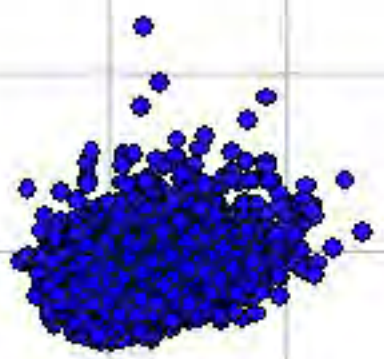

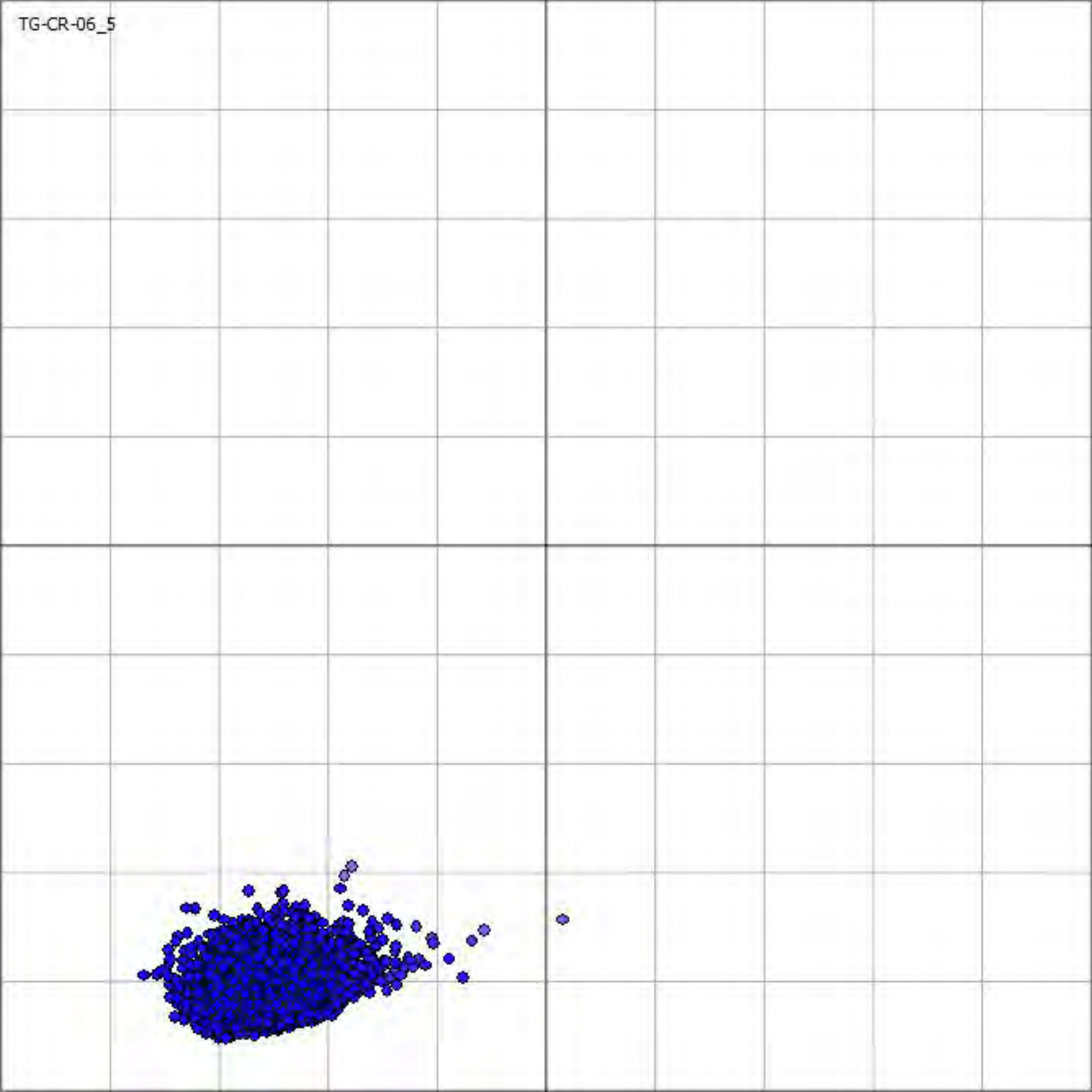
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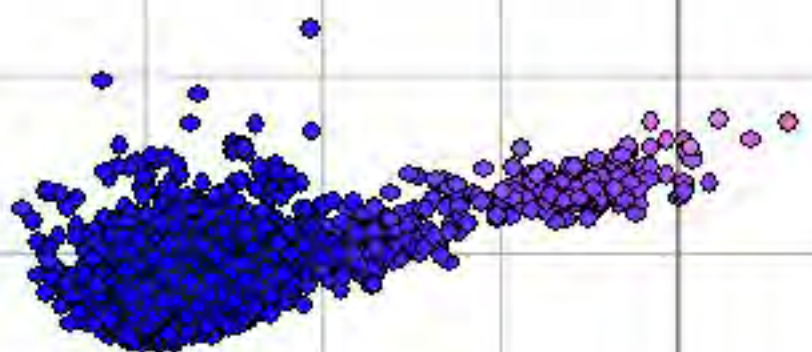

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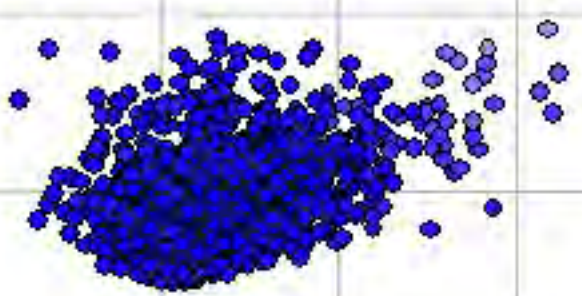

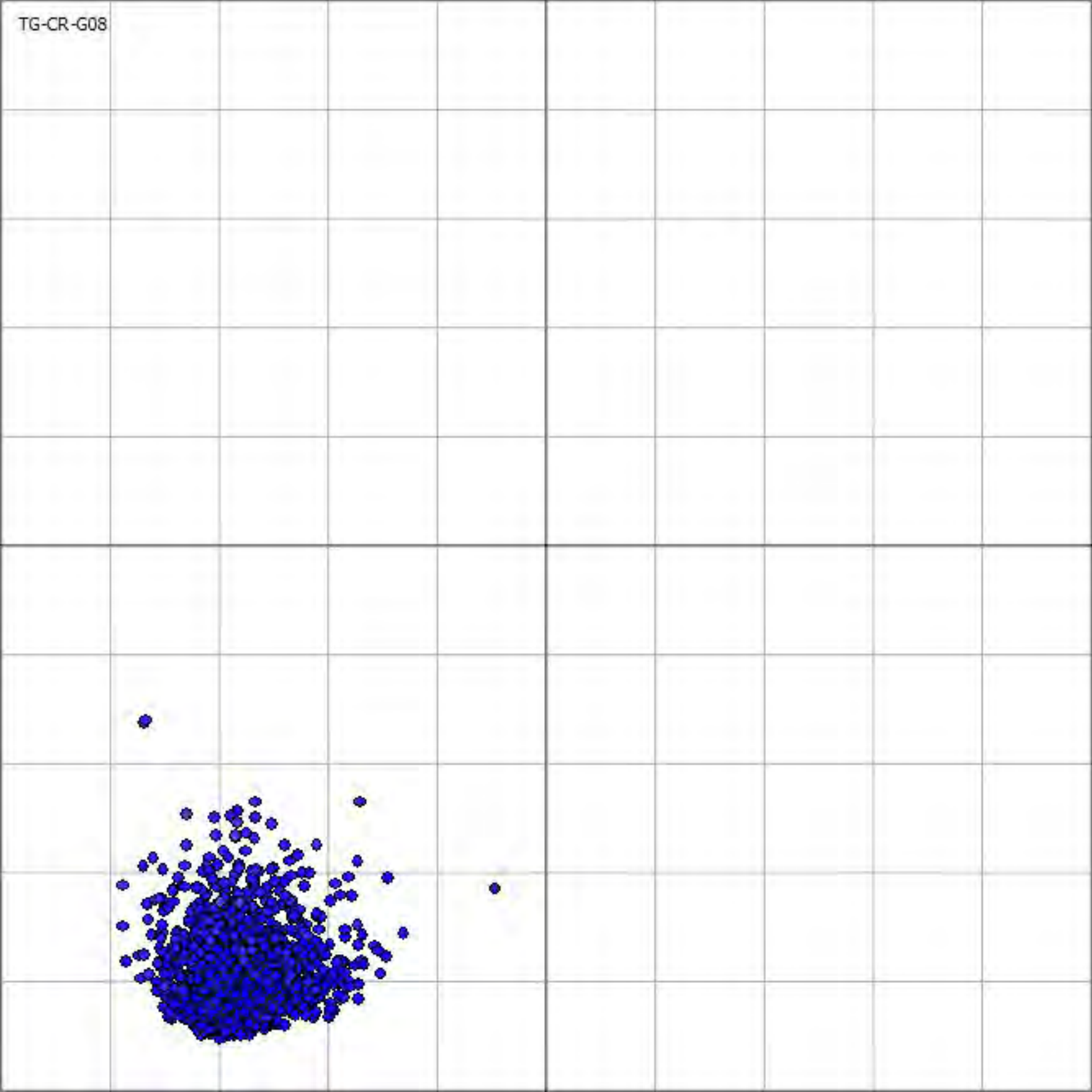
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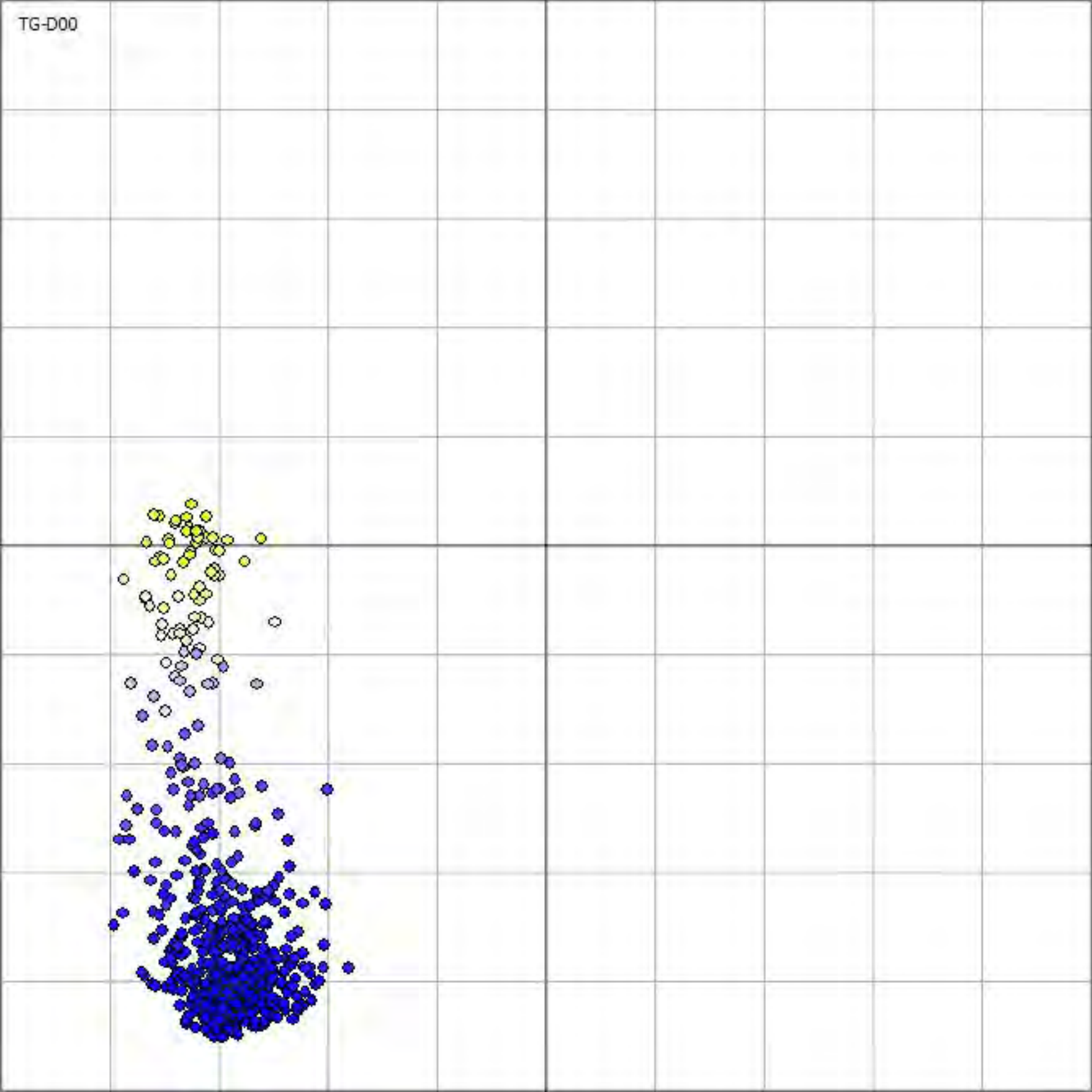
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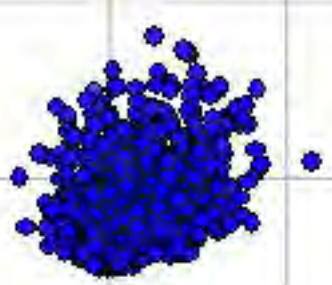

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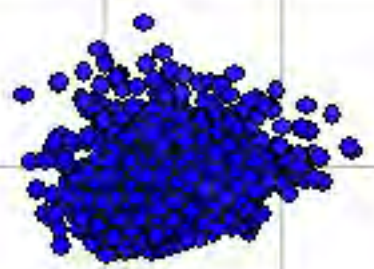

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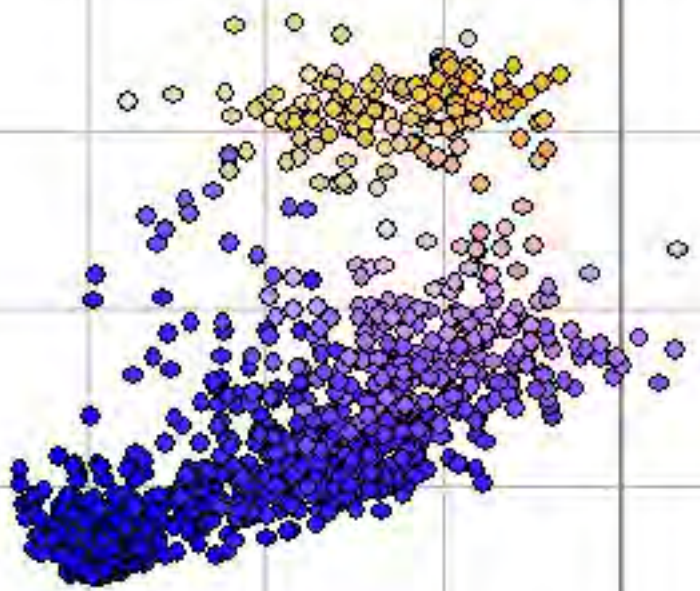

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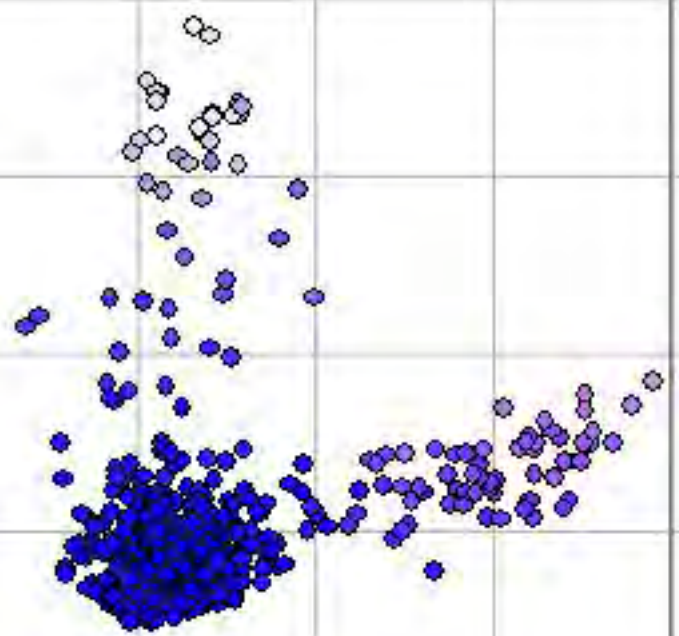

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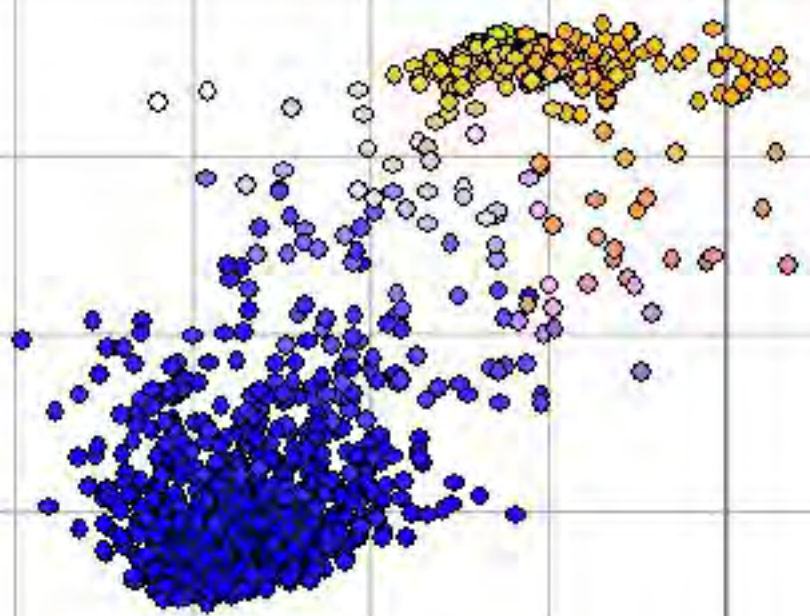
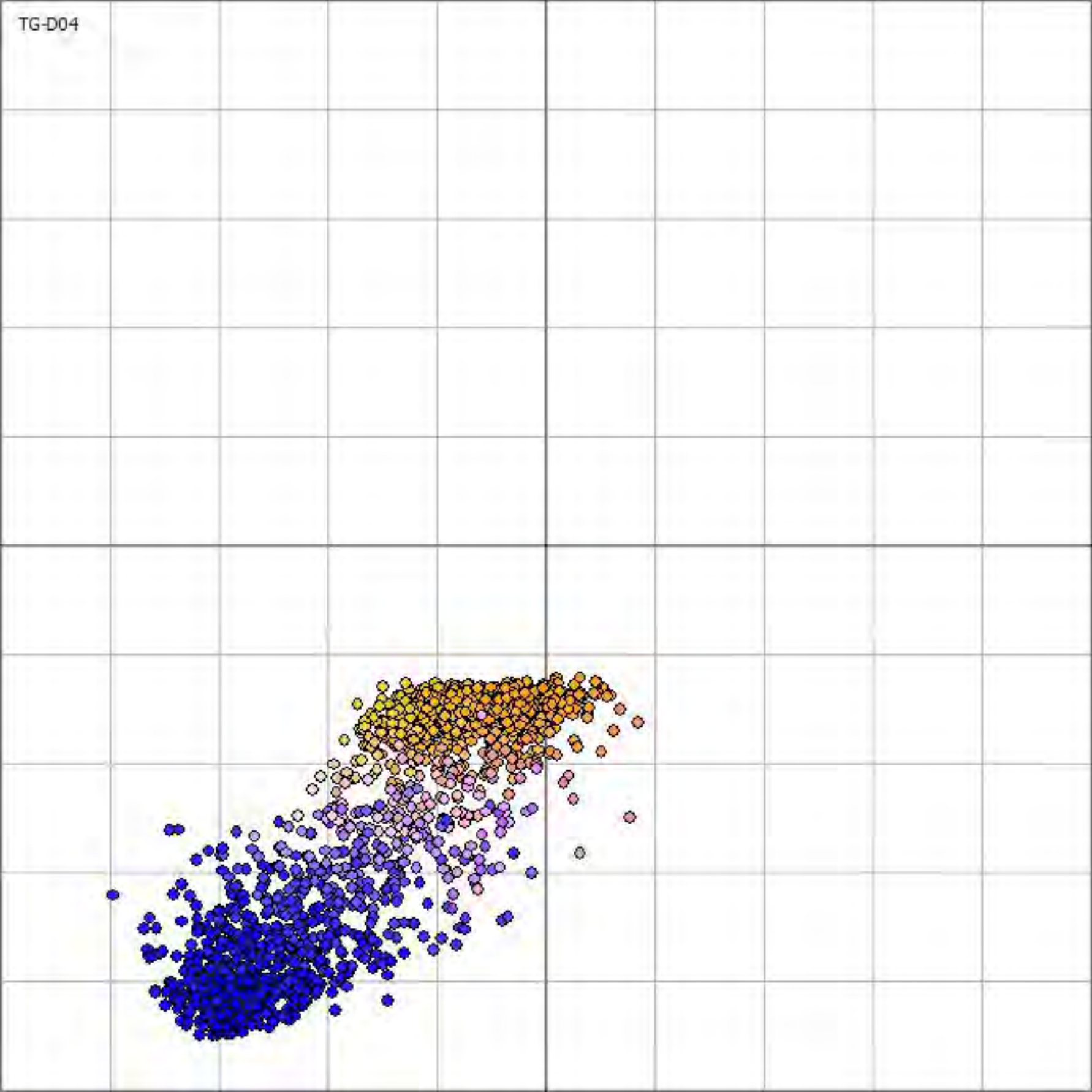


TG-D04



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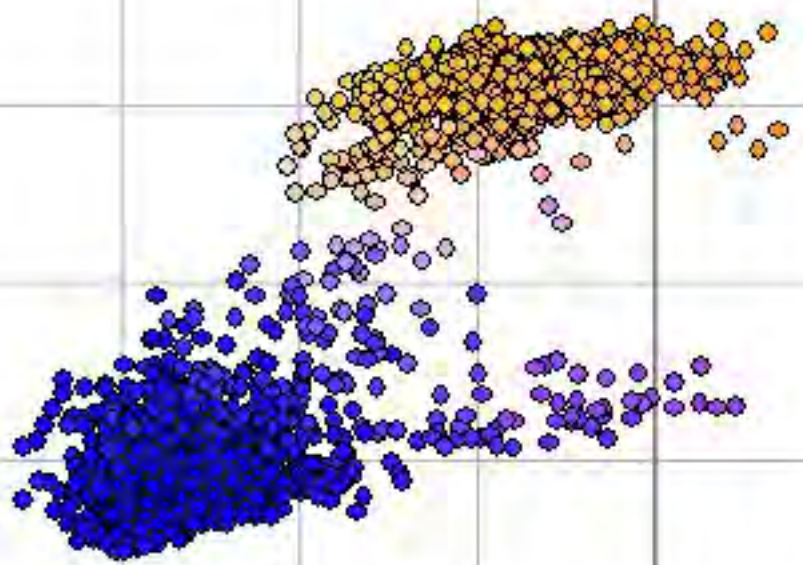

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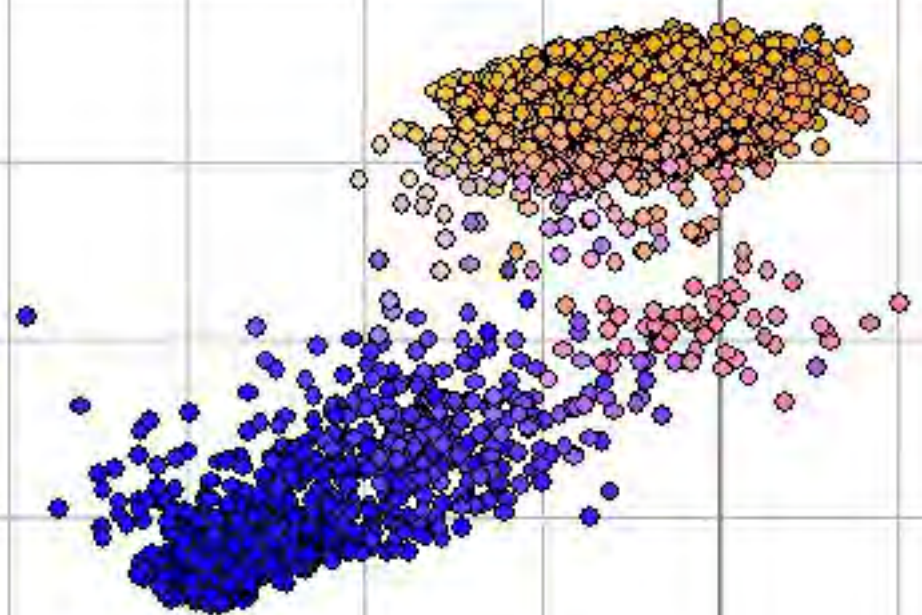

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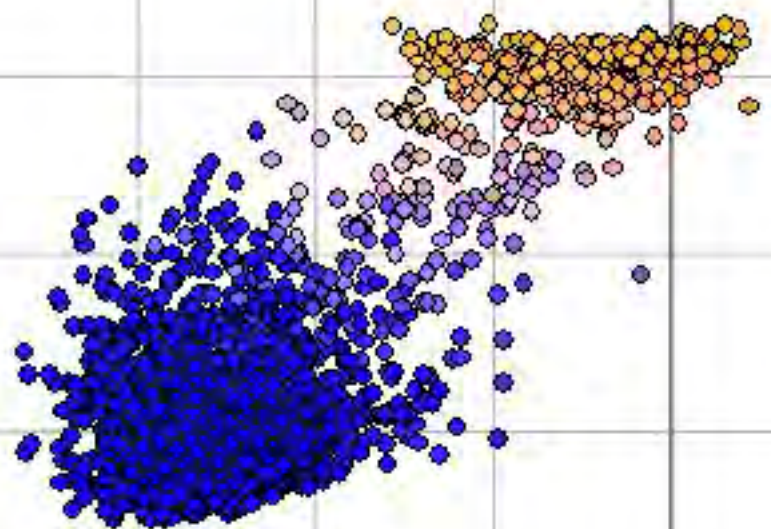

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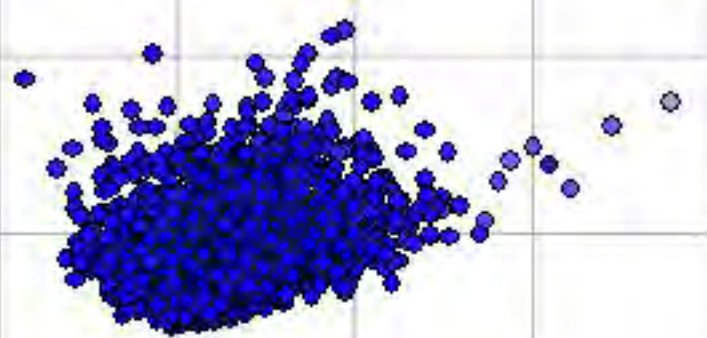

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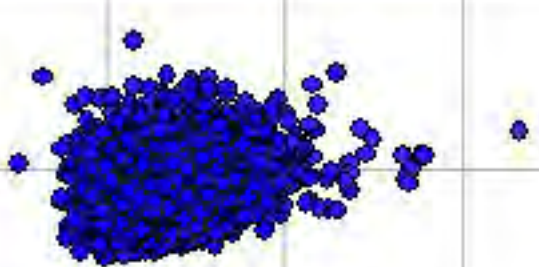

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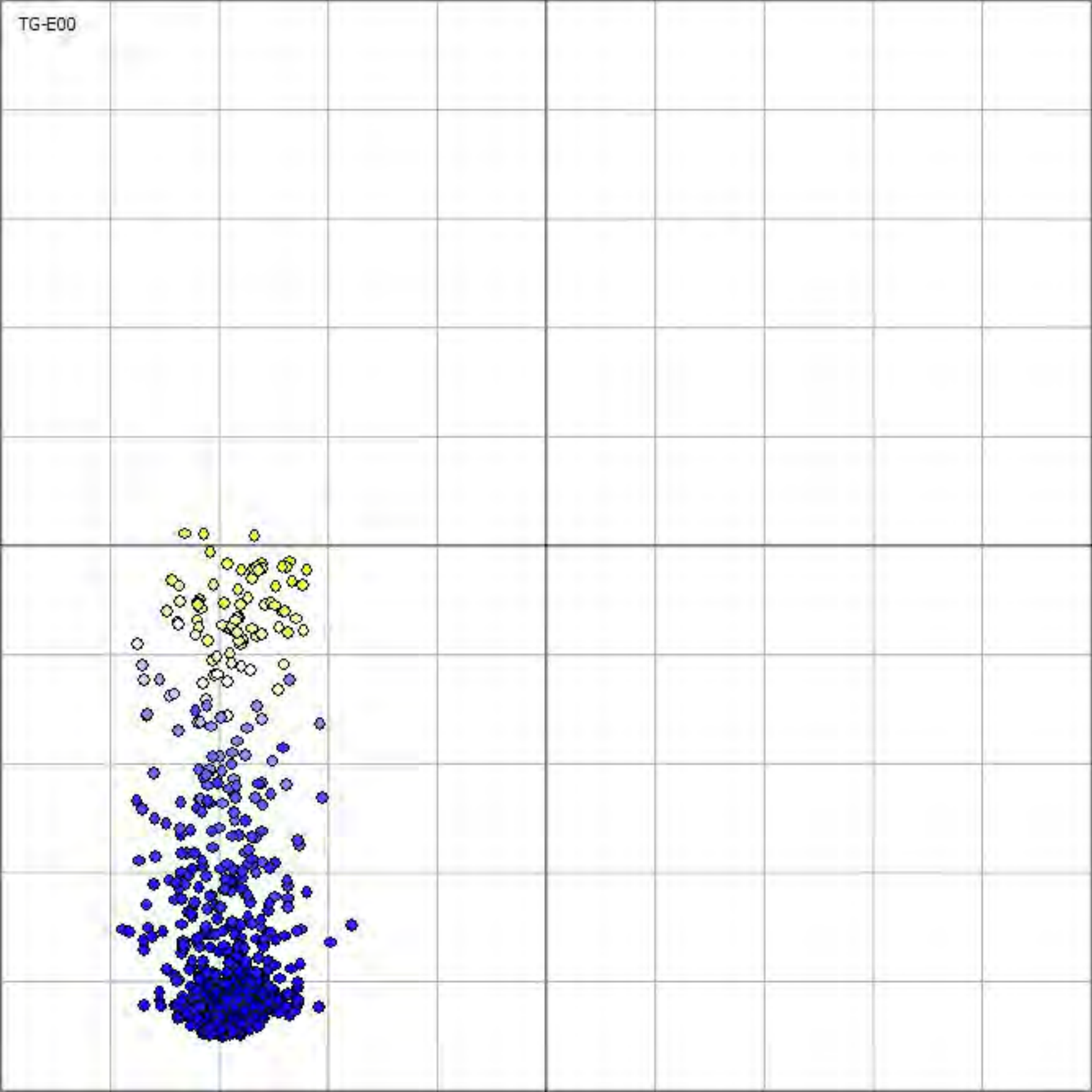

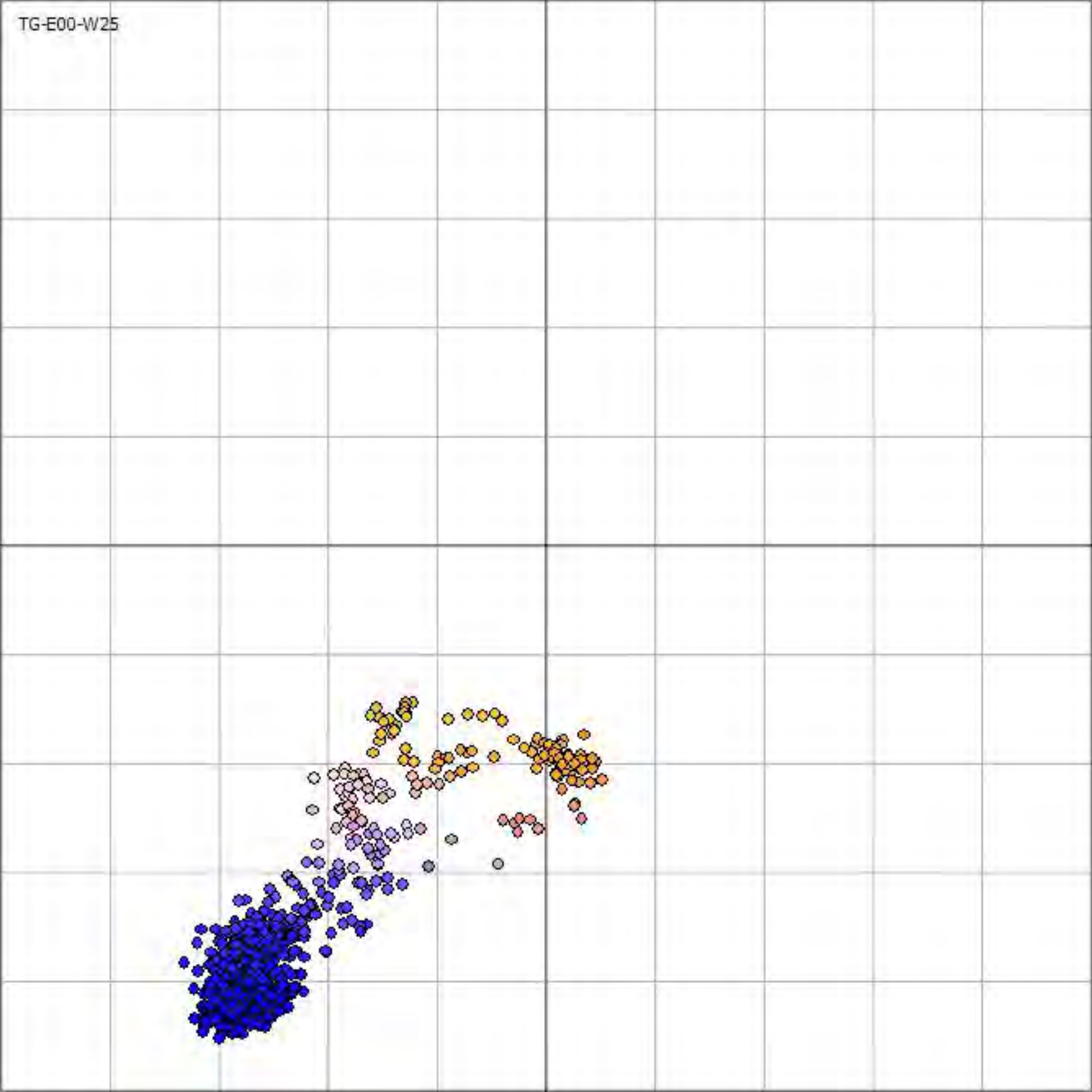
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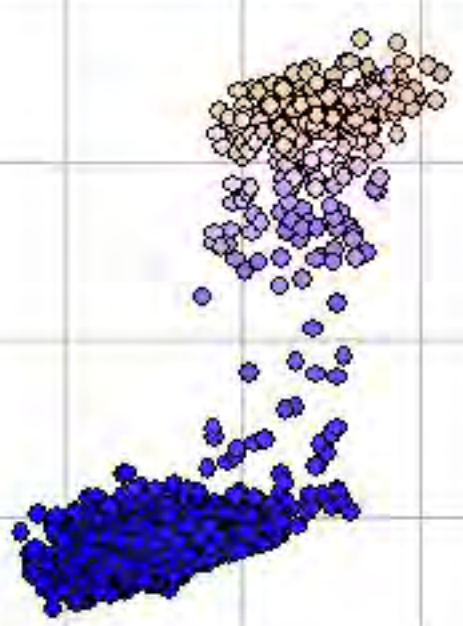

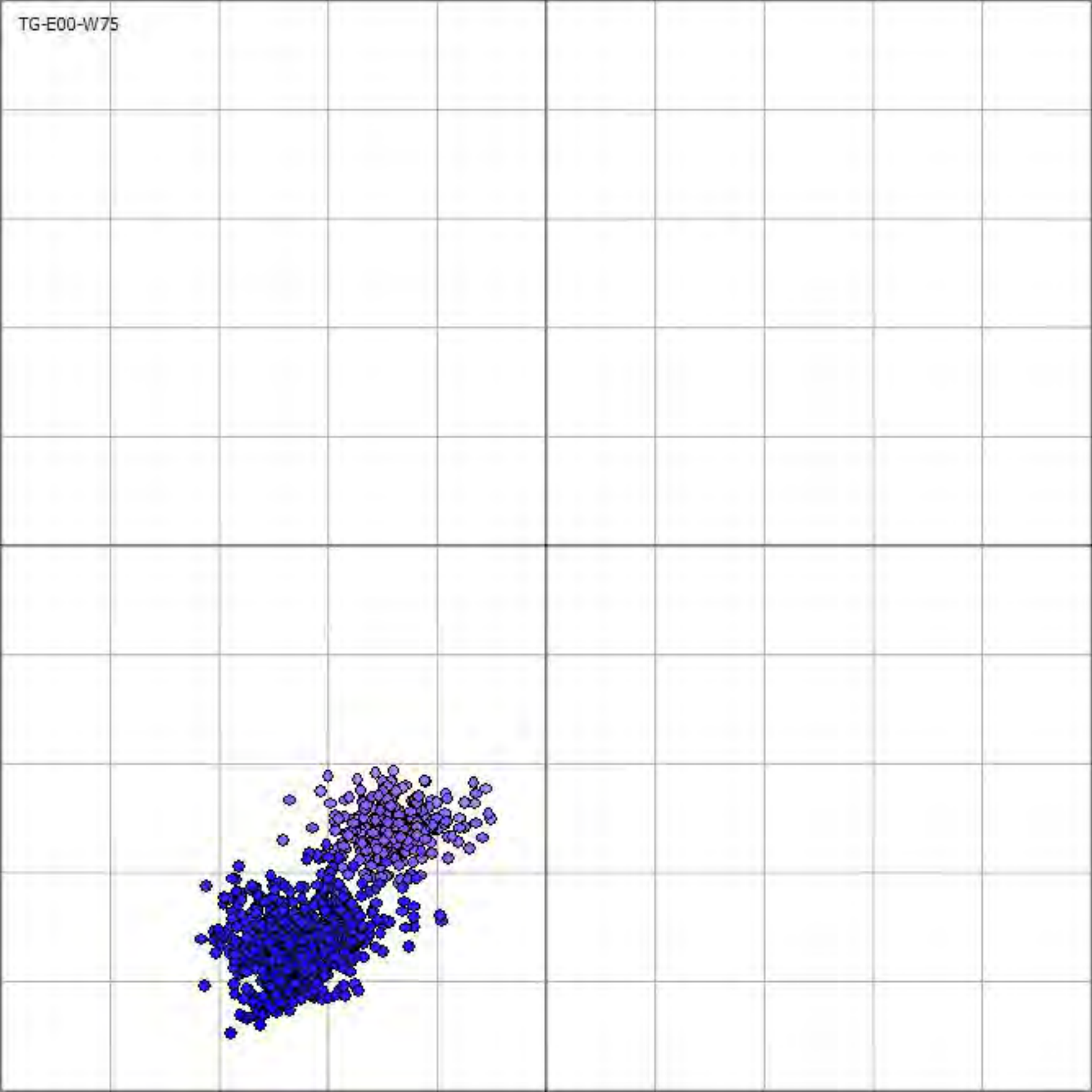
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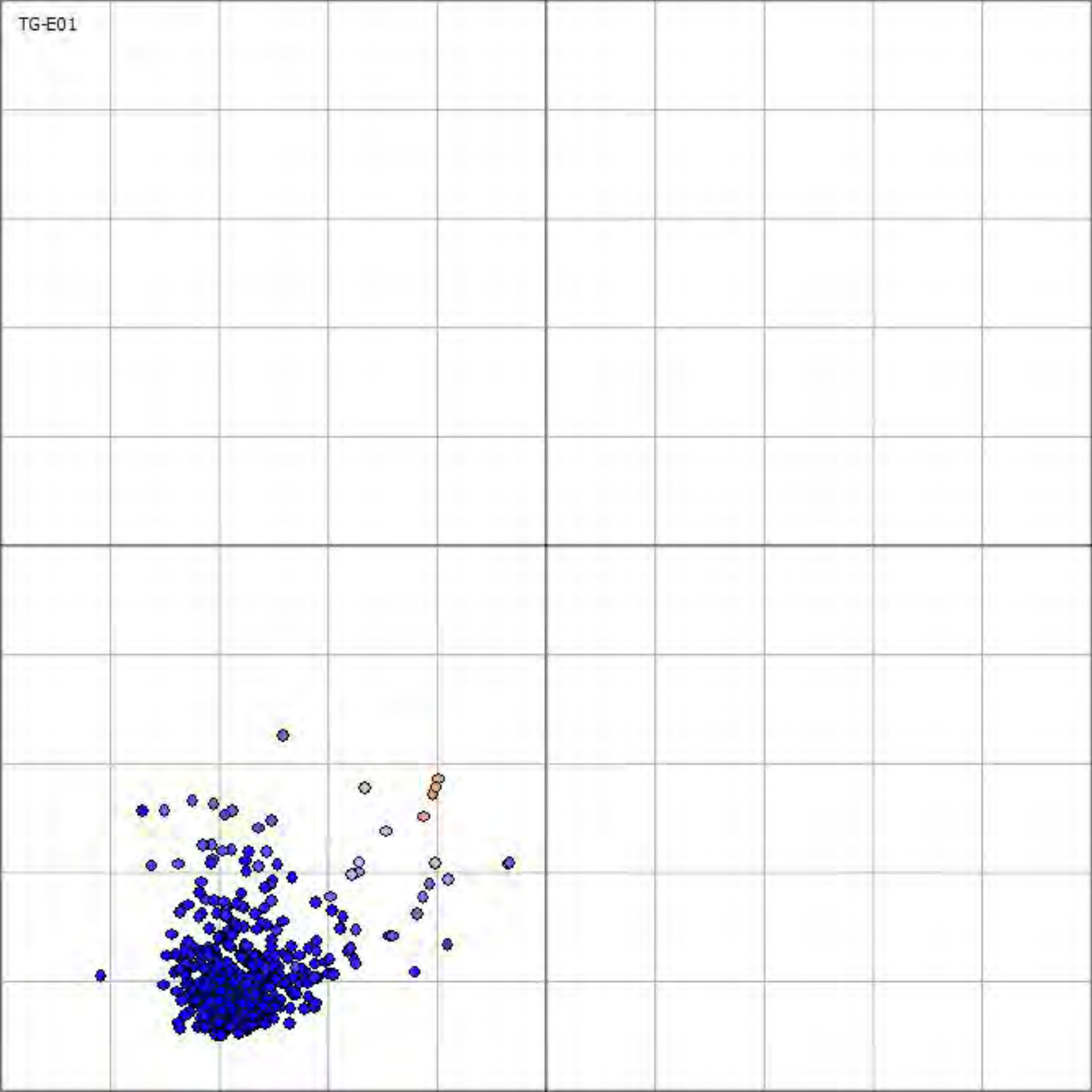
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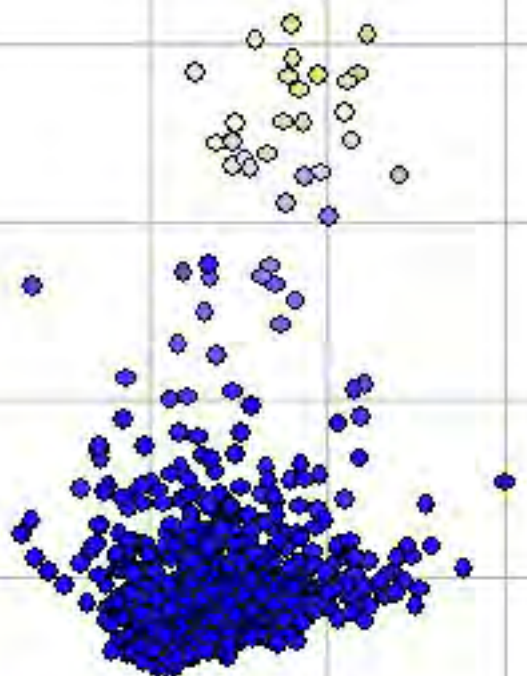

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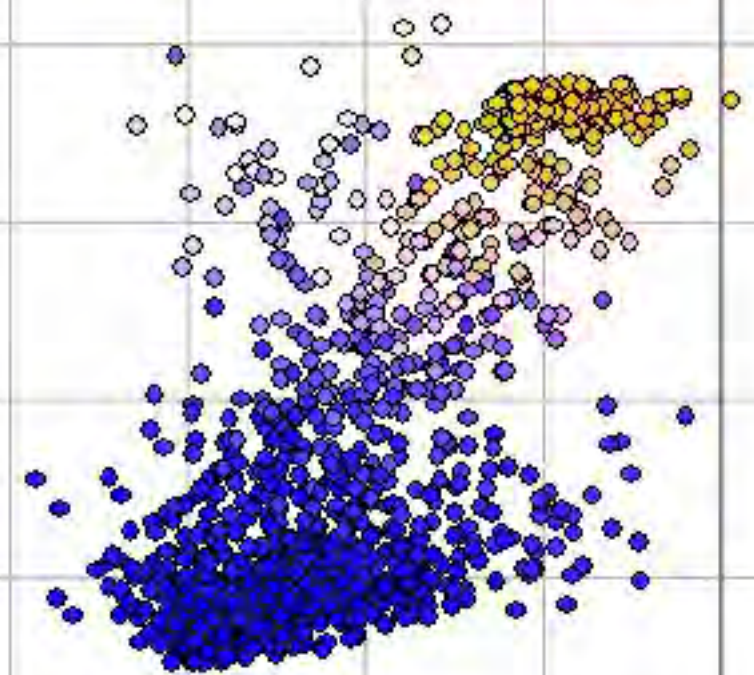

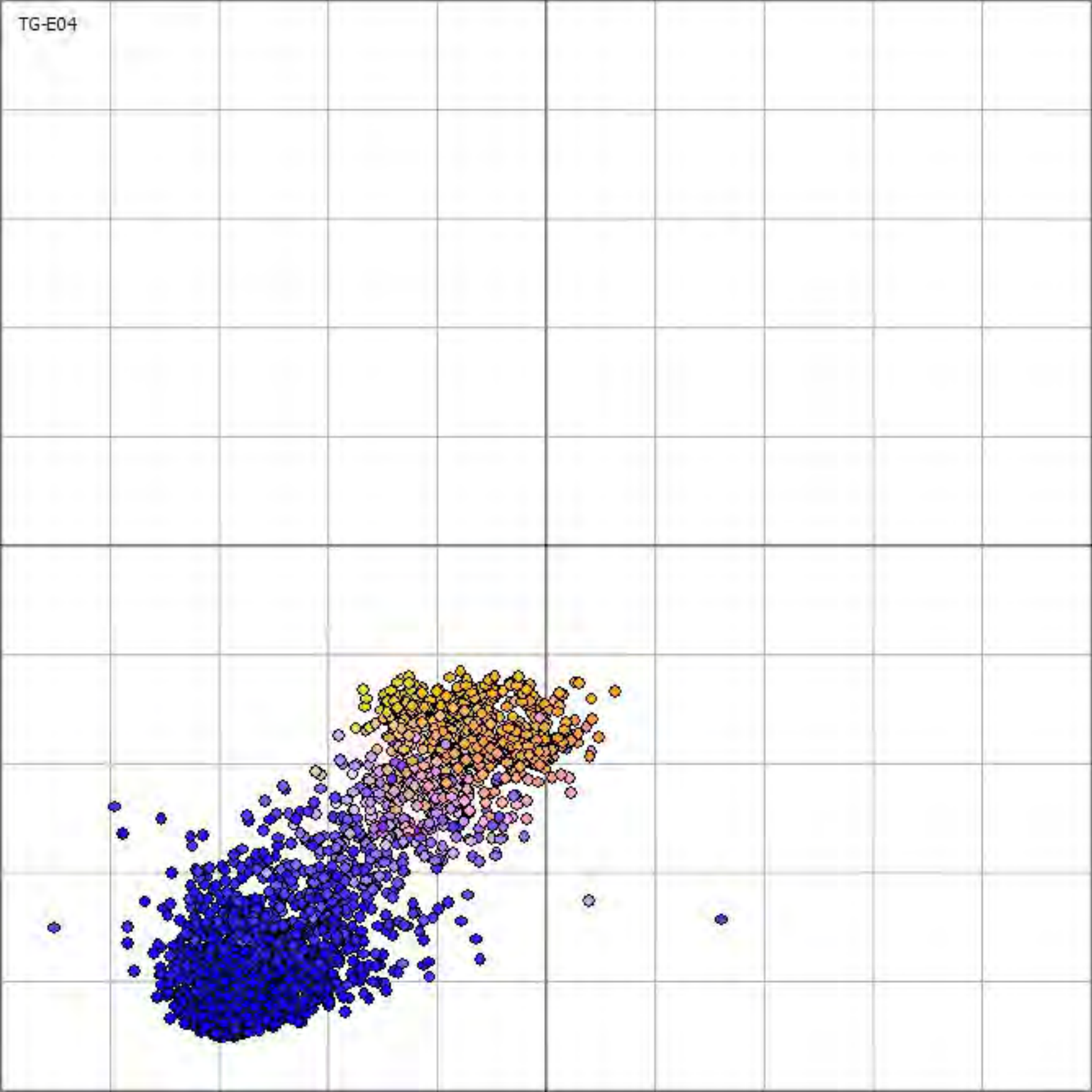
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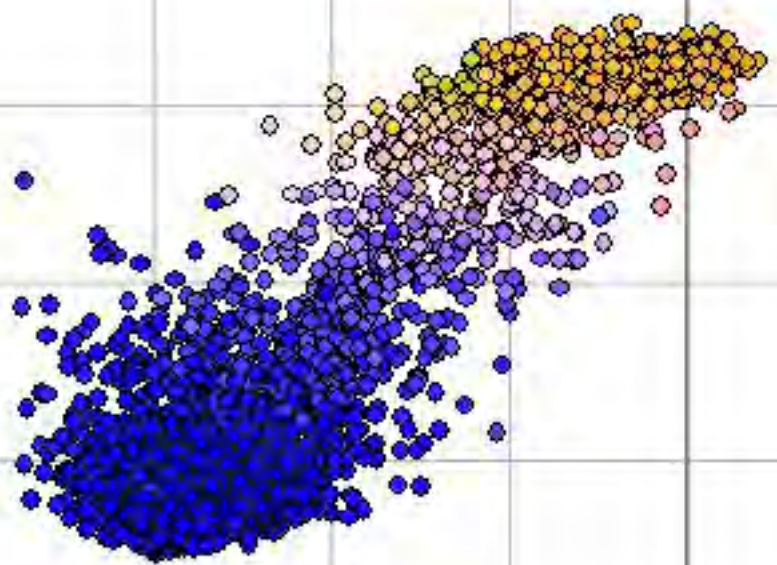

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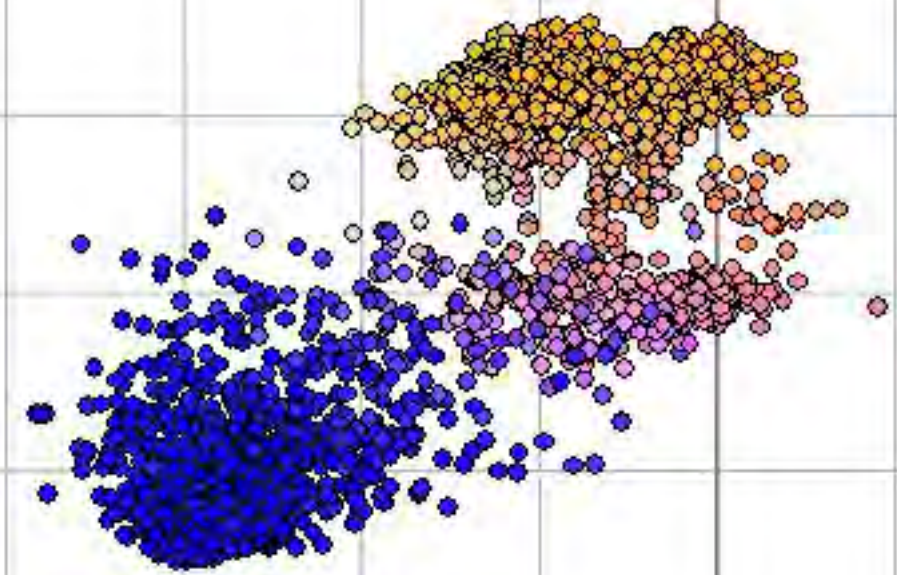

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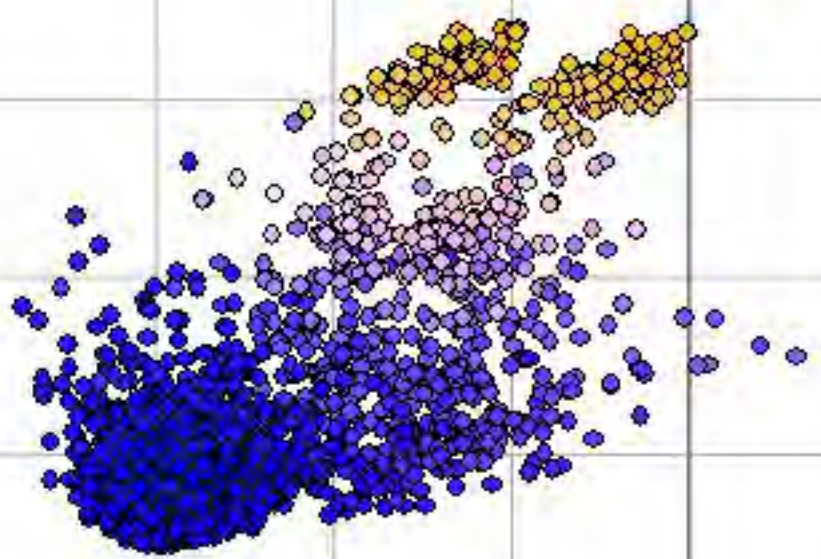
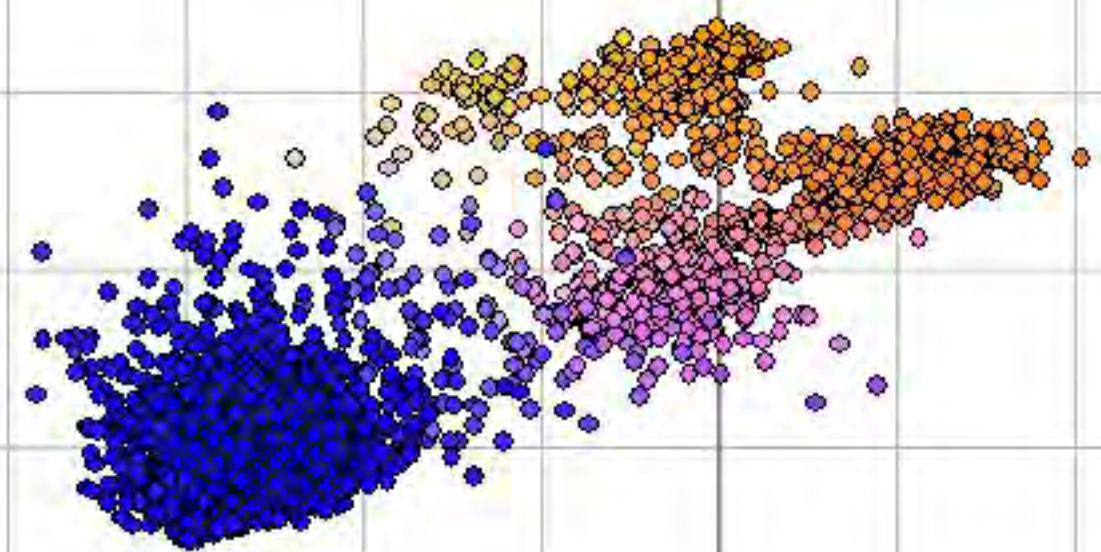


TG-E08



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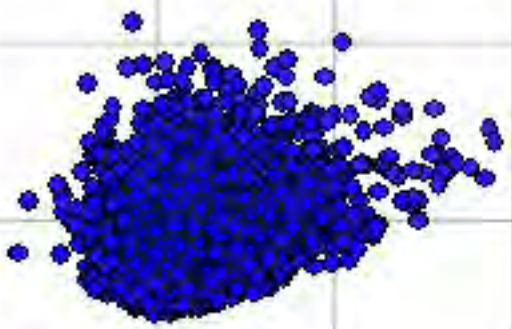

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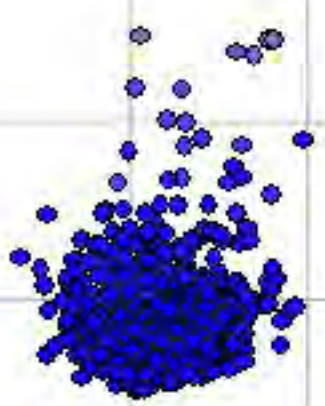

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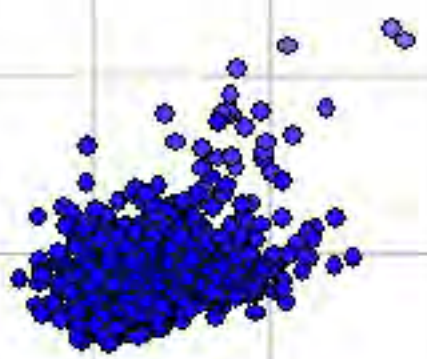

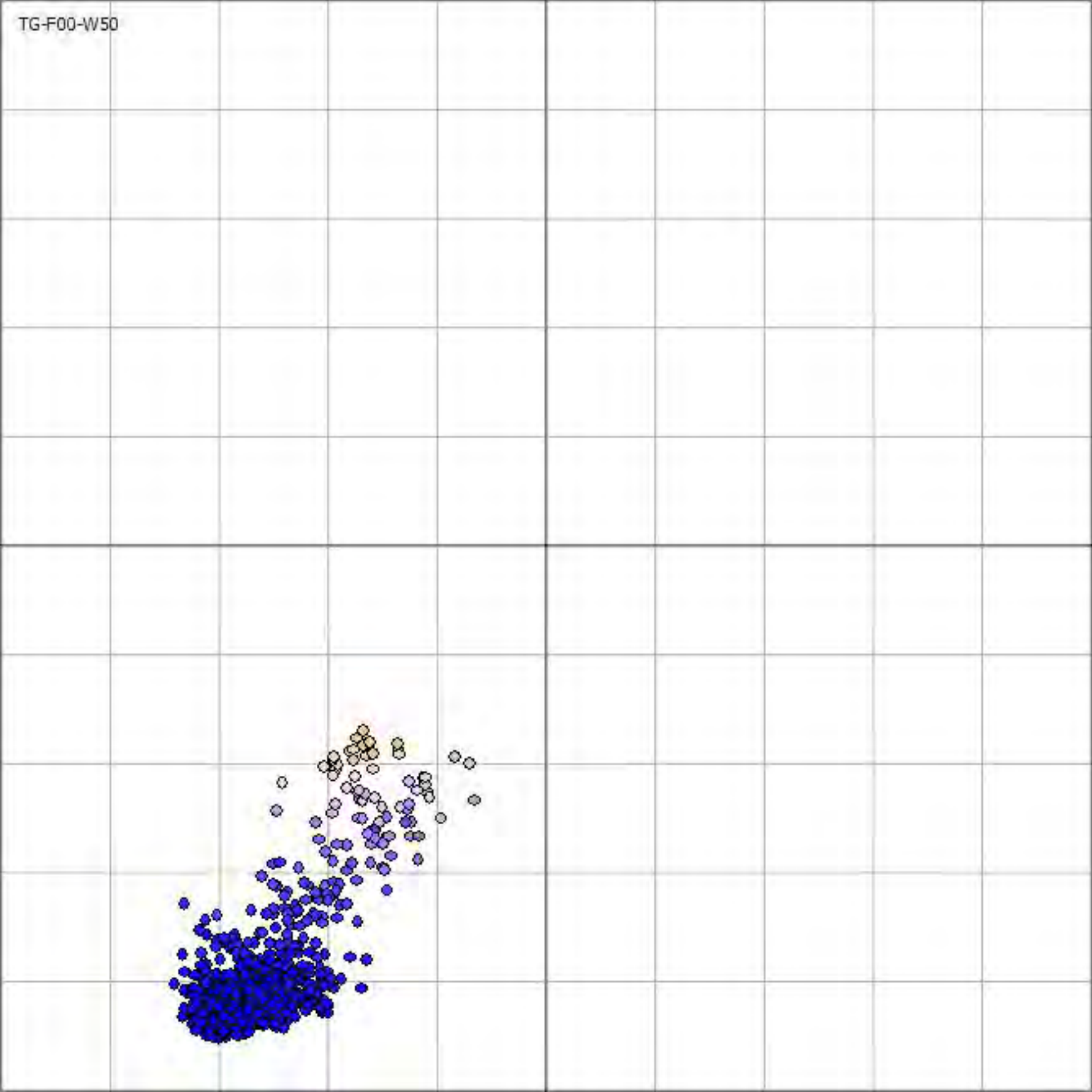
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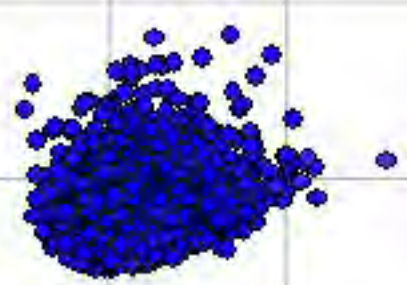

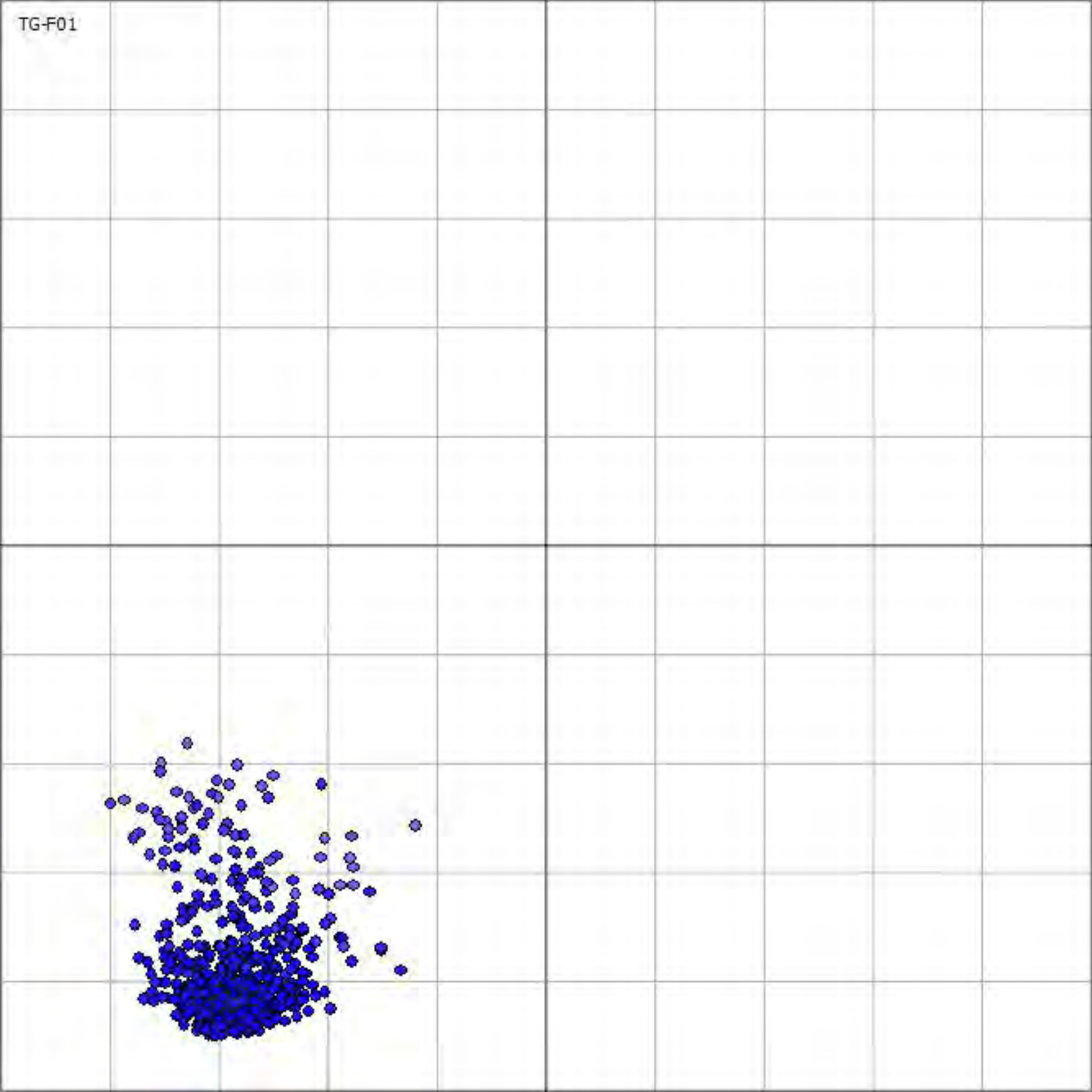
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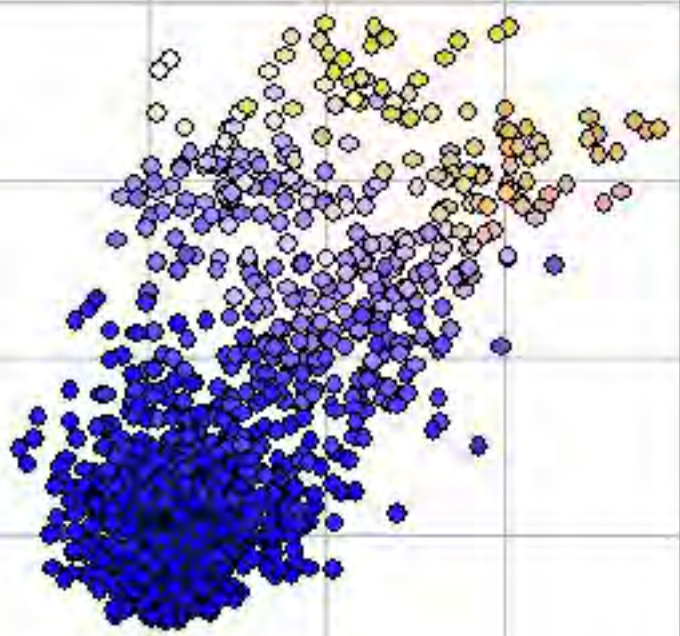
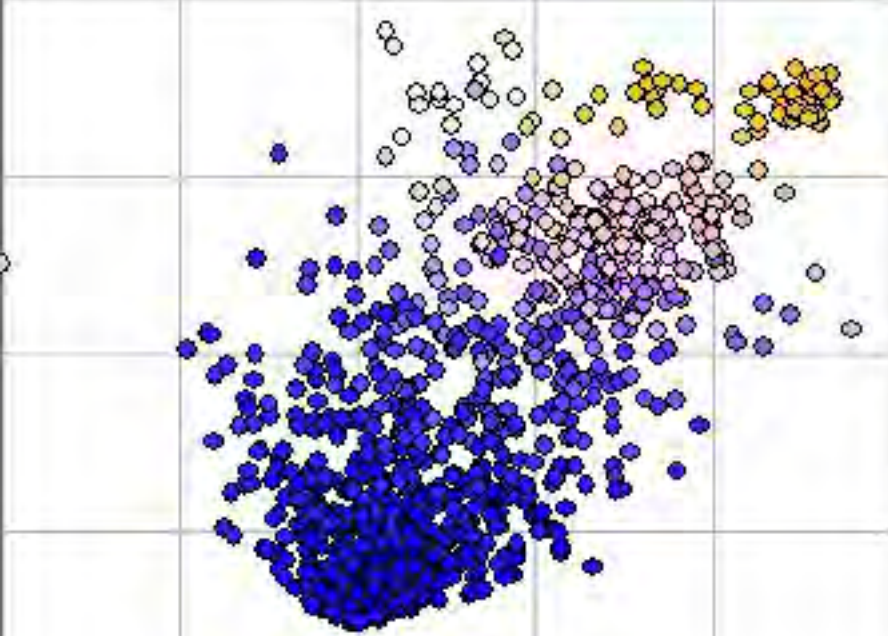


TG-F03



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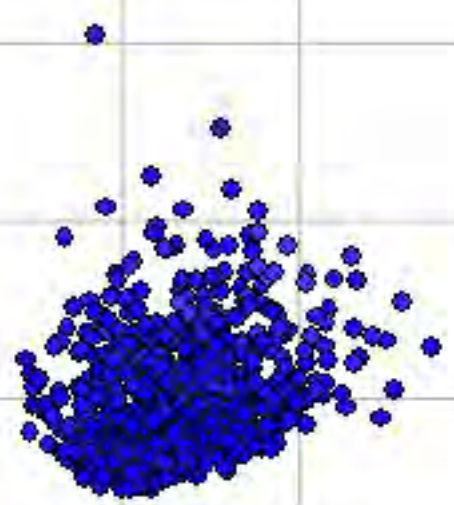

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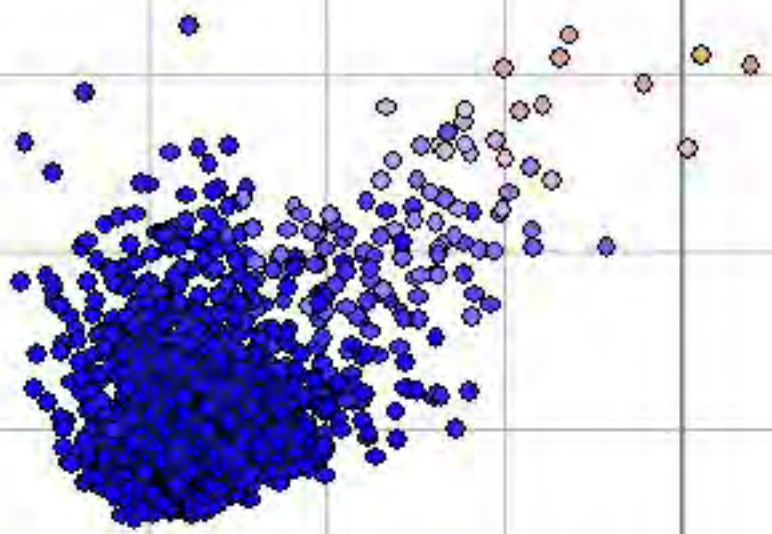

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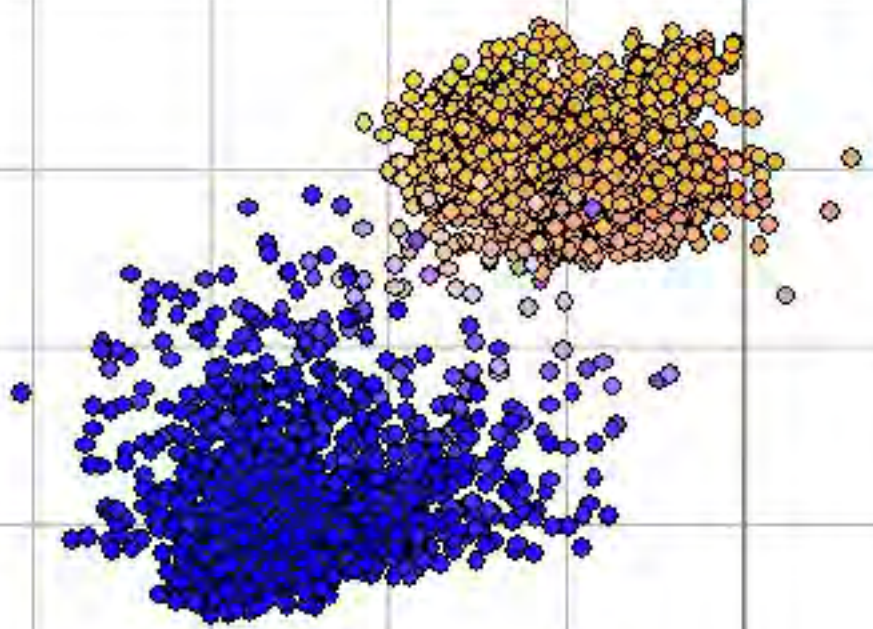

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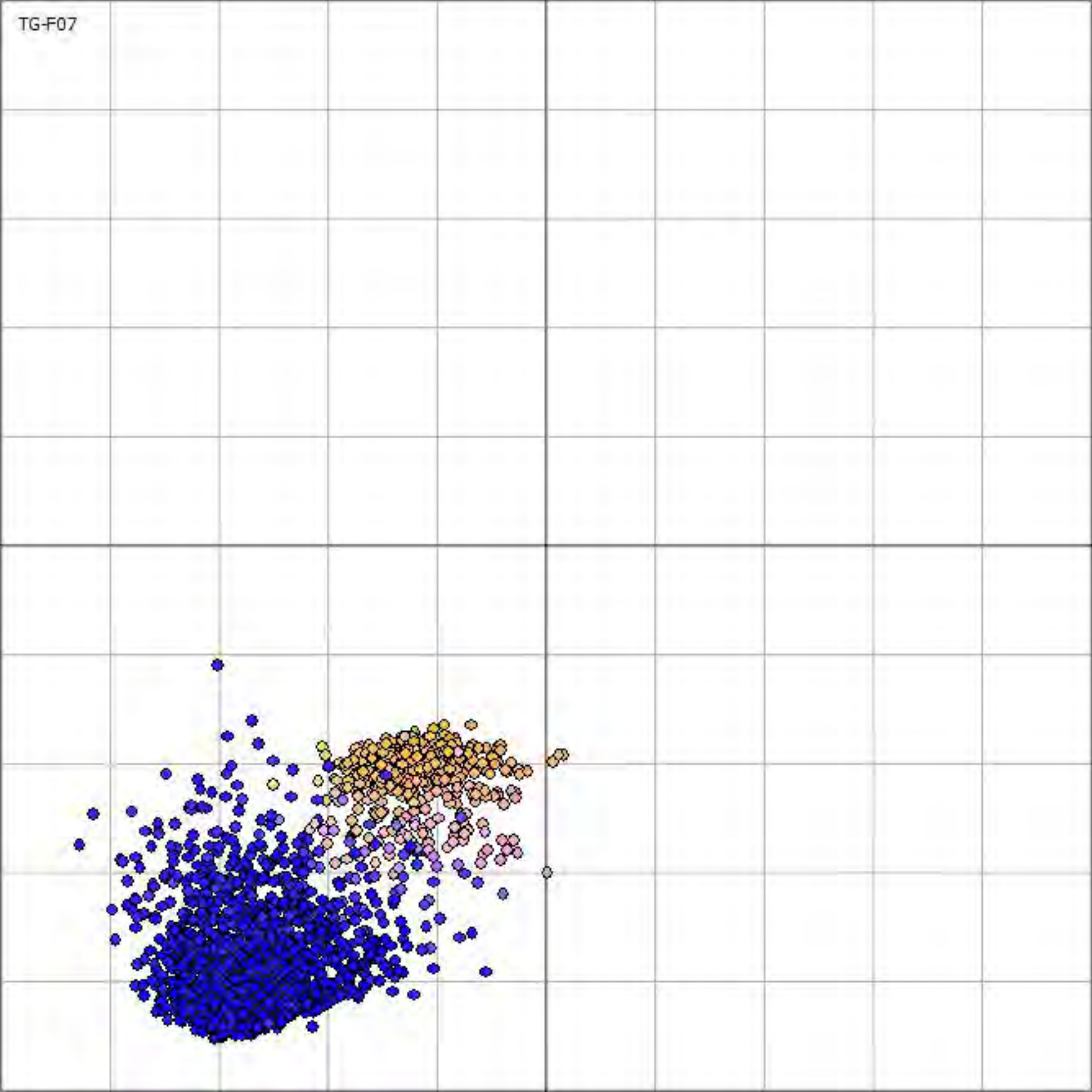

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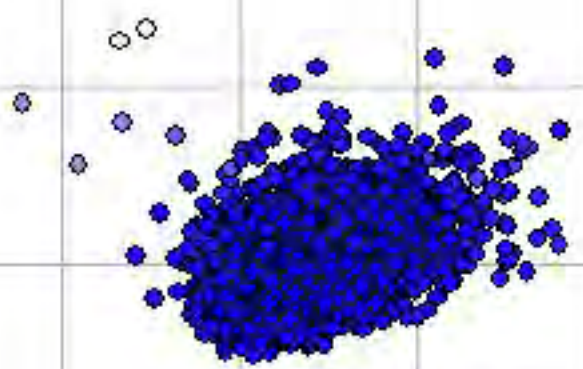
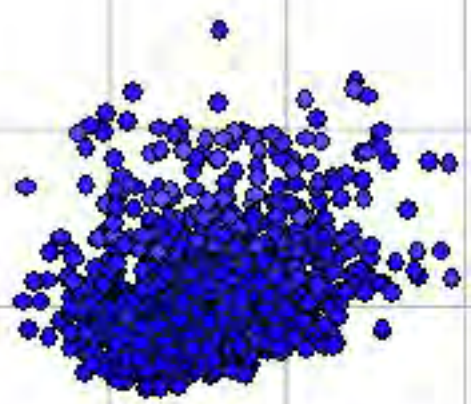


TG-G00



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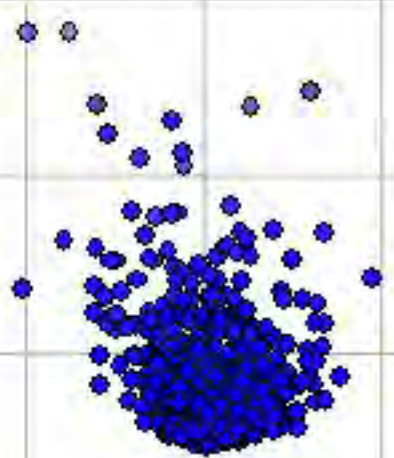

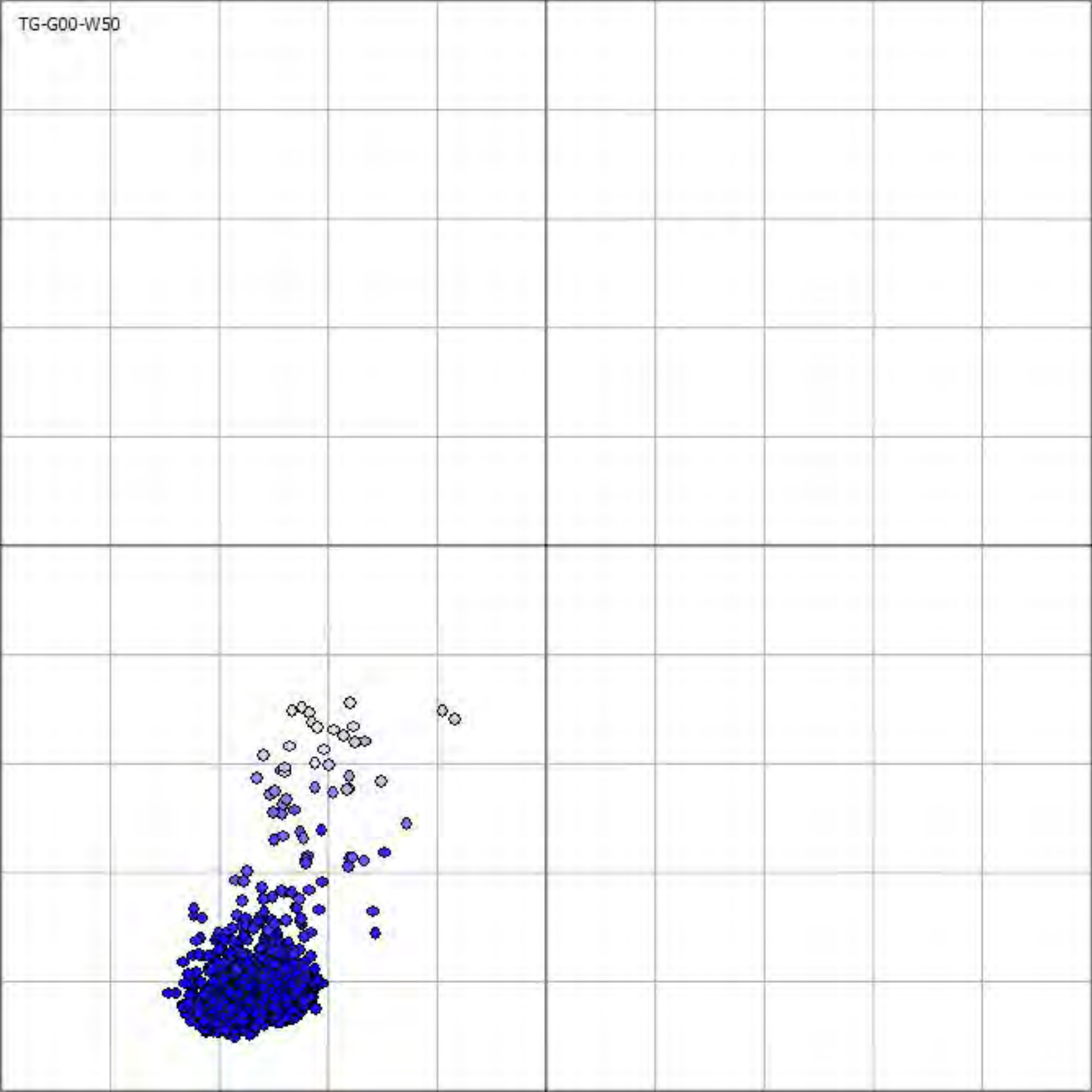
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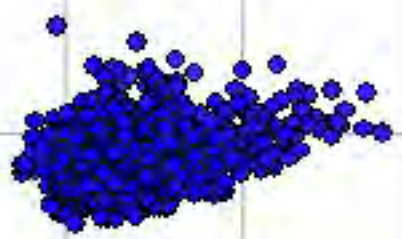

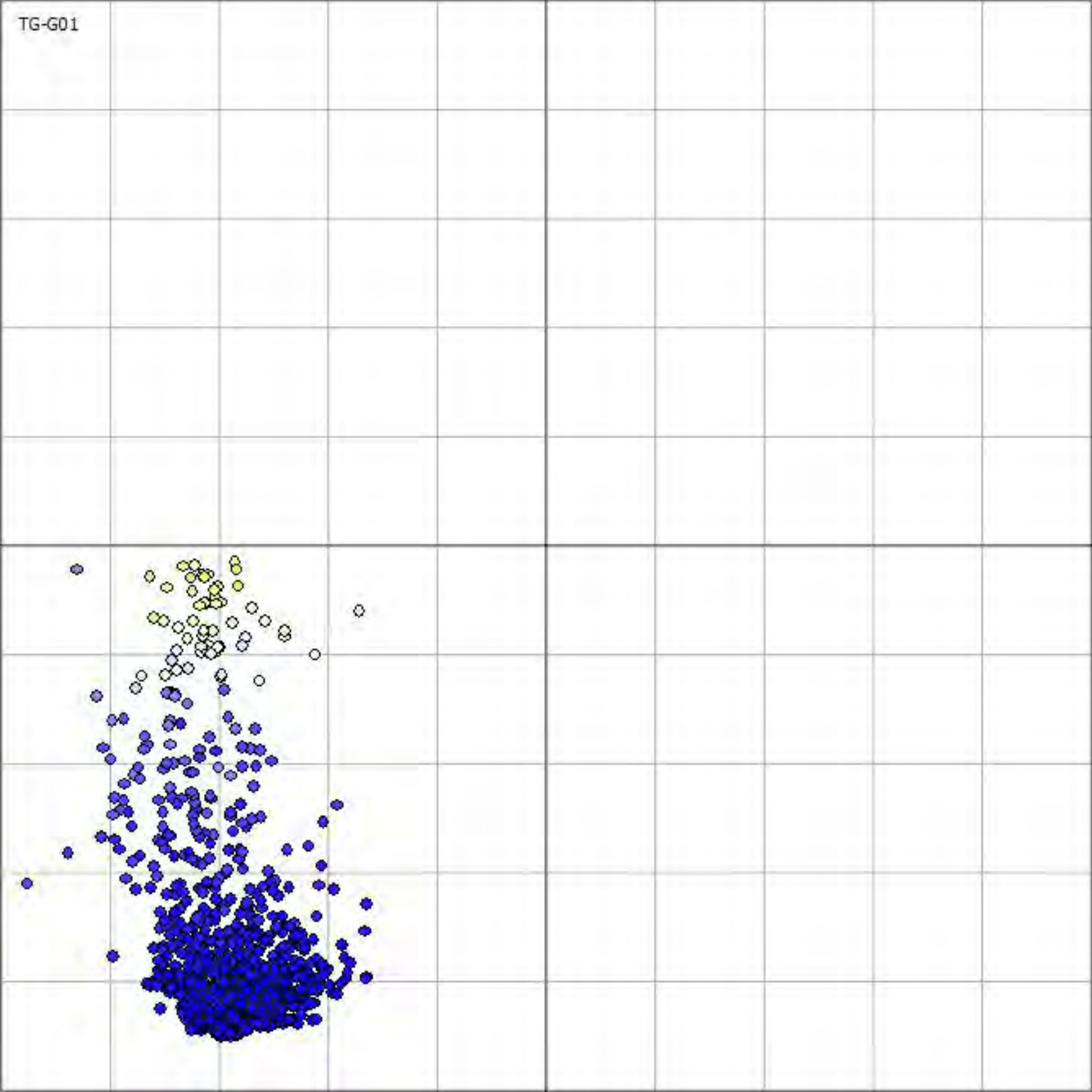
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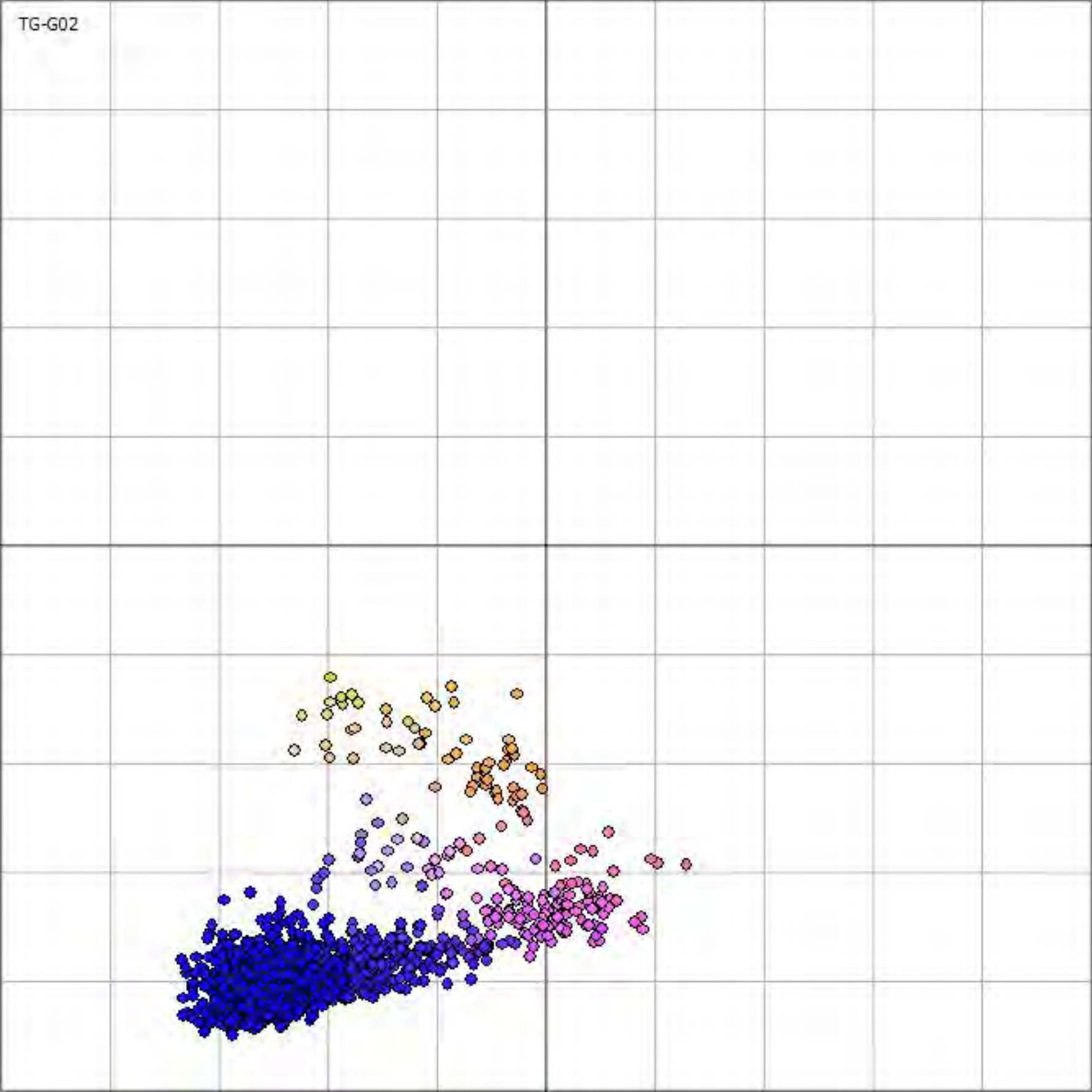
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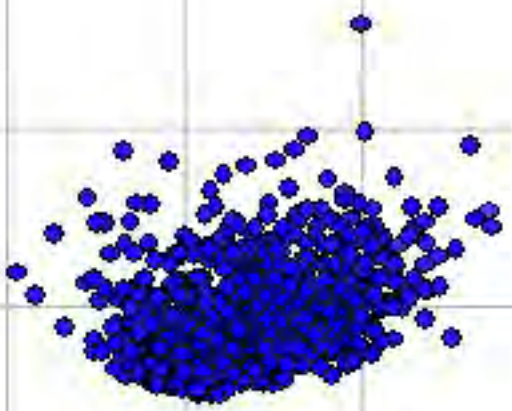
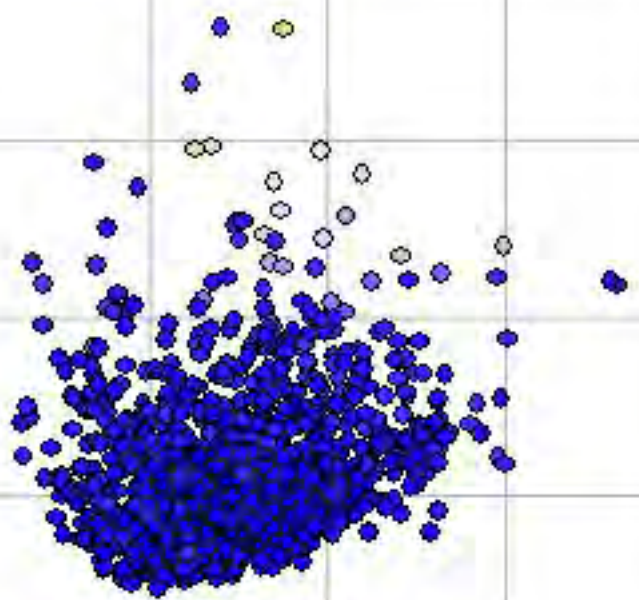
TG-G03



TG-G04



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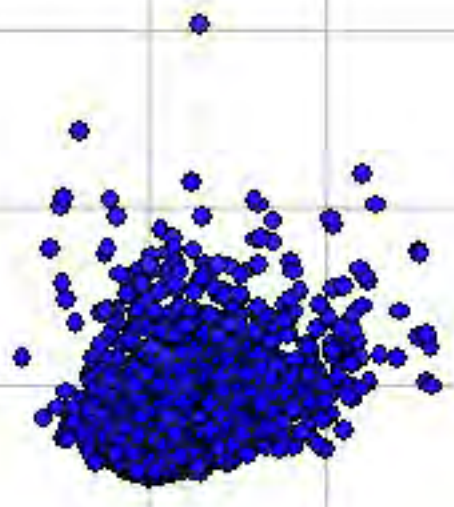

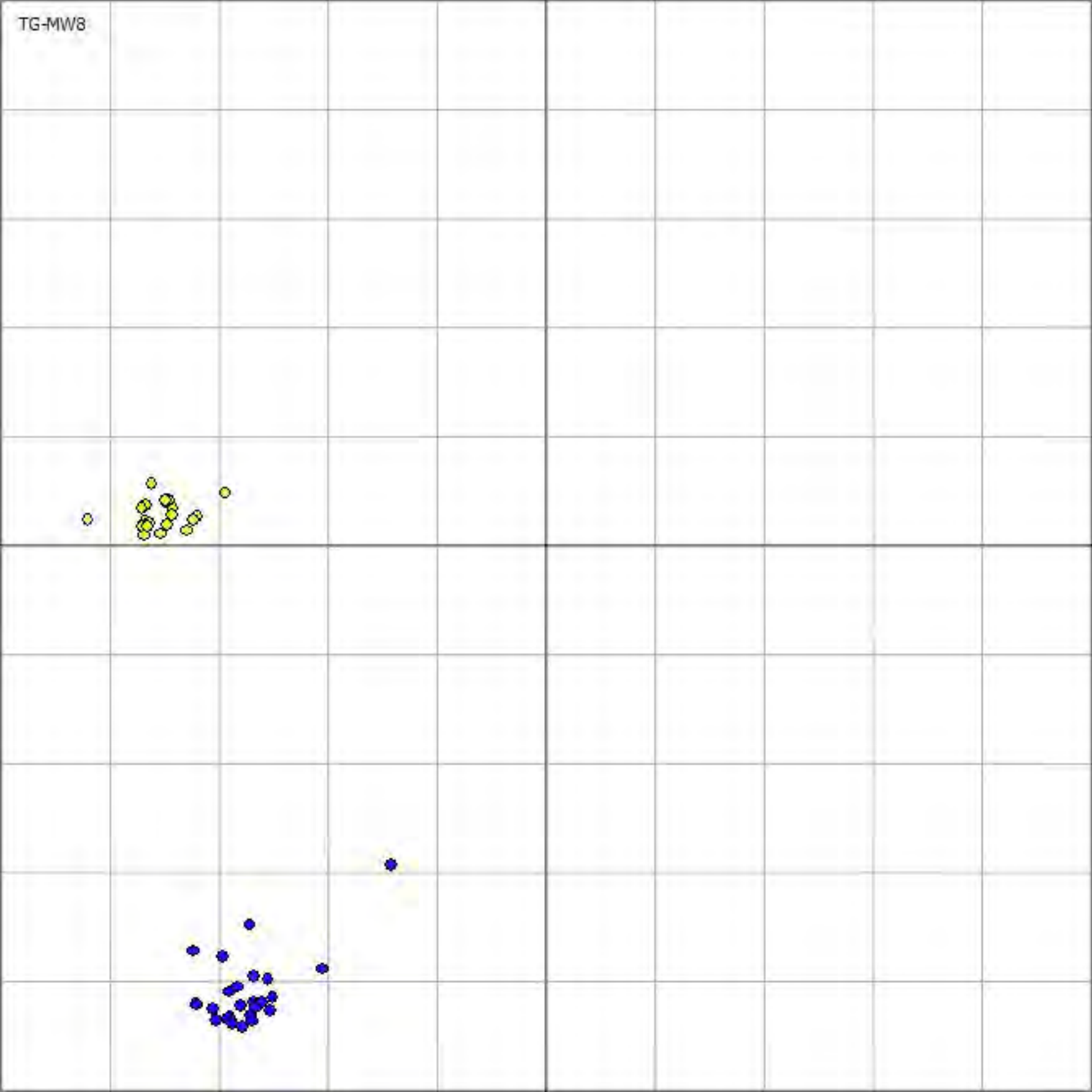
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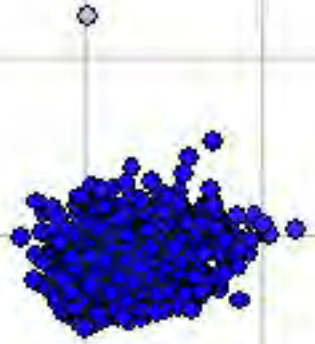
TG-NT01



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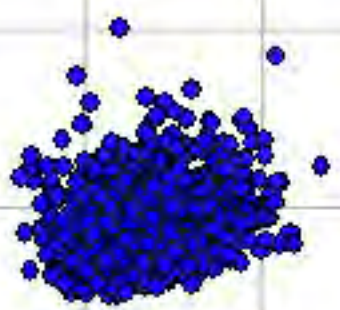

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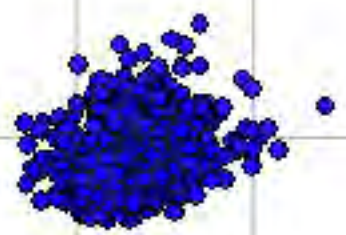

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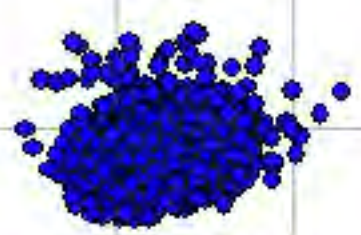
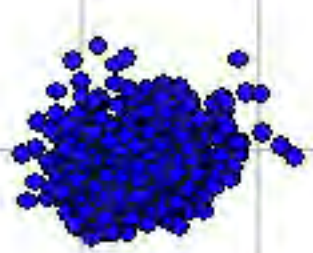
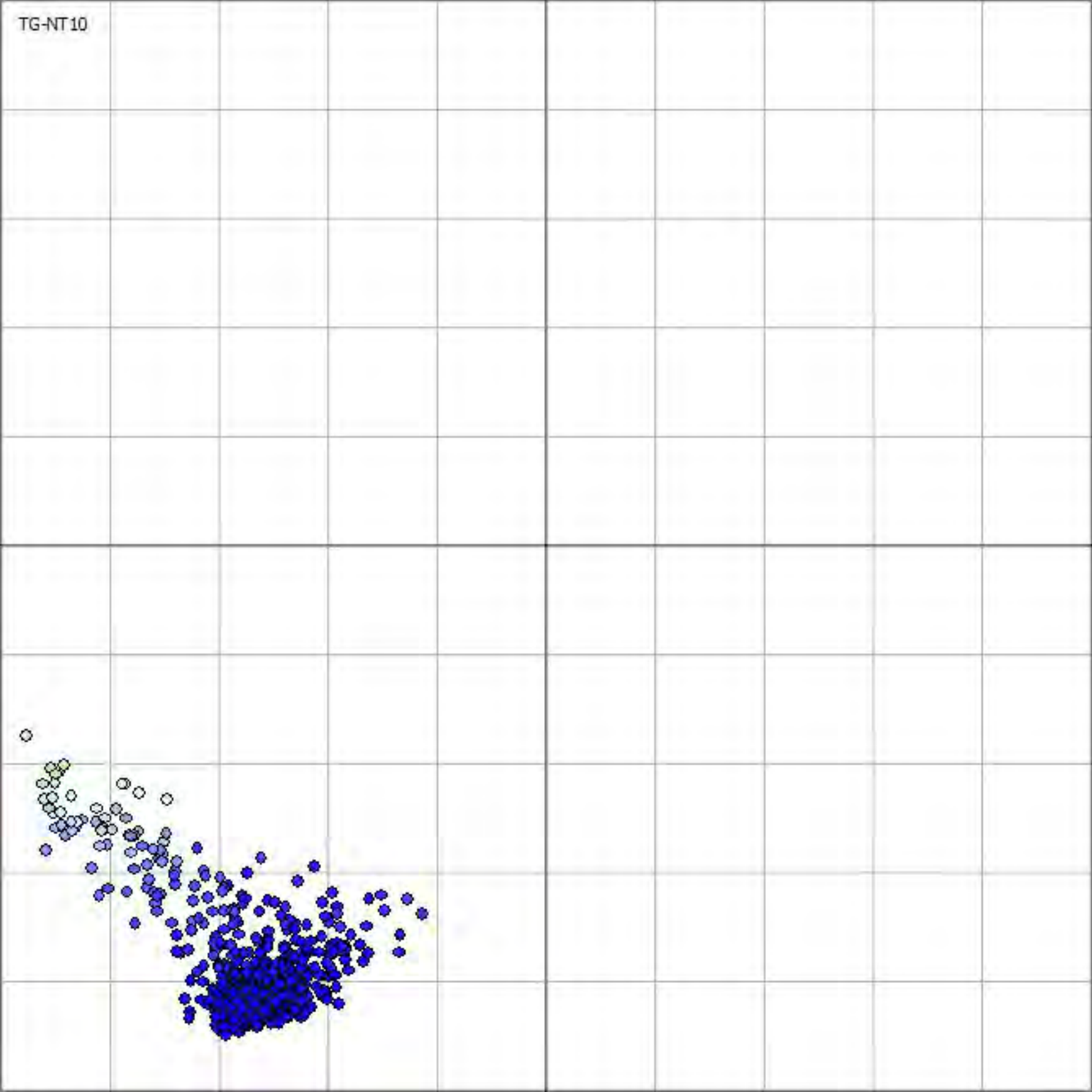


TG-NT07

TG-NT08

TG-NT09

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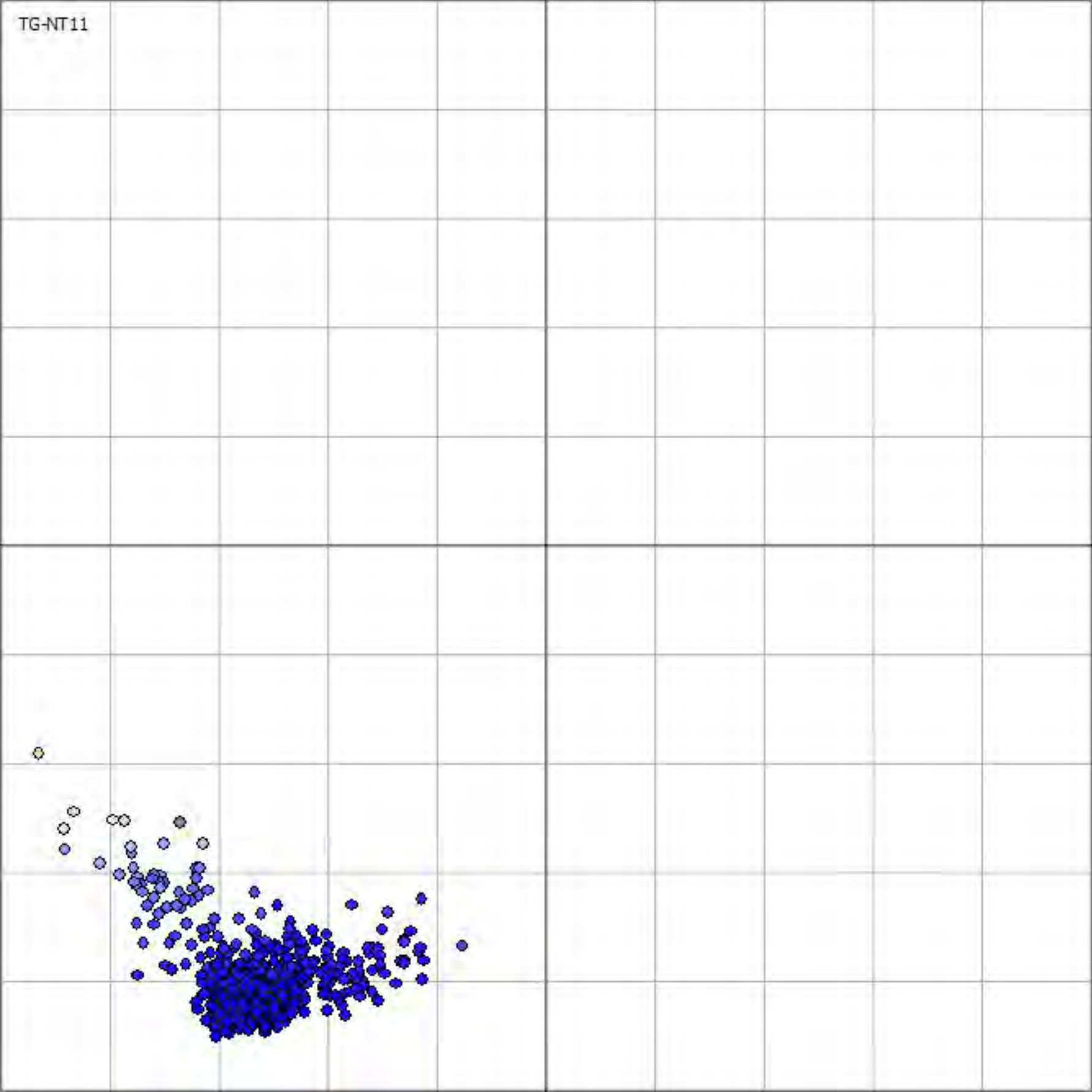
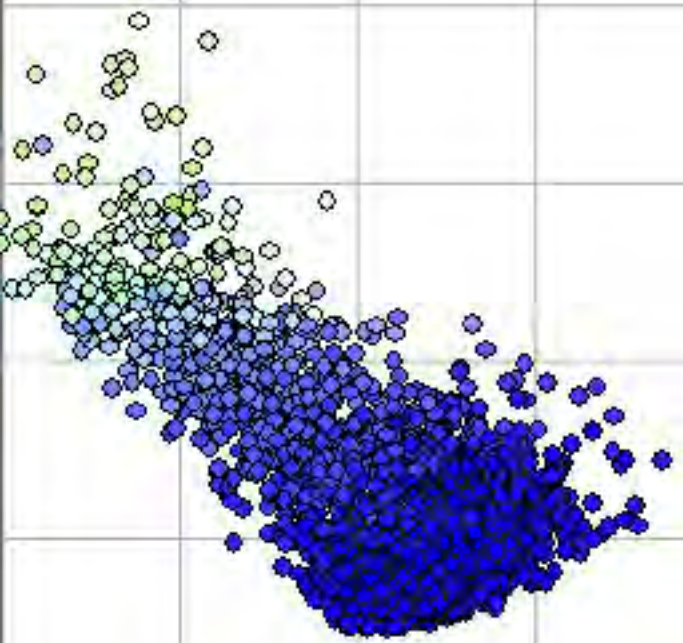

TG-NT11

TG-NT11-E40



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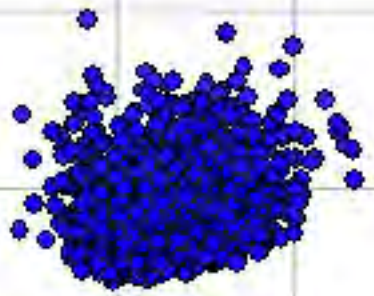
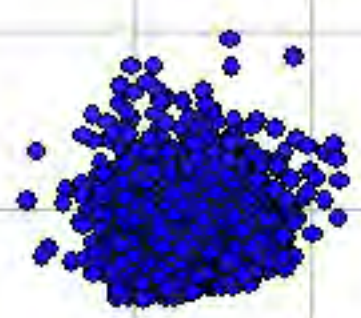
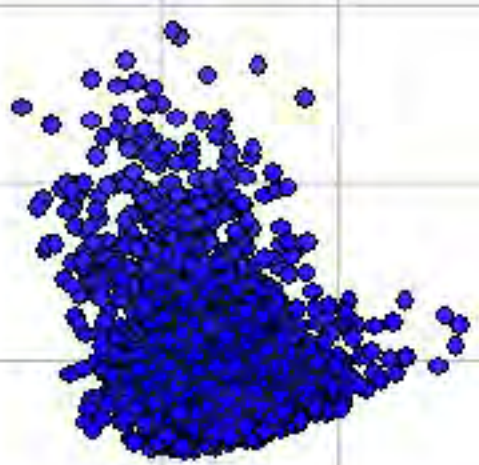


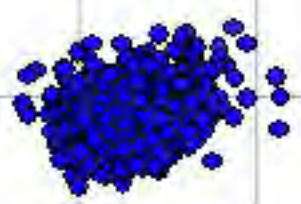
TG-NT12b



TG-NT13



TG-NT14



TG-NT15