FINAL

11253 91st Ave N
Maple Grove, MN 55369
763-424-4803
FAX: 763-424-9452

-Direct Sensing Report-

Client:	**Burns & McDonnell**
Project Name:	**Former Amoco Refinery**
Location:	**Neodesha, KS**
Project Number:	**242.14**

The analysis and opinions expressed in this report are based upon data obtained from UVOST logs generated (and samples collected for emulations if applicable) at the location specified, and from other information discussed in this report. Exceptions, if any, are discussed in the accompanying discussion if applicable. This report is prepared for the exclusive use of our client for specific application to the project discussed and has been prepared in accordance with generally accepted practices. Reported results shall not be reproduced, except in full, without written approval of the lab. The sample results relate only to the analytes of interest tested. No warranties, expressed or implied are intended or made.

I certify that the data contained in this final report has been generated and reviewed in accordance with approved methods and our Standard Operating Procedure. Release of this final report is authorized by Laboratory management, which is verified by the following signature.

10/6/2014

Approval Signature

Date

LIF SYSTEM DESCRIPTION & ANALYSIS

UVOST

Fluorescence is a property of some compounds where absorbed UV light stimulates the emission of photons (light) of a longer wavelength relative to the source emission. The release of the photons can be used to detect small amounts of substance (i.e. polycyclic aromatic hydrocarbons or PAHs) in a larger matrix (soil). This method of detection has been used in laboratories for decades. Now, with the availability of lasers and optical fibers, this technology can be applied down hole in the field.

The UVOST system sends light (via 308 nm laser) through a fiber optic cable strung within probe rods. The light, reflected by a parabolic mirror, then exits through a sapphire window in the side of the probe. As the probe is advanced, the soil is exposed to the UV laser light. If PAHs are present (compounds in POLs that fluoresce, i.e. LNAPL) longer wavelength light is emitted by the contaminants. This "signal" light is transmitted through a fiber, back up hole to be analyzed. Responses are indicated in real-time on a graph of signal vs. depth. The UVOST log displays "color mixed" signal logs (contributions from 4 channels) and waveforms ("fingerprint" of multi-wavelength) to aid in identification of the contaminant present.

Prior to every log the UVOST system is checked for optical quality by observing the background signal for sources of signal in the fiber, filter, mirror and sapphire window. Also, the reference emitter (a standard proprietary NAPL mixture called the "RE") is placed on the window to determine the qualitative and semi-quantitative properties of the laser system. This is to assure that the RE response has the correct shape and intensity and that the UVOST system is ready to log. Typically the RE will fall between 10,000 and 12,000 pVs (picovolt-seconds, a measure of waveform area) and the background can vary from 0.1% to 1% (area of about 0-100 pVs). It is important to remember that the relationship between the NAPL in the ground and the RE depends on that particular NAPL. The calibration of the system is not to a concentration, but to a known fluorescence signature.

EC (Electrical Conductivity)

Electrical Conductivity (EC) is a measure of the soils ability to conduct an electrical current between two dipoles on the LIF/EC probe. Conductivity is the reciprocal of electrical resistivity and has the units (in our application) of millisiemens per meter (mS/m). Since soil is in the pathway of the charge flow, the grain size can be determined by comparing the EC log to a soil boring. Conductivity readings in the 100s indicate smaller grain (size such as clay). Larger grain size (sand and gravels) are typically in the 10s of mS/m range. Prior to every log the EC point of the UVOST probe is checked for proper operation by performing a voltage test with a voltage meter and a conductivity test with a test block.

Discussion

For the purposes of this investigation, UVOST tooling was used in-line with Vertek CPT tooling in order to log UVOST data and CPT data in a single push. All soundings, except for LIF-12, were taken to practical refusal of the CPT rig. It is important to note, that due to the configuration of the tooling, there is an offset from CPT data to UVOST data. That offset is 2.70 feet, which is measured from the tip of the cone to the center of the sapphire window. For this reason, logging "clean" footage below the signal was not possible.

Signal generated from the soundings taken at the Former Amoco Refinery site in Neodesha, KS were consistent with various types of petroleum fuel. Signal as low as only 2% - 3% RE are indicators of the presence of LNAPL.

UVOST Log Reference Guide

Main Plot :
Signal (total fluorescence) versus depth where signal is relative to the Reference Emitter (RE).The total area of the waveform is divided by the total area of the Reference Emitter yielding the %RE.This %RE scales with the NAPL fluorescence. The fill color is based on relative contribution of each channel's area to the total waveform area (see callout waveform).The channel-to-color relationship and corresponding wavelengths are given in the upper right corner of the main plot.

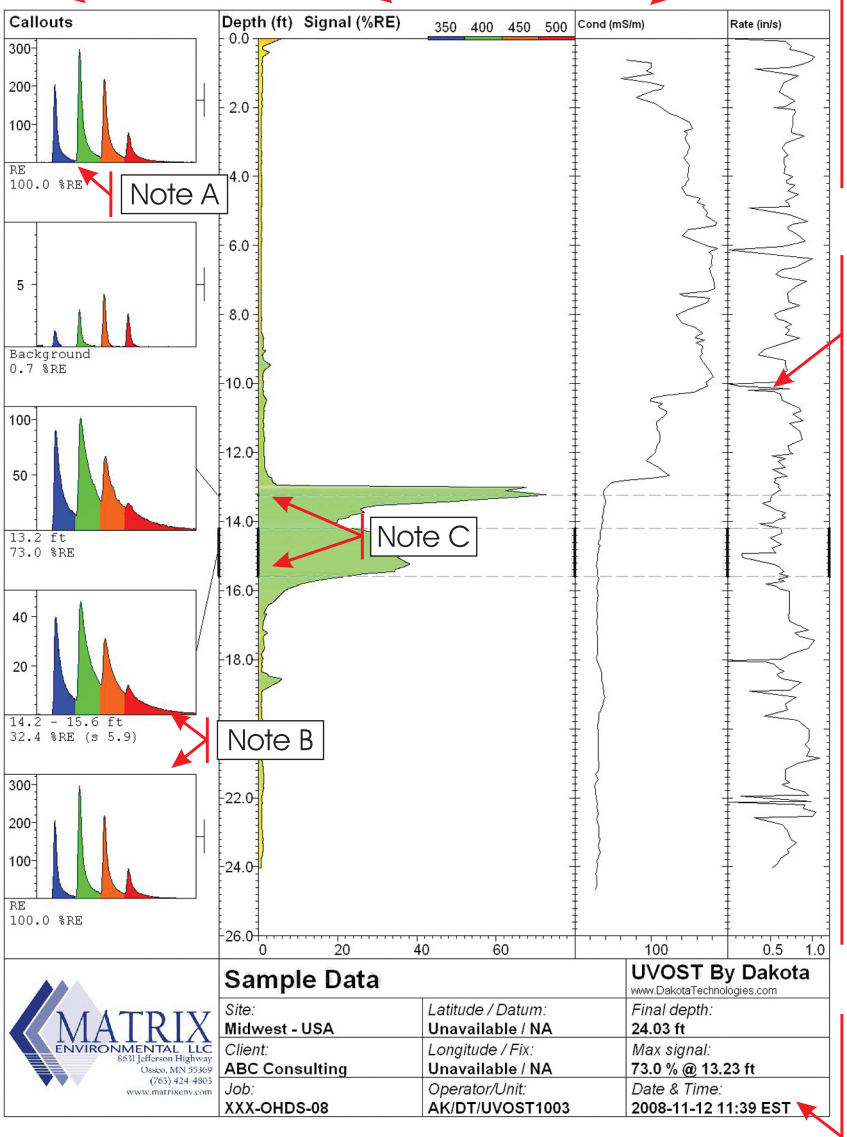
Conductivity Plot :
The Electrical Conductivity (EC) of the soil can be logged simultaneously with the UVOSTdata. EC often provides insight into the stratigraphy.
Note the drop in EC from 10 - 13 ft, indicating a shift from consolidated to unconsolidated stratigraphy.This correlates with the observed NAPL distribution.

Callouts :
Waveforms from selected depths or depth ranges showing the multi-wavelength waveform for that depth.

The four peaks are due to fluorescence at four wavelengths and referred to as "channels". Each channel is assigned a color.

Various NAPLs will have a unique waveform "fingerprint" due to the relative amplitude of the four channels and/or broadening of one or more channels.

Basic waveform statistics and any operator notes are given below the callout.



Rate Plot :
The rate of probe advancement. ~ 0.8 in (2cm) per second is preferred.

A noticeable decrease in the rate of advancement may be indicative of difficult probing conditions (gravel, angular sands, etc.).

Notice that this log was terminated arbitrarily, not due to "refusal", which would have been indicated by a sudden rate drop at final depth.

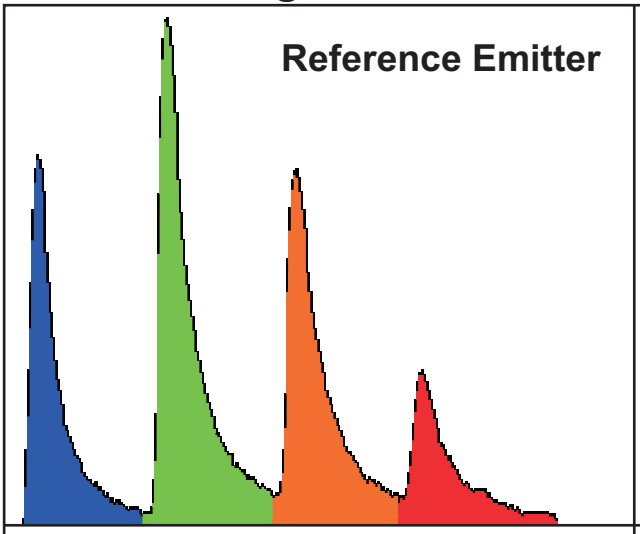
Info Box :
Contains pertinent log info including name and location.

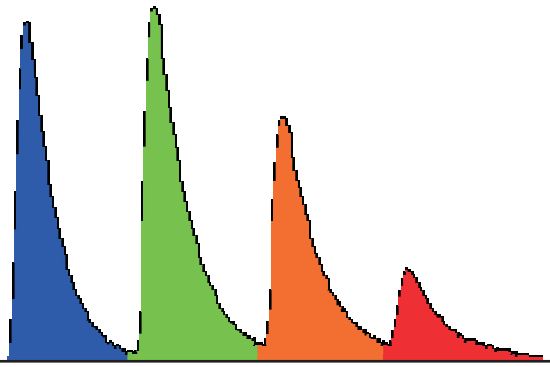
NoteA:
Time is along the x axis. No scale is given, but it is a consistent 320ns wide.
The y axis is in mV and directly corresponds to the amount of light striking the photodetector.

Note B :
These two waveforms are clearly different.The first is weathered diesel from the log itself while the second is the Reference Emitter (a blend of NAPLs) always taken before each log for calibration.

Note C :
Callouts can be a single depth (see 3rd callout) or a range (see 4th callout).The range is noted on the depth axis by a bold line. When the callout is a range, the average and standard deviation in %RE is given below the callout.

Waveform Signal Calculation



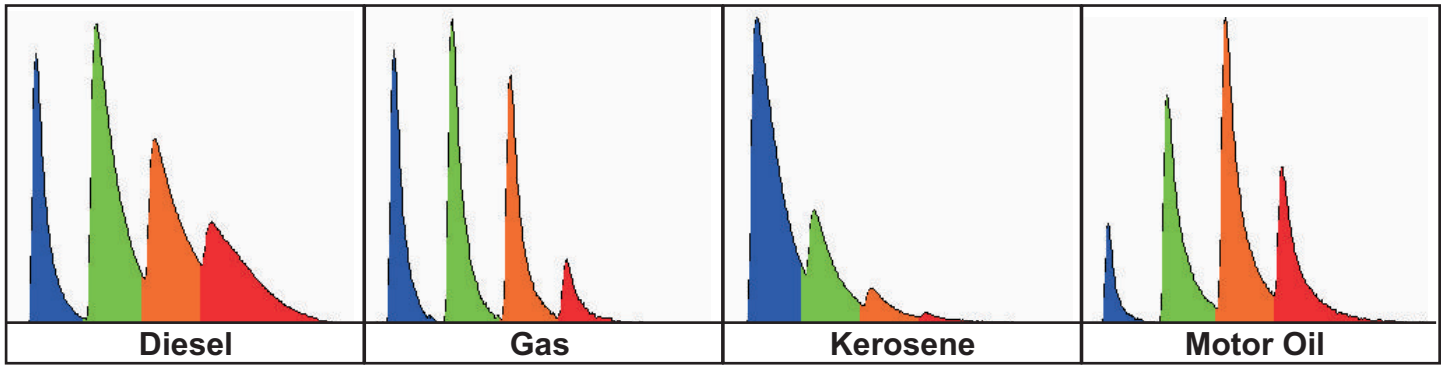


CH1		CH2		CH3		CH4		Total	***Channel***	CH1		CH2		CH3		CH4		Total
4820	+	8108	+	6249	+	2984	=	**22161**	***Area (pVs)***	4923	+	5743	+	4166	+	1735	=	**16587**
21.7		36.6		28.2		13.5		**100%**	***Percent RE***	22.3		25.9		18.8		7.8		**75%**

Data Files

***.lif.raw.bin**	Raw data file. Header is ASCII format and contains information stored when the file was initially written (e.g. date, total depth, max signal, gps, etc., and any information entered by the operator). All raw waveforms are appended to the bottom of the file in a binary format.
***.lif.plt**	Stores the plot scheme history (e.g. callout depths) for associated Raw file. Transfer along with the Raw file in order to recall previous plots.
***.lif.jpg**	A jpg image of the OST log including the main signal vs. depth plot, callouts, information, etc.
***.lif.dat.txt**	Data export of a single Raw file. ASCII tab delimited format. No string header is provided for the columns (to make importing into other programs easier). Each row is a unique depth reading. The columns are: Depth, Total Signal (%RE), Ch1%, Ch2%, Ch3%, Ch4%, Rate, Conductivity Depth, Conductivity Signal. Summing channels 1 to 4 yields the Total Signal.
***.lif.sum.txt**	A summary file for a number of Raw files. ASCII tab delimited format. The file contains a string header. The summary includes one row for each Raw file and contains information for each file including: the file name, gps coordinates, max depth, max signal, and depth at which the max signal occured.
***.lif.log.txt**	An activity log generated automatically located in the OST application directory in the 'log' subfolder. Each OST unit the computer operates will generate a separate log file per month. A log file contains much of the header information contained within each separate Raw file, including: date, total depth, max signal, etc.

Common Waveforms (highly dependent on soil, weathering, etc.)



MATRIX ENVIRONMENTAL LLC

11253 91st Avenue North
Maple Grove, Minnesota
(763) 424-4803
fax (763) 424-9452

Client:	Burns & McDonnell
Contact:	Trevor Gustafson
Services:	UVOST/CPT Logging
Date:	9/22 - 10/2/2014
Project:	Former Amoco Refinery
Project #:	242.14
Address:	Neodesha, KS

UVOST Log Summary

File	Date/Time	Easting_X	Northing_Y	Final Depth *(ft)*	Max Signal *(%RE)*	Max. Signal Depth *(ft)*	Initial RE Area *(pVs)*	Background Area *(pVs)*	Fluorescence Top - Bottom *(ft)*
LIF-1	9/23/2014 8:20	NA	NA	18.9	41.3	17.7	11703	23	16.7 - 18.9
LIF-2	9/23/2014 9:03	NA	NA	17.4	532.5	13.5	11806	33	11.0 - 17.4
LIF-3	9/23/2014 9:39	NA	NA	18.1	659.6	15.9	11628	23	11.4 - 18.1
LIF-4	9/23/2014 11:20	NA	NA	10.8	222.7	6.1	11581	18	NA
LIF-4A	9/23/2014 12:00	NA	NA	14.9	503.7	12.7	11592	21	7.9 - 14.9
LIF-5	9/23/2014 13:26	NA	NA	15.5	9.4	5.3	11584	20	0.4 - 14.4
LIF-6	9/23/2014 14:18	NA	NA	9.8	7.3	0.1	11530	17	NA
LIF-6B	9/23/2014 15:58	NA	NA	16.8	7.9	16.4	11956	13	10.9 - 16.8
LIF-7	9/23/2014 16:35	NA	NA	18.8	612.3	18.1	11773	21	8.4 - 18.8
LIF-8	9/24/2014 7:33	NA	NA	21.1	11.5	17.0	11616	19	10.2 - 21.1
LIF-9	9/24/2014 8:11	NA	NA	21.7	19.2	17.0	11577	15	12.6 - 21.7
LIF-10	9/24/2014 8:49	NA	NA	19.0	353.6	18.6	11763	18	11.1 - 19.0
LIF-11	9/24/2014 9:34	NA	NA	13.5	6.8	0.0	11885	15	NA
LIF-11A	9/24/2014 10:02	NA	NA	21.2	175.0	17.3	11676	29	15.9 - 21.2
LIF-12	9/24/2014 10:52	NA	NA	22.9	4.6	0.1	11762	14	NA
LIF-13	9/24/2014 11:38	NA	NA	24.0	291.7	21.3	11783	15	12.5 - 24.0
LIF-14	9/24/2014 13:19	NA	NA	21.1	271.8	20.6	11976	11	7.1 - 21.1
LIF-15	9/24/2014 14:09	NA	NA	18.4	77.5	18.4	11562	41	14.4 - 18.4
LIF-16	9/24/2014 14:55	NA	NA	20.3	172.1	19.3	11632	17	15.0 - 20.3
LIF-17	9/24/2014 15:45	NA	NA	21.6	36.5	21.6	11530	16	19.8 - 21.6
LIF-18	9/25/2014 7:55	NA	NA	24.3	3.7	0.1	11518	14	NA
LIF-19	9/25/2014 8:41	NA	NA	26.3	2.0	0.1	11711	18	NA
LIF-20	9/25/2014 9:28	NA	NA	29.4	5.0	0.1	11765	25	24.0 - 27.1
LIF-21	9/25/2014 10:12	NA	NA	19.7	5.7	0.1	11899	21	NA
LIF-22	9/25/2014 10:55	NA	NA	28.3	5.5	0.0	11741	16	NA
LIF-23	9/25/2014 11:47	NA	NA	29.0	3.3	0.1	11701	17	NA
LIF-24	9/25/2014 13:49	NA	NA	25.1	127.8	22.1	11751	4	16.0 - 25.1
LIF-25	9/25/2014 14:32	NA	NA	19.4	668.1	16.4	11518	14	7.0 - 19.4
LIF-26	9/25/2014 15:15	NA	NA	26.6	6.9	0.0	11551	18	NA
LIF-27	9/25/2014 16:29	NA	NA	7.9	345.5	7.9	11571	15	3.4 - 7.9
LIF-28	9/26/2014 7:20	NA	NA	15.3	239.4	11.0	11677	11	4.9 - 13.3
LIF-29	9/26/2014 8:13	NA	NA	14.8	98.1	10.1	11624	16	4.0 - 14.8

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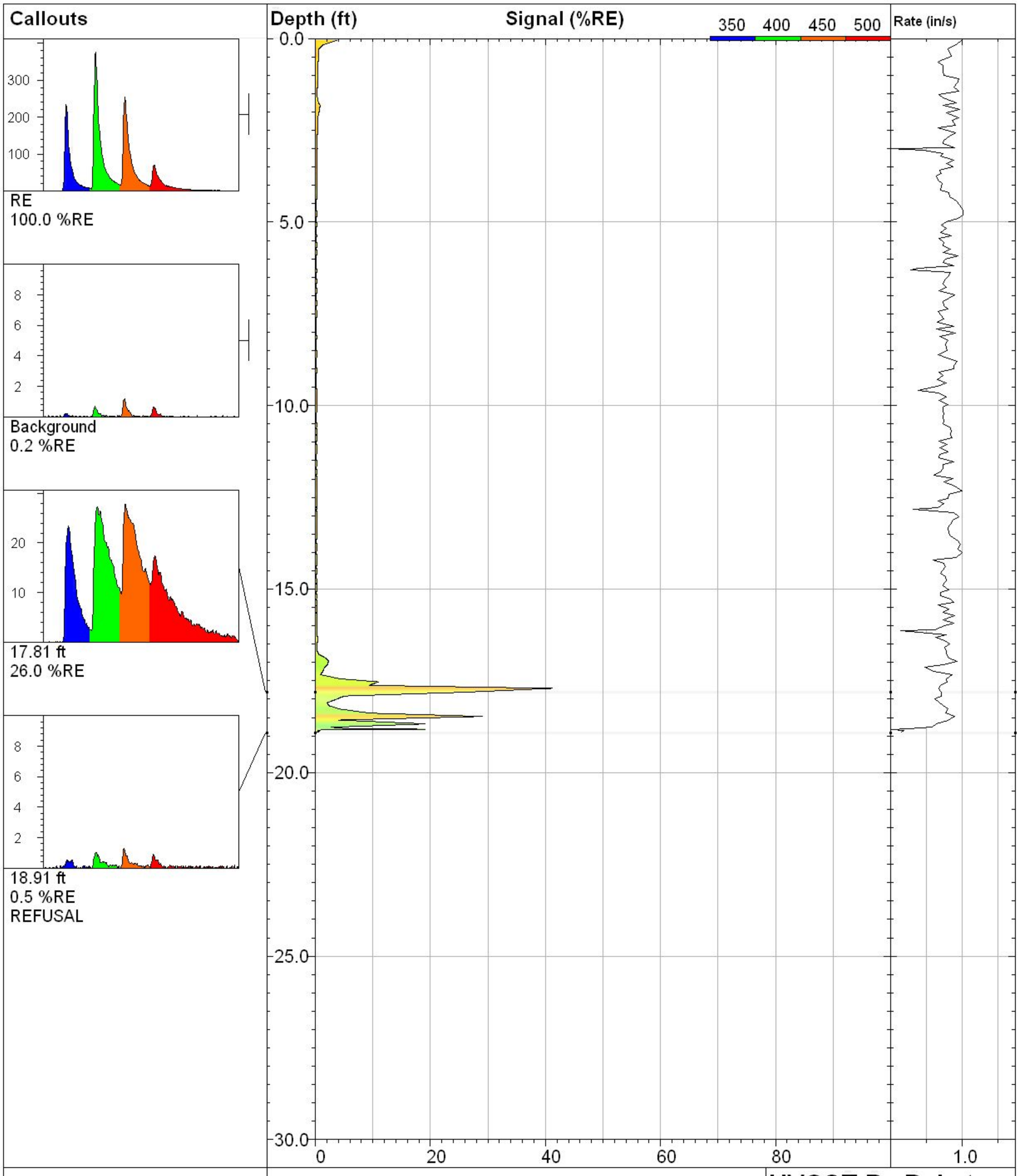
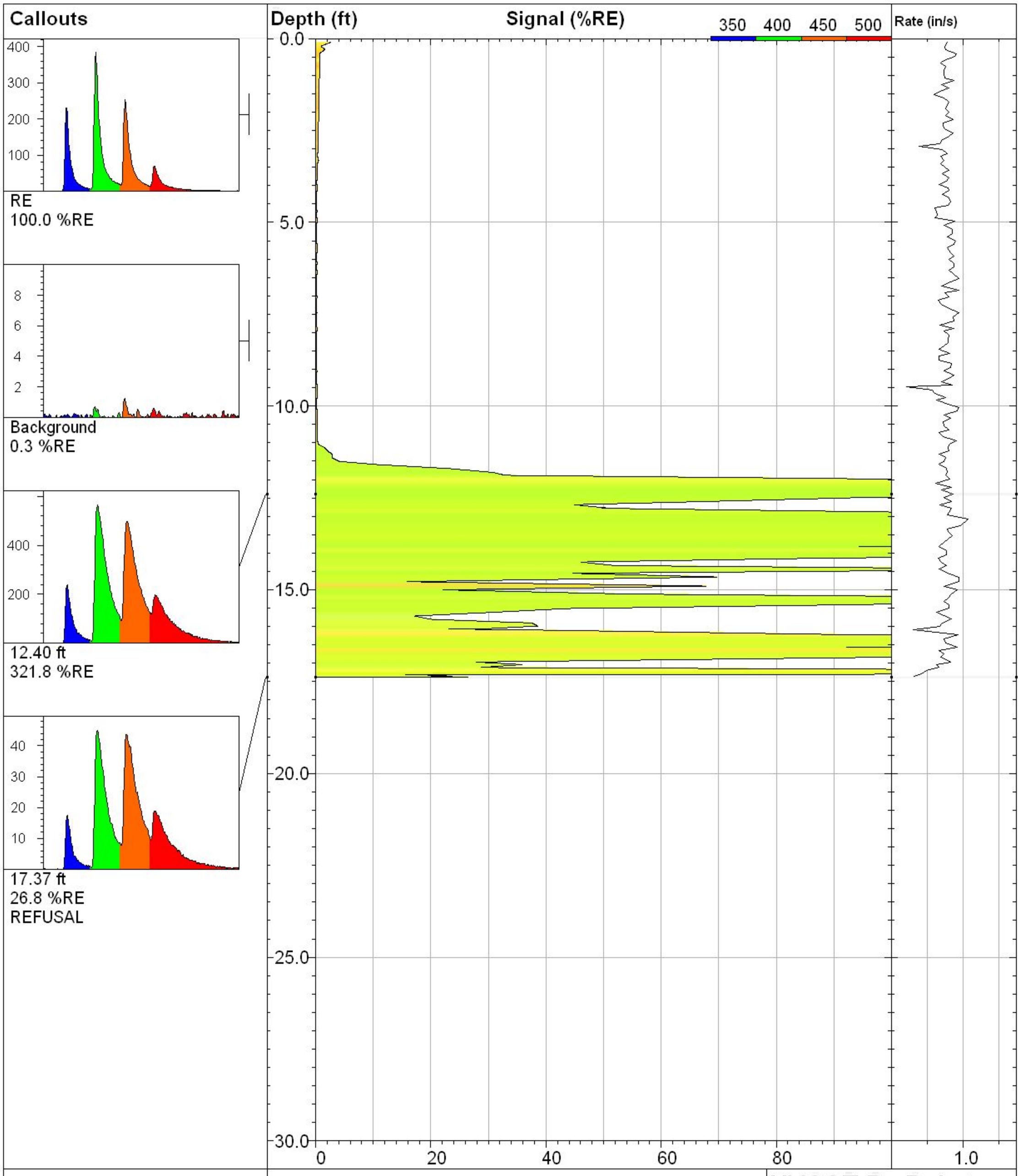
LIF-30	9/26/2014 8:58	NA	NA	22.2	390.2	16.5	11965	9	5.3 - 21.8
LIF-31	9/26/2014 10:00	NA	NA	18.0	26.8	14.1	11689	22	9.0 - 18.0
LIF-32	9/26/2014 10:35	NA	NA	12.6	7.4	6.7	11659	23	4.6 - 12.6
LIF-33	9/29/2014 15:46	NA	NA	14.6	219.0	14.4	11661	16	4.3 - 14.6
LIF-34	9/29/2014 16:58	NA	NA	19.5	40.7	16.5	11674	45	8.4 - 19.5
LIF-35	9/30/2014 7:39	NA	NA	20.0	105.5	15.7	11762	30	7.9 - 20.0
LIF-36	9/30/2014 8:19	NA	NA	16.9	25.3	13.7	11670	18	7.4 - 16.7
LIF-37	9/30/2014 10:08	NA	NA	21.1	526.5	19.5	11860	23	8.2 - 21.1
LIF-38	9/30/2014 10:51	NA	NA	21.6	328.8	20.4	11924	33	9.7 - 11.4, 17.0 - 21.6
LIF-39	9/30/2014 11:30	NA	NA	20.1	368.2	19.5	11919	21	3.7 - 9.9, 15.6 - 20.1
LIF-40	9/30/2014 13:09	NA	NA	0.6	0.2	0.6	11867	16	NA
LIF-40A	10/1/2014 9:29	NA	NA	20.3	6.4	0.4	12000	16	NA
LIF-41	9/30/2014 14:45	NA	NA	26.0	101.1	26.0	11520	33	22.1 - 26.0
LIF-42	9/30/2014 15:35	NA	NA	23.5	90.1	23.5	11533	20	19.6 - 23.5
LIF-43	9/30/2014 16:26	NA	NA	22.2	81.6	21.8	11928	30	18.3 - 22.2
LIF-44	10/1/2014 7:49	NA	NA	25.5	34.6	22.8	11636	14	22.2 - 25.0
LIF-45	10/1/2014 8:45	NA	NA	23.1	13.9	23.0	11962	15	22.9 - 23.1
LIF-46	10/1/2014 10:54	NA	NA	23.0	19.7	18.9	11582	27	15.3 - 21.6
LIF-47	10/1/2014 11:35	NA	NA	25.5	518.4	22.1	11902	25	13.5 - 25.5
LIF-48	10/1/2014 13:18	NA	NA	24.2	71.9	20.9	11922	32	5.9 - 10.7, 16.1 - 23.4
LIF-49	10/1/2014 14:05	NA	NA	17.1	95.0	13.4	11695	27	2.9 - 8.3, 12.3 - 15.3
LIF-50	10/1/2014 15:39	NA	NA	25.0	44.8	20.7	11537	22	17.9 - 23.1
LIF-51	10/1/2014 16:19	NA	NA	26.6	242.7	24.1	11766	27	20.5 - 26.6
LIF-52	10/2/2014 8:02	NA	NA	21.6	118.5	18.5	11714	19	14.4 - 21.6
LIF-53	10/2/2014 8:48	NA	NA	27.1	320.6	24.1	11890	17	18.4 - 25.8
LIF-54	10/2/2014 10:07	NA	NA	23.9	388.2	21.6	11597	18	16.2 - 23.9
LIF-55	10/2/2014 10:55	NA	NA	26.1	3.9	0.3	11530	19	21.2 - 26.1
LIF-56	10/2/2014 13:12	NA	NA	15.4	18.5	0.3	11661	31	NA
LIF-57	10/2/2014 13:46	NA	NA	10.3	3.1	0.1	11836	17	NA
LIF-58	10/2/2014 14:15	NA	NA	8.1	42.2	8.1	11886	19	7.4 - 8.1
LIF-59	10/2/2014 14:42	NA	NA	12.0	1.5	0.1	11963	27	NA
LIF-60	10/2/2014 15:09	NA	NA	11.2	3.7	8.6	11802	21	8.1 - 11.2

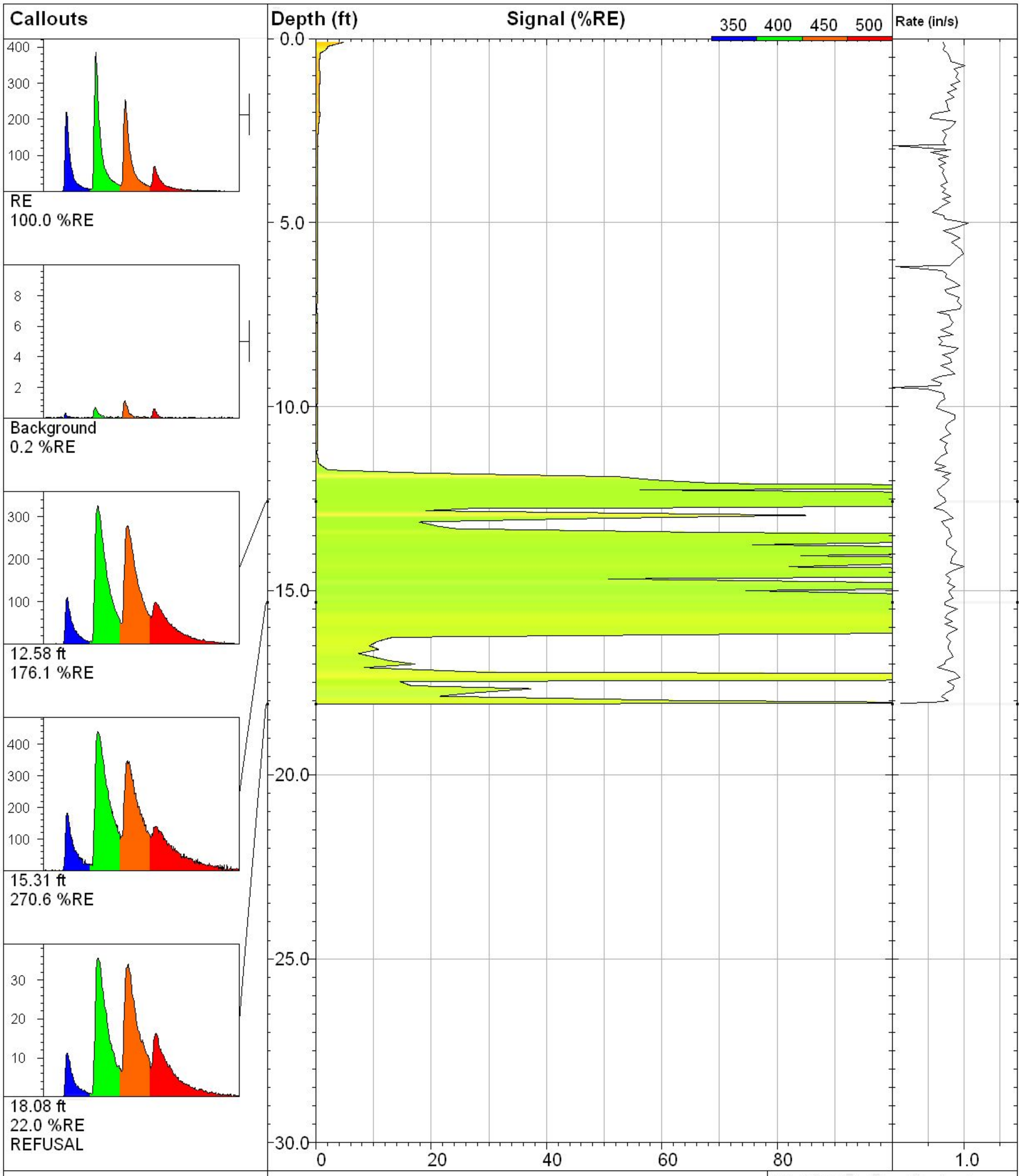
UVOST LOGS
@ 100% RE



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-1**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.91 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **41.3 %RE @ 17.71 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 08:20 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-2**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.37 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **532.5 %RE @ 13.53 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 09:03 CDT**



LIF-3		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.08 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **659.6 %RE @ 15.91 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 09:39 CDT**

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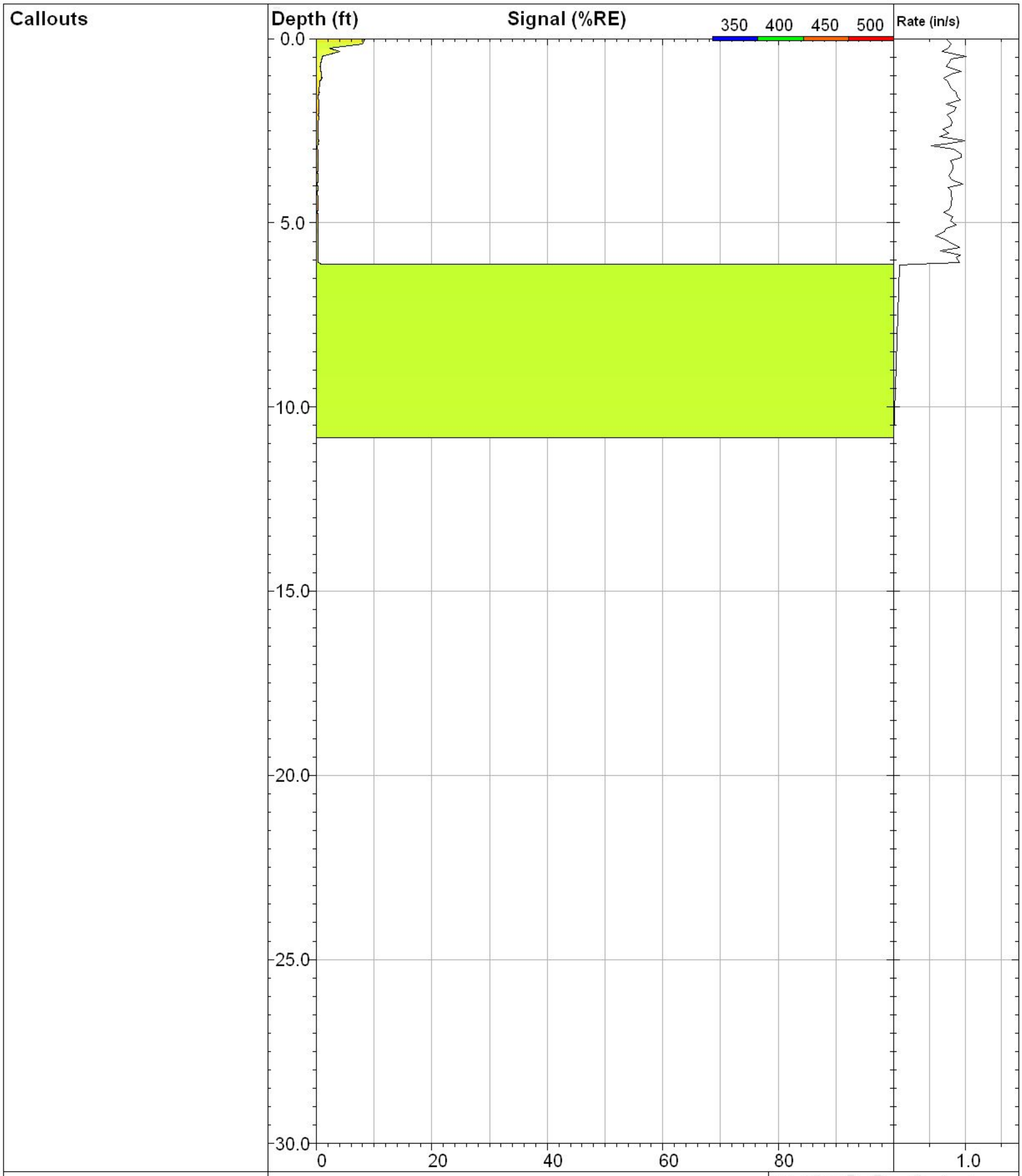
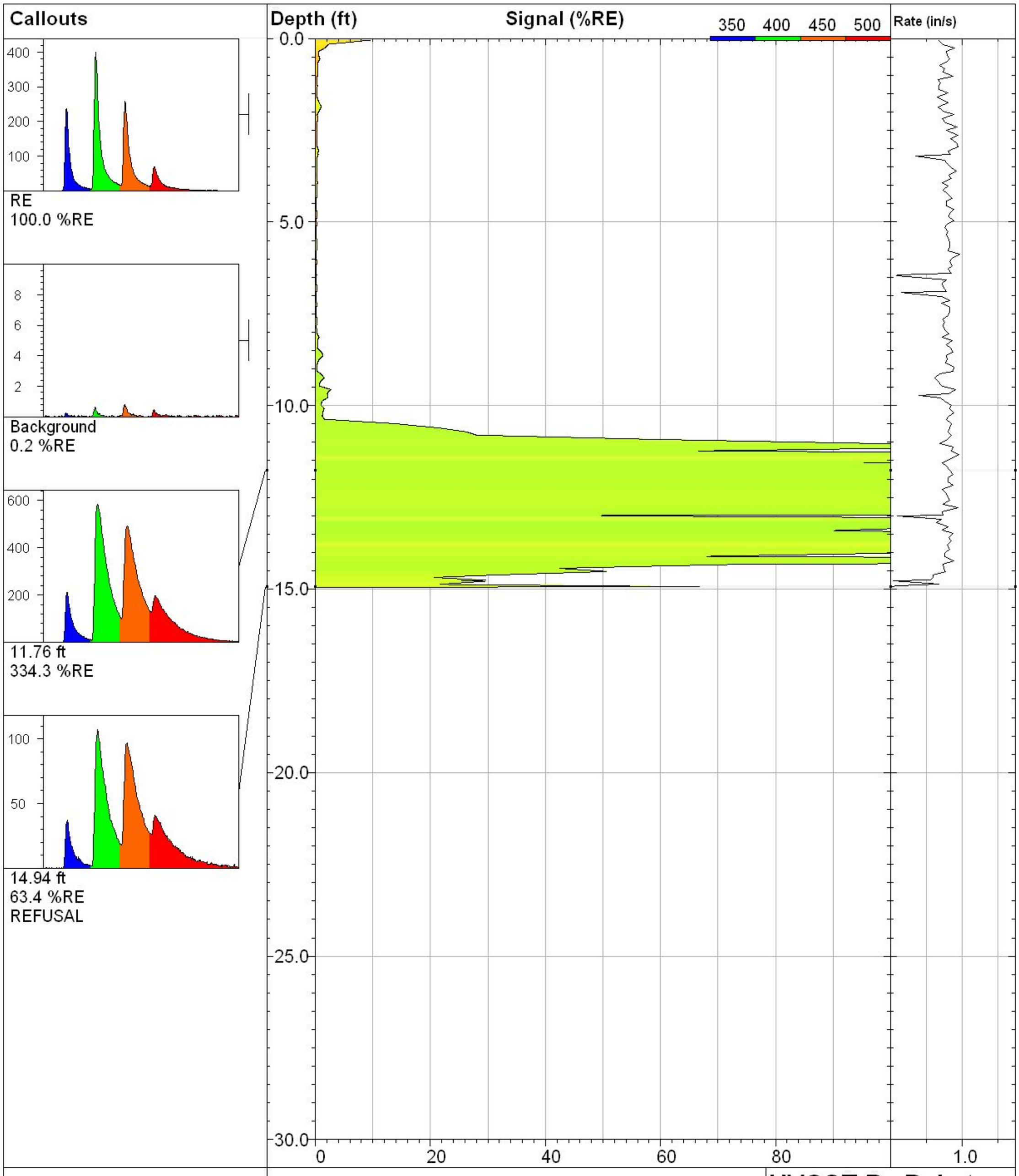
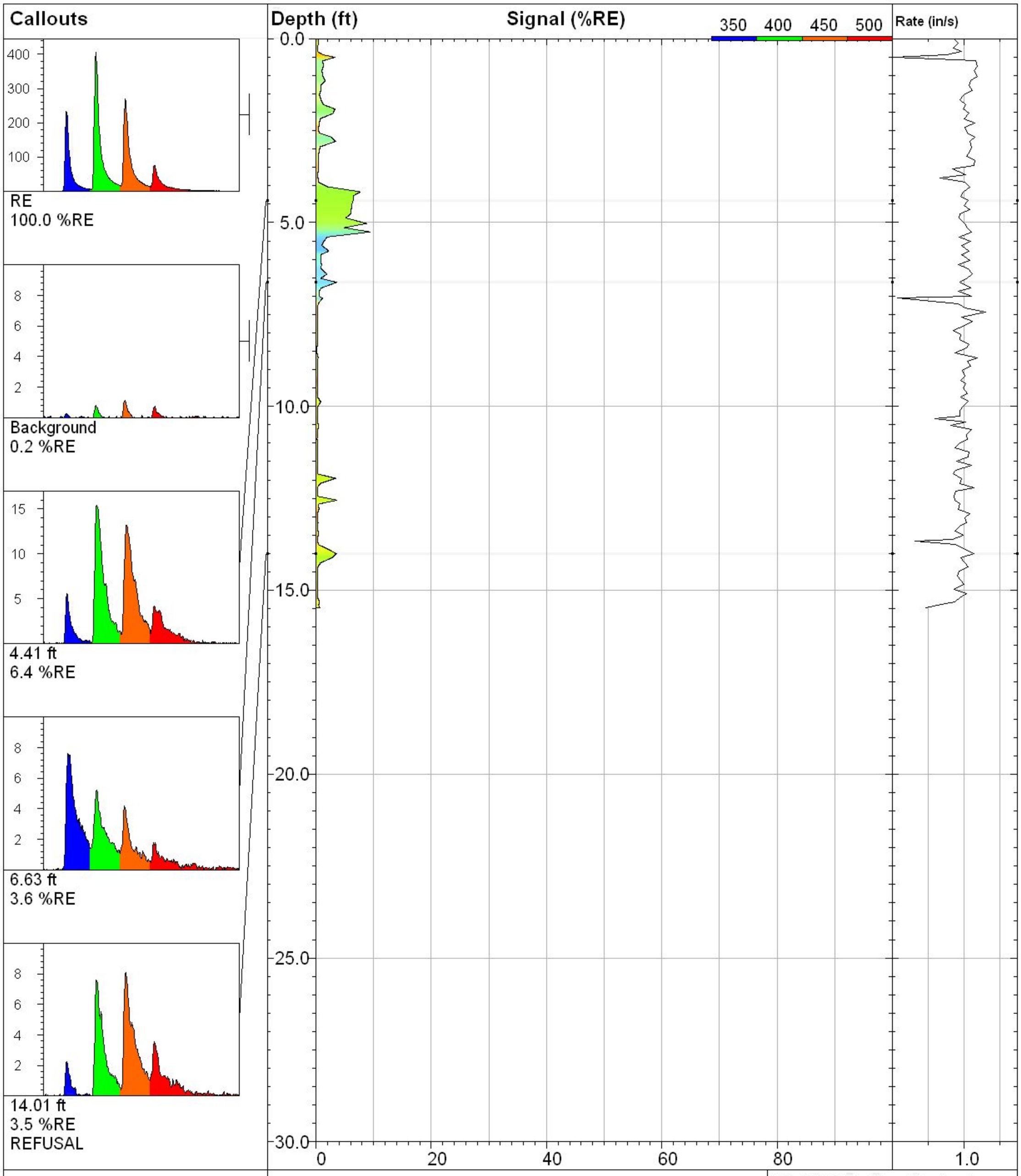


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-4**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **10.83 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **222.7 %RE @ 6.13 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 11:20 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-4A**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.94 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **503.7 %RE @ 12.68 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 12:00 CDT**



LIF-5		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **15.47 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.4 %RE @ 5.26 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 13:26 CDT**

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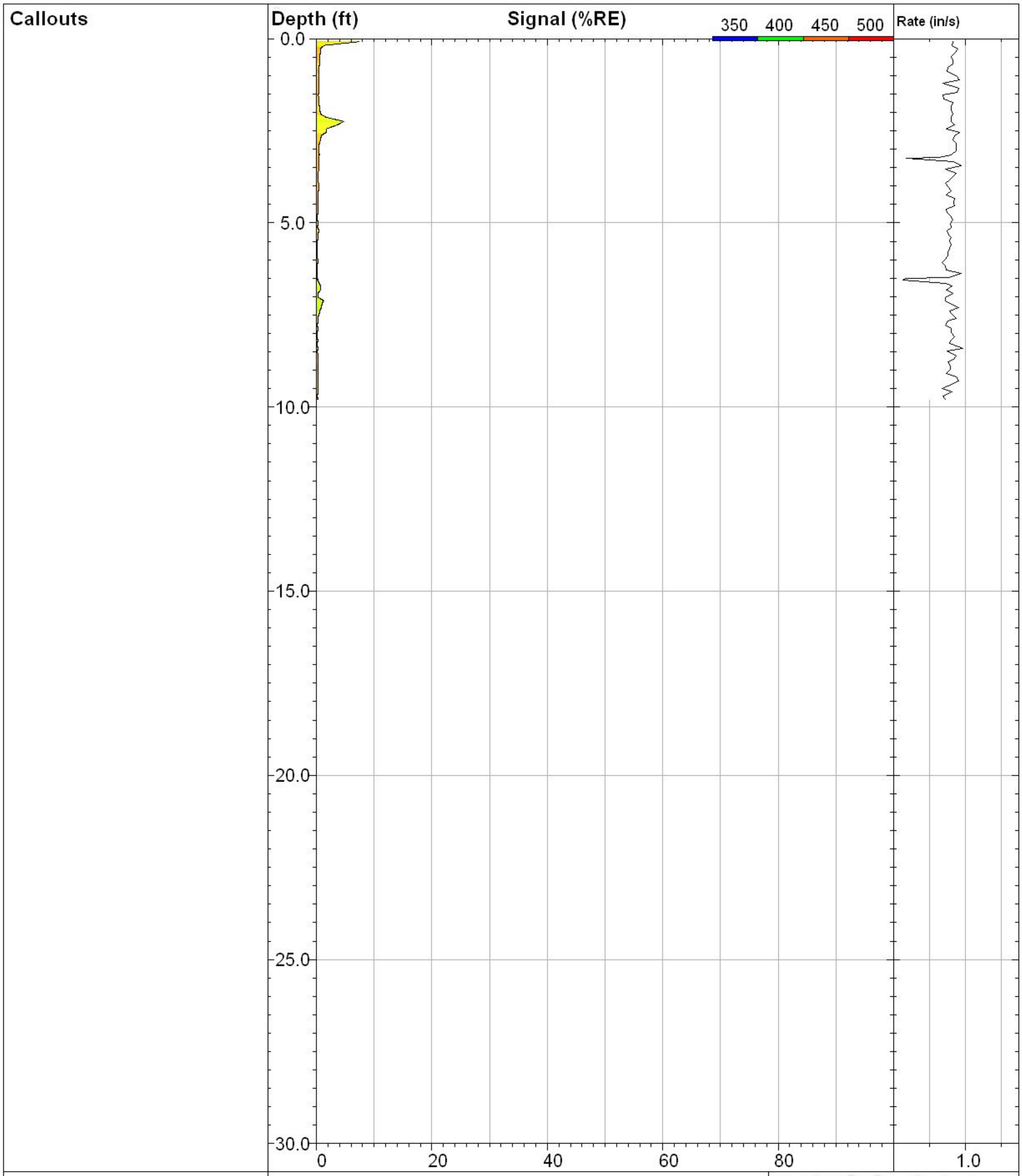
www.matrixenv.com



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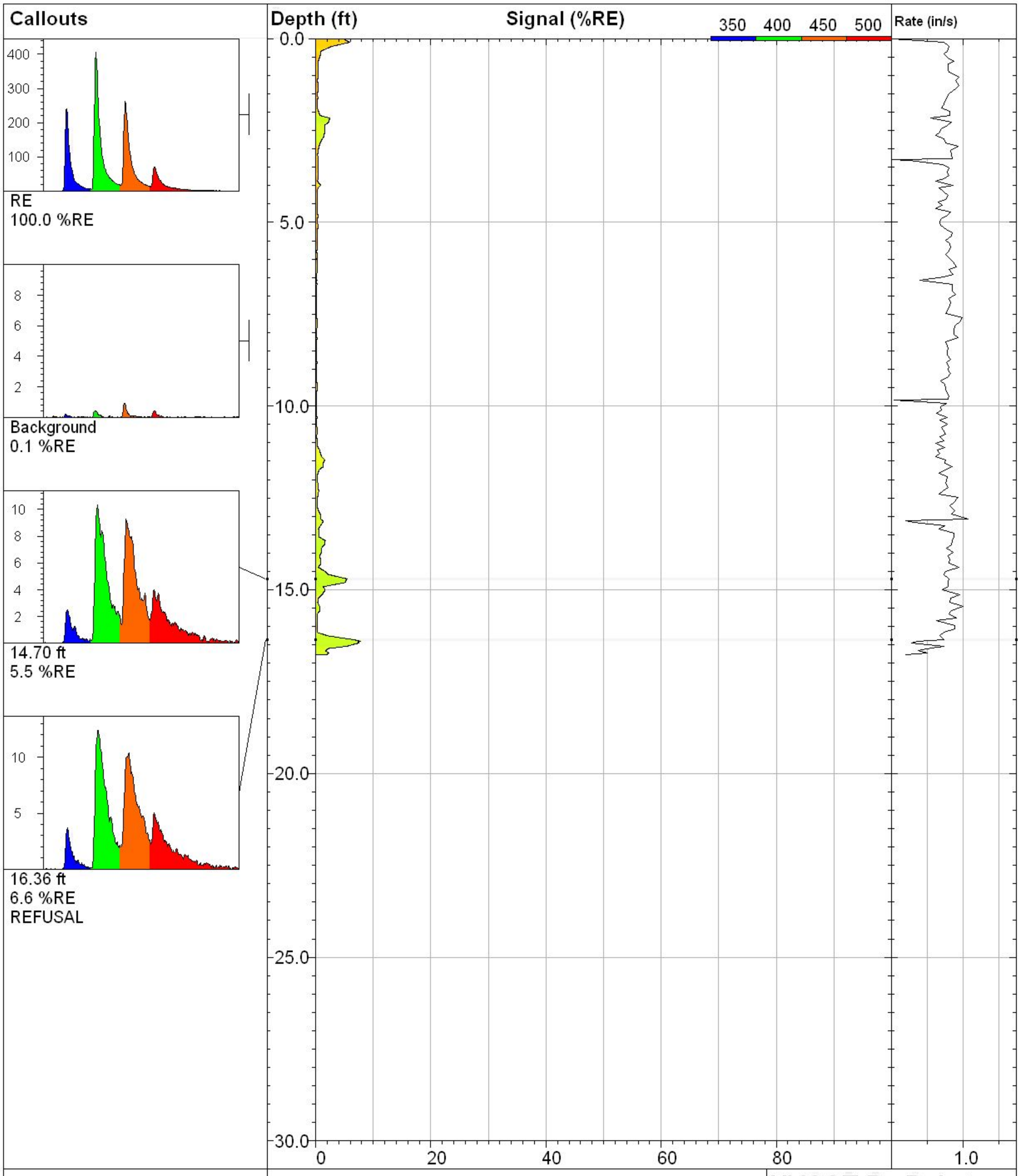
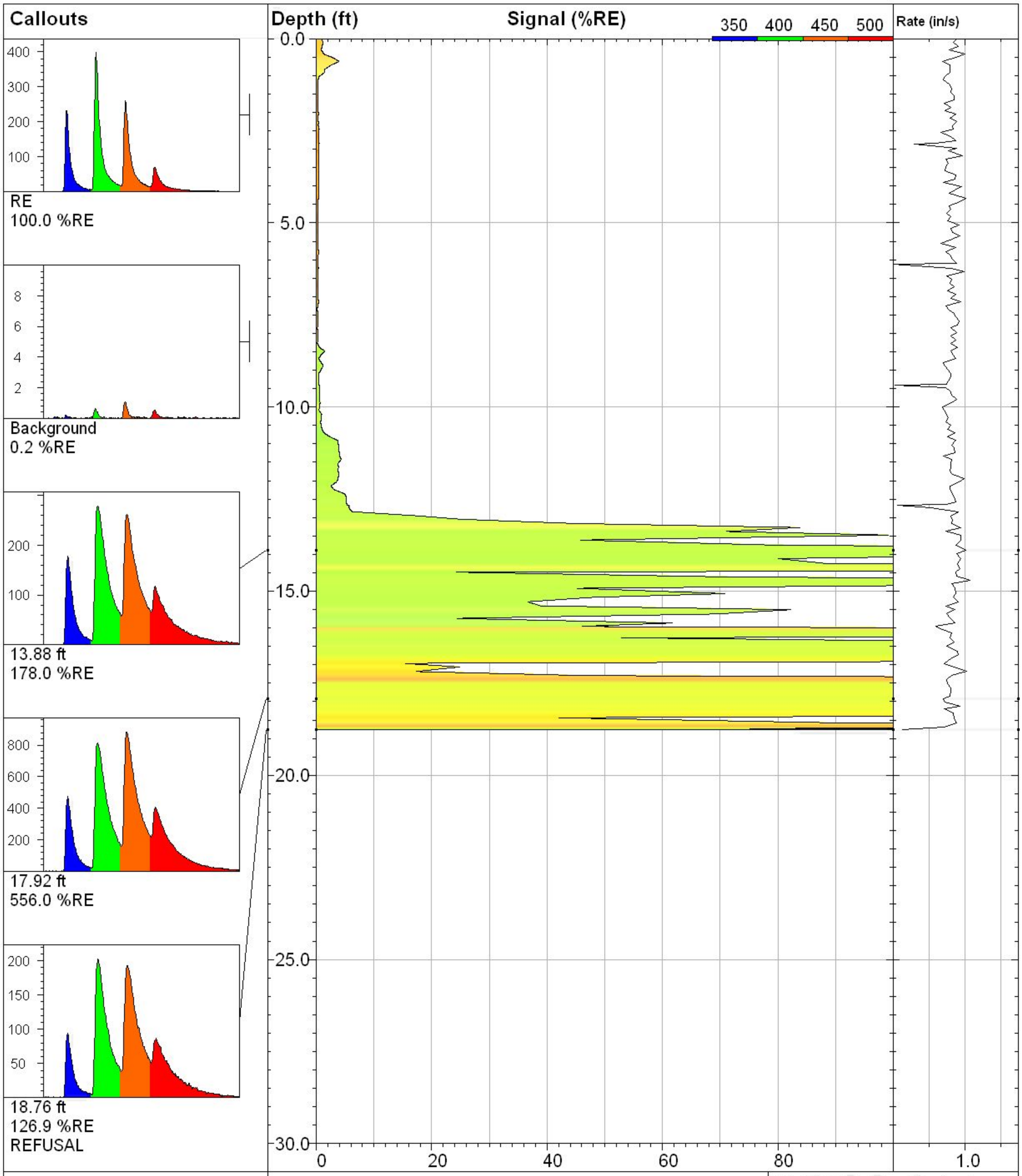
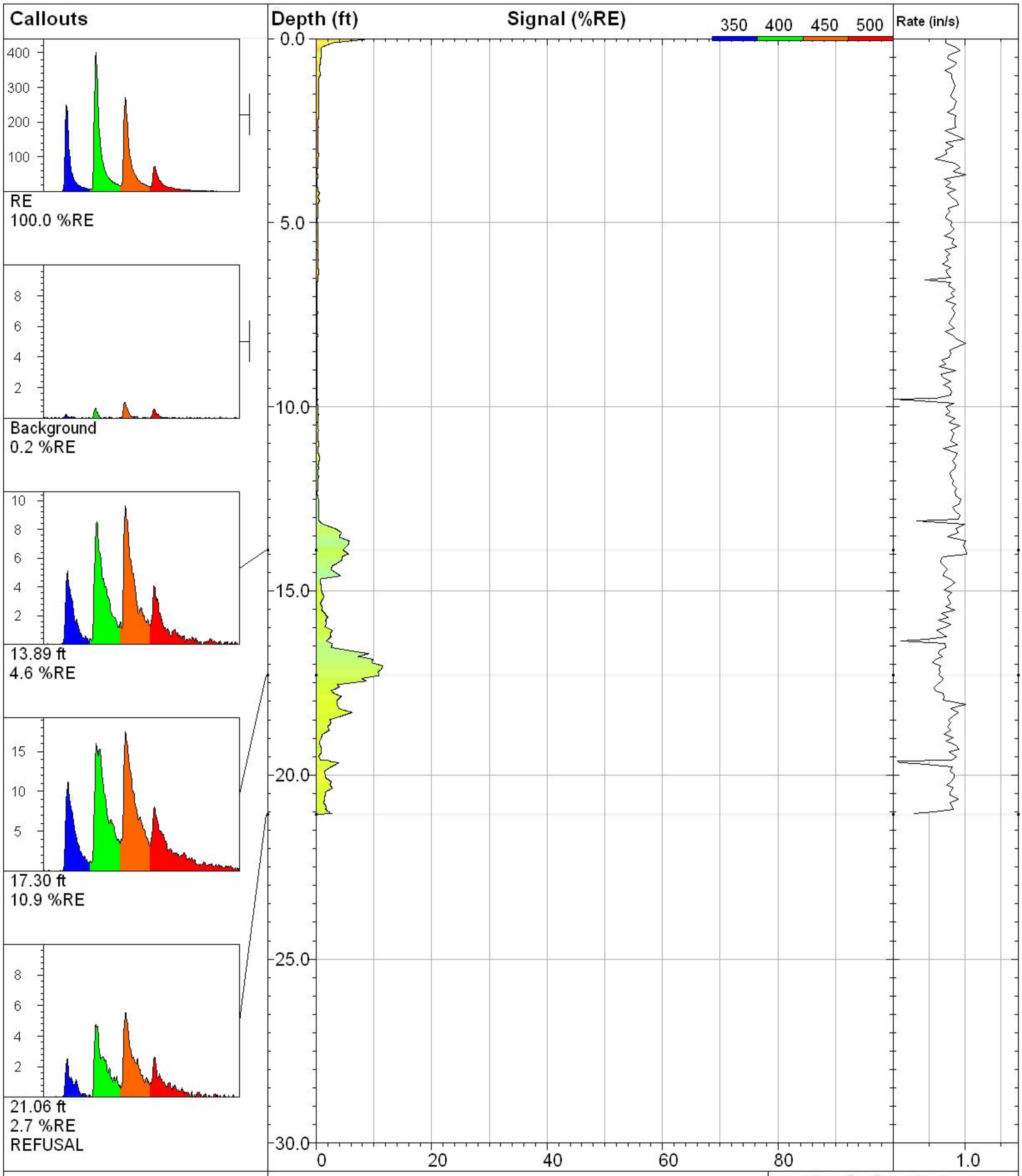
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **9.80 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.3 %RE @ 0.08 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 14:18 CDT**



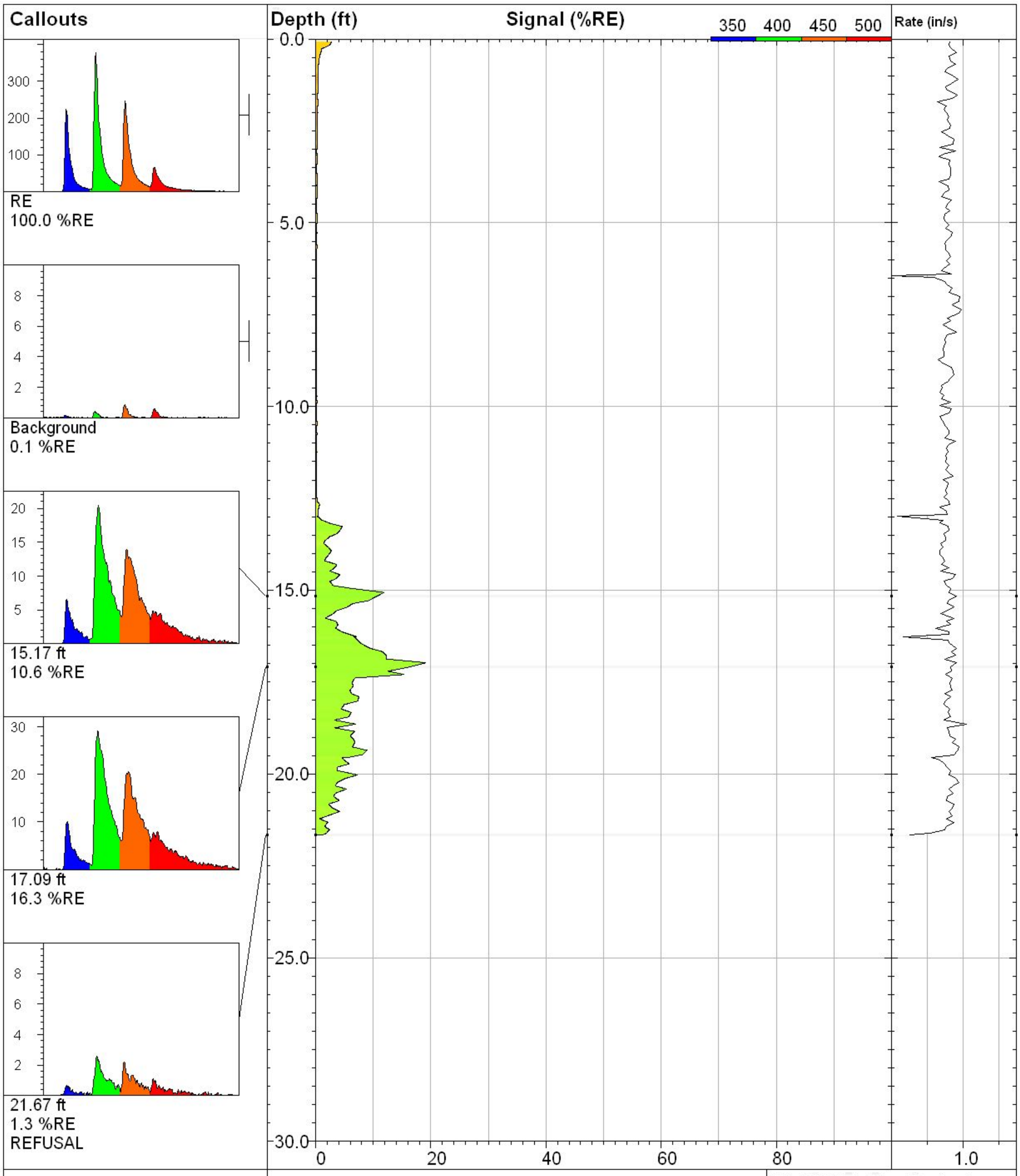
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-6B**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.77 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.9 %RE @ 16.40 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 15:58 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-7**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.76 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **612.3 %RE @ 18.12 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 16:35 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-8**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.06 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **11.5 %RE @ 17.03 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 07:33 CDT**



LIF-9		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.67 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **19.2 %RE @ 16.97 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 08:11 CDT**

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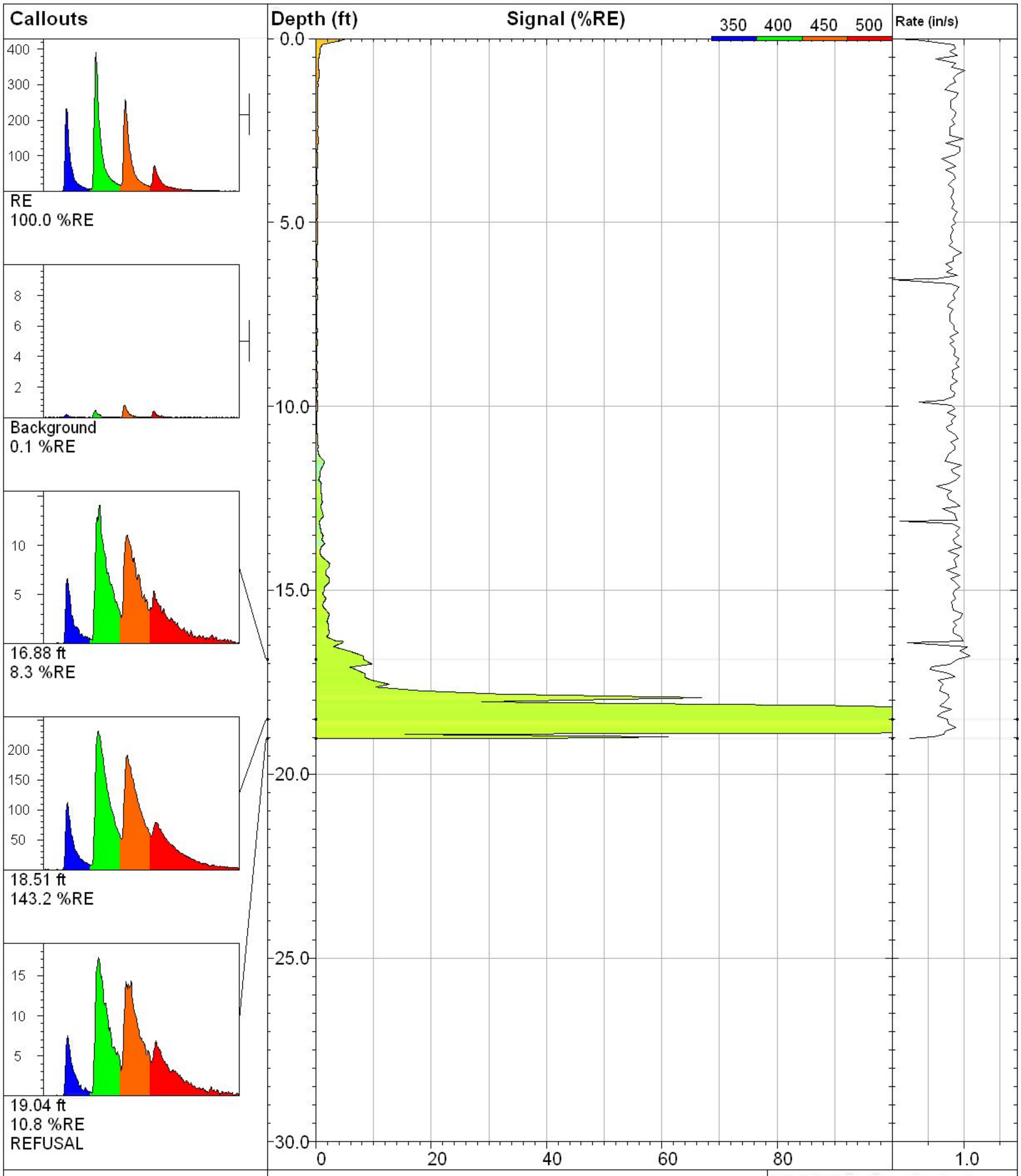
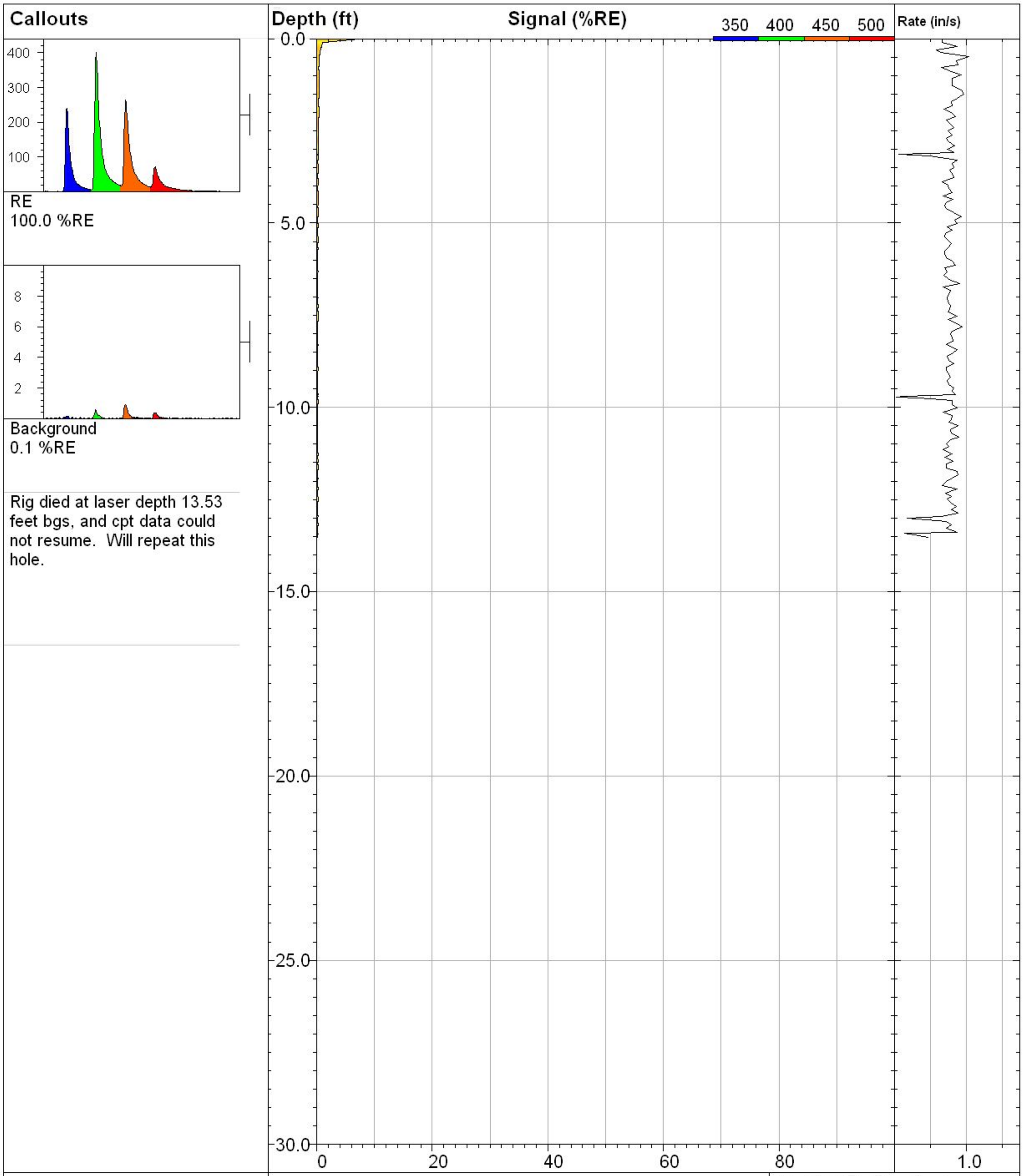


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

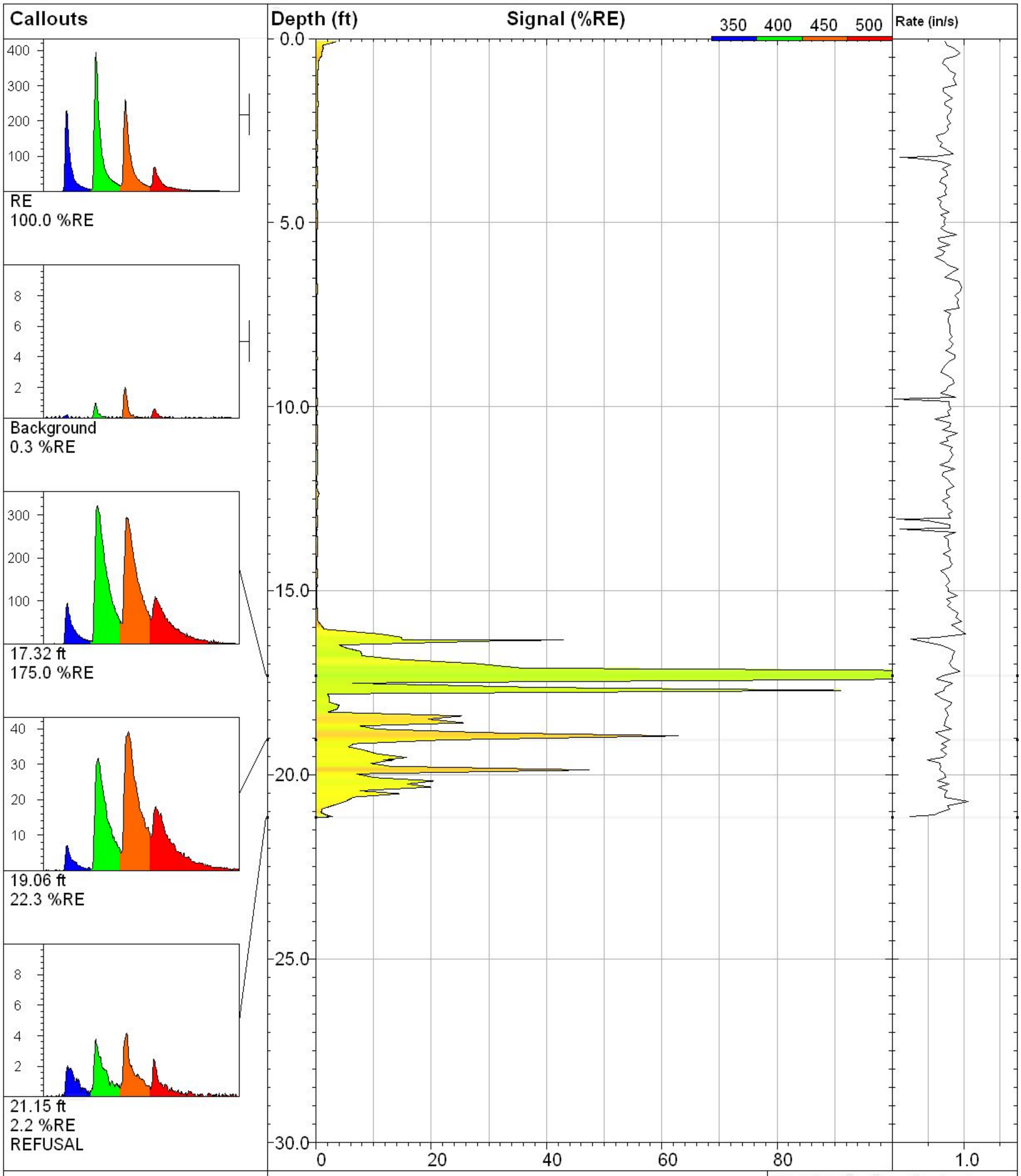
LIF-10

UVOST By Dakota
www.DakotaTechnologies.com

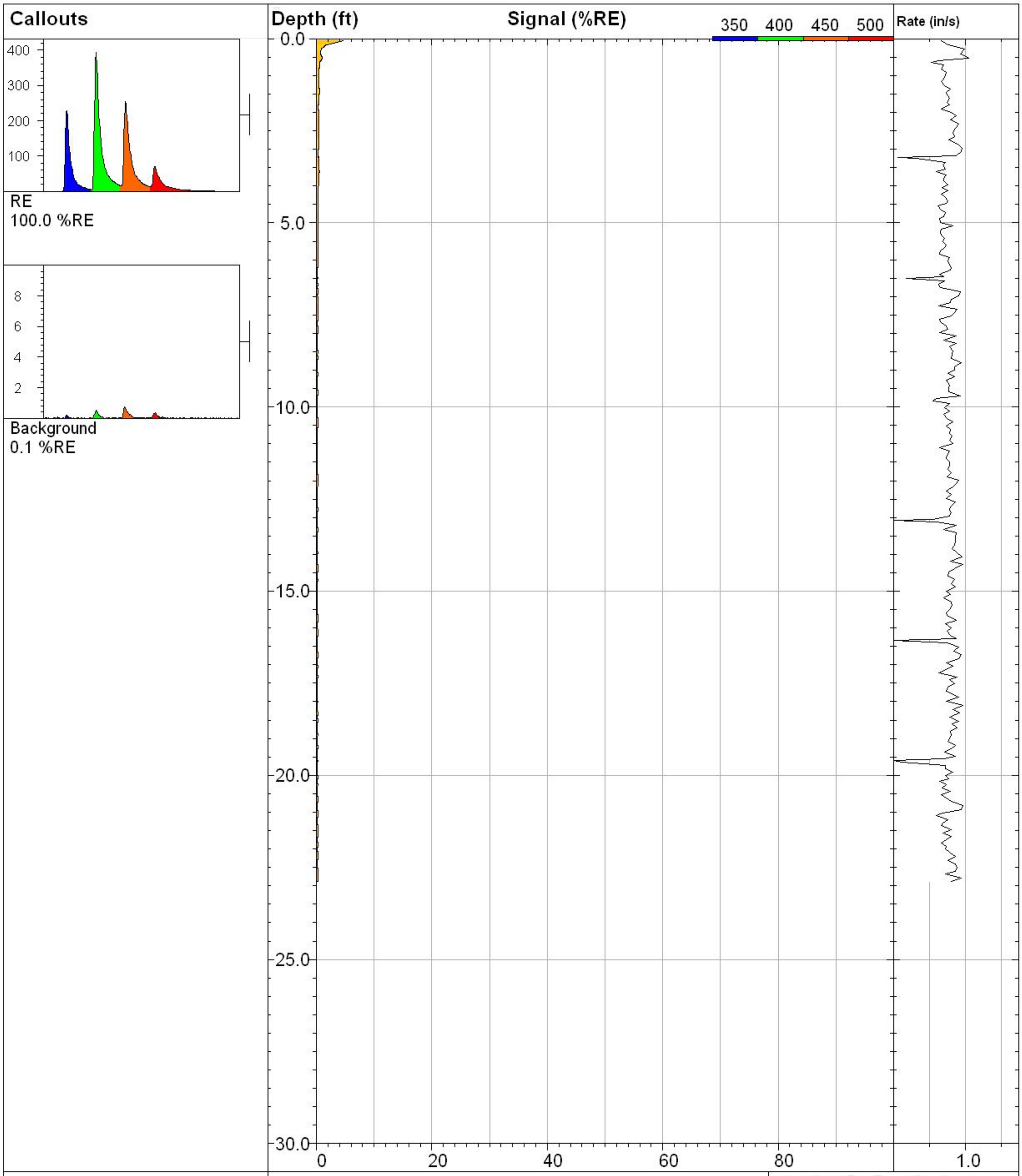
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.04 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **353.6 %RE @ 18.62 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 08:49 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-11**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **13.53 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.8 %RE @ 0.02 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 09:34 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-11A**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.15 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **175.0 %RE @ 17.31 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 10:02 CDT**

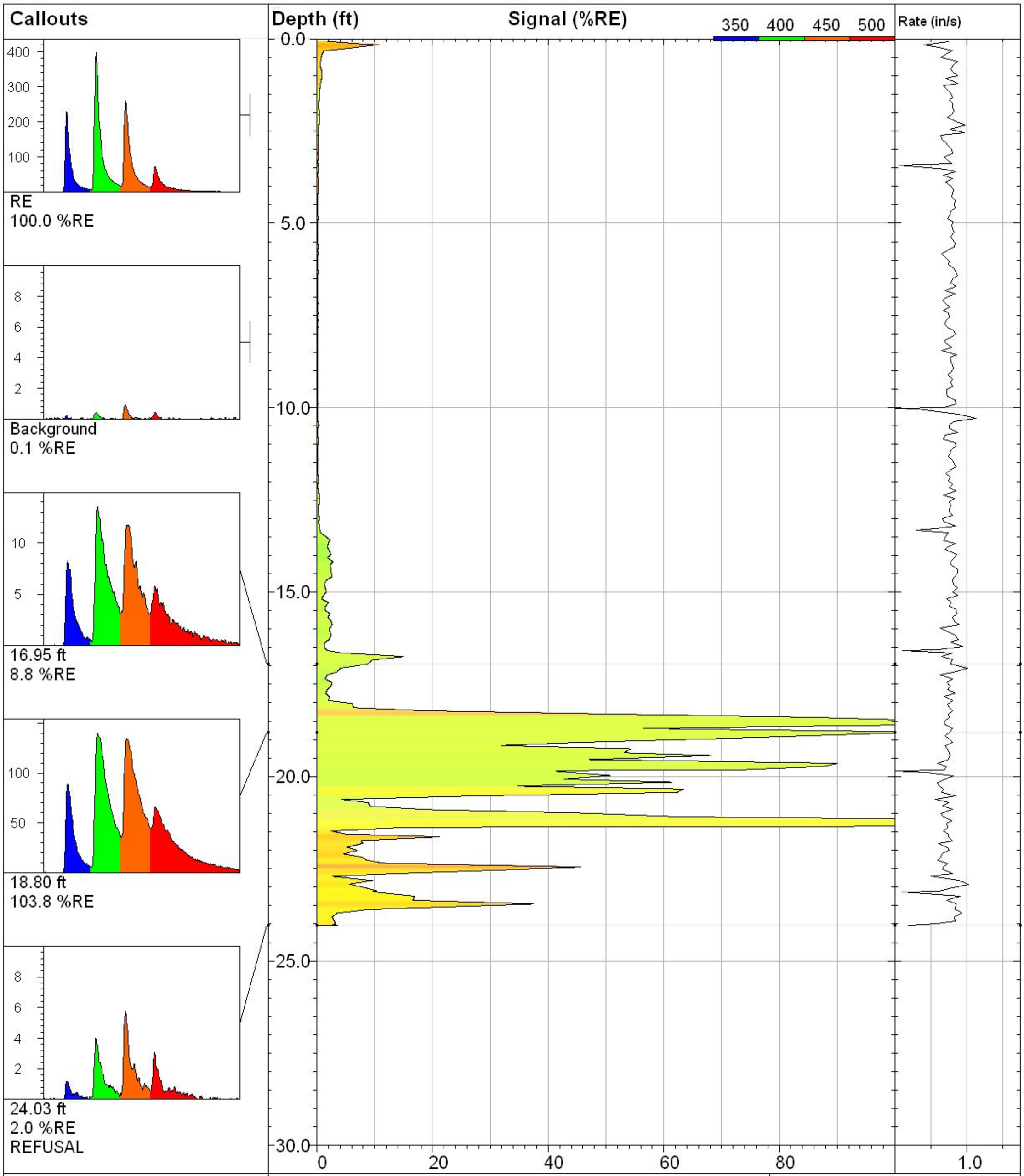


LIF-12

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.89 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.6 %RE @ 0.06 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 10:52 CDT**

MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

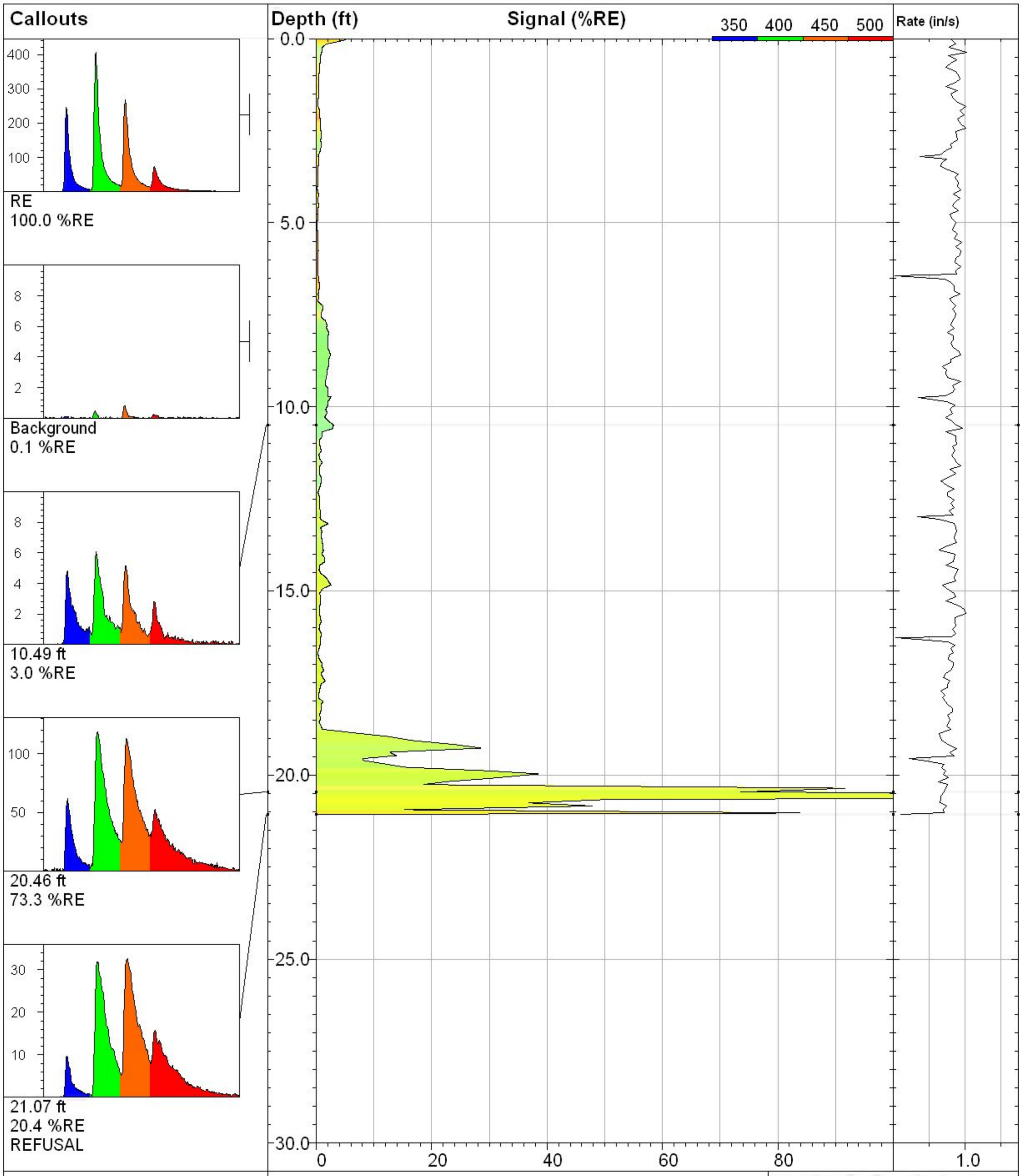


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

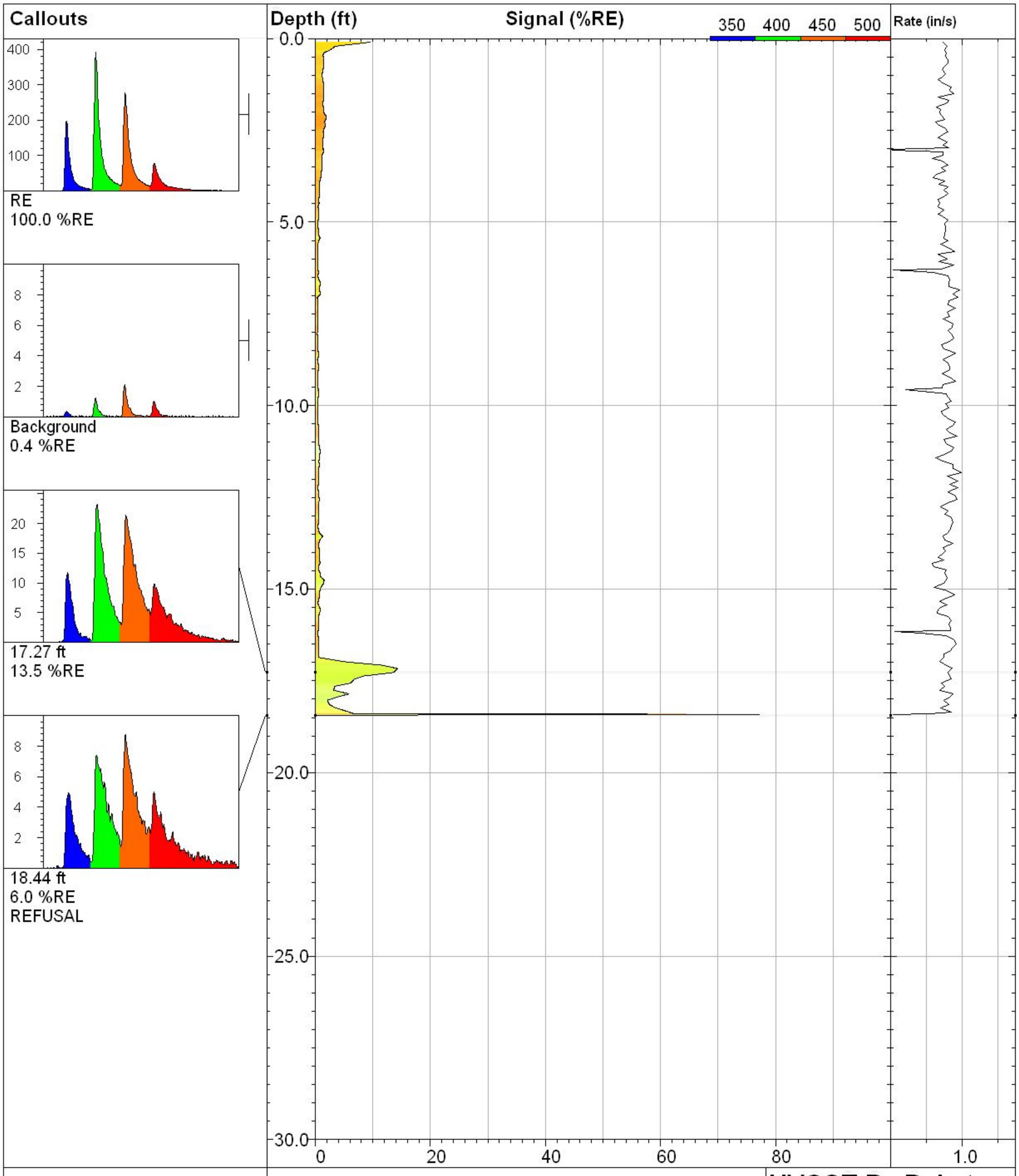
LIF-13

UVOST By Dakota
www.DakotaTechnologies.com

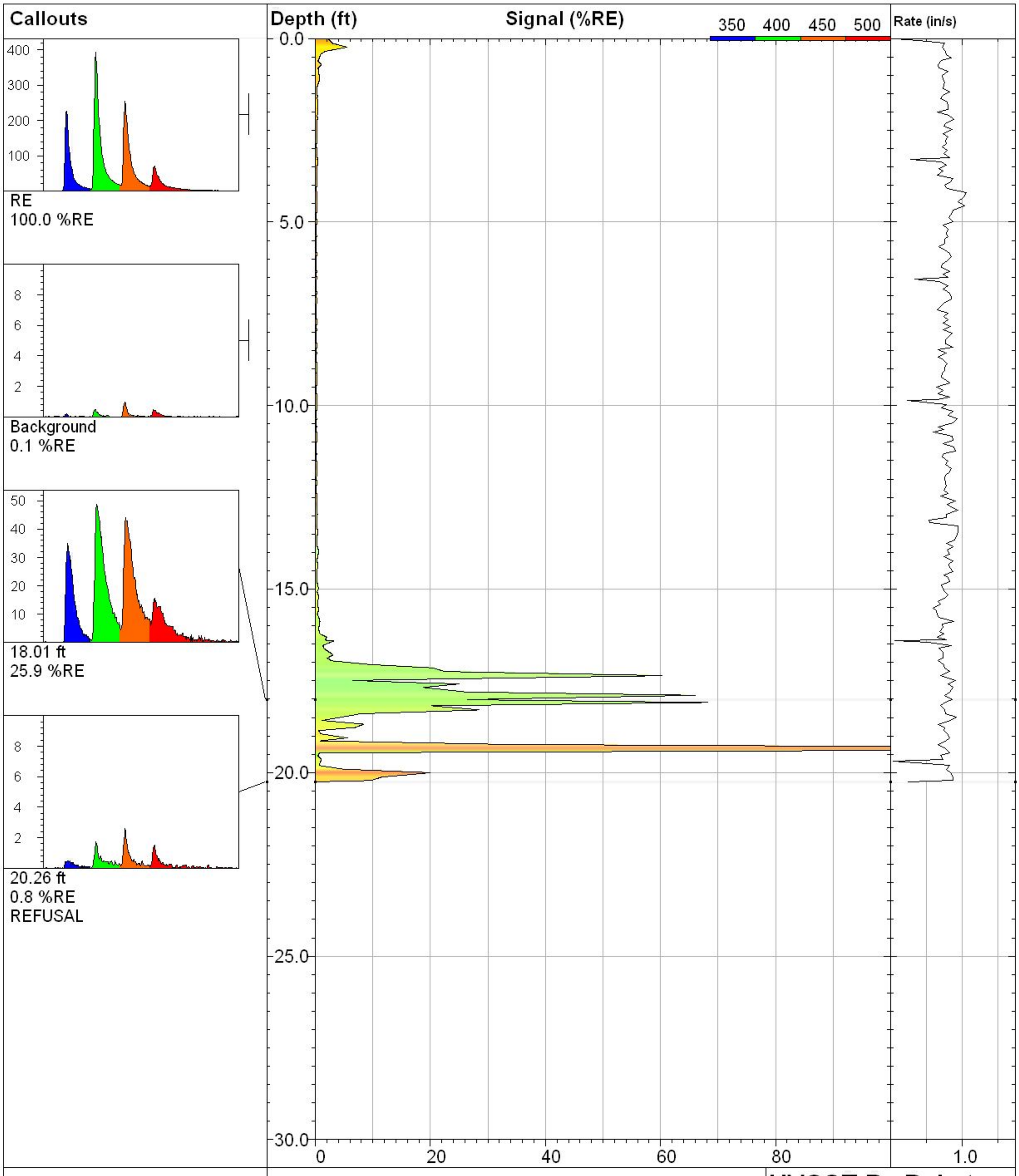
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.03 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **291.7 %RE @ 21.28 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 11:38 CDT**



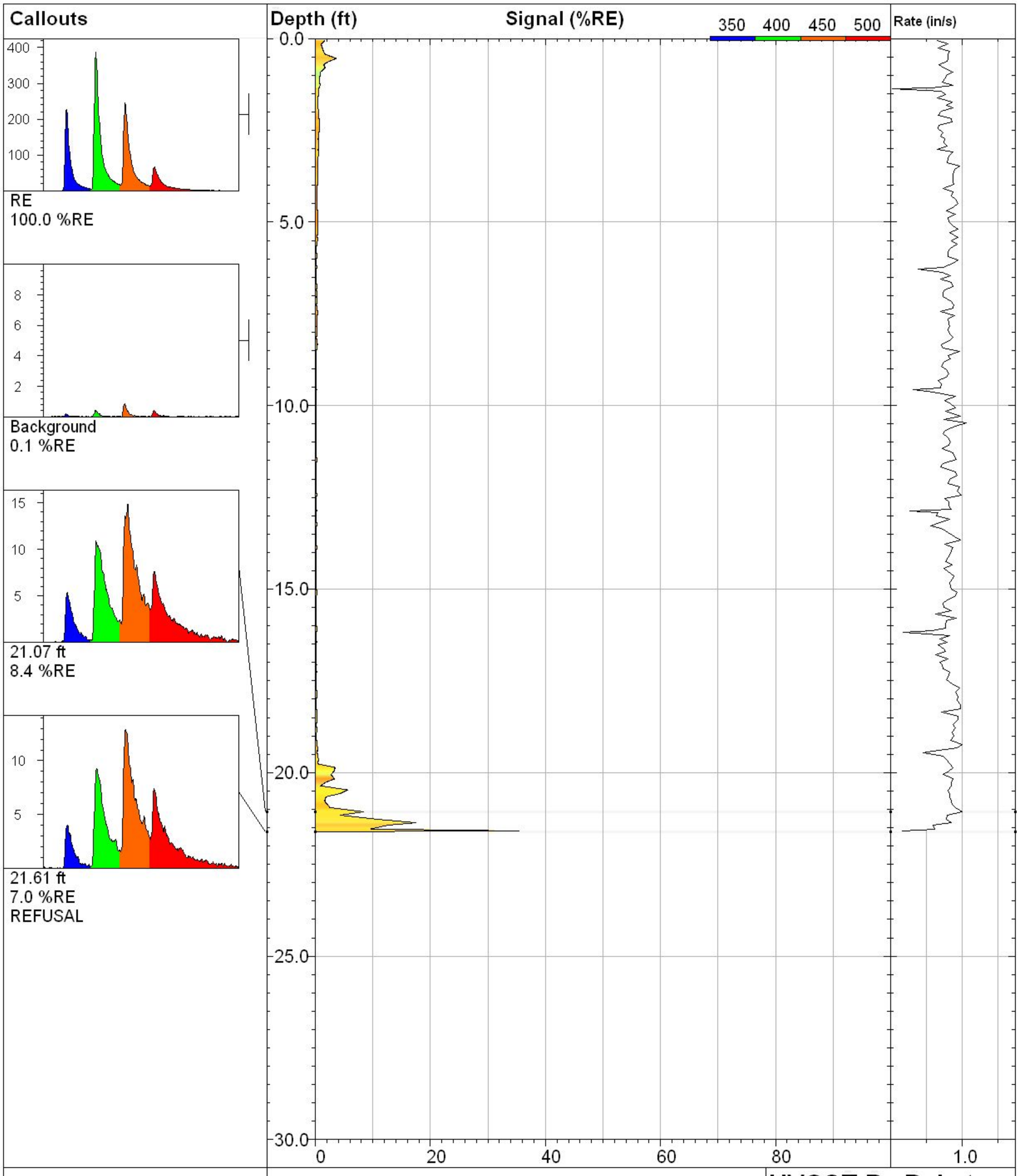
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-14**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.07 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **271.8 %RE @ 20.56 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 13:19 CDT**



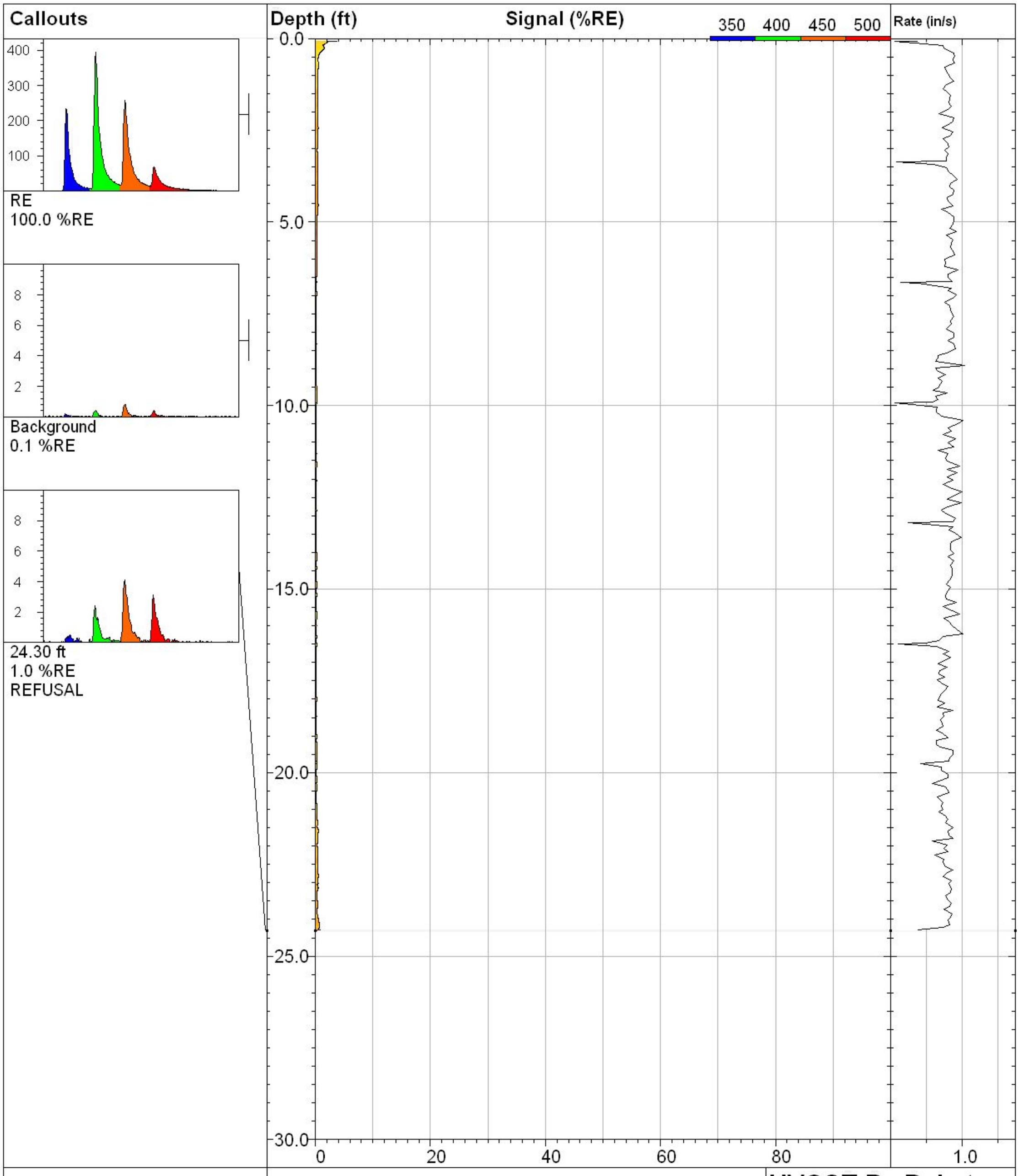
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-15**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.44 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **77.5 %RE @ 18.42 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 14:09 CDT**



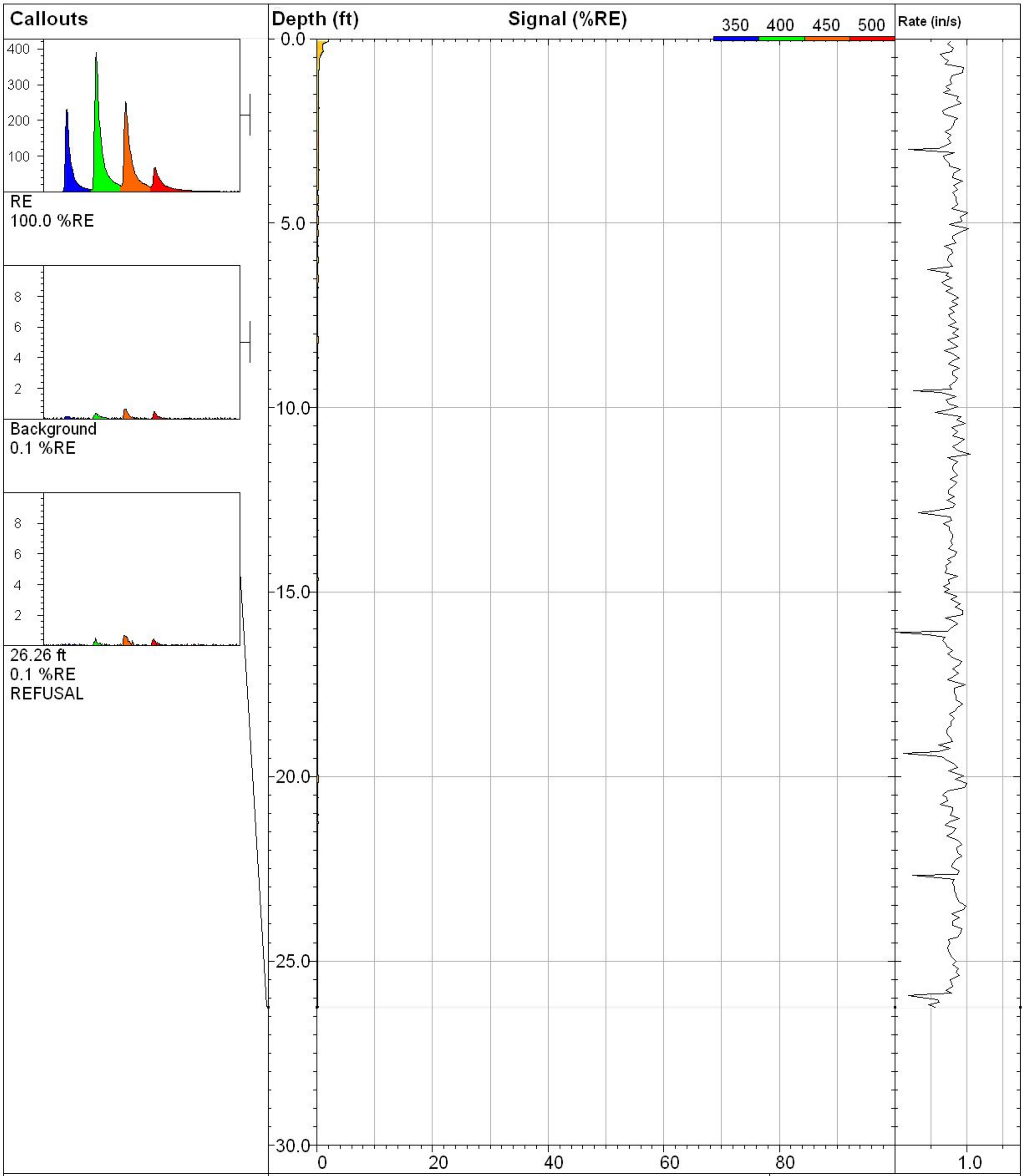
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-16**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.26 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **172.1 %RE @ 19.35 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 14:55 CDT**



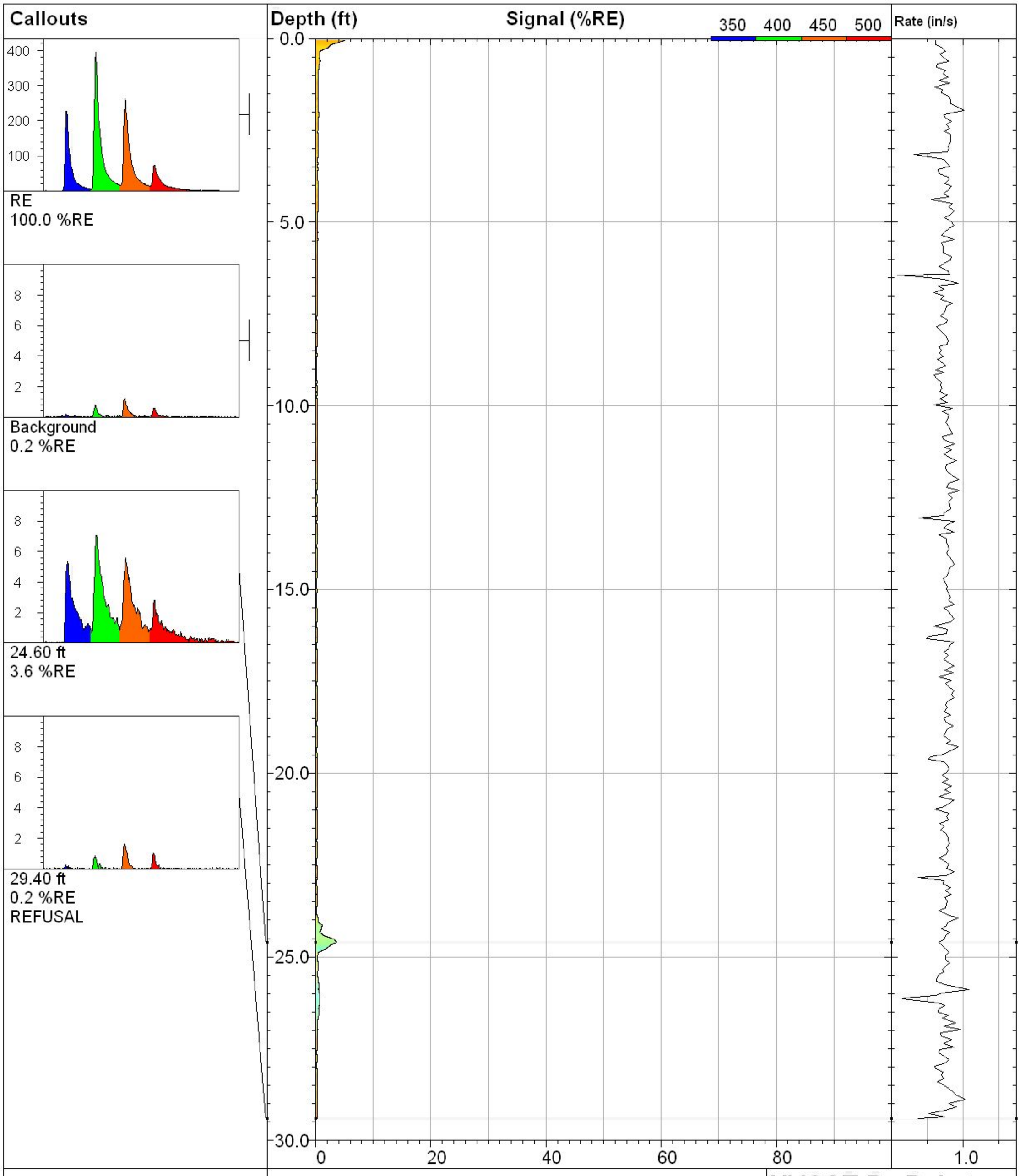
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-17**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.61 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **36.5 %RE @ 21.59 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 15:45 CDT**



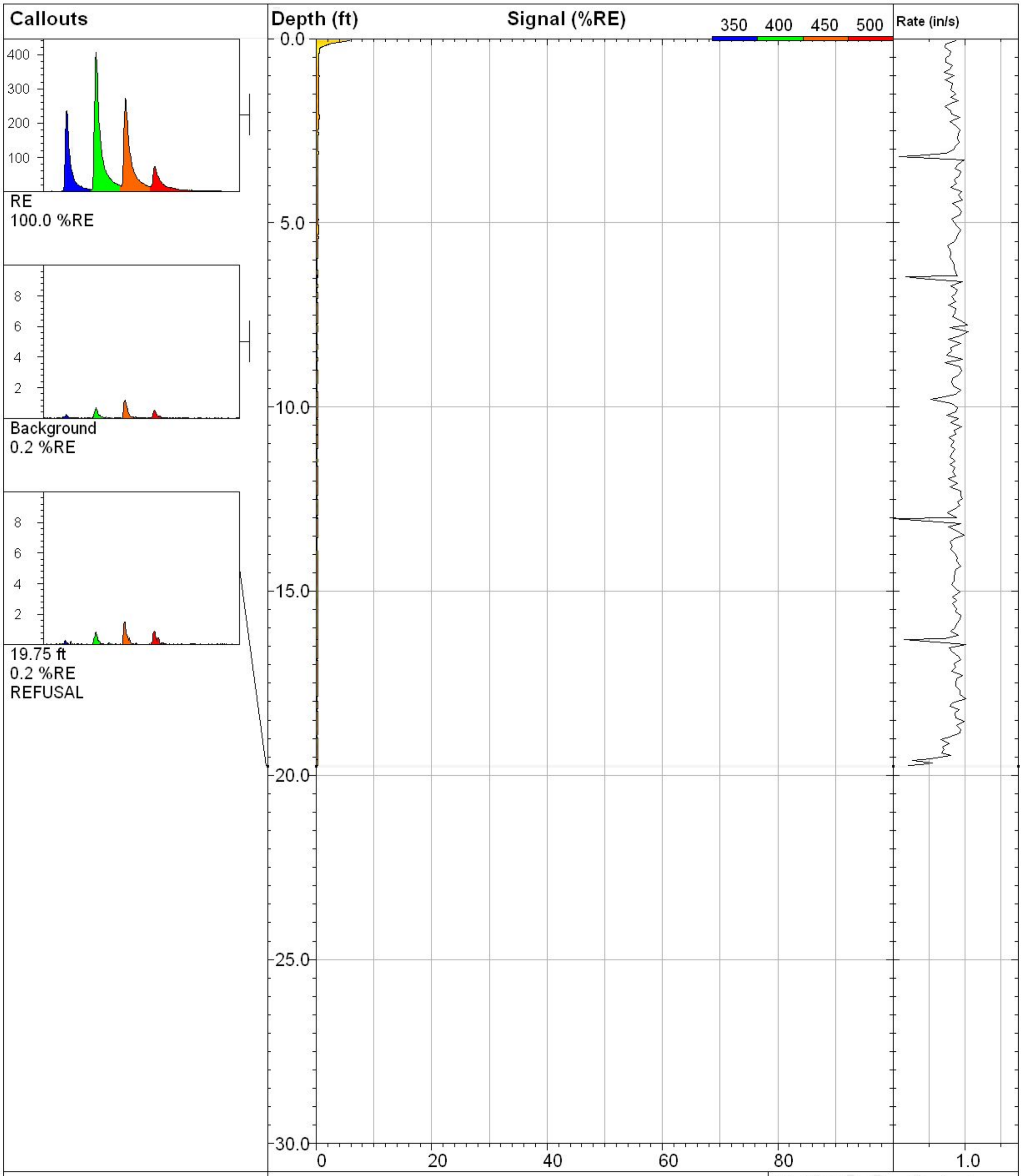
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-18**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.30 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.7 %RE @ 0.07 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 07:55 CDT**



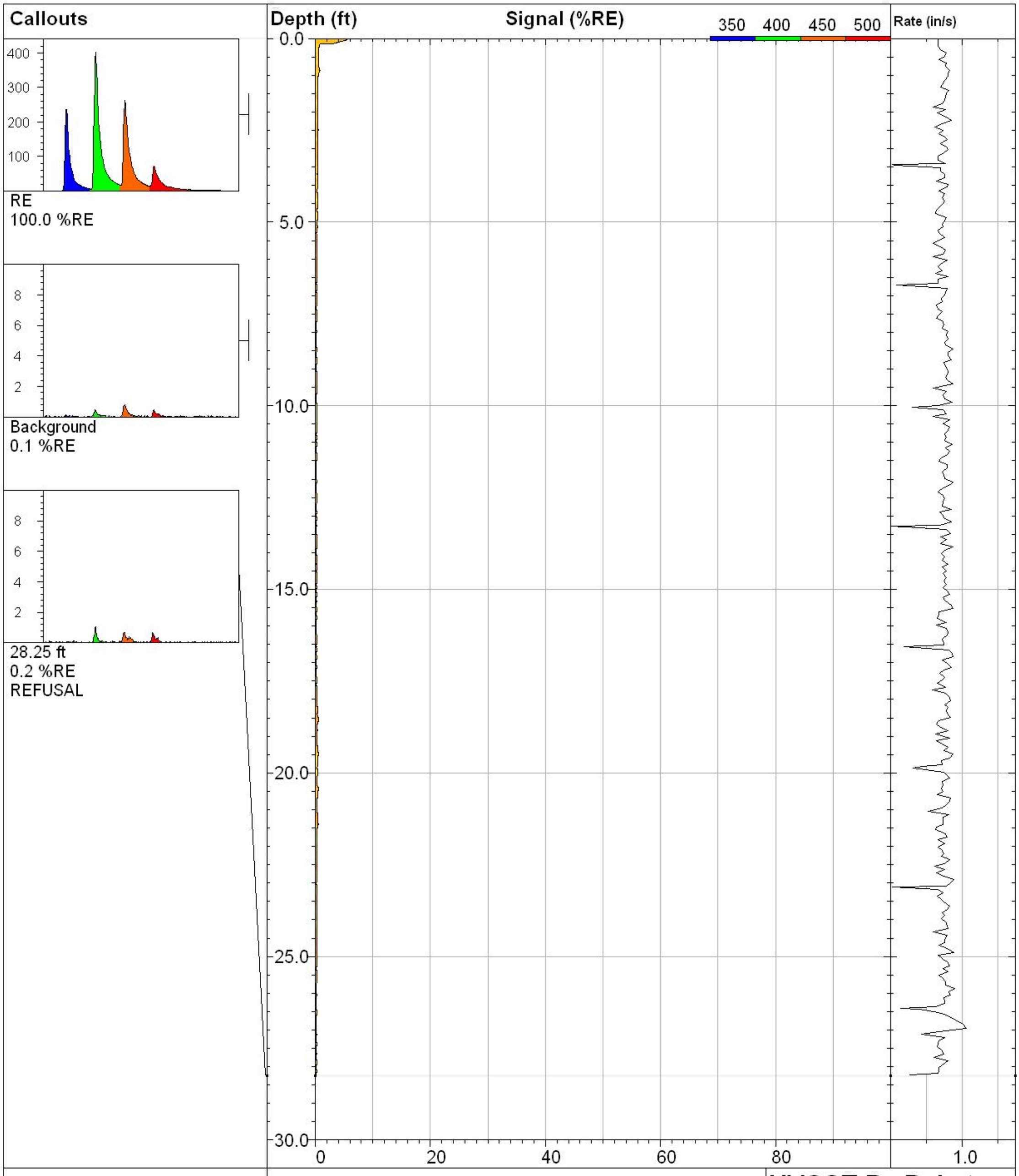
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-19**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.26 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **2.0 %RE @ 0.08 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 08:41 CDT**



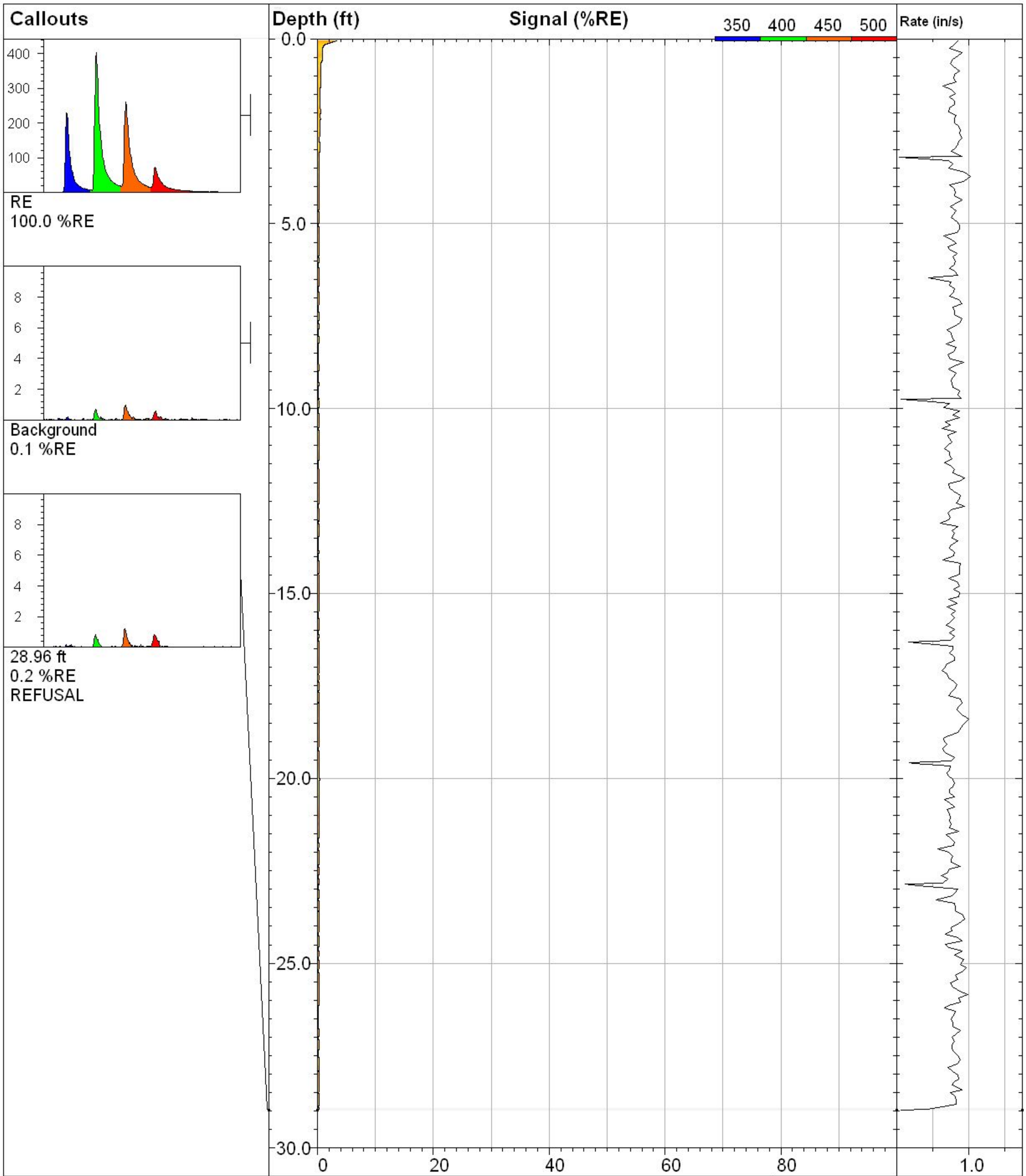
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-20**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.40 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.0 %RE @ 0.06 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 09:28 CDT**



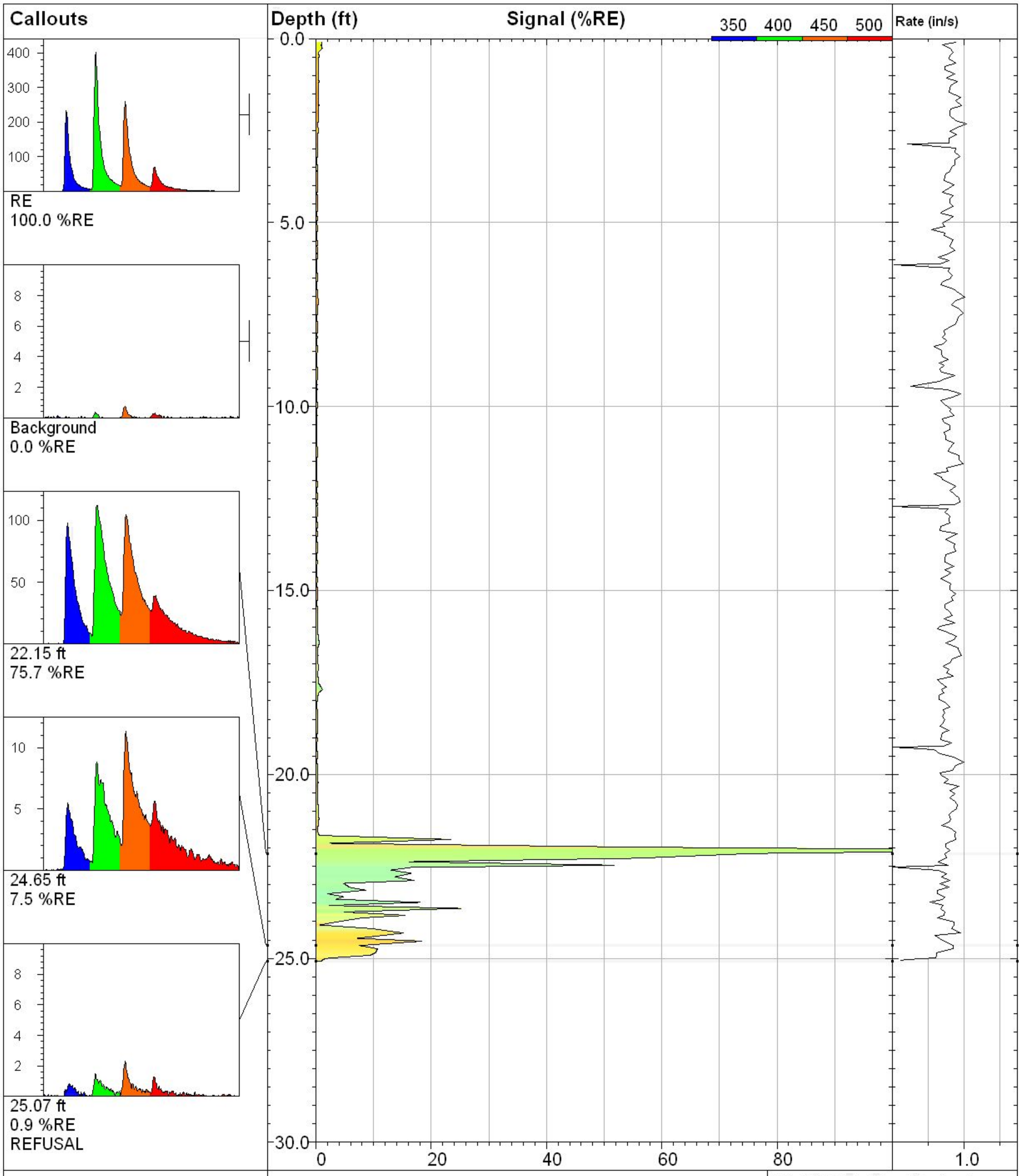
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-21**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.75 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.7 %RE @ 0.05 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 10:12 CDT**



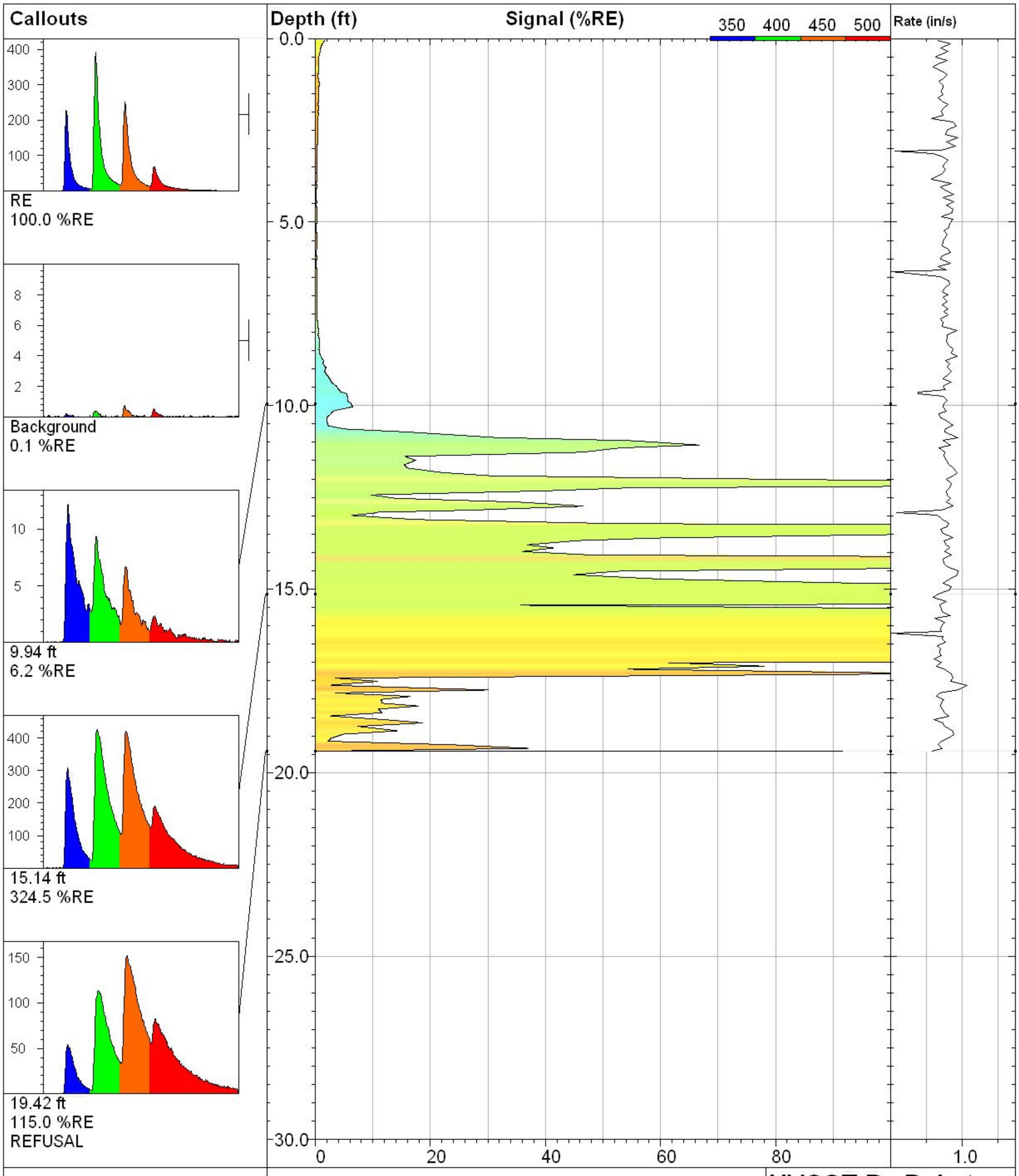
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-22**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **28.25 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.5 %RE @ 0.04 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 10:55 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-23**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **28.96 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.3 %RE @ 0.06 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 11:47 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-24**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.07 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **127.8 %RE @ 22.06 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 13:49 CDT**



LIF-25		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.42 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **668.1 %RE @ 16.45 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 14:32 CDT**

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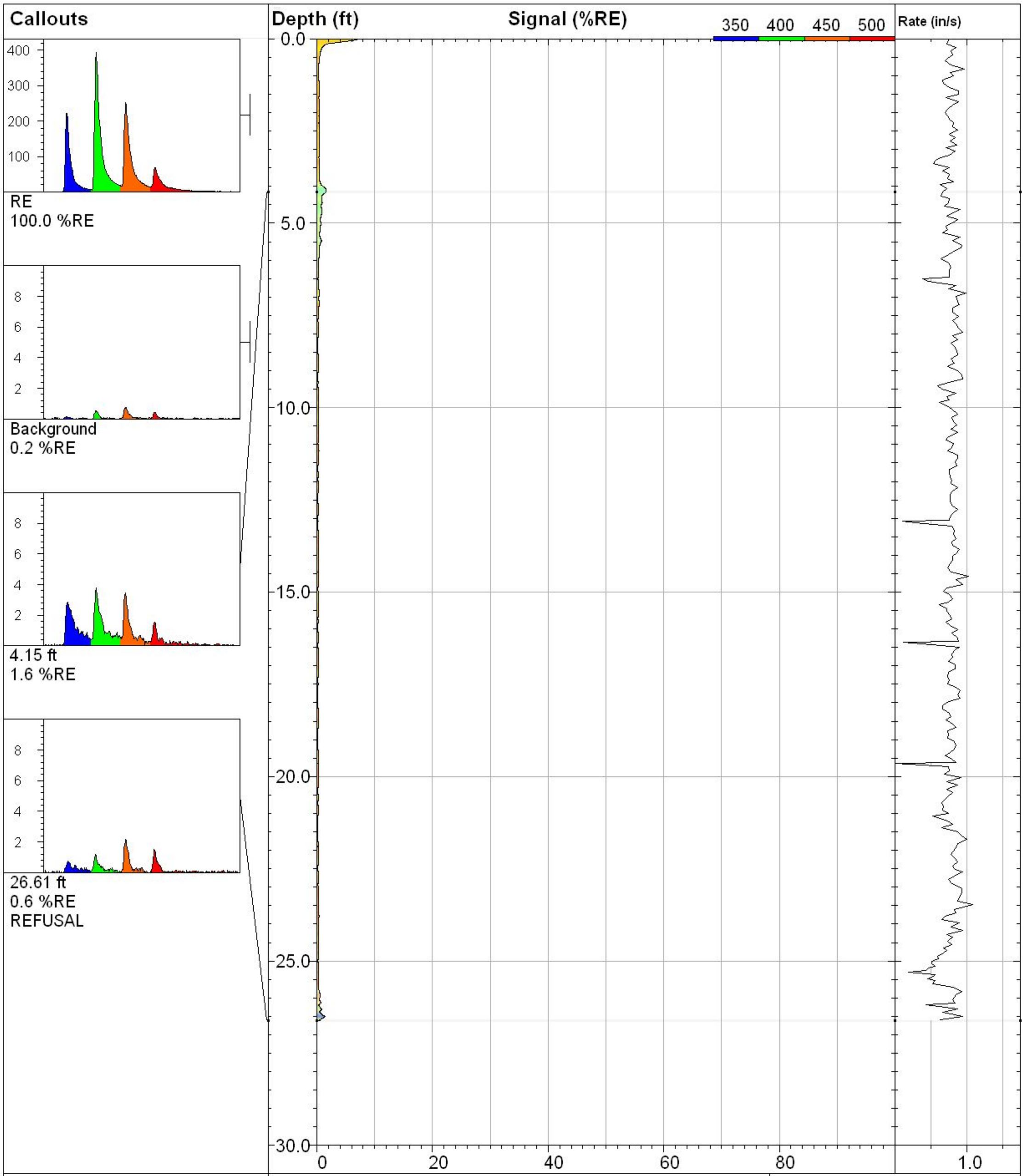
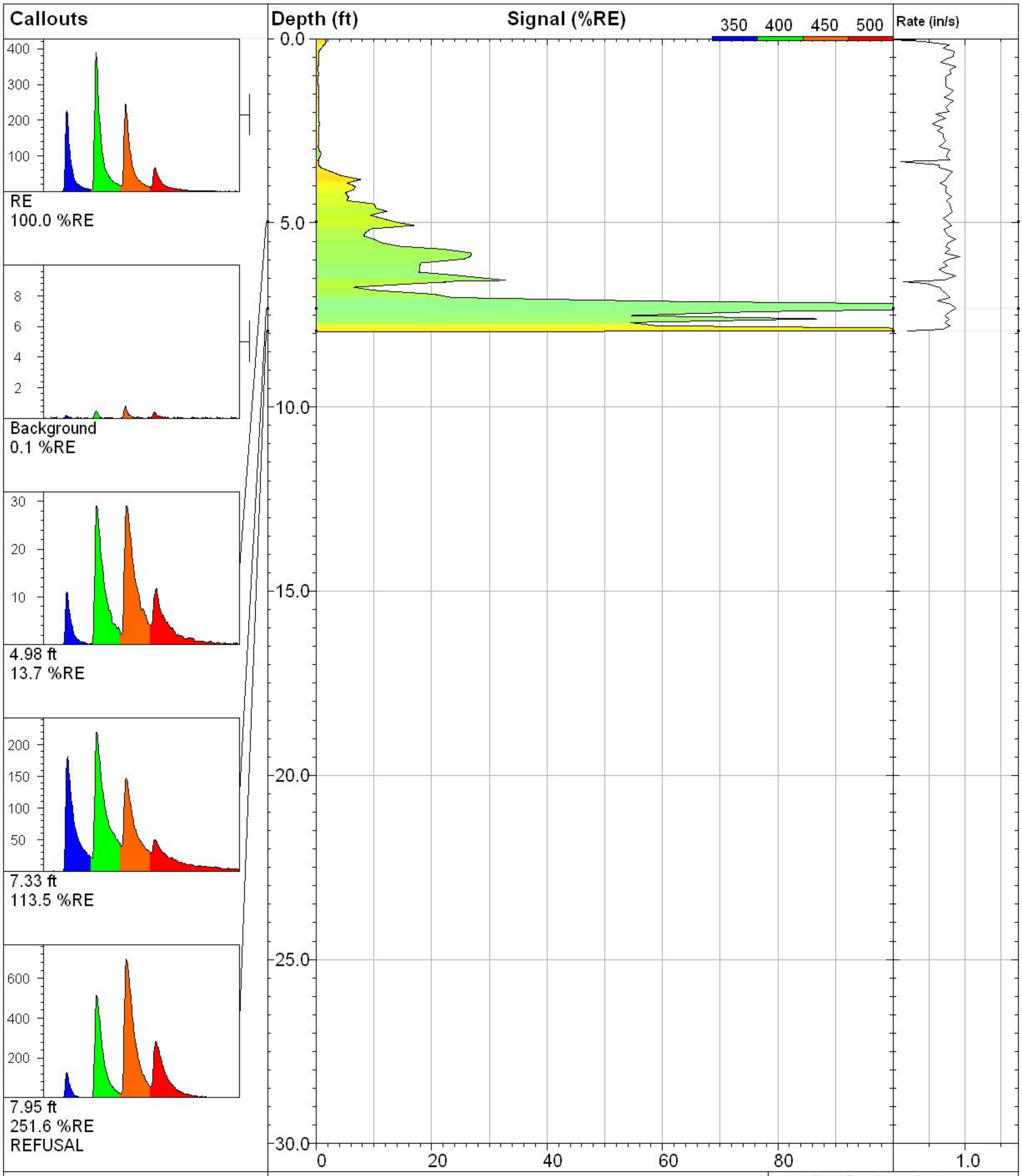
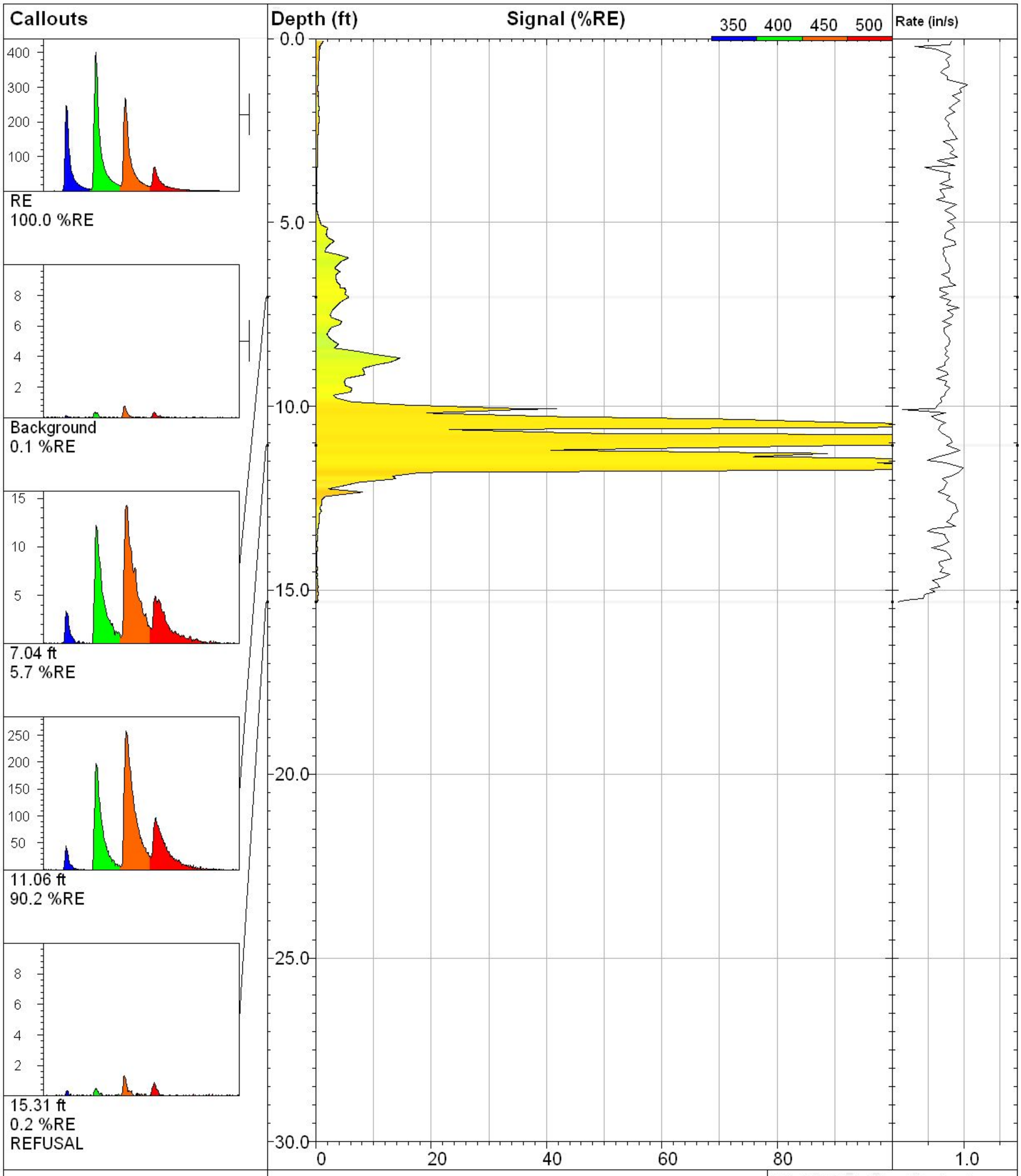


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-26**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.61 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.9 %RE @ 0.04 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 15:15 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-27**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.94 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **345.5 %RE @ 7.93 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 16:29 CDT**

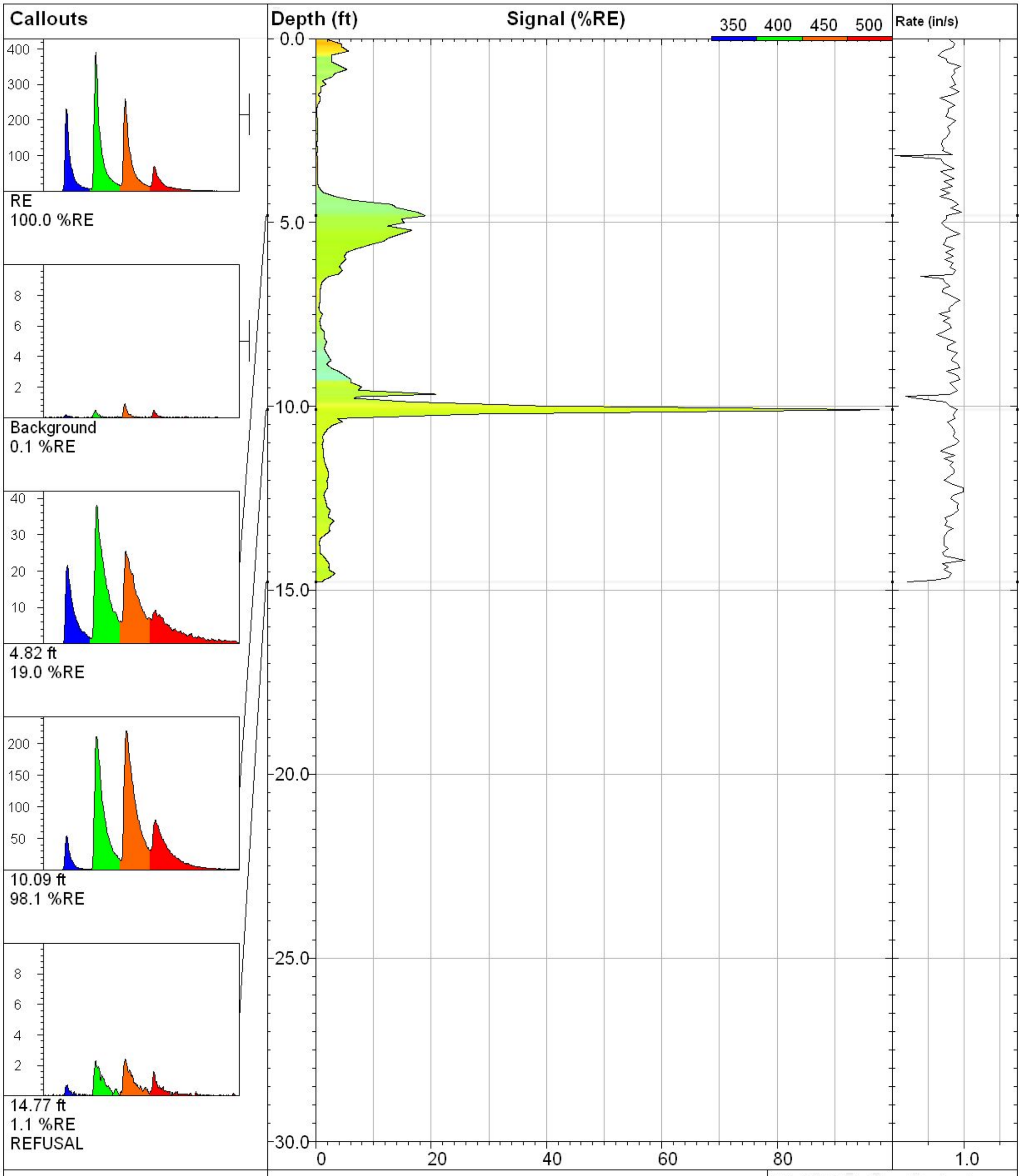


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-28

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **15.31 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **239.4 %RE @ 10.98 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 07:20 CDT**

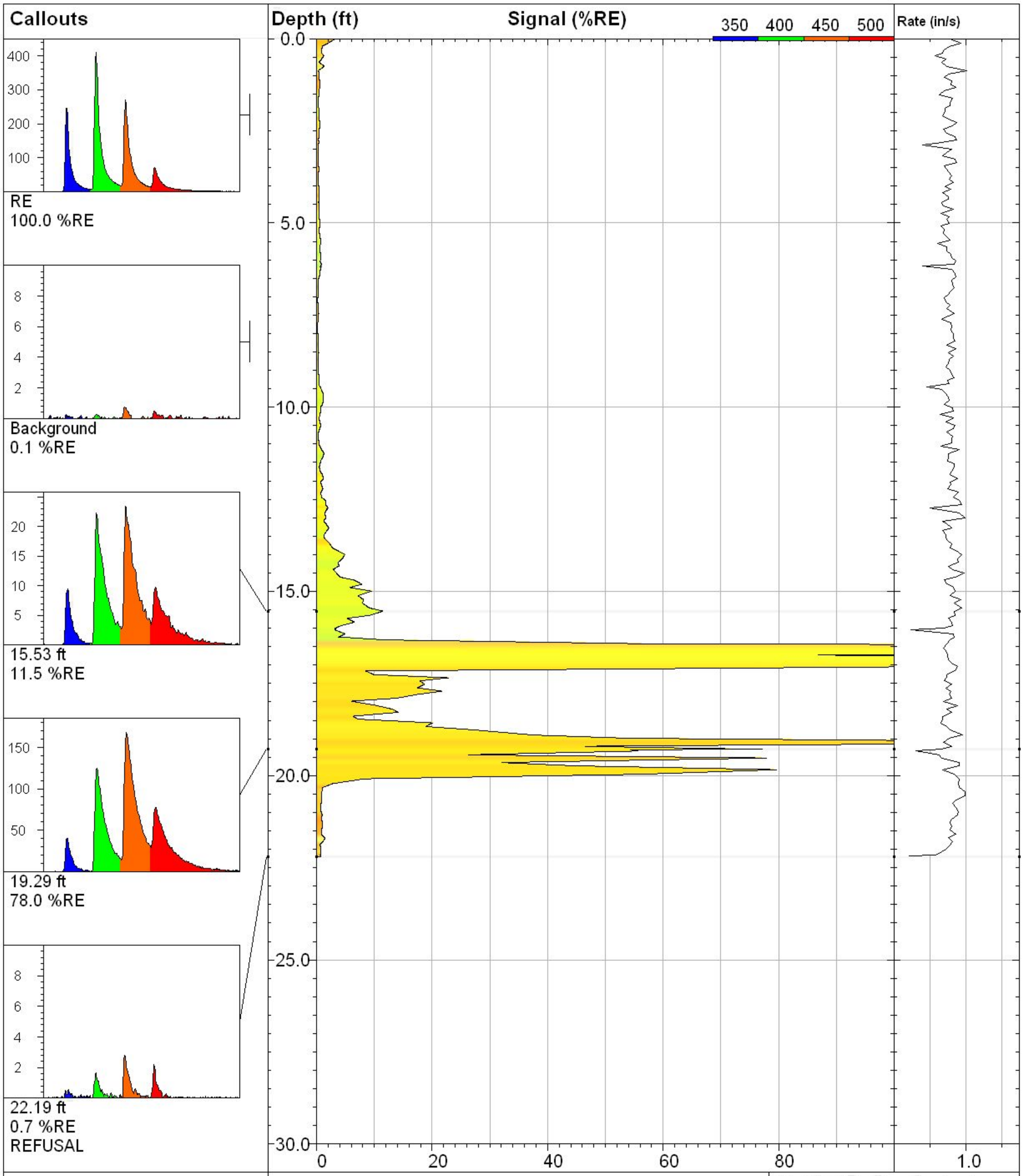


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-29

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.77 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **98.1 %RE @ 10.09 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 08:13 CDT**



MATRIX ENVIRONMENTAL LLC
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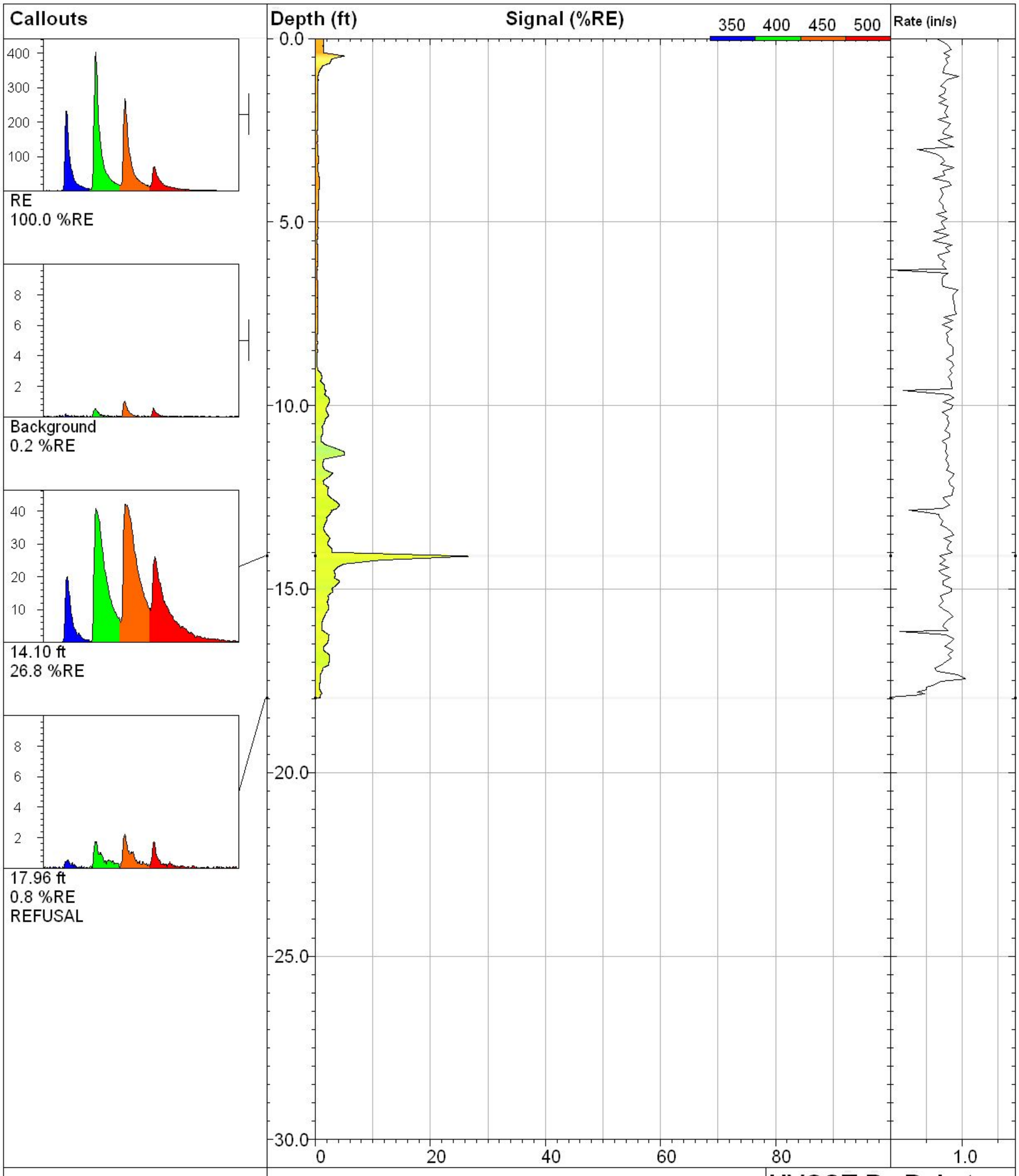
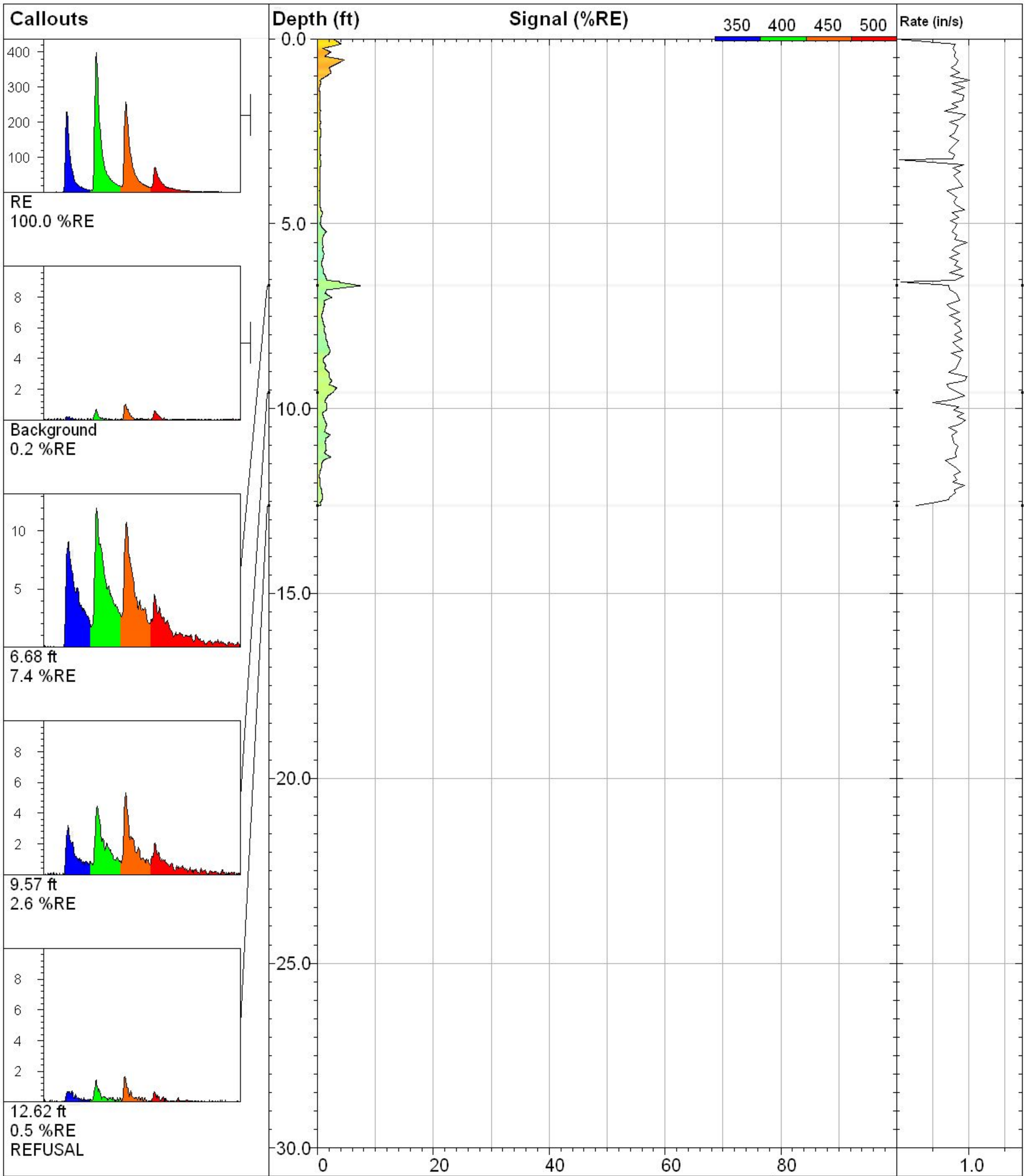
LIF-30

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.19 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **390.2 %RE @ 16.53 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 08:58 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-31**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.96 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **26.8 %RE @ 14.10 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 10:00 CDT**

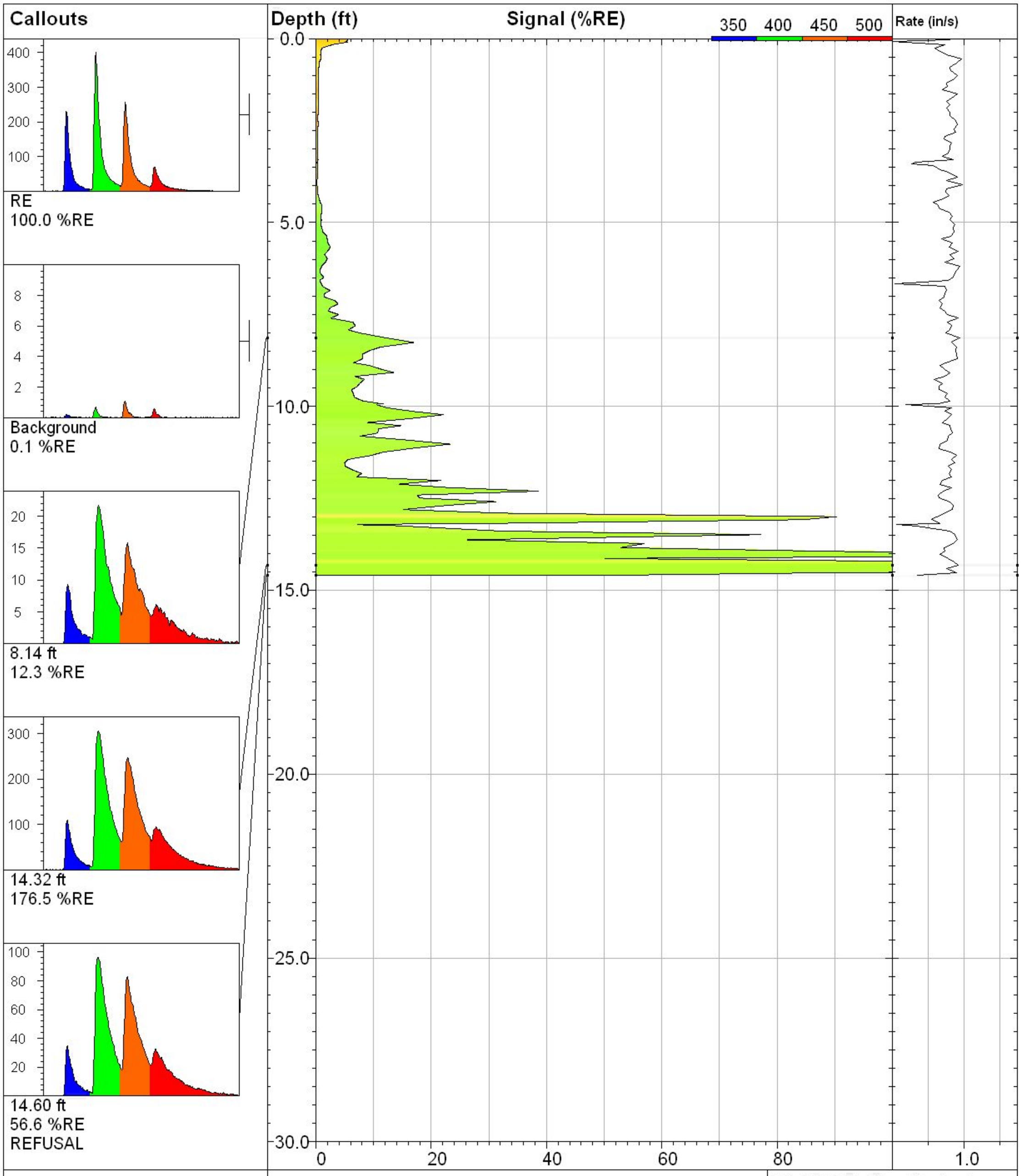


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-32

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **12.62 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.4 %RE @ 6.68 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 10:35 CDT**



LIF-33		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.59 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **219.0 %RE @ 14.42 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-29 15:46 CDT**

MATRIX ENVIRONMENTAL LLC
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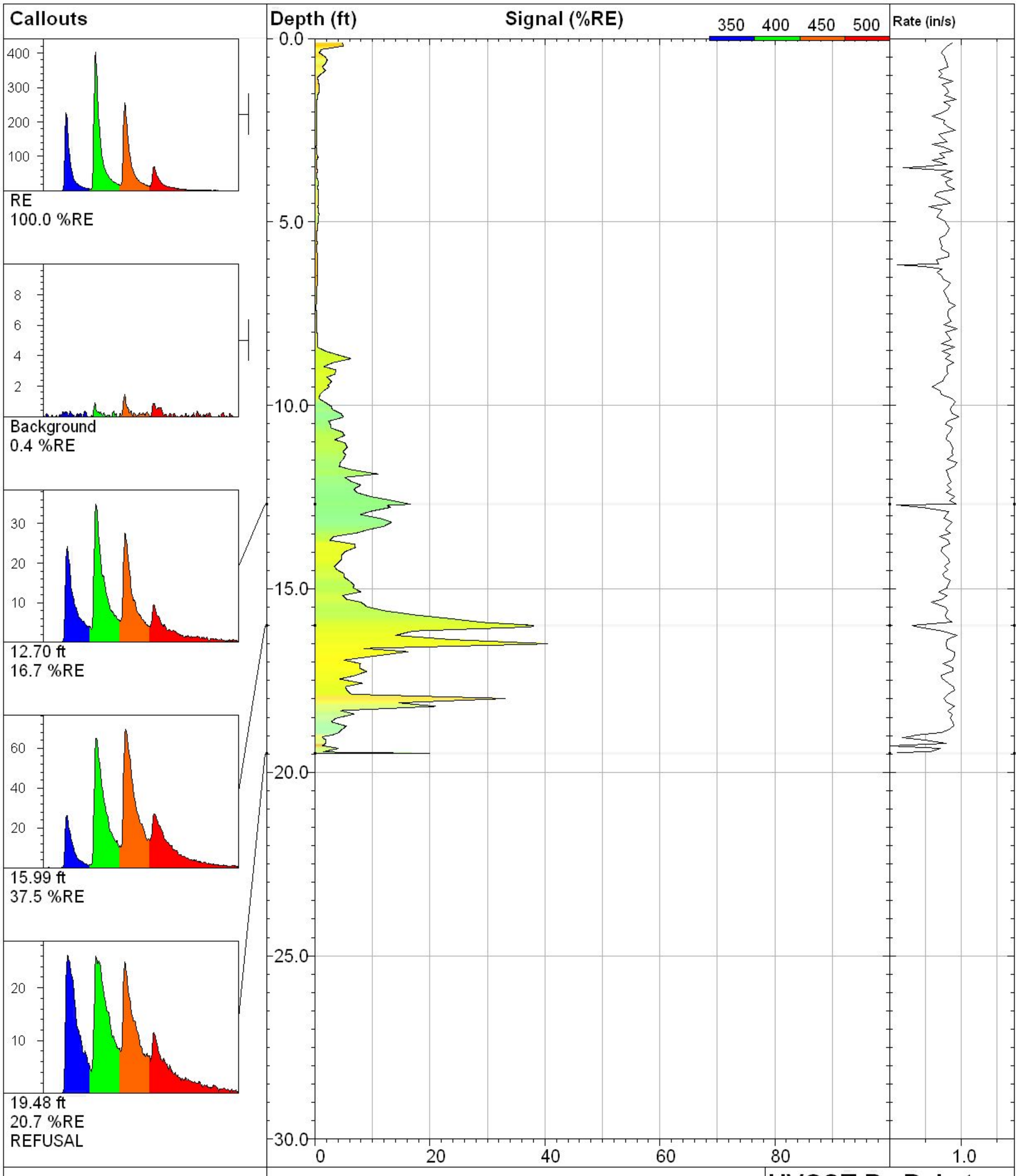
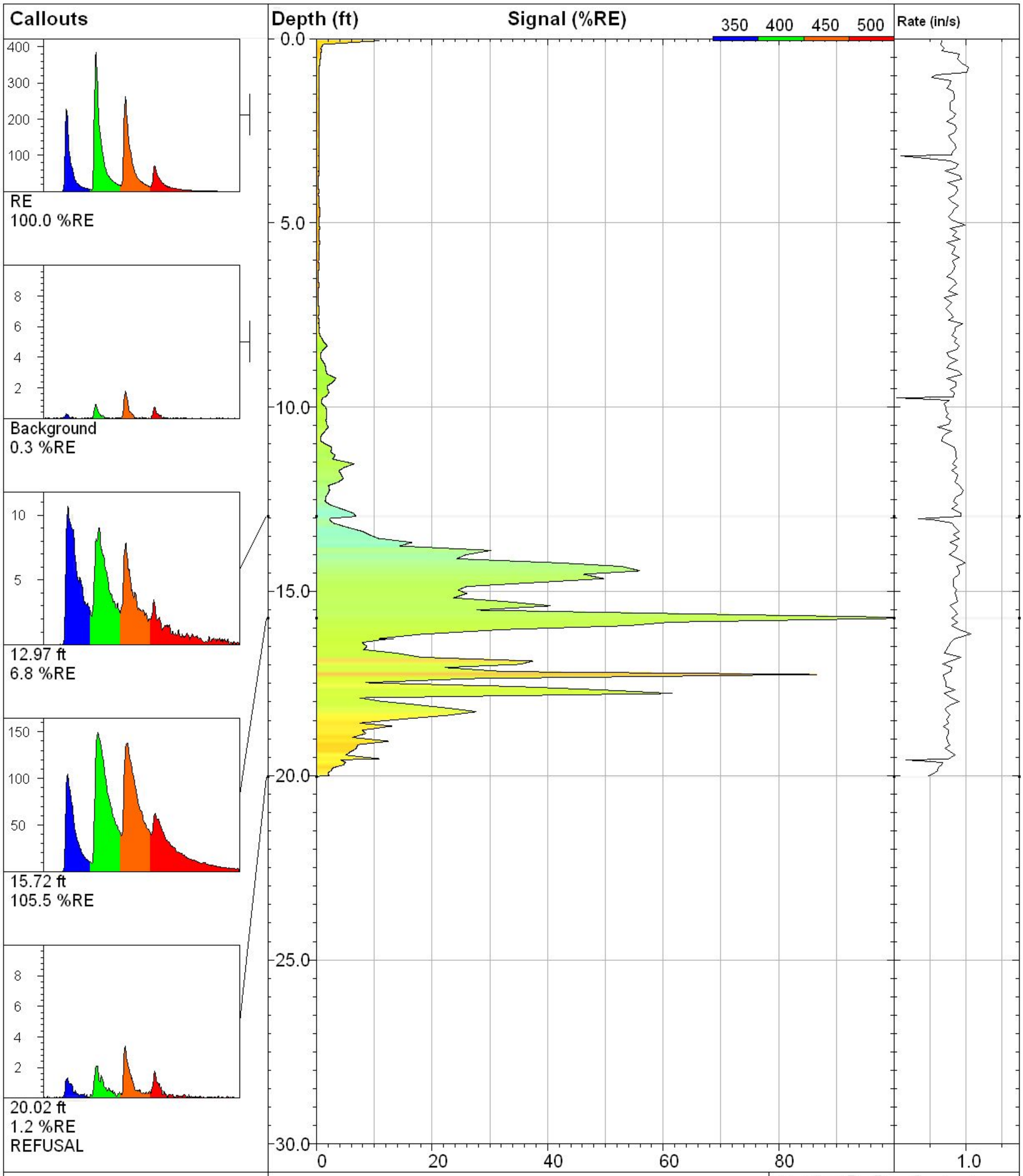
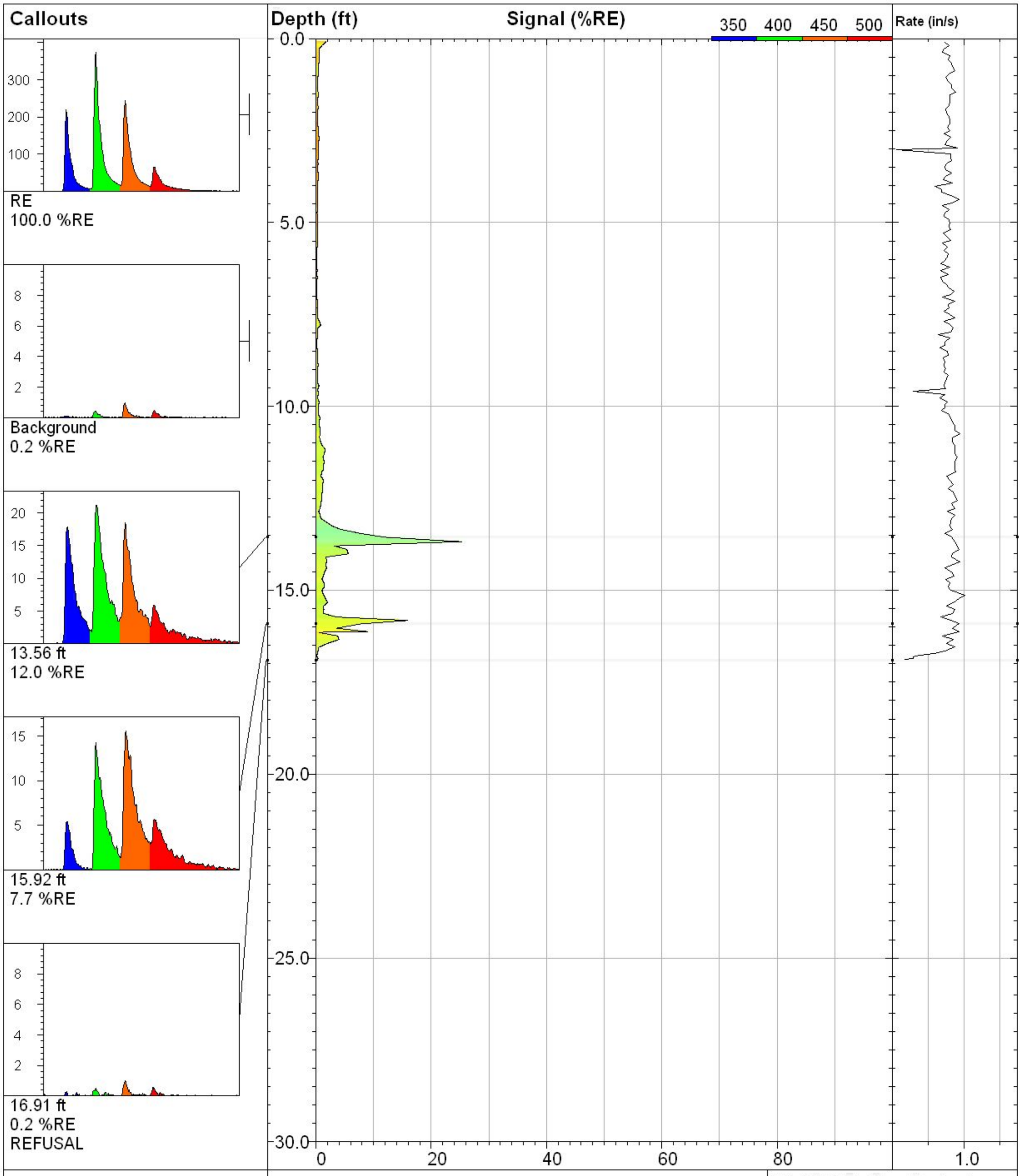


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-34**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.48 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **40.7 %RE @ 16.50 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-29 16:58 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-35**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.02 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **105.5 %RE @ 15.72 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 07:39 CDT**



LIF-36		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.91 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **25.3 %RE @ 13.68 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 08:19 CDT**

MATRIX ENVIRONMENTAL LLC
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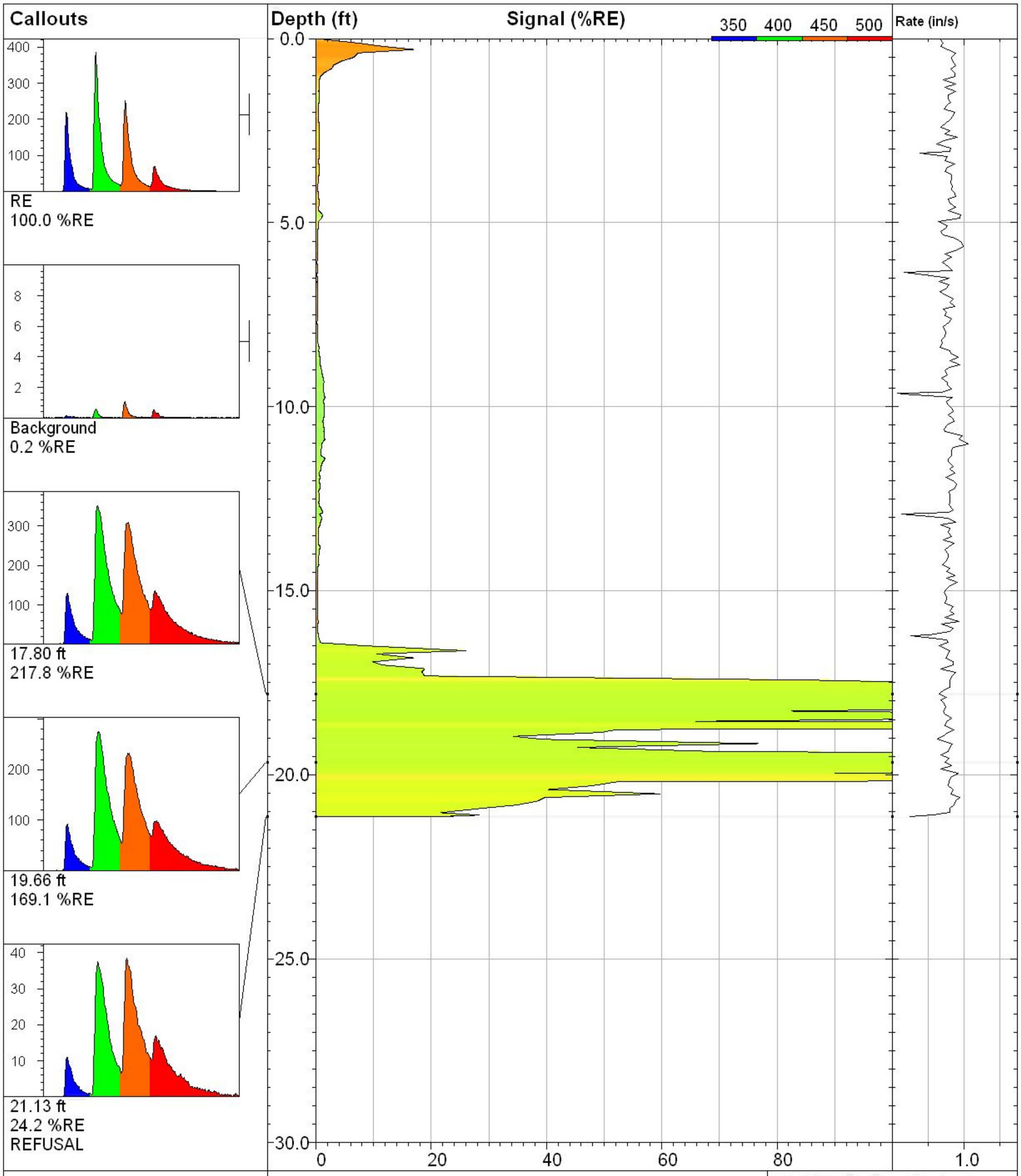
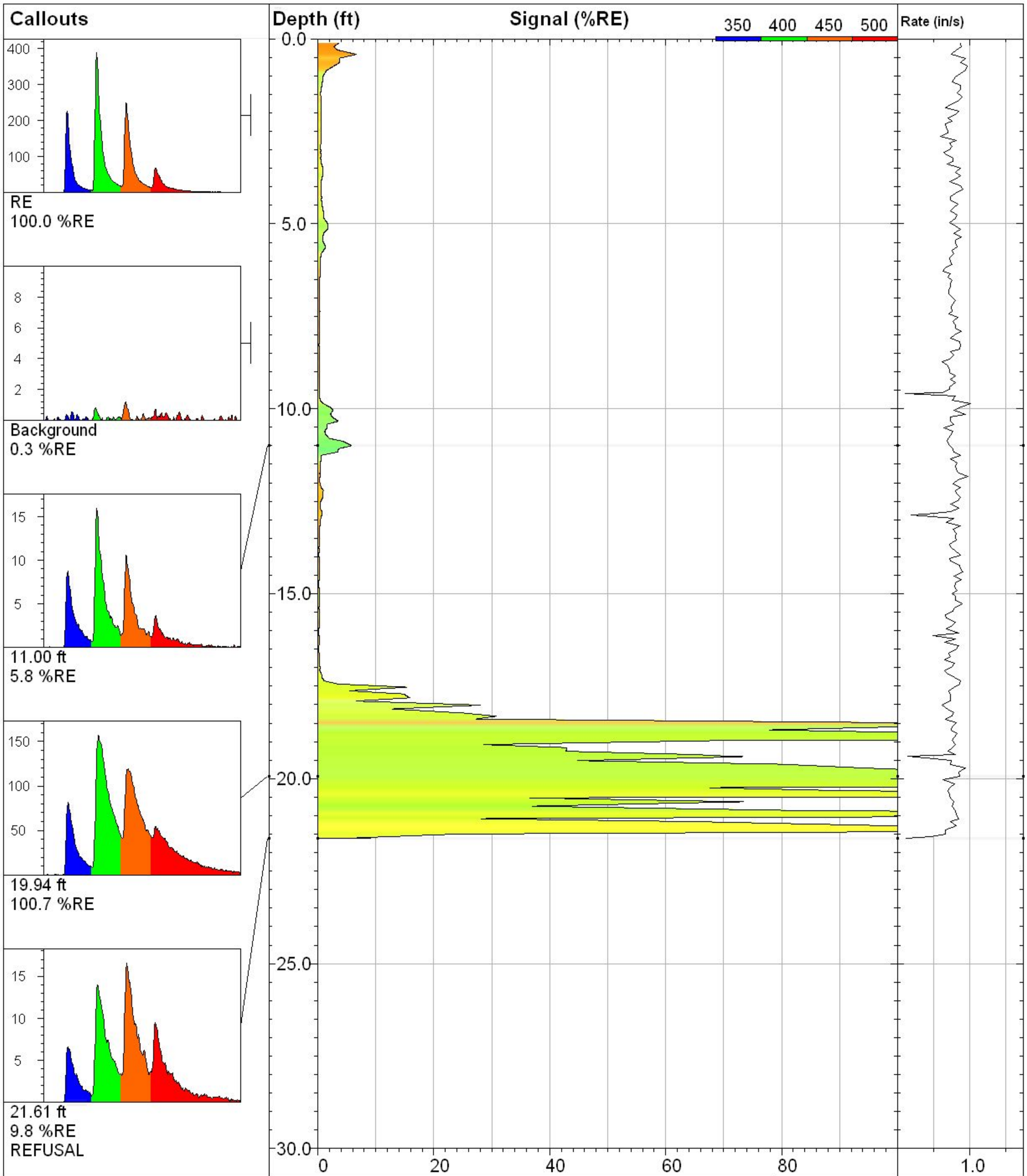
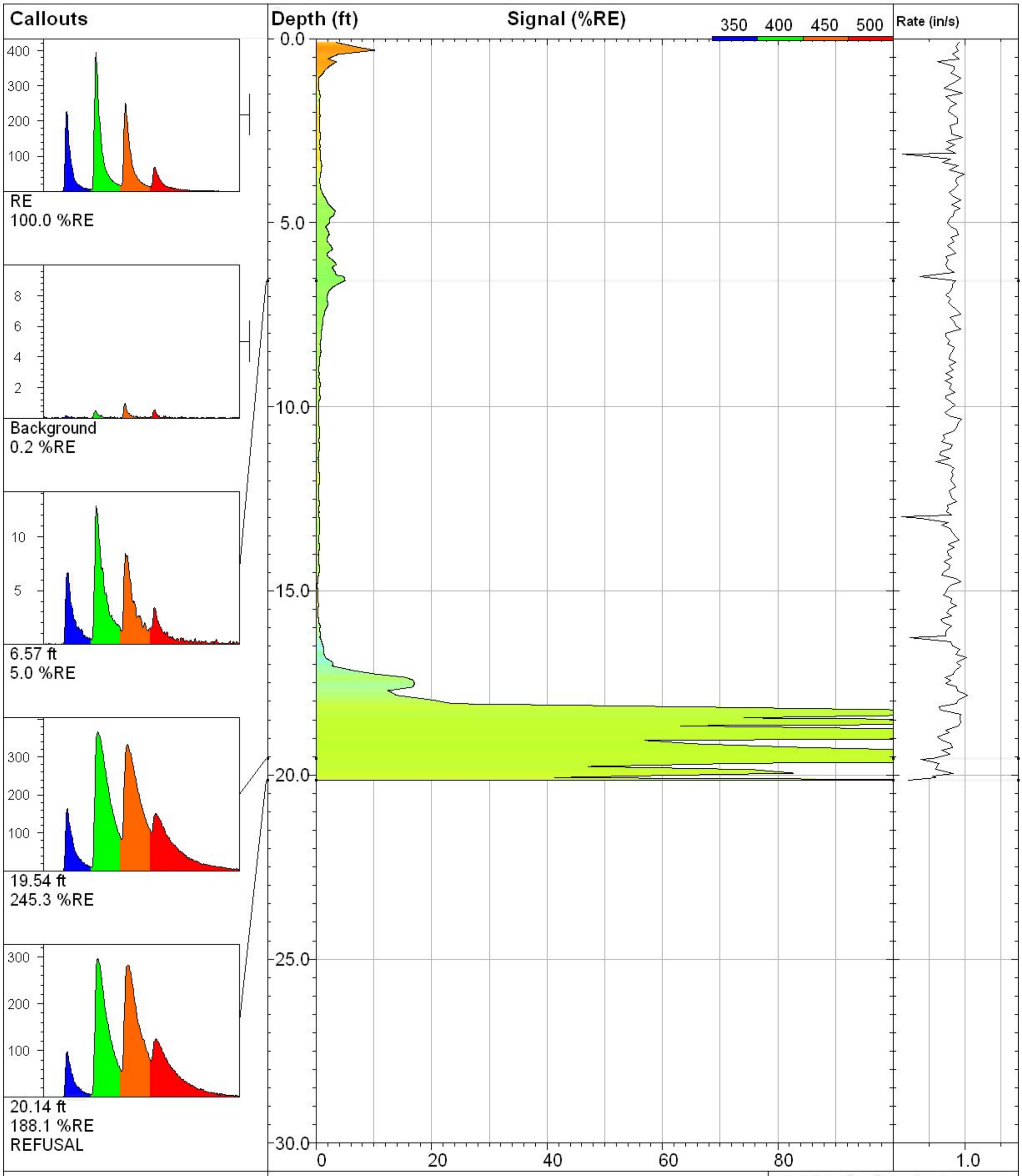


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-37**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.13 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **526.5 %RE @ 19.48 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 10:08 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-38**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.61 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **328.8 %RE @ 20.44 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 10:51 CDT**

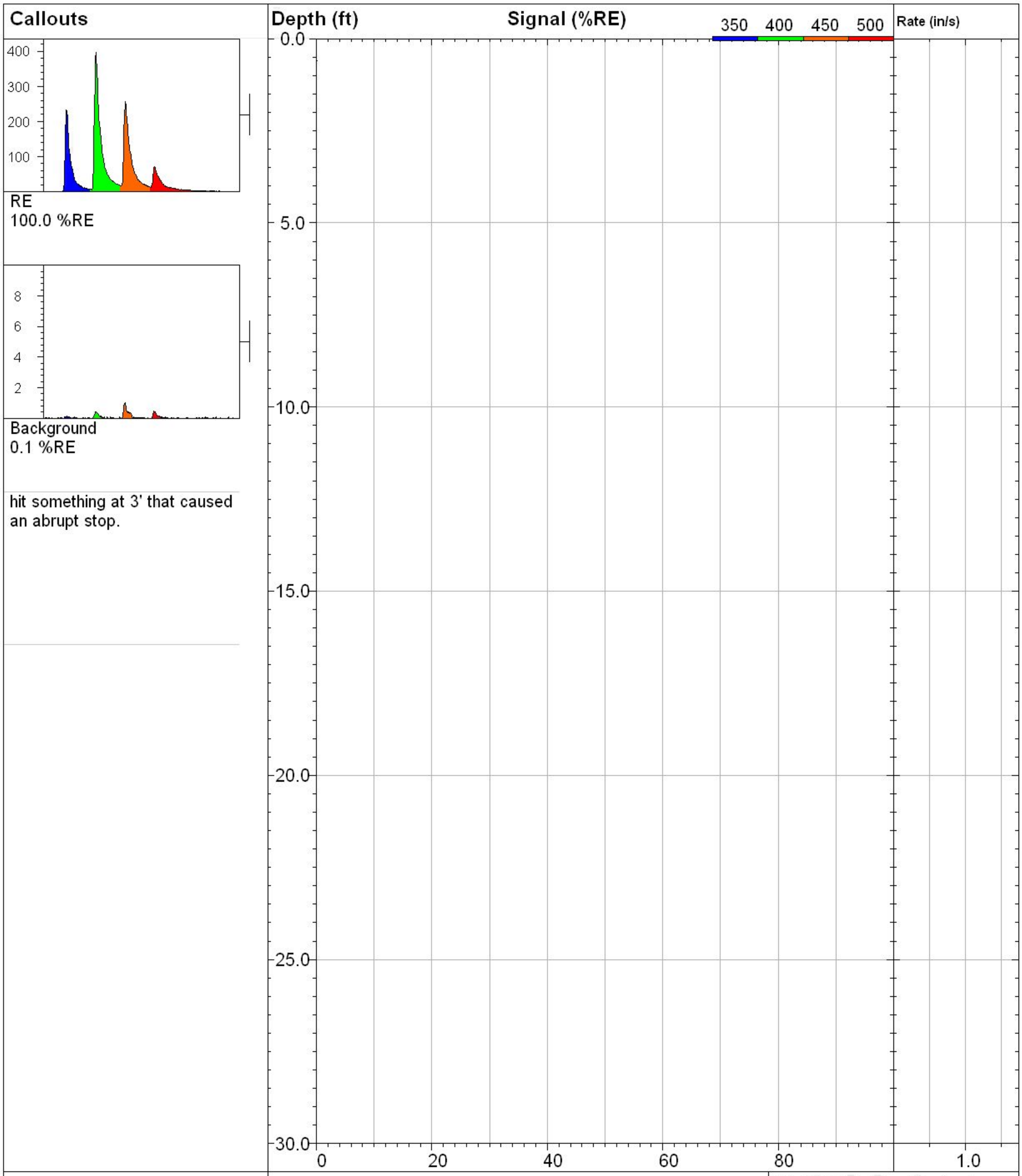


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-39

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.14 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **368.2 %RE @ 19.54 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 11:30 CDT**

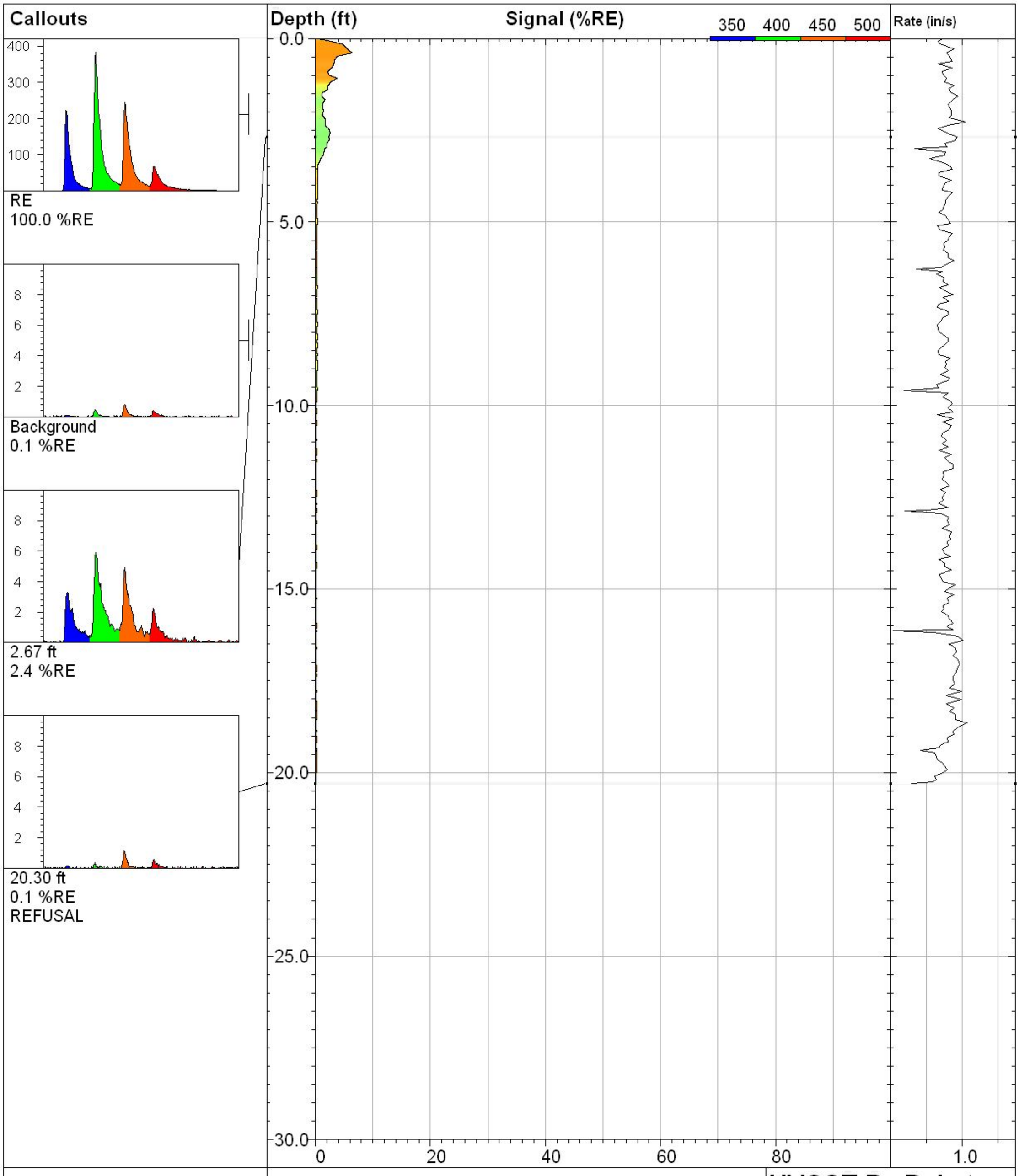


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-40

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **0.60 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **0.2 %RE @ 0.60 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 13:09 CDT**

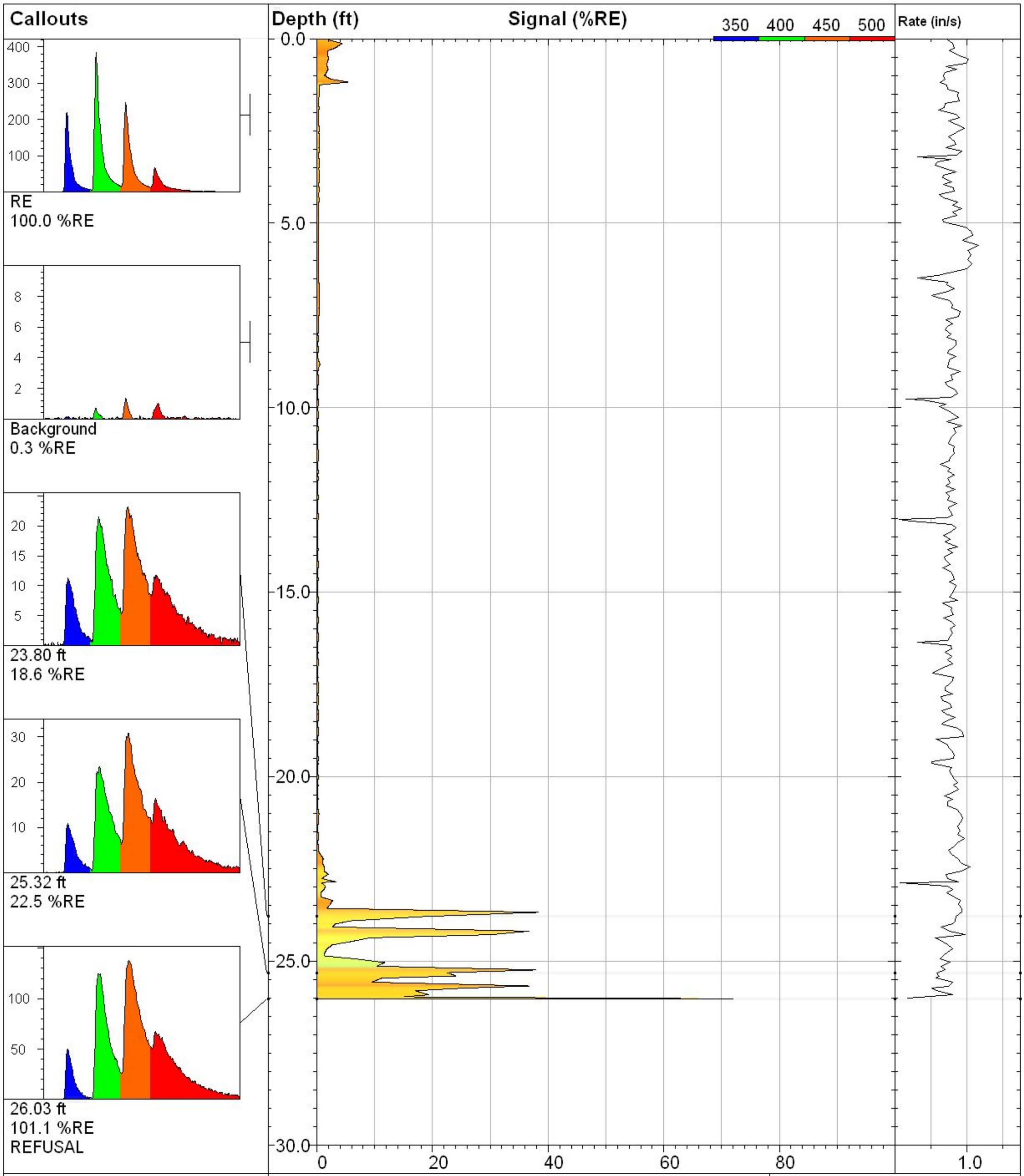


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

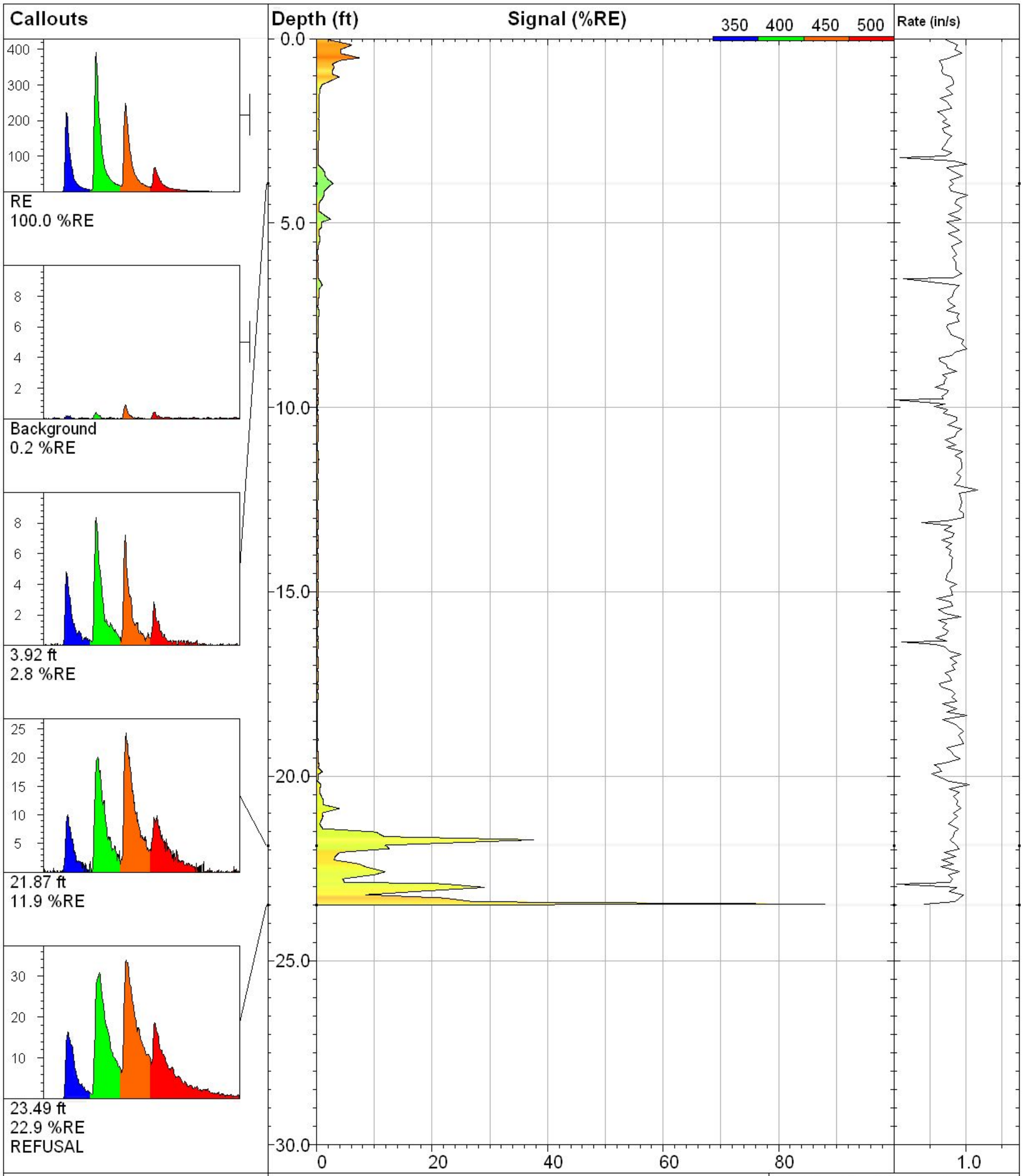
LIF-40A

UVOST By Dakota
www.DakotaTechnologies.com

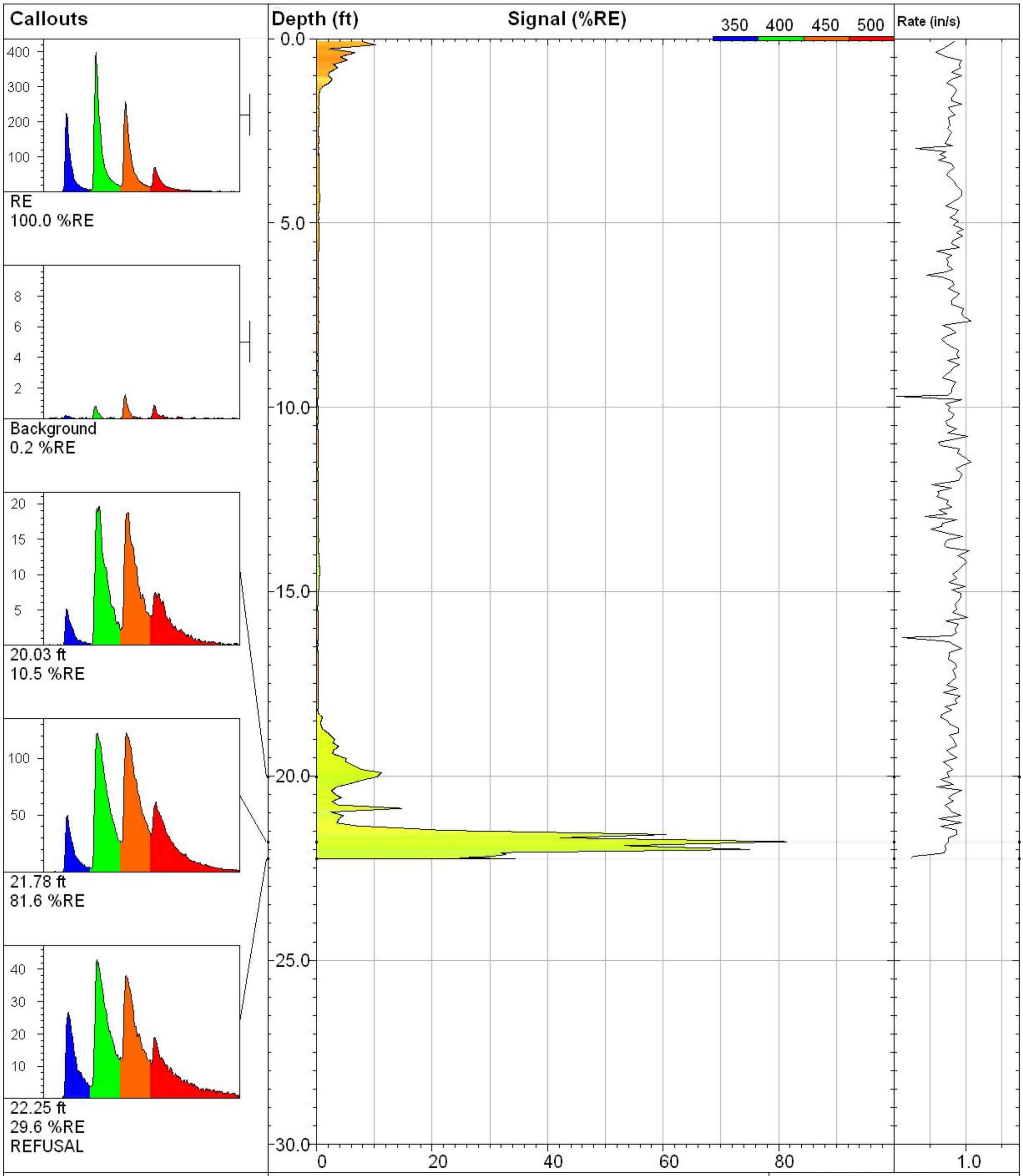
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.30 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.4 %RE @ 0.39 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 09:29 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-41**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.03 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **101.1 %RE @ 26.03 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 14:45 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-42**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.49 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **90.1 %RE @ 23.47 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 15:35 CDT**



LIF-43		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.25 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **81.6 %RE @ 21.78 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 16:26 CDT**

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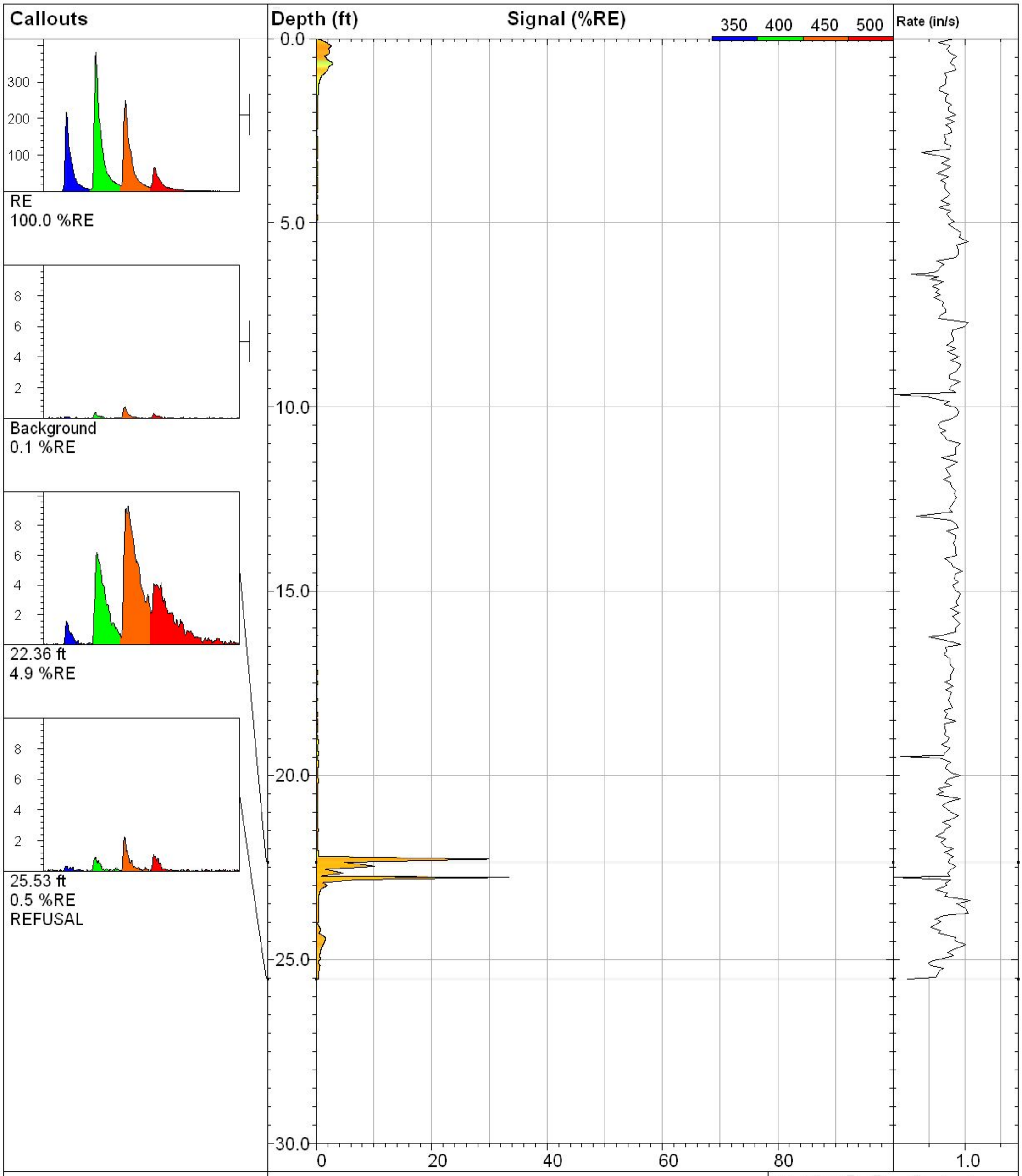
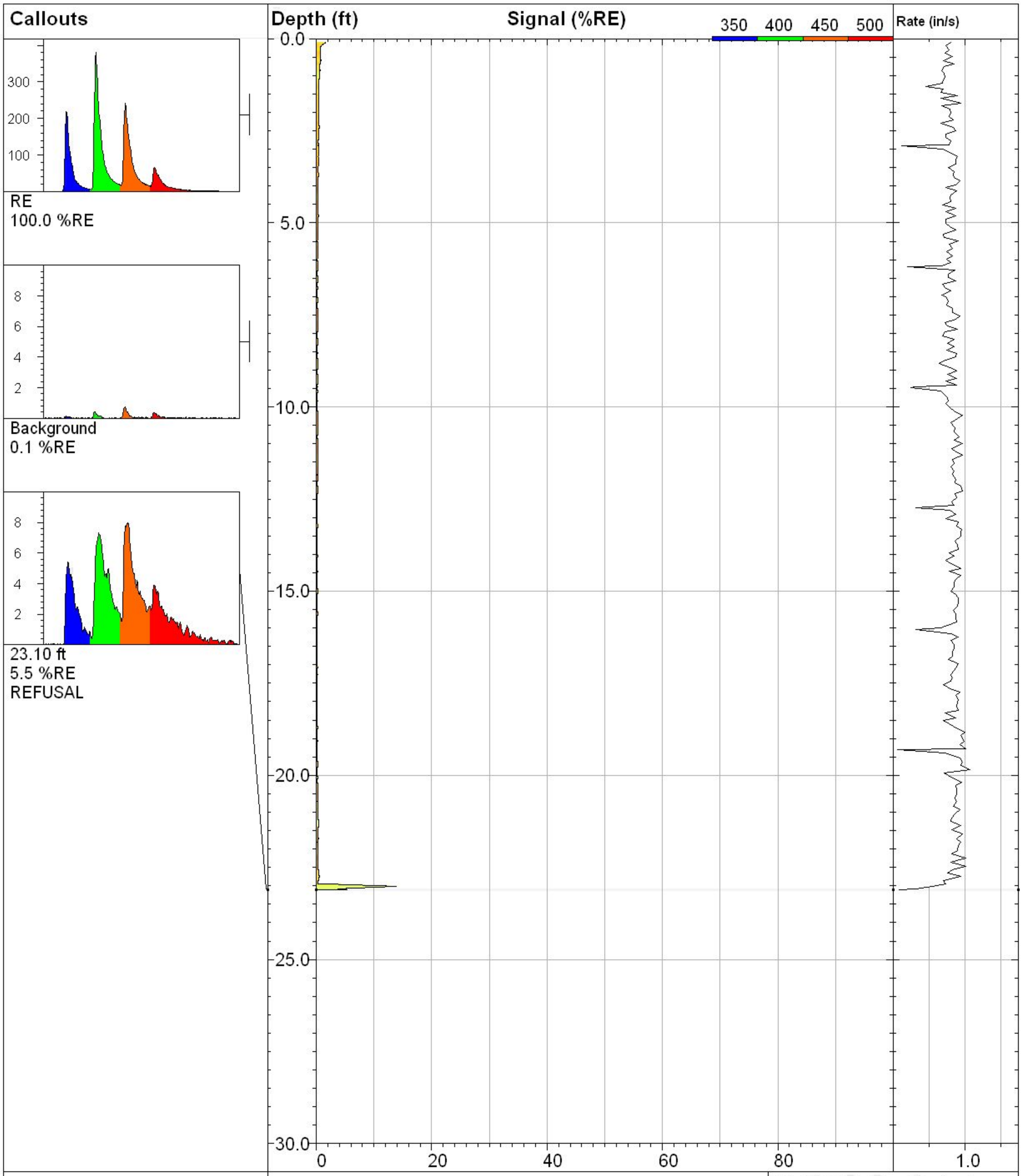
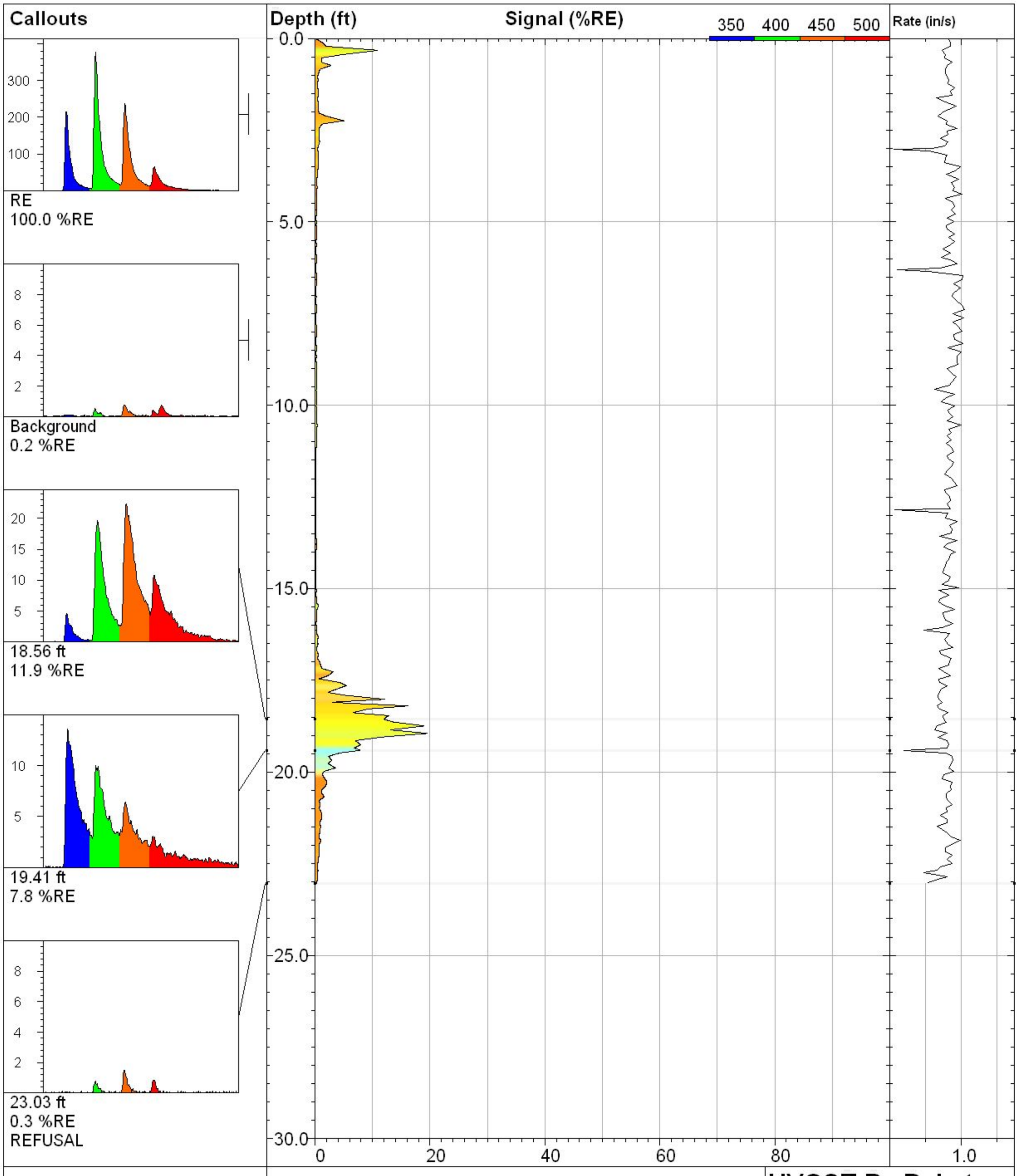
www.matrixenv.com



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-44**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.53 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **34.6 %RE @ 22.77 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 07:49 CDT**

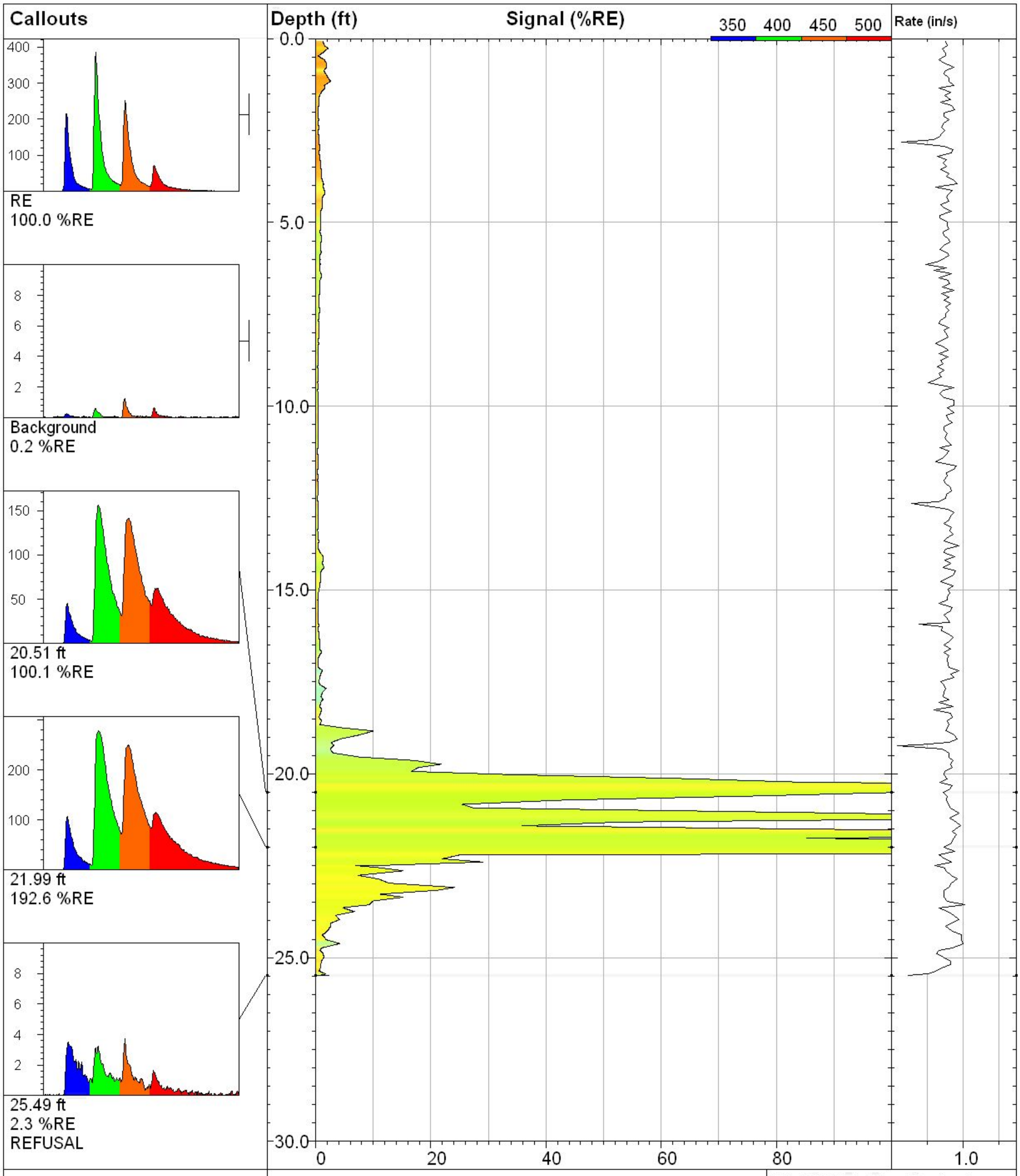


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-45**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.10 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **13.9 %RE @ 23.01 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 08:45 CDT**



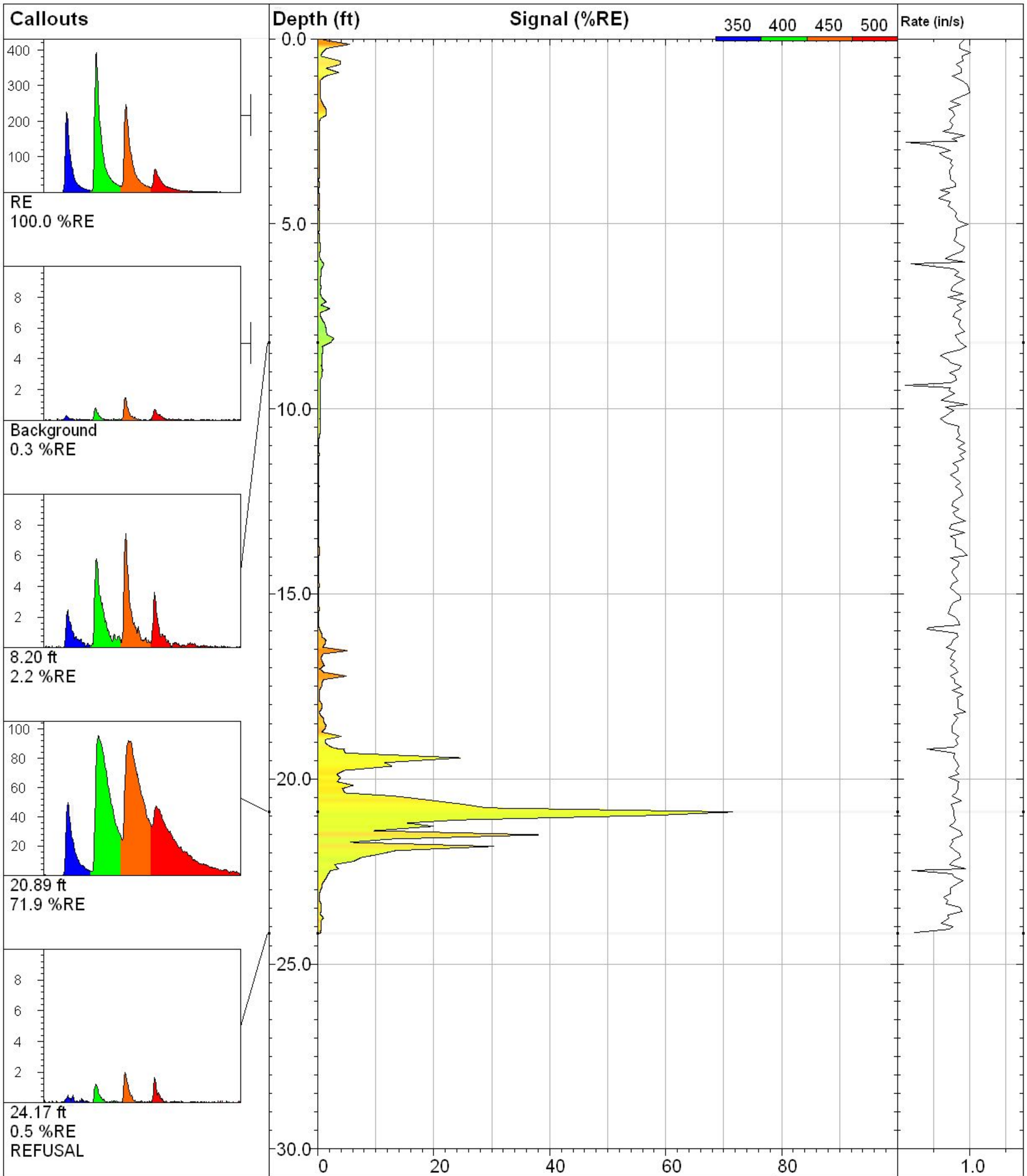
LIF-46		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.03 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **19.7 %RE @ 18.95 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 10:54 CDT**

MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

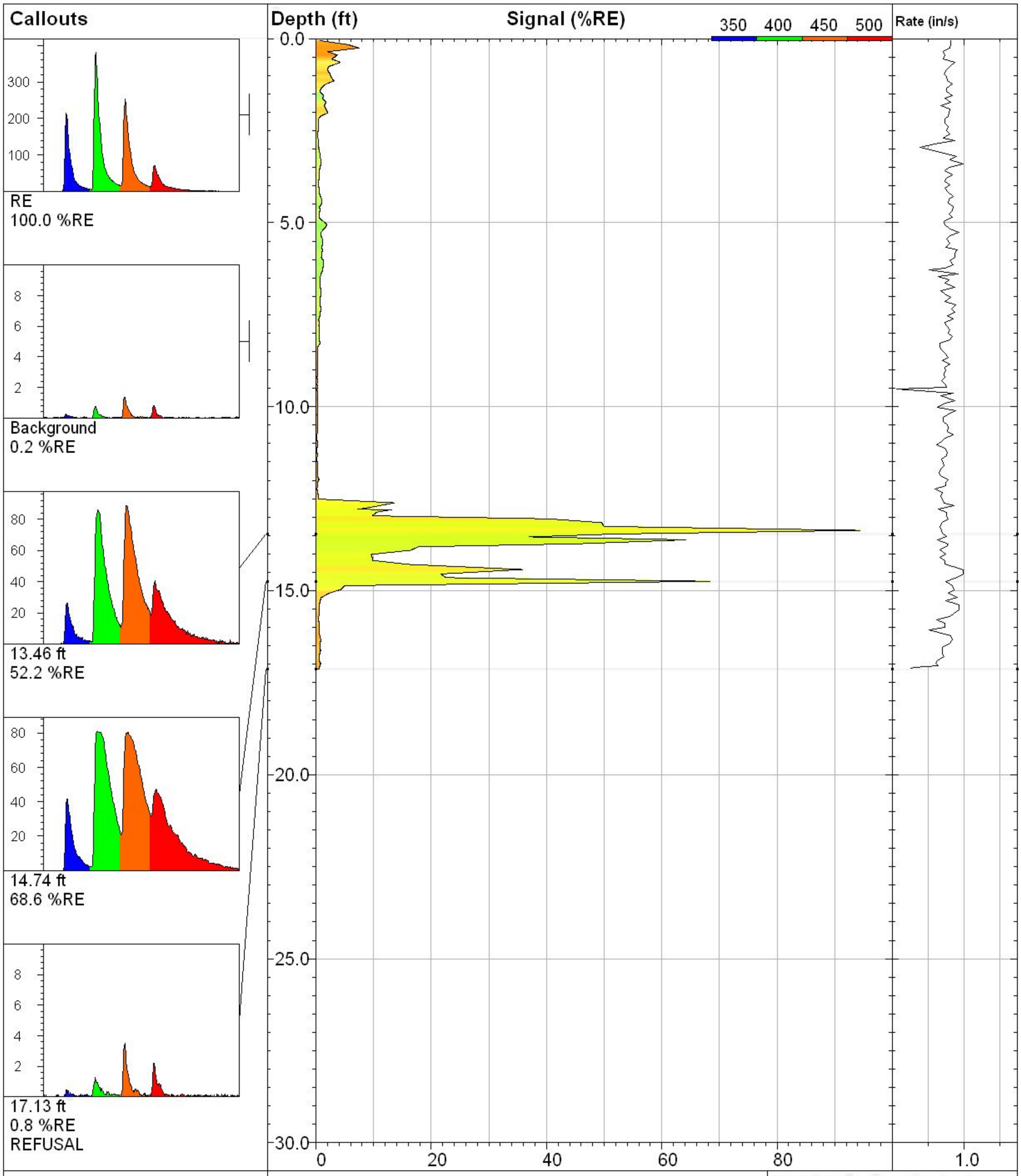


LIF-47		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.49 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **518.4 %RE @ 22.10 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 11:35 CDT**

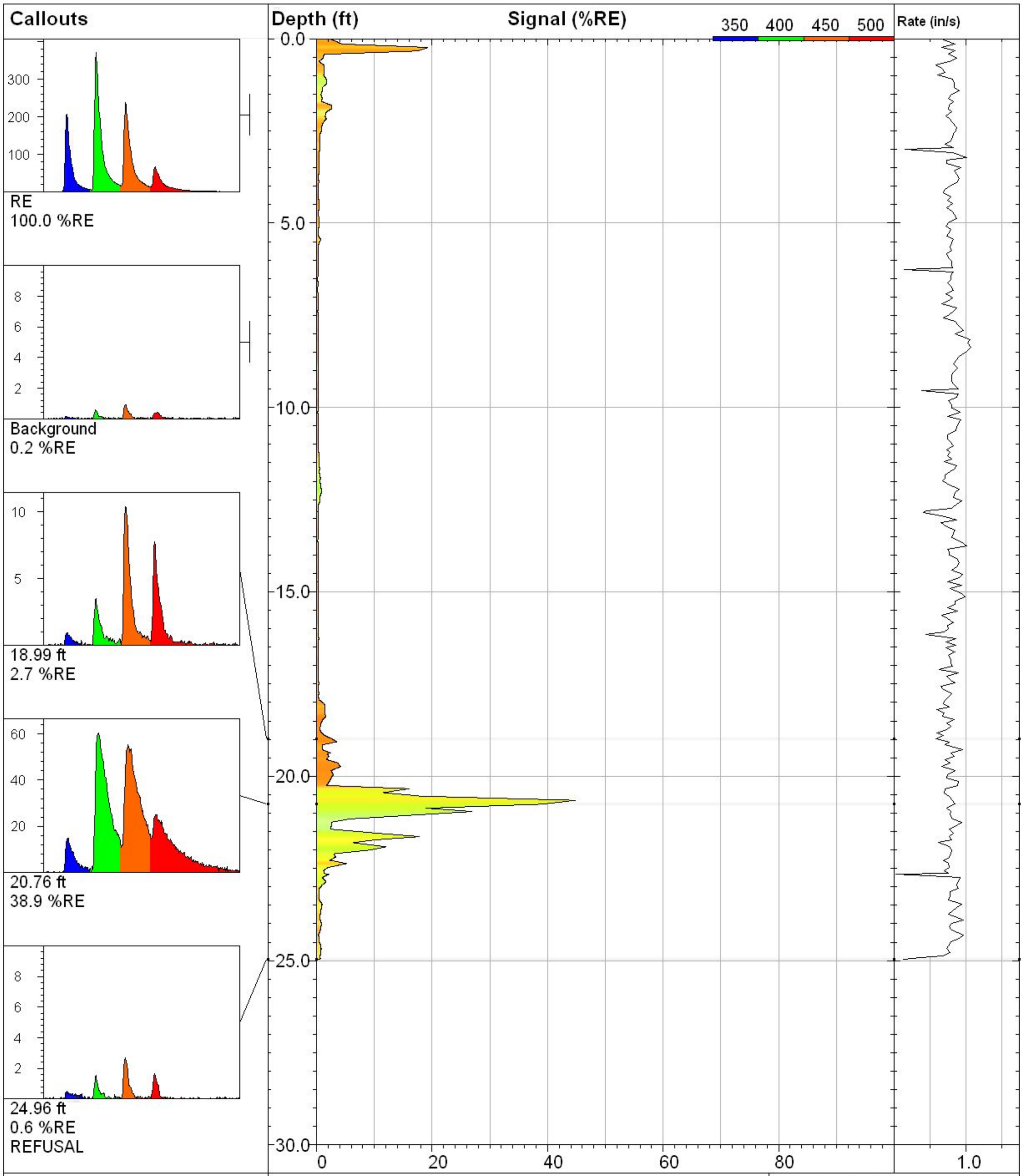
MATRIX ENVIRONMENTAL LLC
www.matrixenv.com



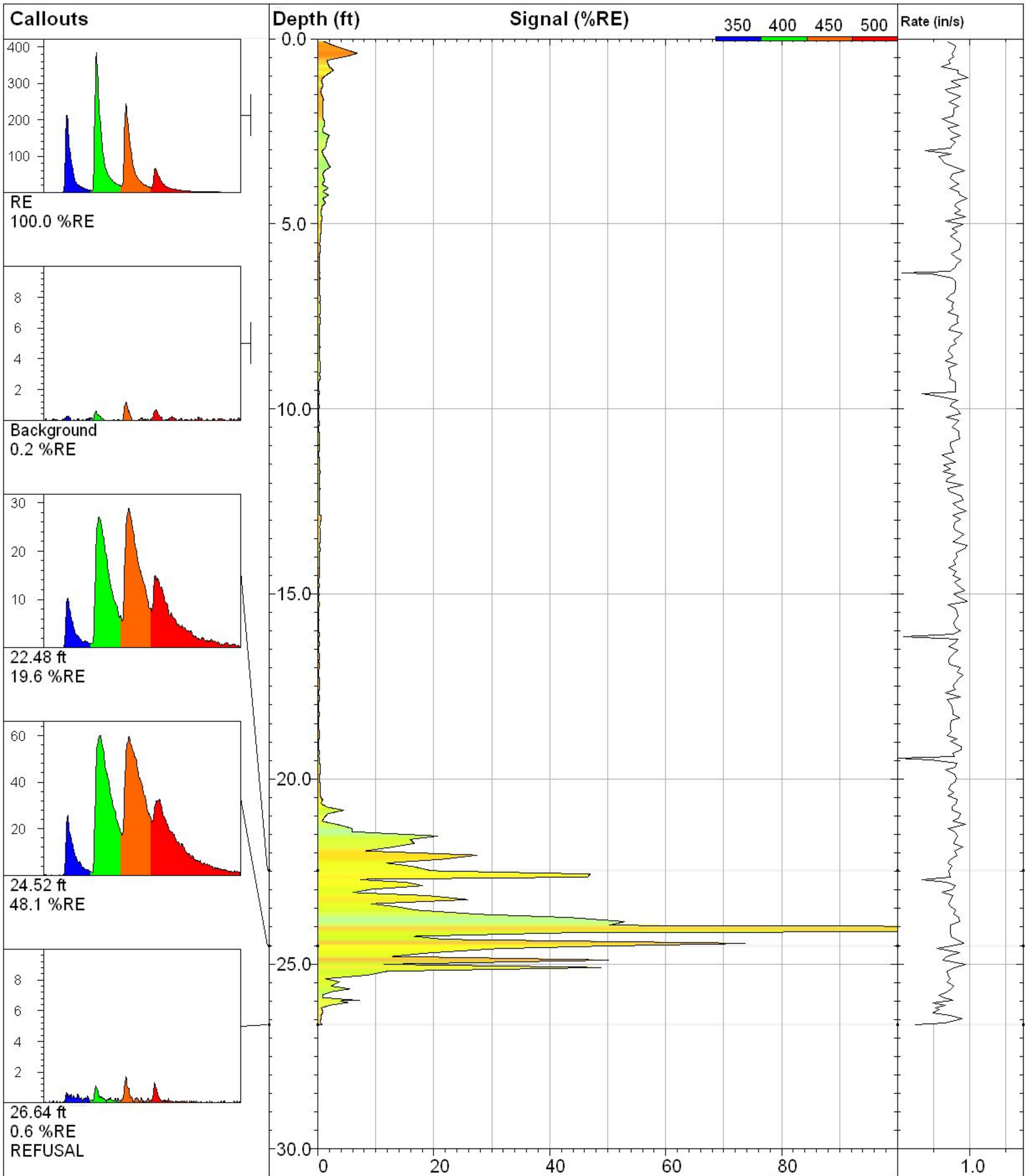
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-48**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.17 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **71.9 %RE @ 20.89 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 13:18 CDT**



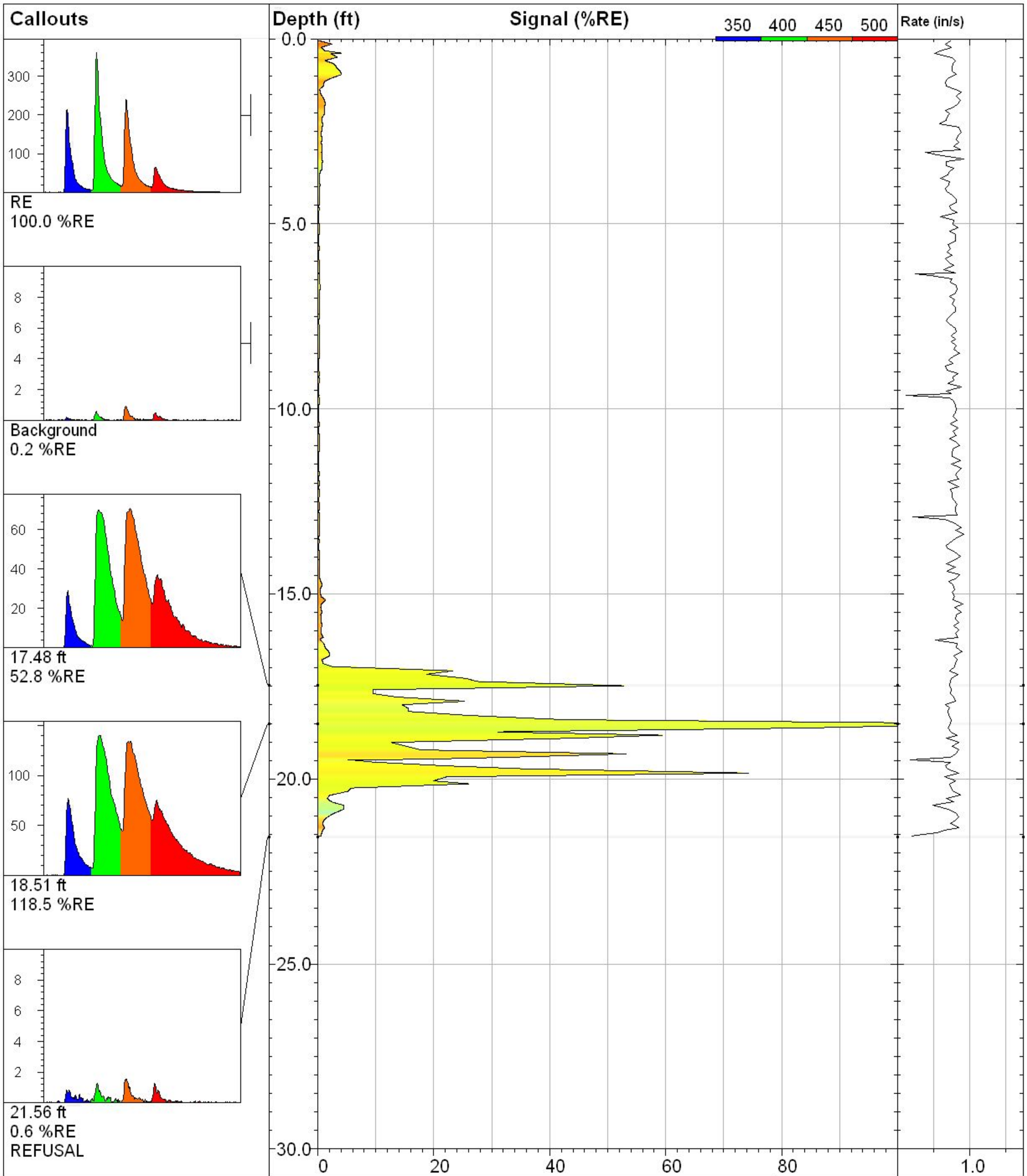
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-49**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.13 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **95.0 %RE @ 13.36 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 14:05 CDT**



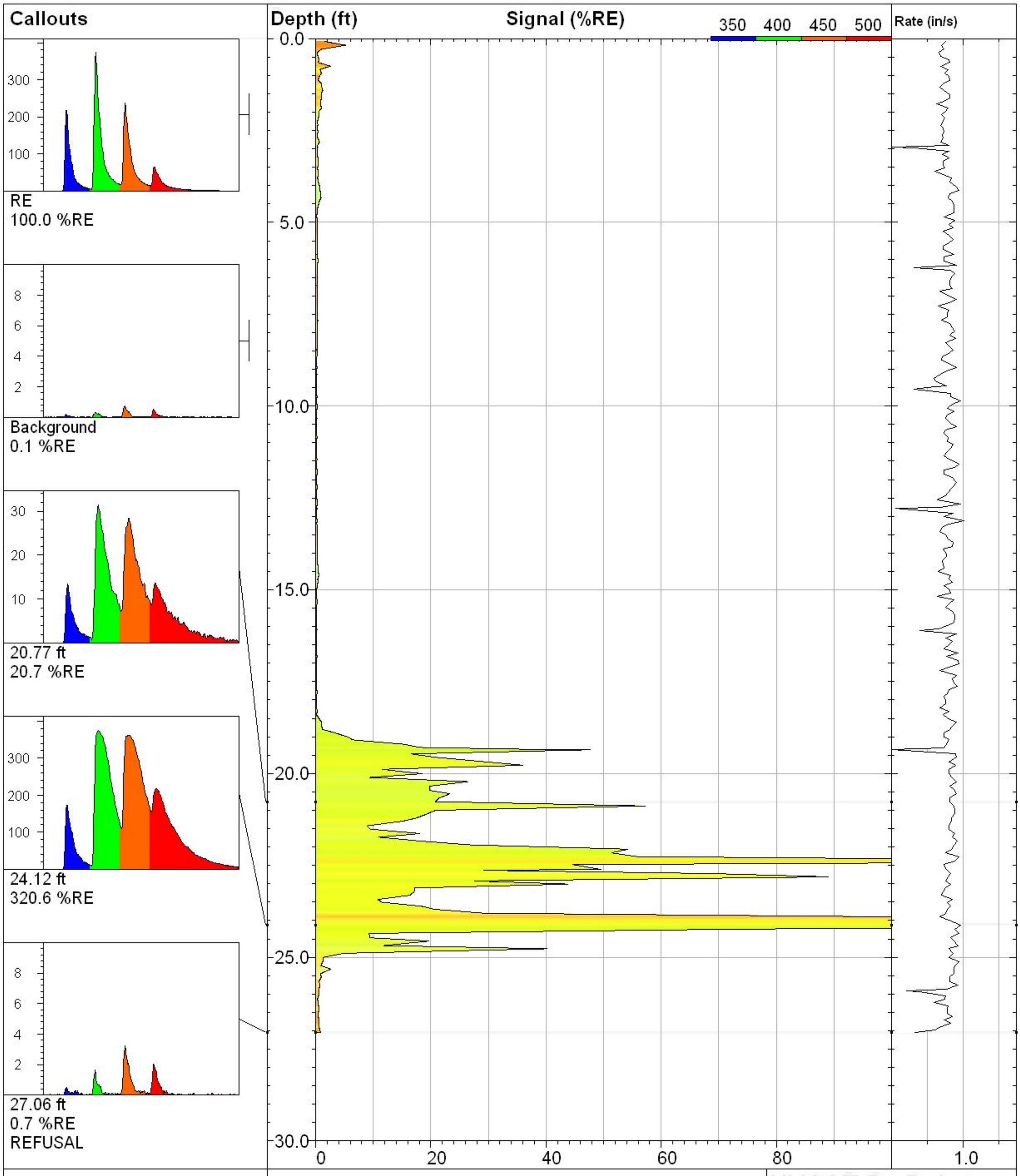
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-50**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.96 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **44.8 %RE @ 20.66 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 15:39 CDT**



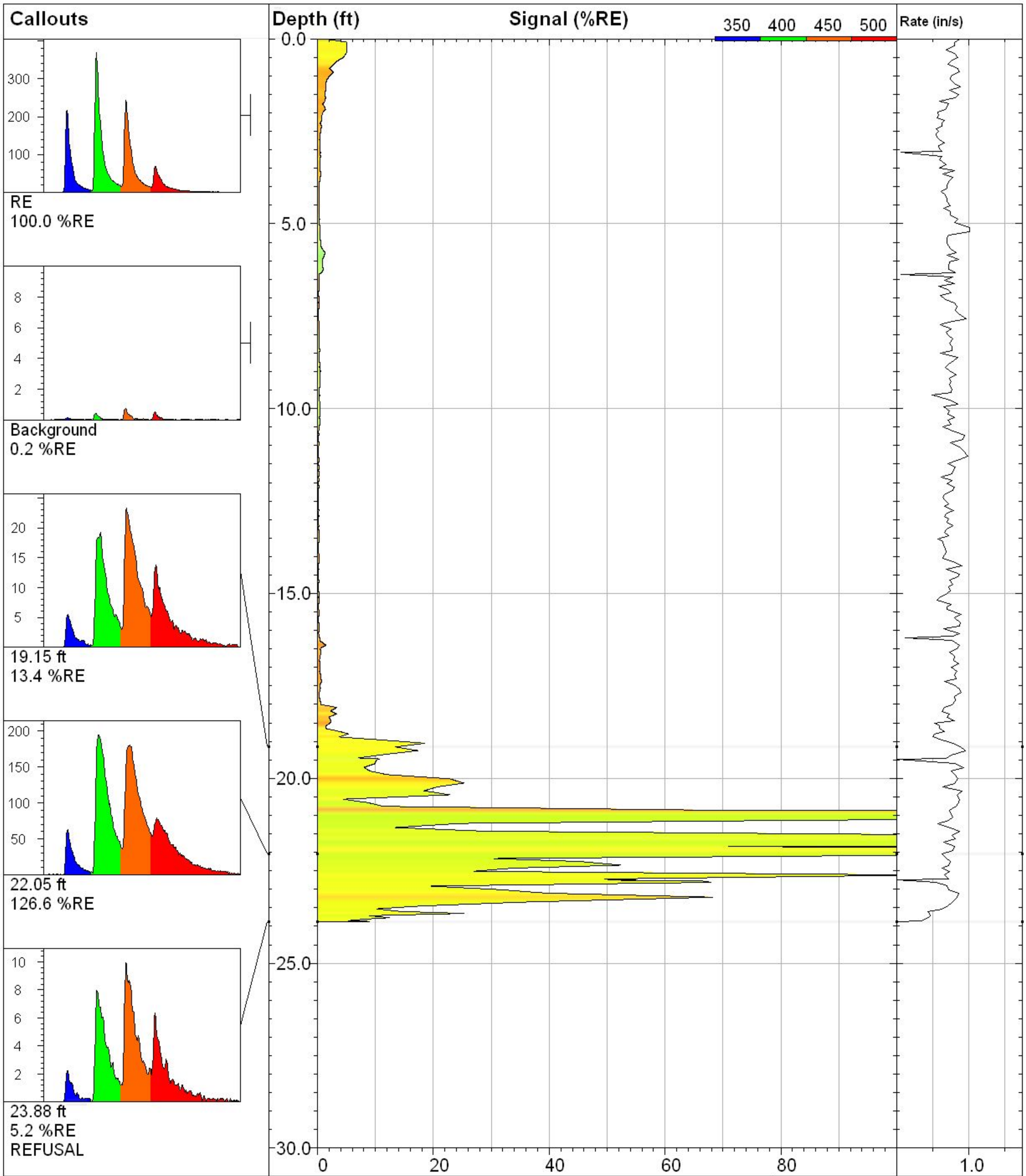
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-51**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.64 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **242.7 %RE @ 24.05 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 16:19 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-52**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.56 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **118.5 %RE @ 18.51 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 08:02 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-53**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **27.06 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **320.6 %RE @ 24.11 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 08:48 CDT**

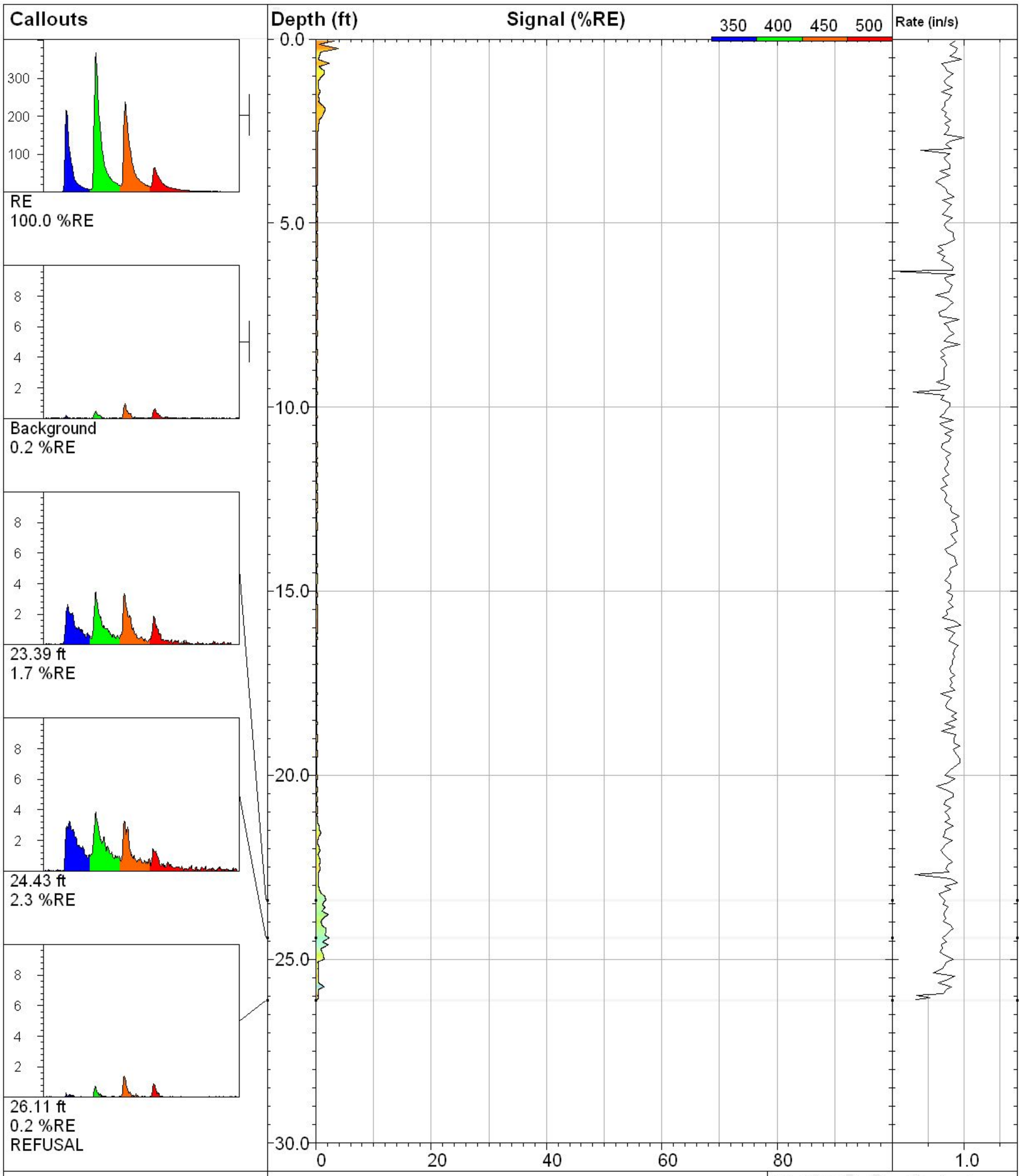


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

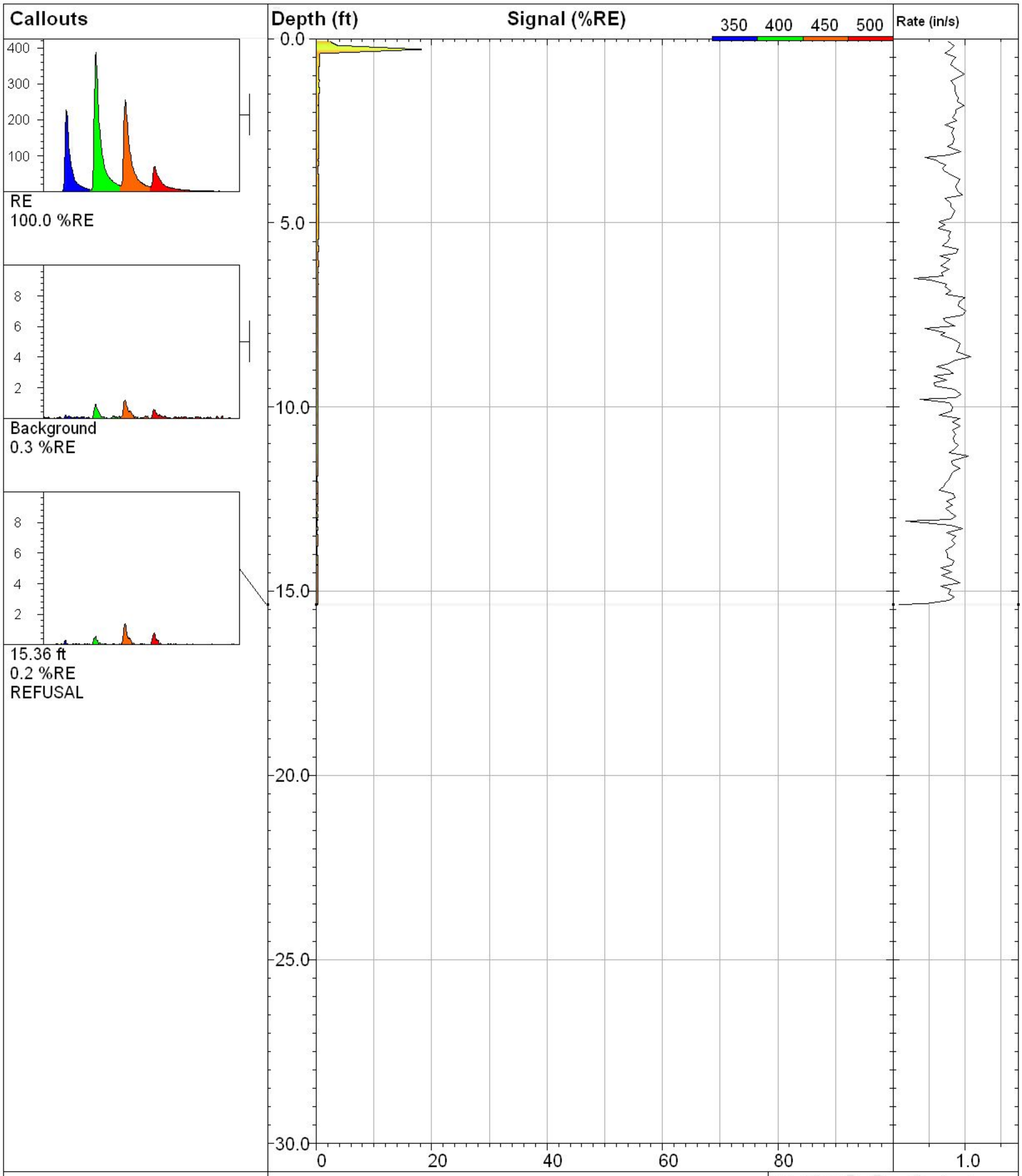
LIF-54

UVOST By Dakota
www.DakotaTechnologies.com

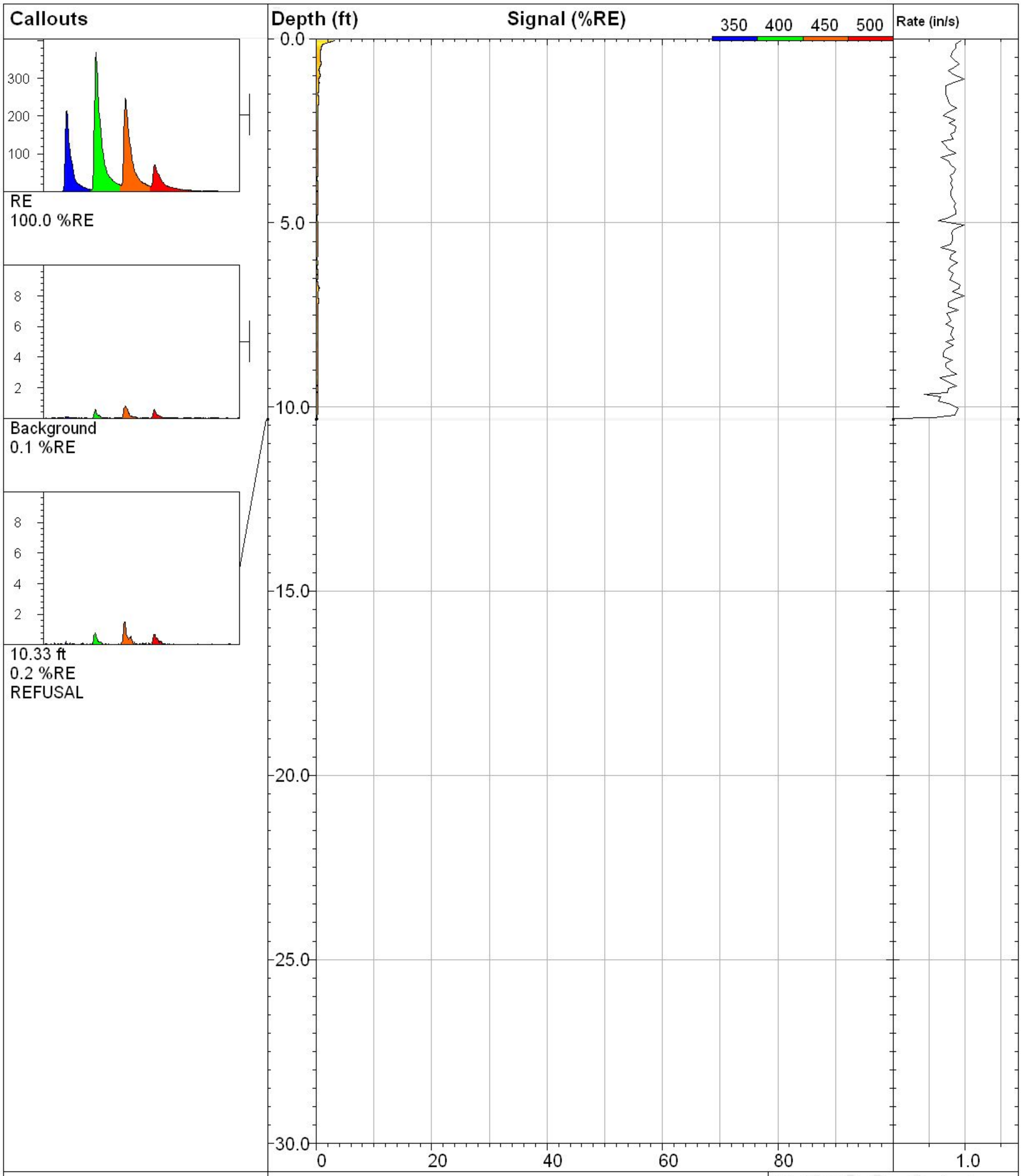
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.88 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **388.2 %RE @ 21.63 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 10:07 CDT**



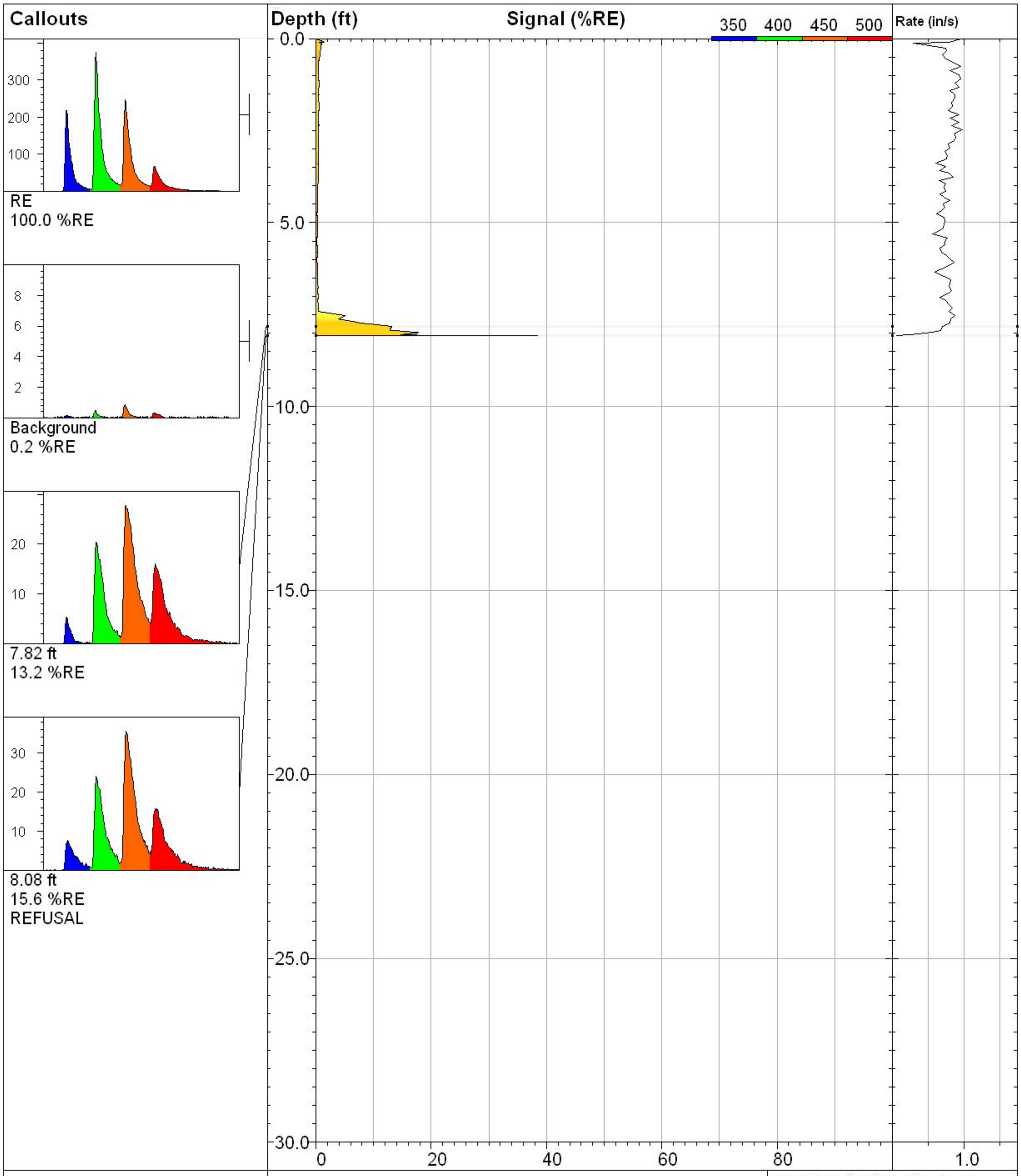
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-55**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.11 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.9 %RE @ 0.26 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 10:55 CDT**



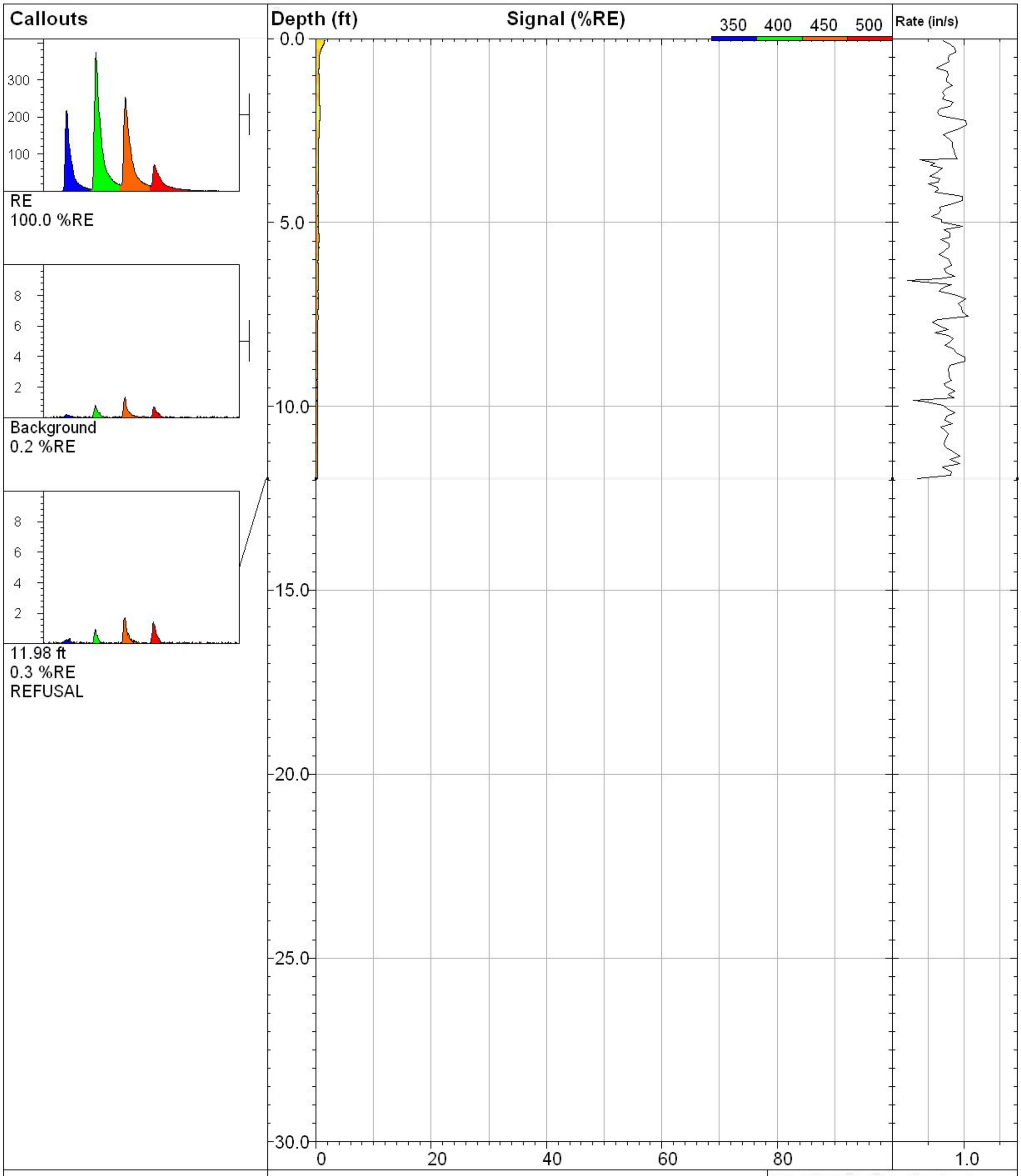
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-56**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **15.36 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **18.5 %RE @ 0.29 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 13:12 CDT**



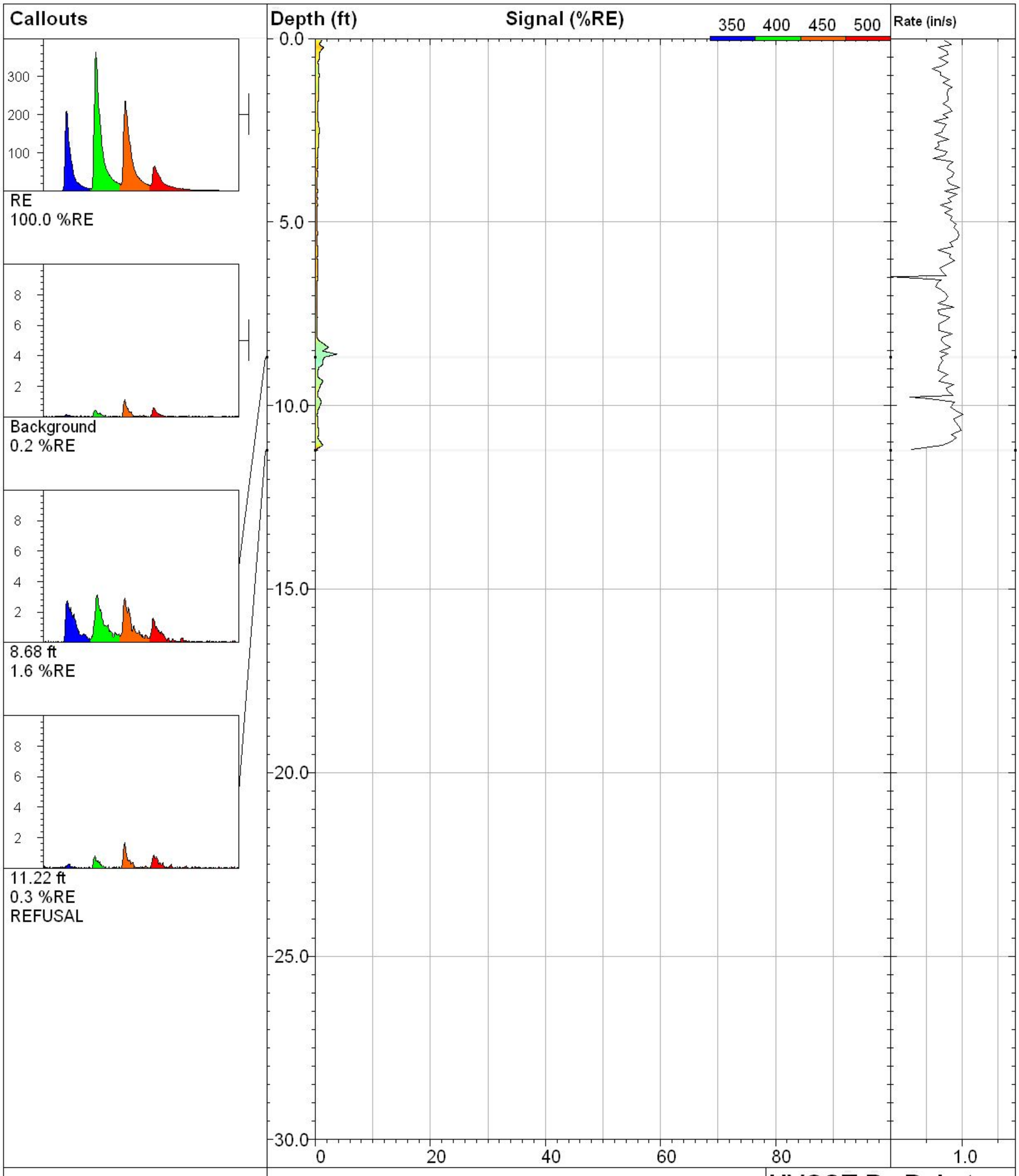
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-57**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **10.33 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.1 %RE @ 0.06 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 13:46 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-58**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **8.08 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **42.2 %RE @ 8.07 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 14:15 CDT**

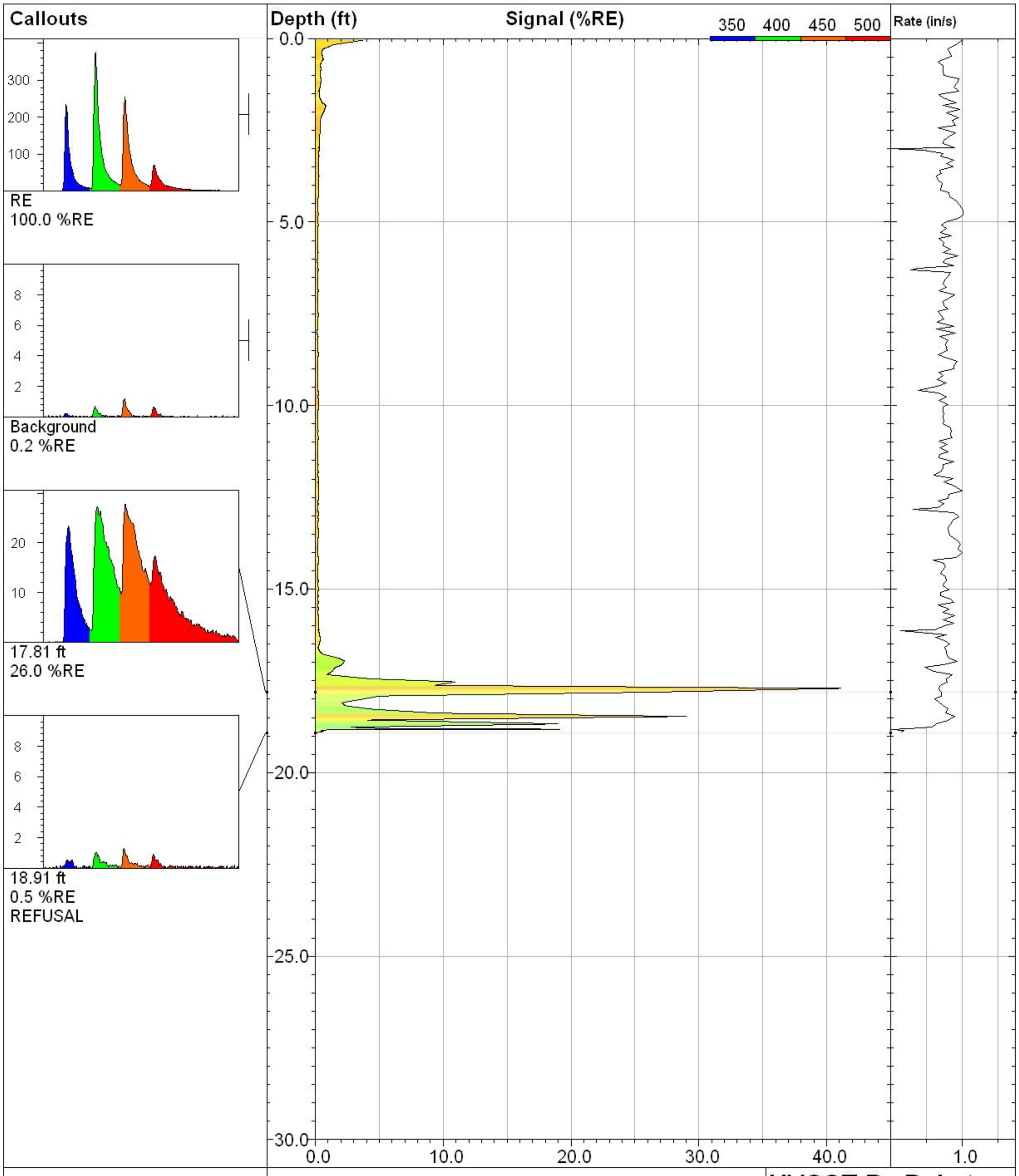


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-59**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **11.98 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **1.5 %RE @ 0.05 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 14:42 CDT**

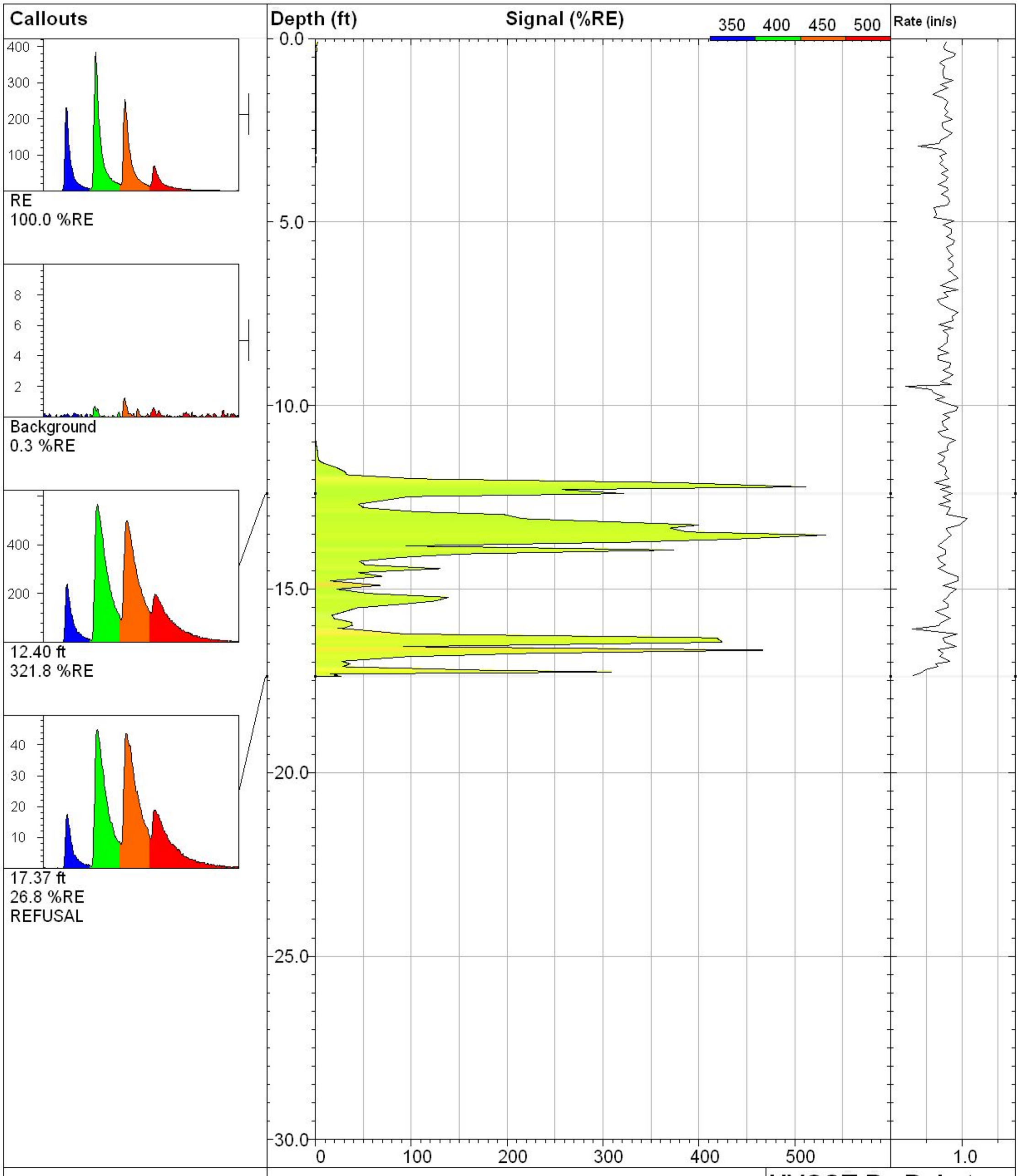


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-60**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **11.21 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.7 %RE @ 8.60 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 15:09 CDT**

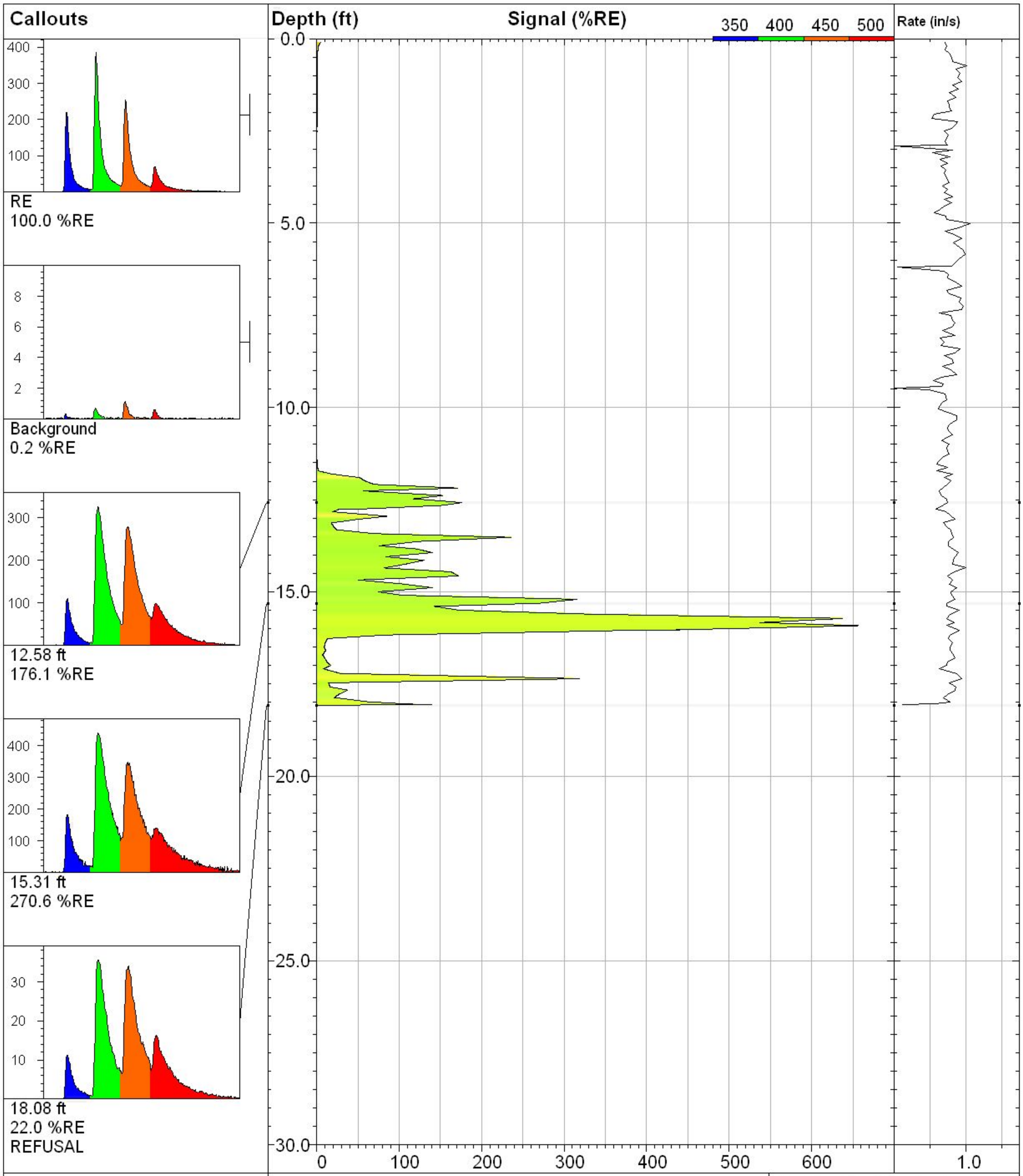
UVOST LOGS
@ Best Fit Scale



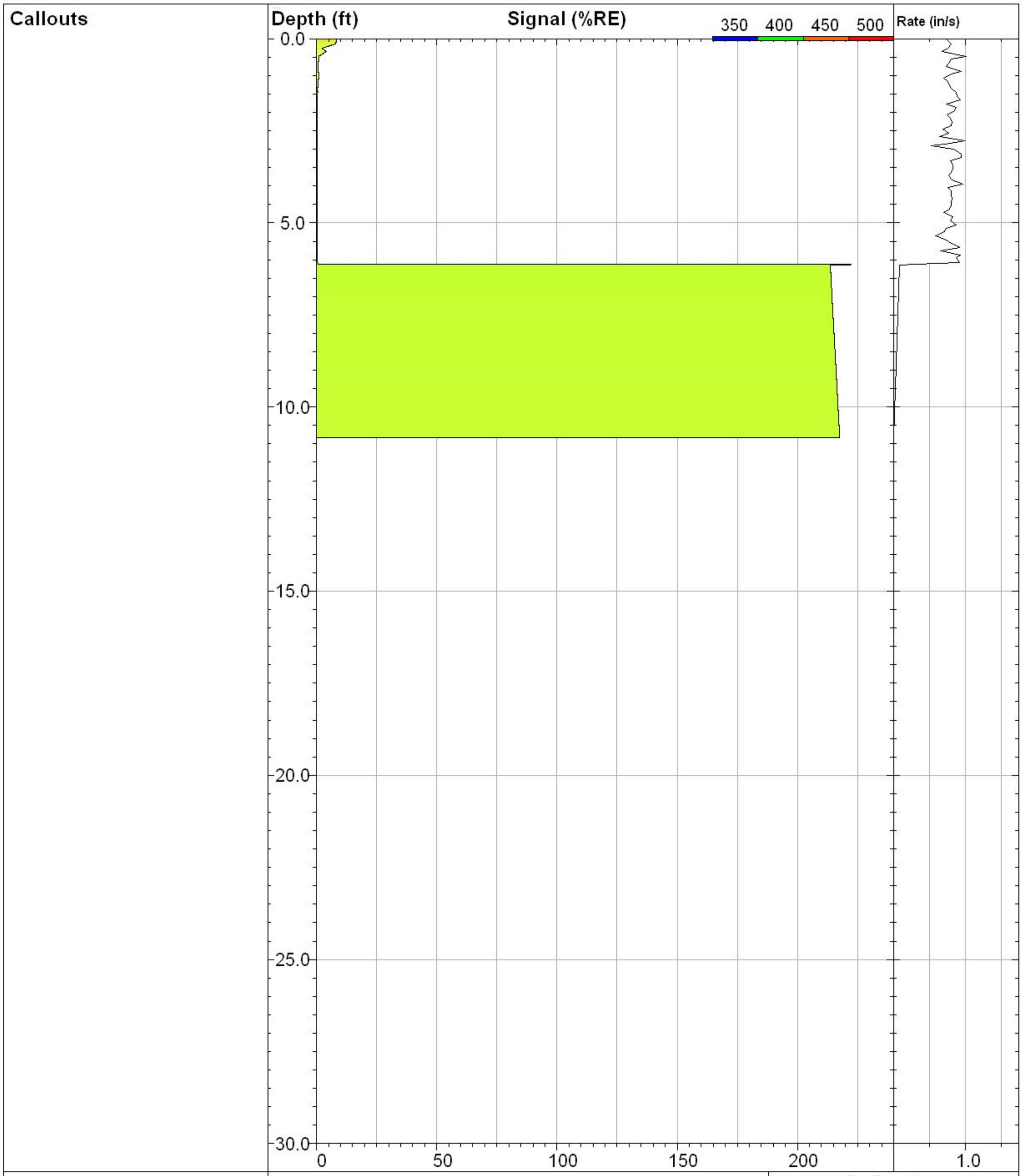
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-1**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.91 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **41.3 %RE @ 17.71 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 08:20 CDT**



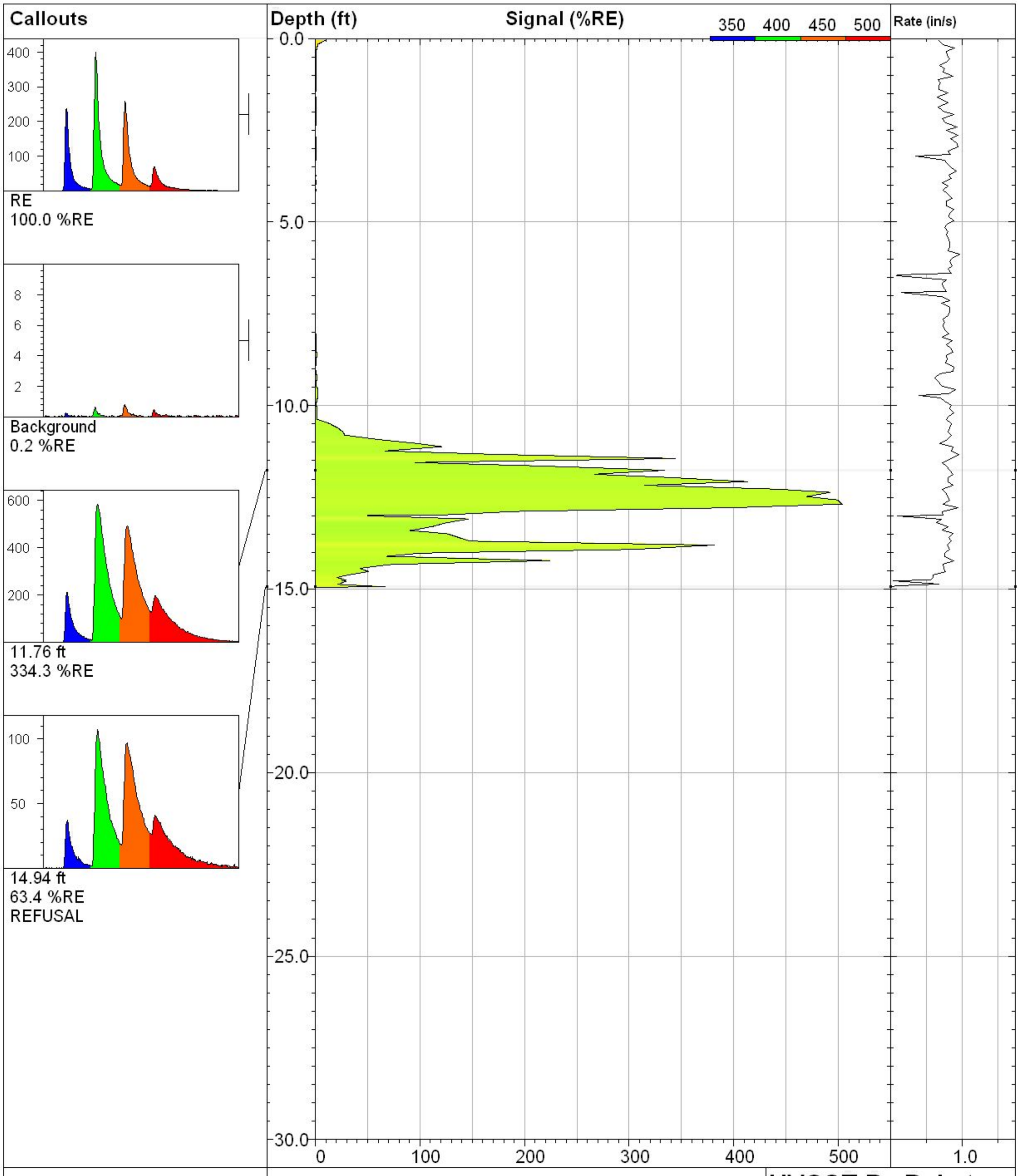
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-2**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.37 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **532.5 %RE @ 13.53 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 09:03 CDT**



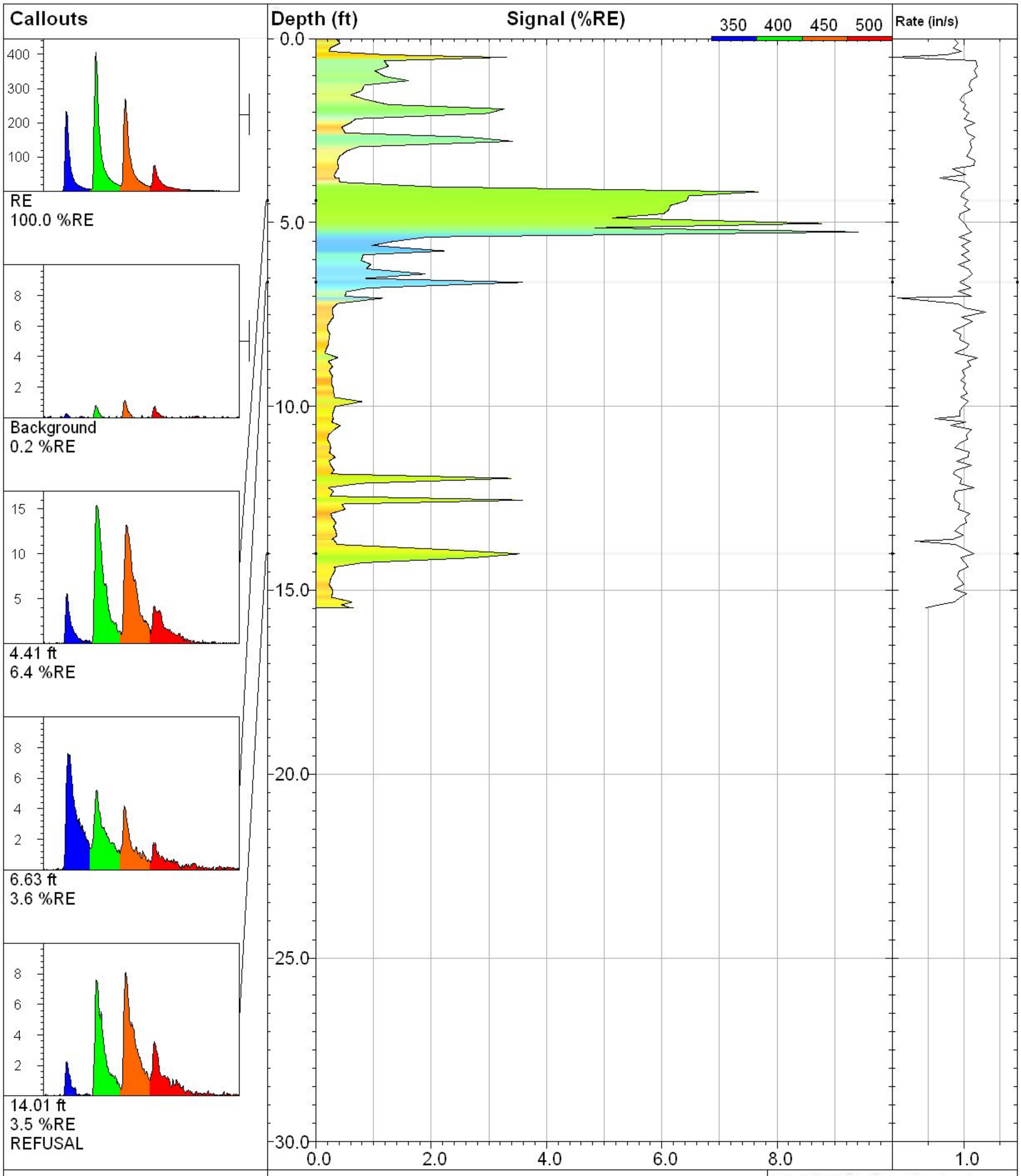
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-3**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.08 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **659.6 %RE @ 15.91 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 09:39 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-4**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **10.83 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **222.7 %RE @ 6.13 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 11:20 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-4A**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.94 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **503.7 %RE @ 12.68 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 12:00 CDT**

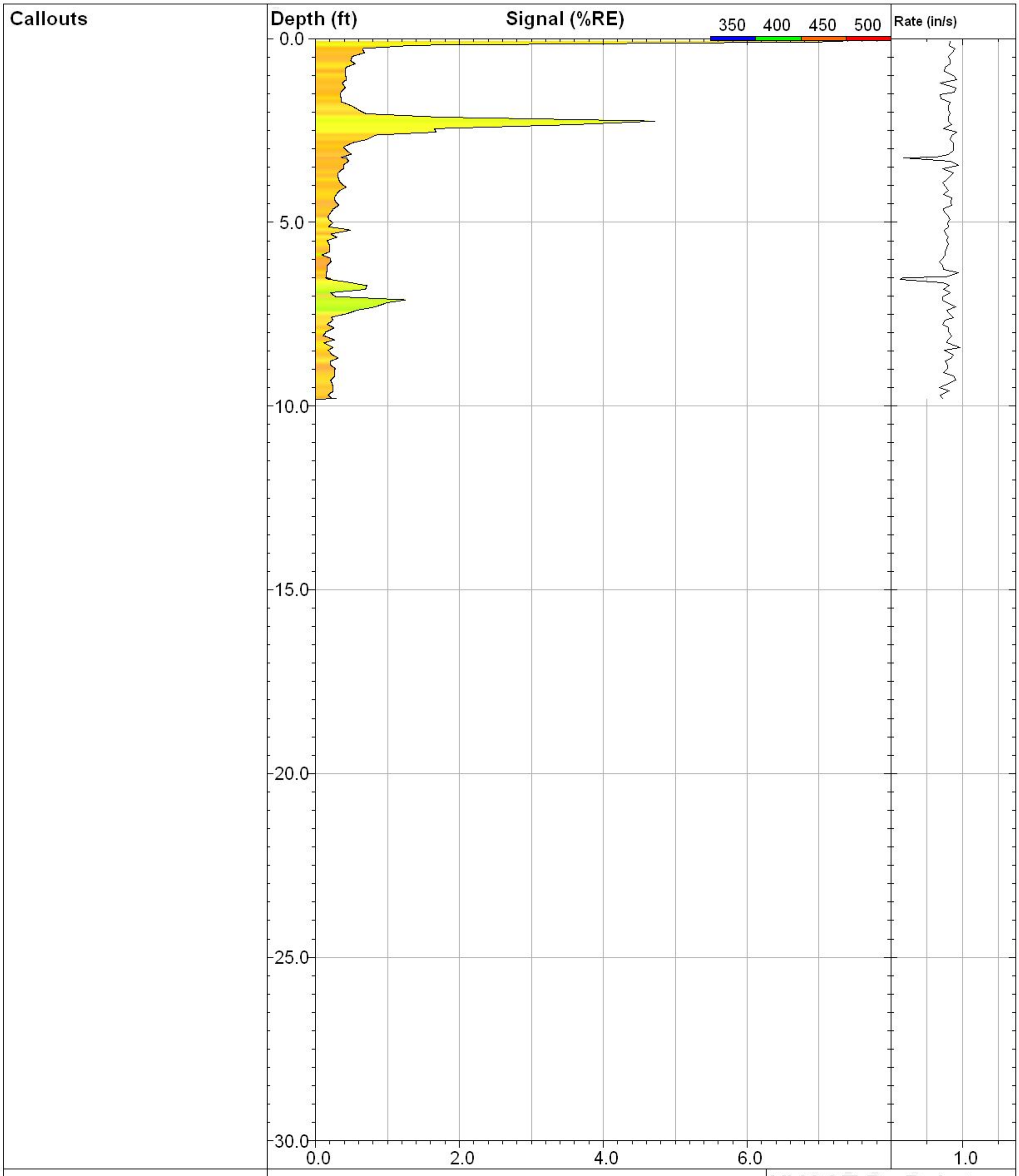


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

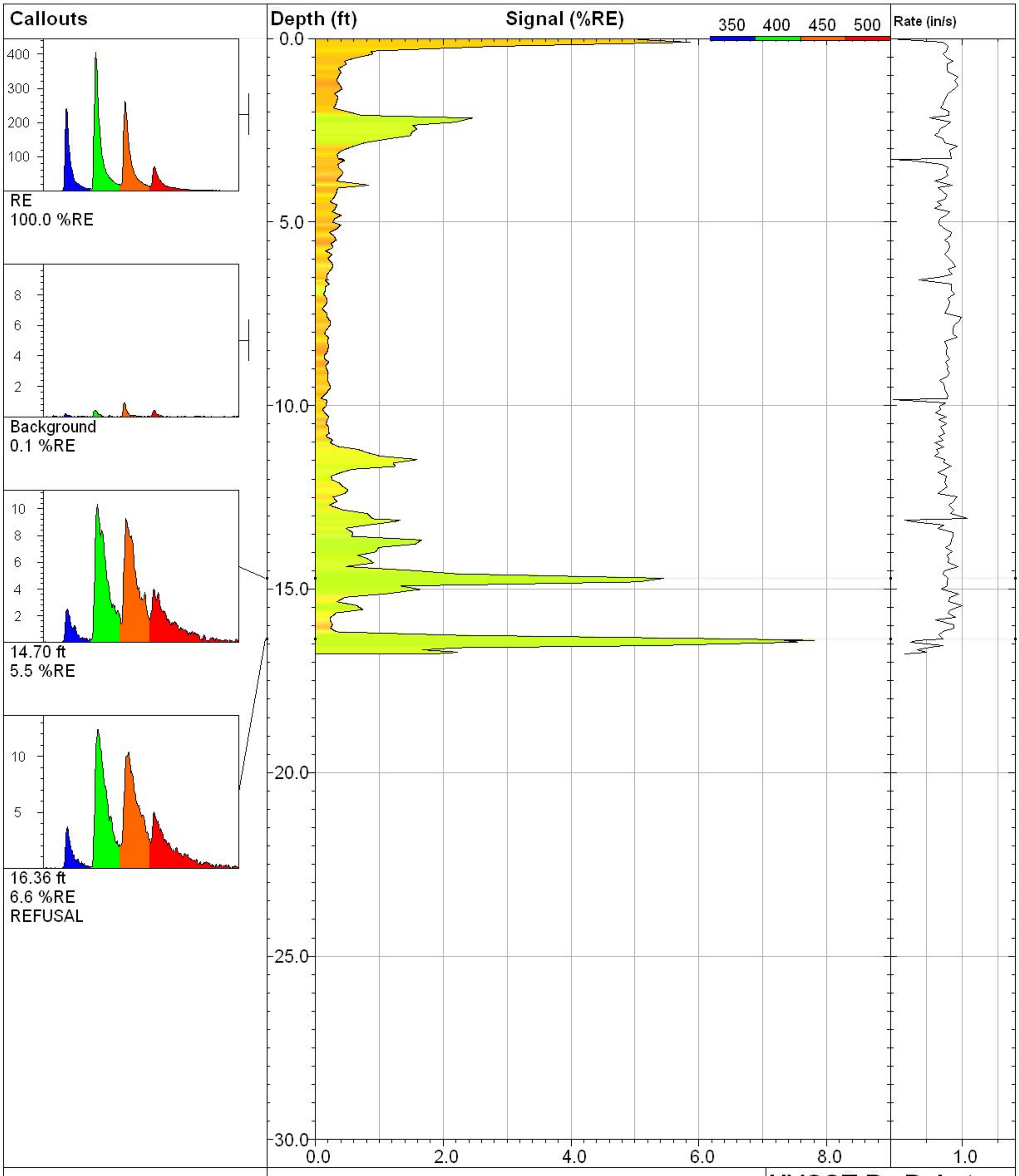
LIF-5

UVOST By Dakota
www.DakotaTechnologies.com

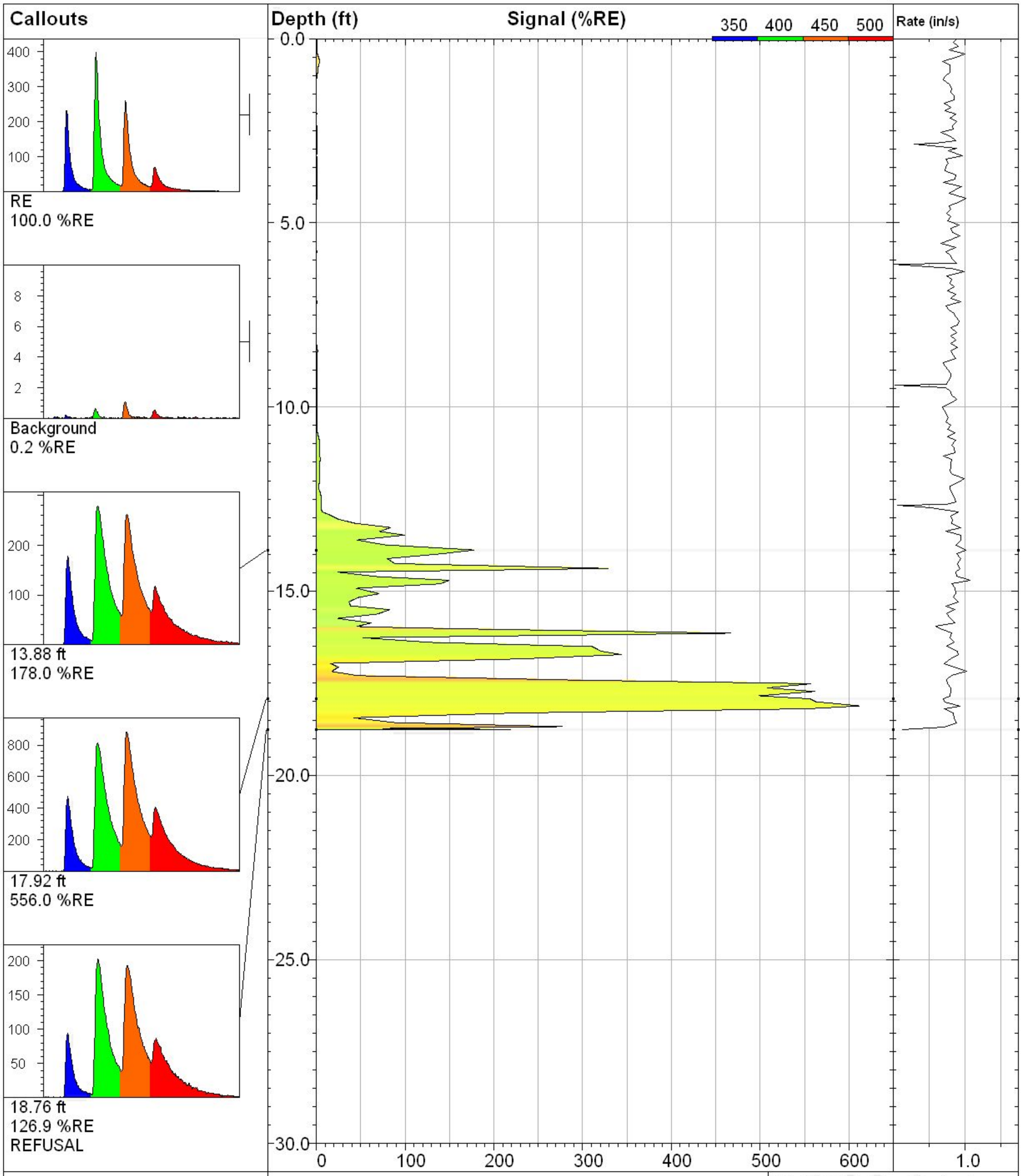
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **15.47 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **9.4 %RE @ 5.26 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 13:26 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-6**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **9.80 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.3 %RE @ 0.08 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 14:18 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-6B**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.77 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.9 %RE @ 16.40 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 15:58 CDT**

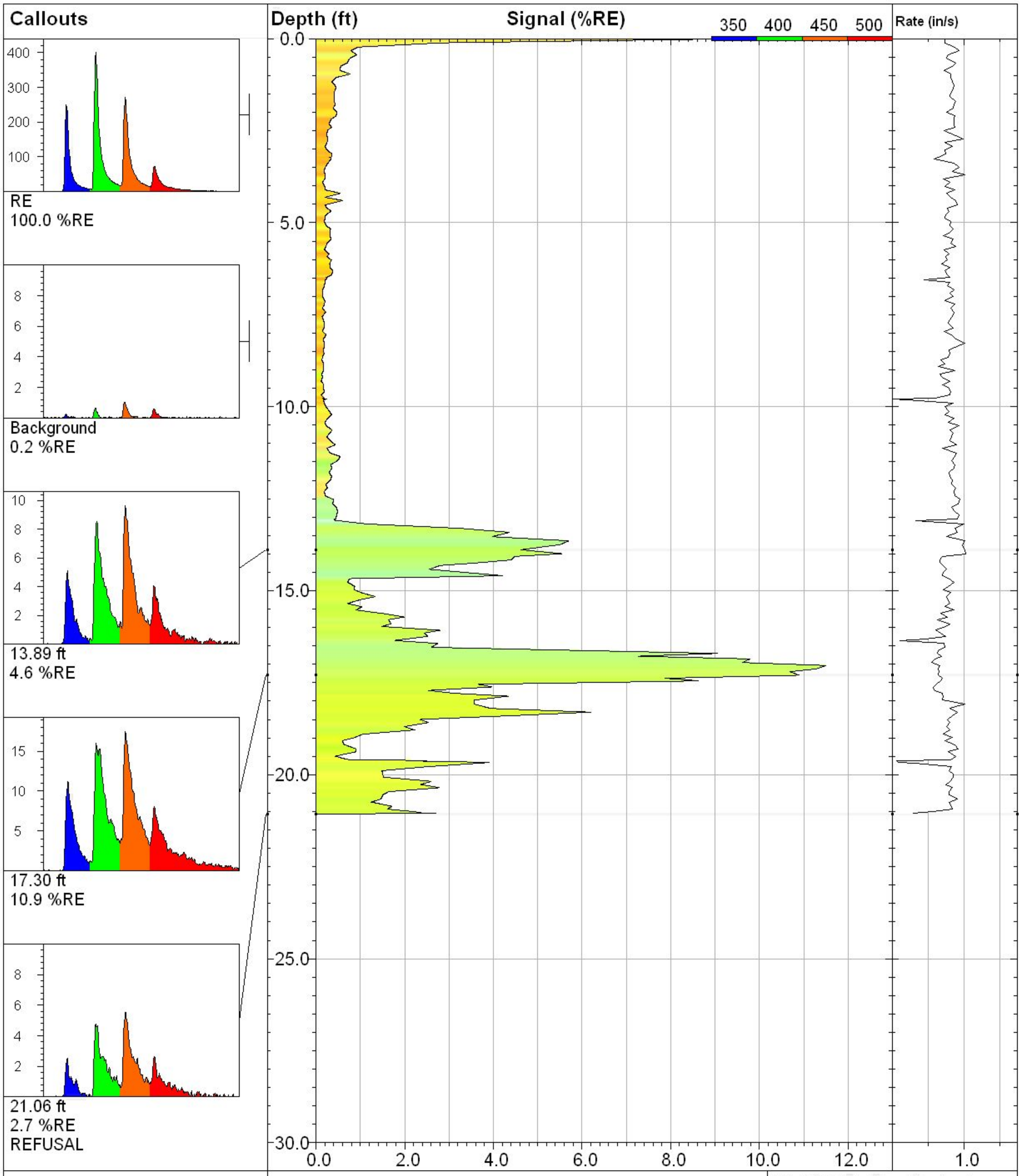


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-7

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.76 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **612.3 %RE @ 18.12 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-23 16:35 CDT**

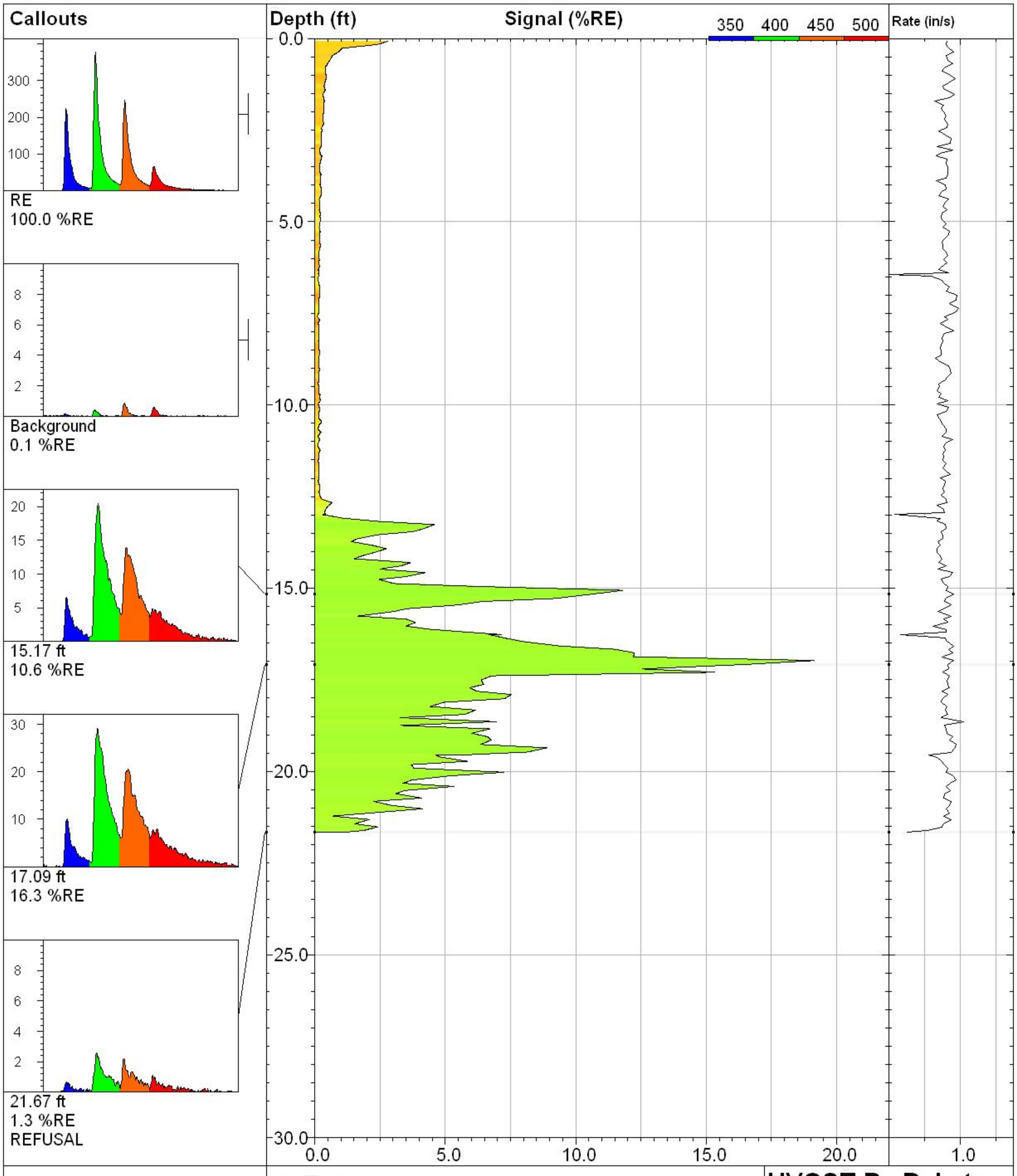


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-8

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.06 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **11.5 %RE @ 17.03 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 07:33 CDT**

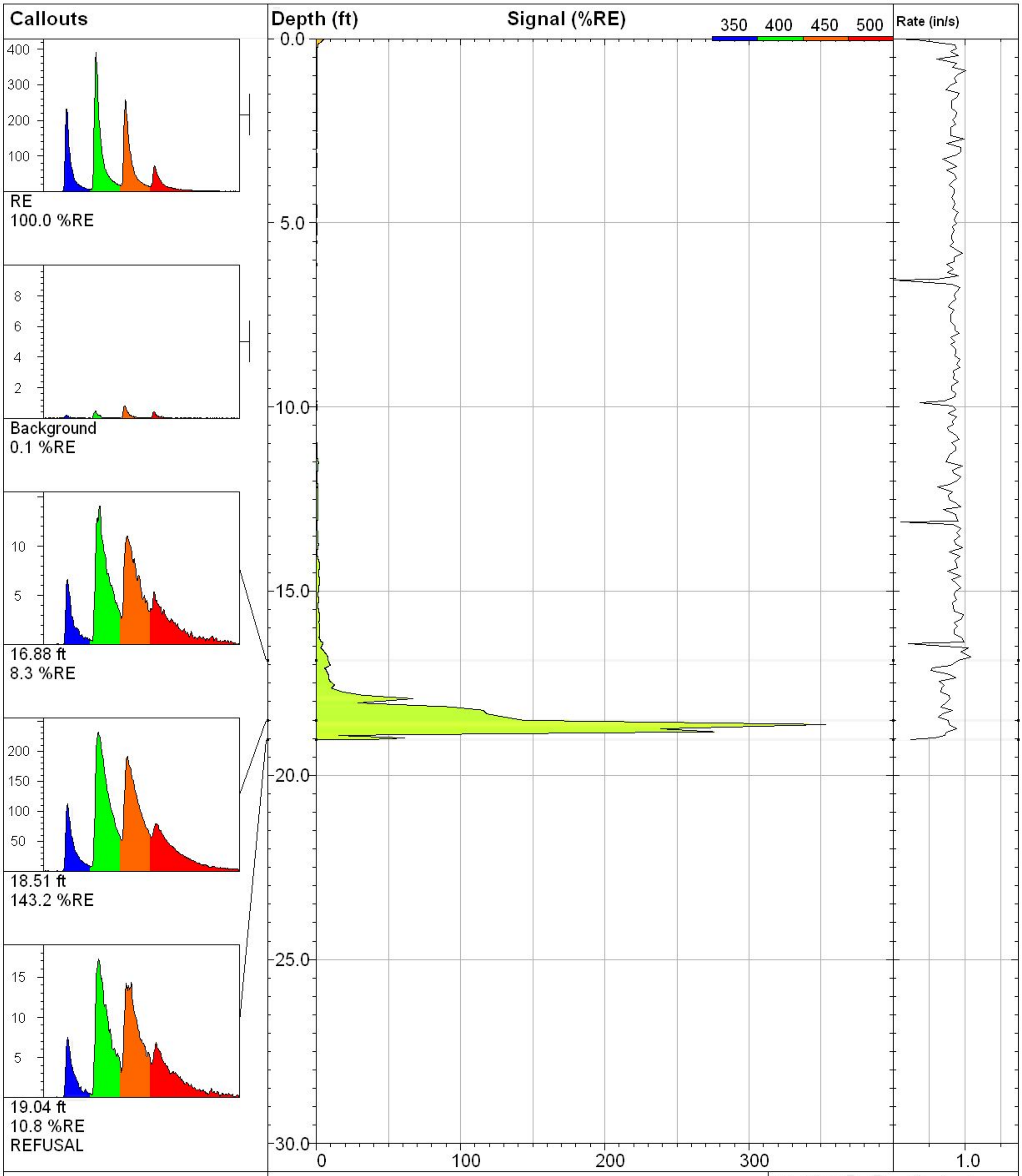


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

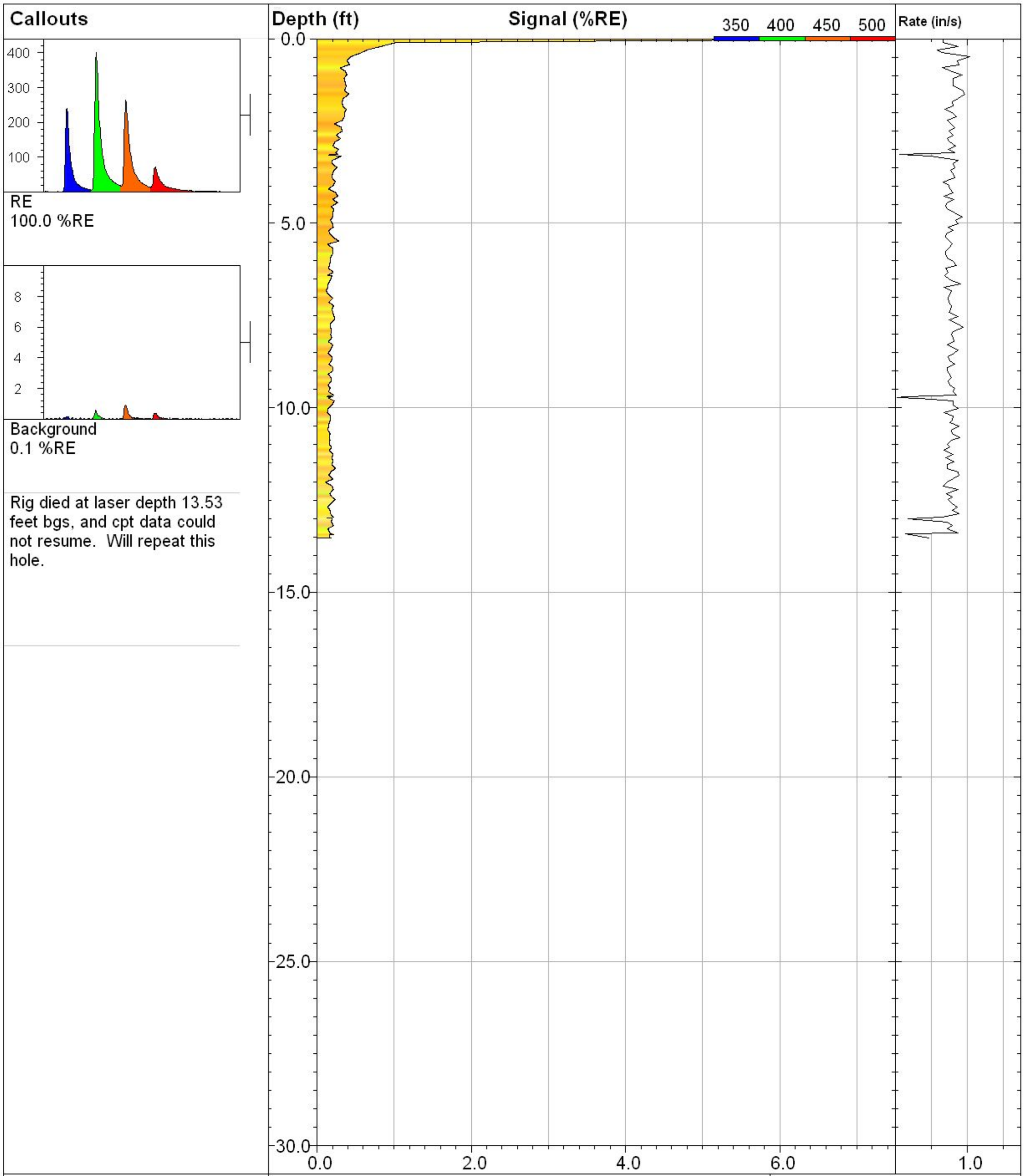
LIF-9

UVOST By Dakota
www.DakotaTechnologies.com

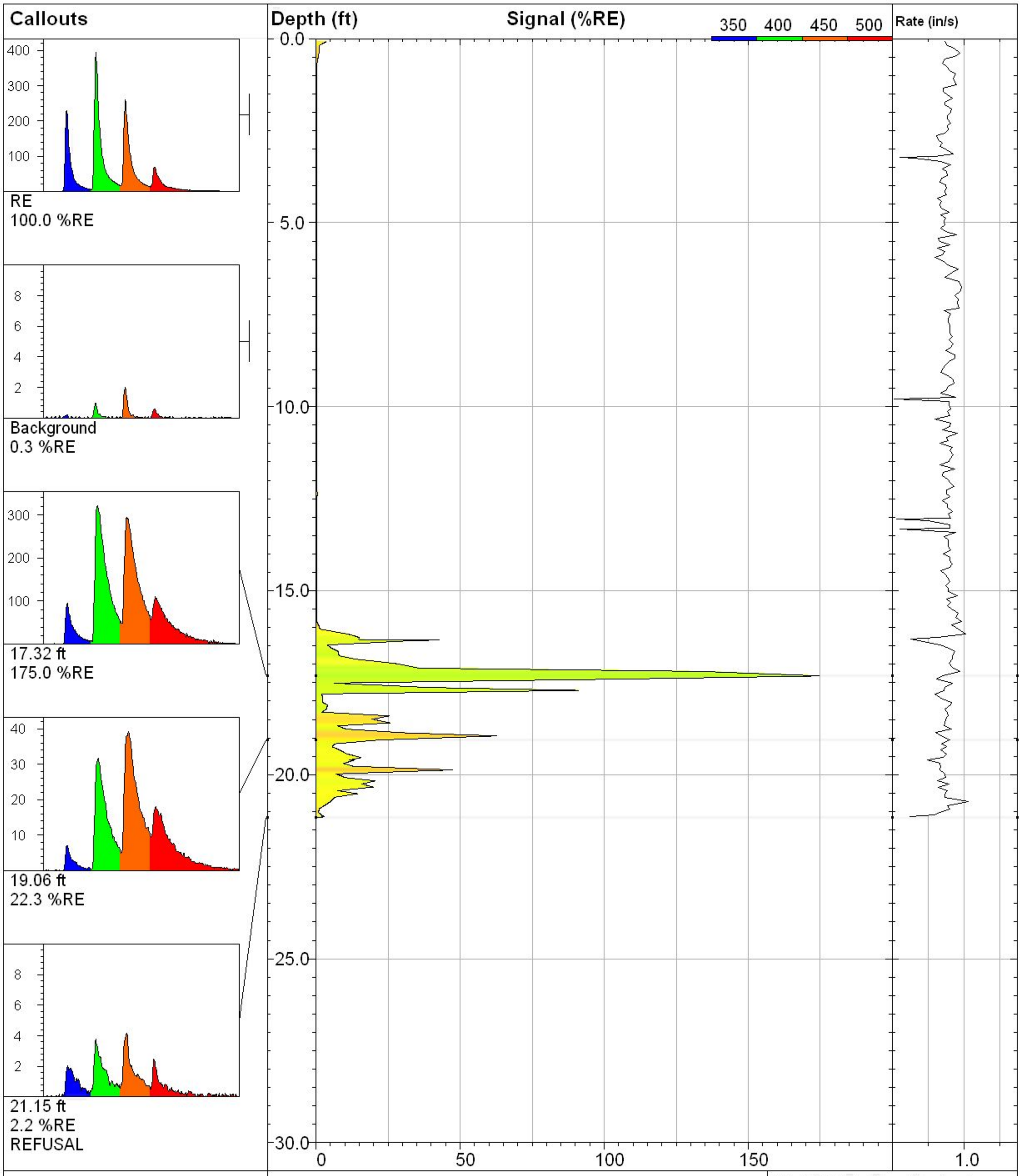
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.67 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **19.2 %RE @ 16.97 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 08:11 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-10**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.04 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **353.6 %RE @ 18.62 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 08:49 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-11**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **13.53 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.8 %RE @ 0.02 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 09:34 CDT**



MATRIX ENVIRONMENTAL LLC
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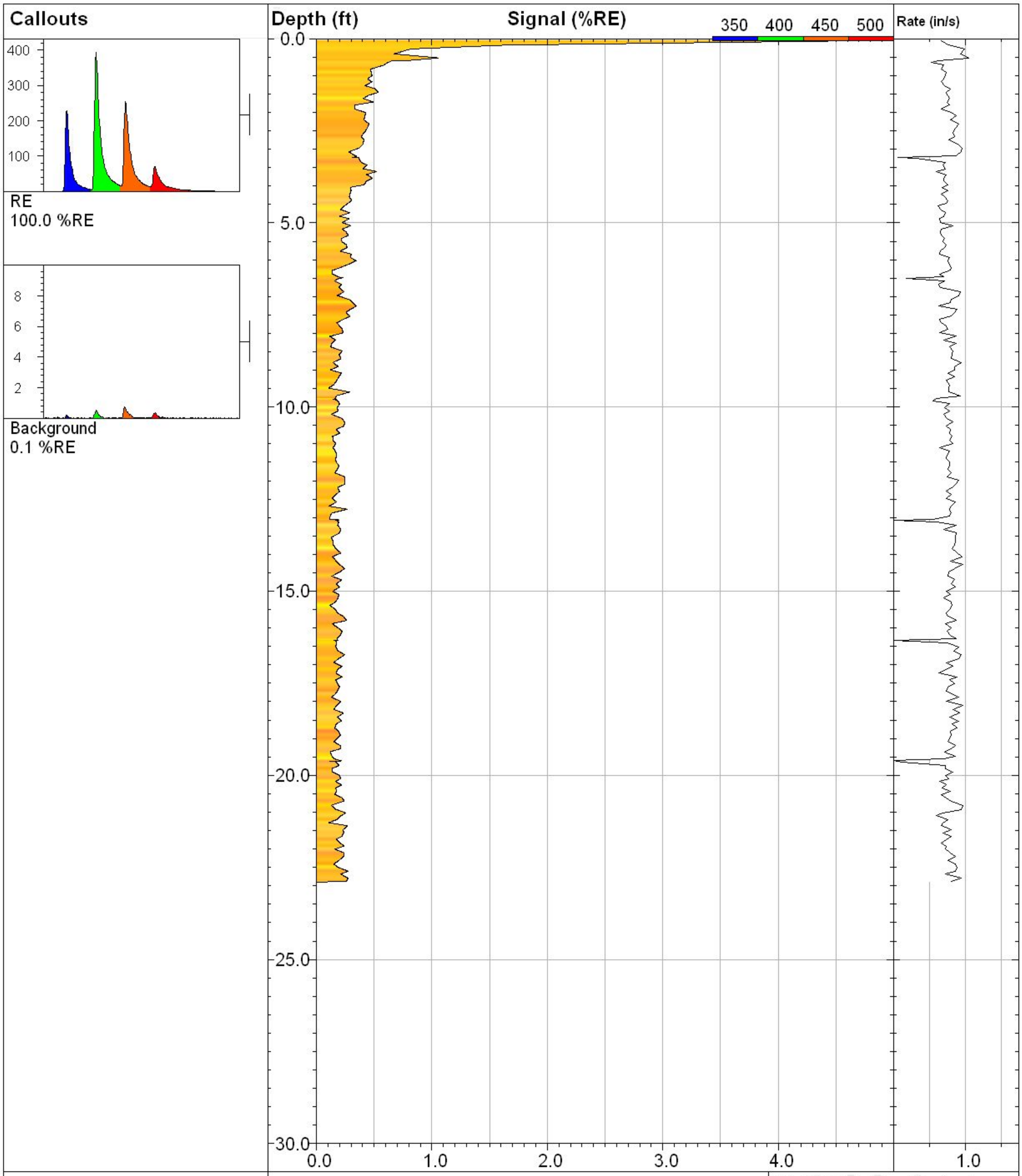
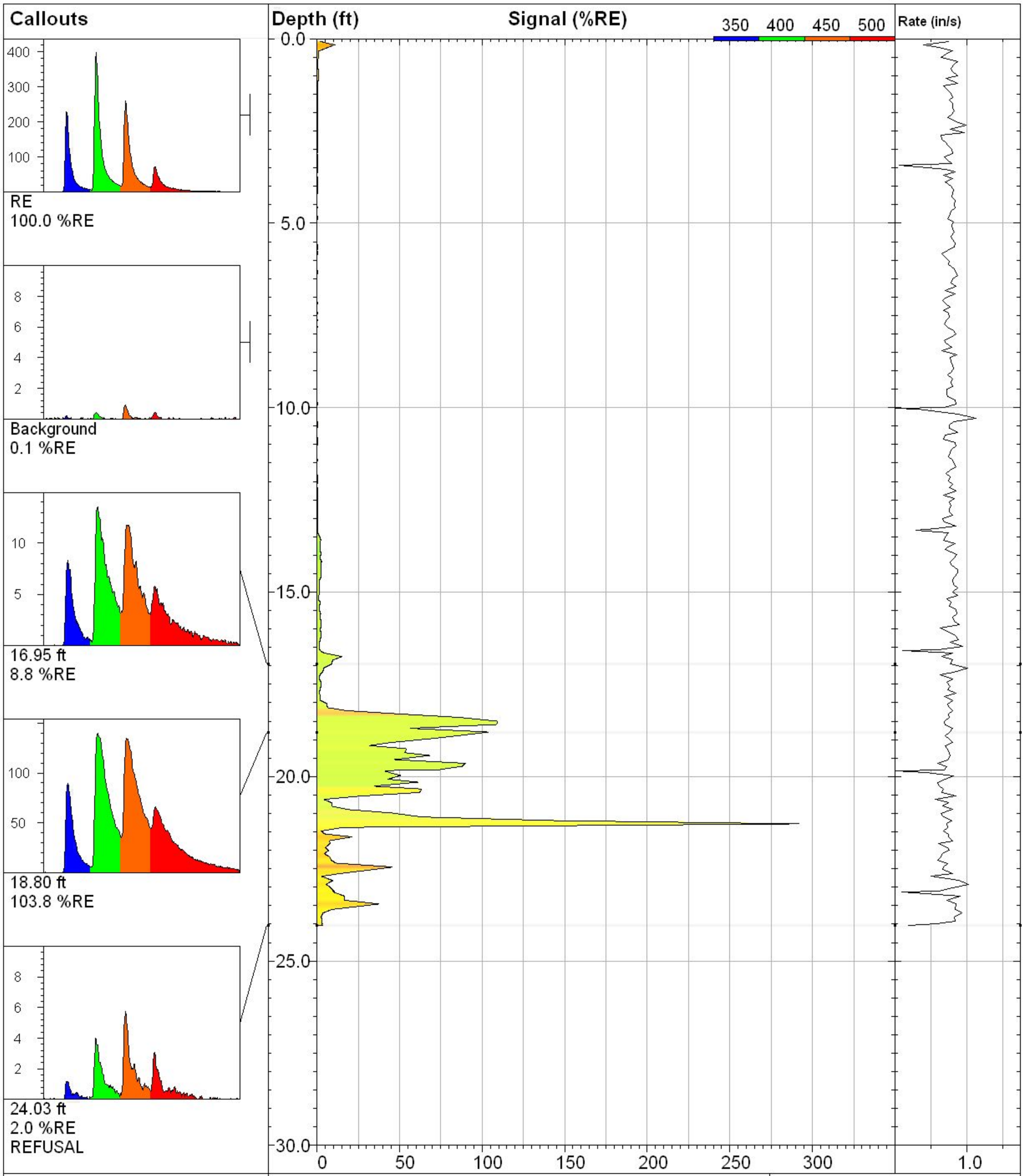
LIF-11A

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.15 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **175.0 %RE @ 17.31 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 10:02 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-12**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.89 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **4.6 %RE @ 0.06 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 10:52 CDT**

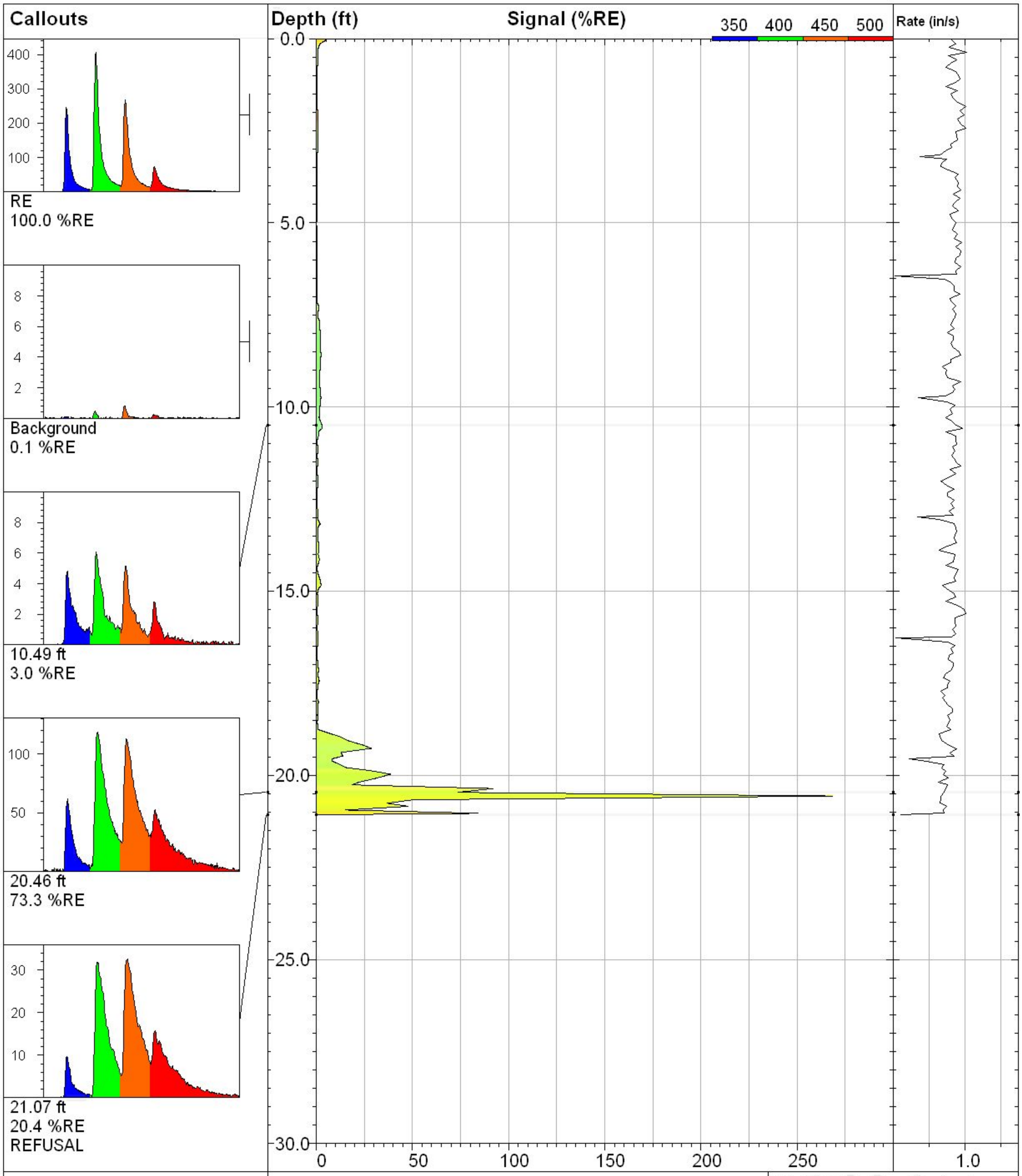


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-13

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.03 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **291.7 %RE @ 21.28 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 11:38 CDT**

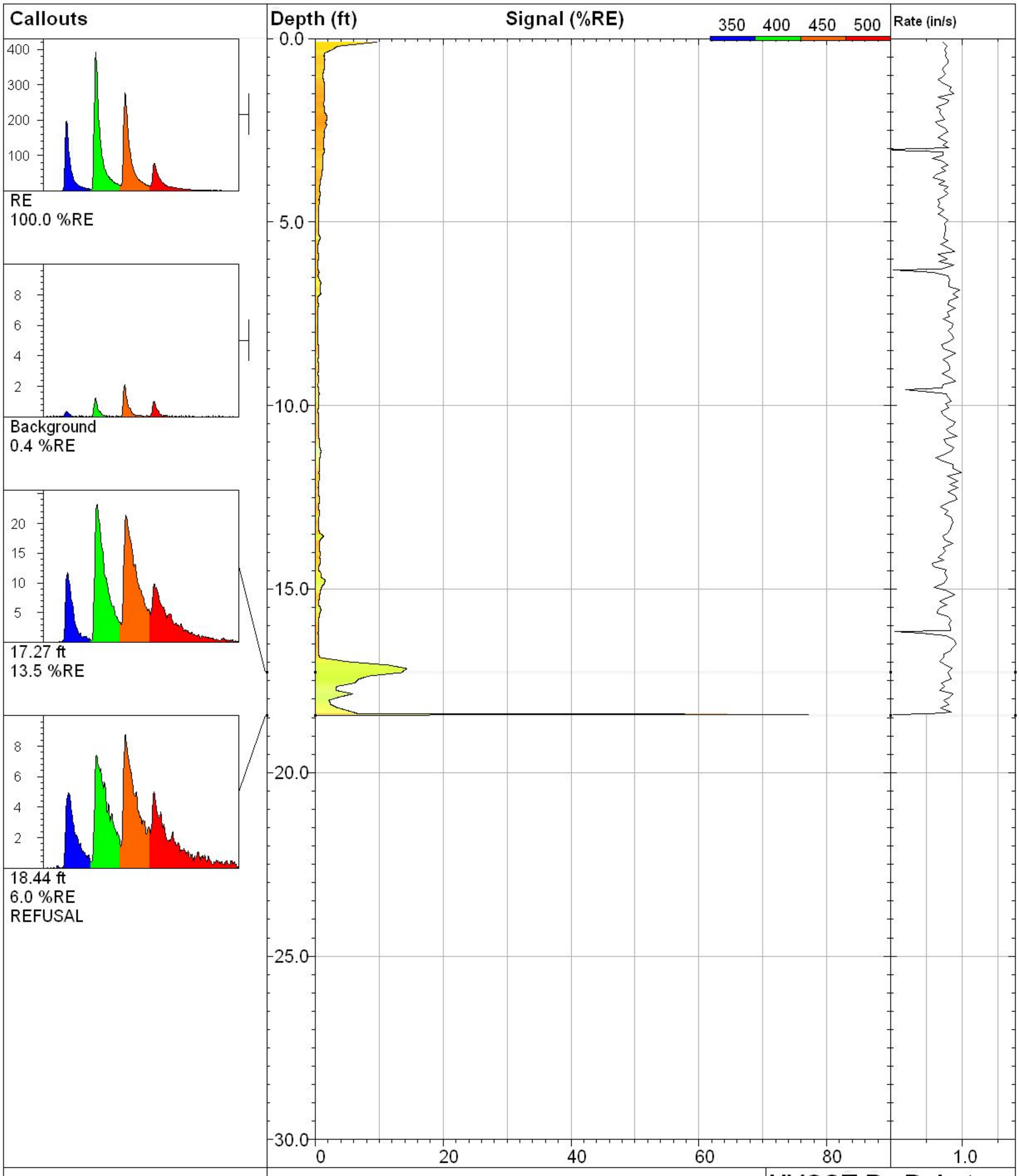


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

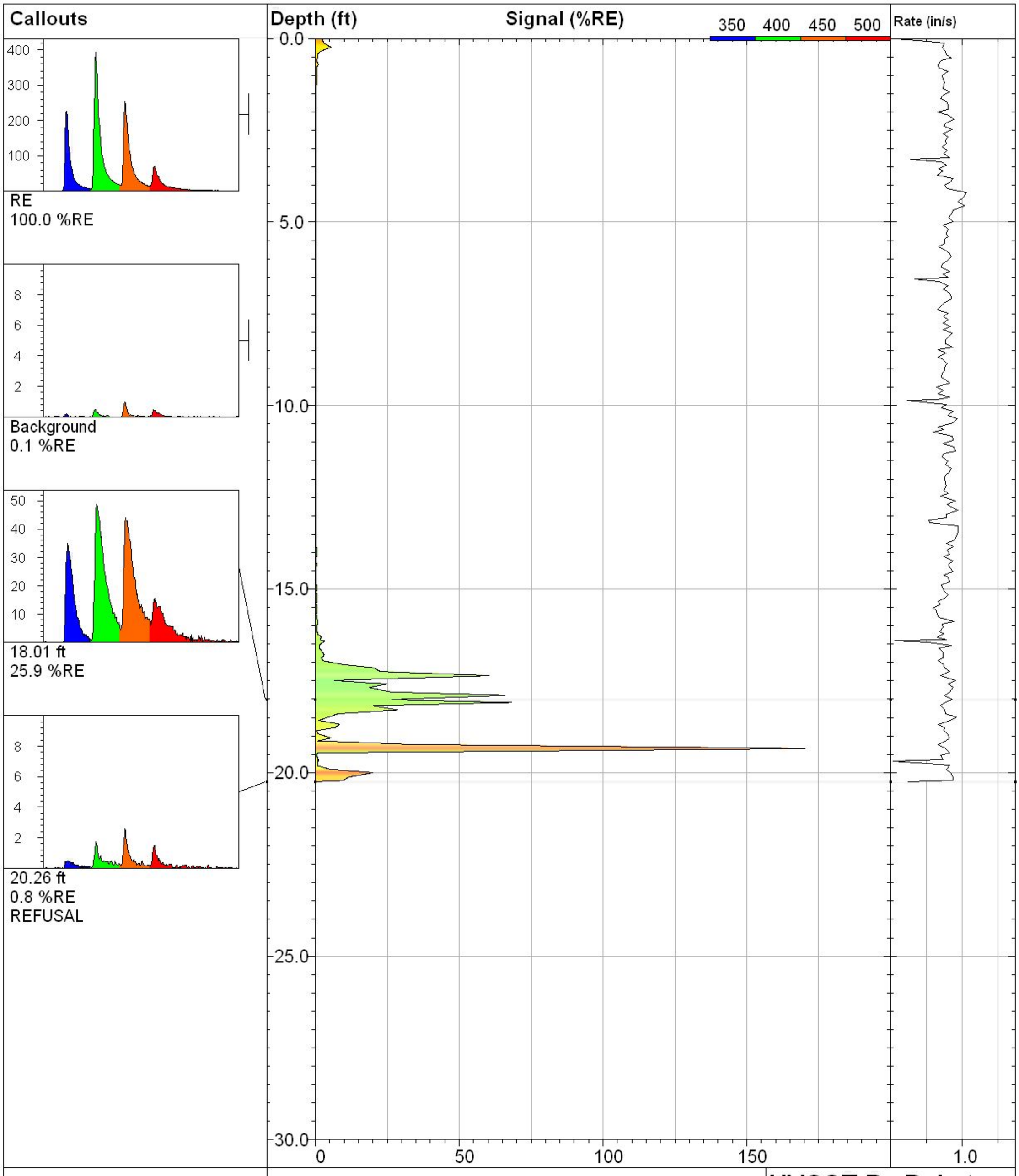
LIF-14

UVOST By Dakota
www.DakotaTechnologies.com

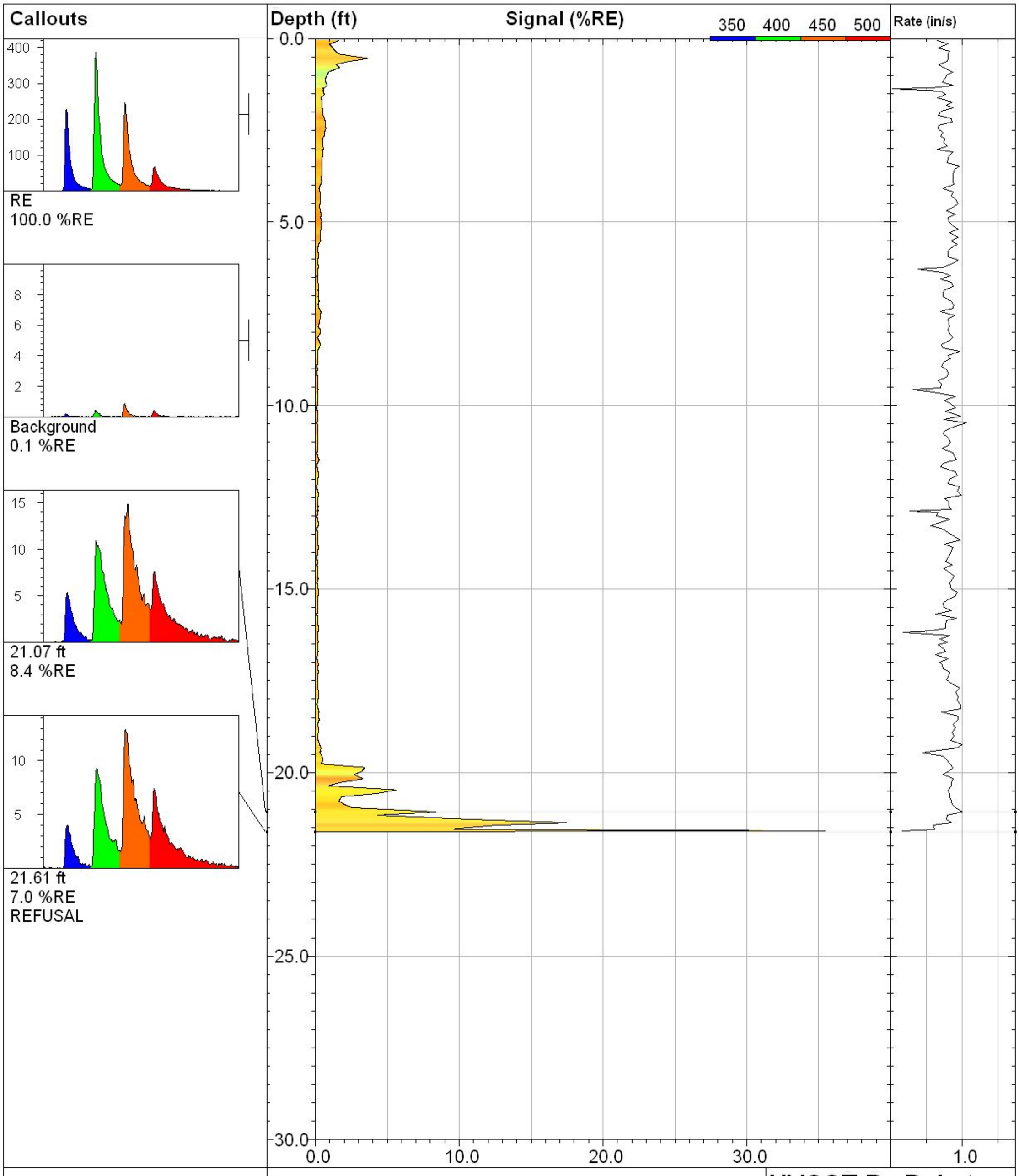
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.07 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **271.8 %RE @ 20.56 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 13:19 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-15**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **18.44 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **77.5 %RE @ 18.42 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 14:09 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-16**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.26 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **172.1 %RE @ 19.35 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 14:55 CDT**

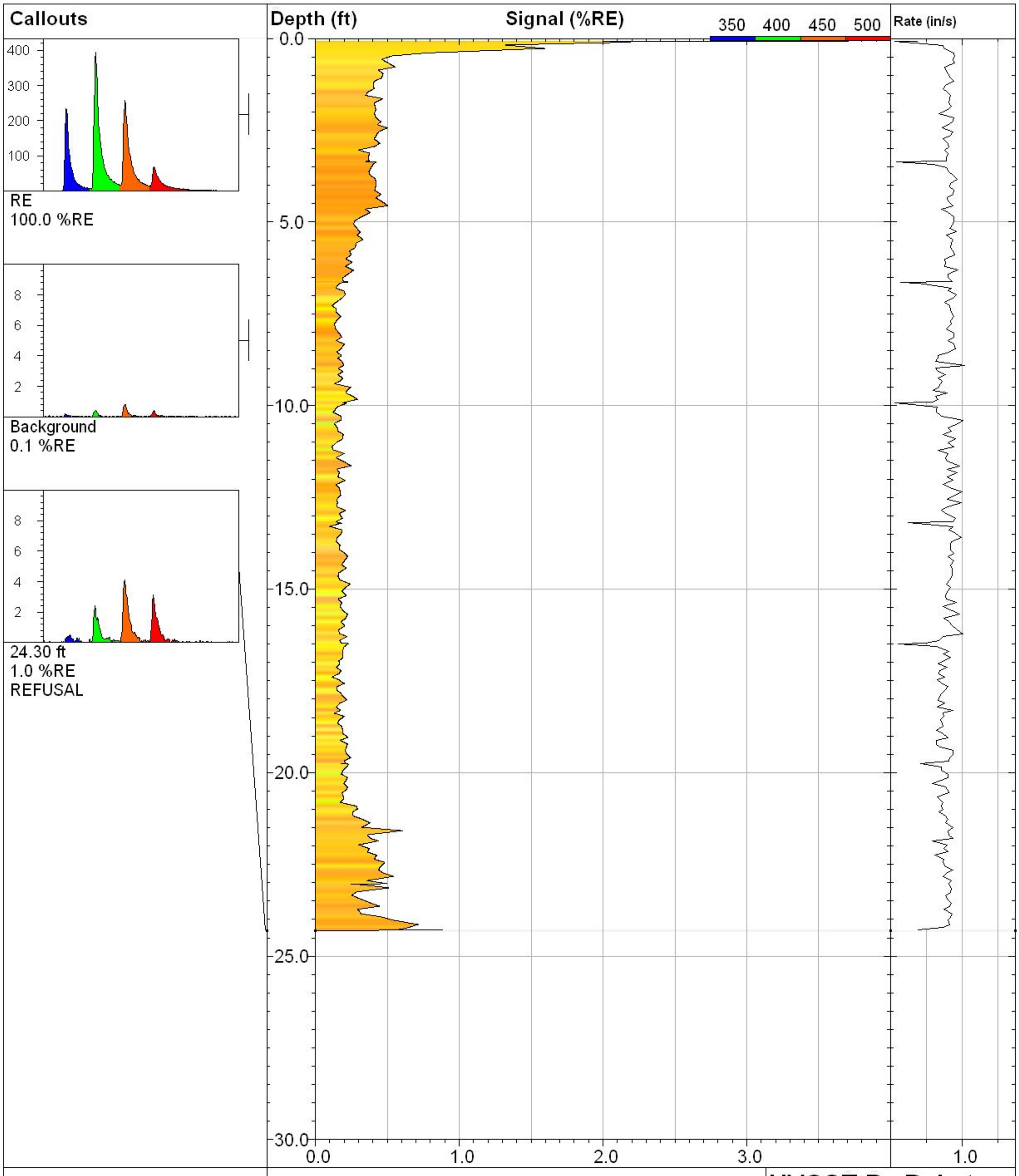


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

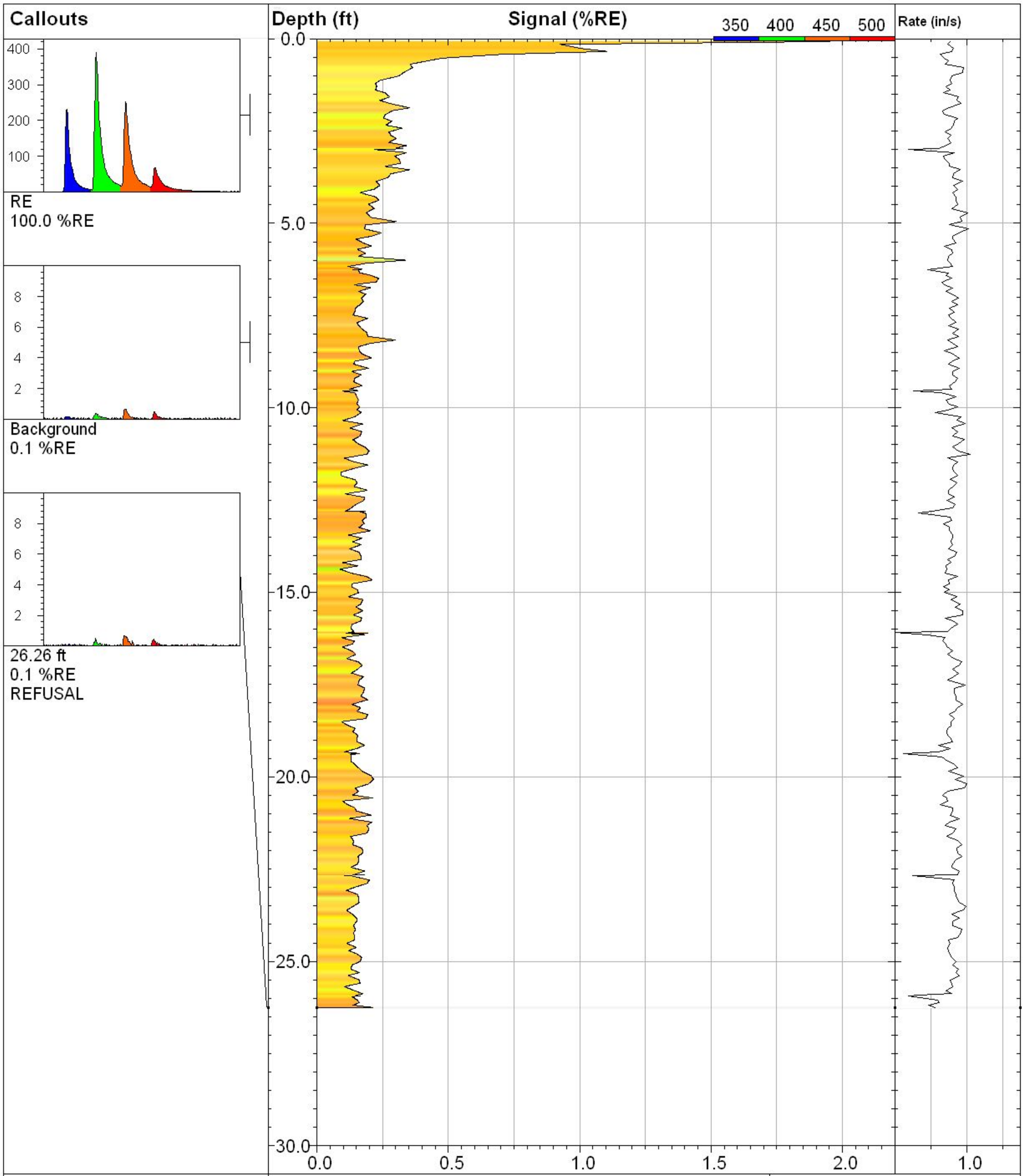
LIF-17

UVOST By Dakota
www.DakotaTechnologies.com

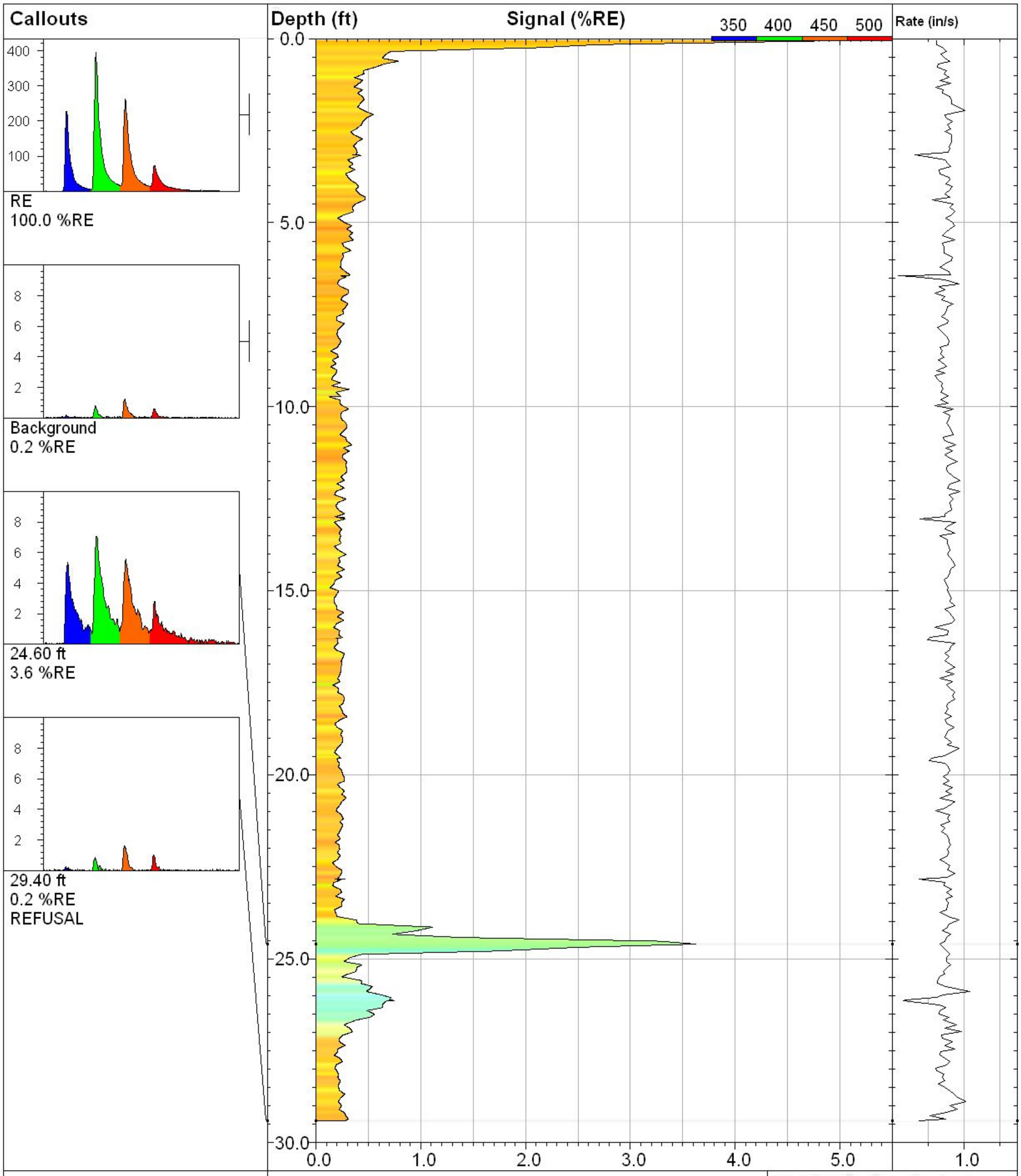
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.61 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **36.5 %RE @ 21.59 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-24 15:45 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-18**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.30 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.7 %RE @ 0.07 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 07:55 CDT**

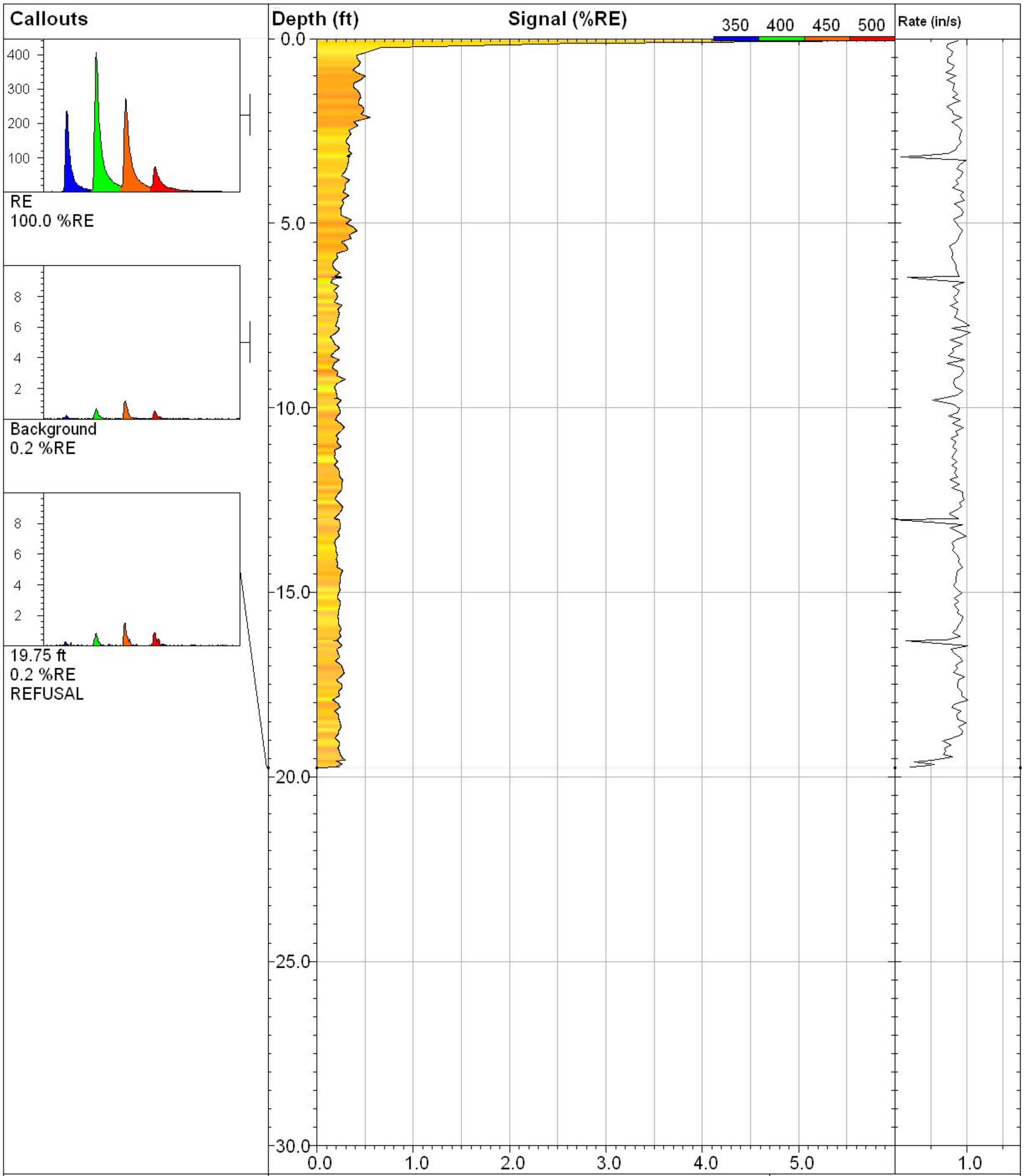


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-19**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.26 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **2.0 %RE @ 0.08 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 08:41 CDT**



MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-20		UVOST By Dakota www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **29.40 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.0 %RE @ 0.06 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 09:28 CDT**

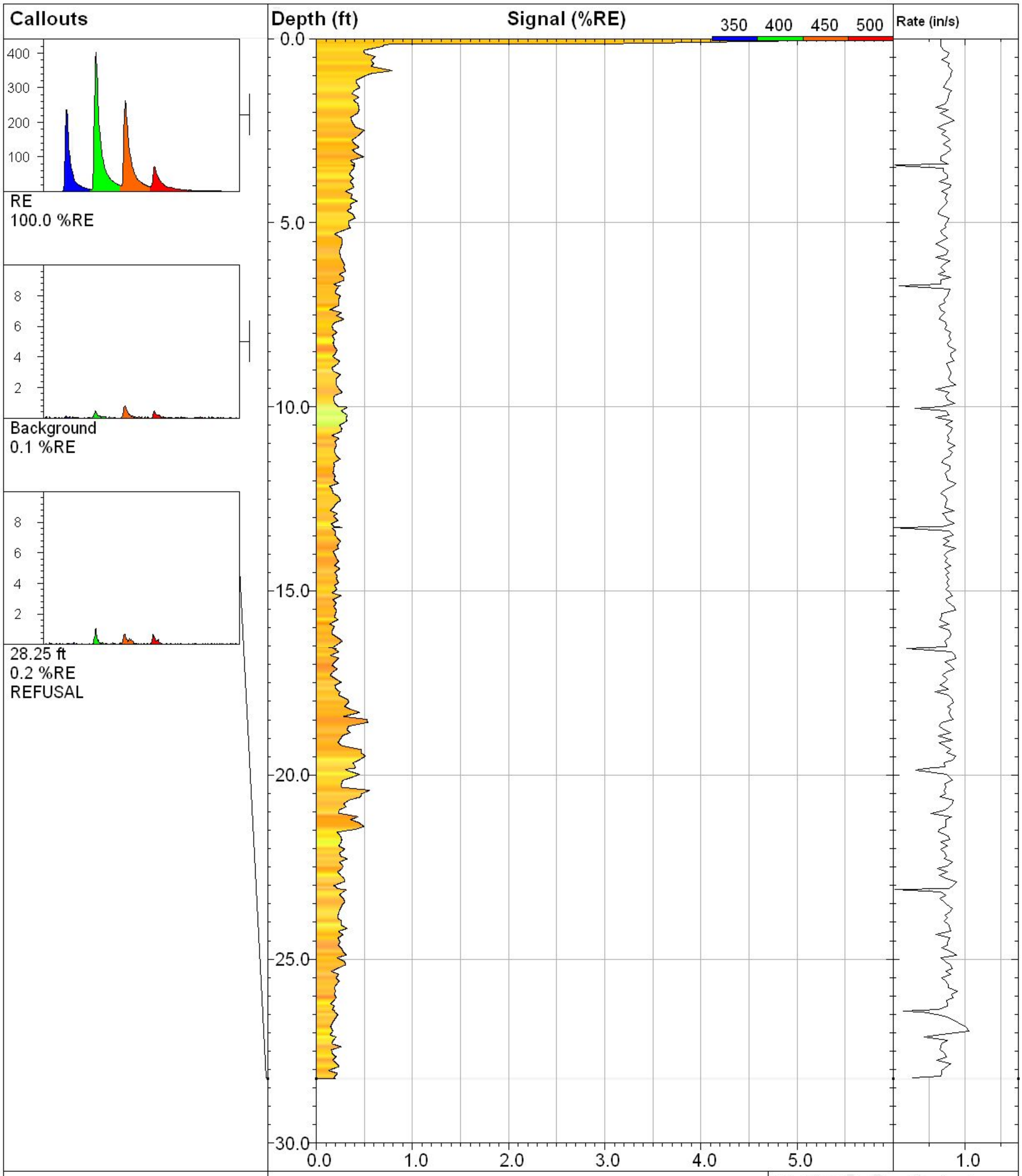


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-21

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.75 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.7 %RE @ 0.05 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 10:12 CDT**

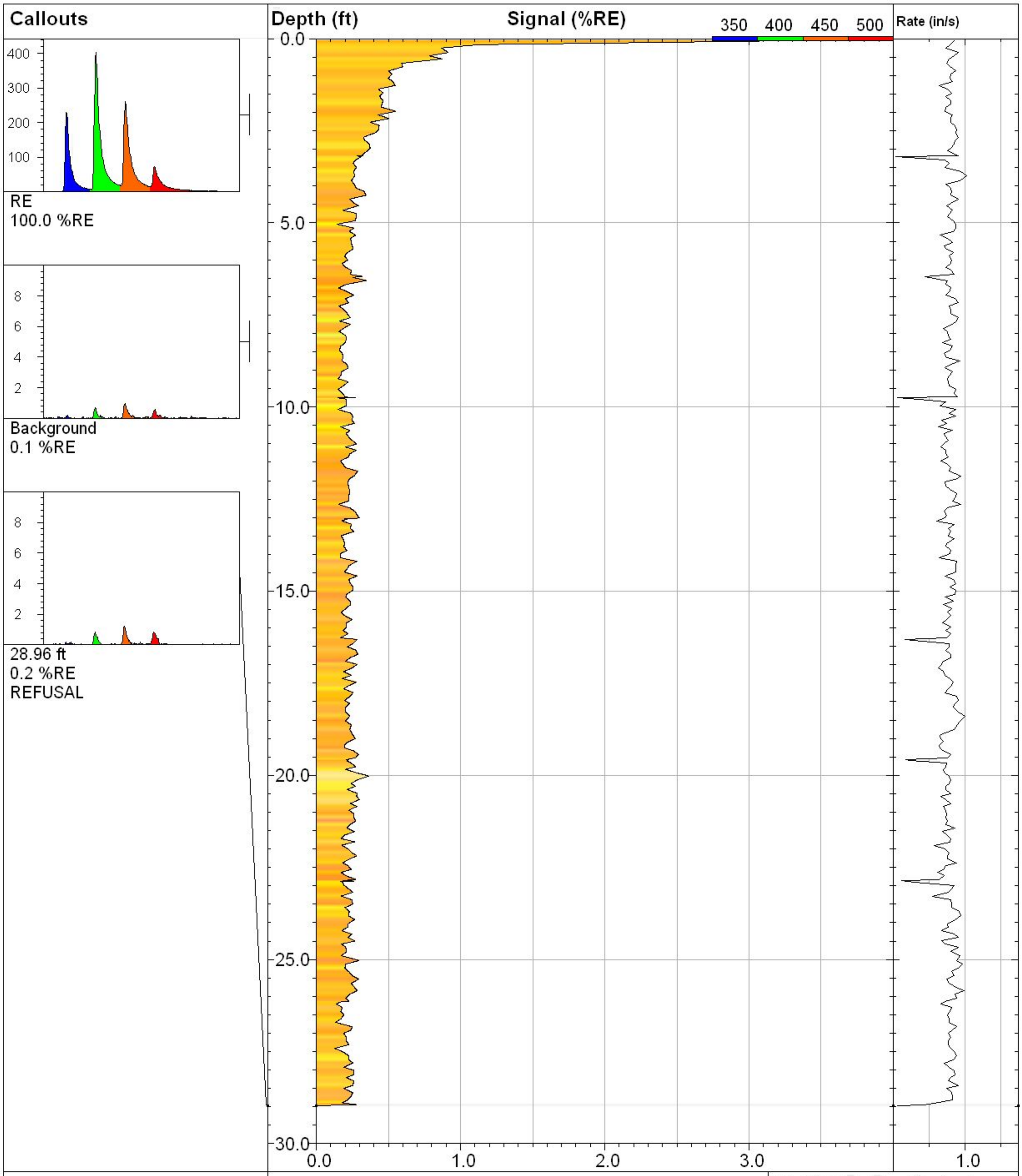


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

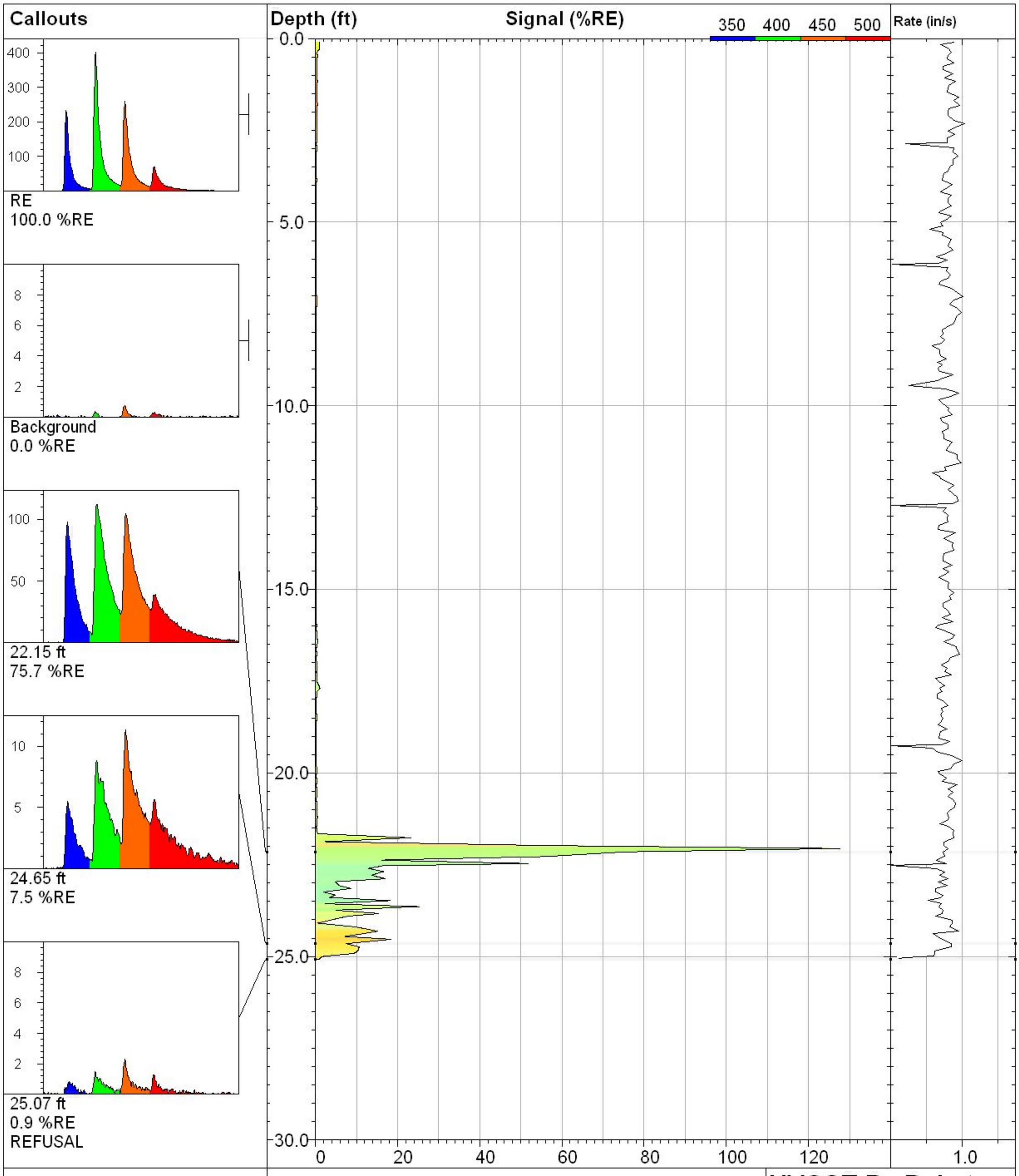
LIF-22

UVOST By Dakota
www.DakotaTechnologies.com

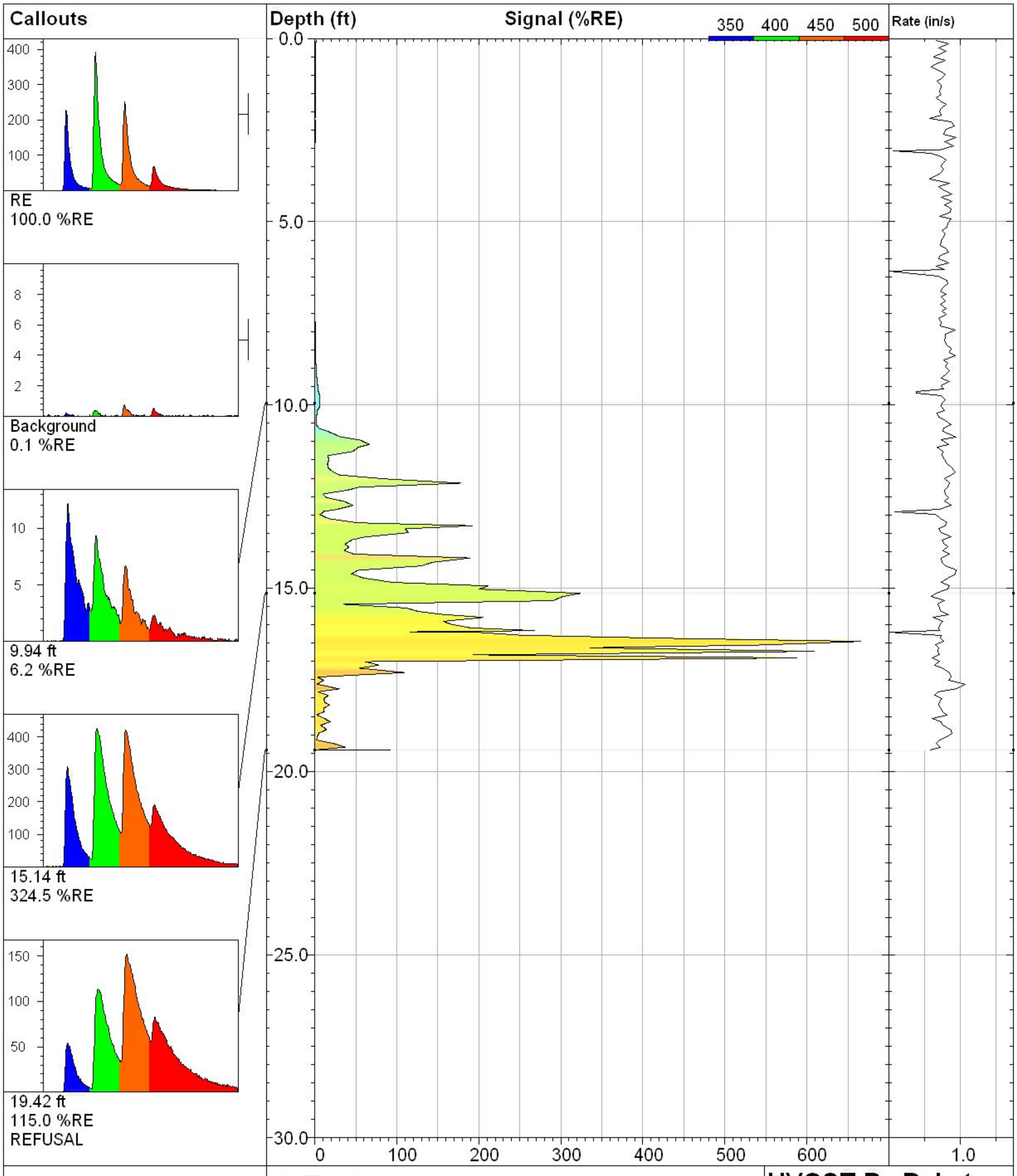
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **28.25 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **5.5 %RE @ 0.04 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 10:55 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-23**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **28.96 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.3 %RE @ 0.06 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 11:47 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-24**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.07 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **127.8 %RE @ 22.06 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 13:49 CDT**

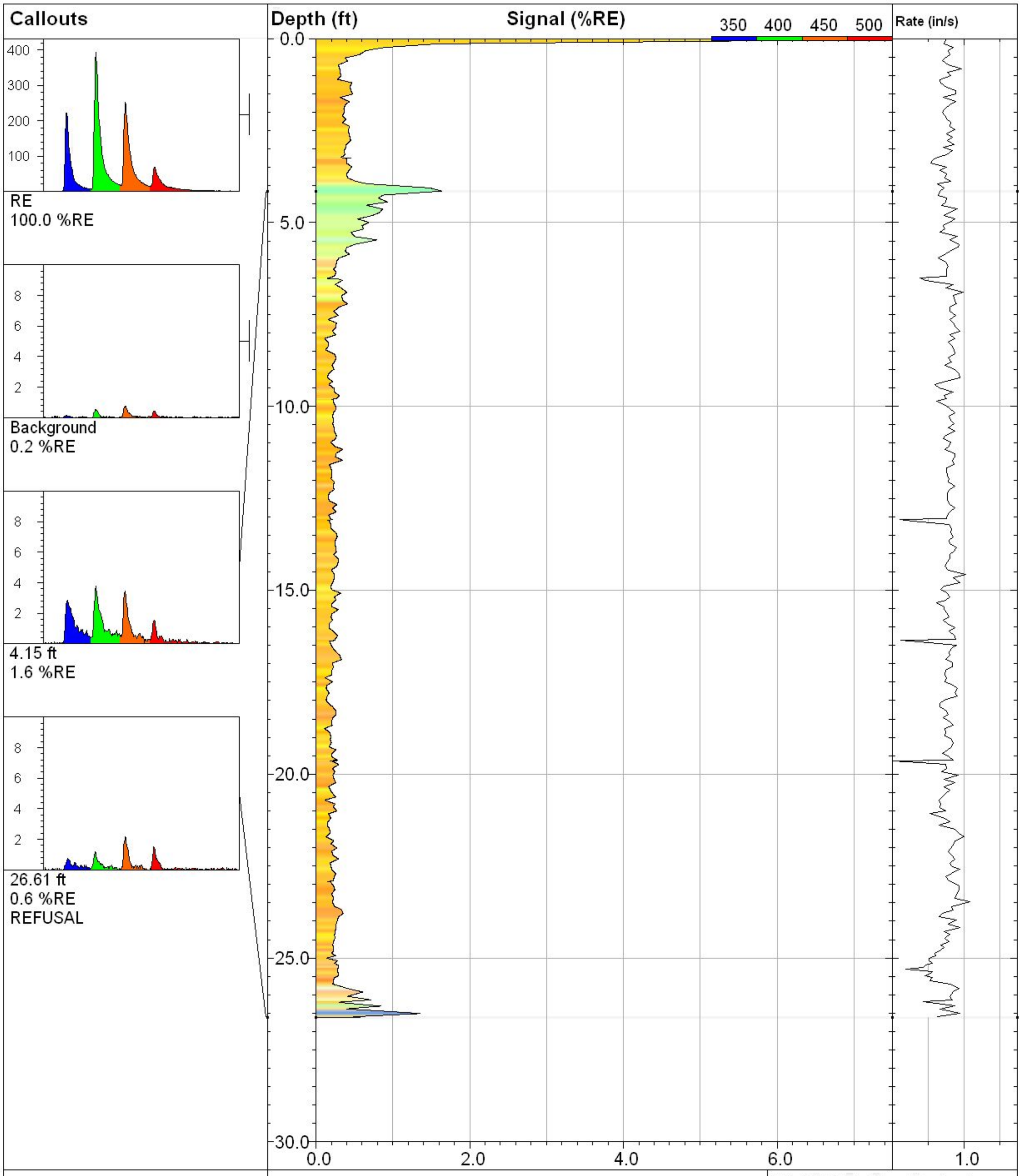


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-25

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.42 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **668.1 %RE @ 16.45 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 14:32 CDT**

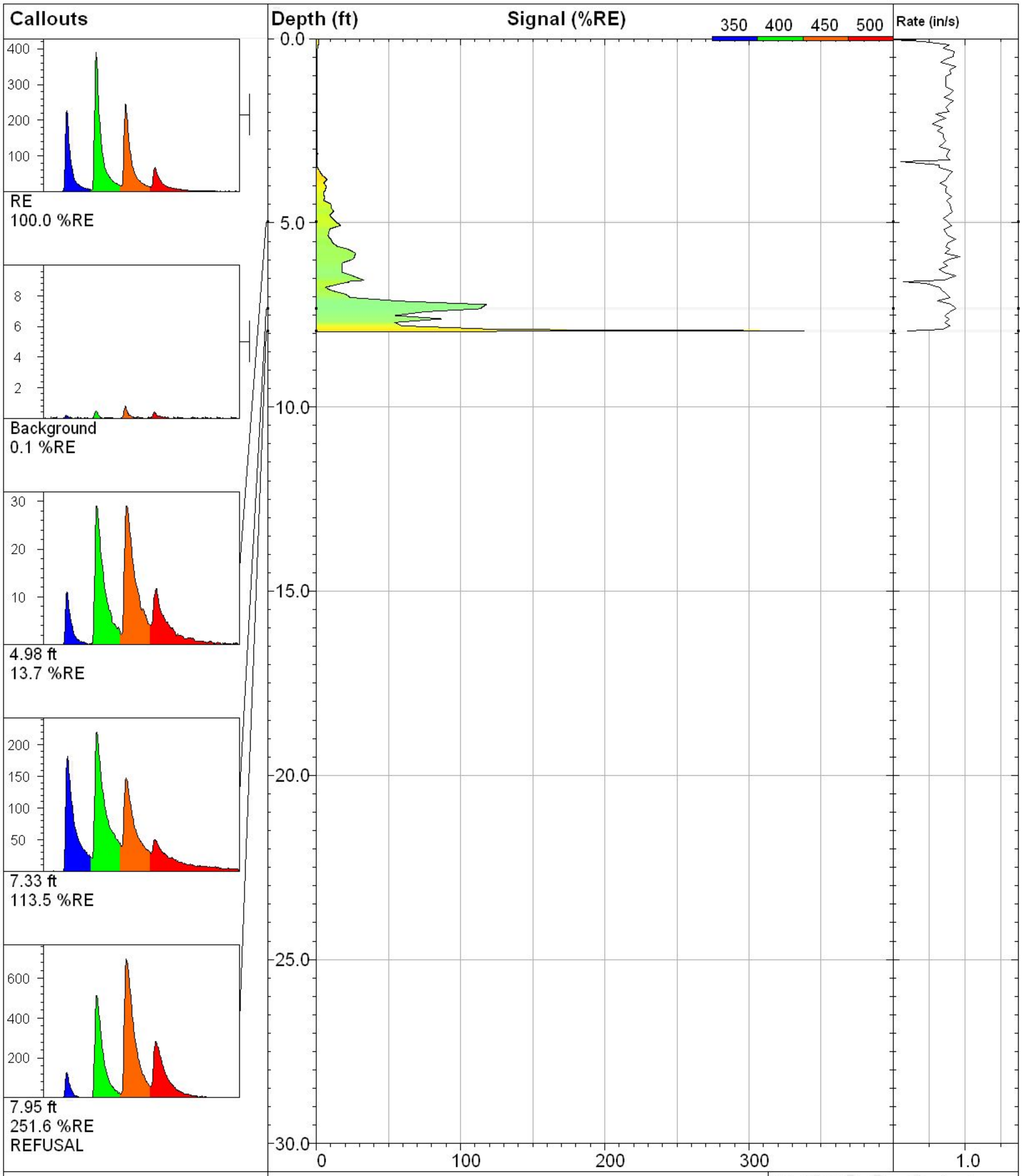


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

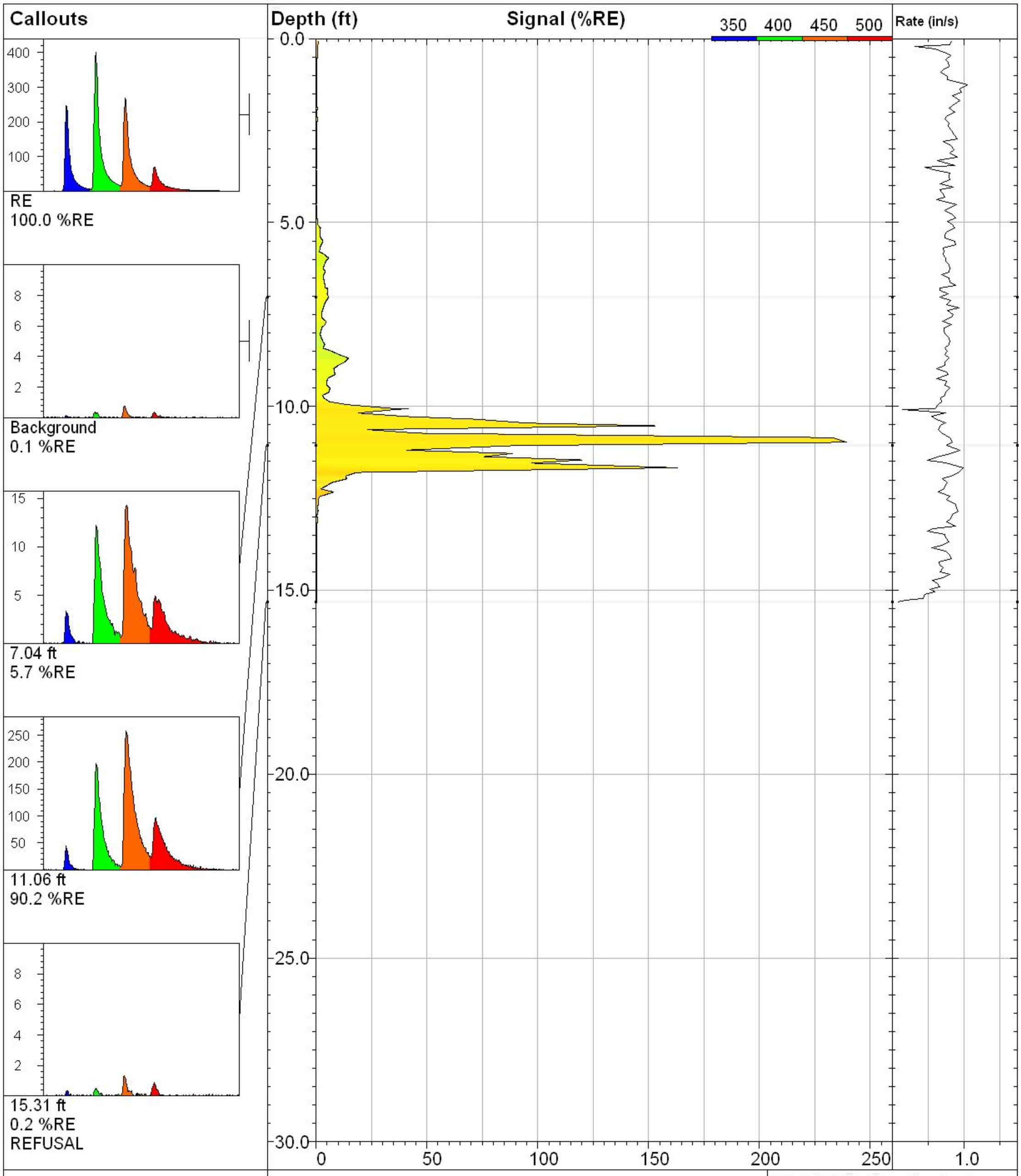
LIF-26

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.61 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.9 %RE @ 0.04 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 15:15 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-27**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **7.94 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **345.5 %RE @ 7.93 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-25 16:29 CDT**

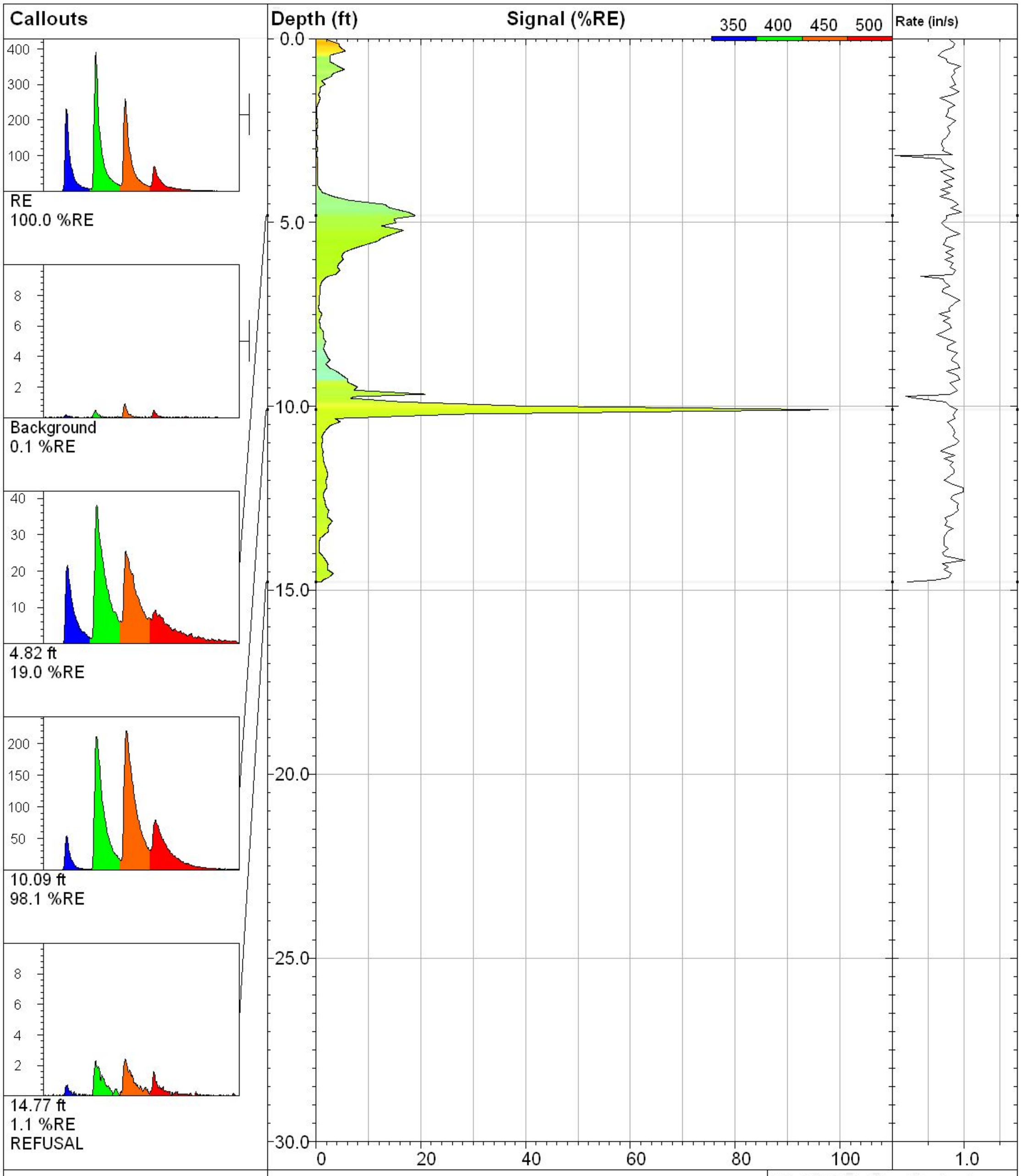


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-28

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **15.31 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **239.4 %RE @ 10.98 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 07:20 CDT**

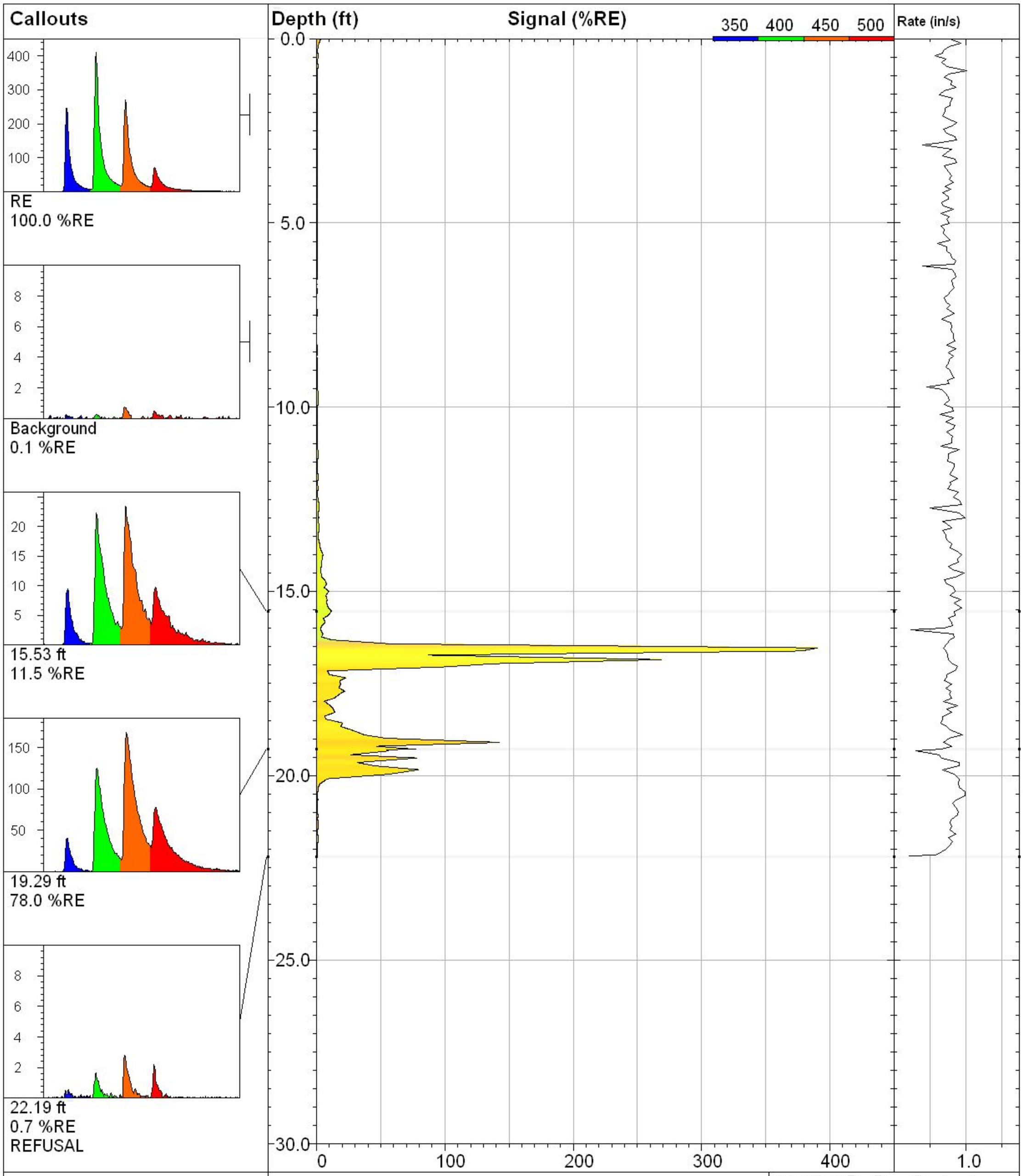


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-29

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.77 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **98.1 %RE @ 10.09 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 08:13 CDT**

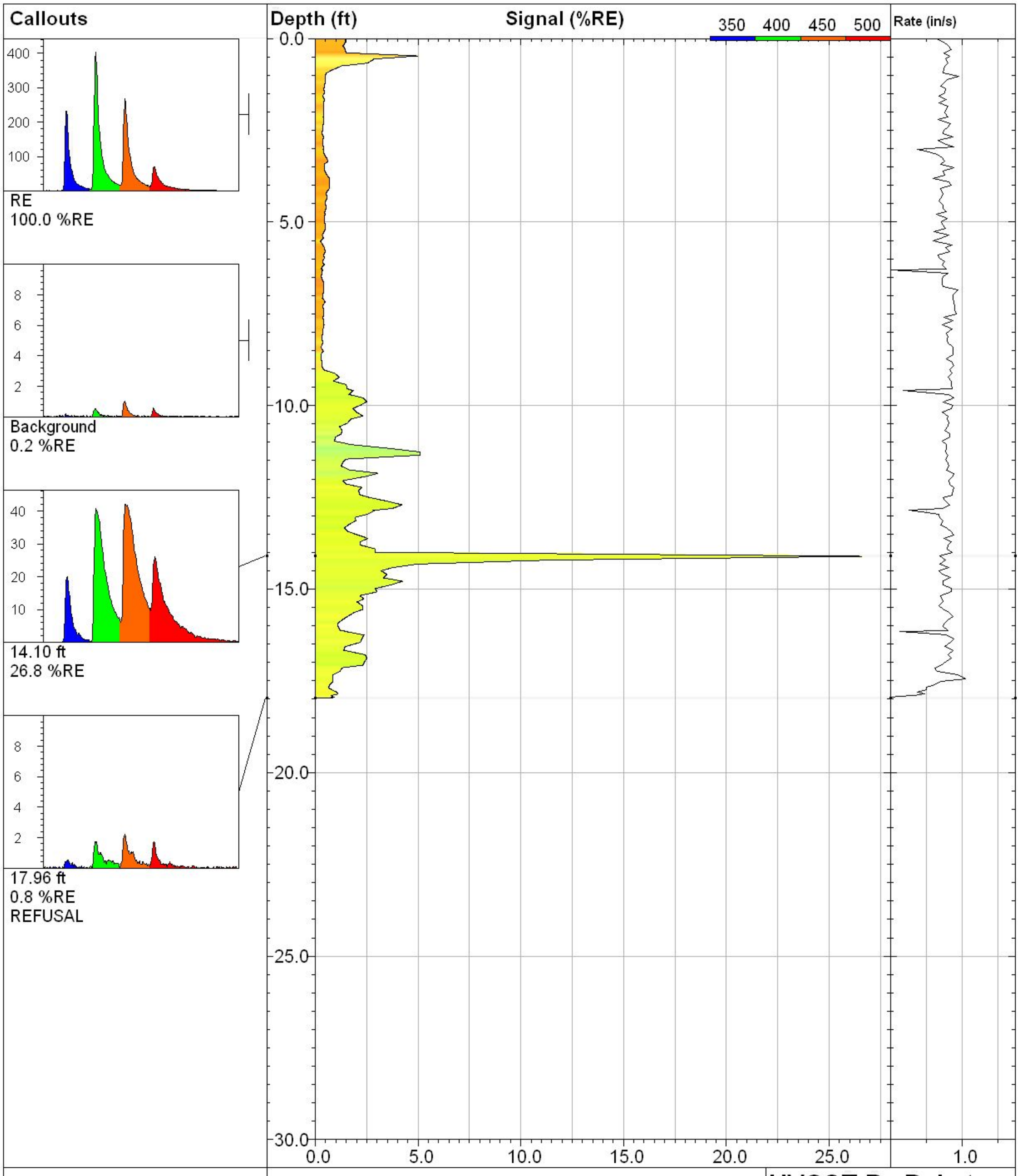


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

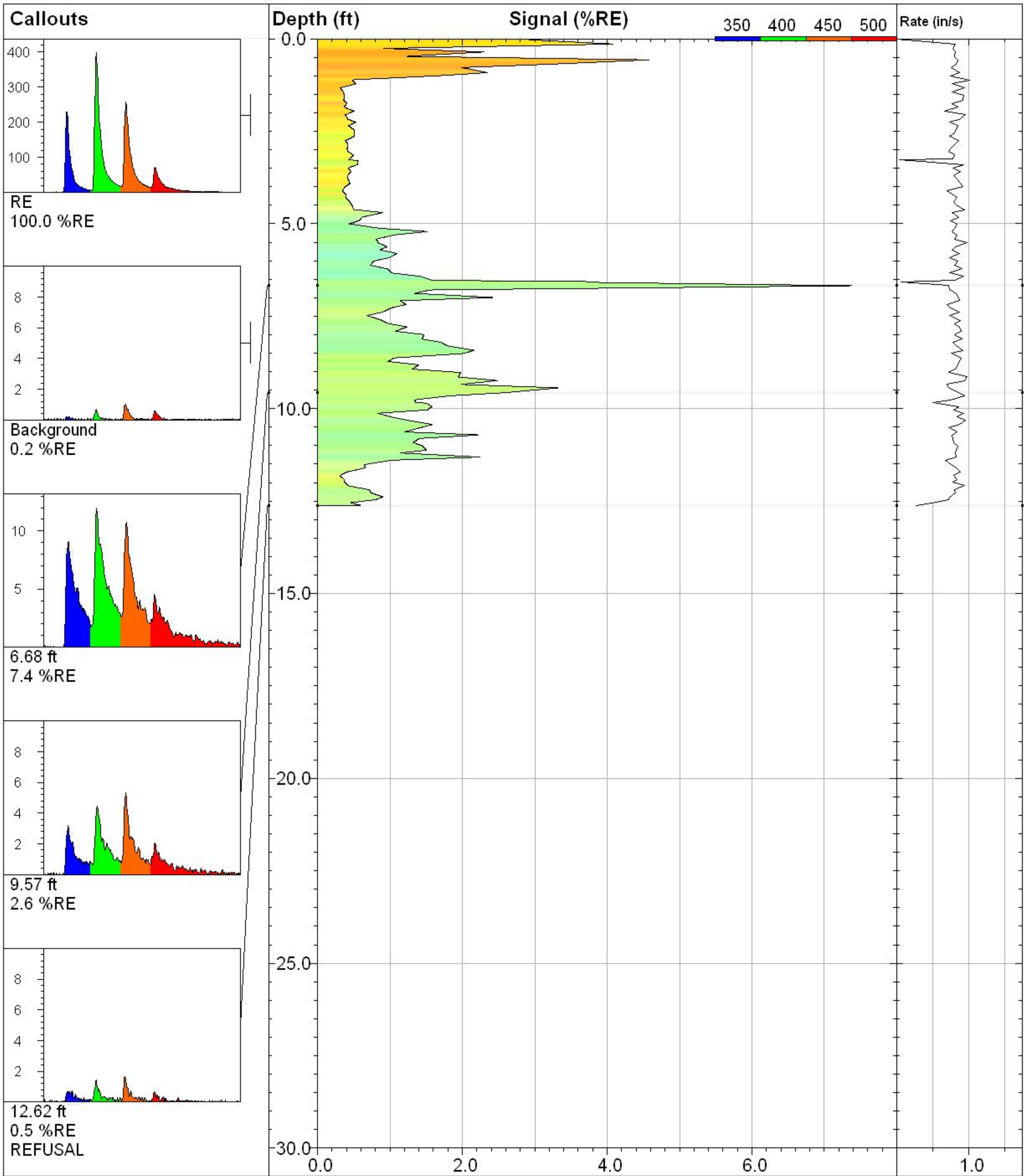
LIF-30

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.19 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **390.2 %RE @ 16.53 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 08:58 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-31**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.96 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **26.8 %RE @ 14.10 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 10:00 CDT**

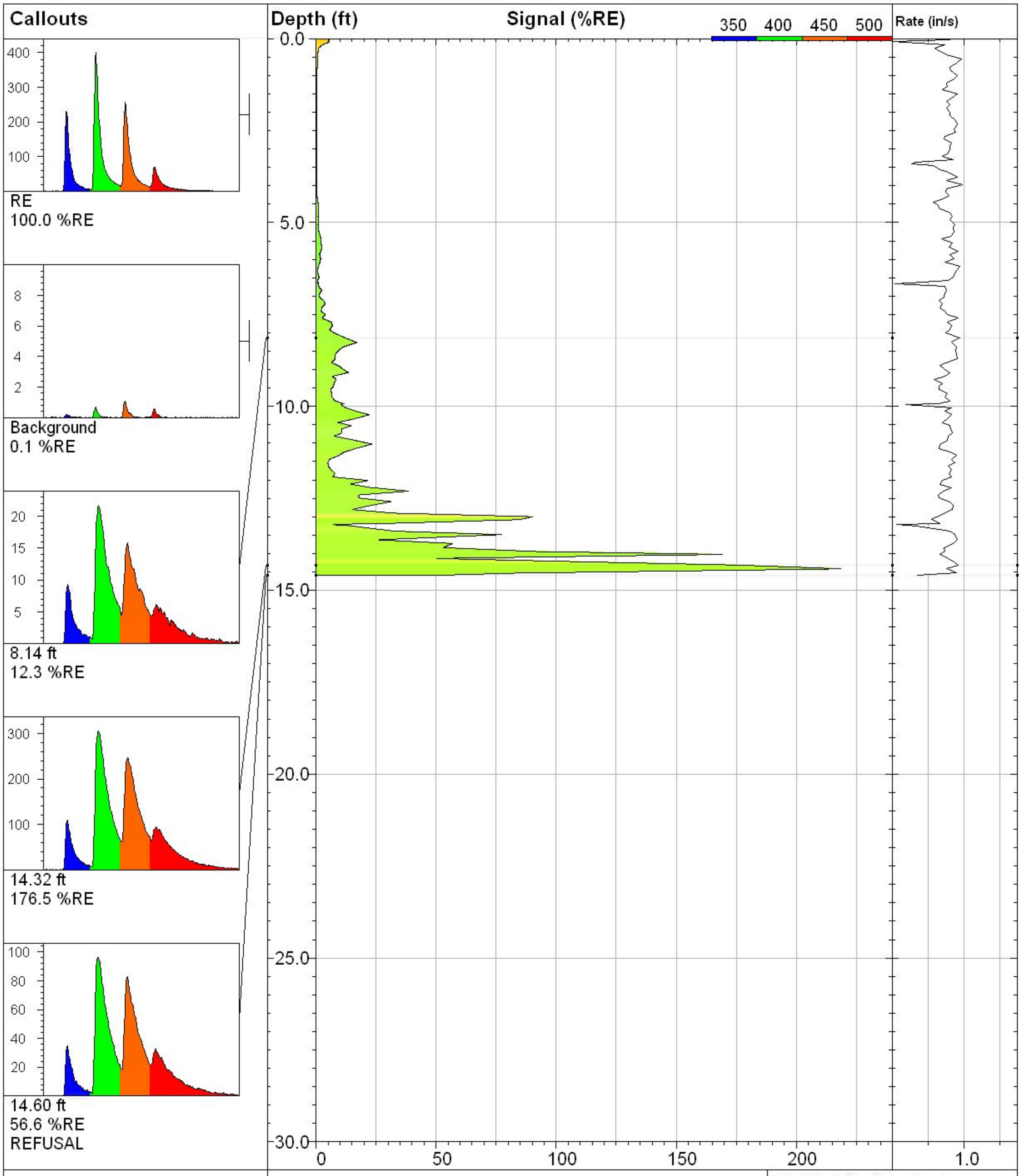


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-32

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **12.62 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **7.4 %RE @ 6.68 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-26 10:35 CDT**

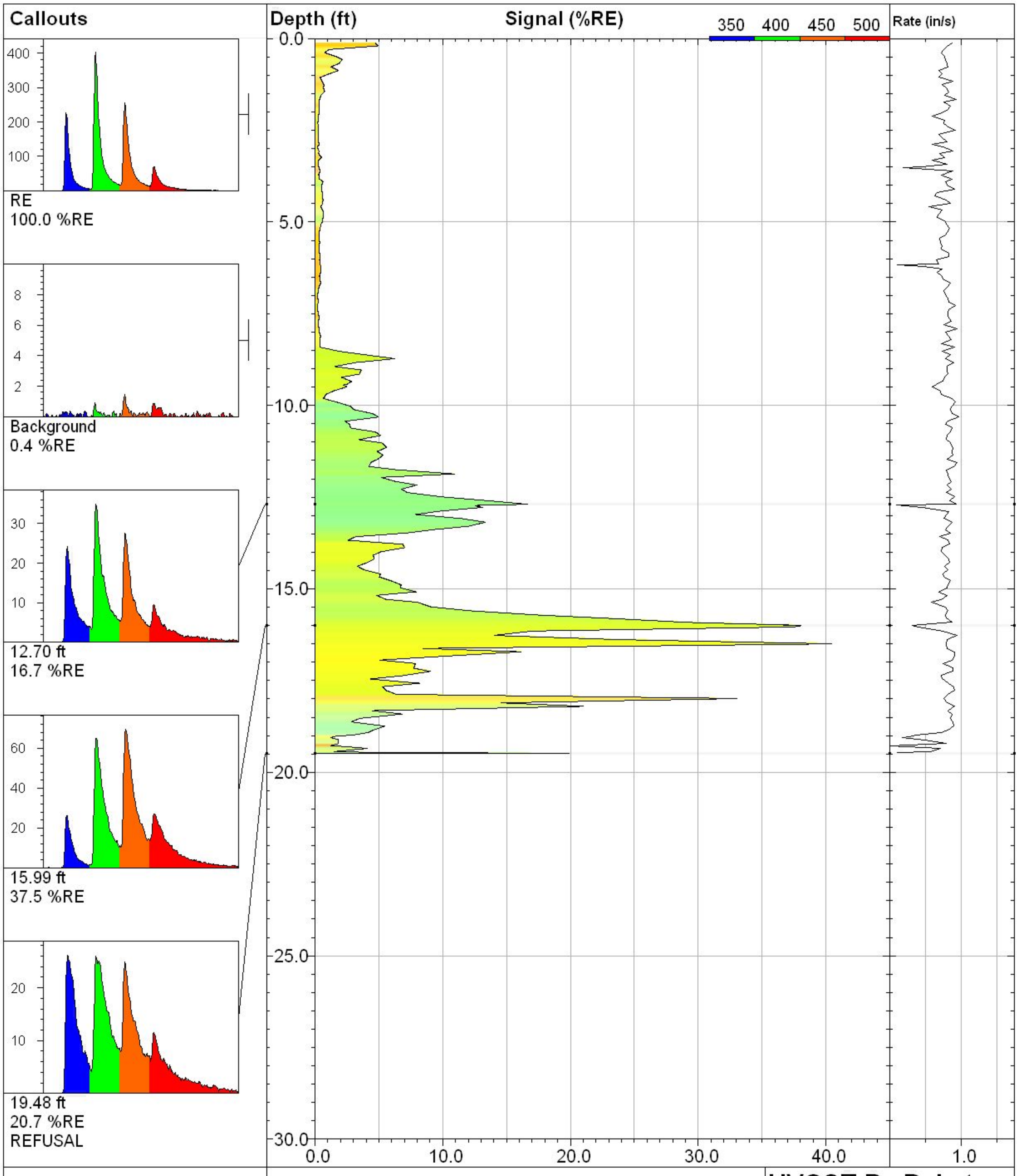


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-33

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **14.59 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **219.0 %RE @ 14.42 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-29 15:46 CDT**

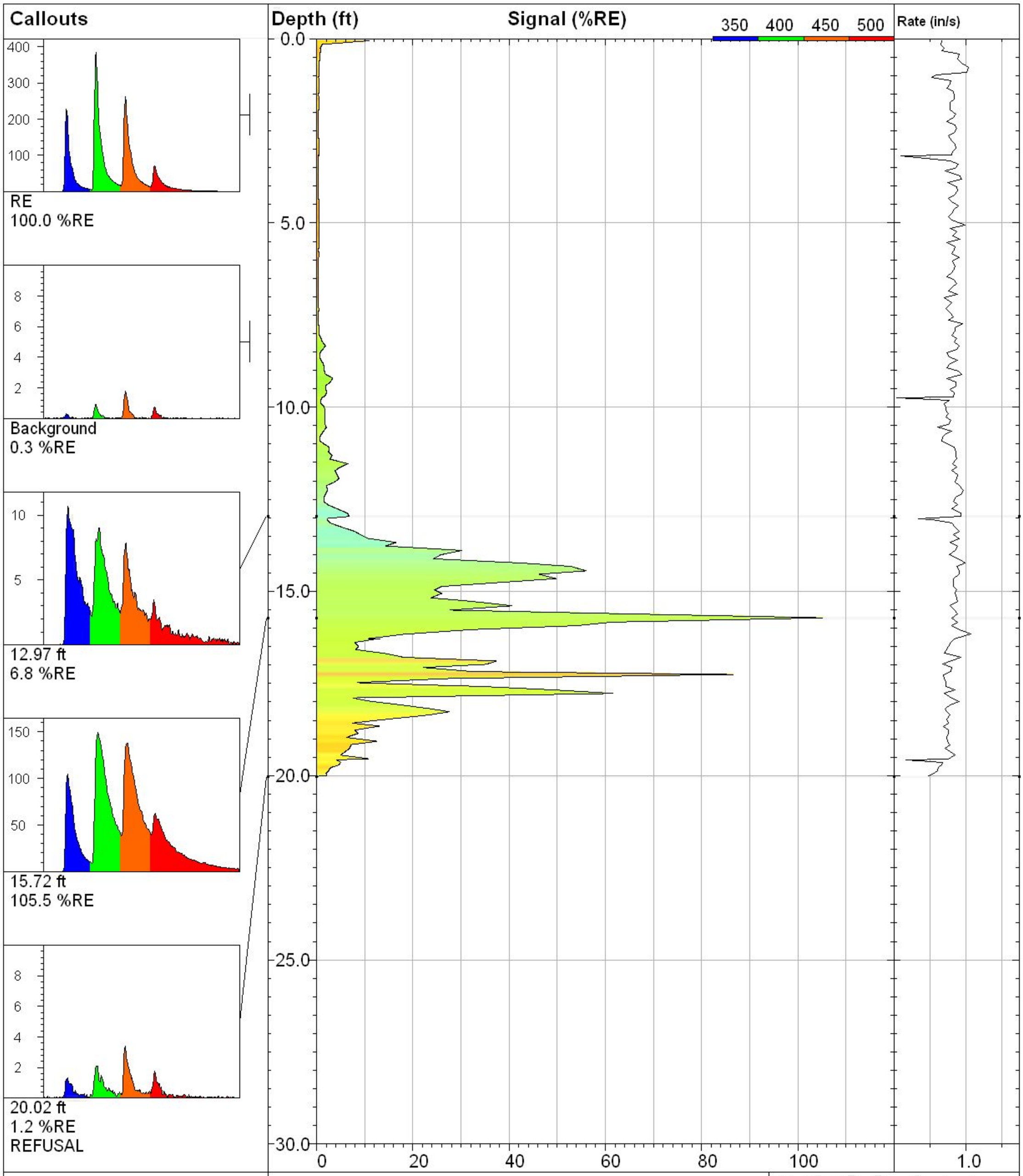


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

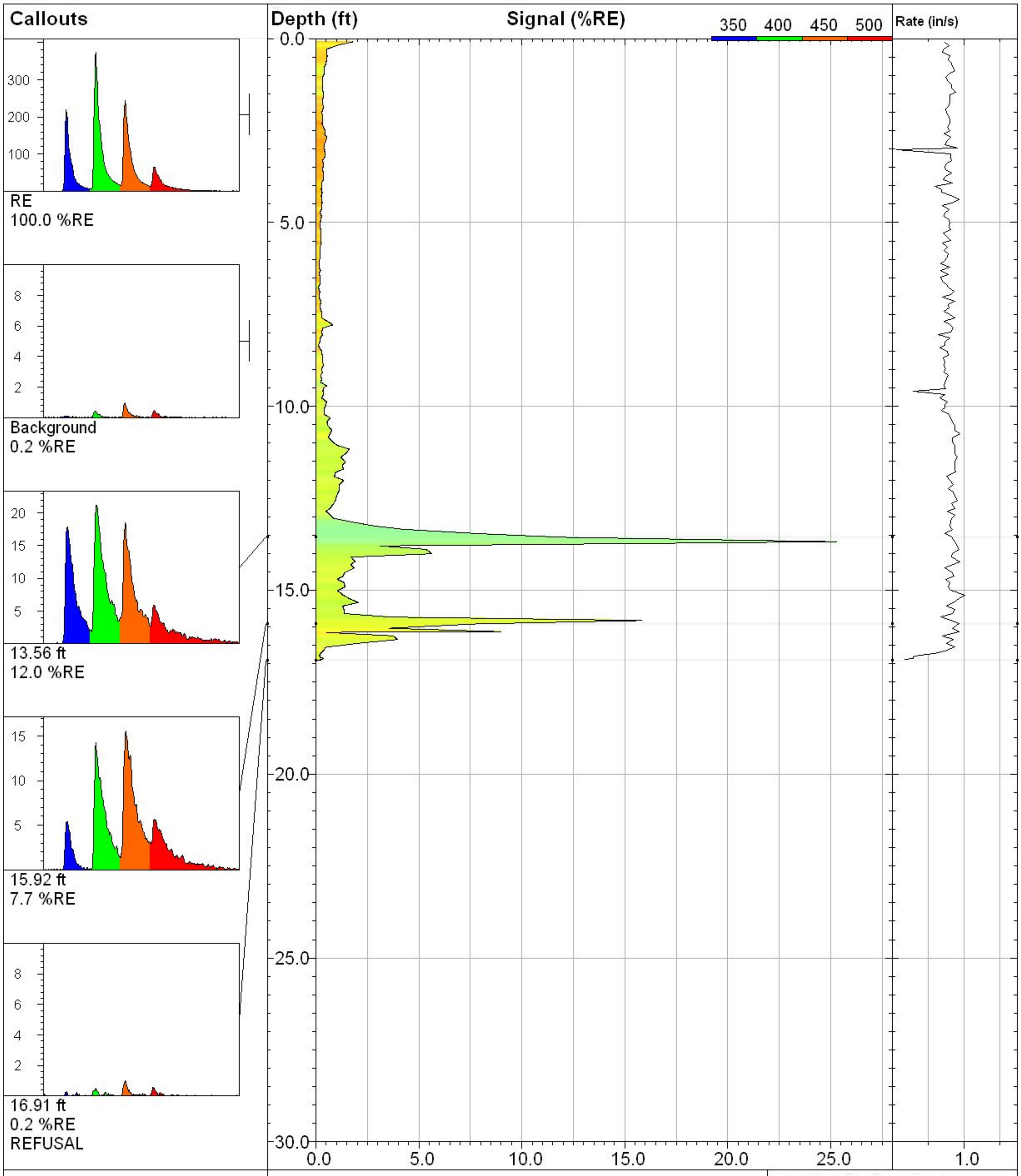
LIF-34

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **19.48 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **40.7 %RE @ 16.50 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-29 16:58 CDT**

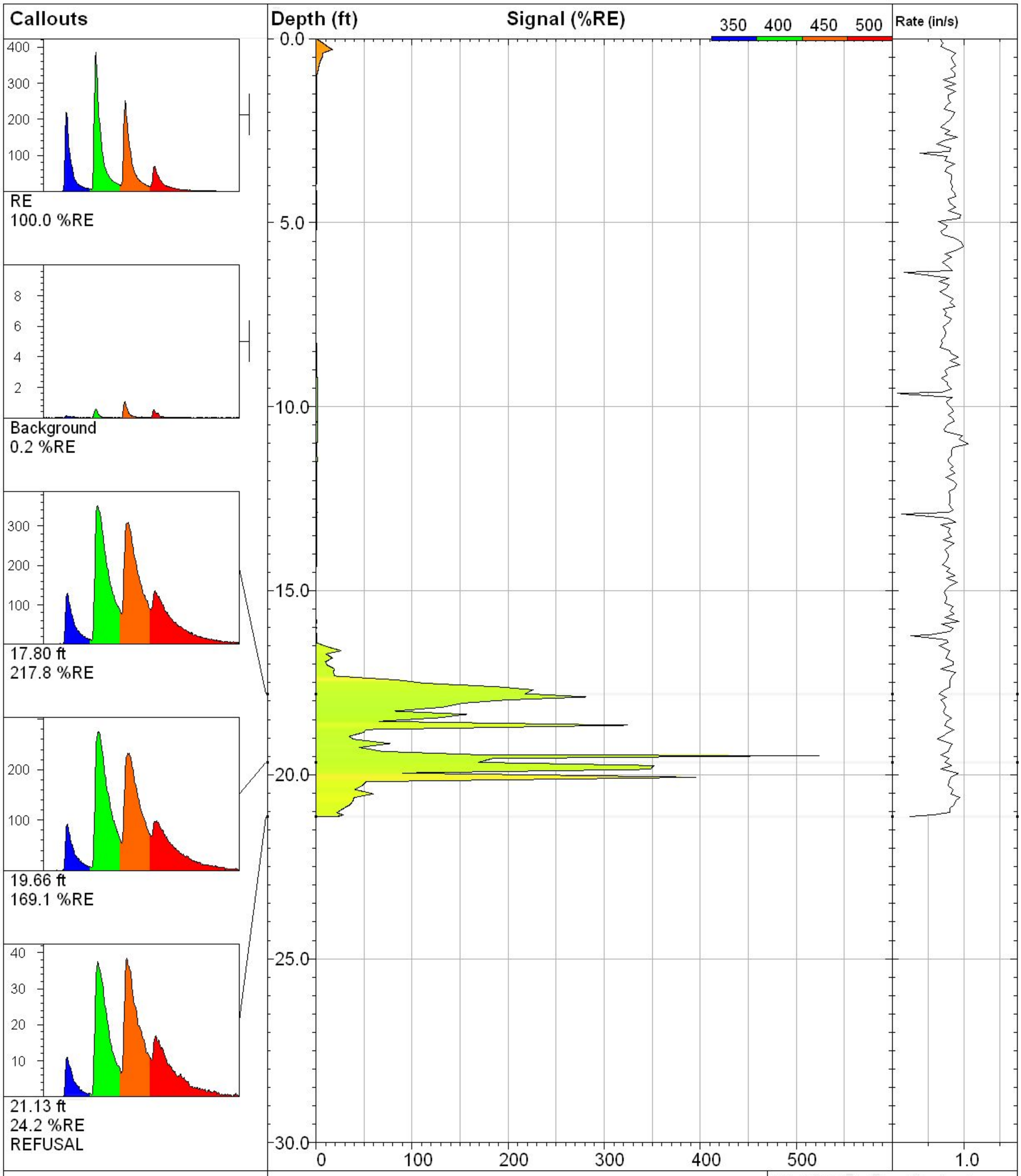


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-35**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.02 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **105.5 %RE @ 15.72 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 07:39 CDT**

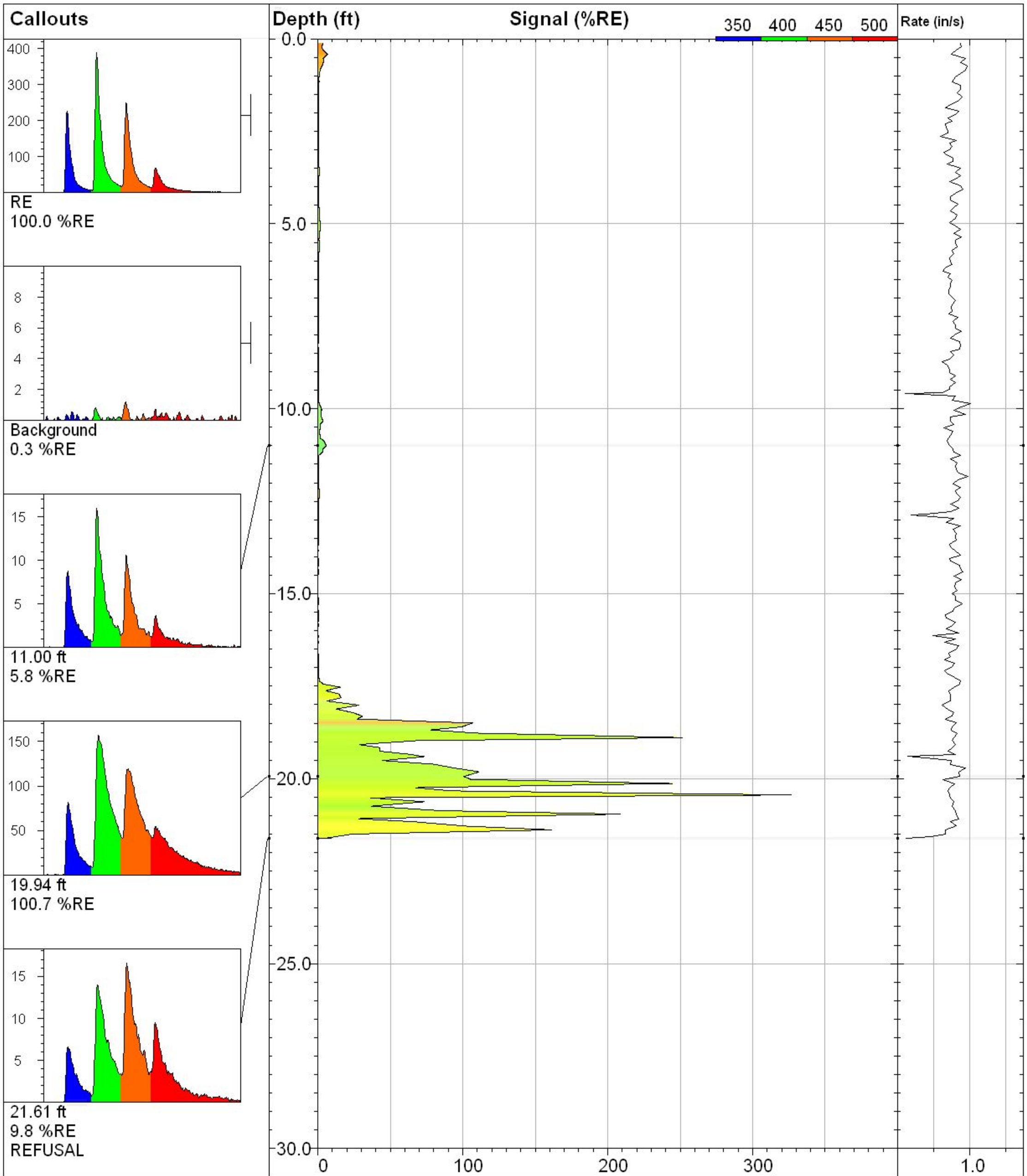


LIF-36		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **16.91 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **25.3 %RE @ 13.68 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 08:19 CDT**

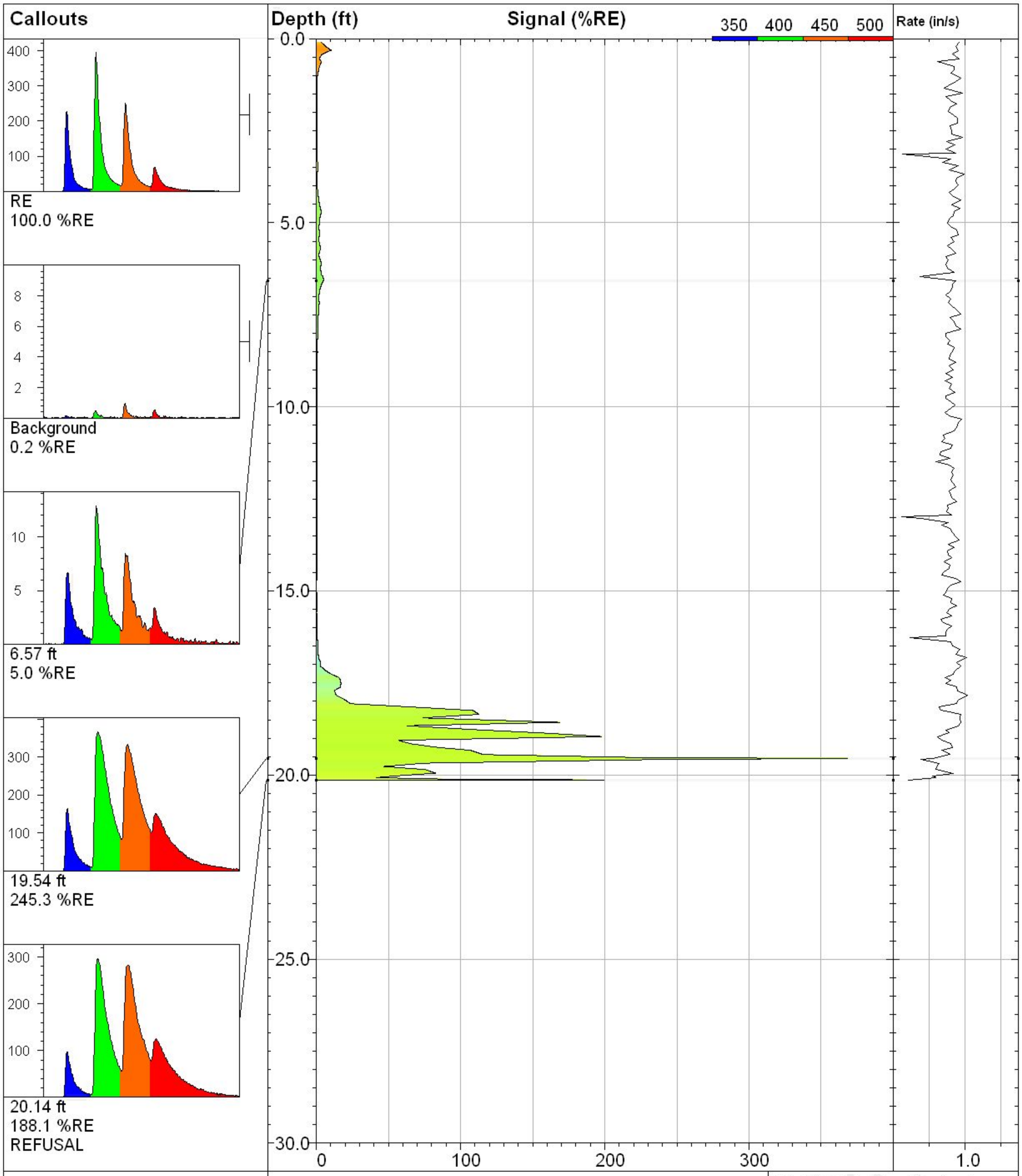
MATRIX ENVIRONMENTAL LLC
www.matrixenv.com



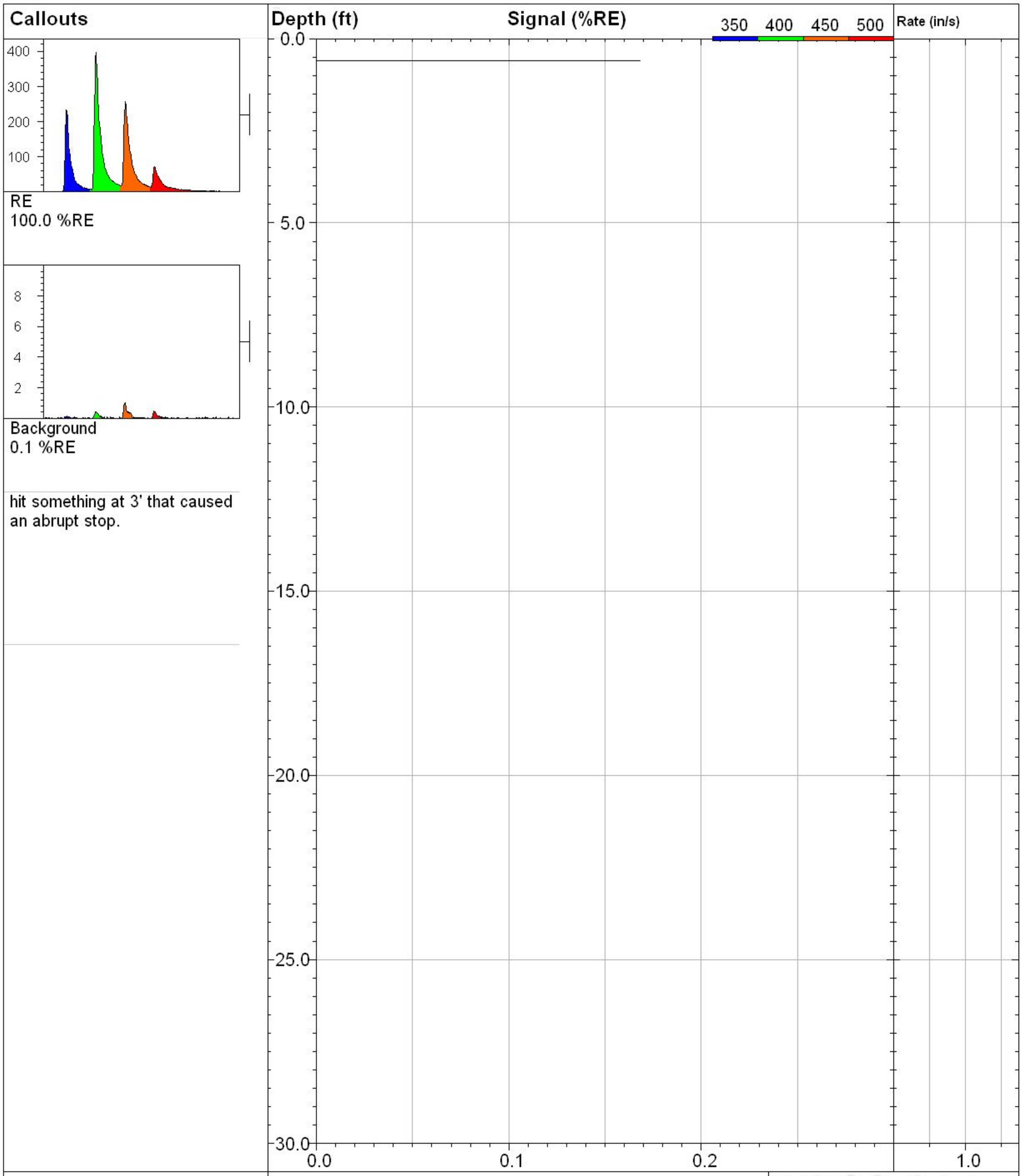
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-37**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.13 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **526.5 %RE @ 19.48 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 10:08 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-38**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.61 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **328.8 %RE @ 20.44 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 10:51 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-39**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.14 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **368.2 %RE @ 19.54 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 11:30 CDT**

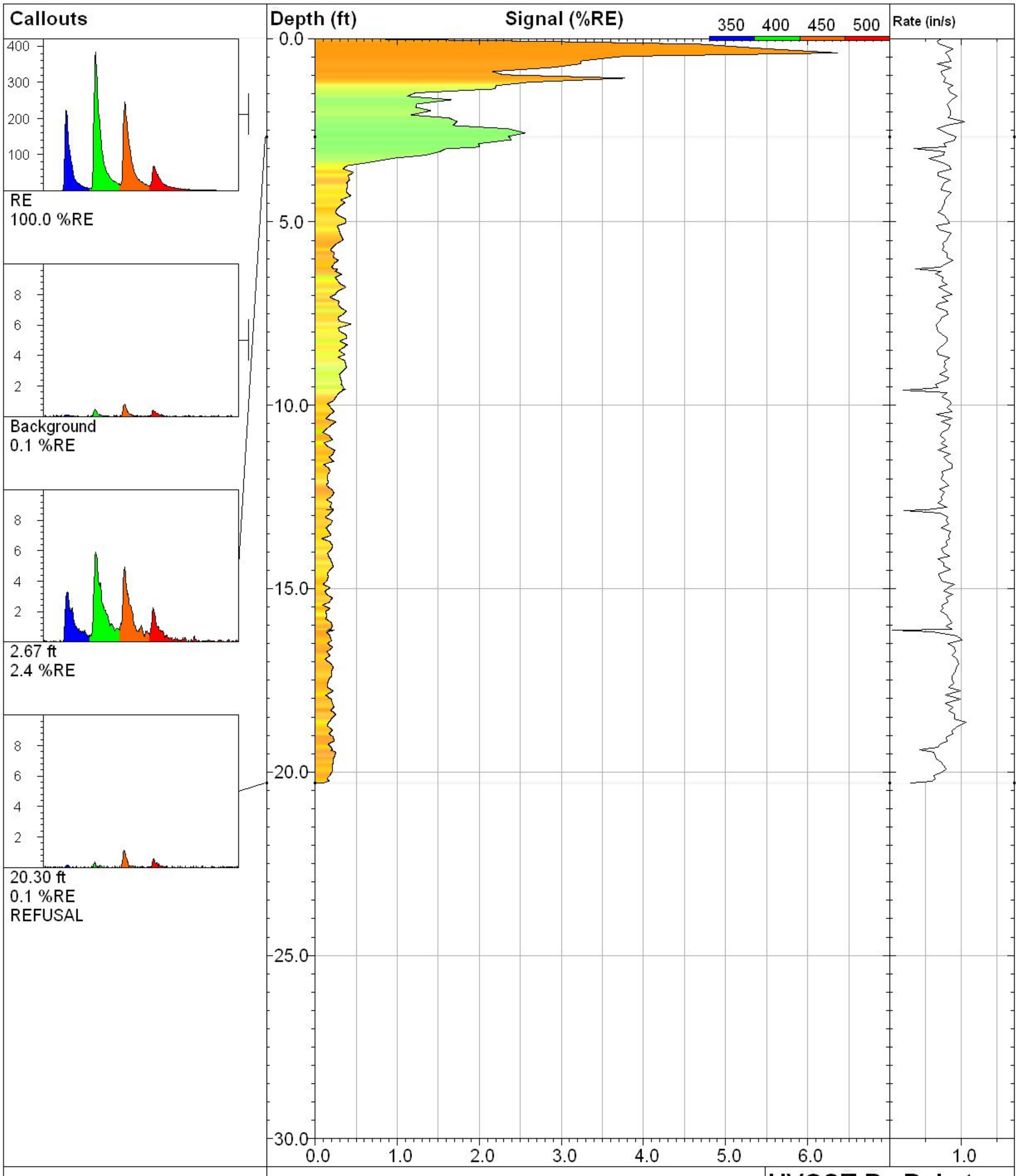


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

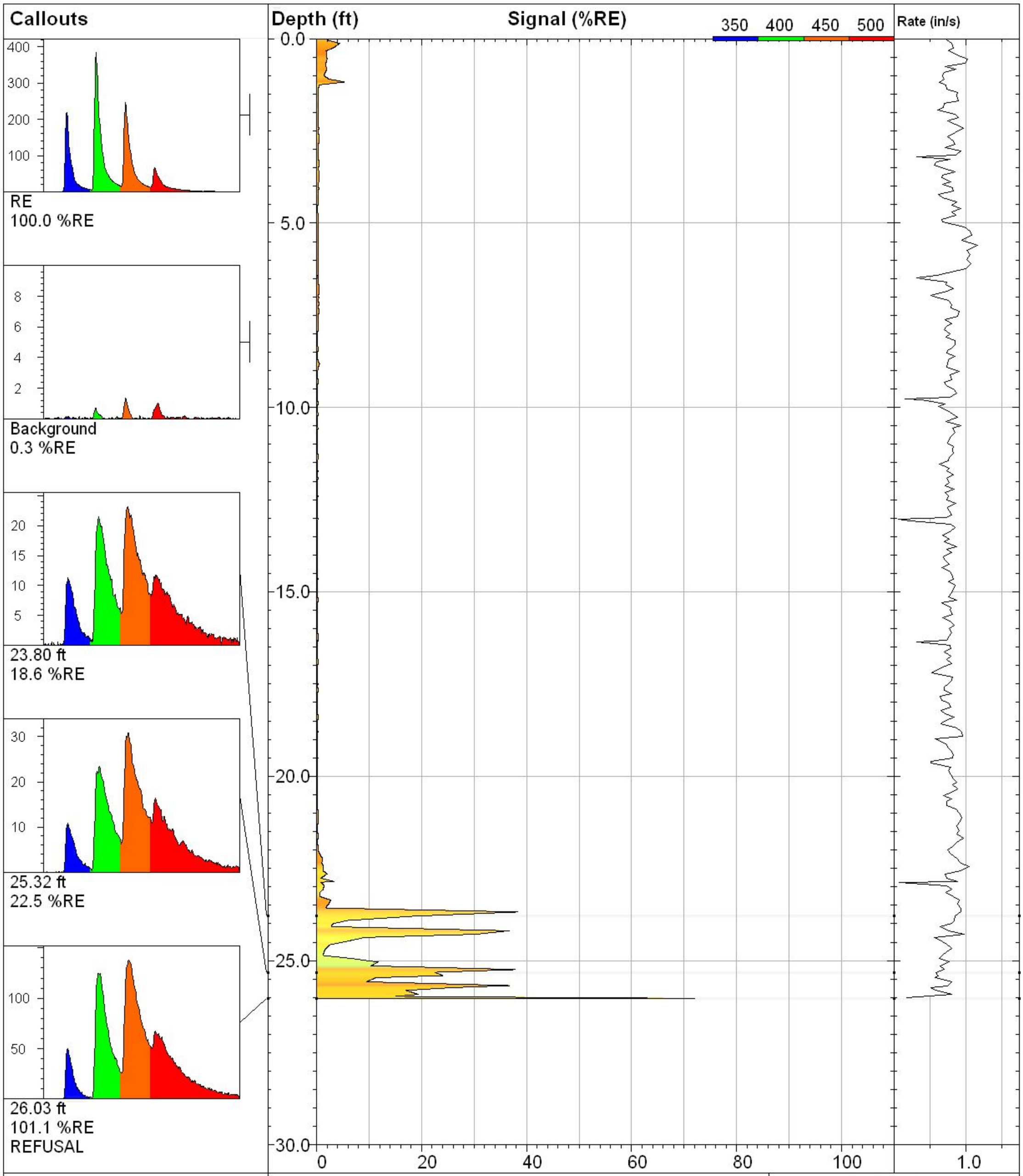
LIF-40

UVOST By Dakota
www.DakotaTechnologies.com

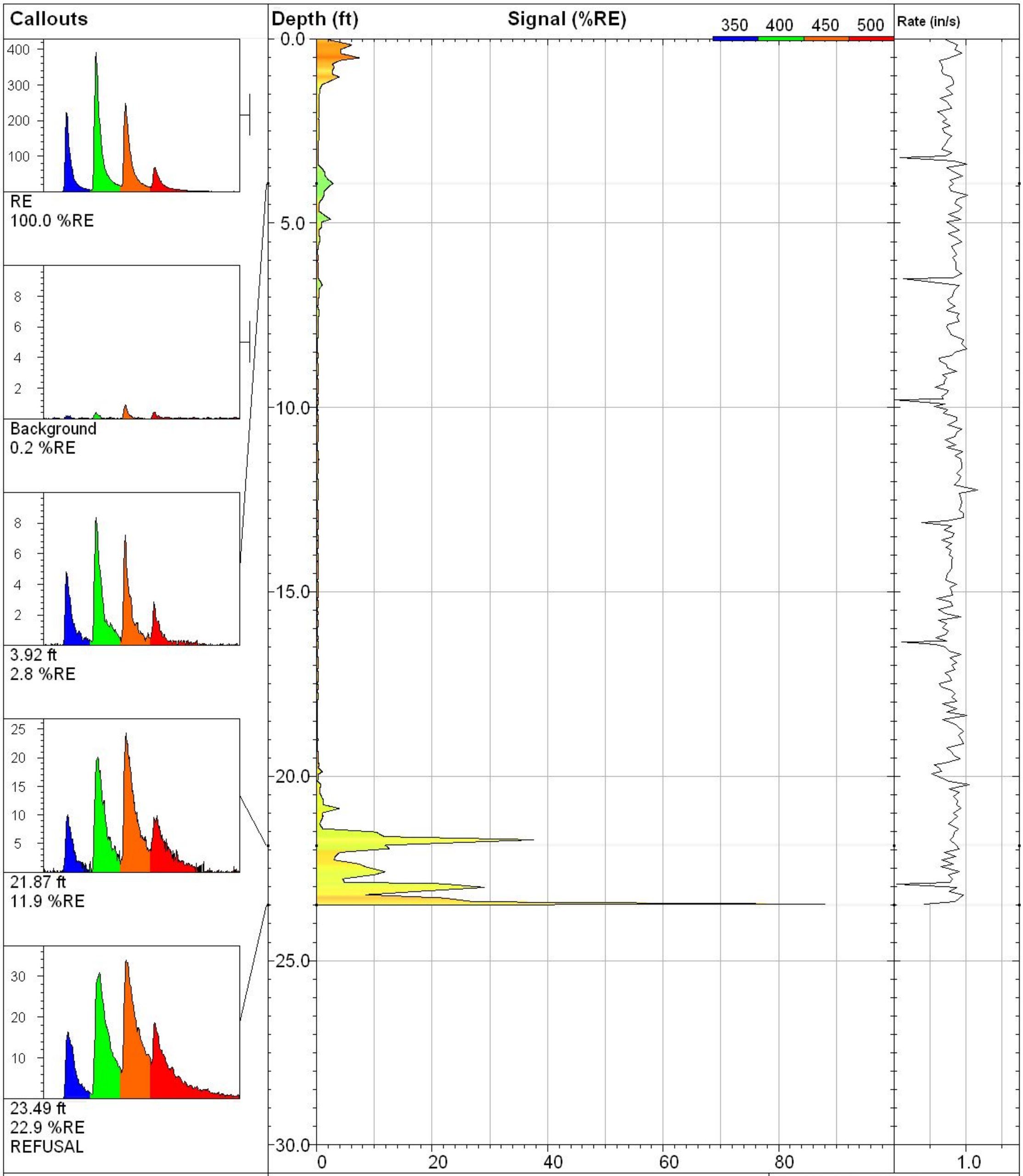
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **0.60 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **0.2 %RE @ 0.60 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 13:09 CDT**



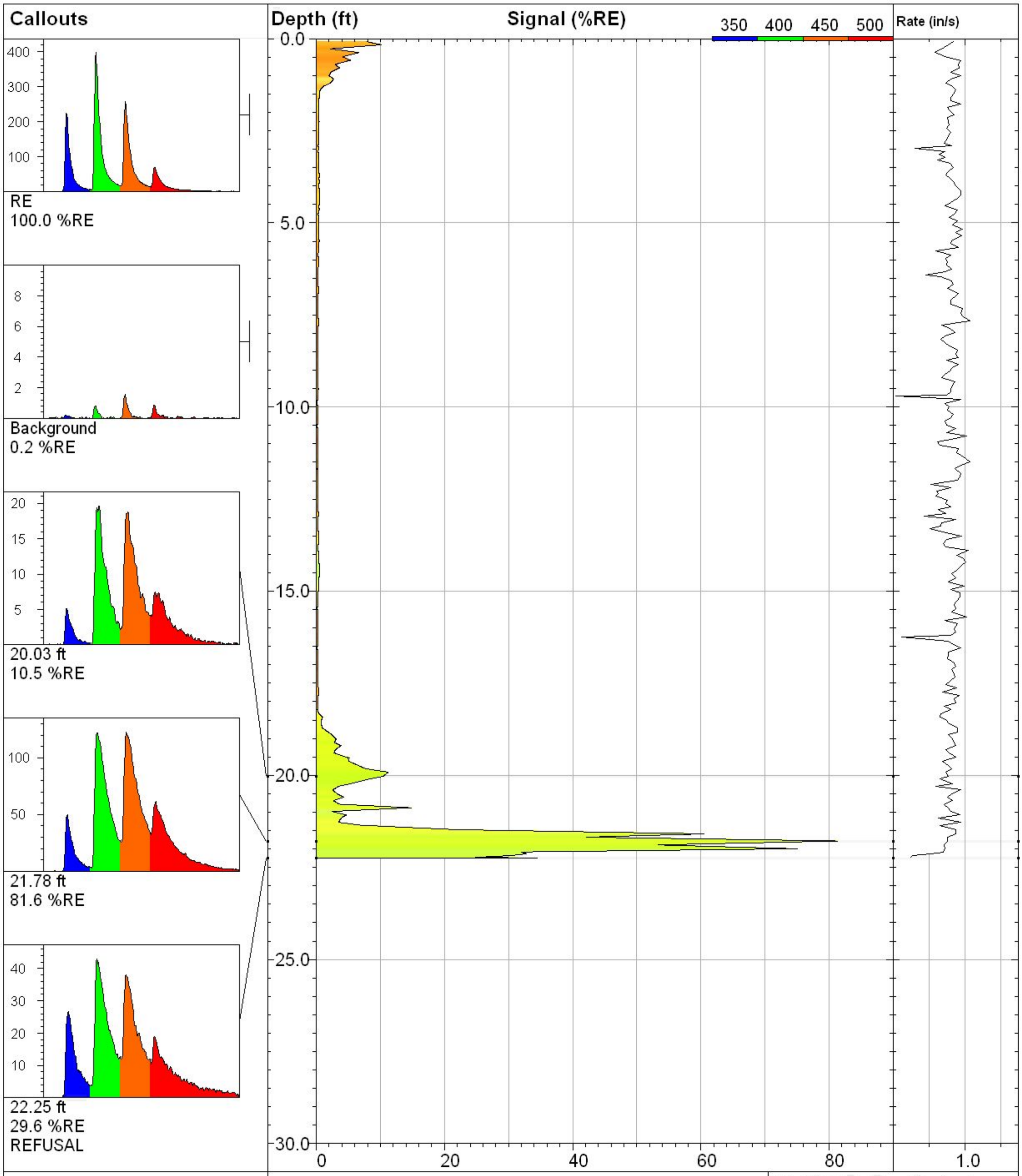
MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-40A**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **20.30 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **6.4 %RE @ 0.39 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 09:29 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-41**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.03 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **101.1 %RE @ 26.03 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 14:45 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-42**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.49 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **90.1 %RE @ 23.47 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 15:35 CDT**



LIF-43		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **22.25 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **81.6 %RE @ 21.78 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-09-30 16:26 CDT**

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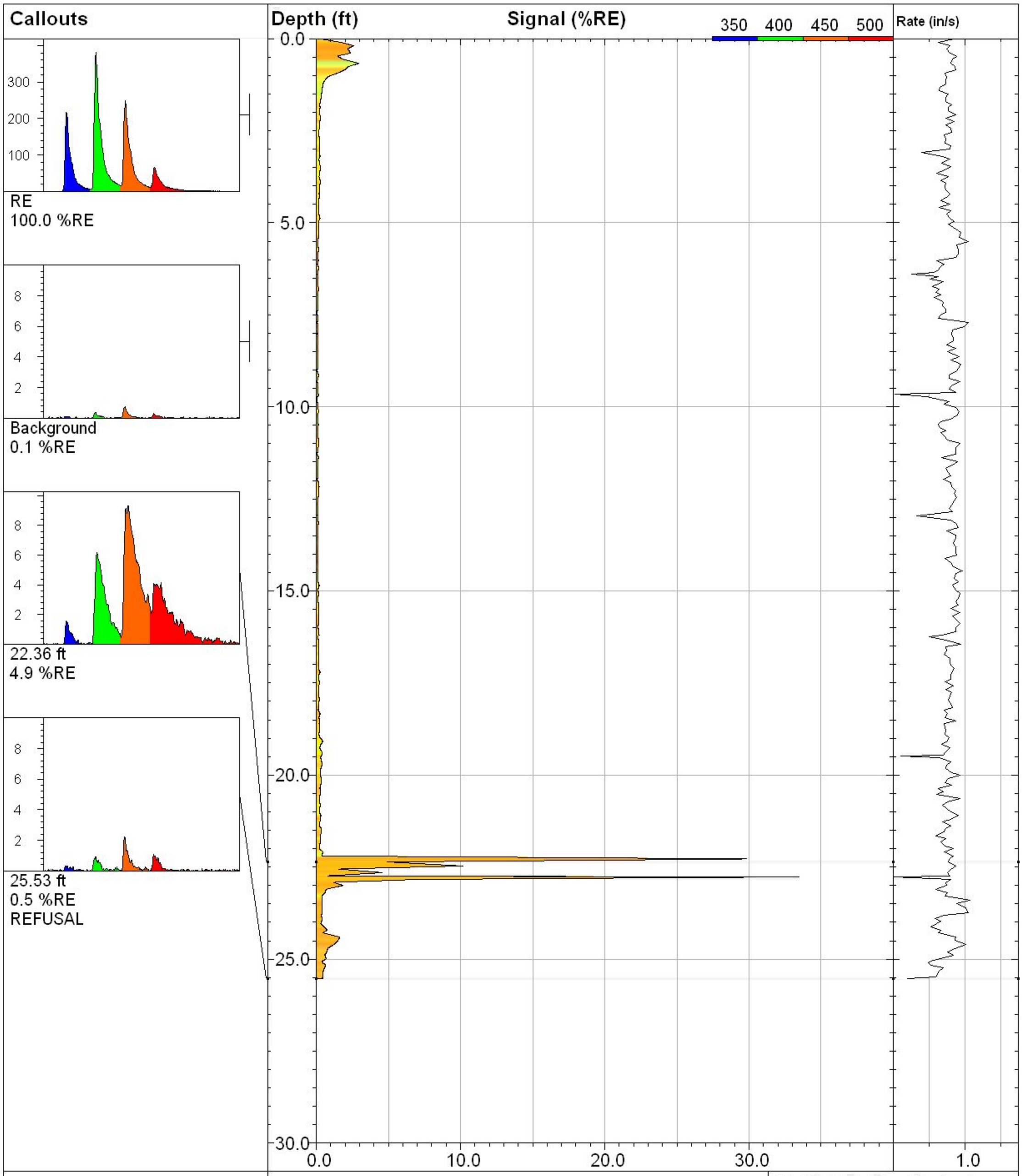

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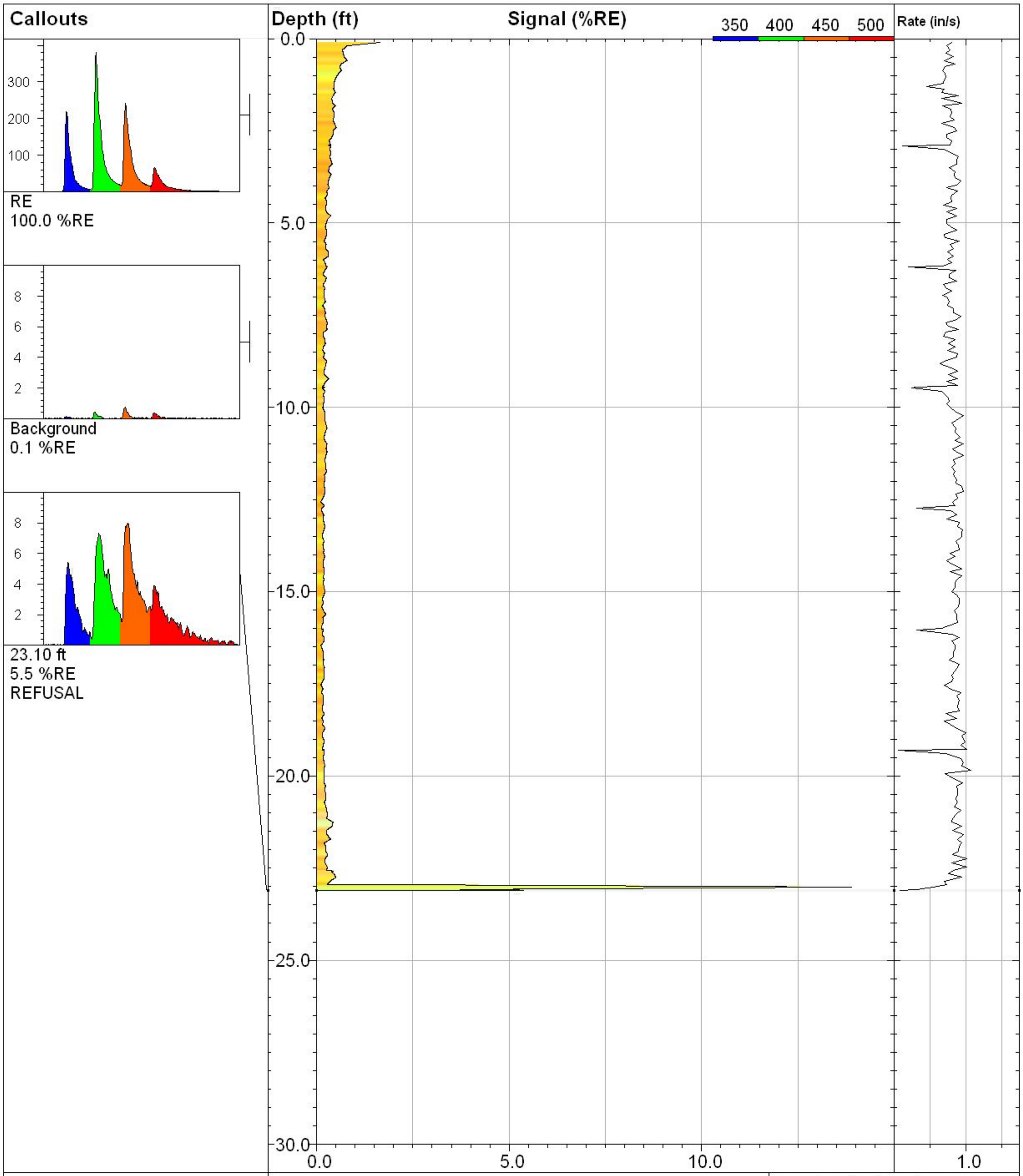
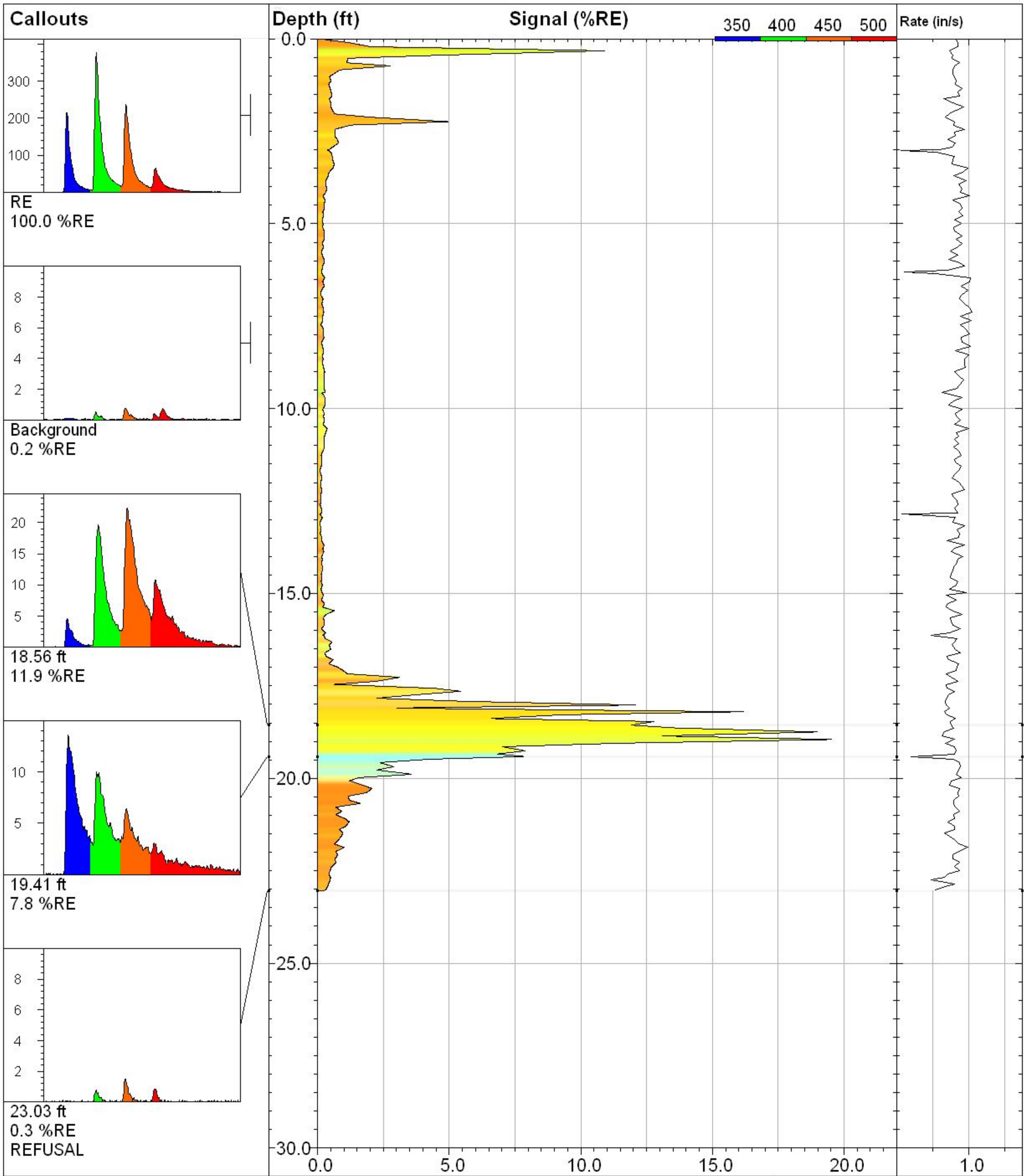
LIF-44

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.53 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **34.6 %RE @ 22.77 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 07:49 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-45**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.10 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **13.9 %RE @ 23.01 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 08:45 CDT**

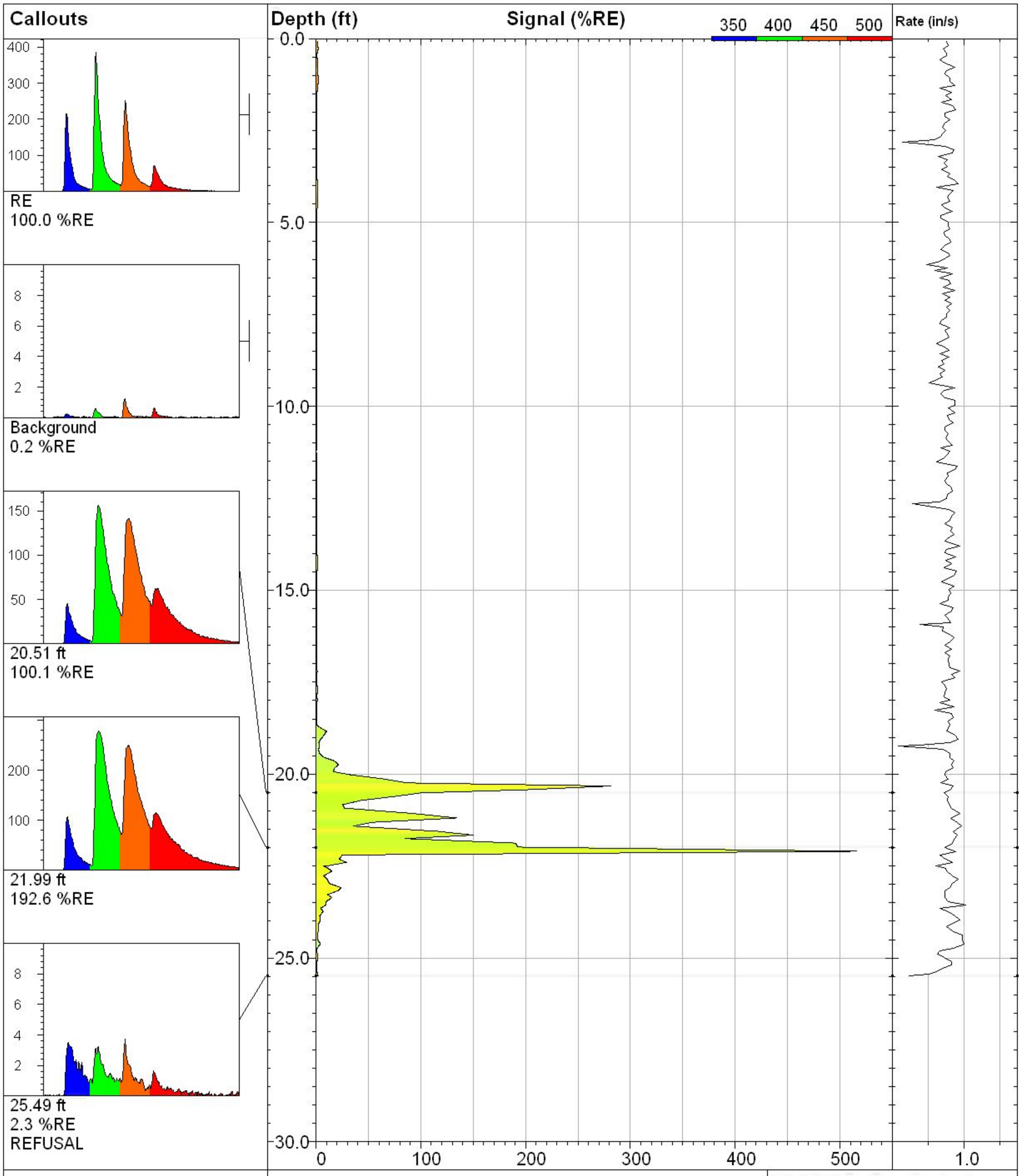


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

LIF-46

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.03 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **19.7 %RE @ 18.95 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 10:54 CDT**

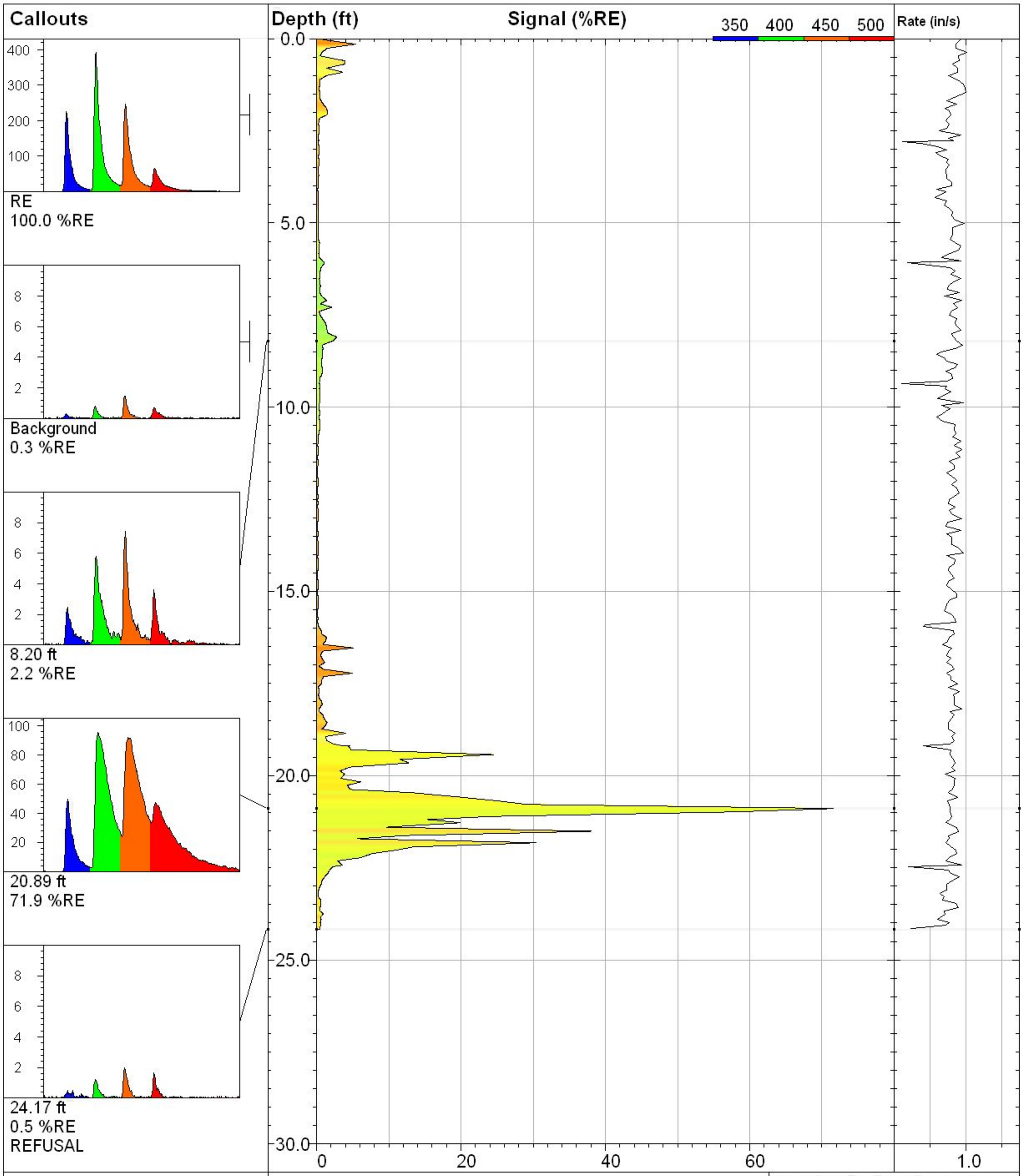


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

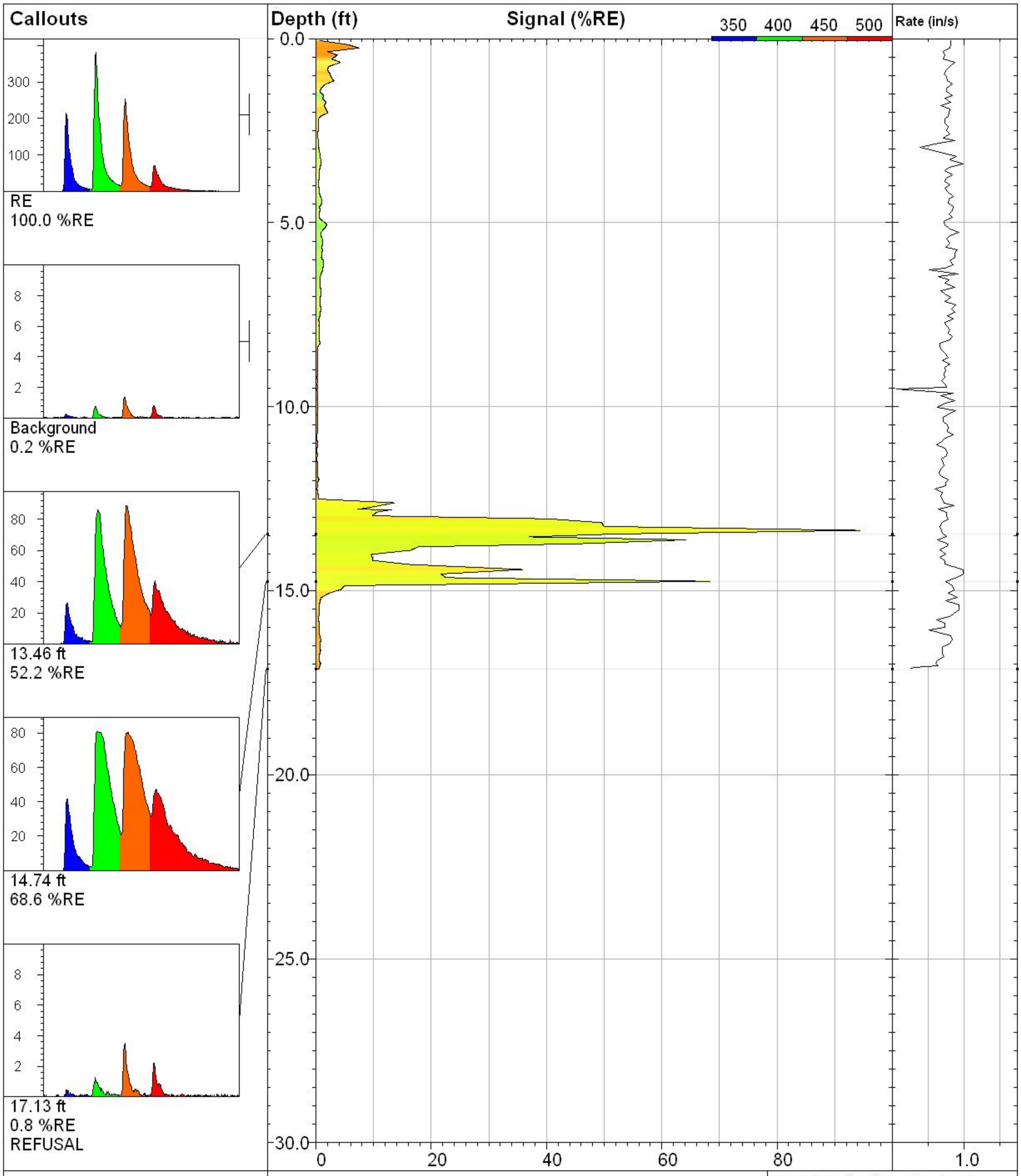
LIF-47

UVOST By Dakota
www.DakotaTechnologies.com

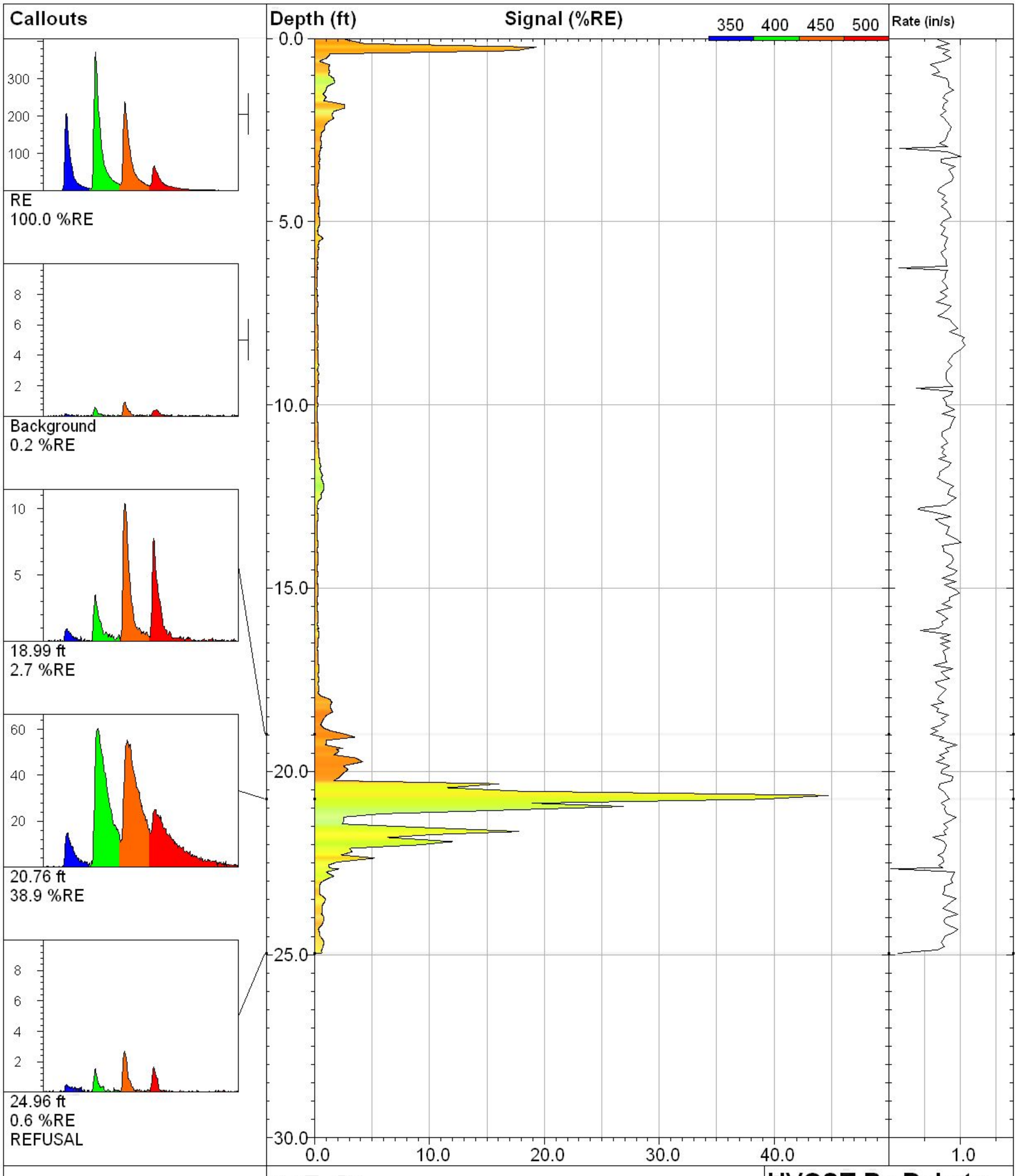
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **25.49 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **518.4 %RE @ 22.10 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 11:35 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-48**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.17 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **71.9 %RE @ 20.89 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 13:18 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-49**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **17.13 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **95.0 %RE @ 13.36 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 14:05 CDT**



LIF-50		**UVOST By Dakota** www.DakotaTechnologies.com
Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **24.96 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **44.8 %RE @ 20.66 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 15:39 CDT**

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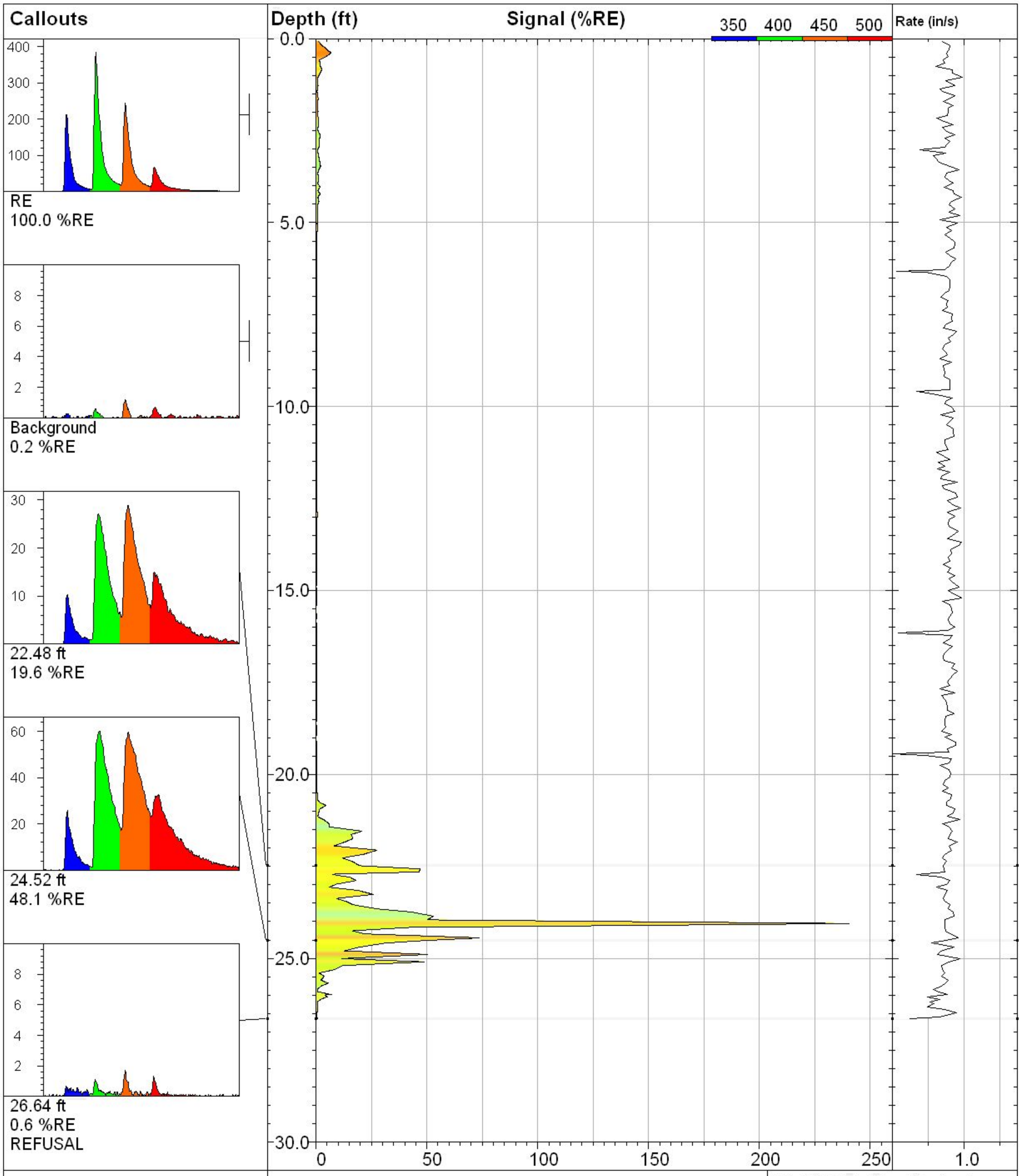
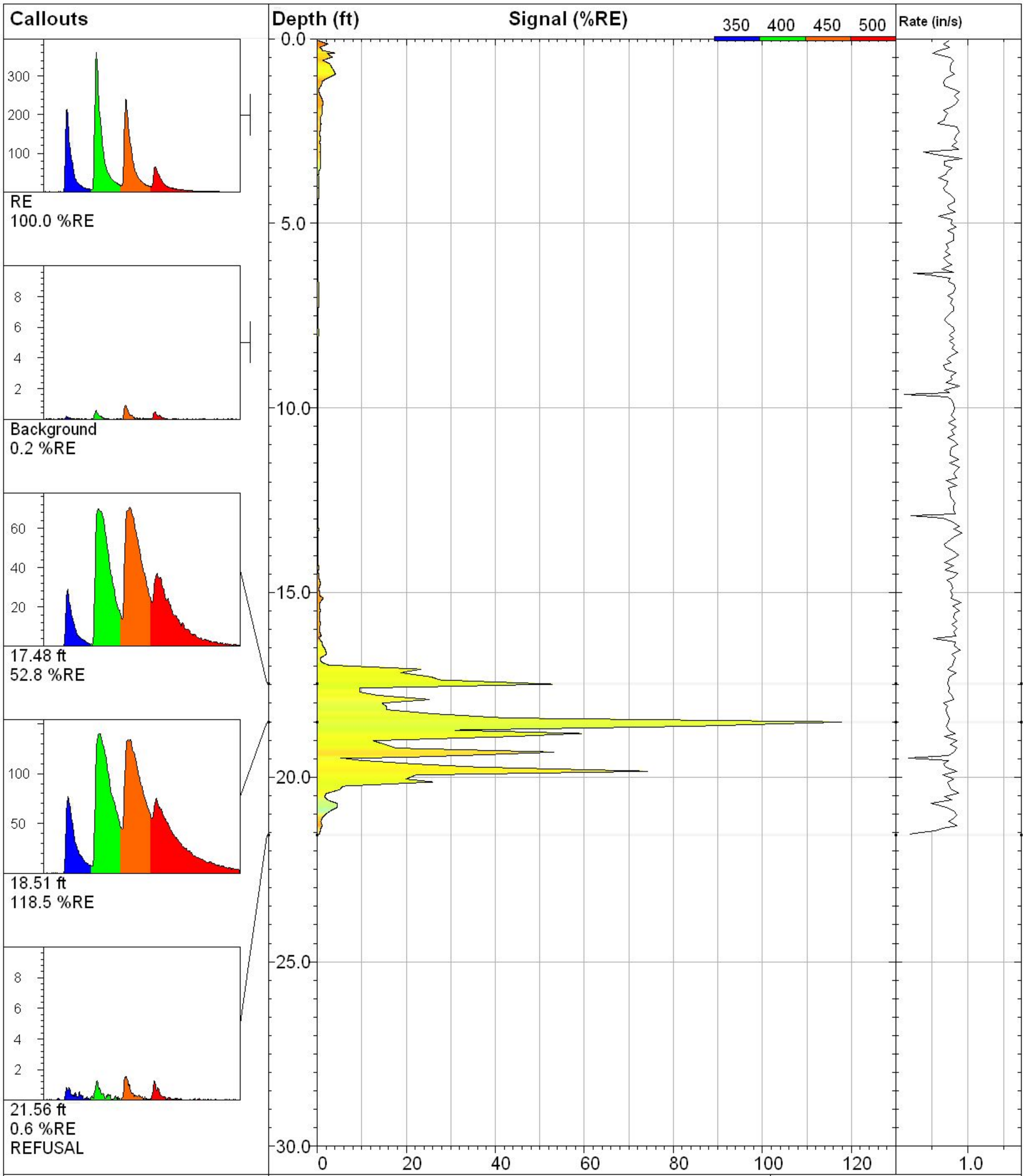
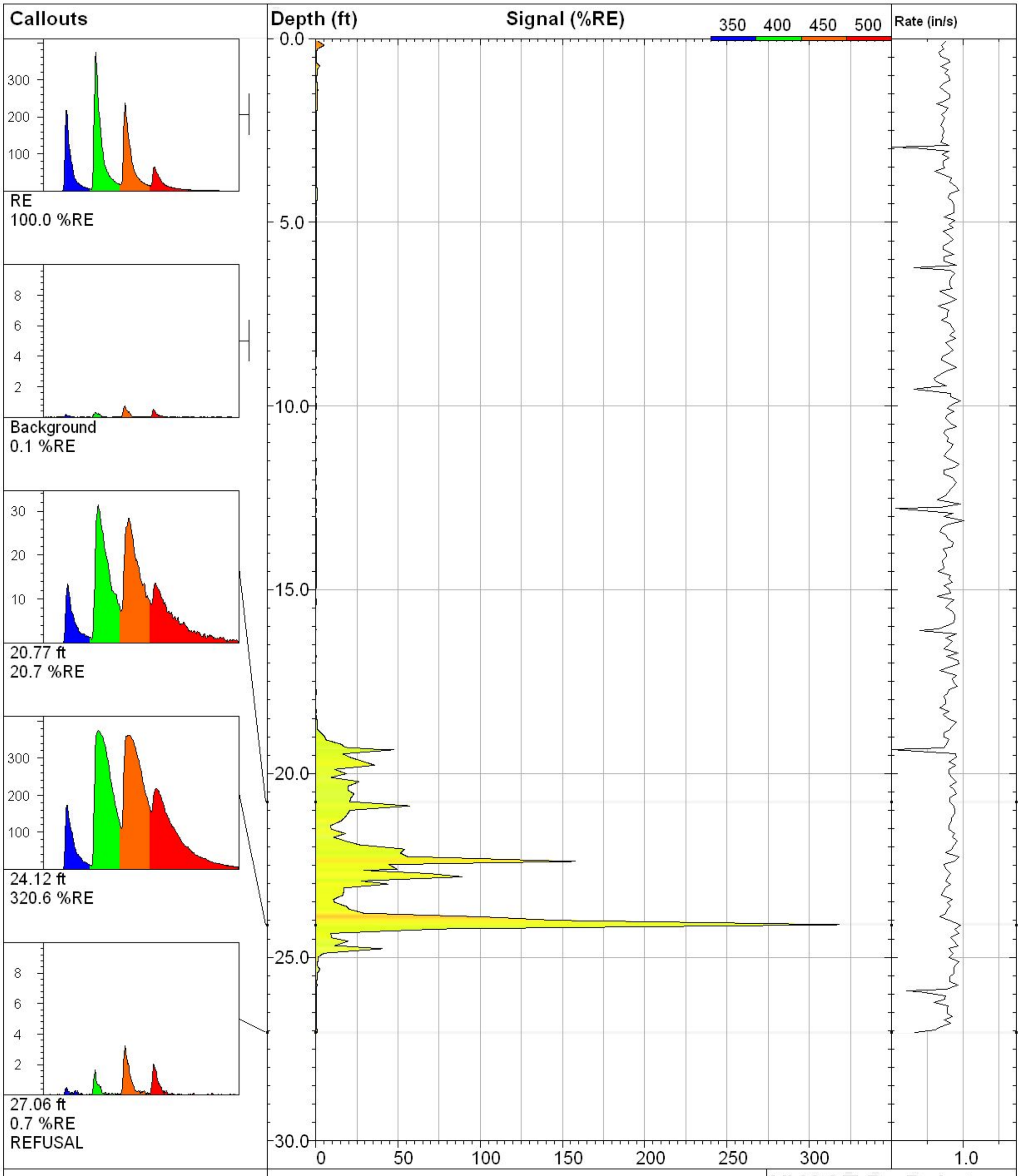


MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-51**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.64 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **242.7 %RE @ 24.05 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-01 16:19 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-52**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **21.56 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **118.5 %RE @ 18.51 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 08:02 CDT**



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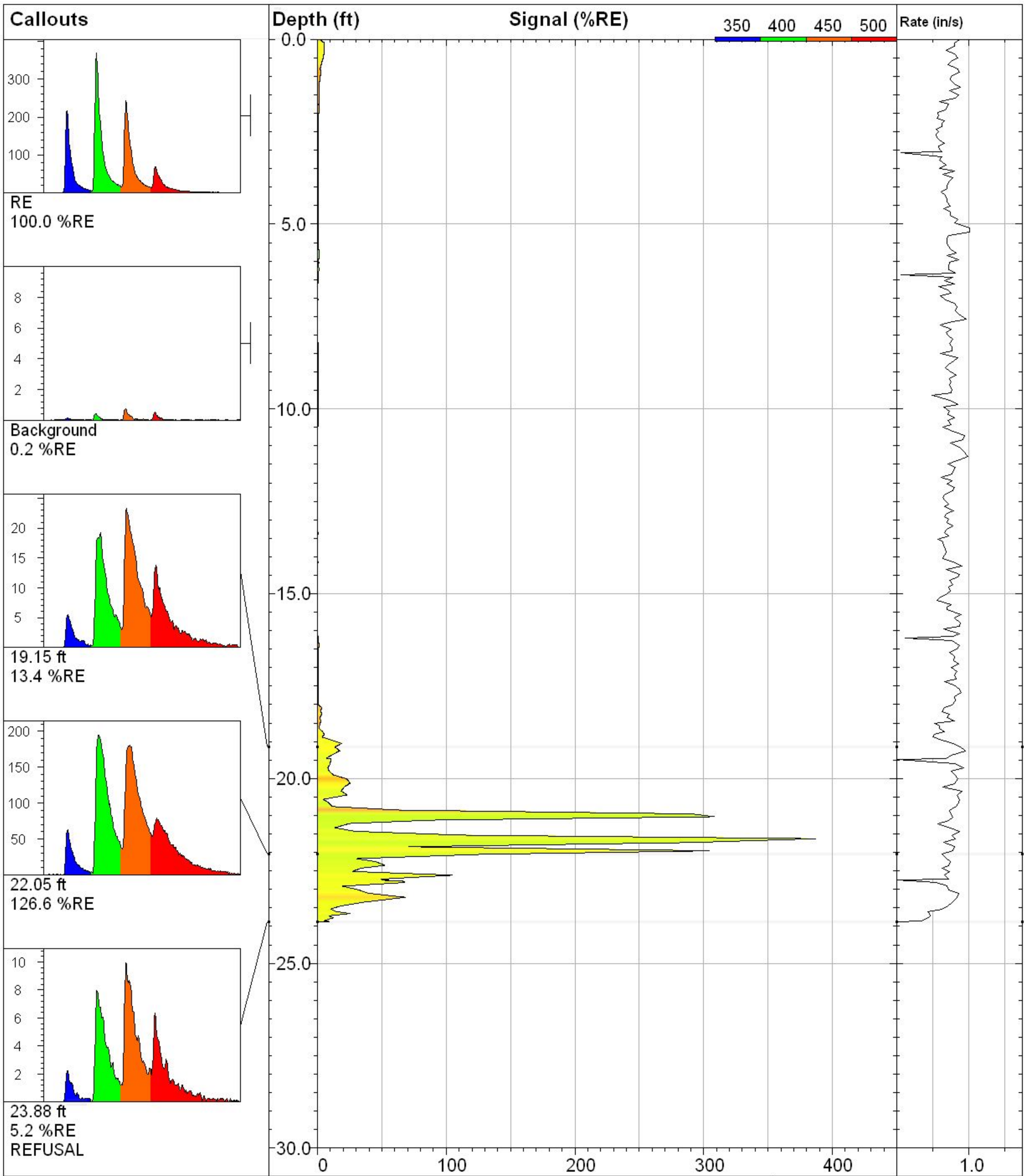
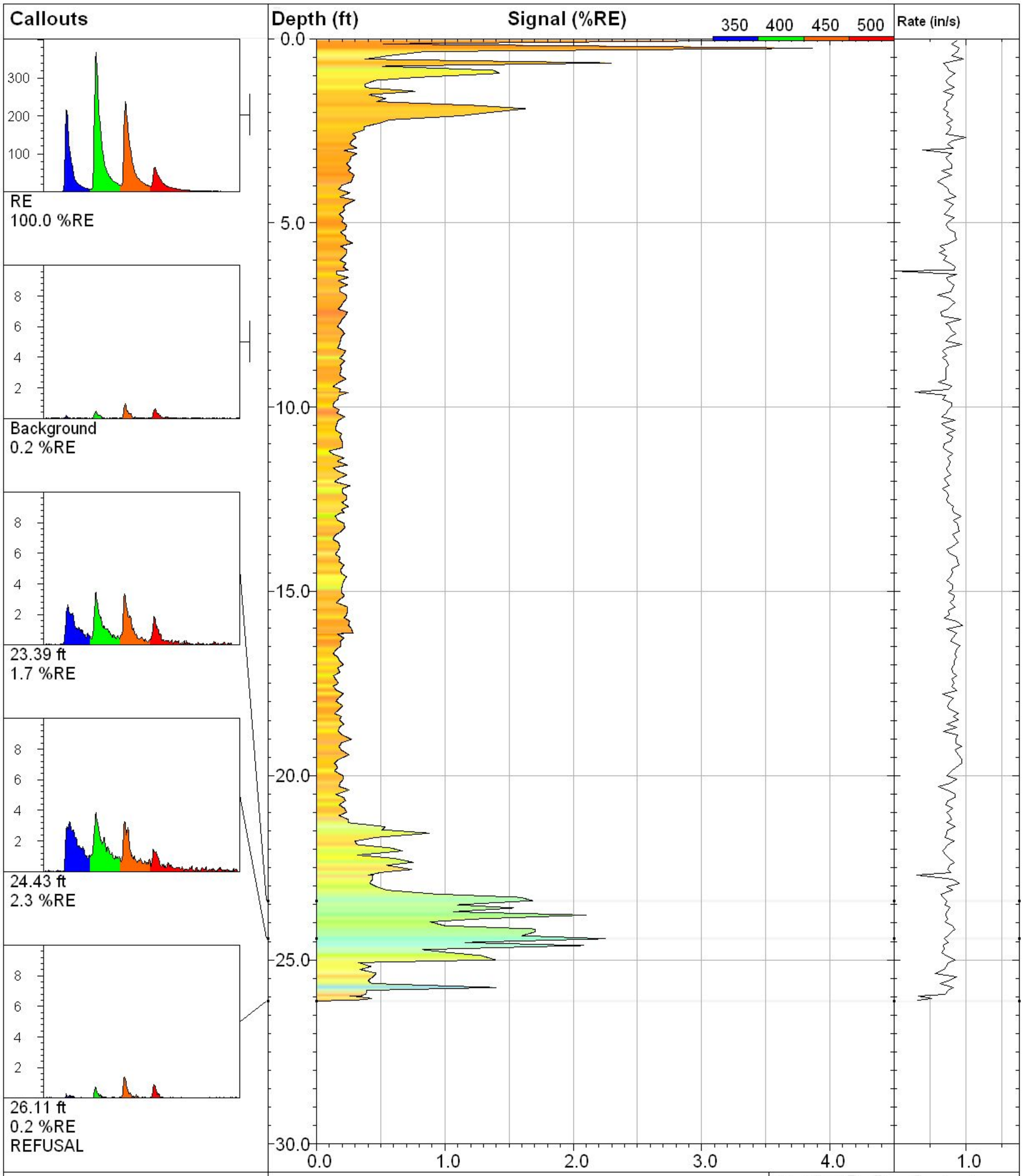
LIF-53

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **27.06 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **320.6 %RE @ 24.11 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 08:48 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-54**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **23.88 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **388.2 %RE @ 21.63 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 10:07 CDT**



MATRIX ENVIRONMENTAL LLC
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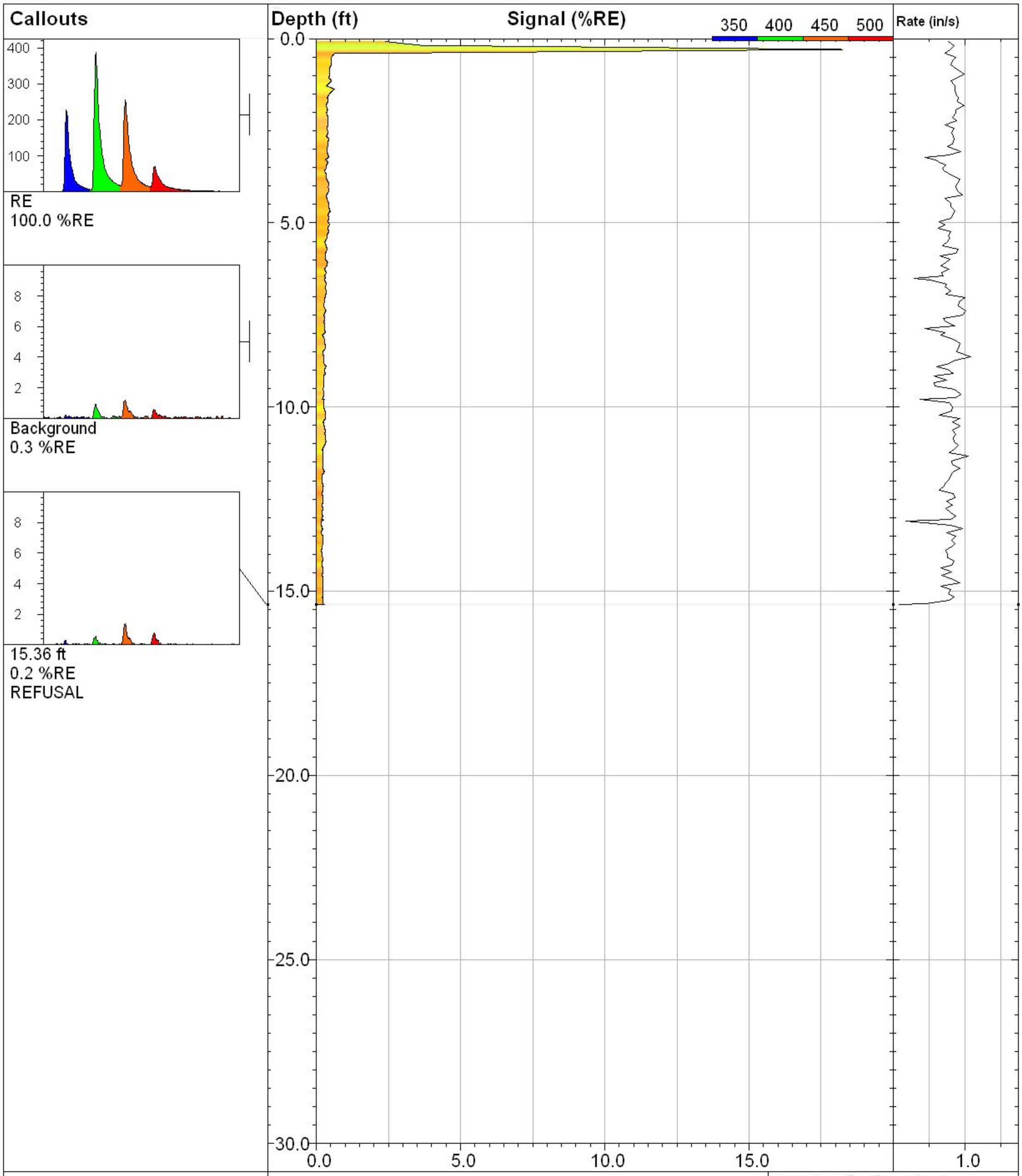
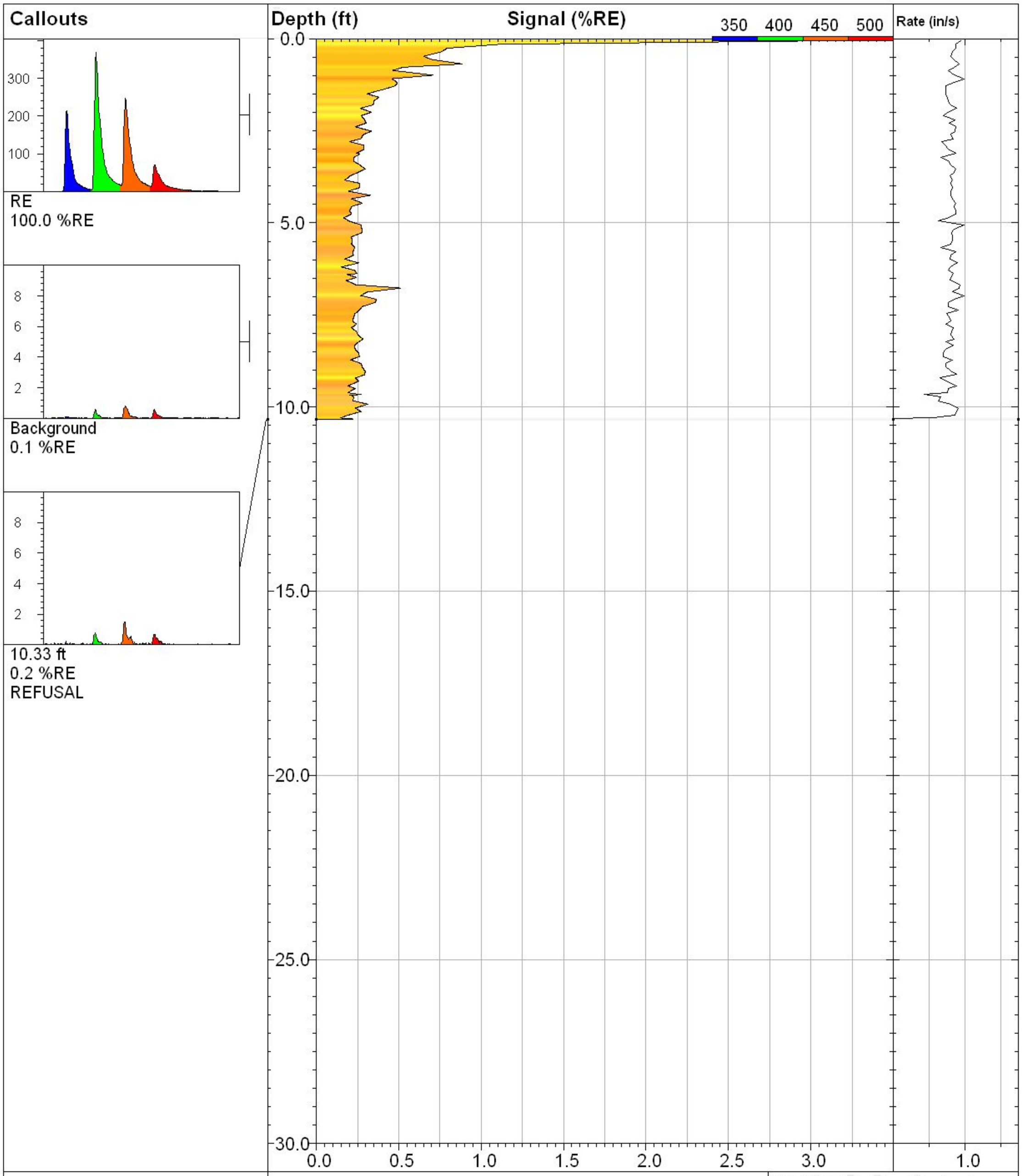
LIF-55

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **26.11 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.9 %RE @ 0.26 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 10:55 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-56**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **15.36 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **18.5 %RE @ 0.29 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 13:12 CDT**



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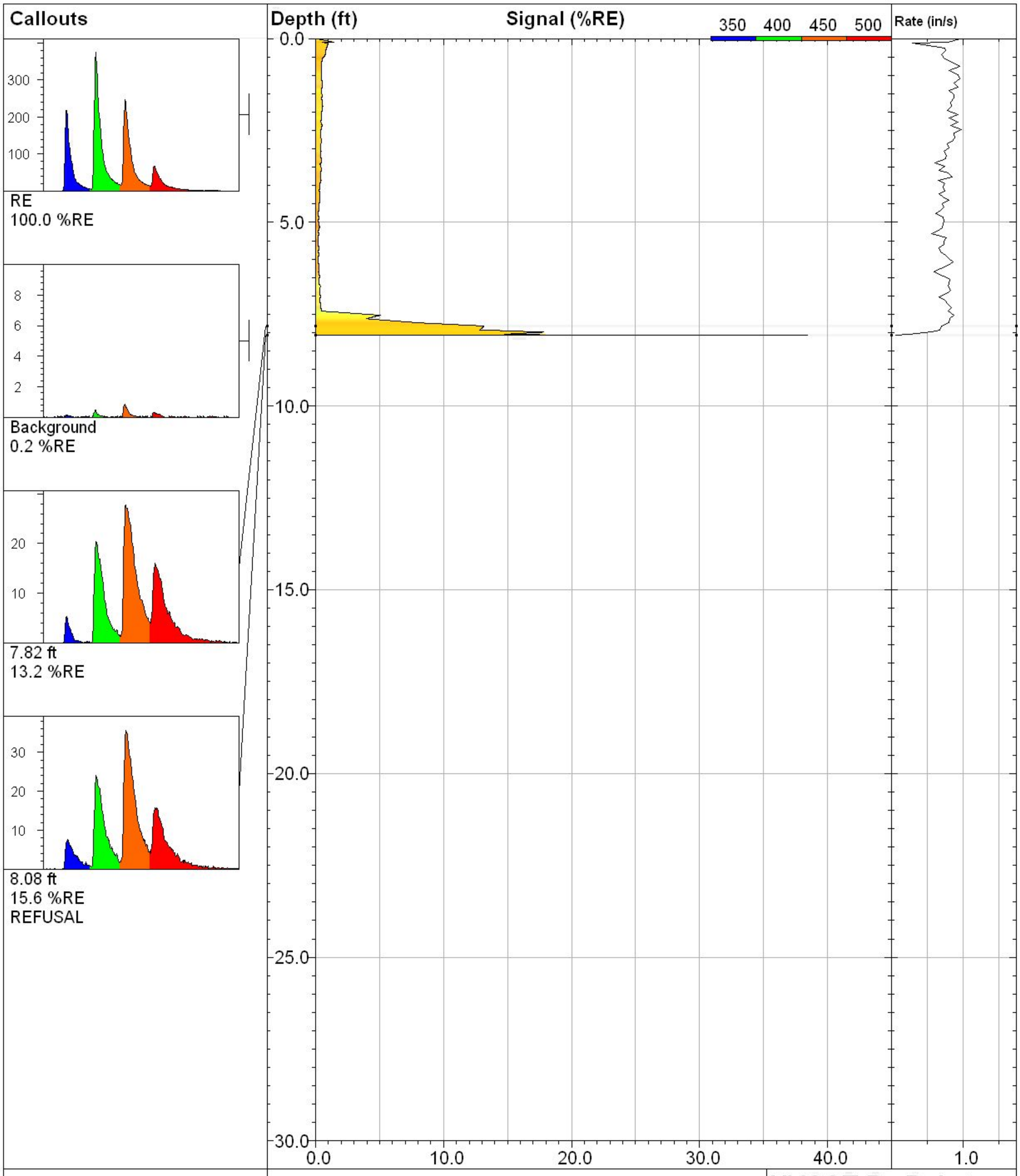
LIF-57

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **10.33 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.1 %RE @ 0.06 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 13:46 CDT**

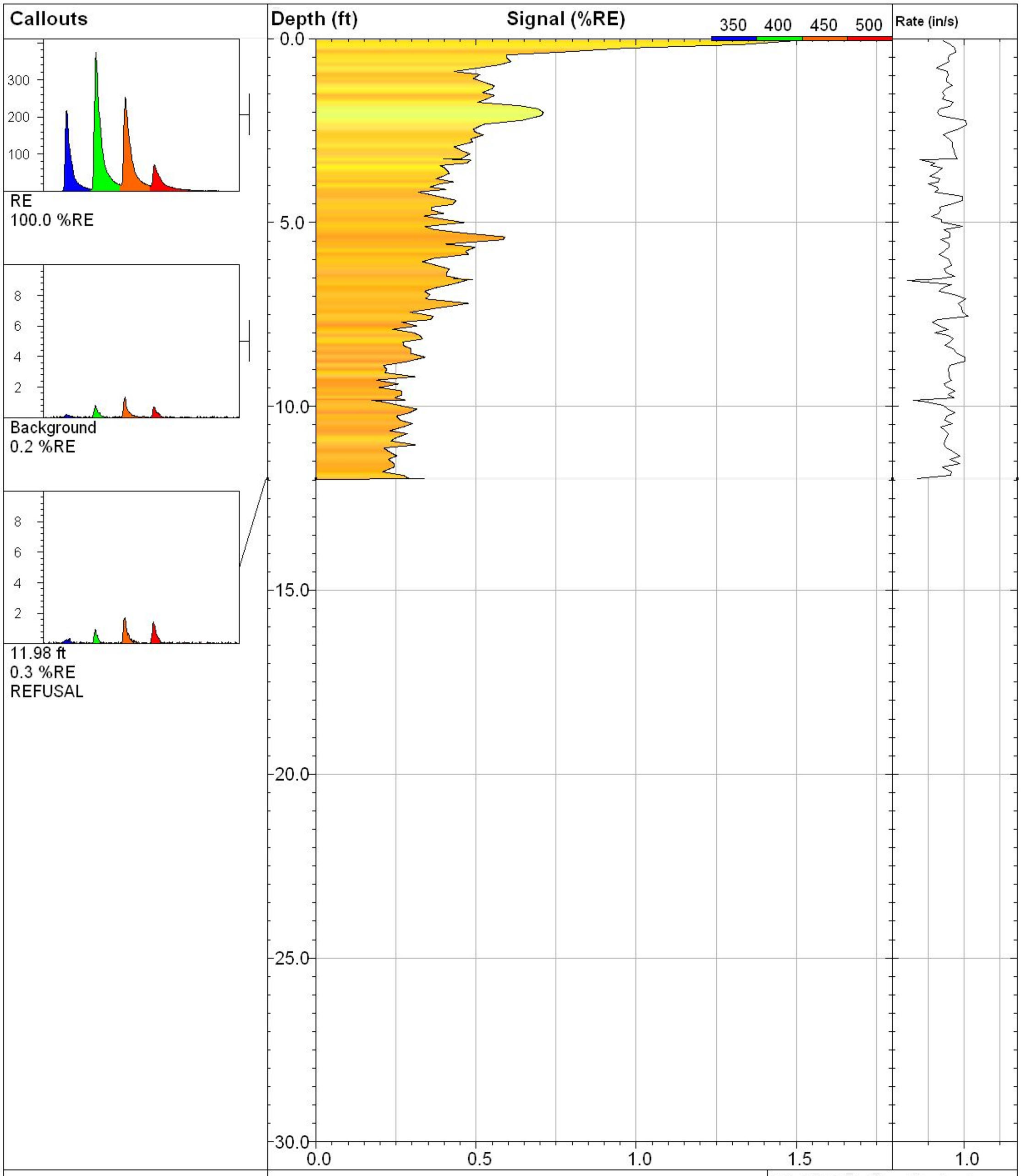


MATRIX ENVIRONMENTAL LLC
www.matrixenv.com

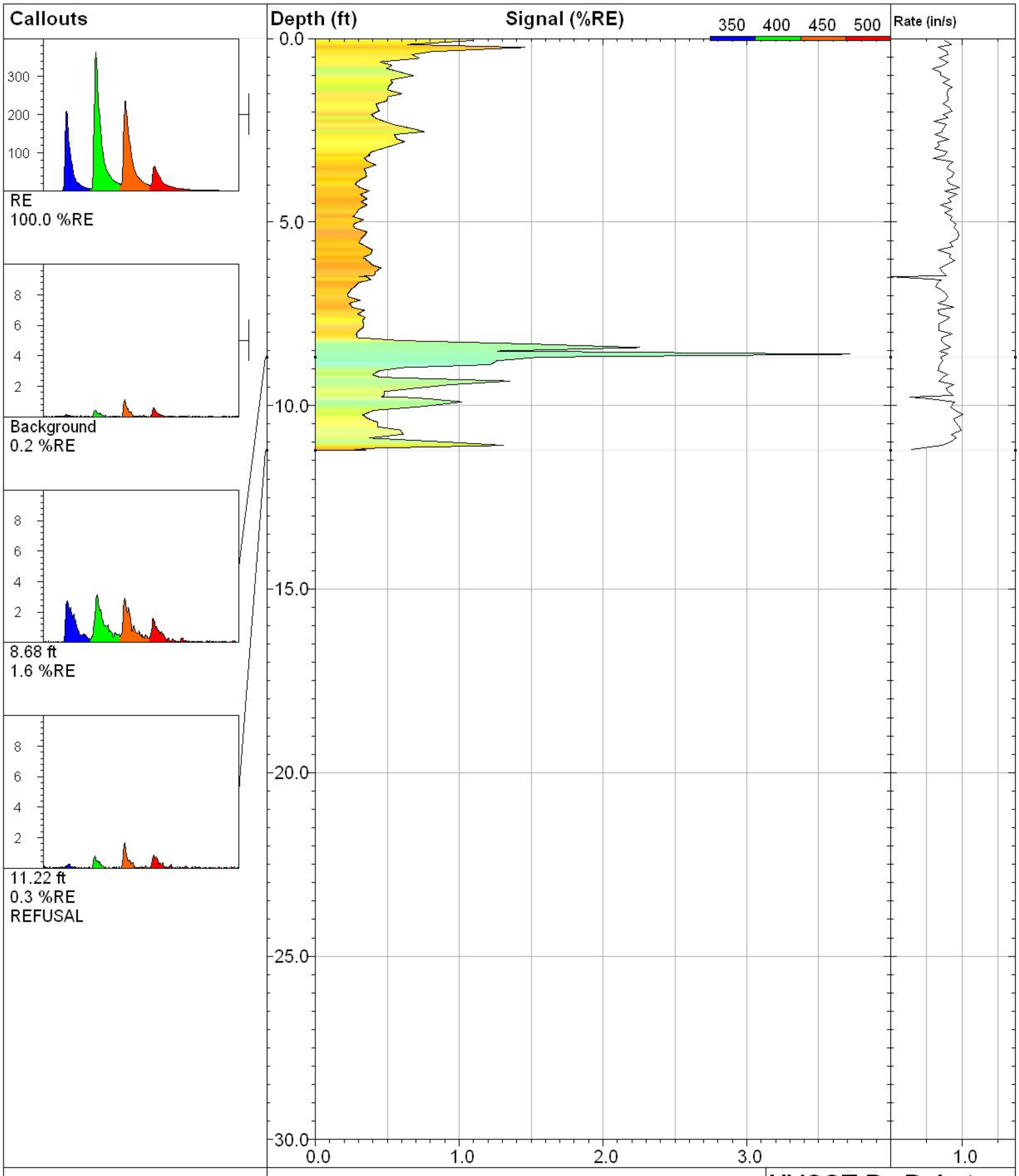
LIF-58

UVOST By Dakota
www.DakotaTechnologies.com

Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **8.08 ft**
Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **42.2 %RE @ 8.07 ft**
Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 14:15 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-59**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **11.98 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **1.5 %RE @ 0.05 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 14:42 CDT**



MATRIX ENVIRONMENTAL LLC www.matrixenv.com	**LIF-60**		**UVOST By Dakota** www.DakotaTechnologies.com
	Site: **Former Amoco Refinery**	*Y Coord.(Lat-N) / System:* **Unavailable / NA**	*Final depth:* **11.21 ft**
	Client / Job: **Burns & McDonnell / 242.**	*X Coord.(Lng-E) / Fix:* **Unavailable / NA**	*Max signal:* **3.7 %RE @ 8.60 ft**
	Operator / Unit: **DT / UVOST1023**	*Elevation:* **Unavailable**	*Date & Time:* **2014-10-02 15:09 CDT**

CPT Sounding Logs

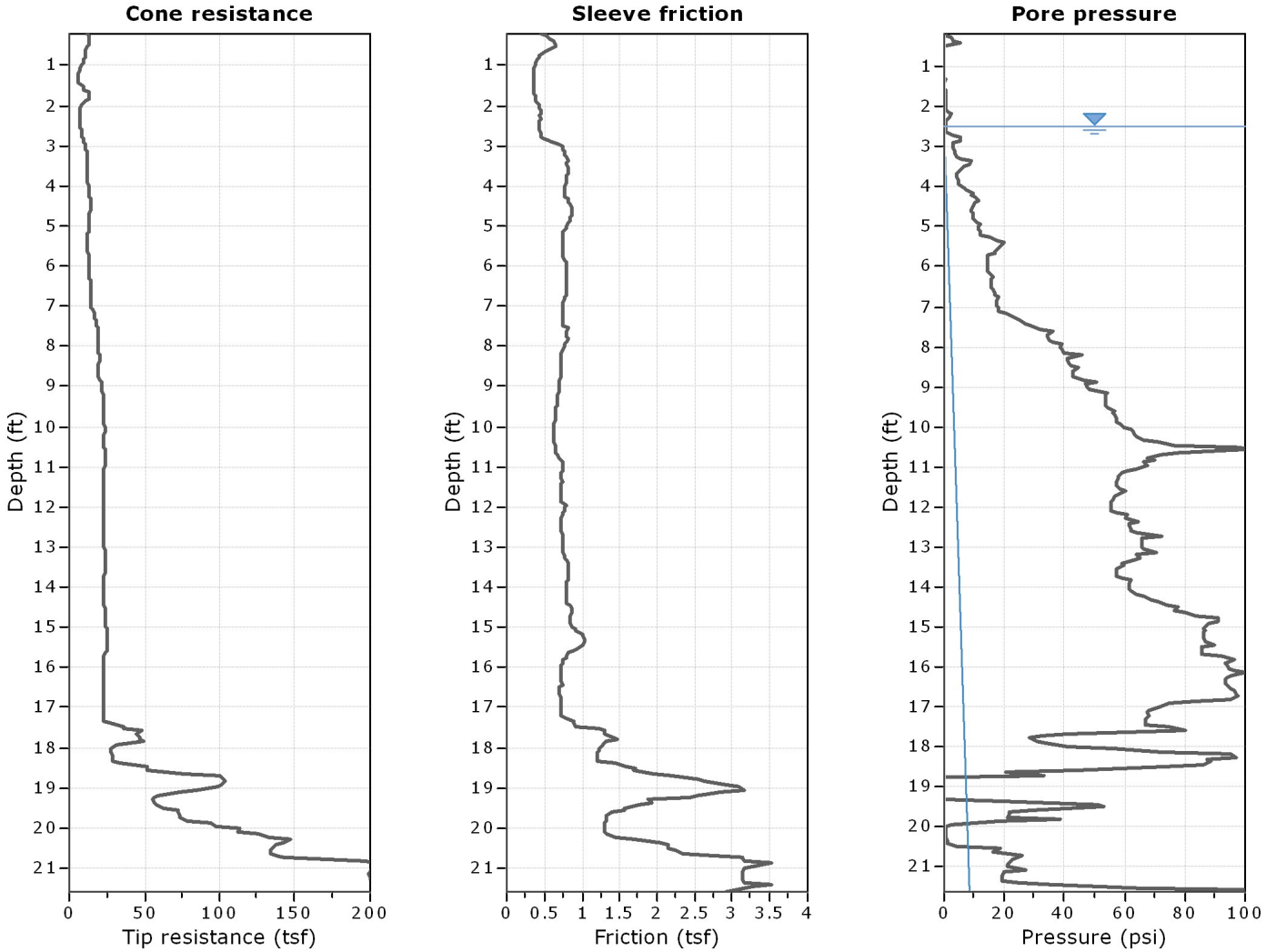
Furnished by:

Geotechnology, INC.

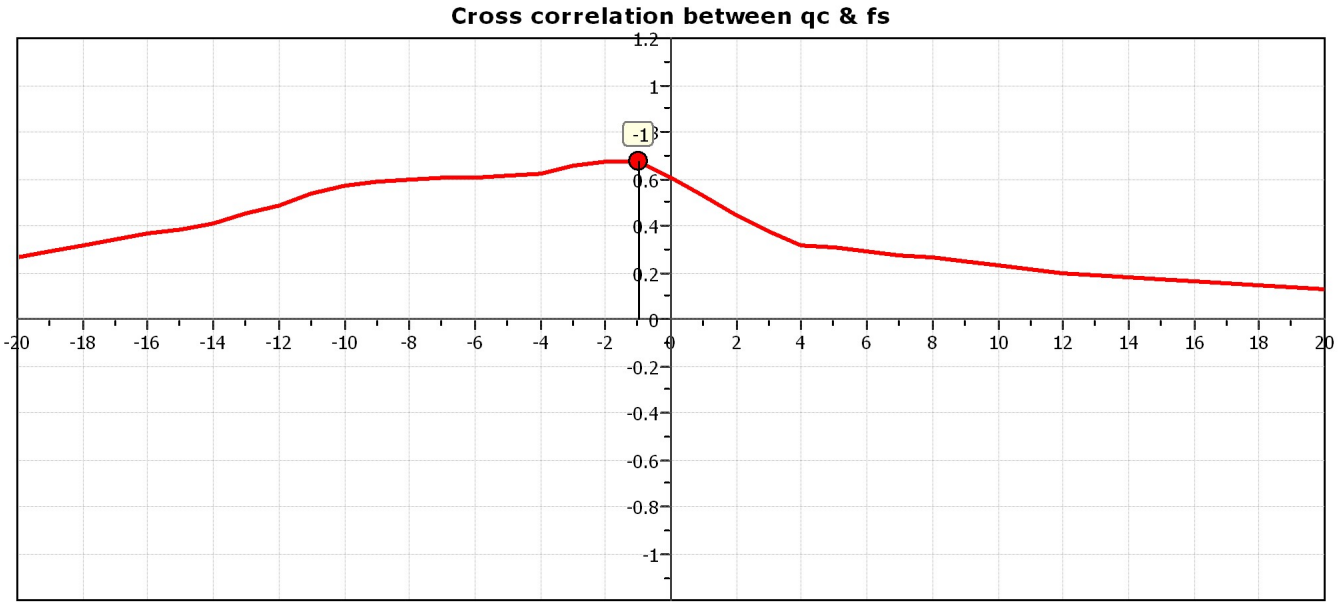
Geotechnology, Inc.
11816 Lackland Road, Suite 150
St. Louis, Missouri 63146
http://www.geotechnology.com

Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-1
Total depth: 21.59 ft, Date: 9/29/2014



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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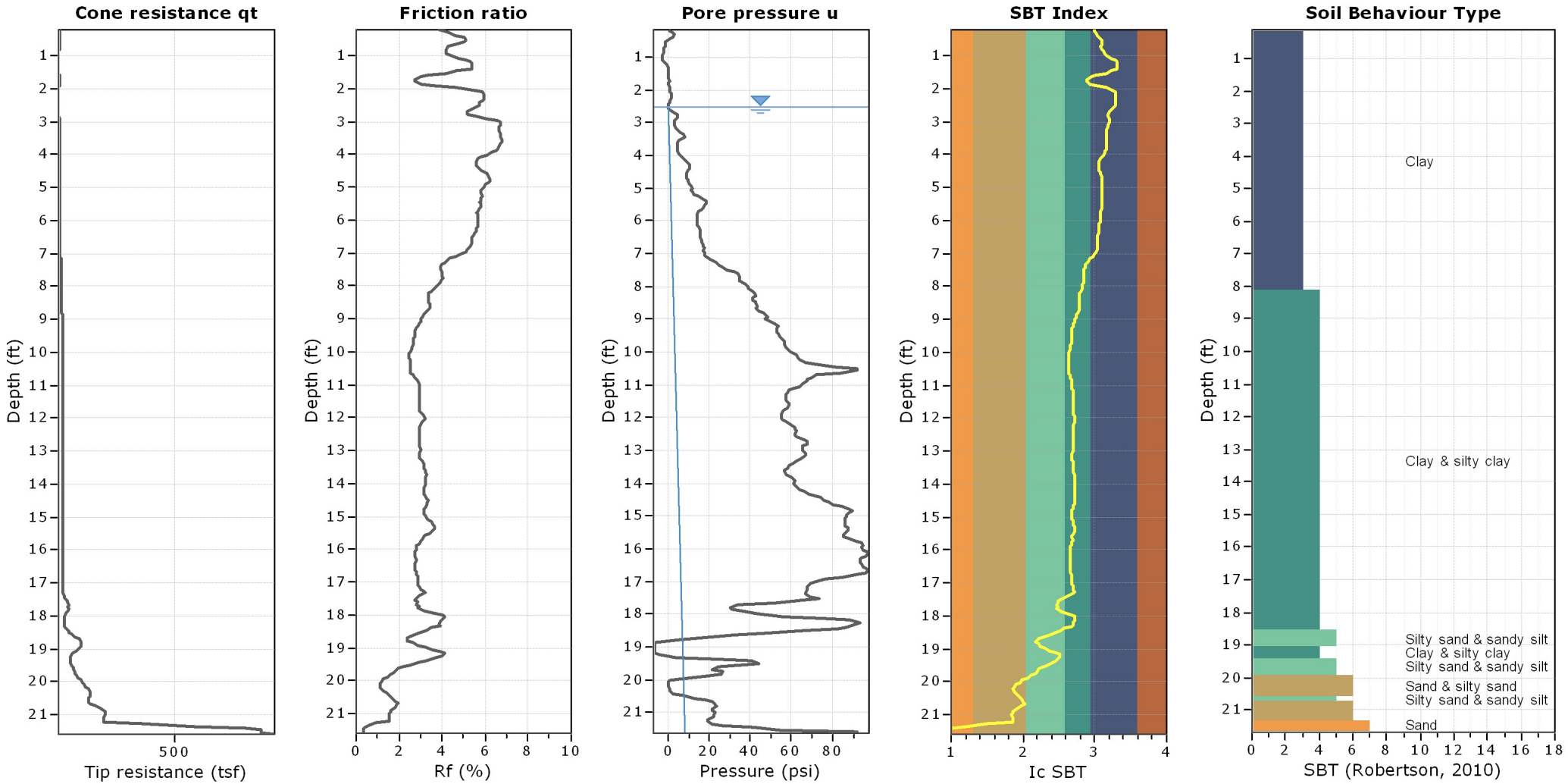
St. Louis, Missouri 63146
http://www.geotechnology.com

Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-1
Total depth: 21.59 ft, Date: 9/29/2014



SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

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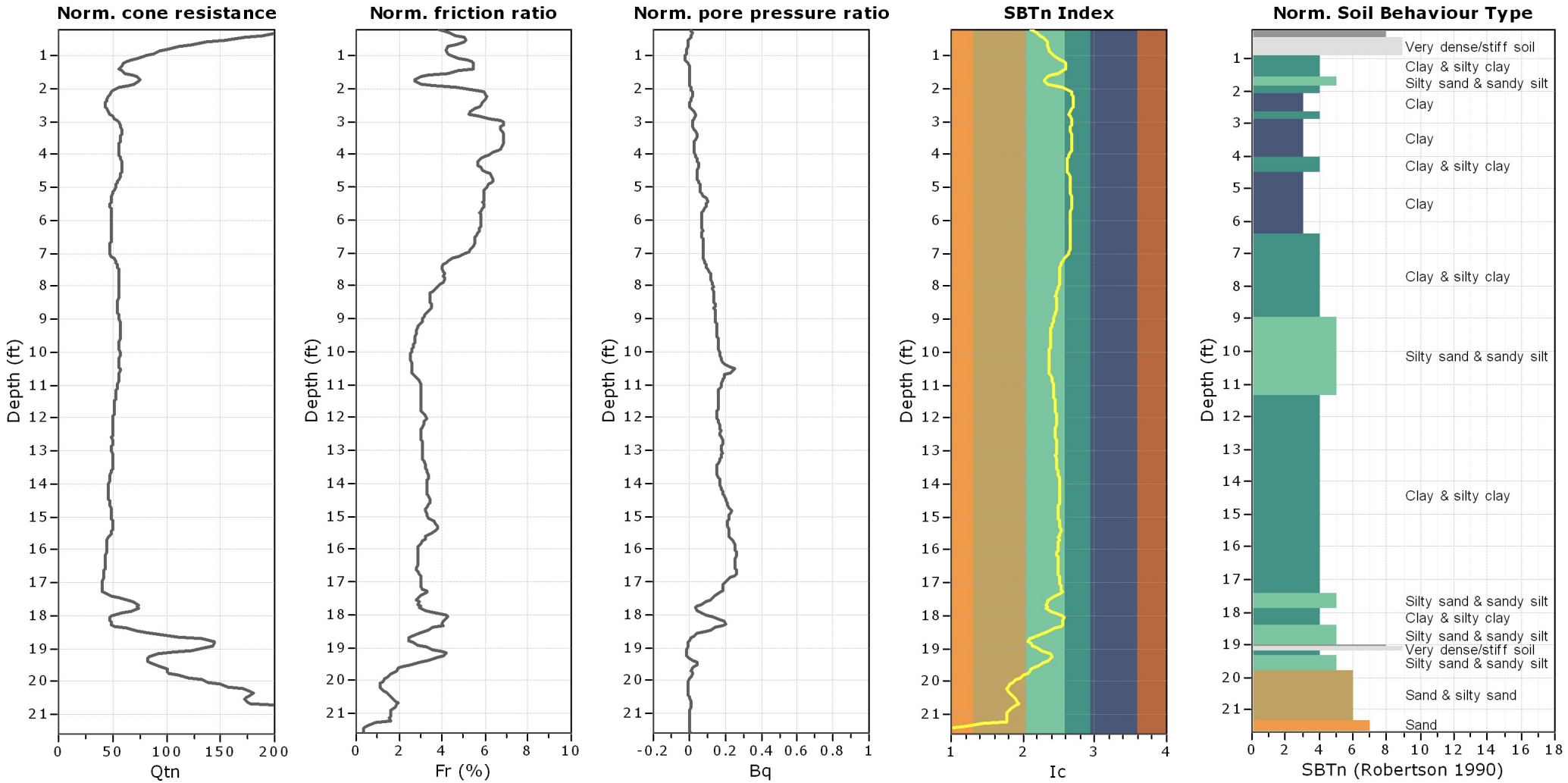
St. Louis, Missouri 63146
http://www.geotechnology.com

Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-1
Total depth: 21.59 ft, Date: 9/29/2014



SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

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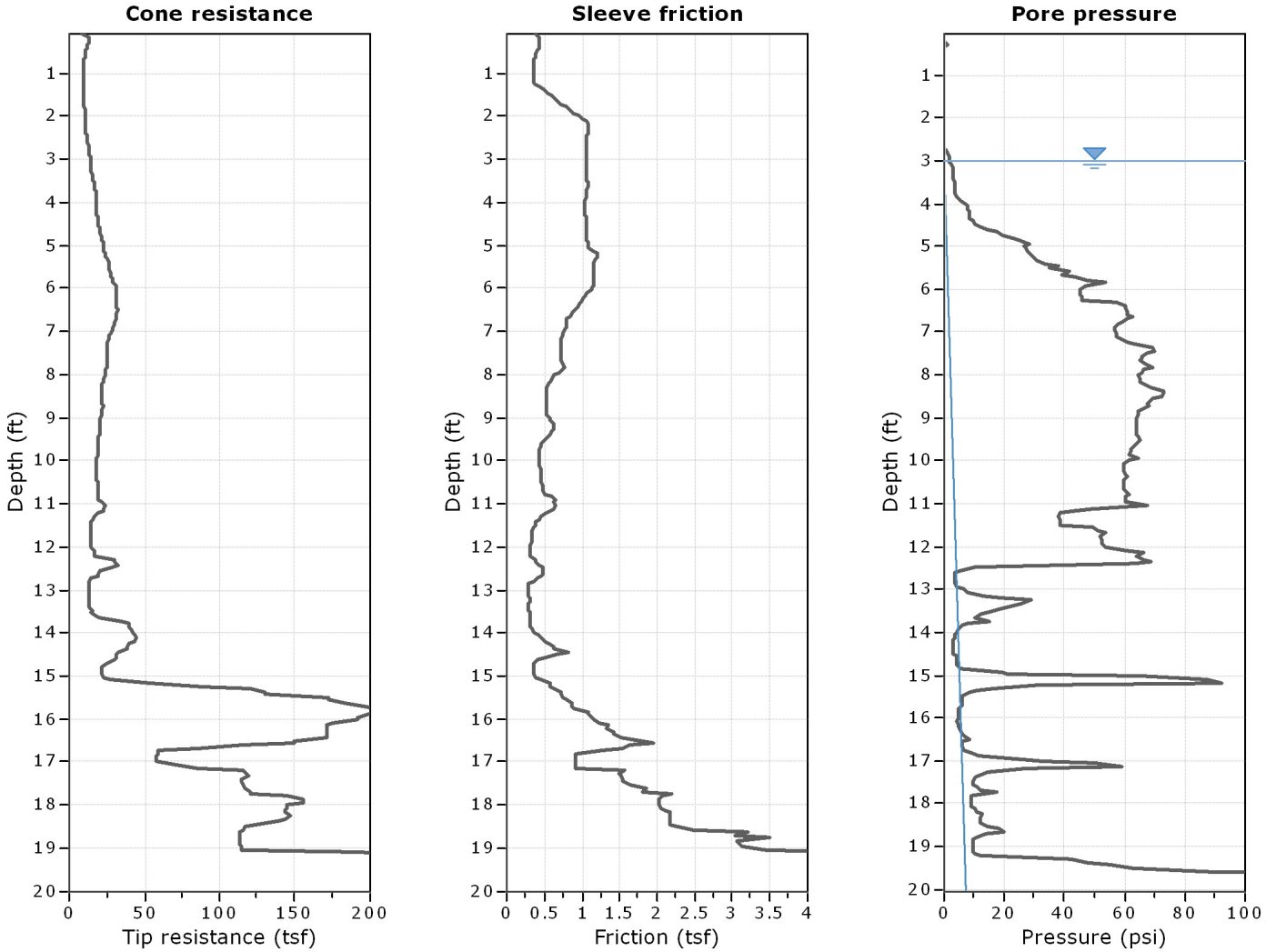
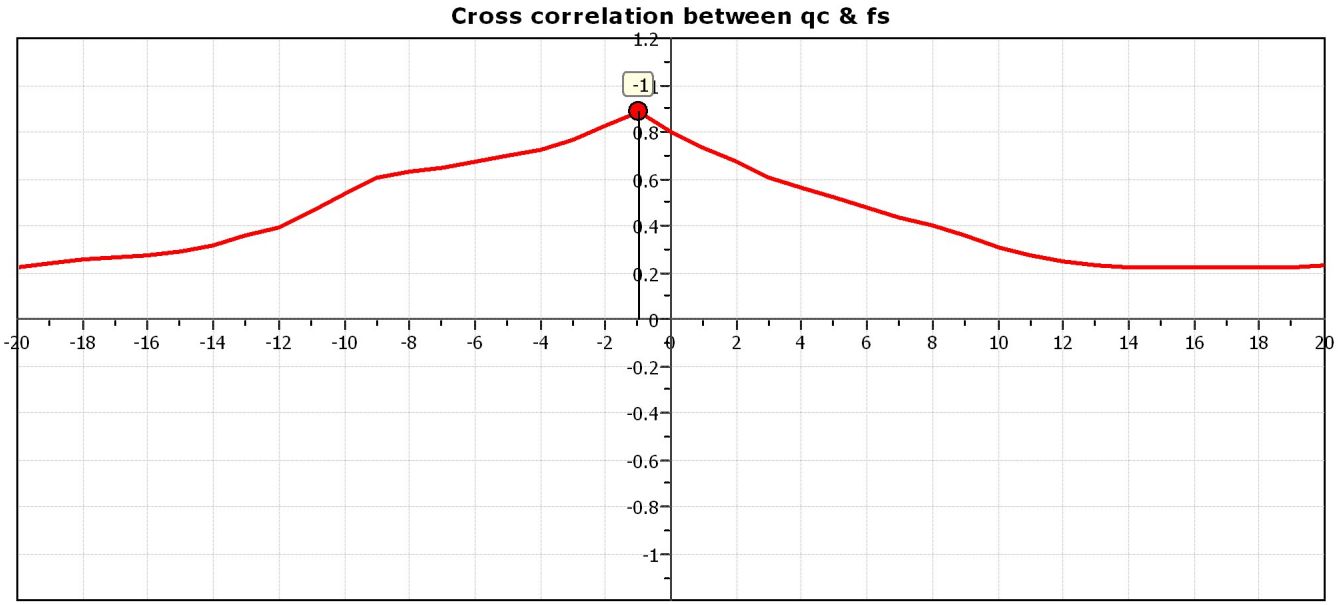
Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-2
Total depth: 20.01 ft, Date: 9/29/2014



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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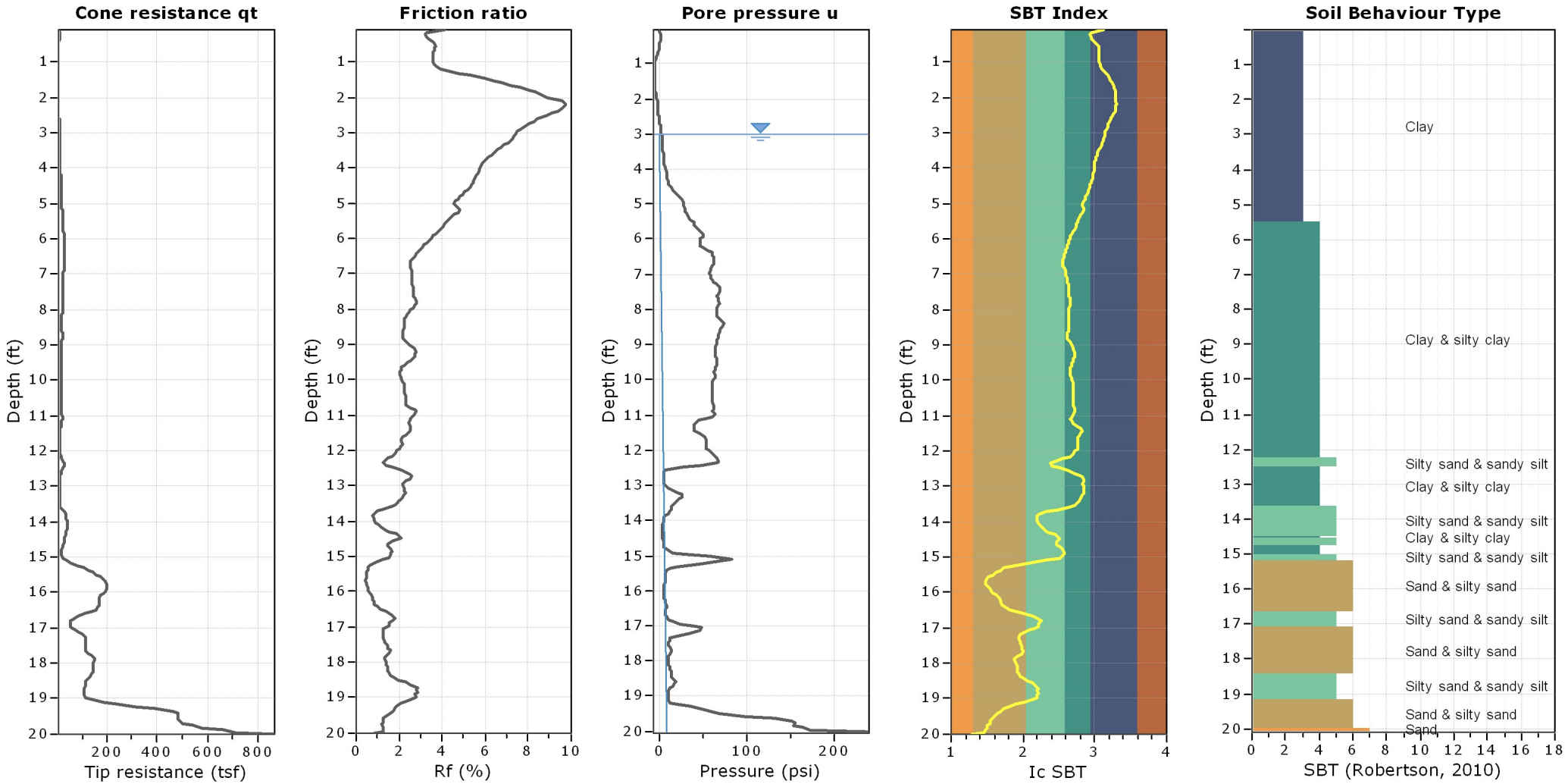
Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-2
Total depth: 20.01 ft, Date: 9/29/2014



SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

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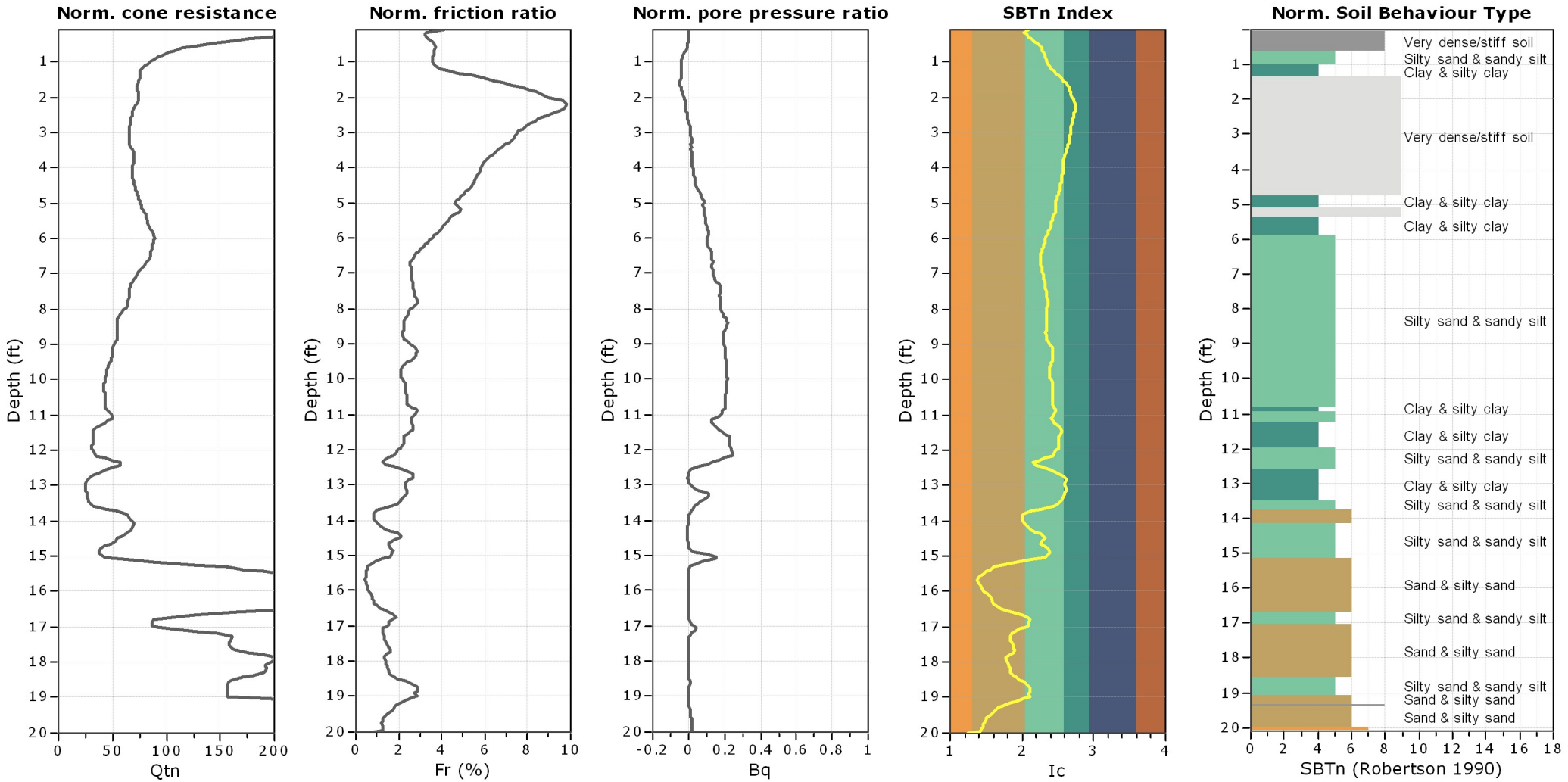
Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-2
Total depth: 20.01 ft, Date: 9/29/2014



SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

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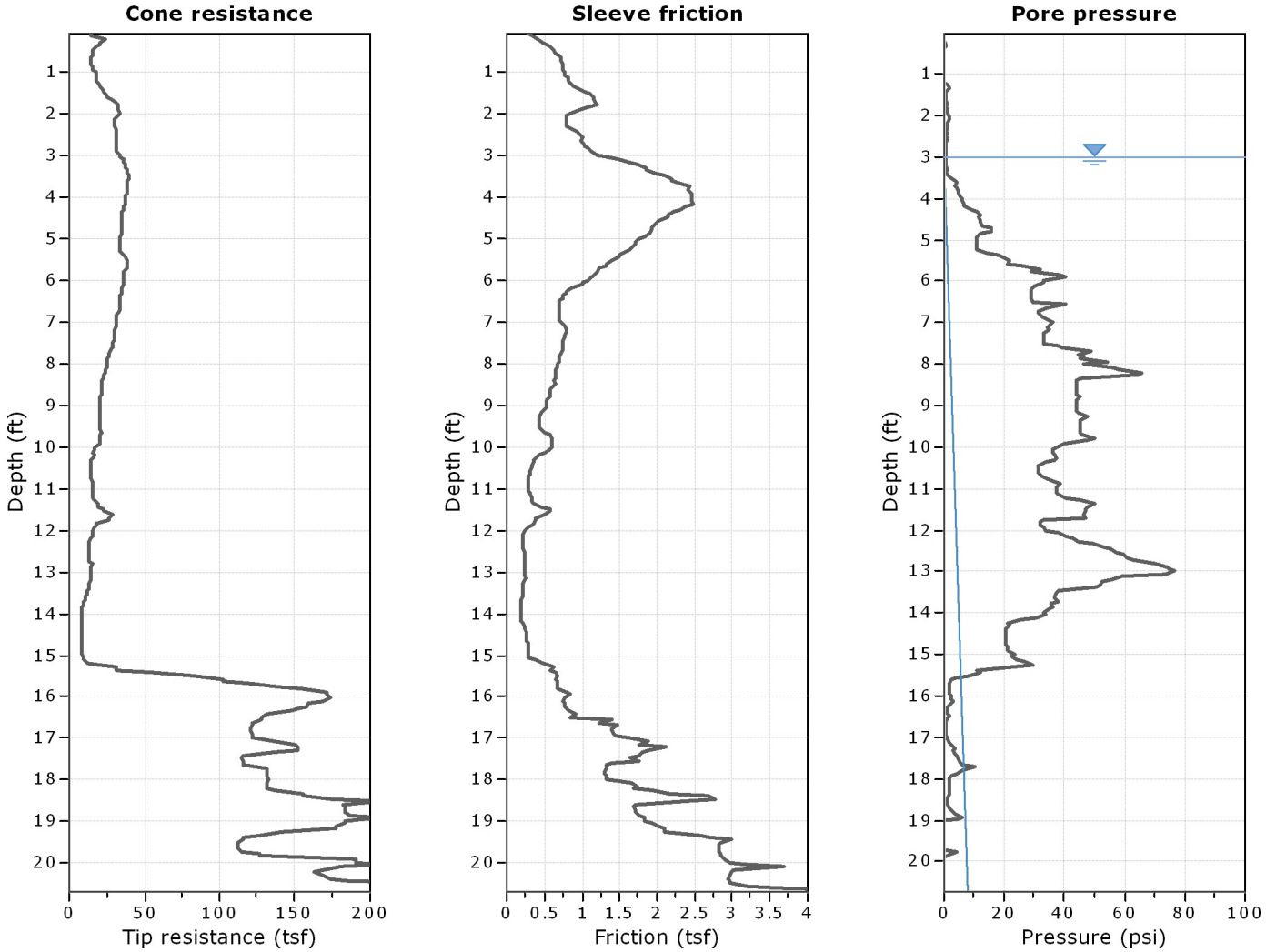
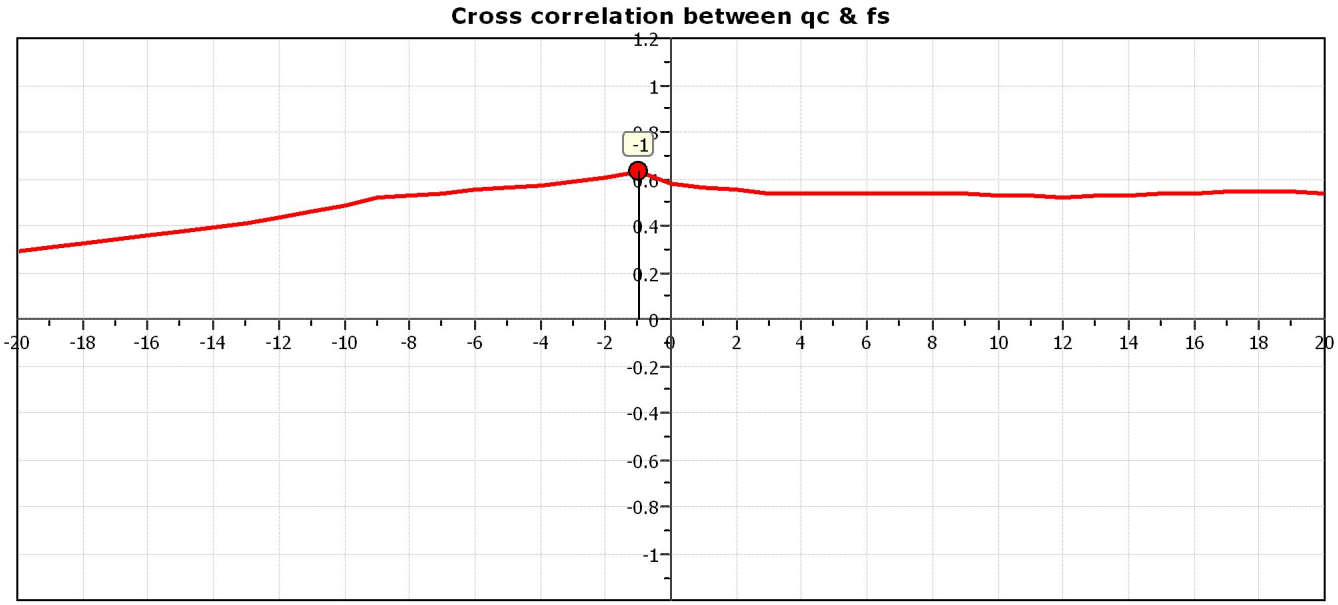
Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-3
Total depth: 20.68 ft, Date: 9/29/2014



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



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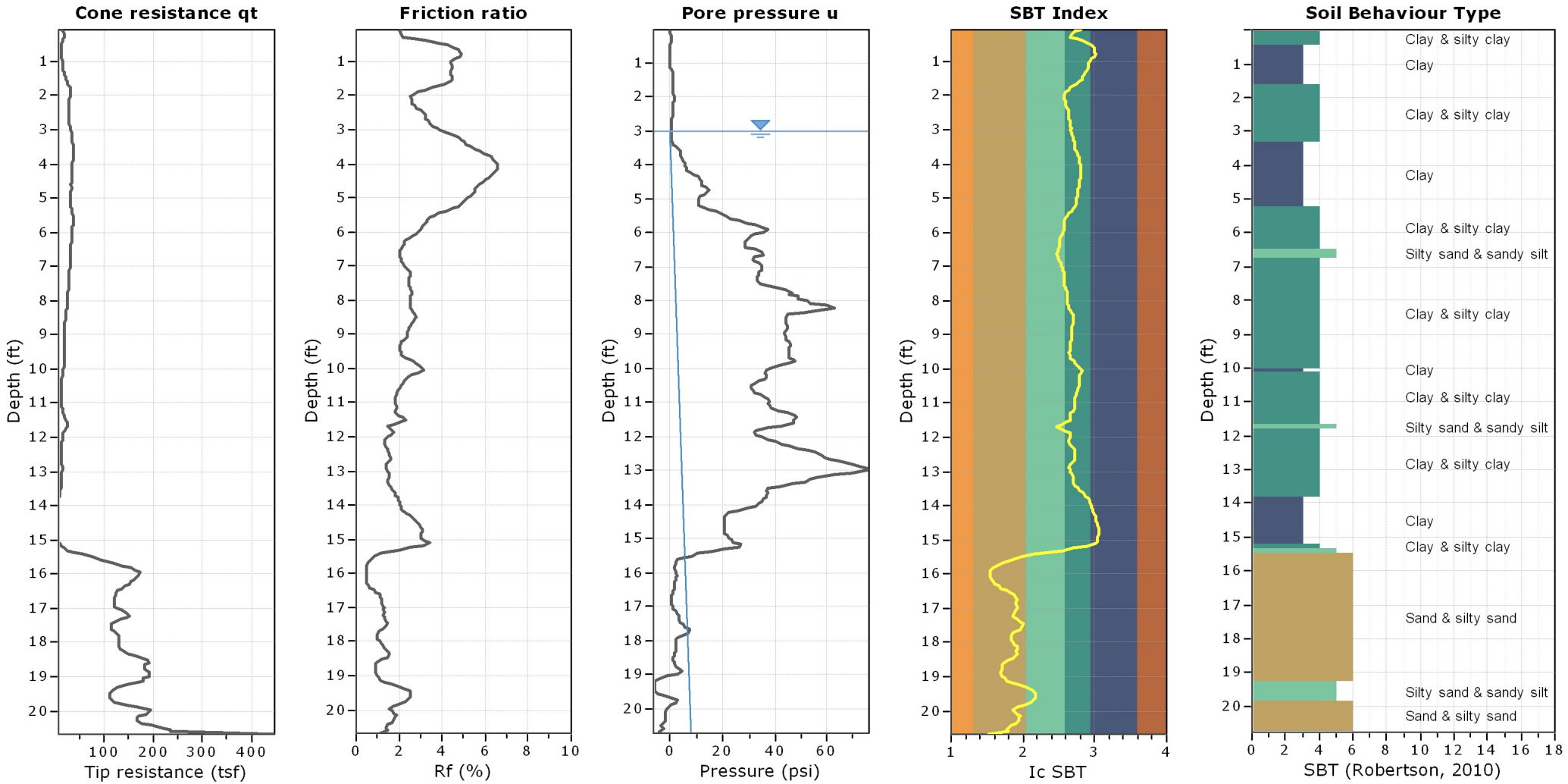
Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-3
Total depth: 20.68 ft, Date: 9/29/2014



SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

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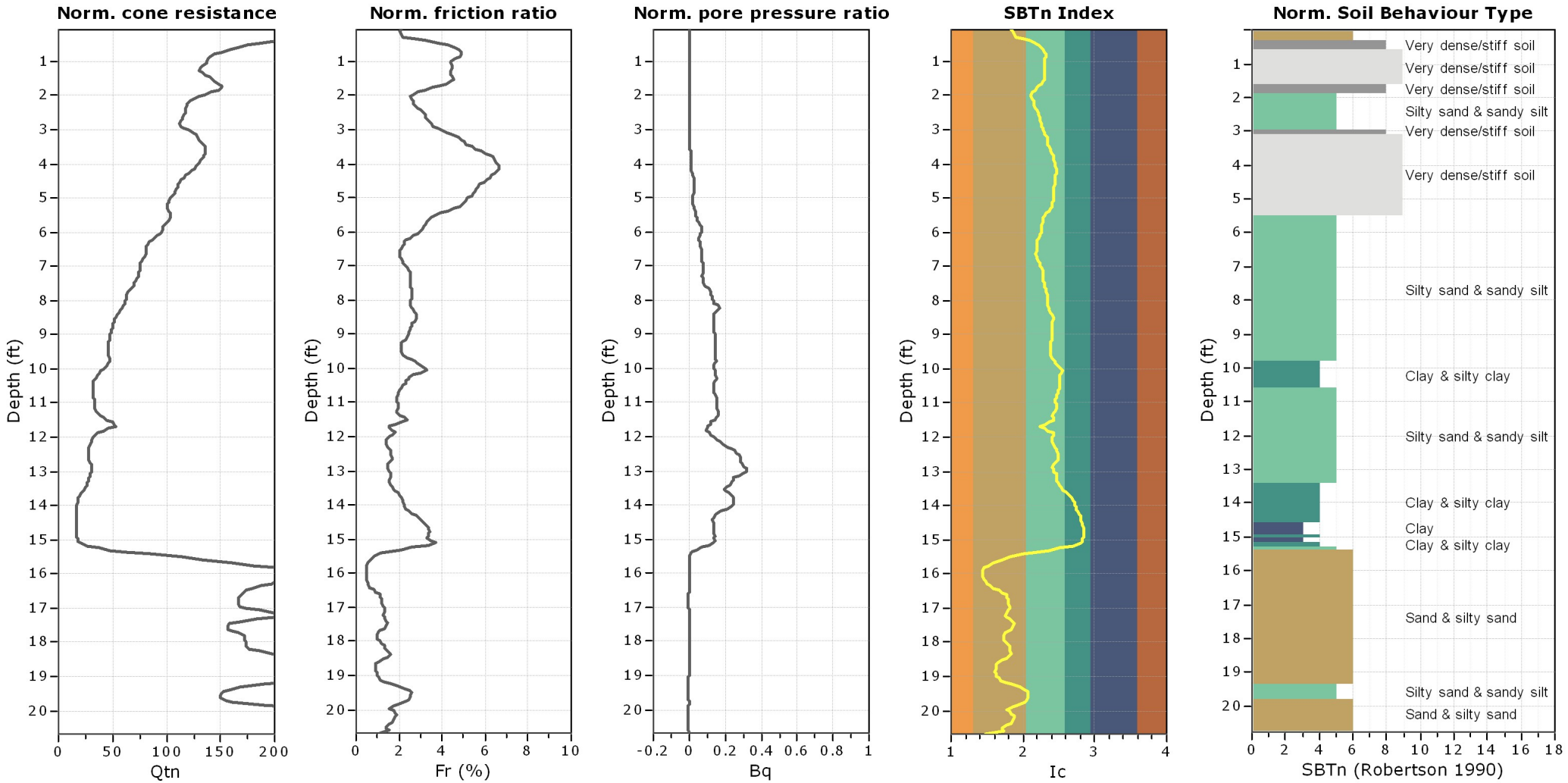
Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-3
Total depth: 20.68 ft, Date: 9/29/2014



SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

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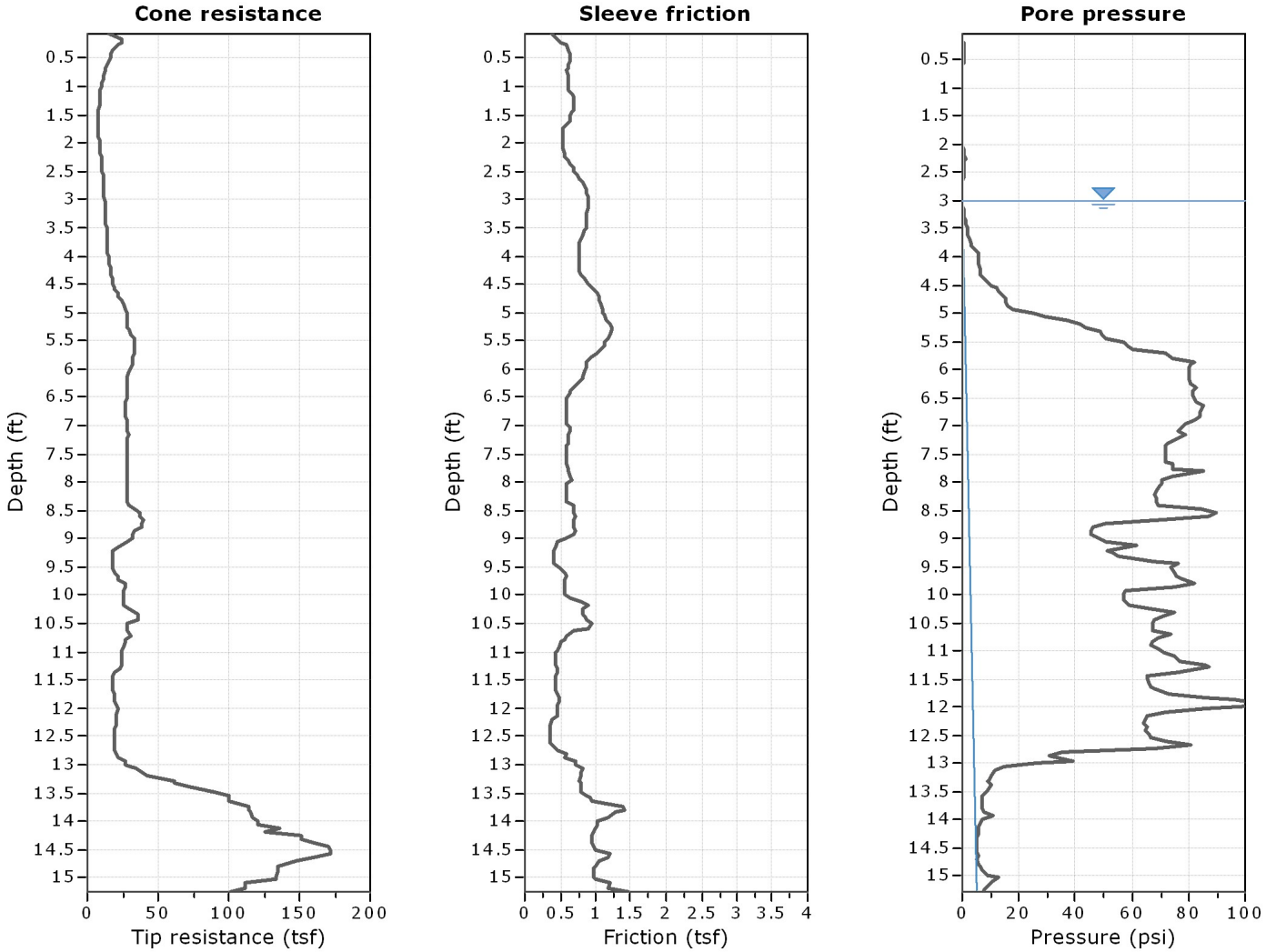
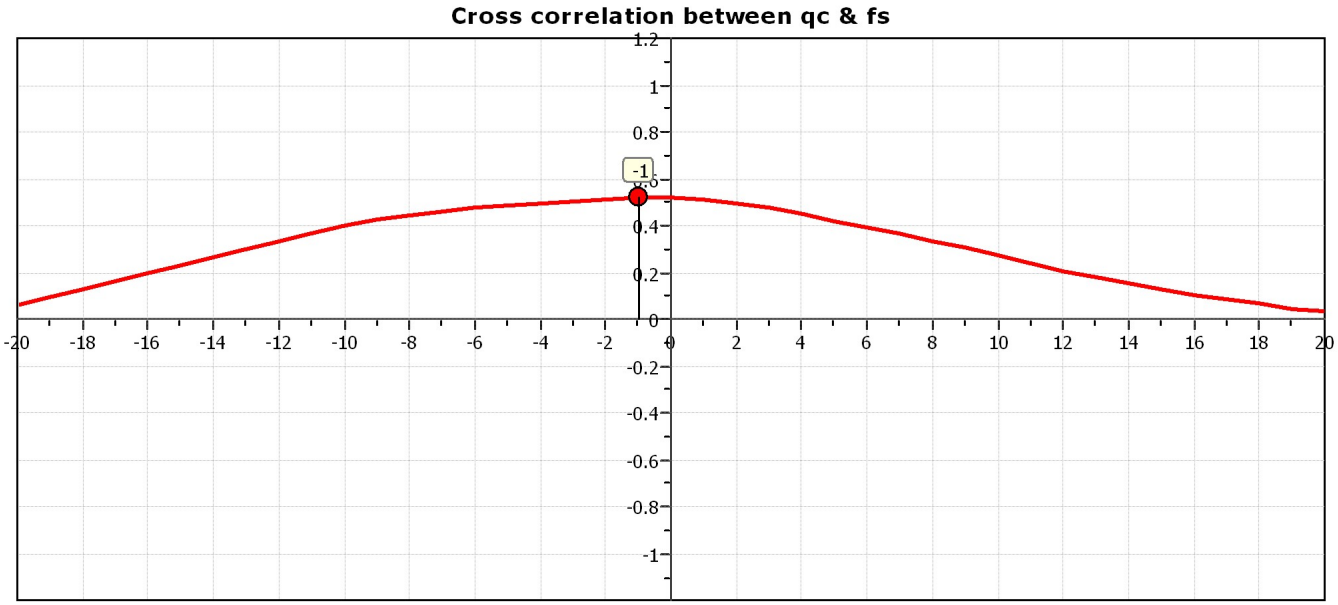
Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-4
Total depth: 15.25 ft, Date: 9/29/2014



The plot below presents the cross correlation coeficient between the raw qc and fs values (as measured on the field). X axes presents the lag distance (one lag is the distance between two sucessive CPT measurements).



Geotechnology, Inc.
11816 Lackland Road, Suite 150
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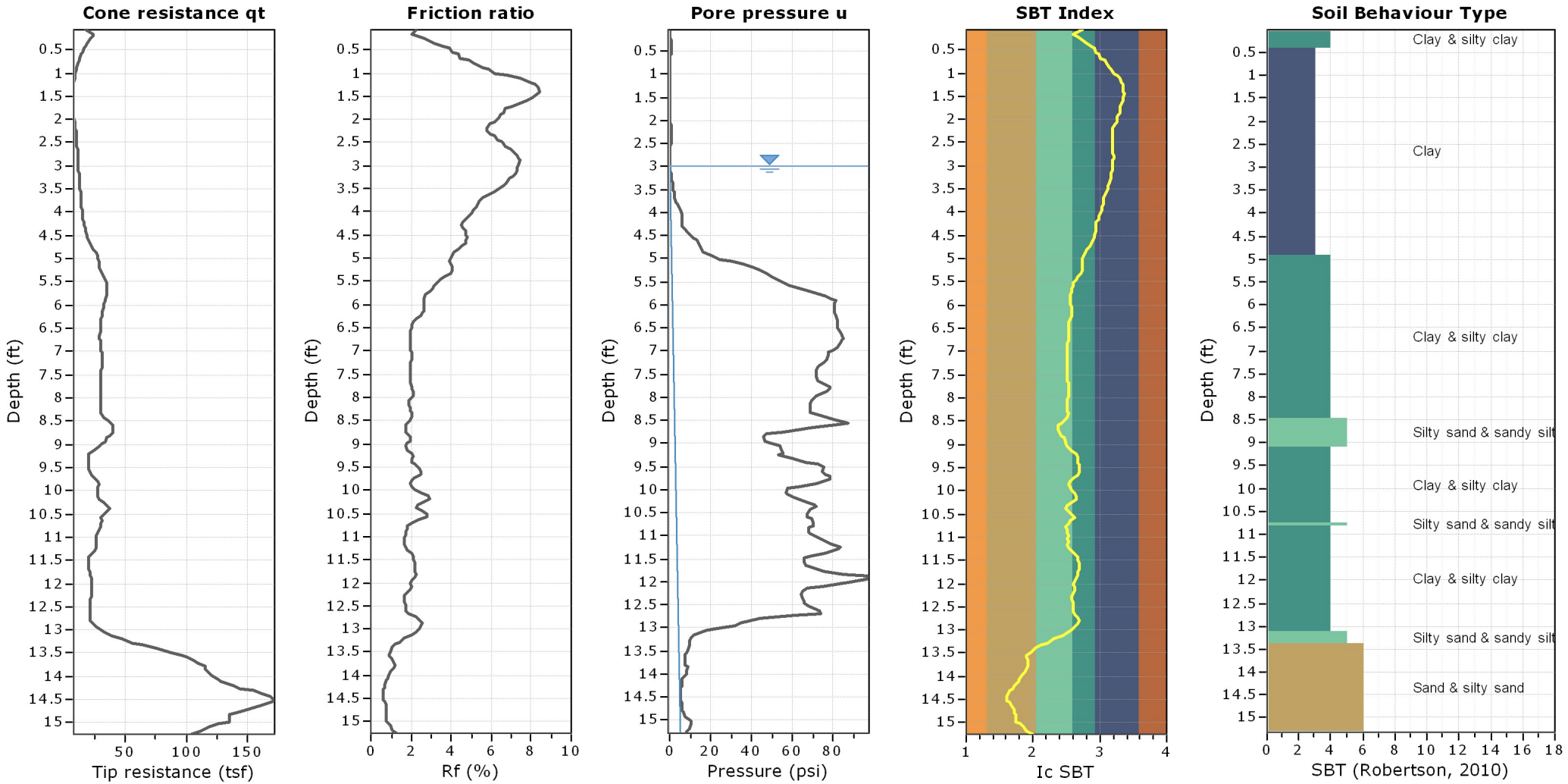
http://www.geotechnology.com

Project: **Neodesha Refinery**
Location: **Neodesha, Kansas**

CPT: LIF-4
Total depth: 15.25 ft, Date: 9/29/2014



SBT legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
8. Very stiff sand to clayey sand
9. Very stiff fine grained

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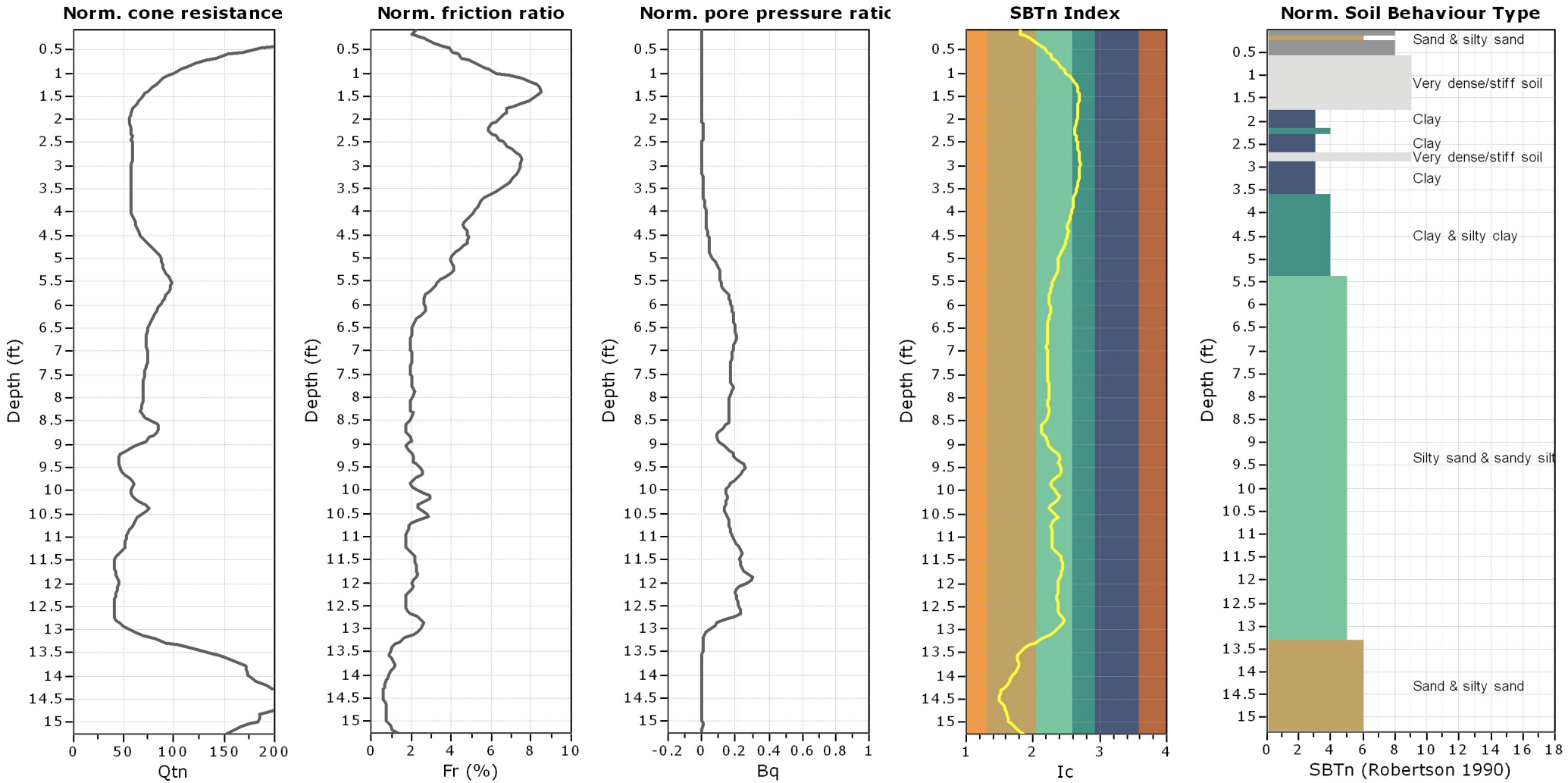
Total depth: 15.25 ft, Date: 9/29/2014



SBTn legend

1. Sensitive fine grained
2. Organic material
3. Clay to silty clay
4. Clayey silt to silty clay
5. Silty sand to sandy silt
6. Clean sand to silty sand
7. Gravely sand to sand
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