00219 TARGETING REVIEW

SULFIDE DISCRIMINATION USING ADR

RE-PROCESSING AND MULTI-PROJECT SULFIDE DISCRIMINATION

INCL. SCANS AND ANALYSIS FROM PROJECTS 00219 (NT & QLD, AUSTRALIA) AND 00218 (RED DOG)

Results and interpretations are presented for re-processed and re-analysed scans from the Bluebush region near Lawn Hill, QLD, Australia and for the Teena-Myrtle region of the Northern Territory, Australia. The re-processing of selected ADR data was carried out in order to review the results with the aim of providing new insight into the unique signature of sulfides, independent of the host rocks.

A set of results (scans) were processed and analysed using Adrok's current workflow as well as an in-depth qualitative analysis of sulfide delineation criteria. The sulfide-focused analysis and interpretation utilises information and results obtained from other base metal sulfide projects as well as the results from project 00218 which has been included as part of the project as it provides a separate test of the criteria in an area where host rock types are significantly different to those in Australia.

05-MAY-2020

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The question Adrok are aiming to resolve is:

Do base metal sulfides present as a specific/unique and distinguishable geophysical response in different host rocks?

The following analysis of results is presented as a description and clear documentation of the processes leading to the delineation of specific selection criteria for the identification of sulfides. Critically, this work differs from, for example, narrow vein style sulfide detection as the focus is on medium- to high- sulfide concentrations in larger disseminated style targets (e.g. VHMS, SEDEX). It is important to recognise that the following work remains *in progress.* The work presented here is a platform to support future, very well-defined and very specific collaboration with Teck in order to obtain some additional data so cross check the results. It is highly plausible that Adrok will develop a sulfide detection methodology that is not specific to a particular site or host rock type in the very near future. Adrok's concept is to develop a "metal detector" style instrument and processing which, based on the results presented here and with results from other similar projects, is plausible with addition of some additional trials in sulfide-bearing project areas.

The targeting techniques being developed and presented here have the very real potential of providing significant advantages to Teck in defining sulfide zones with confidence and prior to drilling. With further development, Adrok forecasts that the criteria and adaptations of the methodologies will be suitable for Greenfields-type mineral targeting which is particularly useful for areas under cover.

This report follows on from the re-processing of results from the Red Dog project in Alaska. The methods and sites used here represent a set of parallel developments in the qualitative assessment of the data. The results already sent for Red Dog integrate the new quantitative developments made by Adrok and therefore the two approaches differ. Here, the results from different sites are examined in parallel in order to extract the sulfide signal from the background but also considering the ore-deposit geology. The final phase of the program will be to combine the two results into a unified and fully quantitative method for targeting sulfides, independent of host rock type.
Based on the different approach to delineating sulfides, the results, and presentation of the results differs from previous reports.

	Project	Target result	Concept
Quantitative	Red Dog, Alaska (and all other Adrok projects)	Use High-Low analysis of harmonic data to delineate changes in rock types and rock type (including sulfide) fingerprinting.	The "DNA" of Adrok's technique and technology. Data-based and constrained by well-defined workflow.
Qualitative	Comparative across sites Bluebush, Australia Teena-Myrtle, Australia Red Dog, Alaska + other non-Teck sites	Define selected criteria from harmonic data to delineate just the sulfide component of all project areas ignoring host rock type.	The "RNA" of Adrok's technique and technology. Iterative process leading to sulfide delineation criteria (results presented here). Strong emphasis on integrating geology and facets of ore zone mineralogy into interpretations.

Final result

Formulation of a unified technique and process for sulfide delineation without the need for training scans. Independent sulfide fingerprinting.

Integrating geology and geological knowledge into the existing work frame in order to refine aspects of the fingerprinting process

CONCLUSIONS

- Adrok have completed a trial of a new sulfide detection method using criteria in the ADR scans that are selective of sulfides independent on the host rock type. Work is continuing to refine the technique with a particular emphasis on quantifying the interpretation of, in particular, the Energy and Frequency results.

- Adrok delineated the criteria initially using BB008 as a trial scan and parallel training hole and then iteratively fine-tuned the criteria using results from Bluebush and Teena-Myrtle prospects. After repeating the process then integrating results from other sulfide projects, Adrok are excited to announce that we have settled on a preliminary list of key criteria that, across the multiple sites, correlates well with the sulfide zone in each demonstratable case.

- Four (4) scans were processed and analysed at Bluebush, Three (3) scans at Teena Myrtle and an independent site, Red Dog, Alaska, where five (5) sans were examined using the defined criteria.

- At Teena-Myrtle where the criteria were tested against known drill hole results, both sulfide zones were correctly identified using the criteria defined for BB008.

- For the trial scans at Red Dog in Alaska, the sulfide zone was correctly identified in the principal scan and parallel drill hole (containing assay data) H1 AN810. For scan AN944, the sulfide zone (predominantly pyrite was correctly identified. For scan AN808, the selection criteria identified the min zone some 50m lower than the interpreted cross section indicated that it should be intercepted, however, there is poor depth control on the cross section lines relative to the scan, therefore the depth estimate may be due to the scan being offset laterally form the interpreted cross section line. For scan NOA644, the sulfide zone was also detected but a second, deeper mineralisation target was also identified below the depth of the available drilling thereby providing Teck with a viable target at 750-800m depth.

- Most of the successful targeting was completed using standard Energy and Frequency logs. Further processing (presented in this report) shows significant promise for defining the unique "fingerprint" or "Barcode" response of sulfides in the Frequency Correlation results when processed at 1MHz intervals between 1-50MHz.

- **Some additional scans and testing of results in a mineralised zone containing parallel drill holes is required** to complete the methodology, however, the results presented here are extremely successful and show promise for the Adrok technology to become a site-independent sulfide detection tool in the very near future.

SURVEY HISTORY Teena-Myrtle and Bluebush

Survey Quick Facts:

Location	TRL Lawn Hill and Bluebush prospects, QLD, Australia USA
	Lawn Hill: 260000E, 7974000N Buebush: 290000E, 8167000N (GDA84; UTM)
Survey Acquisition Period	15th to 18th October 2012 – 4 field survey days (excludes mobilisation/demobilisation times)
Data Processing, Interpretation & Reporting Period	March - July 2013
Survey Coverage	16 planned Virtual Boreholes ("VBores") to 1km depth and 1 planned to 2 km depth.

Location	TRL Teena and Myrtle prospects, NT, Australia USA
	Teena: 608000E, 8181000N Myrtle: 610000E, 8167000N (GDA94; UTM)
Survey Acquisition Period	20th to 22th October 2012 – 3 field survey days (excludes mobilisation/demobilisation times)
Data Processing, Interpretation & Reporting Period	March - April 2013
Survey Coverage	13 planned Virtual Boreholes ("VBores") to 1km depth.

SURVEY HISTORY Red Dog, Alaska

Refer to previous report for details and all processing results

GLOSSARY

Term	Definition
ADR	Atomic Dielectric Resonance.
Correlation Method	Stacks a large number of traces from a series of stare scans and applies mathematical filtering to give a baseline over which the signal can be described as being of high quality. The signal returns are analyzed to show distinct changes in lithology for the area under investigation.
Dielectric Constant (DC)	The index of the rate of transmission of our ADR radio-wave lased beam through a medium relative to the transmission rate of the beam through air. This is also sometimes called the transmissivity index, where air has a dielectric constant of 1. For a medium such as limestone the dielectric constant (ϵr) is typically 9.
E-Log (Energy log)	During a stationary scan ("Stare" scan) the ADR transmitter and receiver antennas are positioned at known grid co-ordinates and aimed downward. The energy log ("E-log") indicator is produced by dividing the Stare scan image data in time windows. Windowing is carried out in equal time intervals or the time axis is migrated to depth after our WARR tracking of dielectric and windowing is performed equal spatial intervals. The data windows are subsequently analyzed and/or enhanced utilizing a suite of signal and image processing techniques such as Fourier analysis, wavelet decomposition, and image enhancement algorithms using RADAMATIC, Adrok's proprietary data analysis software. Amongst other indicators, this analysis produces the E-Logs which represent estimated energy values as a function of depth and were found to be excellent indicators. In this paper they are plotted on a logarithmic scale.
P-Scan	Profile Scan of the subsurface with fixed focus Antenna spacings at ground level. Both Transmitting and Receiving Antennas are moved simultaneously in parallel along the length of the scan line. This produces an image of the subsurface (from ground level) based on the two-way travel time of Adrok ADR Scanner's beams from Transmitter (Tx) to Receiver (Rx) Antenna. The WARR data converts the P-Scan time-stamps into depths in metres.
Stare	A stationary scan where data collected with both antennae pointing the ground.
WARR	Wide Angle Reflection and Refraction scan to triangulate subsurface depths from the surface ground level. The Transmitting Antenna is moved at ground level along the scan line, away from the stationary Receiving Antenna which is fixed to the start of the scan line. Collected by ADR Scanner at ground level (that produces depth calculations).
Weighted Mean Frequency	The frequency and energy values are combined to produce a Weighted Mean Frequency for each measured depth interval. WMF is a product of the sum of the frequencies, times the energy, divided by the total energy over all frequencies. Therefore, frequency values with a high weight contribute more to the WMF than frequency values with a low weight.

PURPOSE

To demonstrate significant improvements in Adrok's sulphide exploration capabilities by using new cross-project analysis techniques.

GOALS

To prove that Adrok can accurately locate sulphide mineralisation regardless of the host rock type.

OBJECTIVES

Refine selection criteria for the detection of sulfides using available training drill holes (particularly BBDD008).

To test the selection criteria at different sites including Teena, Myrtle, Bluebush and Red Dog.

How are we measuring success?

Do the ADR targets correspond to the mineralisation reported by Teck for Australia (PRJ 00219) and regionally (PRJ 00218)?
Are the results useful for project non-specific sulphide detection and exploration?

Can Adrok reliably identify sulphide mineralisation regardless of host rock?

PROJECT BACKGROUND

The current project follows on from the re-processing of results – project 00218 Red Dog, Alaska in early 2020. The following project does, however, address a very different, but somewhat more complex issue, that of being able to develop the ability to differentiate sulfides (undefined) in an ADR scan regardless of the site and host rock composition.

In theory, many scans collected over a variety of rock and containing a variety of sulfide abundances should have at least one, if not more, geophysical responses in common relating the presence of sulfides. Accordingly, the research and analysis was carried out with the goal of determining what characterises in a scan can be sued to confirm the presence of sulfides.

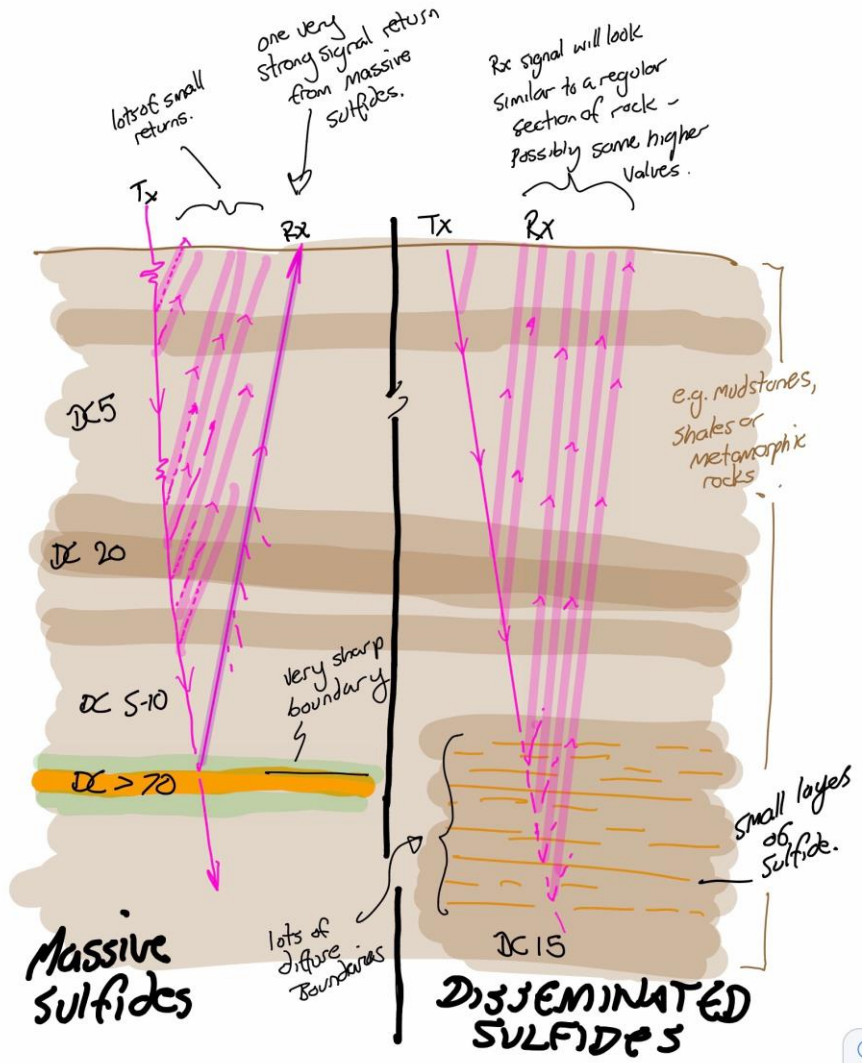
The following research also differs from some previous successful projects by Adrok targeting narrow vein gold and sulfide deposits. For cases exhibiting narrow vein sulfides, the response appears to be universal across projects whereby a strong reflection (low value) in Energy % Log typically indicates a strong return signal off the generally sharp contact between the host rocks (meta-sediments or granites for example) and the sulfides (such as galena, sphalerite, pyrite or chalcopyrite). In this case, the sulfides tend to be narrow but occur as massive sulfides.

Presented here is a slightly different approach to the delineation of high grade disseminated sulfides such as might be found in VHMS, Porphyry or SEDEX type deposits. Sulfide content (e.g. pyrite, chalcopyrite, sphalerite, galena) might reach high abundance (up to 80%) but typically the sulfide abundance is around 50% and grades (for the scans we had available) below mine grade for copper, lead and zinc for example.

Regardless of the grade, a high abundance of sulfides should be detectable using ADR. Using training drill holes from Queensland (Teena Myrtle), Northern Territory (Bluebush) and comparing these with results from Alaska (Red Dog), Adrok have been able to come up with a set of criteria that consistently provides target areas based on a qualitative Weights of Evidence (WofE) criteria.

Narrow vein v's Disseminated sulfides

Two very different targets, two very different approaches



The difference between disseminated sulfide, massive sulfide and detection limits.

Research on the response or radar to different arrangements of buried objects has been explored by many authors for GPR. The results, some of which are presented here presents an interesting explanation into the responses we see in ADR.

In summary, a radar (GPR) interpretation was generated for different cases where the radius and dielectric permittivity (Ɛ) of the target grains (this could be sulfides for example) were altered.

The clearest response (highlighted box) was gained from a case where the Dielectric Permittivity of the grains was high (Ɛ=30) and where the radius was 0.2. The dielectric contrast between the objects had a much greater impact than the radius whereby grains with an Ɛ=5 and a radius of 0.6 had no significant difference than the experiment containing the same Ɛ but a radius of only 0.2.

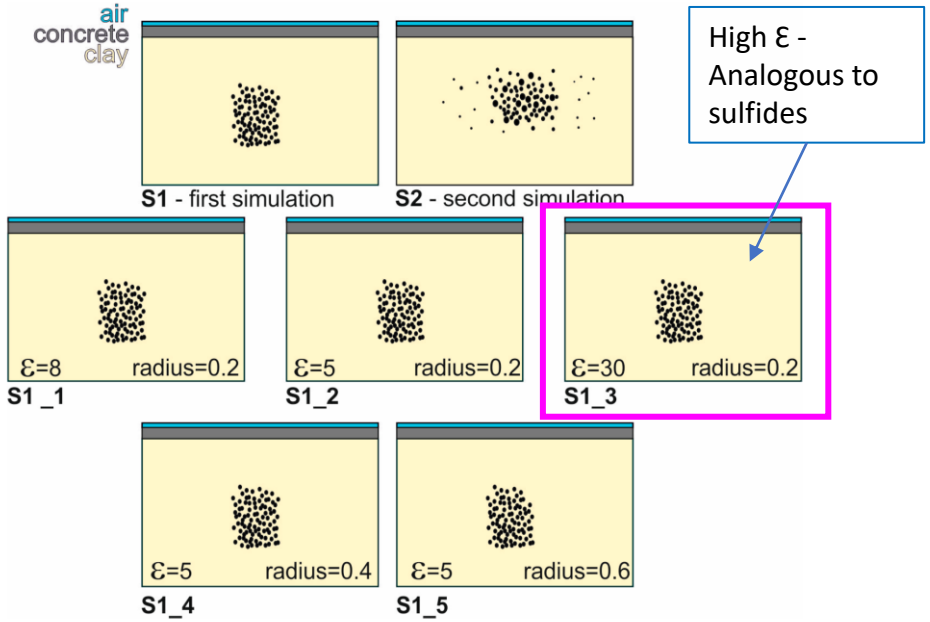
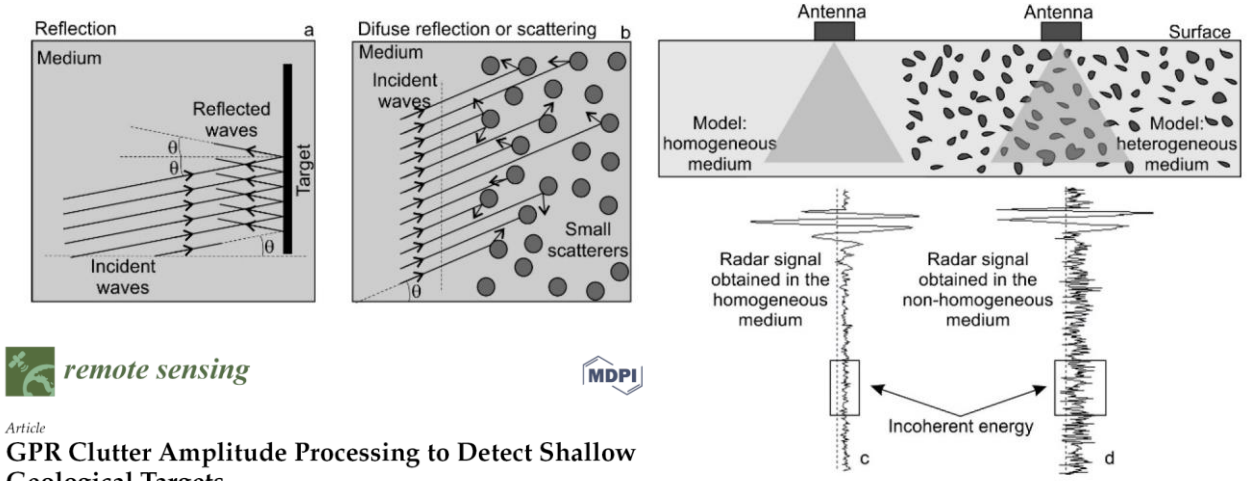


Figure 7. The two simulations (S1 and S2) based on different particles distribution. S1_1, S1_2, S1_3, S1_4 and S1_5 represent the five sub-cases considered in the first simulation (S1).



remote sensing
MDPI
Article

GPR Clutter Amplitude Processing to Detect Shallow Geological Targets

Victor Salinas Naval [1], Sonia Santos-Assunçao [2] and Vega Pérez-Gracia [3,*]

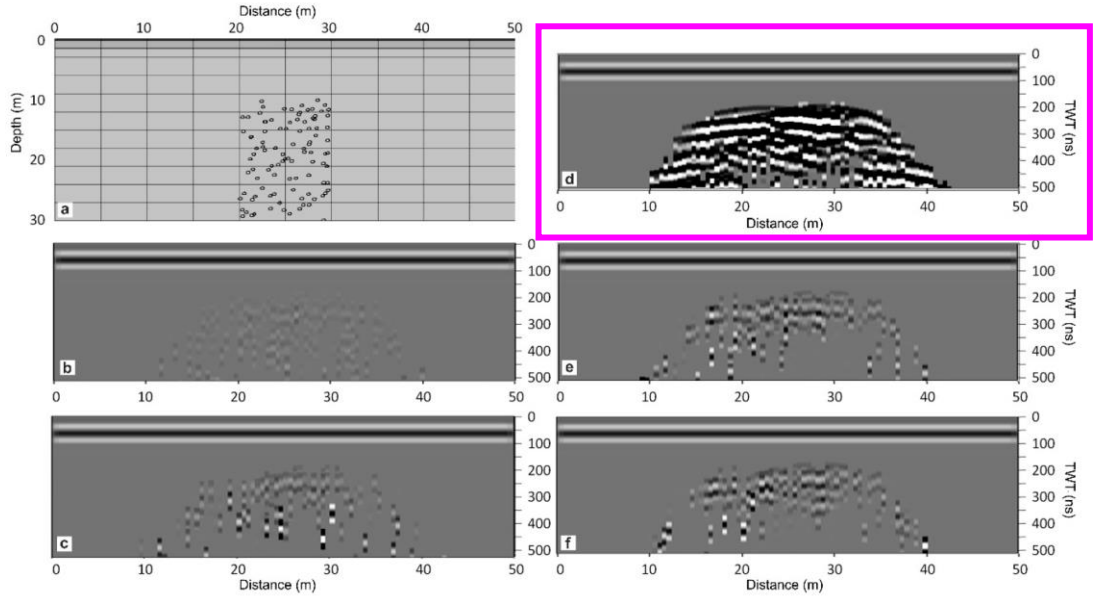


Figure 8. Three layered model with the position of the 100 scatterers (**a**) and synthetic traces for: case S1_1 (**b**); case S1_2 (**c**); case S1_3 (**d**); case S1_4 (**e**) and, case S1_5 (**f**).

PROCESSING: How do the current processing and analysis techniques differ from the previous processing and results presented in March-April 2013?

Previous processing was focussed on delineating rock types and stratigraphic boundaries between major rock type groups. During the previous data collection and processing campaign, sulfide-bearing zones were treated as a lithology and therefore included in full-scan processing and fingerprinting. The aim for both sites was, therefore, to extract the geophysical fingerprint of the different rock units using a training scan and then, using the training scan results, follow the signature of the particular rock types between the different scans. The anticipated result from this processing is to generate a geophysically defined lithostratigraphy.

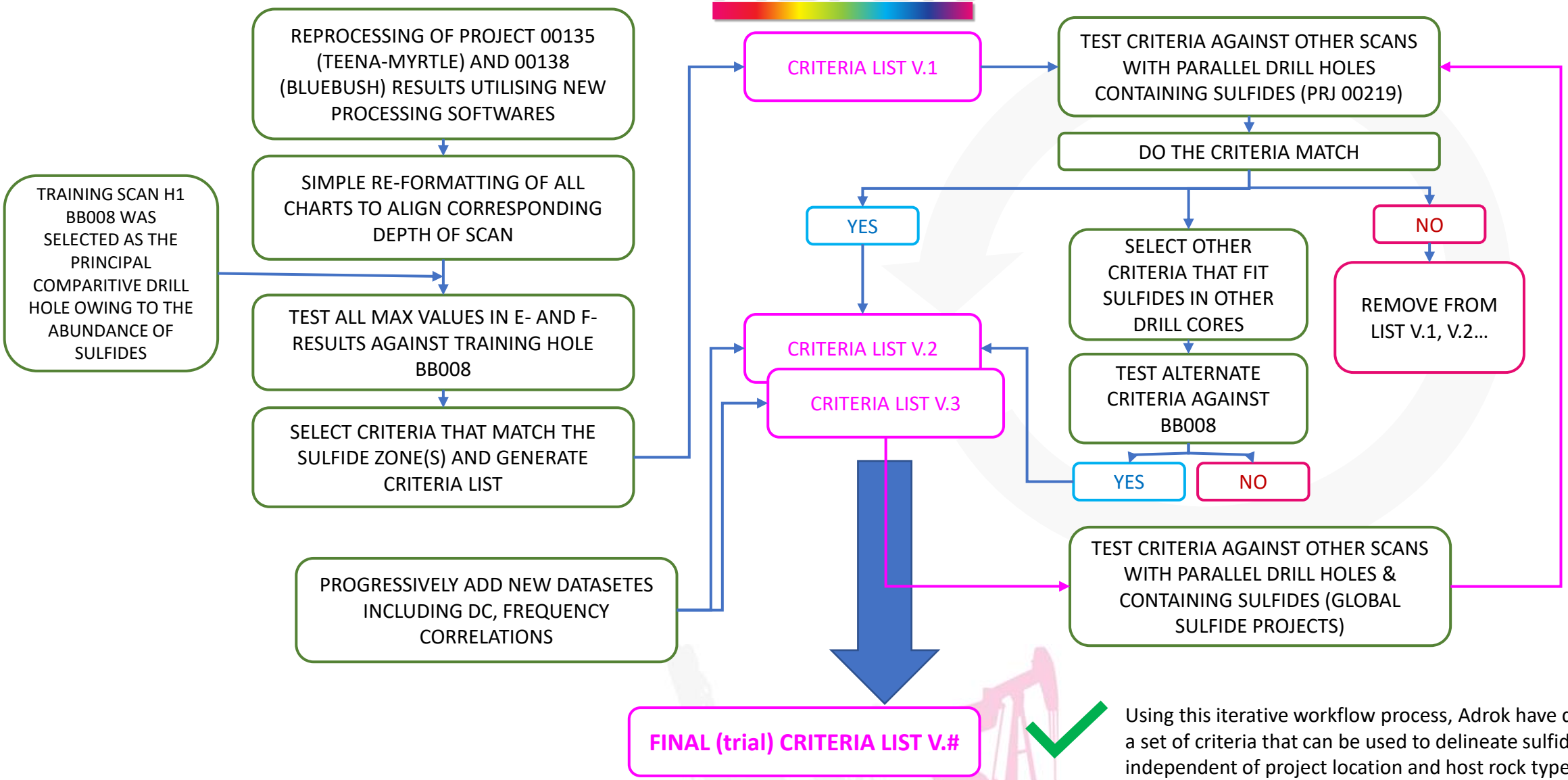
The aim of the current project differs in that the emphasis has been placed on extracting the geophysical response of just the sulfide component regardless of the number or types of rocks in which they are contained. In order to achieve this, the workflow presented overleaf was utilised (presented in a very reduced form). In summary, the geophysical response of the sulfides was extracted from the background response/noise from the country rocks. A unique set of evidential criteria were derived which were treated in a weights of evidence type analysis. At this point in time, Adrok have not yet applied evaluation metrics to the individual and collective datasets, instead, each positive response are given equal value. One caveat to this process is the preference for a unique anomaly (high value) in the 5-10 MHz frequency correlation results. Accordingly, if two target zones are identified with near identical WofE criteria in the Energy and Frequency harmonics results, the area/zone associated with a strong positive correlation in 5-10MHz and no response in the 1-5MHz range will be given preference.

The overall result of the evaluation presented here is a set of selection criteria that, when the number of criteria matching within a particular zone is high, is most likely to indicate sulfides, particularly if the WofE from E- and F- criteria results match a positive anomaly in the 5-10MHz range.

NEXT LEVEL PROCESSING – 2020 AND BEYOND

The next stage of the project will aim to refine the technique by converting a mostly qualitative assessment into a well-defined, quantitative assessment by building in functional cut-off limits to the key selection criteria. For example, a statistically evaluated cut-off for each of the results will be generated such as that for the E%Log values of less the 0.01 or a limit placed on the three lowest values in E%Log. Further work needs to be carried out in this space to determine the best way to capture the sulfides, particularly in regions of blind exploration.

SULFIDE WofE FINGERPRINTING WORKFLOW (summary only)



Using this iterative workflow process, Adrok have delineated a set of criteria that can be used to delineate sulfides, independent of project location and host rock types.

EXPLANATION OF PROCESSING TECHNIQUES - background

Together with analysis of the data using Adrok's in-house workflow, the data was examined for other correlations which had not been carried out on other data, therefore many of the results presented here represent the culmination of Adrok's understanding of the geophysical response of the sulfides to the pulsed radar.

1) High-low correlation analysis: The aim of the processing presented in this summary and re-processing report is to identify sulfides as a distinct "fingerprint" rather then differentiate different rock types which was the focus of the previous processing presented to Teck in 2013.

2) Bandwidth processing analysis: In recognition that one of the key criteria used to identify sulfides in the standard set of processing results was a high correlation in 5-10MHz bandwidth as well as results from other projects showing a similar correlation in the 9-16MHz bandwidth, Adrok re-processed a range from 1-100 and/or 1-50MHz at 1MHz bands. The result is a more accurate examination of the frequency responses at each 1MHz step. Accordingly the precise 1MHz frequency band between 5-10MHz could be extracted. Once extracted, the same frequencies were tested against other sulfide bearing scans and corresponding drill holes. The aim of this processing and analysis was in parallel with the WofE analysis whereby the possibility that sulfides, regardless of the country rock composition, will present as a unique response at certain frequencies.

The detailed processing of the ADR data at 1MHz intervals is initially proving very successful as shown here (2 – sulfides at 700m) and in the following report, however, Adrok requires further field data collection in an area with mine-grade sulfides to fully develop the sulfide spectral barcoding.

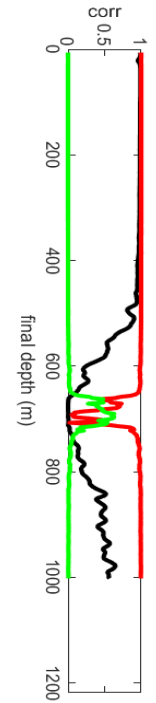
Increasing reliability of spectral barcoding of sulfides

❶

Standard 9-16MHz processing gives an average of the combined responses within that frequency range. Accordingly some details may be lost at particular intervals.

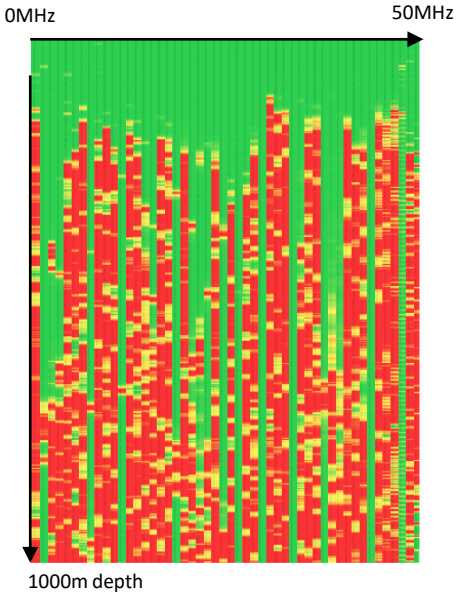
❷

Single, 12-13 MHz frequency response showing anomaly at ~700m deep. **Sulfides present at 700m depth in drill core**



❸

Combined 1MHz processing over the range 0-1 & 49-50MHz from left to right respectively.
High and low are shown and green and red respectively



LOCATION AND SCAN SELECTION: Three independent sites to test the sulfide-specific targeting criteria

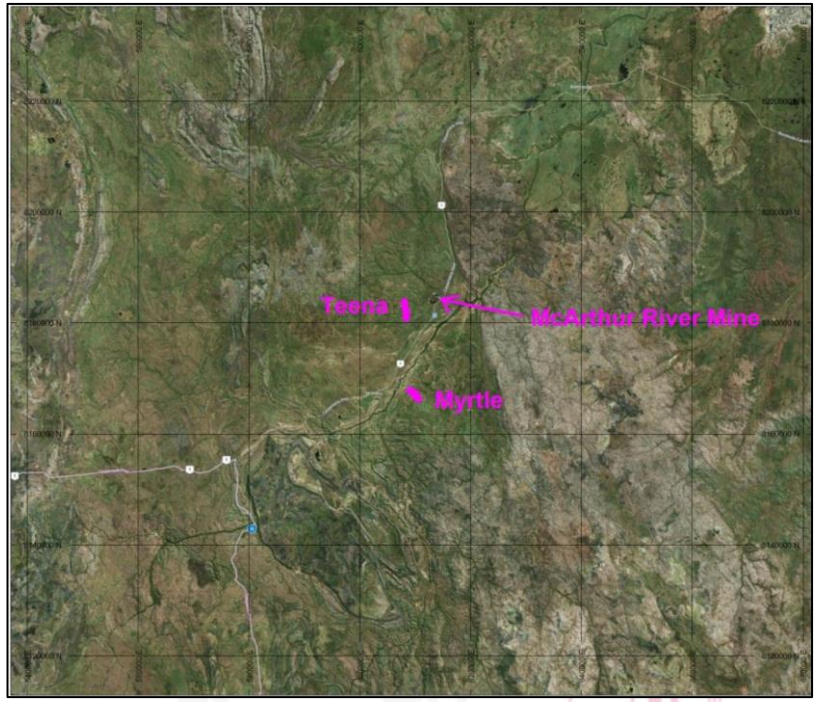
The location of the selected scans for re-processing and analysis was defined primarily by the presence of existing drill holes with information on sulfide content. The aim of the re-processing was to unravel the SULFIDE signal, regardless of country rock type, therefore parallel drill holes were a key component of the selection criteria. In addition, several scans were selected from the vicinity where no parallel drill hole was recorded so the potential for targeting in blind trials could be undertaken. It is plausible that in the future, these scan sites may be drill tested.

Further to this, other scans from Teck exploration sites outside of Australia, particularly Alaska, were included in the review as this formed another test of the criteria for sulfide detection.

ALL LOCATION AND SCAN SITES PRESENTED

1. BLUEBUSH, QUEENSLAND, AUSTRALIA (00219-00135)

2. TEENA-MYRTLE, NORTHERN TERRITORY, AUSTRALIA (00219-00138)



3. RED DOG, ALASKA, USA (pjr. 00218)

SCAN NUMBERS AND DATA PROCESSING – project 00219

BLUEBUSH (training)

00219 00135 H1 BB008
All Energy- and Frequency- processing
1-5MHz and 5-10MHz
0-50MHz (@1MHz and 5MHz intervals)
9-16MHz (AH1)

00219 00135 H2 BB004
All Energy- and Frequency- processing
1-5MHz and 5-10MHz
9-16MHz (AH2)

00219 00135 H3 BB006 D/S
All Energy- and Frequency- processing
9-16MHz (AH3)

00219 00135 H7 BB005
All Energy- and Frequency- processing
1-5MHz and 5-10MHz

TEENA-MYRTLE (training and refinement)

00219 00138 H4 MY003
All Energy- and Frequency- processing
1-5MHz and 5-10MHz)
9-16MHz (AH3)

00219 00138 H5 MY005
All Energy- and Frequency- processing
1-5MHz and 5-10MHz
9-16MHz (AH5)

00219 00138 H6 TN005
All Energy- and Frequency- processing
1-5MHz and 5-10MHz
0-50MHz (@1MHz and 5MHz intervals
9-16MHz (AH6)

RED DOG (comparison/trial)

00218 H1 AN810
All Energy- and Frequency- processing
1-5MHz and 5-10MHz
1-50MHz at 1MHz intervals

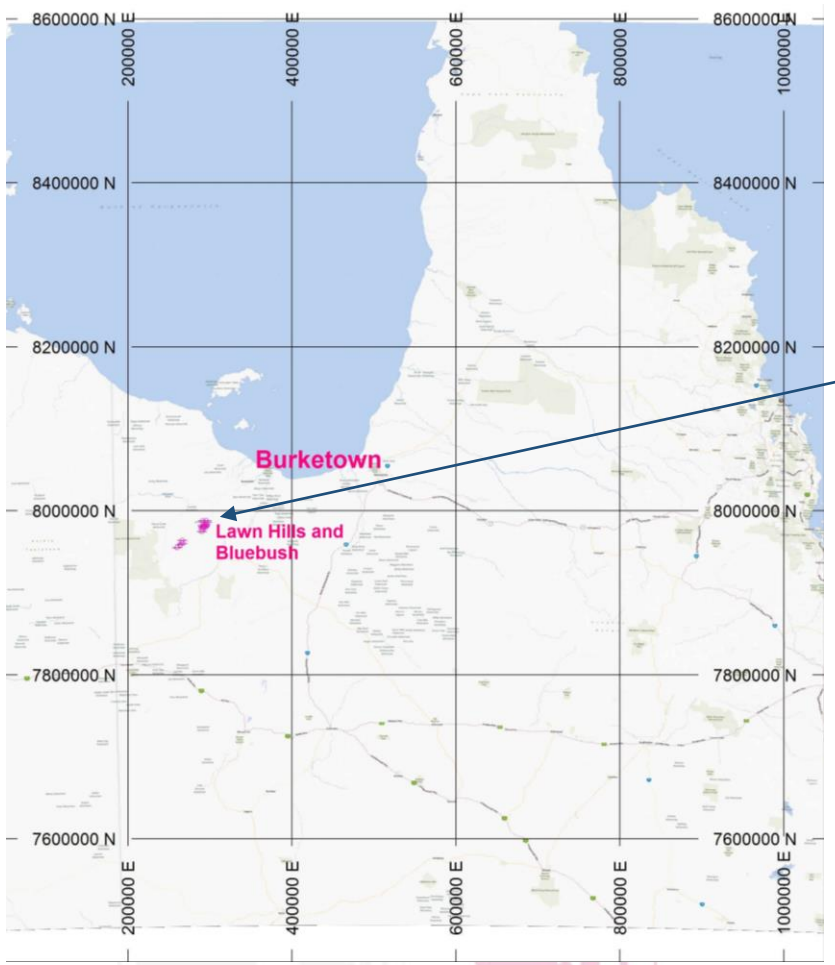
00218 H3 AN944
All Energy- and Frequency- processing
1-5MHz and 5-10MHz

00218 H2 AN808
All Energy- and Frequency- processing
1-5MHz and 5-10MHz

00218 H5 AN1136
All Energy- and Frequency- processing
1-5MHz and 5-10MHz

00218 H4 NOA644
All Energy- and Frequency- processing
1-5MHz and 5-10MHz

00219 – 00135 BLUEBUSH, QLD, AUSTRALIA



Scan#	Drill Hole#
BB004	(BLBD035)
BB006	(N/A)
BB008	(BBDD054)
BB005	(BBDD044*)

*awaiting drill log from Teck

BLUEBUSH
Zinc occurrence

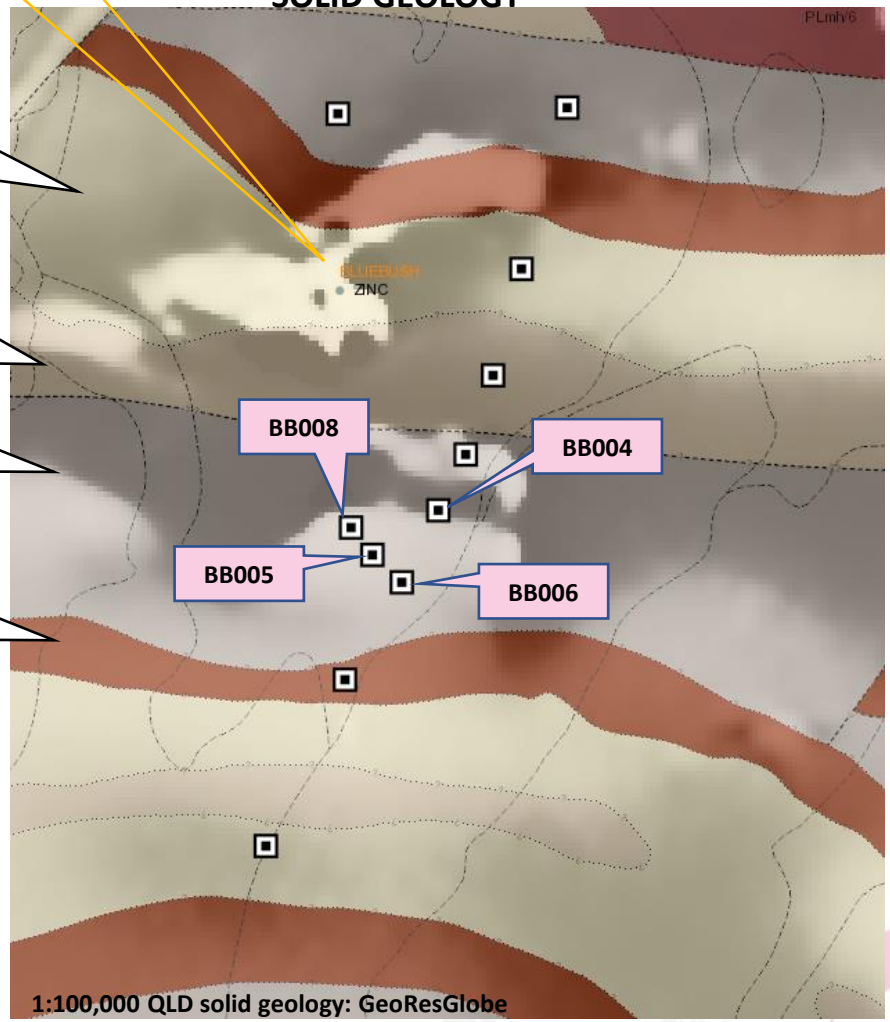
Lawn Supersequence (PLmh/1-4)
Paleo-Mesoproterozoic stratified sediments siltstones, tuff, mica sandstones

Wide Supersequence (PLmh/4-5)
Paleo-Mesoproterozoic stratified sediments siltstones, tuff, mica sandstones

River Supersequence (PLmr)
Stratified and laminated sediments

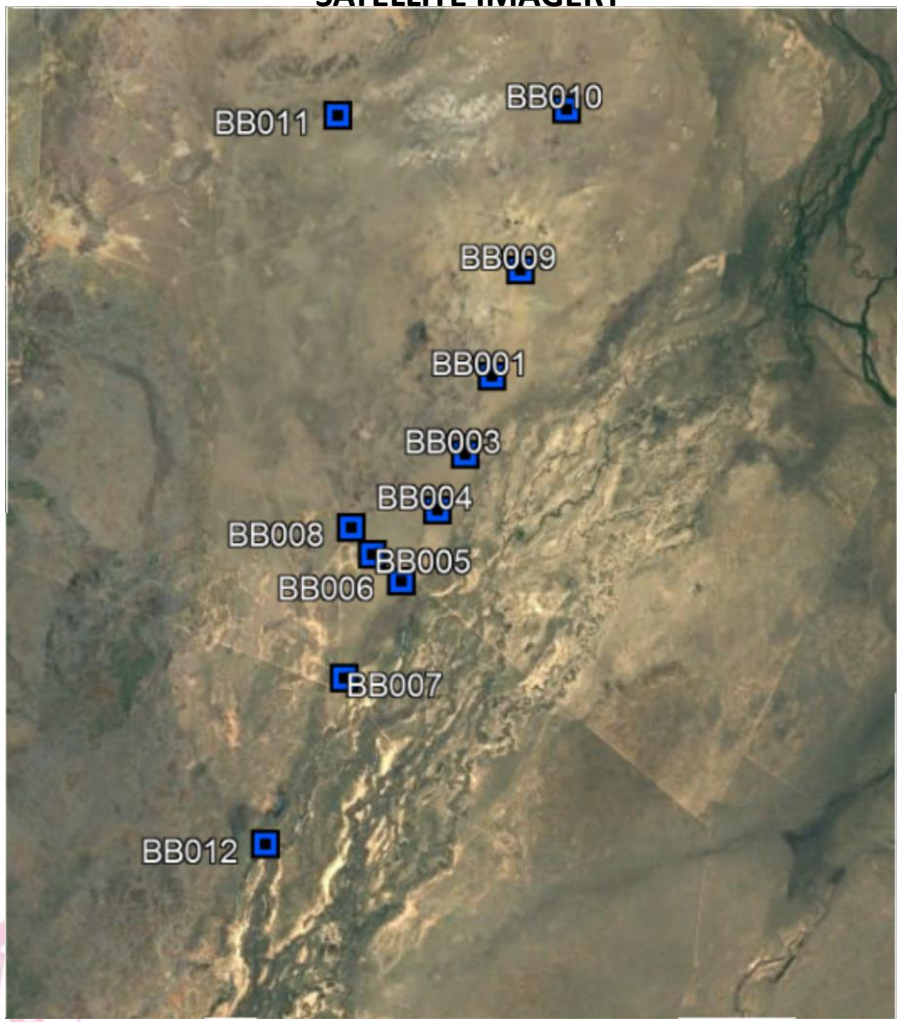
Term Supersequence (PLmt)
Paleoproterozoic stratified sediments

SOLID GEOLOGY

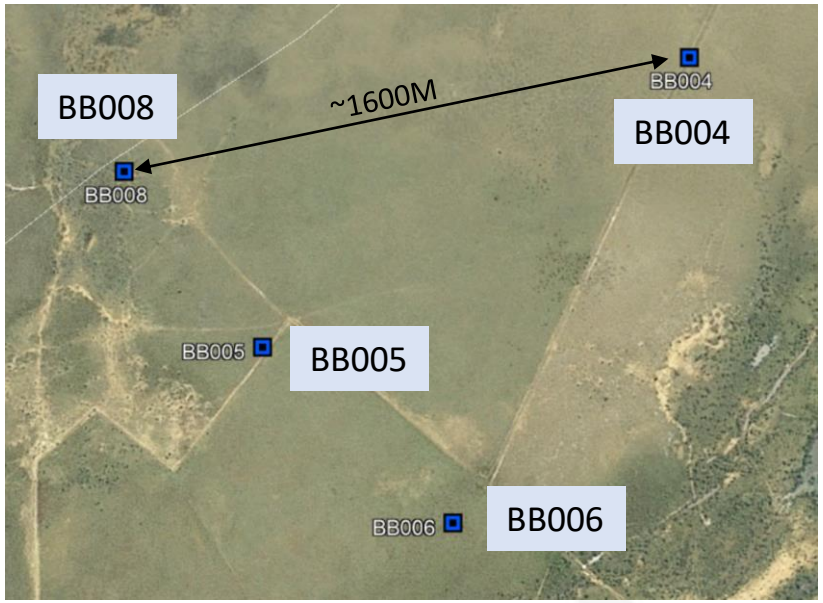


1:100,000 QLD solid geology: GeoResGlobe

SATELLITE IMAGERY



RESULTS
ADR Energy (E) and Frequency (F) processing

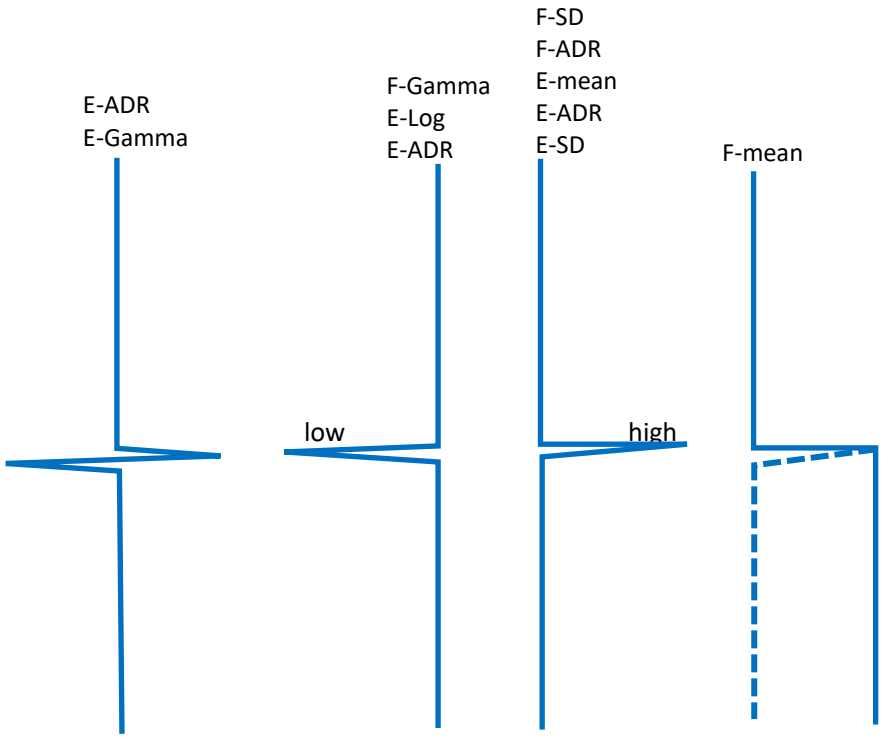


SCAN AH1 H1 BB008 (PARALLEL DRILL HOLE BBDD054)
SCAN AH2 H2 BB004 (PARALLEL DRILL HOLE BLBD035)
SCAN AH3 H3 BB006 (N/A)
SCAN H7 BB005 (PARALLEL DRILL HOLE BBDD044)

GENERAL Frequency (F) and Energy (E) responses for sulfides

Adrok resolves a multitude of results for both Energy and Frequency. In order to unravel both boundaries between rock types with different geophysical responses and specific rock types such as sulfides, a number of criteria can be used. For the Bluebush survey, Adrok utilised the results in training hole BBDD054 to determine what characteristics in particular the sulfides displayed over and above any other rock type. Previous reporting has explored the delineation of lithological boundaries (2013), here we focus on determining the fingerprint of sulfides and distinguishing sulfide-bearing rock from sulfide-free rock. At this stage, no differentiation has been made between pyrite, sphalerite, chalcopyrite, galena or any other potential sulfide types (future reports will address separate sulfide discrimination).

INITIAL - An example of some of the criteria examined across the multiple projects in order to extract a non-project specific signature for sulfides. Throughout the process, these evidential criteria were refined and modified in order to better resolve the unique features.



Correlation criteria (preliminary)

F-Charts
Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean

E-Charts
High E-Mean
Low E-Log
Transition ←→ E-SD
Transition ←→ E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts
Peak in 5-10 MHz

DC (Dielectrics)
Change from high variability from SD to low variability.

FINAL – After correlating the initial selection criteria for BB008, the correlation criteria (WofE) was trialed against other scan results where sulfides were present (Red Dog, Alaska). The final list below is a "running final" and requires further testing at other sites containing high sulfide abundance.

Correlation criteria

F-Charts
Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

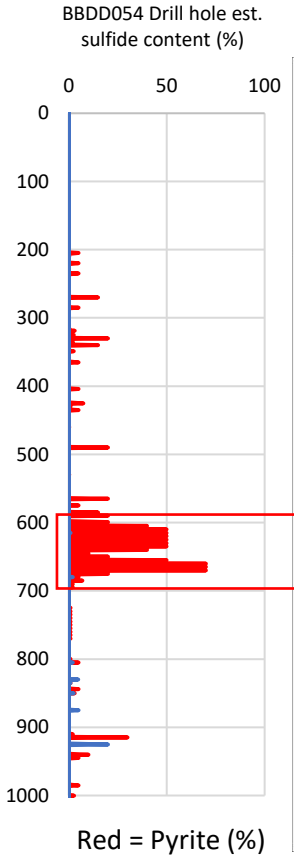
E-Charts
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

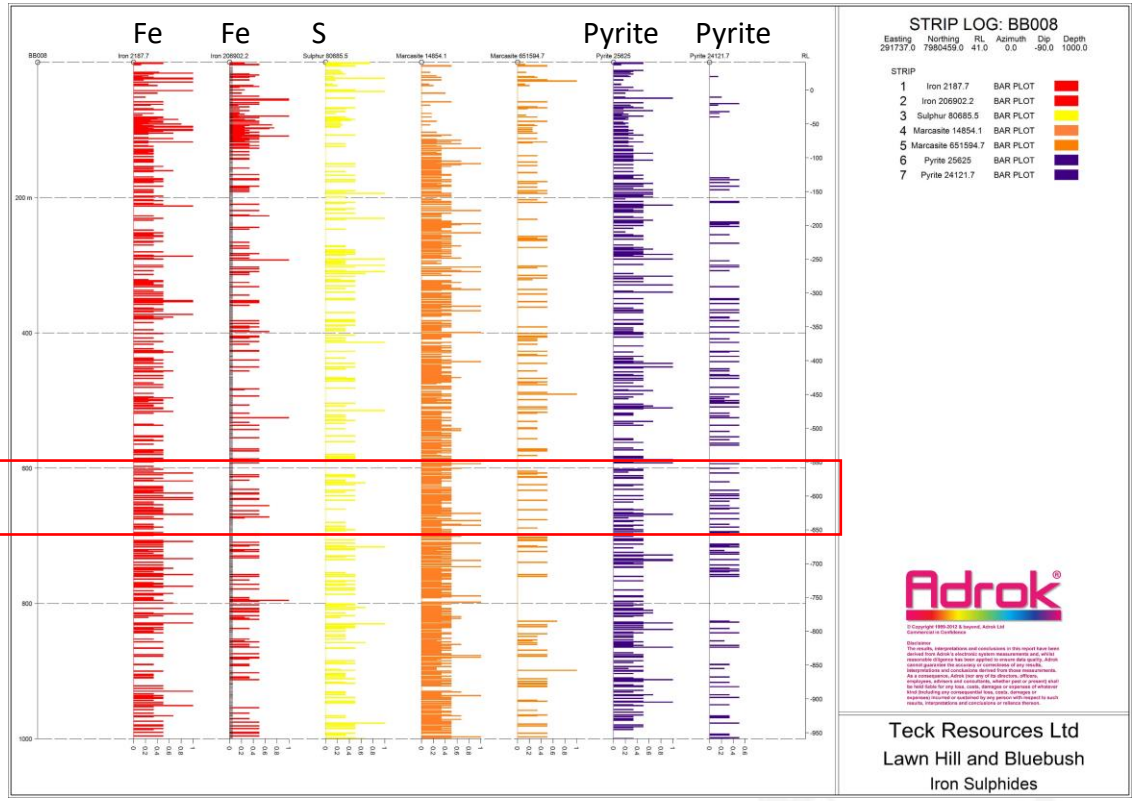
F-Corr charts
Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

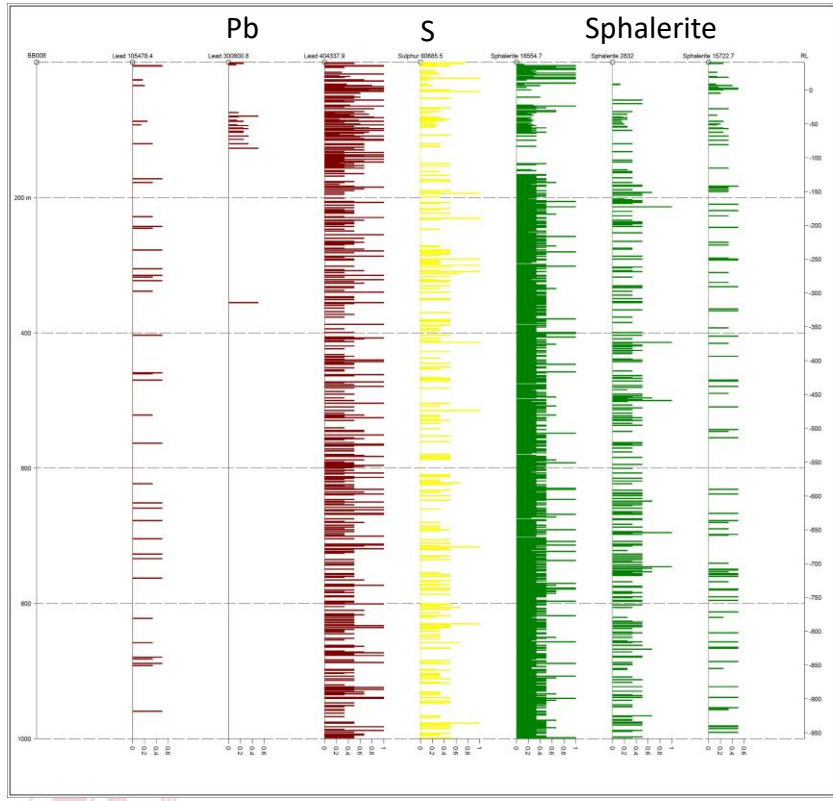
DC (Dielectrics)
Change from high variability from SD to low variability.

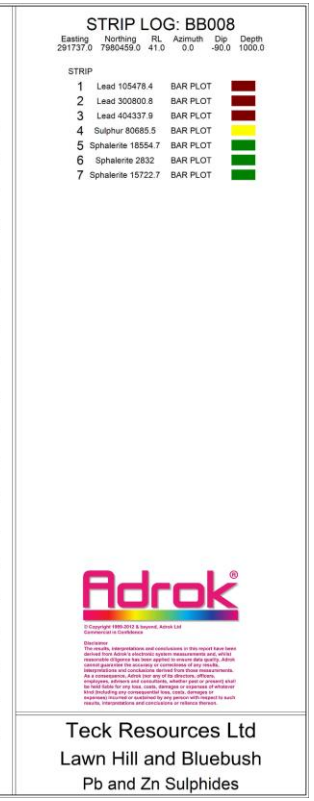
PREVIOUS RESULTS BB008 & PARALLEL DRILL HOLE BBDD054

Previous results presented as part of project 00219 included the correlation strip logs for frequencies proposed as representative/indicative of the mineral or element listed. Based on the results for BB008 and parallel drill hole BBDD054, it was determined that there was only a low degree of confidence in the correlation between, for example Pyrite in drill core and pyrite as indicated by the correlation at specific frequencies. The lack of correlation between the results may be, at least in part, due to toe complexity of the geology in the drill core such that changes in rock type are often associated with changes in the proportion of mineralisation, therefore the frequency responses derived in the training process may be masking the sulfide signature. Accordingly, Adrok have started the process of training across sites so that the sulfides (or sulfide-based minerals such as Galena, Sphalerite, Pyrite or Chalcopyrite) can be better distinguished independent on rock type.

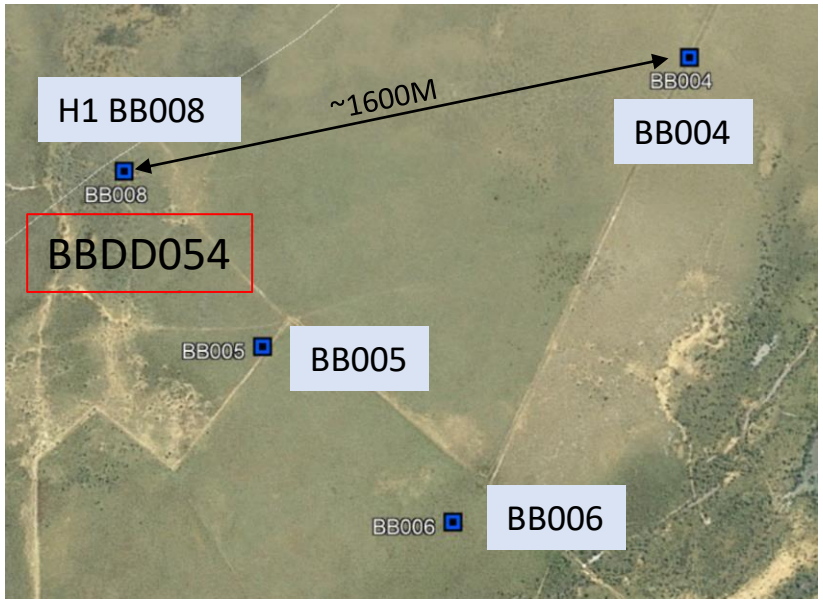








ANALYSIS - H1 BB008 PARALLEL DRILL HOLE BBDD0054

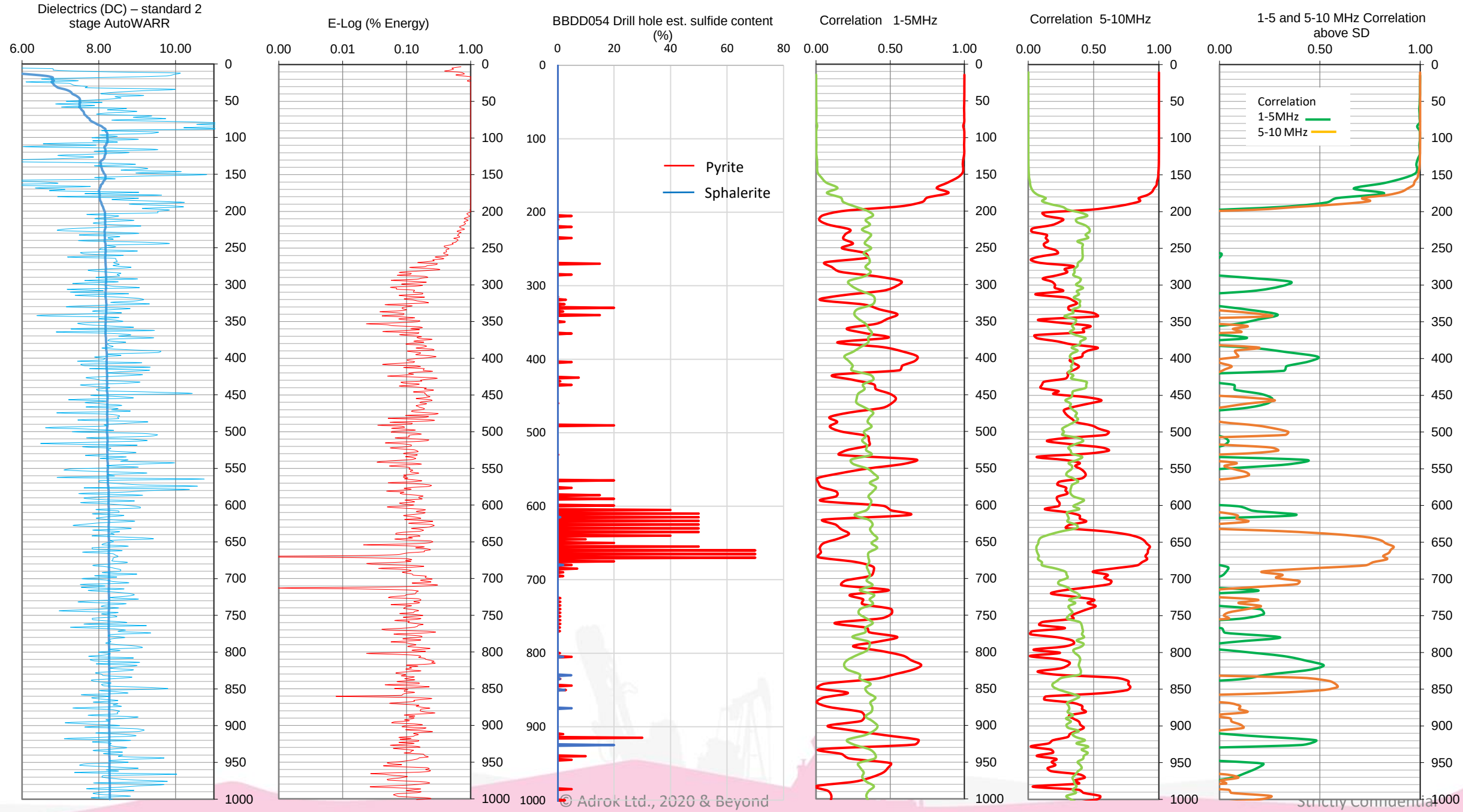


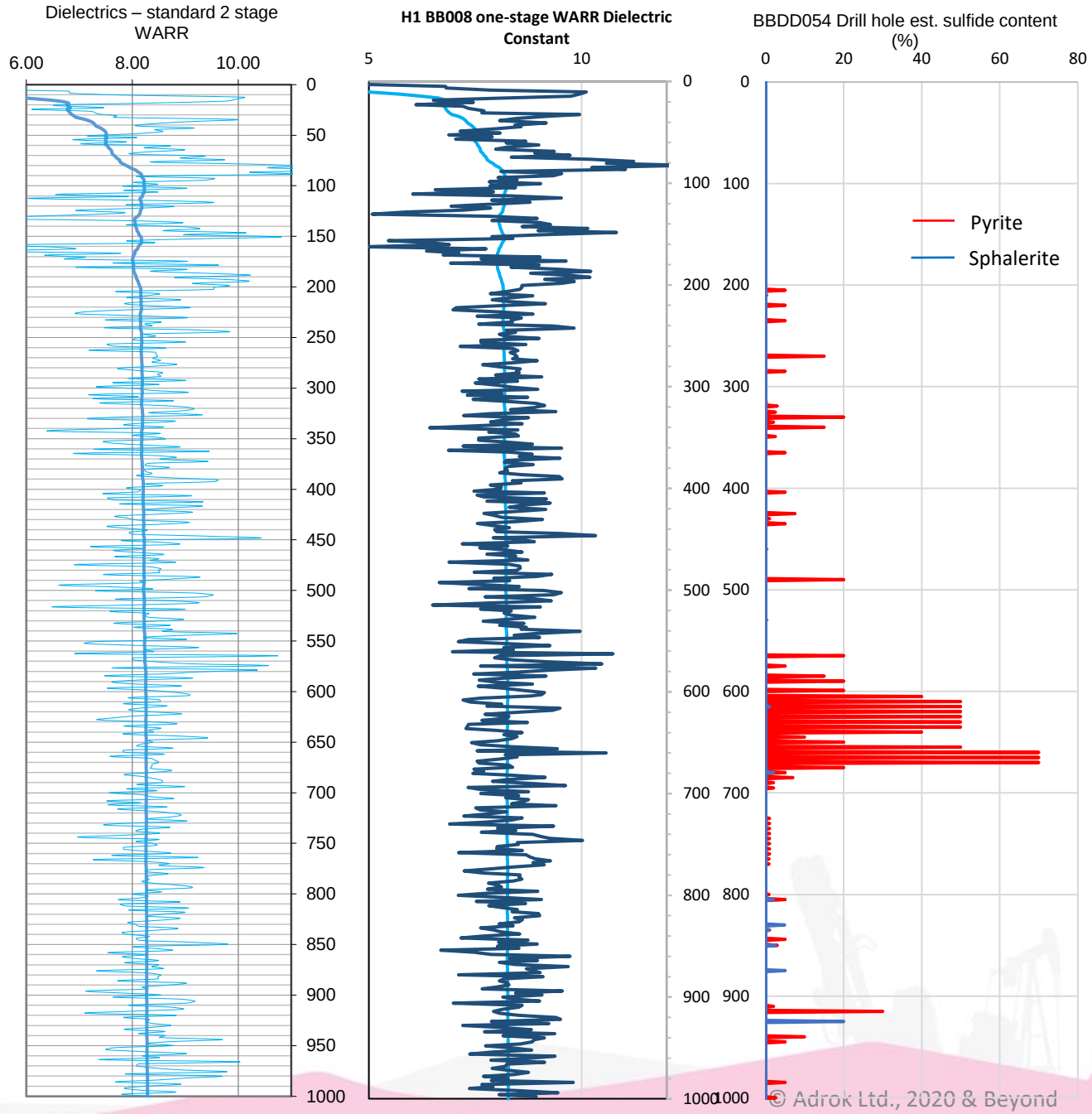
The following section presents the re-processed results for Dielectrics, Energy (E%log) and 1-5 & 5-10MHz frequency correlation. In addition, the results for both the energy and frequency are provided showing the selection criteria being developed for sulfide detection.

An explanation of the results is provided following the charts.

The charts presented are all the standard E- F-, Frequency correlation and DC charts that are provided to all clients as a standard set of results. Adrok purposefully utilised these results as it provided a means of correlating alongside other projects that are not presented here but where the same final datasets and charts were provided.

RESULTS - SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054





Dielectrics (method 1 v's method 2)

For this report, we have not focused the interpretation of the Dielectrics results as a new processing technique is being developed in order to provide a more viable result at greater depths. A brief comparison of the two techniques is provided here for initial comparison.

Dielectrics is a means of measuring a value that is proportional to the Dielectric Permittivity (Ɛr) or Dielectric Constant (DC) of the material at the given frequency.
Experimental work measuring and categorising the Ɛr(DC) of materials dates back as far as the early 60's and has shown that water has a high dielectric (Ɛr = 80) whereas most rocks are well below Ɛr = 20. Most sulfides are measured at over 80 at laboratory frequencies.
Accordingly, (dependent upon the processing interval widths and the sulfide intersection widths etc) higher values of Ɛr(DC)should correspond with sulfides, water or water saturated rock. Some clays and/or hydrous minerals also have relatively high Ɛr(DC) values. Experimental work by Teck has shown that, when the ADR is pointed towards the base of a waterbody and through approximately 350m of rock, the return signal indicates a DC>80 as expected. Disseminated sulfides (mix of rock and sulfides) will likely have an ADR response DC value proportional to the amount of sulfides to rock. However, as the measurement is also, in part, relative, it is unlikely that the ADR DC values will be over 30-40.

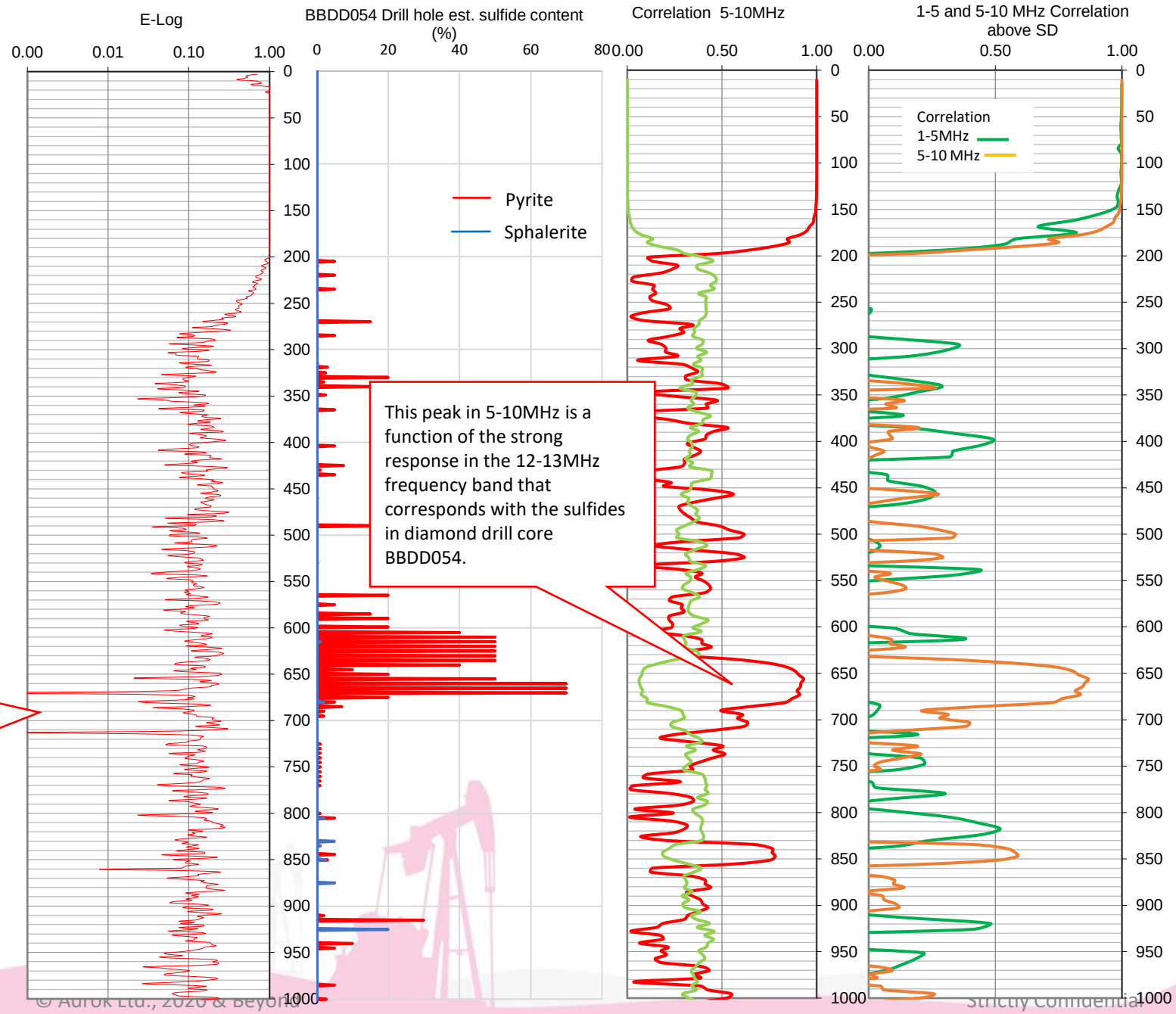
The results shown the left fit the expected high DC corresponding with the sulfide layers.

Energy (Energy % Log)

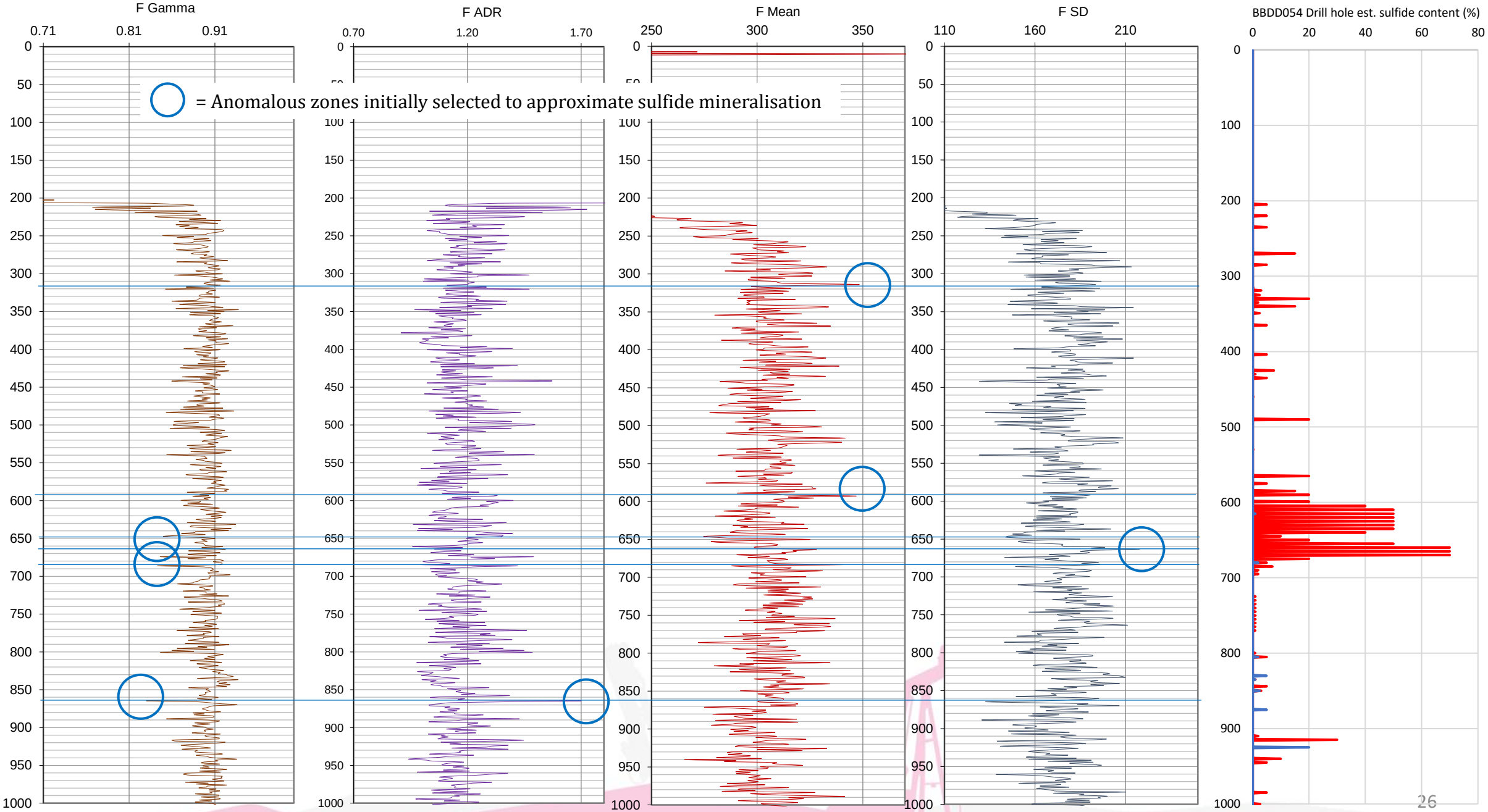
The energy graph is one of the most reliable indicators for sulfides, but it also depends on the nature of the sulfide-country rock boundary. A sharp contact provides a strong energy response whereas a diffuse contact over a large distance may go undetected in the Energy chart.

The energy response measures the intensity of the reflected energy in a return pulse. Lower values in the chart represent higher energy return. A strong signal such as presented here at ~675m is typical of a sharp boundary (i.e. a sharp contact between two rocks with contrasting DC values). An example of a sharp boundary might be the sudden increase in sulfide concentration such that a boundary between disconnected sulfide grains becomes a connected network of sulfide grains. The higher the density of sulfides in the layer, the stronger the reflection should be.

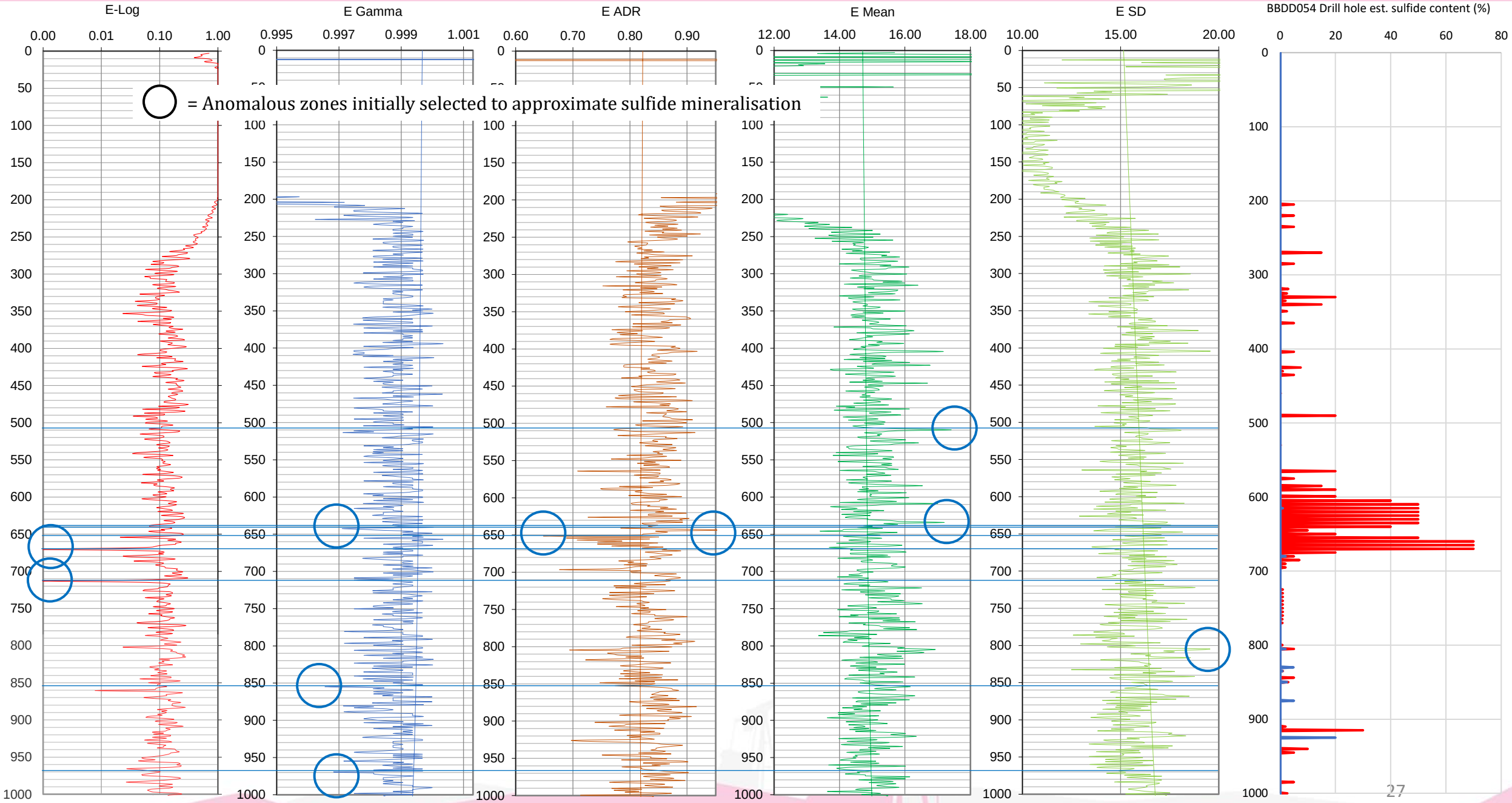
A strong response in the energy results is indicative of reflection of the pulse from a reflective boundary at depth. A reflective boundary is one where there is a contrast in the dielectric permittivity values of the rocks on either side, much like an acoustic boundary provides a strong reflector in seismic reflection surveys. Here, the energy response appears to approximately correlate with the location of the sulfides at 600-700m depth.
Strong reflected energy is a feature of many other surveys identifying massive sulfides.



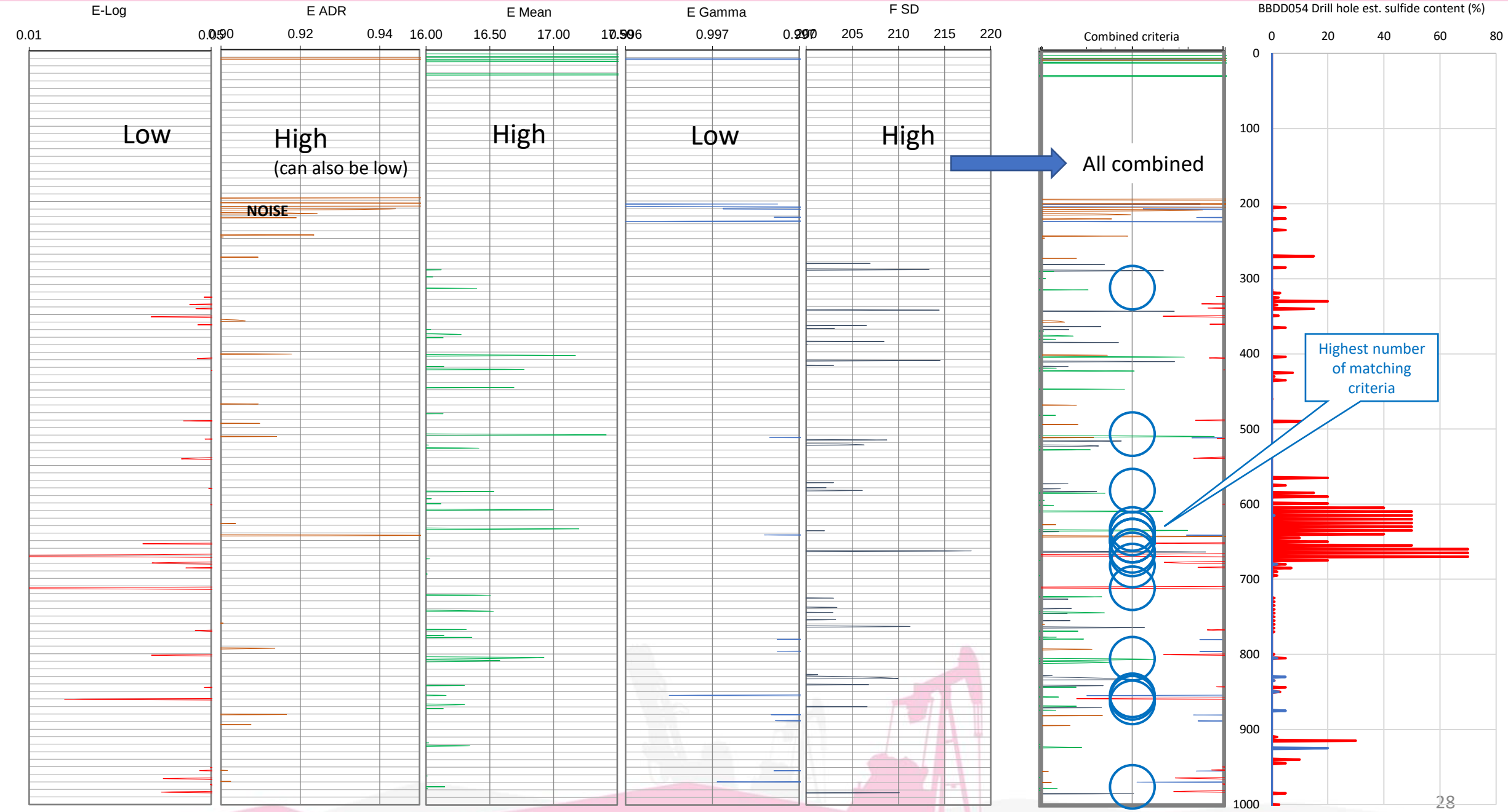
FREQUENCY RESULTS - SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054



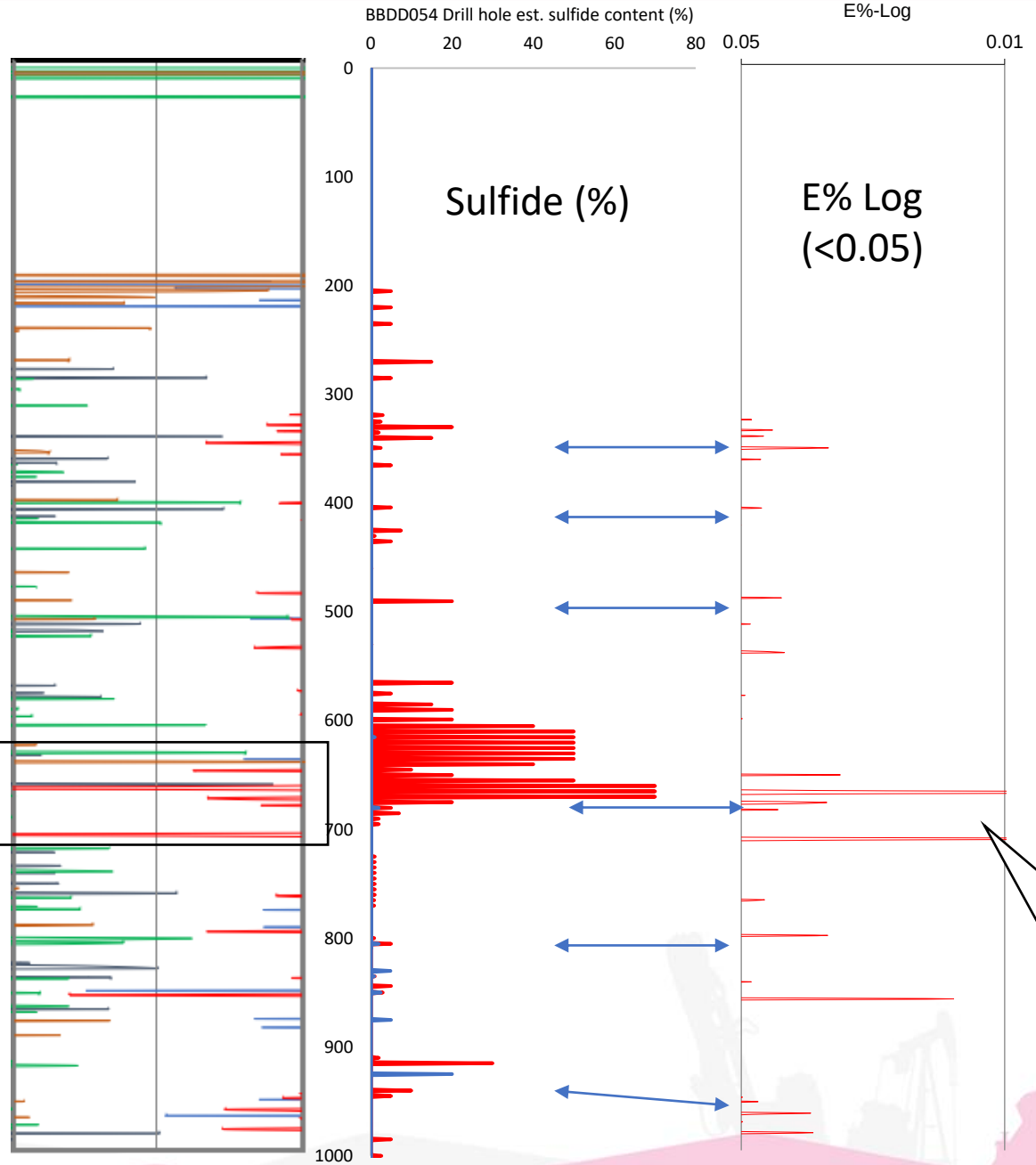
ENERGY RESULTS - SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054



Summary correlation E and E- SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054



Summary correlation E and E- SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054



Most number of correlations of max and/or min values identified by the greatest number of crossing lines within this interval.

Energy (Is the Energy E%log a reliable indicator on its own?)

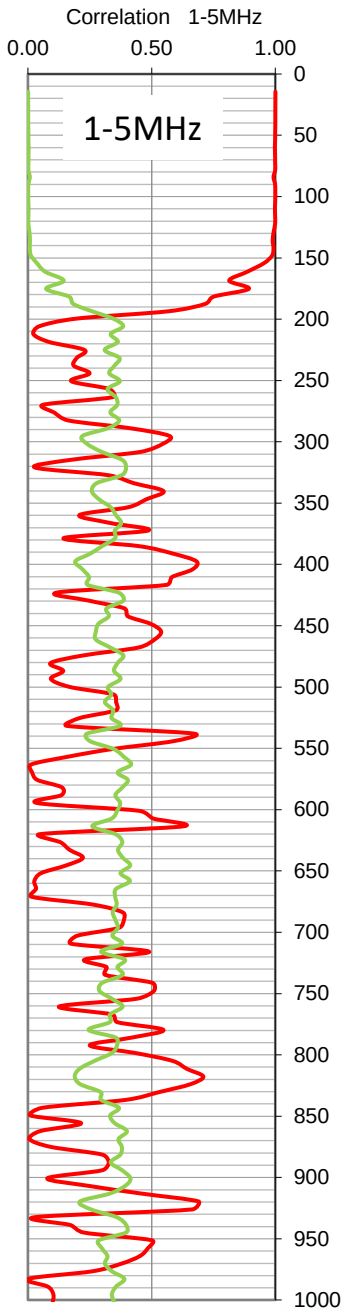
The overall correlation between the selected criteria shown on the previous page and the major sulfide occurrence is reasonable for this scan and this drill hole result. One of the better, single correlations is that seen between the energy return (E% Log) and the sulfides. In other sulfide projects, strong return in energy is indicative of a sharp (or relatively sharp depending on frequency, depth etc) boundary between sulfides and host rocks. In the results seen here, the energy chart provides a good correlation suggesting the sulfides occur in relatively distinct layers with good boundary reflectivity. The major peaks in energy at around 700m is in good correlation with the proportion of sulfides within this zone and is also similar to other project results.

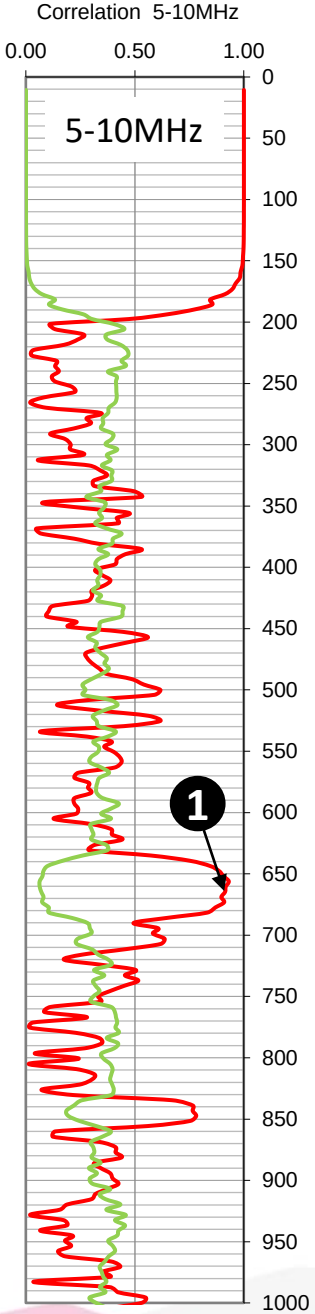
The results seen in the energy log are encouraging but they form only **one** in a number of lines of evidence for sulfides within a scan. Adrok have found that Energy, specifically the E% Log, when combined with Frequency and other energy results remains the best indicator for sulfides rather than the E% log alone.

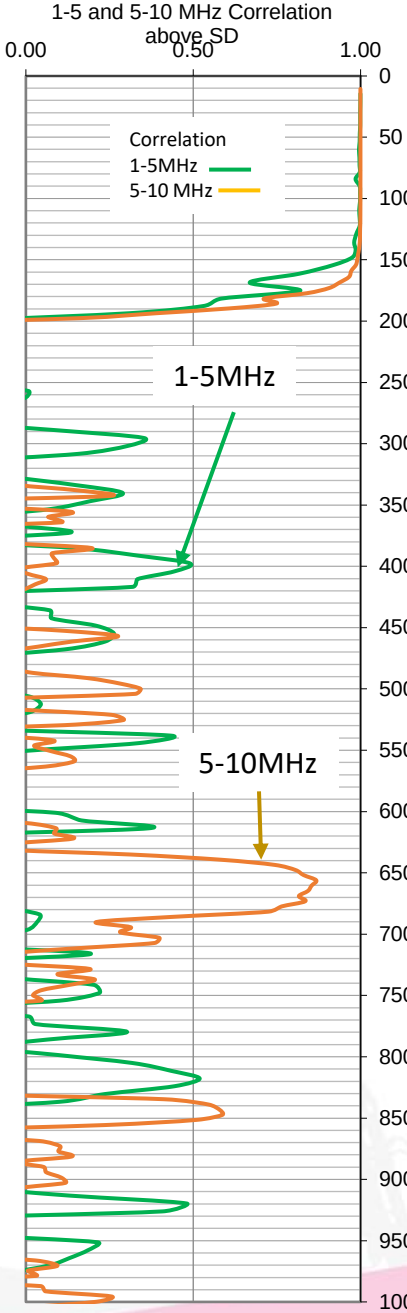
Reasonable correlation between the energy return and the location of sulfides. The strength of the energy return* is in-part controlled/defined by the "sharpness" of the contact between the sulfides and the host rock and/or the density of the sulfides within a particular interval. Note: the energy chart here has been inverted to show the lower values on the right and higher values on the left. It should also be noted that, with increasing depth, there is the potential for depth errors of generally less than 5-10% based on results from other studies.

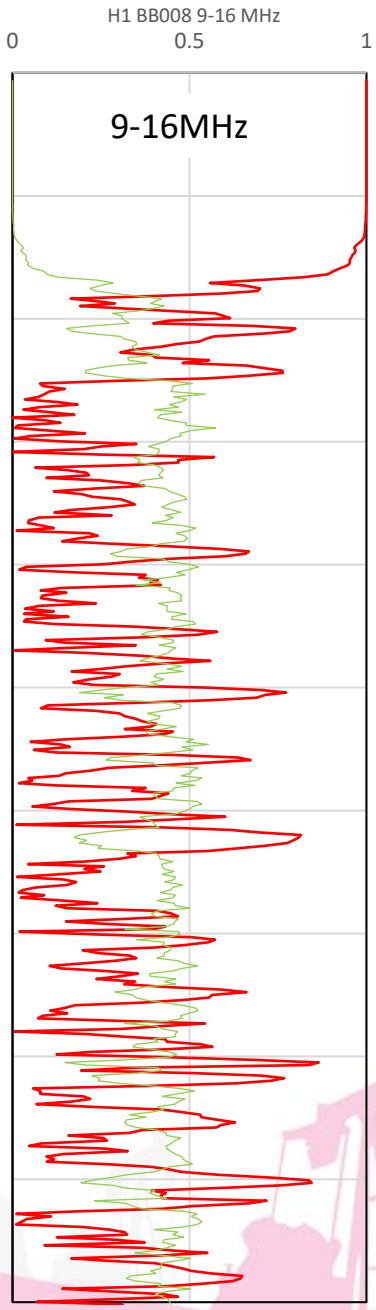
** The lower the value, the stronger the energy return.*

FREQUENCY 1-5 & 5-10 CORRELATION - SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054



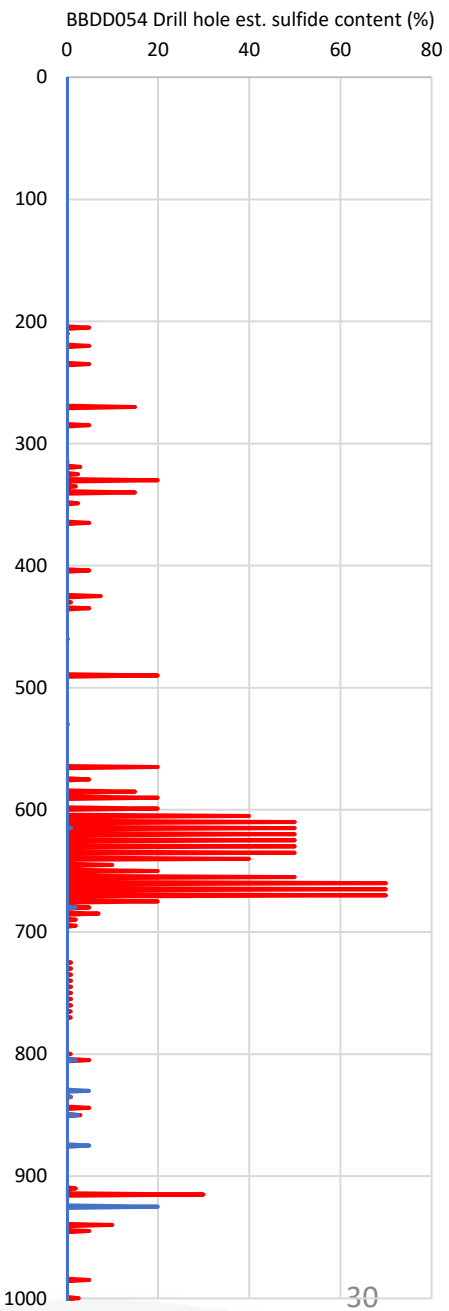




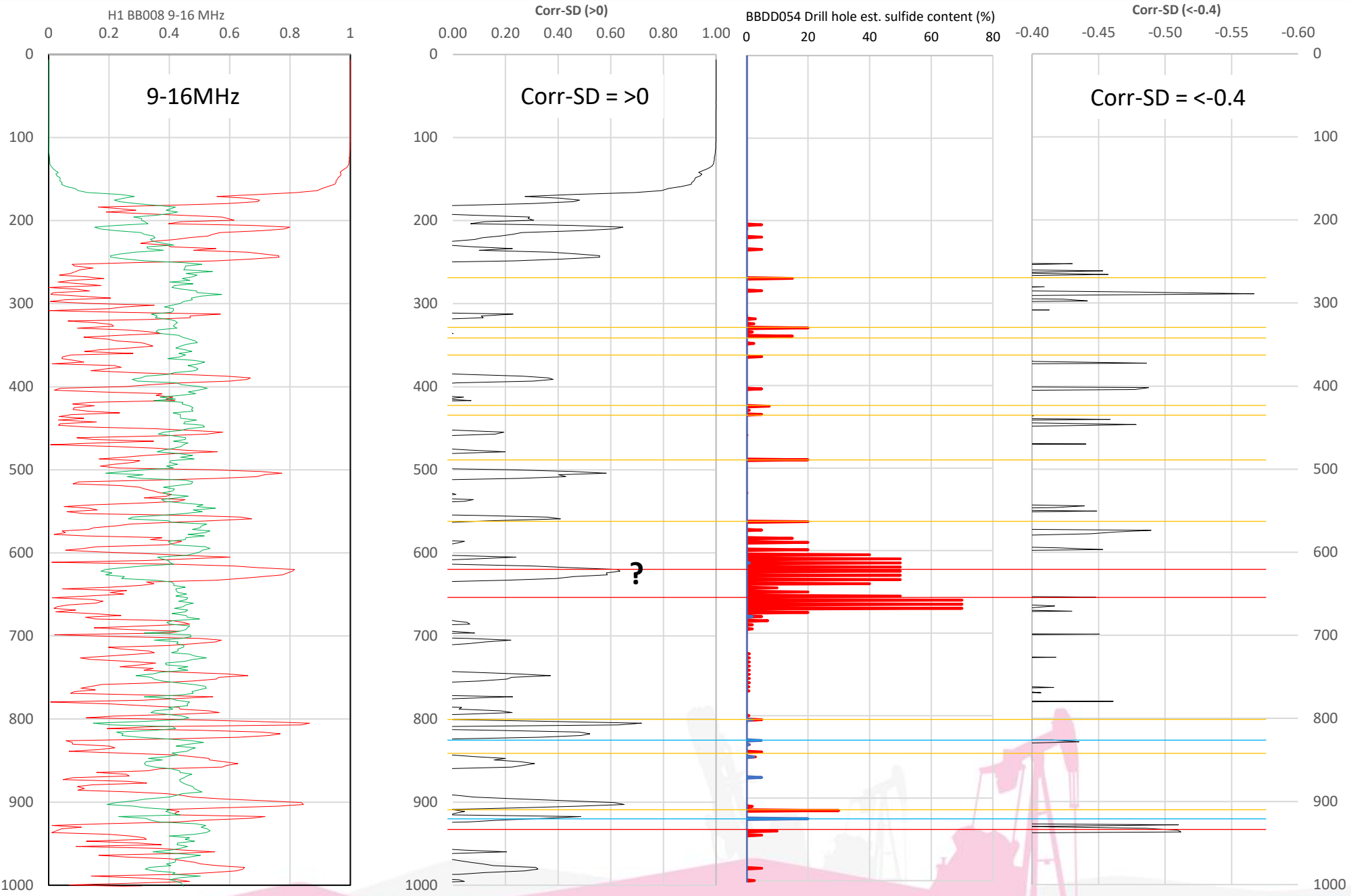


1 The large anomalous peak in the frequency results (5-10 MHz) is triggered by a strong correlation between mineralisation and the response in the 7-8MHz frequency range as presented in more detail later in the report.

The response is missing in the 9-16MHz results as presented to the left along side the 1-5 (green) and 5-10 (orange)MHz Correlation results which simply exaggerates the frequency response relative to the standard deviation.



FREQUENCY 9-16 CORRELATION (+/- SD) - SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054



9-16MHz correlation

The correlation between 9-16MHz results and the sulfides reported in drill hole BBDD054 is relatively low as a single technique. Most of the high-grade values do not correlate well with either low (<-0.4) or high (>0) values in 9-16 above SD (orange lines). In some cases there is a correlation with low values (blue lines) and high values (red lines) but these are not common. The principal zone of sulfides appears to correlate with a peak in the 9-16 above 0, however, this may also reflect a major change in rock type at this depth.

Adrok is trying to resolve this by testing the same 9-16MHz correlation at other sites containing pyrite. If the correlation is a signature unique to pyrite, then the same response should appear in other scans regardless of the country-rock or host-rock type.

FREQUENCY CHARTS & LITHOLOGY

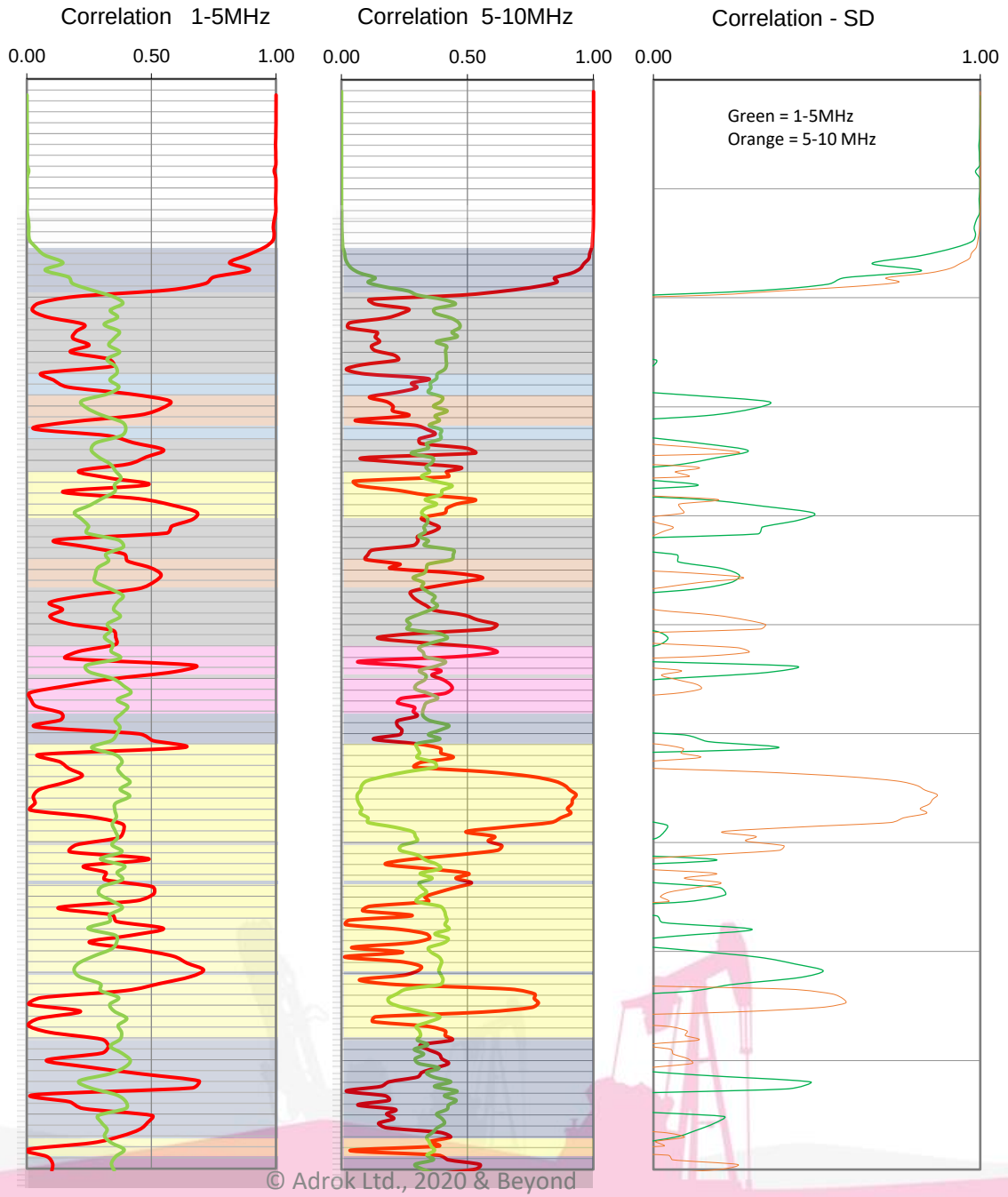
Presented here are the frequency correlation results superimposition of lithology (rock type).
Based on the results form other projects, the changes in frequency correlations, along with other key indicators in E- and F- responses, can be used to delineate rock type boundaries as the composition of the rock significantly influences its resonance frequency. In addition, the presence or absence of sulfides is also likely to significantly influence the frequency correlation results.

Changes in rock type (which also represent changes in the geophysical characteristics of that rock type) tend to appear as peaks in both 1-5 and 5-10MHz whereas internal variability is indicated by peaks in either 1-5 or 5-10MHz.

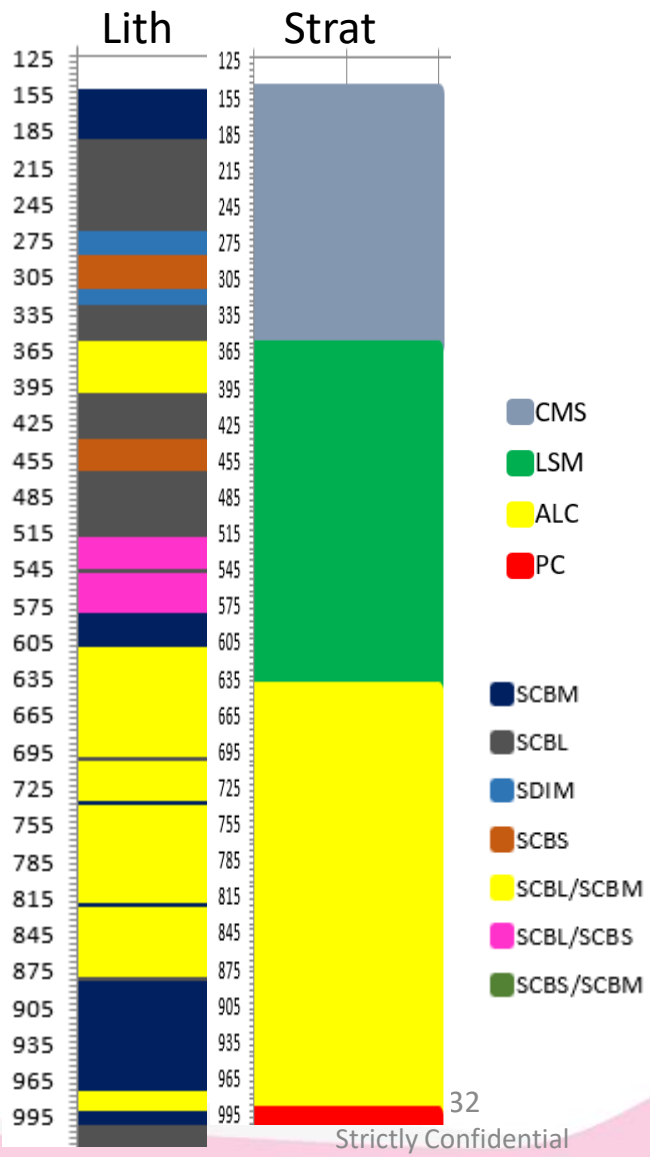
The major peak in 5-10MHz at ~650m depth signifies a significant change in the rock properties which, in this example, coincides with the presence of sulfides in drill core.

Similar responses in 5-10MHz are observed in copper porphyry systems whereby a correlation value of close to 1 in 5-10MHz is observed, albeit complicated by the presence of copper, lead and iron sulfide.

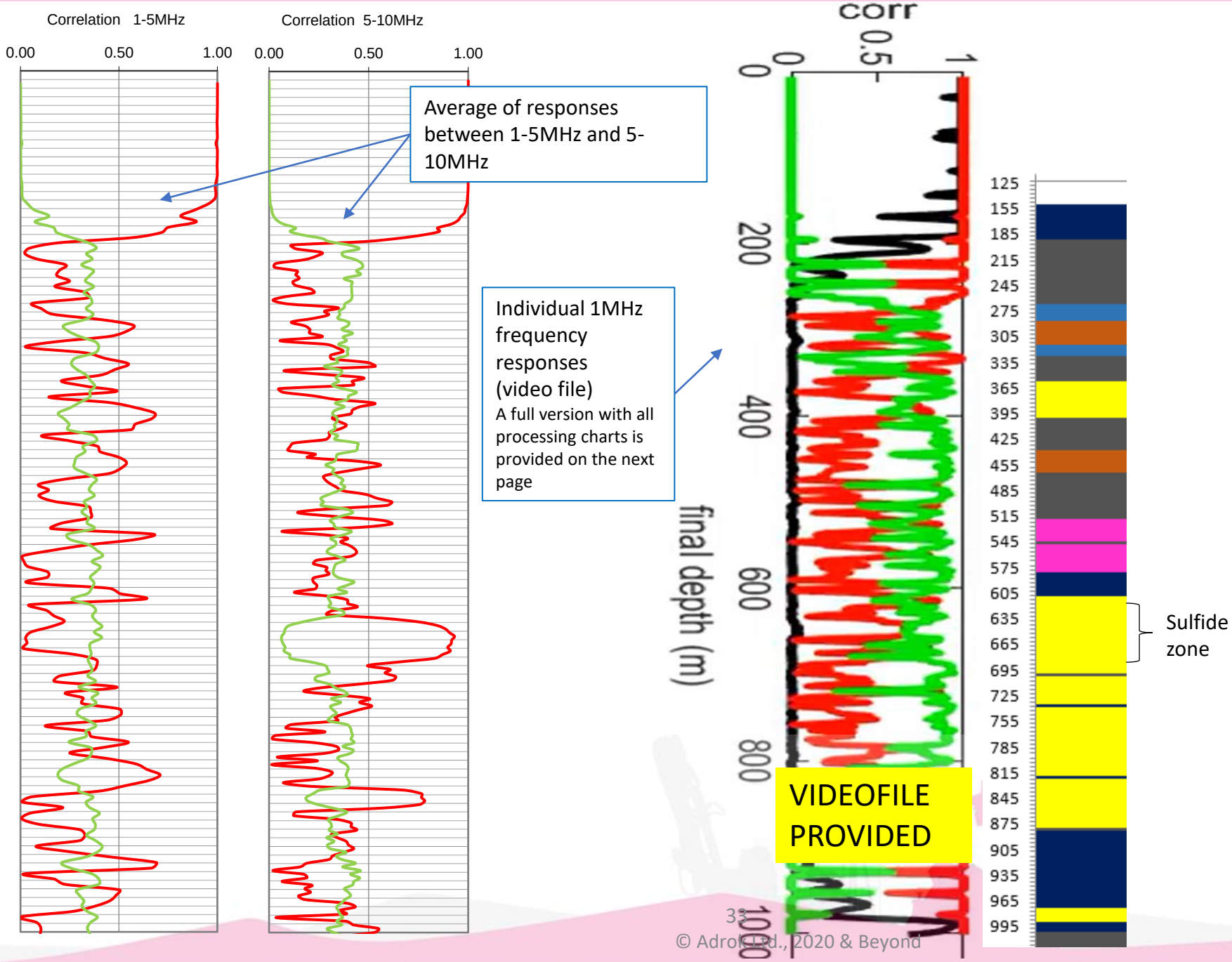
In order to better resolve the response specific to the sulfides, each 1MHz range can be processed individually and compared directly to specific rock units in order to understand the best frequency to delineate each unit and remove these from the background in order to generate a unique signal for the sulfides. Such a detailed study has not been completely resolved as part of this review but can be achieved and streamlined (i.e. developing an autonomous processing workflow).



ALC – Algae Carbonate
CMD – Carbonaceous mud/silt
LSM - Lam siltstone and sandstone
PC – Pyritic carbonate



FREQUENCY CORRELATION VERSUS ROCKYTYPE - SCAN H1 BB008 & PARALLEL DRILL HOLE BBDD054

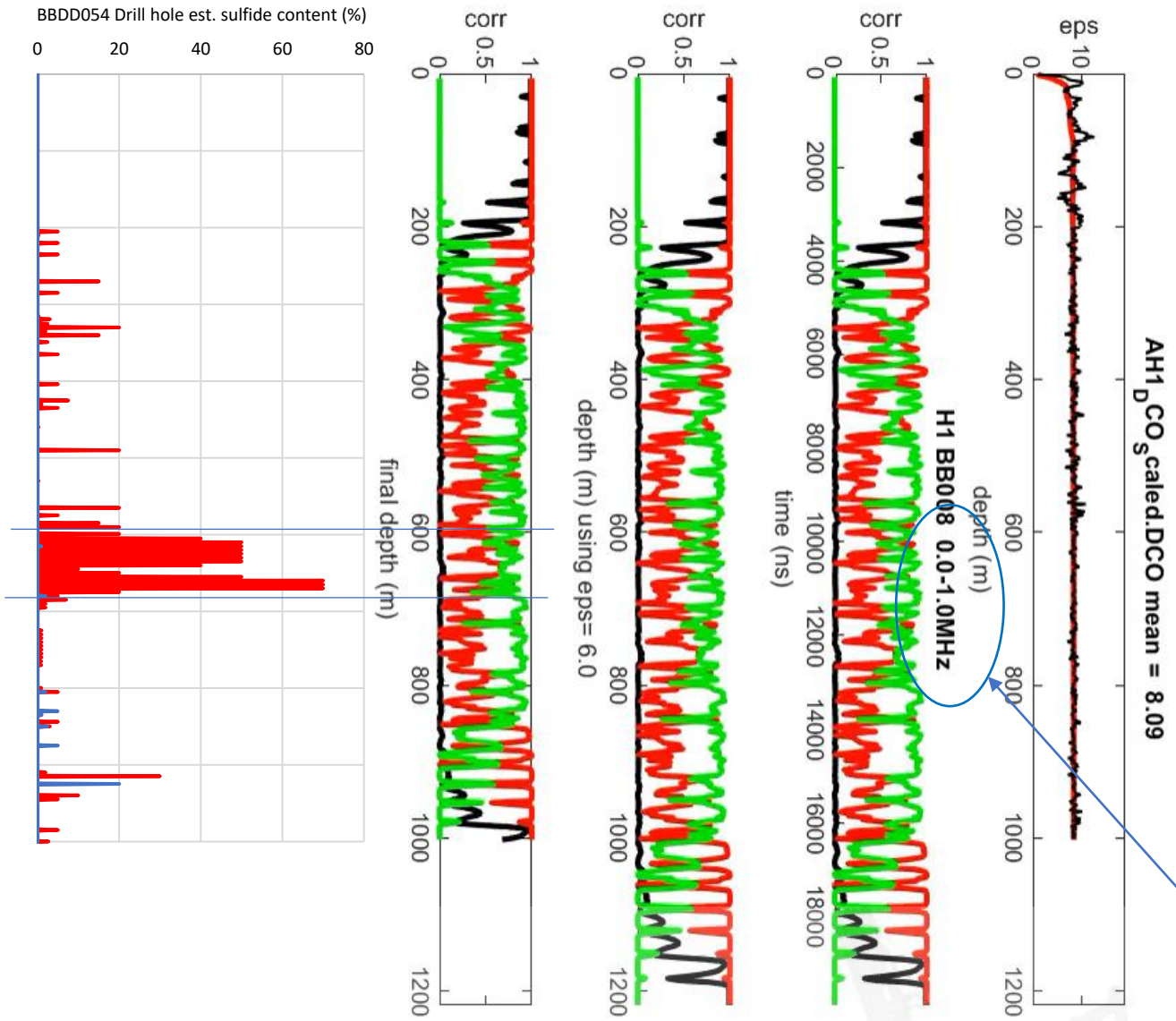


In order to better resolve whether a unique frequency response can be attributed to a certain rock type or the presence of sulfides, each scan was processed at 1MHz bands between 1-50MHz. In order to resolve the specific frequency response for the sulfides, each 1MHz band has been processed and compared directly with the drill log and the sulfides.

Provided here is a video file compilation of each 1MHz response correlation. Each frame represents 0-1MHz, 1-2MHz, 2-3MHz…..49-50MHz.

It can be seen from the individual bands that certain features (rocks, boundaries etc) appear as different responses. This is similar to traditional mineral spectroscopy whereby different minerals respond at different wavelengths.

As the number of case studies in sulfide-bearing rocks increases, we are starting to develop an understanding of the unique fingerprint of sulfides at different frequency ranges.



VIDEOFILE PROVIDED

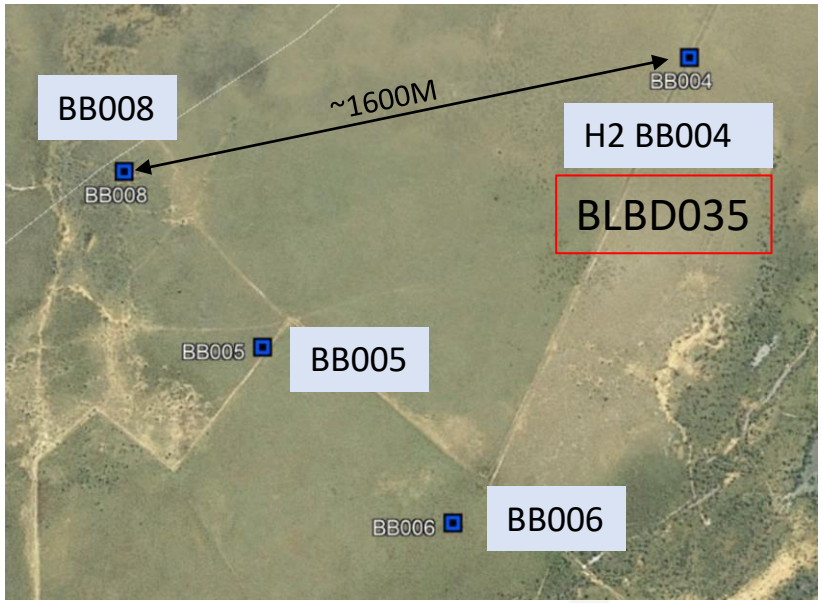
(Video file) Animated full suite of results for 1MHz bins from 0-1 to 49-50MHz.

Provided to the right is a video file showing an animated scroll-through of each 1MHz frequency interval from 1-50MHz. Some frequencies show no correlation with rock type or sulfides, while others expectedly show strong correlation with the sulfides. Adrok's aim is to extract the key frequencies at which only sulfides respond.

For the current project site, however, several key frequencies can be used to image the sulfides. These are discussed further below, however a suitable example is 7-8MHz, potentially 12-13MHz, and even 38-39MHz.

The reader should also be aware that, as with the energy and frequency response results presented above, no single frequency response is likely to be representative of sulfides alone, rather it is a combination of frequencies that will provide the appropriate fingerprinting. This is, in many ways, similar to traditional x-ray or SWIR spectroscopic methods for mineral differentiation.

PROCESSING H2 BB004 PARALLEL DRILL HOLE BLBD035

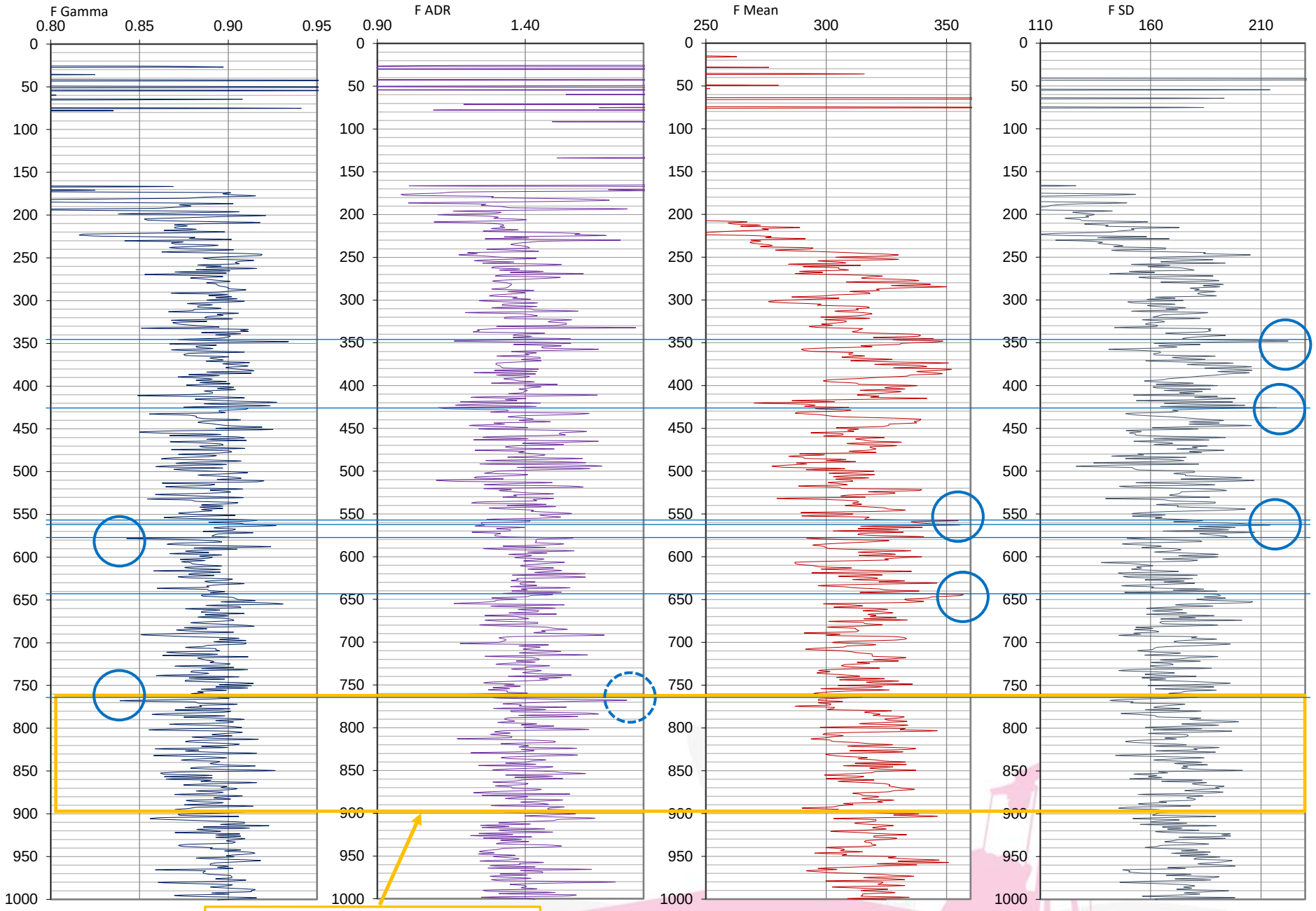


Note

The drill hole has only very minor amount of sulfides, therefore the response in terms of a possible signal in the ADR data is also likely to be very weak to non-existent. Nevertheless, the results were examined to determine if any ENERGY or FREQUENCY data could be used to differentiate the pyrite-bearing zone at ~750m-900m down hole.

Please consider the following results as a guide only and not as definitive as for BB008 where sulfides are present and abundant.

FREQUENCY RESULTS - SCAN H2 BB004 & PARALLEL DRILL HOLE BLBD035

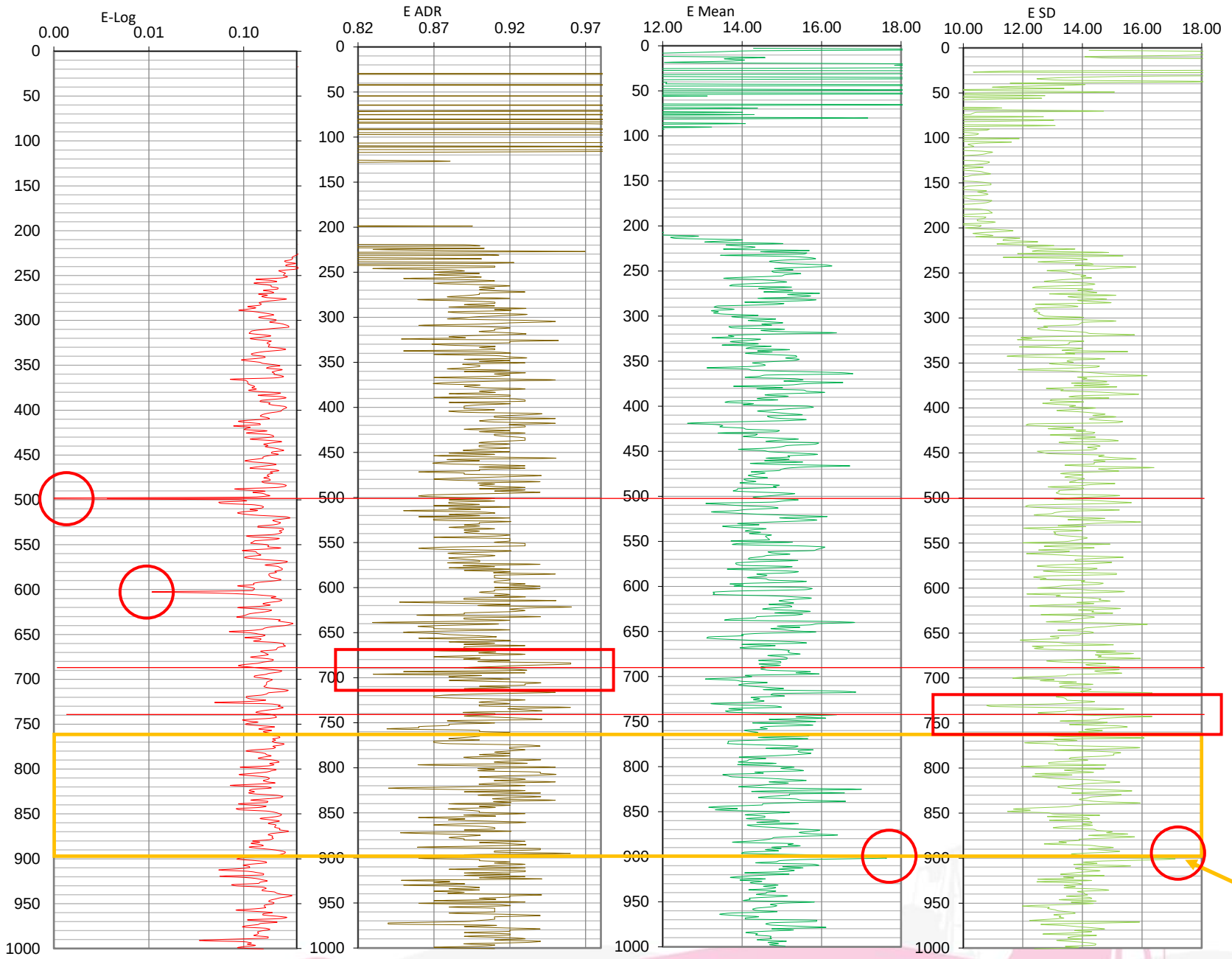


If the same criteria are used as determined as indicators of sulfides for scan BB008, then several areas of interest can be delineated. The key targets for each results in F- or E- are circled and marked with a corresponding line across all charts in order to observe related peaks and troughs in other results.

It should be noted here, however, that peaks in F-ADR are linked to troughs in F-Gamma by way of processing and the way in which F-Gamma is extracted from F-ADR. Accordingly, A simultaneous target response in the two charts is not indicative of two different lines of evidence giving a correlating match. In this instance, the anomaly in F-ADR and F-Gamma at 765m depth is considered only once in the composite evidence result.

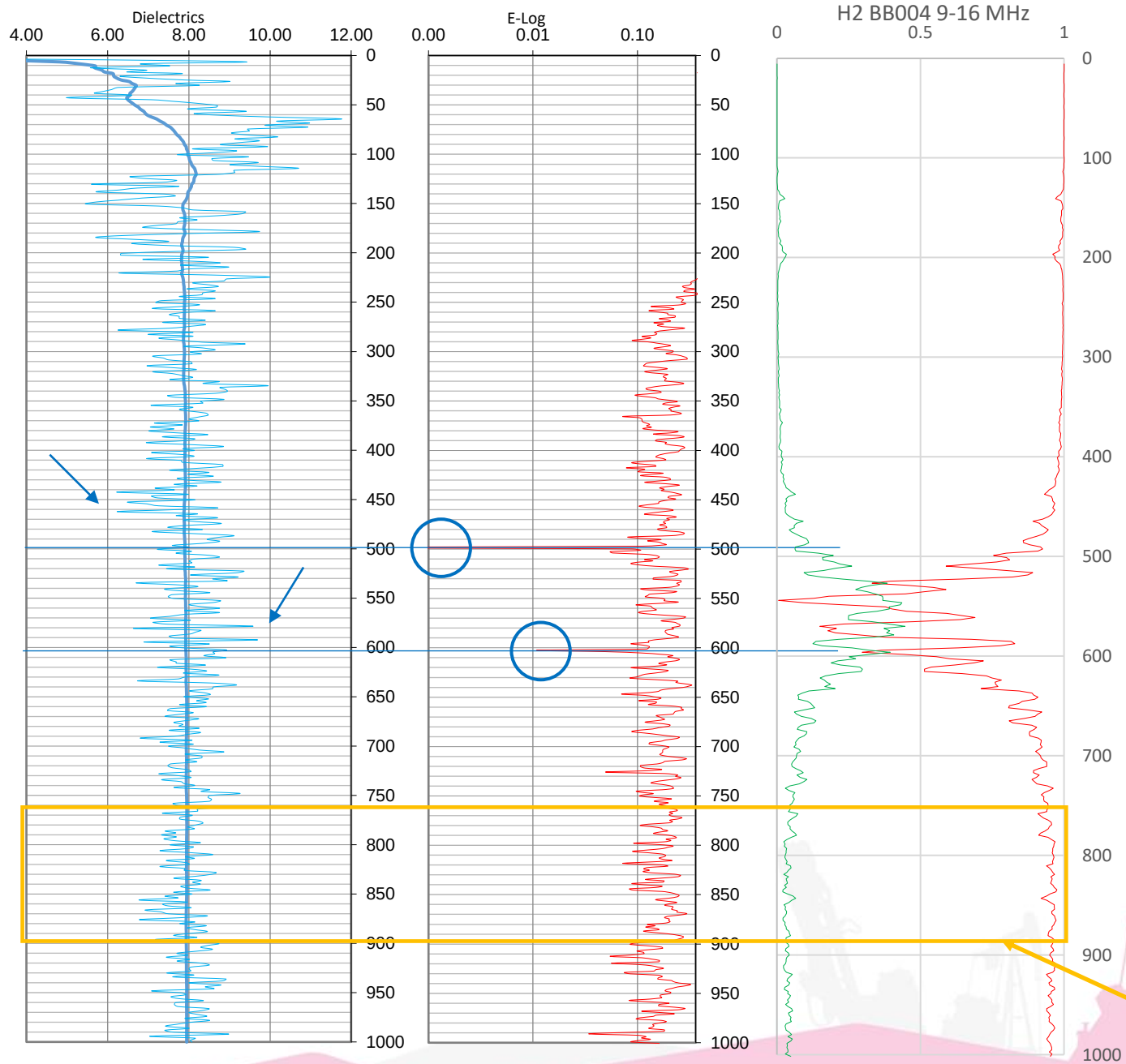
Similarly, F-SD and F-Mean are also linked, therefore, based on other project results, F-SD is emphasized over F-Mean for targeting sulfides. Further research in this area is required as variations in F-mean provides a useful indication of changes in rock type and therefore useful for projects requiring lithological differentiation (e.g. Coal).

ENERGY RESULTS - SCAN H2 BB004 & PARALLEL DRILL HOLE BLBD035



Energy results including E% Log. As for F-results presented on the previous page, a number of targets can be extracted using the criteria devised for BB008. Typically, high sulfide content (if the layers are relatively rich in sulfides and exhibit reasonably sharp contacts with the surrounding host rock) is indicated by strong responses (low values = high reflective energy) in the E% Log results. Here the highest response is well above the pyrite-bearing zone (area below 750m marked in orange) at around 500m down scan.

Interestingly, a large shift in E-ADR and E-SD are observed at the depth corresponding closely with the upper boundary of the pyrite-zone. This response is considered an important indicator of a major change in rock type or composition as it signifies a major change in the rocks response to the pulsed radar at the range of frequencies used for that particular scan. If accompanied by a significant anomaly in the E% Log chart, this typically indicates sulfides, however, in this scan the E% value is only 0.05 which is not below the usual 0.01 value used to help identify sulfides. Adrok are currently investigating this in more detail.



A comparison between E% log, Dielectrics and the 9-16MHz correlation results

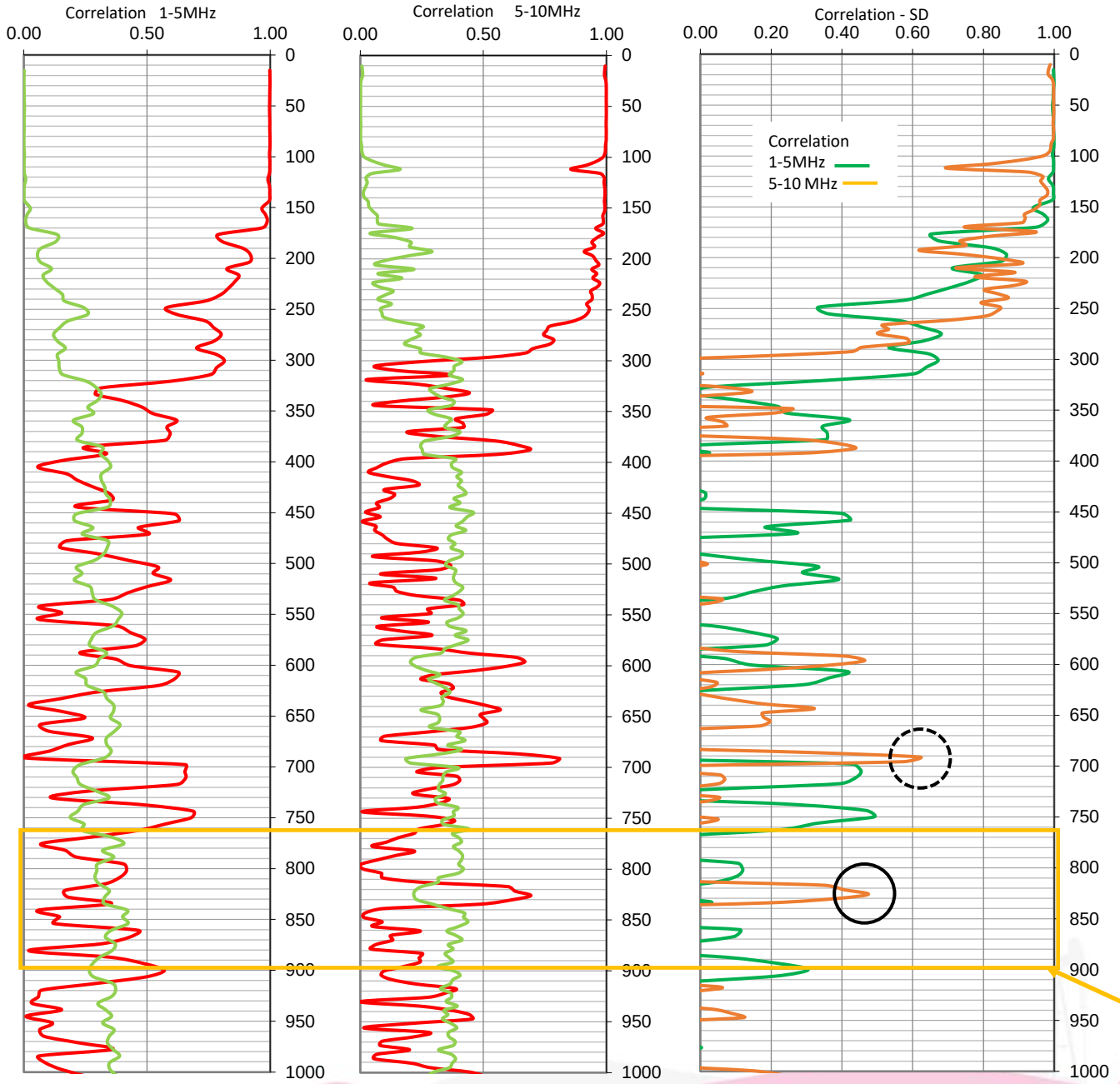
The results of the E% Log values were discussed on the previous page, however here we can compare the results with the dielectric response and the 9-16MHz frequency correlation response where we witness successful delineation of sulfide zones in other project results.

Sulfides have generally high dielectrics (ƐEr>83) at lab-capacity experimental frequencies. As for water, (Dielectric permittivity of Ɛr 80-81) the Adrok data should exhibit elevated DC values. However, recent research into the DC response to sulfides has led to the conclusion that sulfides, like other materials, may have different Ɛr values at lower frequencies (field frequencies). Accordingly, Adrok are observing both low and/or high DC values corresponding with the transition from Host rock to sulfide-bearing zones. The high and low values in DC could be indicative of OH- rich alteration or an abundance of quartz respectively near the zone of mineralisation but this requires further testing which is currently underway.

At the time of writing, and due to the lack of detailed lithological information or more precise drill hole assay data, Adrok geologists are uncertain what the significant drop in the 9-16 MHz frequency results is indicating. Evidence from the E% Log results as well as from other results presented further below suggest that the pyrite zone should lie at between 500-600m depth however this is in contrast with the estimations of sulfides logged in the drill core provided by Teck.

Further details are required from the drill core to facilitate lithological influences.

1-5MHz and 5-10MHz CORRELATION - SCAN H2 BB004 & PARALLEL DRILL HOLE BLBD035



1-5MHz and 5-10MHz frequency correlation results

The results from processing 1-5MHz and 5-10MHz has proven successful in the scan BB008 whereby the highest values in 5-10MHz correlation without a similar high in 1-5MHz was a good indicator for sulfides. In the results presented here, there are two areas where a peak in 5-10MHz exists. The first at 700m is only narrow (depth) and is close to a peak in 1-5MHz. The anomaly at approximately 825m is wider and less closely associated with a response in 1-5MHz. While the correlation value remains below 0.6, it should be recalled that there are very few sulfides in this drill core and they are distributed unevenly over an approximately 200-250m wide section. It is plausible that the 5-10MHz is responding to a zone of slightly higher sulfide density.

Reported sulfide zone in drill core

Correlation criteria

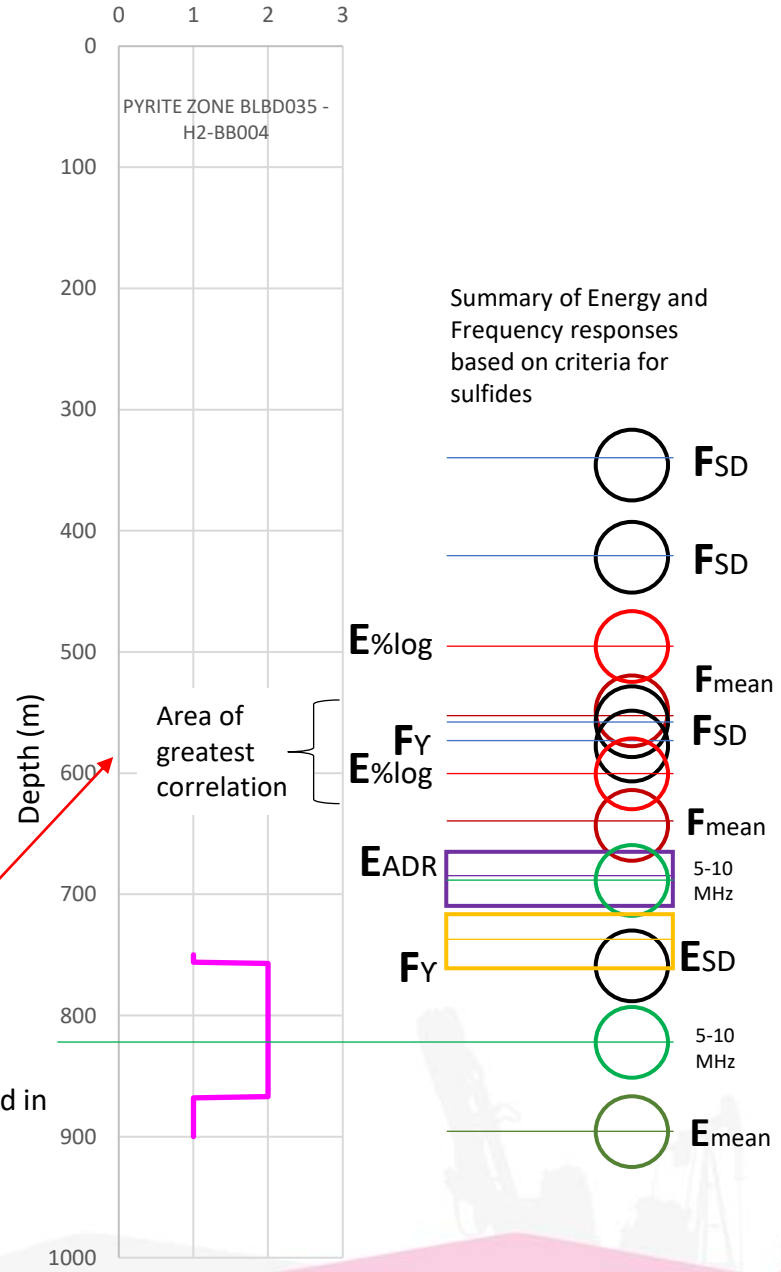
F-Charts
Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts
Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)
Change from high variability from SD to low variability.

Unidentified zone of mineralisation in drill core?



Major anomaly in 5-10MHz also observed in BB008

Multi-evident correlation with pyrite zone

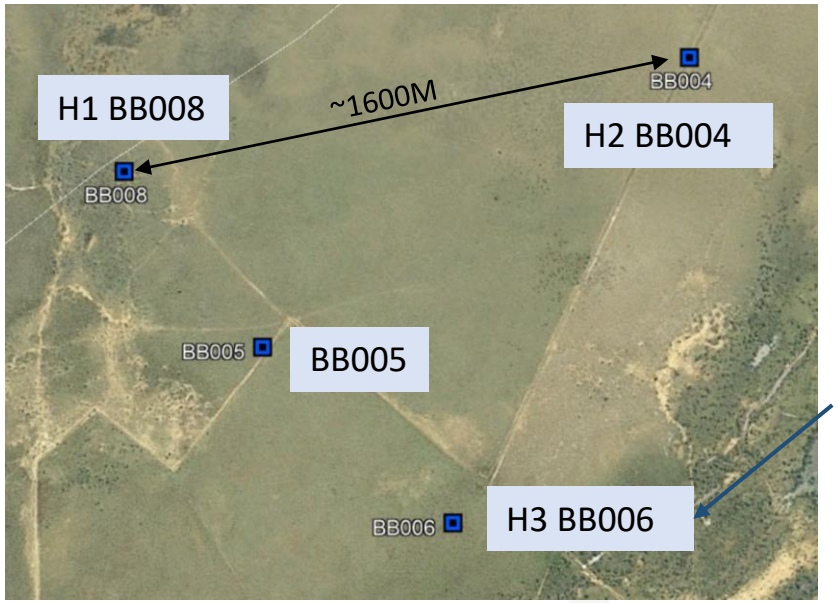
Based on the characteristics featured for the training scan BB008, the criteria that fit mineralisation do not necessarily transfer across to other sites. Accordingly, the results we see in Energy and Frequency specific derivatives may be unique to sites and rock types and rock associations. Small changes in, for example, the type of rocks and the style of the transition (boundary) between these rock types is likely to have a very unique response. Sharp boundaries between thick (>10m) and contrasting DC values will likely provide a much stronger response in both the energy and frequency charts.

In the case of layered rocks with the same composition (or approximate composition) extending across a large area, adjacent scan can be correlated thereby making the analysis suitable for picking boundaries and rock units. In massive sulfide type environments (other than a few unique, gently to moderately dipping sedimentary or layered intrusion-hosted deposits, the complexity of the structures and the extreme variability in the distribution and type of sulfides is likely to be inappropriate.

In addition to this complication for sulfides, the energy and frequency charts are somewhat dependent such that highs in, for example, E-SD and E-ADR, are duplicated as they are derived from the same dataset. Similarly, E-Mean also somewhat replicates the results from EADR. F-Gamma and F-ADR are near mirror images of one another. Accordingly, attempting to differentiate using a multitude of derivatives of the same data does not appear to significantly resolve for sulfide mineralisation.

However, the specific rock types and, in also changes in rock type should be evident as a changes in frequency and energy datasets.

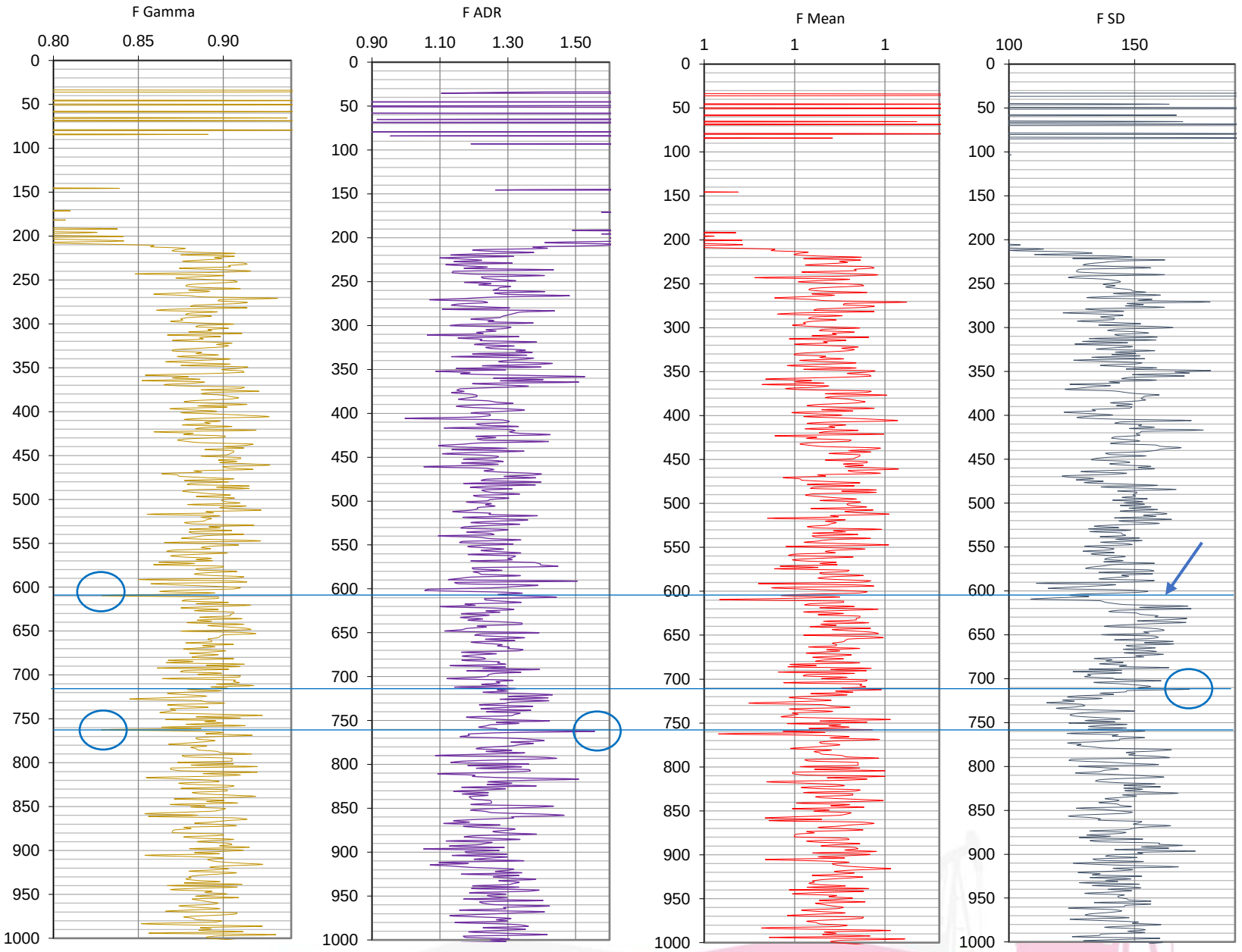
PROCESSING H3 BB006s and BB006d PARALLEL DRILL HOLE N/A



BB006d DEEP SCAN
BB006s SHALLOW SCAN

No parallel drill hole

RESULTS - SCAN H3 BB006 **SHALLOW**



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

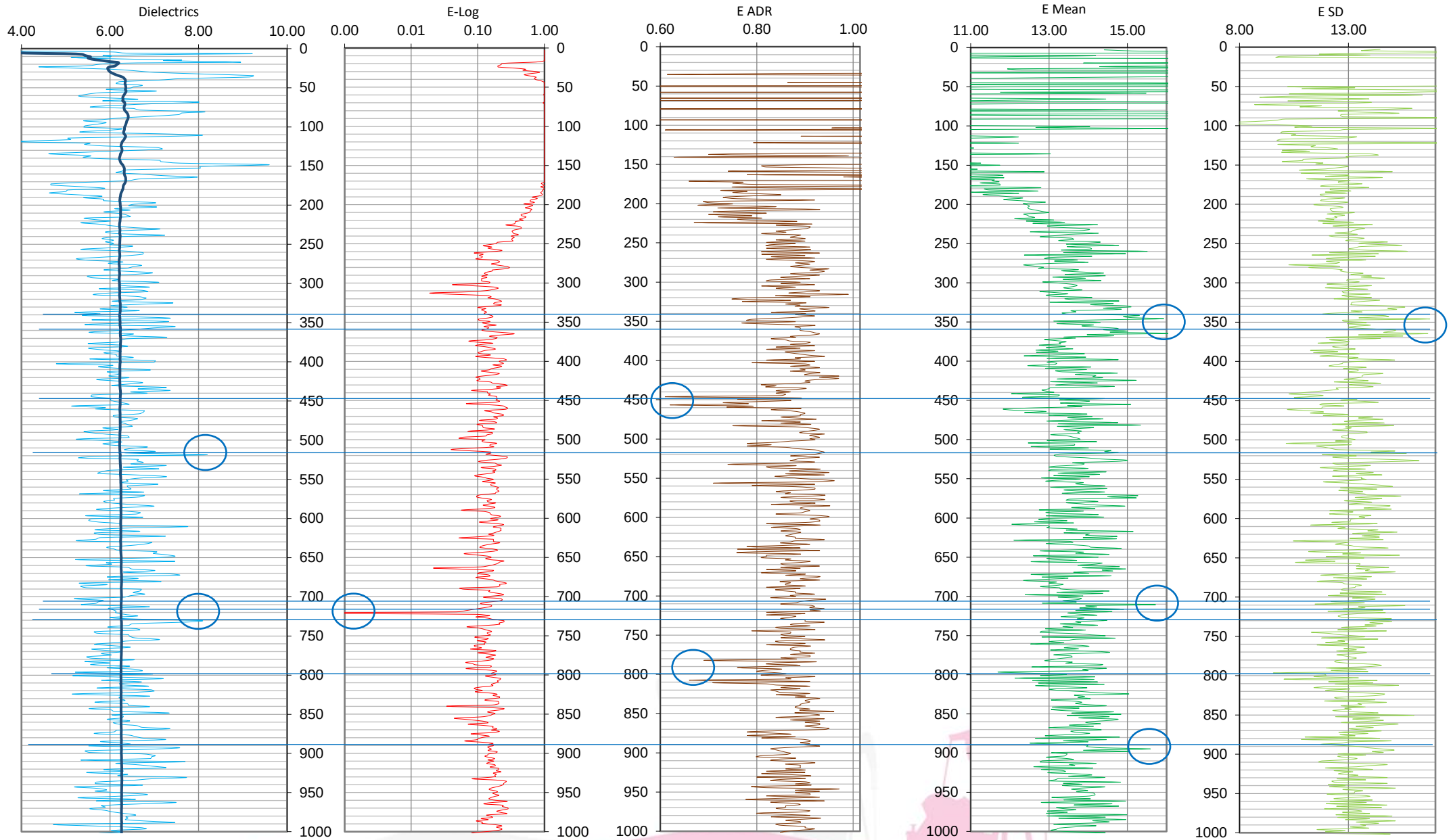
Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

↙ = Major "step" in F-SD suggesting major change in rock type at 600m.

SCAN H3 BB006 **SHALLOW**

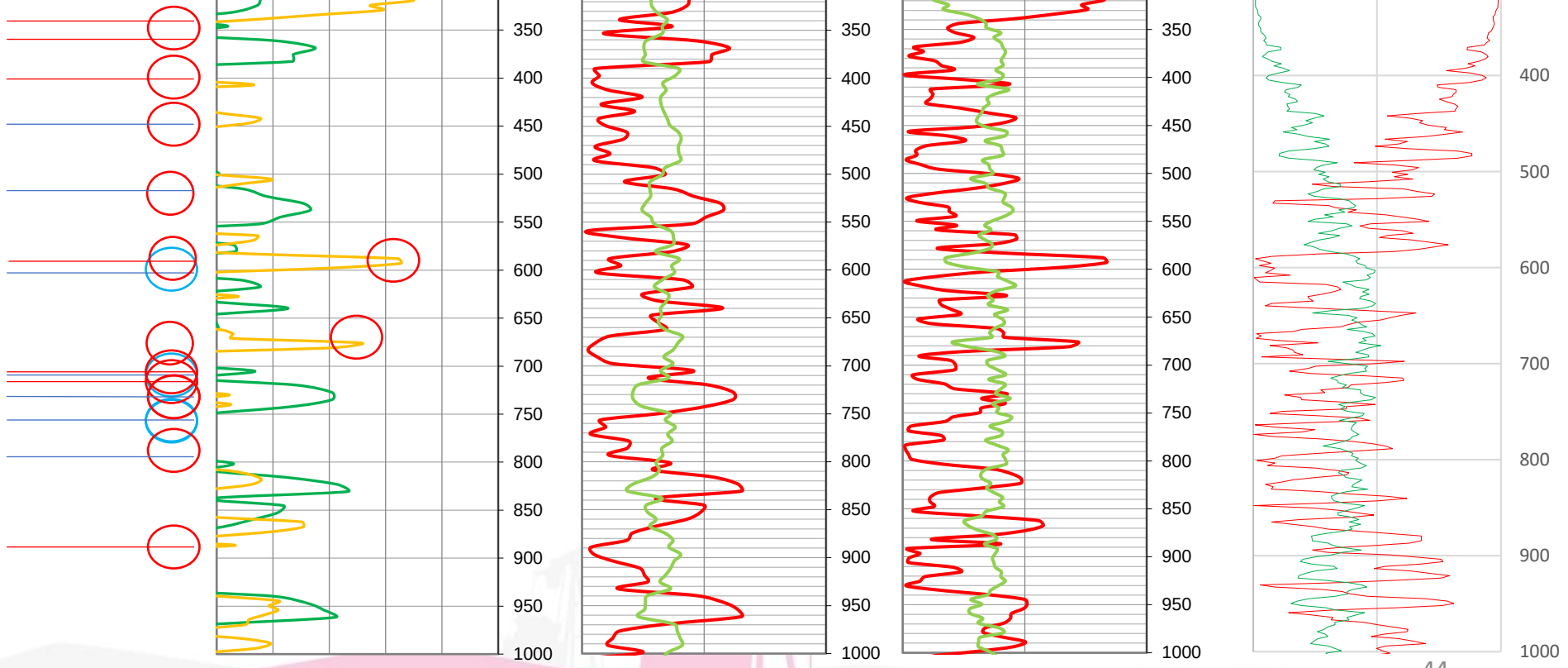


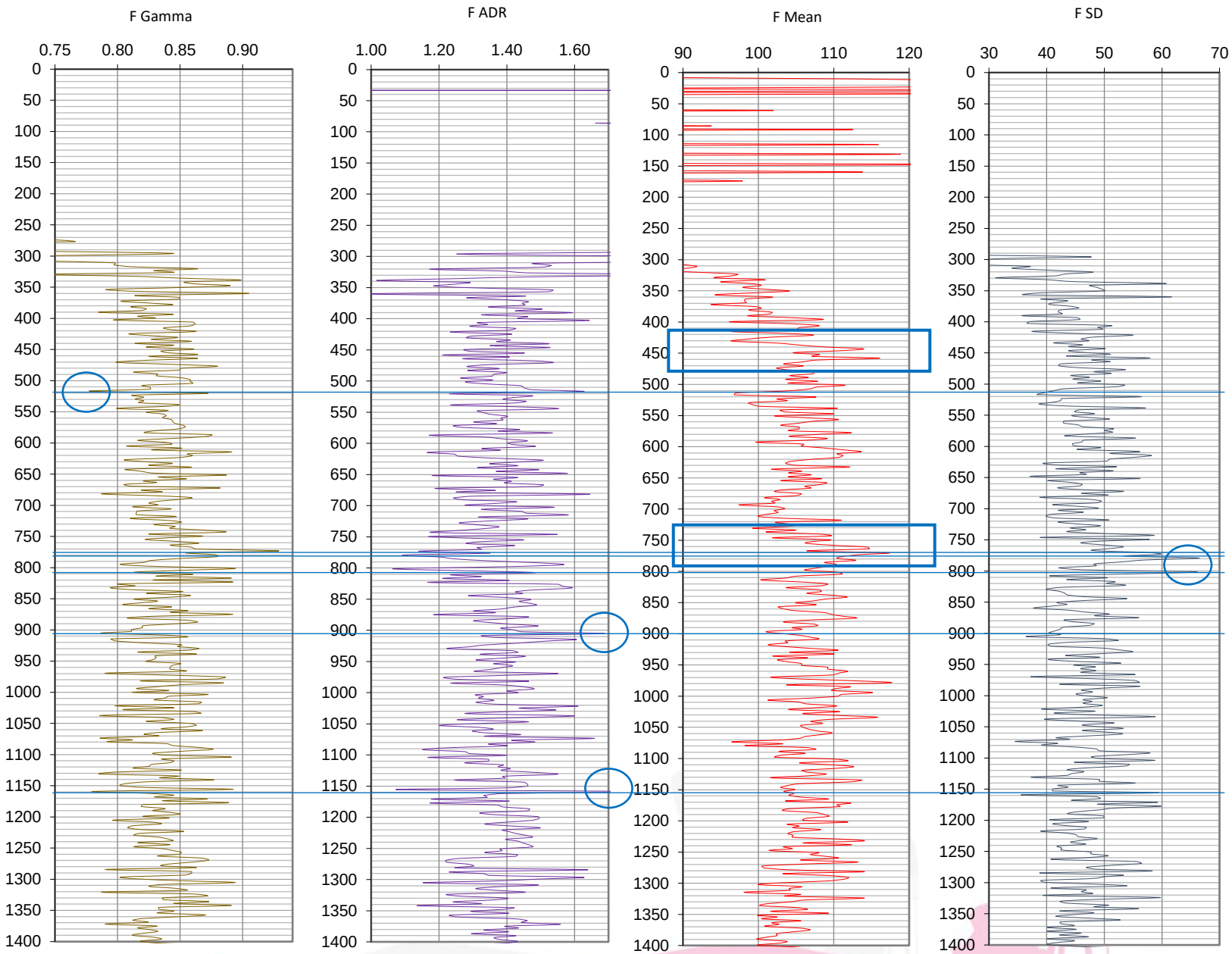
Composite energy (red) and frequency (blue) responses.

In a similar way to that presented previously, the greatest number of correlation lines exists between 700 and 750m down scan depth. A strong positive correlation value (>0.6) exists in the 5-10MHz at approximately 590m depth which may indicate sulfides here however, the link between the 5-10MHz frequency correlation and sulfides is still yet to be demonstrated with compelling, multi-project results.

BB006 - shallow

Zone of greatest number of positive responses to the selected criteria using BB008 as a guide to criteria selection





BB006 DEEP

Note 1400m end of scan depth

Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

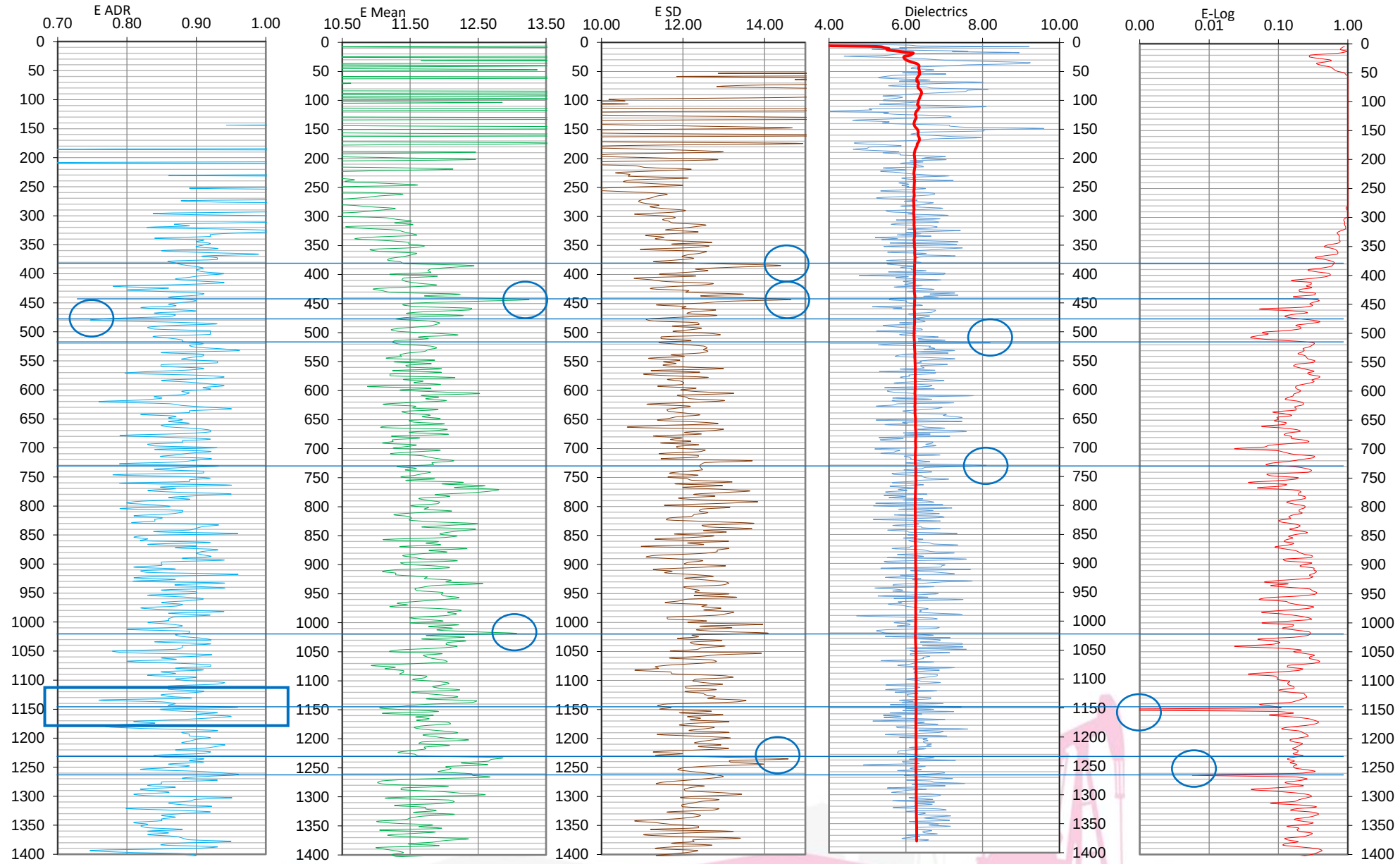
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



BB006 DEEP

Note 1400m end of scan depth

Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

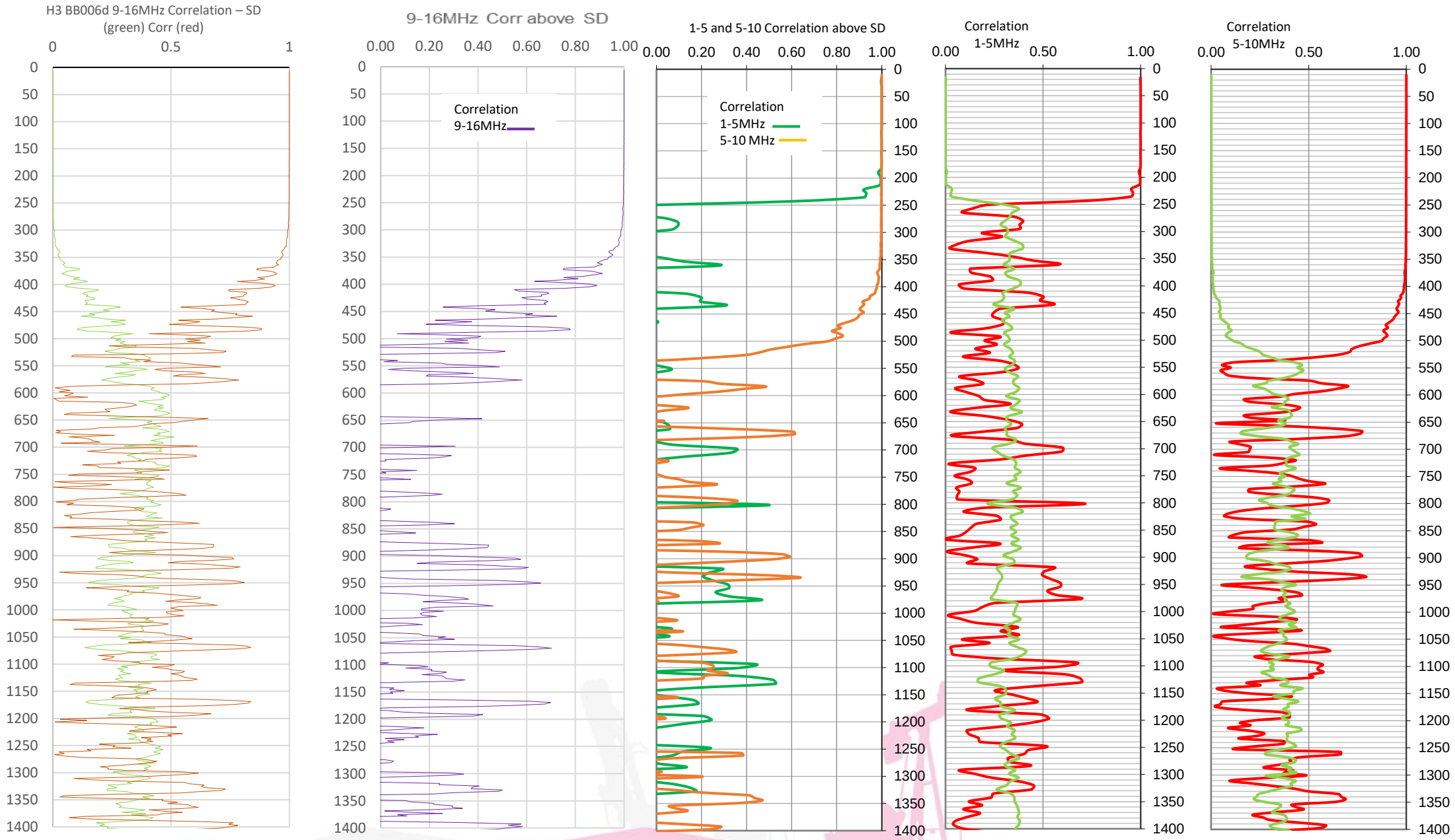
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

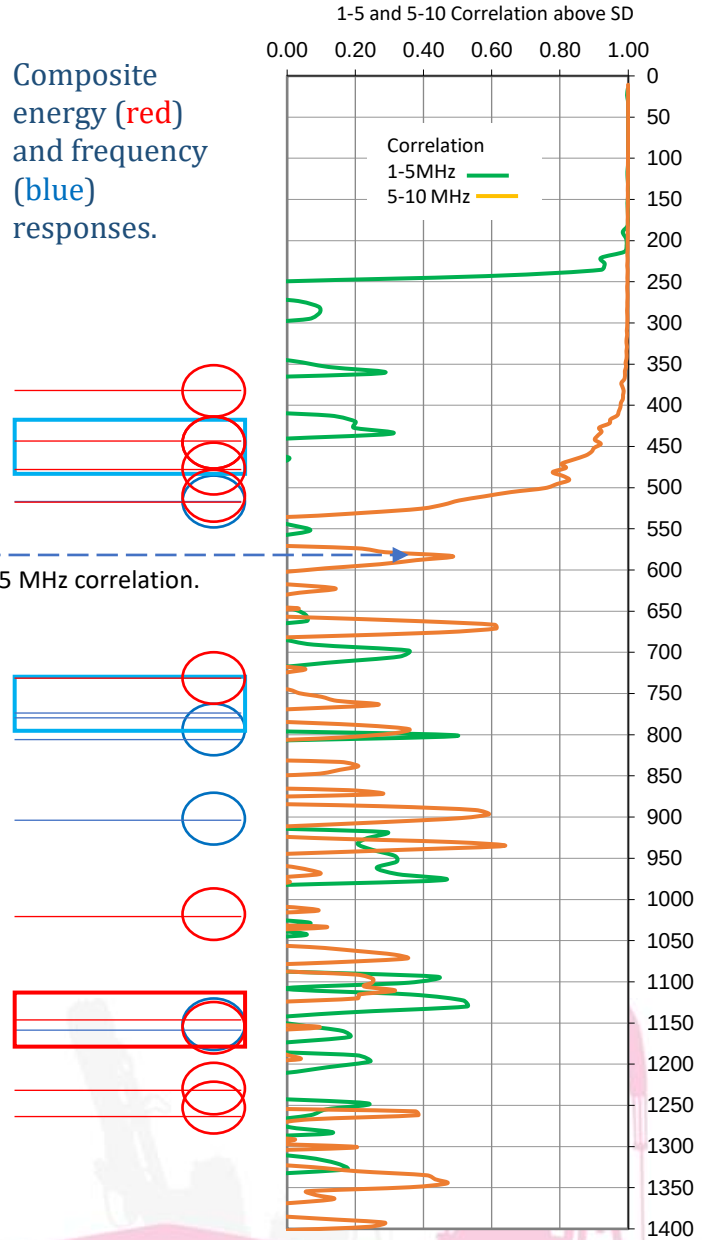
1-5MHz, 5-10MHz and 9-16MHz frequency correlation - SCAN H3 BB006 **DEEP**



Deep scan (BB006d) interpretation of possible sulfide zones

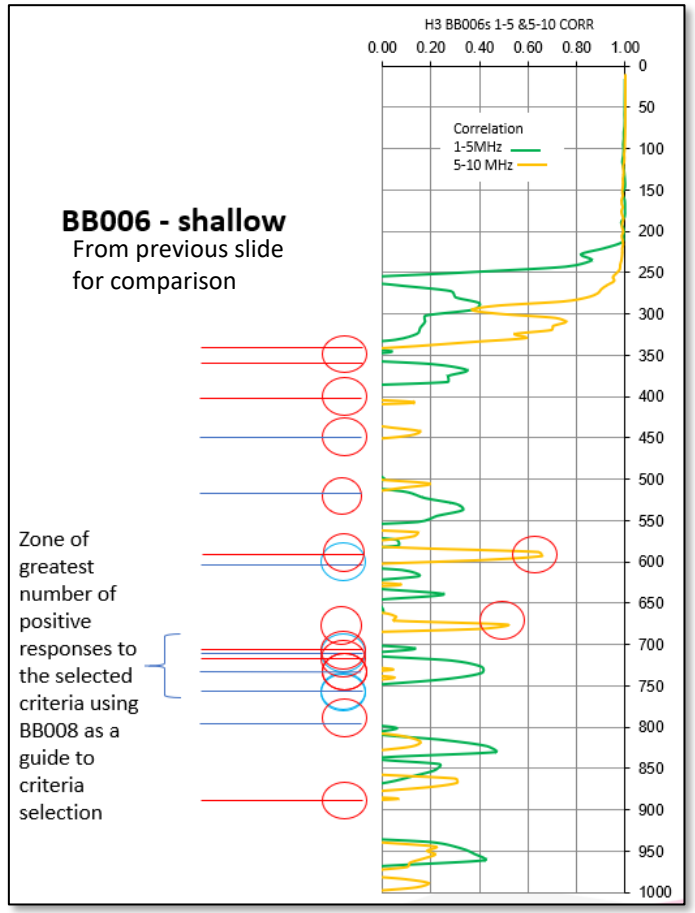
One of the significant issues facing the interpretations is the lack of suitable trial data. According to the previous results, the selected criteria sometimes match but the 5-10MHz results alone appear to be continuously related to the presence of sulfides. Accordingly, in order to test the therefore further, additional drilling and sulfide responses are required from across the multiple projects.

Composite energy (red) and frequency (blue) responses.



Zone of 5-10MHz correlation without 1-5 MHz correlation.

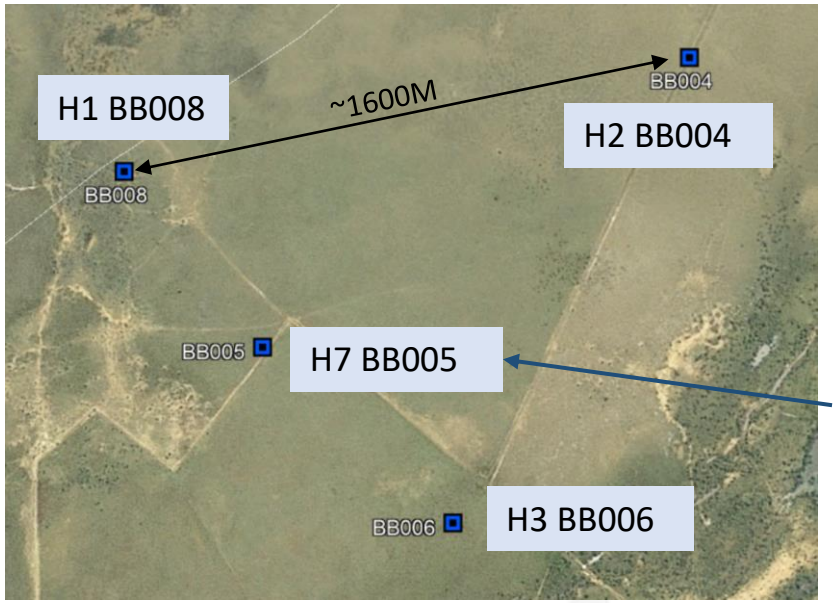
Zone of greatest number of positive responses to the selected criteria using BB008 as a guide to criteria selection



BB006 - shallow
From previous slide for comparison

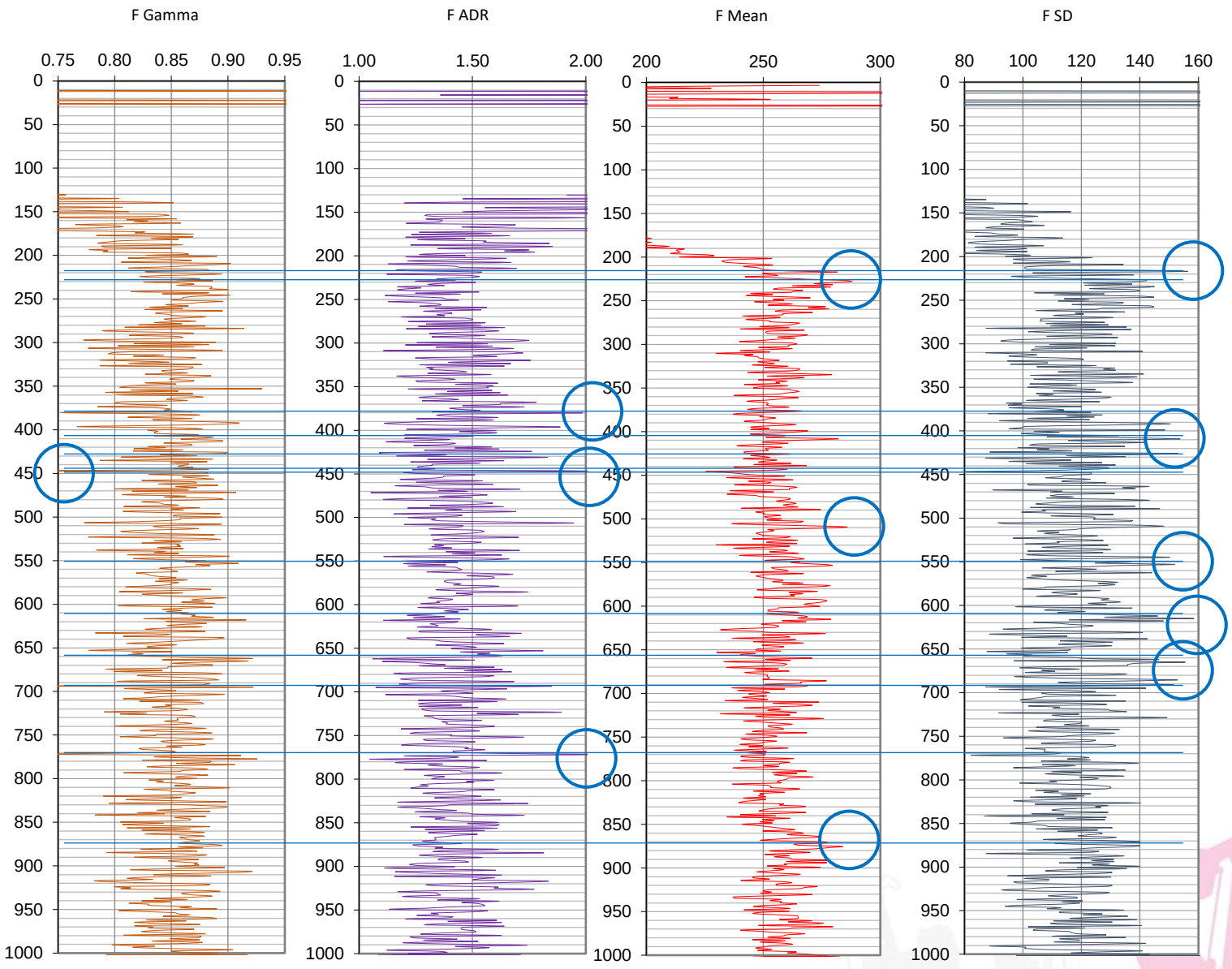
Zone of greatest number of positive responses to the selected criteria using BB008 as a guide to criteria selection

PROCESSING H7 BB005 PARALLEL DRILL HOLE N/A



H7 BB005

No parallel drill hole



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

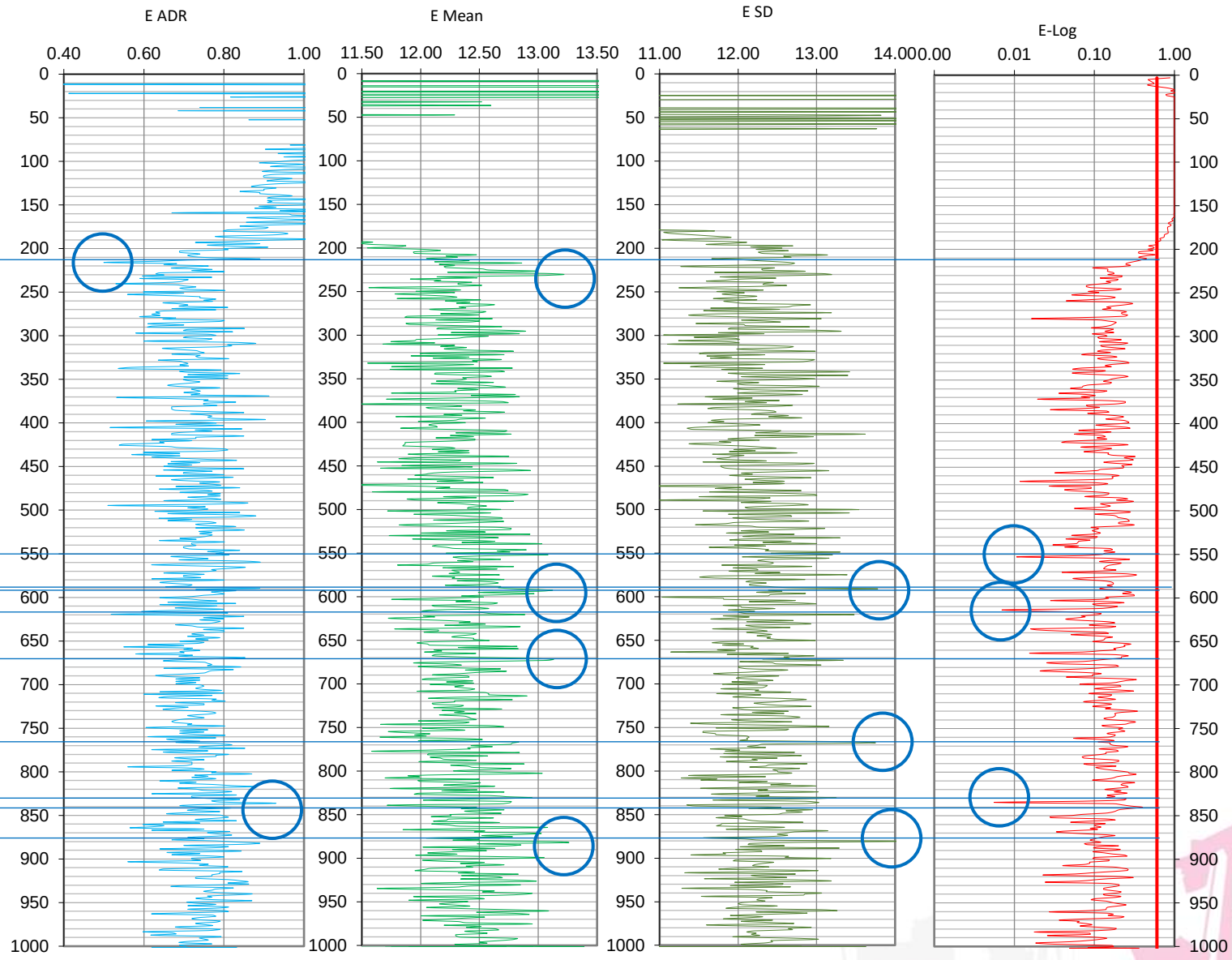
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

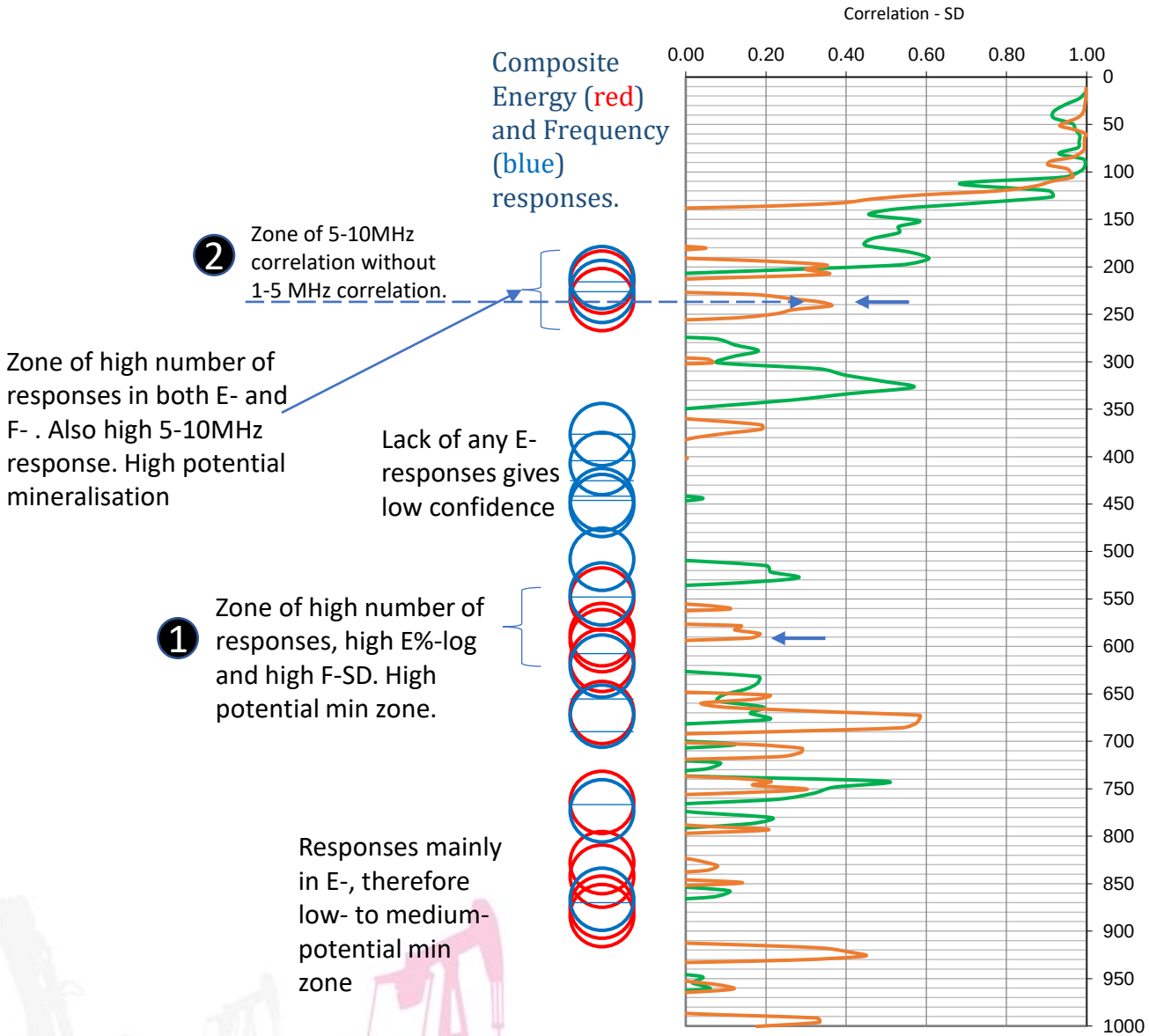
Change from high variability from SD to low variability.

Scan (H7 BB005) interpretation of possible sulfide zones

BB005 is a blind scan but where drilling has been completed. Adrok is currently trying to access the drill log results in order to correlate and further refine the training results. The Bluebush sites were, according to the previous workflow, used as training for the selection criteria, however, scan H7 provides an interesting scenario where two possible min zones exist in the interpretation.

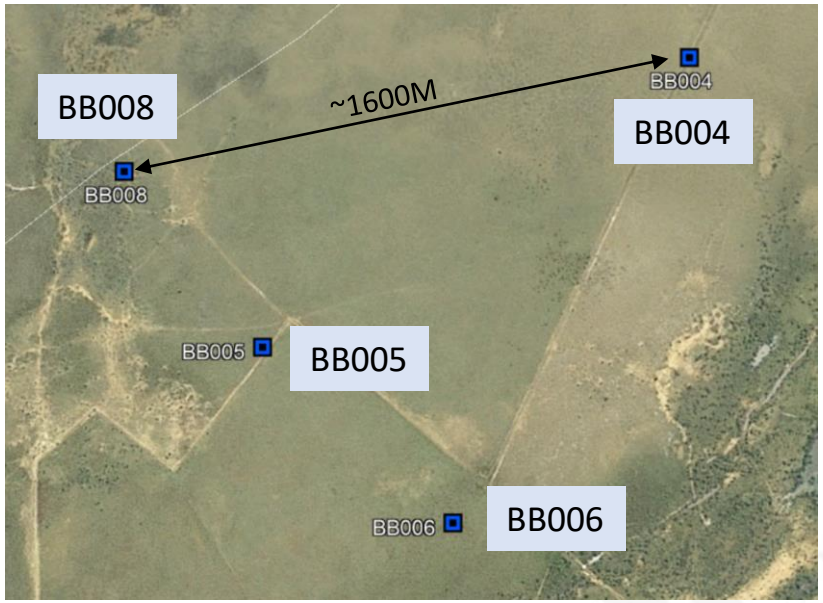
The results for the Energy- and Frequency- criteria have been plotted adjacent to the 1-5, 5-210MHz correlation chart above SD. This shows the positive values for correlation but as observed, peaks in 5-10MHz (without 1-5MHz), occur at both target areas (1) and (2). Accordingly, it is plausible that there are two min zones at this site. Further discussion over qualitative versus quantitative assessment is provided later in the document, however, it should be noted here that with a few more training scans and parallel drill holes, ambiguities such as multiple min zones (if only one exists) can be filtered from the selection criteria.

For this example, up to five peaks or troughs in the separate charts for E- and F- have been selected as a trial. Emphasis has been placed on intervals where multiple anomalies in E and F occur together rather than, for example at 400m, where anomalies only in Frequency occur.



RESULTS
9-16MHz, 1-50 MHz
Bandwidth Processing

Bluebush, Queensland



9-16 MHz

SCAN AH1 H1 BB008 (PARALLEL DRILL HOLE BBDD054)
SCAN AH2 H2 BB004 (PARALLEL DRILL HOLE BLBD035)
SCAN AH3 H3 BB006
SCAN AH# H# BB005 (PARALLEL DRILL HOLE BBDD044)

1-50MHz

SCAN AH1 H1 BB008

Note – results from Red Dog are presented in detail in report 00218 and in some detail again in following section.

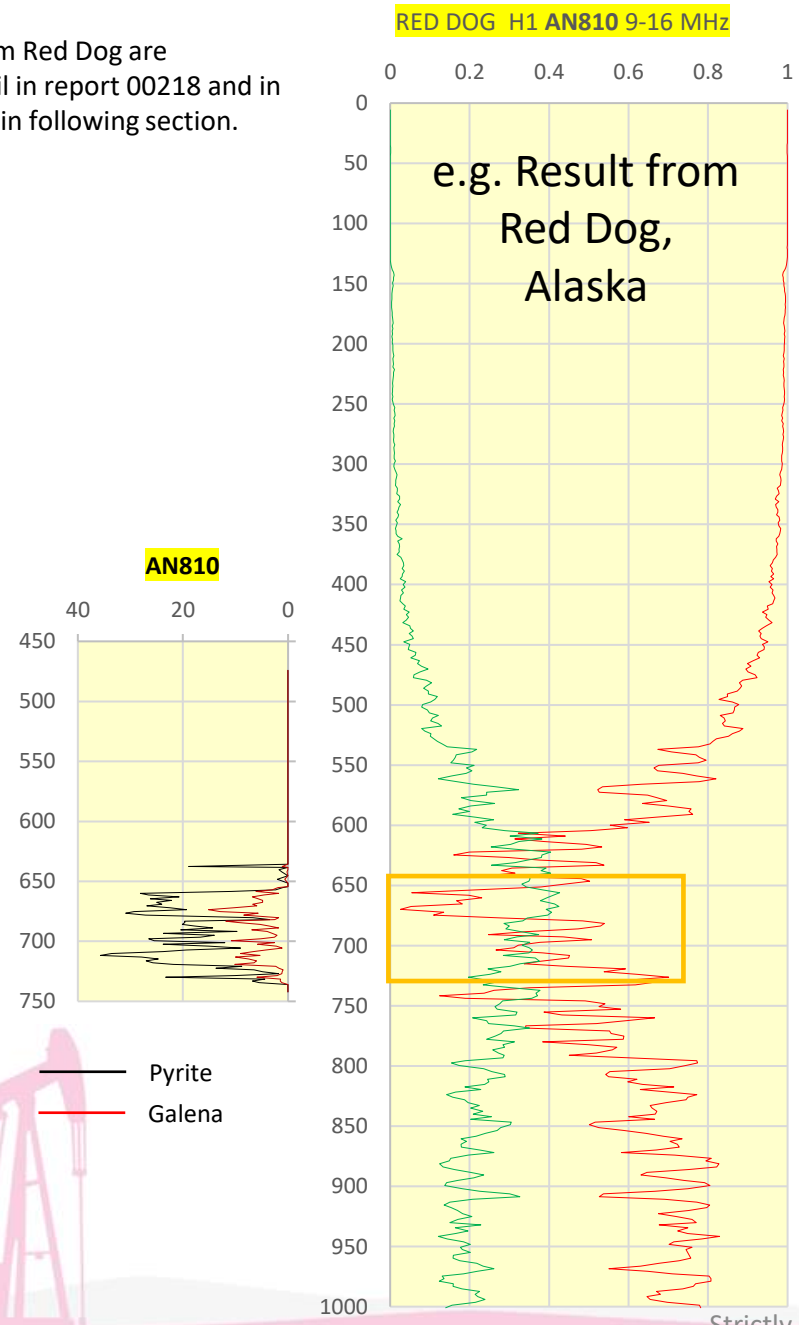
Detailed frequency correlation results and analysis

The following section presents the results and interpretations for more detailed analysis of the frequency results for scans from the Bluebush region. For the three principal scans (BB004, BB006, BB008) the 9-6MHz results are presented in detail and further 1MHz processing at 1MHz intervals is provided for BB008 in order to test the correlation between narrow frequency responses and the presence of sulfides.

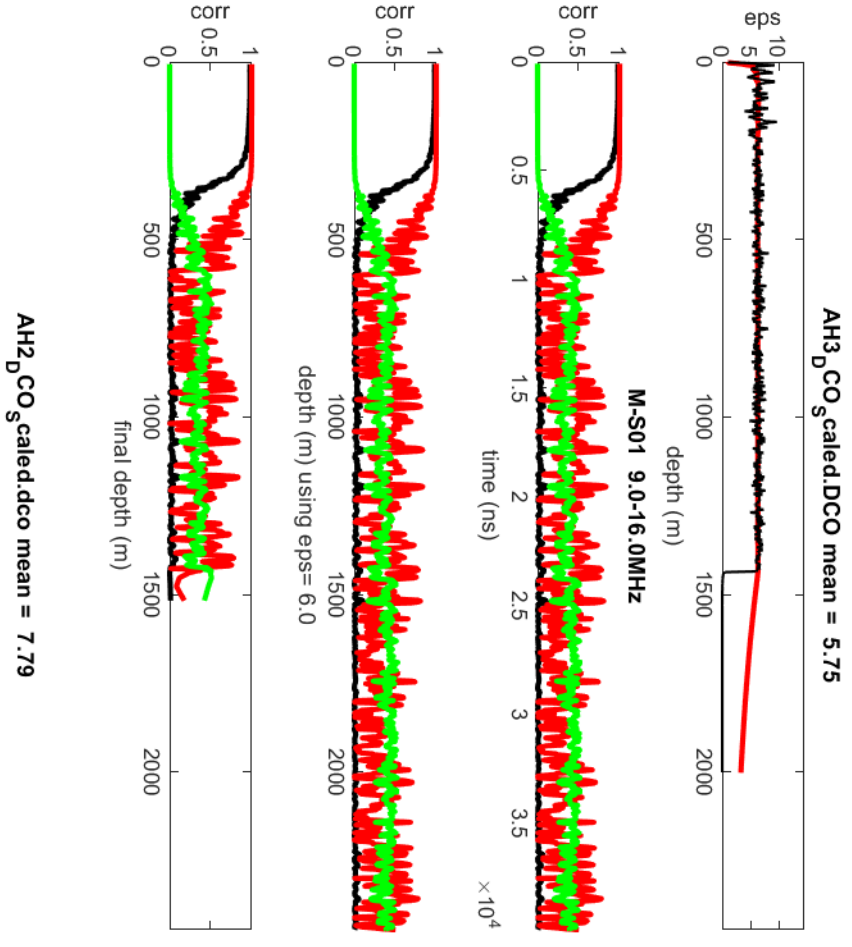
The aim of the latter processing is to determine whether there is a particular frequency that sulfides can be recognised as a discernable anomaly. One aspect of the analysis is to determine whether the 9-16MHz frequency range suitable for the detection of all sulfides independent of site-specific rock types.

The frequency 9-16MHz has been selected as it has been recognised in other cases to show, with relative confidence, a discernable anomaly in response to the presence of sulfides. In the case of the Red Dog scan H1 (shown to the right) there is a good correlation between the frequency correlation and the depth of sulfides. The scan presented here can be compared directly with the assay results provided by Teck for drill hole AN810.

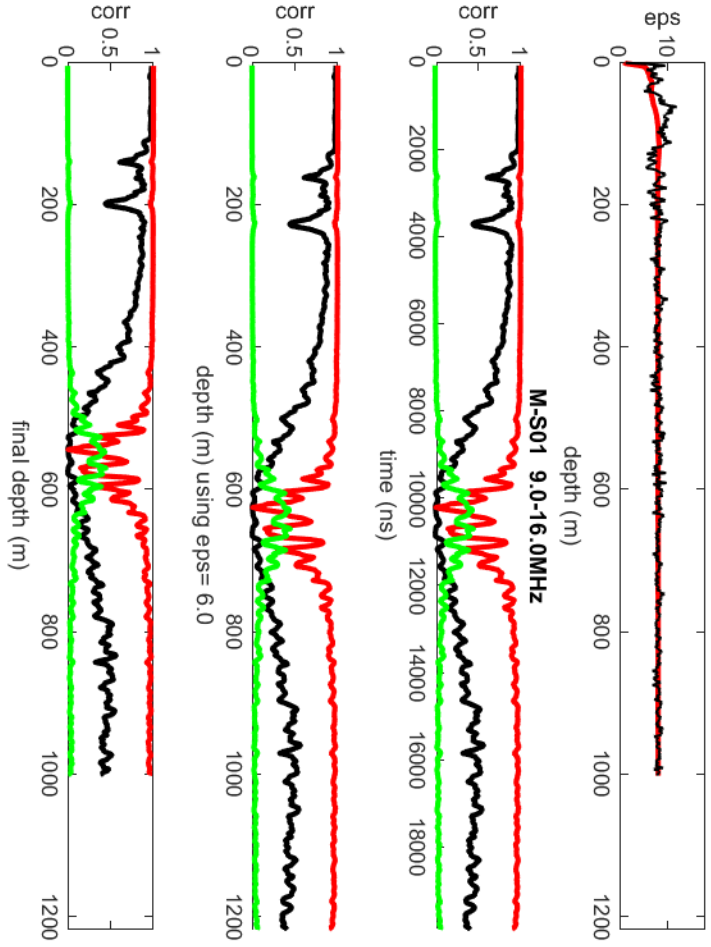
After recognising the correlation at Red Dog, the 9-16MHz correlation was processed for all scans presented in the report. The results are presented here for Bluebush.



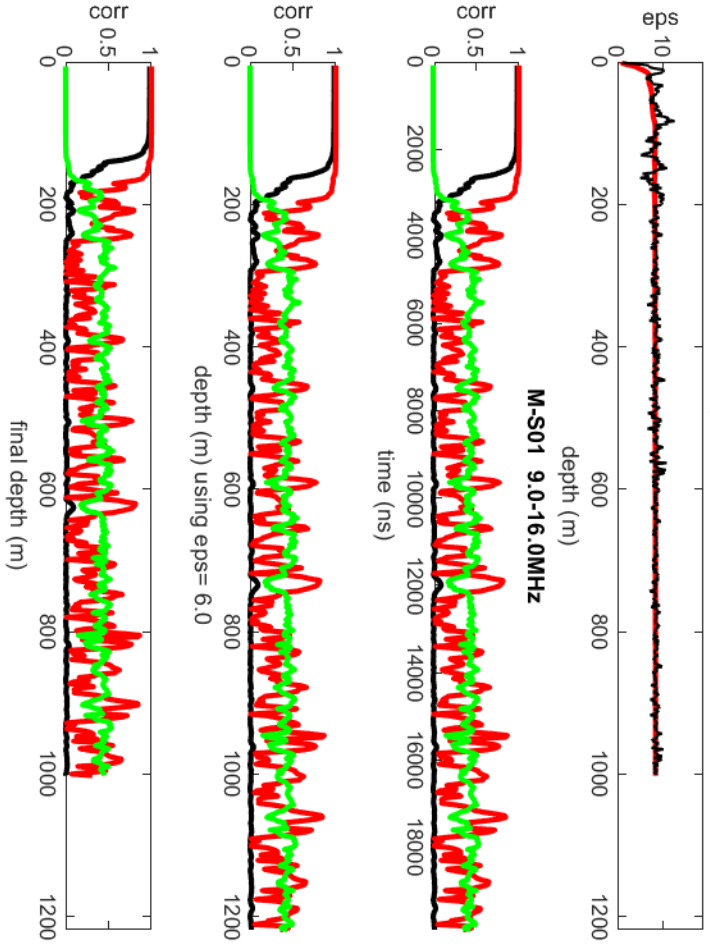
AH3 BB006

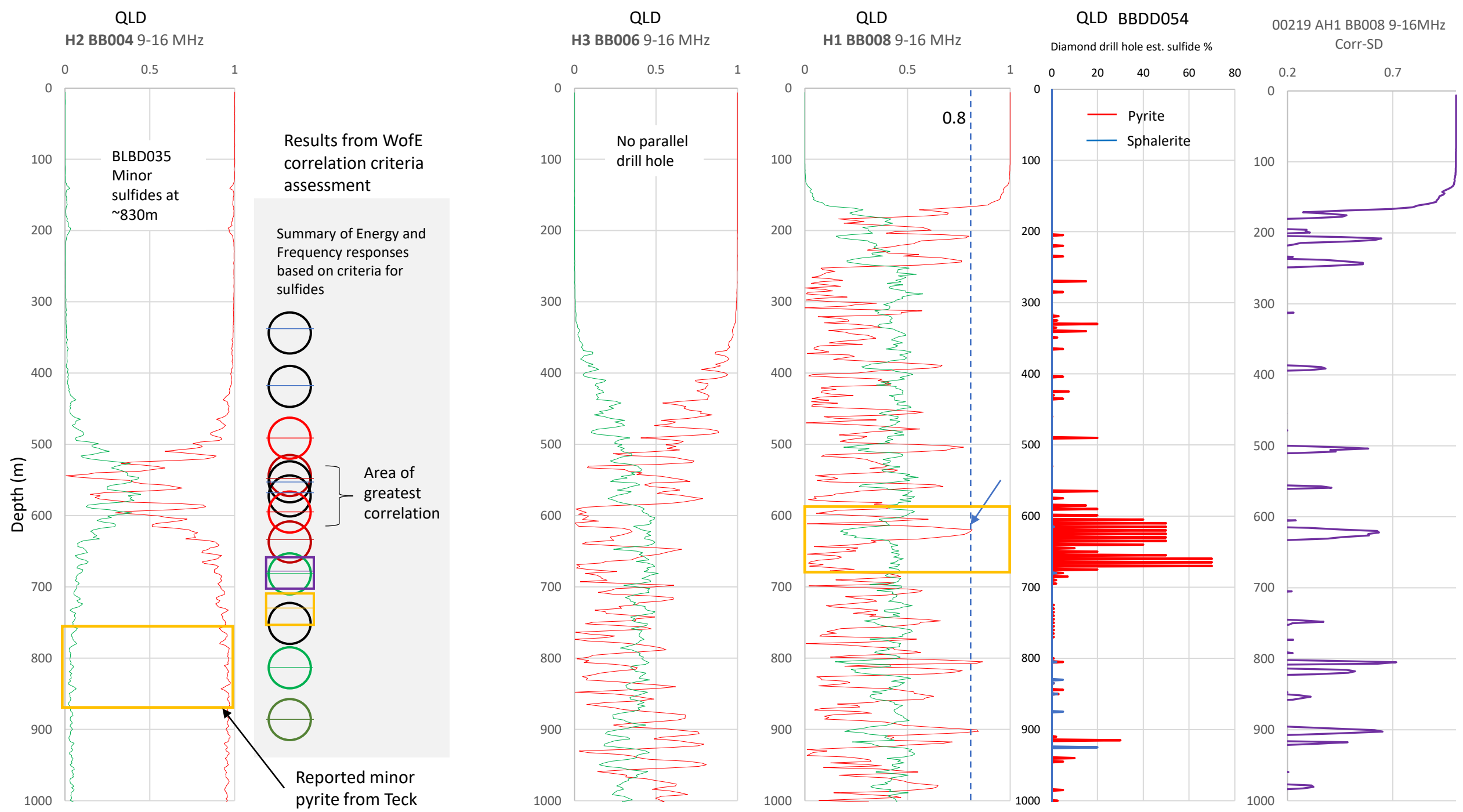


AH2 BB004



AH1 BB008




QLD
H2 BB004 9-16 MHz
BLBD035
Minor
sulfides at
~830m
Results from WofE
correlation criteria
assessment
Summary of Energy and
Frequency responses
based on criteria for
sulfides
Area of
greatest
correlation
Reported minor
pyrite from Teck
Depth (m)
QLD
H3 BB006 9-16 MHz
No parallel
drill hole
QLD
H1 BB008 9-16 MHz
0.8
QLD BBDD054
Diamond drill hole est. sulfide %
Pyrite
Sphalerite
00219 AH1 BB008 9-16MHz
Corr-SD

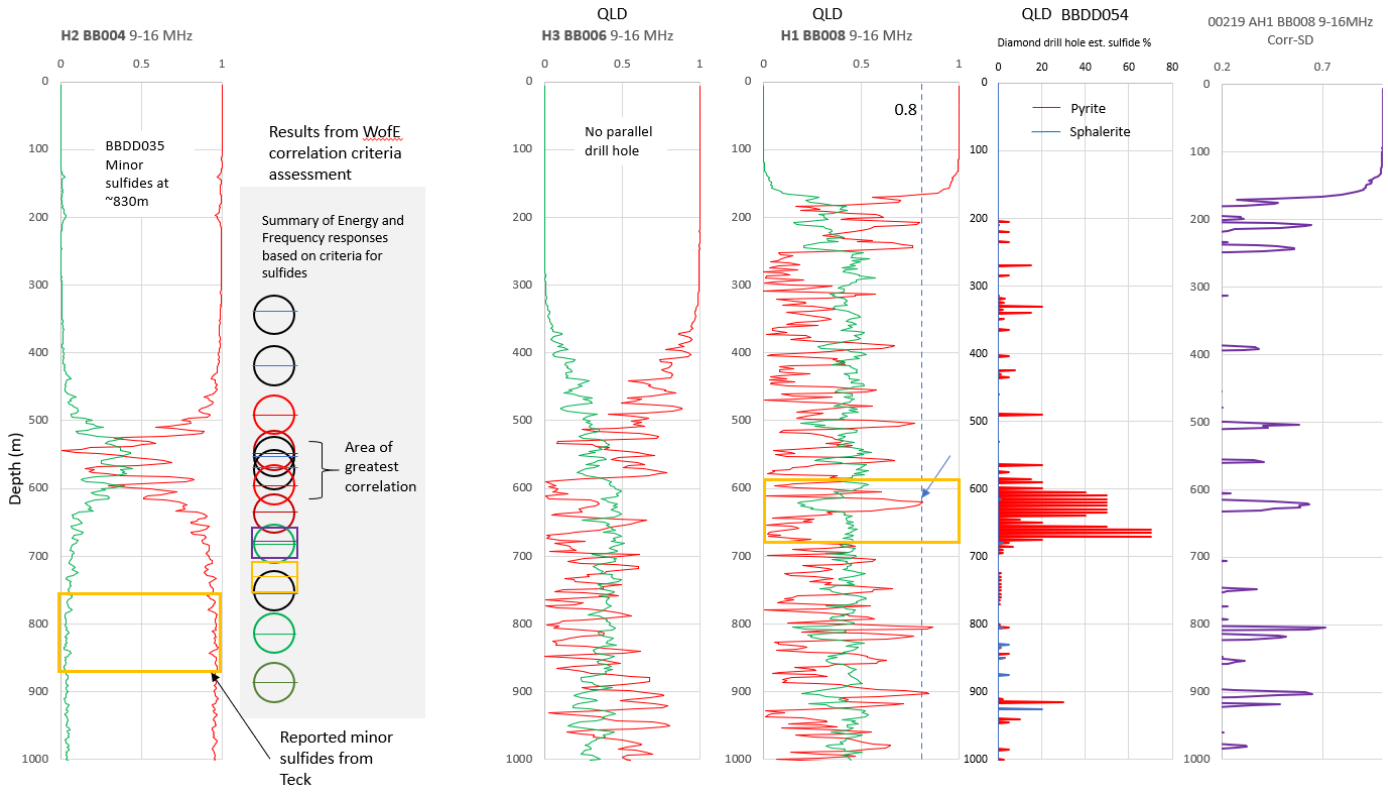
INTERPRETATION: 9-16 MHz CORRELATION

Initial interpretations of 9-16MHz bandwidth processing from Red Dog (Alaska, Scan H1 AN810) showed a good match between low 9-16MHz correlation values and the presence of sulfides, either pyrite or galena. These positive results encouraged Adrok to explore whether a similar relationship exists for H1 BB008, H2 BB004 and H3 BB006 in Queensland, Australia. Scan H1 BB008 is parallel to diamond drill hole BBDD054 which has up to 70% pyrite over a significant interval. Unfortunately, the same correlation does not exist in this scan.

Scan H2 BB004 shows a similar pattern of low correlation in 9-16MHz bandwidth to the H1 AN810 scan from Red Dog, however, sulfides (primarily low-percent pyrite) occurs between 750 and 800m which is well below the anomaly shown here. However, on further examination, the results obtained using the WofE criteria for sulfides selected a depth 500-600m that is identical to the "sulfide-type" anomaly seen in the 9-16MHz. Note: *It is plausible that the zone between 500-600m contains sulfides not identified/provided in drill logs.*

If drill logs are and assay data are available for BLBD035 Adrok would recommend checking for grade between 5-600m rather than the pyrite zone at 800m.

Further work needs to be carried out for this area, however, based on results for BB008, the low in 9-16MHz may be due to a similar negative response in the 12-13MHz frequency range. This is shown in detail overleaf.

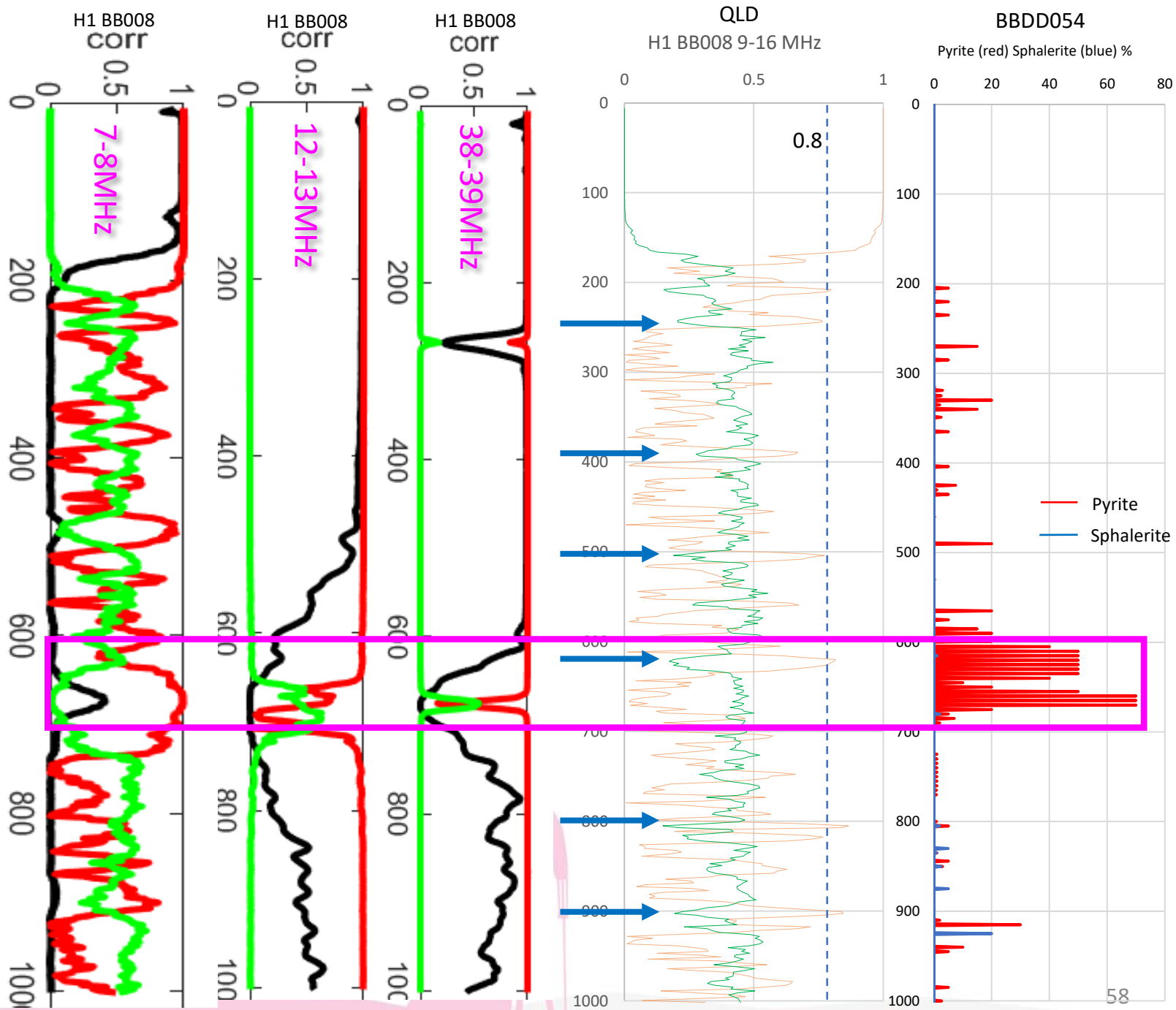


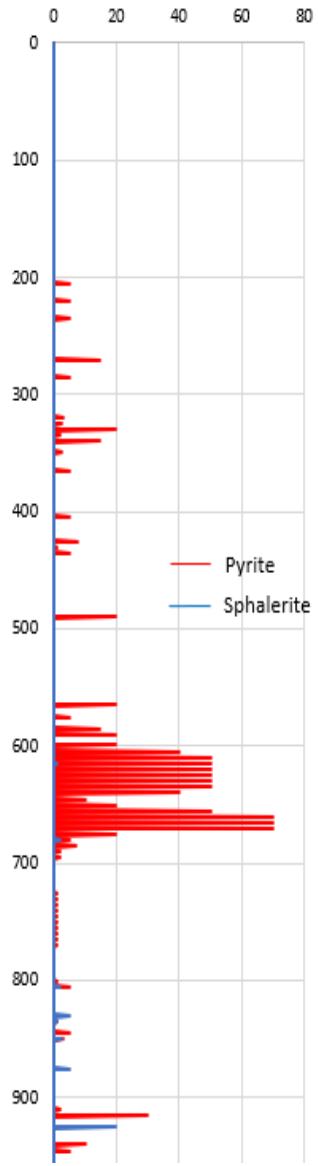
INTERPRETATION
1MHz intervals over 1-50MHz RANGE CORRELATION

An observation that requires testing for other scans is the presence of generally higher values of 9-16 MHz correlation to 0.8 and above in areas approximately corresponding to the presence of sulfides (blue arrows, also shown op previous page).

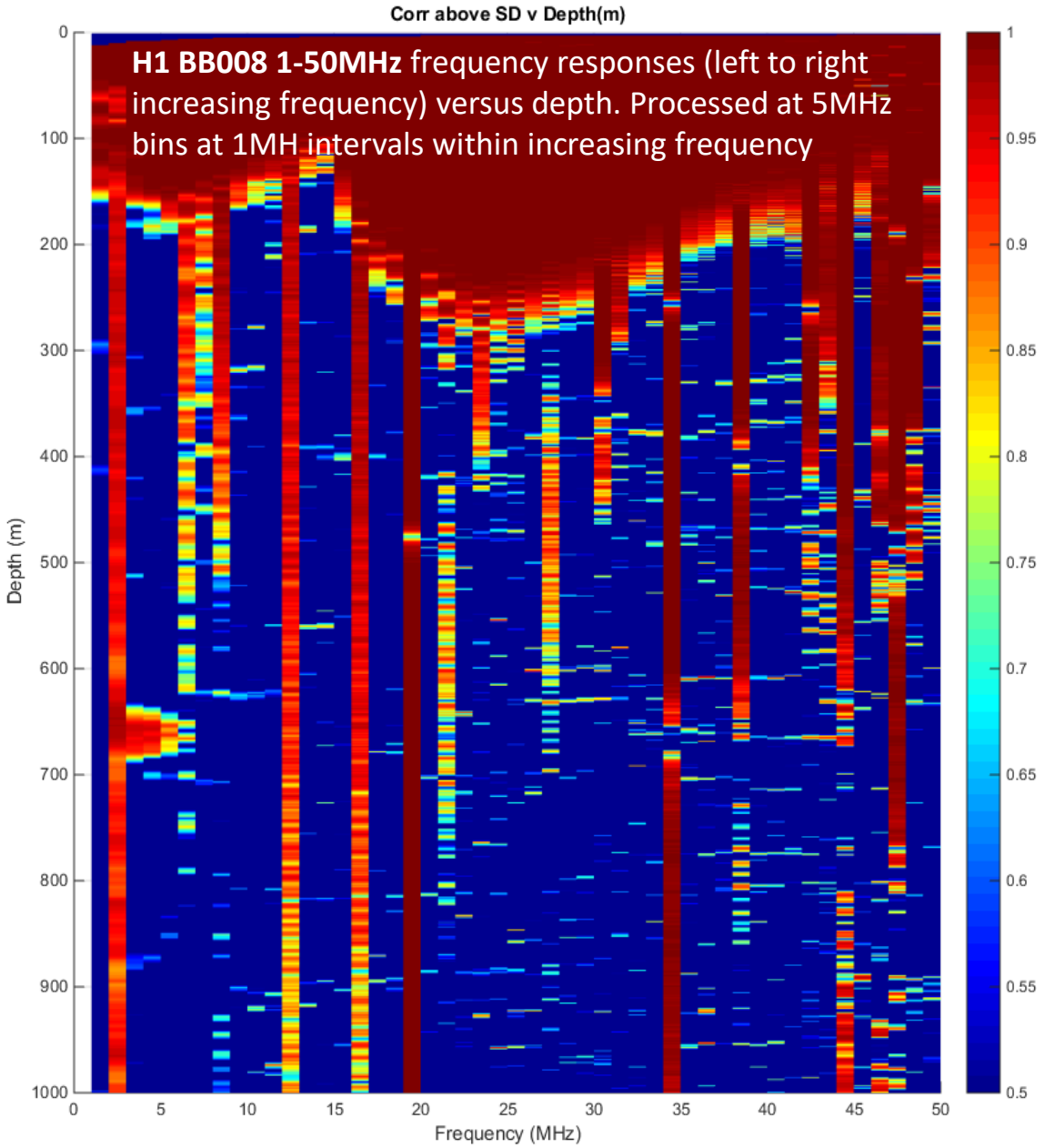
Further research at other sites where sulfides can be correlated with frequency results will be used to resolve this potential relationship. Adrok is currently seeking results from other projects as well as further results from both the Bluebush and Teena-Myrtle ADR sites to help in this interpretation.

Further extraction of individual 1MHz results between 1-50 highlights a few key bandwidths that appear to respond strongly to the presence of sulfides, these being 7-8MHz, 38-39MHz and 12-13MHz. While variations in each individual MHz correlation chart do exist, it is likely that, in exactly the same way as in traditional spectroscopy, the collation of multiple features across multiple bandwidths will be indicative of the sulfides. In this case, a combination of high 7-8MHz, low 38-39MHz and low 12-13MHz may be the fingerprint for base metal sulfides.

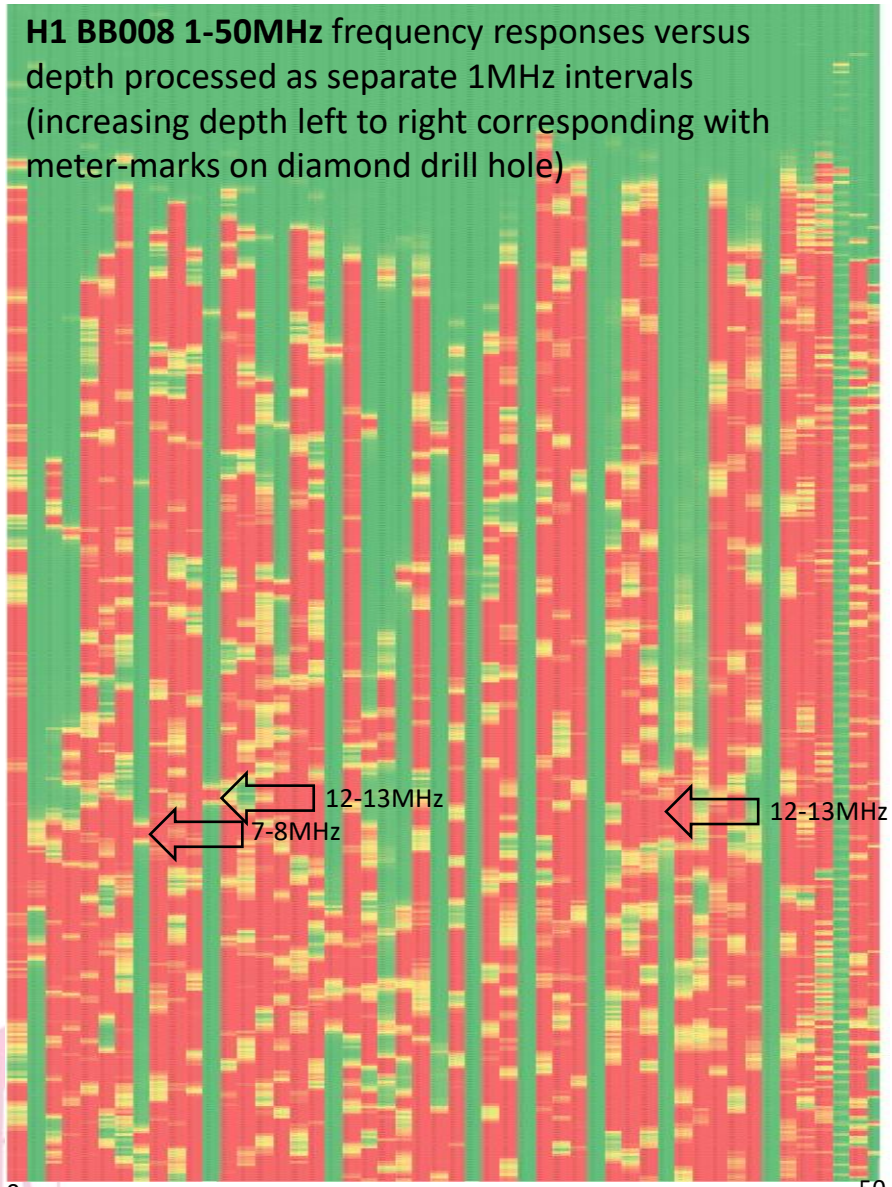




Diamond drill hole BBDD054 sulfide content (%)



1-50HMz at 5MHz composite bands at 1MHz intervals



EXPLANATION OF 1-50MHz processing

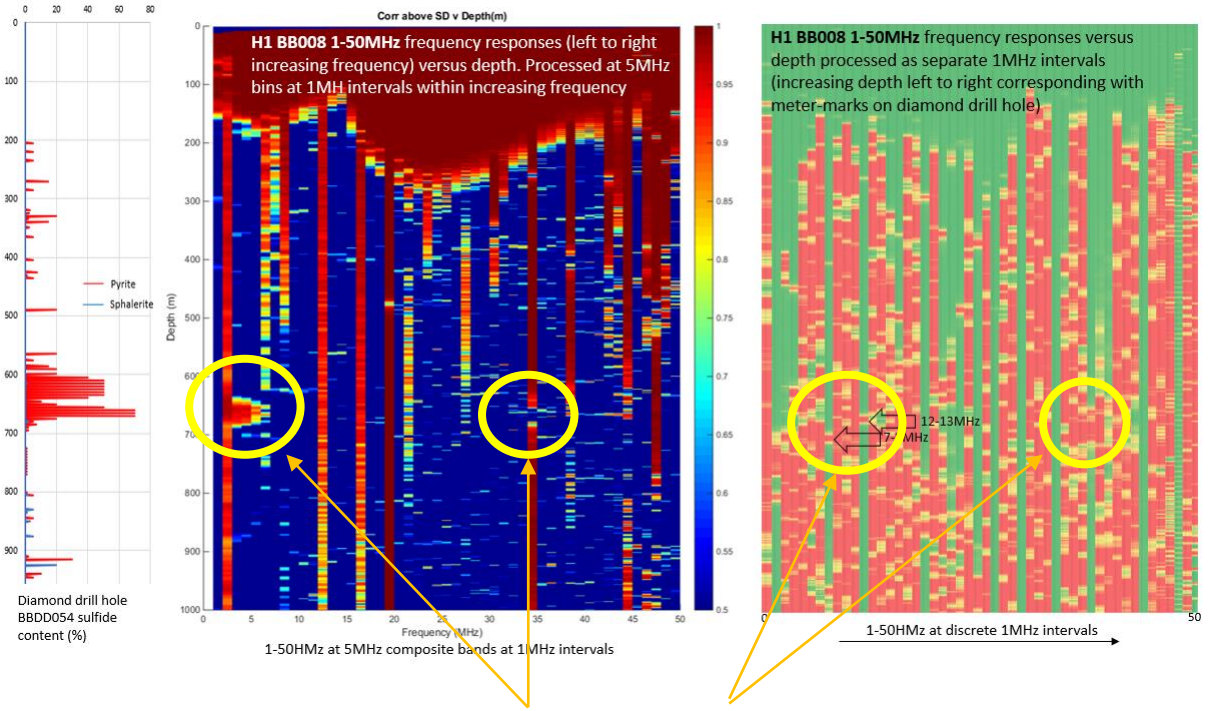
In order to resolve the frequencies at which the sulfides are best delineated each of the frequencies between 1-50MHz were processed separately. The results pre presented in the bar-code style plots here and previous page.

As outlined in the introduction, the aim of the current processing is to determine the ADR response of sulfides regardless of rock type. In order to achieve this overall aim, the 1-50 MHz processing was used "to delineate the frequency fingerprint of sulfides" in order to build upon the WofE selection criteria for sulfides using the Energy and Frequency results.

The current method requires further testing in alternate suites containing sulfides, however, the initial results are promising. In the two figures presented here, the frequency bands were processed in individual 1MHz frequency band but also in 5MHz bands but stepping up in frequency at 1MHz intervals. The latter was trailed to avoid noise effects.

The results of both processing techniques are provided, and some similarities and differences are apparent. The latter 5MHz bins extracts/highlights broader changes in frequencies. The anomaly at 3-8MHz is clearly discernible and corresponds with sulfides. IN contrast, the same anomaly exists in the separate 1MHz bandwidth processing, but it is clearly not as apparent. In addition, the narrower bandwidth processing also picks up on the smaller changes at, for example, 7-8MHz and 12-13MHz. Nevertheless, the processing has recognised ,major and unique responses at different frequencies within the sulfide-bearing region.

Adrok can use this "spectral barcode" to test at other sites in parallel with the WofE selection criteria. Together, this workflow may form a very powerful tool for identifying sulfides without needing to account for changes in rock type. The current training set is heavily biased to pyrite, but it is plausible that the unique "barcode" for copper or other minerals can be developed given some appropriate but well-defined targeting.



Some of the potentially unique responses of different frequencies to sulfides.
Building on several case studies, Adrok will develop a unique "barcode" for selected minerals.

CONCLUSIONS FOR BLUEBUSH

The principal aim of the processing of Bluebush scans was to help resolve a simple sulfide fingerprinting technique based upon the selection of the highest number of positive correlations. The technique is similar to a weights of evident type prospectivity analysis, however, here each positive result is equally weighted. The higher the number of positive correlation criteria, the higher the likelihood of sulfides being present within that zone.

Four scans (plus one extra deep scan from the same TN006 site) were processed and analysed from the Bluebush site (H1-BB008, H2-BB004, H3-BB006s & BB006d and H5-BB005.

H1-BB008 has been the focus of most processing and, through the correlation between the scan results and the pyrite zone, a set of selection criteria has been derived and applied to all other scans with the aim of refining the processing.

A unique set of criteria was successfully devised and has been applied successfully to other scans.

Analysis of Scan H2-BB004, the selection criteria defined a zone of high correlation between 550-650m depth, however, the pyrite zone (low concentration) recorded in drill hole is some 200m deeper at 750-850m. Adrok is confident that the positive criteria zone defined from the ADR results is correct and that a higher-grade sulfide zone is present within the drill core but ha not been reported.

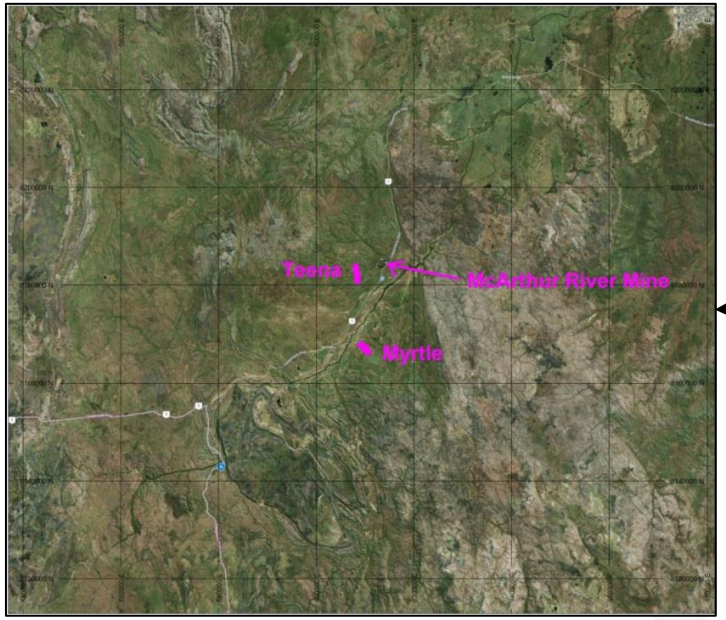
Analysis of Scan H3 – BB006s and BB006d revealed a similar depth of possible sulfides at 700m depth between the two scans. In addition, a second zone of potential sulfides were found at a depth of 450m in the deep scan.

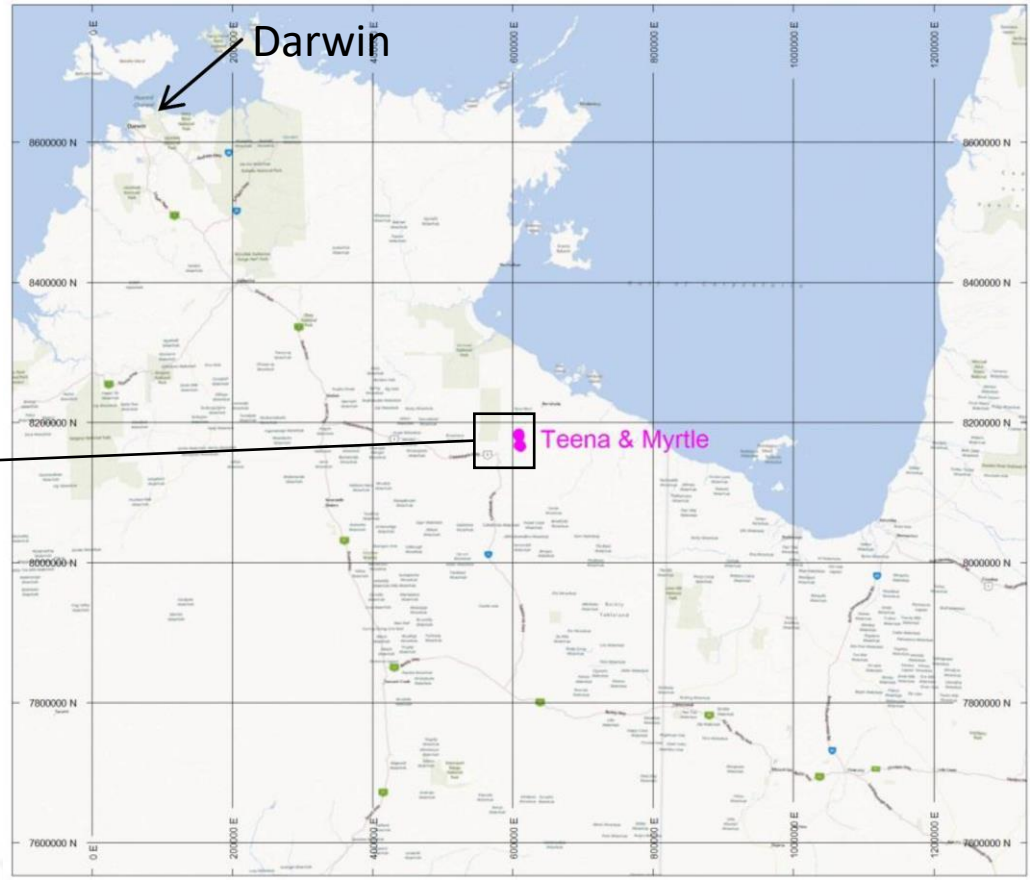
Multiple methods for processing frequency correlation data has so far been successful but requires more refining in the presence of more training data with sulfides.

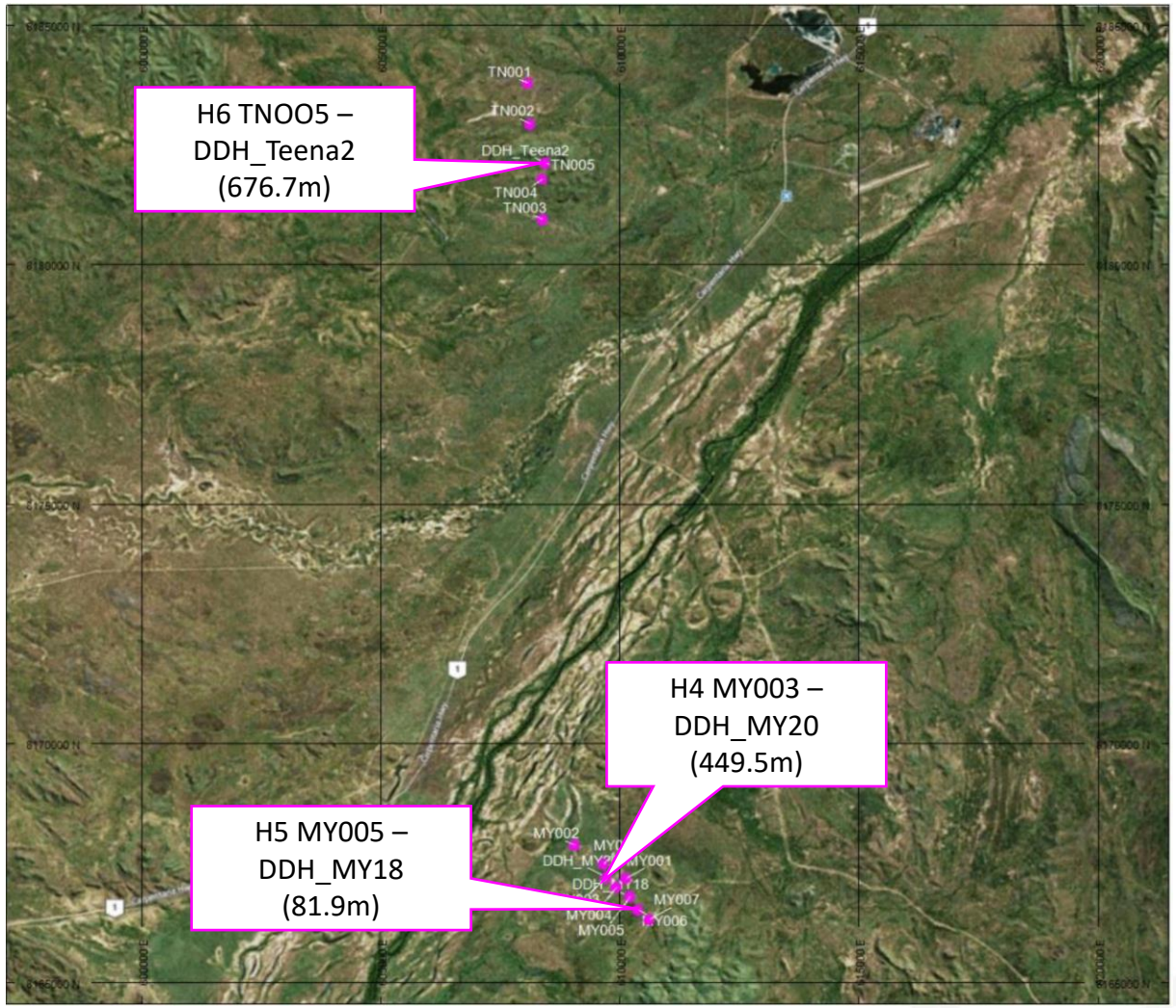
Based on the results presented above, Adrok is close to developing a unique barcode/fingerprint response in the frequency data specifically for sulfides.

Using a combination of criteria from ENERGY- RESULTS, FREQUENCY- RESULTS, AND FREQUENCY CORRELATION RESULTS (1-5MHZ, 5-10MHZ, 6-19MHZ AND 1-50MHZ) ADROK has developed an initial set of criteria that, at the time of writing, has been trialed against numerous drill hole results with success. The mostly qualitative analysis will be further developed into a quantifiable, site independent sulfide detection methodology.

00219 – 00138 TEENA-MYRTLE, NT, AUSTRALIA







DRILL HOLE AND SCAN LIST

H4 MY003 - DDH_MY20 (EOH 449.5)
H5 MY005 - DDH_MY18 (EOH 81.9m)

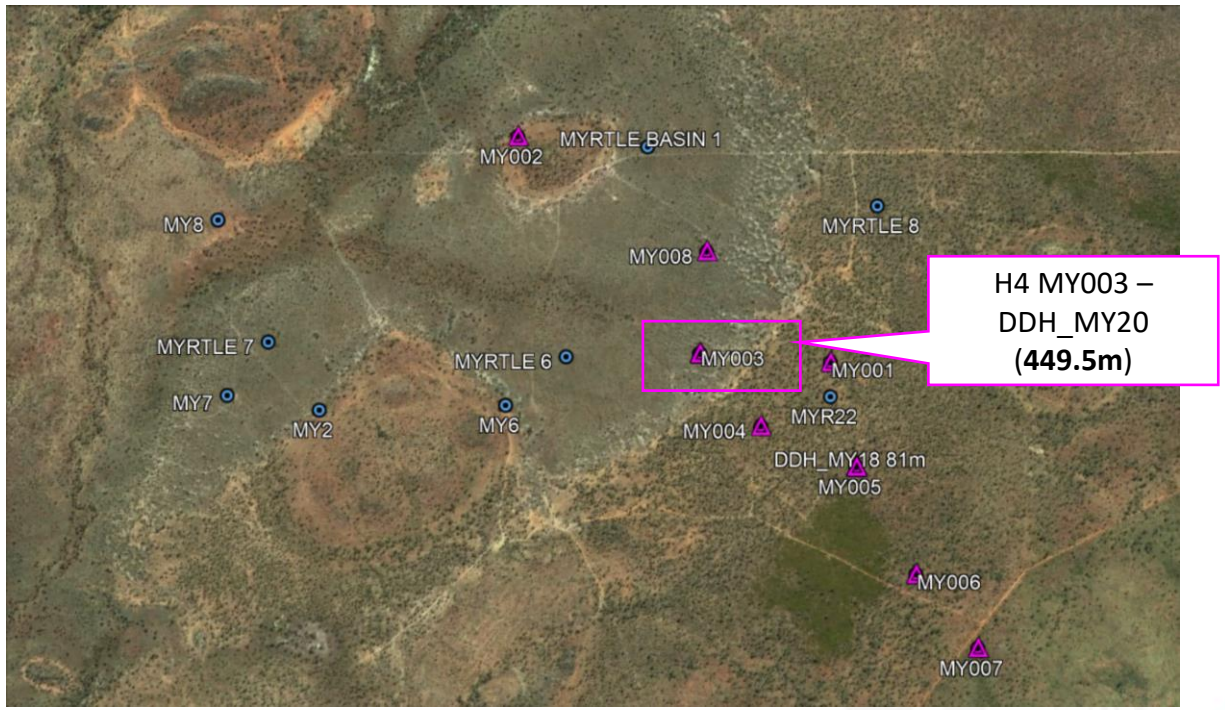
H6 TN005 - DDH_Teena2 (EOH 676.7m)

Location	TRL Teena and Myrtle prospects, NT, Australia USA
	Teena: 608000E, 8181000N Myrtle: 610000E, 8167000N (GDA94; UTM)
Survey Acquisition Period	20th to 22th October 2012 – 3 field survey days (excludes mobilisation/demobilisation times)
Data Processing, Interpretation & Reporting Period	March - April 2013
Survey Coverage	13 planned Virtual Boreholes ("VBores") to 1km depth.

H4 MY003 MYRTLE NT

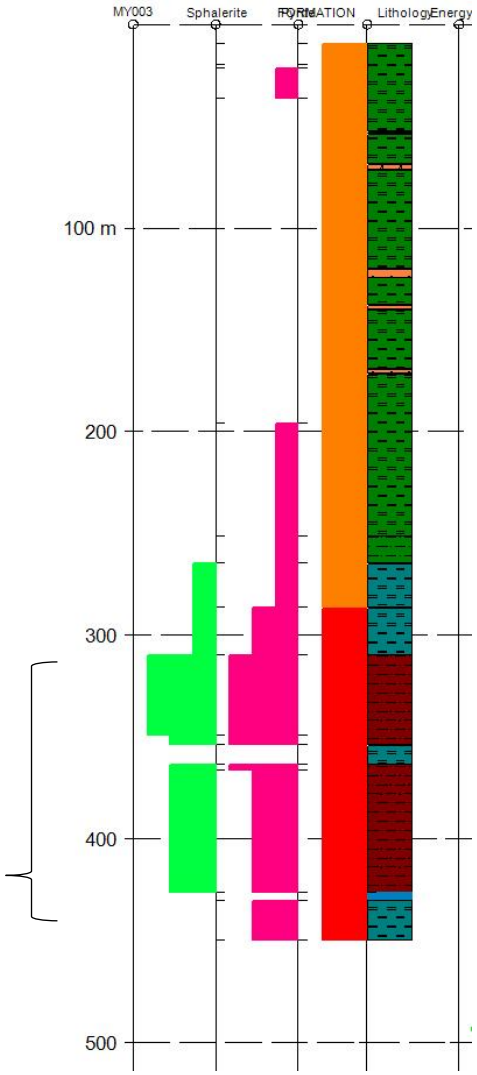
BACKGROUND

The Teena-Myrtle prospect was reprocessed and analysed according to the same criteria as set out for the Bluebush prospect outlined above. Two main drill holes were provided for training purposes, however, the aim for the prospect was to carry through the selection criteria defined for BB008 and determine whether these criteria could be use at an unrelated prospect thereby testing the capacity for targeting sulfides without prior training scans. The drill holes were, however, useful to check the results and to later determine if any modifications were required to the selection criteria.

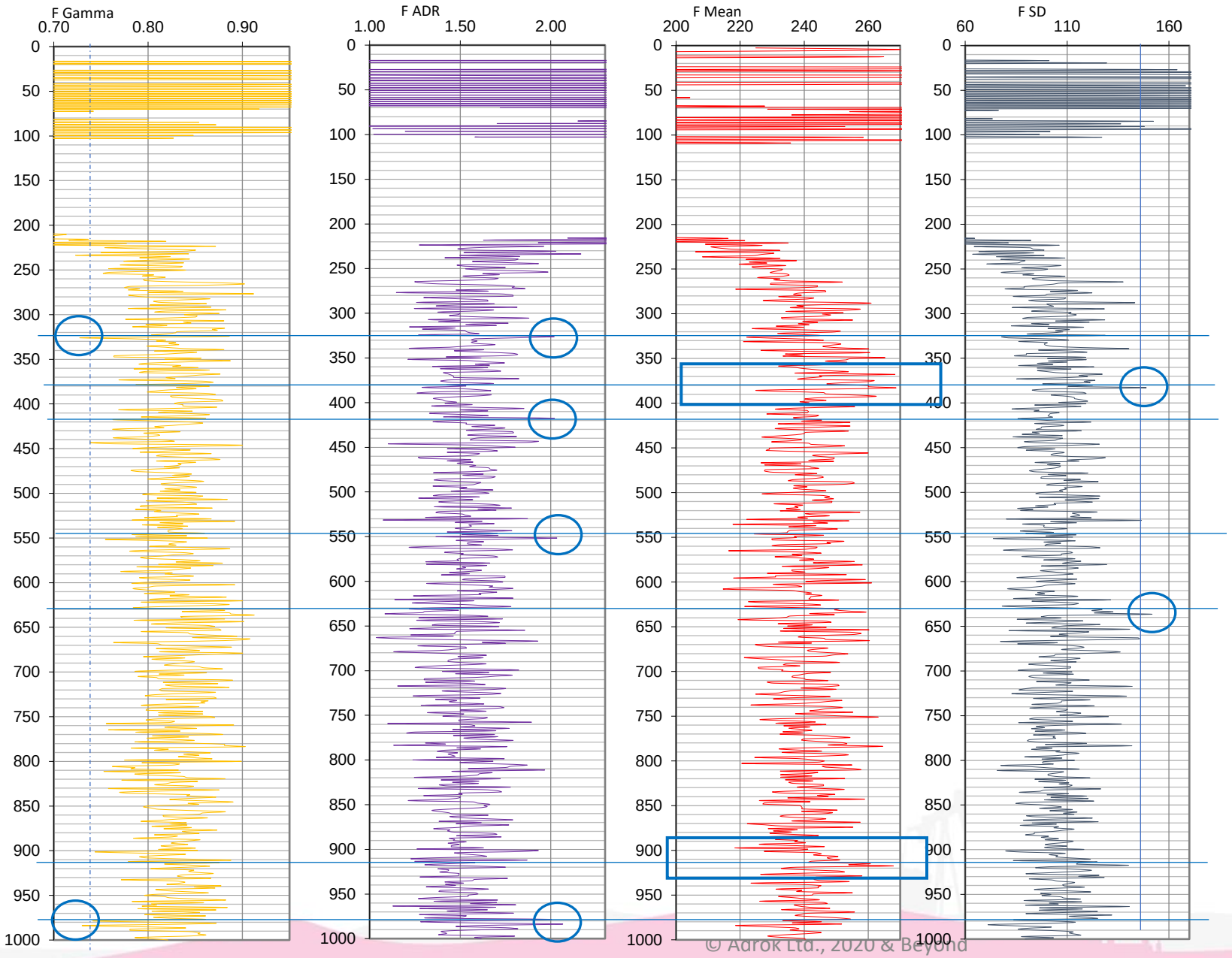


DDH_MY20 (449.5m)
Drill log

STRIP			
1	Sphalerite	BAR PLOT	
2	Pyrite	BAR PLOT	
3	FORMATION	PAT	LABEL
			Barney Creek FM
			HYC Shale
3	Lithology	PAT	LABEL
			Carbonaceous shale
			Dolomitic banded shale
			Dolomitic banded siltstone
			Dolomitic shale
			Dolostone
			Sandstone
			Siltstone
			Sulphidic shale
4	Energy %	LINE	
5	WMF	LINE	
6	EADR	LINE	
7	EMEAN	LINE	
8	EGAMMA	LINE	
9	DC	LINE	



Principal zone of mineralisation 300m-450m



RESULTS

The results (graphs) for each scan are presented along with the selected values based upon the selection criteria outlined below (same as that determined for Bluebush). The selection at this stage is qualitative rather than quantitative as the parameters for each scan vary slightly which in turn leads to a lack of absolute values for each. Adrok are planning on defining quantitative values in the near future.

Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

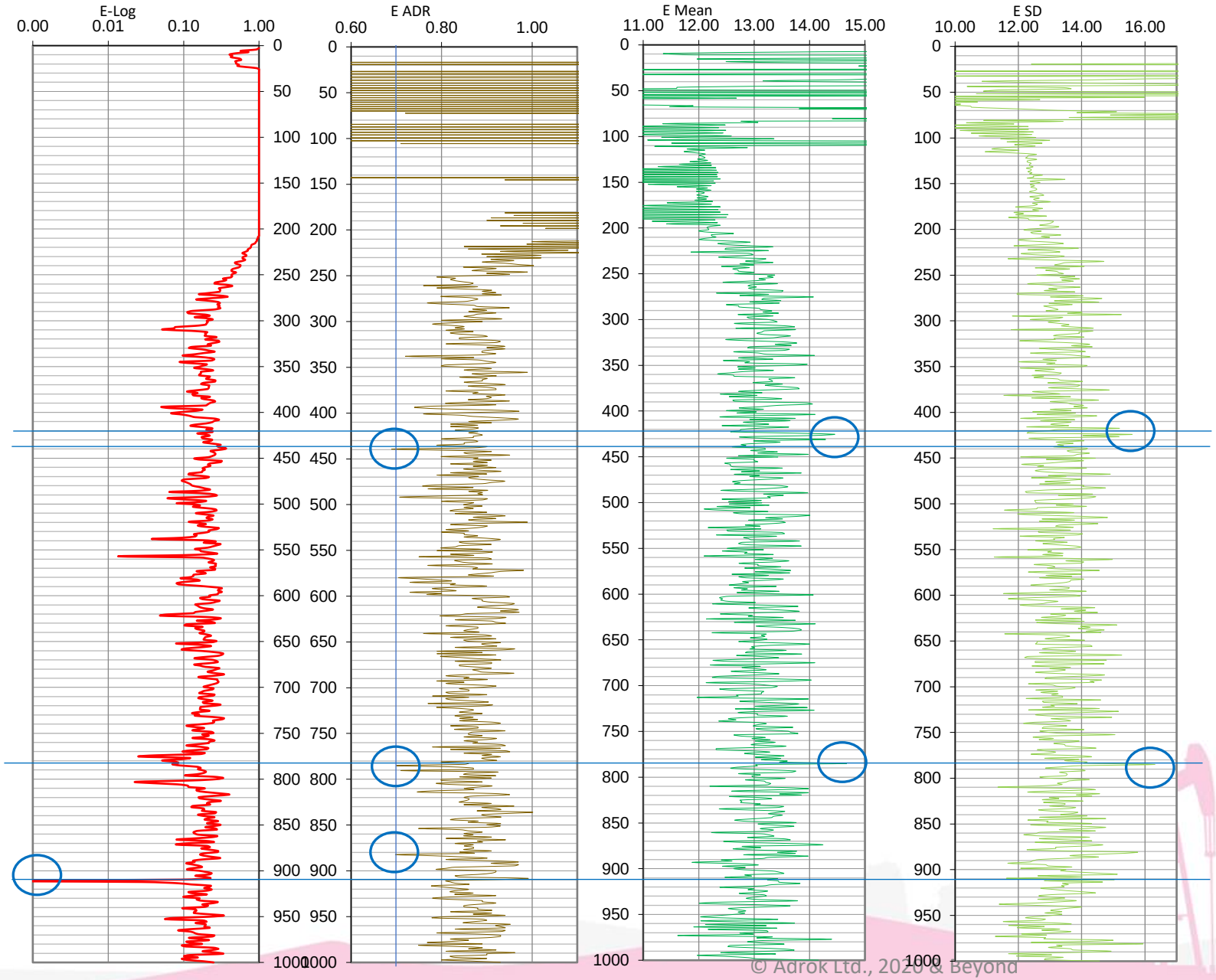
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

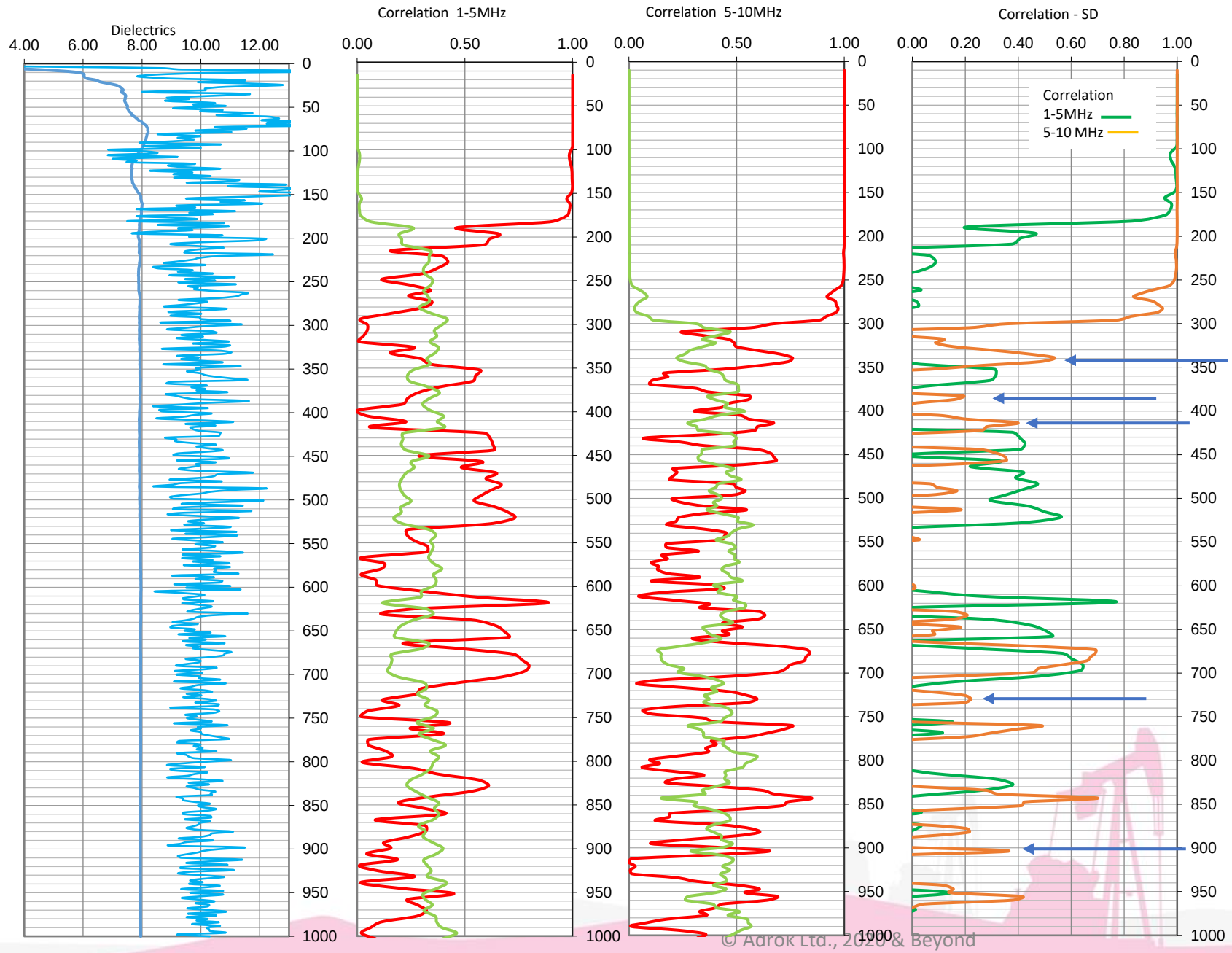
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz
(intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



1-5MHz and 5-10 MHz correlation above SD

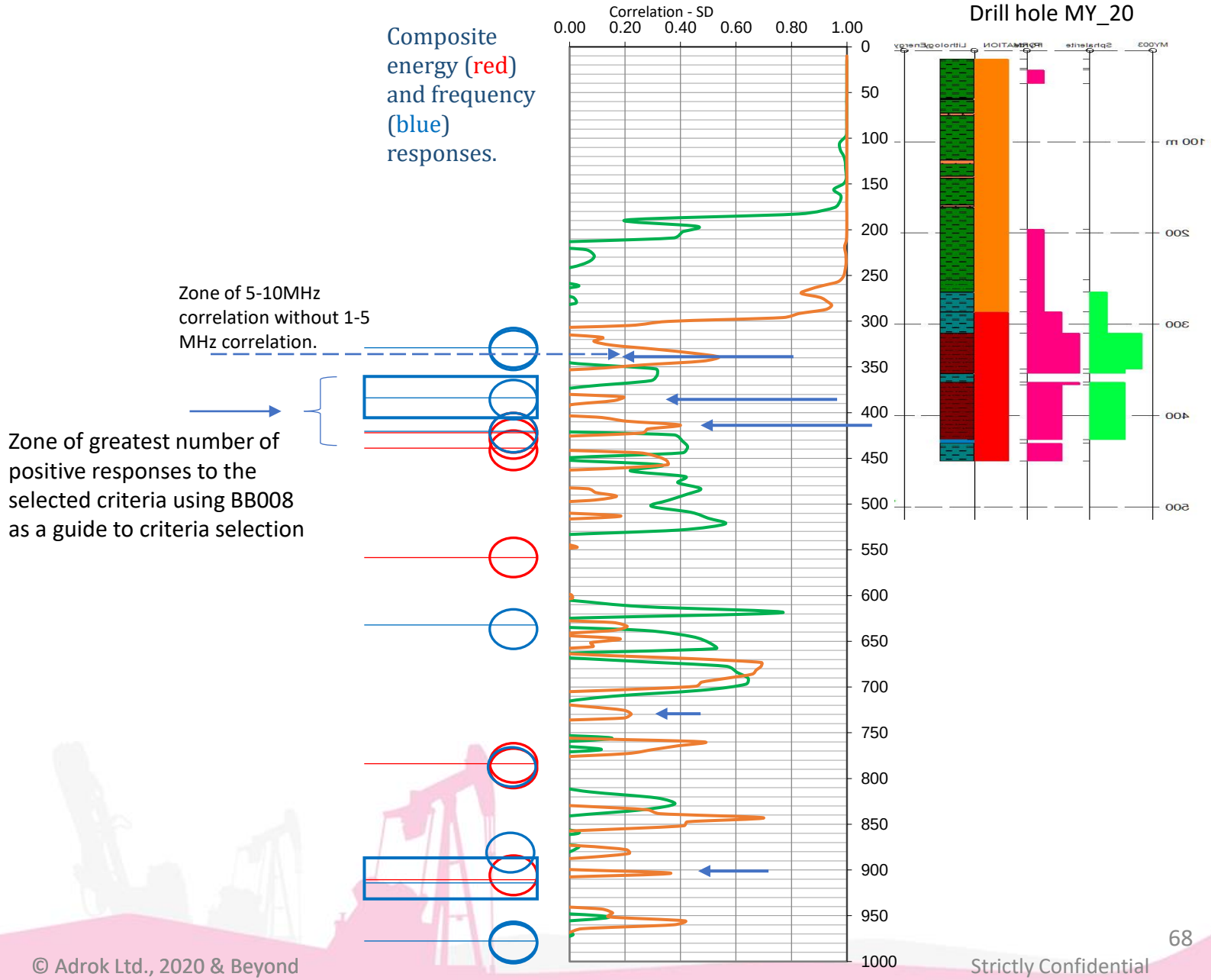
The following points were selected based on criteria defined in Bluebush (Queensland) from correlation analysis of BB008 and diamond drill hole BBDD054 which contained a high (up to 70%) pyrite as sulfides. Accordingly, it is anticipated that the "fingerprint" of the sulfides in the Bluebush scan will be much greater, nevertheless, there was a good correlation between high 5-10MHZ and sulfides at that site. Correlation values are lower here, however, 5 points in the scan show higher values for 5-10MHz above SD but without a similar high in 1-5MHz.

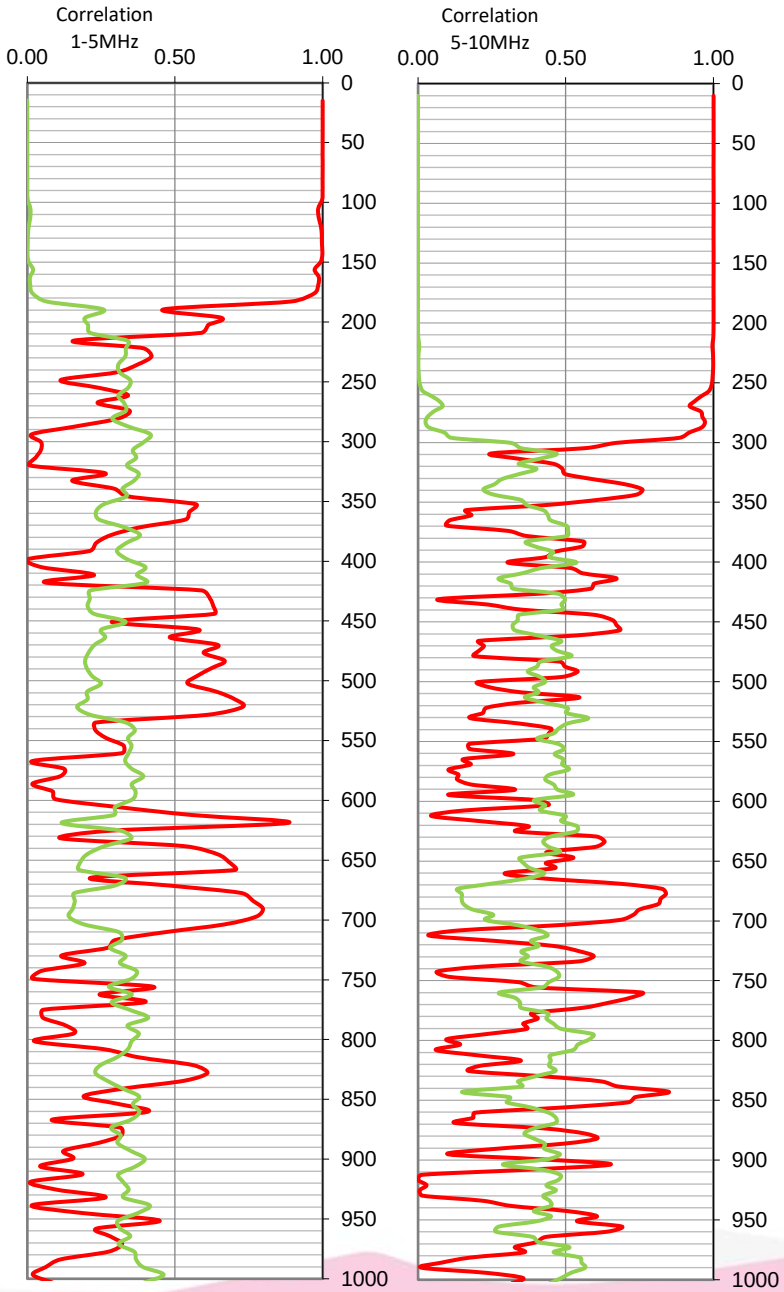
Multi-evidential domain selection

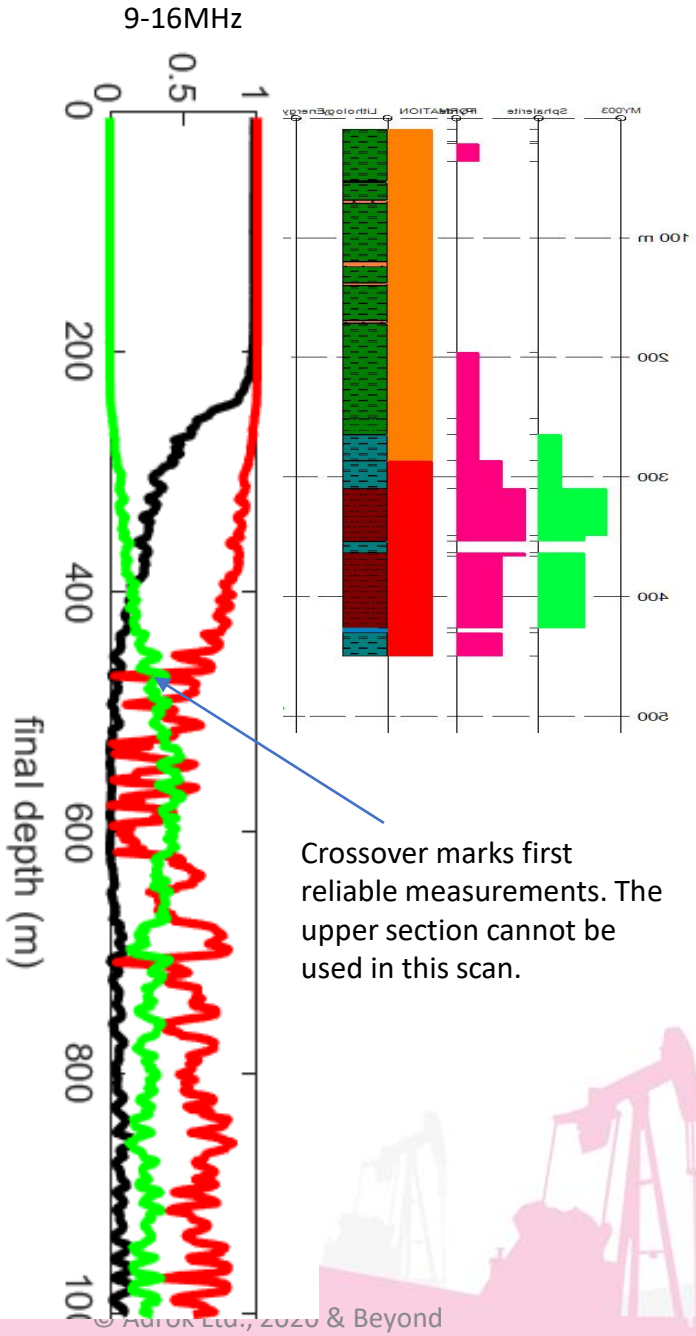
The sulfide selection criteria based on the correlations observed at BB008 have been used here as a guide for selecting the sulfide zone. The list of positive criteria for the mineralised zone are provided to the right. It should be noted that the low Energy % Log values that usually associated with strong energy return of a reflective surface is not present within this zone which may be attributed to the very disseminated and transitional nature of the boundary between sulfide-rich zones and the country rock. The reader is reminded of the reference to radar reflection presented earlier in the report.

The zone of mineralisation is not targeted directly by a single line of evidence, rather, the combination of results s used to delineate the zone of highest probability of sulfides. The process used here follows the basic principal of "weights of evidence". Regions (points down the scan) where the highest number of correlative points align or are closely associated is selected as a zone of principal mineralisation.

The selection criteria assume that there are sulfides in the core. For this case example, the technique can be used for tracking sulfide-bearing zones from an area with known sulfides.



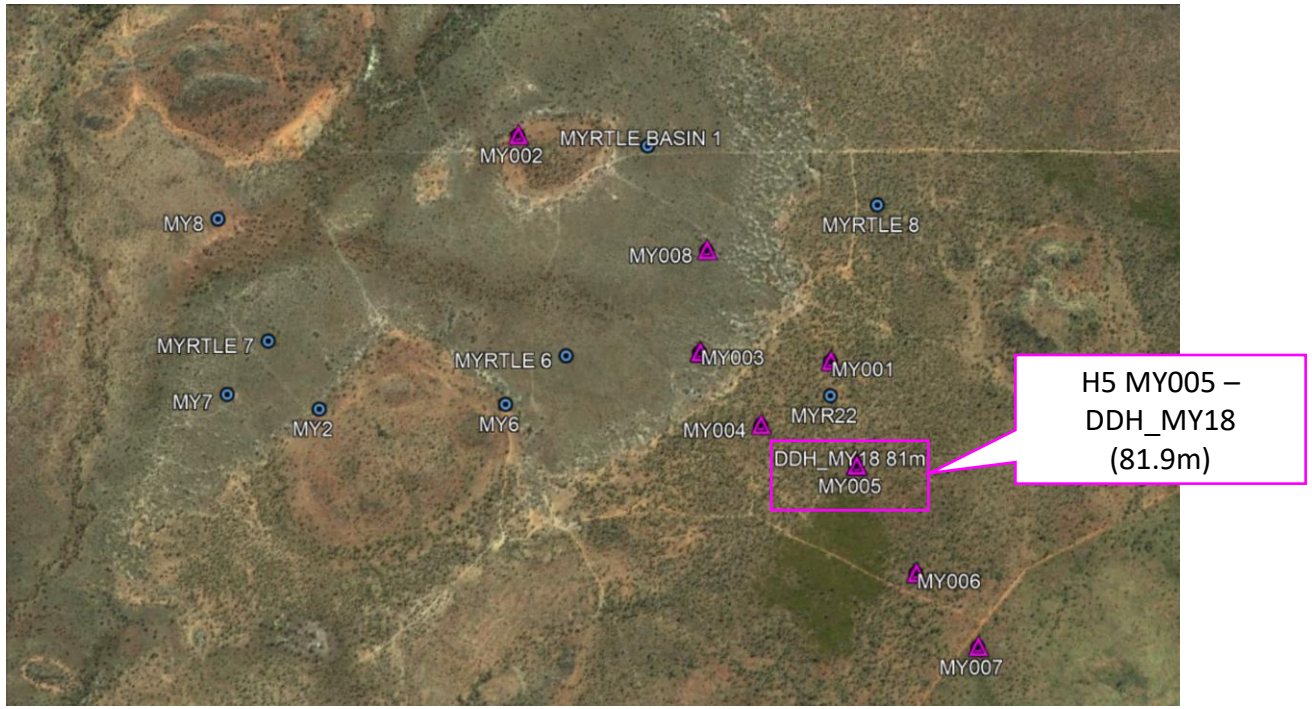




1-5MHz, 5-10MHz and 9-16MHz frequency processing

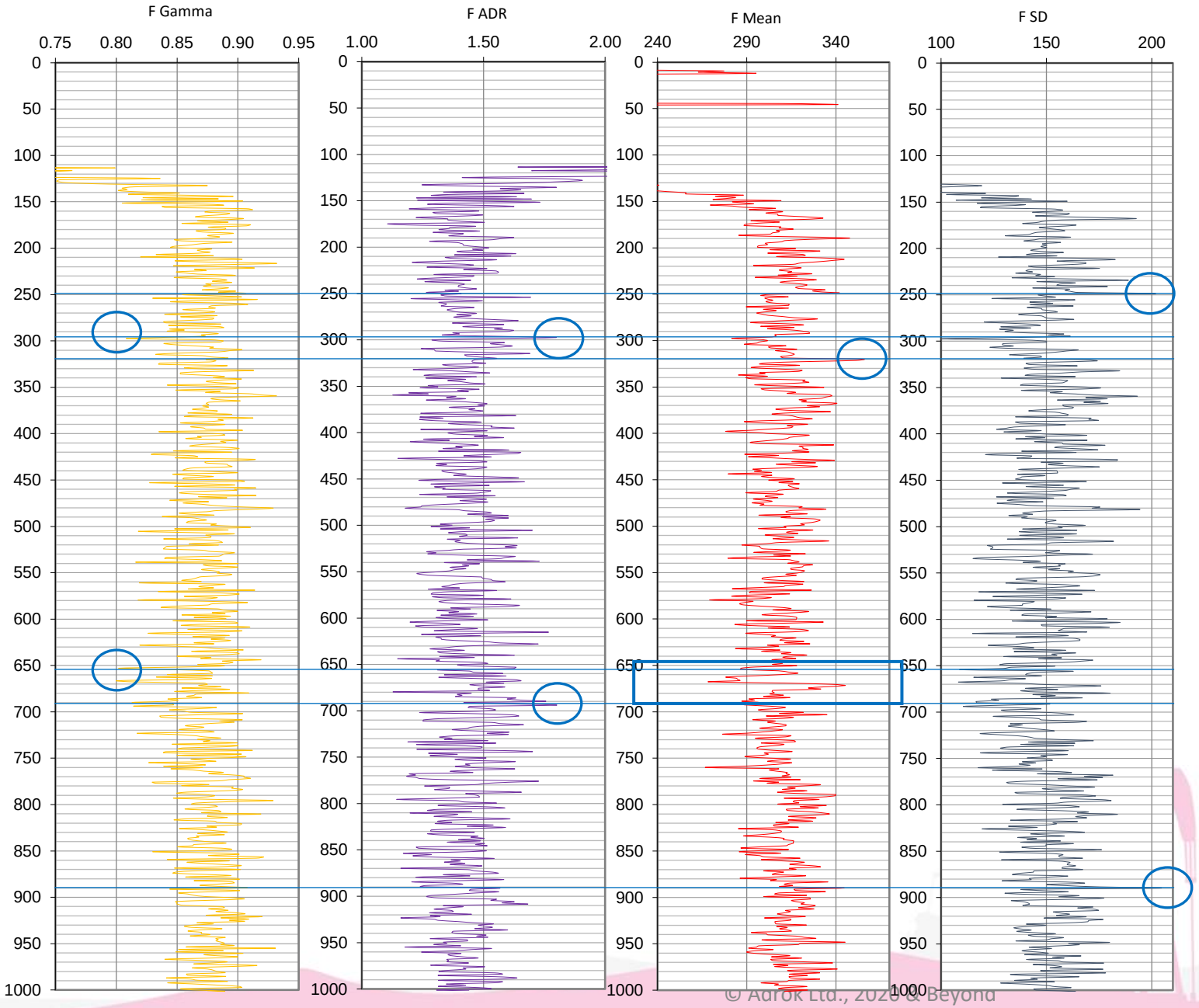
Examining the frequency correlation results, it is apparent that the sulfides in MY003 were not detected in the 1-5, 5-10 or 9-16MHz correlation. Based on the relatively shallow depth of the sulfides, Adrok will process this scan using the 1MHz bands up to higher frequencies (1-50MHz) as presented for BB008. It is anticipate that the response will be detected at frequencies over 16MHz.

H5 MY005 MYRTLE NT



SCAN H5 MY005 – PARALLEL DRILL HOLE DDH_MY18

ADR results were collected to a depth of 100m but the parallel drill hole (DDH_MY18) extends to a maximum depth of almost 82m and therefore couldn't be used to correlate any sulfide targets. Nevertheless, the results presented here utilise the same selection criteria as discussed above.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

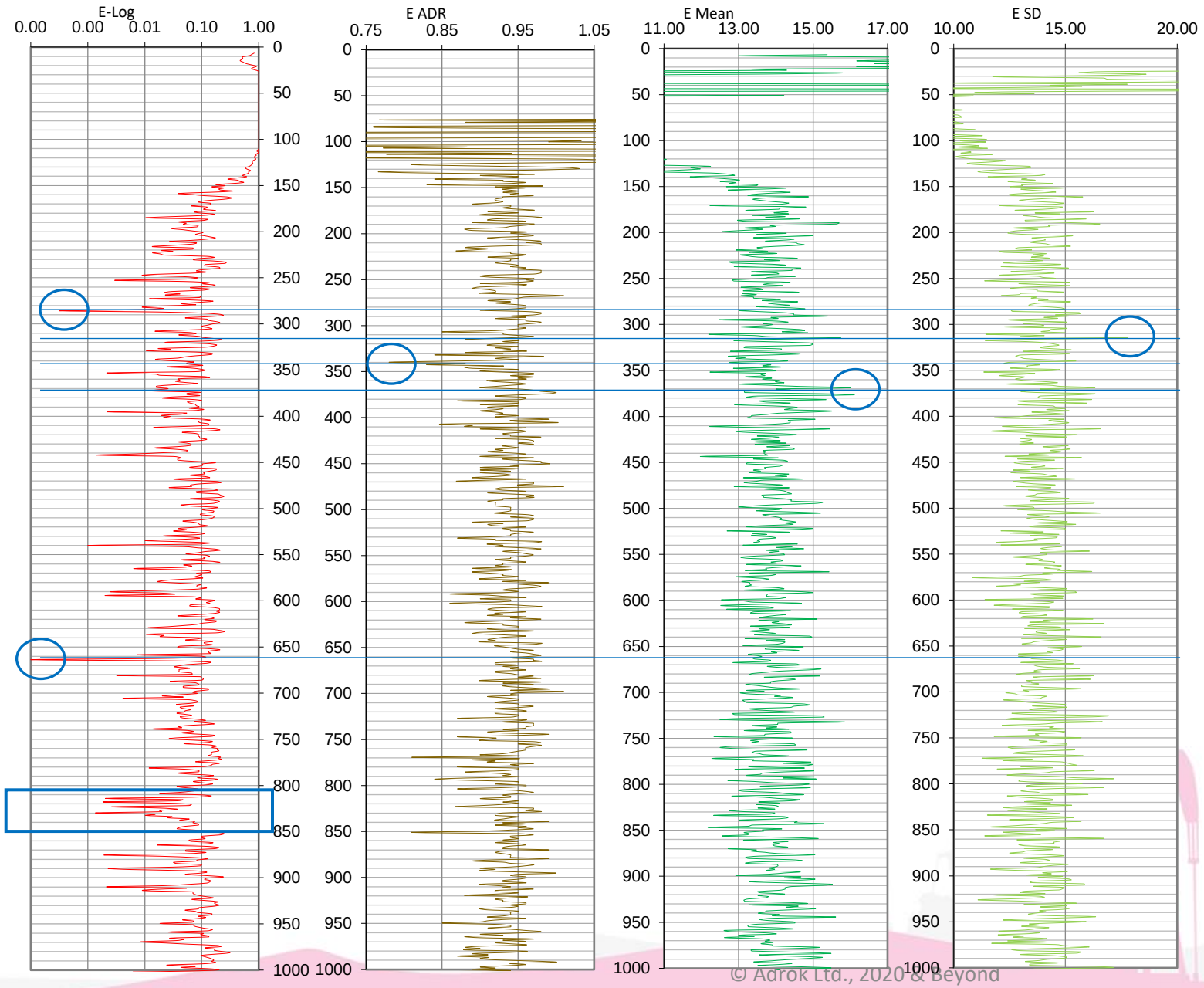
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

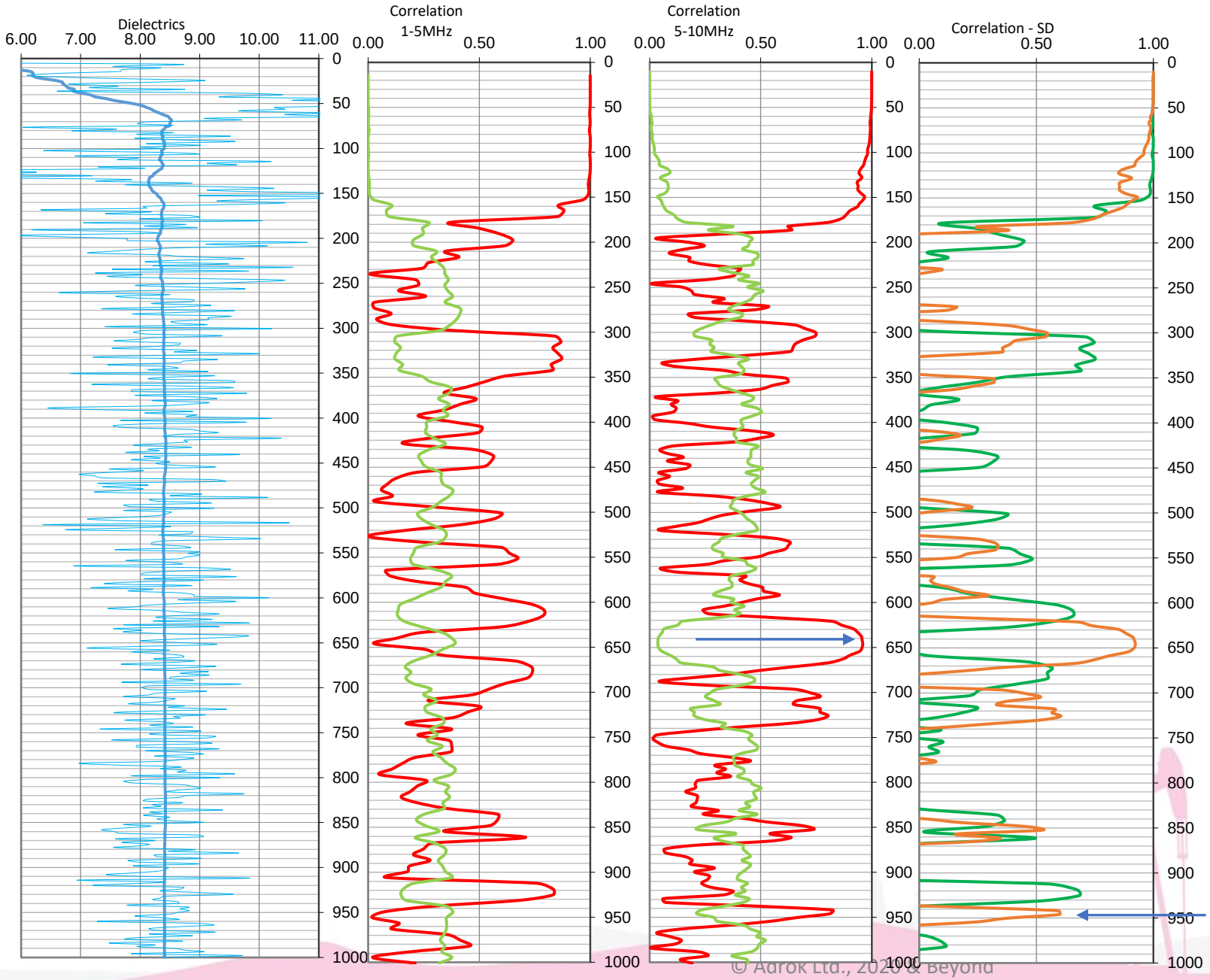
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

RESULTS - SCAN H5 MY005



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

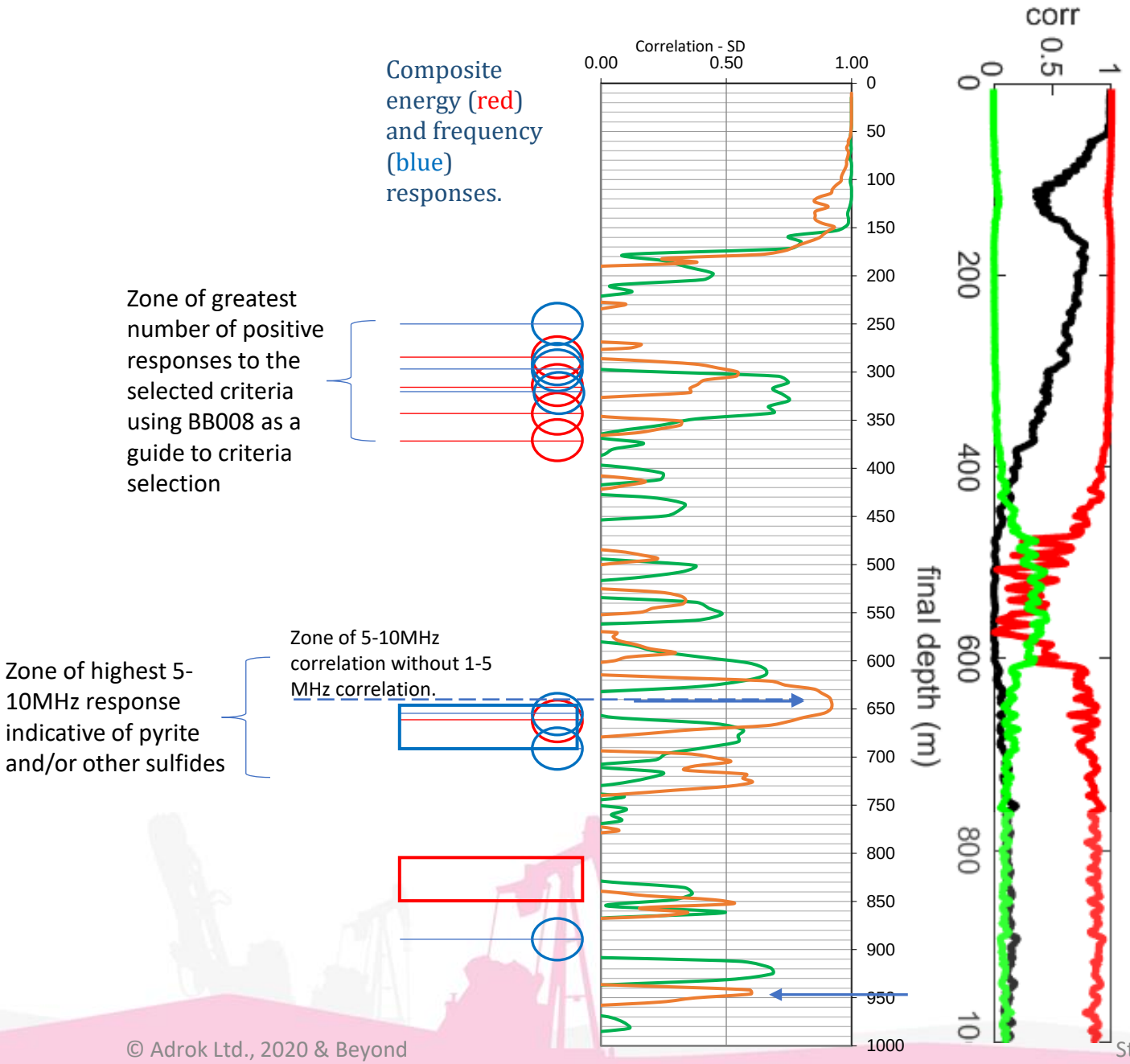
Multi-evidential domain selection

The sulfide selection criteria based on the correlations observed at BB008 have been used here as a guide for selecting the sulfide zone. The lack of sulfides in drill core for this scan means that this is a blind scan whereby sulfides can be targeted using the same evidential criteria as presented for previous scans.

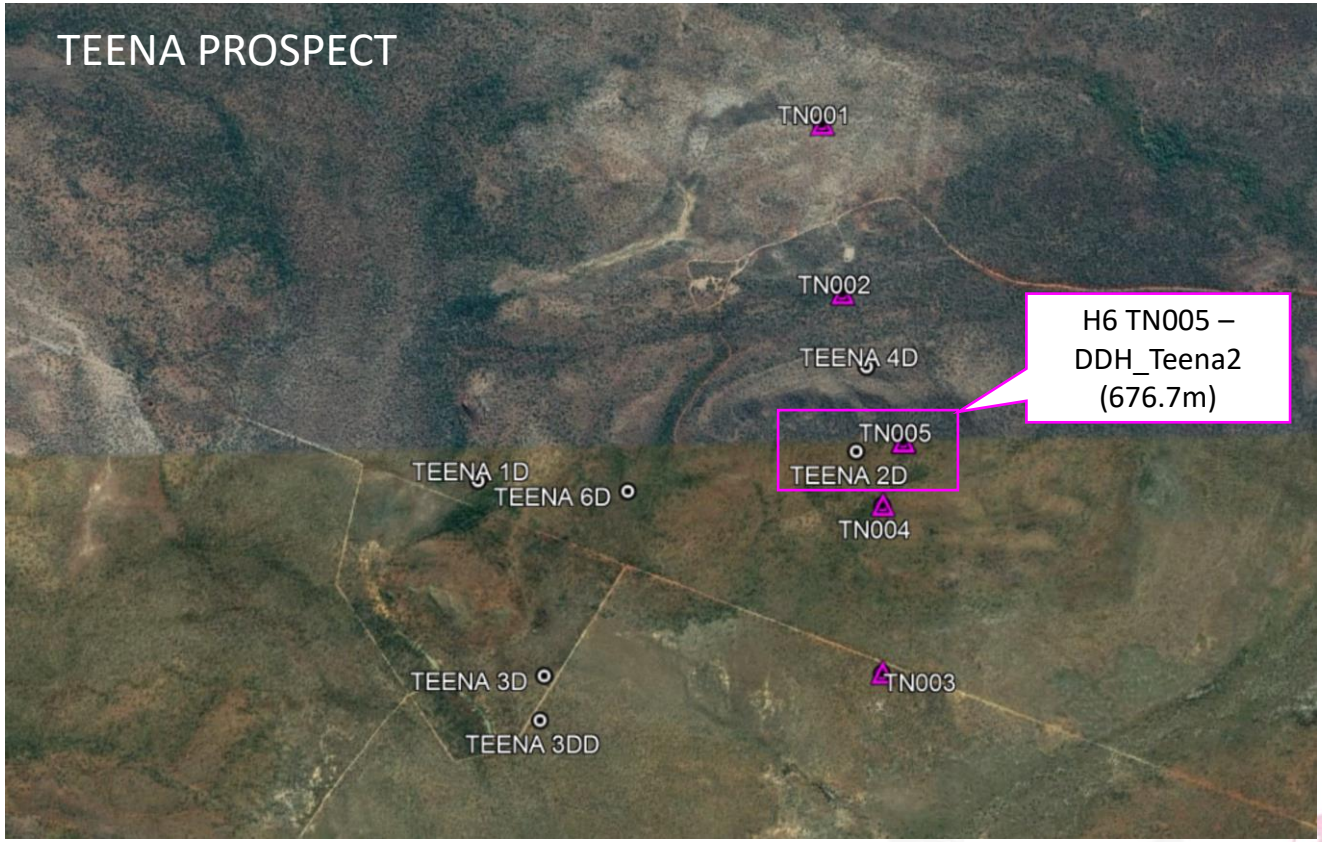
The zone containing the majority of correlations lies between 250m and 350m. There is no corresponding response in the 5-10MHz correlation which, according to other scans, is a principal piece of evidence.

A second zone where there is some correlation lies at 650m depth where there is a peak in the 5-10 correlation. This is one scenario where geophysics in general relies on numerous case studies to determine how to priorities the different features.

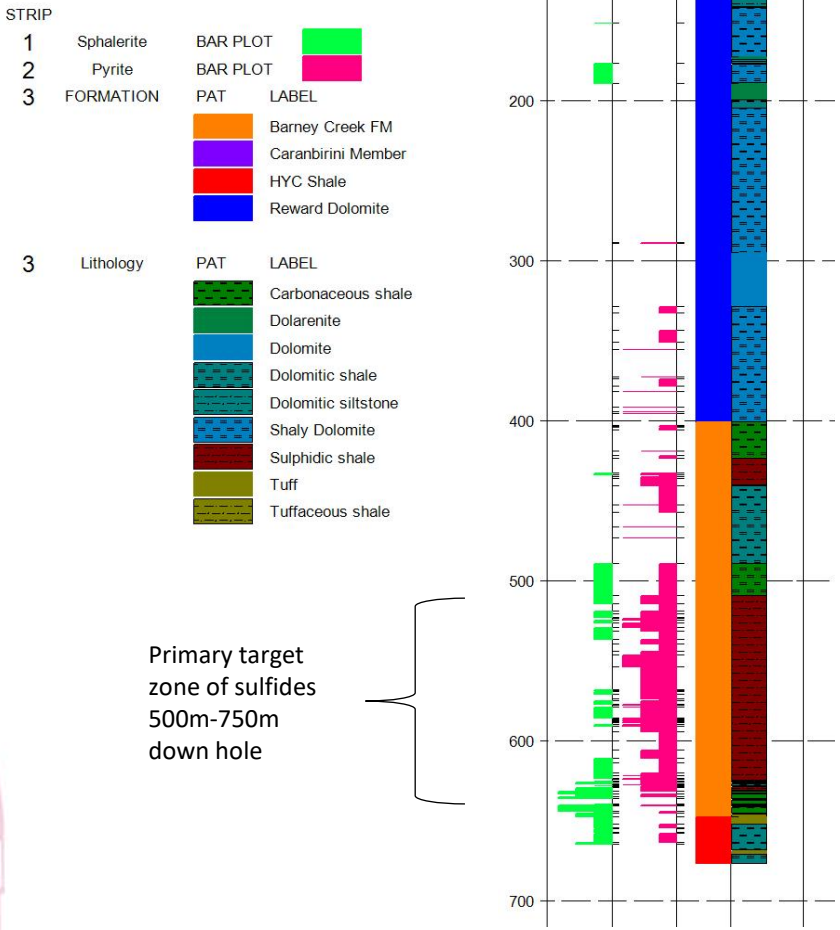
Scan MY005 is located in an area of the Northern Territory (McArthur River) where many dill holes have been completed. In order to refine the technique access to additional drill holes is critical and will help transition to a quantifiable sulfide targeting technique.



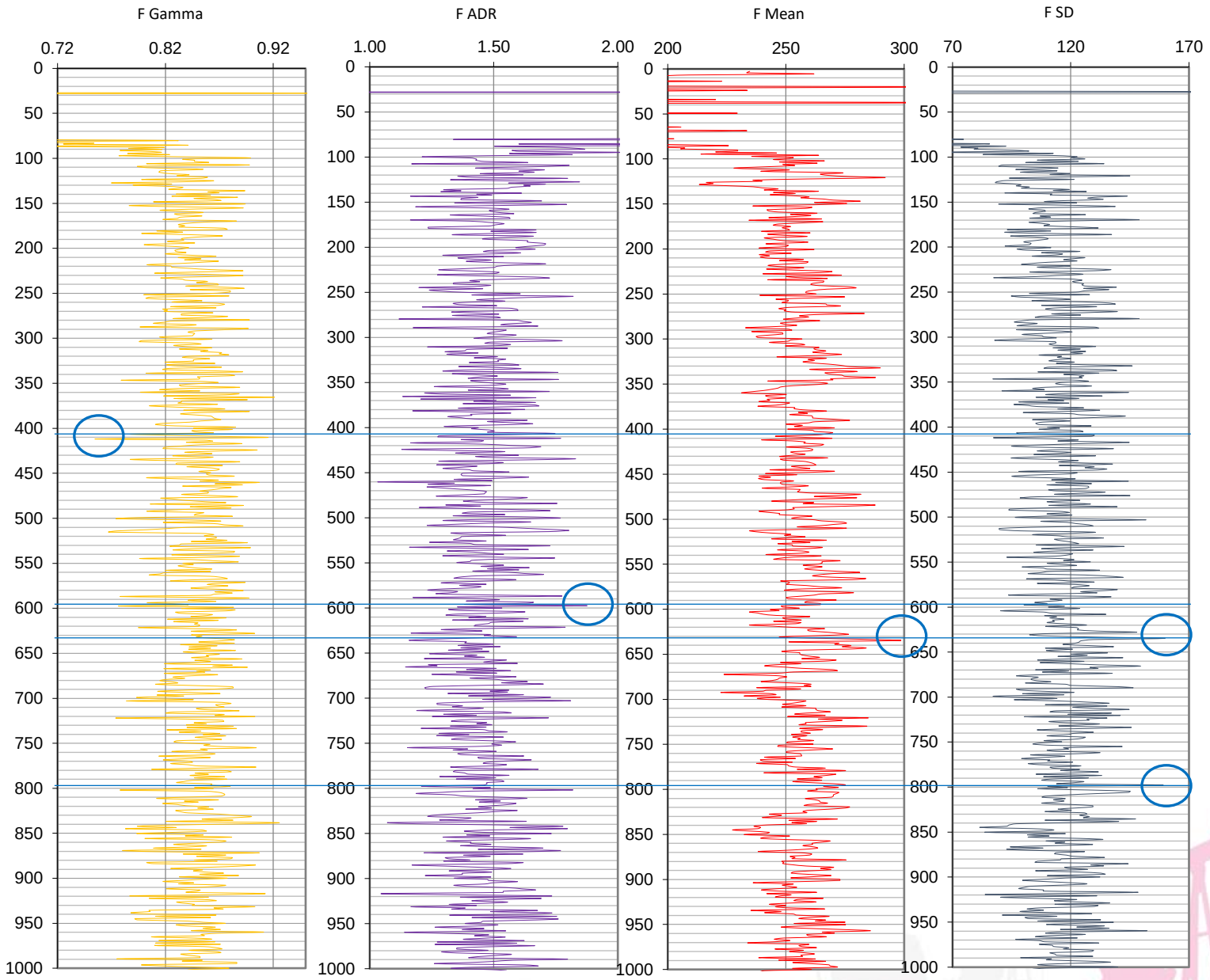
H6 TN005, TEENA NT



Drill hole Teena2



Primary target zone of sulfides 500m-750m down hole



Correlation criteria

F-Charts

Low F-Gamma

High F-ADR

High F-SD

Step change in F-Mean (high F-Mean)

E-Charts

High E-Mean

Low E-Log

High E-SD

E-ADR (high &/or Low)

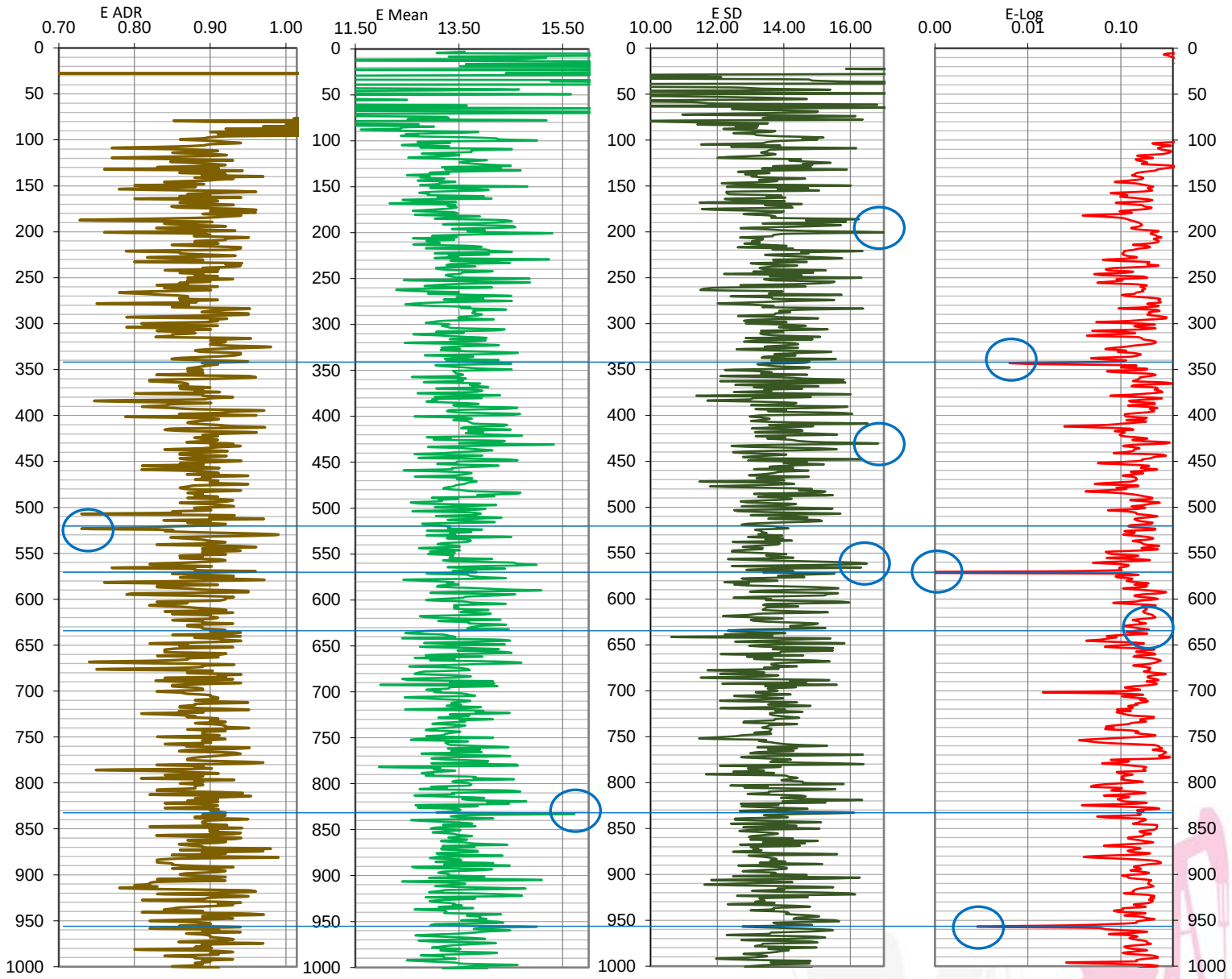
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

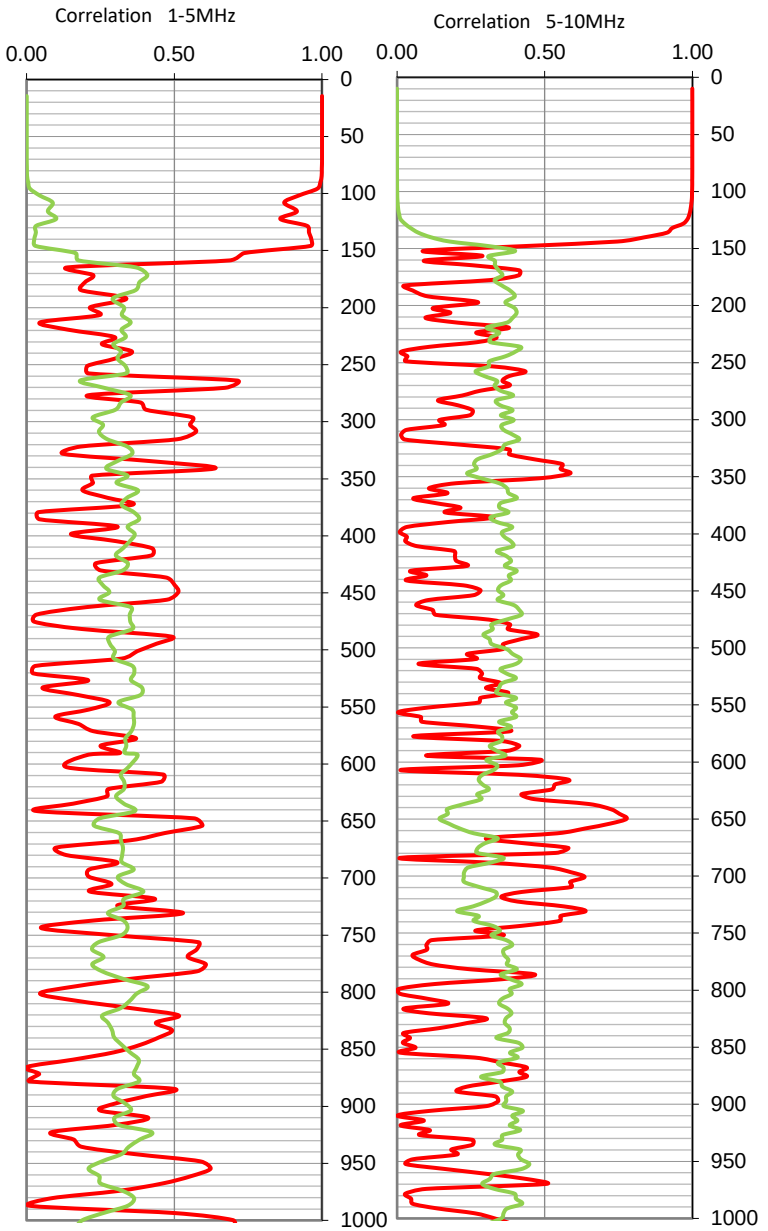
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

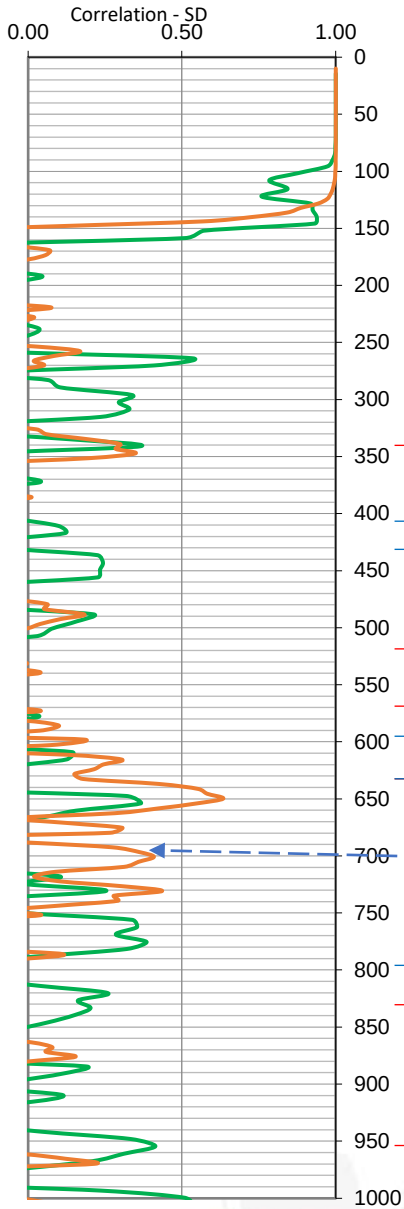
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

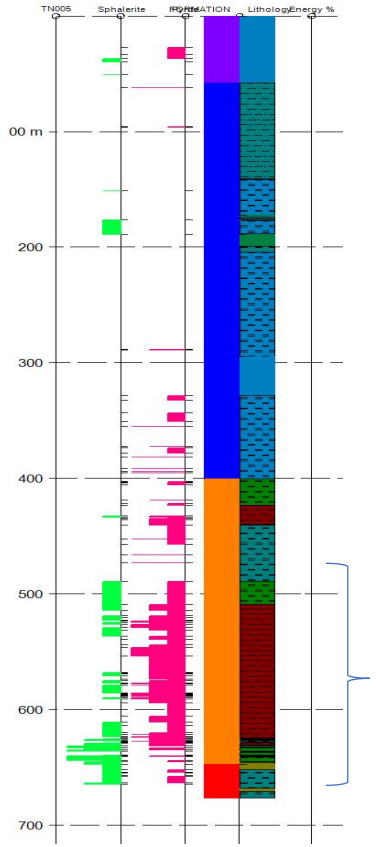




Composite energy (red) and frequency (blue) responses.

Zone of 5-10MHz correlation without 1-5 MHz correlation.

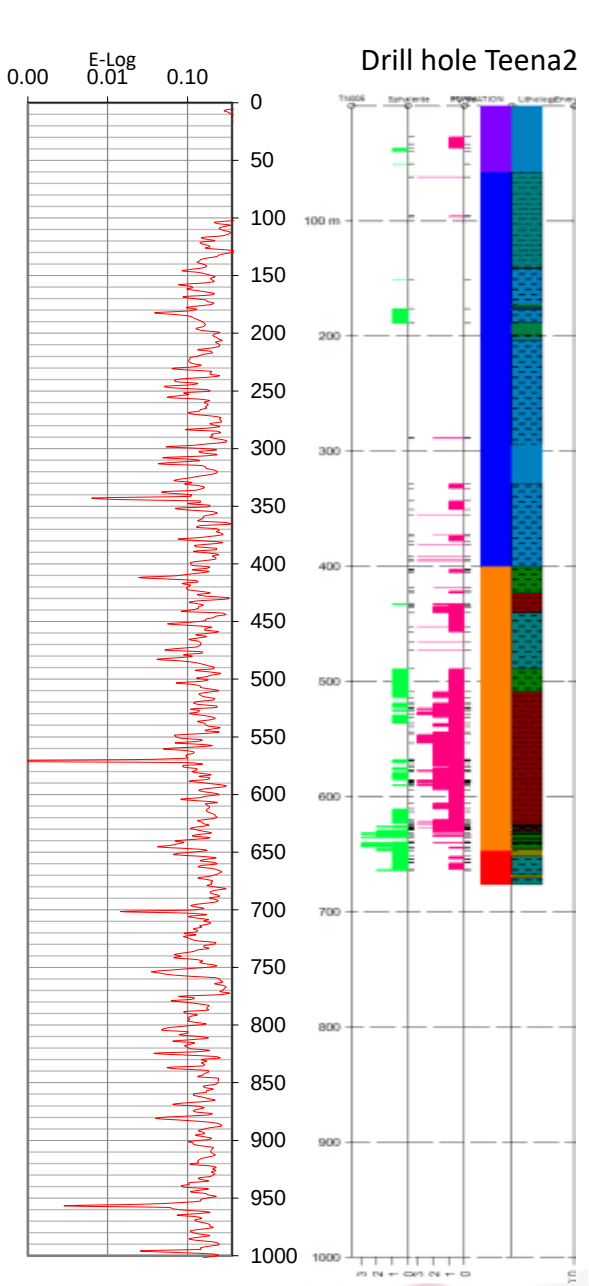
Drill hole Teena2

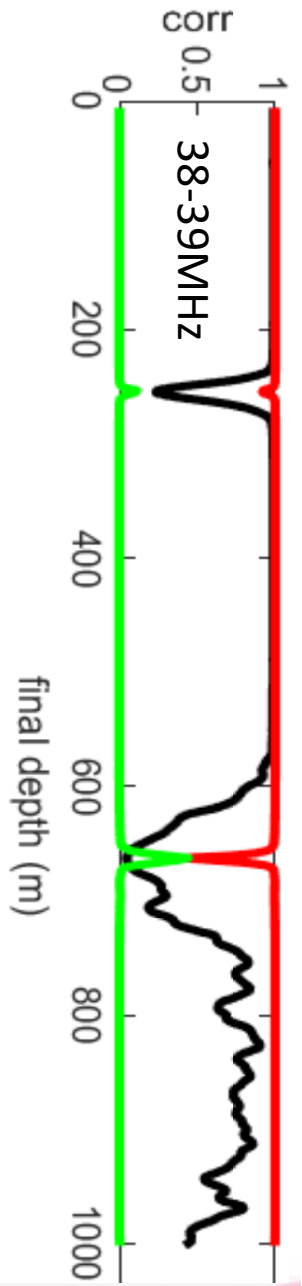


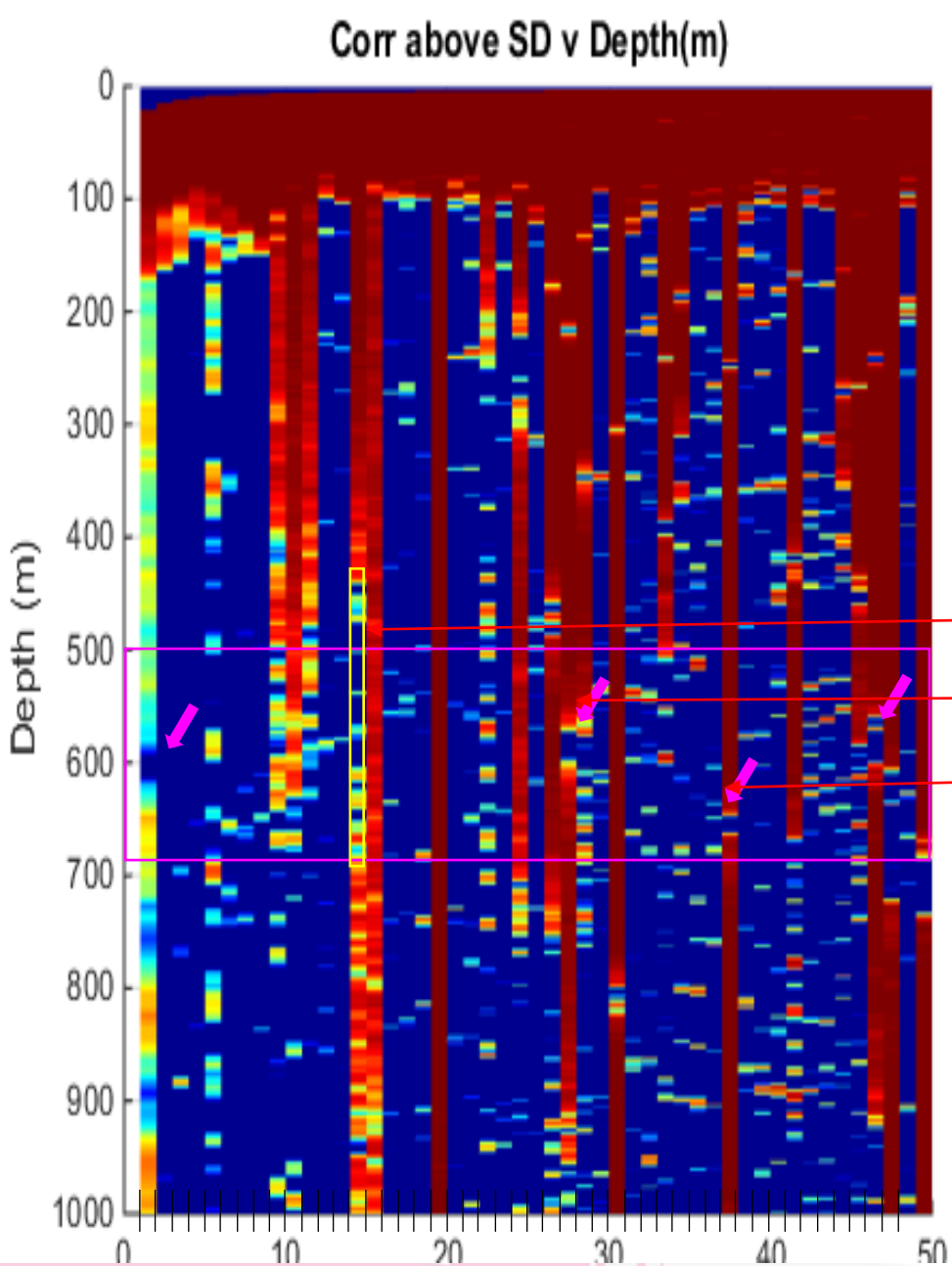
Multi-evidential domain selection

Based on the same correlation criteria as presented for all previous scans, there appears to be a moderate correlation between the numerous peaks and the location of the sulfide zone. One of the reasons why the peaks are distributed amongst the sulfides may be due to the changing texture and composition of the sulfides in that particular zone.

Frequency data tends to respond to rock packages with F-ADR (600m) for example corresponding with frequency resonance within a particular layer. Accordingly, changes in frequency results tend to correspond with changes in the rock types with depth. The energy return indicates, for example, the amount of reflected energy at a given range of frequencies such that E-Gamma or E% Log will provide a good indication of reflectance from a boundary between two layers with contrasting dielectric permittivity values. E-Gamma values were not calculated for this scan, however, E% log peak (i.e. highest reflectivity lies at ~570m which is in the center of the sulfide-rich zone.







Frequency Correlation - interpretation

The cumulative responses shown in the adjacent figure are the results for processing 1-50MHz at 5MHz intervals but in 1MHz step. As described for H1-BB008, processing at 5MHz intervals smooths some of the results, however, it is clear from the results that specific frequencies such as 38-39MHz (single scan presented) can potentially be treated as a single of part of a range of frequencies that respond to sulfides.

14-15MHz

27-28MHz

38-39MHz

CONCLUSIONS FOR TEENA MYRTLE

Three scans were processed and analysed in for the Teena-Myrtle prospect area (H4-MY003, H5-MY005 and H6-TN005).

All three scans were examined for the number of positive criteria for sulfides as defined for BB008 and subsequent scans at the Bluebush site.

Analysis of scan H4 MY003 successfully delineated the zone of sulfides. The highest number of correlation criteria occurred at the same depth as the main sulfide zone at 300-400m down scan.

Analysis of scan H5 MY005 contained the greatest number of correlations at 250-350m, however, no parallel drill hole has been obtained for this scan, therefore the correlation with sulfides could not be certified. A second zone of high correlation in this particular scan exists at 650m which also corresponds with a peak in 5-10MHz correlation suggesting the presence of pyrite.

The third scan H6 TN005 was also examined for correlation criteria. The greatest number of positive criteria existed within the zone of mineralisation, but the correlations were weak, meaning that they were spread out over a wide interval which mimics the sulfides in drill core which also occur over a wide interval. While successful in pinpointing the sulfide zone, it is plausible that the dissipated positive correlations may be indicative of disseminated sulfides at low concentrations leading to a weak "signal".

A test of the sulfide selection criteria devised primarily for the pyrite-rich core of BB008 has also successfully resolved the location of the min-zone/sulfide-bearing zone in two of the three scans completed with the third to be checked against drill results at a later stage. The results are encouraging and point toward a successful technique for targeting sulfides independent upon the enclosing rock type.

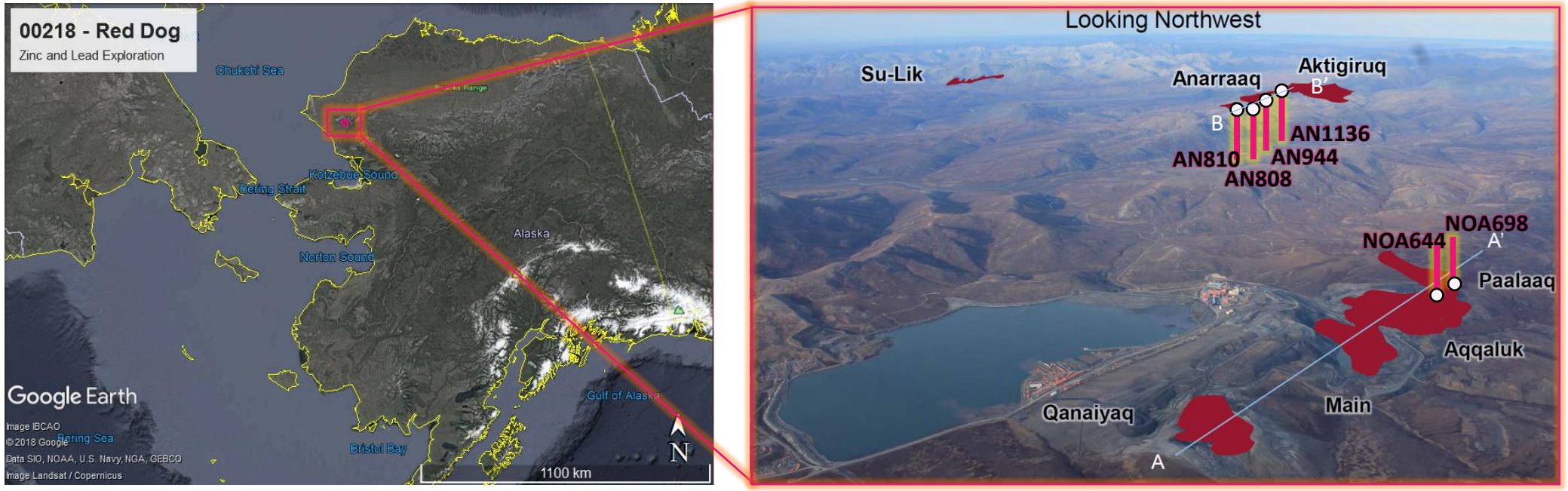
SULFIDE SELECTION CRITERIA APPLIED TO RED DOG (PRJ. 00218)

A reduced set of selection criteria were developed from correlation with pyrite-rich (sulfide rich) results in diamond drill core BBDD008. These criteria are listed along with the ADR plots for three scans from Red Dog (Alaska). As described earlier, the aim of the re-processing is to delineate a set of criteria that meet the delineation of sulfides only, regardless of the host rock. In order to achieve this, Adrok require a large number of scans with sulfide.

Having trailed the selection on five Red Dog sites (project 00218), the criteria successfully predicted two of the five zones with good precision, two further min zones were selected in the scan, but the target depth was approximately 50m below the interpreted depth form the cross-section provided.

Only one scan (placed in an area where there was poor control on the interpreted sulfide zone) indicated no positive min zone. It is plausible that the proportion of sulfides in this section of the prospect contains so little sulfide content that it was below the detection limits. Another limiting factor may be that the scan criteria were trained on pyrite whereas in the min-zone, lead and zinc sulfides might dominate therefore presenting as a variation to the listed criteria. Results and interpretations are presented below.

LOCATION RED DOG



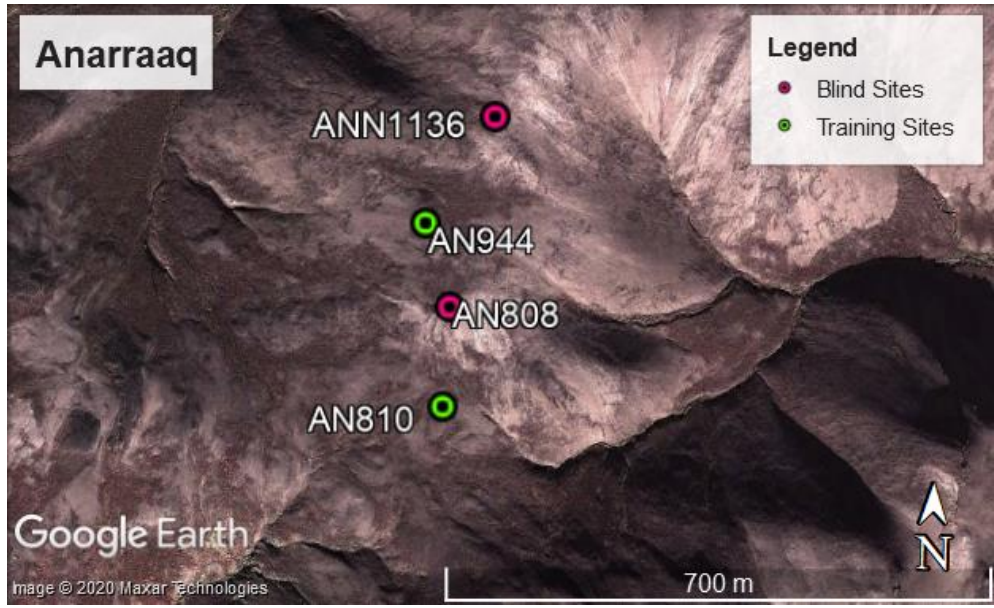
Scans Completed - in the order that they are presented

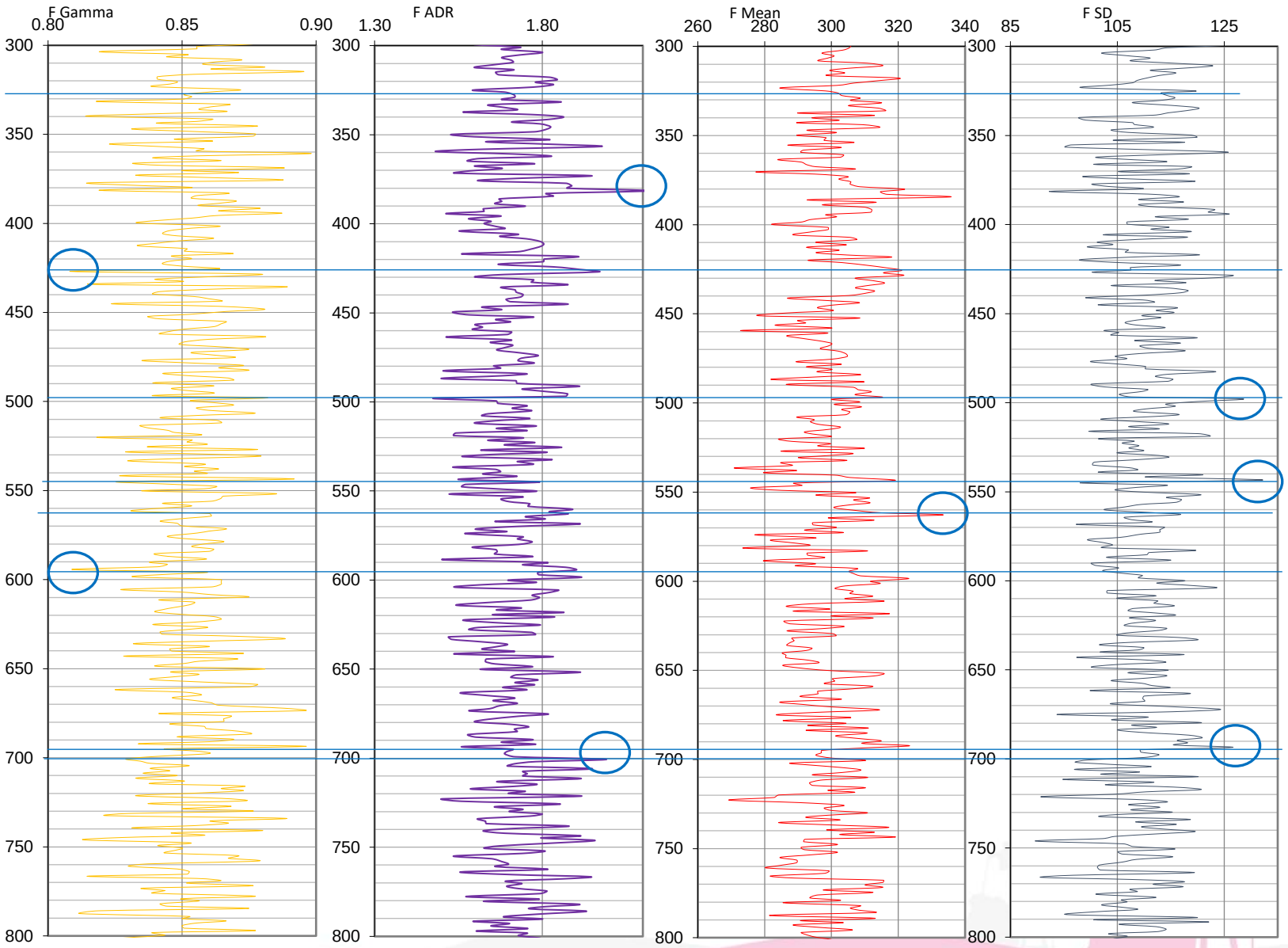
H1 AN810
H3 AN944
H2 AN808
H5 AN1136
H4 NOA644

RED DOG, ANARRAAQ – SCAN RESULTS AND INTERPRETATION

Four scans were processed and analysed for sulfides using the correlation criteria outlined in all previous scans. Two scan, H1-AN810 and H3-AN944, have some drill hole data to compare the targeting results against which is useful for the project in terms of refining a site independent sulfide detection method. Overall the ADR results were extremely successful. The presentation of the results follows the same format as for both Bluebush and Teena-Myrtle in order to maintain consistency.

Site type	Site Name	Notes
Training	H1 AN810 H3 AN944	Stares taken at 0m along the WARR line. Collected down to 20,000ns and with a gain of 1mV. Those were compared to the formation drill data as well as to the grade of Zinc and Lead sulphides.
Blind	H2 AN808 H5 AN1136	Stares taken at 0m along the WARR line. Collected down to 20,000ns and with a gain of 1mV. This blind sites can be used to identify the lateral continuity of the sulphide mineralised lithology.





Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

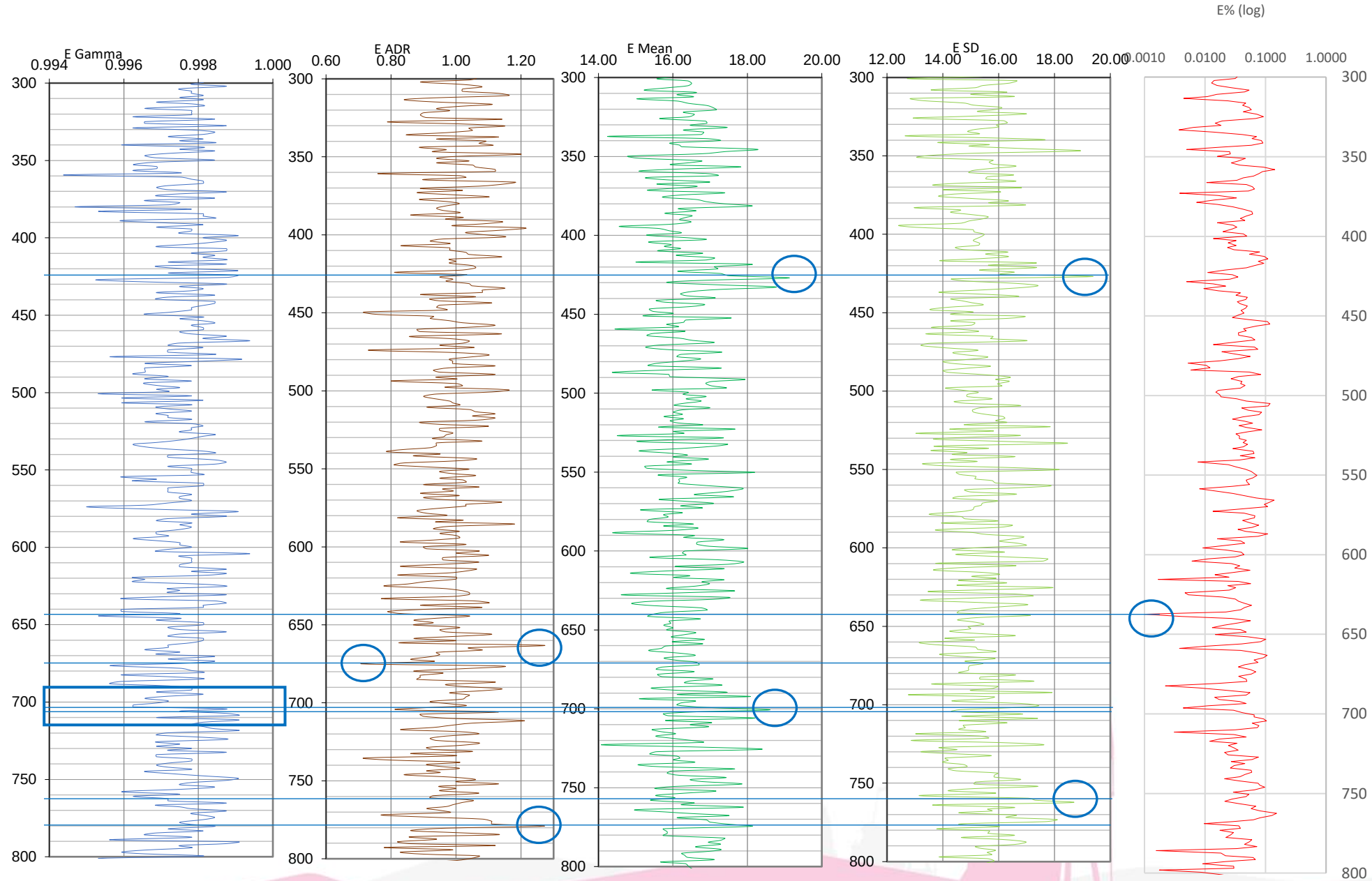
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

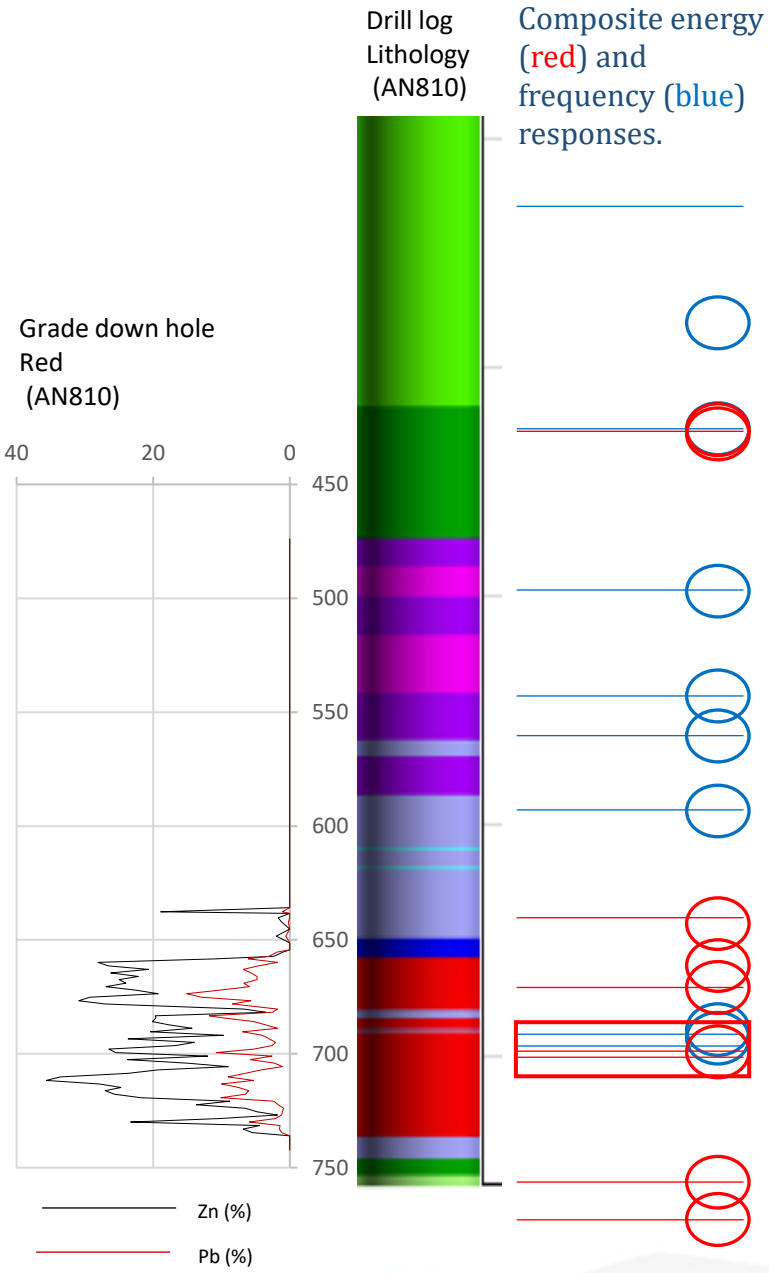
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

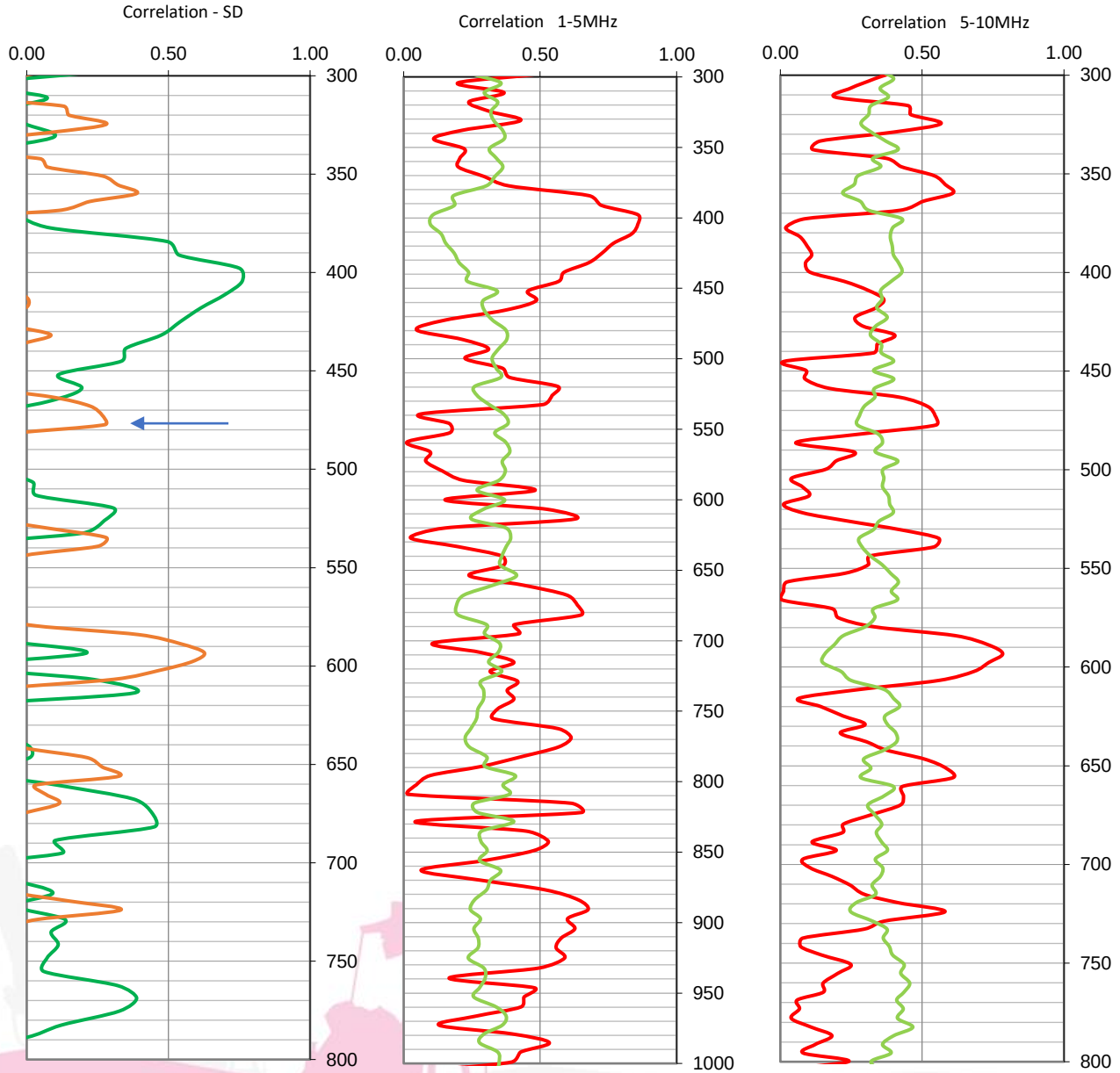
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

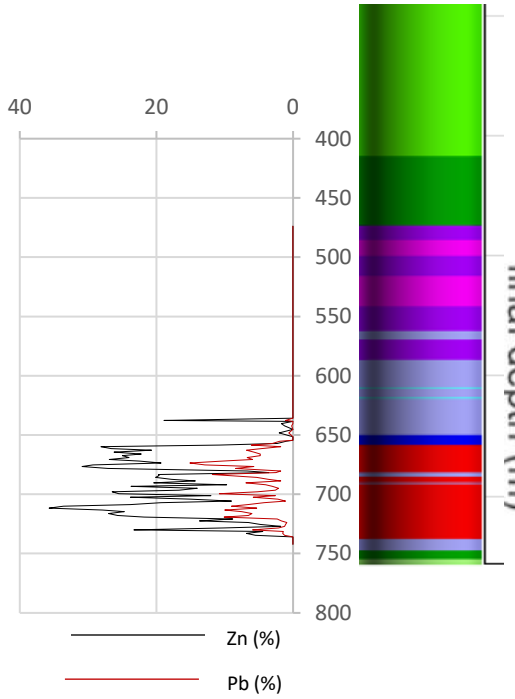


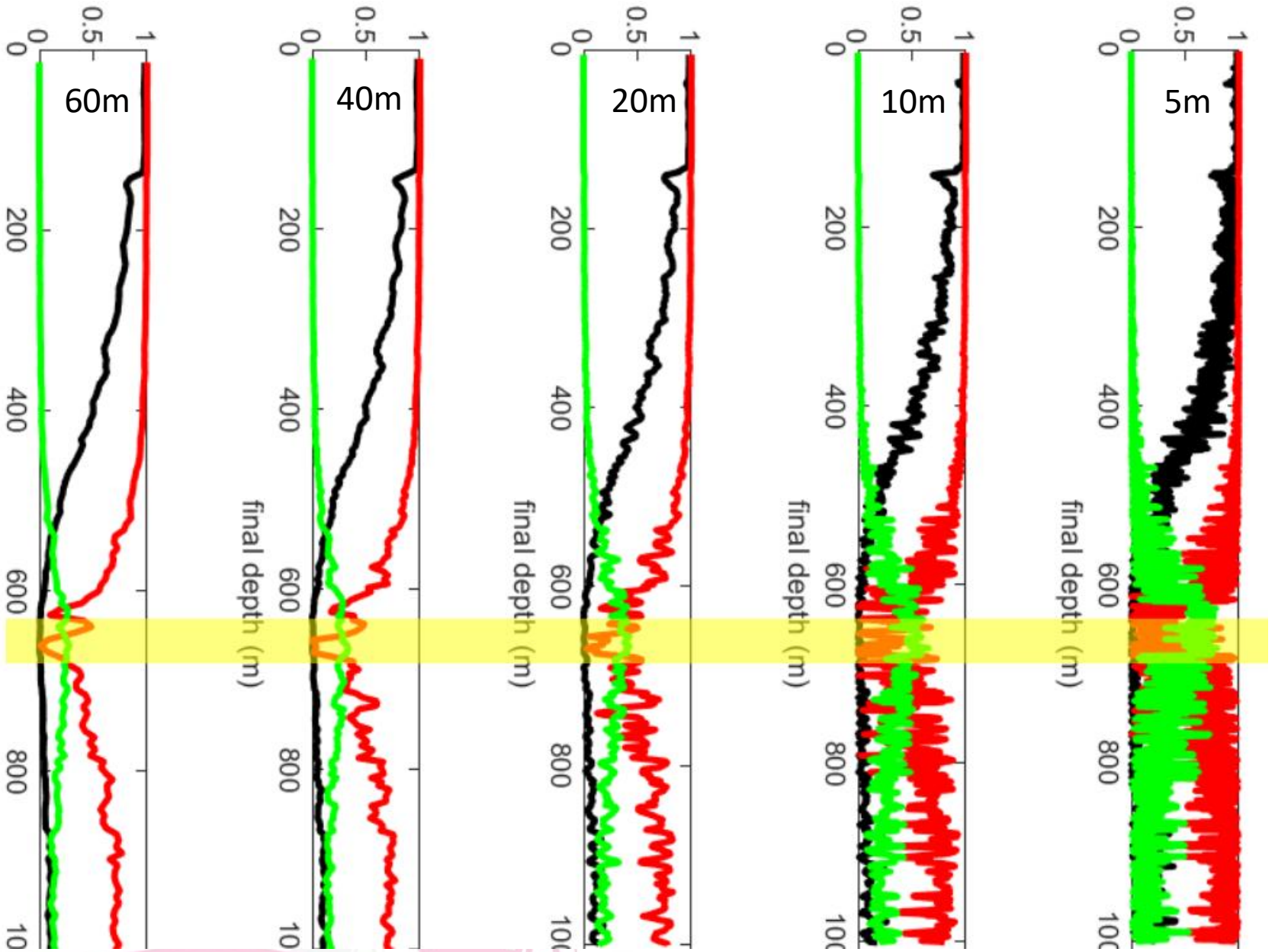


9-16MHz PROCESSING

The following charts present the 9-16MHz frequency correlation results at different processing intervals. The greatest level of resolution, but also variability, exists in the 5m processing interval.

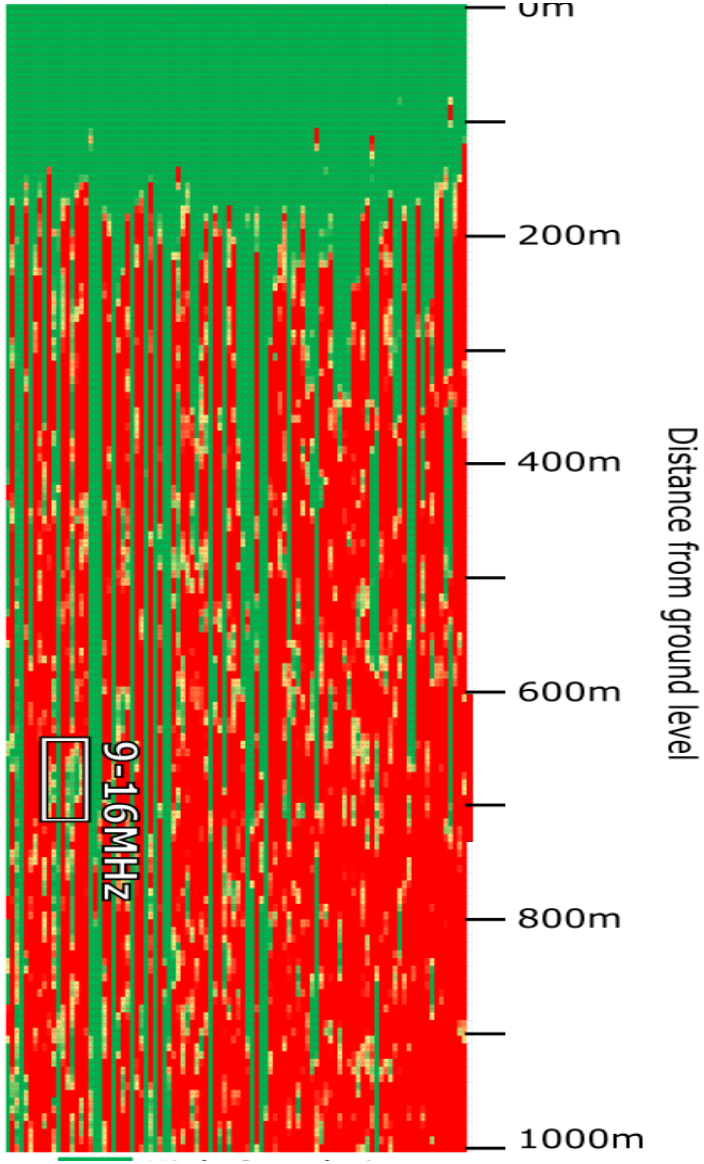
Drill core lithology and grade are shown at the same depth interval. The frequency results show a dip in the correlation (red) at approximately the same depth as the sulfide occurrence.



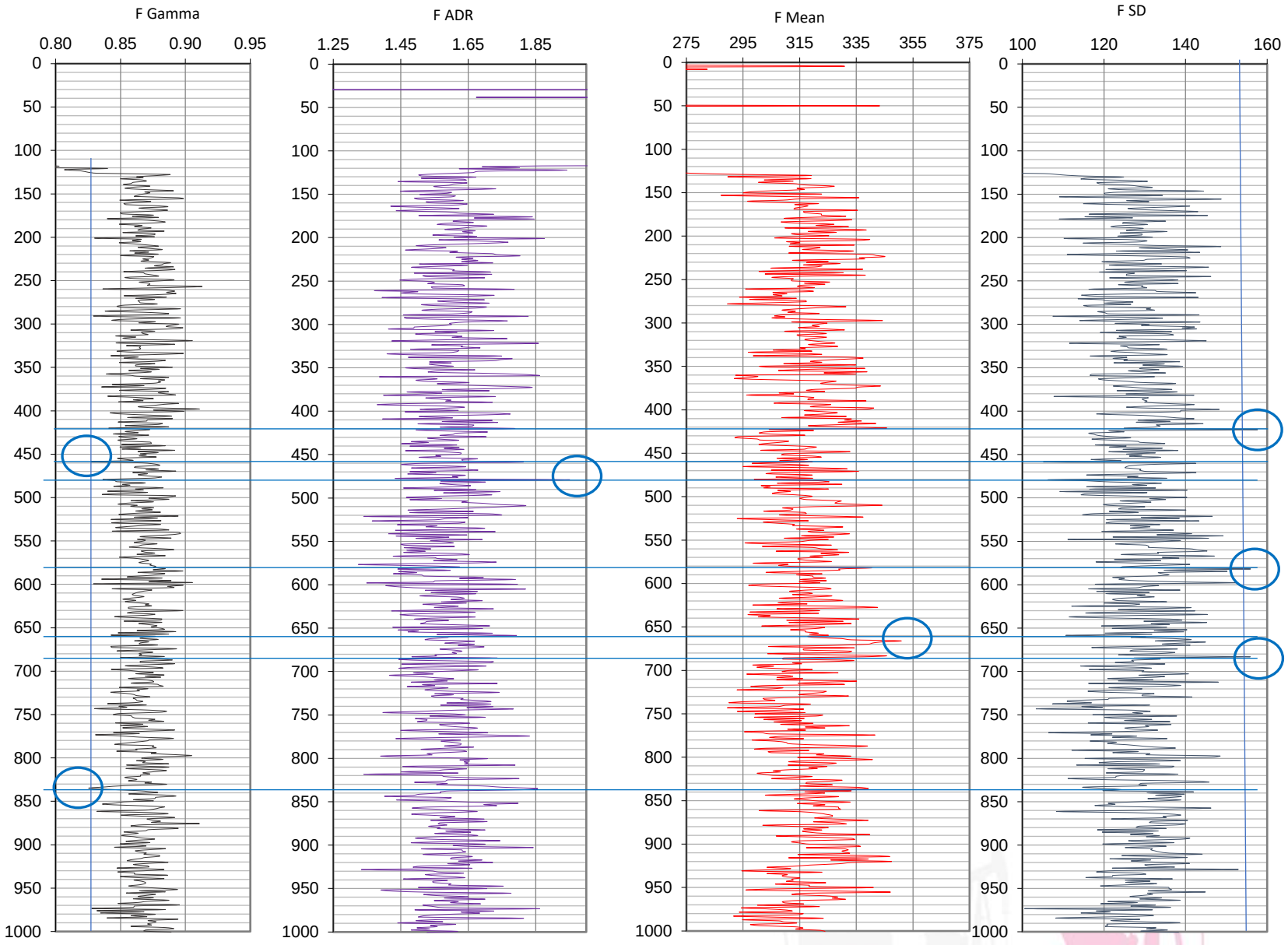


9-16MHz PROCESSING

The same processing of the 1-50MHz at 1MHz intervals was carried out on scan H1 AN810. The results are presented to the right where the gap/anomalous section between 9-16MHz can be seen relative to the other results. A similar results was observed for Scan H1 BB008 (Bluebush, QLD) whereby a significant low value in Correlation was observed but the anomaly was specifically at 12-13MHz band only.



RESULTS – RED DOG - SCAN H3 AN944



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

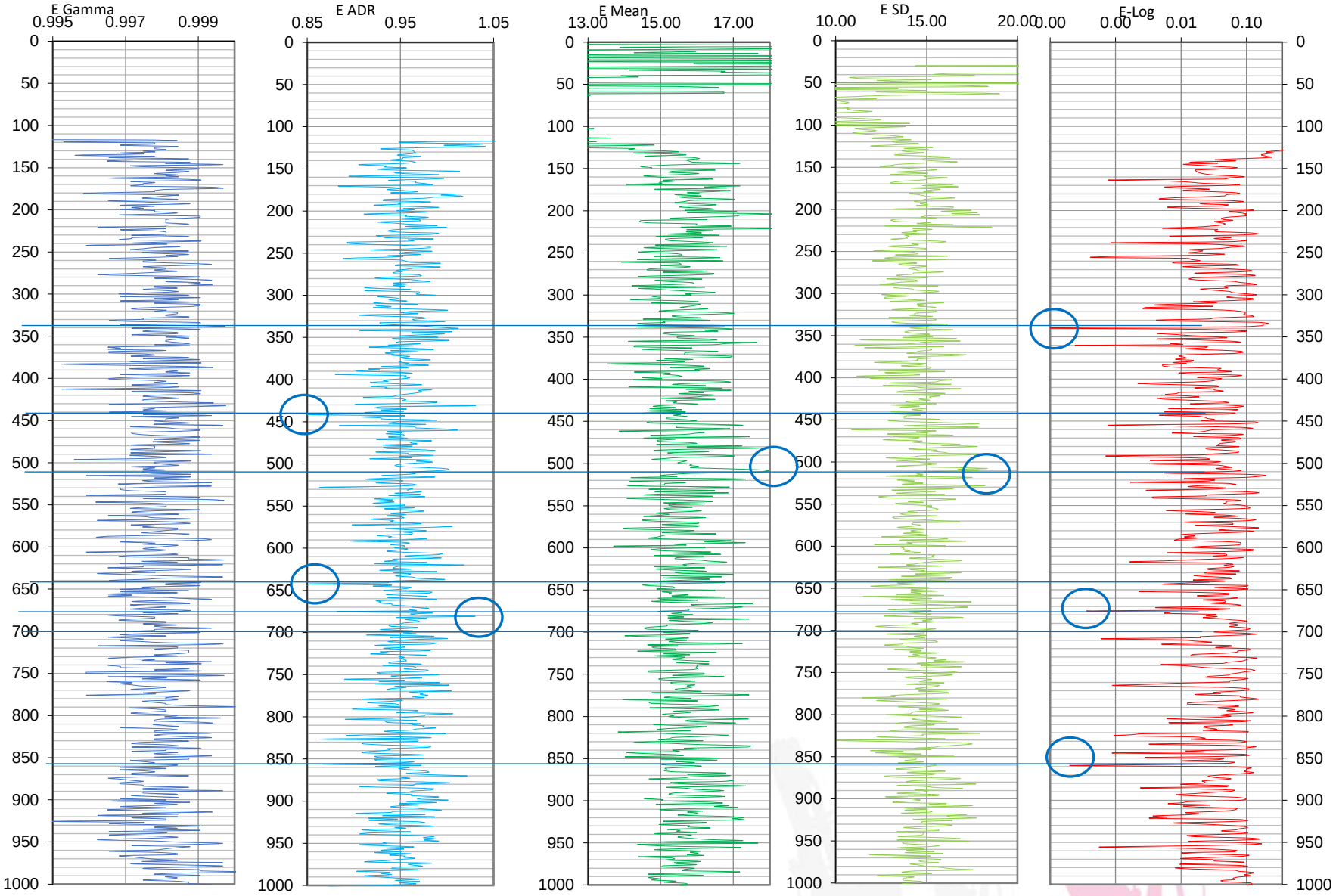
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

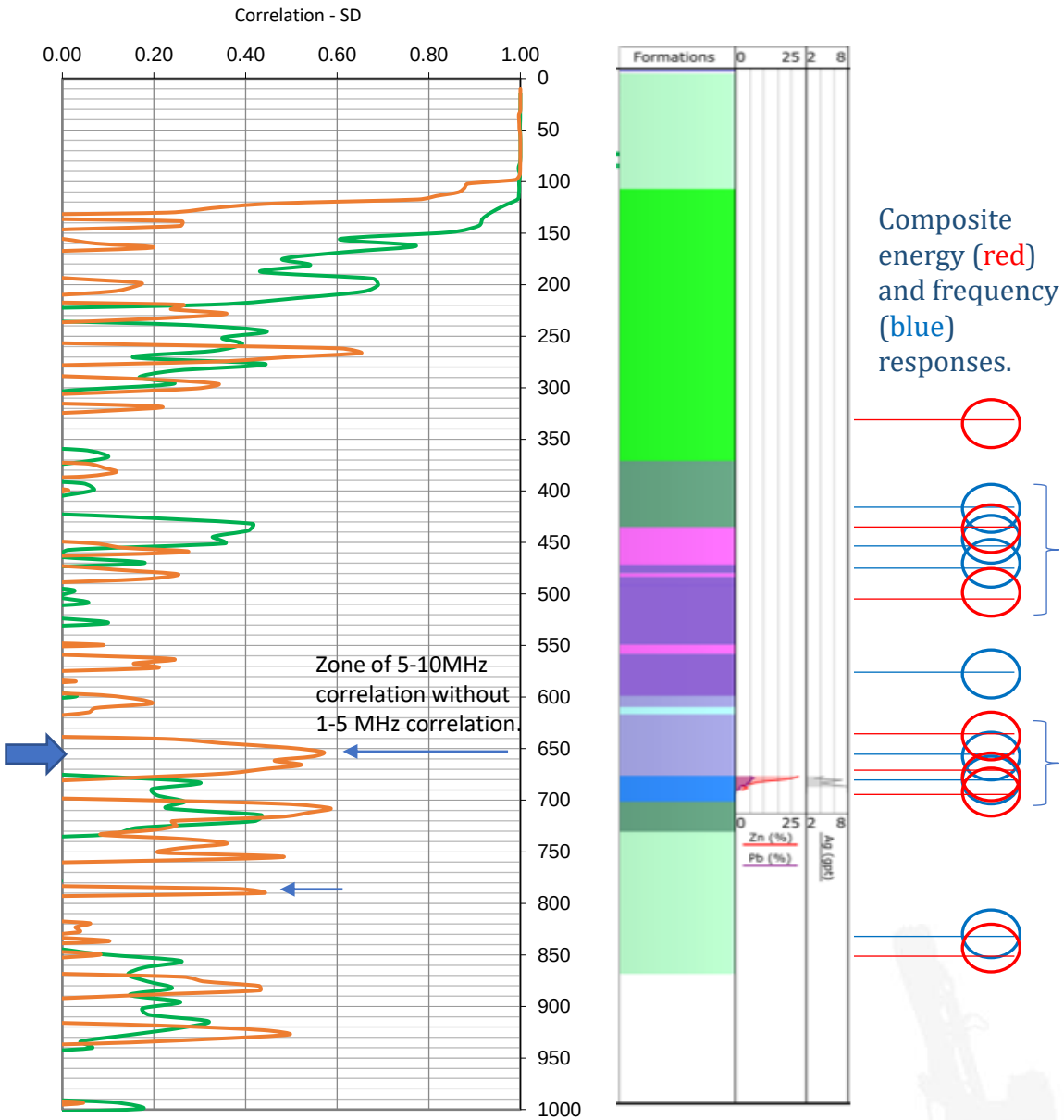
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



Composite energy (red) and frequency (blue) responses.

Two potential zones of mineralisation based on a cluster of points around 450m depth and 675m depth. Deciding between the two relies on the 5-10MHz anomaly. If the 5-10 shows up a strong correlation, the WofE can be forced towards the corresponding cluster of points.

Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

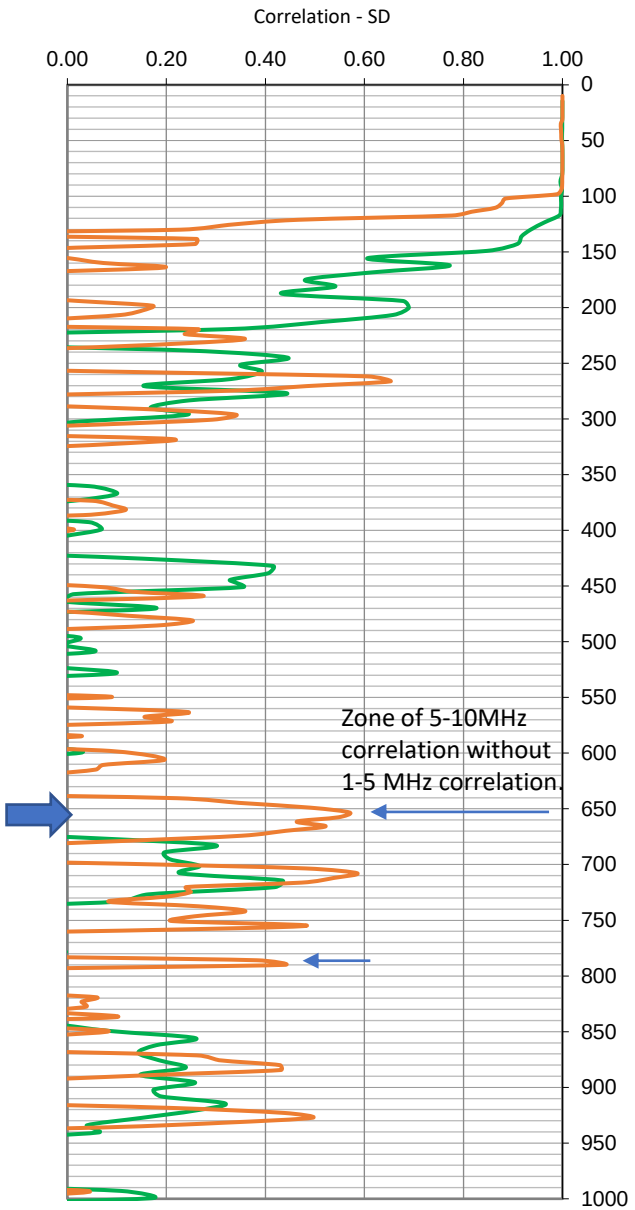
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

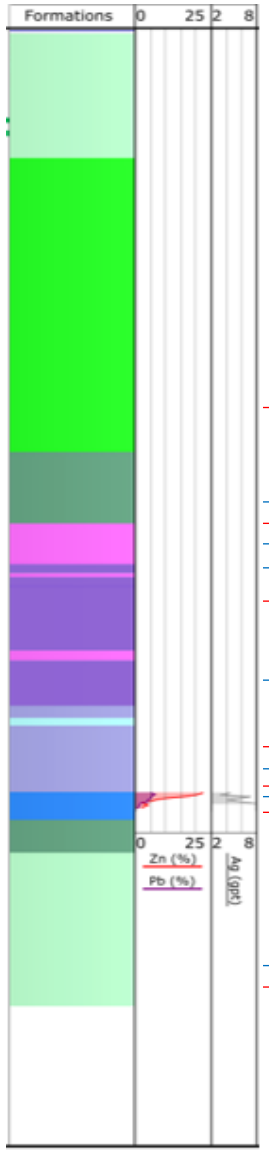
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

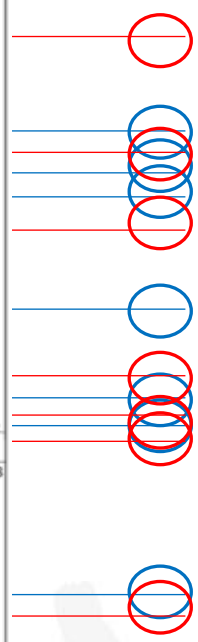


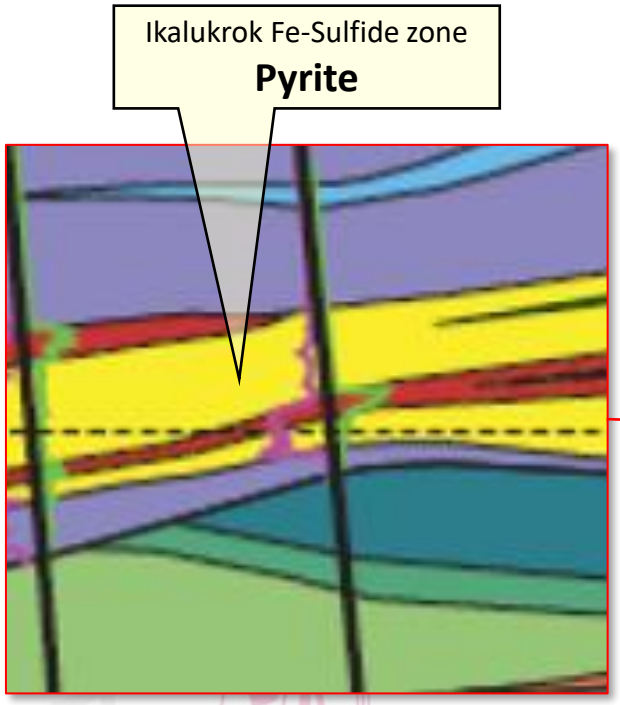


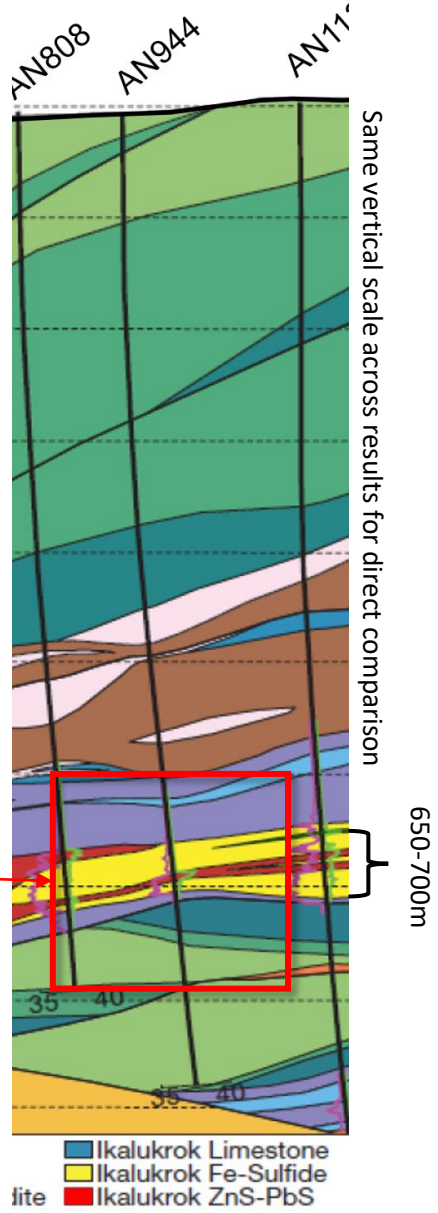
Multi-evidential correlation

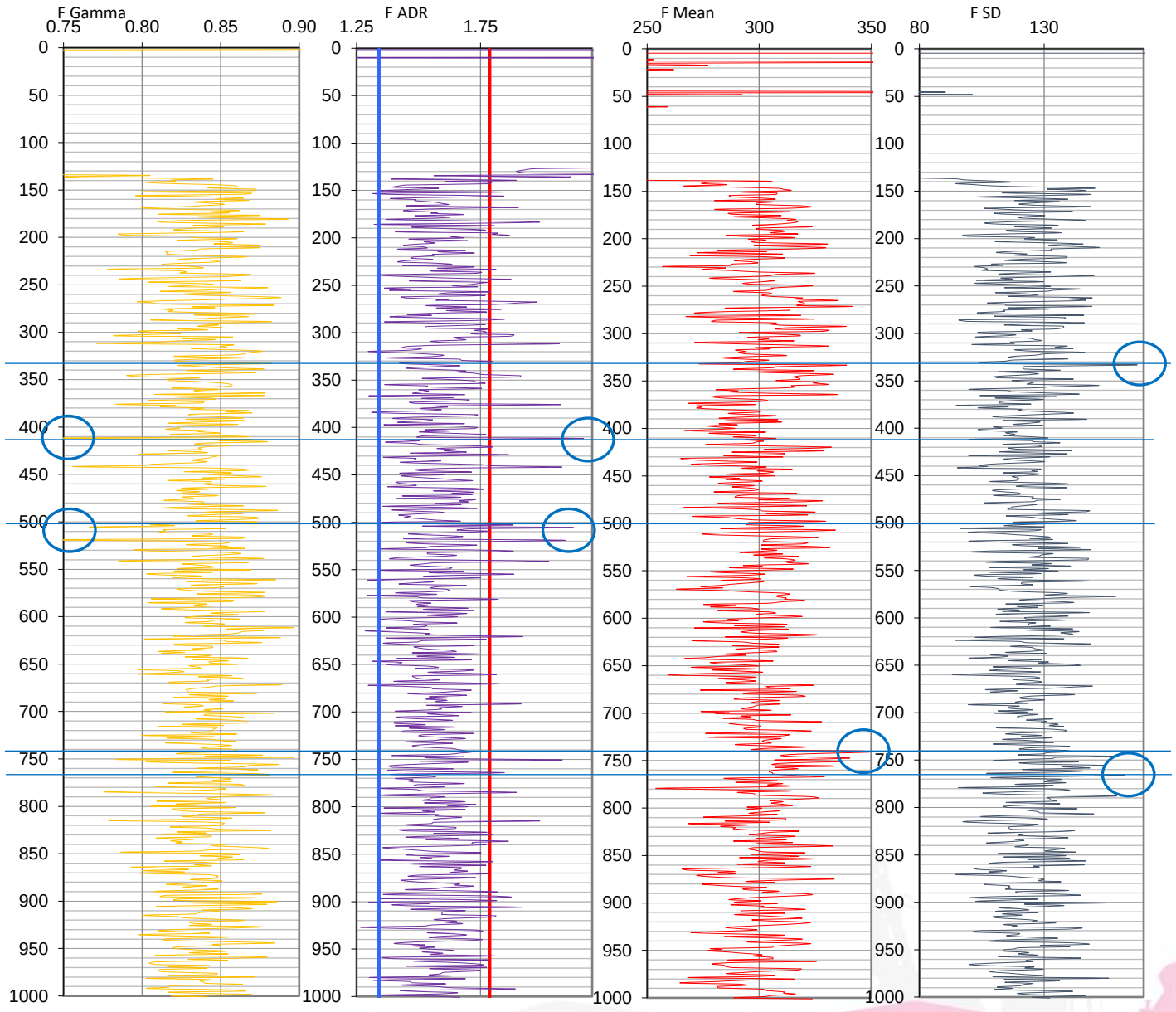
The selected criteria for sulfide detection based on BB008 and modified across the different scans has been tuned for Pyrite as this is the principal sulfide provided in drill cores by Teck.

After running the correlation and comparing with assay but also drill interpretation, it appears that the correlation has correctly identified the Pyrite zone!









Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

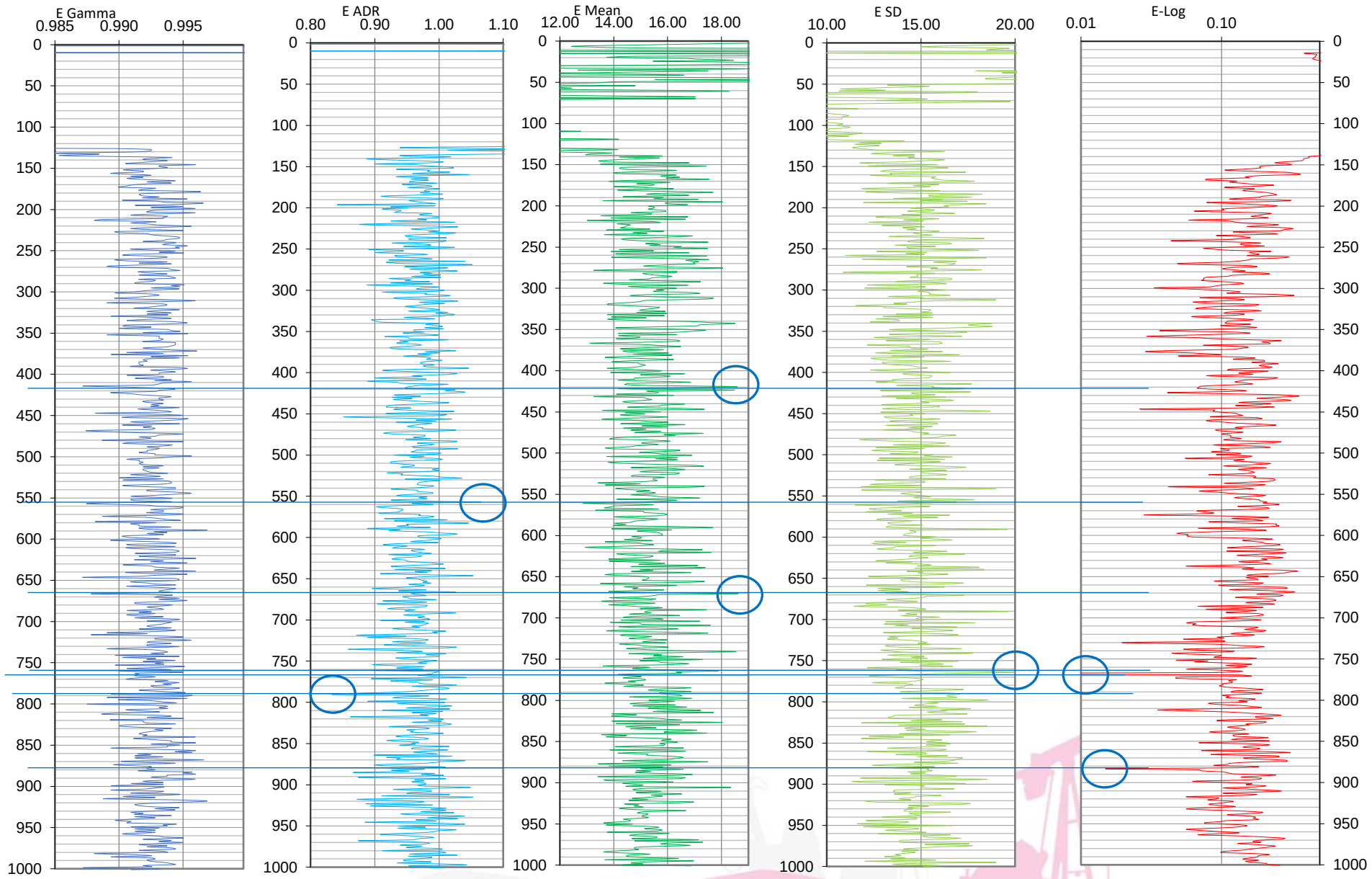
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

RESULTS – RED DOG - SCAN H2 AN808



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

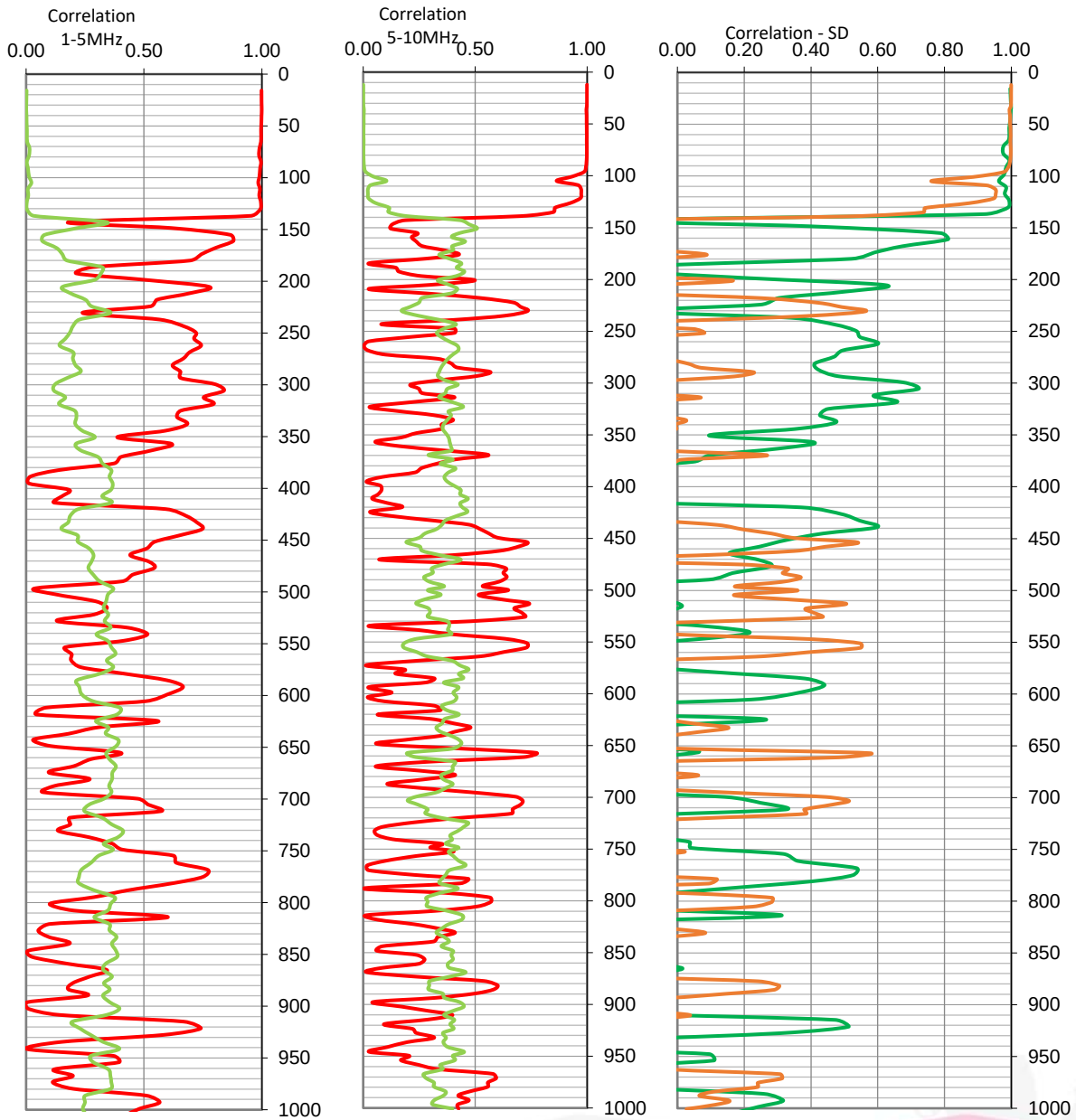
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

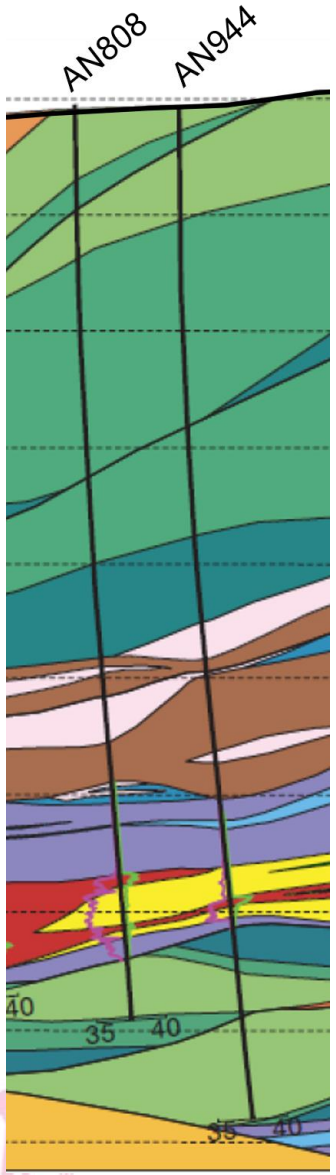
Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



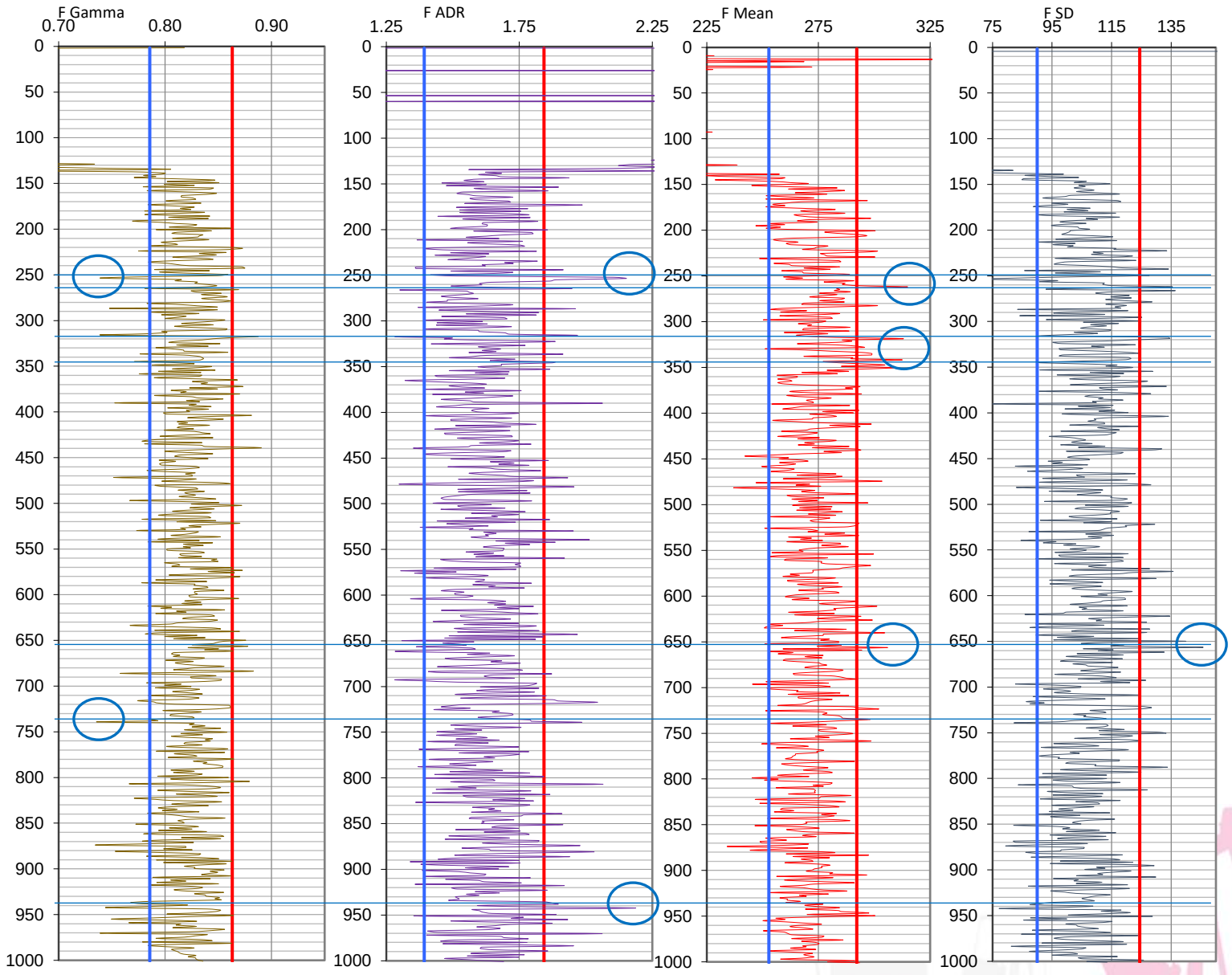
Composite energy (red) and frequency (blue) responses.



Multi-evidential correlation

The results obtained for H2 AN808 indicate the highest potential at 750-800m below the scan collar. If compared with the interpreted cross section provided for earlier report (Prj 00218), it is evident that the main pyrite zone and associated sulfides are at 675-750m depth. Accordingly the results place mineralisation at approximately 50m deeper than found in drill core. It is also plausible that the location of the drill collar an interpreted cross section are not in precisely the same location and, due to the dip of the mineralised units, the ADR targeting might be correct.

Nevertheless, the targeting results also appear to be successful in this instance.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

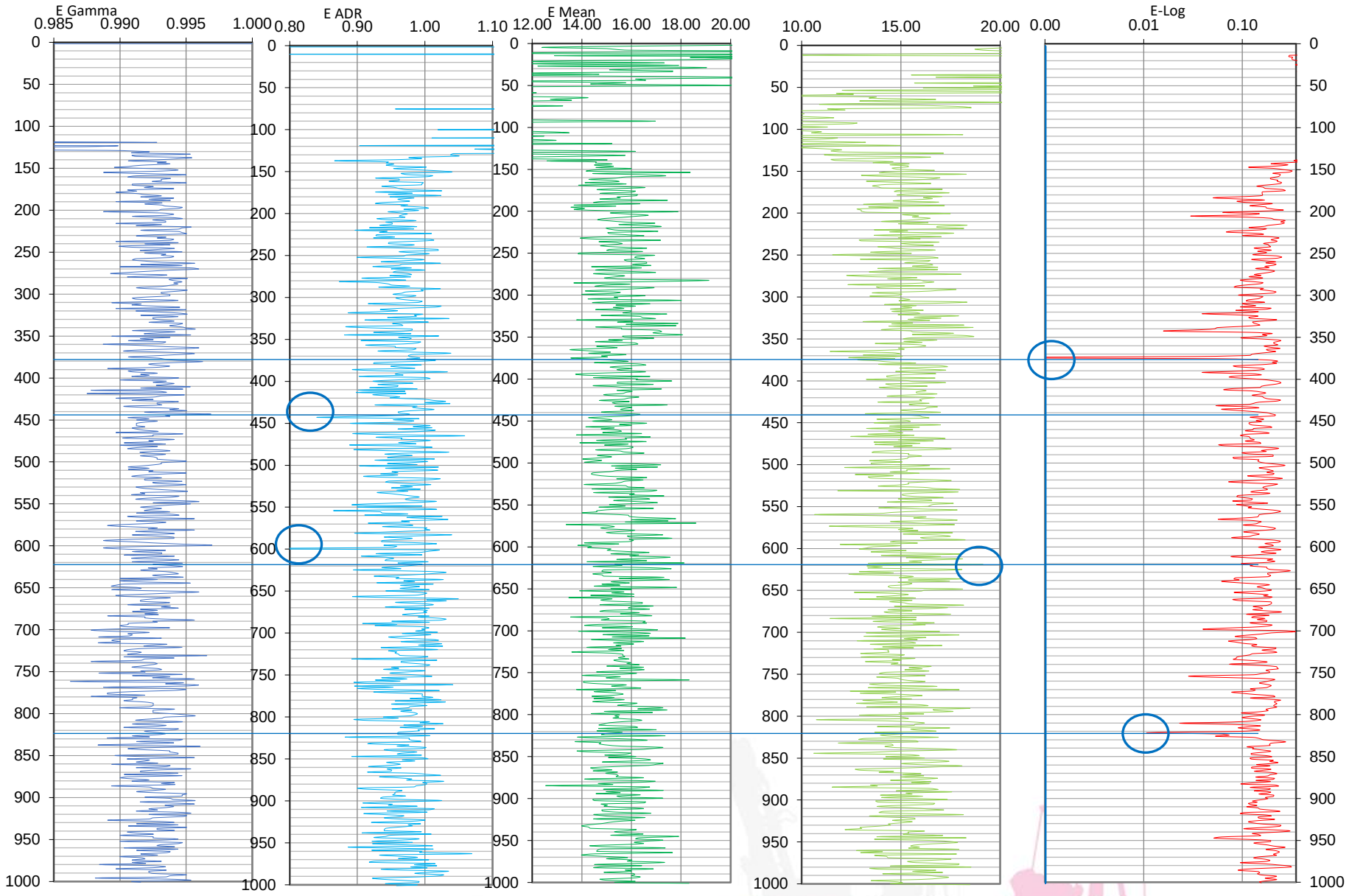
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

RESULTS – RED DOG - SCAN H5 AN1136



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

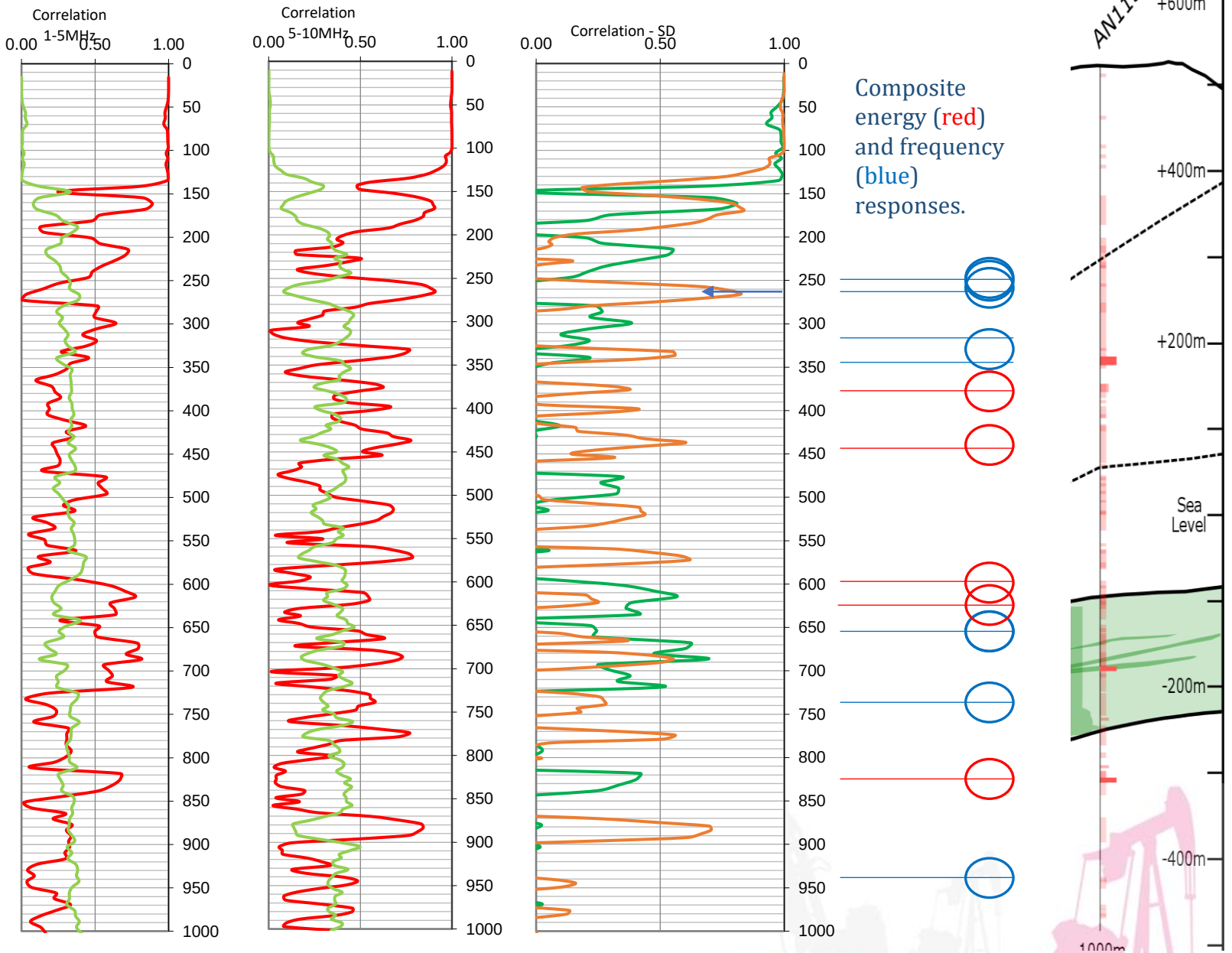
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.



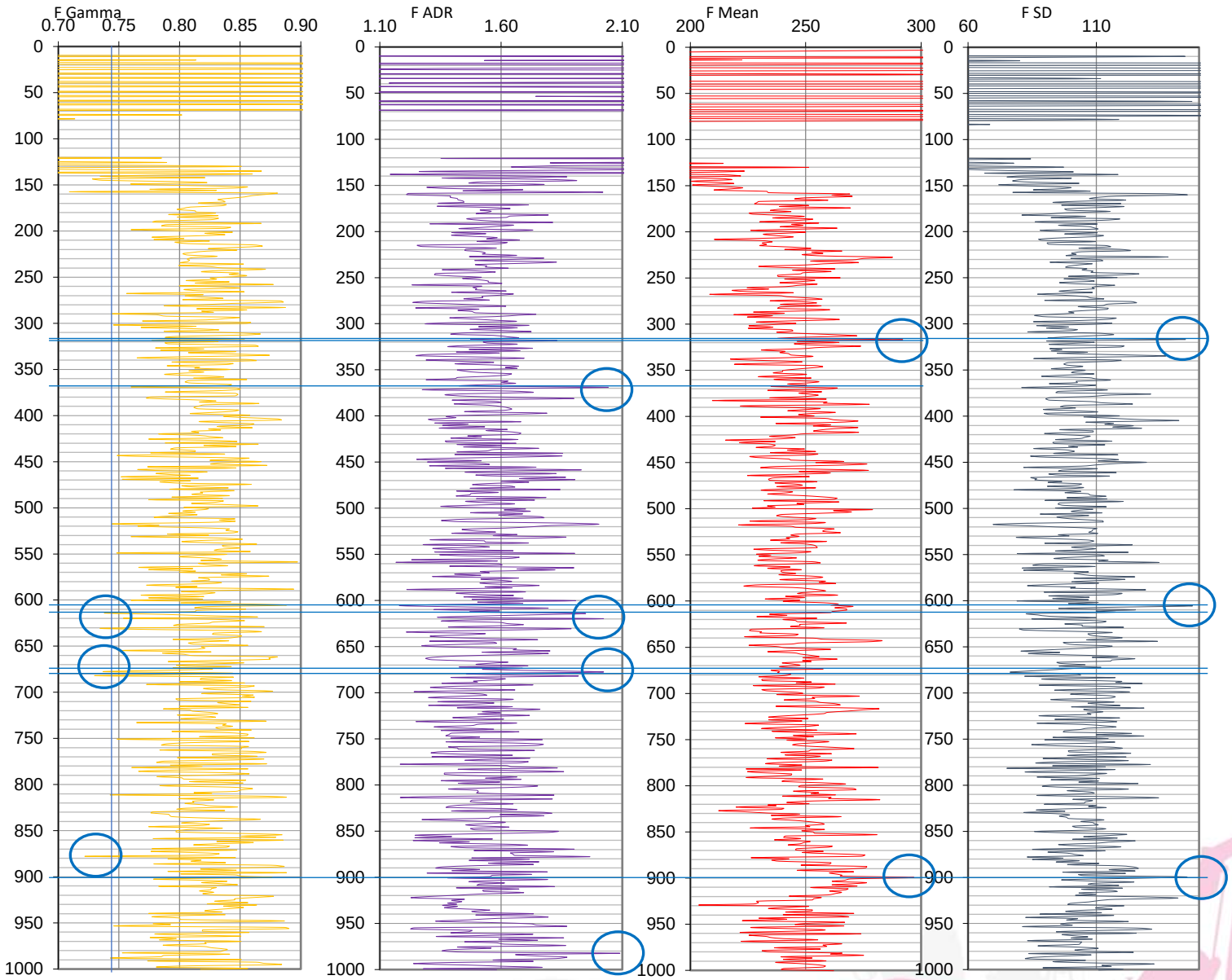
Multi-evidential correlation

The results obtained for H5 showed low overall correlation for sulfides according to the selection criteria. The only zone showing multiple positive criteria lies at around 250m depth down scan which does not correlate to any known sulfides in the available cross section interpretation. Inferred sulfides exist at approximately 600-750m down scan. No drill hole details, or any confirmation of sulfides was provided for this scan, therefore the results can only be checked at a later date against a known, parallel drill hole. At this stage, this was the only scan on which the selection criteria were trialled that did not present a sound result.

RED DOG, PAALAAQ– SCAN RESULTS AND INTERPRETATION

Results from scan H4 Paalaaq are presented along with an interpretation against results presented in cross section form which were derived internally based on drill hole intercept in drill hole NOA644. Adrok do not have access to the detailed drill log and assay data for the drill hole the mineral/sulfide type cannot be confirmed. Overall, a good correlation exists between the scan results and the min zone identified in cross section, however, a deeper target has also been identified.

Site type	Site Name	Notes
Blind	H4 NOA644 NOA698	Stares taken at 0m along the WARR line. Collected down to 20,000ns and with a gain of 1mV. These blind sites can be used to identify the lateral continuity of the sulphide mineralised lithology.



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean (high F-Mean)

E-Charts

High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

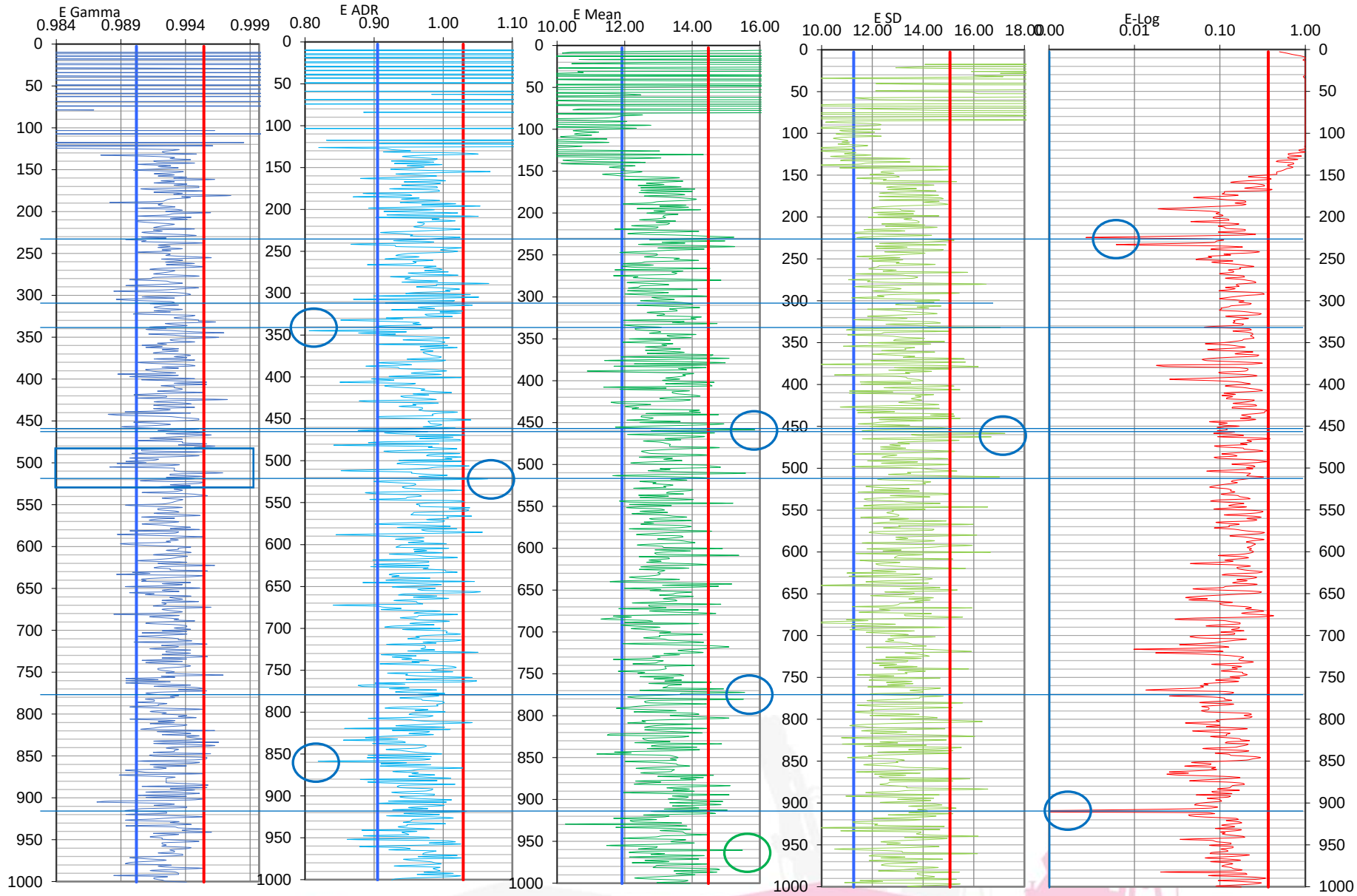
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.

RESULTS – RED DOG - SCAN H4 NOA644



Correlation criteria

F-Charts

Low F-Gamma
High F-ADR
High F-SD
Step change in F-Mean
(high F-Mean)

E-Charts

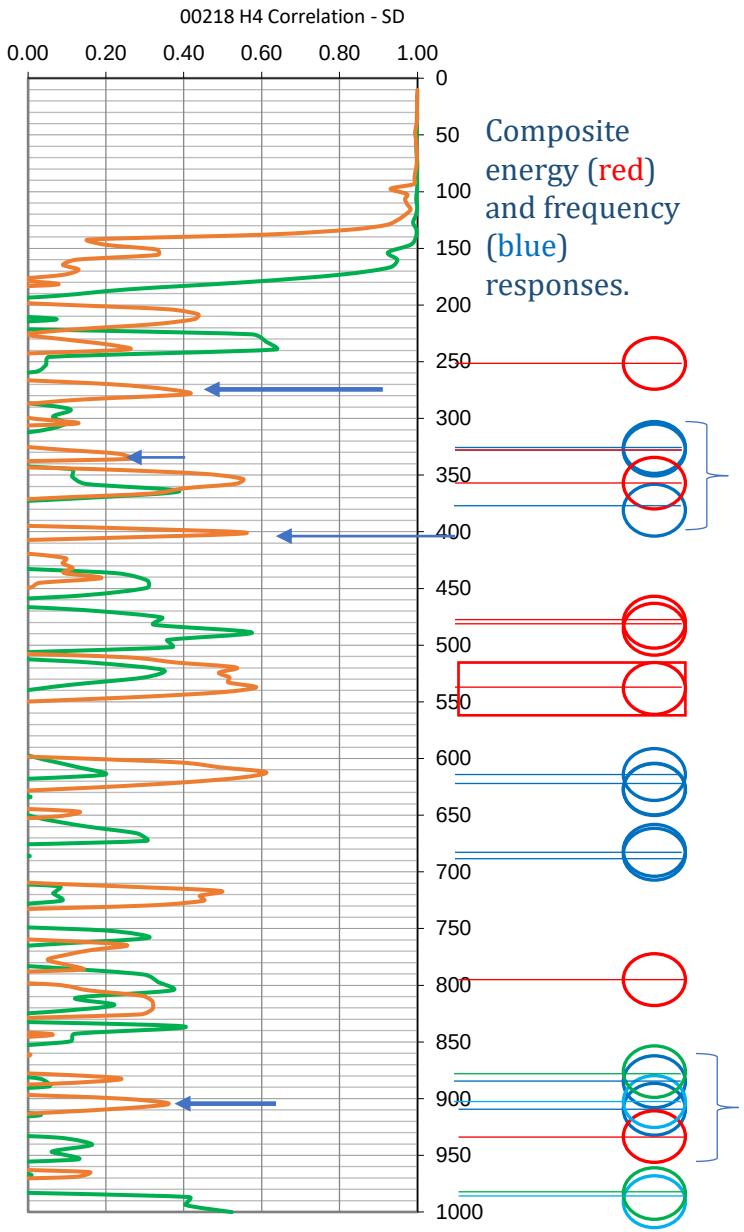
High E-Mean
Low E-Log
High E-SD
E-ADR (high &/or Low)
Transition ←→ E-Gamma

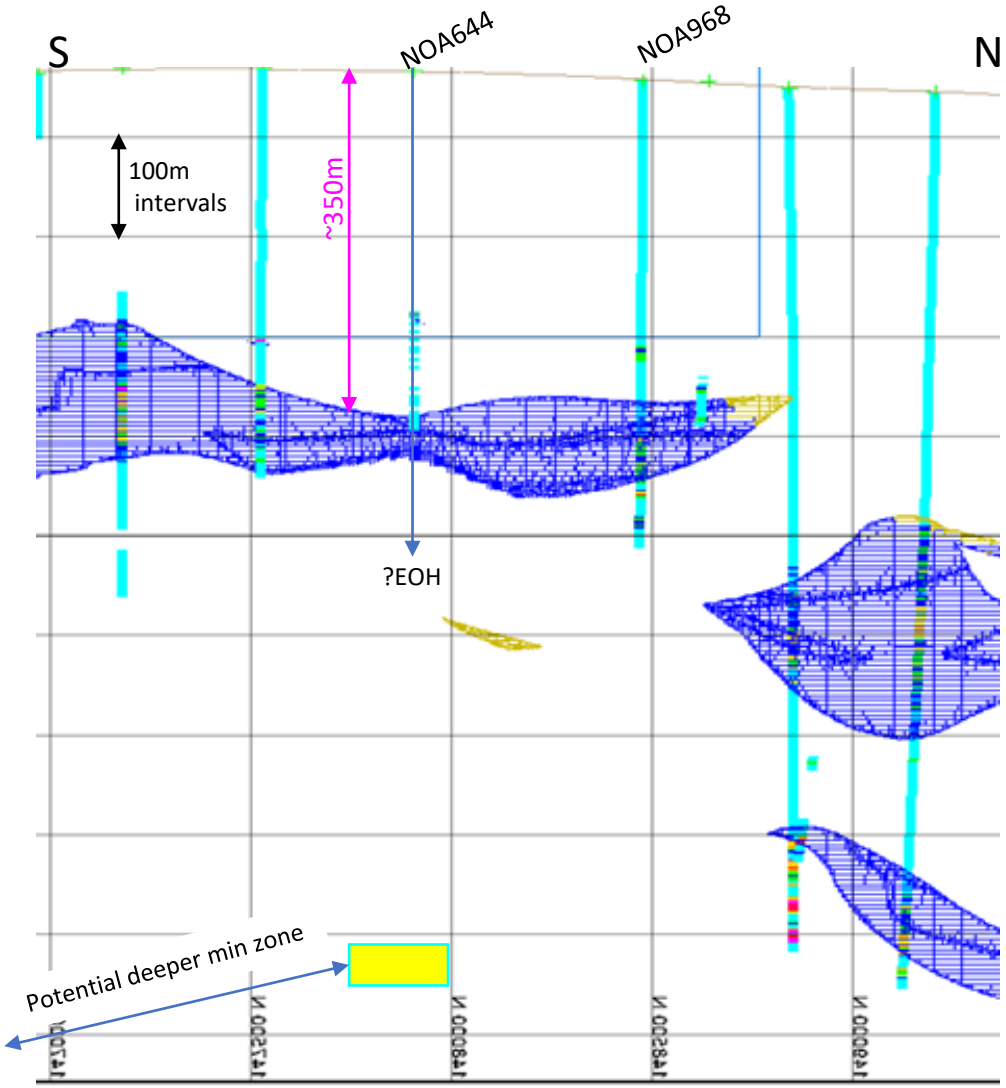
F-Corr charts

Peak in 5-10 MHz + no peak in 1-5MHz (intensity of peak corresponding to % sulfides

DC (Dielectrics)

Change from high variability from SD to low variability.





Multi-evidential correlation

Excellent targeting correlation between the criteria defined for BB008 sulfides and the interpreted depth to sulfides in NOA644. A comparison is made here based on cross section interpretations of drill hole data provided by Teck. The depth to min zone in NA644 is approximately 650m and the depth to the shallow criteria-defined zone is also 350m. No significant peak in 9-16, however, suggests that the min zone is likely to be low concentration of sulfides.

An interesting solution provided by the ADR data is the occurrence of a high number of criteria at approximately 900m depth down scan. Unfortunately, there is no cross section or drill hole information to confirm this target. The high number of positive criteria, however, provide a good level of confidence of sulfides at approximately 900m depth.

CONCLUSIONS – RED DOG COMPARISON SITE

Five scans from the Red Dog mine and surrounding prospects were analysed using the criteria defined for sulfide definition at the Bluebush prospect, Queensland, Australia H1-AN810, H3-AN944, H2-AN808, H5-AN1136 and H4-NOA644. All scans were analysed using the basic Frequency- Energy and 1-5MHz & 5-10MHz processed data which has been submitted previously as part of project 00218. In addition, 9-16MHz frequency correlation was processed for H1-AN810 and 1MHz bands for the range 1-50MHz was also processed in order to delineate any further unique frequency responses corresponding with the sulfide zone.

The selection criteria developed for sulfides in BB008 successfully identified the min zone in NA810 at around 700m

9-16MHz processing also delineated a low correlation at the sulfide zone which is similar to observation from other scans containing relative abundance of sulfides.

No prominent anomaly was observed within the 5-10MHz range for H1 AN810 as we have seen of pyrite-rich or pyrite-bearing sulfide zones (*potential pyrite discrimination from other sulfides).

The selection criteria for Scan H3 AN944 also successfully identified two min zones based on high correlation criteria. The more significant of the two was also associated with a prominent anomaly in the 5-10MHz. After closer examination of cross section details, it was found that H3 intersected a zone of mineralisation containing abundant pyrite.

The selection criteria successfully targeted mineralisation in H2 AN808, however the target zone was 50m below the interpreted depth of sulfides on the cross-section diagram. It is plausible that the interpretation, combined with lateral distance between the scan and the cross-section could account for the slight variation in depth.

No prominent min zone was delineated for H5 AN1136. Further quantitative analysis will be undertaken on this scan in particular to determine whether small variations and no prominent anomalies in the data reflect low grades of sulfides. Further work is being carried out on this scan.

Scan H4 NOA644 was found to have two possible min zones delineated using the same criteria as above. The upper min zone corresponds with the location of sulfides marked on the cross section provided by Teck, however, the lower, more prominent min zone represents a target well below the limit of drilling and the cross section at approximately 850-900m beneath the collar of NOA644. Owing to the high correlation in E and F results, Adrok encourages Teck to complete a single vertical drill hole at the collar location of H4.

CONCLUSIONS PROVIDED AT THE BEGINNING OF THIS REPORT

END