

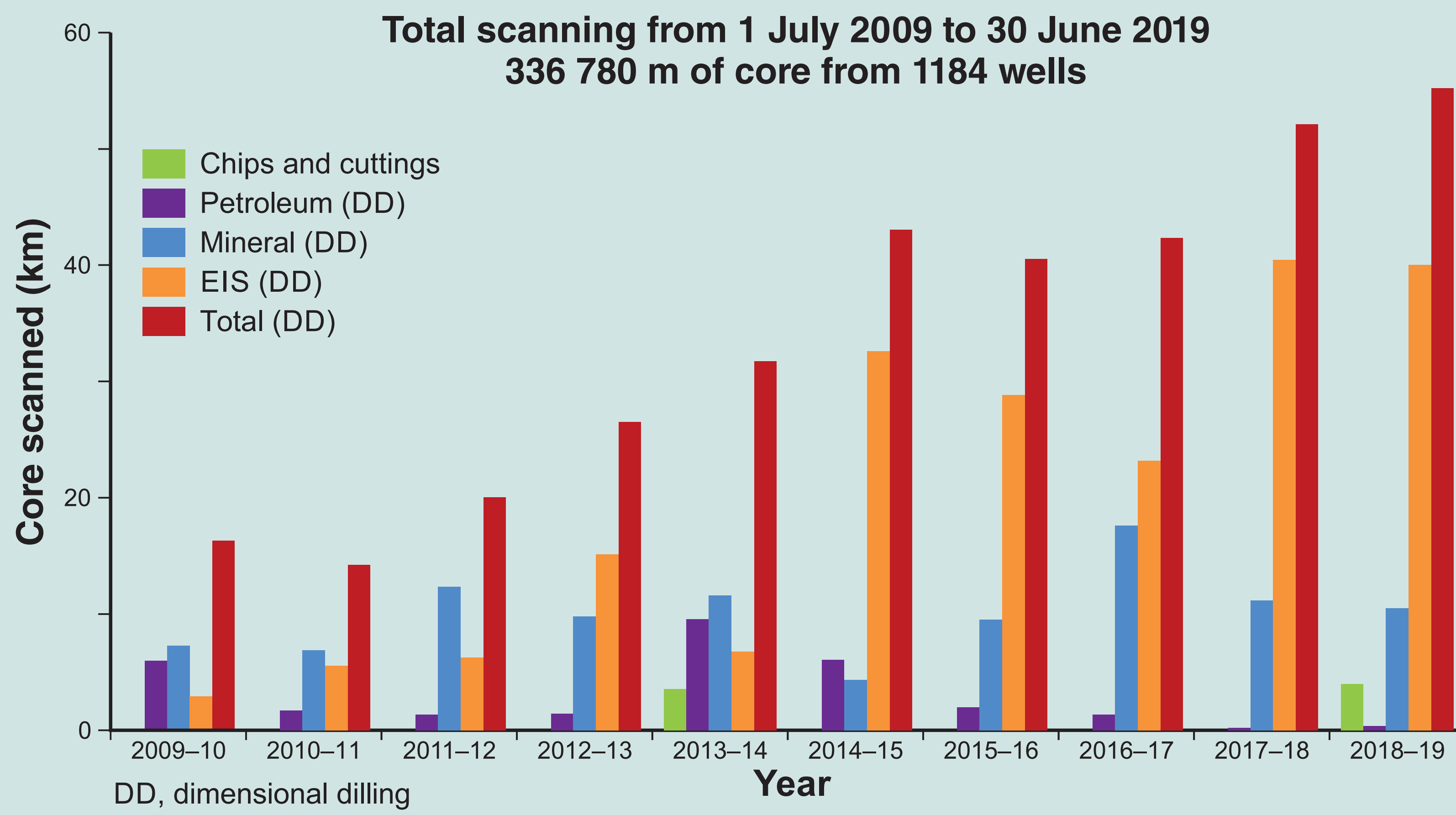
# HYLOGGER 3

## NATIONAL VIRTUAL CORE LIBRARY

### HYLOGGER STUDIES ON PETROLEUM CORE

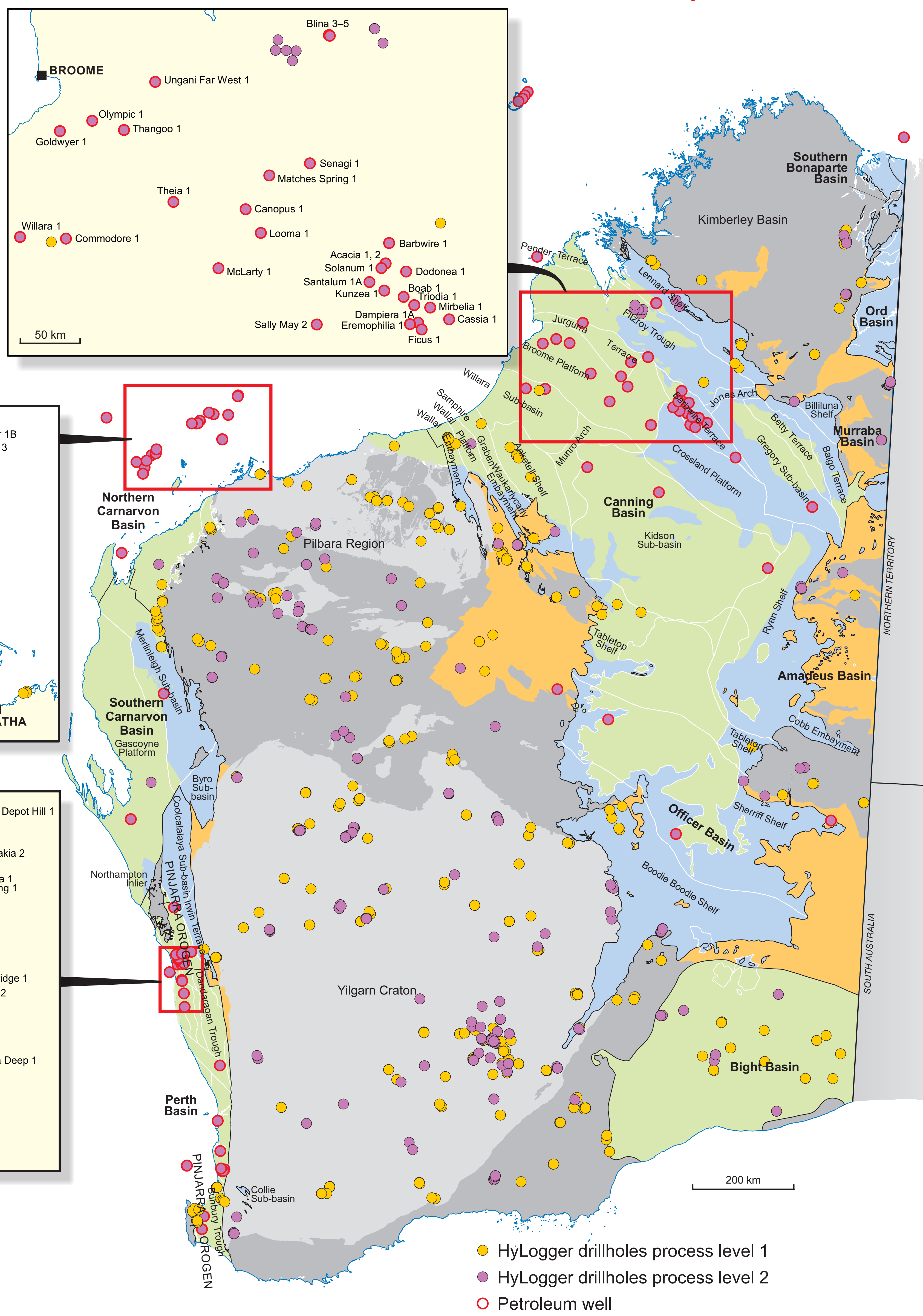
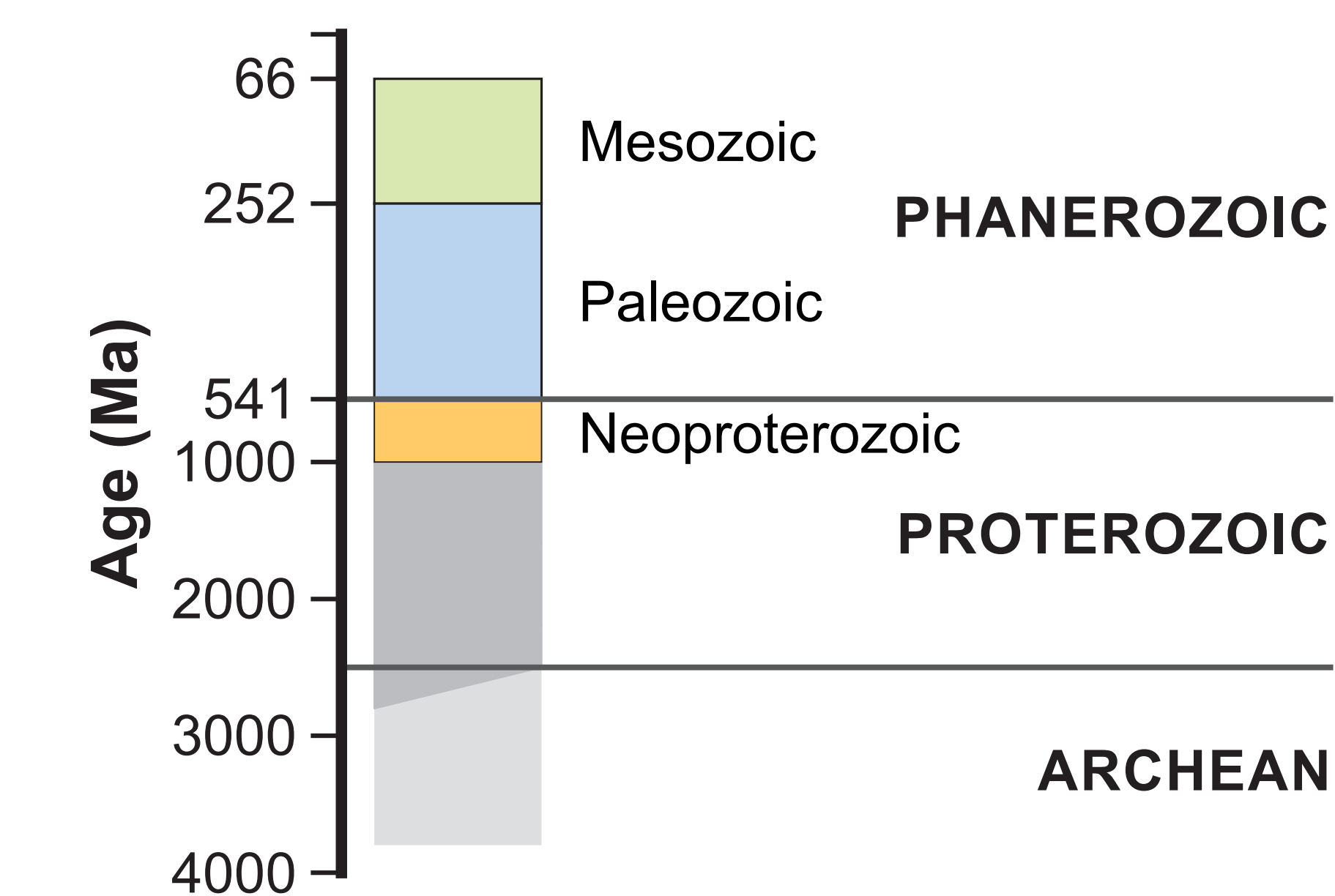
The HyLogging system is a suite of spectroscopic and imaging tools developed by CSIRO as part of its Mineral Down Under Flagship program for logging rock-forming and alteration mineralogy in drillcore and rock chips. It uses rapid reflectance spectroscopy in the visible near-infrared (VNIR), short-wave infrared (SWIR), and thermal infrared (TIR) wavelength ranges to identify a broad suite of hydrous and anhydrous minerals.

HyLogging can provide objective information regarding host rock and alteration mineralogy, vectors to mineralization, characterization of lithostratigraphic units, and the boundaries and location of structures. It is being increasingly applied to petroleum drillcore.



36 771 m of core from 109 petroleum wells scanned from 1 July 2009 to 30 June 2019

Well name	Location	Total (m)		
		Core	Cutting	Rescan
Acacia 1	Canning Basin, Barwire Terrace	1169.7		
Acacia 2	Canning Basin, Barwire Terrace	66.4		
Allanooka 1	Perth Basin, Dongara Saddle	5.8	318.5	
Arrowsmith 2	Perth Basin	100.7		
Barwire 1	Canning Basin, Barwire Terrace	8.3		
Blina 3	Canning Basin, Lennard Shelf	64.4		
Blina 4	Canning Basin, Lennard Shelf	15.5		
Blina 5	Canning Basin, Lennard Shelf	23.5		
Bluebell 1	Northern Carnarvon Basin	20.0		
Boab 1	Canning Basin, Barwire Terrace	901.6		
Canopus 1	Canning Basin, Mowla Terrace	8.4		
Cassia 1	Canning Basin, Barwire Terrace	1445.1		
Centella 1	Perth Basin	27.9	111.0	
Central Gorgon 1	Northern Carnarvon Basin	105.0		
Chandon 2	Northern Carnarvon Basin	216.8		
Cliff Head 6	Perth Basin, Abrolhos Sub-basin	34.0		
Clio 2	Northern Carnarvon Basin	109.0		
Coburn 1	Southern Carnarvon Basin	1049.5		
Cockburn 1	Perth Basin, Mandurah Terrace	80.0		80.0
Cody 1	Carnarvon Basin	37.1		
Commodore 1	Canning Basin	347.5		
Corybas 1	Perth Basin	49.0		
CRC-3	Otway Basin	201.7		
Dampiera 1A	Canning Basin	1722.1		
Depot Hill 1	Perth Basin, Dandaragan Trough		255.0	
DMP Harvey 2	Perth Basin	1143.5		
DMP Harvey 3	Perth Basin	152.8		
DMP Harvey 4	Perth Basin	881.8		
Dockrell 2	Northern Carnarvon Basin	12.1		
Dodonea 1	Canning Basin	114.6		
Drover 1	Perth Basin	27.7		
Eremophila 1	Canning Basin, Barwire Terrace	1135.3		
Eurango 1	Perth Basin, Dandaragan Trough	10.7	170.7	
Ficus 1	Canning Basin, Barwire Terrace	1006.6		
Gibb-Maitland 1	Canning Basin		2900.0	
Gingin 1	Perth Basin	81.5		
Goldwyer 1	Canning Basin	49.7		
Goodwyn 05	Northern Carnarvon Basin	120.0		
Goodwyn 06	Northern Carnarvon Basin	100.0		
Gorgon 1	Northern Carnarvon Basin	60.0		
GSWA Empress 1/1A	Officer Basin	1414.1		
GSWA Harvey 1	Perth Basin	216.4		
GSWA Lancer 1	Officer Basin	1397.2		
GSWA Trainer 1	Officer Basin	703.2		
GSWA Vines 1	Officer Basin	1973.0		
Hakia 2	Perth Basin		120.0	
Hovea 2	Perth Basin, Dandaragan Trough		100.0	81.3
Hovea 3	Perth Basin, Dandaragan Trough	81.3		
Irwin 1	Perth Basin, Dandaragan Trough		490.0	
Kennedy Range 1	Southern Carnarvon Basin	72.0		
Kunzea 1	Canning Basin, Broome Platform	441.5		441.5
Laminaria East 1	Northern Bonaparte Basin	64.2		
Looma 1	Canning Basin, Broome Platform	171.0		171.0
Matches Spring 1	Canning Basin	3.0		
McLarty 1	Canning Basin	22.0		
Mirabella 1	Canning Basin	44.0		
Mondarra 8	Perth Basin	28.6	92.0	
Mountain Bridge 1	Perth Basin, Dandaragan Trough	17.4	102.0	
Mutineer 1B	Northern Carnarvon Basin	26.4		
Mutineer 3	Northern Carnarvon Basin	31.0		
Nicolay 1	Canning Basin	414.7		
North Gorgon 2	Northern Carnarvon Basin	64.0		
North Rankin 5	Northern Carnarvon Basin	553.6		
Olympic 1	Canning Basin	325.0		
Percival 1	Canning Basin	52.5		
Perindi 1	Canning Basin, Pender Terrace	7.6		7.6
Perseus 2	Northern Carnarvon Basin	207.2		
Pinjarra 1	Perth Basin	72.0		
Rainier 1	Bonaparte Basin	17.6		
Reindeer 1	Northern Carnarvon Basin	8.0		
Reindeer 2	Northern Carnarvon Basin	108.8		
Roc 2	Roebuck Basin	121.1		
Sally May 2	Canning Basin, Broome Platform	494.0		494.0
Santalum 1A	Canning Basin, Broome Platform	376.4		376.4
Senagi 1	Canning Basin	285.9		
Senecio 1	Perth Basin	21.6	135.0	
Senecio 3	Perth Basin	43.1	145.0	
Solanum 1	Canning Basin, Barwire Terrace	781.2		781.2
Sue 1	Perth Basin, Bunbury Trough	61.2		
Sugarloaf 1	Perth Basin, Vlamingh Sub-Basin	7.8	121.9	
Sunset 1	Bonaparte Basin	84.1		
Sunset 2	Bonaparte Basin	126.0		
Sunset West 1	Bonaparte Basin	101.7		
Thangoo 1	Canning Basin	5.8		
Thebe 2	Northern Carnarvon Basin	85.8		
Theia 1	Canning Basin	779.9		
Torosa 1	Browse Basin	20.0		
Torosa 4	Browse Basin	152.6		
Torosa 5	Browse Basin	212.0		
Torosa 6	Browse Basin	201.5		
Troada 1	Canning Basin, Barwire Terrace	492.0		492.0
Turtle 1	Northern Bonaparte Basin	101.7		101.7
Ungani Far West 1	Canning Basin	75.2		
Waitsia 1	Perth Basin	49.4	285.0	
Waitsia 2	Perth Basin, Dandaragan Trough	173.3		
Waitsia 3	Perth Basin, Dandaragan Trough		105.0	
Wanaea 1	Northern Carnarvon Basin	28.8		
Warradong 1	Perth Basin	5.4	245.0	
Wendy 1	Southern Carnarvon Basin	944.6		
West Tylar Rocks 1	Northern Carnarvon Basin	7.9		
West Tylar Rocks 3	Northern Carnarvon Basin	75.0		
Whichever Range 1	Perth Basin, Bunbury Trough	87.0		
White Hills 1	Canning Basin	8.5		
Willara 1	Canning Basin	32.0		
Wilson Cliffs 1	Canning Basin, Kidson Sub-basin	28.9		
Woodada Deep 1	Perth Basin	79.0		
Yardano 1	Perth Basin	53.2		
Yardano 2	Perth Basin	60.9	182.9	
Yodel 2	Northern Carnarvon Basin	107.5		

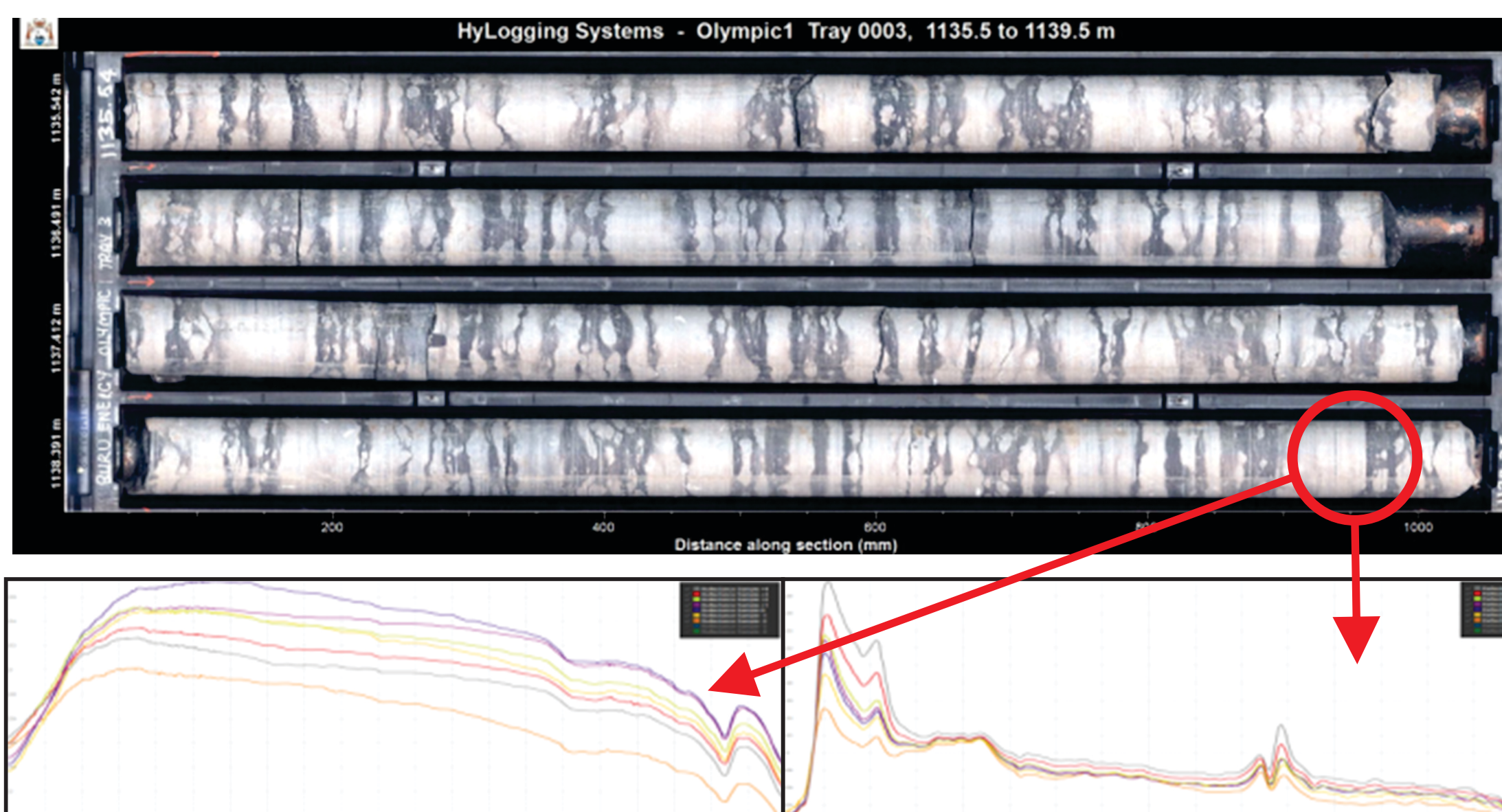


### HyLogging data in GeoVIEW.WA

867 scanned non-confidential drillholes are shown in the GeoVIEW.WA HyLogger layer using colour codes for different levels of interpretation:

- Yellow – Level 1 – core scanned and processed. Currently there are 203 datasets available for downloading
- Purple – Level 2 – core scanned, processed, and interpreted to basic level. Data are available to download. Currently there are 380 datasets

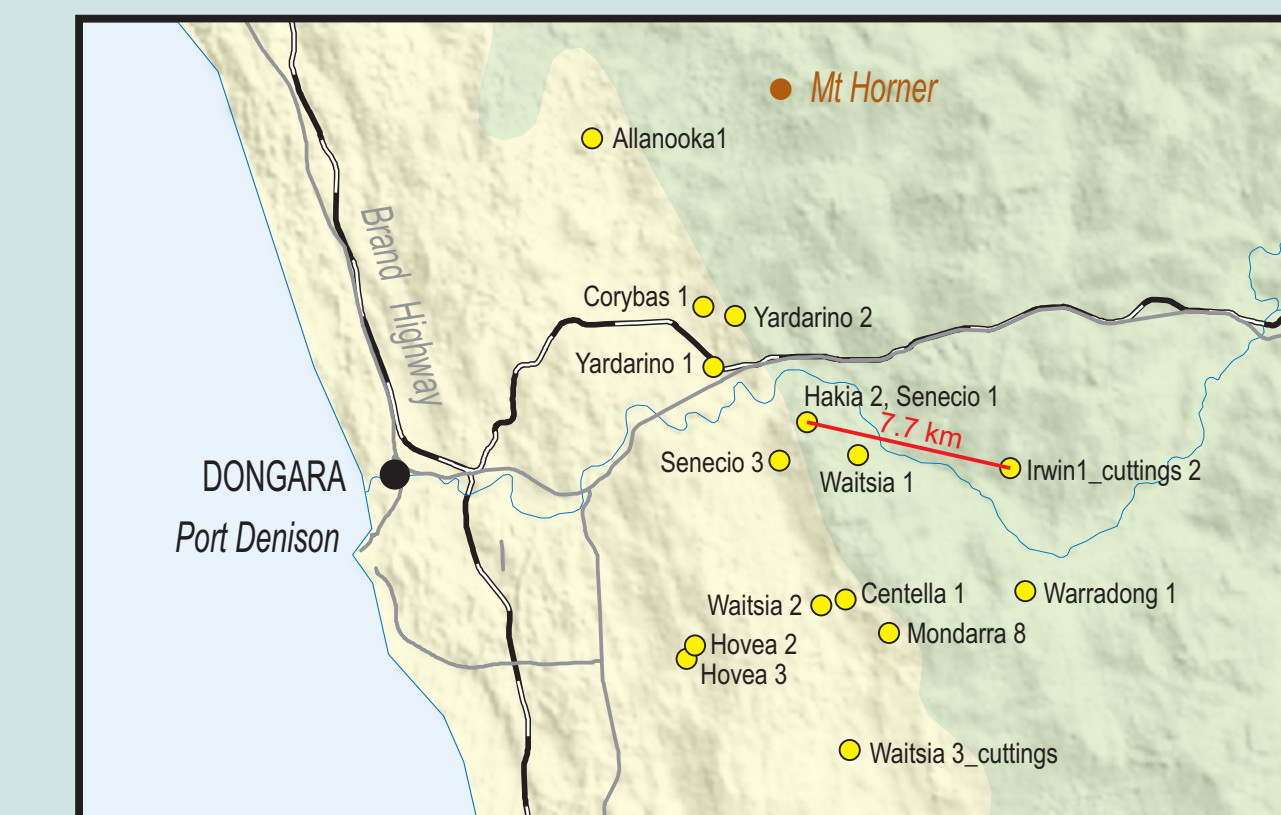
HyLogging data for all petroleum wells are processed to Level 2, and non-confidential datasets are uploaded to GeoVIEW.WA



The Spectral Geologist (TSG) core tray image, VNIR-SWIR and TIR spectra of Fe-rich calcite and dolomite with a small contribution of phengitic illite. 1139.37 m of core, tray 3, Olympic 1 well, Canning Basin

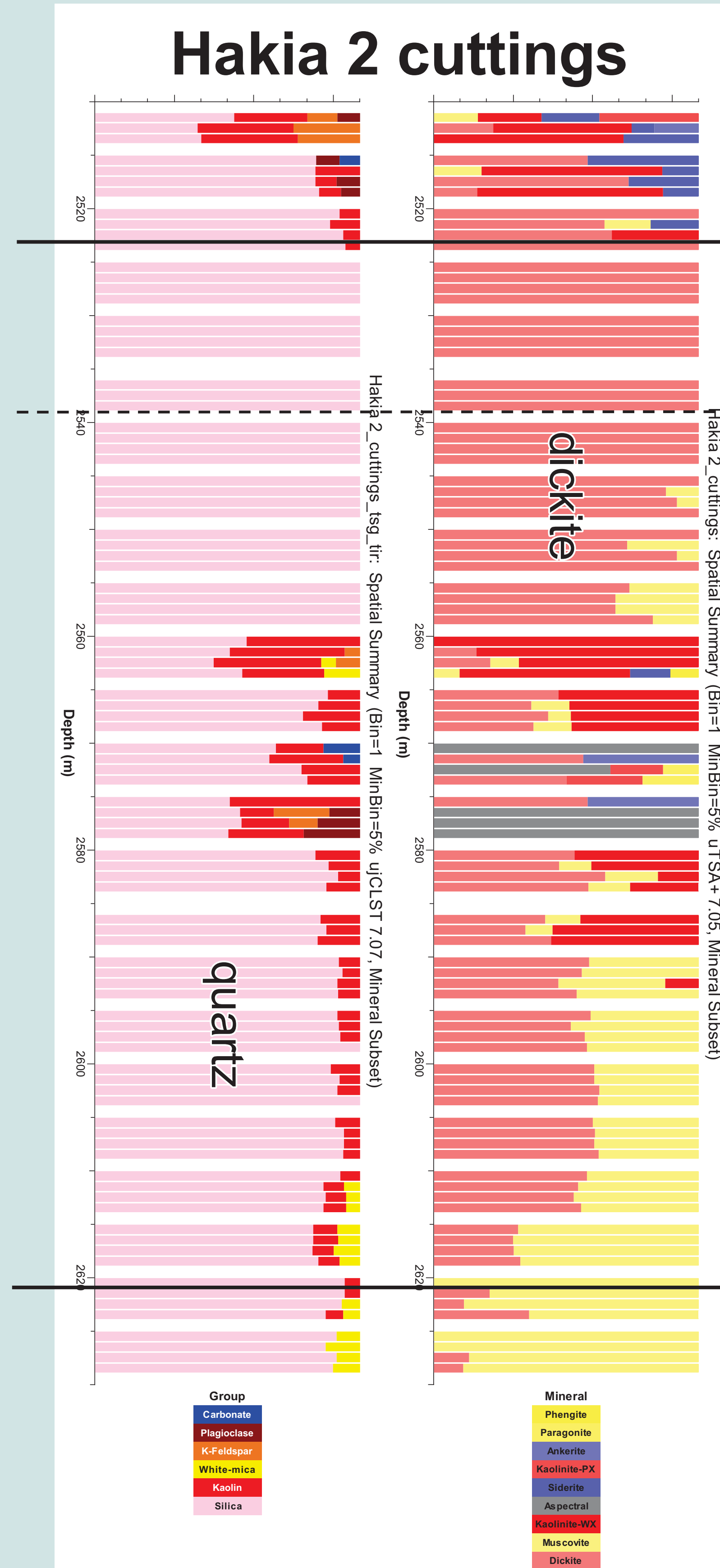
### GSWA petroleum project

#### Hyperspectral analysis of cores and cuttings for assessing reservoir trends in northern Perth Basin Permian sandstones



From shallow (Hakia 2) to deep (Irwin 1):

- decrease in porosity
- diagenetic clays in the Dongara and Wagina Sandstones change from dickite to illite

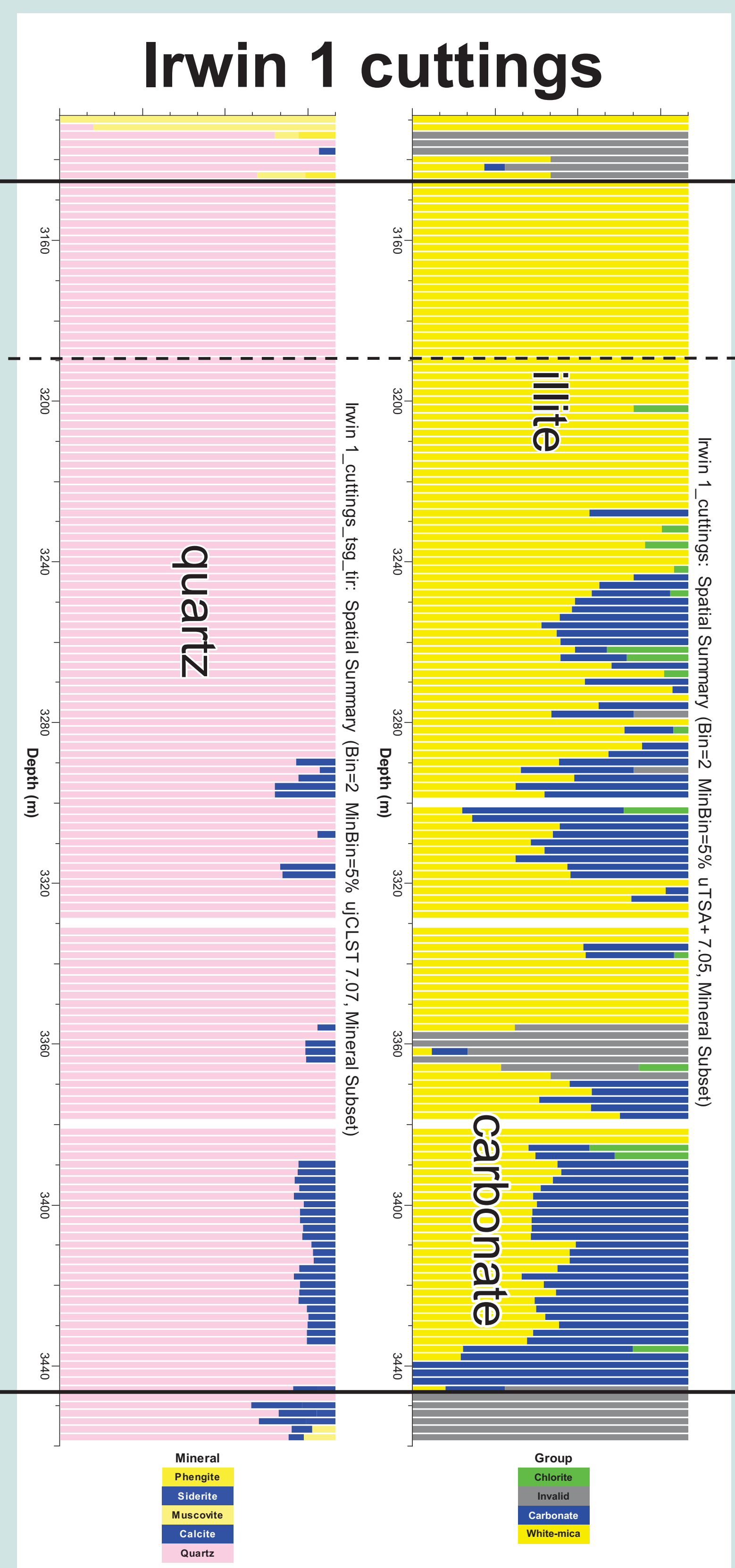


Kockatea Shale

Dongara Sandstone

Wagina Sandstone

Carynginia Formation



For more information, contact:

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Government of Western Australia  
Department of Mines, Industry Regulation and Safety

[www.dmirs.wa.gov.au](http://www.dmirs.wa.gov.au)

Geological Survey of  
Western Australia



SEPTEMBER 2019

