A

SUMMARY

OF THE

WELLESLEY PROSPECT

EXPLORATION PERMIT EP-416

ONSHORE SOUTH PERTH BASIN

WESTERN AUSTRALIA

By

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1.0 INTRODUCTION

Exploration Permit EP-416 is located in the Bunbury Trough, which forms the southern part of the onshore Perth Basin (Figure 1). It was awarded on 26th August, 1999 for a six year period and consists of 54 graticular blocks covering an area of 3,945 sq kms. Empire Oil Company (WA) Limited, a wholly owned subsidiary of Empire Oil & Gas NL, is 98% permit holder and operator.

The Perth Basin is a deep elongate trough which covers an area of some 45,000 sq kms onshore and 55,000 sq kms offshore. The basin contains up to 15,000 metres of Permian and Mesozoic marine and non-marine clastic sediments.

Exploration Permit EP-416 is a narrow permit which extends from 70 kms south of Perth south past the city of Bunbury to the Great Australian Bight. The Bunbury, Highway, an all weather sealed road; and the Perth - Bunbury Natural Gas Pipeline transverses north-south through the northern half of the permit.

2.0 PERMIT OBLIGATIONS

The remaining work obligations for the permit are summarised in the table below.

Permit Year	Minimum Work Requirements	Estimated Expenditure
Year Five	50 km 2D Seismic Survey	$400,000
Year Six	One (1) Well	$1,000,000

Permit Year Five has been extended to 25th February, 2005 to allow for the seismic survey to be planned and acquired. The permit is in good standing.

3.0 EXPLORATION HISTORY

Modern petroleum exploration began in the Perth Basin in the early 1950's by Wapet who acquired gravity, aeromagnetic and seismic surveys.

Seismic surveys have been acquired in EP-416 from 1964 to 1981 but the best quality data is the 1991 Korijekup Survey acquired by Petroz NL. Only 2 wells, Preston-1 and Pinjarra-1 have been drilled in the permit but Lake Preston-1 was drilled close to the boundary and Wonnerup-1 was drilled to the west of the southern part of the permit.

Wonnerup-1 was drilled by Union Oil in 1972. This well encountered excellent gas shows but the 2 drill stem tests were misrun and the well was plugged and abandoned as non-commercial due to the lack of a gas market.

Exploration Permit EP-416 was awarded to Empire Oil & Gas NL on 25th August, 1999. Empire has re-interpreted the existing seismic data and has delineated the Wellesley Prospect.

4.0 REGIONAL GEOLOGY

The Perth Basin contains a sequence of up to 15,000 metres of Permian to Cretaceous sediments deposted between the Yilgarn PreCambrian Block to the east, the Indian continent to the west, the Antarctic continent to the south and which opens to the north where joins with the Palaeozoic to Tertiary Carnarvon Basin.

The generalised stratigraphy of the southern part of the Perth Basin is illustrated in Figure 2. Pre-rift sedimentation began in the Perth Basin during the Permian to Early Triassic with intracratonic downwarping and mostly marine deposition. Non-marine environments were present in the South Perth Basin (Sue Coal Measures) and a high stand tract during the Artinskian (Irwin River Coal Measures).

Rifting commenced towards the end of the Early Triassic. The marine Lower Triassic Kockatea Shale was swamped with initially deltaic deposits (Woodada Formation), and then fluvial to continental sedimentation (Lesueur Sandstone). Rifting and non-marine sedimentation continued into the Jurassic with the continental red beds of the Eneabba Member and the swamp, marsh and lacustrine environments of the Cattamarra Coal Measures. Sedimentation slowed and a marine transgression (Cadda Formation) took place during the Bajocian. Further rifting reactivated the basin margins and thick, fluvial and alluvial plain deposition of the Yarragadee and Parmelia formations covered the basin.

Breakup occurred during the Valanginian with the post-rift marine sediments of the Cretaceous Warnbro and Coolenya groups onlapping the Intra-Valanginian Unconformity surface.

5.0 WELLESLEY PROSPECT

The Wellesley Prospect is a prospect defined by 6 fold seismic acquired by WAPET in 1969. It is a robust, four way dip anticline without major crestal faulting (Figure 3). The structure is defined by only three seismic lines and additional seismic is required. An example of a seismic line over the prospect is shown in Figure 4. The main objectives are the Late Permian fluvial to glacial sandstones of the Sue Coal Measures sealed and sourced intra-formationally by organic-rich, carbonaceous shales and coals deposited in lacustrine and swampy environments.

The nearest well control to the prospect that intersected the Permian is the Wonnerup-1 well some 80 kms to the south and Lake Preston-1 wells some 30 kms to the north. A correlation of these wells is shown in Figure 5.

The Wellesley Prospect is only 10 kms from the Kemberton Industrial Complex.

The Sue Coal Measures is a Late Permian sequence of fluvial and lacustrine deposits which provide both reservoir, seal and source for the Wellesley Prospect. Sandstones in the Sue Coal Measures from 4,035 - 4565m had porosities of only 3 - 4% in Lake Preston-1. However, in Wonnerup-1, these sandstones from 4,454m - 4,455m had core derived porosities of 7.3 - 15.8% and permeabilities of 1.3 - 63 millidarcies. The top of the Sue Coal Measures in the Wellesley Prospect is estimated to be at about 3,700m and porosities and permeabilities can be expected to be better than those encountered in Lake Preston-1 and Wonnerup-1. An average porosity of 10% has ben used to calculate the potential gas reserves in the Wellesley Prospect.

Seal is provided both by the 400 - 500m shales and siltstones of the Sabina Formation and intra-formational shales and siltstones within the Sue Coal Measures. In the Wonnerup structure, the crest is faulted, probably during the early Cretaceous breakup of this part of Western Australia, and the gas has leaked out of the structure. Subsequent seismic has shown that there is no valid structure at Lake Preston at the Permian level.

The carbonaceous shales and coals in the Sue Coal Measures are proven source rocks with oil and gas generating potential. These source rocks have total organic carbon contents of 3.5 - 52.7% and S1 + S2 from 2 - 38 and hydrogen indices from 50 - 200 in Lake Preston-1. They are mostly gas prone but also have some oil generating potential.

Maturity of the Sue Coal Measures varies from to 1.5 to 1.9 in Lake Preston-1. There is no doubt that these source rocks are in the gas window. The Bunbury Trough is filled with Permian to Late Jurassic sediments and therefore gas generation would have been completed by the end of the Jurassic. There gas migration was early and may have preserved porosity from silicification by depth

of burial. This is supported by porosities in Lake Preston-1 which were 3-4% in water-wet sandstones compared to 7 - 15% in residual gas filled sandstones in Wonnerup-1.

The Wellesley Prospect covers an estimated area of 1,100 hectares (2,750 acres) and could have a vertical relief of 60 milliseconds (100 metres or 330 feet. Estimated potential recoverable gas reserves for the Wellesley Prospect, if hydrocarbons were discovered and the structure was full to currently mapped spill point, are 155 BCF.

POTENTIAL RESERVE ESTIMATE

WELLESLEY PROSPECT

Area	11 sq km 1,100 hectares
Maximum Gross Pay	60 milliseconds 100 metres
Net Pay	70 metres
Average Net Pay	30 metres
Volume	33,000 hectare-metres
Reservoir	Porosity = 10% (average) Sg = 80% Depth = 3,500 m
Gas-in-Place	0.19 million cu m / hectare metre 6.27 billion cu m 221 BCF
Recovery Factor	70%
Recoverable Gas Reserves	4.4 billion cu m 155 BCF

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LOCALITY MAP

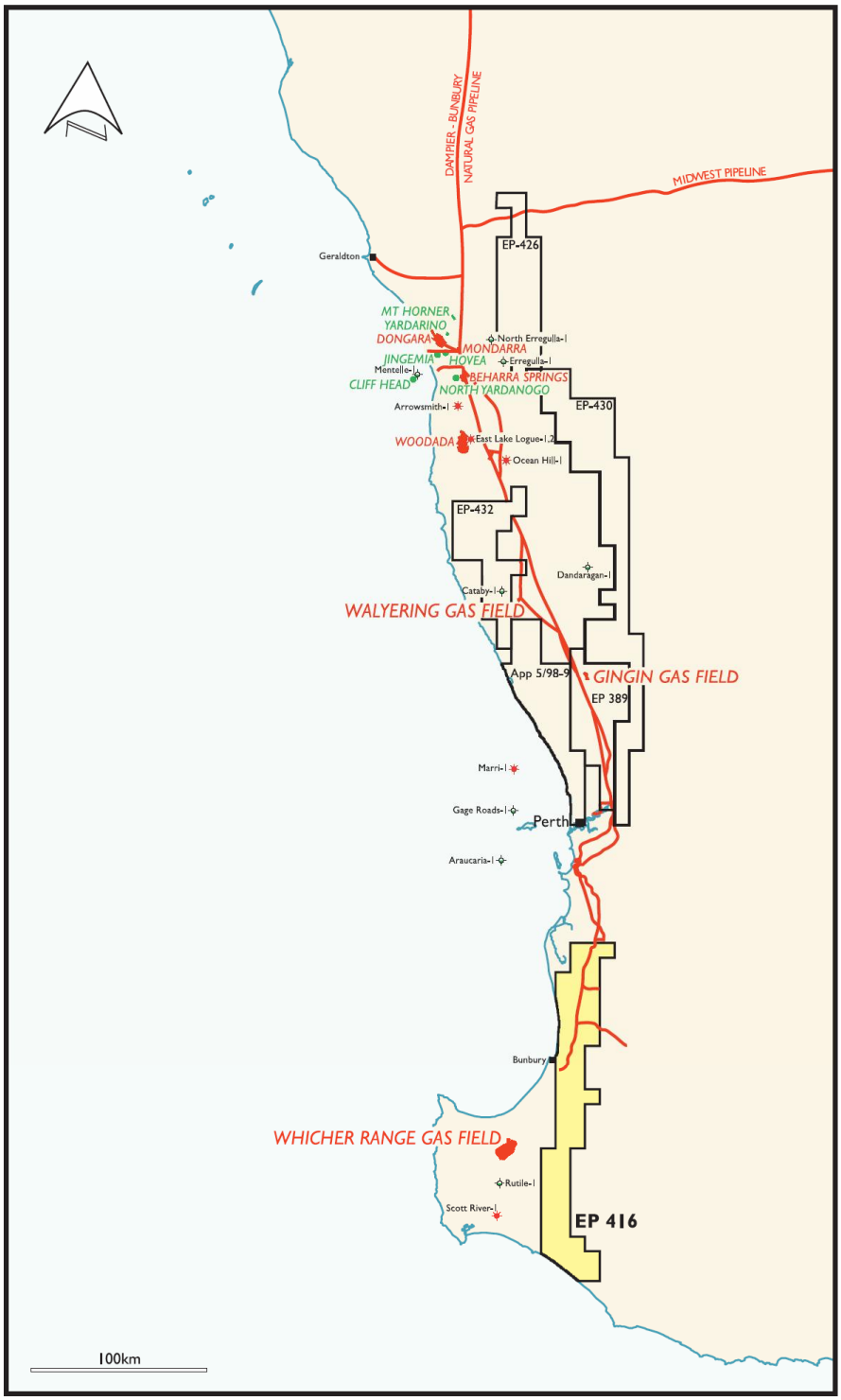

Figure 1

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GENERALISED STRATIGRAPHY

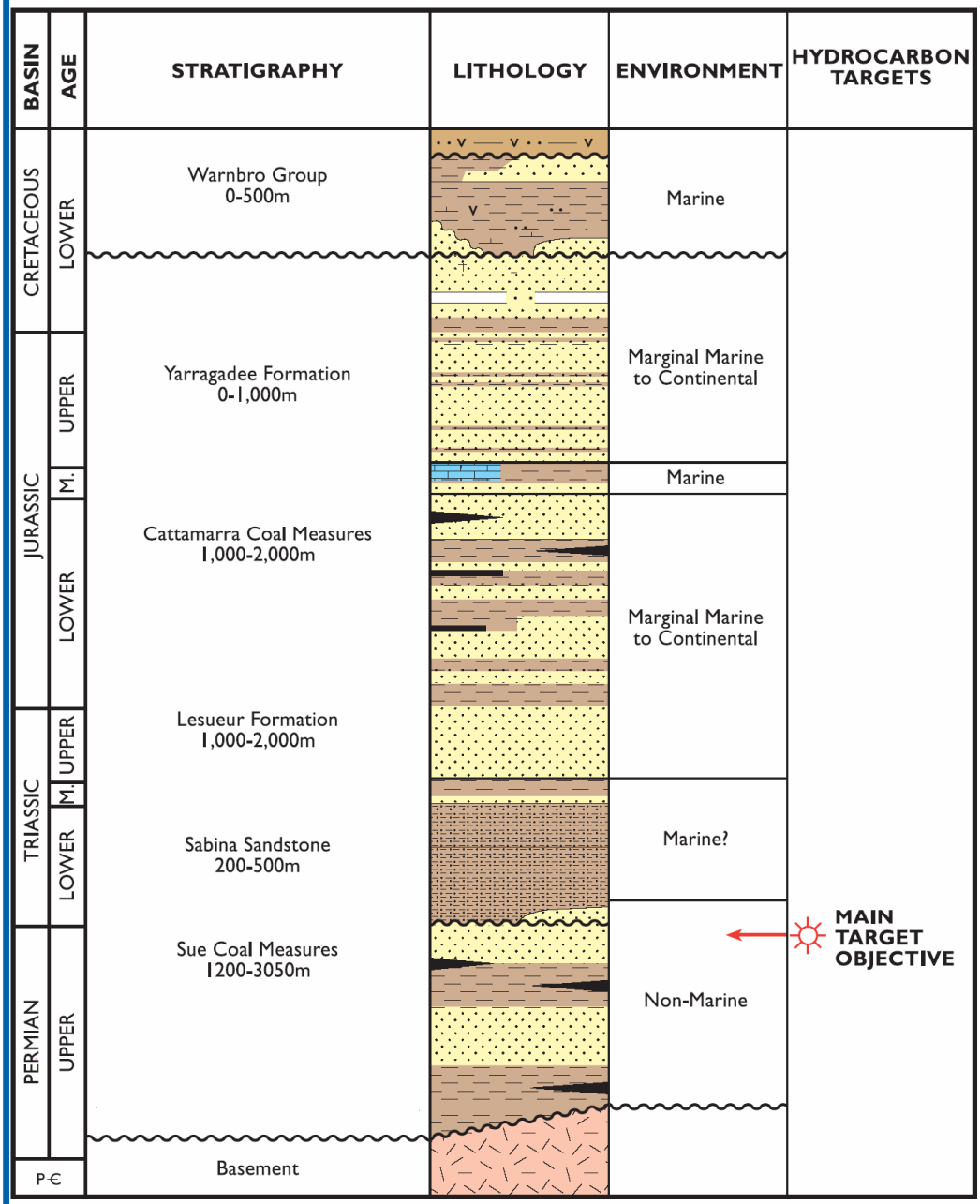

Figure 2

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EP 416
WELLESLEY PROSPECT
TOP PERMIAN SUE COAL MEASURES
TWO WAY TIME STRUCTURE

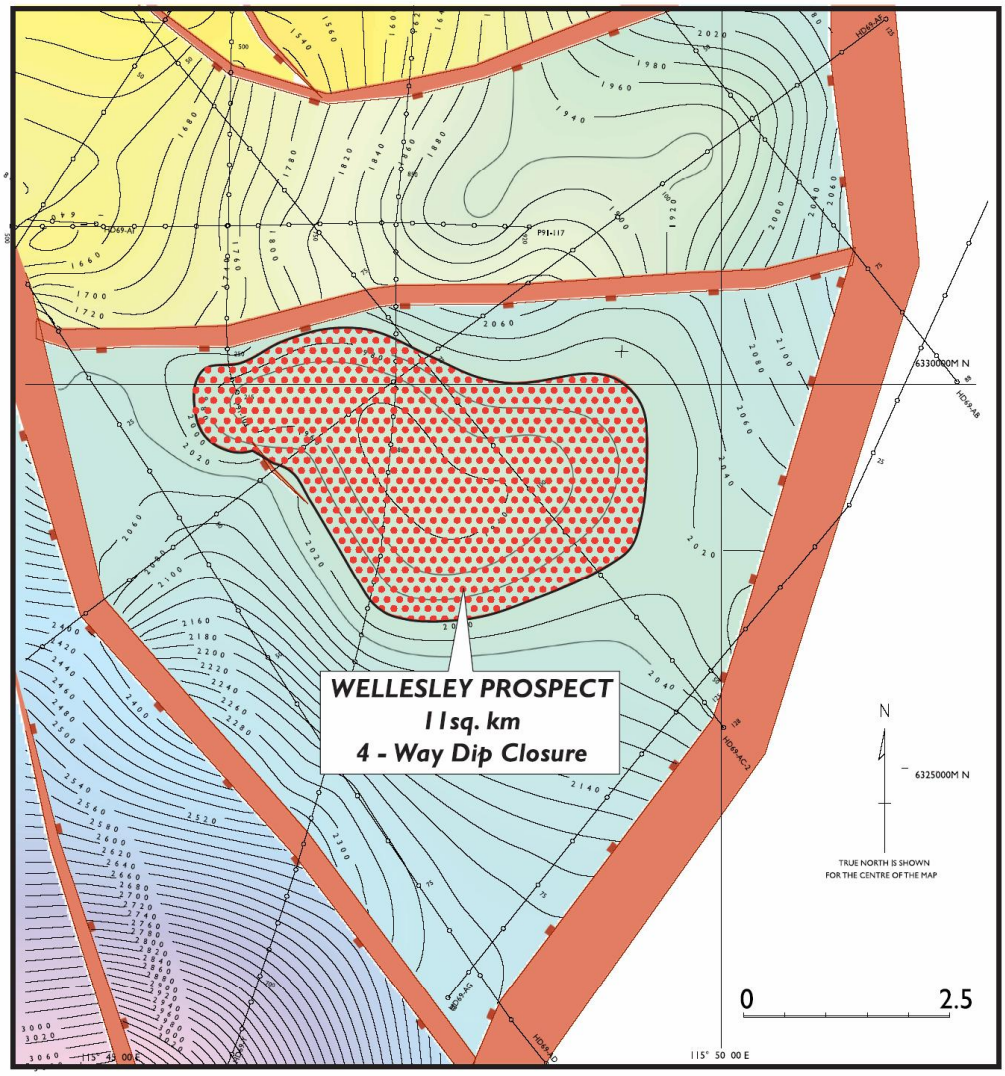

Figure 3

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SEISMIC LINE AC-1

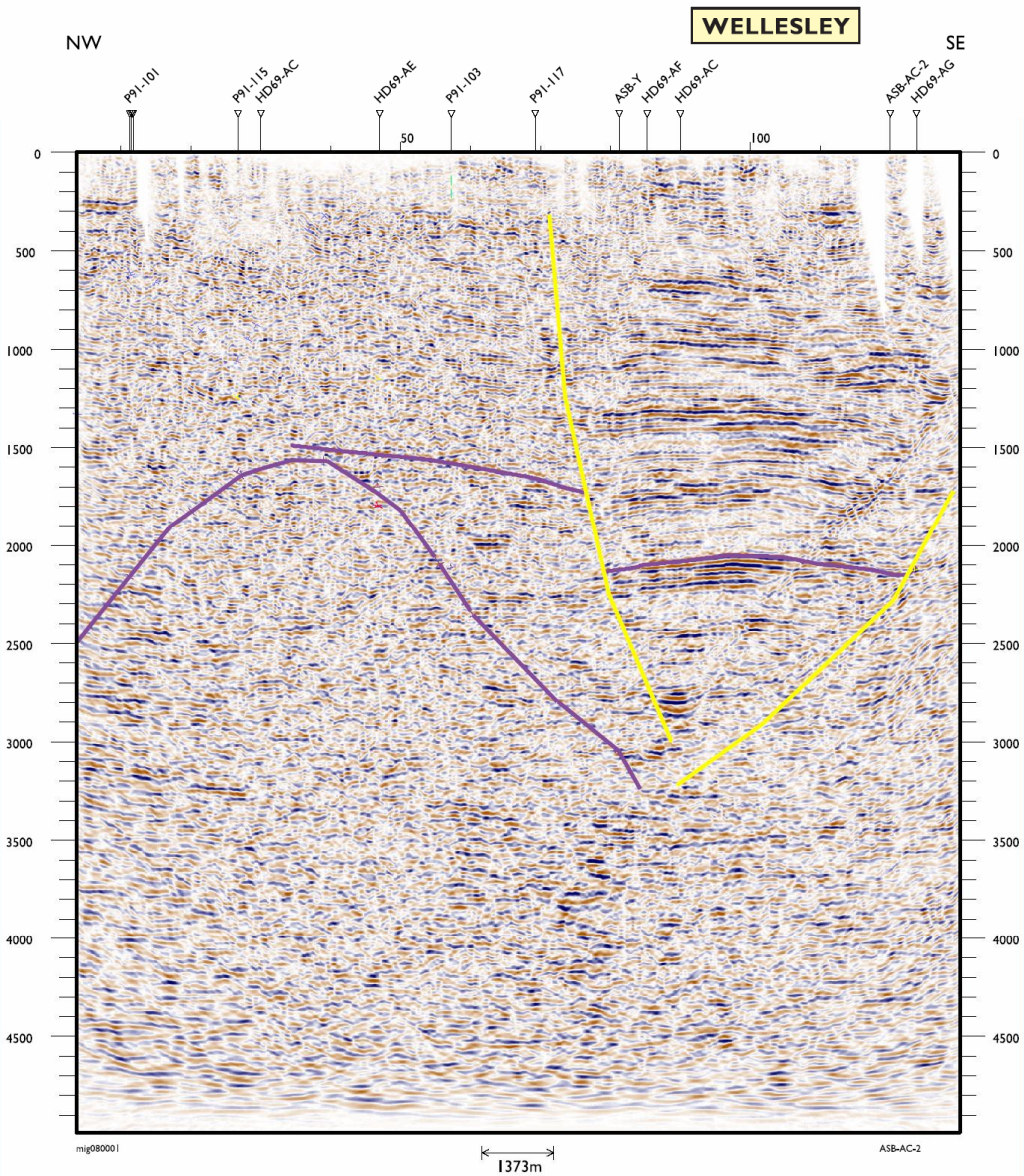

Figure 4

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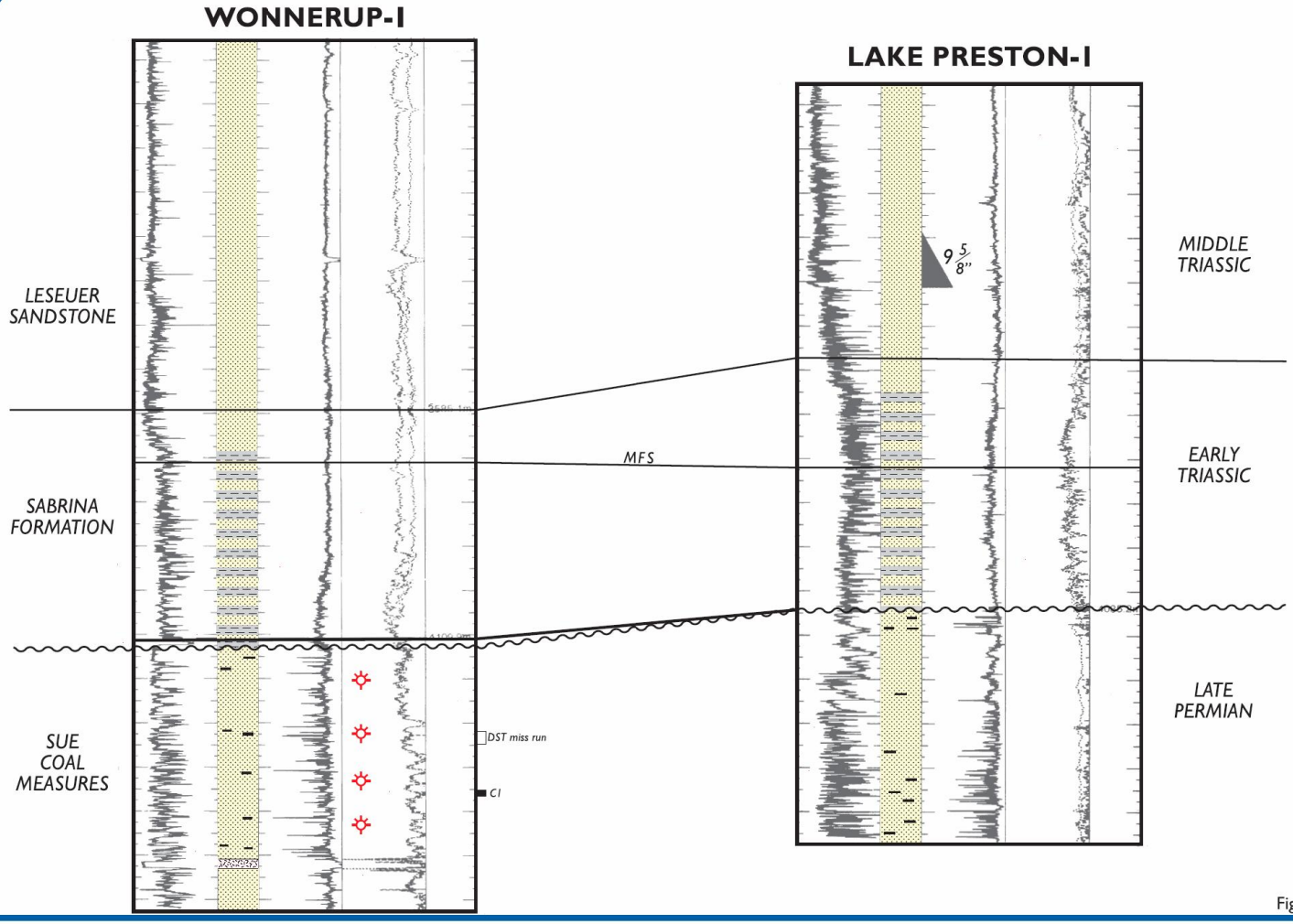

Figure 5