

# Revision of the Wollombi Coal Measures

NSW Department of Primary Industries' exploration of the upper seams of the Wollombi Coal Measures in the late 1990s at Broke and, more recently, at Ridgeland showed that the Wollombi Coal Measure nomenclature required considerable clarification, as did Powercoal's exploration at Anvil Hill. Among issues raised by exploration was the mis-correlation of seams in the nominated Type Bore for the Wollombi Coal Measures, including the Greig's Creek seam, the only seam that had precedence prior to the ratification of the measures. To resolve matters, the Coalfield Geology Council established the Wollombi Coal Measures Working Party in August 2000.

As early as 1907 Edworth David recognised that what was to become known as the Wollombi Coal Measures of the Hunter Valley Coalfield were equivalent to the Newcastle Coal Measures of the Newcastle Coalfield. However, staff from NSW DPI, Powercoal/Centennial and Newcastle University have only recently proposed detailed correlations.

Using geophysical logs and detailed descriptions of drill core, the Working Party identified detailed correlations of tuffaceous strata and seams between the Wollombi and Newcastle Coal Measures that demonstrated the strata were consistent across the northern Sydney Basin. Since Newcastle Coal Measure nomenclature was better understood, more practical in its application (preference in correlating tuffs rather than clastic units) and had historical precedence, the working party proposed replacement of the Wollombi Coal Measures with the Newcastle Coal

**Photograph right—Amoco drill core from DDH No.1 at Wybong near Muswellbrook. Box 61 and 62— 231.66 metres to 238.81 metres.**

Measure nomenclature in November 2004.

The Coalfield Geology Council subsequently ratified the following resolutions:

- that the entire Wollombi Coal Measure nomenclature be replaced with Newcastle Coal Measure nomenclature in the northern Sydney Basin
- that Amoco Wybong DDH1 be adopted as the "Reference Bore" for the Newcastle Coal Measures in the Hunter Valley. This bore has been photographed and geophysically logged. All seams remain intact, with the core currently available for inspection at Londonderry
- that the base of the Newcastle Coal Measures in the Hunter Valley be raised to the top of the Watts Sandstone to conform to the same nomenclature in the Newcastle Coalfield. (The Watts Sandstone is therefore retained in Hunter Valley nomenclature and is recognised as the equivalent of the Waratah Sandstone in the Newcastle Coalfield.)
- that the Singleton Supergroup in the Hunter Valley now consist of the Newcastle Coal Measures, the Watts Sandstone and the Wittingham Coal Measures.

Correlations using Newcastle Coal Measure nomenclature are primarily based on the identification of major tuffs as stratigraphic markers. This contrasted with the emphasis placed on seams and the intervening clastic units in the nomenclature of the Wollombi Coal Measures. The identification of regionally significant tuffaceous units is however strengthened if a coal bearing sequence is recognised immediately above or below the unit (such as the Great Northern seam above, or the Fassifern seam below the Awaba Tuff). If a correlatable tuff lies within clastic strata, then its identification can only be by reference to its position between coal-bearing strata some distance





above and below (that is, it is in about the right location). In these instances the correlation is less certain.

Correlations of tuffs for all bores studied by the Working Party, were tabulated to assist future workers in using Newcastle Coal Measure nomenclature in the Hunter Valley. Due to the sparse spacing of relevant bores, it is anticipated that such correlations will be reviewed in the future.

The Newcastle Coal Measures in the Hunter Valley are more uniform in thickness than their Newcastle Coalfield equivalents. Commensurate with this more uniform development, there is a lack of conglomeratic strata that is such a predominant feature of the Newcastle Coal Measures. In this regard, the Hunter Valley equivalents are more akin to the southern Newcastle Coalfield where conglomerates are less dominant and the lower seams in the Lambton Formation are poorly developed. Similarly, the upper seams of the Newcastle Coal Measures are the most widespread and best developed.

By considering the similarities between the two sequences, including the size, direction and migration of palaeochannels, regional exploration strategies can be undertaken. In addition, this review promotes a more regional perspective to understanding peat formation in the Sydney Basin.

The full text of the review (GS Report No.2004/415), with supporting correlation diagrams and tables, geophysical logs and photographs of drill core can be downloaded from DIGS on the NSW DPI website.

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Narrabeen Group				
Newcastle Coal Measures	Moon Island Beach Formation	Vales Point seam		
		Wallahah seam		
		Great Northern seam		
	Awaba Tuff			
	Boolaroo Formation	Fassifern seam		
		Upper Pilot seam		
		Mt Hutton tuff		
		Lower Pilot seam		
		Hartley Hill seam		
	Warners Bay Tuff			
	Adamstown Formation	Australasian seam		
		Stockrington tuff		
		Montrose seam		
		Wave Hill seam		
		Edgeworth tuff		
Fern Valley seam				
Victoria Tunnel seam				
Nobbys Tuff				
Lambton Formation	Nobbys seam			
	Dudley seam			
	Yard seam			
	Borehole seam			
Watts Sandstone		Waratah Sandstone		
Wittingham Coal Measures	Denman Formation	Tomago Coal Measures	Dempsey Formation	

**Table: Proposed stratigraphy of the Northern Sydney Basin**