

Statement from Cuadrilla Resources about Shallow Gas in West Sussex

When Cuadrilla drills its water monitoring well and the main exploration well, we expect to encounter gas bearing ground water at approximately 170 ft below the surface. The occurrence of these gases in the shallow ground water predates any oil and gas exploration at Balcombe and is consistent with a regional pattern of shallow gas (Figure 1). Because of the composition of the gases, they are most likely derived from deeper strata.

The presence of pre-existing thermogenic gas within the Ashdown Beds, a low productivity aquifer, at this well location was indicated by the first well drilled in Balcombe in 1986 by Conoco. The well encountered natural gas in the Ashdown Sandstone at a depth of about 170 ft below the ground surface. At this point the well flowed 150 barrels of formation water which contained natural gas. The associated gas shows included quantities of Methane and Ethane (Precisely 54,910 ppm CH₄ (Methane) and 1,335ppm C₂ H₆ (Ethane)) (Conoco, 1987, p 2.2). There were also quantities of minor gas seen in the overlying Wadhurst Clay. The well record for the first Balcombe well over this depth interval is shown in Figure 2. During the drilling, testing, and abandonment process of the water monitoring well and the main exploration well the gas bearing groundwater will be contained below ground so there will only be trace emissions and no impact on water quality.

It is not unusual to find natural gas at shallow depths in West Sussex. Another Conoco well at Southwater-1, drilled in 1986, also encountered natural gas in the Ashdown Sandstone at a depth of 1200 ft (560ppm CH₄ and 10ppm C₂H₆) (Conoco 1986).

The largest known natural gas accumulation in the Weald was made in the Bolney-1 well, 3.7 miles south of the Balcombe site. This well was drilled by ESSO in 1963 and encountered the Ashdown Sandstones between 432 and 470ft MD. These sandstones were found to be gas-bearing between 435-448ft MD and produced 650 thousand cubic feet of gas per day (Esso, 1963). These observations are consistent with other records of shallow natural gas in the area. The earliest reports of onshore hydrocarbons in southern England come from the Sussex area. A shallow water well at the Heathfield railway station that reached Kimmeridge strata encountered gas (Hawkes et al. 1998, Hoar and Upton, 1972, p. 25). Subsequently the well produced 1000 cubic feet/day of natural gas and was used to light the railway station. The news of this shallow gas was even reported in the United States (New York Times, 1902).

References

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Figure 1. Map showing the hydrocarbon wells drilled in West Sussex (DECC). Those with known shallow gas occurrences are shown in red.

