

Interactive comment on “Hydraulic fracturing in thick shale basins: problems in identifying faults in the Bowland and Weald Basins, UK” by David K. Smythe

R. Westaway

robert.westaway@gla.ac.uk

Received and published: 31 March 2016

Smythe's (2016) latest input to this thread concerns dip data derived from logging the Preese Hall-1 well using a CMI imaging tool. His main emphasis is to criticize Kingdon (2016) for citing the wrong figure: Kingdon (2016) cited Fig. 31 of de Pater and Baisch (2011) as the published source of these data, when he should have said Fig. 33. These data had previously been reported in Fig. 6.2 of Harper (2011), which was repeated as Fig. 33 of de Pater and Baisch (2011).

The excerpt from the raw imaging dataset for the part of the well that experienced deformation shows bedding oriented sub-perpendicular to the wellbore, as Smythe (2016) has said, the latter deviated at an angle of $\sim 30^\circ$ towards an azimuth of $\sim 110^\circ$ or

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$\sim 70^\circ$ E. This orientation of the wellbore is consistent with published depictions of the well track (such as those by Clarke et al., 2014, and Westaway, 2016a) and confirms that Harper (2011) interpreted this imaging tool dataset correctly. The version reported by de Pater and Baisch (2011) is likewise correct: according to this dataset the bedding dips at $\sim 30^\circ$ towards an azimuth of $\sim 290^\circ$ or $\sim N70^\circ$ W. Publication of this excerpt from the imaging tool dataset therefore does not add anything to the information already available, as Smythe (2016) has claimed; it confirms the existing interpretation of these data.

Conversely, the seismic section that Clarke et al. (2014) published, excerpted from their unpublished 3-D seismic dataset, shows bedding in the vicinity of this part of the wellbore with dip no greater than $\sim 10^\circ$. I already reported the mismatching depictions of the bedding dip between these two datasets (Westaway, 2016b); its cause remains unclear, one possibility being that Clarke et al. (2014) have plotted the well track on the seismic section in the wrong place. Until this discrepancy is resolved, it is difficult to have confidence with any proposed geomechanical interpretation of this wellbore deformation.

Smythe (2016) has also reported that when he requested access to the Preese Hall-1 dataset the release package did not include this CMI imaging dataset. I note in passing that I have likewise been unable to obtain access to this dataset; the only part of it that I have seen is the excerpt just published by Kingdon (2016). Furthermore, had this dataset been released to me, it would have been under conditions that would have prohibited publication of any part of it, as Kingdon (2016) has now done. Something is clearly fundamentally wrong with the present arrangements for implementing the UK government's publically stated commitment to open disclosure and discussion of data pertaining to shale gas development.

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