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Laboratory Experiments on Air Bubbles Rising through Carbopol Capped with Water KAI ZHAO, EDMUND TEDFORD, Department of Civil Engineering, University of British Columbia, MARJAN ZARE, Department of Mathematics, University of British Columbia, IAN FRIGAARD, Departments of Mathematics and Mechanical Engineering, GREGORY LAWRENCE, Department of Civil Engineering, University of British Columbia — We have conducted a series of laboratory experiments bubbling air through a Carbopol solution capped with water. These experiments were conducted to better understand methane ebullition, and its effects on turbidity, in a pit lake. The first bubble is the largest and drags Carbopol into the water. Subsequent bubbles are smaller and follow the path of the first bubble, creating a tube within the Carbopol into which water flows. For a range of Carbopol concentrations we investigate the size and shape of the bubbles, their rise trajectory, the amount of Carbopol dragged into the water, and the evolution of the tubes. Higher concentrations of Carbopol can support deeper tubes without collapsing. These tubes resemble the pockmarks observed in the pit-lake bed.

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