

## **Dolomites: The Good, the Bad, and the Ugly in Carbonate Reservoir Performance**

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### **Abstract**

Carbonate reservoirs are notoriously heterogeneous, and can be quite challenging to manage. Much of this heterogeneity is caused by changes in lithology (limestone vs. dolomite) and/or by facies.

This presentation focuses on heterogeneity caused by lithologic changes in the most prolific reservoir interval in the world, the Arab-D, and highlights the impact of dolomitization on reservoir performance. Specifically, the dolomites are shown to comprise both the very best, and the very worst, reservoir rock in this important carbonate reservoir.

As might be expected, different types of dolomite occur in the reservoir, and formed from different fluids and at different times; as a result, each of these different dolomite types has a different distribution in the reservoir, and a different impact on fluid flow.

The presentation will highlight how our understanding of dolomites has impacted Saudi Aramco's reservoir management practices. Although the results of this study were derived from the study of a specific reservoir (Arab-D) in a specific field (Ghawar field), it provides learning that can be applied to other carbonate reservoirs around the world.