

## **A Case History of Applying Tracer Technology in Recycled Gas Condensate Reservoir, Onshore Gas Field, Abu Dhabi, UAE**

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### **Abstract**

Chemical gas tracer technology was applied as pilots in two different areas in a recycled gas condensate reservoir. The objective of the pilots in these two areas is to improve the reservoir management practices, monitor and detect the injected gas breakthroughs and improve monitoring Nitrogen injection project.

This paper presents more than 4 years of tracers monitoring results and data analysis. Additionally, the paper discusses the selection and design criteria, and fluid sampling and analysis strategy of pilot areas. The two pilots were selected to fit in the Nitrogen injection project considering the reservoir rock properties. A different unique fingerprint tracer type was injected in the selected gas injectors of the two pilots. A certain sampling plan and tracer analysis strategy were implemented in order to optimize the cost without affecting data acquisition quantity and quality.

The tracers monitoring results were integrated with production logging tool (PLT) results of the pilots' injectors and offset producers, as well as, open-hole logs and injection/production data. The tracers monitoring results and analysis helped in tracking the fluid flow paths, estimating the hydrocarbon gas transient time, and enhancing the understanding of inter-well relationship between gas injectors and offset producers. Also, these monitoring results and analysis are helpful in monitoring the injected Nitrogen, which was started after the tracers' injection. The comparison between the tracers and Nitrogen breakthroughs time indicates that the Nitrogen velocity is relatively higher than the velocity of hydrocarbon injection gas, which is the carrier fluid of tracers.