

Introduction

This report is a continuation of a series of quarterly public reports compiled by the Department of Environment and Natural Resources (DENR). The Code of Practice: Onshore Petroleum Activities in the Northern Territory (the Code) (2019) requires six months of baseline monitoring of groundwater at a well site prior to undertaking hydraulic fracturing activities. This report presents results of ongoing baseline groundwater monitoring undertaken by Imperial Oil & Gas (Imperial) on Exploration Permit (EP) 187 in compliance with condition of approval in the 2020 Drilling Program NT Exploration Permit (EP187) Environment Management Plan (EMP). The report includes updated ongoing groundwater monitoring data for the control monitoring bores (CMB) on EP187 (Figure 1).

Groundwater Monitoring Program

Interest holders are required to submit groundwater monitoring data, in compliance with the the Code. DENR has committed to publishing the monitoring results from interest holders to increase the transparency of monitoring and reporting of groundwater potential impacts by the onshore gas industry in the Northern Territory.

The Imperial groundwater monitoring program consists of:

- Control Monitoring Bore (CMB) screened across the Gum Ridge aquifer; and
- Impact Monitoring Bore (IMB), which is located 20 m “downstream” of the location of the petroleum well(s).

These bores enable an ongoing comparison of the groundwater upstream and downstream of the petroleum well, to allow for an immediate identification of any variation in the groundwater that can be directly related to the petroleum activity. Baseline groundwater monitoring is undertaken at two existing waterbores (RN027848 and RN039574) shown in proximate locations to the proposed well locations (Figure 1) in the approved EMP.

Groundwater quality

At EP187 the regional Cambrian Limestone Aquifer (CLA) system consists of only the Gum Ridge aquifer. This karstic aquifer is used as a source of groundwater by pastoralists and regional communities. The results for electrical conductivity (E.C.) from initial baseline monitoring sampling events is shown below.

A groundwater extraction licence (GRF10316) has been granted to Imperial for extraction of up to a total of 22 ML per year from the Gum Ridge aquifer at its exploration permit areas in the Beetaloo sub-basin.

Groundwater monitoring results at Imperial Oil & Gas Exploration Permit 187 in the Beetaloo Sub-basin

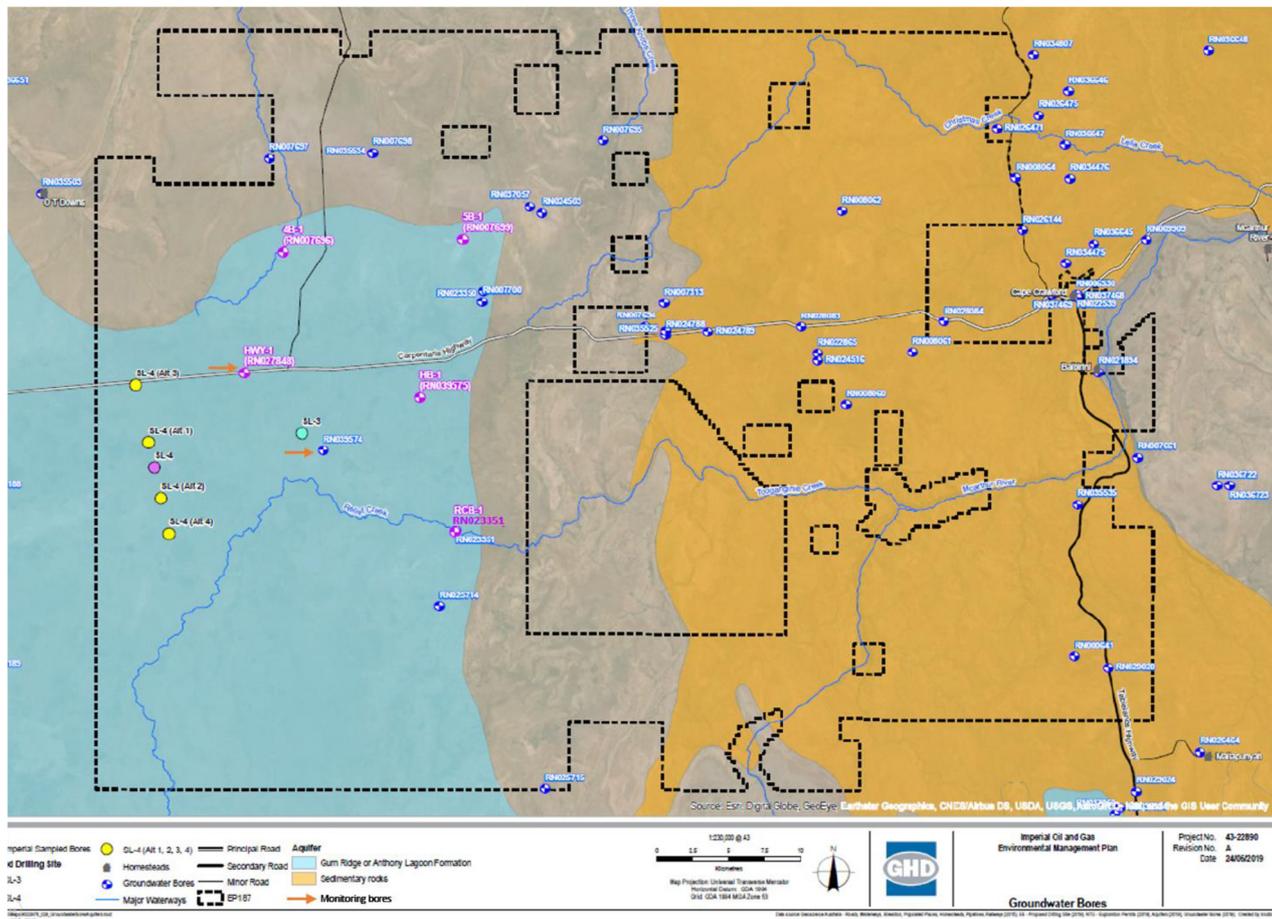


Figure 1: Imperial Energy baseline groundwater monitoring bores (RN027848 and RN039574) on EP 187

EP187_E.C. Baseline

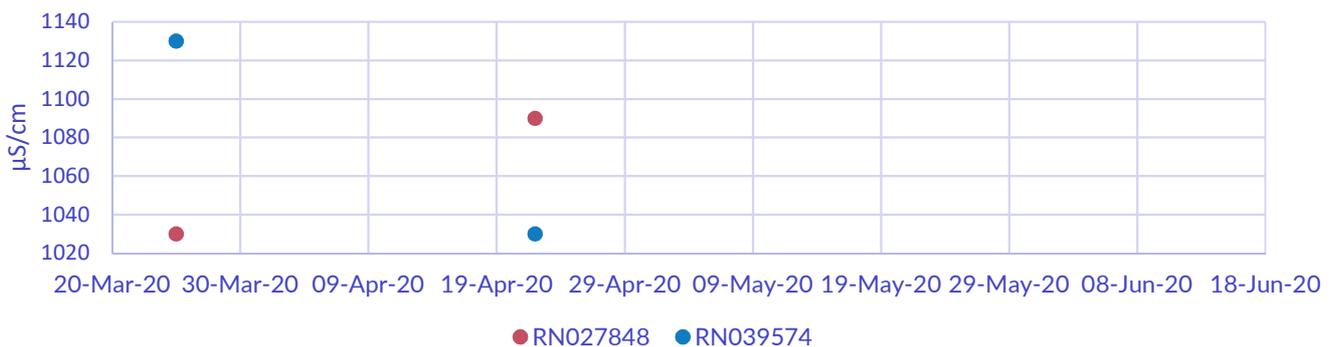


Figure 2: Electrical conductivity (E.C.) at baseline monitoring bores RN027848 and RN039574

Conclusion

In accordance with Ministerial condition of approval of the EMP, results of ongoing groundwater monitoring must be provided from a minimum of eight groundwater quality sampling events from RN039574 and RN027848 bores prior to completion of the drilling program.. This data will be reported and published on the DENR website as they become available.