

## MCARTHUR BASIN HFS PROGRAM

### Non-technical summary of groundwater data and reports

### Background

The Santos Environment Management Plan (EMP): McArthur Basin Hydraulic Fracturing Program NT Exploration Permit (EP) 161 (revision) STO3-8 (Santos, 2021) (the HFS EMP) sought authorisation to undertake exploration activities at the Tanumbirini and Inacumba sites. The HFS EMP was approved on 21 February 2021 (the Approval).

A report has been prepared by a suitably qualified experts at RDM Hydro Pty Ltd to satisfy regulatory requirements described below. The report is called “EP161 – HFS EMP Annual Groundwater Monitoring Data Review” dated 21 December 2022 (the Report). The Report reviews groundwater monitoring data acquired up to October 2022.

The Report satisfies Condition 5(iii) of the Approval which states:

*In support of clause B.4.17.2 of the Code of Practice: Onshore Petroleum Activities in the Northern Territory, the interest holder must provide to DEPWS, via [Onshoregas.depws@nt.gov.au](mailto:Onshoregas.depws@nt.gov.au), an interpretative report of groundwater quality based on the groundwater monitoring required to be conducted at the well site(s) in accordance with Table 6 of the Code. The interpretative report must be provided annually within three months of the anniversary of the approval date of the EMP and include:*

- *identification of any change to groundwater quality or level attributable to conduct of the regulated activity at the well site(s) and discussion of the significance and cause of any such observed change*
- *interpretation of any statistical outliers observed from baseline measured values for each of the analytes*
- *discussion of any trends observed*
- *a summary of the results including descriptive statistics*
- *description of the layout of the groundwater monitoring bores and wells, indicative groundwater flow directions and levels in accordance with the Preliminary Guideline Groundwater Monitoring Bores for Exploration Petroleum Wells in the Beetaloo Sub-basin.*

## Non-technical summary

The following is provided as a non-technical summary of the findings of the Report, including interpretation and discussion of the observed outliers and trends.

### Tanumbirini well site

- Continuous groundwater monitoring data from a control monitoring bore (CMB) and impact monitoring bore (IMB) were assessed to compare changes in groundwater quality and level before, during and after the hydraulic fracturing of two horizontal petroleum wells (Tanumbirini 2H and Tanumbirini 3H) at the Tanumbirini well site.
- Monitoring results show that groundwater levels in the aquifer remain within the range of background variability and are unaffected by the hydraulic fracturing activities.
- IMB and CMB monitoring data indicate minor and short-term variability in major ions, some trace elements, and the groundwater temperature. There were no significant changes to the groundwater chemistry that can be attributed to Hydraulic Fracture Stimulation activities.
- As previously reported (refer to McArthur Basin Drilling Program Non-technical summary of groundwater data and reports dated 18 March 2022 and provided to the pastoral lease holder), the concentration of dissolved methane in groundwater wells adjacent to Santos' activities was less than 0.05 parts per million (ppm) and remains consistent with:
  - the natural variability of dissolved methane observed in the groundwater throughout the region
  - CSIRO baseline groundwater studies in the region that consistently observed dissolved methane in groundwater (Baseline assessment of groundwater characteristics in the Beetaloo Sub-basin, NT (CSIRO, 2019))
- The monitoring results do not indicate that any impact on groundwater availability or groundwater quality has occurred.

### Inacumba well site

- A control monitoring bore (CMB) monitors groundwater level and quality in the aquifer adjacent to a site of potential future drilling activities.
- No hydraulic fracturing activities have been performed at the Inacumba site.