1. *The application material indicates that the closest spring complex is number 311, a Precipice Sandstone aquifer, outcrop spring. It is located approximately 13km to the north of the proposed trial area. Confirmation is required as to whether the information in the above statement remains current and provide an update where required.*

This statement should be read in the context of the rest of Section 4.1.5 of the application which describes how there are no known Bandanna Formation fed springs in the area and how the Precipice Sandstone is the next shallowest formation known to feed springs in the area. This statement should also be read in the context of the hydrostratigraphy of the trial sites detailed in Section 4.1.1 of the application demonstrating how the Rewan Group aquitard separates the Bandanna Formation and the Precipice Sandstone.

In this context, the application describes the closest known Precipice Sandstone fed spring as spring complex 311. Please note that this spring complex is comprised of multiple individual springs (e.g. 500-Colorado Pad 1, 500-Colorado Pad 2, 534, 537, 692, 695, 696, 697, 699). Other non-Precipice Sandstone fed springs may exist in the area.

2. *The application material states there are no Bandanna Coal Formation landholder bores in proximity of the trial area with the closest Bandanna Coal Formation landholder bore located approximately 71km northwest of the trial area. The analysis of the well construction indicates that these are likely gas wells. Confirmation is required as to whether the information in the above statement remains current and provide an update where required, including the date any search of the GWDB was conducted*

A search of the existing landholder bores accessing the Bandanna Formation was completed using the QLD GWDB and the OGIA bore formation identification. Information obtained from the search indicates that there are no Bandanna Formation landholder bores in proximity of the Spring Gully field. The majority of the Bandanna Formation landholder bores appears to be distributed along the margins of the Bowen Basin where the Bandanna Formation is at a shallow depth. The closest landholder bore that OGIA identifies as tapping the Bandanna Formation is located approximately 71 km northwest of the trial location, and analysis of the well construction details identifies the majority of these to be gas wells. Please note that OGIA filters and analyses the GWDB data as described in the UWIR for the Surat CMA.

3. *The application material indicates that the trial duration is up to three years, which includes up to 9 months of nutrient injection and the remainder of the trial consisting of produced water extraction and monitoring. Provide clarification regarding the commencement date and confirmation that the proposal seeks a trial period of three years.*

The trial will commence subject to landholder agreement, investment decisions, equipment availability, weather, and other access, infrastructure, and commercial constraints. While a commencement date for the trial is yet to be determined, the trial would be undertaken within a 3 year period.

4. *The application material states that produced water will be collected from the surrounding water gathering network for re-injection.*
   Provide the temperature(s) of the ambient environment in the Bandanna Formation at the nominated release points (within the aquifer).

The ambient temperature of the Bandanna formation is approximately 40 – 45 ^{o}C.

5. The application material indicates that the Spring Gully 9 "sequential injection" relies on up to nine months of injection, followed by up to 27 months of recovery. Further it states that the current groundwater flow direction is toward the proposed trial wells in both PL204 and PL195.

Provide the following additional information:

- *Confirmation of the flow direction and flow rate (with confidence) at the release depth in Spring Gully 9.*
- *Details to confirm that the mathematical calculations that verify whether the 27 months of production and recovery will be sufficient to capture the fluid injected during the initial 9 months, and that the flow direction and rate have not overtaken the recovery potential. The flow rate and direction must account for the anticipated / known production influences in the vicinity.*

Note: DES is aware of the contingency of the surrounding production well network.

6. The application material indicates that the Durham Ranch 97 "parallel injection and production" relies on up to nine months of injection, contemporaneous and followed by up to 27 months of recovery. The application material states that the current groundwater flow direction is toward the proposed trial wells in both PL204 and PL195.
Provide the following additional information:

- *Confirmation of the flow directions and flow rates (with confidence) at the release depths in Durham Ranch 97 and Durham Ranch 98.*
- *Details to confirm that the mathematical calculations that verify whether the 36 months of production and recovery will be sufficient to capture the fluid injected during the initial 9 months, and that the flow direction and rate have not overtaken the recovery potential. The flow rate and direction must account for the anticipated / known production influences in the vicinity.*
- *Provide the location (coordinates) and depth of Durham Ranch 98.*

Note: DES is aware of the contingency of the surrounding production well network.

Groundwater flow direction and injection rates are described in Sections 3.2.5 and 4.1.2 of the application. Table 4 provides the location (coordinates) of all relevant wells for the proposed trial.

As described in the application, injection would generally occur under gravity. The relatively short injection period compared to the production period, and network of surrounding production wells would ensure recovery of injection fluid regardless of flow direction or injection rates. This assertion is supported by the CSIRO report *Assessing the potential impacts of hydraulic fracturing on water and soil quality in the vicinity of well sites in the Surat Basin, Queensland* (https://gisera.csiro.au/wp-content/uploads/2020/04/Water-12-Milestone-7-final-report.pdf). Figure ES1 and Figure 34 of Section 6 of this CSIRO report demonstrates the relatively short time period (e.g. < 40 days) for return of injection fluids from coal seams due to operation of production wells.

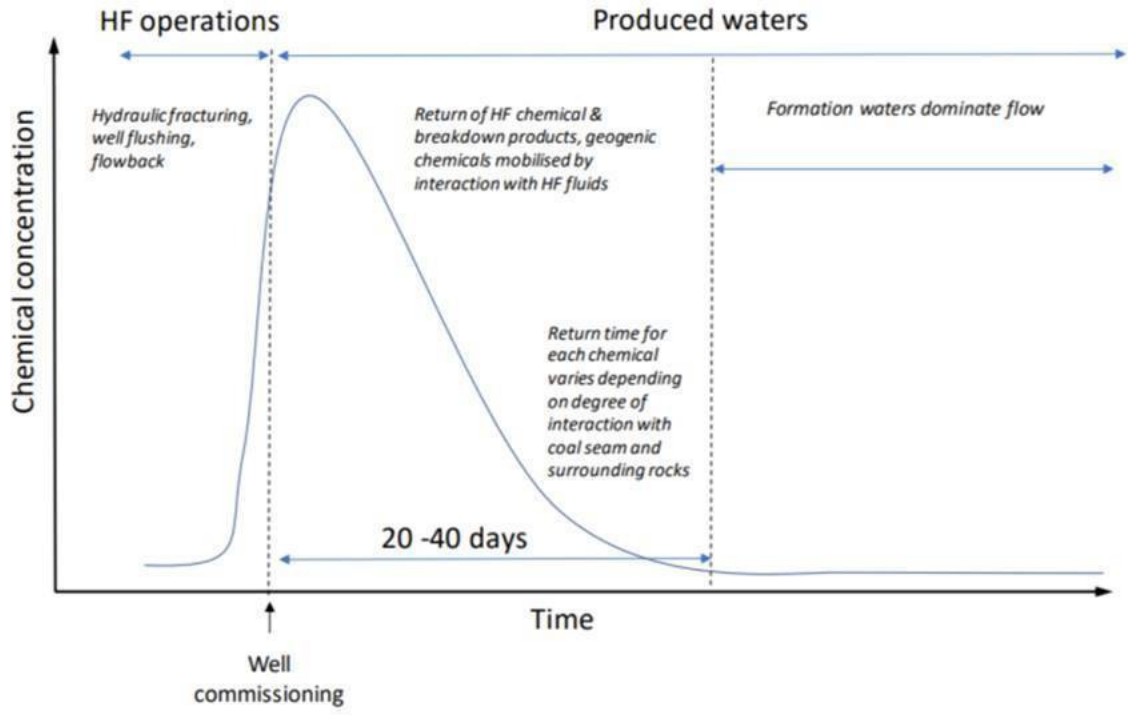

Figure ES1 Conceptual model of chemical concentrations observed in CSG well waters

Figure 5 and Table 4 of the application provide details of the many production wells surrounding the injection trial wells. The groundwater chemistry of produced water from these wells would be regularly monitored during the trial to confirm localised radial groundwater flow from the trial injection wells.