

Morning Report PNR1z

Management System:	HSE	File Name:	071_PNR1z_17.12.18_RMR	
Approver:	Senior Geoscientist	Version No:	1	
Reviewer:	Frac Manager	Date of Issue:	18 th December 2018	
Author:	Senior Frac Engineer	Proposed date of Review:	n/a	
Version	Section	Revision Information	Date	Reviser
0.1	All	Draft Publication	18/12/2018	Senior Frac Engineer
<i>Documents are reviewed as per proposed review date, or sooner if a significant change to the operation has taken place, to ensure relevance to the systems and process that they define.</i>				

Summary

Overview of day's operations (midnight to midnight):

- Performed a minifrac on sleeve 41. Performed a proppant fracture on sleeve 41. Flowed back the well.
- Immediate post-frac flowback performed
- Induced seismicity: none
- No red line boundary breached

Injection Summary

- **Stage 41 - Minifrac**

Injection Depth m (RT)	Volume (fluid m ³ , proppant tonne)	Fluid System	Additives (type, mass kg, %)
-2664.3 m MDRT	Slickwater (13.7 m³)	Slickwater	B528 Friction Reducer, Slickwater – 3.3 kg – 0.02%
-2343.1 m TVDRT			

- **Stage 41**

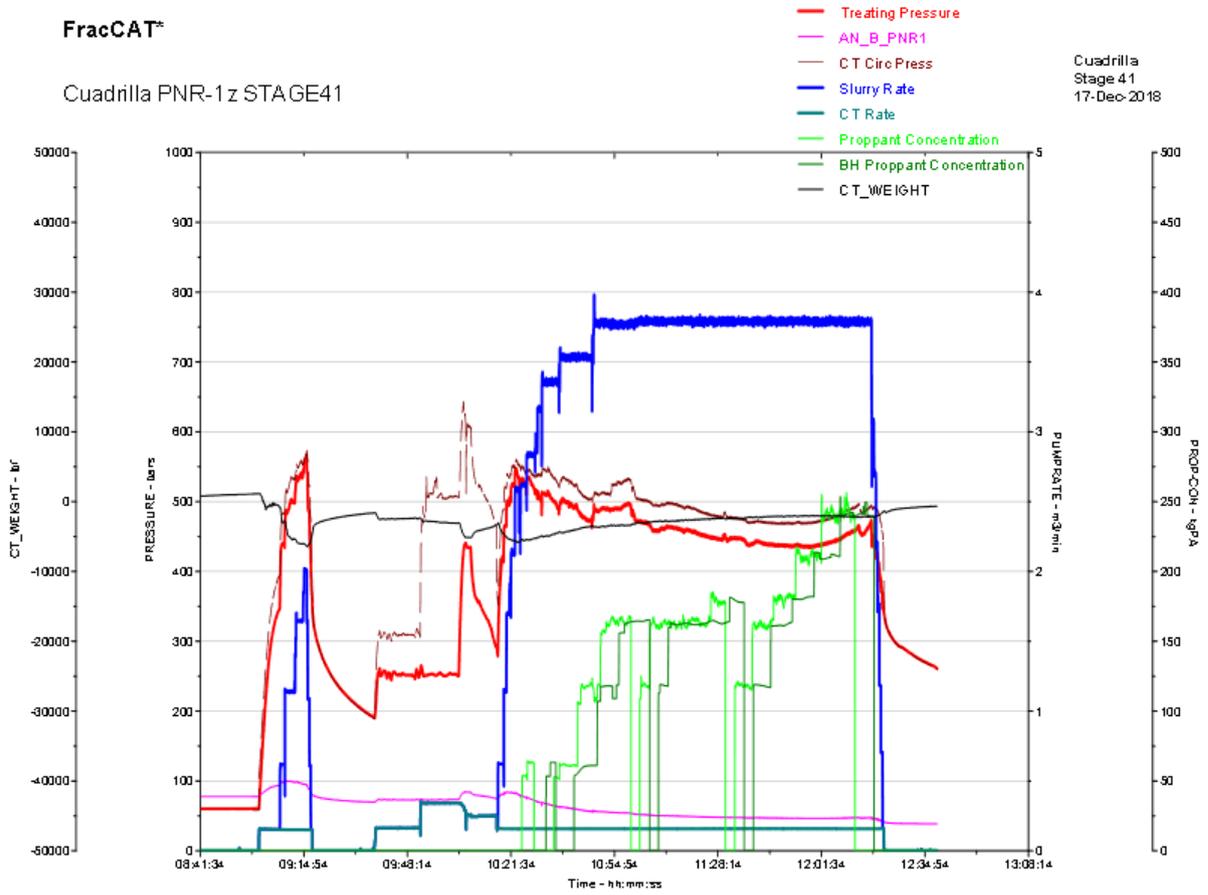
Injection Depth m (RT)	Volume (fluid m ³ , proppant tonne)	Fluid System	Additives (type, mass kg, %)
-2664.3 m MDRT	Slickwater (417.3 m³ & 50.4 T) 10% HCl (2.0 m³)	Slickwater HCl	B528 Friction Reducer, Slickwater – 99.7 kg – 0.02%
-2343.1 m TVDRT			

Injection Chart - Main Frac

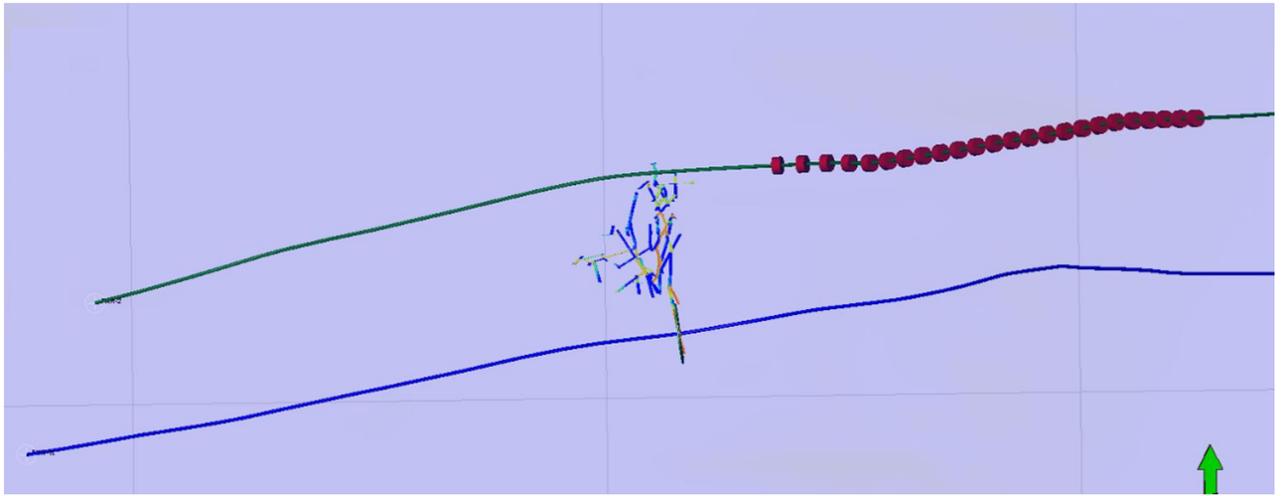
FracCAT®

Cuadrilla PNR-1z STAGE41

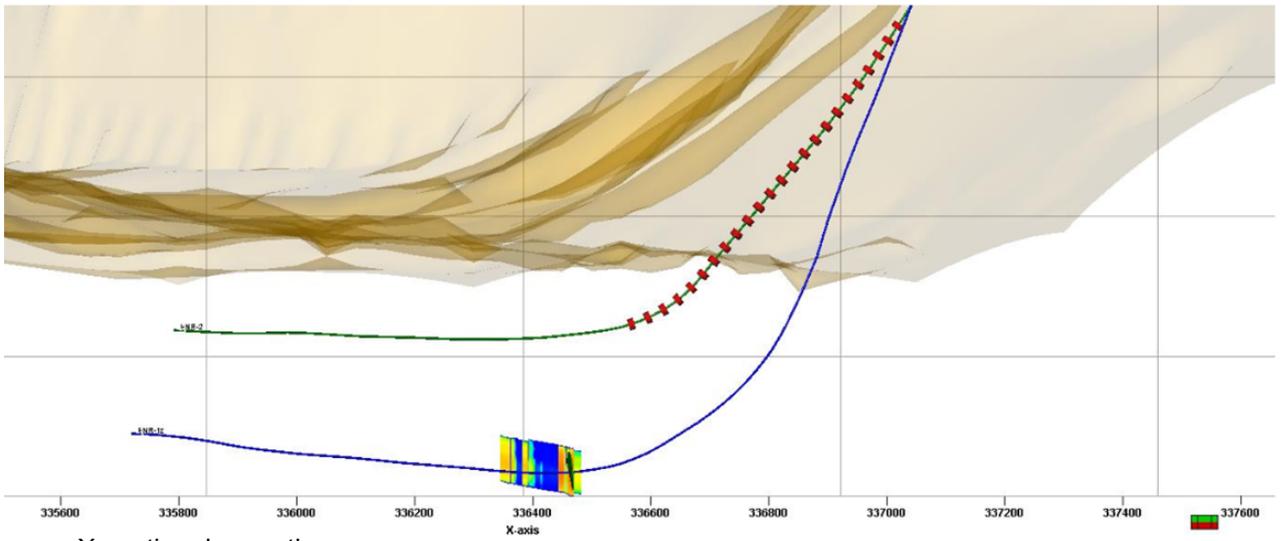
Cuadrilla
Stage 41
17-Dec-2018



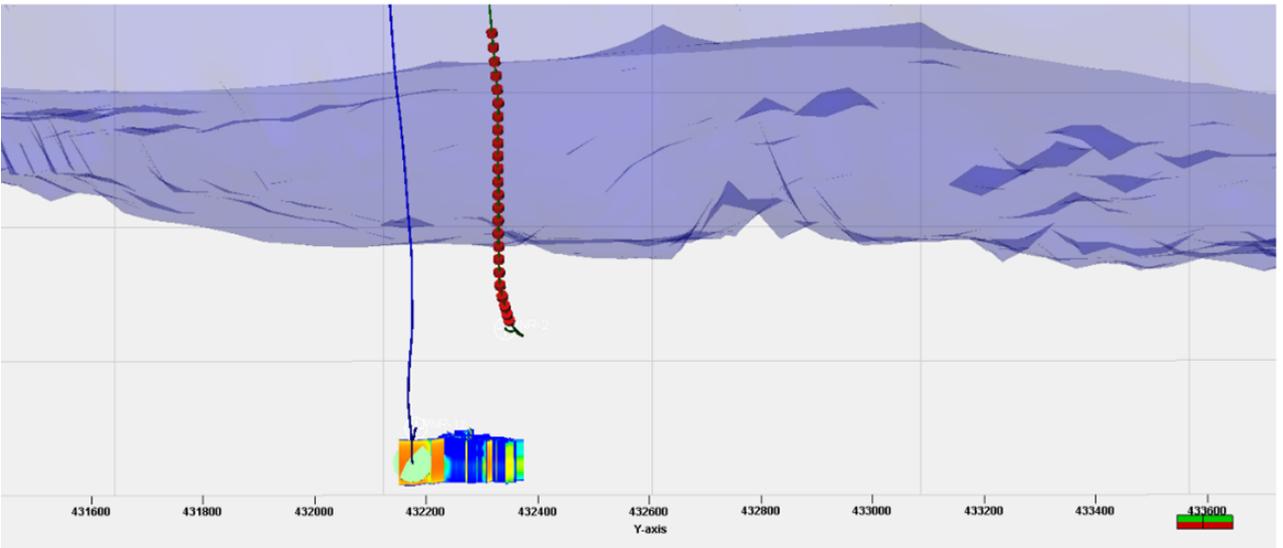
Fracture Growth



- Map View, scale north bar



- X-section due north



- X-section due east
- Max hydraulic frac half length: 108.9 m
- Hydraulic frac height at well: 82.2 m

Well Integrity Status

- No change

Seismicity of Note

- None

Update to Stress Magnitude

- No update to stress magnitude as closure was not observed
- $S_{Hmin} = 0.0148$ MPa/m