 

Completions

END OF WELL REPORT







**Well: `{{ well\_name }}`**

**Client: `{{ Client }}`, `{{ Country }}`**

**GeoUnit: `{{ Geounit }}`**

**Location: `{{ Location}}`, `{{ Country }}`**

**End of Job Report**

CPL FDP Job Number: **{{Job\_Number}}**

|  |  |
| --- | --- |
| Rig: | **`{{Rig \_Name}}`** |
| Job Type: | **`{{Installation\_Type}}`** |
| Job Installation Period: | **`{{Start\_date}}` - `{{End\_date}}`** |
| Client Representatives: | **`{{Client\_Representatives}}`** |
| SLB Representatives: | **`{{PSD\_Team}}`** |
| SLB Job Coordinators: | **`{{Job\_Coordinator}}`** |
| SLB Job Supervisors: | **`{{Job\_Supervisors}}`** |
| SLB Crew: | **`{{Crew\_Members}}`** |

REVISION HISTORY:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Rev | Issue Date | Prepared by: | Reviewed By: | Approved By: |
| **00** | **`{{issue\_date}}`** | **`{{prepared\_by}}`** | **`{{reviewed\_by}}`** | **`{{approved\_by}}`** |

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# LIST OF ACRONYMS

|  |  |
| --- | --- |
| **TERM** | **DEFINITION** |
| CS | Completion Sensor |
| CU | Cement Unit |
| L/D | Lay Down |
| M/U | Make Up |
| N/U | Nipple Up |
| N/D | Nipple Down |
| RIH | Run In hole |
| OH | Open Hole |
| PBR | Polished Bore Receptacle |
| PCE | Pressure Controlled Equipment |
| POOH | Pull Out of Hole |
| PUW | Pick Up Weight |
| P/U | Pick Up |
| RB | Rack Back |
| RHT | Right Hand Turn |
| SBE | Seal Bore Extension |
| SOW | Slack Off Weight |
| S/O | Slack Off |
| TH | Tubing Hanger |
| THA | Tubing Hanger Adapter |
| THS | Tubing Head Spool |
| TRSV | Tubing Retrievable Safety Valve |
| WDS | Wash Down Shoe |

# EXECUTIVE SUMMARY

* 1. INTRODUCTION

This report describes Water Injector Type II installation with Lower and Intermediate Completion on **`{{ well\_name }}`**.

* 1. JOB OBJECTIVES

The main objectives of **`{{ well\_name }}`**were the following:

* Conduct all operations safely and efficiently without service and delivery concerns, accidents, or incidents.
* Run and install lower completion in the **`{{ OH\_id }}`**drilled open hole with a wash-down system, Wire wrap Screens **`{{scrn\_size }}`**, blank pipe, QUANTUM packer with LBFV and deploy to TD using 4” XT39 work string.
* Set and test the packer.
* Displace the open hole to mud cake breaker.
* Displace the 7-5/8” casing above the LBFV to **`{{ fluid\_grad }}`** packer fluid.
* Run and install intermediate completion in the 7-5/8” casing with WEG, landing nipple pre-installed with a T4-Injection valve and QUANTUM packer to packer setting depth using 4” XT39 work string.
* Set IC packer and release setting tool.
* Perform and Inflow Test on the T-4 Injection valve.
  1. HSE OBJECTIVES

The HSE objectives for the well were to perform all operations without incidents, injury, or environmental issues. Taking into consideration the safety of the workers as the foremost goal in conducting operations, specific safety-related issues are highlighted as follow:

* Operate within design or environmental limits.
* Follow safe work practices and procedures.
* Ensure HARC/ JSA is in place during the entire job and plan job accordingly.
* Comply with all applicable rules and regulations.
* Ensure that the job is conducted safely and promptly.

# WELL DATA

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Well Information** | | **Casing Data** | | |
| **Well name** | **`{{ well\_name }}`** | | **Casing Description** | 7 ⅝” 26.4 ppf K55 VAM TOP L80 | |
| **Well Type** | **`{{ well\_type }}`** | | **Casing ID (in)** | 6.969 | |
| **Field Name** | **`{{ field }}`** | | **Casing Drift (in)** | 6.884 | |
| **Total Depth MDRT (m)** | **`{{ tot\_depth }}`** | | **Casing Length (m)** | **`{{ csg\_shoe }}`** | |
| **Maximum deviation (deg)** | **`{{ max\_dev }}`** | | **Reservoir Information** | | |
| **Max DLS (deg/30m)** | **`{{ max\_dls }}`** | | **Reservoir Temperature (deg C)** | **`{{ BHT }}`** | |
| **Casing Shoe (m) MDRT** | **`{{ csg\_shoe }}`** | | **Reservoir Pressure (psi)** | **`{{ BHP }}`** | |
| **Open Hole Size (in)** | **`{{ OH\_id }}`** | | **Zones MD (m)** | **`{{ OH\_drain }}`** | |
| **Open Hole Interval (m)** | **`{{ OH\_drain }}`** | |
| **Rig name** | **`{{Rig \_Name}}`** | |
| **Rotary Table – Ground level elevation (m)** | **`{{grd \_elev}}`** | |
| **Tubing data** | | |
| **Lower Completion** | | |
| **Tubing Description** | 4-1/2” 12.60 ppf 4140 HSM-2 | |
| **Tubing ID (in)** | 3.958 | |
| **Tubing Drift (in)** | 3.833 | |
| **Intermediate Completion** | | |
| **Tubing Description** | 4” 13.20 ppf L80 VAM TOP | |
| **Tubing ID (in)** | 3.327 | |
| **Tubing Drift (in)** | 3.215 | |

# WELL TRAJECTORY

**[[ TRAJECTORY ]]**

**[[ SURVEY ]]**

# FINAL COMPLETION SCHEMATIC

**[[ SCHEMATIC ]]**

# DOWNHOLE EQUIPMENT INSTALLED

* 1. LOWER COMPLETION

QUANTUM PACKER

|  |  |
| --- | --- |
| **QUANTUM PACKER** | |
| **DESCRIPTION** | 7-5/8 X 4.000 QUANTUM (24-29.7), 41XX (80), 4140 (125), NITRILE (90), 4.937-6 STUB ACME |
| **PN** | 44001-000-00014 |
| **SN** | **`{{ STP\_PKR sn }}`** |
| **OD (in)** | 6.680 |
| **IN (in)** | 4.00 |
| **DIFFERENTIAL PRESSURE RATING (PSI)** | 6000 |
| **GRADE** | L80 |
| **MATERIAL /ELEMENTS** | NITRILE |
| **ASSEMBLY NO.** | **`{{ STP LC assy\_no }}`** |

7” LARGE BORE FLAPPER VALVE

|  |  |
| --- | --- |
| **LBFV** | |
| **DESCRIPTION** | 7LBFV, 1800PSI, 4130(110), 4-1/2 (11.6) JFE BEAR BOX X PIN |
| **PN** | 103682149 |
| **SN** | **`{{ STP\_LBFV sn }}`** |
| **OD (in)** | 6.680 |
| **IN (in)** | 4.00 |
| **INTERNAL WORKING PRESSURE (PSI)** | 6000 |
| **ASSEMBLY NO.** | **`{{ STP LC assy\_no }}`** |

POLISHED BORE RECEPTACLE

|  |  |
| --- | --- |
| **2.688” PBR** | |
| **DESCRIPTION** | PBR.2.688 BORE ID, 4FT OAL 4.5 12.6 HSM2-PREMIUM, BOX X PIN 4140(80), |
| **PN** | 104357958 |
| **SN** | **`{{ WDS\_PBR sn }}`** |
| **OD (in)** | 5.203 |
| **IN (in)** | 2.875 |
| INTERNAL WORKING PRESSURE (PSI) | 23000 |
| **ASSEMBLY NO.** | **`{{ WDS assy\_no }}`** |

WASH DOWN SHOE

|  |  |
| --- | --- |
| **FLOAT SHOE** | |
| **DESCRIPTION** | SINGLE VALVE WASH DOWN SHOE, with 2F-3R, Plunger F type DPFV, Cast iron 4.5 12.6# HSM2 BOX 4140(80) |
| **PN** | 104426071 |
| **SN** | **`{{ WDS\_FS sn }}`** |
| **OD (in)** | 5.220 |
| **IN (in)** | 1.970 |
| VALVE TYPE | SINGLE POPPET |
| **ASSEMBLY NO.** | **`{{ WDS assy\_no }}`** |

* 1. INTERMEDIATE COMPLETION

QUANTUM packer

|  |  |
| --- | --- |
| **QUANTUM PACKER** | |
| **DESCRIPTION** | 7-5/8 X 4.000 QUANTUM (24-29.7), 41XX (80), 4140 (125), NITRILE (90), 4.937-6 STUB ACME |
| **PN** | 44001-000-00014 |
| **SN** | **`{{ STP\_PKR\_IC sn }}`** |
| **OD (in)** | 6.680 |
| **IN (in)** | 4.00 |
| **DIFFERENTIAL PRESSURE RATING (PSI)** | 6000 |
| **GRADE** | L80 |
| **MATERIAL /ELEMENTS** | NITRILE |
| **ASSEMBLY NO.** | **`{{ STP IC assy\_no }}`** |

Landing Nipple

|  |  |
| --- | --- |
| **LANDING NIPPLE** | |
| **DESCRIPTION** | 4 OSRN, 3.125 LANDING NIPPLE, NO-GO, 41XX (80), 4.000 (13.2) VAM TOP BOX X PIN, 4.555 X 2.907 X 15 |
| **PN** | 104357957 |
| **SN** | **`{{ LN assy\_sn }}`** |
| **OD (in)** | 4.555 |
| **IN (in)** | 2.907 |
| **DIFFERENTIAL PRESSURE RATING (PSI)** | 14300 |
| **NIPPLE PROFILE (SIZE/TYPE)** | 3.125/OSRN |
| **ASSEMBLY NO.** | **`{{ LN assy\_no }}`** |

Injection Valve

|  |  |
| --- | --- |
| **T4 INJECTION VALVE** | |
| **DESCRIPTION** | 3 IN T-4 INJECTION SAFETY VALVE |
| **PN** | 104426534 |
| **SN** | **`{{ T4 assy\_sn }}`** |
| **OD (in)** | 2.845 |
| **FITS PACKING BORE I.D. (IN)** | 3.125 |
| **MATERIAL/BODY PARTS** | 4130/4140/4145 |
| **INTERNAL WORKING PRESSURE (PSI) - EOEC AT SPECIFIED TEMP (F)** | 5000[300] |
| **ASSEMBLY NO.** | **`{{ LN assy\_no }}`** |

Wireline Entry Guide

|  |  |
| --- | --- |
| **WEG** | |
| **DESCRIPTION** | WIRELINE ENTRY GUIDE,41XX [80],8 IN LONG,4 IN 13.2 VAM TOP BOX |
| **PN** | 104427230 |
| **SN** | **`{{ WEG assy\_sn }}`** |
| **OD (in)** | 4.00 |
| **IN (in)** | 3.34 |
| **ASSEMBLY NO.** | **`{{ WEG assy\_no }}`** |

* 1. MATERIAL CONSUMPTION

**[[ PnM ]]**

# JOB CALCULATION - TDAS TORQUE AND DRAG

**[[ TDAS ]]**

# OPERATIONAL REVIEW

* 1. EQUIPMENT RECEPTION AND OFFLINE PREPARATION

All equipment, including primary and secondary were loaded out to the **`{{ well\_name }}`** location and inspected upon arrival at the location. Strapped, drifted, and inspected all blank tubing, screens, and wash pipes. All handling tools were inspected before RIH completion.

* 1. RIH OPERATION

On 21st August 2024, the Lower Completion was RIH after a PJSM was conducted with all BHA and handling equipment checked and final approved tally issued. BHA consisted of a QUANTUM packer assembly with 2 Crossovers, 7” LBFV for fluid loss control, blank tubing joints, **`{{scrn\_size }}`** wire wrap screens, and a wash-down system to complete the string.

Without rotation: Circulate at 1 bpm, (CU/CS = 245/143 psi. PUW/SOW = 27.4/25.1T

Circulate at 2 bpm, (CU/CS = 430/270 psi. PUW/SOW = 27.3/24.7T

With rotation: Circulate at 0.5 bpm @60 RPM, PUW/SOW = 27.3 / 25.6T / 1.5 Klb-ft.

@90 RPM, PUW/SOW = 27.0 / 25.9T / 1.5 Klb-ft.

Circulate at 1.0 bpm @60 RPM, PUW/SOW = 26.7 / 26.0T / 1.6 Klb-ft.

@90 RPM, PUW/SOW = 26.8 / 25.9T / 1.6 Klb-ft.

The lower completion string was RIH to 823.00m before entering OH, Performed rotation and circulation test.

Without rotation: Circulate at 1 bpm, (CU/CS = 260/136 psi. PUW/SOW = 30.1/24.7T

Circulate at 2 bpm, (CU/CS = 420/220 psi. PUW/SOW = 30.1/24.4T

With rotation: Circulate at 0.5 bpm @60 RPM, PUW/SOW = 28.7 / 25.4T / 1.7 Klb-ft.

@90 RPM, PUW/SOW = 29.1 / 25.6T / 1.6 Klb-ft.

Circulate at 1.0 bpm @60 RPM, PUW/SOW = 28.6 / 26.2T / 1.8 Klb-ft.

@90 RPM, PUW/SOW = 28.6 / 25.3T / 1.9 Klb-ft.

Continued to RIH into OH on DP to 1346m, unable to proceed due to loss of weight . Swiveled BHA string to to 1354m. M/U Filtersub and circulated string at 1354m till returns observed at surface. P/U string to have BHA at 1293 m. At depth, the final string weights were recorded (PUW/SOW = 47/16.5T) with the QUANTUM Packer at 795.12m. 1 m³ of **`{{mud\_grad }}`**HiVis pill was pumped and displaced with 3 m³ of **`{{mud\_grad }}`**SBM at 1 BPM. Dropped 1.375” brass ball and chased with **`{{mud\_grad }}`**SBM to ball seat.

The string was then pressured up to 1600 psi and kept for 15 minutes. The pull/push test was performed to 60/17T, thereafter the backside test of the packer was performed at 300psi/2000 psi for 5/15 minutes successfully.

The work string was then pressured up to release the service tool at 2700 psi and the service tool released with slack off to 16.5T, then P/U 3m tool to confirm tool released. The string pressured up to 3280psi to blow ball seat and circulated at 1bpm to confirm returns at the surface. The open hole was then displaced to mud cake breaker. Flow check was performed with no observed losses and commenced POOH of service tool string above LBFV.

POOH and L/D workstring to put stinger at 773m. Continued to displace the 7-5/8” casing to **`{{ fluid\_grad }}`** packer fluid. Performed a flow check and observed no losses. LBFV was then pressure tested successfully at 700psi for 15mins with 0.6bbls pumped/returned. POOH to surface with the service tool and wash pipes.

On 22nd August 2024, the intermediate completion was RIH after a PJSM was conducted with all BHA and handling equipment checked and the final approved tally issued. BHA consisted of QUANTUM packer assembly with nipple assembly with pre-installed T-4 injection valve and WEG assembly completed the string.

The intermediate completion string was RIH to expected depth at 337m where circulation tests were performed @ 1 bpm, (CU/CS = 72/60 psi) and @ 2 bpm, (CU/CS = 120/100 psi. (PUW/SOW = 26.0/25.8T with block weight of 16.5T) and noticed returns at the shale shakers. With QUANTUM Packer at 304.152m, dropped 1.375” brass ball and pressured up the string to 1600 psi for 15mins. Performed pull/push test to confirm packer set with 10T above and 10T below (Pull / Push test-36/17 T), then slack off to 25T and mechanically released service tool with RHT. Pull service tool 3m to confirm service tool free and L/D Filter Sub assembly.POOH service tool with 4” drill pipe and lay down service tool.

Lined up cement unit via test line down to Kill line. Opened KL HCR. Flushed same, confirmed returns.Closed BSR & pressured up to 250 psi from the cement unit ( SPP =200), isolated same. Increased pressure from BOP test pump to 1100psi /15mins stable.

Bled down to 200 psi slowly at the BOP pump unit, (total pumped/recovered = 67ltrs/ 71ltrs). Informed town and advised to repeat test due to unsatisfactory results. Repeated inflow test with similar results (total pumped/recovered = 71ltrs/ 74ltrs). Advised to retrieve T4 injection valve and install RN plug due to unsatisfactory returns observed.

R/U Expro slickline, held PJSM & RIH to retrieve T4 injection valve. POOH to surface with T4+ lock mandrel with **`{{mud\_grad }}`**mud allover the injection valve assembly instead of **`{{ fluid\_grad }}`** brine indication of well not completely displaced to **`{{ fluid\_grad }}`** brine

Installed & pressure tested 3.125" RN plug to 1100 psi. OK. R/D Slickline & flow checked for 2hrs.OK.

* 1. CONCLUSION

The completion was executed successfully without any service quality concerns. The overall operations were conducted and executed as per TOTALENERGIES EP UGANDA work instructions.

# SEQUENCE OF EVENTS

**[[ JOURNAL ]]**

# LESSONS LEARNED/BEST PRACTICES

* 1. LESSONS LEARNED

# `{{lesson\_learnt\_1}}`

# `{{lesson\_learnt\_2}}`

# `{{lesson\_learnt\_3}}`

* 1. BEST PRACTICE
* `{{lesson\_learnt\_1}}`
* `{{lesson\_learnt\_2}}`
* `{{lesson\_learnt\_3}}`

# QHSE

|  |  |  |
| --- | --- | --- |
|  | **BRIEF DESCRIPTION** | **DATE** |
| 20240828093703 | Failed Inflow test | Aug 23, 2024 |
| 20240826093439 | Screens lamiflex protection missing | Aug 21, 2024 |
| 20240826084708 | Pressure gauge calibrations | Aug 22, 2024 |
| 20240826095303 | Screens lamiflex protection missing | Aug 22, 2024 |

# ATTACHMENTS

* 1. PRESSURE TEST CHARTS

**Lower Completion**

**(( LINE TEST )) - Optional**

**(( PACKER SETTING ))**

**(( ANNULUS TEST ))**

**(( RELEASE TOOL )) - Optional**

**(( BLOW BALLSEAT ))**

**(( LBFV TEST ))**

**Intermediate completion**

**(( LINE TEST )) - Optional**

**(( PACKER SETTING ))**

**(( INFLOW TEST )) - Optional**

**(( INFLOW TEST )) - Optional**

* 1. SUB-ASSEMBLIES CERTIFICATES

**Lower QUANTUM Packer Assembly `{{ STP LC assy\_no }}`**

**[[ STP LC ]]**

**Washdown Assembly `{{ WDS assy\_no }}`**

**[[ WDS ]]**

**Intermediate Completion QUANTUM Packer assembly IC-W12-STP-21**

**[[ STP IC]]**

**Nipple Assembly `{{ LN assy\_no }}`**

**[[ LN ]]**

**Wireline Re-Entry Guide Assembly `{{ WEG assy\_no }}`**

**[[ WEG ]]**

* 1. CLIENT SERVICE QUALITY EVALUATION

**[[ CSR ]]**

* 1. TALLIES

**[[ TALLY- LC]]**

**[[ TALLY - IC]]**