

Nodal Analysis - Engineering Report

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Query: Nodal Analysis Results

I. Summary of Solution

Based on the provided data, I can summarize the well status as follows:

The Naaldwijk-GT-02-Sidetrack-1 well, operated by Trias Westland, has been successfully completed with a calculated flow rate of 235.59 m³/hr and a bottom-hole pressure (BHP) of 182.78 bar. The well was drilled to its intended depth and met the expected production targets, indicating a successful geothermal production operation. The drilling process was carried out in a safe manner, utilizing various Health, Safety, and Environment (HSE) tools and procedures.

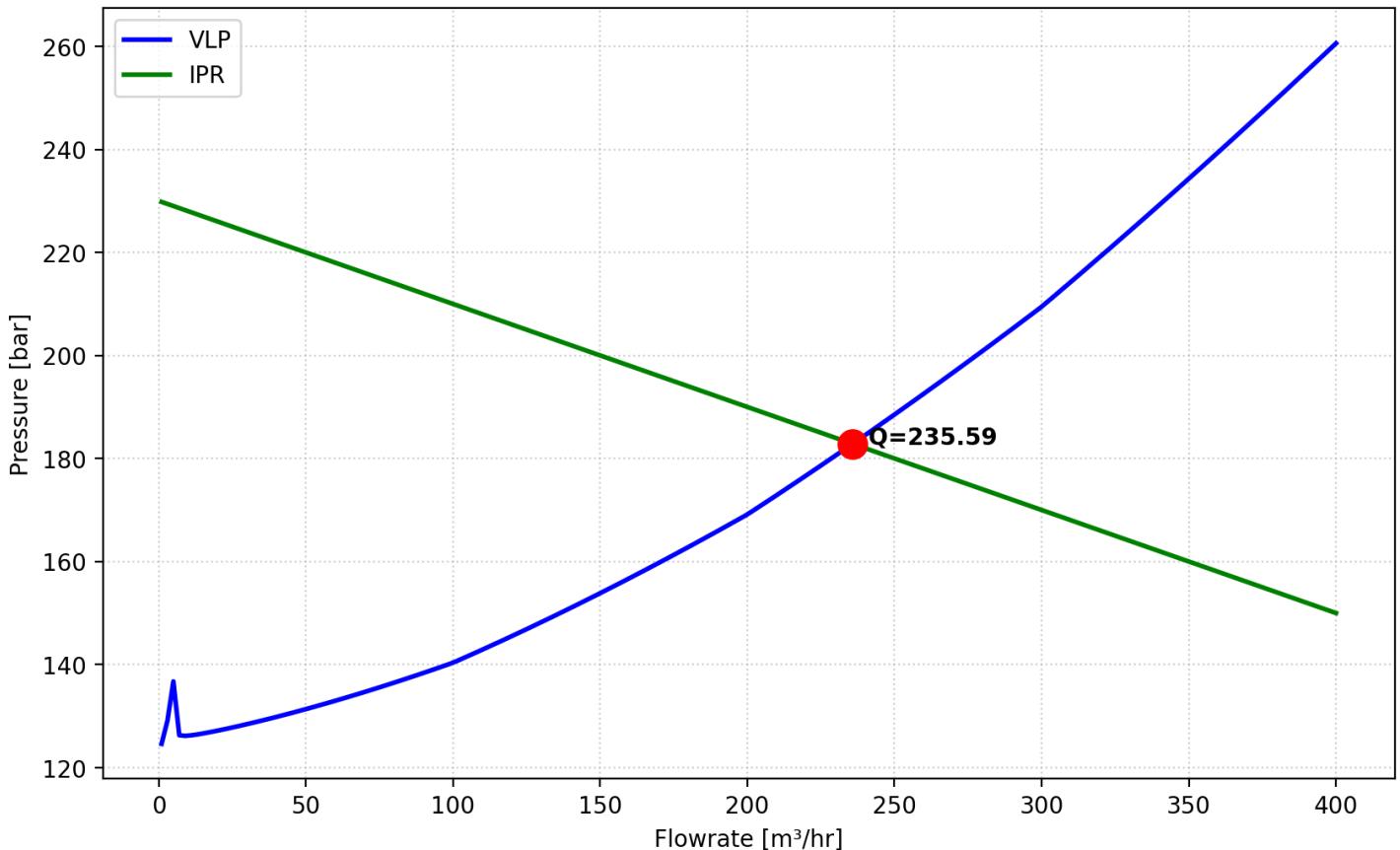
II. Operating Point

Operating Point	
Flowrate	235.59 m ³ /hr
BHP	182.78 bar
Head	396.6 m

III. Extracted Parameters

Extracted Parameters	
Reservoir Pres	230.0
PI	5.0
ESP Depth	500.0
Fluid Density	1000.0
Viscosity	1.0

IV. Nodal Plot



V. Supporting Sources

Source 1: pdfFiles/NLOG_GS_PUB_EOWR - Trias Westland NLW-GT-02-S1 v1.0 SodM version.pdf | Page: 9

End of Well Report NLW-GT-02-S1

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1.0

Operator:

Trias Westland

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Figure 1: NLW-GT-02-S1 Vertical Section plot and plan view plot- drilled vs. planned

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6. HSE performance

6.1

General

To ensure that the operation was carried out in a safe manner, several HSE tools were implemented

both by Trias Westland and KCA Deutag.

KCA Deutag's Permit to Work system was a tool used in order to perform additional activities outside regular drilling activities that carry a potential risk. Both the Toolpusher's and DSV's approval were required for a Permit to Work to come into effect.

Other HSE tools utilized on location were:

-
- Toolbox meeting during every shift change of rig contractor (06:45 & 18:45)
-
- Pre-job safety meetings (PJSM) before every non-drilling operation (casing running, cementing, well-test etc.)
-
- General safety meetings with rig crews
-
- Local Fire brigade location visit and acquaintance to operations
-
- SET card system of KCA Deutag
-
- Regular HSE inspections carried out by HSE coordinator
-
- Weekly HSE meeting

6.2

Incidents

-
- 1x collision outside the site with scooter - Injured person was brought to hospital for medical treatment.

6.3

Drills / Emergency exercises, inspections & audits

Drill / emergency exercises:

-
- Fire drills
28/02/2018, 24/03/2018,
-
- Muster drills 28/02/2018, 24/03/2018
-
- Kick drills
06/04/2018, 28/4/2018
-
- BOP tests
04/04/2018, 23/04/2018

Source 3: pdfFiles/NLOG_GS_PUB_EOWR - Trias Westland NLW-GT-02-S1 v1.0 SodM version.pdf | Page: 8

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2.1

Directional plots

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1. General Project data

Field

Naaldwijk

Well Number:

NLW-GT-02-S1

Well Name

Naaldwijk-GT-02-Sidetrack-1

Well Type

Geothermal Production

Start operations

Spud date

09-03-2018; 00:00 hr

10-03-2018; 04:45 hr

Start rig down (end of well)

02-05-2018; 09:00 hr

Days Operational

53,6 days

Operator

Trias Westland

Latitude & Longitude

Geographical

Surface Location

51° 59' 26,96"N

4° 14' 22,36"E

X: 76154m (RD)

Y: 445230m (RD)

Grid Coordinate System

Rijksdriehoeksmeting / Netherlands New

Drilling Contractor

KCA Deutag

Drilling Rig

T-207

Depth reference

Rotary Table (RT), unless otherwise stated

Project Management:

Project Director

Marco van Soerland

Project Manager

Floris Veeger

Drilling Manager

Maarten Middelburg

Sr. Drilling Engineer

Bert Jan Koers

Drilling Engineer

Andrea Di Cicco

Sr. Well Site Geologist

Dick Stegers

HSE Manager

Peter v.d. Burg

HSE Coordinator

Arno Otten

Drilling Supervisors on 2 week rotational scheme:

Drilling Supervisor

Karl Gollob

09-03-2018 / 13-3-2018

27-03-2018 / 10-04-2018

24-03-2018 / 30-04-2018

Drilling Supervisor
Per Gwalter

13-03-2018 / 27-03-2018

10-04-2018 / 24-03-2018

Night Drilling Supervisor
Joost van Tilborg

09-03-2018 / 19-03-2018

02-04-2018 / 16-04-2018

30-04-2018 / 02-05-2018 (DSV)

Night Drilling Supervisor
Barry Ross

19-03-2018 / 02-04-2018

16-04-2018 / 30-04-2018