

De Wijk Periodic Monitoring Report

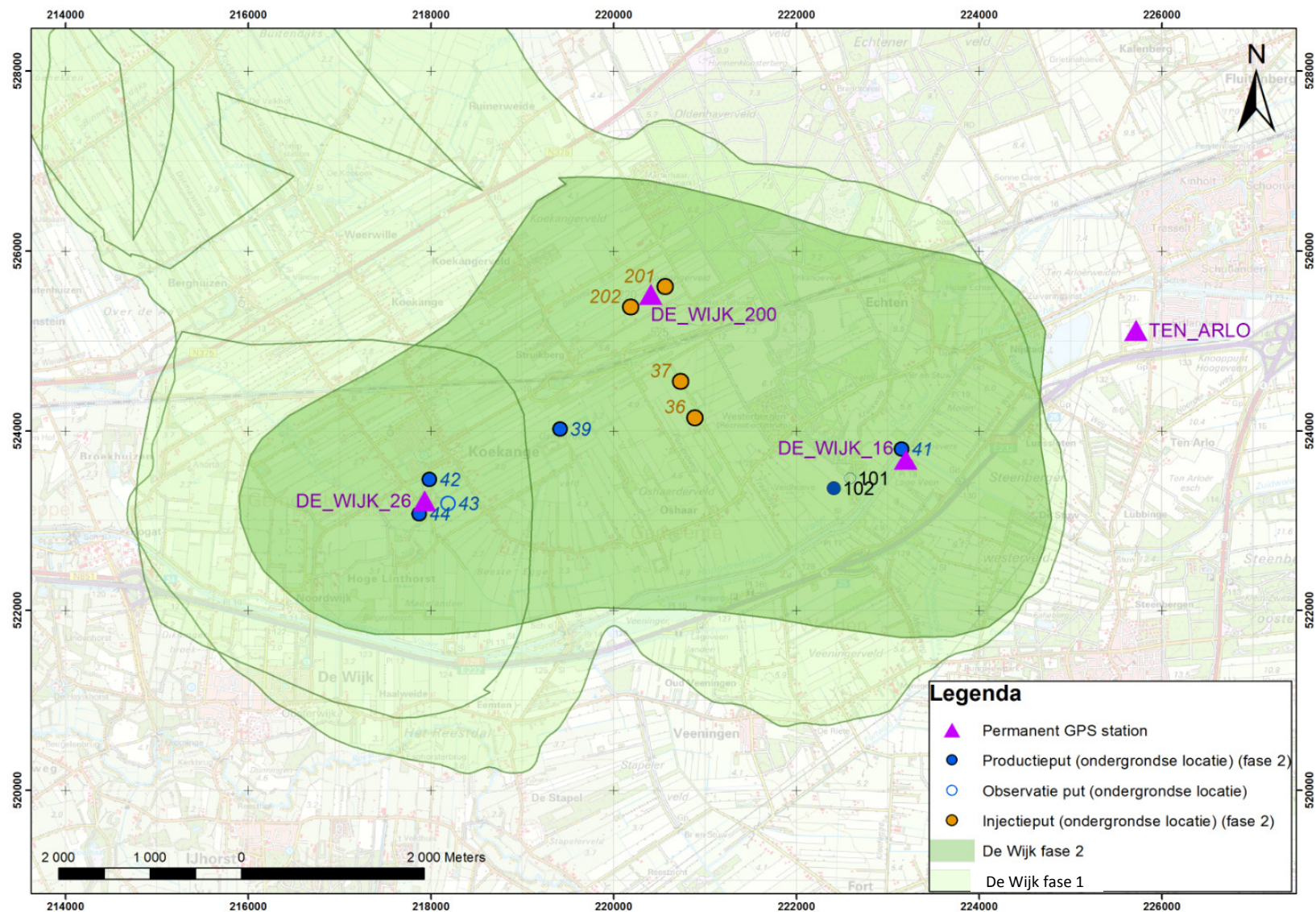
De Wijk Meet & Regel Protocol Month: June 2018

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De Wijk: Production and Subsidence Monitoring

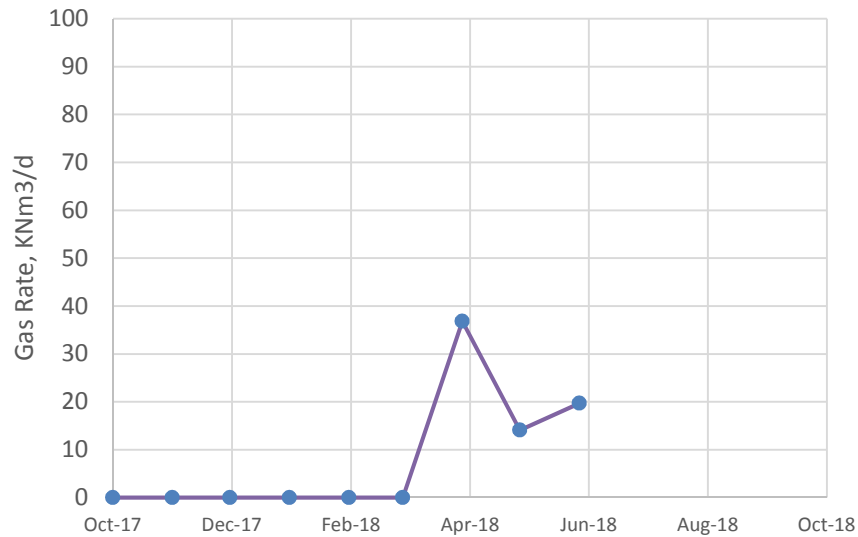
De Wijk Map



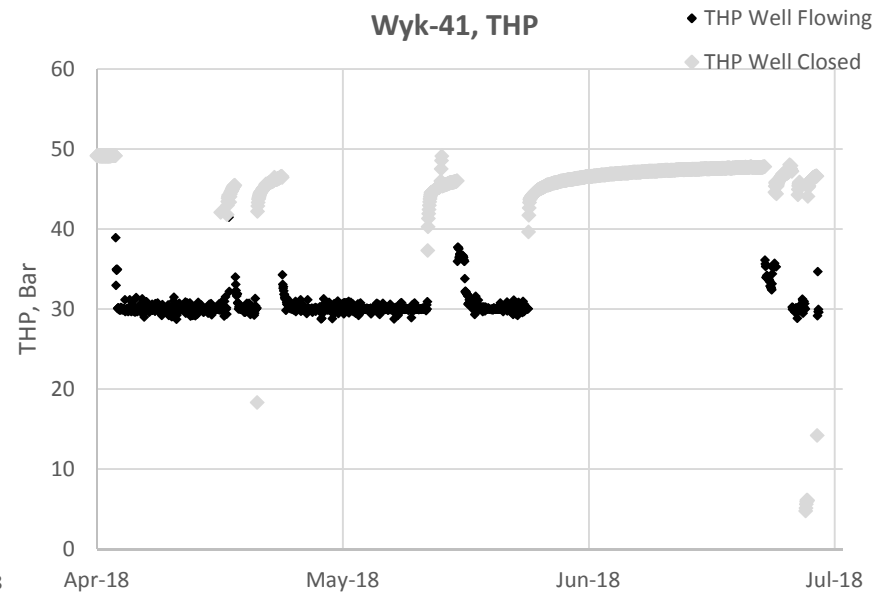
De Wijk: Production and Subsidence Monitoring

De Wijk Phase 2 Producers (East)

WYK-41, Production Rate

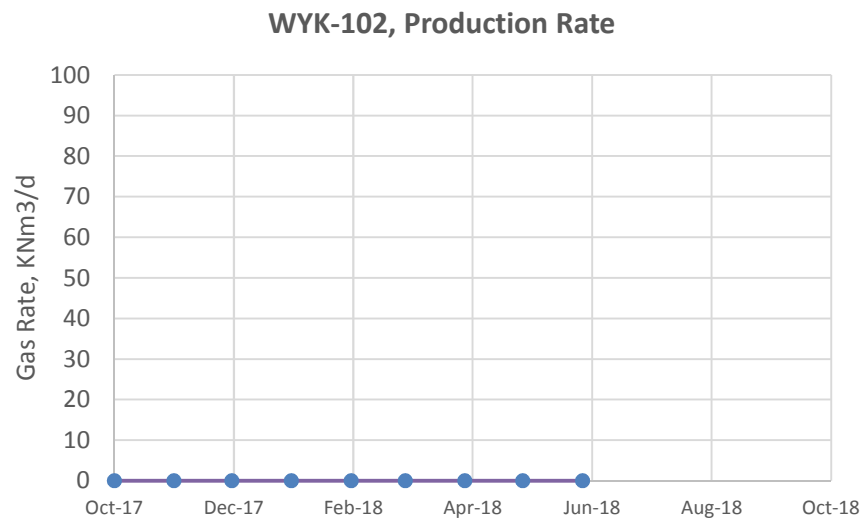


Wyk-41, THP



NOTE: When the well is flowing (black dots), the tubing head pressure (THP) is indicative for reservoir pressure at the bottom of the well. When the well is closed (grey dots), the THP data is not relevant. In order to close a well, either the SSV is closed (valve upstream of the pressure gauge), or the FCV is closed (flow control valve downstream of the gauge), or both are closed. When a well is closed, the actual bottom hole pressure is within the normal operating range irrespective of the measured THP.

De Wijk Phase 2 Producers (East)

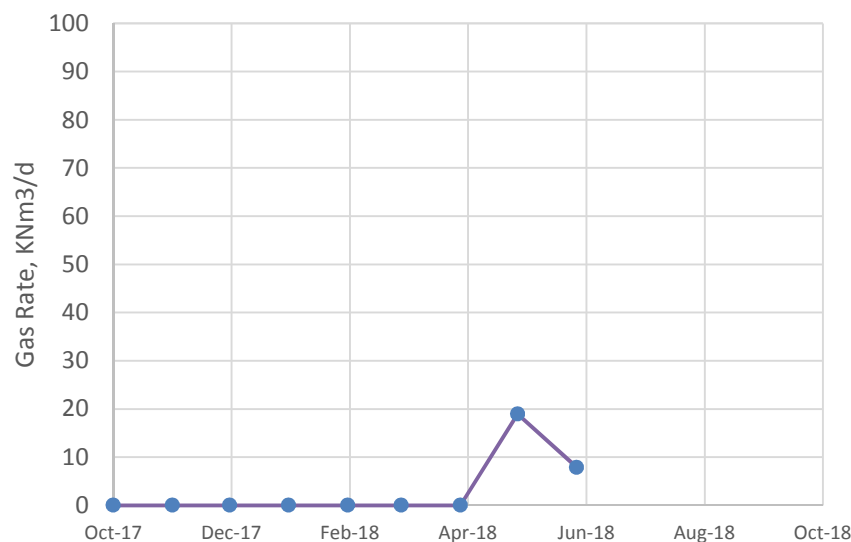


WYK-102 well is not yet drilled.

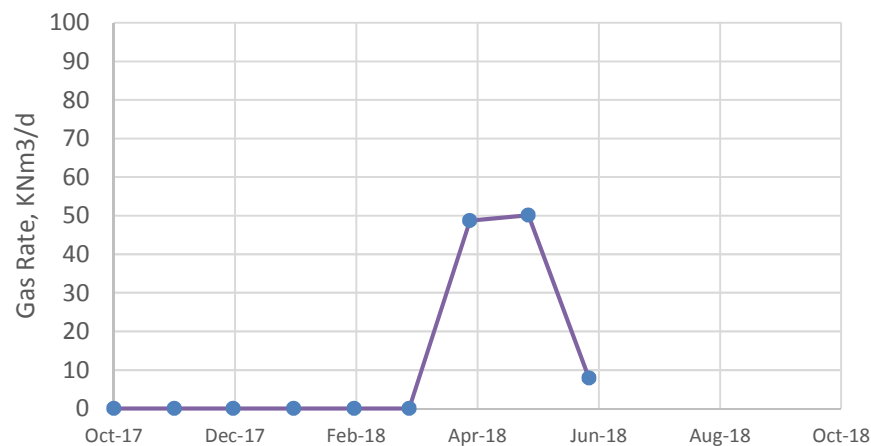
De Wijk: Production and Subsidence Monitoring

De Wijk Phase 2 Producers (West)

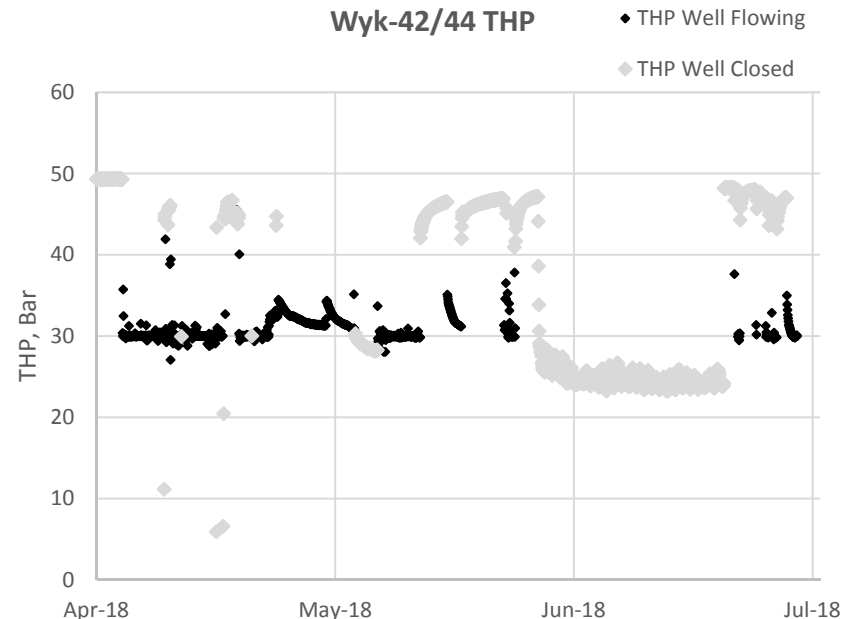
WYK-42, Production Rate



WYK-44, Production Rate



Wyk-42/44 THP

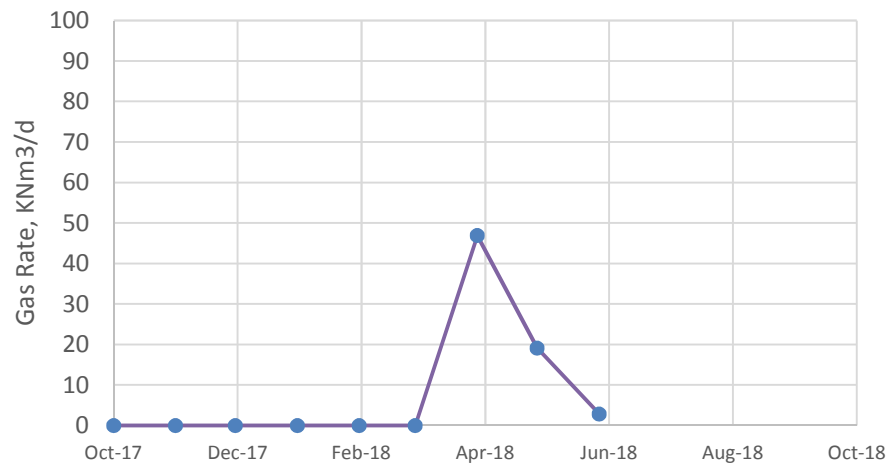


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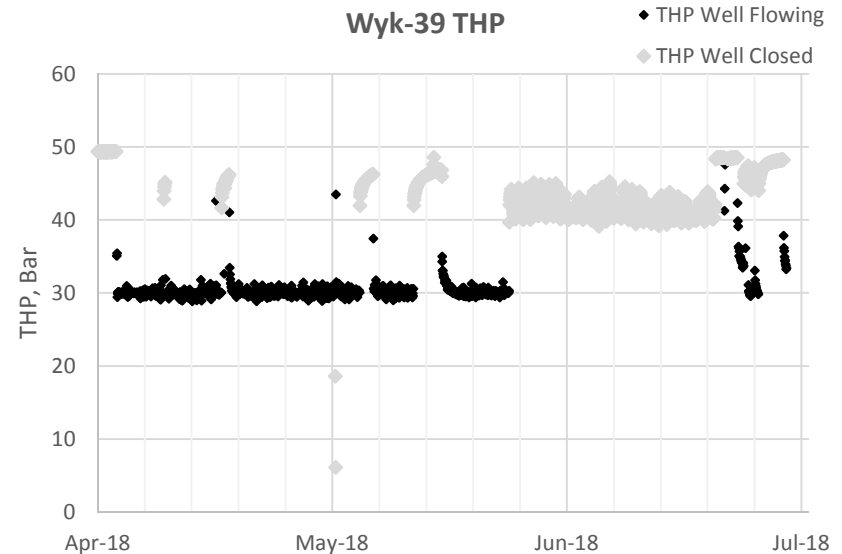
De Wijk: Production and Subsidence Monitoring

De Wijk Phase 2 Producers (West)

WYK-39, Production Rate



Wyk-39 THP

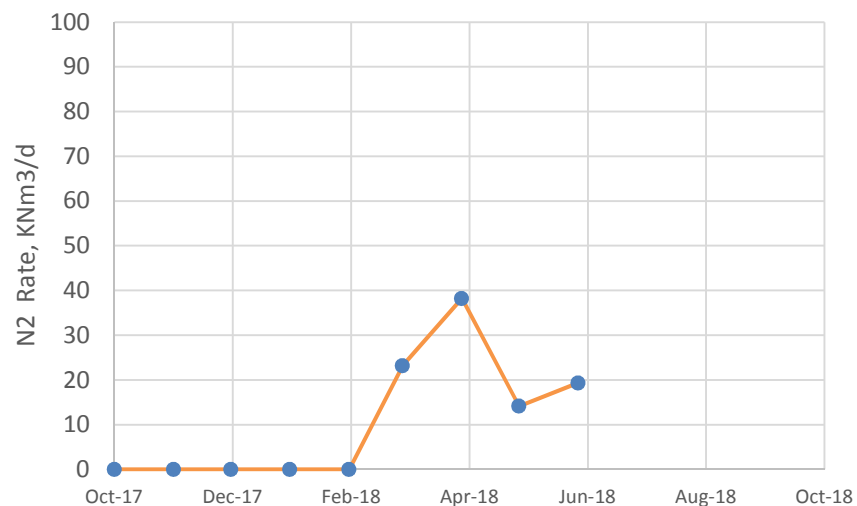


NOTE: When the well is flowing (black dots), the tubing head pressure (THP) is indicative for reservoir pressure at the bottom of the well. When the well is closed (grey dots), the THP data is not relevant. In order to close a well, either the SSV is closed (valve upstream of the pressure gauge), or the FCV is closed (flow control valve downstream of the gauge), or both are closed. When a well is closed, the actual bottom hole pressure is within the normal operating range irrespective of the measured THP.

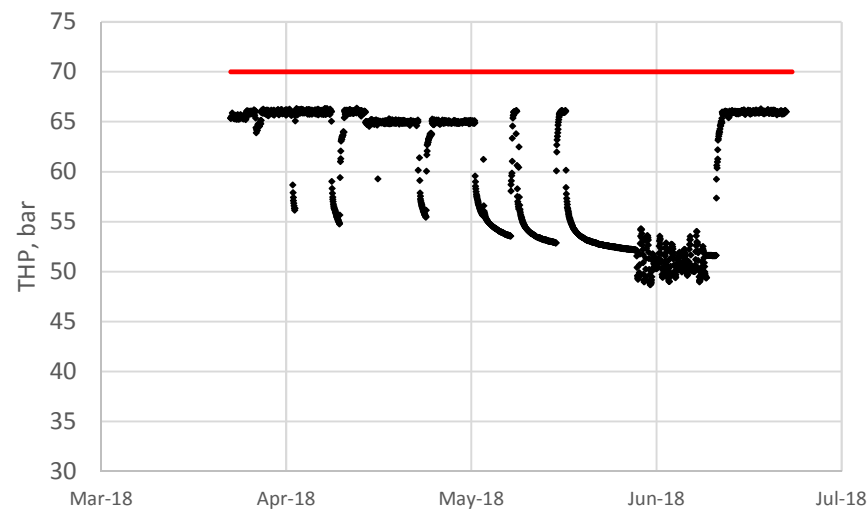
De Wijk: Production and Subsidence Monitoring

De Wijk Phase 2 Injectors

WYK-201

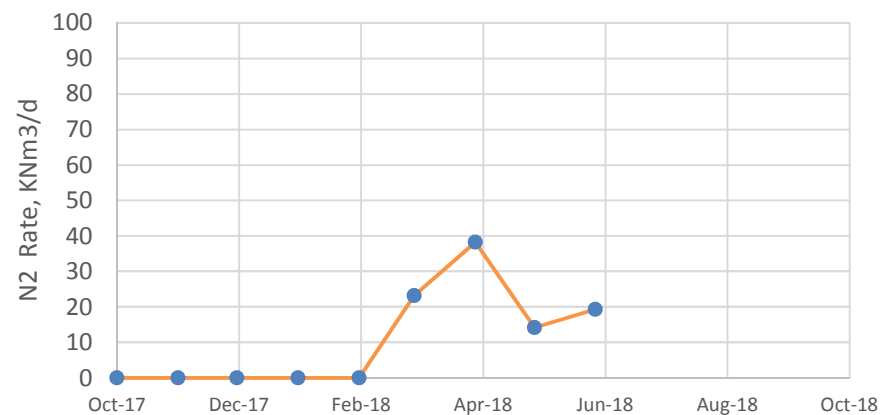


WYK-201/202 THP



• WYK 201/202 THP — Max Inj THP

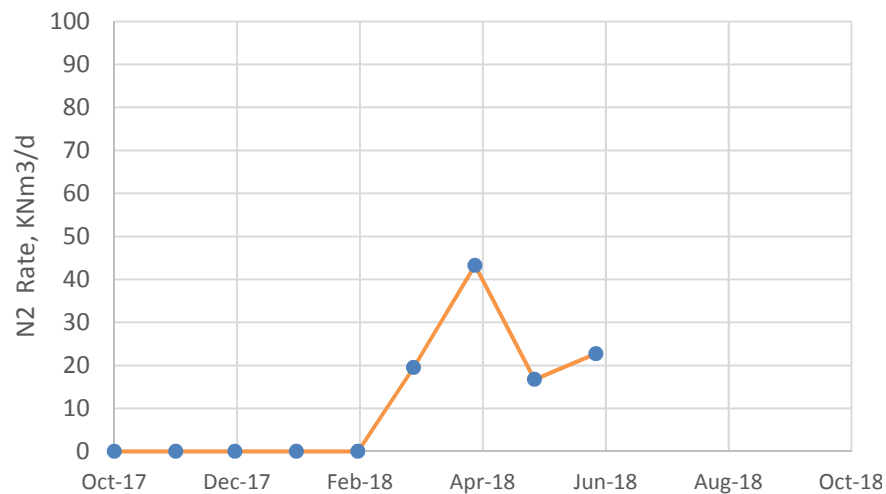
WYK-202



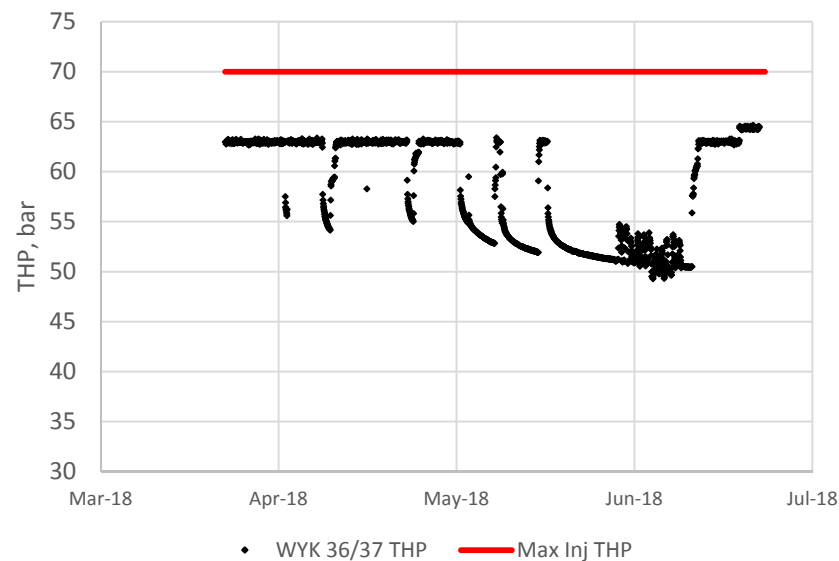
De Wijk: Production and Subsidence Monitoring

De Wijk Phase 2 Injectors

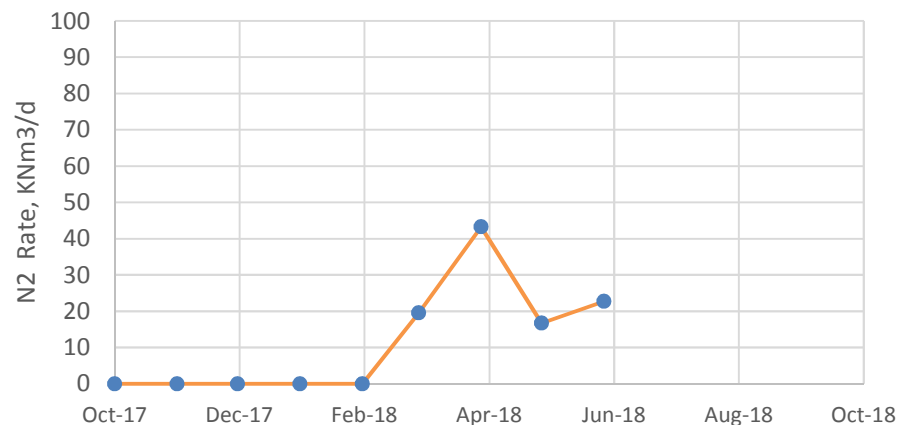
WYK-36



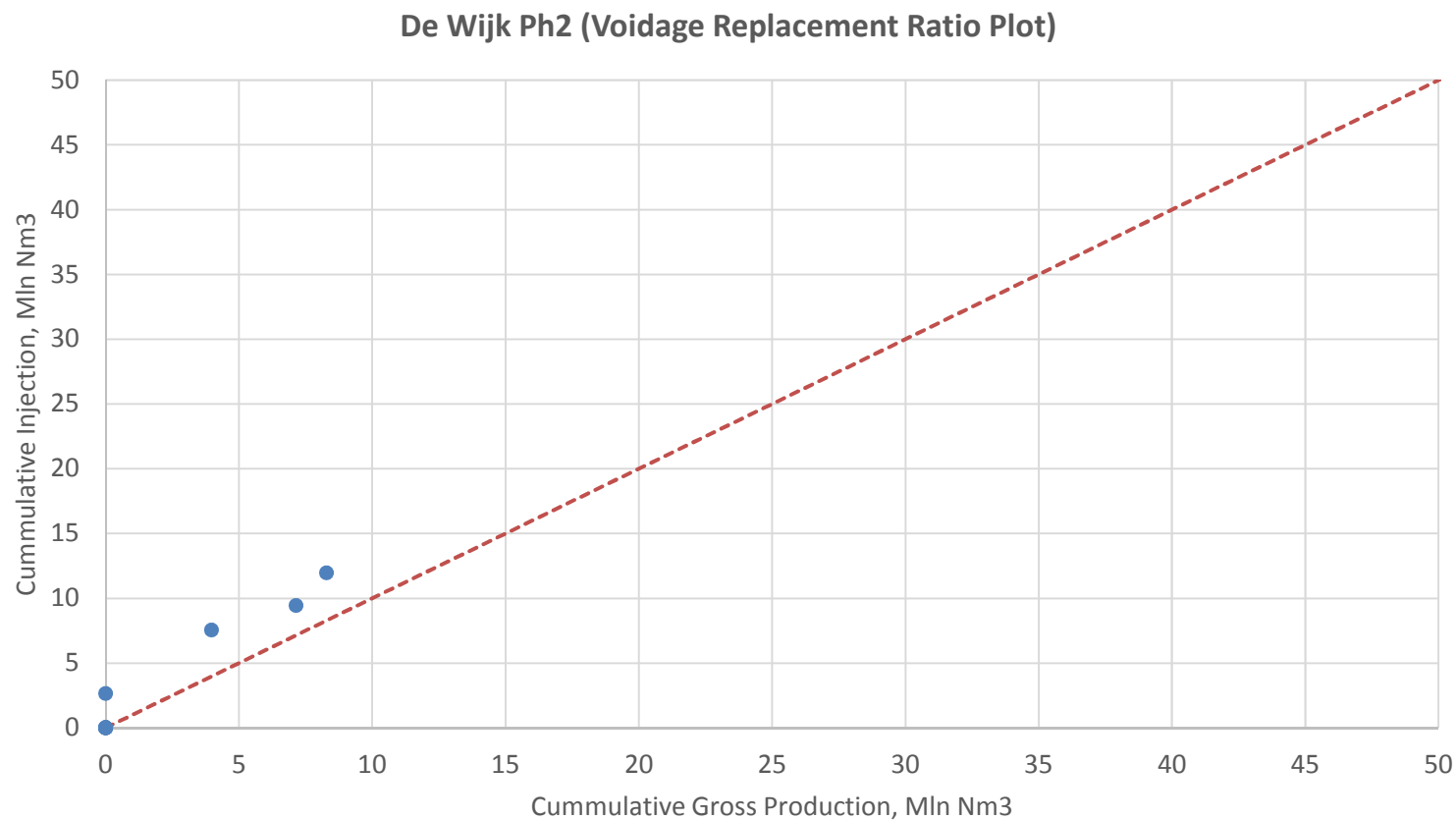
WYK-36/37 THP



WYK-37



De Wijk Phase 2

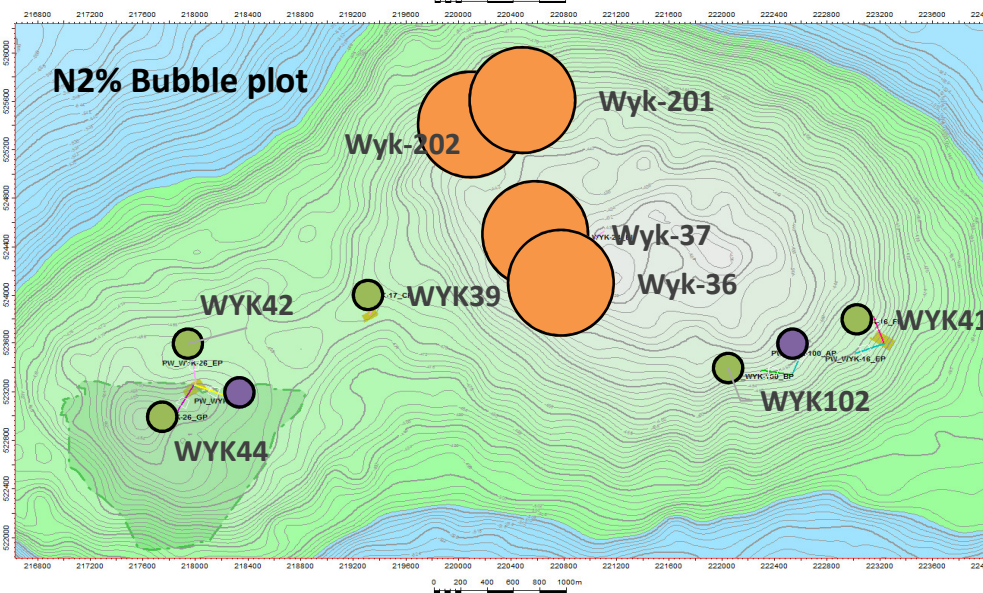
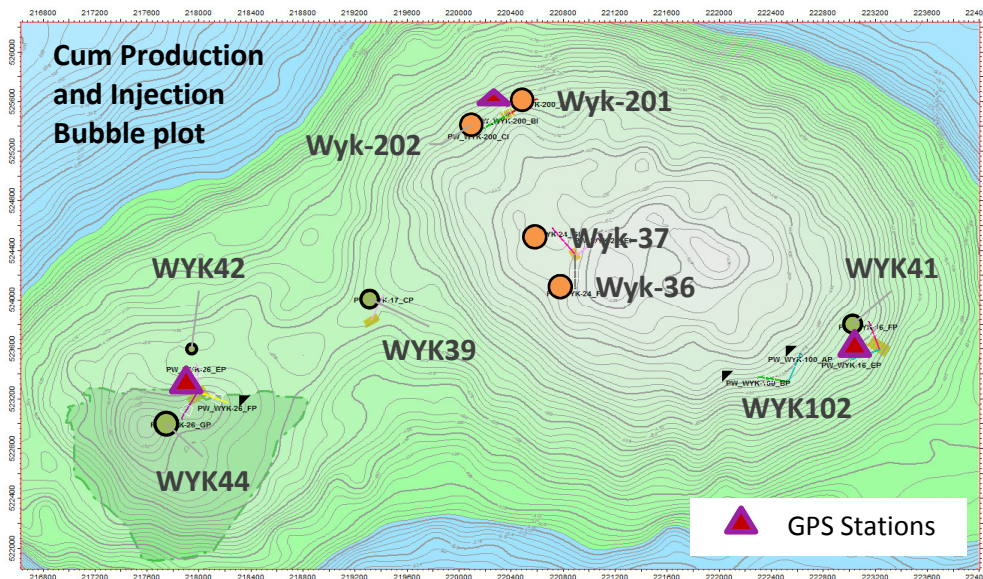


De Wijk Phase 2

Plot 1: Bubble plot for Cumulative production and Injection for the producers and Injectors.

The size of the bubble represents the cumulative volumes for that well. The larger the area of the circle, the more production/injection from that well.

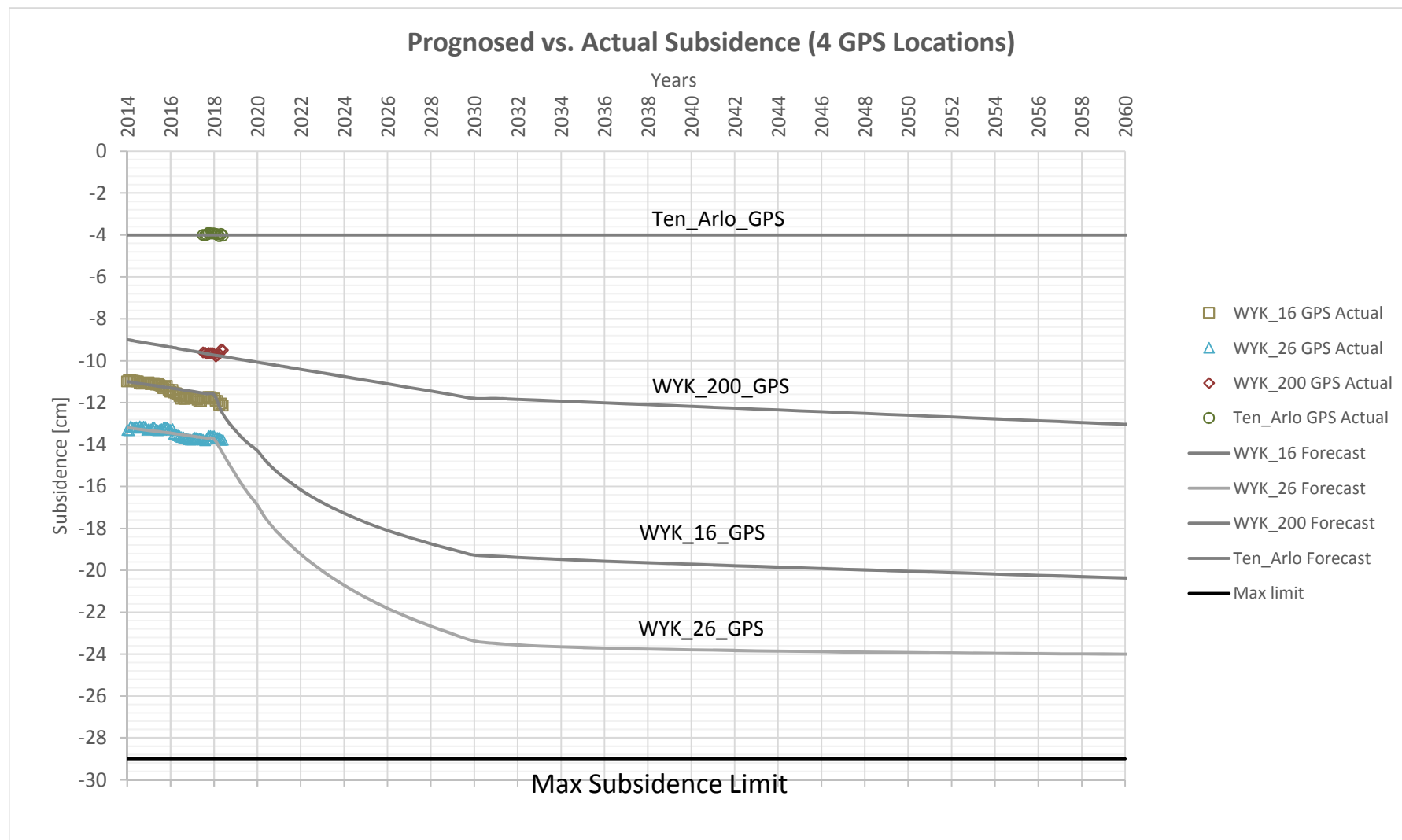
Plot 2: Bubble plot for N2% in producers and injectors. The size of the circle represents the N2 percentage for that well. The larger the area of the circle, the higher the N2 percentage of that producer. The injectors circle size corresponds to 100% N2.



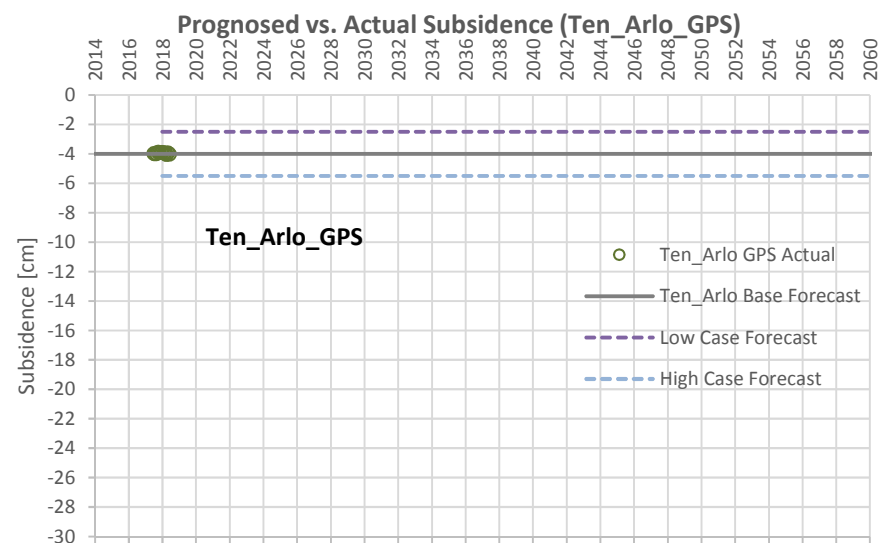
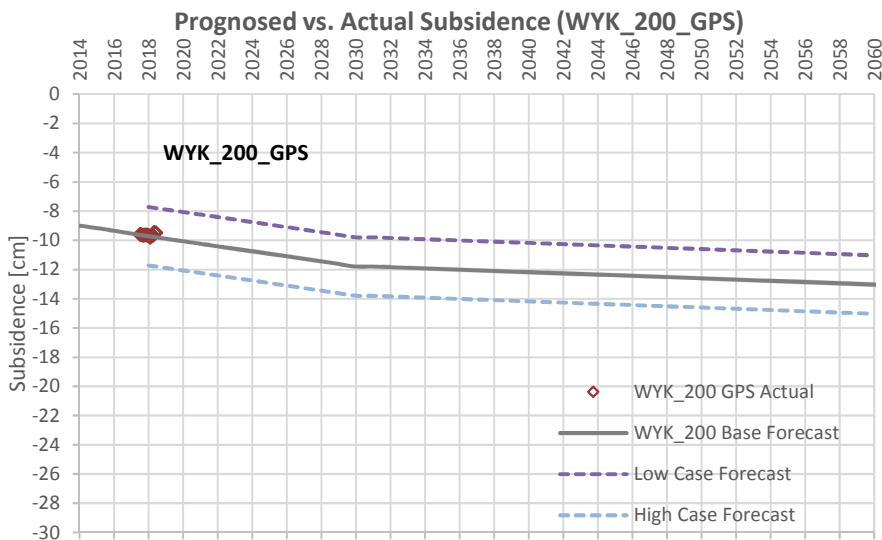
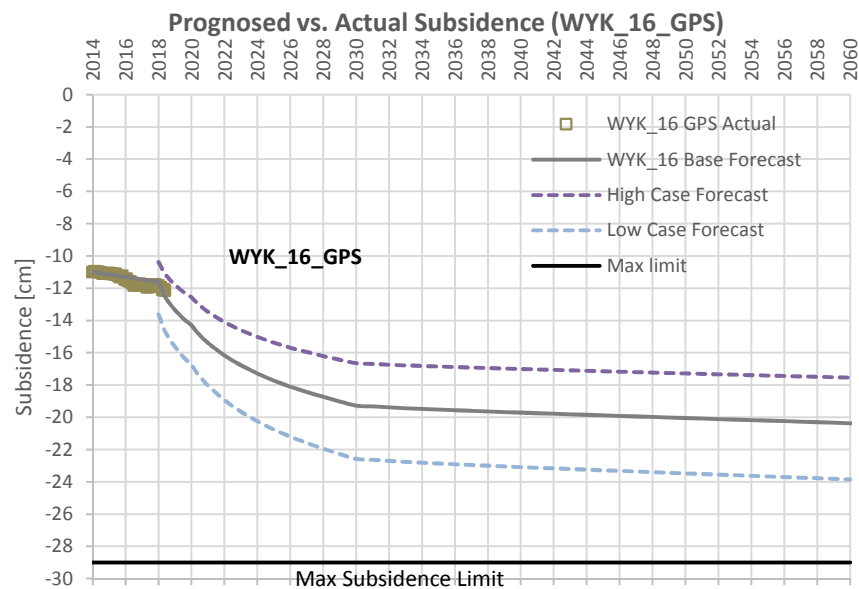
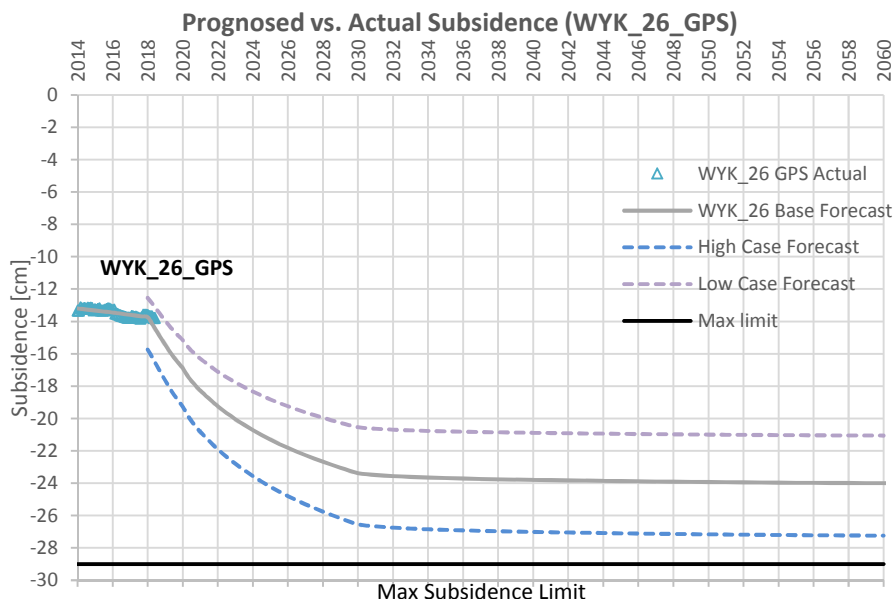
Well	Status	Cum Prd/Inj, Mln Nm3	N2%
WYK39	Producer	2.08	9.0
WYK41	Producer	2.13	9.0
WYK42	Producer	0.82	9.0
WYK44	Producer	3.25	9.0
WYK102	Producer	0.00	9.0
WYK101	Obs well	0.00	9.0
WYK-43	Obs well	0.00	9.0
Wyk-202	Injector	2.88	100.0
wyk-201	Injector	2.88	100.0
Wyk-36	Injector	3.10	100.0
Wyk-37	Injector	3.10	100.0

De Wijk: Production and Subsidence Monitoring

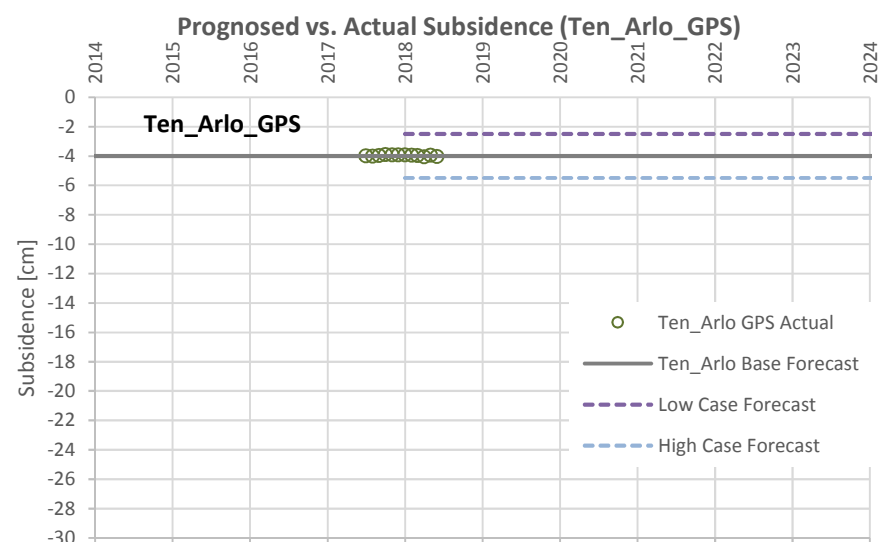
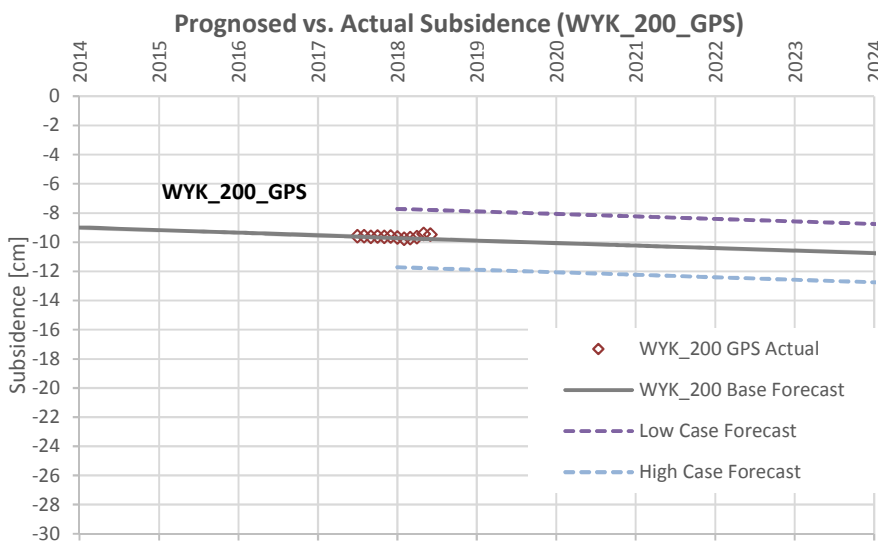
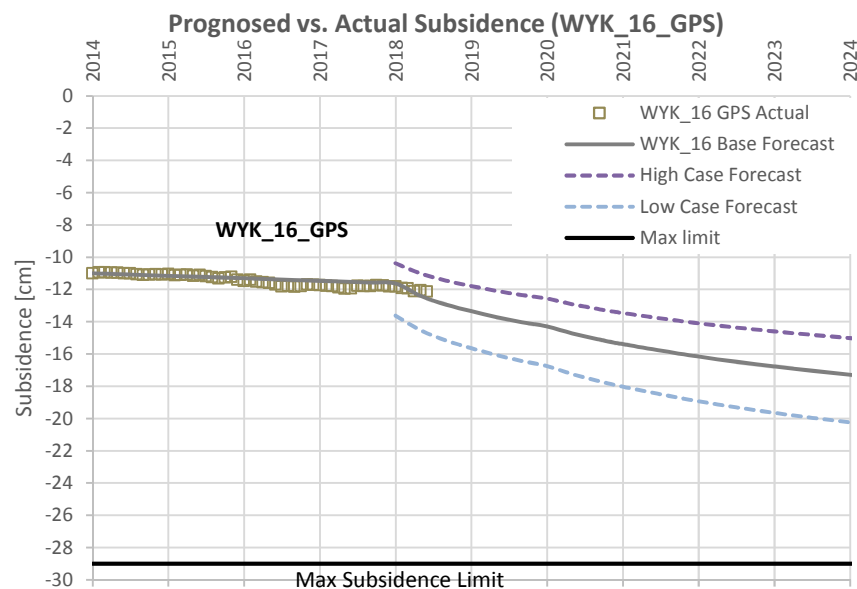
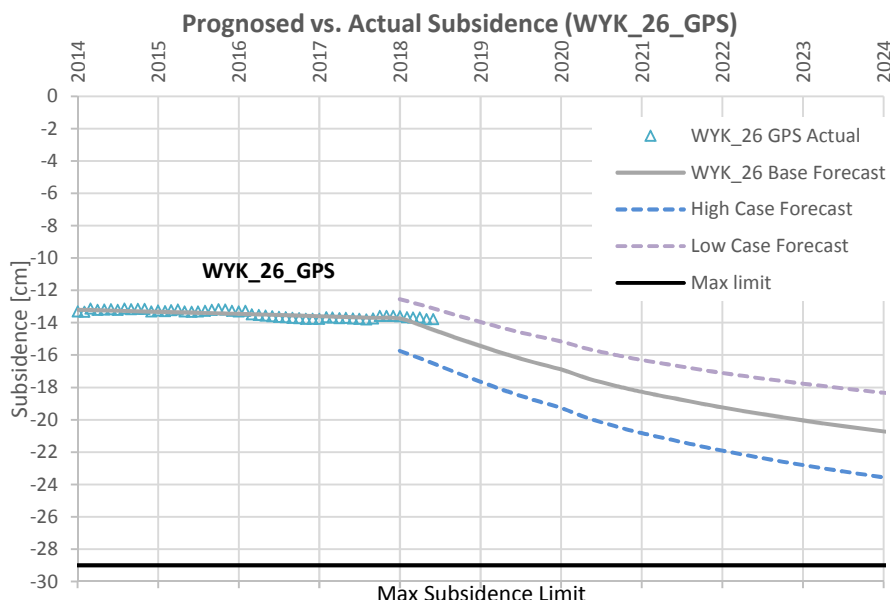
GPS stations: Total subsidence Prognosed vs. Actual



GPS stations: Total subsidence Prognosed Bandwidth vs. Actual

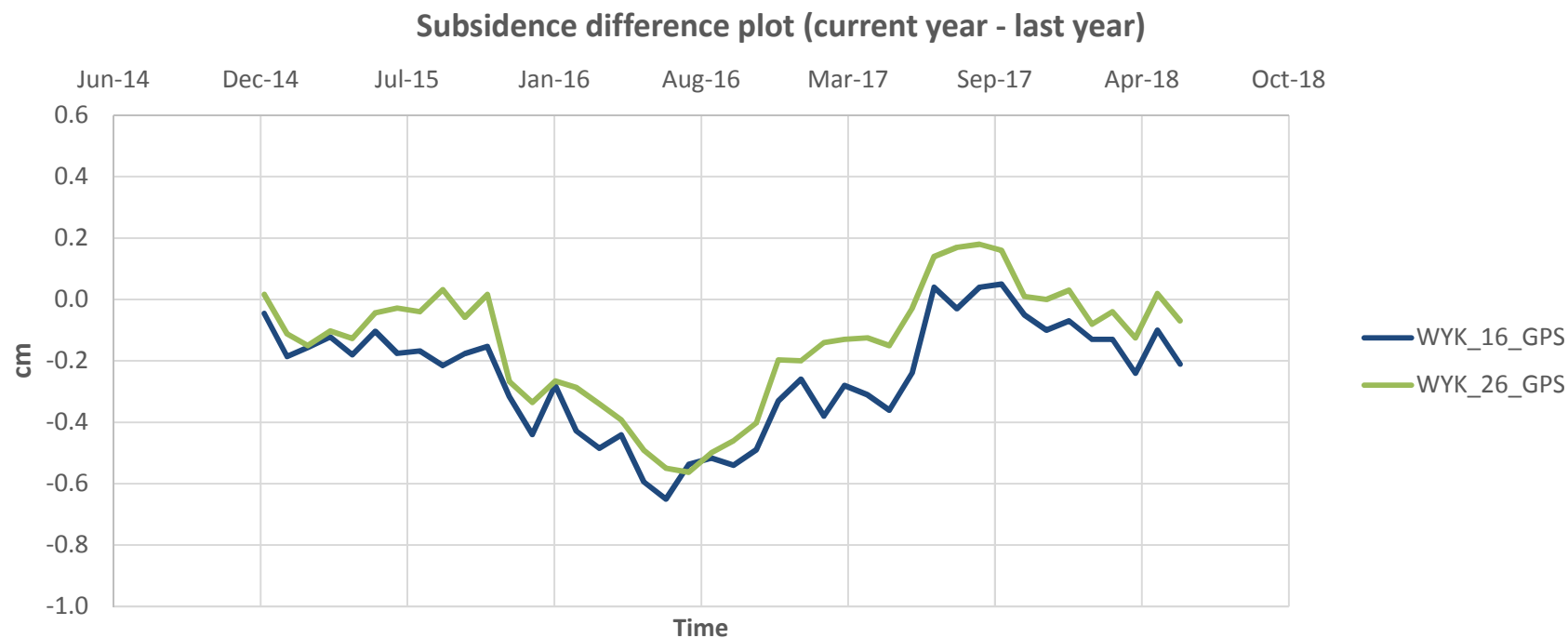


GPS stations: Total subsidence Prognosed Bandwidth vs. Actual



Subsidence difference plot for 4 GPS stations

↑ + Uplift
↓ - Subsidence



Subsidence Control Measures

Jun-18

GPS Station	Historical Subsidence (1974 - 2014), [cm]	Measured Subsidence (2014 - present)	Between 1974	Jun-18	Control Measures
			Actual Subsidence, [cm]	Prognosed Subsidence, [cm]	
GPS: De_Wijk_16	-11	-1.1	-12.1	-12.4	Continue Monitoring
GPS: De_Wijk_26	-13.2	-0.6	-13.8	-14.3	Continue Monitoring
GPS: De_Wijk_200	-9	-0.5	-9.5	-9.8	Continue Monitoring
GPS: Ten_Arlo	-4	0.0	-4.0	-4.0	Continue Monitoring

Injector	Max THP (3 months), bar
WYK-201	66.4
WYK-202	66.4
WYK-36	64.7
WYK-37	64.7

Remarks and Analysis of data in this report:

- Production wells were producing intermittently in April due to production testing after start-up
- In May there were multiple trips at the ASU. This resulted in injector shut ins. Producers were also closed to maintain a voidage replacement ration above 1
- Injection and production was closed on May 25th for planned maintenance shutdown.
- ASU (injection) restarted on 18th June and production restarted on 22nd June

Pore Collapse Risk Analysis:

1. No sudden change in subsidence rate
2. No sudden change in wells production performance (rate or pressure)

Current assessment:

No Pore collapse in the field

