

BLM Rig Study Monitoring

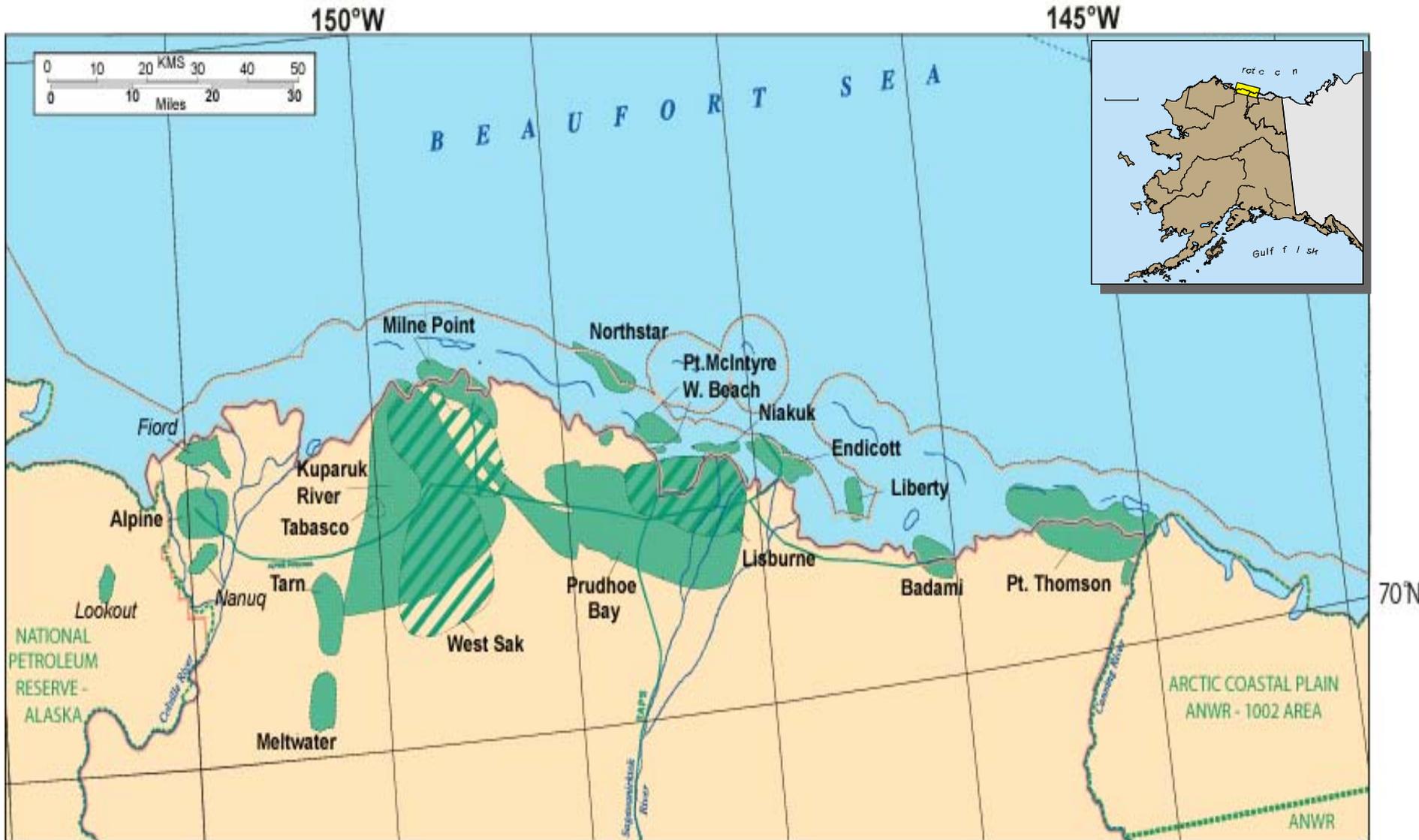
Meeting: December 10, 2014

Data: 08/22/2014 through 12/02/2014

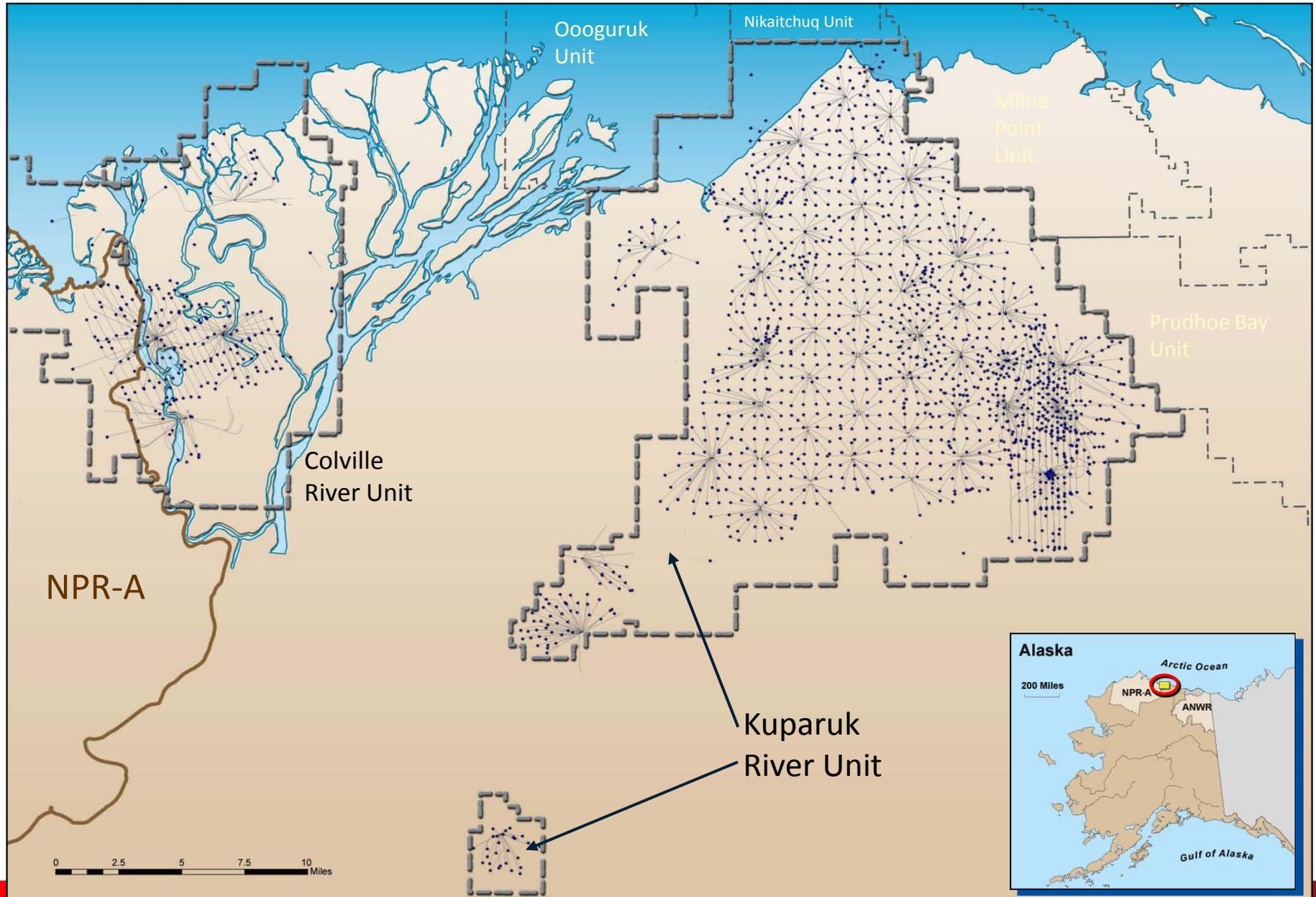
Alaska Oil and Gas Operating Areas



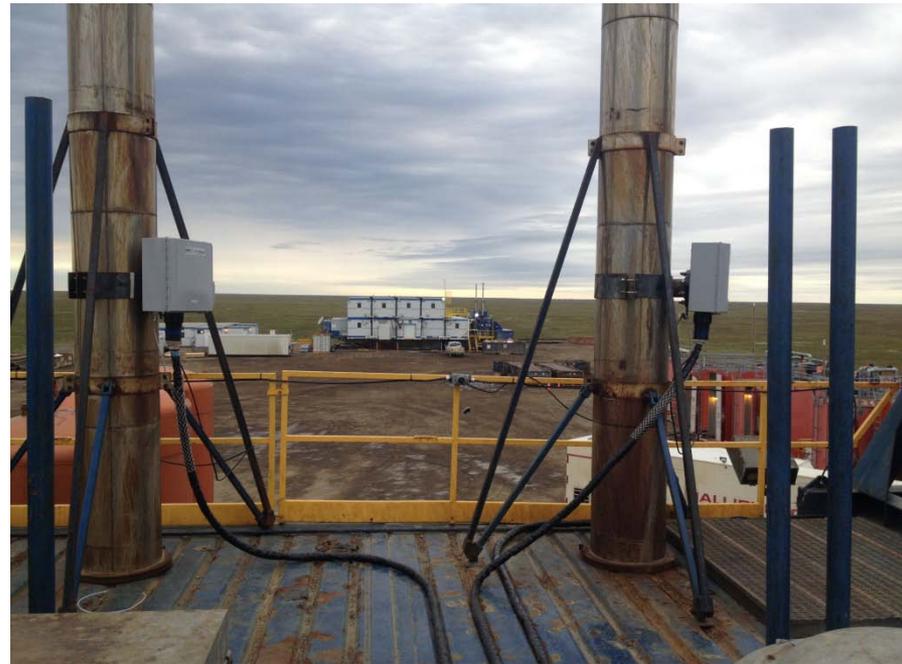
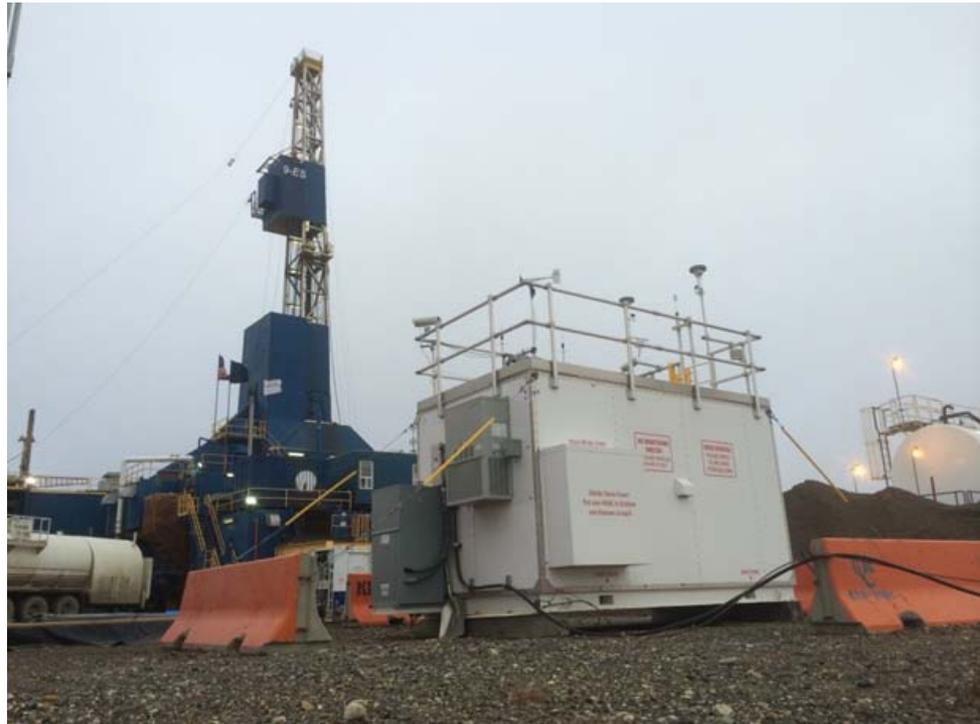
North Slope Alaska Programs



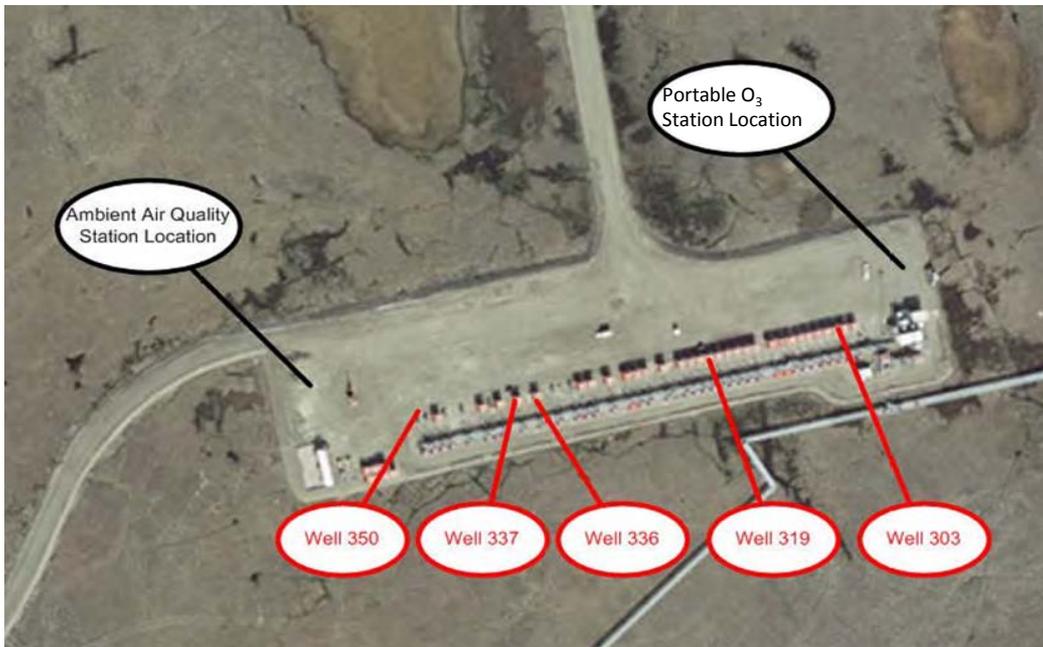
North Slope Region



Nabors 9ES



Rig Generator Use & Rig Movement



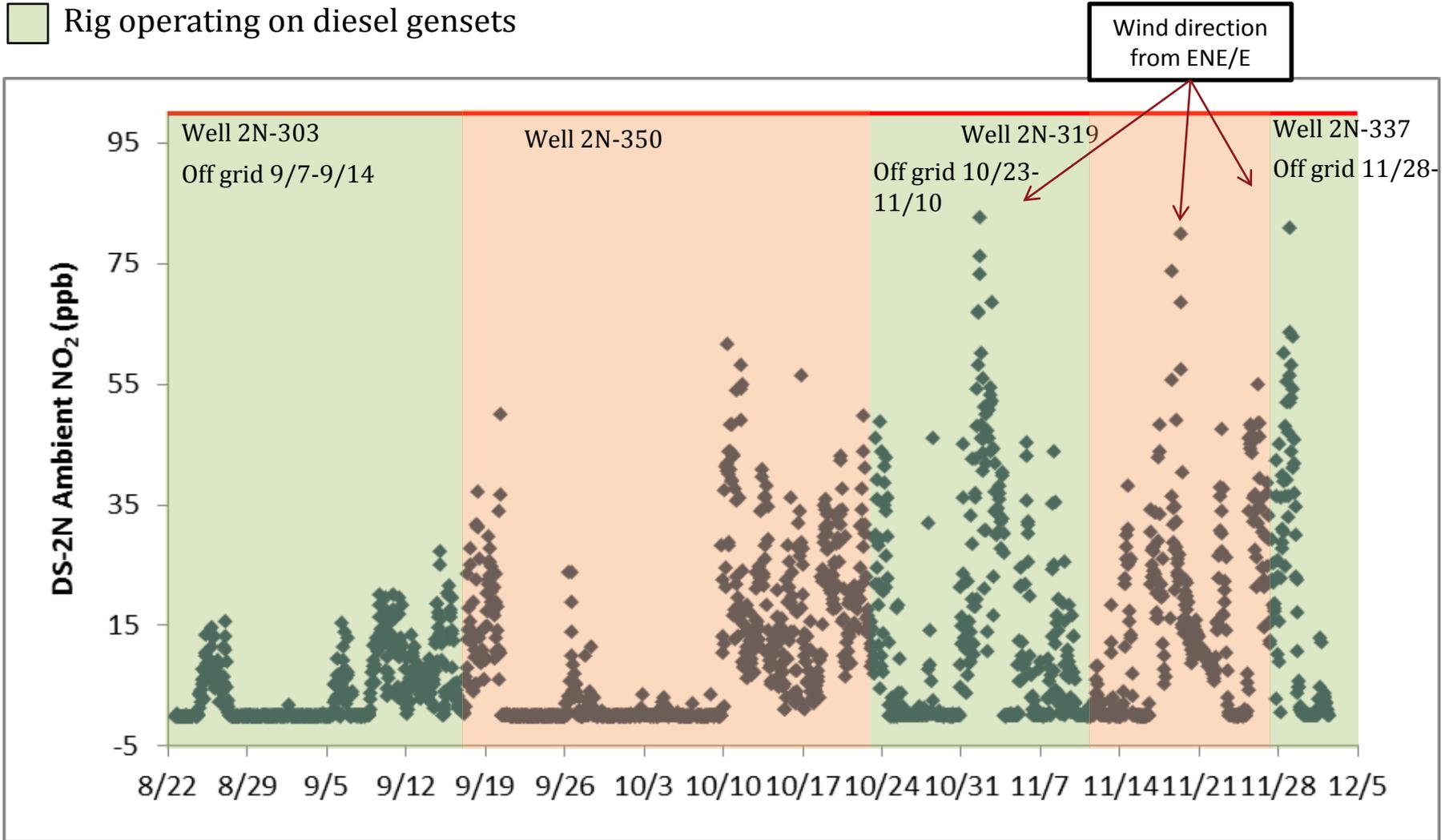
Rig Generator Use:	Engine 1	Engine 2
Well 2N-303	9/7/2014 11:00 - 9/14/2014 9:00	
Well 2N-350	10/23/2014 9:00 - 10/24/2014 15:00	10/24/2014 8:00 - 10/24/2014 15:00
Well 2N-319	10/24/2014 15:00- 11/10/2014 17:00	10/24/2014 15:00 11/10/2014 17:00
Well 2N-337	11/28/2014 12:00-	----

Well Name	Rig Accept	Rig Release
2N-303	8/20/2014 23:59	9/15/2014 23:59
2N-350	9/16/2014 00:00	10/24/2014 15:00
2N-319	10/24/2014 15:00	11/27/2014 00:00
2N-337	11/28/2014 12:00	NA

Ambient NO₂

- Rig operating on highline power
- Rig operating on diesel gensets

- ◆ 1-hr Average
- NAAQS

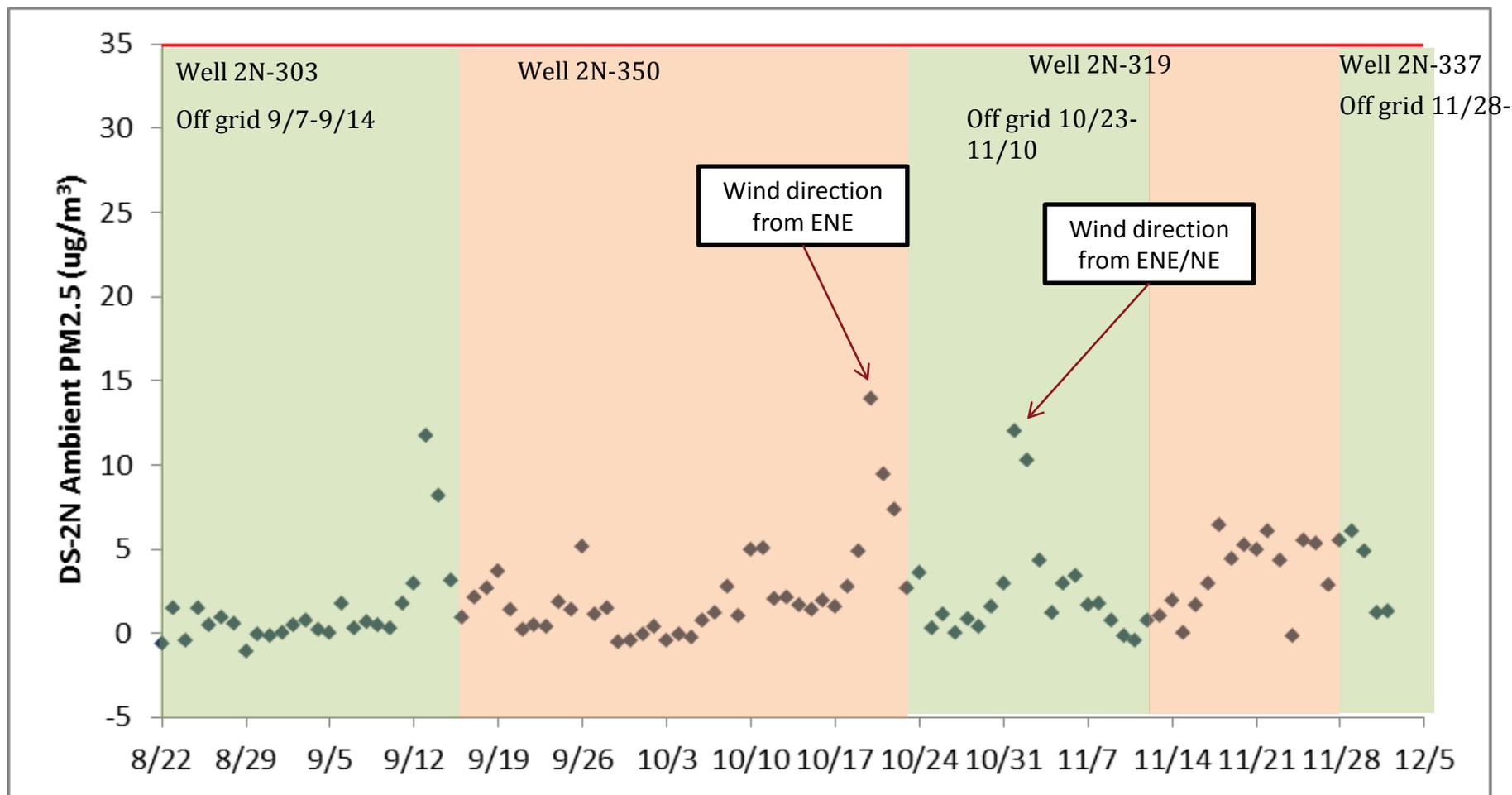


Ambient Particulate Matter_{2.5}

■ Rig operating on highline power

■ Rig operating on diesel gensets

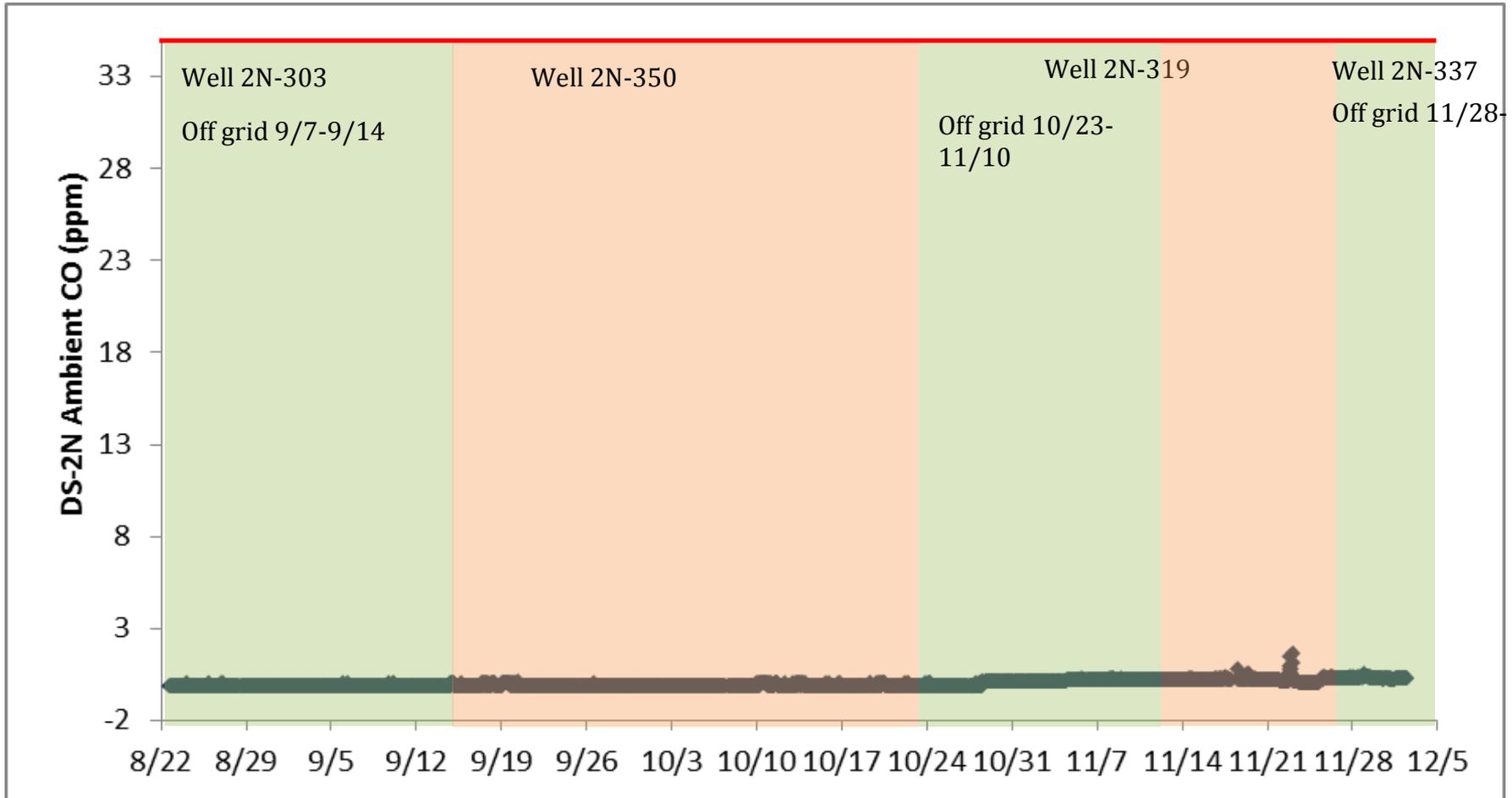
◆ 24-hr Average
— NAAQS



Ambient CO

- Rig operating on highline power
- Rig operating on diesel gensets

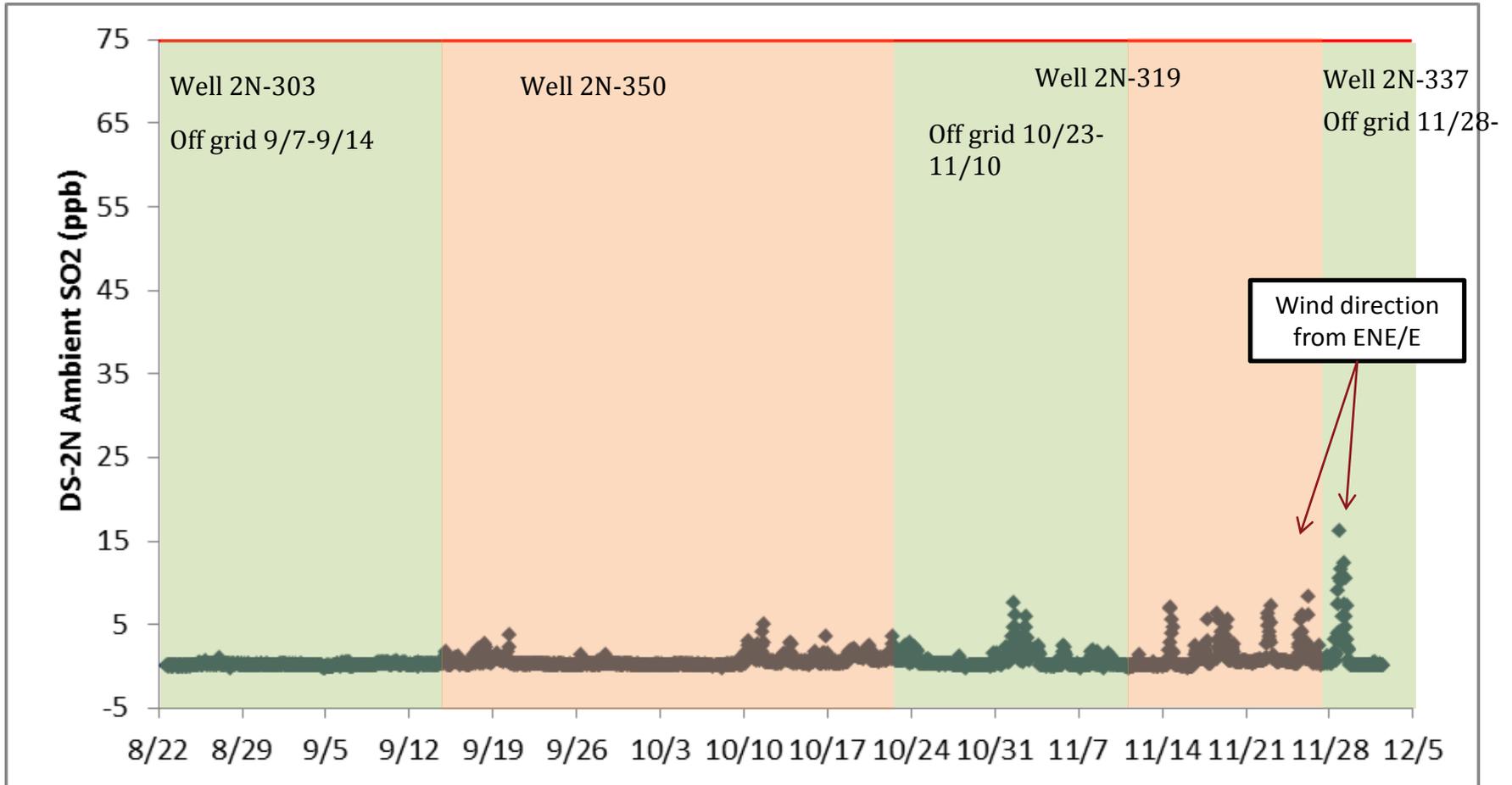
- ◆ 1-hr Average
- NAAQS



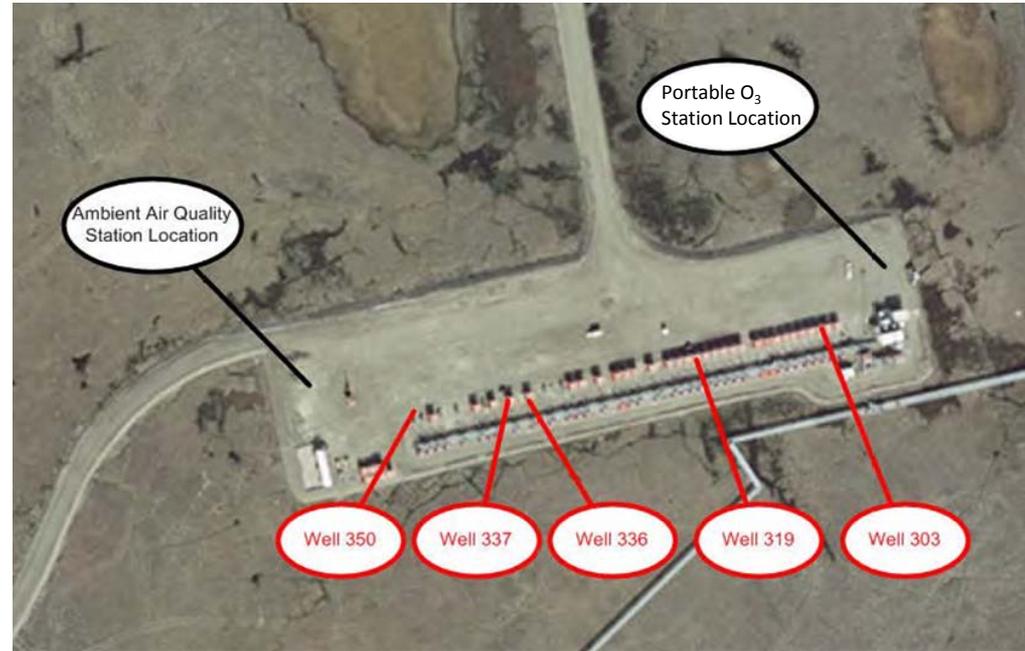
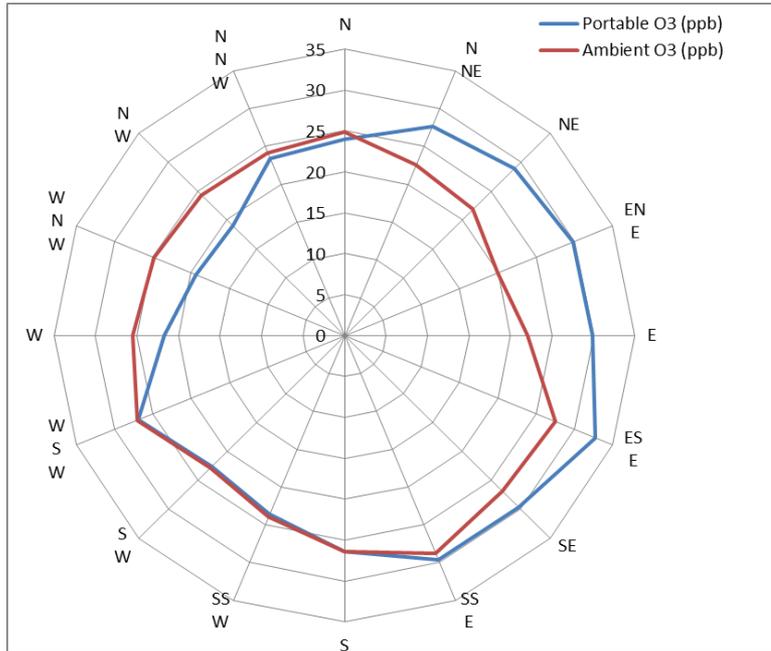
Ambient SO₂

- Rig operating on highline power
- Rig operating on diesel gensets

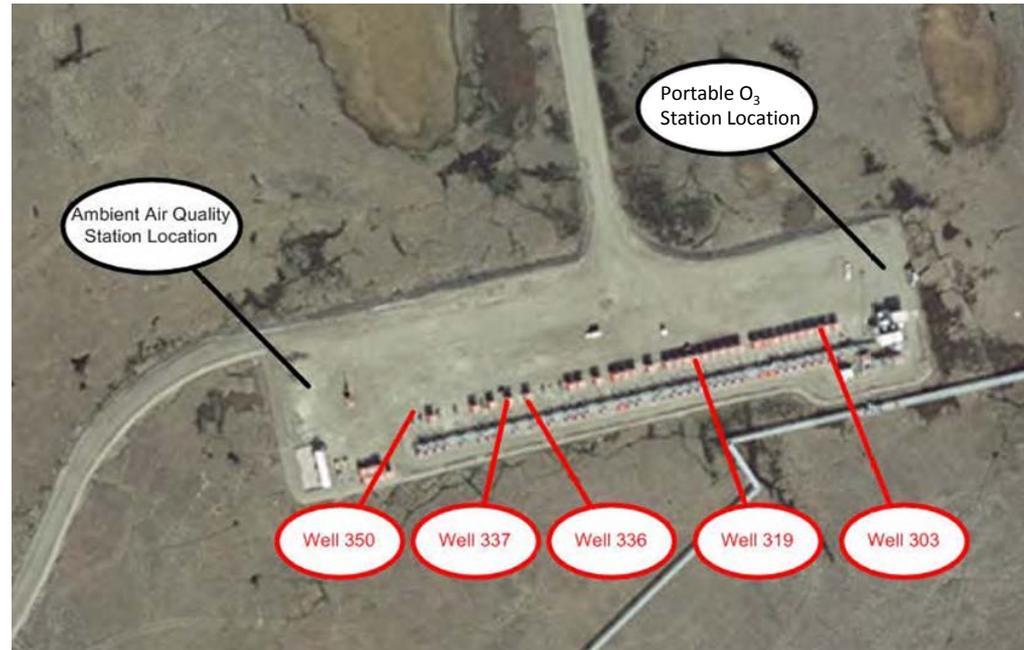
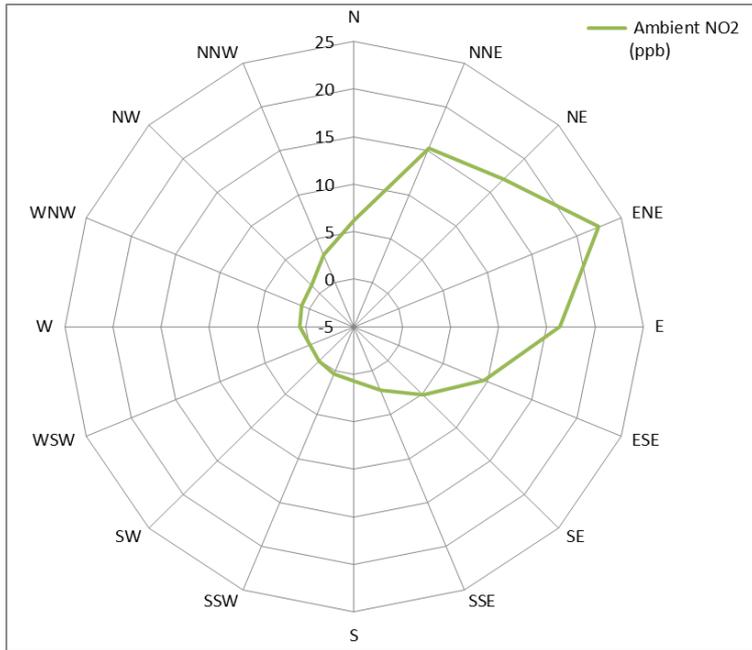
- ◆ 1-hr Average
- NAAQS



Upwind/Downwind Ozone

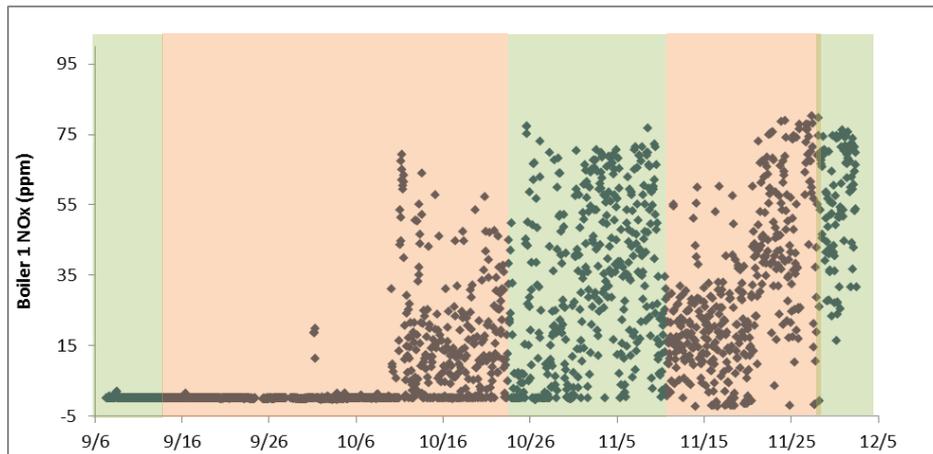
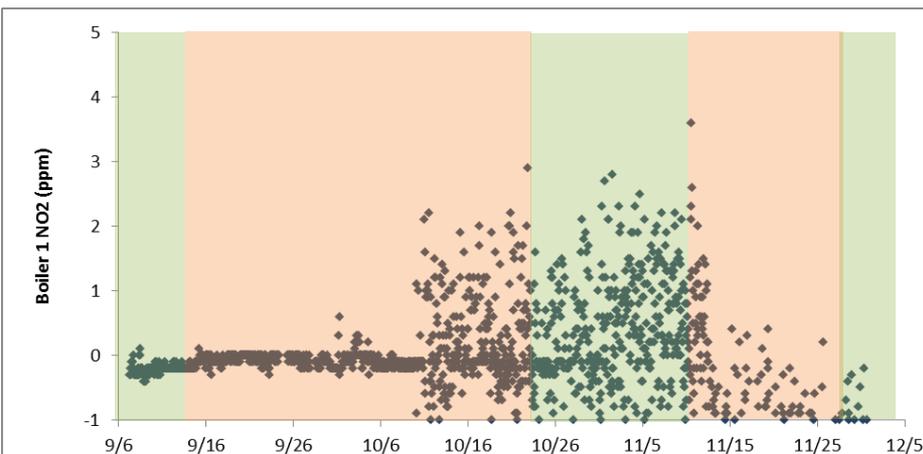
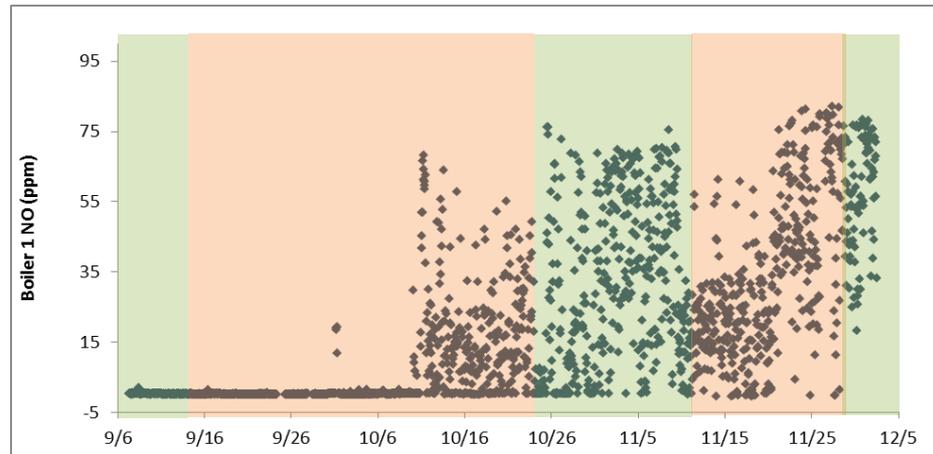
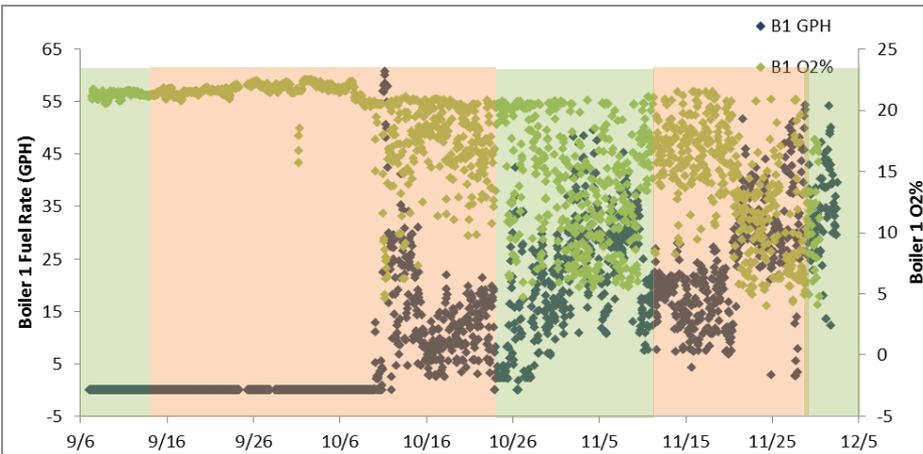


Ambient NO₂ and Wind Direction



Boiler 1: Fuel Rate, O₂ %, NO_x, NO, NO₂

-  Rig operating on highline power
-  Rig operating on diesel gensets

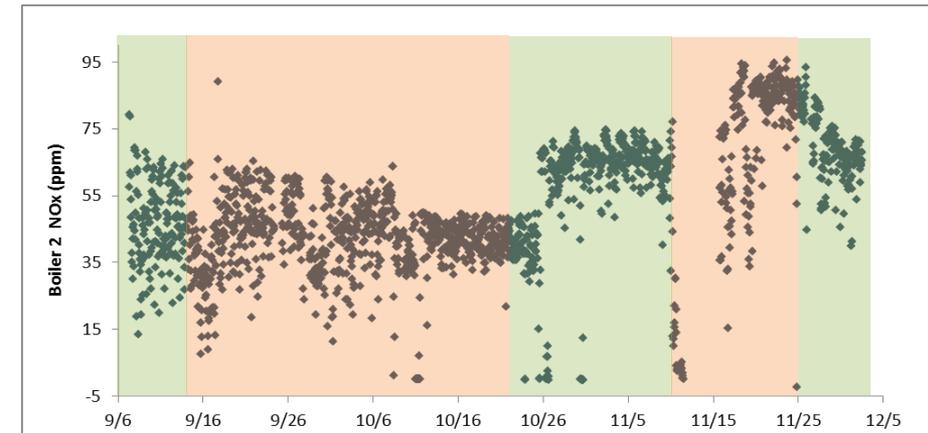
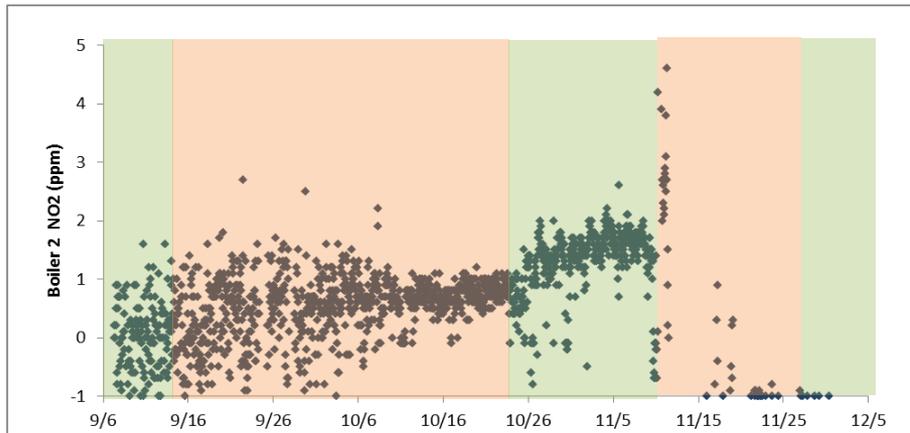
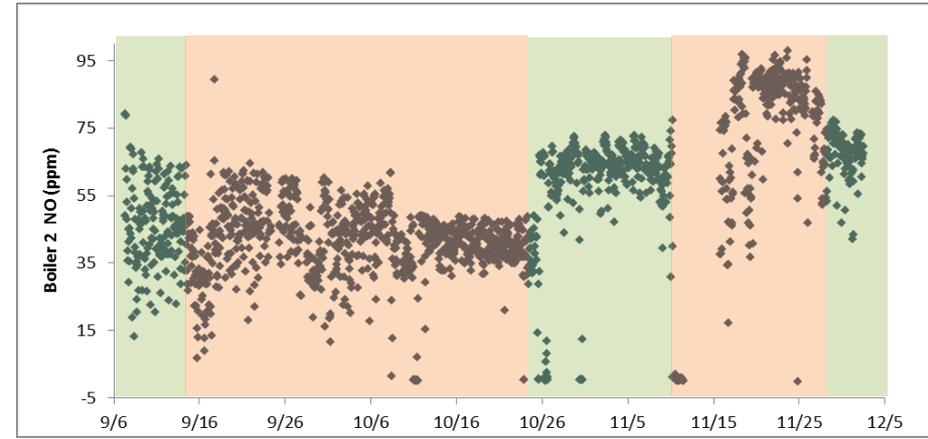
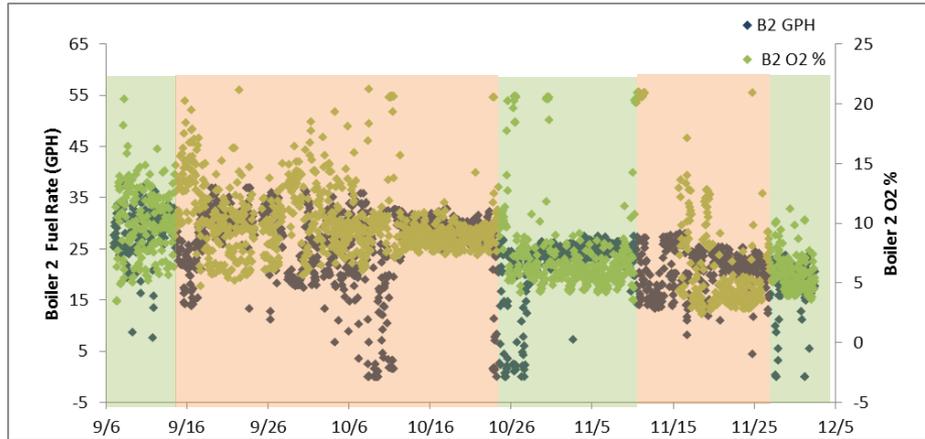


*Note: Boiler fuel use inherently fluctuates more than heaters and engines

Boiler 2: Fuel Rate, O₂ %, NO_x, NO, NO₂

 Rig operating on highline power

 Rig operating on diesel gensets

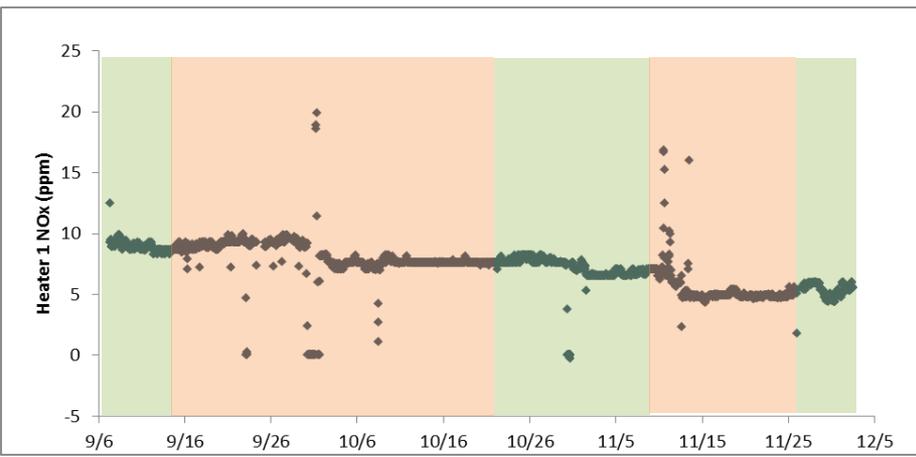
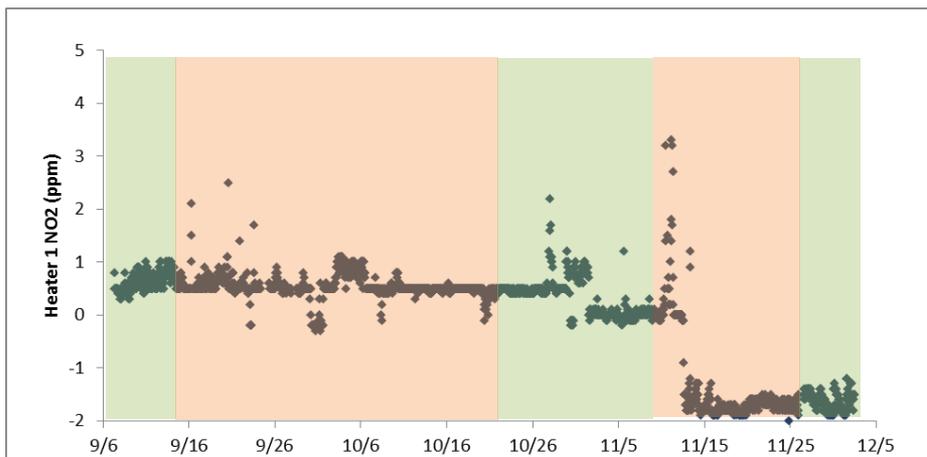
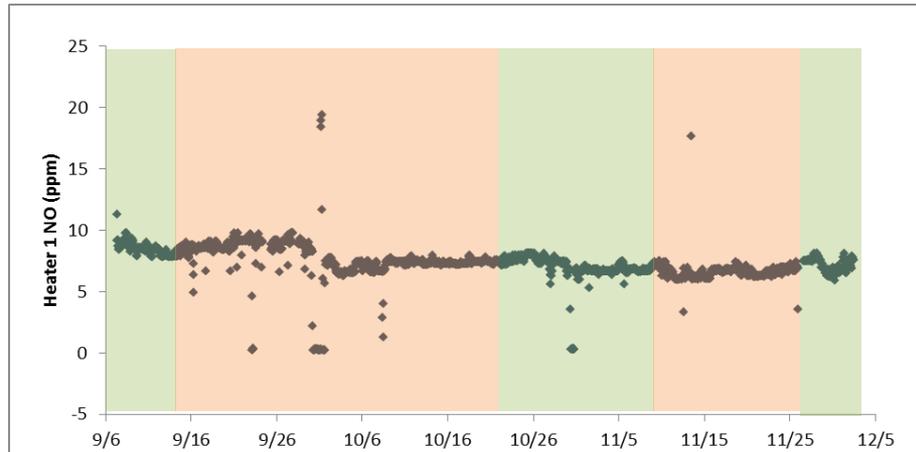
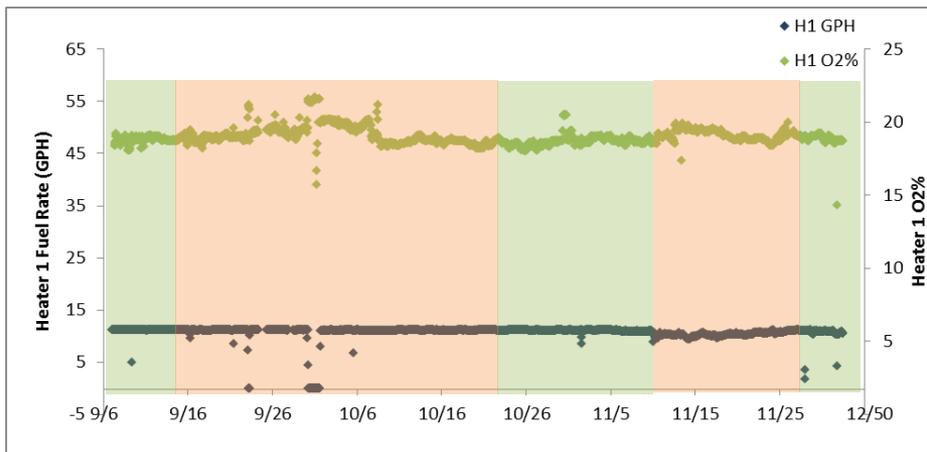


*Note: Boiler fuel use inherently fluctuates more than heaters and engines

Heater 1: Fuel Rate, O₂ %, NO_x, NO, NO₂

Orange background: Rig operating on highline power

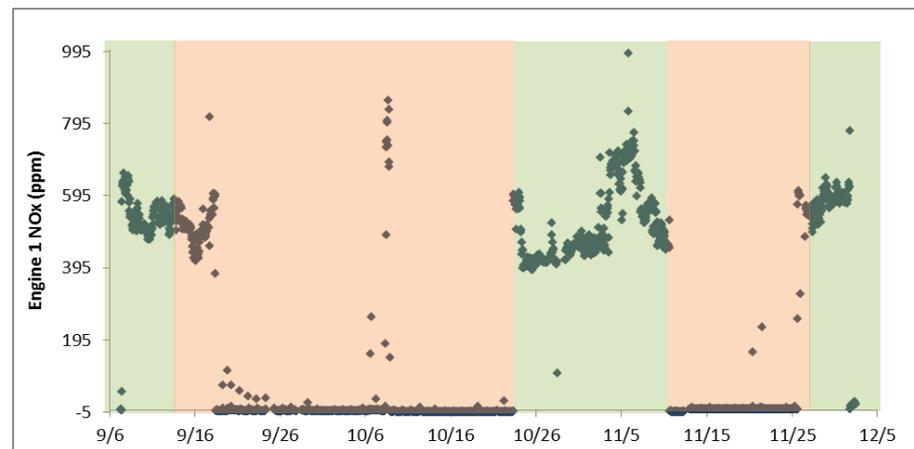
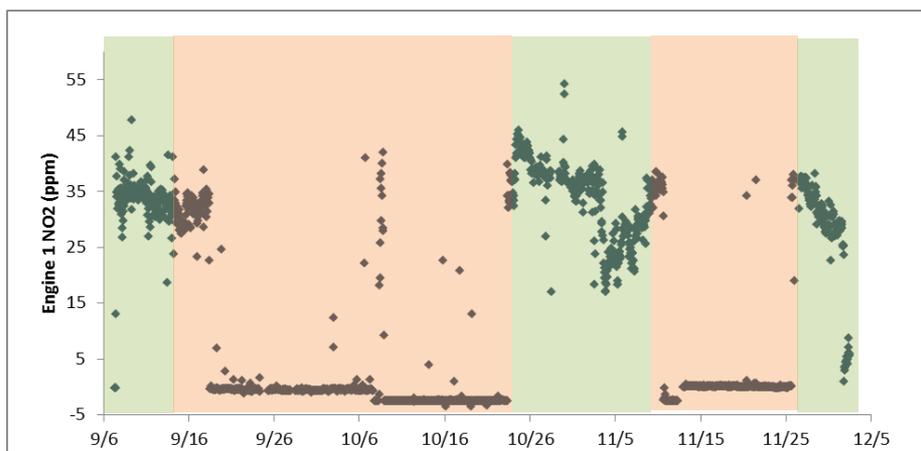
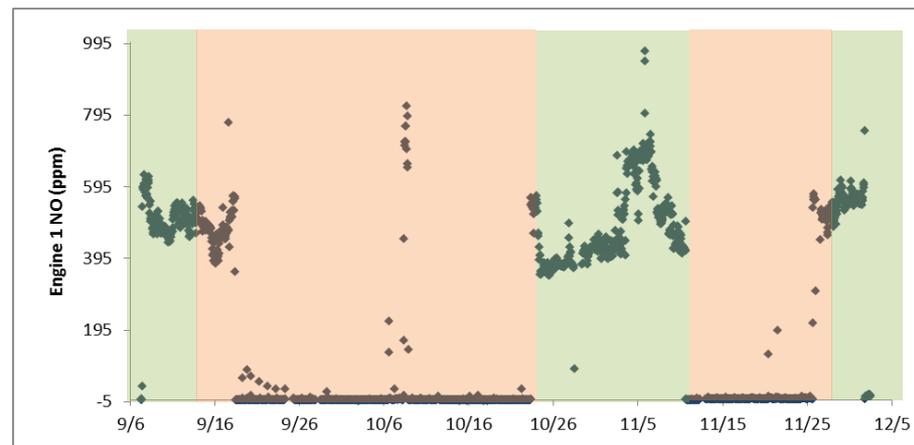
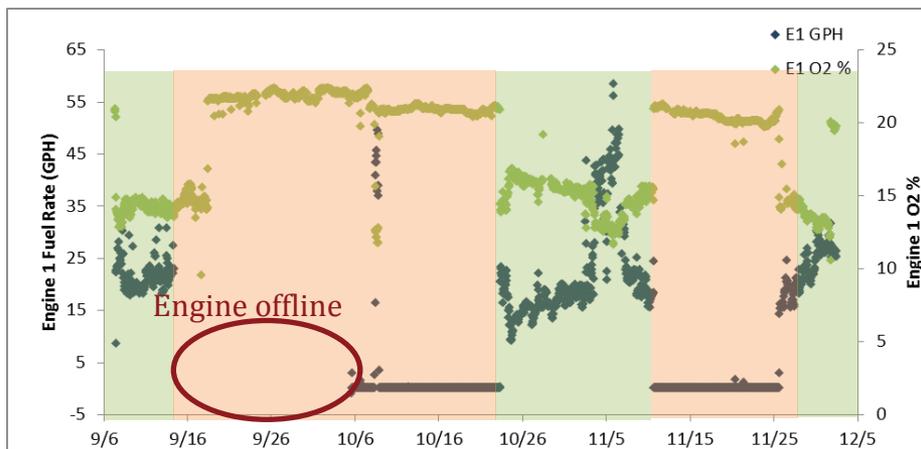
Green background: Rig operating on diesel gensets



Engine 1: Fuel Rate, O₂ %, NO_x, NO, NO₂

■ Rig operating on highline power

■ Rig operating on diesel gensets



Engine 2: Fuel Rate, O₂ %, NO_x, NO, NO₂

Orange background: Rig operating on highline power

Green background: Rig operating on diesel gensets

