

# Wisely Driven Fuel Partnership

Jennifer Cowie

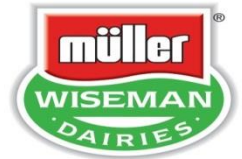
# Project Stats

- Since the project started....
  - 2 children have been born to members of the team
  - An engagement and a wedding
  - Had around 5 people leave the project team and 5 new people join
  - 1 retirement
  - Not 1, not 2 but 3 companies have been bought over
  - MWD have written off 2 trucks – with one returning from the dead!
  - The trucks have driven 15.5 million miles – which is 62 times round the earth
  - And used 2.3 million KGs of LNG!



# Project Overview

- Project started in October 2012
- New location of LNG tank
- Increased capacity/vent recovery
- Ordering of 40 new LNG vehicles & fit with ISOTRAK
- Vehicle model showing the cost of ownership
- Establish the economic and environmental benefits of DF technology
- Project ends September 2015



# What did we do?

- Project started Oct-12
- Vehicles ordered and started arriving Nov-12
- Vehicles fitted with telematics kit Nov-12
- Chive (now Calor) started looking at the stations, are the fit for purpose, do they need expanded? Nov-12
- Third party access looked at Dec-12
- Characterisation of fleet operations Oct-12



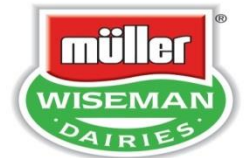
# What did we do?

- Drive cycle development Jan-13
- Vehicle driver questionnaires Dec-12
- Intrack testing Oct-13
- In-service testing Jun-13
- Tank moved and new weigh pads installed Jan-15
- Final track testing May-15
- Model development May-15
- Tank leaving Bellshill for relocation Sep-15



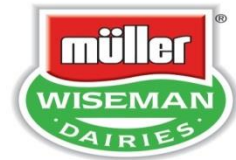
# MWD Current LNG Fleet

- Volvo FM13 460 – 40 tonne vehicles
- Factory fitted
- 40 vehicles operating out of Droitwich and Bridgwater
- Vehicles do 'inter-site transfers'
- High mileage
- Substitution rate of around 50%
- Fuel costs saved
- Invested further in 3 Volvo FM13 and places the Tanker Fleet
- Invested in Prins retro fit technology



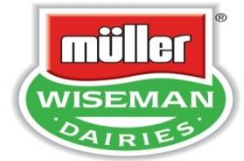
# MWD Lessons learnt

- Fuel
  - frequency of delivery
- Vehicles
  - High substitution rates
  - Injectors
- Drivers
  - Training
  - LNG journey



# Calor Fuelling Stations

- MWD have fuelling stations at Droitwich and Bellshill which are operated by Calor
- MWD operated the only LNG fuelling station in Scotland and opened this to 3<sup>rd</sup> party applications
- This tank is now moving to Lockerbie





# Vehicle Testing

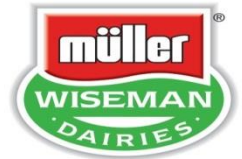
- MWD and Cenex devised drive cycles to represent the cycles of the Droitwich vehicles
- Took place in November 2013 and May 2015
- Issues with the PEMS kit which delayed testing



# Vehicle Testing Results

Real-world data shows

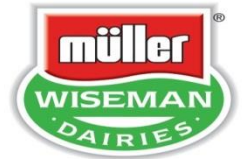
- The trial trucks are collectively covering over 750,000 km per month
- Average gas substitution ratio of 46%
- Achieving tailpipe emission savings of around 12% CO<sub>2</sub> and well-to-wheel emission savings of 7% CO<sub>2</sub>
- Payback time is less than 3 years



# Vehicle Testing Results

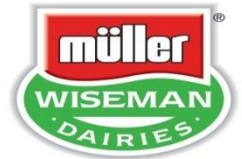
Horiba Mira proving ground test data shows

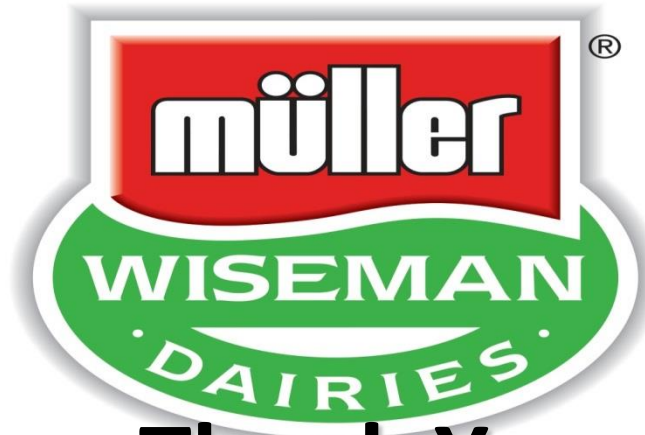
- Significant Air Quality savings over the Muller Wiseman Dispatch cycle were available
- 53% reduction on CO
- 68% reduction in NO
- 89% reduction in NO<sub>2</sub>
- 19% reduction in PM



# Summary

- This has been a very successful project which has over delivered
- The only outstanding deliverable is the movement of the LNG tank at Bellshill
- Thank you to everyone involved in the project





**Thank You**

[jennifer.strachan@muller-wiseman.co.uk](mailto:jennifer.strachan@muller-wiseman.co.uk)

Jennifer Cowie

Müller Wiseman Dairies

01355 597050