OEUK HSE Conference 2026

Trust starts with data. Getting flare measurement and reporting right

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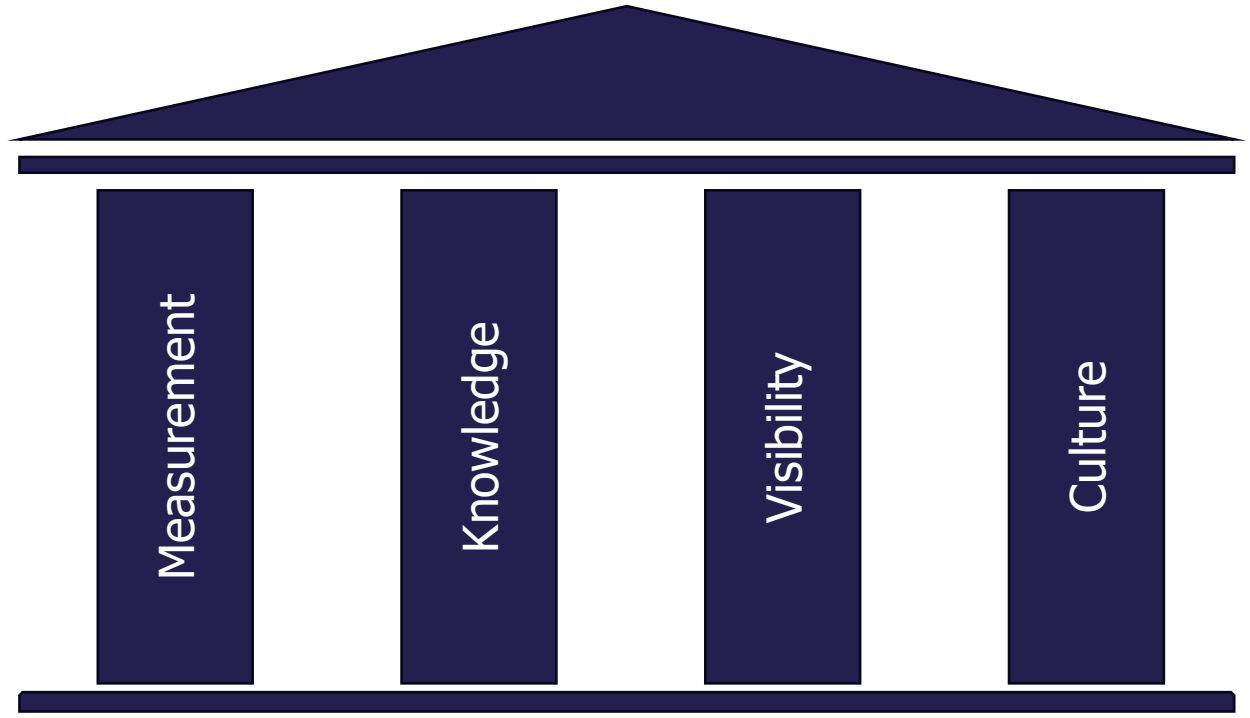
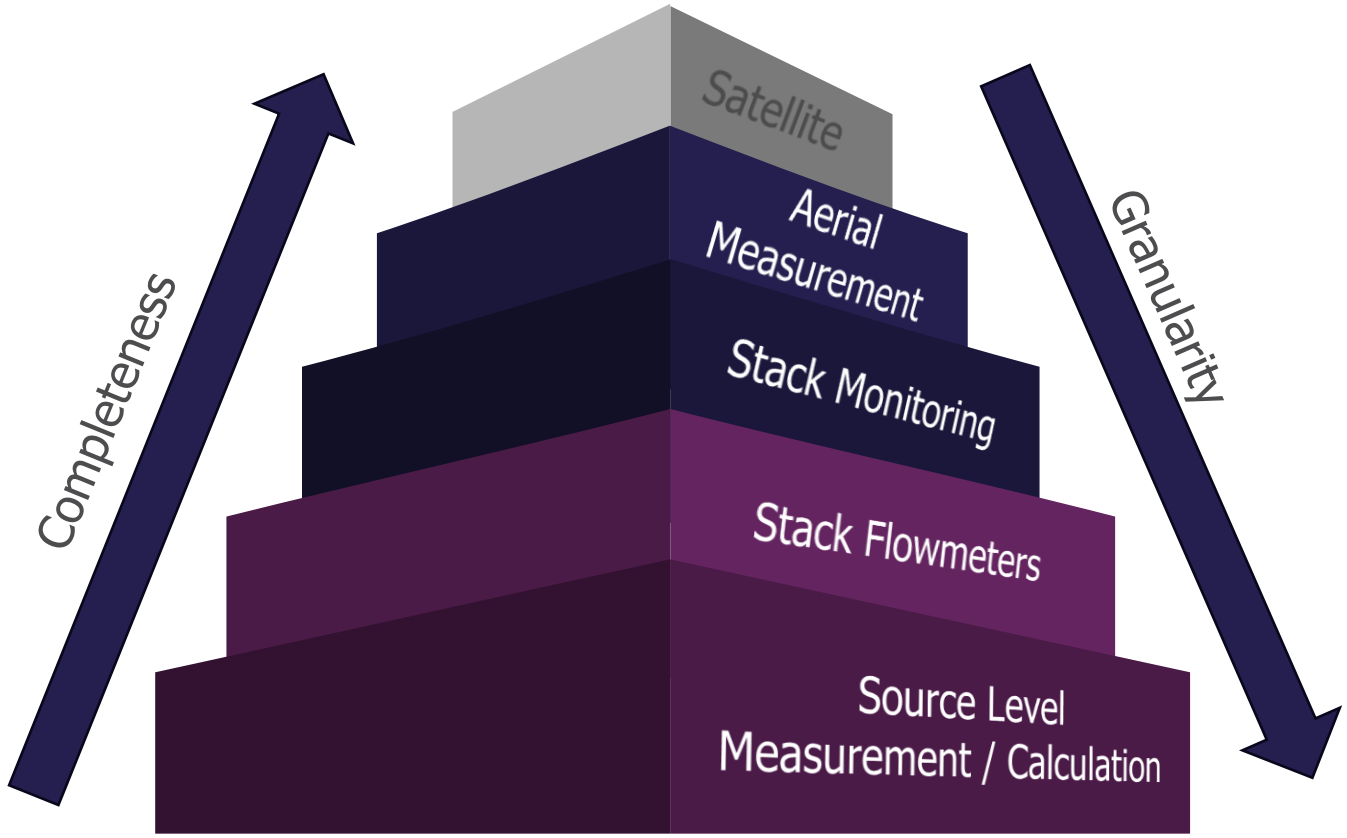
Developing trusted flaring and venting data

- **Measurement** – how much can you rely on metering?
- **Knowledge** – do you understand your plant operations to better forecast and reduce emissions?
- **Visibility** – is the right information available to the right people?
- **Culture** – is your culture a barrier or an enabler to transformation?



Measurement

Top-Down / Bottom-Up Measurement



- How do external groups consider publicly available data, how do you ensure you can explain any anomalies?
- How do you use top-down data to spot gaps in your reporting?
- How do you use the information to identify anomalies and take corrective action?
- How do you use all these data points to help identify opportunities or develop strategies to abate your emissions?

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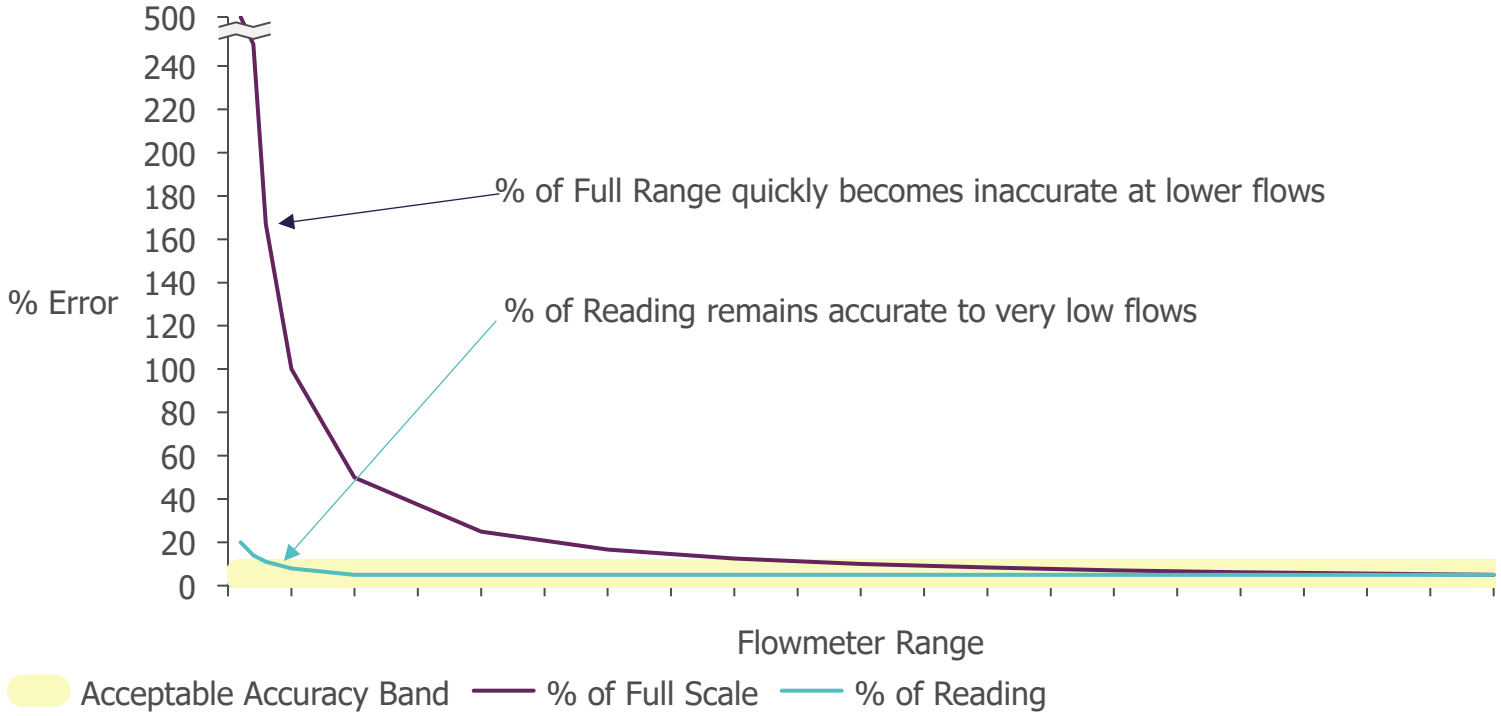
Not all flowmeters are created equal…

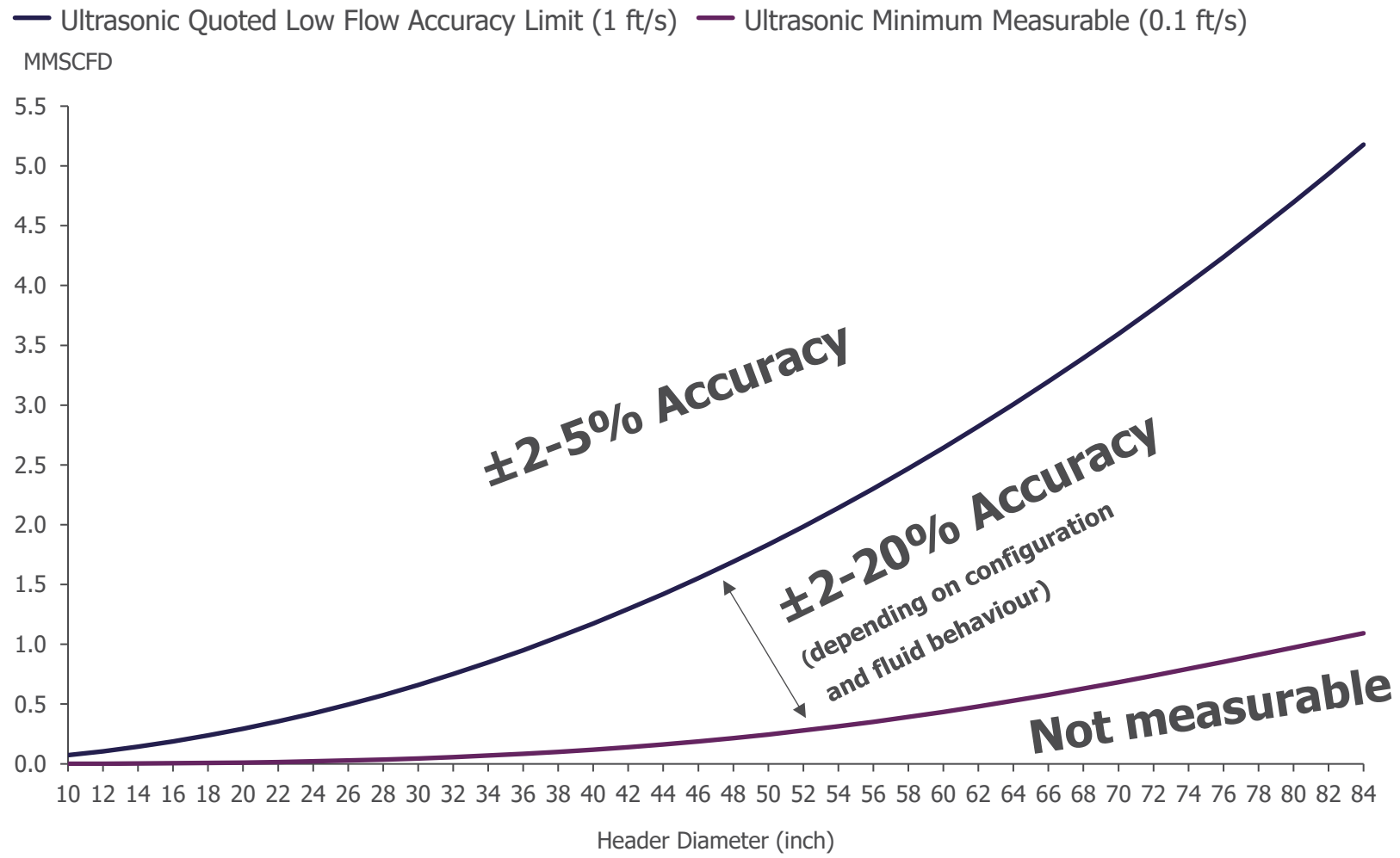
"the meter has a high range and measuring a low flowrate is not reliable"

% of Full Range	% of Reading
Orifice Plates	Ultrasonic
Venturi	Coriolis
Rotameters	Thermal Mass (newer models)
Thermal Mass (older models)	
Turbine	

% of Reading vs % of Full Range (5% Accuracy example)



Ultrasonic Flowmeters – Typical Expected Accuracy



Accuracy

- Make / Model of Flowmeter/Sensors
- Type (insertion/clamp-on, transit time/ doppler)
- Number of paths/channels
- Spacing / transducer configuration
- Installation (straight lengths u/s & d/s)
- Pressure/Temperature correction
- Composition of gas (CO_2 / H_2, MW calculation)
- Flow profile (swirl, etc.)
- Other operational issues (condensation, liquid carryover, reverse flow, harsh environment)

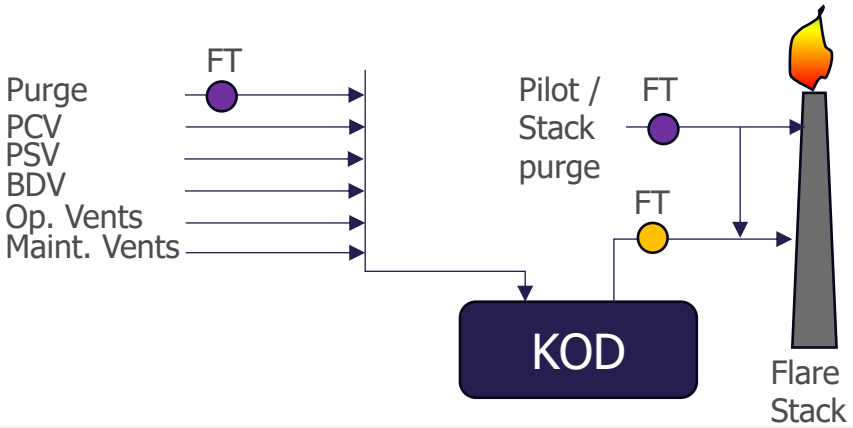
Source Level Measurement / Calculations

Challenges

- Multiple sources
- Low flow / frequency
- Can be dominated by inert gases or air inbreathing on local vents.
- Account for fugitive emissions
- Determining rates across valves/orifice needs a few parameters, potentially increase accuracy issues.
- Some operational / maintenance vents are unmetered – requires robust estimation methods
- Compositions, pressures and temperatures can vary greatly across flaring events.

Benefits

- Can allow direct, accurate measurement of large emission contributors
- Can allow tracking of specific known issues (i.e. Spillover valves) , allowing greater justification on spend to solve the issue at source
- Can highlight specific operational issues in real-time, allowing action to be taken quickly to minimise emissions.



Knowledge

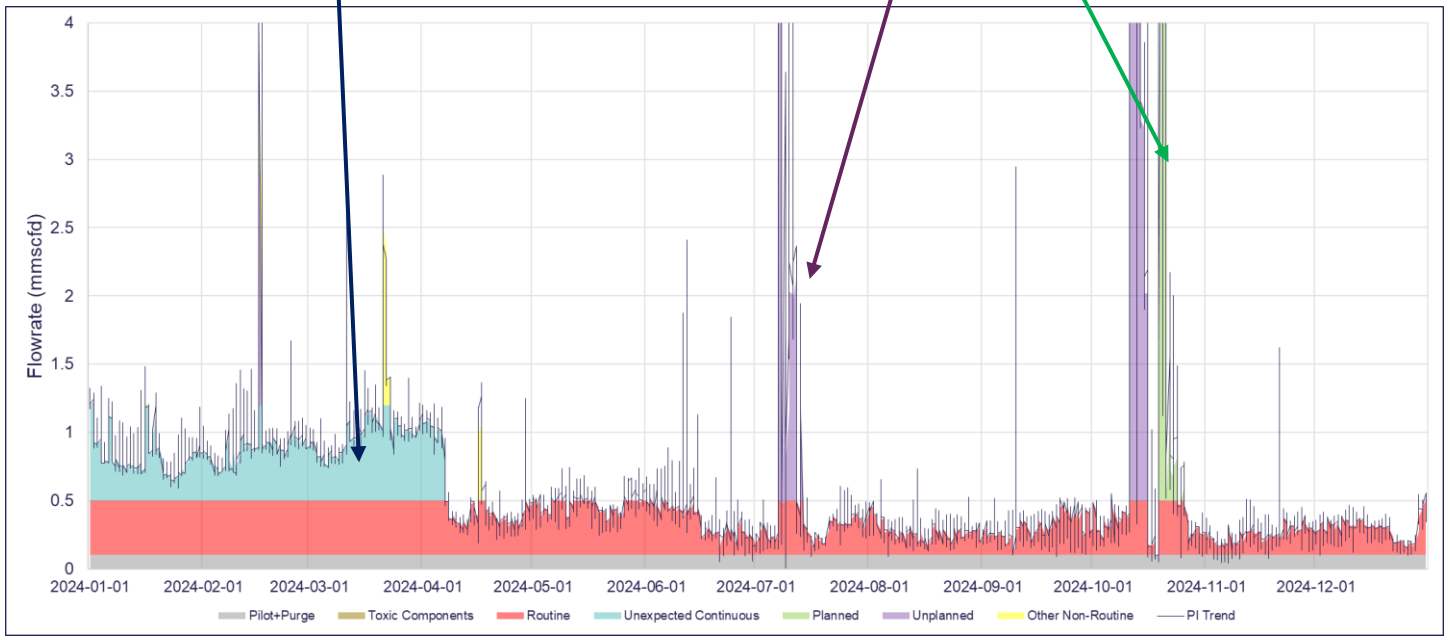
Understanding your emission sources

Flare / Vent Source Register

- Source Valve/Equipment
- Normal relieving composition/conditions
- Valve Size (CV, orifice size, etc)
- Flare/Vent type (Routine, Process Upsets, Emergency, Start-Up, etc.)
- Purge / Pilot Rates

Identification of unexpected flaring, investigation highlighted passing valve from FG header

Unplanned / Planned Flaring Events



Understanding your abatement opportunities

Non-Routine Flaring Type	Equipment / Activity	No of Events	Flared Volume (MMSCF)
Unplanned	MPP1 Trips	7	0.166
	MPP2 Trips	26	0.789
	Weather – Full plant shutdown	1	0.07
Planned	MPP1 maintenance	2	0.062
	MPP2 maintenance	19	0.632
	Well maintenance activities	44	2.836
	Other maintenance activities	10	0.215
Not specified		2	0.017

Reporting of Rich Data

- Allows determination of persistent reliability issues
- Allows tracking of particular trips/valve openings which can identify where process is running
- Tracking flaring volumes associated with issues can justify abatement spend (from increased sales and reduced emissions, alongside plant uptime)

Visibility

Turning oversight into insights and proactive management

Asset Engineer

- Mapping of asset flared losses
- Tools for surfacing issues quickly with evidence to support
- Identifying patterns and focus on value-adding opportunities (e.g. high flaring in summer due to condenser constraint -> exchanger cleaning / CM upgrade)

Maintenance Engineer

- Highlight potential flowmeter drift / failure
- Prompt identification of repeat "bad actors" / design flaw improvement

Asset integrity

- Reliability database with impact mapped/costed

Asset Manager

- Clear Stewardship
- Reduced likelihood of Financial / Reputational impact of non-compliance
- Confidence in reporting with audit trail

Environment Engineer

- Real-time monitoring of flaring/venting events above normal / licensed limits
- Clear audit trail of flaring/venting events
- Automation of reporting with breakdown of flare/venting categorisation
- Highlighting when metering coverage is compromised
- Supporting flaring forecasting, particularly non-routine planned volumes / typical unplanned volumes for a cause

Operations

- Real-time visibility of sources of flaring
- Flowmeter performance visibility

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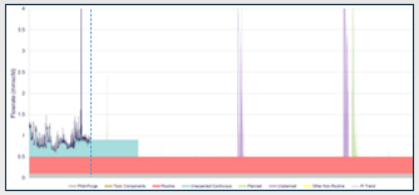
Turning oversight into insights and proactive management

Asset A

Flare Monitoring Dashboard

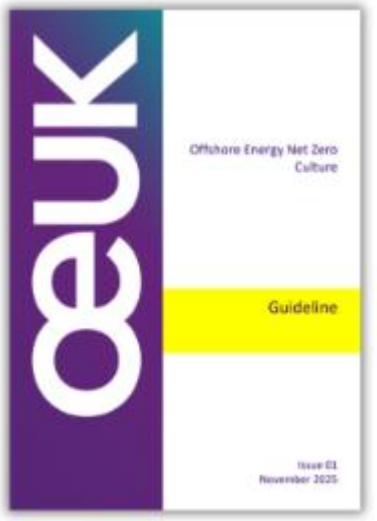
Stack	Flaring Rate	Flowmeter Health	Flame Status	Planned Activities	Trend / Flare Forecast *(click to expand)*	Flare Event / Issue	Action / Close Out
HP Flare				• MPP2 Maintenance (Mar – Apr) • Well A2 Workover (Apr – May)		• Unplanned event – 19 Feb	• Trip on MPP2
Acid Gas Flare				N/A		• Failure of flowmeter	• Under investigation (target date – 7 Mar)
LP Flare				• Well X7 Depressurising (Aug) • PWT De-sanding Activities (Nov)		• Unexplained continuous rate	• Investigation pending

Culture

Culture – Truth, Transparency, Transformation

- Clear understanding of which asset reports what information
- Clear protocols for 3rd party flaring
- Consequence of emissions increasing on individuals/company ?
- Importance of sharing best practice and improvement stories
- Traceability and rigour – clear data source with deviations explained and identified
- Suitable level of internal challenge/verification on reported numbers

ASSET STEWARDSHIP TASK FORCE



[Offshore Energy Net Zero Culture Guideline | Offshore Energies UK (OEUK)]

Summary

- **Measurement**
  - Different measurements need to be taken in the context they provide, high level give very complete total emissions but unlikely to zone in on the why emissions are there and how you can abate them.
  - Existing metering may be more accurate than expected but could be a lot worse!
- **Knowledge**
  - Knowing where and when operations related emissions allows you to sharpen your forecasting and reporting – improved planning of consents!
  - Understanding where flaring occurs allows opportunity for continued improvement
- **Visibility**
  - Develop dashboards to proactively manage your emissions, rather than retrospectively review historical performance
  - Critical to have clear auditable reporting, with rich data on non-routine emissions, and any strategic decisions taken which may have increased emissions
- **Culture**
  - Ensure your corporate culture balances KPIs that encourage emissions reduction but not at the detriment of transparency
  - Share the good stories of noticing something not right, identifying the problem and developing a solution! It might encourage someone else to act the same.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