
BTU Efficiency Teams

*Using a Cross-Functional Approach and Model for Increasing
Efficiency and Reducing Methane Emissions*

October 25, 2006

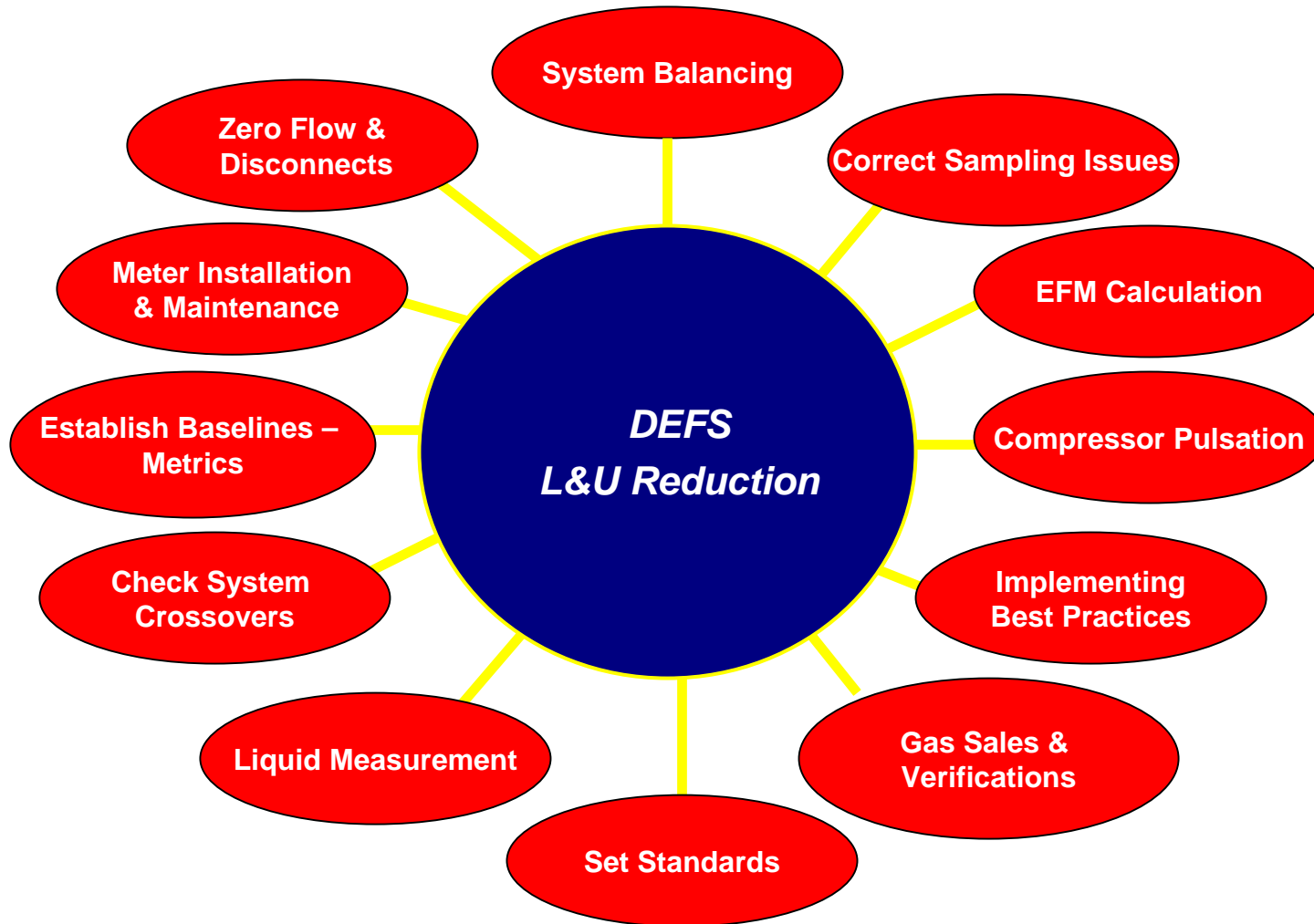
Bob Berry – BTU Efficiency Manager

BTU Efficiency – L&U Initiative Approach

Field Verification	Field Implementation	Gap Analysis	Accounting Implementation	Process Deployment
<ul style="list-style-type: none"> • Verify & repair measurement devices • Install new measurement devices as needed ➔ Review system & sub-system balances ➔ Identify actions to be taken to resolve losses & unaccountables • Review sampling processes & procedures • Wellhead compressor station review 	<ul style="list-style-type: none"> ➤ System balancing <ul style="list-style-type: none"> • Sampling issues • Chart & EFM calculation & integration verification • Compressor Pulsation ➤ Gas sales verifications & inspections <ul style="list-style-type: none"> • Liquid measurement • Asset tie-Overs • Meter installations ➤ Zero flow disconnects 	<ul style="list-style-type: none"> ➤ Review physical and accounting balances ➤ Identify gaps based on Implementation Action Items ➤ Develop action to resolve gaps 	<ul style="list-style-type: none"> ➤ Review actions identified in “Gap Analysis” phase ➤ Prioritize based on impact, cost and value ➤ Initialize Accounting Implementation ➤ Identify other opportunities 	<ul style="list-style-type: none"> ➤ Develop and implement processes that will maintain and/or improve L&U ➤ Develop and implement process to maintain physical and financial reconciliation within Assets
<p>Who:</p> <p>Local BTU Efficiency Teams – Measurement & Operations</p>	<p>Who:</p> <p>Local BTU Efficiency Teams – Meas., Operations, Commercial</p>	<p>Who:</p> <p>Local BTU Eff. Teams – Meas., Oper., Comm., Accounting</p>	<p>Who:</p> <p>Local BTU Eff. Teams – Meas., Oper., Comm., Accounting</p>	<p>Who:</p> <p>Local BTU Eff. Teams – Meas., Oper., Comm., Accounting</p>

BTU Efficiency Core Team (Including Company Management)

DEFS L&U REDUCTION STRATEGY



DEFS L&U TEAMS

Asset Core Team – Measurement, Operations, Commercial & Accounting

- Establishes baselines
- Sets the standards
- Determines priorities based on sub-balances
- Forms system teams
- Studies electronic maps
- Brainstorms
- Sets the tone

System Teams – Field Oper., Meas. Tech, Mechanic, I&E, Commercial Rep, Accounting

- Studies the trends
- Determines areas of focus
- Leads by example
- Meets As needed

Subsystem Teams – Everyone who touches the asset

- Accountable and responsible for subsystem balance
- Share ideas with system and core teams

BTU Efficiency

Local BTU Teams Must Drive The Process - Empowerment

LEAKS (Pipeline, dumps, unmeasured tie-overs, blow downs)

“DEAD” LATERALS (Cut & Cap)

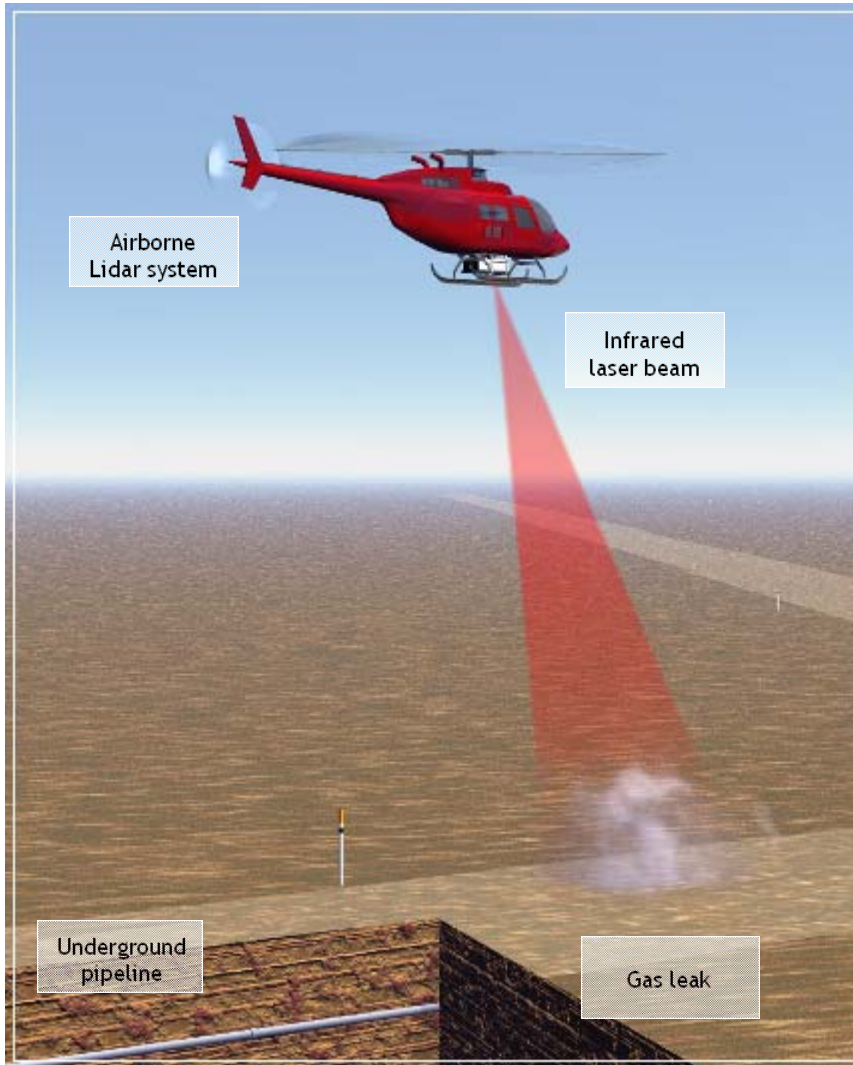
Find It Fast

- Segmentation with DeLorme Mapping Software
- Laser – Aerial with LaSen, Inc.
- RMLD – Ground Follow-up to Aerial Laser
- Infrared Camera – Boosters & Plants

Fix It Fast

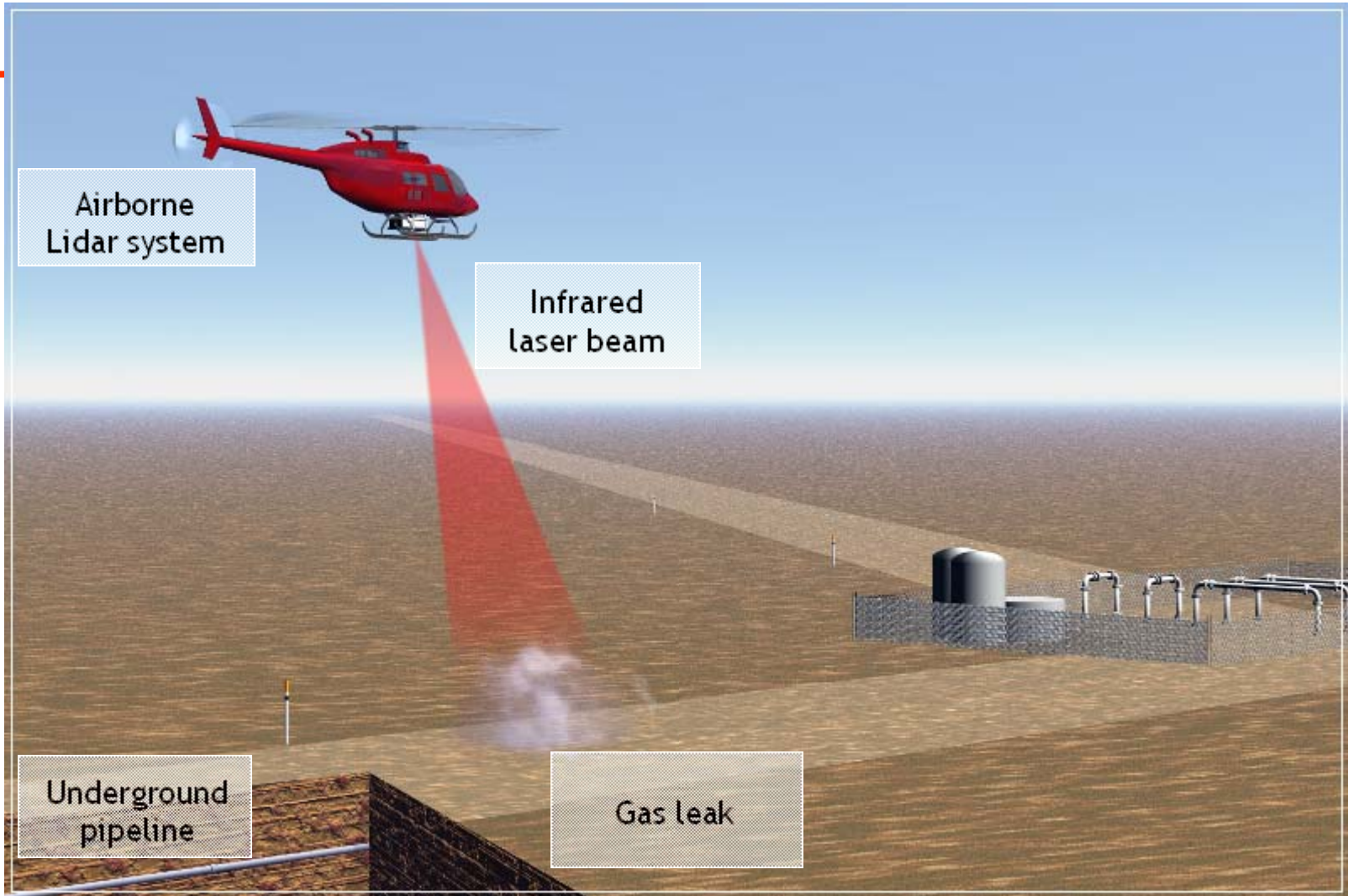
- Operations Resources
- Commercial
- Accounting

ALPIS Operational Principle



- Laser beam from the sensor illuminates the ground above the buried pipe
- The ground reflects the beam back towards the sensor
- If the laser beam passes through a methane plume, some laser light will be absorbed in the plume
- As a result of absorption in the plume, less reflected energy will come back to the sensor
- This decrease in the reflected signal is used to detect a leak and to estimate its magnitude

How ALPIS Works



DEFS Methane Emission Reductions

2005 Improvement Over 2004

● Pipeline Replacement and Repair	1,043	MMCF
● Aerial Laser and/or Infrared	695	MMCF
● Minimize Flaring, Venting & Blow downs	378	MMCF
● Improved Systems for Balancing	275	MMCF
● Eliminate Idle Lines & Equipment	119	MMCF
● Directed Inspection & Maintenance	92	MMCF
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TOTAL	2,602	MMCF

DEFS Methane Emission Reductions

2006 August YTD Improvement Over 2005

● Pipeline Replacement and Repair	547 MMCF
● Aerial Laser and/or Infrared	657 MMCF
● Minimize Flaring, Venting & Blow downs	366 MMCF
● Improved Systems for Balancing	401 MMCF
● Eliminate Idle Lines & Equipment	128 MMCF
● Directed Inspection & Maintenance	91 MMCF
	=====
TOTAL	2,191 MMCF

DEFS Methane Emission Reductions

2005 Results	2,602 MMCF
2006 August YTD Results	2,191 MMCF

Future dictates full deployment of technology, constant vigilance for finding new technology and methods, and, above all, listening to all the members of the BTU Efficiency Team---

DUKE ENERGY FIELD SERVICE EMPLOYEES

Conclusion

Everyone Owns BTU Efficiency

Make sure everyone in your group understands the impact of methane emissions to the bottom line, the environment and to the safety of your employees and the community.

Make sure you understand why your BTU efficiency is what it is – Good or Bad!

Questions?

Thank You!