ION CLEAN ENERGY

FINAL RESULTS FROM A YEAR-LONG CCGT PILOT WITH ICE-31™

8TH POST-COMBUSTION CAPTURE CONFERENCE (PCCC8)

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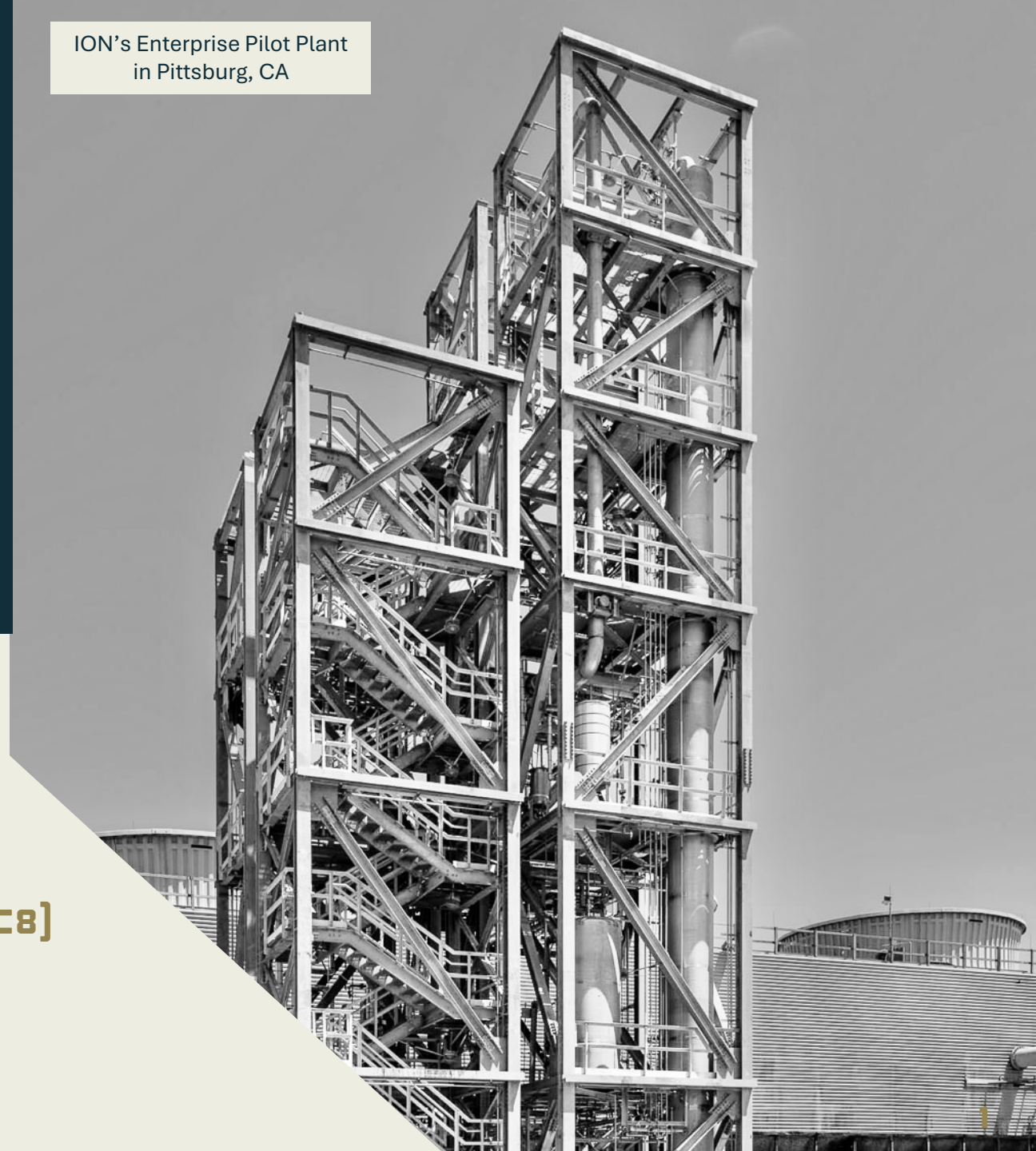


ION's Enterprise Pilot Plant in Pittsburg, CA

THE PROOF IS IN THE PILOTS

National Carbon Capture Center
Wilsonville, AL, USA

10 TPD CO_2
Project Apollo

Technology Centre Mongstad
Mongstad, Norway

200 TPD CO_2
Project Slingshot

Koch Headquarters
Wichita, KS, USA

2.8 TPD CO_2
Bedrock Pilot

Los Medanos Energy Center
Pittsburg, CA, USA

10 TPD CO_2
Enterprise Pilot

PEER-REVIEWED RESULTS ON A VARIETY OF FLUE GASES

Safely operated 20,000 total hours of testing to date with NGT gas, CHP gas, refinery gases, and coal flue gas

PILOT DATA VALIDATES ION MODELS

Extensive pilot data and process modeling allow ION to design plant to handle all NGT flue gas scenarios

PROJECT ENTERPRISE

OBJECTIVE

Empirically validate the low capital and operating costs for ICE-31™, ION's 3rd generation carbon capture solvent

LOCATION

Calpine Los Medanos Energy Center - 1 MWe slipstream flue gas from CCGT facility

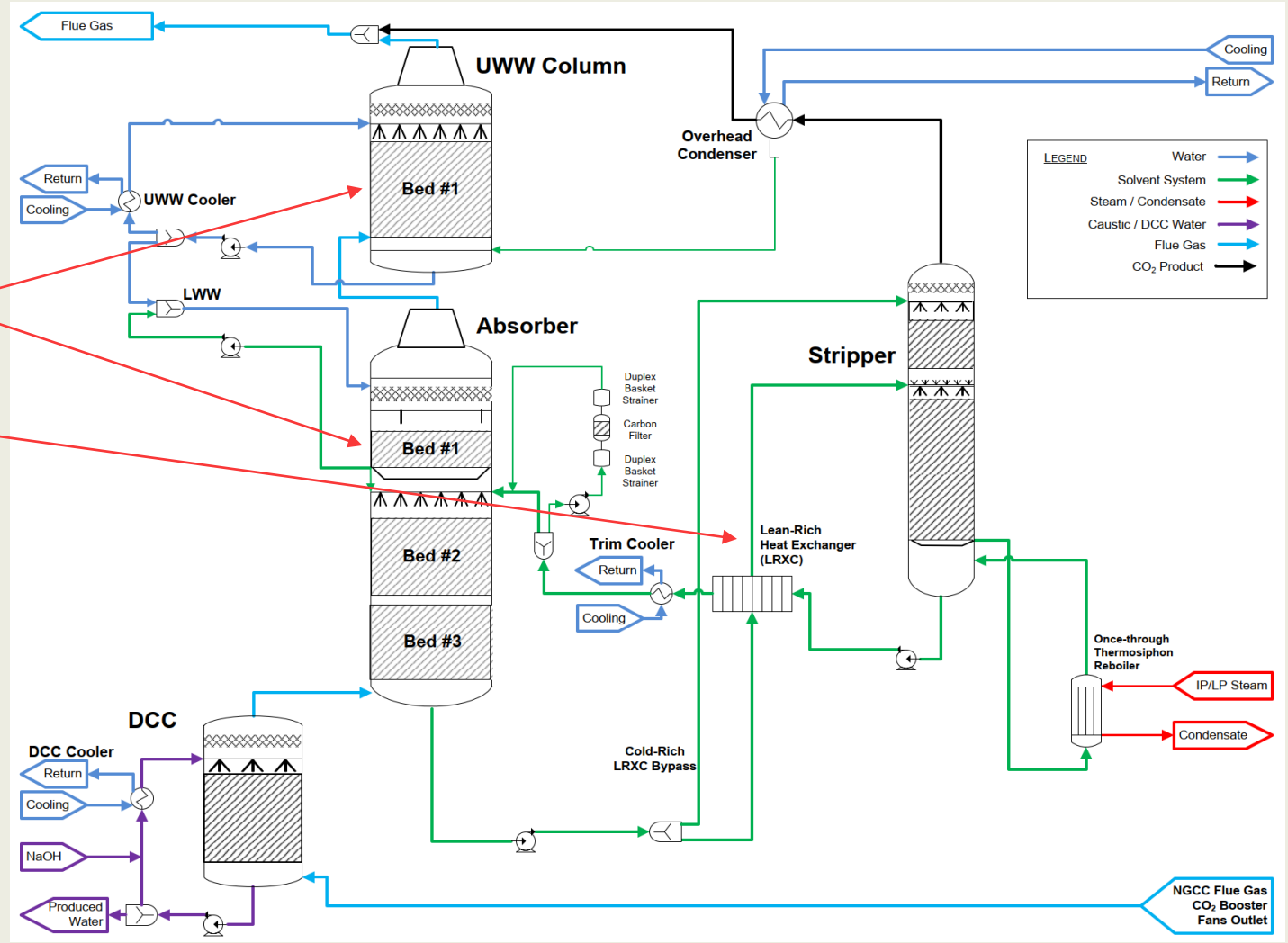
SCALE

10 tonnes/day CO_2 capture system

PROCESS OVERVIEW

KEY FEATURES:

- Two-Stage Water Wash
- Lean-Rich Heat Exchanger with Cold-Rich Bypass



KEY RESULTS

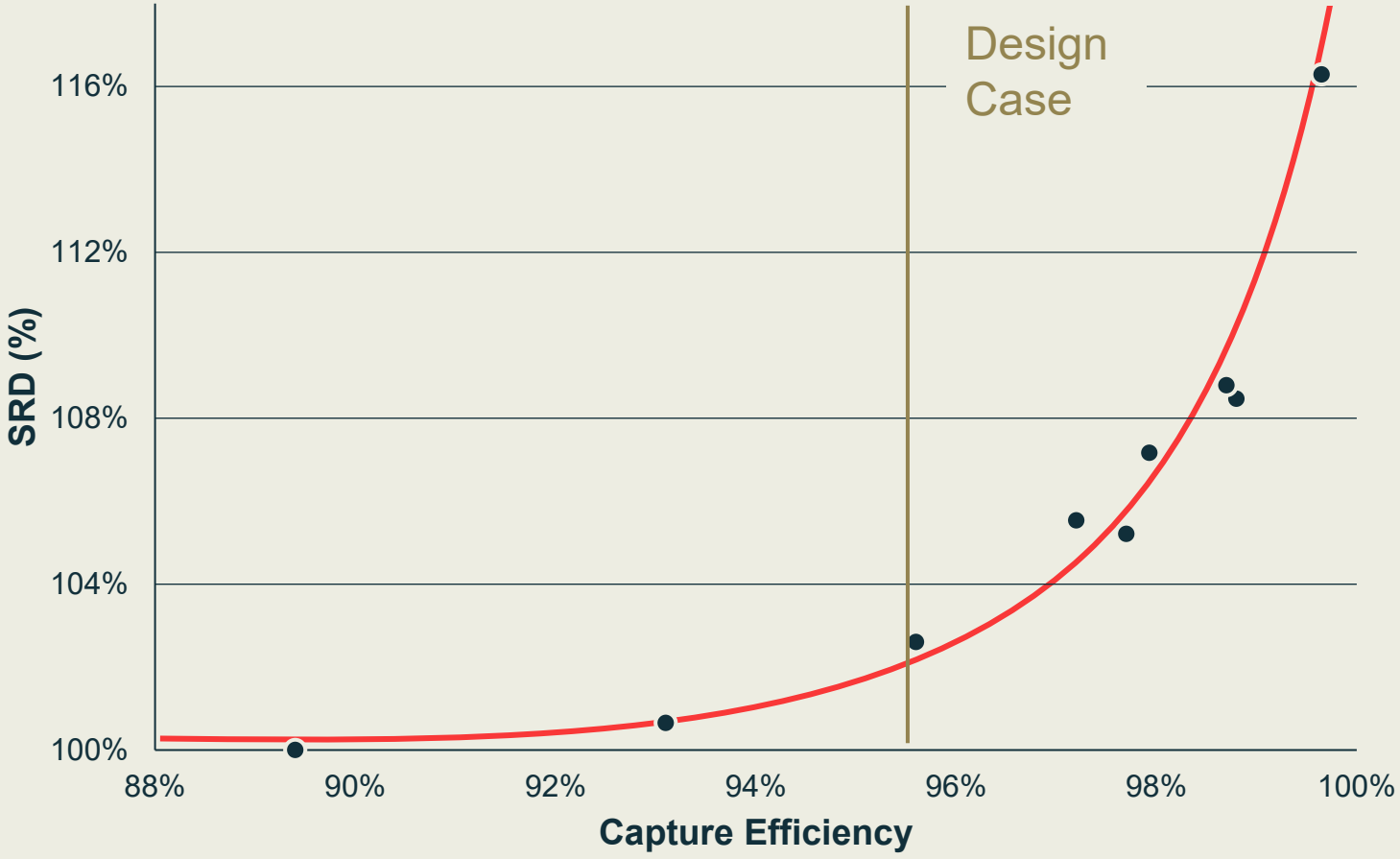
Efficient Deep Decarbonization

Rigorous Process Design

Negligible Emissions

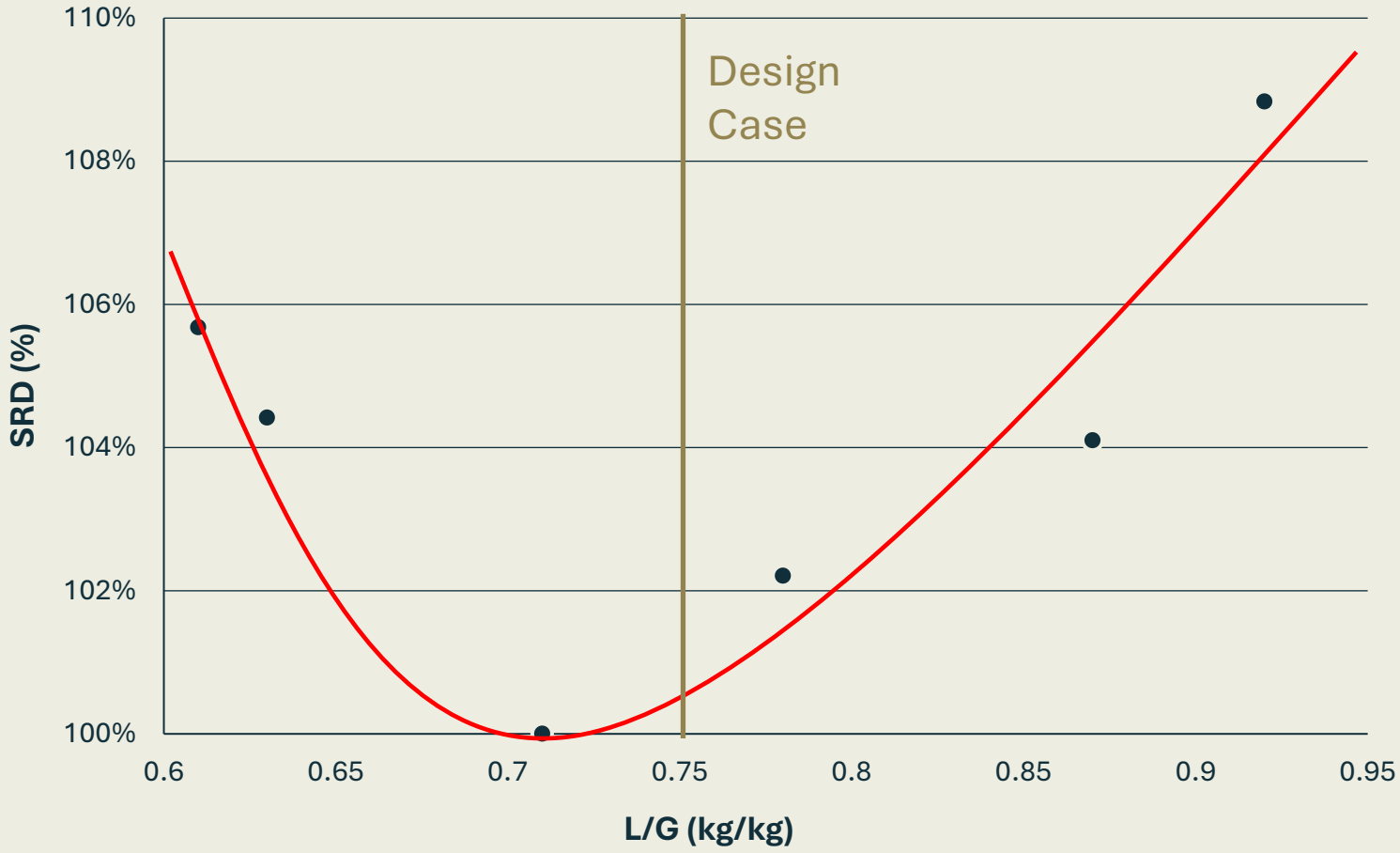
Unprecedented Solvent Stability

EFFICIENT DEEP DECARBONIZATION



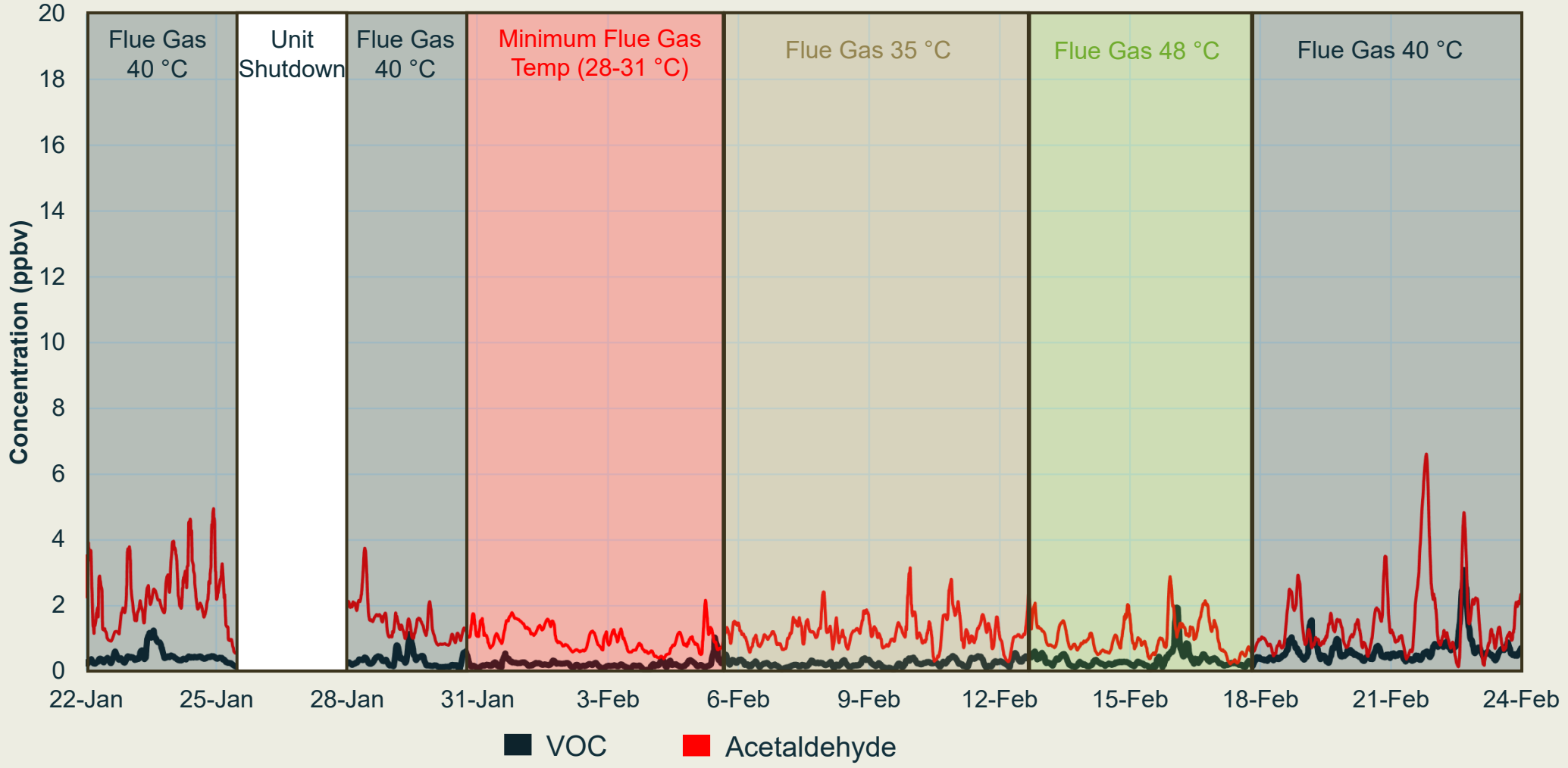
- Nominal 6,500 kg/hr flue gas flow
- L/G ratio approximately 0.7
- Design case located before rapid increase in SRD
- Permitting limitations at LMEC set maximum packing height

RIGOROUS PROCESS DESIGN

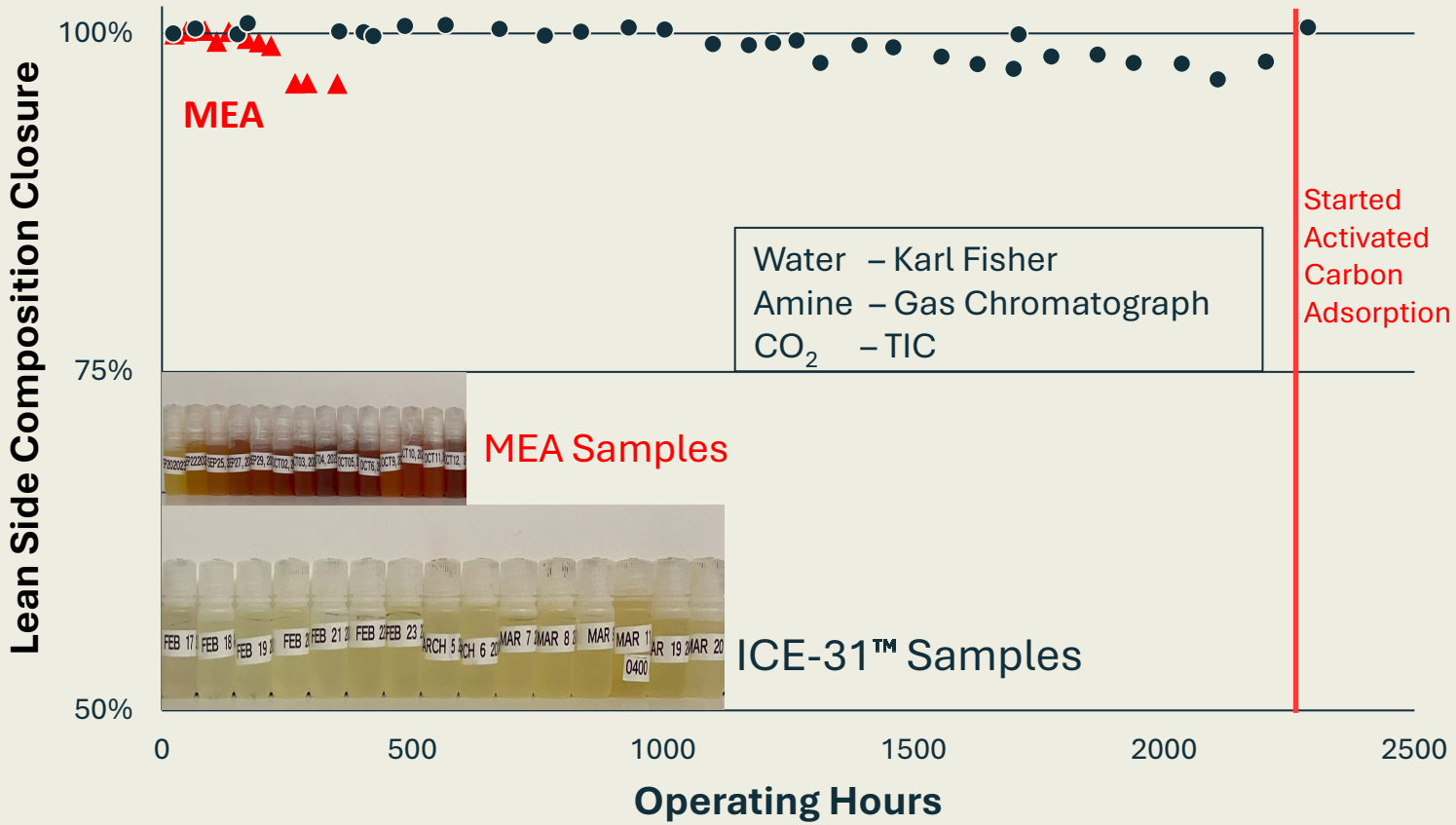


- 95-96% Capture Efficiency
- L/G determined from lean solvent flow
- Minimum at L/G of 0.7
- Slightly lower than design case L/G (equipment margins)

NEGLIGIBLE EMISSIONS

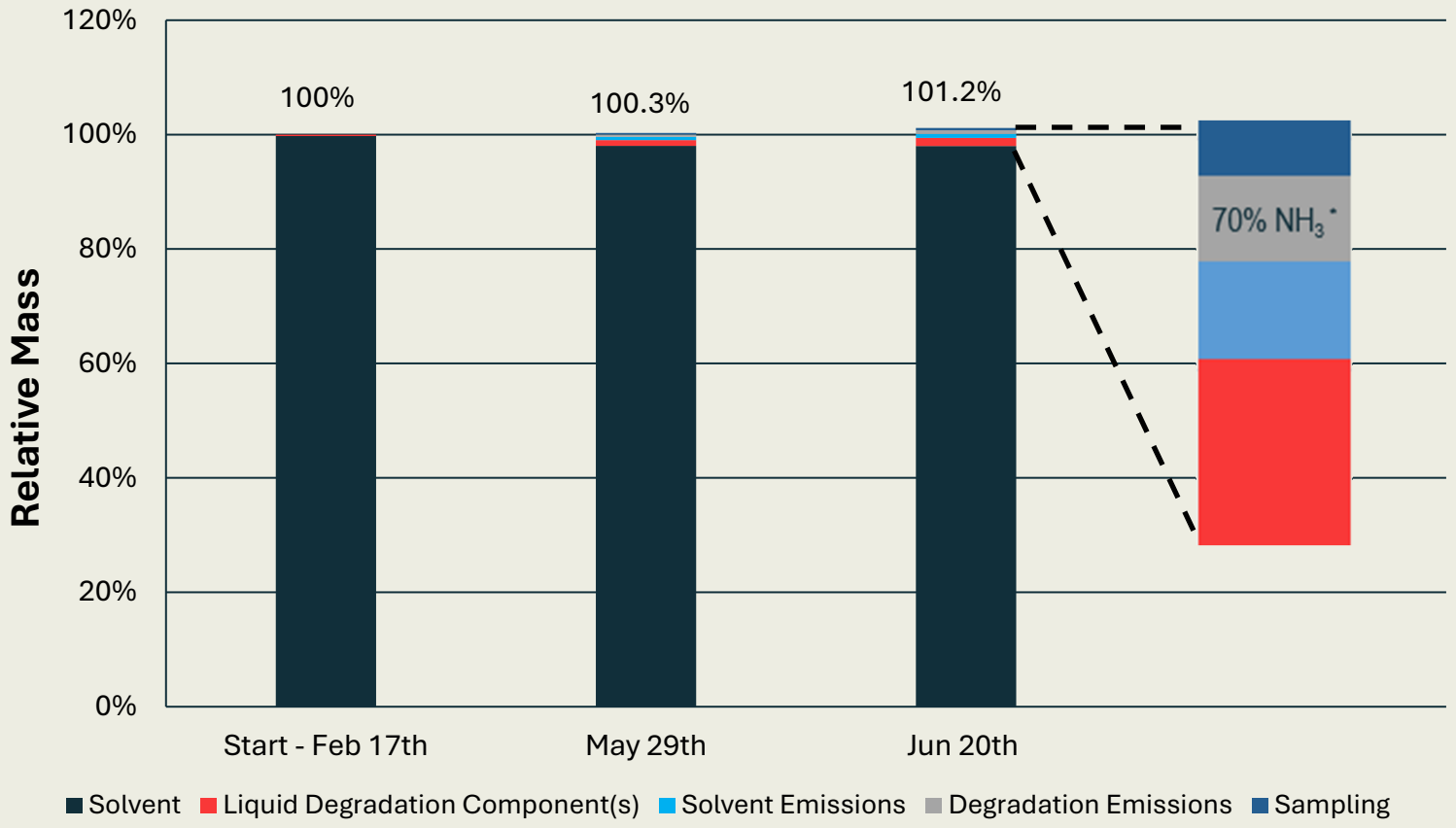


UNPRECEDENTED SOLVENT STABILITY



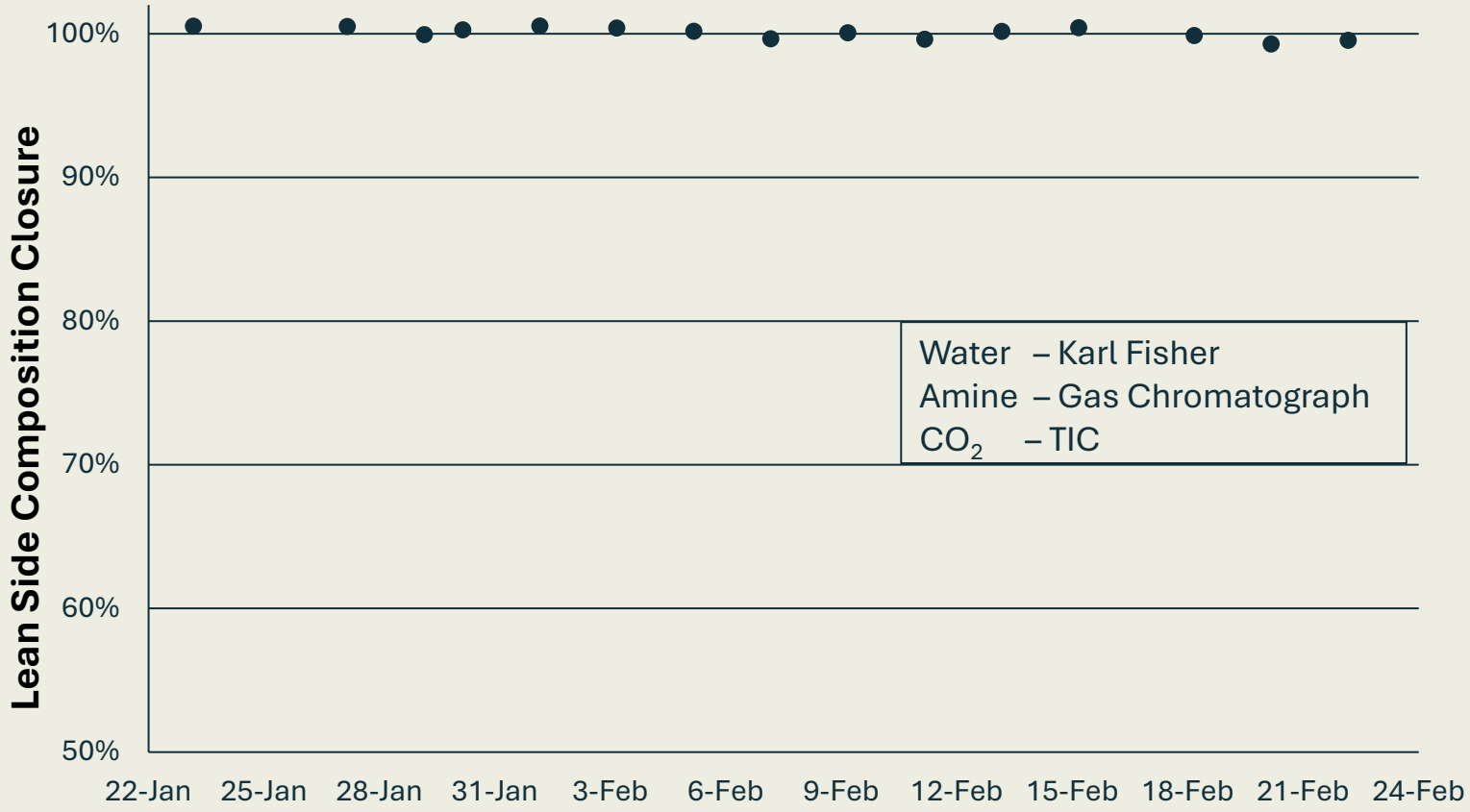
- Run ICE-31™ long-term without reclamation or solvent addition
- Measure solvent active components at ION HQ
- Solvent is extremely stable with minimal change in total active components
- Activated carbon adsorption results show effective solvent cleaning with mass balance returned

UNPRECEDENTED SOLVENT STABILITY



- Determine overall solvent mass balance including emissions and liquid degradation component(s)
- Emissions measured with PTR-TOF
- Degradation emissions include NH_3, which primarily comes from host site
- All mass accounted for

UNPRECEDENTED SOLVENT STABILITY – A YEAR IN



- Run ICE-31™ with full solvent reclamation and addition
- Measure solvent active components at ION HQ
- No change in composition, reclamation rate, or makeup rate after a full year of operations

WHY ION?

WORLD CLASS ION TECHNOLOGY WITH AN OFFERING TO MEET EVERY NEED

- Affordable, high capture rates on low CO_2 flue gas with extremely low emissions and less waste on carbon capture projects big and small

STRONG PARTNERS WITH SUBJECT MATTER EXPERTISE

- EPC and OEM Partners seamlessly integrate with ION's team to meet all our customers' project needs
- Bankable full wrap and performance guarantees available from world class EPC providers

FLEXIBLE, NIMBLE AND ACCESSIBLE ION TEAM THAT TREATS CUSTOMERS LIKE A TRUE PARTNER

- ION is committed to our customer's project's success from the pre-feed to commercial operations
- We stand with our customers through the lifecycle of their facilities to maximize performance and value

ACKNOWLEDGEMENT & DISCLAIMER

ACKNOWLEDGEMENT

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DISCLAIMER

THANK YOU

NATIONAL ENERGY TECHNOLOGY LABORATORY

U.S. DEPARTMENT OF ENERGY

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GRAYCOR

LET'S GO CAPTURE SOME CARBON.

SEPTEMBER 2025