Sarah Miller

Thermal systems engineer. Energy recovery, rotating equipment reliability, and test systems in gas processing and aerospace.

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SELECTED WORK

2025

Lean amine exchanger train, Sabine Energy Beaumont

Recovered 2.1 MW with no shutdown window and under $250,000 of capital.

- Approach temperature had drifted from 8.5 to 14.2 °C over eighteen months; existing instrumentation could not identify which of twelve exchangers were fouling.
- Instrumented all twelve units with clamp-on ultrasonic meters and skin thermocouples, then built a per-unit fouling model from eighteen months of historian data.
- Designed a bypass spool allowing the four worst units to be cleaned online, and rebuilt the cleaning schedule around measured fouling rates rather than the calendar.
- Result: reboiler steam down 13 percent from 41.6 to 36.2 t/h, $410,000 a year, payback in seven months, summer throughput ceiling removed.

2024

Charge pump seal failures, Sabine Energy Beaumont

Six failures a year reduced to one.

- Vibration and bearing temperature data showed the seal flush was flashing at low flow, so faces ran dry during turndown. The standing assumption had been seal quality.
- Moved the two worst pumps to an API Plan 53B barrier system and corrected the turndown procedure.
- Result: one failure in eighteen months, $180,000 avoided, eleven days of unplanned downtime removed.

2021

Thermal vacuum test stand rebuild, Ridgeline Aero

Cycle time cut from 9.5 to 5.2 hours.

- Rebuilt the test sequencing, added a second cryo shroud circuit, and replaced hand-written logs with a Python pipeline writing directly to the test database.
- Result: annual capacity up from 120 to 220 articles, eleven-week queue cleared, and no transcription errors since against fourteen the prior year.

EXPERIENCE

2023 to now

Thermal Systems Engineer, Sabine Energy

Gas processing, Beaumont. Energy recovery, rotating equipment reliability, turnaround scope.

2020 to 2023

Test Engineer II, Ridgeline Aero

Thermal vacuum and vibration test for satellite components. Stand design, procedures, data systems.

EDUCATION AND CREDENTIALS

2020

BS Mechanical Engineering, Texas A&M University

Senior design: counterflow recuperator for a micro gas turbine.

Licensure — FE Mechanical, Texas, 2020. PE exam scheduled April 2027.

Certifications — Category II Vibration Analyst, Mobius Institute. OSHA 30, general industry.

Software — Aspen HYSYS, HTRI Xchanger, Python with pandas, PI System, Ignition, SolidWorks, AutoCAD P&ID.