



Morning Star Engineering

Illuminating the path from data to insight.

Industrial Data Engineering | OT/IT Integration | Lakehouse Architecture



Timothy Pomaville

WHO WE ARE

Morning Star Engineering is a specialized industrial data consultancy based in Lompoc, CA. We build the infrastructure that connects plant floor systems to modern analytics platforms. No account managers, no junior staff handoffs - you work directly with a senior engineer who has stood on plant floors and written production code.

THE PROBLEM WE SOLVE

- Historian data that never reaches the analytics layer
- OT/IT gaps stalling digital transformation initiatives
- Platforms purchased but never properly built or adopted

HOW WE ENGAGE

- 01 Discovery** Understand your data landscape, OT sources, and business questions.
- 02 Architecture** Design the right solution - not the trendiest one.
- 03 Build** Implement with your team involved, not in isolation.
- 04 Enablement** Documentation and knowledge transfer as a first-class deliverable.

CORE SERVICES

Data Engineering

- OT/IT Data Integration
- Lakehouse & Pipeline Engineering
- Predictive Analytics & Maintenance
- Platform Advisory
- Ongoing Advisory

Software Engineering

- Full-Stack Application Development
- Architecture & System Design
- Technical Documentation & Requirements

INDUSTRIES SERVED

- Chemicals
- Pharma
- Oil & Gas
- Automotive
- Food & Flavor
- Process Industries

Flare Gas Optimization

Dow Chemical | Plaquemine, LA | Chemicals / Process Manufacturing

CHALLENGE

Chronic flare gas losses with no reliable instrumentation or data visibility to quantify, monitor, or control them. No baseline existed and no data pipeline connected plant instrumentation to operational decision-making.

APPROACH

Mined a decade of OSI PI historian data to establish operational baselines. Instrumented an inline gas chromatograph to capture real-time composition data. Wrote steam-to-hydrocarbon ratio control logic directly into the process control system. Built the full data layer from raw instrumentation to operational feedback loops.

OUTCOME Measurable, controllable process improvement delivered. Six Sigma Green Belt earned.

OSI PI | DCS / Process Control | Data Pipeline Engineering | Six Sigma

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morningstareng.com/contact

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Web

morningstareng.com



Where Domain Expertise Meets Engineering

Real problems, real industrial environments, real outcomes.

Analytics Platform Migration

IFF (International Flavors & Fragrances) | Global | Specialty Chemicals

CHALLENGE

Legacy analytics environment limiting ML team velocity, incurring mounting infrastructure cost, and unable to scale to support growing data engineering and data science workloads across global operations.

APPROACH

Architected and led migration from legacy environment to a containerized Kubernetes infrastructure. Built Python and SQL ETL/ELT pipelines and FastAPI/Flask data services supporting multiple ML and analytics teams. Administered global OSI PI historian across multi-site operations.

OUTCOME Millions in infrastructure cost savings. Multiple ML and analytics teams fully unblocked.

Python | Kubernetes | Docker | FastAPI | Flask | OSI PI | GitLab CI/CD

DCS Migration Requirements Engineering

DuPont | Operational Technology | Chemicals / Process Manufacturing

CHALLENGE

Plant-wide DCS migration with no formal requirements baseline, no traceability between customer specifications and component-level control logic, and no established change control process across engineering and operations stakeholders.

APPROACH

Served as requirements lead throughout 2019-2020. Authored and managed the full system requirements baseline from top-level process specifications down to component-level control logic. Each requirement uniquely identified, verified, and formally documented with end-to-end traceability and formal change control.

OUTCOME Complete, traceable requirements baseline delivered with full change control governance.

Requirements Management | DCS | Traceability Analysis | Change Control

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