

Technical Consulting & Analysis Case Studies

Case Study #1 (Ventilation Study, Compliance Review, Cost Effective Solutions)

TAS was retained by client to complete an onsite review of pumps, motors, equipment, and associated ventilation systems to verify facility compliance with OSHA, PSM, API, CFR, NEC, and NFPA industry standards and code regulations. TAS's findings resulted in a significantly reduced scope of required modifications vs. client's initial expectations, which generated savings to client of ~400k. In addition, TAS also provided easy-to-implement solutions to resolve seasonal high temperatures in equipment rooms.

Case Study #2 (Line Hammer Study, Root Cause Analysis, Improved Operability)

TAS was engaged by client to assess observed line hammer and pipe deflection effects involving the vapor recovery unit operation at a terminal facility. TAS reviewed operational data, inspected onsite facilities, and completed a root cause analysis to identify contributing factors. TAS provided a series of redesign recommendations (supply valve type, pipe supports) to better meet operational performance needs (smooth open/close cycles per actuation time requirements).

Case Study #3 (Slug Force Study, Data Analytics, Integrity Management, Cost Effective Solution)

Client requested that TAS complete a slug force study on a pipeline segment with observable pipe displacement linked to batch volume movements in the line. TAS used data analytics to complete a comprehensive assessment of operations data, conducted onsite investigation of affected assets, and calculated the load forces to quantify the level of impact and the resultant risk to asset integrity. TAS then provided an engineered solution to resolve pipeline displacement and integrity concerns, both comprehensive and pragmatic, resulting in a more cost effective approach than client had expected.

Case Study #4 (Soil Stabilization Plan and Pipeline Reinforcement Analysis, Integrity Management)

Client terminal facility had experienced significant soil erosion and ground destabilization which raised the risk for a system breach and product release. TAS oversaw the completion of a geotechnical review, performed a root cause analysis on the soil fissures, designed and implemented a near term subsurface foundational support and soil stabilization plan and above-grade pipe reinforcement system, and developed long term recommendations for mitigating future erosion concerns.

Case Study #5 (Pump Reliability Study, Value Engineering, Risk Mitigation)

TAS completed a facility-wide assessment of 50+ pumps to validate asset condition, review suitability of pump configuration and performance parameters to operational requirements, and develop tiered and prioritized recommendations on replacement timeframes and preventative maintenance cycles for client. TAS's report provided client with a cost effective approach to continued use of the facility and improved assurance to prevent unscheduled downtime.

Case Study #6 (Pump Redesign Study, Improved Operational Performance)

Client facility had operational concerns and suspected pump design/performance was a key factor. TAS completed an onsite review of the system layout and design and operational utilization. TAS performed a hydraulic review and confirmed the pumps were suboptimal to requirements. TAS developed redesigned pump and piping configurations, including 3D modeling to validate viability of design.

Case Study #7 (Small Volume Prover Study, Equipment Reutilization, Cost Effective Solution)

Client was considering a redesign and purchase of a new jet fuel small volume prover and retained TAS to determine a preferred path forward. TAS completed a technical assessment of design requirements, confirmed what options would be well matched to operational requirements, and developed a cost/benefit analysis for client. This resulted in client being able to refurbish and reutilize an existing

prover at \$100k savings vs. buying new. This led to follow-on re-engagement of TAS to review, develop, and install small volume prover solutions at several other facilities for the client.

Case Study #8 (Process Commercialization Study, Root Cause Analysis, Operability & Optimization)

Client was experiencing ongoing operability issues with commercializing a new process at a production scale facility, which created delays and cost overruns vs. previously committed targets. TAS was engaged by client's CEO to assist the company's technical and operations leadership groups with pinpointing and resolving causative factors. TAS conducted an onsite review of the facility, evaluated process flow (design, capacity, rates) and integrated capabilities of the respective process manufacturing units, used best practice process design frameworks to identify and prioritize operability risks and concerns (contamination, clogging, fouling), highlighted scalability concerns (achieving prior pilot and demo scale results at production scale site) and developed recommendations for addressing these issues.