ENGINEERS CONSULTANTS DESIGNERS SURVEYORS

GSE

GULF STATES ENGINEERING, INC.

PROCESS CONTROLS

FULL DISCIPLINE CONSTRUCTION ENGINEERING

Gulf States Engineering, Inc. (GSE) is a multidiscipline engineering firm with a wide variety of experience in heavy industrial, commercial, and government projects. GSE is an employee-owned consulting firm founded in 1998 staffing 90 highly experienced engineers and designers. GSE employs an experienced Certified Functional Safety Expert and Control System designers for the chemical refinery, machinery, and manufacturing sectors utilizing Siemens, Rockwell Automation and Emerson Delta V platforms in your system upgrade projects, Rip and Replace evolutions, or simple performance-enhancing.

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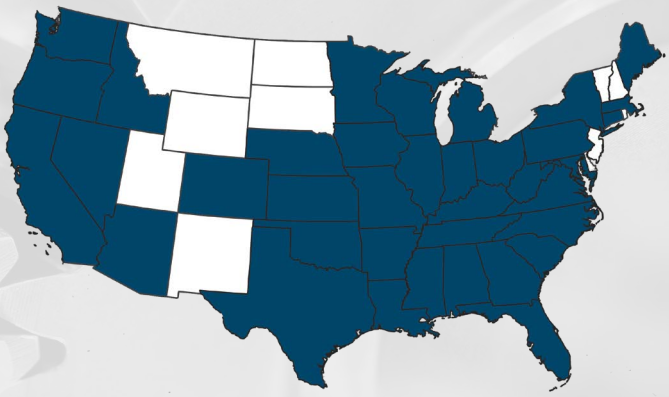
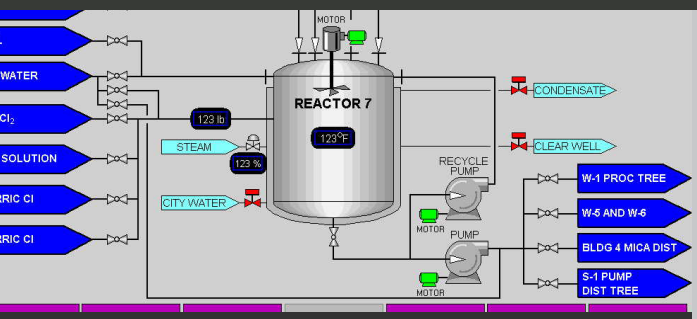


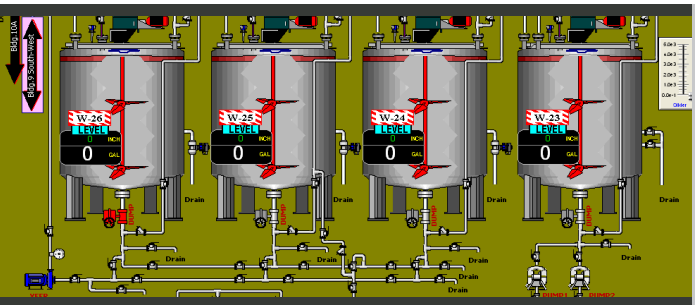
NOTABLE PROJECTS



Liquid Sulfate Processing Systems

Chemical Processing Systems

GSE completed control system specification, CAD design, material selection, PLC and HMI programming for a hot liquid sulfite chemical facility. The facility operation consisted of the fill, mixing, level and flow control of multiple hot sulfite solution concentrations while controlling level, pH, and turbidity online with real-time stamping of process conditions throughout. Rockwell ControLogix PLC components were monitored with a Wonderware HMI platform for local and Company Enterprise reporting. Control system included the operation, monitoring, and safety control of associated scrubber and water treatment systems



Automated Tank Wash Control Systems

Chemical Processing Systems

An Automated Tank Wash control system was designed, equipment specified, and built for the automation of wash cycles in between batches for a hazardous liquid manufacturer. The facility utilized an inter-connected bank of 8 > 10,000 tanks requiring wash cycles several times per week. The system included power panels, drive motors, PLC and Wonderware HMI operator stations. The system was initiated at demand and operated unmonitored while providing online cycle status and recorded wash cycles.

Natural Gas Recovery Systems

Oil & Gas Control and SIS Systems

Provided Redundant server-based PCS and SIS systems for a 60MMSCFD ethane and butane recovery international-based facility. Process Control System (PCS) utilized redundant high-end processors with HMI servers with over 10,000 IO points. The Safety Instrumented System achieved a SIL 2 validation once commissioned. Facility included natural gas inlet & outlet control valves, hot oil heaters, 2-phase separation, process towers, storage of gas and liquid products via truck load-out stations.

Steel Banding Machine

Forest Products Equipment System

LP required an automated finished-lumber banding station operation with improved safety and control stations. GSE provided the system design via AutoCAD, PLC equipment assemblies, commissioning and operator training onsite. LP realized an increase in operator safety and throughput at the mill. Control system equipment was Rockwell Automation SLC.

CELL Automated Crane

SIL 3 Safety Instrumented System for Steel Manufacturing

GSE replaced a SIL 3-rated safety system that was becoming obsolete with updated equipment. The single direct-control system was replaced with 4 independent SIL 3 work cell systems networked with ProfiNet to over 50 distributed IO stations throughout the facility. Work cells included upgraded automatic overhead crane equipment within protected cell boundaries. The Siemens-based systems utilized WINCC HMI operator panels for all monitoring, control, interlocking, communication status, alarming, and work cell-selective isolation for maintenance purposes while allowing continuing production operations within a SIL 3 environment.