

ENGINEERING CONSULTING



CONSTRUCTION SERVICES



FIELD SERVICES

Delivering
Complete Solutions
for Our Clients' Needs





ENGINEER/DESIGN Services

Proven Experience Delivering Results

PROFILE

Effective Project Corporation (EPC) consists of technically astute professionals coming from various engineering disciplines. Our broad range of expertise enables us to perform the majority of tasks required to take the conceptual designs to constructable documents. All of our engineers have no less than 12 years experience in their respective fields. Many are multi-disciplined enabling them to foresee problems before they surface. This expertise enables us to properly design your project not merely to reduce capital expenditures, but to assure operational economy. This is accomplished by evaluating not only process conditions, but also maintenance factors.

CAPABILITIES

- Architecture
- Civil
- Electrical
- Environmental
- Equipment
- Fire Protection
- Geotechnical
- Industrial Engineering
- Instrument/Controls
- Process
- Programming an PLC
- Structural

SERVICES

The following is a sample list of common services as provided by our engineering staff:

Architectural

Buildings, whether the major portion of the project or simply an ancillary function, all have the same major design components and concerns. We have staff experienced in both commercial and industrial design. As such, we can provide aesthetically pleasing or utilitarian designs. As with all our projects, we seek to infuse common sense to maintain economic control.

- | | |
|----------------------|------------------------|
| Site Selection | Building Programming |
| Building Orientation | Conceptual Design |
| Exterior Design | Code Review/Compliance |
| Space Planning | Life Safety |
| Interior Design | ADA Compliance |
| Furnishings | |

Civil

Civil and Site engineering are critical components of any project. Often overlooked, site access and grading elements should be incorporated from day 1 of the project design. Our civil engineers and designers are part of the decision process from the conception to completion of all projects.

- | | |
|----------------------------|-----------------------|
| Surveying | Excavation |
| Right-of-Way Easements | Underground Utilities |
| Soil/Geotechnical Analysis | Roads and Rail Lines |
| Storm Water Drainage | Paving |
| Grading | Sidewalks |

Electrical

As increases in technology have been made the electrical power and control portions of projects have also dramatically increased. It is the major reason for the high productivity in today's industries. This integral component is carefully constructed. The conceptualization and control philosophy must be researched and optimized to guarantee the most effective plant.

- | | |
|----------------------|------------------------|
| Studies | Generation |
| Power Design | Control Design |
| Electrical Equipment | Lighting Design |
| Grounding | Communication Systems |
| Metering | Fire Detection & Alarm |
| Transient Filtering | Lightning Protection |

Environmental

Today's industries are faced with stricter and more demanding environmental requirements. The need to prevent deterioration of both air and water resources has resulted in the need to find economical solutions for handling plant emissions. EFFECTIVE PROJECT CORPORATION and its staff have vast experience in the treatment of water and wastewater. In addition, we have developed a tremendous expertise in spill prevention, waste recovery systems, and air quality improvements.

- | | |
|---------------|---------------------------|
| Air Quality | Spill Containment |
| Water Quality | Water Treatment |
| Wastewater | Waste Recovery/Processing |





ENGINEER/DESIGN Services

SERVICES

Proven Experience Delivering Results

Equipment

Effective Project Corporation performs equipment engineering as part of the mechanical group engineering. We have experience in various equipment sectors in the market. We develop the equipment requisitions, evaluate and conditions bidders, procure and expedite. In this manner, we are able to more effectively control the project schedule and reduce conflicts by handling all procurement services.

Tanks	Fired Equipment
Vessels	Blowers/Compressors
Filters	Agitators
Separators	Pumps
Reactors/Towers	HVAC
Exchangers	Coveying

Instrumentation

Today's projects demand state-of-the-art controls to guarantee a competitive operation. Good control can reduce raw material, utilities, and labor costs as well as resulting in very high quality of the items produced. Several of our Project Managers have controls and instrumentation backgrounds. This assures that our approach to this critical area is central to our services

Control Configuration	Requisitions/Tabulations
Philospgy	Instrument Location
P&ID Development	Instrument Installation
Instrument Data Sheets	Loop Drawings
Control and Marshalling Panels	Programming

Process

One of the most important aspects of any project is the selection and design of the process. This task takes place at the conceptual stage of the project. With our mechanical & process engineers working from day one on the "black book" and conceptual layouts, we are able to identify problems early on avoiding rework and system modifications that are much more costly later on in the project life.

Design Basis Study	Equipment Data Sheets
Process Description	Piping Schedules
Material/Energy Balance	Motor Lists
Process Flow Diagrams	Hazop Studies
P&ID Development	OSHA PSM Documentation
Hydraulic Calculations	Training

Programming

Our Instrumentation Engineers are responsible for the control configuration, programming, checkout and startup of both the Distributed Control Systems (DCS) and Programmable Logic Controllers (PLC). This includes the development of operator interfaces using touch-screen graphical displays.

Control Configurations	Programming
Control/Marshalling Panels	PLC/SCADA Systems
Layouts/BOM/Materials	Vendor Checkout
Requisitions/Tabulations	

Structural

Another aspect of Civil Engineering is the structural design of buildings and equipment support systems. Using a blend of building code requirements and expertise in economical construction techniques, we can provide practical structural engineering and design while minimizing costs.

Building Steel	Seismic Analysis
Pipe Racks/Supports	Foundations
Stairs and Platforms	Rebar Bending Schedules
Steel Fabrications Dwgs	Surface Coatings
Concrete Design	Masonry

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POWER Services

Creating Value From Energy

PROFILE

EPC has considerable experience in the Power Industry. With our streamlined approach to project execution, schedule and costs are minimized, without sacrificing quality. Our professional staff provides all major services required to locate suitable sites, negotiate gas and power contracts, determine overall plant economics, design the facilities, procure equipment and construct the facilities via our joint venture agreements with local electrical and mechanical contractors, or simply manage construction. In addition, we provide plant start-up and commissioning services. EPC's power and design construction services are quality-driven. From simple cycle to cogeneration and repowering projects, EPC is the one-stop solution for our clients' power needs.

CAPABILITIES

- *Simple and Combined Cycle*
- *Distributed Generation*
- *Fuel Systems*
- *Plant Utilities*
- *Substation and Transmission*
- *Repowering*
- *Cogeneration*
- *Controls Upgrades*

SERVICES

The following is a sample list of common services as provided by our energy services group:

Preparation and Evaluation

- Cost Analysis
- Fuel Analysis
- Feasibility Studies
- Site Planning

Project Management

- Schedule Development
- Field Management Reporting
- Communications
- Vendor Management

Procurement

- Contract Management
- Bid Submittal and Evaluation
- Equipment Review and Checkout

Construction/Commissioning

- Construction Management
- Start-Up and Check-Out

Design

ELECTRICAL

- Equipment Sizing / Layout
- Schematic Design
- Load Calculations
- One-Line/Three Line Diagrams
- Cable Routing / Raceway Systems

CONTROLS

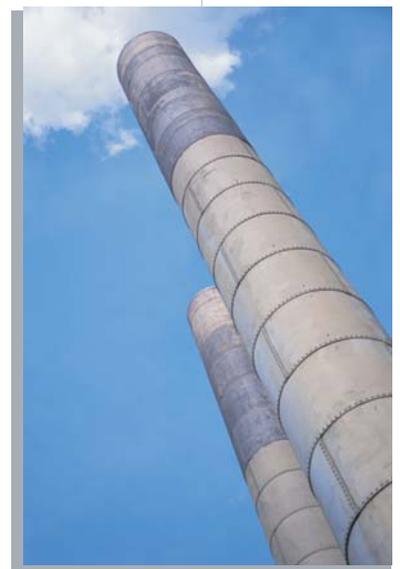
- Instrument Data Sheets
- Instrument Requisitions
- DCS Systems
- PLC Systems
- Logic Diagrams

MECHANICAL

- Specifications / Requisitions
- Heat and Energy Balance
- Pipe Pressure Loss & Sizing
- P&ID Development
- Equipment Layout / Routing

STRUCTURAL

- Concrete Design
- Foundation Design
- Steel Design and Fabrication Details
- Site Grading and Roadwork
- Seismic Analysis





POWER Services

Creating Value From Energy

Representative Client/Project List

- Colusa 4MW Cogeneration Facility Design
 - 4-Jenbacher 320 LB Reciprocating Gensets / Urea SCR Injection
 - 50 Therm/Hour Recovery
 - 600 Lithium Bromide Absorption Chilling
 - 14 Therm/Hr Domestic Hot Water Recovery
 - 12,000 ft² Building
- KCPL West Gardner Gas-line Expansion Project Design/Build
 - 3.2 miles 16" 300# Class Pipeline for feed to four (4) GE7001EA Combustion Turbine Generators
 - Pigging Launch/Receive
 - Permit/Environmental Coordination
 - Construction and scheduling
 - Boring Design
- KCPL Fuels Compressor Station for Hawthorn Power Plant Design/Build
 - MGE Gas Supply Interface
 - Pipeline Extension
 - 2000 HP x 2 Electric Reciprocating Gas Compressors
 - Electrical Building
 - Extension of Plant DCS and Fiber Optics
- KCPL Fuel Supply for Hawthorn Gas Turbines (Units No. 7 & 8) Design
 - Gas Lines from Williams Pipeline Metering Station
 - COE Interface and Levee Crossing
 - Filter/Separation Station
 - Unit Gas Metering Stations (2)
 - Gas Isolation/Shutdown Valves (2)
- KCPL Fuel Supply for Hawthorn Power Plant Unit No. 9 Design/Build
 - 6" HP Gas Delivery
 - Develop Method of Delivery without Levee Crossing
 - Coordinate with COE
 - Unit Gas turbine Metering and Shutdown Valving
- UtiliCorp (Aquila) Aries Combustion Turbine Plant Fuels Supply Design
 - 16" HP Gas Line
 - Two Source Pipeline Feed
 - Pig Launch/Receive Facilities
 - Pressure Reducing Station
 - Filter/Separators
 - Ultrasonic Unit Metering / Plant Control Interface
- DuPont Alkylation Division Laboratory Design Review
 - Hazardous Materials Storage
 - Laboratory Design
 - Building Revamp and Modification
- KCPL Fuel Supply for Hawthorn Power Plant Unit No. 7/8 Regulation/Conditioning
 - 14" HP Gas Delivery
 - Regulation / Bypass Control
- LS Power IPP Power Plant DSC Control System Design/Build
 - Interface Substation, Gas Suppliers (3), Water Pumping Station, Plant DCS and the Power Purchasers (3)
 - Coordinate with Communication Companies
 - PLC Based with Computer Interface
- LS Power Water Supply for IPP Power Plant Design/Build
 - Located on COE Lake with inherent COE issues
 - Collector Well System
 - Pump house with (3) 500 HP Pumps
 - Dual 28KV Power Feed
 - Emergency Generation
 - SCADA System
 - Water Supply Pipeline (17 miles)
 - Packaged Water Treatment System
- LS Power Water Chlorination Facility for IPP Power Plant Design
 - Building
 - Chemical Storage
 - Chemical Feed and Injection System
 - SCADA System – PLC Based
- KCPL Hawthorn Power Plant Gas Turbines Balance of Plant Work (Unit 7/8)
 - Two GE Frame 7EA Units
 - New 161KV Substation
 - Area Power and Lighting
 - Combustion Monitoring Interfaces
 - Protective Relaying for Auxiliary Power
 - Plant DCS Interface and Communications/Fiber Optics
- Aquila Aries Gas Metering and Pipeline Pigging Station Design
 - Generating Station Metering
 - Pipeline Pigging Facilities (receiving and launching)
 - Plant Control Interface
- Aquila Lake Road Boiler Feedwater Treatment Design
 - Filtering / Reverse Osmosis / EDI
 - Chemical Injection
- UtiliCorp Gas Turbine Plant Preliminary Design and Definitive Estimate
 - GE 7EA (x2) Simple Cycle Combustion Plant
 - Equipment, Design and Construction Costing
 - Alternative Major Equipment
- UtiliCorp Greenwood Gas Turbine Project Conceptualization
 - Gas Supply Issues
 - Environmental Permitting
 - New vs. Used Equipment Evaluations
- Irving Water District, Michelson Water Reclaim Plant, Irving CA
 - Two (2) - 1.25MW Internal Combustion Engine
 - Distributed Generation
- Texaco/Mission Energy, Kern County CA
 - Three (3) Individual Cogeneration Plants
 - 2x1 GE Frame 6's
 - 110MW and 115KV Substation
- Poplar Bluff Municipal Utilities, Poplar Bluff, MO
 - Design of 18MW Peaking Plant (3x6MW)
 - Fairbanks-Morse Gensets
 - Gas Compression Facilities



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MUNICIPAL Services

Proven Experience

PROFILE

Effective Project Corporation offers Municipal engineering which includes civil and environmental engineering services required to address the complex infrastructure, environmental and land use issues facing municipal governments. Projects that enhance economic development opportunities, improve the quality of life enjoyed and expected by the community, or that address regulatory mandates are developed with budget conscious, innovative and functional design solutions.

CAPABILITIES

- Water Treatment
- Wastewater
- Environmental
- Plant Utilities

SERVICES

The following is a sample list of common services as provided by our Municipal services group:

Wastewater

Effective Project Corporation is committed to serving its clients, preserving our environment and meeting regulatory standards by designing state-of-the-art, easy-to-operate and cost-effective wastewater collection systems and treatment facilities. Our focus on both current needs and anticipated regulatory standards - and our attention to detail - brings your project from conceptual planning through design, financing, construction and successful operation. EPC engineers work closely with government agencies, and with thorough knowledge of environmental regulations can assist in obtaining federal, state and local permits and authorizations. We bring experience and innovation to your project - striving for a cleaner, safer future.

- Wastewater facilities planning
- Wastewater collection
- Wastewater treatment
- Odor control - chemical, carbon & biological
- Biosolids treatment and disposal
- Treatment process evaluation
- Treatment feasibility studies
- Inflow/infiltration studies
- Facility plan reports
- Plant startup and operation
- Sanitary sewers and pumping stations
- Energy management/conservation
- Wastewater treatment planning and design
- Collection system modeling
- Construction management
- Nutrient removal
- Instrumentation and Controls

Water

Creating the best sustainable water resource solution for a community may or may not require cutting-edge technologies - our designs happen only after determining the needs and goals of our clients. We are capable of delivering state-of-the-art designs and facilities of any scale, and offer an unrivalled track record in the areas we serve. From assessment and planning through construction and maintenance, our clients have come to rely on us for comprehensive water resources solutions. Our team consists of water facilities design engineers, hydrogeologists, geologists, and planners that are familiar with local, state and federal regulations.

- Alluvial and Deep Well Design
- Booster Station and Force Main Design
- Distribution System Analysis & Hydraulic Modeling
- Geophysical Investigations
- Ground and Elevated Water Storage Tank Designs
- Hydrogeologic Studies
- Intake Design from Rivers and Impoundments
- Lead & Copper Corrosion Control Modeling
- Water Treatment Plant Design
- Membrane Reverse Osmosis
- Membrane Ultrafiltration
- Ultraviolet Light (UV) Disinfection
- Water Rate Studies
- Wellhead Protection Plans
- Hydraulic Modeling and Design
- Instrumentation and Controls
- Master Planning
- SCADA Systems
- Security Systems



Packaged Reverse Osmosis Systems





MUNICIPAL Services

Proven Experience

Environmental

Effective Project Corporation integrates civil and infrastructure expertise with specialist environmental skills, bringing maximum benefits to every stage of a project.

EPC has a great deal of experience in conducting environmental studies and creating environmental documentation for transportation projects including large scale NEPA documentation projects and environmental site assessments and impact studies. Our environmental professionals are familiar with regulations and documentation standards as well as with federal requirements.

- Phase I/II Environmental Site Assessments
- Remedial investigation/feasibility studies
- Corrective action designs
- Response action plans
- Brownfield redevelopment
- Environmental compliance audits
- Cultural resource investigations, Section 106
- Environmental justice analyses
- Wetland delineations
- Water resource investigations
- Economic and social impact analyses
- Section 4(f)/6(f) evaluation
- Environmental Assessments
- Environmental Impact Statements
- Categorical Exclusions
- Environmental Assessment Worksheet

Plant Utilities

EPC has a strong understanding and background relating to plant utilities. We have experience in water supply and treatment facilities as well as recovery and waste systems. Our personnel have been involved in both river water intake and collection well design. We design distributed fuel and plant utilities as well as cooling, chilled water, steam, and hot water systems. Our strength to tie the plant infrastructure together helps guarantee a quick start-up with no surprises.

- **Steam**
Boilers, Feedwater, Distribution and Condensate
- **Air**
Compression, Drying, Regulation and Distribution
- **Water Supply**
Deep Wells, Intake Structures and Collection Wells
- **Water**
Traditional, Membrane and Polishing
- **Wastewater**
Collection, Storage and Equalization, Treatment
- **Pipeline**
Design, Metering, Regulation, Storage and Delivery
- **Communication**
Telephone, Computer, Paging, Radio/Microwave
- **Electrical**
Primary/Secondary, Substation, Distribution



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INDUSTRIAL Services

Proven Experience

PROFILE

Effective Project Corporation offers engineering services with experience in a wide range of industrial, commercial, government, manufacturing and process industries. From feasibility studies and preliminary engineering services to construction and start-up activities, our capabilities will guarantee a project on time and on budget.

SERVICES

The following is a sample list of common services as provided by our Industrial services group:

CAPABILITIES

- *Material Handling*
- *Cogeneration*
- *Plant Utilities*
- *Controls Upgrades*
- *Buildings*

Material Handling

Effective Project Corporation has a broad range of experience with many types of materials ranging from aggregates and bulk chemicals to numerous cased products. We also have expertise in packaging and palletizing systems. From initial feasibility studies and preliminary cost analysis to final design, EPC's engineers can provide solutions to diverse material handling needs.

- | | |
|----------------------|-----------|
| Feasibility Analysis | Retrieval |
| Cost Analysis | Weighing |
| Conveying | Packaging |
| Storage | Packout |

Cogeneration

With the energy market fluxuating from season to season, an increasing number of facilities are considering installing "total energy" or distributed generation plants. With proper design, these installations can improve reliability and increase profits. In addition, a reduction in utility costs are often possible. With our experience in both combustion turbine and reciprocating equipment,. the proper configuration can be developed in a relatively short period of time. The feasibility studies include everything from real estate costs and procurement, to energy contract negotiations, to design and construction of the final facilities

- | | |
|----------------------|-------------------------|
| Diesel Driven Recip | Combine Cycle Operation |
| Gas Driven Recip | Steam Recovery |
| Gas turbine | Hot Water Recovery |
| Simple Cycle Systems | Chilled Water Systems |

Plant Utilities

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Collection, Storage and Equalization, Treatment
- **Pipeline**
Design, Metering, Regulation, Storage and Delivery
- **Communication**
Telephone, Computer, Paging, Radio/Microwave
- **Electrical**
Primary/Secondary, Substation, Distribution





INDUSTRIAL Services

Proven Experience

Controls Upgrade

With the advent of the microprocessor, the controls and instrumentation disciplines have been revolutionized. Pneumatic systems and their miles of tubing are technologies of the past. Today's projects demand state-of-the-art controls to guarantee successful operation. Advanced controls reduce raw material requirements, utilities, and labor costs as well as producing a higher quality and better yield. Effective Project Corporation have several advanced instrumentation personnel with years of experience in this field.

Control Philosophy	Location Plans
Control Configuration	Indexes
Instrument Procurement	DCS Systems
Commodity Procurement	PLC Systems
Loop Drawings	Programming
Control Panels	Screen Development

Buildings

Effective Project Corporation has experience in the area of site and building systems design for healthcare, pharmaceutical, research and development, academic and hospitality facilities. Comprehensive engineering master planning, facility management, supply and demand side energy consulting are available through our in-house staff. Our project managers and engineers can serve as the lead professional with responsibility for overall project management in addition to engineering systems design.

- MECHANICAL
 - HVAC
 - Multi-Fuel Energy Sources
 - Exhaust Systems
 - Clean Facilities
- ELECTRICAL
 - Distribution Systems
 - Communications
 - Electrical Rooms
 - Public Address Systems
 - Lighting Design
 - Emergency Power & Lighting
 - Fire Alarm Systems
 - Security Systems
 - Clock Systems
- PLUMBING
 - Sanitary Plumbing Systems
 - RO-DI Water Systems
 - Vacuum Systems
 - Domestic (Potable) Systems
 - Medical Gas
 - Compressed Gas
- UTILITIES
 - Central Utility Master Planning
 - Cogeneration Plants
 - Building Automated Systems
 - Automatic Temperature Control
 - High/Low Pressure Steam
 - Chillers, Boilers and Cooling Towers
 - Heat Recovery Systems
- LIFE SAFETY/FIRE PROTECTION
 - Monitors and Controls
 - Emergency Management
 - Critical Safety Management
 - Wet and Dry Extinguishing
 - Alarm Network
 - Security
- ADDITIONAL BUILDING SERVICE
 - Pre-Construction Services
 - Facility Assessments
 - Peer Review Studies
 - Construction Services
 - System Surveys



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OWNER ENGINEER Services

Proven Experience Delivering Results

PROFILE

Effective Project Corporation specializes in the power, industrial and process sectors. Our engineering services range from planning and feasibility studies to detailed design, construction, training, and operational assistance. We have participated in world-class projects in the United States and around the world, for both public and private sector clients. Recognized as an professional first we have received national awards for our engineering services.

Our experience includes traditional design/bid/build delivery, as well as design/build, design/build/operate, design/build/finance/operate, and Public Private Partnerships (P3). We have worked with owners as **Owner's Engineer and Program Managers** and with proponents on alternative delivery projects. We therefore bring the experience and understanding of project delivery from both the owners' and the proponents' perspectives.

Because each project is as different as each client, our wealth of experience ensures our clients receive the appropriate solution for their needs. At EPC, our relationship and service to our clients are priorities.

CAPABILITIES

- Architecture
- Civil
- Electrical
- Environmental
- Equipment
- Fire Protection
- Geotechnical
- Industrial Engineering
- Instrument/Controls
- Process
- Programming an PLC
- Structural
- Construction Management

Services

Today's project execution places considerable duties on the Owner of large projects.

In the traditional design-bid-build approach, there is considerable interface that must be done with the chosen design consultant. This often places a tremendous burden on the Owner's technical staff who must continue present plant operations and keep product going out the Owner's door.

In the ever increasing popular design-build projects, the design team, while contracted by the Owner, has other objectives beyond what is best for the Owner. As part of the team building the project, they as always looking for ways that money can be saved in the procurement of equipment and materials as well as construction activities. This can adversely impact the overall project quality and result in the Owner not receiving full value for their investment. Over-worked Owner staff cannot keep current on large capital programs.

Nowhere is the need to a dedicated Owner's Representative more important than in cost-plus or reimbursable contracts. It is critical that the Owner has its own personnel verify materials received and issued during the performance of the work. Likewise, quality inspections can prevent faulty workmanship that may manifest in future problems.

- Feasibility Reports and Details Project Reports
- Basic Engineering
- Optimization studies on Project systems and Schemes
- Preparation of Project Design Memorandums
- Technical Specification and Tender Document
- Techno-Commercial Evaluation of offers
- Commercial and conditions of contract
- Tender evaluation and procurement
- Selection of EPC Contractor
- Post Award and Review Engineering
- Field Engineering
- Site investigations and surveys
- Design approval
- Test and inspection
- Construction supervision
- Material Management
- Quality Inspection Services
- Invoice Verification
- Financial control / administration
- System studies / planning
- System design

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PROCESS Services

Creating Value From Energy

PROFILE

Effective Project Corporation's staff have experience in the chemical and petrochemical industries. Several of our engineers have worked with oil and gas companies throughout the United States and abroad. We have specific experience in gas plant design, sulfur recovery, compression and pumping facilities, and LNG facilities. In addition, our staff have worked on patented batch and continuous chemical plant operations.

SAMPLE FACILITIES

- *Natural Gas Processing*
- *Chemicals*
- *Petroleum Refining*
- *Plant Utilities*
- *Food Processing*
- *Controls Upgrades*

SERVICES

The following is a sample list of common services as provided by our Process Services group:

Chemicals

Chemical plants and processes have their own type of design and engineering requirements. We have experience in a wide range of chemical and catalyst plants. Several of our engineers have designed and constructed chemical plants around the world.

Ammonia	Catalyst
Ethanol	Fertilizer
Methanol	Nitric Acid

Natural Gas

EPC's capabilities and experience in gas processing include gas dehydration, gas sweetening, sulfur recovery, NGL recovery and fractionation, natural gas liquefaction, and gas compression and reinjection. We can provide debottlenecking studies to increase throughput and decrease production schedules.

Sulfur Recovery	Gas Recovery
NGL Fractionation	Debottlenecking studies
Gas Compression	Turboexpanders
Gas Rejection	Cryogenics

Petroleum

EPC's mechanical and process engineers gained their experience through years of projects at larger process and chemical engineering companies specializing in petroleum plant sulfur technologies. We have vast experience in sulfur recovery techniques and have worked in plants such as Citgo, Exxon and Texaco.

Alkylation	Vapor Recovery
Isomerization	Desulfurization
FCCU	Sulfur Recovery
Phenol	Sulfur Storage
Vapor Combustion	Tank Farms

Plant Utilities

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- *Pipeline*
Design, Metering, Regulation, Storage and Delivery
- *Communication*
Telephone, Computer, Paging, Radio/Microwave
- *Electrical*
Primary/Secondary, Substation, Distribution





PROCESS Services

Creating Value From Energy

Food Processing

EPC personnel have designed and implemented food process upgrades and expansions for bakery, frozen food preparation, and meat processing. Our understanding of material handling and packaging assure complete food process integration. We also are familiar with all sanitary requirements and clean-in-place technology.

- Ingredient Feed System
- Storage systems
- Recipe Systems
- Automated Packaging
- Weighing Systems
- Cooking/Drying Systems
- Conveying
- Electric & Service Upgrade

Representative Client/Project List

PETROCHEMICAL

- Process Units
 - Clark Oil
 - Misc. Debottlenecking and Unit Revamps
 - Coke Unit Revamp
 - National Cooperative Refinery Association
 - Isomerization Unit Revamp
 - Texaco
 - Fluid Catalytic Cracking (FCC)
 - P&ID Walk-down & Review Revamp
 - Phenol Unit
 - Electrical and Control Rework
 - Railcar Multiple Product Loading Facility
 - Rack Pumping ●
 - Automated Control System
- Utilities
 - Clark Oil Company
 - Marine Loading/Unloading Facilities
 - Hot Lime Water Softening
 - Wastewater Equalization
 - Wastewater Treatment DAF Unit Revamp
 - Texaco
 - Piperacks
 - Cooling Towers
 - Power Monitoring
 - Emergency Power
 - Automated Pumping Systems
- Bulk Storage
 - Amoco (21 locations)
 - Tank Farms
 - Distribution Piping
 - Automated Pumping Systems
 - Pipeline Interfaces
 - Automated Truck Loading Racks
 - Automated Rail Car Loading/Unloading Packs
 - Marine Loading/Unloading
 - Vapor Combustion Units
 - Vapor Recover Systems (absorption and refrigeration)
 - Jet Fuel Filtering
 - Gasoline Additive Systems
 - Gasoline Filtering
 - Oil/Water Separation
 - Switchracks
 - Emergency Generation
 - Texaco
 - Product and Intermediate Product Tankage
 - Automated Distribution Pumping

CHEMICALS

- Agrium (multiple plants)
 - Nitric Acid Plant Modifications
 - Ammonium Nitric Plants) Modifications
 - Urea Plant Debottlenecking Revamp
- Farmland Industries
 - Nitric Acid Plant Modifications
 - Ammonium Nitric Plant(s) Modifications
- FMC Corporation
 - Piperack Improvements
 - Pumping System Upgrades
 - Safety Building
- Sunflower U.S. Army Ammunition Plant (Nitric Acid)
 - Hazop and Safety Review
 - Operator Training
 - Startup & Commissioning
 - Performance Testing
- Baker Petrolite
 - Safety Valve Study
 - Product Transfer Lines
- Bayer (Mobay/Chemagro) Agricultural Division
 - Secor Herbicide Production Plant
 - E-118 Intermediate Product Production
 - Secondary/Tertiary Wastewater Treatment
 - Primary Substation
 - Complex Utility Distribution System
 - Piperack Upgrades and Expansions
- Hach Industries
 - New Reactors
 - Hazop Analysis
- Jayhawk Chemicals
 - Distributed Control System
 - New Reactor Charging System

GAS FACILITIES

- Ammonia
 - Agrium
 - Bulk Storage Facilities
 - Truck Weighing
 - Farmland Industries
 - Bulk Storage Facilities
 - Ammonia Production Unit
- Natural Gas
 - Aquila
 - Gas Pipeline
 - Metering and Regulation Station
 - Pig Launch and Receiving Stations
 - Great Plains
 - Compressor Station
 - Gas Pipeline
 - Metering and Regulation Station
 - Pig Launch and Receiving Stations
 - Northern Natural Gas –
 - Prico 2 NG Liquefaction Unit
 - Farmland Industries –
 - Pet Coke Gasification Unit
- Oxygen
 - Bayer
 - Refrigerated Oxygen and Nitrogen Separation Unit

FOOD PROCESSING

- Bakeries
 - International Multifoods
 - Major/Minor Ingredient Feed System
 - Interstate Bakeries
 - New Proofer Box
 - Bread Oven Feed System
 - Sunshine Biscuit
 - Major Ingredient Receiving and Storage System
 - Recipe System
 - Beverages
- Beverages
 - Folgers's Coffee
 - Automated Packing System
 - Packout
 - High Speed Been Roasting (PROBAT)
 - Bean Pre-Grinding Preparation
 - Pepsi-Cola
 - Product Conveying Systems
 - Anheuser-Busch
 - Product Conveying Projects
- Finished Foods
 - American Beauty Pasta/Hershey
 - Pasta/Pasta Cooking System
 - Package Dinner Weighting System
 - Quaker Oats
 - Bulk Material Conveying



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