

# **KSOC Companies**

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## **PRE-QUALIFICATION MANUAL FOR ALL SUBSIDIARY DIVISIONS OF KSOC, INC.**

**AQUA CONTROL SUPPLY  
HYDRO-CARBON SUPPLY  
POWER CONTROL SUPPLY**

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**PRE-QUALIFICATION MANUAL**

**FOR**

**AQUA CONTROL SUPPLY**

**TO PROVIDE**

**ENGINEERING AND CONSTRUCTION SERVICES**

**TO THE WATER TREATING INDUSTRIES**

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## **INTRODUCTION AND BACKGROUND**

AQUA CONTROL SUPPLY submits this presentation of qualifications for engineering, construction and manufacturing services to the water and sewage treatment industry. This document will demonstrate the capabilities of AQUA CONTROL SUPPLY to provide the necessary services for complete design, conceptual construction, procurement, installation, operation service, delivery and maintenance and spare parts supply for continuing maintenance to existing or newly manufactured water treating projects.

AQUA CONTROL SUPPLY was initially formed in the entity of AQUA WELL MASTER in 1943 and was operated to the subsidiary of the Layne affiliated companies of LAYNE-TEXAS COMPANY until 1980 when the WATER CONTROL SUPPLY was created. This operated until 1987 when Mr. Owen F. Jensen, Jr. CEO and Managing Director of WATER CONTROL SUPPLY retired and the new corporation of AQUA CONTROL SUPPLY was created under the direction of his son, Owen F. Jensen III, who is now sole owner and President of the corporation..

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The company stands ready with its various affiliates and sub-contract capabilities to handle projects in from \$100,000.00 to excess of \$500,000,000.00 of construction of water treating and sewage disposal and sewage treating equipment.

Management recognizes the excellent potential for a full service company, offering conceptual design to initial installations.

Over the years, AQUA CONTROL SUPPLY has been awarded several contracts and successfully executed the various projects as stated later in the system, covering the entire aspects of water treating and purification.

AQUA CONTROL SUPPLY leases a 60,600 square foot shop and a 3,000 square foot main office space that the same location, on 26 acres.

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The capabilities and project selection areas as indicated are detailed in the manual as covered over the past several years.

AQUA CONTROL SUPPLY has a non-union contractor facility for its own manufacturing or interrelated manufacturing of all necessary equipment necessary for execution of complete designs. Emphasis is placed on high quality engineering, completion of construction with total control of electric controls manufacturing on site through the welding procedures and quality control, both destruction and non-destructive testing.

While the corporate resumes lean primarily more heavily on the water treating and sewage disposal treatment area, AQUA CONTROL SUPPLY personnel are highly extensively experienced in all fields of reverse osmosis, desalination, vertical turbine pumps, oxygen scavenging, along with demineralization, ultra-filtration type processes, sewage treatment plants, extended aeration, aerobic digesters, up-flow filtration and all facets of water treating application.

Even though they may be impressive, any of the qualification manuals, brochures, advertising, etc. does not fully indicate its true capabilities and past performances. These intangibles can only be accelerated through the interviews with the various owners or designated representatives who are closely associated with AQUA CONTROL SUPPLY and the various managers on past projects. References can be furnished readily upon request, or are included in the attached list of complete projects. We feel that each one of these people indicated will give us the highest recommendation on project execution and delivery.

AQUA CONTROL SUPPLY prides itself upon being able to meet required delivery dates and design specification criteria. A detailed review of qualifications of AQUA CONTROL SUPPLY personnel and the overall organization will certainly warrant consideration for bid lists.

AQUA CONTROL SUPPLY is a privately held corporation whose officers are also members of the Board of Directors and decisions can be made with the assurances that the entire organization and its resources are totally committed. This translates into a more responsive and competitive organization that is more adaptable to a particular Owner's requirements and expectations.

The opportunity to present these qualifications and to introduce the appropriate key personnel will be welcomed.

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## **ORGANIZATION**

### **GENERAL**

AQUA CONTROL SUPPLY is a fully integrated engineering, procurement and construction organization with considerable experience in turnkey work throughout North America. AQUA CONTROL SUPPLY has an excellent team of experienced personnel based in Katy, Texas that is able to provide effective project management on a variety of projects.

Figure I depict the AQUA CONTROL SUPPLY organizational structure which is relatively typical for the industry. The emphasis is on flexibility and responsiveness to project requirements rather than rigid organizational structure.

### **PROJECT ORGANIZATION AND PHILOSOPHY**

The project execution team would be typically organized as indicated in Figure II. This organization is modified for each type and size of project. AQUA CONTROL SUPPLY places heavy emphasis on strong project management utilizing the modified task force concept.

Individual members that comprise the project team are assigned from the various functional groups of disciplines. Once assigned project tasks, they remain available throughout the project to ensure continuity and consistency. They report to the project management team with regard to execution of the project and report administratively to their respective department heads. The department head has responsibility for the functional technical integrity of his team member(s).

Under this arrangement, the check and balance between project management's concern for budget, schedule and other commercial aspects, and the responsibility for technical proficiency by each department head, can be applied most efficiently to each contract.

### **PROJECT MANAGER**

The Project Manager directs the work from contract award through completion of the project. He has sole responsibility and full authority for all execution, cost and scheduling aspects. He is responsible for meeting AQUA CONTROL SUPPLY standards of quality and conforming to the Owner standards and specifications. He is the principal AQUA CONTROL SUPPLY representative for the project and has full management support to allocate project resources to meet project objectives.

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The AQUA CONTROL SUPPLY philosophy is to bestow in the Project Manager the necessary authority to meet the responsibilities and objectives of quality, economy, schedule and contract commitments.

## PROJECT ENGINEERING

The Lead Project Engineer coordinates equipment selection and engineering activities for the project and ensures the efficient integration of the efforts of all key team members and design disciplines. He possess the capability and authority to provide the daily involvement necessary to assure that all aspects of the engineering work are of the best quality and conforms to technical specifications. He is also responsible for the prompt and adequate flow of information between design groups and the response to questions of technical personnel working on the project.

## PROCESS ENGINEERING

The Process Engineer coordinates the overall process engineering and reviews design concepts with the Owner. The Process manager is responsible for conceptual engineering through the detailed P&ID's, including hydraulic design, equipment selection participation and the operability of the plant. He remains on a consulting basis throughout all phases of the project and does not complete his portion of the work until the new facilities are on-stream and guarantees are satisfied.

## DETAILED DESIGN ENGINEERING

Civil/structural, piping, electrical, instrumentation and mechanical engineering are organized under the Director of Engineering to provide the specialized engineering and design talents essential to produce high quality work which will meet codes and Owner's special requirements. Each design group is supervised by an experienced discipline engineering manager.

Designers and draftsmen are assigned to and remain on a project as required to complete their phase of the work. They report directly to each discipline manger.

## PLANNING / SCHEDULING

AQUA CONTROL SUPPLY normally centralizes responsibility for cost control and scheduling directly with the Project Manager/Project Engineering assigned, with assistance from the Manager of Technical Services and from the Manager of Projects.

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AQUA CONTROL SUPPLY prepares an overall management level bar chart schedule early in the project to identify major milestones for engineering, procurement and construction activities. Detailed bar chart schedules for major areas and/or activities are also prepared to provide the required degree of detail for project control. Depending on the size of the project, critical path schedules are usually prepared to reflect activity interrelationships and permit activity precedence planning/control.

Job progress control is achieved by monitoring material status, engineering process and construction progress via specific job reports prepared by the responsible procurement, engineering and field personnel. Regular job process reports details weight job progress for each major activity account including subcontractor progress. Weekly project status review meetings and biweekly field meetings contribute to the monitoring and job status reporting activities, as well as permit project personnel to implement timely corrective action if required.

In addition, periodic reports and meetings are scheduled for Owner participation and updates.

## COST ESTIMATING

The AQUA CONTROL SUPPLY staff has experience in estimating capital costs for process facilities in the oil and gas production, heavy oil, petrochemical and oil refining industries, as well as for gas compressor and pumping stations.

When a lump sum tender is received AQUA CONTROL SUPPLY employs a definitive estimate reflecting a detailed quantity survey approach equally suitable for forming the basis of a control estimate. The detailed quantity survey estimates are prepared using information available from plot plans, mechanical flow diagrams and firm major equipment and commodity pricing. The experienced estimator normally prepares this estimate with major involvement by the project team that will execute the contract. This estimate is the basis for job control and change order revisions. Estimate checks are made regularly, both during and following the execution of the project.

## COST CONTROL AND REPORTING SYSTEM

At the time of the initial issue of Project Schedule, a control budget for the project is established. Those costs, which have been identified by the Definitive Estimate, are assigned to respective cost codes. This budget then becomes the key document for financial control of the work.

An overall Project Cost Report is prepared monthly. The reporting process involves a preliminary run of current cost information including expenditure, commitments and labor. The project team provides an updated cost to complete, which is the basis for the monthly cost report.



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Additionally, all accounts payable, payroll and accounts receivable data are coded and periodic computerized reports are prepared by the accounting cost control group for control purposes by the project team.

The AQUA CONTROL SUPPLY field cost control system is incorporated into the overall cost report. Weekly man-hour reports are prepared, which cover all labor hours from daily time sheets to appropriate accounts. Quantities installed are reported weekly from the field by the designate supervisor.

Current labor productivity is calculated weekly by the project team from home office and field reports so that problem areas and trends are quickly identified and appropriate remedial actions are taken.

## PROCUREMENT

AQUA CONTROL SUPPLY uses procurement as a general term to cover all purchasing, inspection, expediting and traffic activities. The Procurement Department works closely with the Project Manager and Project Engineer to monitor internal project goals and meet project milestones.

Those items of equipment and materials denoted by project management as critical to the schedule are identified early in the project and committed for purchase as soon as possible. AQUA CONTROL SUPPLY routinely negotiates with suppliers to reserve shop space and engineering time to ensure that schedules are met or improved.

AQUA CONTROL SUPPLY'S standard inspection and expediting procedures are normally used as a basis to establish inspection and expediting guidelines and frequency. AQUA CONTROL SUPPLY also uses familiar third party shop inspectors and expeditors to supplement in-house staff for long delivery and critical items.

AQUA CONTROL SUPPLY'S buyers are familiar with the transport services required to transport equipment and material to the job site. They provide confirmation of shipping and customs documentation requirements, establish routing guides for shipments and ensure that shippers comply with documentation and invoice standards.

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AQUA CONTROL SUPPLY'S purchasing, expediting and material control staff interact to compile material status lists for the project. These lists incorporate key data on all equipment, instruments and bulk commodities used on the project from the time of the inquiry through delivery on-site. Material status lists track scheduled, projected and actual dates for quotation requests, requisitions, commitments, shipments and deliveries. Material status lists are used by the Project Manager to monitor job progress and control job schedule performance.

Warehousing of plant materials is normally accomplished at site and managed by the resident construction warehouseman receiving g staff.

## CONSTRUCTION

A Matrix type management organization provides input to the field forces from all disciplines. The on-site Construction Manager reports to the Project Manager on project related matters such as schedule, material and technical problems. He receives assistance and instruction from the home office construction management on methods, techniques, labor policy, etc.

AQUA CONTROL SUPPLY has direct experience in the construction of a wide range of facilities in the oil and gas petrochemical and heavy oil industries.

AQUA CONTROL SUPPLY is an "Open Shop" or "Merit Shop" contractor. AQUA CONTROL SUPPLY is free to engage any personnel who wish to work and organize them efficiently in accordance with their competence. This provides continuity of employment for a nucleus of highly skilled foreman and superintendents, who can lead and direct locally hired workers. AQUA CONTROL SUPPLY has personnel highly experienced in union construction, however, the field portion of any union work would be subcontracted to local union contractors, with AQUA CONTROL SUPPLY providing and being responsible for the overall construction management.

## FINANCIAL

Financial information will be furnished upon request.

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## PROFESSIONAL AFFILIATIONS

- WATER QUALITY ASSOCIATION
- TEXAS WATER QUALITY ASSOCIATION
- LONE STAR WATER WELL ASSOCIATION
- NATIONAL WATER WELL ASSOCIATION
- AMERICAN WATER WORKS ASSOCIATION
- TEXAS DEPARTMENT OF HEALTH CERTIFICATION FOR WATER PLANT OPERATOR
- TEXAS ENGINEERING EXTENSION SERVICE FOR CONTINUING EDUCATION
- PURCHASING MANAGEMENT ASSOCIATION
- INTERNATIONAL ASSOCIATION OF DRILLING CONTRACTORS
- ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS
- ASTM AMERICAN STANDARD TESTING OF MATERIALS
- UL UNDERWRITERS LABORATORIES
- USCG - UNITED STATES COAST GUARD

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## CAPABILITIES

### SERVICES

AQUA CONTROL SUPPLY can provide the following services on any given project:

- Preliminary process configuration studies and budget cost estimates.
- Process evaluations and selections.
- Detailed process designs including:
  - Developing bases of designs
  - Developing or selecting process schemes
  - Preparing material and energy balances
  - Preparing process flow diagrams (PFD's) and piping and instrumentation diagrams (P&ID's)
  - Preparing equipment data sheets and specifications
  - Preparing process descriptions
  - Preparing start-up and operating manuals
- Detailed engineering and design (e.g. civil/structural, mechanical, piping, instrumentation, electrical, etc.).
- Procurement of all equipment and commodities, including inquiring, buying, expediting (home, office and shop), transportation, quality control, and expediting and material control services.
- Project management and engineering.
- Construction and subcontract management.
- Cost and scheduling engineering; provision of all job control and management reports. Provide detailed estimates for resource planning and control.
- Plant commissioning and start-up services.
- The above services encompass four areas, including project management, engineering, procurement and construction.

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## PERSONNEL

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**Owen F. Jensen, Jr., P.E.:** of KSOC, Inc. CEO Retired & Consultant. A Graduate of the University of Houston and is a Registered Professional Engineers License No. 10551, and a degree in Civil Engineering. Primary specialist is water hydrology and water treating and is the son of the founder of the original company of AQUA CONTROL SUPPLY and KSOC, Inc. He has been involved with the organization since 1943 and is also the ex-president and owner of LAYNE TEXAS, one of the nation's largest drilling operations in the United States.

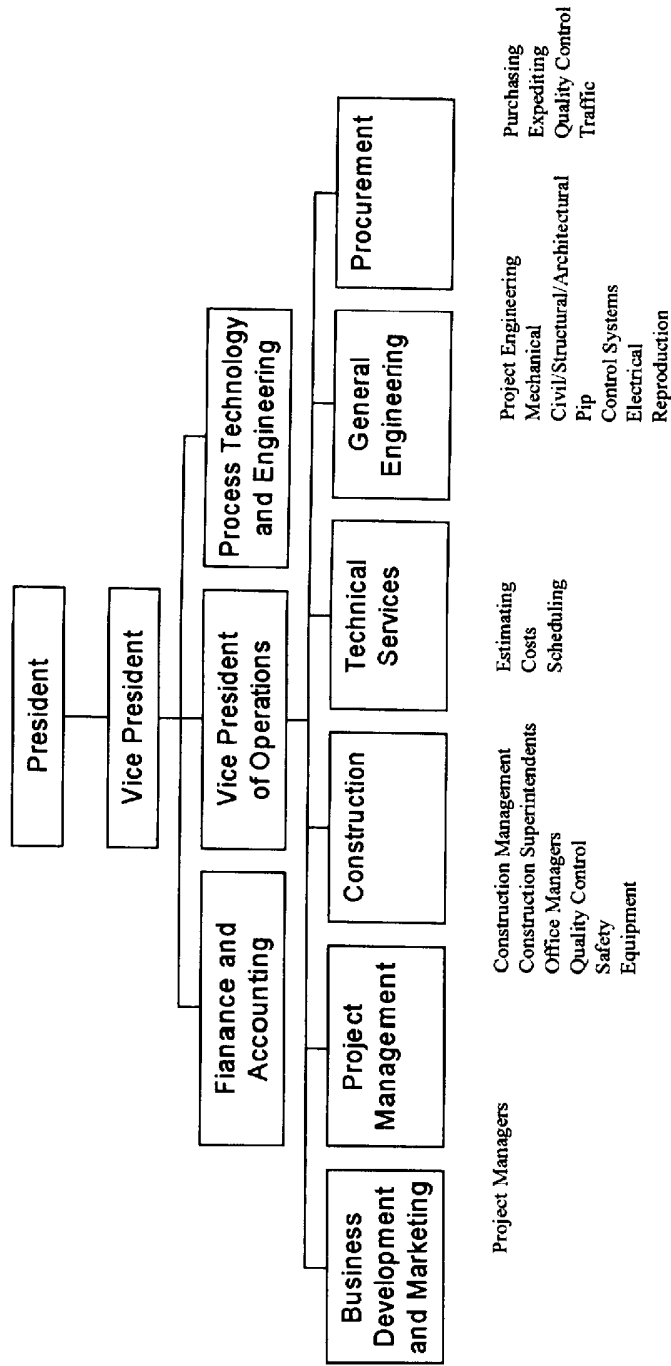
**Owen F. Jensen, III:** President of AQUA CONTROL SUPPLY & KSCO, Inc. CEO of since 1988. Under previous ownership he was Executive Vice President. Has been involved with the organization since 1973 and is a graduate of South Texas Junior College with a BS. Attended state training school and holds a State of Texas Level 3 License with Texas Water Quality Association, and a Level 5 with National Water Quality Association, along with other state certificates, training and educational seminars. He is responsible for the overall control and operation of AQUA CONTROL SUPPLY & all operation of KSOC, Inc.

**Noble C. Kidd III:** Executive Vice President of AQUA CONTROL SUPPLY & CFO of since 2001. Graduated from Louisiana State University, Baton Rouge, LA., Business Management, Texas A&I, Kingsville Texas, Business Management. He has also served in sales positions for Utilimap Corp, ESKO International, Genics / ATCO and was the owner of IQ 2000 Inc. before it was sold.

**William P. Moore:** Chief Design and Estimating Engineer for AQUA CONTROL SUPPLY He is a 1973 graduate of Rice University with a BS in Chemistry and Physics. Since his separation of service as an officer in the US Navy in 1977, Moore has served as a chemist and technical support staff member for Purolite Ion Exchange Resins Sales, Houston Lighting & Power Company and Montsano Chemical Company, working in all aspects of water treatment pertaining to industrial plants. He has also served in sales positions for chemical manufacturers, including training of engineers of user firms and special technical support for wastewater treatment, catalysis and process applications. He brings over 40 years experience to AQUA CONTROL SUPPLY of water treating experience.

**Mohammed Hamad:** Chief Mechanical Engineer for AQUA CONTROL SUPPLY He is a graduate of the University of Houston and has worked with AQUA CONTROL SUPPLY since 1992. Prior to that he has worked for Northern Engineering and DE in power generation process water design and sewage disposal.

# AQUA CONTROL SUPPLY, DIV. ORGANIZATIONAL CHART



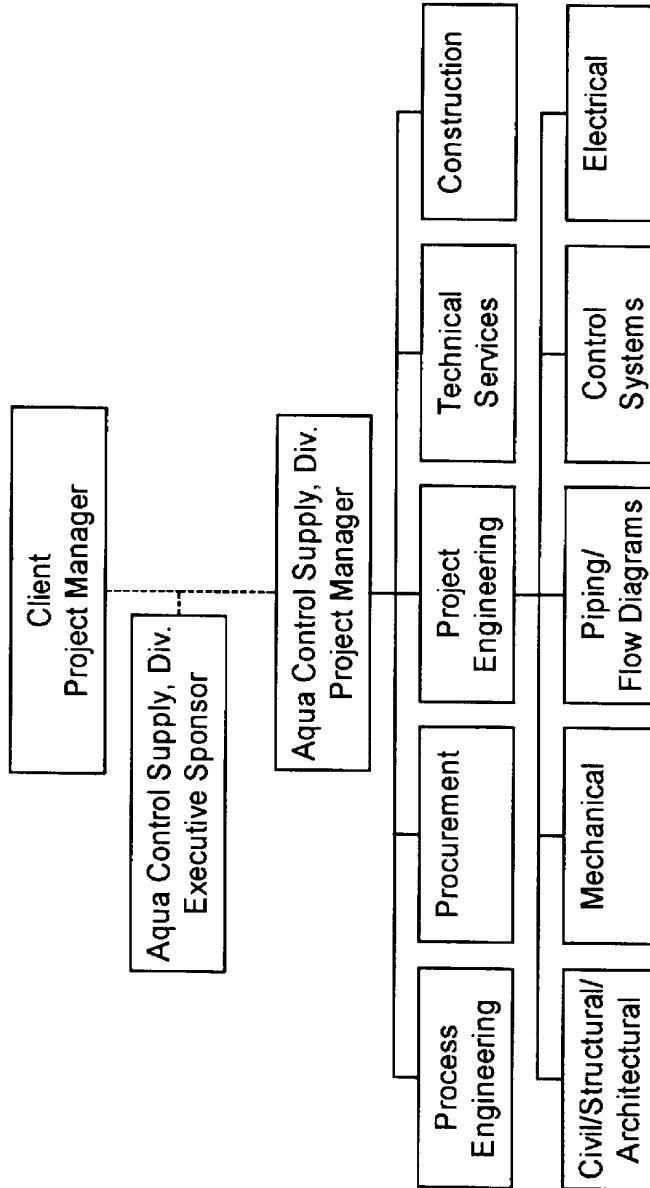
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## TYPICAL PROJECT ORGANIZATIONAL CHART



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## COMPLETED PROJECTS OF AQUA CONTROL SUPPLY

### USA

<u>CLIENT</u>	<u>LOCATION</u>	<u>EQUIPMENT</u>
AMOCO PRODUCTION CO.	HOUSTON, TEXAS	WATER
ASSOCIATED PETROLEUM SERVICES	HOUSTON, TEXAS	WATER
ATCO INTERNATIONAL, INC.	DENVER, COLORADO	WATER
AXISTRAD, INC.	HOUSTON, TEXAS	WATER
BECHTEL NATIONAL, INC.	OAKRIDGE, TN	WATER
BRITISH PETROLEUM	CAMERON, LA	WATER
BROWN & ROOT INTERNATIONAL	HOUSTON, TEXAS	WATER
CHEMICAL RESEARCH & LICENSING	HOUSTON, TEXAS	WATER
CONOCO, ANGOLA	HOUSTON, TEXAS	SEWAGE
CONOCO PHILLIPS	HOUSTON, TEXAS	WATER
DIAMOND OIL FIELD SUPPLY, INC.	BELLE CHASSE, LA	WATER
ENSCO TOOL & SUPPLY	HOUSTON, TEXAS	POWER
EXXON USA	BAYTOWN, TEXAS	WATER
FINA OIL & CHEMICAL	PORT ARTHUR, TEXAS	WATER
FORMOSA PLASTICS	FULON, NEW JERSEY	WATER
FULTON CO-GENERATION	FULTON, NEW YORK	WATER
GEORGIA GULF CORPORATION	HOUSTON, TEXAS	WATER
HALDOR TOPSOE, INC.	HOUSTON, TEXAS	WATER
HAWKER-SIDDELEY POWER ENG.	HOUSTON, TEXAS	WATER
HELMERICH & PAYNE	TULSA, OKLAHOMA	WATER
HOUSTON LIGHTING & POWER	HOUSTON, TEXAS	POWER
HUDSON ENGINEERING	HOUSTON, TEXAS	WATER
IMPERIAL HOLLY CORPORATION	HOUSTON, TEXAS	WATER
INTERNATIONAL BUILDING SYSTEMS	HOUSTON, TEXAS	WATER



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### USA

<u>CLIENT</u>	<u>LOCATION</u>	<u>EQUIPMENT</u>
LUBBOCK POWER & LIGHT	WACO, TEXAS	WATER
KERR-MCGEE OIL AND GAS CORPORATION M-K FERGUSON COMPANY	LIVONIA, MI HOUSTON, TEXAS	WATER WATER
M-K FERGUSON COMPANY	ALBUQUERQUE, NEW MEXICO	WATER
MARSON CORPORATION Mc DERMOTT INC.	HOUSTON, TEXAS AMELIA, LOUISIANA	WATER WATER
MARATHON OIL COMPANY	MIDLAND, TEXAS	WATER
MERCHANT INTERNATIONAL, INC. MOBIL OIL	KILLEN, AL NEW YORK, NEW YORK	WATER WATER & SEWAGE
MORRISON-KNUDSEN, INC.	DENVER, COLORADO	WATER
NATIONAL OILWELL	HOUSTON, TEXAS	WATER
NOBLE DRILLING SERVICES	HOUSTON, TEXAS	WATER & SEWAGE
ORXY ENERGY CO.	DALLAS, TEXAS	WATER
PARKER INTERNATIONAL DRILLING	TULSA, OKLAHOMA	SEWAGE
PEPE INTERNATIONAL	HOUSTON, TEXAS	WATER & SEWAGE
PHIBRO ENERGY	TEXAS CITY, TEXAS	WATER
PHILADELPHIA NAVAL SHIPYARD	PHILADELPHIA, PENNSYLVANIA	WATER
PARAMOUNT PETROLEUM CORPORATION	PARAMOUNT, CA	WATER
PORTA-KAMP MFG. CO.	HOUSTON, TEXAS	WATER & SEWAGE & POWER
SABINE CORPORATION	HOUSTON, TEXAS	WATER
SCHLUMBERGER	HOUSTON, TEXAS	WATER
SEAGULL ENERGY CORPORATION	HOUSTON, TEXAS	WATER
SKYTOP BREWSTER, INC.	HOUSTON, TEXAS	WATER & SEWAGE
TOTAL MINATOME	GEOWEST, TEXAS	WATER

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## COMPLETED PROJECTS OF AQUA CONTROL SUPPLY

### USA

#### CLIENT

#### LOCATION

#### EQUIPMENT

UNION PACIFIC RESOURCES

HOUSTON, TEXAS

WATER

UNION PACIFIC RESOURCES

GALVESTON, TEXAS

WATER

U.S. ARMY ENG. DIST. VICKSBURG

VICKSBURG, MISSISSIPPI

WATER

U.S. ARMY - RDECOM ACQUISITION CENTER

NATICK, MA

WATER

WESTERN GAS PROCESSORS

NEW ORLEANS, LOUISIANA

WATER

WILLBROS BUTLER ENGINEERS, INC.

TULSA, OKLAHOMA

WATER & SEWAGE

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## COMPLETED PROJECTS OF AQUA CONTROL SUPPLY

### INTERNATIONAL

<u>CLIENT</u>	<u>LOCATION</u>	<u>EQUIPMENT</u>
ABAN LOYD CHILES OFFSHORE LIMITED	INDIA	WATER
AL FURAT PETROLEUM COMPANY	DAMASCUS, SYRIA	WATER
ARAMCO SERVICES, INC.	DAMMAN, SAUDI ARABIA	WATER & SEWAGE
AZNEFTEGEOPHYSIKA	AZERBAIJAN	WATER
BARIVEN S.A.	CARACAS, VENEZUELA	WATER
BRASPETRO OIL SERVICES	ANGOLA	WATER
BRAMCE, S.A. DE C.V.	CIUDAD DEL CARMEN, MEXICO	WATER
CHANGZHOU SITHE CO-GENERATION CO.	BEIJING, CHINA	POWER
COMPANIA MINERA SIPAN S.A.	LIMA, PERU	SEWAGE
EBASCO CONTRACK	CAIRO, EGYPT	SEWAGE
EMPRESSIA POWER CO.	GUATEMALA CITY, GUATEMALA	POWER
FAR EAST LEVINGSTON SHIPBUILDING	SINGAPORE, INDONESIA	WATER
FORAMOR-FORASOL	PARIS, FRANCE	WATER
GEP SERVICES	QUITOS, ECUADOR	WATER
GRUZNEFT	GEORGIA	WATER
GULF OF SUEZ PETROLEUM CO.	CAIRO, EGYPT	WATER
HAHDA CONSTRUCTION & ENGINEERING EST.	DAMMAN, SAUDI ARABIA	SEWAGE
HESS OIL	ST. CROIX, VIRGIN ISLANDS	SEWAGE
INDIA	INDIA	WATER
KHALDA PETROLEUM	CAIRO, EGYPT	SEWAGE
MARMRAS NAVIGATION LTD.	ATHENS, GREECE	WATER
MONTREAL ENGENHARIA S.A.	BRAZIL	WATER
NANHAI WEST OIL CORP.	CHINA	WATER

# KSOC Companies

P. O. BOX 19, Katy, TEXAS 77492-0146

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## COMPLETED PROJECTS OF AQUA CONTROL SUPPLY

### INTERNATIONAL

<u>CLIENT</u>	<u>LOCATION</u>	<u>EQUIPMENT</u>
NURICON PETROSERVICES LIMITED	PAKISTAN	WATER
OCCIDENTAL INTERNATIONAL EXPLORATION & PRODUCTION	LIMA, PERU	WATER
PEACE VECTOR I & II AIR BASE	CAIRO, EGYPT	SEWAGE
PEMEX	MEXICO CITY, MEXICO	WATER & SEWAGE
PEREZ Y CIA MIRAFLORES	MIRAMAR, PUERTO RICO	WATER & SEWAGE
QUIMICA MODERNA MEXICANA S.A.	MEXICO CITY, MEXICO	WATER
ROY M. HOFFINGTON	JAKARTA, INDONESIA	WATER
SANTA FE INTERNATIONAL SERVICES, INC.	ARGENTINA	WATER
SHUSTA & SHAMBER	PAKISTAN	WATER
SONAT	BEJAIA, ALGERIA	WATER & SEWAGE
TAGAM	ALMA-ATA, KAZAKHSTAN	WATER
TANGSHAN SITHE HEAT-POWER CO. LTD.	HEBEL PROVINCE, CHINA	POWER
UNION TEXAS PAKISTAN, INC.	PAKISTAN	WATER
WILLBROS USA, INC.	LAGOS, NIGERIA	WATER & SEWAGE
WILSON SUPPLY INTERNATIONAL UK LTD.	SEVENOAKS, KENT, ENGLAND	WATER
YEMEN EXPLORATION & PRODUCTION CO.	SANA, YEMEN	WATER
ZOCER AIR BASE	CARIO, EGYPT	SEWAGE

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**PRE-QUALIFICATION MANUAL**

**FOR**

**HYDRO-CARBON SUPPLY**

**CAPABILITIES AND EXPERIENCE**

**PROVIDING ENGINEERING AND CONSTRUCTION**

**SERVICES TO THE PROCESS INDUSTRIES**

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## **INTRODUCTION AND BACKGROUND**

HYDRO-CARBON SUPPLY submits this presentation of qualifications for engineering and construction services to the process industries. This document demonstrates capabilities for providing these services on a variety of projects.

HYDRO-CARBON SUPPLY was formed in 1993 as a process design and equipment fabrication supplier.

Management recognizes the excellent potential for a full services engineering and construction company in the U.S. that possessed outstanding technology, which could draw upon the wealth of experienced and knowledgeable personnel available in the Houston area. In a very short period of full operation, HYDRO-CARBON SUPPLY has been very active, and has been awarded and successfully executed several projects.

The capabilities section of these manuals details the organization services and experience.

The engineering and construction industry has recently experienced major changes due to various economic and competitive factors.

It is HYDRO-CARBON SUPPLY express purpose to provide a team of professionals highly motivated to fill the niche that exists. Emphasis is placed on quality engineering and construction services, with flexibility to conform to our clients specific requirements, all on a competitive basis. References will be furnished readily upon request with the full confidence that each will give a very high recommendation on all phases of project execution.

The corporate resumes describe our level of experience in gas processing and treating, refinery processing and oil/gas production.

HYDRO-CARBON SUPPLY is a privately held corporation whose officers are also the Board of Directors. Decisions and commitments can be made with the assurances that the entire organization and its resources are totally committed. This translates into a more responsive and competitive organization that is more responsive and adaptable to a particular owner's requirements and expectations.

HYDRO-CARBON SUPPLY has working agreements with UOP for their process license process designs and products

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## ORGANIZATION

### GENERAL

HYDRO-CARBON SUPPLY is a fully integrated engineering, procurement and construction organization with considerable experience in turnkey work throughout North America. HYDRO-CARBON SUPPLY has an excellent team of experienced personnel based in Houston, Texas that is able to provide effective project management on a variety of EPC projects.

Figure I depict the HYDRO-CARBON SUPPLY organizational structure which is relatively typical for the industry. The emphasis is on flexibility and responsiveness to project requirements rather than rigid organizational structure.

### PROJECT ORGANIZATION AND PHILOSOPHY

The project execution team would be typically organized as indicated in Figure II. This organization is modified for each type and size of project. HYDRO-CARBON SUPPLY places heavy emphasis on strong project management utilizing the modified task force concept.

Individual members that comprise the project team are assigned from the various functional groups of disciplines. Once assigned project tasks, they remain available throughout the project to ensure continuity and consistency. They report to the project management team with regard to execution of the project and report administratively to their respective department heads. The department head has responsibility for the functional technical integrity of his team member(s).

Under this arrangement, the check and balance between project management's concern for budget, schedule and other commercial aspects, and the responsibility for technical proficiency by each department head, can be applied most efficiently to each contract.

### PROJECT MANAGER

The Project Manager directs the work from contract award through completion of the project. He has single point management responsibility and full authority for all execution, cost and scheduling aspects. He is responsible for meeting HYDRO-CARBON SUPPLY standards of quality and conforming to the Owner standards and specifications. He is the principal HYDRO-CARBON SUPPLY representative for the project and has full management support in his authority to allocate project resources to meet project objectives.

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## PROJECT ENGINEERING

The Lead Project Engineer coordinates the equipment selection and engineering activities of the project and ensures the efficient integration of the efforts of all key team members and design disciplines. He possess the capability and authority to provide the daily involvement necessary to assure that all aspects of the engineering work are of the best quality and agree with the technical specifications. He is also responsible for the prompt and adequate flow of information between design groups and the response to questions of technical personnel working on the project.

## PROCESS ENGINEERING

The Process Manager coordinates the overall process engineering effort and reviews concepts with the Owner. The Process Manager is responsible for conceptual engineering through the detailed P&ID's, including hydraulic design, equipment selection participation and the operability of the plant. He remains on a consulting basis throughout all phases of the project and does not complete his portion of the work until the new facilities are on-stream and guarantees are satisfied.

## DETAILED DESIGN ENGINEERING

Civil/structural, piping, electrical, instrumentation and mechanical engineering are organized under the Director of Engineering to provide the specialized engineering and design talents essential to produce high quality work which will meet codes and Owner's special requirements. Each design group is supervised by an experienced discipline engineering manager. Designers and draftsmen are assigned to and remain on a project as required to complete their phase of the work. They report directly to each discipline manger.

## PLANNING / SCHEDULING

**HYDRO-CARBON SUPPLY** normally centralizes responsibility for cost control and scheduling directly with the Project Manager/Project Engineering assigned, with assistance from the Manager of Technical Services and from the Manager of Projects.

**HYDRO-CARBON SUPPLY** prepares an overall management level bar chart schedule early in the project to identify major milestones for engineering, procurement and construction activities. Detailed bar chart schedules for major areas and/or activities are also prepared to provide the required degree of detail for project control. Depending on the size of the project, critical path schedules are usually prepared to reflect activity interrelationships and permit activity precedence planning/control.



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Job progress control is achieved by monitoring material status, engineering process and construction progress via specific job reports prepared by the responsible procurement, engineering and field personnel. Regular job process reports details weight job progress for each major activity account including subcontractor progress. Weekly project status review meetings and biweekly field meetings contribute to the monitoring and job status reporting activities, as well as permit project personnel to implement timely corrective action if required.

In addition, periodic reports and meetings are scheduled for Owner participation and updates.

## COST ESTIMATING

The HYDRO-CARBON SUPPLY staff has experience in estimating capital costs for process facilities in the oil and gas production, heavy oil, petrochemical and oil refining industries, as well as for gas compressor and pumping stations.

When a lump sum tender is received, HYDRO-CARBON SUPPLY employs a definitive estimate reflecting a detailed quantity survey approach equally suitable for forming the basis of a control estimate. The detailed quantity survey estimates are prepared using information available from plot plans, mechanical flow diagrams and firm major equipment and commodity pricing. The experienced estimator normally prepares this estimate with major involvement by the project team that will execute the contract. This estimate is the basis for job control and change order revisions. Estimate checks are made regularly, both during and following the execution of the project.

## COST CONTROL AND REPORTING SYSTEM

At the time of the initial issue of Project Schedule, a control budget for the project is established. Those costs, which have been identified by the Definitive Estimate, are assigned to respective cost codes. This budget then becomes the key document for financial control of the work.

An overall Project Cost Report is prepared monthly. The reporting process involves a preliminary run of current cost information including expenditure, commitments and labor. The project team provides an updated cost to complete, which is the basis for the monthly cost report.

Additionally, all accounts payable, payroll and accounts receivable data are coded and periodic computerized reports are prepared by the accounting cost control group for control purposes by the Project team.

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The HYDRO-CARBON SUPPLY field cost control system is incorporated into the overall cost report. Weekly man-hour reports are prepared, which cover all labor hours from daily time sheets to appropriate accounts. Quantities installed are reported weekly from the field by the designate supervisor.

Current labor productivity is calculated weekly by the project team from home office and field reports so that problem areas and trends are quickly identified and appropriate remedial actions are taken.

## PROCUREMENT

HYDRO-CARBON SUPPLY uses procurement as a general term to cover all purchasing, inspection, expediting and traffic activities. The Procurement Department works closely with the Project Manager and Project Engineer to monitor internal project goals and meet project milestones.

Those items of equipment and materials denoted by project management as critical to the schedule are identified early in the project and committed for purchase as soon as possible. HYDRO-CARBON SUPPLY routinely negotiates with suppliers to reserve shop space and engineering time to ensure that schedules are met or improved.

HYDRO-CARBON SUPPLY'S standard inspection and expediting procedures are normally used as a basis to establish inspection and expediting guidelines and frequency. HYDRO-CARBON SUPPLY also uses familiar third party shop inspectors and expeditors to supplement in-house staff for long delivery and critical items.

HYDRO-CARBON SUPPLY'S buyers are familiar with the transport services required to transport equipment and material to the job site. They provide confirmation of shipping and customs documentation requirements, establish routing guides for shipments and ensure that shippers comply with documentation and invoice standards.

HYDRO-CARBON SUPPLY'S purchasing, expediting and material control staff interact to compile material status lists for the project. These lists incorporate key data on all equipment, instruments and bulk commodities used on the project from the time of the inquiry through delivery on-site. Material status lists track scheduled, projected and actual dates for quotation requests, requisitions, commitments, shipments and deliveries. Material status lists are used by the Project Manager to monitor job progress and control job schedule performance.

Warehousing of plant materials is normally accomplished at site and managed by the resident construction warehouseman receiving g staff.

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## CONSTRUCTION

A Matrix type management organization provides input to the field forces from all disciplines. The on-site Construction Manager reports to the Project Manager on project related matters such as schedule, material and technical problems. He receives assistance and instruction from the home office construction management on methods, techniques, labor policy, etc.

HYDRO-CARBON SUPPLY has direct experience in the construction of a wide range of facilities in the oil and gas petrochemical and heavy oil industries.

HYDRO-CARBON SUPPLY is an "Open Shop" or "Merit Shop" contractor. HYDRO-CARBON SUPPLY is free to engage any personnel who wish to work and organize them efficiently in accordance with their competence. This provides continuity of employment for a nucleus of highly skilled foreman and superintendents, who can lead and direct locally hired workers. HYDRO-CARBON SUPPLY has personnel highly experienced in union construction, however, the field portion of any union work would be subcontracted to local union contractors, with HYDRO-CARBON SUPPLY providing and being responsible for the overall construction management.

## FINANCIAL

Financial information will be furnished upon request.

## PROFESSIONAL AFFILIATIONS

- GAS PROCESSOR SUPPLIERS ASSOCIATION (GPSA)
- TEXAS SOCIETY OF PROFESSIONAL ENGINEERS (TSPA)
- AMERICAN INSTITUTE OF CHEMICAL ENGINEERS (AIChE)
- AMERICAN CHEMICAL SOCIETY (ACS)

## MAIN OFFICE

Hydro-Carbon Supply  
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Facsimile: +1-281-754-4374  
Email: [acscoi@acscoi.com](mailto:acscoi@acscoi.com)

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HYDRO-CARBON SUPPLY is a newly organized firm. We continue to actively bid projects and pursue opportunities worldwide. The principles and senior management of HYDRO-CARBON SUPPLY have a total of eighty years experience in the gas processing and refinery engineering industry. Our engineering/designing staff has an average of twenty plus years experience.

## Key design Personal

J. N. Osborne: Twenty-one years progressive responsibility in the engineering and fabrication/construction industry serving the energy industry. The last twelve years have been in the Business Development/Sales specialty. Mr. Osborne was active in the initial start-up of one engineering firm and two fabricators. His primary functions include the overall operations of HYDRO-CARBON SUPPLY with concentration in the areas of fabricator and construction operations.

Dr. N. Shlechter: Is a Chemical Engineer (PhD.) with over thirty-five years experience and an extensive background in Business Development, project management, construction, engineering design, process design and operations of all types of oil refining units, fertilizer installations, chemical plants, petrochemical and cryogenic plants. Dr. Shlechter has designed and built over 75 refinery installations with capacities of 5,000 to 700,000 BPD. The installations vary in complexity from a single crude topping unit to very complex complete refineries built to maximize gasoline productions plus allied petrochemical facilities. During his career, he has held senior positions with Bechtel, M.W. Kellogg, Litwin and Petroscope. Most recently he has been a refinery consultant to major refinery operations such as Cities Service, Vista Refining, Gulf Oil, Jettex Coastal Corporation and Georgia-Pacific.

E.N. Odimgbe: Has over twenty-two years experience in natural gas processing, petrochemical and refining industries. He has considerable experience in all aspects of process engineering, project management, technical and economic feasibility studies, troubleshooting and commissioning of natural gas processing and treating plants and transmission facilities. Proficient in the application of computer process simulators.

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## CAPABILITIES

### SERVICES

HYDRO-CARBON SUPPLY can provide the following services on any given project:

- Preliminary process configuration studies and budget cost estimates.
- Process evaluations and selections.
- Detailed process designs including:
  - Developing bases of designs
  - Developing or selecting process schemes
  - Preparing material and energy balances
  - Preparing process flow diagrams (PFD's) and piping and instrumentation diagrams (P&ID's)
  - Preparing equipment data sheets and specifications
  - Preparing process descriptions
  - Preparing start-up and operating manuals
- Detailed engineering and design (e.g. civil/structural, mechanical, piping, instrumentation, electrical, etc.).
- Procurement of all equipment and commodities, including inquiring, buying, expediting (home, office and shop), transportation, quality control, and expediting and material control services.
- Project management/engineering.
- Construction and subcontract management.
- Cost and scheduling engineering; provision of all job control and management reports. Provide detailed estimates for resource planning and control.

The previous services encompass four areas:

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- Project Management
- Engineering
- Procurement
- Construction

## Hydrocarbon Condensate Stabilization and NGL Fractionation

Flashing  
Heating  
Distillation

## Natural Gas Liquids (NGL) Dehydration and Treating

Amine

- MEA
- DEA

Calcium Chloride  
Potassium Hydroxide  
Sodium Hydroxide  
Merox  
Merichem  
Adsorption

## Carbon Dioxide Recovery, Liquefaction and Purification

## Sulfur Recovery

Claus Sulfur Recovery Processes

Lo-Cat

Tail Gas Cleanup Processes

- IFP
- SCOT
- Sulfreen
- MCRC

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## Other Related Processing Facilities

Gas Distribution and Metering

Enhanced Oil Recovery

Water Flood Facilities

Carbon Dioxide Recovery and Injection Facilities

Nitrogen Recovery and Injection Facilities

Compression

- Pipeline Transmission
- Boosting Application
- Injection Applications to 10,000 psig
- Refrigeration

Pumping

- Crude Oil
- Liquefied Petroleum Gases (LPG)
- Various Chemicals

Storage Loading and Metering Facilities

Product Loading/Ship/Rail/Truck

LNG

Nitrogen Recovery and Injection Facilities

Compression

- Pipeline Transmission
- Boosting Application
- Injection Applications to 10,000 psig
- Refrigeration

Pumping

- Crude Oil
- Liquefied Petroleum Gases (LPG)
- Various Chemicals

Storage, Loading and Metering Facilities

Product Loading/Ship/Rail/Truck

LNG

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## PROCESSING TECHNOLOGY AND EXPERIENCE

HYDRO-CARBON SUPPLY has direct experience in the following areas of process technology:

Gas Processing and Treating

Acid Gas Removal

Chemical Absorption

Amine

- MEA
- DEA
- TEA
- DGA
- MDEA

Potassium Carbonate

- Benfield
- Benfield Hi-Pure

Physical Absorption

- Propylene Carbonate
- Selexol

Hybrid

- Sulfinol

Dry Bed Absorption

- Iron Sponge
- Molecular Sieve

Membrane Separation

Fractionation

ARI Lo-Cat

Dehydration

Absorption with Glycol; Glycol Injection/Recovery

Absorption with Calcium Chloride

Methanol Injection Recovery

Absorption/Molecular sieves/Silica Gel/Alumina

Low Temperature Condensation

Natural Gas Liquids (NGL) Recovery

Low Temperature Condensation via Turbo-Expander

Low Temperature Condensation via Simple or Cascade Refrigeration

Oil Absorption

Absorption/Silica Gel/Activated Carbon



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HYDRO-CARBON SUPPLY has provided process designs that economically recover in excess of 98% ethane.

## Refinery Processing Technology:

- Crude Distillation
- Hydrogen Production
- Cryogenic Distillation
- Vacuum Units
- Catalytic Reformers
- Isommization Units
- Hydrotreating Units
- Polymerization
- Penex Units
- Mirax Units
- Aromatics Extraction
- Methanol Production

## Oil/Gas Production Technology:

- Crude Dehydration and Desalting
- Crude Stabilizer
- Gas/Oil Separations
- Gas Engine Fuel Conditioning Units

## DETAILED ENGINEERING AND CONSTRUCTION EXPERIENCE

HYDRO-CARBON SUPPLY engineering and craftsmen have direct experience in the detailed engineering and construction of the above processing facilities as well as the following:

Refining	Cogeneration
Chemical	Power
Petro-Chemical	Offshore

Projects undertaken have ranged in size from \$1 Million to \$100 Million, and the vast majority were performed on a firm, lump-sum, turn-key basis. Facilities undertaken are typically grassroots, plants or major additions, including extensive product storage, metering, power generation, steam/heating medium systems, cooling equipment and ancillary facilities such as shops/warehouse/control buildings.

## COMPUTER PROGRAMS

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Listed below are computer programs that were either developed in-house or purchased outside which are used for process engineering calculations. In-house computer facilities are also used as terminals to access ChemShare, Simulation Sciences, and other programs available commercially from third party firms.

The computer programs are:

1. "Hy-Sim": This is a process simulation which contains a rigorous tray to tray distillation algorithm, K-Values, thermal and physical properties are generated by the Peng-Robinson or Soave Redlich Kwong, equation of state.
2. "Sulfur": This program performs the material and energy balance calculations necessary for design of a Claus sulfur plant.
3. "Sour Amine": This program calculates equilibrium loading for H<sub>2</sub>S and CO<sub>2</sub> with amines and is used to determine the limiting loading possible for the design of amine treating plants.
4. "Distillation": This program is utilized for detailed design of fractionation columns.

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## FABRICATION SERVICE

HYDRO-CARBON SUPPLY has arranged a partnering relationship with in Brookshire, Texas and Longview, Texas to supply fabrication services as needed. The full service shops of a combine 150,000 square feet under roof and over 45 acres at the two location has the capability to manufacture the major components of our modular plants and equipment.

Services provided included:

- Pressure Vessels
- Piping Systems
- Structural Steel
- Modular Assembly
- Electrical & Instrument Installation
- Control Panels and MCC
- Painting & Insulation
- Non-Destructive Testing
- Export Crating & Shipping

Code Affiliations

ASME Section VIII Div. I, 'U' Pressure Vessels  
ASME Section I S Power Boilers, PP ANSI B31.1  
    Pressure Piping  
ANSI B31.1, B31.3, B31.4, B31.8 Piping Systems  
API Piping Systems  
AWS Welding  
AISC Structural Steel

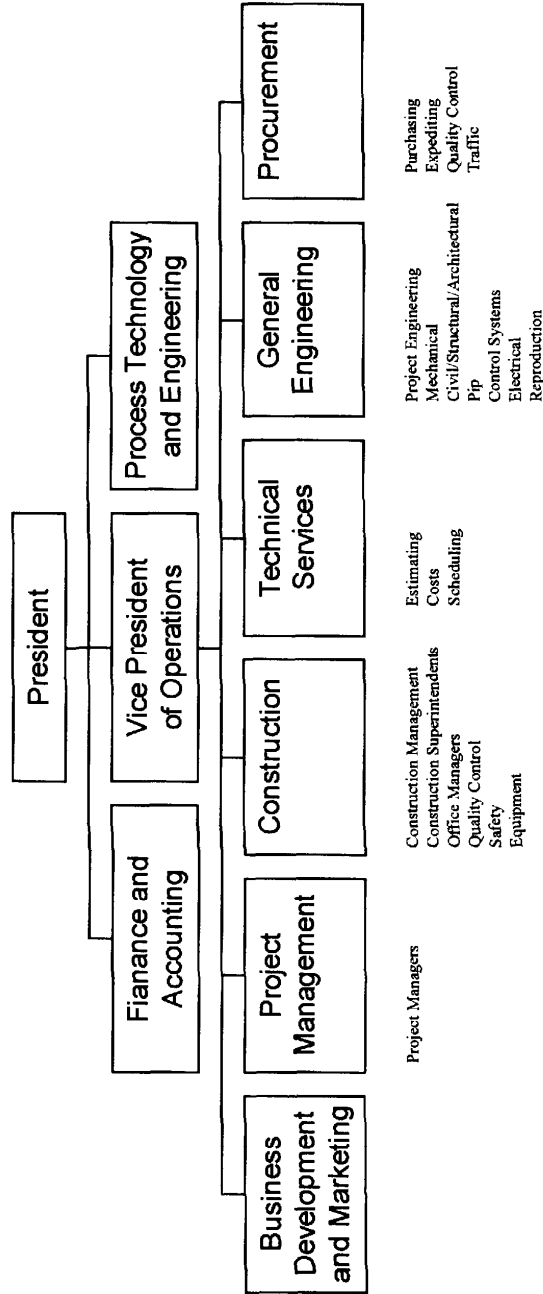
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## HYDRO-CARBON SUPPLY, DIV. ORGANIZATIONAL CHART



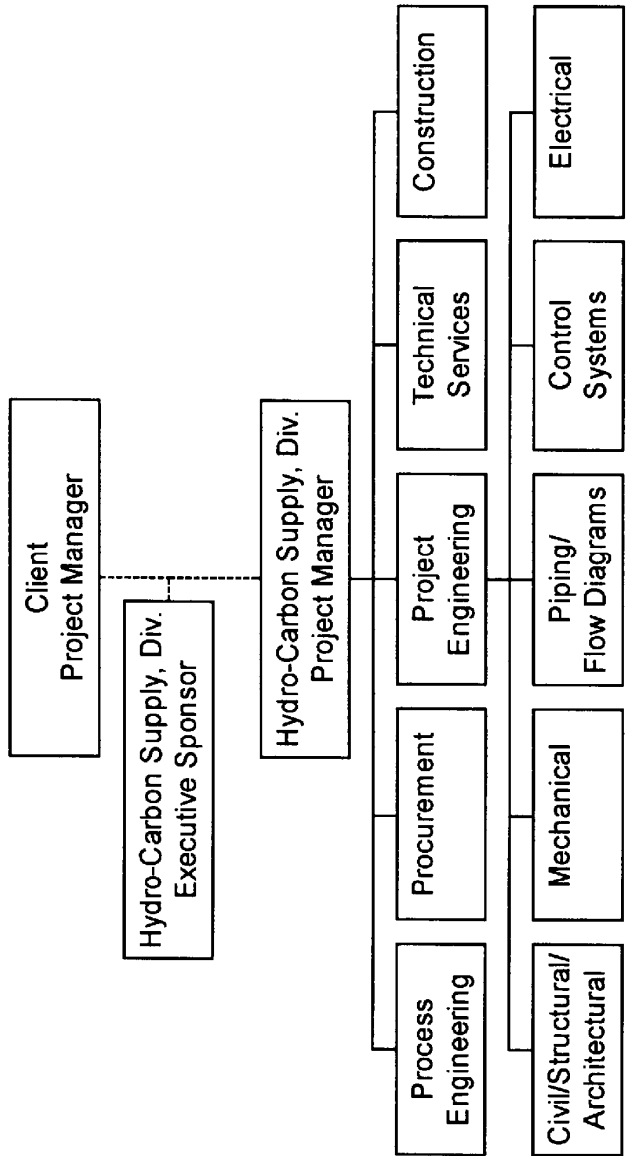
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## TYPICAL PROJECT ORGANIZATIONAL CHART



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## LIST OF CURRENT PROJECTS

- 1) Ministry of Oil, Midland Refineries Company (MRC)  
General Company (G. Go.), Daura - Baghdad, Iraq  
Contract: Signed on December 30, 2004  
Process: UOP License  
Project: Design, Engineering, Supply and Installation of  
A complete complex 10,000 BPSD UOP Continuous Cycle  
Regeneration Max Platforming Unit and 13,000 BPSD Naphtha  
Hydrotreater Unit including Flare System Shortly referred to: (CCR  
+ HDS) Complex Turn Key EPC Contact for refining crude oil.  
Total Contract amount is: \$ 71,444,433.00
  
- 2) State Company for Oil Projects Company (SCOP) of the Ministry of Oil  
Baghdad, Iraq  
Contract: Signed on November 27, 2005  
Process: UOP License  
Project: 11,000 BPSD Light Naphtha Isommerization Penex  
/ DIH Unit and Hydrotreating Unit with Naphtha Splitting Column at  
Basrah Refinery  
In Basrah, Iraq  
The Contract Price is \$ 37,163,090.00
  
- 3) Pemex Refinacion a subsidiary Petróleos Mexicanos ("Pemex")  
Mexico's national oil company State of Guanajuato,  
200 KM northwest of Mexico City  
Contract: Signed on June 15, 2006  
Project: The Salamanca revamp is a joint project and includes the  
modernization of Pemex's 236,000 BPD Tula refinery  
Design, Engineering, Supply and Installation of  
a complete complex 85,000 BPSD Crude Unit 25,000 BPSD UOP  
Continuous Cycle Regeneration Max Platforming Unit and 23,000  
BPSD Naphtha Hydrotreater Turn Key EPC Contact for refining  
crude oil.  
The Contract Price is \$ 77,281,312.00

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## COMPLETED PROJECT EXPERIENCE

### PARTIAL SUMMARY OF PROJECTS AND APPRAISALS

Allied Bank of Texas	Deer Park, Texas	4 000 BPD Hydrocracker
American Petrofina, Inc.	Dallas, Texas	Diesel Hydrodesulfurization Unit Proposal
Amoco Chemical Corporation	Pasadena, Texas	Bayport Plant Engineering Modification & Expansion Proposal
Amoco Chemical Corporation	Texas City, Texas	Equipment Dismantlement & Relocation Proposal
Amoco Oil	Chicago, Illinois	Wood River Refinery Appraisal & Asset Recovery Analysis
Amoco Oil	Chicago, Illinois	Sugar Creek Refinery Appraisal & Asset Recovery Analysis
ARCO Chemical Company	Newtown Square, Pennsylvania	TBA to MTBE Project Proposal
ARCO Petroleum Products	Perth Amboy, New Jersey	Reformer Hydrotreater Relocation Proposal
Arctic Energy Company	Fairbanks, Alaska	Topping Plant Project Study
Arochem International	Ponce, Puerto Rico	Hydrocracker Study
Arochem International	Penuelas, Puerto Rico	Pentane Hexane Isomerization Unit Study
Arochem International	Penuelas, Puerto Rico	CPI-1 Catalytic Reformer Naphtna Hydrotreater & Saturate Gas Plant Study
Asamera Oil U.S., Inc.	Commerce City, Colorado	1,800 BPD Hydrofluoric Acid Alkylation Unit Proposal
Ashland Chemical Company	Ivanhoe, Louisiana	Cogeneration Facility Proposal
Ashland Chemical Company	Ivanhoe, Louisiana	Cogeneration Facility Study
Ashland Chemical Company	St. Paul, Minnesota	Hydrodesulfurization & Reformer Unit Proposal
Ashland Chemical Company	St. Paul, Minnesota	Reformer & Guard Case Study
Ashland Chemical Company	Catlettsburg, Kentucky	Gasoline In-Line Blender Proposal
Ashland Chemical Company	Catlettsburg, Kentucky	Sulfur Recovery Unit & Tail Gas Unit Proposal
Asprofos Engineering, S.A.	Athens, Greece	6,800 BPD Isomerization Unit Proposal
Atlantic Richfield Company	Channelview, Texas	Methanol Plant Relocation Study
Atlas Gas Processing Company	Shreveport, Louisiana	5,000 BPD Hydrotreater Construction Proposal
Bernard A. Reiter	Houston, Texas	Chemical Separation by Distillation Requirement Study
BP Canada	Oakville, Ontario, Canada	Sulfur Recovery Sour Water Stripper & Amine Regeneration Study
BP International, Limited	Antwerp, Belgium	De-isopentane Unit Relocation Study
Caribou Four Corners, Inc.	Wood Cross, Utah	Hydrocracker Fractionator Design Study
Chevron U.S.A., Inc.	San Francisco, California	11,000 BPD Reformer Unit Appraisal & Asset Recovery Analysis
Chevron U.S.A., Inc.	Perth Amboy, New Jersey	Refinery Dismantlement & Removal Study
China Ministry of Petroleum Industry	Shengji, China	Hydrocracker Cost Estimate & Proposal
Chiyoda Corporation	Sakhalin Province, Russia	Crude Oil Refining Facility Study
Cibro Refining	Albany, New York	Hydrocracker & Related Units Study
Cit-Cor Oil & Refining	Lake Charles, Louisiana	Cogeneration Facility Study
Clark Oil & Refining	Hartford, Illinois	Isomerization Project Study
Clark Oil & Refining	Blue Island, Illinois	DEA Unit & Sulfur Plant Relocation Proposal
Coastal Corporation	Eaglepoint, New Jersey	Eaglepoint, New Jersey Refinery Equipment Removal Study
Colcaburo	Zipaquirá, Columbia	Emulsion PVC Demonstration Plant Study
Commonwealth Oil & Refining	Penuelas, Puerto Rico	Refinery Appraisal & Asset Recovery Analysis
Coplay Cement Company	Nazareth, Pennsylvania	Plant Expansion Study
Crysen Refining Company	Woods Cross, Utah	Process Unit Relocation Study
Delta Middle East	Undisclosed	Fujairah Refinery Project Proposal
Delta Middle East	Undisclosed	Ajman Refinery Project Proposal
Deitech Corporation	Baton Rouge, Louisiana	Polymer Unit Relocation Study
Diamond Shamrock Refining & Marketing	San Antonio, Texas	MTBE Facility Proposal
Dow Chemical U.S.A.	Freeport, Texas	Refinery Appraisal & Asset Recovery Analysis
Dow Chemical U.S.A.	Undisclosed	Oyster Creek Refinery Appraisal & Asset Recovery Analysis
E. I. DuPont Chemicals & Intermediates	Memphis, Tennessee	Sodium Cyanide Plant Relocation Study
E. I. DuPont de Nemours & Company	Camden, South Carolina	15 MW Steam Turbine Generator Study
Egyptian Refining	Red Sea - Sinai Area	Refinery Study
El Paso Refining Company	El Paso, Texas	Kerosene Treating Project Proposal
Energy International Corporation	Singapore	125,000 BPD Refinery Study
Enron Americas Limited	Neuquen, Argentina	Extraction Gas Plant Relocation Study
Erdolwerke Frisia GmbH	Emden, Germany	Isomerization Unit Study
Esso Inter American, Inc.	Coral Gables, Florida	Artiles Refinery Appraisal & Asset Recovery Analysis
Esso Petroleum Canada	Montreal, Canada	Reformer & Hydrotreater Relocation Proposal
Esso Petroleum Company, Ltd.	Milford Haven, Wales	Refinery Process Units & Equipment Appraisal & Asset Recovery Analysis
Ethyl Corporation	Baton Rouge, Louisiana	Sodium Chloride Purification Facility Dismantlement & Removal Proposal
Exxon Chemical Americas	Baton Rouge, Louisiana	OLA-2 Unit & Equipment Dismantlement & Removal Proposal
Exxon Chemical Company	Undisclosed	Oxo-Alcohol Plant Relocation & Modification Study
Exxon Chemical Company	Ponce, Puerto Rico	Oxo-Chem Modification Estimate Study
Exxon Company, U.S.A.	Linden, New Jersey	Fuel Gas Stream Hydrogen Recovery Study
F. M. C. Corporation	Bayport, Texas	Steam Facility Engineering & Construction Proposal
Fletcher Oil & Refining Company	Carson, California	Refinery Equipment Dismantlement & Export Preparation Study
Fletcher Oil & Refining Company	Carson, California	Vacuum Process Unit Erection Study
Gary Refining Company	Fruita, Colorado	Hydrocracker Relocation Study
General Electric Credit Corporation	Cheyenne, Wyoming	Leased Equipment Appraisal & Asset Recovery Analysis
Georgia Pacific Corporation	Pasadena, Texas	Intermediate Column Design & Construction Proposal
Giant Industres, Inc.	Gallup, New Mexico	Isomerization Unit & Deisopentane Unit Proposal
Giant Industres, Inc.	Gallup, New Mexico	Farrington, New Mexico Equipment Appraisal & Asset Recovery Analysis
Good Hope Refineries, Inc.	Good Hope, Louisiana	30,000 BPD Gas/Oil HDS Unit Proposal
Gulf Oil Refining & Marketing Company	Philadelphia, Pennsylvania	Verco Unit Proposal
Hawaiian Independent Refinery, Inc.	Ewa Beach, Hawaii	Light Naphtna Splitter Proposal
Hill Petroleum	Krotz Springs, Louisiana	Cogeneration Facility Proposal
Hill Petroleum	Krotz Springs, Louisiana	Isomerization Complex Proposal
Hill Petroleum	Krotz Springs, Louisiana	5 000 BPD Catalytic Polymerization Unit Study
Independent Refining Corporation	Winnie, Texas	Gulf Refining Relocation to Winnie Proposal
Independent Refining Corporation	Winnie, Texas	Fluid Catalytic Cracking Unit & Alkylation Unit Relocation Proposal
Independent Refining Corporation	Winnie, Texas	Catalytic Cracking Unit & Alkylation Unit Study

# KSOC Companies

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Intersource Group, Inc.  
Koch Refining Company  
Koch Refining Company  
Koch Refining Company  
Koch Refining Company  
Koch Refining Company  
Koch Refining Company  
Koch Refining Company  
Koch Refining Company  
Krasnoleninskneftegaz  
Lee Chang Yung Chemical Industry Corporation  
Liquid Energy Corporation  
Liquid Energy Corporation  
Lobito Refinery Complex  
Macmillan Petroleum, Inc.  
Marc Rich & Company, Inc.  
Menchem Company  
Mitsubishi International Corporation  
Mobil Oil - Francaise  
Mobil Oil Corporation  
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Mobil Oil Corporation  
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Mobil Oil Corporation  
Mobil Oil Corporation  
Mt. Airy Refinery  
Murphy Oil Corporation  
Murphy Oil U.S.A., Inc.  
Newfoundland Processing, Ltd.  
Newhall Refining Company, Inc.  
Occidental Petroleum Corporation  
Ocean Phoenix Limited  
Oklahoma Refining Company  
Omniport Facility  
Onne Refinery Complex  
P. M. Humpuss  
Petrolam  
Phillips Chemical Company  
Phillips Petroleum Company  
Phipps & Company Limited  
Plymouth Fertilizer  
Powerline  
Pride Refining, Inc.  
Pride Refining, Inc.  
Public Service Company of New Mexico  
Quaker Oats Chemical, Inc.  
Quaker Oats Chemical, Inc.  
Quintana Petrochemical Company  
Sentry Lubricants, Inc.  
Shell Canada, Ltd.  
Shell Western E & P, Inc.  
Sinclair Oil Corporation  
Sinclair Oil Corporation  
Sinclair Oil Corporation  
Sinclair Oil Corporation  
Sinclair Oil Corporation  
Sinclair Oil Corporation  
Sun Refining & Marketing Company  
Tenenbaum Hill Associates  
Tenn-Uss Chemical Company  
Tenneco Oil Company  
Tenneco Oil Company  
Tenneco Oil Processing & Marketing  
Tesoro Petroleum Corporation  
Texaco U.S.A.  
Texaco U.S.A.  
Texaco U.S.A.  
Texaco-Belgium, N.V.  
Texaco-Canada, Ltd.  
Texas Consultants, Inc.  
Texaco-Canada, Ltd.  
Tosco Corporation  
Tosco Corporation

Houston, Texas  
North Dakota & Montana  
Corpus Christi, Texas  
Corpus Christi, Texas  
Corpus Christi, Texas  
Corpus Christi, Texas  
Corpus Christi, Texas  
Corpus Christi, Texas  
Pine Bend, Minnesota  
Undisclosed  
Nyagan City, Tyumen Province, Russia  
Lake Charles, Louisiana  
Winnie, Texas  
Sonangol, Angola  
Norcriet, Arkansas  
  
Winnie, Texas  
Houston, Texas  
Frontignan, France  
Torrance, California  
Gravenchon, France  
Gravenchon, France  
Paulsboro, New Jersey  
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Paulsboro, New Jersey  
Paulsboro, New Jersey  
Paulsboro, New Jersey  
Paulsboro, New Jersey  
Torrance, California  
Paulsboro, New Jersey  
Paulsboro, New Jersey  
Naples, Italy  
Mt. Airy, Louisiana  
Meraux, Louisiana  
Meraux, Louisiana  
Come By Chance, Newfoundland  
Newhall, California  
Peru  
Undisclosed  
Cyril, Oklahoma  
Houston, Texas  
Nigeria  
Lhokseumawe, Indonesia  
Kingston, Jamaica  
Orange, Texas  
Williston, North Dakota  
Ecuador  
Plymouth, Indiana  
Santa Fe Springs, California  
Abilene, Texas  
Abilene, Texas  
Waterflow, New Mexico  
Pasadena, Texas  
Memphis, Tennessee  
Corpus Christi, Texas  
Ellesmere Port, England  
Canada  
Denver City, Texas  
Sinclair, Wyoming  
Sinclair, Wyoming  
Sinclair, Wyoming  
Sinclair, Wyoming  
Sinclair, Wyoming  
Yabucoa, Puerto Rico  
LaPorte, Texas  
Pasadena, Texas  
Deer Park, Texas  
Pasadena, Texas  
McAllen, Texas  
Carrizo Springs, Texas  
Port Arthur, Texas  
Lockport, Illinois  
El Paso, Texas  
Chent, Belgium  
Montreal, Quebec, Canada  
Roseveit, Utah  
Edmonton, Alberta, Canada  
Bakersfield, California  
Duncan, Oklahoma

Ethanol Recovery Skid Proposal  
Misc. Inventory of 4 Plants for Appraisal & Asset Recovery Analysis  
Hydrotreater Relocation Proposal  
Hydrodesulfurization Facility Proposal  
Saturates Gas Plant Relocation Study  
HDS Unit Relocation Proposal  
Reformer & Hydrotreater Relocation Proposal  
Hydrocracker Relocation Proposal  
20,000 BPD Hydrotreater Proposal  
6,000 BPD Modular Crude Topping Unit  
Taiwan Plant Relocation to Gulf Coast Study  
Lake Charles Refinery Appraisal & Asset Recovery Analysis  
Reformer & Isomerization Project Study  
Angola Refinery Complex Engineering & Consulting Services Proposal  
Refinery Appraisal & Asset Recovery Analysis  
Kaduna Refinery Supplemental Steam Production Project Cost & Schedule Proposal  
Sorbex Unit Relocation & Expansion Study  
Isoprene Monomer Plant Demolition Proposal  
Refinery Equipment Relocation Proposal  
Butane Isomerization Unit Study  
Process Units Relocation Study  
Crude Unit Relocation Study  
Catalytic Reformer Reactor Modification Study  
8,000 BPSD LSR Naphtha Hydrotreater & Isomerization Unit Study  
Power Former & Naphtha Desulfurizer Unit Study  
Sulfur Recovery Plant Study  
CHD Unit Recycle Compressor Study  
3 Stage Claus Sulfur Recovery Unit Proposal  
Butane Isomerization Unit Proposal  
Powerformer & Naphtha Desulfurizer Unit Proposal  
CHD Distillate Hydrotreater Reactor Study  
Catalytic Reformer & Distillate Desulfurization Unit Relocation Proposal  
Refinery Facility Appraisal & Asset Recovery Analysis  
Cogeneration Facility Proposal  
C3/C4 Splitter Proposal  
Isomerization Complex Study  
Vacuum Process Unit Study  
3,500 BPD Crude Topping Unit Proposal  
Methanol Plant Relocation Study  
Refinery Appraisal & Asset Recovery Analysis  
Omniport Facility Appraisal & Asset Recovery Analysis  
Nigerian Refinery Engineering & Consulting Services Proposal  
Turkey Engineering & Construction Aromatics Refinery Project Study  
Propane Storage & Loading Facility Relocation Proposal  
Echo Power Generation Plant Study  
Sulfur Recovery Unit Proposal  
Ecuador Cracking Unit Study  
Cogeneration Facility Proposal  
Santa Fe Refinery Appraisal & Asset Recovery Analysis  
Hydrocracker Relocation Proposal  
Hydrocracker Study  
Sulfur Plant Appraisal & Asset Recovery Analysis  
Equipment & Material Appraisal & Asset Recovery Analysis  
Furfuryl Alcohol Plant Relocation Proposal  
Process Units Appraisal & Asset Recovery Analysis  
Naphthenic Lubes Complex Relocation Study  
Refinery Appraisal & Asset Recovery Analysis  
E. Paso Natural Gas Co.-Wasson Plant Appraisal & Asset Recovery Analysis  
Wet Gas Compressor & Gas Recovery Unit Installation Study  
Surplus Wet Gas Compressors Study  
Debottlenecking Project Proposal  
Reformer & HDS Unit Relocation Study  
Amine Unit & Sulfur Plant Relocation Proposal  
Catalytic Reformer & Naphtha Pretreater Relocation Study  
Process Units Appraisal  
Switch Condenser Modification Proposal  
Methanol Plant Relocation Study  
Methanol Plant Appraisal & Asset Recovery Analysis  
10MMSCFD Gas Plant Proposal  
Refinery Appraisal & Asset Recovery Analysis  
FCCU #33 CO Boiler Proposal  
Lockport Refinery Appraisal & Asset Recovery Analysis  
DCU Compressor Installation Proposal  
Refinery Process Units Appraisal & Asset Recovery Analysis  
Process Units Appraisal & Asset Recovery Analysis  
Refinery Appraisal & Asset Recovery Analysis  
Edmonton Refinery Appraisal & Asset Recovery Analysis  
Bakersfield Refinery Appraisal & Asset Recovery Analysis  
Duncan Refinery Appraisal & Asset Recovery Analysis



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Total Petroleum, Inc.  
Transcontinental Gas Pipeline Corporation  
Transcontinental Gas Pipeline Corporation  
Trifinery, Inc.  
Tripoli Oil  
U.S. Industrial Chemicals  
U.S. Oil & Refining Company  
U.S. Oil Refining Company  
U.S. Steel Chemical Corporation  
U.S.A. Petrochem Corporation  
United B.M.B. Group  
United Salt Corporation  
Upjohn Company  
Uraineftegaz  
Vulcan Refining Company  
Welchem, Inc.  
Williams Pipeline Company  
Williams Pipeline Company  
Williams Pipeline Company

Alma, Michigan  
Tylertown, Mississippi  
Eunice, Louisiana  
Corpus Christi, Texas  
Beirut, Lebanon  
Port Arthur, Texas  
Undisclosed  
Tacoma, Washington  
Pittsburgh, Pennsylvania  
Ventura, California  
Ankara, Turkey  
Missouri City, Texas  
Undisclosed  
Ural City, Russia  
Cordova, Alabama  
Joliet, Illinois  
Augusta, Kansas  
Augusta, Kansas  
Augusta, Kansas

Cryogenic Gas Plant Proposal  
Boiler Appraisal & Asset Recovery Analysis  
Gas Separator Proposal  
5,000 BPSD Hydrocracker Proposal  
Product Improvement & Crude Process Expansion Proposal  
L D P E. Facility Appraisal & Asset Recovery Analysis  
22,500 BPSD Hydrodesulfurization Unit Proposal  
Qualifications for Hydrocracker Project  
Phthalic Anhydride Flaxer Relocation Proposal  
Hydrocracker Project Proposal  
V-6000 Crude Topping Unit Proposal  
Effect Evaporator System Proposal  
Polymer Chemicals Division Appraisal  
V-2000 Crude Topping Unit Proposal  
Cordova Refinery Appraisal & Asset Recovery Analysis  
Tortlon Plant Relocation Study  
Augusta Refinery Gasoline Production Facility  
Augusta Refinery Appraisal & Asset Recovery  
Old/New Equipment Appraisal & Asset Recovery Analysis

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**PRE-QUALIFICATION MANUAL  
FOR  
POWER CONTROL SUPPLY**

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## **HISTORY**

In, 1980, Northern Natural Gas Co. started developing cogeneration projects. The principals of POWER CONTROL SUPPLY (PCS) were involved in the initial studies, which resulted in a 450 MW plant, the Union Carbide/Enron facility in Texas City, Texas (30 miles south of Houston, Texas). To date the Texas City power plant is still the most successful facility on an economic basis. During the construction, Northern Natural Gas Co. became ENRON. At the conclusion of the Texas City project, the two key principals of POWER CONTROL SUPPLY (PCS), along with two others, became the principals who formed Northern Engineering, Inc. (NEI). NEI participated in projects from 17 to 1800 MW and grew to over 300 employees during its first tree years of operation.

Wishing to continue growth while recognizing its financial limitations, NEI sold the company to AGRA Industries of Canada. The new owner (due to other unknown commitments) was not able to add the financial strength required and the principals of POWER CONTROL SUPPLY (PCS) fulfilled their obligation (3 years) and were recruited by Gulf Interstate Engineering (GIE) to bring GIE into the power business.

After two years of development GIE underwent some management changes and lost interest in power plant projects. Power Control Supply (PCS) was then formed (with GIE approval) and has continued to assist others in power plant projects.

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## CAPABILITIES

### FEASIBILITY STUDIES (prior to financing)

Feasibility studies are done to determine if a project is sound and should be continued. Various tools are used depending on the particular project. POWER CONTROL SUPPLY (PCS) have been involved in many levels and types and offers these tools.

### Financial Proforma

POWER CONTROL SUPPLY (PCS) uses a simple, proven program developed in-house using standard spreadsheet software. All project elements are used with the yearly revenues and expense leveled. It is best of the financial proforma is based on the Power Purchase Agreement (PPA) and Fuel Supply Agreement (FSA).

### Economic Sensitivity Analysis

The financial proforma program is used to determine sensitivity of the particular elements of the project. One particular element is varied nothing the change to the project financial performance. This data is then either graphed or charted.

### Equipment Configuration

Equipment configuration is the selection of the optimum type and quantity of equipment. The experience of POWER CONTROL SUPPLY (PCS) personnel is the main factor in the first selection. Additional improvements occur using:

#### Cycle Studies:

POWER CONTROL SUPPLY (PCS) uses both GT Pro and the GATE-CYCLE computer programs to enhance the configuration. The design point is optimized first and then other operating points are tested for the best overall configuration.

### Site Considerations

Logistics for construction and operation, utility availability, and the most important environmental considerations.

### Plant Layout

Many factors are considered when doing the plant layout with operability and maintainability the most important.

### Cost Estimates

Estimates can be done from very little information to detailed information. The more information the better the estimate. For preliminary estimates POWER CONTROL SUPPLY (PCS) prefers to have plant layout, preliminary process data, and an equipment list with budget quotes.

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## Financing

POWER CONTROL SUPPLY (PCS) has many different sources to obtain both project and equity financing.

## **PROJECT EXECUTION**

### Plant Design

Upon producing the "class A" design package POWER CONTROL SUPPLY (PCS) would contract to a local engineering firm the detailed engineering. POWER CONTROL SUPPLY (PCS) will insist that the lead positions on the project team be POWER CONTROL SUPPLY (PCS) personnel.

### Procurement

Procurement of the major equipment will be by POWER CONTROL SUPPLY (PCS). The remaining items will be assigned to the detailed design firm or the construction contractor. All firms will use POWER CONTROL SUPPLY (PCS)'s procurement standards as a minimum.

### Construction

POWER CONTROL SUPPLY (PCS) prefers to use local in country contractors unless the needs of the projects dictate differently. POWER CONTROL SUPPLY (PCS) has a staff of competent, experienced individuals who will perform the construction management.

### Owner's Engineer (due diligence)

In this capacity POWER CONTROL SUPPLY (PCS) would use most our tools to review and/or monitor the technical aspects of the project. The exact scope of work is dictated by the Owner.

### Plant Commissioning and Start-up

It is normally advisable to use a different group for these functions than the on-site construction contractor. POWER CONTROL SUPPLY (PCS) has a working relationship with one of the finest, most experienced companies for commissioning and start-up.

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## **PROJECT OPERATION**

### Personnel Training

POWER CONTROL SUPPLY (PCS) supplements its work force by having a working relationship with one of the finest companies for Personnel Training.

### Plant Operation and Maintenance

POWER CONTROL SUPPLY (PCS) will contract to the owner's satisfaction with qualified companies.

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## FACILITY AREAS

### POWER FROM POWER CONTROL SUPPLY

- IGCC coal gasification
- Gas/Oil fired combined or simple cycle
- Hydro powered
- Refuse powered
- Coal fired

### MARINE FROM CONSTRUCTION SUPPLY

- Terminals
- Pipelines
- Platforms
- Barge Mounted Facilities

### PETROCHEMICAL FROM HYDRO-CARBON SUPPLY

- Methanol
- Ammonia/Urea
- LPG and Derivatives

### PIPELINE FROM HYDRO-CARBON SUPPLY

- Pipelines
- Meter Stations
- Pumping Stations

### OIL & GAS FROM HYDRO-CARBON SUPPLY

- Refineries
- Gas Treatment
- Production Facilities

### WATER SUPPLY/TREATMENT FROM AQUA CONTROL SUPPLY

- Desalination
- Distilled Water
- Process Water
- Potable Water
- Boiler Feed Water
- Waste Water

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## POWER GENERATION PROJECTS

### Teesside Project

Owner	<b>Enron Power</b>	- Supplies 4% of U.K.'s average daily power requirements and 1.5 million pounds per hour of steam to ICI's adjacent 2300 acre petrochemical complex.
Location	<b>Teesside, England</b>	- World's largest cogeneration facility
Size	<b>1875 MW</b>	- Total project costs in excess of \$1.2 billion USD; after the Chunnel, largest UK
Type	<b>Combined Cycle</b>	Financed project. Completed ahead of 29
Fuel	<b>Natural Gas</b>	month schedule

### Texas City

Owner	<b>Enron Power</b>	- Enron's first power facility
Location	<b>Texas City, Texas</b>	- Built ahead of schedule and under budget
Size	<b>450 MW</b>	- Operates at availability factors exceeding 95% and annual dependability factors over 99.6%
Type	<b>Combined Cycle</b>	
Fuel	<b>Natural Gas</b>	

### Cardinal

Owner	<b>Sithe Energy</b>	- Once through cooling system using the St. Lawrence River
Location	<b>Near Montreal, Canada</b>	- Delivers power to Ontario Hydro and process steam and dry air to Canadian Starch Company
Size	<b>156 MW</b>	
Type	<b>Combined Cycle</b>	
Fuel	<b>Natural Gas</b>	

### NEW ENGLAND

Owner	<b>Enron Power</b>	- Designed to go to 300 MW with minimal additional equipment
Location	<b>Milford, Massachusetts</b>	- Strict water usage and quality restrictions
Size	<b>150 MW</b>	
Type	<b>Combined Cycle</b>	
Fuel	<b>Natural Gas</b>	



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## Gas Orange

Owner	<b>Orange Power Partners</b>	- Delivers power to state of New York and
Location	<b>Syracuse, New York</b>	steam to Syracuse University
Size	<b>126 MW</b>	
Type	<b>Simple Cycle, Steam Injected</b>	
Fuel	<b>Natural Gas</b>	

## Kamine Natural Dam

Owner	<b>Kamine Power Generators</b>	- Once through river water cooling
Location	<b>Northwest New York</b>	- Delivers power to state of New York and
Size	<b>56 MW</b>	steam to James River Paper Company
Type	<b>Combined Cycle</b>	
Fuel	<b>Natural Gas</b>	

## Can-Oxy

Owner	<b>Can-Oxy</b>	- Power supplied to crude oil production
Location	<b>Yemen</b>	facility, pipeline and terminal.
Size	<b>35 MW</b>	- Fuel obtained from producing distillate
Type	<b>Diesel Engines</b>	product from crude oil
Fuel	<b>Crude Oil</b>	

## Texas Tech

Owner	<b>City of Lubbock</b>	- Delivers power to Lubbock Power &
Location	<b>Lubbock, Texas</b>	Lighting and steam to Texas Tech
Size	<b>21 MW</b>	University
Type	<b>Simple Cycle, Injected</b>	
Fuel	<b>Natural Gas</b>	

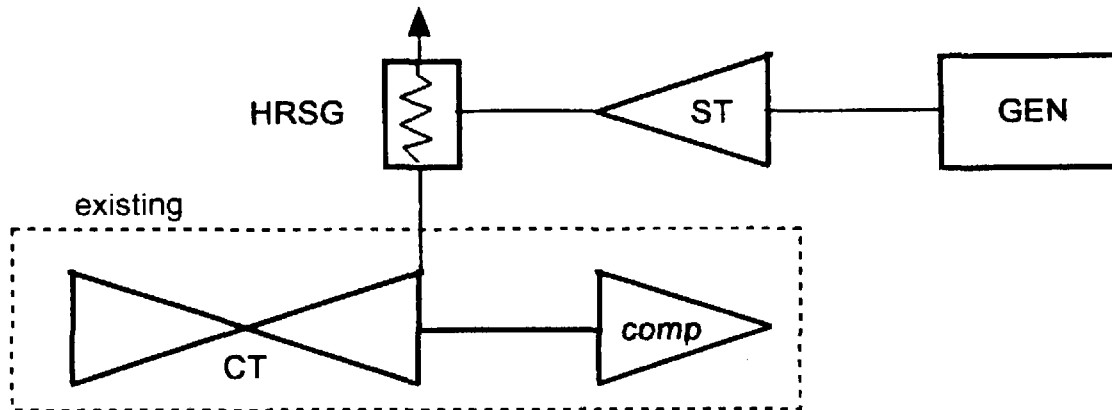
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## POWER CONVERSION PROCESS



Conversion of existing compressor and/or pump stations which have gas/oil fired combustion turbine drivers is a proven, successful technique from both an economic and an environmental standpoint. Addition of Heat Recovery Steam Generators (HRSG) to capture heat (now wasted) from the turbine(s) will produce steam to drive steam turbine generator sets. Additional power can be generated by adding gas turbine generators with HRSG's and increasing the size of the steam turbine providing the additional power can be utilized or sold.

### **Advantages:**

- Additional income
- Low capital and maintenance costs
- No additional fuel for existing turbine
- Improves transmission grid stability
- Exhaust heat not dissipated into atmosphere
- Lower emissions than conventional generation

POWER CONTROL SUPPLY (PCS) offers full capabilities, from feasibility studies to a turnkey project. Please call if you would like POWER CONTROL SUPPLY (PCS) to review options for your facility.

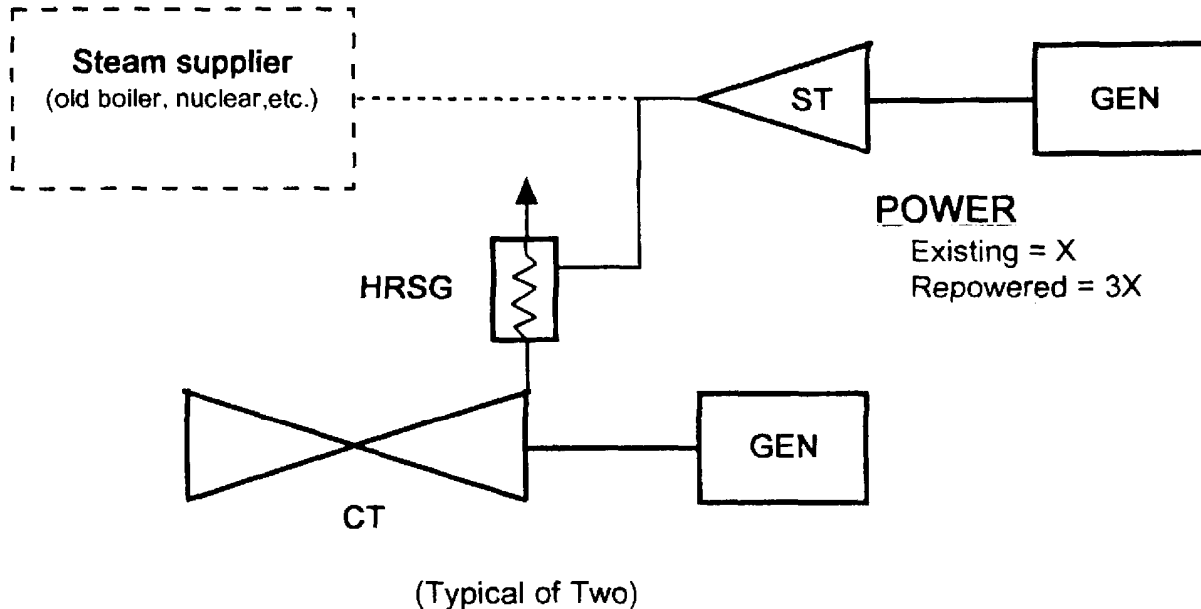
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## REPOWERING



Repowering, replacement of existing boiler with combustion turbines and heat recovery steam generators (HRSG's), can be successful. The HRSG's produce steam to power the existing steam turbine formally supplied by the replaced boilers.

Example: If the existing steam turbine is 100 MW, it would normally require two combustion turbines at 100 MW each (to get steam oil boiler produced) for a total plant output of 300 MW (three times original plant).

### **Advantages:**

- Replaces old high maintenance equipment
- Triplies power output
- Project financed outside of company
- Improved efficiency
- Environmental improvement

POWER CONTROL SUPPLY (PCS) can offer full capabilities, from feasibility studies to a turnkey project. Please call if you would like POWER CONTROL SUPPLY (PCS) to review options for your plant.

# KSOC Companies

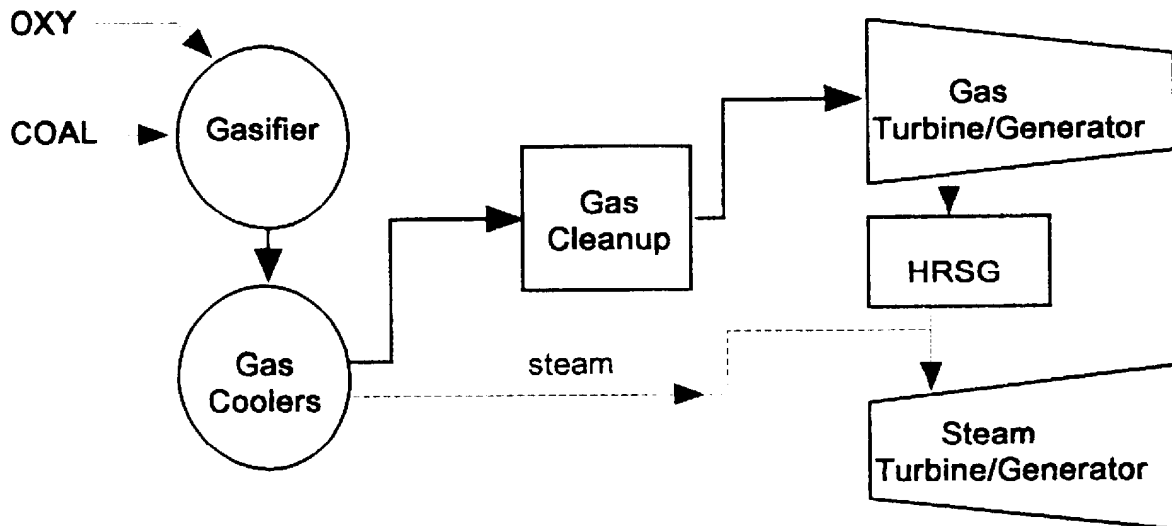
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## IGCC

(Integrated Gasification Combined Cycle)



New more efficient gas turbine technology, make IGCC the process of choice for coal firing plants. Over sizing of the gasifier to produce other products is of economical benefit.

### **Advantages:**

#### Environment

- Clean air technology

#### Employment

- Coal Mine Labor Force
- Gasification Plant Labor Force
- Power Plant Labor Force
- Additional Plant(s) labor Force

#### Additional Products

- Ammonia, Methanol, Nitrogen, Hydrogen, Purified Water, Petrochemicals and Town Gas.

POWER CONTROL SUPPLY (PCS) can select the proper process (over 6 available today) to match your needs. Call for more information and/or an POWER CONTROL SUPPLY (PCS) review of options for your opportunity.

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## ENGINEER 1

Project Management  
Business Development  
Engineering Management  
Power Generation Design  
Petrochemical Plant Design

### EDUCATION

B.S. Electrical Engineering, 1968  
University of Nebraska

M.B.A., 1984  
Houston Baptist University

### REGISTRATION

Professional Engineer:  
Kansas No. 6800  
Nebraska No. E-4004  
California No. K077408

### CAREER YEARS - 27

### CAREER PROFILE

Over twenty-seven years experience in engineering management in the energy industry with emphasis on power generation.

### REPRESENTATIVE EXPERIENCE

**POWER CONTROL SUPPLY (PCS), Director of Power Projects:**

Responsible for corporate management and development of DEVON, POWER CONTROL SUPPLY (PCS), and other energy related corporations.

**Gulf Interstate Engineering, Director of Power Projects:**

Responsible for business development of Power and related projects and the project management of these projects.

**Gulf Interstate Engineering Company, Director of Engineering:**

Responsible for engineering and drafting activities of all disciplines of all company projects.

**Northern Engineering, Inc., Vice President QC & Special Projects:**

Established Quality Control department and implemented certification to ISO 9001. Chosen to direct acquisitions of other companies; all joint ventures (CEO & Chairman of Board - Transatlantic Power Systems); and technology advancements.

**Northern Engineering, Inc., Vice President Teesside:**

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Responsible for the overall engineering contract for the world's largest, 1725 MW, combined cycle power plant in the U.K. The project consists 8 gas turbines and 2 steam turbine generators designed to British and IEC standards.

**Northern Engineering, Inc., Vice President Chief Engineer:**

Responsible for engineering supervision of the engineering and design completion of a 450 MW cogeneration project with three 100 MW gas turbine/generator packages, one 140 MW steam turbine/generator package, substation and auxiliary equipment for supplying power to both the industrial customer and electric utility.

Other projects included oil, natural gas, gas treating, liquid extraction and handling, and petrochemical projects.

**Northern Engineering, Inc., Supervisor/E&I Department:**

Responsible for the engineering and design for the electrical, instrumentation and control on various oil, natural gas and petrochemical related projects including a low density polyethylene plant, liquid natural gas, gas compression, offshore and various other energy industry related projects.

Supervised the E/I Department on over 12 compressor station installations ranging from 1000 hp to 16,5000 hp for both gas gathering and transmission system projects.

**InterNorth, Director of Engineering:**

Directed engineering (electrical, mechanical and instrumentation), drafting document control, and CAD.

**InterNorth, Senior Engineer:**

Lead electrical engineer on various pipeline and plant facilities; petrochemical facilities and other capital projects.

**Goodyear - USA, Project Construction Engineer:**

Direction of all expansion electrical work at Topeka Plant including checkout and start-up procedures, operating manual and spare parts inventory. Planned and directed manpower to achieve scheduled completion dates.

**Goodyear - USA, Plant Engineer:**

Performed plant electrical engineering and design for additions and modifications to electrical circuitry on machinery and installation checkout and maintenance of electrical equipment.

## FIRMS

1995 to Present	POWER CONTROL SUPPLY (PCS)
1992 - 1995	Gulf Interstate Engineering Company
1986 - 1992	Northern Engineering Inc.
1974 - 1986	InterNorth
1968 - 1974	Goodyear - USA

## ENGINEER 2

GT Cogeneration/Power

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Chemical Plant Design  
Oil and Gas Treatment

## EDUCATION

Ph.D., Chemical Engineering, 1963  
Rice University

B.S., Chemical Engineering, 1959  
Rice University

## REGISTRATION

Professional Engineer: Texas No. 27065

## CAREER YEARS - 33

## CAREER PROFILE

Over thirty years experience in process engineering and plant operations supervision.

## REPRESENTATIVE EXPERIENCE

### **POWER CONTROL SUPPLY (PCS), *System Engineer:***

Responsible for business development of Power and related projects, and technical support and feasibility studies for all projects.

### **Gulf Interstate Engineering Company, *Senior Systems Engineer:***

Responsibilities included supervising the systems engineering activities of all engineers, allocation of staff to specific project tasks, and coordination of engineering with procurement and design staff for compliance with project activities.

### **Northern Engineering, Inc., *Vice President/Chief Process Engineer:***

Responsible as chief process engineer on gas processing, dehydration, liquids removal, handling and storage, water treating, carbon dioxide recovery, enhanced oil recovery, co-polymer, cogeneration and various other oil, natural gas and petrochemical related projects.

Duties involved conceptual studies, feasibility analysis and detail engineering and design. Also completed assignments on plant commissioning, start-up and operations trouble shooting. Projects included the design of a 450 MW combined cycle plant, modifications to an existing 350 MW combined cycle, the design of a 21 MW simple cycle with steam sold and a 150 MW combined cycle cogeneration facility.

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For over two years, directed a 4 to 6 man team on the total conceptual design and cycle optimization of a 1725 MW combined cycle facility built in the U.K. Efforts included optimization studies, reliability and redundancy studies, fuel support and conditioning and the selection of equipment and conditions necessary to meet a wide range of double dispatchable operation.

Responsible for study of coal gasification proprietary processes available. Included IGCC in various proposals to clients for future fuel supply considerations. Visited both Dow and Texaco facilities.

**Continental Technical Service, Vice President/Project Director:**

Performed technical audit of an ethylene plant built for the Venezuelan Petrochemical Institute. Hired and supervised technical staff of U.S. and Venezuelan engineers. Promoted to Vice President of Production and directed various oil, gas and petrochemical projects, including design and procurement for Kaolin plant in Columbia.

**Lupfer Control, Inc., Technical Director of Marketing:**

Duties included customer contact, proposal preparation, and liaison with sales of engineering service company involved in computer and microprocessor applications for the oil and petrochemical industry.

**Control Automation Technology Company, Senior Applications Analyst:**

Duties involved process studies of client's facilities to determine areas for improvement and recommendations for implementation. Also included design of advanced, integrated computer control system to accomplish improved operation through advanced technology and techniques.

**Tenneco Chemicals, Inc., Operations Manager:**

Responsible for operations of ammonia and methanol plants and marine/truck/rail/loading facilities. Primary effort last two years devoted to operations coordination of construction, design, hiring and training of operation staff, and start-up of new grass-roots PVC facility. Included all coordination with licensors' facility in Kashima, Japan and Japanese engineers. Technical liaison with Shin-Etsu throughout the project.

*Operations Superintendent:*

Responsible for ammonia and methanol unit operations. Supervised a staff of thirty-nine people including individual unit supervision. Additional responsibility was added to include PVC homopolymer unit.

*Operations Supervisor:*

Responsible for methanol unit plant expansion tie-in and start-up. Supervised operations group of nineteen people. Included cost control, production and maintenance scheduling, shipping and turnaround coordination.

*Senior Process Engineer:*

Responsible for process improvements and troubleshooting in ammonia unit and a methanol unit addition.

**E.I. DuPont de Nemours & Company, Inc., Research Engineer:**

Polyolefins Division of Plastics Department. Initially assigned process and product development responsibility in high-density polyethylene, working with marketing and production groups and design of test runs in plant facility. Several assignments involved design, construction and start-up of pilot plants to produce new LDPE, copolymer compound product.



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## FIRMS

1995 to Present	POWER CONTROL SUPPLY (PCS)
1993 - 1995	Gulf Interstate Engineering Company
1981 - 1993	Northern Engineering Inc.
1977 - 1981	Continental Technical Services
1976 - 1977	Lupter Controls, Inc.
1976	Control Automation Technology Company
1967 - 1976	Tenneco Chemicals, Inc.
1963 - 1967	E.I. DuPont de Nemours & Company, Inc.

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## ENGINEER 3

Project Management  
Project Development  
Engineering Management  
Power, Natural Gas, Petrochemical

### EDUCATION

B.S. Electrical Engineering (B.S.E.E.), 1974  
Texas A&M University, College Station, Texas - Cum Laude Graduate

M.B.A. studies - 18 hours  
University of Houston, Houston, Texas

### REGISTRATION

Professional Engineer: Texas No. 56068

### CAREER PROFILE

Over twenty-two years of Technical, Administrative, Project Development and Project Management experience in industries including power, natural gas and petrochemical.

### REPRESENTATIVE EXPERIENCE

#### **POWER CONTROL SUPPLY (PCS), *Technical Vice President:***

Responsible for the technical development and execution of energy specific and associated facilities projects.

#### **Northern-Monenco AGRA, Inc., *Chief Engineer/Manager of Engineering/Project Manager:***

Project Manager for the detailed engineering/design/procurement of a green field 110 MW combined cycle cogeneration power plant located near Kingston, Ontario, Canada. Project/Development Manager for combined cycle cogeneration facilities of 40 MW in New Mexico, USA and 270 MW in Amguri, Assam, India. Responsible for all engineering and design functions for proposals and projects. Managed the engineering department including mechanical, civil/structural, instrument/controls, and electrical engineers and designers, computer systems, document control and other related professionals during the execution of more than 250 MW of cogeneration power facilities.

#### ***Supervisor - Instrument/Electric Engineering:***

Electrical/Instrument/Controls engineering section management responsibilities for personnel involved in the design of natural gas handling and petrochemical facilities and cogeneration power plants ranging in size from 150 MW to 1725 MW.

#### **Northern Engineering, Inc., *Senior Engineer: Instrument/Electrical:***

Lead E/I Engineer for simple and combined cycle facilities ranging from 25 to 450 MW, Lead E/I Engineer on various onshore and offshore natural gas compression/pipeline and dehydration facilities and a refrigerated propane storage/distribution terminal.

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**Exxon Chemical Americas, Instrumentation and Controls Equipment:**

Responsible for Instrument/Controls engineering for chemical plant projects designed in-house as well as management of instrument systems designed by outside engineering companies.

*CAD Group Leader/Instrument Engineer:*

Group Leader for Computerized Drafting including administrative responsibility for a computer system with four operators.

*Finishing Contact Engineer:*

Responsible for new project development and daily technical follow-up in the finishing section of a synthetic rubber plant.

*Electrical Engineer:*

Served as chemical plant engineering contact following the engineering/design/construction of a 138KV, 175 MVA electrical substation.

Designed the overall power system for a new computerized process control center which included 2.4kv/480v transformers, uninterruptible power supply system and transfer switches for backup power. Designed and started the expansion of a 13.8kv/2.4kv substation which included a transformer, 2.4kv circuit breakers and associated downstream equipment.

Responsible for electrical engineering on petrochemical projects designed in-house and supervision of work executed by engineering service companies.

## FIRMS

1996 to Present	POWER CONTROL SUPPLY (PCS)
1987 - 1996	Northern Monenco AGRA, Inc.
1981 - 1987	Northern Engineering (ENRGN)
1974 - 1981	Exxon Chemical Americas

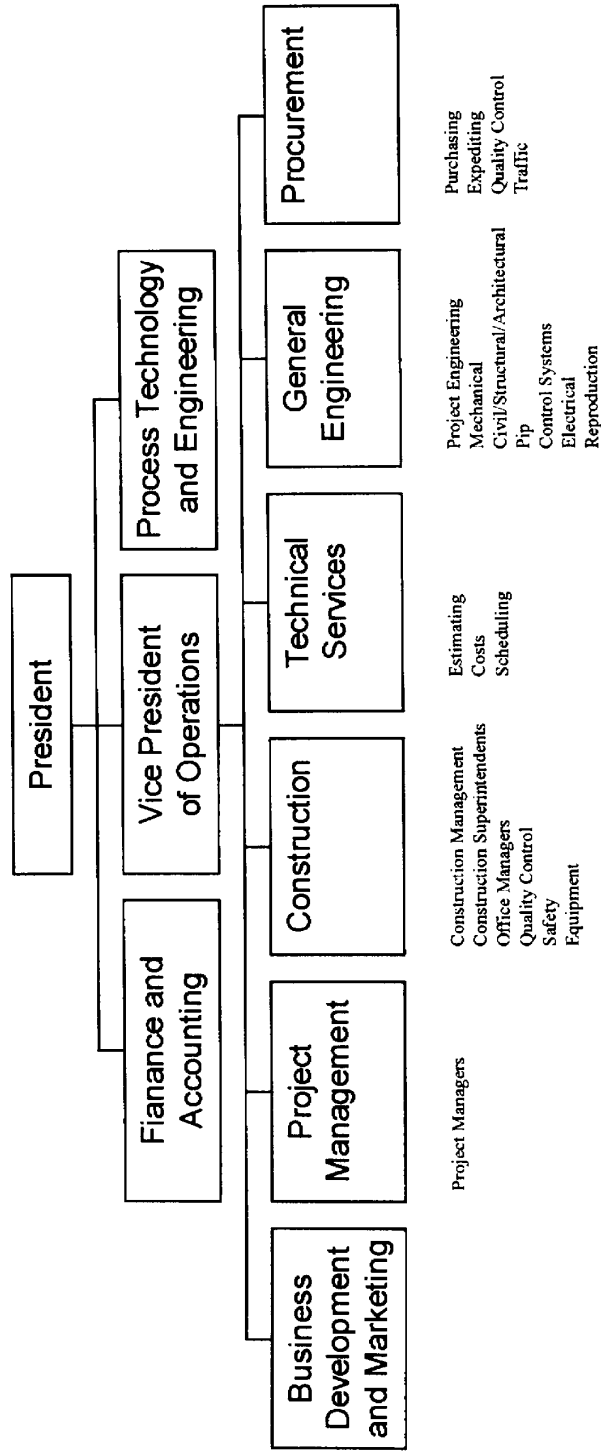
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## POWER CONTROL SUPPLY, DIV. ORGANIZATIONAL CHART



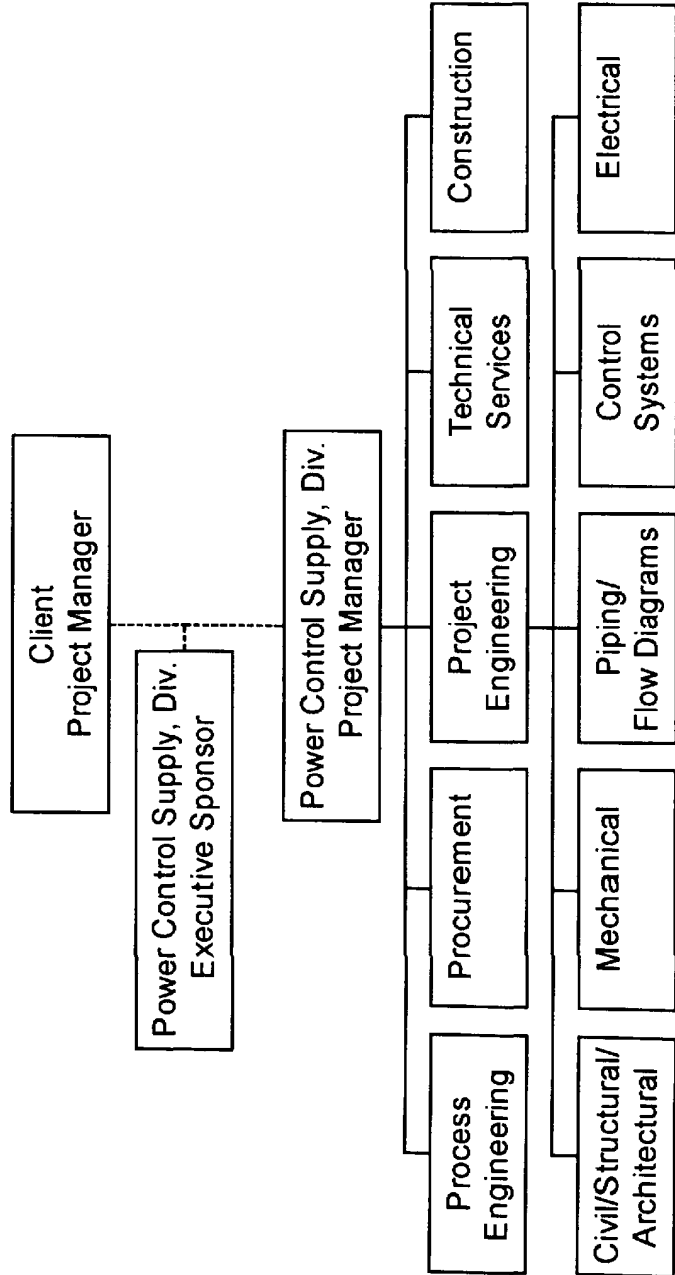
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## TYPICAL PROJECT ORGANIZATIONAL CHART



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## PROJECT EXPERIENCE

### COMPLETED PROJECTS OF POWER CONTROL SUPPLY

#### USA

##### CLIENT

ENSCO TOOL & SUPPLY

FINA OIL & CHEMICAL

FULTON CO-GENERATION

HOUSTON LIGHTING & POWER

LUBBOCK POWER & LIGHT

PORTA-KAMP MFG. CO

##### LOCATION

HOUSTON, TEXAS

PORT ARTHUR, TEXAS

FULTON, NEW YORK

HOUSTON, TEXAS

WACO, TEXAS

HOUSTON, TEXAS

##### EQUIPMENT

POWER

POWER

POWER

POWER

POWER

POWER

#### INTERNATIONAL

EMPRESSIA POWER CO.

TANGSHAN SITHE HEAT-POWER CO. LTD.

GUATEMALA CITY, GUATEMALA

HEBEL PROVINCE, CHINA

POWER

POWER