Statement of Qualifications

Renewables / Biorefining

Introduction

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STATEMENT OF QUALIFICATIONS

Venture Engineering & Construction (Venture) is a closely held, multi-disciplined engineering and construction management company. Pittsburgh based, Venture provides services to clients throughout North America and abroad ranging from front-end engineering to detailed design and construction management.

Our core staff of engineering professionals is experienced in a variety of process industries including energy, biorefining, refining, chemicals, petrochemicals, alloys, consumer products, and general manufacturing industries.

We have registered professional engineers heading each discipline, and a design staff reflecting a balance of disciplines and a range of experience. Staffing is currently at 27 employees, all disciplines, of which six are Chemical Engineers.

Our core markets are process industries, and energy. We are leaders in alternative energy solutions such as landfill gas plants, biorefining plants, cogeneration facilities, and waste-to-energy plants.

Venture works routinely with advanced design tools such as:

- Autodesk products
  - Inventor
  - AutoCAD PID
  - AutoCAD Electrical
  - “Vanilla” AutoCAD
- ChemCAD
- STAAD
- Others
Going Green is not a new concept for process engineering companies. By nature, process engineers are problem solvers and are always looking for ways to improve processing efficiencies, and energy usage is always a key element/driver.

Whether it’s conservation through better heat transfer equipment, capturing and using waste heat (HRSGs, adsorption chillers) to make additional power or chilled water, or exploring new and emerging alternative energy sources such as cellulosic ethanol, biodiesel, wind and solar, the ability to offer solutions for sustainable development is key to what we do.

We can optimize the value of your projects by engineering, designing and overseeing the construction of cost-effective and efficient solutions that not only preserve natural resources but also returns an investment to its owners.

Specific to the biorefinery industry, we have worked for owner/operators and process licensers. Our clients include Riksch Biofuels, Kyoto Fuels Corporation, CTI Biofuels, CTI Brazil and Entire Energy.

Our biorefinery projects include preliminary design/equipment sizing and the development of Schedule A packages, multi-disciplinary detailed design of process systems, instrumentation and electrical systems, as well as mechanical layout of its facility. Further, we have related experience from work in waste-to-energy.
Venture Engineering offers a wide array of engineering and environmental services in support of the renewable energy market, including landfill and gas to energy projects, solar energy, wind power, biodiesel, cellulosic ethanol, as well as municipal solid waste (MSW) to energy projects, and conventional cogen / combined heat and power projects.

**FACILITY SITING AND PERMITTING**
- Comprehensive Planning and Permitting Services
- Site Investigations

**Scope & Estimate Services**
- Front End Engineering
- Cost Estimation
- Process Evaluation / Technology Selection
- Thermodynamic Modeling
- Pipe Stress Analysis
- Pro Forma Development

**DESIGN AND CONSTRUCTION**
- Cost Control
- Project Management
- Installation Engineering (Full Service)
- Engineering Specifications / Standards
- Procurement / Expedition
- Process Simulation Services
- Advanced Design Tools!
- 3D Design Capabilities
- Full EPCM Contractor
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

CTI Biofuels / Riksch Biofuels—Biodiesel Plant

PROJECT SCOPE

Provided engineering, procurement and construction management services for a plant debottlenecking and upgrade project to increase biodiesel plant production capacity by 60%.

The existing plant produced 4.0 M gal/yr of biodiesel from multiple feedstocks including soy oil and choice white grease. The debottlenecking project increased production to 9.0 M gal/yr and was completed on-time and under budget.

SERVICES PROVIDED

- Front end engineering, including process design, facilities design, infrastructure, capital cost estimate.
- Detailed design
- Procurement
- Construction management

Challenges of this project included modifications to existing plant infrastructure to accommodate better separation of glycerol from biodiesel and design of a new methanol/biodiesel stripper column to enable more methanol recovery to lower the overall plant operating costs.
SUMMARY OF PROJECTS

Kyoto Fuels Corporation—Biodiesel Plant

PROJECT SCOPE

Provided detailed engineering and design of a new 66 million liter/yr (18 million gal/yr) biodiesel plant located in Lethbridge, Alberta, Canada. The new plant is anticipated to be in production in early 2009.

The current plant produces biodiesel from multiple feedstocks including soy oil and rendered animal fat.

SERVICES PROVIDED

- Detailed design
- Procurement
- Construction Support
- Commissioning management
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

Riksch Biofuels—USDA Loan Certificate of Operation

PROJECT SCOPE

Venture Engineering provided the review and certificate of satisfactory operation of a 9.0 MGY biodiesel plant for Riksch Biofuels in Crawfordsville, Iowa.

The project included a review to ensure the actual construction was in accordance with design. Certification of the plant’s ability to produce at the design rate was also performed.

SERVICES PROVIDED

Venture provided the following services:

- Technical review and system evaluation
- Preparation of a letter certifying that the plant meets performance goals.
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

Brasil Biofuels—Biodiesel Plant

PROJECT SCOPE

Provided front end engineering services, including process modeling utilizing ChemCAD dynamic simulation, PFD development, P&ID development, equipment sizing and selection, general arrangement of the plant, equipment and instrument lists, and capital cost estimate, for a Greenfield 18.0 M gal/yr biodiesel production facility to be located in São Paulo, Brazil. The project will produce biodiesel from rendered animal fat (tallow) utilizing a modified esterification/transesterification process.

The project is being developed in response to recent Brazilian biodiesel regulatory mandates. For 2008, the country has a mandatory 2 percent biodiesel blend into all diesel pumps in the country, and will raise this to a mandated 5 percent blend by 2010.

Final deliverable was a complete Schedule A package for bidding to various local engineering and construction firms. Installation engineering and construction will be performed in country. Venture will continue to provide Owners Engineering services to the project until completion. Estimated project completion is December 2009.

SERVICES PROVIDED

- Front end engineering, including process design, process modeling, P&ID development, and capital cost estimate.
- Engineering and Trade Contractor selection.
- Owner’s Engineering Role throughout installation and construction.
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS
Entire Energy—USDA Funding Application and Schedule A Package

PROJECT SCOPE
Venture Engineering prepared the technical report associated with an application for USDA funding of a 9.0 MGY biodiesel plant with an expandable capacity of 18.0 MGY. Funding is currently pending.

SERVICES PROVIDED
Venture provided the following services:

- Application for USDA funding
- Front end engineering and cost estimate (Schedule A Package)
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

Croda, Inc.—Fueling Boilers with Landfill Gas

PROJECT SCOPE

Venture Engineering and Construction (Venture) was contracted by Croda, Inc., to conduct a front-end engineering study to investigate the feasibility of utilizing landfill gas (LFG) in place of conventional natural gas for firing the plant boilers (Superior boilers located next to the maintenance shop) at the Croda Mill Hall, PA Facility. The landfill gas would be made available from the nearby Clinton County Solid Waste Authority, Wayne Township Landfill.

Two scenarios were evaluated in this feasibility study. The first scenario included blending the landfill gas with natural gas and using this blended gas stream for firing in both Superior Boilers. Scenario 2 included fueling only one boiler with LFG and the second boiler would remain fueled using 100% natural gas as a backup and operating during high boiler demand time periods.

SERVICES PROVIDED

- Process Flow Diagram-Gas Pretreatment
- Basic Calculations
- Pipeline Pressure Drop Calculations
- Sulfa treat System Sizing
- Gas Delivery Modeling using ChemCAD
- Equipment List
- Fuel Cost Savings Analysis
- Develop Order of Magnitude Cost Estimate
- Run Payback Analysis for Various Operating Scenarios
- Evaluate Landfill Gas Composition
- Evaluate various dual fuel burners
- Evaluate various boiler firing sequences
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

Montauk Energy—Landfill Gas High BTU Processing Plant

PROJECT SCOPE

Venture Engineering provided full EPC services for a compressor upgrade project at the Montauk Energy, Rumpke Landfill location. The project will increase the production capacity by 1.5 million SCFD of high BTU (pipeline quality) gas.

Services Provided

Venture provided the following services:

- Front end engineering design, including capital cost estimate
- Installation engineering and design, including skid fabrication drawings
- Skid Fabrication (via subcontract)
- Full equipment supply, including new blower skid, heat exchanger, MCC
- Hired all trade contractors and over site of construction activities
- PLC programming
- Commissioning and start-up
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

Montauk Energy—Landfill Gas High BTU Processing Plant Expansion

PROJECT SCOPE

Venture Engineering staff provided full EPCM services for a high BTU plant expansion at the Montauk Energy, Rumpke Landfill location. The project increased the production capacity by 6.0 million SCFD of high BTU (pipeline quality) gas. The total production capacity at the Rumpke facility is 15.0 million SCFD (inlet), with capabilities to deliver as much as 8.0 million SCFD of high BTU gas into the Duke Energy pipeline.

The project scope included new knock-out pot, inlet compressors, gas conditioning skids to remove siloxanes, NMOCs, moisture and H2S, pressure swing adsorption using QuestAir Technologies proprietary PSA process, tail gas compressors, new thermal oxidizer, new utility ground flare, condensate collection and mitigation, control room, MCC and switchgear, and mercaptan addition system.

Services Provided

Venture provided the following services:

- Front end engineering design, including capital cost estimate
- Installation engineering and design, including skid fabrication drawings
- Procurement services for all equipment and trade contracts
- Construction Management of all construction activities
- PLC programming
- Commissioning and start-up
PROJECT SCOPE

Venture Engineering provided front end engineering services for a 6MM SCFD landfill gas to energy plant. Various options were considered including landfill gas to high BTU gas plant, landfill gas to electricity plant using either turbine gensets or IC engines. The project is located at the Monmouth County regional landfill in Monmouth, NJ. Montauk currently operates a 5 MW landfill gas to electricity plant at this location. The new plant will utilize the gas from new landfill cells and produce high BTU gas which will be sold to the gas utility over a long-term gas supply contract.

Services Provided

Venture provided the following services:

- Technical evaluation and recommendation
- Front end engineering and design, including process design and development
- Specifications including standards and codes governing work, quality control, materials and execution workmanship, tolerances, criteria for temporary works, and required submittals
- Capital Cost Estimate
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

Montauk Energy—Engineering Services: Evergreen Contract

PROJECT SCOPE

Venture Engineering continues to support Montauk Energy Capital and its various subsidiaries including GSF Energy as part of a multi-year engineering services ‘evergreen’ agreement.

Services Provided

Venture provides the following services:

- Landfill gas curve analysis
- Landfill gas collection system design
- Routine O&M engineering at Rumpke, Monmouth, Valley, Monroeville, and McCarty Road plants
- Closure studies
- Scope & Estimate studies for planned future expansions
- Various Project Development activities, including pro forma analysis
SUMMARY OF PROJECTS

Wheelabrator Technologies, Inc.—Scope & Estimate Study: 250 TPD Waste-to-Energy Plant

PROJECT SCOPE

Venture provided various scope and estimate services for the planned 250 TPD municipal solid waste (MSW) to electricity plant for the WTI, Hilo, Hawaii proposed plant.

The proposed Hilo plant will convert 250 TPD of MSW into 6 MW (gross) power. The plant is a mass burn facility, based on Von Roll technology. Venture’s project manager, Mr. Steve Kranz, led the overall scope and estimate study. Venture’s scope included process design, including PFD and P&ID development (using new AutoCAD ‘Smart’ P&ID), as well as finalization of the balance of plant scoping drawings and capital cost estimate.

Due to the nature of the lack of trades in Hawaii, as well as basic materials of construction, this plant was proposed as a modular designed and built facility. Where the modules would be fabricated in the continental U.S. and shipped to Hawaii for assembly/erection.
PROJECT SCOPE

This facility burns municipal waste in two 750 ton per day refuse boilers and generates 40 MW of electrical power.

To improve air quality, the existing electrostatic precipitators were replaced. The project included the installation of two fabric filters and ash handling conveyors. The ID Fans were also modified to accommodate higher static pressure required for the new equipment and ductwork. New stack opacity equipment was also installed. The new equipment was installed in parallel with the old equipment. Changeover was accomplished during two 8-day outages.

The project was completed on time and under budget with no unscheduled interruption of the plant operation.

Services Provided

Venture staff provided project development services included scoping and estimating, through installation engineering. Scope included equipment specifications and installation engineering (electrical, control systems, mechanical, piping, structural, and civil), construction bids packages and bid analysis.

Changes were required to the plant DCS control system.

Prior to and during the planned outages, we provided on site engineering support and assisted with the start-up of the new equipment.
PROJECT SCOPE

Venture Engineering has entered into a multi-year Master Professional Service agreement with Wheelabrator Technologies Inc., (WTI) a wholly owned subsidiary of Waste Management. As part of this agreement, Venture will be providing various engineering, procurement and construction management services at various WTI waste-to-energy facilities in the US.

Services include scope and estimate studies, process modeling services, installation engineering services, procurement and construction management services.

WTI is the U.S. market leader in the waste-to-energy sector.
SUMMARY OF PROJECTS

Wheelabrator Technologies, Inc.—Power Plant Modeling

PROJECT SCOPE

Venture provided steam cycle analysis using the Thermoflex modeling software for a new 1500 TPD MSW to energy plant to be located in Maryland.

The scope included modeling an existing facility (for baseline verification) and then applying the model to the planned 1500 TPD plant. Modeling included optimizing steam production at two pressure levels with and without reheat, towards optimizing overall efficiency.
STATEMENT OF QUALIFICATIONS

SUMMARY OF PROJECTS

CTI Biofuels—Prairie Biogas

PROJECT SCOPE

CTI conducted process development tests using a 1.5 TDH carbonizer using commercially available tire mulch with the intention of graduating to more typical waste-to-energy feedstocks. This low temperature (800°F) process involved conversion of solid organic feedstocks to gas and liquid fuel and char.

Venture supported the design development, assisted in HAZOP study and planning, as well as gathered information and performed cost estimating, for a front end process to remove tramp metal and to stage feedstocks.

Venture also provided code review at the test facility.
QUALITY MANAGEMENT PROGRAM

Venture Engineering is committed to a quality system that meets the highest standards.

The quality policy for Venture Engineering states, "The goal of Venture Engineering is to satisfy our clients’ needs in all respects and constantly strive to improve our standard of service."

The business of Venture Engineering is to provide quality, cost effective, on schedule, project development and management, engineering, procurement and construction management to the process, industrial, energy and related sectors in the US and internationally.

At Venture Engineering, quality management has three components:

Assurance - Planned and systematic actions necessary to provide adequate confidence that services will be supplied in accordance with specified requirements

Control - Measuring, evaluating and checking to verify conformance to requirements with the objective of ensuring only those services that conform to requirements are delivered

Continuous improvement - Management process involving everyone in the organization to better the performance and delivery of service to our clients

The engineering quality management program provides confidence that the project engineering activities will result in a safe, reliable and economic operating facility in conformance with the client's requirements.

While a number of management activities are employed to attain this confidence, the appointment of a core group of key experienced personnel to the project design team is primary. These personnel are selected on the basis of documented credentials and demonstrated capability to develop and direct a highly technical, proficient staff in performing to established design and drafting standards.
QUALITY MANAGEMENT PROGRAM

In the execution plan for engineering, the responsibilities related to the quality program include the following:

- Selecting the engineering standards and procedures to be applied to the project
- Establishing the design criteria to be used in the development of the engineering design
- Preparing plans for design reviews for critical and/or unusual designs for equipment and facilities
- Appointing specific personnel including specialists to review, check and approve engineering documents including drawings, specifications, calculations and studies
- Performing pre-planned internal audits of the procedures related to the development of engineering design activities
- Reviewing the designs and engineering of subcontractors
- Reviewing engineering operations and procedures to reduce waste in materials, time and money
QUALITY MANAGEMENT PROGRAM

The supporting engineering activities to be used to assist and offer objective evidence of quality in this program include:

- Maintaining an organization, which is documented in an organization chart showing specific personnel and their interrelationship
- Maintaining job descriptions, defining specific responsibilities and authorities of engineering personnel
- Establishing responsibilities for technical information exchanges, both internal and external
- Establishing control of design documents, including the activities for their review, approval, release, distribution and revision
- Providing for the safe and easy location, retention and retrieval of design documents
- Periodic review of the status and adequacy of the quality system
- Training, and upgrading of engineering personnel to perform to meet project requirements
- Identifying appropriate design needs or inputs
- Preparing necessary design documents
- Specifying quality levels, acceptable criteria and standards, and quality records requirements
- Conducting audits of design activities, their reporting and follow-up
- Taking appropriate corrective action necessary throughout the engineering design
- Controlling design changes
- Adjudicating and conducting feasibility studies of proposed alternative designs
Project control activities, including cost, schedule, man-hour, material and document control, are also part of quality management. Where applicable to specific contract requirements and Venture Engineering’s management requirements, this system is controlled through the application of documented standards, procedures and manuals. This provides for a consistent and efficient control function sized to contract needs.

To verify that these agreed standards, procedures and instructions are being adhered to; the project control function is audited, both internally by function staff and externally by corporate staff, on a regular basis.

Copies of the following documents demonstrating Venture Engineering’s commitment to quality management are available, for use on the project:

**Corporate quality assurance manual** - Establishes the policy and objectives, responsibilities and authorities related to quality of work performed by Venture Engineering and the concept of doing the job right the first time, every time.

**Departmental quality procedures** - Identifies Venture Engineering’s policy, objectives, organization, responsibilities and procedures with respect to the implementation and maintenance throughout a project of an effective and efficient quality management system.

These model documents are made specific to each project to reflect contract scope requirements following contract award. They are made available to all project personnel and form the basis for internal audit of project activities.
STATEMENT OF QUALIFICATIONS

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