

## **CHARLES L. KIMTANTAS**

**CURRENT POSITION: SULFUR TECHNOLOGY MANAGER**

### **PROFESSIONAL EXPERIENCE: 42 YEARS**

- Process Design and Engineering of
  - Sour gas treating,
  - Claus sulfur recovery
  - Sour water stripping
  - Tail gas treating
  - Thermal oxidizing
- Refinery technical service
- Development and use of computer programs for process simulation, design, and cost estimating

### **ACADEMIC QUALIFICATIONS**

B.S. Chemical Engineering, University of Florida

M.S. Computer Science, University of Texas at Dallas

### **PROFESSIONAL ACTIVITIES, AWARDS and LISTINGS**

- Registered Professional Engineer, Texas (No. 37313)
- Member, American Institute of Chemical Engineers
- Senior Advisor Laurance Reid Gas Conditioning Conference
- Recipient of the Bechtel Outstanding Technical Papers Award, 2009
- Recipient of the Bechtel Award of Merit, 2003

### **PROFESSIONAL EXPERIENCE**

#### PERIOD

#### COMPANY, POSITION AND ACTIVITIES

1988 to present

BECHTEL CORPORATION, HOUSTON, TEXAS  
TECHNOLOGY MANAGER RESPONSIBLE FOR  
BECHTEL'S SULFUR RECOVERY TECHNOLOGY

- Technology supervision, guidance, and design of a 240 LTPD sulfur recovery facility including two 120 LPTD Claus sulfur recovery units and one tail gas treating system on a coal gasification facility for Duke Energy in Edwardsport, Indiana.
- Design of gas treating and liquid (LPG) treating amine systems for Coker License Packages of various sizes and configurations.

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**PROFESSIONAL EXPERIENCE (Continued)**

- Preliminary designs and cost estimates for a number of studies on coal gasification systems, sulfur recovery facility, including sulfur recovery units, tail gas treating, and recycle unit and thermal oxidizing unit for power generation and polygeneration clients. Capacities ranged from 176 to 230 LTPD of sulfur.
- Bechtel-funded study on process efficiency improvements when using amine for post-combustion CO<sub>2</sub> recovery.
- Feasibility study for 12000 LTPD sulfur recovery facility (gas treating, Claus sulfur recovery, and tail gas treating) processing 35% H<sub>2</sub>S natural gas stream and included CO<sub>2</sub> recovery.
- Technology supervision, guidance, and design of a sulfur complex, including a 640 GPM sour water stripper, a 1000 GPM amine absorption and regeneration unit, and a 537 LTPD sulfur recovery unit for Suncor in Fort McMurray, Alberta, Canada.
- Preliminary designs and cost estimates for a study on a coal gasification system, sulfur recovery facility, including two 220 LTPD sulfur recovery units, two 220 LTPD tail gas treating units, and two thermal oxidizing units for a project in Louisiana.
- Preliminary designs and cost estimates for a study on a gasification system sulfur recovery facility, including three 450 GPM amine absorption and regeneration units, two 64 LTPD sulfur recovery units, a 128 LTPD tail gas treating unit, and a thermal oxidizing unit for ChevronTexaco.
- Preliminary design and cost estimate for a gasification system sulfur recovery facility, including a 1100 GPM amine absorption and regeneration unit, a 130 LTPD sulfur recovery units, a 130 LTPD tail gas treating unit, and a thermal oxidizing unit for a facility in China.
- Preliminary design and cost estimate for a 960 MTPD sulfur dioxide to elemental sulfur facility in Russia.
- Technology supervision, guidance, and design for preparation of a process design license package for a sulfur complex, including a 470 GPM sour water stripper, a 3000 GPM amine absorption and regeneration unit, two 537 LTPD sulfur recovery units, a 867 LTPD tail gas treating unit, and a thermal oxidizing unit for Suncor in Fort McMurray, Alberta, Canada.

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**PROFESSIONAL EXPERIENCE (Continued)**

- Technology supervision, guidance, and design for preparation of a process design license package for two 64 MTPD hydrogen sulfide production units for Murrin Murrin Operations in Western Australia.
- Process design review and detailed engineering design support for two 750 GPM sour water strippers, two 2000 GPM amine regeneration, and two 675 LTPD sulfur recovery units with sulfur degassing and incineration for Reliance in Jamnagar, India.
- Process design review and detailed engineering design support for a 440 GPM sour water stripper, 1600 GPM amine regeneration unit, 300 LTPD sulfur recovery unit with sulfur degassing, and incineration with waste heat recovery for ARAMCO in Ras Tanura, Saudi Arabia.
- Process design review and detailed engineering design support for a 276 GPM sour water stripper, 22.4 MM SCFD amine treating unit, two 215 LTPD sulfur recovery units with SuperClaus reactor, 420 LTPD sulfur degassing unit, and incineration with waste heat recovery for Maraven in Cordon, Venezuela.
- Operator training and startup of a 26 TPD hydrogen sulfide production unit for Morton International in Moss Point, Mississippi.
- Process study of alternate hydrogen sulfide and sulfur dioxide processing technologies (Claus sulfur recovery and sulfuric acid) for Tampa Electric.
- Process study of alternate tail gas treating technologies (SCOT type TGTU and SuperClaus) for Phillips Petroleum Company.
- Design of a 23 LTPD sulfur recovery unit for a Chinese client.
- Process design review and detailed engineering design support for a 70 LTPD sulfur recovery unit and a 90 LTPD amine-based tail gas treating unit for Texaco in Bakersfield, CA.
- Process design review and detailed engineering design support for a 65 GPM amine unit, a 40 GPM sour water stripper, and a 10 LTPD sulfur recovery unit for Phillips in Woods Cross, Utah.
- Evaluation of new feeds on a 27 LTPD sulfur recovery unit and 36 LTPD SCOT unit for Tennessee Eastman in Kingsport, Tennessee.

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**PROFESSIONAL EXPERIENCE (Continued)**

- Design of new equipment required to process sour water stripper gas (hydrogen sulfide with ammonia) on existing 68 LTPD amine acid gas only sulfur recovery unit for Unocal in Santa Maria, California.
- HAZOP reviews for amine, sulfur recovery, and amine-based tail gas treating units.
- Sulfur technology consultant for environmental cost studies being done for the Western States Petroleum Association.
- Process studies of oil shale processing for Occidental Oil Shale, Inc.

1976-1988                      FORD, BACON & DAVIS, TEXAS, INC. DALLAS  
PRINCIPAL PROCESS ENGINEER

Process engineering and design responsibility on the following projects:

- 15 LTPD Sulfur Recovery Unit and SCOT Tail Gas Treating Unit for Independent Valley Energy Corporation at Bakersfield, California.
- Three 130 LTPD Sulfur Recovery Units and four SCOT Tail Gas Treating Units for Texaco's Convent, Louisiana refinery.
- Two 56 LTPD Sulfur Recovery Trains, one 78 LTPD SCOT Tail Gas Treating Unit, 180 GPM Sour Water Stripper and a 14 MM SCFD Amine Treating Unit for Champlin Petroleum Company at Corpus Christi, Texas.
- 1500 GPM Amine Regeneration unit, 200 LTPD Sulfur Recovery Unit and revamp of SCOT Tail Gas Treating Unit from 300 to 400 LTPD for Koch Refining Company's refinery in Rosemont, Minnesota.
- Catalytic Incineration Unit for a 1500 LTPD Sulfur Recovery Unit for Shell Oil Company at Brandon, Mississippi.
- A 9.0 MM SCFD Amine Treating Unit and a 20 LTPD Sulfur Recovery Unit for Rock Island Refining, Indianapolis, Indiana.
- Two 27 LTPD Sulfur Recovery Units and one 36 LTPD SCOT Tail Gas Unit Trains for Tennessee Eastman Company at Kingsport, Tennessee.
- 26 LTPD Sulfur Recovery Unit for ITT Rayonier in Hoquiam, Washington.

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**PROFESSIONAL EXPERIENCE (Continued)**

- 4 LTPD Sulfur Recovery Unit for Uni-Oil in Corpus Christi, Texas.
- 21 LTPD Sulfur Recovery Unit for Petroliber in Spain.
- Burner, thermal reactor and boiler of a 270 LTPD Sulfur Recovery Unit for AKZO Chemical Inc. in Axis, Alabama.
- Burner and thermal reactor of a 450 LTPD Sulfur Recovery Unit for Promon in Brazil.
- Safety relief and utility system design for 40,000 BPD CCR Reformer for Gulf Oil in Port Arthur, Texas.
- Hydraulic system and exchanger train design for the expansion of an FCCU from 8,000 to 12,000 BPD for Caltex in the Philippines.
- Additionally responsible for many studies and small projects including oxygen enrichment of SRU combustion air, evaluation of alternate amine solvents, evaluation of unit capacity for new feed gas compositions, debottleneck, etc.

1968-1976                      TEXACO, INC, PORT ARTHUR TX  
PROJECT (PROCESS) ENGINEER

- Project (Process) Engineer with Texaco, Inc., Port Arthur, Texas, responsible for providing general process engineering support for various refinery units, including crude distillation (both atmospheric and vacuum, including lube oil stock production), furfural refining, solvent dewaxing, clay treating, propane deasphalting, grease manufacture, light hydrocarbon separation and recovery, Claus sulfur recovery, sulfuric acid manufacture (from spent alky acid), alkylation, fluid catalytic cracking, catalytic reforming, Udex aromatics extraction and phosphoric acid polymerization.

1966-1968                      TEXACO, INC, PORT ARTHUR TX  
CO-OP STUDENT ENGINEER

***PUBLICATIONS, PAPERS, AND PRESENTATIONS***

- "Bechtel Pressure Swing Claus Sulfur Recovery Technology", Co-author, 2009 International Pittsburgh Coal Conference, September, 2009

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### ***PUBLICATIONS, PAPERS, AND PRESENTATIONS (Continued)***

- “Modified Claus Sulfur Recovery Unit Equipment” for the Sulfur Fundamentals Presentation and Manual for the 2000 Laurance Reid Gas Conditioning Conference, February, 2000
- “Sulphur Solidification Methods”, Co-author, The International Journal of Hydrocarbon Engineering, October, 1997
- “Here Are Ways to Increase Sulfur Processing Capability,” Oil & Gas Journal, May 22, 1989
- “Handling Incremental Sulfur in a Refinery”, Petro-Safe '89 Conference, October 1989
- “Claus Sulfur Recovery Unit Downsizing,” AIChE National Meeting, Spring, 1987
- “The SULFCYCLE/TM System For Sulfur Recovery from Low Concentration Sulfur Compound Containing Streams,” International Sulfur Congress (SULFUR '87)
- “Operation of Reduction/Absorption Type Tail Gas Cleanup Processes,” Western Research Sulfur Seminar, Summer, 1987
- “Cost Estimating,” AIChE Local Section Annual Technical Seminar

### **PATENTS**

- U.S. Patent No. 7,374,742 - Co-Inventor of a method for removing sulfur species from a gas stream at high pressure, without the use of a sulfur species removal process, such as an amine scrub; The Bechtel Pressure Swing Claus Sulfur Recovery Unit.
- U.S. Patent No. 5,686,056 - Inventor of a method for removing small amounts of residual sulfur from hydrogen sulfide product stream.
- U.S. Patent No. 3,901,062 - Co-inventor of a method to determine the vapor pressure of a liquid from operating conditions on a flash drum.
- Canadian Patent No. 1,221,223 - Co-inventor of new tail gas treating process for Claus sulfur recovery units.
- SULFTEN System - Co-authored U.S. patent application on a new tail gas treating process.