



# KENT PENNYBAKER



## President / Consulting Process Engineer

785-842-4783

[kpennybaker@rivercityeng.com](mailto:kpennybaker@rivercityeng.com)

[Linkedin.com/in/kent-pennybaker/](https://www.linkedin.com/in/kent-pennybaker/)

### TOP SKILLS

- Project Management
- P&ID & PFD Development
- Gas Processing Design
- Gas Treating Design
- PHA / PSM
- Process Simulation
- Liquefied Natural Gas
- Offshore Production / Processing
- LPG Fractionation

### PROFESSIONAL EXPERIENCE

#### President / Consulting Process Engineer

*River City Engineering, Inc. / Lawrence, KS / 1994 – Present*

Process Engineering Consultant for the Oil & Gas Industry providing design and technical support for gas and liquids processing/handling projects.

- Part of an optimization team and responsible for 16 West Texas gas plants. Liase with operations and discuss issues that are causing them problems. Work options to alleviate these problems. Also, collect and analyze plant data to evaluate and track equipment performance and make recommendations on operating set-points to maximize recoveries.
- Conceptual and preliminary engineering for a new EOR pilot process that involves gas injection followed by production in the same well. Developed production and injection design that offers flexibility and minimizes cost while also looking at conversion to full commercial scale implementation.
- Lead engineer for upgrade projects to an existing gas storage facility to improve deliverability.
- Part of client team evaluating an existing FLNG barge for client's site. Meetings and discussions with client and barge owner / designer. Review of original design and simulations, evaluations of performance under new conditions.
- Process support for several 200 MMSCFD West Texas gas plants. Services included PHA facilitation, tower inspections, operating procedures, operator training, commissioning, start-up, and on-going operations support.
- Pre-Feed engineering support for a FLNG project in the eastern Mediterrean. Worked with client (owner) team to develop basis and concept selection / evaluation.
- Troubleshooting assistance for a NRU that was having problems meeting sales specification requirements. Included collecting data, simulation, discussions, etc.
- Assisted asset owner in evaluating and idle existing LNG facility for client's gas development project. Looked at bottlenecks and affect of new composition on the existing plant's nameplate capacity of 7 MMTPA propane pre-cooled mixed refrigerant plant.
- Owner's engineer for a 50,000 BPD condensate splitter that produces 7 products. Reviewed EPC contractor's work, PHA participant, and supported environmental and commercial groups.
- Detailed engineering for a new transmix fractionator at a products pipeline terminal. Work included sizing and specification of all equipment, valves, and controls.
- Part of owner's project team responsible for review and development of a pre-FEED study for a 3-4.5 MTPA FLNG project. The LNG scheme was the dual mixed refrigerant process.
- Part of owner's project team responsible for review and development of a pre-FEED study for a 3 MTPA FLNG project. The LNG scheme was a dual expander based nitrogen-methane process.
- Conducted FEL-1/2 studies for arsenic removal from natural gasoline product. Identified technologies and vendors and coordinated with vendors to obtain proposals. Used vendor data to develop high level cost estimates and select vendor.
- Supported client during preliminary engineering for a new 350 MMSCFD propane recovery gas plant in West Africa. Facility dense phase pipeline, condensate stabilization, cryogenic gas plant, LPG fractionation, storage, and offloading.
- Preliminary and detailed engineering for a 25 MMSCFD CO2 re-injection facility. The grass-root facility includes inlet compression, gas pre-treatment, membrane separation, LPG recovery and treating, sales gas export, CO2 re-injection compression, and pipelines and gathering system modifications.



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- Owner's engineer responsible for process review of EPC contractor's work on a new 600 MMSCFD, 95% propane recovery gas plant.
- Performed a study for the removal of arsenic, sulfides, and benzene from a natural gasoline product stream. Evaluated technologies and performed high level cost estimates.
- Flare radiation measurement and testing. Conducted flare tests to measure the actual emissivity from a plant flare. Developed a testing plan and coordinated with operations to perform flaring at constant composition and rates. Performed calculations to compare to vendor information and reported findings.
- Conceptual engineering and client representation for an offshore development in South Africa. Offshore facilities included separation, hydrate management, and compression on a TLP. Onshore receiving terminal included slug catcher, dew point control facilities, condensate stabilization and storage, and sales gas compression. Performed a pipeline study to determine pipeline size optimized with compression costs.
- Process consulting/development support for a Gas-to-Liquids (Synthesis Gas and Fischer-Tropsch) facility with full product separation and treating. Support included development of fully integrated HYSYS process models for material and energy balances for economic evaluations of various processing schemes.
- Engineering support for a 500 MMSCFD/100,000 BPD offshore FPSO in Indonesia. Facilities included oil separation, compression, H<sub>2</sub>S removal, dehydration, LPG recovery, and fractionation. Part of project from Conceptual Engineering through Start-up and beyond.
- Conceptual and preliminary engineering for a major gas transportation system in Indonesia. Evaluated and determined most cost effective way to deliver gas from nine fields to Singapore. Compared different pipeline operation modes such as dry gas, wet gas, and deuse phase. Determined most cost effective routing and operating pressures. Provided key support to contract specifications.
- Start-up support for a 120 MMSCFD offshore gas processing plant in Venezuela. Troubleshooting and performance evaluation in preparation of performance testing.
- Preliminary engineering, startup support, and performance testing for a 100,000 BPD Gulf coast fractionator.

### Senior Engineer

*Conoco, Inc. / Ponca City, OK / 1987 – 1994*

Provided process design and technical support for the upstream operating groups. This included oil production and gas processing facilities, both onshore and offshore, domestic and international.

### Staff Engineer

*Woodward-Clyde Consultants / Overland Park, KS / 1986 – 1987*

Responsible for the development and application of groundwater and contaminant flow models. Work included EPA Superfund sites. Developed and published a method to analyze relief well performance behind levees.

### Borehole Gravity Engineer

*EDCON, Inc. / Lakewood, CO / 1983 – 1986*

Responsible for the collection, processing, and interpretation of borehole gravity field data. Developed a new method for processing of data to remove meter drift and noise. Developed software for an automatic meter reading system.



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## EDUCATION

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B.S. Chemical Engineering, 1983

*University of Kansas*

M.S. (Honors) Chemical Engineering, 1987

*University of Kansas*

## LICENSES & CERTIFICATIONS

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**Licensed Professional Engineer**

States of Kansas and Oklahoma

**Confined Space Entry Certified**

## PUBLICATIONS

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Use and Optimization of Standard Plants, Pennybaker, K. & Ruddy, T., 95<sup>th</sup> GPA Convention, New Orleans, Louisiana, April 11<sup>th</sup>, 2016.

Summary of Technologies Available to Upgrade Gas Quality, Pennybaker, K., 17<sup>th</sup> Oil Recovery Conference, North Midcontinent PTTC, Wichita, Kansas, April 5<sup>th</sup>, 2007.

State of Mercury Removal Technology, Ruddy, T., Pennybaker, K., and Goethe, A., 86<sup>th</sup> GPA Convention, San Antonio, Texas, March 12, 2007.

Low-BTU Gas in the Permian Chase Group in the Ryerse Field in Western Kansas: A Case History where Technology Creates a Marketable Commodity, Newell, K. D., Corsair, S., Chafin, S.W., and Pennybaker, K.A., Kansas Geological Survey, Open File Report 2003-57, 2003.

A Comparative Study of Ethane Recovery Processes, Pennybaker, K.A., et. al., 79th GPA Convention, Atlanta, Georgia, March, 2000.

A Comparative Study of Propane Recovery Processes, Pennybaker, K.A., et. al., 78th GPA Convention, Nashville, Tennessee, March, 1999.

Optimizing Field Compressor Station Designs, Pennybaker, K.A., SPE Gas Technology Symposium, Calgary, Alberta, Canada, 1998.

Layer Density Determination Using Surface and Deviated Borehole Gravity Values, Pennybaker, K.A., US PATENT 5,218,864, June 15, 1993.

Borehole Gravity Drift Correction: A New Approach, Pennybaker, K.A., Geophysics, Vol 53, No. 10, October, 1988, p.1343-1346, 7 Figs.

Groundwater Flow Modeling Pressure Relief Wells, Ritchey, J.D., Studer, J.E., and Pennybaker, K.A., Conference on Solving Ground Water Problems with Models, National Water Well Assoc., 1987.