

Sarah Wang, PE

Lead Process Engineer

Lincoln, NE

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M.S., Chemical Engineering

B.S., Process Equipment Control Engineering, Chemical Engineering

Licensed Professional Engineer #114605

Over Seven years of diversified international experience in the Engineering sector.

Well-qualified to contribute in advanced Process Engineering environment from large, medium to small plant

Expertise in Gas Processing, Troubleshooting Process Equipment and Incident Investigation.

Proven capacity in initiating and implementing effective engineering projects.

Adept in Heat recovery, Solar Technology, Process Optimization, Relief System and Reaction Engineering.

Record of promotion to assignments of increasing authority and responsibility.

Knowledgeable in full-life-cycle project and staff management.

Skilled presenter and facilitator.

Effectively interact with diverse groups and professionals at all levels.

Well-organized multi-tasker with strong detail orientation.

Proficient in HYSYS, ProMax, ASPEN PLUS, Aspen Dynamic, PRO II, HTRI, ASPEN EDR, ASPEN PIMS, Pipesim, OLGA, PVTsim, FlowManager, PLC, Matlab, C++ and ColorQuest.

Published author (see below).

Willing to relocate: Anywhere

Authorized to work in the US for any employer

WORK EXPERIENCE

Lead Process Engineer

Monolith Materials - Redwood City, CA - April 2015 to Present

Responsibilities

Troubleshoot Process Equipment and Incident Investigation.

Retained to develop design basis, conceptual and advanced process design and feasibility study/simulation.

Demonstrated capacity in computer aided simulators including HYSYS, ASPEN PLUS and PRO Max to calculate heat/mass balances and physical properties.

Aided in API, ASME, NFPA, ASTM Standards and European Codes.

Initiated Process Flow Diagrams (P.F.D.), Piping Instrumentation Diagram (P&ID) and defined control strategy.

Gained solid thermal design/sizing background for heat transfer equipment.

Successful in plant commissioning, HAZOPs and PHAs for multiple processes.

Accomplishments

Developed innovative, cost effective, and environmentally sustainable technologies that convert natural gas into chemicals and materials for customers around the world

Utilized Six Sigma methodology defining, measuring, analyzing, improving and controlling the process.

Successfully start up and shut down Seaport Plasma Carbon black Pilot Plant

Lead Selection of purging method and calculation purging volume. Successfully avoid high point pockets in process vessels to avoid installing high point vent on the top and saved \$1M operation cost.

Responsible of Configuration and sizing of adiabatic reactor systems with power law expression for regression of laboratory kinetic data.

Exercised reactor temperature control methods such as heat transfer to the reacting fluid, an inert or reactive heat carrier or diluent in the reacting fluids, a series of reactors beds with a heat exchanger for heating between each pair of beds and hot shot heating, etc.

Maximized the yield and selectivity of the desired product in attainable region and increased the productivity by 10 times

Troubleshoot and specify heat exchangers, Solved thermal couple malfunction problem, discovered that the thermal well becomes fouled so that the indicated temperature generated by the thermal couple dropped, Troubleshoot valve trim cutout operation problems and Solved coked up graphite liner reactor problem with painting solutions, etc

Lead Design effort of Worley Parsons China to commercialize the Plasma carbon black plant and Facilitated Zero Emission Power Plant Conversion.

Skills Used

Process Optimization and Reaction Engineering

Lead Process Engineer

CDI Corporation - Huntsville, TX - 2014 to Present

2014, Huntsville, TX

- Tasked to install Amine plant, TEG plant, NGL plant, VRU and Sales Compression Unit and Delivered PSV sizing for the whole Gas processing plant. Retained for process studies covering from Amine Flare header design, Glycol

Flare header design to Process Flare header design.

Kinder Morgan, Yoakum Compressor Station, Huntsville, TX

- Performed comprehensive PSV checking for Yoakum Compressor Station

Lead Process engineer

CDI Corporation - Conroe, TX - 2014 to Present

Retained for process studies of Polyol Reactor upgrades. Developed Equipment list

Huntsman, E6 OSP Diversification Project, Port Neches, TX

- Assisted to add three new product storage tanks and one new raw material storage tank, with agitators and pumps,

etc. Delivered Calculations and datasheets for PVRVs, Tanks, Pumps, Thermal reliefs

Solvay USA, Solvay DAWN Project, Pasadena, TX

- Assisted to build and operate a large-scale alkoxylation unit in Pasadena, Texas. Performed comprehensive PSV

checking for Solvay DAWN Project

BASF, VTA Skid Installation, Freeport, TX

- Retained for process studies covering alternative configurations to recovery heat in Crystallization Sterol Plant and

Performed Heat exchanger sizing

Lead process Engineer

TRF Energy - Houston, TX - October 2014 to April 2015

Responsibilities

- Troubleshoot Process Equipment and Incident Investigation.

- Retained to develop design basis, conceptual and advanced process design and feasibility study/simulation.

- Demonstrated capacity in computer aided simulators including HYSYS, ASPEN PLUS and PRO Max to calculate

heat/mass balances and physical properties.

- Aided in API, ASME, NFPA, ASTM Standards and European Codes.
- Initiated Process Flow Diagrams (P.F.D.), Piping Instrumentation Diagram (P&ID) and defined control strategy.
- Gained solid thermal design/sizing background for heat transfer equipment.
- Successful in plant commissioning, HAZOPs and PHAs for multiple processes.

Accomplishments

Lead Process Engineer

- Longview Power Plant Explosion Investigation, Longview, West Virginia
Performed Root Cause Analysis for Longview Power Plant Explosion.
Utilized Six Sigma methodology defining, measuring, analyzing, improving and controlling the process.
Identify undersized PSV for the LNG Vaporizer and accelerated corrosion developed between two flange faces due to improperly installed seal.
- Colorado Gas Process Plant Fire Investigation, Denver, Colorado
Performed Root Cause Analysis for Colorado Gas Process Plant Fire. Identify glycol mist in fuel gas feeding to the engine through gas nozzle and form sparkle cells. Also Glycol is heavier than fuel gas and reacts with oxygen, causing no sufficient reaction with fuel gas. Identify there was no LSH to shutoff inflow to the flare gas scrubber causing ignited liquid spilled over. Saved 5 Million dollars for future damage.
- Successfully Shutdown and Start Up Gas Processing Plant, Williston, North Dakota
Provided cost effect solutions, slashed 2 million dollars cost and increased production by 45%.
Troubleshoot compressor malfunction, modify impellers to increase production, save 2 million dollars.
Solved Operational Freeze up problems by adding flameless heaters to liquid dump valves. Slashed 0.5 million dollars.
Provided comprehensive solutions to prevent leak, back flow, gas blow by, etc.
Troubleshooting stabilizer flooding problems. Slashed 1 million dollar cost and increase 20% production.
- Provided Comprehensive Acid Treating solutions to Permian and Eagle Ford Formation.
- Provided Optimized Dehydration solutions to Bakken, Permian, and Eagle Ford Formation.

Skills Used

HYSYS, ProMax, ASPEN PLUS, PRO II, HTRI, ASPEN EDR, ASPEN PIMS, Pipesim, OLGA, PVTsim, FlowManager

Lead Process Engineer

CDI Corporation - Houston, TX - April 2014 to October 2014

Played key role in eight projects:

Kinder Morgan, Export Terminal, Pasadena, TX

- Tasked to construct a new terminal facility at the site of the old Pasadena Texas HL&P power plant site

Process Engineer

Fluor Corporation - Sugar Land, TX - 2012 to 2014

Retained to develop design basis, conceptual and advanced process design and feasibility study/simulation.

- Demonstrated capacity in computer aided simulators including HYSYS, ASPEN PLUS and PRO Max to calculate heat/mass balances and physical properties. Aided in API, ASME, NFPA, ASTM Standards and European Codes.

- Initiated Process Flow Diagrams (P.F.D.), Piping Instrumentation Diagram (P&ID) and defined control strategy.

- Gained solid thermal design/sizing background for heat transfer equipment.

- Successful in plant commissioning, HAZOPs and PHAs for multiple processes.

Sasol North America, Inc. Fluor GC Sasol Lake Charles Cracker - FS/E, Lake Charles, Louisiana, United State

- Aided in front-end engineering for a 1500 kTA ethane cracker and five derivative units (LDPE, LLDPE, EO/MEG,

Guerbet, Ziegler, ETO). Initiated Condensate system design, waste treatment, storage system, supercritical pressure vessel sizing and super critical relief system design

PEMEX-Fluor Salamanca Refinery Expansion, Salamanca, Guanajuato, Mexico Fluor Corporation, Sugar Land, TX

- Retained for Alternative refinery modification and expansion concepts for an existing refinery. Facilitated solutions for octane number improvement. Developed PFDs and P&IDs. Delivered datasheets for Reformer, Blowdown

system, Condensate system, HP and LP Flare System

Fluor Corporation, Sugar Land, TX, Wanhua Chemical Group Co, LTD MDI project

- Aided in developing a large MDI project in the USA (capacity is 400K MT/y) proposal. Participate in the proposal

development meeting. Initiate Block flow diagram

Fluor Corporation, Sugar Land. HQC Yuhuang EG FEED Project - Proposal Development

- Tasked to set up of 2x300,000 mt/year polymer grade EG project with NG as feed located in Houston, Texas. Initiated BFDs and Scope of work. Aided in Man-hour estimation. Developed preliminary equipment list.

Researched site selection and Plant layout

Exxon Neftegas Limited, Odoptu OS2, Sakhalin, Russia, Fluor Corporation, Sugar Land, TX

- Aided in expansion of Odoptu First State Production Facility.

- Initiated design basis for dehydration unit; optimized dehydration unit saving \$100M engineering cost.

- Discovered C3 plus loss and suggested recovery process saving \$1M. Facilitated optimum design parameter and reduced cost \$5M.

BP-Husky Refining LLC, Toledo Refinery Small Projects, Toledo, OH, Fluor Corporation, Sugar Land, TX

- Retained for process studies and economical studies covering alternative configurations to process Canadian crude with HYSYS and Aspen PIMS. Areas included acid gas treating, troubleshooting/debottlenecking amine system, fuel

gas analysis and crude vacuum unit optimization

- Developed solutions to corrosion problems and flooding problems saving \$100M in two weeks.

- Initiated various anti-foam agent issues saving \$1M. Slashed \$3M from costs through process improvement.

- Saved \$1M initial cost and \$10M operation costs.

Marathon Petroleum Co., FCCU Flue Gas Reliability Study, Garyville, LA, Fluor Corporation, Sugar Land, TX

- Tasked to install parallel natural gas lines to refinery fuel gas mix drums to support expansion of purchased natural

gas for fuel gas system balance.

BG Group NGL Marine Export Facility Study, Lake Charles, LA, Fluor Corporation, Sugar Land, TX

- Assisted in installing NGL Marine Export Facility to export propane from Dixie Pipeline.

- Researched configuration/cost of facility and assessed two available sites.

- Sized all equipment in two weeks to capture market value up to \$7M while championing replacement of PSA with liquid nitrogen to save \$10M.

Conoco Phillips ULSD Project, Lake Charles, LA, Fluor Corporation, Sugar Land, TX

- Assisted in expanding distillate hydro desulfurization (HDS) treating capacity at Lake Charles Refinery to attain EPA

Ultra Low Sulfur Diesel (ULSD) regulations for on-road and off-road diesel products.

Facilities Engineer

Oil Field Development Engineering, LLC - Houston, TX - January 2011 to August 2012

Played key role in two projects:

Helix Project:

- o Delivered design engineering for topside production facilities of the HP-1 Floating Production Unit for Helix Energy Solutions while initiating PFDs and plan platform layouts; designed and sized pressure vessels and developed HP/LP flare system.

Castor Project, Mediterranean Sea, offshore Spain:

- o Facilitated sizing methods/program for pressure vessels, line sizing, compressor specification, relief valve sizing and produced water treating system.

Chemical Engineer

Performance Coatings International - West Caldwell, NJ - 2010 to 2011

Evaluated organic/inorganic compounds for chemical and physical properties, composition, structure, relationships, and reactions.

Intern Chemical Engineer

China Petro Dalian Factory - Dalian, CN - 2008 to 2008

Tasked to troubleshoot chemical manufacturing processes, assess chemical equipment and perform research for development of improved chemical manufacturing methods.

EDUCATION

Masters in Chemical Engineering

Cornell University - Ithaca, NY

Bachelors in Process Control and Engineering

Dalian University of Technology - Dalian, CN

SKILLS

P&ID (8 years), Aspen (8 years), HAZOP (8 years), Troubleshooting (8 years), Engineering (8 years), Gas Processing (8 years), Reaction Engineering (8 years), PFD (8 years), Incident Investigation (8 years), Oil&Gas (8 years), Operation (8 years), Process Optimization (8 years), Relief System (8 years), Heat Optimization (8 years), plant commissioning (8 years)

CERTIFICATIONS

Professional Engineer