

# Jose M. Chavez

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**PROFESSIONAL HISTORY:**

*Risk Management Professionals, Inc.;  
Irvine, California; Project Engineer*

**EDUCATION:**

*Bachelor of Science, Chemical  
Engineering, University of California  
Riverside.*

**PROFESSIONAL AFFILIATIONS:**

*Society of Hispanic Professional  
Engineers (SHPE)  
American Chemical Society (ACS)*

Mr. Jose Chavez graduated from the University of California Riverside with a Bachelor of



Science degree in Chemical Engineering. He currently provides technical support as a Project Engineer for Risk Management Professionals.

Through his experience and education, Mr. Chavez has developed technical writing, problem solving, and analytical skills. Since joining Risk Management Professionals, Mr. Chavez has been immersed in

multiple aspects of the United States Environmental Protection Agency (US EPA) Risk Management Plan (RMP), Occupational Safety and Health Administration (OSHA) Process Safety Management (PSM) Program, and California Accidental Release Prevention (CalARP) Program development, including the following.

- Process Hazard Analyses (PHAs) including Hazard & Operability (HAZOP), Layer of Protection Analysis (LOPA), What-if/Checklist, Hierarchy of Controls Analysis (HCA), and Management of Change (MOC) PHAs
- Risk Management Plan (RMP) / Process Safety Management (PSM) Program Development / ISO Safety Plan Development.
- California Accidental Release Prevention (CalARP) Programs
- RMP/PSM/CalARP Compliance Audits
- Toxic and Flammable Gas and Liquid Dispersion Modeling

While Mr. Chavez has experience in diverse product lines, all completed projects have used high end qualitative and/or quantitative risk analysis techniques for decision-making. He has been involved in a variety of engineering projects across several industries, including the following fields.

- Petroleum (Extraction, Refining, Storage)
- LPG Transportation and Storage
- Renewable Fuels Production and Material Recycle Systems
- Power Generation Systems
- Water Treatment and Distribution Systems
- Metal Plating, Processing, and Finishing

## **PROJECT EXPERIENCE**

### **Process Hazard Analysis (PHA) / Hazard Review (HR)**

#### Oil & Gas

- *Distillate Hydrotreater Unit, Clean Fuel Hydrotreater, Jet Fuel Treater, Anacortes, Washington* – Facilitated a PHA for multiple treater units used for Diesel, HGO, LGO, Naphtha, and Jet Fuel. The study utilized HAZOP, LOPA, and What-if/Checklist methodologies to identify hazards for all modes of operation.
- *Motor Gasoline Reformulation Unit, Benicia California* – Facilitated a PHA for the refinery's Mogas Reformulation Unit that processes a majority of the motor gasoline produced by other units to meet environmental regulations. The study utilized HAZOP, LOPA, and What-if/Checklist methodologies to identify hazards for all modes of operation. This also included implementing Hierarchy of Controls Analysis requirements.
- *Sulfur Recovery Units, Sour Water Stripper Units, Amine Regeneration Units, Garyville, Louisiana* – Facilitated a PHA for several of the refinery's sulfur units which involved risk identification and assessment for high concentration H<sub>2</sub>S processes. This study utilized HAZOP methodology to identify any hazards which was followed by checklists and a LOPA to further evaluate risk.
- *Refinery Reformer Unit, Saint Paul, Minnesota* – Facilitated a three-week PHA for the refinery Reformer unit which included high concentration H<sub>2</sub>S naphtha and foul hydrogen. This study utilized HAZOP methodology to identify any hazards which was followed by checklists and a LOPA to further evaluate risk.
- *Refinery Utilities Systems, Martinez, California* – Facilitated several PHAs for the refinery utilities including fuel gas, hydrogen, steam, flare, water treatment, potable water, and LPG. The studies used HAZOP, LOPA, and/or What-if Methodology to identify any hazards as part of the facility's conversion to renewable fuels.
- *Refinery Recovered Oil Storage, Martinez, California* – Facilitated the PHA for the refinery's recovered oil system utilizing HAZOP methodology. The study focused on potential inadvertent alignments and equipment failures that could result in hazardous consequences.
- *Crude Unit Heater, Salt Lake City, Utah* – Facilitated the PHA involving updates of the refinery's Crude Heater to meet internal standards utilizing HAZOP/LOPA methodology. The study focused on development and review of potential new equipment failures and

revision of existing equipment failure scenarios that could result in hazardous consequences.

- *Wharf Material/Product Transport Unit, Martinez, California* - Facilitated the five-year PHA involving the refinery's wharf unit used to load ships in the Bay area with product and offload raw material. The study focused on potential equipment failures and human factors issues that could result in hazardous consequences.
- *Sulfur Recovery Units, Garyville, Louisiana* – Provided technical scribe support for a remote PHA and an on-site PHA for two (2) units over the course of three (3) weeks each. The PHA used HAZOP and LOPA methodologies and utilized Microsoft Teams and GoToMeeting for remote collaboration. The study focused on deviations from normal operation for the removal of H<sub>2</sub>S from upstream process gas through amine absorbers, sulfur condensers, and the Claus Process. One (1) unit is capable of producing up to 984,000 pounds of sulfur per day.
- *Alkylation Unit, Saint Paul Park, Minnesota* – Provided technical scribe support for the MOC PHA, which utilized Microsoft Teams for remote collaboration. The study focused on deviations from normal operation that arose from the installation of multiple EIVs.
- *Water Treatment Unit, Martinez, California* – Provided technical scribe support for the PHA over the course of a week, which focused on deviations from normal operation during the treatment of water supplied to the refinery.
- *Flare Unit, Martinez, California* – Provided technical scribe support for the five-year PHA over the course of a week and focused on flare design and potential flaring events.
- *Hydrodeoxygenation Unit, Martinez, California* – Provided technical scribe support for the five-year PHA and focused on deviations from normal operation of during the deoxygenation stage of biodiesel production at a rate of 17,000 barrels per day.
- *Partial Recycle Isomerization Unit, Kenai, Alaska* – Provided technical scribe support for the five-year PHA, which focused on deviations from normal operation of isomerase production.

### Other Systems

- *Hydrofluoric Acid Etching System, El Cajon, California* – Facilitated the Hazard Review for the facility using HF and other acids for metal etching/pickling. The Study focused on the storage, unloading, transfer, and waste/vapor treatment of Hydrofluoric Acid as well as other acids as conservative for the General Duty Clause.
- *Ammonia Heat Tracing System, Compton, California* – Facilitated the Hazard Review for the metal processing facility's ammonia heat tracing as part of the client's expansion project to a new facility. The study focused on using the diagrams and other process safety information available to identify potential hazards associated with the storage, heater, exchanger, and NH<sub>3</sub> dissociator that could result in hazards.
- *Ammonia Refrigeration System, Coachella, California* – Facilitated the Hazard Review for the refrigeration facility central to produce distribution in the area. The study focused on identifying potential equipment failures, human errors, maintenance concerns, etc. that could result in a potential release of ammonia and hazardous consequences to personnel, equipment and the surrounding community.
- *Waste to Energy Ammonia Injection System, Spokane, Washington* – Facilitated the PHA for the selective catalytic reduction system using HAZOP and What-if/Checklist methodologies. The study focused on the equipment utilized for the ammonia injection system including storage, pumps, and vaporizers and the potential failures that could occur and result in hazardous consequences to personnel, equipment and the community.
- *Coal Power Plant Selective Catalytic Reducer, Craig, Colorado* – Facilitated the five-year PHA involving the power plant's SCR utilizing ammonia to remove NO<sub>x</sub> from emissions produced while producing power to a large area of Colorado. The study focused on potential equipment failures, inadvertent operator actions, and external events that could result in hazardous consequences.
- *Propane Storage and Transfer System, Fairfield, California* – Facilitated the PHA using HAZOP and What-if/Checklist methodologies. The study focused on deviations from normal operation for the unloading and loading of propane between rail cars, storage tanks, and trucks. The facility is capable of storing 1.2 million gallons of propane.
- *Municipal Water Treatment System, Lancaster, California* – Facilitated the Hazard Review for multiple chlorine injection water disinfection sites across Los Angeles County which supply clean water to the public. Use of chlorine cylinders was evaluated for potential hazards and any risk gaps were identified.

- *Anhydrous Ammonia Treatment System, Coachella, California* – Facilitated the PHA for the anhydrous ammonia system that uses steam and ammonia to treat cottonseed and eliminate mycotoxins. The PHA utilized HAZOP and What-if/Checklist methodologies to identify scenarios capable of an ammonia release.
- *Aerosol Recycling Unit, Romulus, Michigan* – Provided technical scribe support for the HAZOP study. The PHA utilized Microsoft Teams for remote collaboration and focused on deviations from normal operation during recovery/recycling/storage of aerosols and their containers.

## **Offsite Consequence Analysis/Hazard Assessment**

- *Metal Finishing Facility, Fountain Valley, California*
- *Propane Storage and Transfer System, Anderson, California*
- *Propane Storage and Transfer System, Fairfield, California*
- *Waste to Energy Facility, Spokane, Washington*
- *Metal Plating Facility, Paso Robles, California*
- *Ammonia Treatment System, Coachella, California*
- *Aerospace Fuel Storage System, Edwards, California*
- *Utility Water Treatment System, Los Angeles California*

## **CalARP/RMP/PSM Program Development and Revalidation**

- *Propane Storage and Transfer System, Anderson, California* – Full Program 3 development including all required elements from EPA (RMP), PSM (Cal/OSHA), and the Unified Program Agency (CalARP).
- *Ammonia Storage for Metal Processing Heater, Compton, California* – Full Program 2 development including all required elements from the Unified Program Agency (CalARP).

## **Compliance Audits**

- *Oil Well Extraction, Kenai Peninsula/North Slope, Alaska* – Completed a series of Compliance Audits for upstream facilities in the Kenai Peninsula and the Alaskan North Slope. These remote facilities' wells produce oil and gas sent to be used across the United States. RMP/PSM Prevention program requirements, site policy, documentation records, and accuracy were evaluated to ensure consistent and complete compliance for safe well activities.
- *Renewable Fuels Unit, Paramount, California* – Provided Compliance Audit support for the facility Renewable Fuels Unit which included a Renewable Fuels section, amine/caustic unit, sour water stripper, flare, and ammonia SCR. The facility is capable of converting beef tallow and pork lard into renewable jet and diesel fuel. The Compliance Audit satisfied all requirements of EPA, PSM, and CalARP.
- *Gas Processing Unit, Lomita, California* – Completed a Compliance Audit for the facility unit that receives natural gas and process field gas with a Maximum Intended Inventory of 190,000 pounds. The Compliance Audit satisfied all requirements of EPA, PSM, and CalARP.

- *Biomethane Processing Units, Casco, Newton, Kewaunee, Wisconsin* – Completed Compliance Audits for three facilities that receives raw biogas from their associated manure digester to produce 0.5 MMSFD of renewable natural gas (biomethane) each. The natural gas is transported via truck to an interconnect facility that supplies the gas utility main line. The Compliance Audit satisfied all requirements of EPA and PSM.
- *Polyurethane Manufacturer, Riverside, California* – Completed a Compliance Audit for the facility that utilizes a methyl ester and an isocyanate to produce polyurethane foams used in furniture. The Compliance Audit satisfied all requirements of EPA, PSM, and CalARP.
- *Nitric Acid System, Valencia, California* – Completed a Compliance Audit for the facility that nitric acid to produce carbon/graphite materials for automotive, energy, aerospace, and other sectors. The Compliance Audit satisfied all requirements of EPA, PSM, and CalARP.
- *Selective Catalytic Reducer for Coal Power Plant, Craig, Colorado* - Completed a Compliance Audit for the facility which uses ammonia for selective catalytic reduction to remove NOx from power generation emissions. The Compliance Audit satisfied all requirements of EPA and PSM.
- *Ethanol Producer, Underwood, North Dakota* - Completed a Compliance Audit for the facility that produces ethanol and processes that ethanol with a denaturant for further use. The Compliance Audit satisfied all requirements of EPA and PSM.
- *Propane Storage and Transportation System, Fairfield, California* – Completed a Compliance Audit for the facility that holds approximately 1.2 million pounds of propane received via railcar and trucks and unloaded by trucks. The Compliance Audit satisfied all requirements of EPA, PSM, and CalARP.
- *Selective Catalytic Reducer for Waste to Energy System, Spokane, Washington* – Completed a Compliance Audit for the facility which uses ammonia for selective catalytic reduction to remove NOx from renewable power generation emissions. The Compliance Audit satisfied all requirements of EPA and PSM.
- *Municipal Water Treatment System, Lancaster, California* – Completed a Compliance Audit for multiple sites across Los Angeles County that disinfect water using 150-lb and 1-ton chlorine containers. The Compliance Audit satisfied all requirements of EPA, PSM, and CalARP.

## **CLIENT LIST**

The following is a partial list of clients that Mr. Chavez has managed and/or provided engineering support:

### **Oil and Gas/Renewables**

- Marathon Petroleum
- Valero
- United Pacific Energy
- World Energy
- Hilcorp
- Signal Hill Petroleum
- HF Sinclair
- Newport Butane
- Petronas

### **Energy**

- San Diego Gas & Electric
- Tri-State Generation
- Spokane Waste-to-Energy
- DTE Energy
- Clean Energy Fuels
- Ripon Energy

### **Metal Plating / Processing**

- Omni Metal Finishing
- Capstan Inc.
- GKN Aerospace

### **Municipalities and Water Treatment**

- City of El Segundo
- LA Department of Public Works

### **Ammonia Refrigeration**

- Peter Rabbit Farms
- Boskovich Farms

### **Aerospace**

- Northrop Grumman

### **Other Manufacturers**

- SGL Carbon
- Blue Flint Ethanol
- Imperial Western Products
- Carpenter Co.