

# Jasmin Dhaliwal

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## **PROFESSIONAL HISTORY:**

*Risk Management Professionals, Inc.;  
Irvine, California; Project  
Engineer; 2016-Present*

## **EDUCATION:**

*Bachelor of Science, Chemical  
Engineering, University of  
California, Irvine*

## **PROFESSIONAL AFFILIATIONS:**

*American Institute of Chemical  
Engineers (AIChE)*

Ms. Jasmin Dhaliwal graduated from the University of California, Irvine with a Bachelor of Science degree in



Chemical Engineering and minor in Materials Science Engineering. Since joining Risk Management Professionals, Ms. Dhaliwal has been immersed in multiple aspects of 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. Ms. Dhaliwal has been involved with:

- Process Hazard Analyses (PHAs), including Hazard & Operability (HAZOP) facilitation support
- What-if and Checklist Analyses
- Risk Management Plans (RMP) / Process Safety Management (PSM) Programs
- California Accidental Release Prevention (CalARP) Program
- Toxic and Flammable Gas and Liquid Dispersion Modeling
- Regulatory Compliance Audits and Support
- Piping and Instrumentation Diagram (P&ID) Development and Field Verification
- Hazardous Materials Inventory Calculations
- Operating Procedures Development
- Hazardous Materials Business Plans (HMBP)
- Certified Unified Program Agency (CUPA) Audit Response Letters

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

- Gas Processing and Transport
- Petroleum (Production, Refining, Storage)
- Geothermal Power Generation

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- Selective Catalytic Reduction Systems (SCRs)
- Ammonia Production
- Chemical Manufacturing (Blending & Production)
- Pharmaceuticals & Medical Devices
- Aerospace Chemical Milling
- Titanium Production/Manufacturing
- Metal Smelting
- Polyurethane Foam Manufacturing
- Water Treatment and Distribution Systems
- Ammonia Refrigeration Systems

## **PROJECT EXPERIENCE**

### **Process Hazard Analyses**

Ms. Dhaliwal has facilitated and been the technical scribe for PHAs and Hazard Reviews (HRs) using the HAZOP and What-If/Checklist methodologies, for gas processing plants, gas compressor stations, ammonia production plants, geothermal power generation as well as for other industry sectors. The following list is representative of projects that Ms. Dhaliwal has provided facilitation and technical scribing support for, in the conceptual design stages, detailed design stage, and operating cycle.

- *Sulfuric Acid Alkylation Unit, El Paso, TX* – Provided HAZOP/LOPA scribing support for the 2018 Sulfuric Acid Alkylation Unit PHA for the Refinery. As part of the PHA, the Team reviewed the Sulfuric Acid Alkylation process as well as utility systems, such as caustic system, fresh/spent acid system, 250# and 20# steam system, and seal/lube oil systems.
- *NGL Extraction Plant, Signal Hill, CA* – Provided HAZOP facilitation support for multiple Management of Change (MOC) PHAs involving a Gas Plant Upgrade Project involving re-configuration of plant operating conditions and removal of equipment (compressors).
- *Natural Gas Storage Facility, Porter Ranch, CA* – Provided PHA facilitation support using the What-if methodology to analyze hazards associated with converting instrument service lines from fuel gas to instrument air (project recently completed in August 2018 and pending report development).
- *Fractionation and Isomerization Facility, Shafter, CA* – Provided HAZOP scribing support for the 2017 five-year 20% PHA for the Hydrogen Plant. As part of the PHA, the Team

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reviewed relevant MOCs, previous incidents, external events, human factors, and facility siting.

- *Power Plant Selective Catalytic Reduction (SCR) System, Escondido, CA* – Provided HAZOP and What-if/Checklist facilitation support for an operating power plant utilizing ammonia injection, in the presence of a catalyst, to significantly decrease NOx emissions. The PHA included an evaluation of two separate Selective Catalytic Reduction Systems within one day.
- *Compressor Station, Blythe, CA* – Provided PHA scribing support using the HAZOP methodology for the Front-End Engineering Design (FEED) phase of a Natural Gas Transmission Compressor Station Upgrade Project. The project scope also included the utility systems, which included emergency shutdown, cooling systems, lube oil system, instrument air system, and blowdown systems.
- *Compressor Station, Manchester, MI* – Provided Design-Phase PHA scribing support using the HAZOP methodology for a Natural Gas Transmission Compressor Station. The study focused on the replacement of an existing Compressor Station with a new, re-designed Compressor station, which will include station automation, remote control from owner's gas control, gas measurement, installation of new engine-compressors sized to facilitate the specified flow rates, back-up/standby power and all plant auxiliary equipment associated with a fully unmanned station. Evaluation of hazards resulting from this design was scrutinized and recommendations were made.
- *Compressor Station, Ventura, CA* – Provided HAZOP scribing support for the initial design phase for a Compressor Station Upgrade Project including the utility systems, which included emergency shutdown, cooling systems, lube oil system, instrument air system, and blowdown systems.
- *Ammonia Injection System - Water Treatment Plant, Lancaster, CA* – Provided HAZOP and What-if/Checklist facilitation support, including guiding a technical scribe, for an operating ammonia injection system for water treatment.
- *Ammonia Production Plant, Geneva, NE* – Provided long-term HAZOP scribing support for two weeks for an Ammonia Production Plant design project. The scope of the HAZOP also covered all auxiliary equipment/systems including, but not limited to, the ammonia plant flare, boiler feed water system (i.e. deaerator, boilers), 250# steam, 50# steam, water treatment plant (i.e. RO units, chemical injection), process condensate system, amine regeneration system, purge gas, cooling water system, instrument air, and process air.

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- *Chlorine Injection System - Water Reclamation Plant, Burbank, CA* – Provided HAZOP facilitation support for an operating chlorine injection system for water treatment. As part of the PHA, the Team reviewed relevant MOCs, previous incidents, external events, human factors, and facility siting.
- *Ammonia Refrigeration Facility, Fontana, CA* – Provided HAZOP and What-if/Checklist facilitation support for an operating ammonia refrigeration facility. The project scope also included the utility systems, which included the instrument air system, compressor coolant/glycol system, ammonia purge system and ammonia diffusion tank.
- *Aerospace Chemical Milling Facility, El Cajon, CA* – Provided HAZOP facilitation support, including guiding a technical scribe, over the course of multiple days for a metal etching process used for aerospace applications. The process included a bulk storage tank containing hydrofluoric acid with an associated scrubber system, 10+ chemical etching tanks with different combinations and concentrations of various acidic chemicals, a tank farm, and water treatment system. Facility siting, external events, and human factors associated with the process were also reviewed.

## Compliance Audits

Ms. Dhaliwal has completed many CalARP/RMP/PSM Compliance Audits, which include facility walkdowns and familiarization with the regulated covered process, reviewing Prevention Program documentation to identify deficiencies that would result in citations from the applicable regulatory agencies, developing a line item report that lists the specific deficiencies, and meeting with facility personnel in order to identify any other needs or services they may require. Below is a partial list of projects for whom Ms. Dhaliwal has performed Compliance Audits:

- *Gas Plant, Brea, CA* – Conducted a Program 3 Compliance Audit for the Gas Plant over the course of two (2) days to evaluate CalARP/RMP/PSM compliance. A sample size of equipment was reviewed to assess Process Safety Information and Mechanical Integrity compliance.
- *Geothermal Power Plants, Heber, CA* – Conducted Program 3 Compliance Audits for two sister geothermal power facilities in order to assess CalARP/RMP/PSM compliance.
- *Geothermal Power Plant, Milford, UT and Point of Rocks, WY* – Performed a Compliance Audit for a duration of two (2) days to evaluate EPA RMP/OSHA PSM compliance. A sample size of equipment was reviewed to assess Process Safety Information and Mechanical Integrity compliance.

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- *Ammonia Refrigeration Facility, City of Industry, CA* –Performed a CalARP Compliance Audit for the Ammonia Refrigeration process, including conducting a close-out meeting to review recommendations and assigning responsibility for addressing deficiencies.
- *Aluminum Smelting Facility, Fontana, CA* – Conducted a CalARP/RMP/PSM Program 3 Compliance Audit for the metal smelting process utilizing chlorine gas. P&ID Walkdowns, personnel interviews and close-out meetings were encompassed as part of the audit.
- *Refinery, El Paso, TX* – Provided Compliance Audit auxiliary support for a week-long onsite audit of an entire Refinery to evaluate EPA RMP/OSHA PSM compliance.
- *Water Treatment Plant, Palm Springs, CA* – Provided annual Compliance Audit support for two (2) CalARP Program Level 2 processes and one (1) CalARP/RMP/PSM Program Level 3 process.



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## CalARP/RMP/PSM Program Development and Updates

Ms. Dhaliwal has developed many California Accidental Release Prevention (CalARP) Programs, RMP, and PSM Programs for a wide spectrum of industries and processes. As part of these efforts, she has conducted Offsite Consequence Analyses (OCA), external events analyses, dispersion modeling, recommendations review, program development, United States Environmental Protection Agency (US EPA) and Administering Agency (AA) submittals, and review. Ms. Dhaliwal has been working closely with regulators to help her clients stay ahead of regulatory requirement amendments.

- *Natural Gas Plant, Signal Hill, CA* – CalARP/RMP/PSM program assistance including development of Operating Procedures, Process Safety Information, Process Hazard Analysis, Hazard Assessment/Offsite Consequence Analysis and Management of Change. Included onsite support for managing CalARP/RMP/PSM Program 3 elements and a complete update of all elements to address CUPA requirements.
- *Propane Storage & Transfer Terminal, Suisun City* – Provided CalARP/RMP/PSM support including development of Hazard Assessment/Offsite Consequence Analysis, CalARP Submittal and EPA RMP Submittal. In addition, provided supplemental Compliance Audit recommendation close-out support.
- *Aerospace Chemical Milling Facility, El Cajon, CA* – Assisted in the development of an entire CalARP Program Level 2 Plan, including development of the following elements: Safety Information, Maximum Intended Inventory Calculations, Hazard Review, Operating Procedures, Training guidelines, Maintenance Program & Procedures, Hazard Assessment/Offsite Consequence Analysis, and CalARP Submittal.
- *Piperidine Process for Polypeptide Synthesis, Torrance, CA* – Supported the development of an entire CalARP Program Level 2 Plan, including development of the following elements: Safety Information, Maximum Intended Inventory Calculations, Hazard Assessment/Offsite Consequence Analysis, Operating Procedures, and CalARP Submittal.
- *Water Treatment Plant, Paramount, CA* – RMP Program assistance including development of Hazard Assessment/Offsite Consequence Analysis, CalARP Submittal and EPA RMP submittal for multiple well sites.
- *Ammonia Refrigeration Facility, Atlanta, GA* – Provided EPA RMP/OSHA PSM Program assistance including development of Hazard Assessment/Offsite Consequence Analysis, and EPA RMP submittal.

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- *Geothermal Power Plants, Heber, CA* – Supported CalARP/RMP/PSM Program 3 updates including development of Hazard Assessment/Offsite Consequence Analysis, CalARP Submittal, and EPA RMP Submittal for two sister geothermal power facilities. Updated entire CalARP/RMP/PSM Program to address CUPA requirements and generated a CUPA audit response letter.
- *Foam Manufacturing Facility, Visalia, CA* – Provided CalARP/RMP/PSM Program 3 support including development of Hazard Assessment/Offsite Consequence Analysis, CalARP Submittal and EPA RMP Submittal. Provided guidance on Management of Change (MOC) and Pre-Startup Safety Review (PSSR) procedures.

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## **CLIENT LIST**

The following is a partial list of clients that Ms. Dhaliwal has managed and/or provided technical support.

### **Oil and Gas**

- Signal Hill Petroleum, Inc.
- Sheldon United Terminal
- Southern California Gas Company
- WorleyParsons
- Freeport McMoRan Inc.
- Ensite USA
- Andeavor El Paso Refinery
- Seneca Resources
- Bridge Energy Group
- Consumers Energy Company
- San Diego Gas & Electric
- Plains All American Pipeline

### **Ammonia Handling Facilities**

- Fortigen
- Gorham Exports Packing, LLC
- Land O'Lakes
- Systems Services of America
- Glacier Cold Storage
- Showa Marine
- Peter Rabbit Farms
- Paramount Iceland

### **Municipalities and Water Treatment**

- Suez NA – City of Burbank
- Los Angeles County Department of Public Works
- City of Evanston
- City of Paramount
- Desert Water Agency
- Central Coast Water Authority

### **Manufacturing/Chemical Processing**

- Pregis LLC.
- Polypeptide Laboratories
- GKN Aerospace
- Apache Nitrogen Products, Inc.
- TIMET
- TST, Inc.
- Carpenter Co.
- SeneGence

### **Geothermal Power Plants**

- PacifiCorp
- Ormat Technologies, Inc.

