

## Résumé

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**OSHA Compliance . . . Safety Performance Improvement . . . Accident Investigation . . . Auditing for Compliance with: Recognized and Generally Accepted Good Engineering Practices (RAGAGEP), OSHA PSM Regulation, and EPA RMP Regulation . . . Process Hazards Analysis . . . Teaching/Coaching . . . Community Action Panel Support**

Progressive positions in chemical industry, from Group Leader to Vice President and General Manager. Diverse experience in plant, engineering, operations, maintenance, safety and technical group management.

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## PROFESSIONAL EXPERIENCE

**Mark V, Inc.** Hurricane, WV  
*President*

**1996 – Present**

Consult with federal/state agencies, organizations, and private industry on process safety, hazardous waste remediation, and accident investigation.

- Develop new compliance directive for OSHA for their Process Safety Management regulation as it applies to reactive chemicals.
- Adjunct Professor – Marshall University Safety Engineering Department (Chemical Process Incident Investigation; Process Safety Management Fundamentals).
- Edited and helped to prepare *New Environmental Remediation Technologies: Guidance Criteria for Occupational Safety and Health*, published by the Operating Engineers National HAZMAT Program.
- Developed an Emergency Response Data Sheet, an innovative concept designed to minimize the risk to emergency responders responding to an incident. Published on the EPA - Emergency Response Team's website.
- Performed accident investigations and determined the root causes for a wide range of chemical processes.
- Performed process safety management compliance audits.
- Performed Process Hazards Analyses.
- Developed a Management of Change procedure for a World top-ten chemical company.
- Wrote and edited process safety management handbook which identifies Recognized and Generally Accepted Good Engineering Practices, which has been endorsed by OSHA and published by the Operating Engineers National HAZMAT Program.

- Evaluated EPA accident reports for completeness and ability to determine the root cause of the incident.
- Evaluated DOE hazardous waste site remediation technologies for use of recognized and generally accepted good engineering, environmental, health and safety practices.
- Evaluated the hazards and the safeguards provided against those hazards for a community concerned about an adjacent chemical facility.

**CDI ENGINEERING GROUP (Formerly MTI Group), Charleston, WV 1992 – 1995**

**Manager – Engineering and Chief Engineer** (1994 – 1995)

**Project Manager – OSHA Process Safety Management Project** (1995)

**Manager – Process Engineering** (1992 – 1993)

Managed staff of 250 engineering/technical personnel in two regional offices; planned and administered annual budget of \$40MM and multiple projects ranging from \$1-75MM; trained 100+ engineers. Responsible for the execution, financial performance, and quality of all projects.

- Provided guidance and direction on the process design and detailed design of numerous facilities, expansions and improvements of chemical facilities. Increased revenues by 75% over 3 years by: instituting total quality management process; project manager training to manage rather than monitor projects; developing and implementing project control procedures; and initiating the use of new technology (CADD, 3D-CADD, Photogrammetry).
- Planned and implemented \$50MM equipment information documentation project to ensure compliance with OSHA PSM Regulation 29 CFR 1910.119 (d) (3) by performing compliance audits and executing corrective engineering work.
- Wrote general operating procedures, maintenance procedures, and project reports. Prepared auditing protocols and compliance methodology for OSHA's Process Safety Management Regulation.
- Established Process Engineering Group (35 professional staff) providing Process Design Packages and performing PSM compliance work for numerous clients.

**HANLIN GROUP (Formerly LCP Chemicals and Plastics), Moundsville, WV 1989-1992**

**Vice-President and General Manager** (1991 – 1992)

**Plant Manager** (1990 – 1991)

**Technical Manager** (1989 – 1990)

Managed staff of 235 employees; planned and administered \$60 MM annual budgets. Responsible for all aspects of plants operation: manufacturing, engineering, maintenance, personnel, safety, environmental compliance, quality, and financial performance.

- Converted adversarial labor-management relationship into a cooperative relationship, reducing grievances 97.5% in first year. Negotiated 3-year union contract, ratified by 8:1 majority.
- Initiated preventive/predictive maintenance program and the preparation of maintenance procedures, increasing plant's on-stream factor from 96 to 99%.

- Established safety program reducing first aid cases 62% and lost time injuries 77%.
- Initiated TQM and SPC program achieving status as ISO 9000 approved supplier.
- Coordinated efforts of insurance carrier, engineering and marketing departments to determine cause of accidents, get plant on-line, and minimize impact on customers.
- Completed \$50MM modernization project, reducing costs, improving product quality and reducing environmental emissions.
- Coordinated compliance program for CMA's Responsible Care Program and OSHA's PSM regulation.

**PPG INDUSTRIES**, Corpus Christi, TX; Pittsburgh, PA; Natrium, WV **1966-1989**

**Department Technical Manager** (1986-1989)

**Principal Process Engineer** (1983-1986)

**Principal Process Engineer/Project Manager** (1980-1983)

**Group Leader, Operations and Maintenance Manager, Project Manager, Operations Foreman, Process Development Engineer** (1966-1980)

Promoted during 23-year career through a series of increasingly responsible operating, maintenance, engineering, and management positions to Department Technical Manager. Responsible for process design for new equipment and process modifications, coordinating project-based construction and maintenance, and developing new technology. Completed start up and commissioning of new plants. Directed accident investigation teams.

- Led Process Hazards Analysis (PHA) teams for numerous facilities.
- Led accident analysis teams to determine the root causes of numerous incidents.
- Developed numerous operating and maintenance procedures and training programs.
- Prepared process designs for several new processes and assisted/approved designs performed by engineering contractors.
- Designed chemical process equipment and assisted/approved equipment designs prepared by engineering contractors.
- Developed/designed/installed a state of the art air emission control process which brought the facility into compliance and produced \$8.5MM annual savings.
- Created new sanitizing agent for product line, increasing annual sales 15%.
- Led teams responsible for commissioning three new plants (total \$475 MM) in US and Canada.
- Created seven new chemical processes.
- Established program with community college to train maintenance personnel.

## **EDUCATION**

**Bachelor of Science, Chemical Engineering**, University of New Mexico, Albuquerque, NM.

Postgraduate study towards, **Masters of Engineering/Business Administration (29 hours)**, Texas A&M University, College Station TX, and Marshall University Graduate College, South Charleston, WV.

Twenty plus Continuing Education Courses.

## CERTIFICATIONS

**Licensed Professional Engineer:** Texas and West Virginia

**Certified Safety Professional**

**Certified Fire and Explosion Investigator**

## PROFESSIONAL ASSOCIATIONS

*Member*, American Institute of Chemical Engineers (AIChE) and Chairman of Local AIChE Section;

*Emeritus Member*, Technical Steering Committee, AIChE Center for Chemical Process Safety (CCPS) and the Engineering Practices Subcommittee that prepared the book “*Guidelines for Design Solutions for Process Equipment Failures.*”

*Member*, The Design Institute for Emergency Relief Systems (DIERS) of the American Institute of Chemical Engineers and member of the committee that is preparing the 2ed edition of *Guidelines for Pressure Relief and Effluent Handling*;

*Founding Member*, Reactivity Management Roundtable of the Center for Chemical Process Safety of the American Institute of Chemicals Engineers and member of the Chemical Processing Essential Practices subcommittee;

*Member*, Institute of Chemical Engineers (IChemE);

*Member*, American Society of Mechanical Engineers;

*Member*, National Fire Protection Association and member of the Hazardous Chemicals Technical Committee that prepares codes pertaining to controlling the hazards of hazardous chemicals;

*Member*, American Chemical Society

*Member*, American Society of Safety Engineers and President of the local chapter;

*Member*, National Association of Fire Investigators;

*Member*, Kanawha Putnam Emergency Planning Committee and the Plan Implementation Evaluation subcommittee;

## HONORS AND AWARDS

- Candidate for Presidential appointment to U.S. Chemical Safety and Hazard Investigation Board.
- Nominated for the West Virginia Environmental Achievement Award.
- Governor’s award for improving labor-management relations in the state.
- *Panelist*, National Science and Technology Council's PPP 2000 Forum 14, *When Natural and Industrial Disasters Collide*;
- *Panelist*, DOE, SSEB, and NEETC's Guidance Criteria for Occupational Safety and Health National Technical Workshop;

- *Member*, OSHA – EPA – Chemical Safety Board Roundtable on Reactive Chemicals
- Business Unit Technical Achievement Award for developing new air pollution control technology.
- Listed as a Safety Professional by the National Registry of Safety Professionals.

## PUBLICATIONS & PRESENTATIONS

- Guidelines for Design Solutions for Process Equipment Failures; co-author, Center for Chemical Process Safety of the American Institute of Chemical Engineers (1998), New York, NY;
- Guidelines for Process Safety Concepts Assessment and Implementation, Protocol Development for Type II Innovative Environmental Remediation Technologies; P. Howell, International Union of Operating Engineers, National HAZMAT Program (1997), Beaver, WV;
- New Environmental Remediation Technologies: Guidance Criteria for Occupational Safety and Health; co-author, International Union of Operating Engineers, National HAZMAT Program (1998), Beaver, WV;
- Emergency Response Data Sheet (ERDS) Preparation Protocol (with worked example); P. Howell, International Union of Operating Engineers, National HAZMAT Program (1999), Beaver, WV;
- Essential Practices for Managing Chemical Reactivity Hazards, B. Johnson, S. Rudy & S. Unwin, Center for Chemical Process Safety of the American Institute of Chemical Engineers (2003), New York, NY (peer reviewer);
- Guidelines for Pressure Relief and Effluent Handling Systems, 2ed Edition; Center for Chemical Process Safety of the American Institute of Chemical Engineers (in progress), New York, NY;
- *Relief System Design for Reactive Systems – Get the Facts*; P. Howell & G. Melhem (2003), ioMosaic, Salem, NH;
- *There Are Holes*; Peter Howell, July 2003, ioMosaic Quarterly Newsletter, Volume 2, Number 2, Second Quarter 2003; ioMosaic, Salem, NH;
- *Recommended Practice 101 – Control Of The Hazards Associated With Reactive Chemicals*; Reactivity Management Roundtable Conference, May 19, 2004, Boston, MA;
- Guidelines for Mechanical Integrity Systems, Center for Chemical Process Safety of the American Institute of Chemical Engineers (2006), New York, NY (peer reviewer);
- *Designing Emergency Relief Systems for Runaway Reactions*, Peter Howell and Georges Melhem; Chemical Engineering Progress, September 2005; the American Institute of Chemical Engineers, New York, NY;
- *Recommended Practice RP-101 Controlling the Hazards Associated with Reactive Chemicals*; 3<sup>rd</sup> International Symposium on Runaway Reactions, Pressure Relief Design

and Effluent Handling, November 1-3, 2005 Cincinnati, Ohio, Organized by the Design Institute for Emergency Relief Systems (DIERS) Users Group, 2005, the American Institute of Chemical Engineers, New York, NY;

- *NFPA 400 Hazardous Materials Code*; 1<sup>st</sup> Edition, co-author; National Fire Protection Association, Quincy, MA (2009);
- Recommended Practice 101 – Control of the Hazards Associated With Reactive Chemicals; Mark V, Inc. (2009) [www.markfive.com](http://www.markfive.com)
- *Polymerization Reactor Explosion at the XYZ Chemical Company*; American Institute of Chemical Engineers 43<sup>rd</sup> Loss Prevention Symposium, paper 96e; April 29, 2009; Tampa, FL; [www.aiche.org/ccps](http://www.aiche.org/ccps);
- *Plant Explosion Emphasizes Importance of Implementing PSM: Process Safety Progress*, Volume 29, No. 2, American Institute of Chemical Engineers, New York, NY (2010), [www.aiche.org](http://www.aiche.org);

## RECENT INCIDENT INVESTIGATIONS

<b>Incident</b>	<b>Material Involved</b>	<b>Facility</b>	<b>Client</b>
Recycle gas compressor explosion – Refinery	Ethylene	Shell Chemical; Deer Park, TX	U.S. Environmental Protection Agency
Wastewater storage tank explosion – Refinery	Hydrocarbon vapors	Pennzoil; Rouseville, PA	U.S. Environmental Protection Agency
Hydrocracker Explosion – Refinery	Naphtha	Tosco; Avon, CA	Contra Costa County Health Services
Oil well snubbing operation explosion – Oil exploration	Natural Gas	Sonat Exploration; Bienville Parrish, LA	U.S. Chemical Safety and Hazard Investigation Board
Polymerization reactor explosion – Plastic resin manufacture	Butadiene, Styrene, NBL (Normal Butyl Lithium)	Phillips Chemical; Pasadena, TX	Attorney
Molten tar storage tank eruption – Asphalt manufacture	Tar, Naphthalene	AlliedSignal; Ironton, OH	Attorney
Wastewater sump explosion – Specialty chemical manufacture	Trinitromethane (TNM), Monochlorobenzene (MCB), Nitrous oxides (NOX)	Lomac; Muskegon, MI	Michigan OSHA
Pyrophoric material fire – Metal alkyl manufacture	TEAL (Triethylaluminum)	Akzo-Nobel; Deer Park, TX	Attorney
Butadiene storage tank explosion – Plastic resin manufacture	Butadiene, butadiene polyperoxide, popcorn polymer	Phillips Chemical; Pasadena, TX	Attorney
Toxic material release – Specialty chemical manufacture	Ketene, Diketene	Lonza; Bayport, TX	Attorney
Toxic material release – Sodium hydrosulfite manufacture	Sulfur Dioxide, Hydrogen Sulfide, Methanol	Celanese/Clariant; Bucks County, AL	Attorney
Unexpected equipment startup – Oriented Strand Board (OSB) manufacture	Rotary Airlock, Wood	Louisiana-Pacific; Silsbee, TX	Attorney

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Toxic material release – Specialty chemical manufacture	Ketene, Diketene	Lonza; Bayport, TX	Attorney
Energetic release of energy – Fertilizer (ammonia and urea) manufacture	Carbon Dioxide	Agrium; Borger, TX	Attorney
Waste boiler explosion – Wood pulp and paper mill	Black Liquor	Durango Paper; St. Marys, GA	Attorney
Unexpected equipment movement – Paper mill	Paper machine, Paper	Westvaco/Mead; Evadale, TX	Attorney
Flash Fire – Refinery	Hexane	Sunoco, La Port, TX	Attorney
Pyrophoric material fire - Hazardous waste recovery	Phosphorus	Glenn Springs, Columbia, TN	Attorney
Corrosive liquid exposure – Polypropylene resin manufacture	Caustic	Huntsman Petrochemical, Port Neches, TX	Attorney
Paper Dryer Explosion – Paper mill	Steam	Knowlton Specialty Papers, Watertown, NY	Attorney
Butadiene reactor explosion, Butadiene storage tank explosion – Plastic resin manufacture	Butadiene	Phillips Chemical, Pasadena, TX	U.S. Environmental Protection Agency & U.S. Department of Justice
Hot, high pressure boiler water exposure – Refinery	Condensate/steam	BP Products North America Texas City, TX	Attorney
Flash fire – Cement plant Liquid hazardous waste fire	Hazardous solvent waste; Liquid waste derived fuel	Ash Grove Cement, Foreman, AR	Attorney
Pyrophoric material fire – Hazardous waste incinerator	Hazardous pyrophoric (TEAL) waste	Texas Eastman, Longview, TX	Attorney
Plastics decomposition & fire – Chlorinated polyvinyl chloride (CPVC) manufacture and compounding	CPVC	Noveon, Inc. – Louisville, KY	Attorney

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Toxic material exposure – Specialty chemical manufacture	Methyl Iodide	Texas Eastman, Kingsport, TN	Tennessee OSHA
Vapor cloud explosion and resulting fire – Refinery	Gasoline components, light naphtha, hexane	BP Products North America, Texas City, TX	Attorney
Electrocution	Plastic Blow Molding	The Plastics Group Fremont, OH	Attorney
Hazardous material exposure – pipe & tank failure	Sulfuric Acid	Exide Technologies Laureldale, PA	Attorney
Crushing of man working under a load	Falling load of steel	Kemco Mobile, AL	Attorney
Tank explosion and fire at oil and gas well	Light hydrocarbons	Partridge-Raliegh Smith County, Mississippi	Attorney
Exposure to fumes while welding in a hazardous waste tank	Tributyl phosphate, tributoxyethyl phosphate, Hydrogen sulfide, carbon monoxide	Akzo Nobel Functional Chemicals, Inc., Gallipolis Ferry, WV	Attorney
Runaway reaction in tank resulting in an explosion	Toluene diisocyanate (TDI)	Bayer Material Science Baytown, Texas	Attorney
Flash fire in process sewer	Light hydrocarbons	Pasadena Refining Systems Pasadena, TX	Attorney
Release of toxic vapors from acid storage tank	Sulfuric acid, sulfur dioxide, hydrogen sulfide	Valero Refining Houston, TX	Attorney
Burns from hot material	Hot paper stock/water/chlorine dioxide	MeadWestvaco Escanaba, MI	Attorney
Burns from hot condensate	Hot water (condensate)	MEMC Pasadena, Inc. Pasadena, TX	Attorney
Runaway reaction and explosion at hazardous waste disposal cement kiln	Cumene hydroperoxide	Von Roll America – Waste Technologies, Inc.	Attorney
Release of hazardous materials; Chemical exposure	Glacial Acetic Acid	Equistar Pasadena, TX	Attorney
Release of hazardous materials; Chemical exposure and burns	Hot Pitch	ExxonMobil Torrance, CA	Attorney

<b>Incident</b>	<b>Material Involved</b>	<b>Facility</b>	<b>Client</b>
Physical explosion of pressure vessel in oil production field	Natural gas	Dune Energy, Inc. Bayou Couba, LA	Attorney
Release of hot pitch and resulting fire	Hot pitch	ExxonMobile Baytown, TX	Attorney
Fired heater explosion	Diesel fuel	Penn Marine Barge Everglades	Attorney
Vapor cloud explosion	Isobutane, HF	Citgo Corpus Christi, TX	Attorney
Hose rupture releasing toxic gas	Silicon tetrafluoride	MEMC Pasadena, TX	Attorney