

CONSULTING ENGINEER

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THOMAS P. JUR

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Engineering Design & Testing Corp.
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PROFESSIONAL EXPERIENCE:**1999 - Present****Engineering Design & Testing Corp.; Concord, California**

Consulting Engineer, Chemical Engineering

Areas of expertise include chemical process facility design, equipment damage assessment, large loss evaluations, project/construction management, fire and explosion causation investigations, equipment breakdown investigations, repair cost estimating, project scheduling, facility reconstruction, claims analysis, expert witness and litigation support.

Experience areas include pharmaceuticals, biotechnology, combustion and boiler equipment, food and beverage processing, wineries, agricultural chemicals, groundwater chemical contamination, wind turbines, hydroelectric power generation, solar energy collection systems, fuel cells, power generation and cogeneration, materials handling, water and wastewater treatment, polymerization chemistry, construction defects and damage, seismic damage evaluation, product contamination, hazardous materials storage, process safety and risk management, protective coatings and linings, hazardous operation analysis, petroleum production, marine loading terminals, petroleum refining, petrochemicals, fine chemicals, clean room facilities, glass molding and manufacturing, protective coatings and equipment linings, rare metals production and processing, and agricultural production and equipment.

1997 - 1998**Contract Employment Firms; Oakland, California**

Consulting Engineer

Project Engineer and Construction Manager for the refining and chemicals industries. Projects included butane storage safety systems, catalyst manufacturing production facilities and controls building, regulatory compliance and design review for marine vapor control systems, truck loading terminal storage and piping, and ISO 9000 Certification procedures.

1988 - 1996**ESI, Engineering Services Inc.; Walnut Creek, California**

Project Manager/Principal

Project Manager for the refining, chemicals, electronics manufacturing, pharmaceutical, biotechnology, food processing, environmental and materials handling industries. Projects included electronic grade sulfuric acid production, vapor control systems for marine and truck loading of hydrocarbons, wheat flour handling and blending, edible oils processing and packaging, hazardous materials storage and handling, grain handling and truck loading, coffee production, food production and packaging, refinery wastewater processing, FDA biotechnology process validation, aerospace manufacturing, toxic gas handling and distribution, biotechnology manufacturing, water purification systems, refinery

environmental programs, solvent extraction pilot plant, latex resins handling and storage, refinery catalyst metals recovery, medical device manufacturing, elastomer batch blending and mixing, underground solvent storage and piping, refinery hydrocracking unit revamp and debottlenecking, crude oil pipeline and pumping station, and pharmaceutical manufacturing.

1985 - 1987 **Jacobs Engineering; Martinez, California**
Project Manager

Project Manager for the refining, chemicals, biotechnology, pharmaceuticals and electronics industries. Projects included training programs and operations procedures for refinery processes, catalyst manufacturing, chemical and solids materials handling, crude oil storage and distribution, hazardous materials safety audits, biotechnology and pharmaceuticals production, FDA biotechnology validation, petroleum refinery utilities, dust collection and waste management, chemical bulk storage and distribution, underground solvent storage, chemical distribution piping and pumping, offshore oil and gas production, electronics chemicals production; electronics product manufacturing, and refinery process upgrades.

1982 - 1984 **Davy McKee Engineering; San Ramon, California**
Project Engineer/Project Manager

Project Manager for the electronics, pharmaceutical, oil and gas production, and refining industries. Projects included toxic gas handling and distribution, biotechnology utilities, oil field gas collection, refinery upgrade projects, steam injection systems for oil field production, pharmaceutical utilities, ultra-pure water systems, sterile product filling, and clean room facilities.

1976 - 1981 **Brown & Root Engineering; Chicago, Illinois**
Process Engineer/Project Engineer/Project Manager

Process Engineer and Project Manager for the refining and chemical industries. Projects included fluid catalytic cracking, catalytic reforming, ethylene production, crude oil distillation, fuel ethanol, SNG production, asphalt oxidation, gasoline and LPG desulfurization, gas concentration, crude oil and gas production, coke oven gas byproducts production, butane storage and blending, refinery cooling water utilities, and delayed coking.

1970 - 1975 **Universal Oil Products; Chicago, Illinois**
Process Design Engineer

Process Engineer for the refining and chemicals industries. Projects included pilot plant design and installation, pilot plant operations, catalyst formulation and testing, process designs for hydrocracking, hydrosulfurization, catalytic reforming, sour gas amine treating, asphalt oxidation, wastewater treating, aromatics extraction, catalyst manufacturing, sulfur trioxide materials handling, and reformer catalyst production.

1968 - 1969

E. I. DuPont Company; Chicago, Illinois

Cooperative Education Student - Process/Facility Engineer

Facility Engineer for a polymer, resin and coatings manufacturing plant. Projects included capital improvements, production facilities design and installation, polymeric coatings formulations development and testing, and utilities design and installation.

7/29/20

EXPERIENCE – PROCESS DESIGN, PROJECT/CONSTRUCTION ENGINEERING, PROJECT MANAGEMENT (partial listing):

Project Manager for fifteen air pollution remediation projects, worldwide, including conceptual engineering, environmental permitting, detailed design, construction management, regulatory certification, control system design, operator training and startup support.

Project Engineer for the County of Santa Barbara California to evaluate the process design and environmental regulatory compliance for offshore crude oil and gas production platforms, crude oil and natural gas transport systems, and product treatment facilities.

Project Engineer/Construction Engineer for a catalyst manufacturing modernization project at Shell Chemical in Martinez California, including selection of process equipment, project scheduling, budgets and construction contracting strategies, and managing the engineering, procurement and construction activities.

Project Manager for a proprietary electronics chemicals production facility at IBM in San Jose California, including chemical process and equipment design, detailed engineering, control system design, construction and startup assistance.

Project Manager for a biopharmaceutical production facility at Genentech in South San Francisco California, including process design, regulatory permitting, detailed engineering, controls system design and construction assistance.

Project Manager for a grass-roots edible oils processing and packaging facility for California Oils in Richmond California, including conceptual engineering, process equipment design, cost estimating, environmental permitting, detailed engineering and construction assistance.

Project Manager for a refinery process revamp project at Tosco Refining in Martinez California, including process modifications to the hydrocracker unit, detailed engineering and construction assistance.

Process Engineer and Construction Engineer for a fire rebuild project for AMOCO in Trinidad, including process design, field engineering, and construction support for petroleum and gas production, oil treatment and gas processing facilities.

Project Manager for several refinery upgrade projects at Shell Oil in Martinez California, including process engineering, cost estimating, detailed engineering and construction assistance.

Project Manager for a medical devices manufacturing facility at Becton Dickinson in San Jose California, including process design, detailed engineering, control system design and fabrication, construction management, FDA validation development and execution, operator training and plant startup.

Project Engineer for enhanced crude oil production and vapor recovery systems for Chevron Oil in Bakersfield California, including process design, detailed engineering and construction assistance.

Project Manager for numerous facilities projects at IBM in San Jose California, including design and engineering for underground storage tanks, leak detection systems, HVAC monitoring and control systems, environmental monitoring, toxic gas handling, and architectural modifications.

Project Manager for an electronics grade, ultra-high purity sulfuric acid plant at General Chemical in Richmond California, including process design, detailed engineering, cost estimating, control system design, and construction assistance.

Project Engineer for petroleum and gas production upgrade projects for Maraven Oil in Venezuela including process design, conceptual engineering, and cost estimating.

Project Manager for numerous petroleum products storage and loading terminals projects for ARCO and GATX in California, including process design, detailed engineering, environmental controls and permitting, and construction assistance.

Project Manager for a cell culture/fermentation facility involving clean rooms, CIP, SIP, manufacturing equipment, control systems and utilities for Baxter Hyland in Hayward California, including process design, cost estimating, detailed engineering, and construction assistance.

Project Manager for pharmaceutical manufacturing facilities involving CIP, SIP, clean rooms, and product storage at Barnes Hind in Sunnyvale California including process design, detailed engineering, QA/QC FDA validation programs, and construction management.

EXPERIENCE - ENGINEERING INVESTIGATIONS (partial list):

Atofina Chemical Plant - Fire and explosion, Wyandotte Michigan – determined scope of damage, evaluation of loss, reparability of equipment and utilities, repair timeline, construction cost and schedule monitoring for 15 fire damaged process units at a chemical complex.

BOC Group - Carbon Dioxide gas processing facility damage, El Segundo California – causation and value of lost production at a CO₂ gas plant. Loss was caused by a stoppage of feed gas from the adjacent petroleum refinery.

Paramount Petroleum – Asphalt process heater fire, Paramount California – determined the cause of a tube rupture and equipment fire in a gas-fired refinery process heater.

Paramount Petroleum – Crude Oil process heater fire and explosion, Paramount California – determined the cause of a gas-fired process heater explosion that resulted in the shutdown of a refinery process train. Evaluated the scope of equipment and utility damage, reparability of the heater and adjacent process equipment, evaluated the repair timeline and process reconfiguration to minimize the business income loss, and evaluated the business interruption loss for the refinery shutdown. Monitored the repair work activities and construction schedule.

Connor Brothers – Hurricane Katrina flood damage to a shrimp processing facility, Violet Louisiana – Evaluated the scope of flood damage, determined the reparability of the damaged food processing equipment and utilities, determined the actual cash value and the replacement cost of the damaged equipment, evaluated the value of the flood loss.

Quixote Winery – Wine product contamination, Napa California – determined the cause of biological contamination of bottled premium wine, determined the scope of damage to the wine products, evaluated the value of the contaminated wine.

Parallel Products – Process heater fire at a food reclamation plant, Rancho Cucamonga California – determined the cause of the fire, determined the scope of damage, determined the reparability of the equipment and utilities, evaluated the actual cash value and replacement cost of the damaged equipment, monitored the repairs and the repair schedule.

Canadian Fertilizers Limited – Ammonia Reformer fire, Medicine Hat, Alberta Canada – determined the cause of a furnace tube rupture at a fertilizer production facility. Determined the scope of damage and reparability of the furnace, reviewed metallurgical test data and determined the design deficiencies of the furnace equipment.

RSR Quemetco – Electrostatic Precipitator fire, City of Industry California – determined the scope of equipment fire damage to an electrostatic precipitator (ESP) at a battery recycling

facility. Determined the cost and schedule to repair the damaged equipment, structures and utilities, segregated fire damage costs from equipment improvement costs and Regulatory Code upgrade costs. Evaluated repair cost invoices and construction schedule.

Calpine Corporation – Cogeneration Heat Exchanger/Boiler corrosion damage, Campbell River, British Columbia Canada – evaluated the scope of damage, reparability, cost and schedule for the equipment repairs due to corrosion within the boiler of a power cogeneration facility.

Cameron Glass – Glass Melter Furnace leak, Kalama Washington – determined the scope of damage to equipment, structural and utilities at a wine bottle production facility. Determined the cause of a release of molten glass from the melter furnace, determined the reparability of the damaged equipment, estimated the actual cash value and replacement cost of the damage; monitored the repair activities and repair schedule, evaluated the business interruption timeline.

Inergy Services – Hot Oil Heater Fire, Tupman California – determined the cause of a tube rupture and fire in a gas-fired process heater in a synthesis gas production facility. Determined the scope of damage to the heater equipment, determined the reparability of the fire damaged equipment, evaluated the cost and schedule to repair the damage, evaluated the business interruption timeline for repairs.

E&J Gallo Winery – Glass Melter Furnace leak, Modesto California – determined the scope of damage to equipment, structural and utilities at a wine bottle production facility. Determined the cause of a release of molten glass from the melter furnace, determined the reparability of the damaged equipment, structures and utilities, determined the actual cash value and replacement cost of the damage, and evaluated the repair schedule.

Newmont Mines – Hot Oil Heater fire, Yanacocha Peru – determined the cause of a fire in a hot oil heater furnace at a gold and silver processing facility. Determined the scope of damage to the heater and adjacent process equipment, control room, and structures, evaluated the reparability of the fire damaged equipment, evaluated the repair cost and schedule, monitored the repair cost invoices and repair timeline. Following the repairs, conducted a hazardous operations analysis (HAZOP) for the rebuilt facility to improve the heater operations and safety systems.

American Acryl – Solvent Tank explosion and fire, Pasadena Texas – determined the cause of a tank explosion in a chemical production facility. Determined the deficiencies in the equipment design, provided engineering assistance to determine the scope of damage, cost and schedule for the repairs, and business interruption timeline.

Evergreen Oil –Process Heater fire, Newark California – determined the cause of a heater tube rupture and fire at a recycled oil refinery. Determined the scope of damage to the heater,

structure, and utilities, evaluated the repair cost and schedule, monitored the repair activities, evaluated the repair cost invoices and construction schedule, evaluated the business interruption timeline.

Fortistar Methane Group – Cogeneration Facility fire, Milpitas California – determined the scope of damage resulting from a fire at a power generation facility. Determined the reparability of the fire damaged waste gas-fired engines, power turbines, electrical utilities, building structure, and adjacent equipment, evaluated the actual cash value, replacement cost value, and repair timeline.

Dow Chemical Company – Electrical Equipment fire, St. Charles Louisiana – determined the scope of process equipment damage resulting from an electrical equipment fire and power outage at a petrochemical production facility. Determined the reparability of the damaged process equipment, segregated direct damage from process upgrades and non-incident process changes, evaluated repair cost invoices and repair schedule, assisted with the evaluation of the business interruption timeline and business loss.

Owen Roe Winery – Wine Product contamination, St. Paul Oregon – determined the cause of contamination of bottled wine, conducted laboratory testing, and determined threshold detection levels of chemical contamination from corkage products.

Bonas Painting Company – Spontaneous Combustion fire, Santa Ana California – determined the cause of a spontaneous combustion fire at a painting company warehouse. Determined the scope of damage to the warehouse and contents, evaluated the cost and timeline to replace equipment and repair the facility.

EGT – Grain Conveyor fires, Longview Washington, determined the cause and scope of damage resulting from two separate fires in grain conveyors at a grain loading marine terminal. Determined the cause of the fires, determined the scope of damage, evaluated the cost and schedule of repairs. Segregated fire damaged equipment repairs from non-incident damage, evaluated repair cost invoices and repair schedules. Determined equipment design deficiencies and evaluated equipment modifications. Monitored repair activities and construction schedules.

Alstom Power – Cogeneration Equipment damage, Tracy California – determined the cause of damage to a power cogeneration facility resulting from startup problems. Determined the scope of damage to process equipment and air pollution abatement catalysts, evaluated the repair costs and schedule, segregated direct incident damage from non-incident repair costs. Evaluated the process design conditions and catalyst performance specifications.

Buena Vista Biomass Power – Process Boiler explosion and fire Ione, California – determined the cause of a biomass-fueled boiler tube rupture that resulted in an explosion and fire at a power generation facility. Determined the scope of damage to the process equipment, structure,

and utilities, evaluated the cost and schedule of repairs, segregated fire damage costs from equipment improvement costs, evaluated repair cost invoices and repair schedule, monitored the repair activities.

Bango Refining – Tank Farm fire, Fallon Nevada – determined the cause of an asphalt tank rupture that resulted in a tank farm fire at a recycled oil refinery. Determined the cause of the asphalt tank overpressure, product release, and fire. Determined the scope of damage to the tank farm equipment, adjacent process equipment and utilities, determined the repair costs and schedule, estimated the actual cash value, equipment replacement cost and repair timeline, evaluated the repair costs invoices and construction timeline, segregated fire damage costs from Regulatory Code upgrade costs and process improvement costs, monitored the repair activities and construction schedule and assisted with the evaluation of the business income loss.

Rentech Ammonia – Ammonia production facility, East Dubuque, Illinois – determined the cause and scope of damage to an ammonia conversion reactor. Determined the scope of damage, evaluated the cost and timeline to repair the damaged equipment.

City of Santa Ana, California – Brine transfer pipeline – determined the cause of failure of a replacement liner for multiple miles of brine transfer piping associated with a municipal water treatment facility.

North Wasco County, Oregon – Columbia River hydroelectric dam equipment damage – evaluated the cost and repair timeline to repair/replace hydropower generation equipment. The equipment was damaged when a lift crane failed and dropped equipment being serviced. Segregated the costs and timeline for replacement-in-kind equipment from upgrades and betterments to the facility.

Golden Valley Electric Association – Clean coal fired power generation, Healy, Alaska – determined the cause of an explosion in a coal-fired steam boiler. Evaluated the cost and timeline to repair the damaged equipment.

Tonopah Solar Energy – Solar energy collection and power generation, Tonopah, Nevada – determined the cause of equipment heat damage due to a control system malfunction, evaluated the cost and timeline to repair the damaged equipment.

Napa Valley and Sonoma Valley Wineries – Wine product contamination in California – Evaluated the cause and scope of damage to wine products affected by wildfires and smoke intrusion into numerous wineries.

Signorello Winery – Wildfire damage to winery equipment, Napa California – Determined the scope of damage, cost and timeline to repair fire and heat damage to equipment resulting from wildfires in Napa, CA.

Town of Erie, Colorado – Municipal water supply tank lining – Determined the cause of failure and the cost to repair the polymeric lining inside a municipal potable water supply tank.

Alliance Pharmaceuticals – Pharmaceutical product contamination, Harleysville Pennsylvania – Determined the cause of pharmaceutical product contamination due to a malfunction of product refrigeration equipment.

Bloom Energy – Fuel cell equipment damage, Sunnyvale California – determined the scope of damage and cost to repair fuel cell power generation equipment damaged by a construction equipment accident.

South Feather River Power – Power plant water damage, Oroville, California – determined the scope of damage, cost and timeline to repair water intrusion damage to power generation equipment resulting from the Oroville California dam spillway collapse and river flooding. Segregated direct repair costs from maintenance costs and betterments.

Mizkan America – Processed food contamination, Stockton California – determined the cause of biological contamination and value of loss to tomato products resulting from an equipment malfunction.

Searles Valley Minerals – Seismic damage to minerals processing facility, Trona California – determined scope of damage, value of loss and repair timeline for manufacturing equipment damaged during two seismic events.

Exelon Generation Company – Wind Turbine fire damage, Hagerman Idaho – determined the cause, scope of damage, cost and timeline to repair wind turbine equipment damaged by a fire within the nacelle of the turbine.

Green Bay Metropolitan Sewerage District – Wastewater Treatment Plant equipment fire, Green Bay Wisconsin – determined the cause, scope of damage, cost and timeline to repair waste solids incinerator flue gas treatment equipment damaged by heat and fire within a carbon adsorption vessel. Segregated direct repair costs from extra expense waste disposal, maintenance costs and betterments.

EXPERIENCE - LEGAL CONSULTATIONS (partial list):

Grafikom General Partners – Printing Press fire, Edmonton, Alberta Canada – determined the cause of a fire to an automated printing press system at a printing facility. Provided litigation support and expert witness testimony in Calgary, Canada.

Poly Pak America – Regenerative Thermal Oxidizer explosion, Los Angeles California – determined the cause of an explosion in an air pollution abatement system at a printing facility. Evaluated the adequacy of the equipment design, determined the Regulatory Code requirements for the combustion equipment. Provided litigation support and expert witness testimony.

Olin Chemicals – Process Equipment damage, Henderson Nevada – determined the cause of an equipment malfunction that damaged process equipment. Determined the scope of damage to the process equipment, evaluated the repair costs and schedule, evaluated repair cost invoices and timeline schedules. Provided litigation support and expert witness testimony.

Terra Grain Fuels – Heat Exchanger leak, Belle Plaine, Saskatchewan Canada. Determined the cause of a process exchanger leak at an ethanol production facility. Determined the adequacy of the equipment design, reviewed pressure vessel Code requirements, and conducted a finite element analysis. Determined the scope of damage, evaluated the method of equipment repairs, evaluated the cost and schedule of the repairs. Provided litigation support for subrogation.

Evergreen Oil – Process Pipe rupture and fire, Newark California – determined the cause of a hot oil process pipe rupture and fire at a recycled oil refinery. Determined the scope of damage to process equipment, structures, adjacent equipment and utilities, evaluated the cost and schedule to repair the damage, evaluated the repair cost invoices and schedule, monitored the repair activities and construction schedule. Provided litigation assistance including Regulatory Code reviews, damage segregation, loss evaluation, and claims analysis.

Pahlmeyer Winery – Residence fire, Napa California – Determined the cause of a reported spontaneous combustion fire during the construction of a residence. Conducted testing and provided litigation support to determine that the fire was not caused by spontaneous combustion of construction materials.

U. S. Steel Clairton – Process Heat Exchanger fire, Pittsburgh Pennsylvania – determined the cause of an explosion and fire at a coke oven battery when ignitable coke oven gas was released during maintenance activities at a heat exchanger. Evaluated contractor maintenance activities, U. S. Steel safety programs and project procedures, and operating conditions of the process equipment. Provided litigation support to the maintenance contractor law firm.

Alden Leeds – Chemical Storage facility, Kearney New Jersey – Determined the cause of a fire

that took place during Storm Sandy and flooding of the facility from the nearby Pasaic River. Pool chemicals stored at the facility experienced spontaneous combustion when mixed with river water that intruded into the facility. Provided expert witness testimony, depositions and litigation support to the insurance carrier defense counsel.

Buena Vista Biomass Power – Biomass fueled power generation, Ione California – Determined the cause of a steam explosion in the biomass-fueled boiler of a power generation plant. Provided expert witness testimony, deposition, and litigation support during an arbitration hearing.

Gallo Glass Manufacturing – Glass melting furnace, Modesto California – Determined the cause of failure of refractory materials and support structure in a glass melting furnace. Provided expert witness testimony during mediation meetings.

Town of Erie Colorado – Municipal potable water storage tank – determined the cause of failure and the cost to repair the polymeric lining of the potable water storage tank. Provided expert witness testimony during mediation meetings.

Venus Distillers – Industrial accident steam distillation, Santa Cruz California – a distillery worker experienced steam burns during a batch distillation of spirits. Provided causation expertise for subrogation potential to the attorney representing the distillery.

City of Hemet California – Groundwater chemical contamination – determined the feasibility design, cost and timeline for process facilities and equipment to remove chemical contaminants from agricultural chemicals. Agricultural chemicals had been used from the 1940s to the 1980s and some of the component chemicals were carcinogens. Determined that process technology was available since the 1950s to design and construct cost effective process equipment to remove the carcinogens from the chemical products and prevent groundwater contamination. Provided process design and project management expertise to the law firm representing the City of Hemet.

Torii Mor Winery – Wine Product contamination, Dundee Oregon – determined whether a wine product had been contaminated by external sources of chemical contamination. Provided consultation and laboratory services to defense counsel for the insurance carrier.

PROFESSIONAL REGISTRATIONS:

Registered Professional Engineer in California (#4164)
Registered Professional Engineer in Arizona (#42482)
Registered Professional Engineer in Oregon (#76828)
Registered Professional Engineer in Washington (#42208)
Registered Professional Engineer in Illinois (#062.039761)
Registered Professional Engineer in Nevada (#022009)
Registered Professional Engineer in North Carolina (#041147)
Registered Professional Engineer in Michigan (#6201070277)
NCEES Registration (#22686)
National Society of Professional Engineers (#300066389)
Member: Risk and Insurance Management Society (RIMS)

EDUCATION:

1970 - B.S. Chemical Engineering, Illinois Institute of Technology; Chicago, Illinois
1978 - Brown & Root, Project Management Development Program
1980 - Continuing Education Programs, Business & Economics
1981, 1984, 1988 - AIChE, Project Management Seminars
1992, 1993 - Professional Development Seminars
1994 - Corporate Management Program
1999 to Present – Professional Engineering and Technical Seminars