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Pipeline Risk/Integrity Management and Compliance Projects

Risk/Integrity Assessments

- Pre-construction qualitative and quantitative risk assessments and risk management expert witness testimony for Georgia Strait Crossing Pipeline proposal as risk management advisor to large US gas transmission pipeline company in response to Canadian NEB information requests.

- Pre-conversion qualitative and quantitative risk assessments and risk management expert witness testimony for the Longhorn Pipe Line environmental assessment as technical advisor to US DOT, EPA and DOJ.

- Relative risk assessment and expert witness testimony for a hazardous liquid pipeline facility in the US state of Michigan.

- Custom hazardous liquids station facilities relative risk assessment model, including; establishment of risk algorithm, collection of supporting station facilities data, and identification of risk drivers, at 25 crude and product stations and terminals for a large US hazardous liquids pipeline company.

- Custom index-based risk assessment model to establish a facilities conditions/activities database and company benchmarks for a gas distribution/transmission pipeline company.

- Semi-quantitative hazards analysis and study report for the State of Washington to identify oil spill hazards, consequences and protection systems for an oil-handling facility adjacent to navigable surface waters.

- Over 10 relative risk algorithms developed through facilitation within groups of in-house operations, maintenance and engineering experts for US gas and liquid pipeline companies.

- Risk model field data gathering (ROW inspections & personnel interviews) covering ~2,500 miles of US gas and liquid pipelines within over 10 US States and 2 Canadian Provinces.

- In-line inspection and hydrostatic testing integrity assessments for over 1,000 miles of gas and hazardous liquid pipelines for various US oil and gas companies.

- Relative risk assessments to establish a facilities database and company benchmarks for a sour gas pipeline system, multi-product corridor pipelines, and LPG terminal facilities located in Central and South America.

- ‘What-if’ threat scenarios and release hazard analyses including a risk management recommendations report, for a Central America multi-product terminal and pipeline company.

- Relative risk assessment and segment risk study report, using US risk benchmarks, of all oil and gas pipeline facilities in the country of Bolivia, South America.

- Pre-construction risk assessment for an offshore gas system in Taiwan.
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Risk/Integrity Management Programs

- Integrity management program framework and HCA segment identification for a US multi-product hazardous liquids transporter.

- Risk assessment and management program for over 5,000 miles of hazardous liquid pipeline and station facilities with a large US liquid products pipeline company.

- Risk management program submitted to the California PUC for over 40,000 miles of gas distribution, 7,000 miles of gas transmission pipeline, and station facilities with a large US gas and electric utility company.

- Risk management programs for two large US gas transmission companies (> 40,000 miles) as part of US DOT “Risk Management Demonstration Project”.

- Risk-based budget for a ~4,000 mile gas transmission pipeline system with proposed capital project and O&M activities prioritized based on relative benefit-cost ratios, risk threshold criteria, and economic evaluation criteria.

- Relative risk assessments to create a prioritized resource allocation risk management report, including; facility condition/activities database, company benchmarks, risk mitigation scenarios, and benefit-cost ranked project list for several crude pipeline systems operated by a large US hazardous liquids pipeline company.

- Risk-based resource allocation model and severity matrix using relative risk scores and pipeline company project cost data to determine risk reduction projects ranked by benefit/cost ratios for a large US gas transmission company.

- Resource allocation tool to evaluate pipeline section risk score changes due to condition or activity modifications and their associated costs for a US gas transmission company.

- Capital project economic evaluation based on a relative risk results which generated avoided project costs (benefits) and avoided cost probability distributions for a large US gas transmission company.

- Commercial software risk management pilot, including; baseline facilities database, risk ranking, segment risk analysis, and benefit/cost-based risk mitigation project rankings for a multi-product hazardous liquids pipeline company.

- Relative and absolute risk resource allocation model with guidelines, as well as study risk assessment/management reports for several multi-product hazardous liquids pipeline companies.
Regulatory Compliance

- **Class location change alternative justifications** based on evaluation of section risks from multiple risk mitigation scenarios for US DOT ‘Risk Management Demonstration Project’ for a large US gas transmission company. First time that the OPS has approved risk control alternative activities over pipe replacement within a class location change section.

- **US DOT ‘Risk Management Demonstration Project’** technical justifications and formal program presentations to the OPS and Program Review Team (state, regional and national representatives) for two large US gas transmission companies.

- **Multiple US DOT and state regulatory compliance evaluations**, including; evaluation of pipeline facility regulatory jurisdictions; operating maps; operations and maintenance procedures; activity records; designs and construction; testing; and, management practices of natural gas, liquefied petroleum gas, crude oil and petroleum product pipeline, refining and terminal systems for US oil and gas companies operating in **over 15 states**.

- **Multiple tank farm facility compliance evaluations** to delineate OSHA, EPA and DOT (OPS/USCG) jurisdictional boundaries of low pressure hazardous liquid tanks, transfer piping and ancillary systems for a large US hazardous liquids pipeline company.

- **Facility compliance improvement cost analysis** for upgrading an oil-handling facility's design, maintenance and operations to achieve compliance with proposed federal and state regulations in the state of Washington.

- **US DOT/OPS safety inspection representative** for a hazardous liquids pipeline company, including; record reviews, procedure and activity clarifications, 49 CFR application interpretation, probable violation notice response, and corrective action plan.

- **Multi-disciplined US OSHA PSM compliance team** activities, including; 29 CFR 1910.119 compliance, PSM Program administrative procedures, ~850 covered process operating procedures, document control system, unit process safety information packages, unit Process Hazard Analyses (‘What-if’ and ‘HAZOP’ methods), and PHA action items for a large US petroleum products refinery.

- **Over 15 operations, maintenance and emergency procedure manuals** for compliance with US DOT (OPS & USCG), EPA, and state regulations (complex facilities) with various natural gas, LPG, crude oil and petroleum products pipeline systems associated with US refining and storage facilities.

- **Classroom training sessions for pipeline personnel** responsible for hazardous liquids and gas pipeline operations, maintenance, construction, testing, design, supervision and emergency response activities covering company procedures and US federal/state requirements.

- **Pipeline training lesson plans and programs**, including computer-based training (CBT) modules, for training US hazardous liquids refinery and storage facility operations,
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maintenance, technical and management personnel.

- **US DOT and Canadian NEB Risk management training sessions**, including current integrity data management, risk assessment methodologies, and software technologies being used.

- **Relative risk assessment, algorithm sensitivity analysis and risk graphics** for training of OPS personnel in ‘Risk Management Demonstration Project’ for two large US gas transmission companies.

- **Acquisition due diligence integrity and compliance assessment**, including; US DOT and state regulations, systems mechanical integrity, overpressure protection, and cost estimate to mitigate higher risk sections of a crude pipeline system for a US petrochemical refinery.