
WKM CONSULTANCY – PROJECT LIST
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.

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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.