



Liquefied Natural Gas (LNG) Services

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AcuTech Consulting Group is a global consulting firm with a leading position in LNG consulting services. AcuTech offers process safety, security, and emergency management services that provide our clients with practical, cost effective solutions for their operational risks. AcuTech has an in-depth knowledge, spanning numerous industries, that allows us to support private sector clients as well as government agencies and other organizations involved with process safety, security and risk issues.

AcuTech has considerable experience conducting analyses, assessments and investigations to determine causes of incidents and help companies develop, improve and implement safety and security management systems. Our consultants are experienced in helping clients understand and mitigate their risks through use of quantitative risk assessment (QRA), hazard identification, consequence and impact analysis, frequency analysis, security vulnerability assessment, risk integration, risk communication, and recommendation development.

LNG Consulting Services

AcuTech assists clients to assess and manage LNG risks including: threat identification, hazard analysis, vulnerability assessment, and recommendation development. Our LNG services include:

- Waterway Suitability Assessments (WSA)
- Independent Risk Assessments (IRA) for Deepwater LNG Ports (DWP)
- Emergency Response Planning
- Drills and Exercises
- Security Vulnerability Assessments
- Assessment methodology development
- Guidance and management systems development
- Process Safety Management

AcuTech also has considerable experience in developing and conducting security vulnerability assessments (SVA). We co-authored the American Institute of Chemical Engineers (AIChE), Center for Chemical Process Safety (CCPS), *Guidelines for Analyzing & Managing the Security Vulnerabilities of Fixed Chemical Sites*. We developed the American Petroleum (API) and National Petrochemicals and Refiners Association (NPRA) *Security Vulnerability Assessment Methodology*, and have been selected as the exclusive API trainers for SVA method and Maritime Transportation Security Act required training. We have conducted SVAs for numerous companies in a variety of industries, including refineries, marketing terminals, pipelines, chemical plants and offshore petroleum installations.

AcuTech is authorized by the General Services Administration (GSA) to provide security consulting services to federal agencies and has provided subject matter expertise and support to the U.S. Department of Homeland Security.

Services:

- Risk Assessments
- Emergency Response Planning
- Security Assessments



Key LNG Projects

- **Waterway Suitability Assessments:** AcuTech conducted waterway suitability assessments for several sites including ones in Long Beach, CA and Savannah, GA. The studies required approval of the local USCG Captain of the Port in regard to our qualifications, skills and subject matter expertise. One of the studies included a security risk assessment. One study involved modeling the potential consequences of larger LNG ships resulting in revised zones of concern for thermal radiation and flammable vapor dispersion in completing the WSA.
- **Risk Assessments for LNG Terminals and Deepwater Ports:** These projects are worked under contract from energy clients for awards determined via the USCG processes and have included presentations at public meetings and analysis of risk mitigation strategies. Projects to date include:
 1. Compass Port (Alabama)
 2. Neptune & Northeast Gateway (Massachusetts)
 3. Clearwater Port (California)
 4. OceanWay Secure Energy (California)
 5. Port Dolphin (Florida)
 6. Calypso (Florida)
- **LNG Import Terminal Emergency Response Plan:** AcuTech led the development of emergency response plans, including evacuation plans, and coordinated procedures with local law enforcement and federal agencies. Projects to date include:
 1. Fall River, MA
 2. Point Fortin, Trinidad, West Indies
- **DHS RAMCAP LNG (Risk Assessment Methodology for Critical Asset Protection):** AcuTech developed security vulnerability assessment method for LNG facilities as LNG sector leader in this project.
- **National Association of State Fire Marshalls (NASFM):** AcuTech developed the guidance document, *"Fire Service Guidance for Participating in LNG Terminal Evaluation, Siting, and Operations."* AcuTech also supported development of NASFM educational materials and a structure for how emergency responders can be better informed about the safety, transportation, storage, and processing of LNG.
- **Center for LNG Study:** AcuTech completed a major study for the Center for LNG on Societal Risk Comparisons. The scope of the study included LNG liquefaction and export worldwide, LNG marine transportation worldwide, LNG import terminals and regasification facilities worldwide, and LNG peak shaving facilities in the US.

Key Experience & Qualifications



Key Qualifications

- Strong knowledge and experience with LNG as demonstrated by our project work that includes guidance documents as well as in-depth risk assessments.
- Market leader for LNG Risk Assessments for Deepwater Ports (DWP). We were awarded a majority of the US LNG DWP Independent Risk Assessments by the USCG.
- Experienced with Waterway Suitability Assessments
- Experienced with security assessments for WSAs and DWPs
- Petroleum, chemical, and LNG industry sector coordinator for the Risk Analysis and Management for Critical Asset Protection (RAMCAP) project for the US Department of Homeland Security (DHS). Under this national effort, uniform vulnerability assessment guidance was developed. Trained DHS staff in SVA methodology.
- Prime contractor for development of the CCPS[®] *Guidelines for Analyzing and Managing the Security Vulnerabilities of Fixed Chemical Sites* (08/2002), also developed the ACC SVA methodology for Tier 4 sites.
- Developed API/NPRA SVA methodology and API Security Guidelines for the Petroleum Industry and the 2nd edition of the API Security Guidelines for the Petroleum Industry to include security for pipelines and other transportation modes.
- Broad experience analyzing petroleum and chemical security vulnerability, including SVAs at sites with marine and offshore operations.
- Extensive Quantitative Risk Assessment (QRA) experience. Key project leaders have broad based risk assessment experience performing hundreds of assessment projects.
- Wide-ranging experience in all aspects of process safety and risk management with extensive risk analysis, program development and management systems experience.
- Strong project management skills and a personalized, responsive style of working closely with our clients. We emphasize on-time, cost effective performance, and our personnel are experienced in achieving this goal.



AcuTech

Advantages:

1. **Strong knowledge and experience with LNG**
2. **Market leader for Independent Risk Assessments (IRA) for LNG Deepwater Ports (DWP)**
3. **Experienced with Waterway Suitability Assessments (WSA)**
4. **Extensive Quantitative Risk Assessment (QRA) experience**
5. **Extensive security vulnerability assessment (SVA) experience**
6. **Extensive guidance and management systems development experience**

The **AcuTech Consulting Group** is a global consulting company offering a full range of management and technical consulting, training services, and software products to assist companies with Chemical Process Security, Risk Management, and Process Safety Management. AcuTech offers a unique background in chemical process safety, design, operations, inherent safety, fire protection, and security that provide our clients with practical, cost-effective solutions for the new challenge of chemical security management.

Although our scope of services include regulatory compliance with federal, state and local requirements, AcuTech's abilities extend beyond these standards to enable us to deliver advanced services that meet the higher level of safety demanded by changing world circumstances.

About AcuTech



FOR MORE INFORMATION

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- ☾ Process Security Services:
 - Conduct SVAs
 - Develop Security Plans
 - Critical Infrastructure Protection
 - Security Management Systems
 - Countermeasures Selection, Design, and Implementation
 - Training
- ☾ Risk Management Plans (RMP)
- ☾ Quantitative Risk Analysis (QRA)
- ☾ Consequence Modeling
- ☾ Emergency Planning and Response, BCP, COOP
- ☾ Fire Protection Engineering
- ☾ Process Safety Management (PSM)
- ☾ Regulatory Compliance Planning
- ☾ Process Hazards Analysis (PHA)
- ☾ LOPA
- ☾ SIL/Safety Instrumented Systems
- ☾ Auditing
- ☾ OSHA VPP
- ☾ Human Factors Management Systems
- ☾ Human Error & Reliability Analysis
- ☾ Inherently Safer Systems
- ☾ Expert Witness Testimony
- ☾ Risk Communication/ Crisis Management
- ☾ Mechanical Integrity

Through our services, we help our clients to:

- protect employee and public health and safety,
- reduce the chance and impact of process accidents and intentional harm,
- communicate risk to the public,
- comply with government regulations,
- avoid adverse environmental impact,
- reduce liability exposure, and
- improve business performance.

