



U.S. Department
of Transportation

Office of Pipeline Safety

LNG

Research and Development



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Modeling and Assessing a Spectrum of Accidental Fires and Risks in a LNG Facility

Main Objectives

- Review potential LNG release scenarios in storage terminals
- Review potential LNG release scenarios from LNG ships
- Augment existing analytical/computer models or develop new ones for different types and sizes of LNG fires by properly considering important phenomena that have effects on the fire characteristics and the hazards they pose
- Develop protocols for using these models in performing a risk assessment of LNG transport in ships or storage in terminals.
- Provide mathematical tools with which to make regulatory assessments or LNG terminal siting decisions.



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Abstract

- Several proposed LNG facilities are being evaluated by US regulatory agencies
- The assessment of risks to the public from these proposed facilities requires the consideration of thermal exposure hazards from fires resulting from releases of LNG either by accident or by terrorist actions
- R&D regarding development or improvement of LNG fire models for different types of fires and coding the models for execution on a desktop computer



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Abstract (cont'd)

- Current models for large LNG fires do not consider the effects of several important phenomena including:
 - Fractional distillation
 - Black soot formation and consequent reduction in thermal radiation (fire shrouding)
 - Decrease in visible flame length
- Developing models using available field test data and these real phenomena that occur in large, turbulent LNG fires will allow regulatory agencies and the LNG industry to rely on more realistic information for decision-making



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<http://primis.rspa.dot.gov/rd/>

Fast Facts	
<i>Research Entity:</i>	Technology & Management Systems, Inc. 102 Drake Road BURLINGTON, MA 01803
<i>COTR:</i>	Charles Helm, charles.helm@dot.gov , (713) 272-2836 Stanley Kastanas, stanley.kastanas@dot.gov , 202.366.3844
<i>Contract #:</i>	DTRS56-04-T-0005
<i>Project #:</i>	150
<i>Contact Info:</i>	Phani K. Raj Tel: 781-229-6119 Fax: 781-229-5735
<i>Co-Sharing Partners:</i>	Distrigas of Massachusetts Corporation Technology & Management Systems, Inc.
Financial Data	
<i>Status Code:</i>	Active
<i>Fiscal Year Started:</i>	2005 (10/01/2004)
<i>End Year:</i>	2006 (03/31/2006)
<i>OPS \$\$ Budgeted:</i>	\$112,032.00
<i>\$\$ Co-Funded:</i>	\$114,031.00
<i>Total Project Cost:</i>	\$226,063.00



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