August 28, 2018

United States Department of Transportation (USDOT)
Pipeline and Hazardous Materials Safety Administration (PHMSA)
Office of Hazardous Materials Safety (OHMS)
Hazardous Materials Grant Program

Statement of Work

Fiscal Year (FY) 2020-2021 (with FY 2021-2025 as option years)
Support for the Hazardous Materials (HM) Grant Programs

I. BACKGROUND

The Pipeline and Hazardous Materials Safety Administration's (PHMSA) HM grant program is mandated by 49 U.S. Code § 5115 to maintain, and update periodically, a current curriculum of courses, including online curriculum as appropriate, necessary to train public sector emergency response and preparedness teams in matters relating to the transportation of hazardous material. When developing the curriculum, 49 U.S. Code § 5115 authorizes the HM grant program to consult with regional response teams established under the national contingency plan established under section 105 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9605), representatives of commissions established under section 301 of the Emergency Planning and Community Right-To-Know Act of 1986 (42 U.S.C. 11001), persons (including governmental entities) that provide training for responding to accidents and incidents involving the transportation of hazardous material, and representatives of persons that respond to those accidents and incidents. To carry out this mandate, USDOT/PHMSA seeks to acquire a contractor to provide technical support to further its mission toward safeguarding people and property from the inherent risks of hazardous materials in transport.

II. PURPOSE

The purpose of this SOW is to acquire the services of a contractor to provide technical support to carry out 49 U.S.C. 5115 in addition to related services for the HM grant program within FYs 2020-2021 and FYs 2021-2025 as option years.

III. SCOPE

The Contractor shall provide the following services in support of FYs 2020-2021 USDOT/PHMSA Hazmat Grants program work:

(1) Provide support for HM conferences, focus group meetings and logistical services

(2) Provide support for roundtable meetings and logistical support services, identify national gaps in (HM/WMD) response, planning and prevention training and assist USDOT in addressing those gaps with supplemental HMEP curriculum services and products when needed and when appropriate under the HMEP mission and mandate. Develop and deliver training workshops to include any necessary learning materials on emergent topics pertaining to hazardous materials challenges and training initiatives of special relevance to Hazardous Materials Emergency Preparedness (HMEP) grantees.

Services to be performed in support of FYs 2021-2025 as option years:

(1) Develop and deliver presentations, briefings, and training

(2) Revisions and publication of Awareness and Operations online training modules, assess current state of Hazmat Response using a roundtable of the nation's leading authorities on hazardous materials emergency response and the International Association of Fire Chiefs (IAFC) HAZMAT Committee.

(3) Additional technical assistance supporting the ERG program Conduct validation of ERG Orange Pages for 2020publication.

IV. TASKS AND DELIVERABLES

Task 1: Kick Off Meeting and Project Management Plan

Kickoff meeting, provide all team members with specific managerial, technical, and contractual information relevant to the project. Presented at this meeting, detailed requirements to develop an accurate Project Management Plan in a timely manner with all aspects of the project addressed to ensure an effective project path to success.

At this meeting, the NFA Contracting Officer's Representative (COR) will provide the contractor with Government Furnished Materials (GFM) or provide access to these materials, to include audio/visual material, including videotapes, DVDs, etcetera, if applicable. The materials will be reviewed and discussed during the meeting.
The goals of the Kick-Off meeting are:

- Present project goals and expectations; both contractor and government.
- Establish a realistic schedule with sufficient revision and review periods.
- Explain the overall task order objectives.

- Clarify roles and responsibilities.
- Review the draft work outline.
- Delineate the project schedule/calendar.
- Determine format and content of the Project Management Plan.
- Confirm contact strategies and roles for coordinating federal agency representatives' participation in the focus group meeting.
- Determine contractor's quality control procedures.
- Establish communication protocols and procedures.

The COR will outline expectations regarding work under this contract. The revision and review schedule for all deliverables will be determined and agreed upon at this meeting.

Subtasks and deliverables:
• Kick-Off Meeting Report (MS Word format)
• Draft Management/Work Plan and Schedule (MS Word format)
• Baseline Management/Work Plan and Schedule (MS Word format)
• The Project management plan will include the following elements:

• Background
• Purpose
• Work Breakdown Structure (Tasks to Accomplish)
• Quality Assurance/Quality Control
• Schedule

Task 2: Roundtable, HM Grant Conference and Focus Group Meetings and Support

Contractor shall provide services in support of Roundtable and Town Hall focus group meetings conducted by PHMSA. These services shall include meeting planning, event schedule, recruitment of attendees and presenters, coordination of agenda and presenter preparations, conference/focus group meeting communications support, facilitation and logistical support, post-conference/focus group meeting wrap-up, and conference/focus group meeting report preparation and finalization. Additional services requested within this task group are to provide services in support of HM conferences/focus group meetings conducted by PHMSA. These services shall include meeting planning, event schedule, recruitment of attendees and presenters, coordination of agenda and presenter preparations, conference/focus group meeting communications support, facilitation and logistical support, post-conference/focus group meeting wrap-up, and conference/focus group meeting report preparation and finalization.

Subtasks and deliverables:

- *Preparation for Conferences, Roundtable meeting(s) and Town Hall event(s)*
- *Attendee/presenter costs for each event*
- *Facilitation/logistical support for each event*
- *Report of the findings from each event*

Task 3: Post-HAMMER Revisions of Awareness and Operations Online Program

PHMSA's new 18-unit online Awareness and Operations program is being tested and placed online in DOE's HAMMER internet-based training delivery system. The contractor shall revise all materials as necessary to address all revisions identified in HAMMER's testing and provide the final materials to HAMMER and to PHMSA, for on-going delivery.

Subtasks and deliverables:

- *New content authoring, vetting, audio recording, purchases of visuals releases, and storyline production*
- *New student assessment measures authoring and revisions to existing student assessments*
- *Revisions to existing content as identified in HAMMER pilot testing*
- *Production of revised final versions of all 18 units of the Awareness and Operations program*

Tasks to be performed within FYs 2021-2025

Task 1: Presentations, briefings, and training.

Task 1.1 Develop and provide briefings on HMEP curriculum work and on national emergent issues to HMEP grantees at PHMSA Training Summits and at other PHMSA HM conferences and meetings as requested.

Subtasks and deliverables for two briefings:

- *New electronic PowerPoint presentation(s)*
- *Printed briefing package(s) including handouts. 200 copies*
- *Delivery of briefings- Presenter time, travel and per diem*

Task 1.2 Conduct training workshops on emergent topics in hazardous materials challenges and training initiatives of special relevance to HMEP grantees. Workshops shall be delivered at PHMSA Training Summits and at other PHMSA Grants conferences and meetings as requested.

Subtasks and deliverables for two workshops:

- *New electronic PowerPoint presentation(s)*
- *Printed briefing package(s) including handouts. 200 copies*
- *Delivery of briefings- Presenter time, travel and per diem*

Task 2: Additional technical assistance supporting the ERG program

Review of ERG changes that were recommended in 2019 but not implemented because of time schedules, modification of those recommended changes as needed based upon anticipated future needs of the emergency services, and development of a new outyear plan for "responder friendly" possible changes to the ERG is to be proposed. These changes should also reflect the current state of readiness of the emergency services to adapt more accurate "risk-based response" procedures, and the proposed changes should include the non-prescriptive information needed for that analysis at the level that can be handled by the first responder.

Subtasks and Deliverables:

- *Two SME meetings on needed ERG revisions*
- *ERG content reviews by SMEs*
- *Report and outyear recommended workplan writing and vetting*

V. GOVERNMENT FURNISHED PROPERTY/MATERIALS

Government Furnished Property

None

Government Furnished Materials

All materials previously developed under the HMEP grant program.

VI. SPECIAL CONSIDERATIONS

DOT/PHMSA requests authority to direct award Bloomsburie LLC to perform the services listed above. In the last year, contractor Bloomsburie LLC provided technical assistance and curriculum development services to USDOT PHMSA's HMEP program (IAA # 693JK318N000005), through a subcontract with the National Fire Academy (NFA), FEMA. During this time, Bloomsburie LLC was vital to the DOT/PHMSA mission as the company provided services no other contractor offer.

Bloomsburie LLC is certified by SBA in the **8(a) program** and by the U.S. Women's Chamber of Commerce as Economically Disadvantaged Woman-Owned Small Business **(EDWOSB)**. The company's 8(a) certification information is as listed:

SBA 8(a) Case Number: C006gl

Entrance Date: July 24, 2017

Exit Date: July 24, 2026

Purpose

- Understand the properties and behavior of liquefied natural gas (LNG)
- Identify LNG fuel tenders, locomotives, tank cars, and intermodal portable tank cars
- Understand potential chemical, cryogenic, and flammability hazards
- Execute the basics of LNG emergency response

Properties and behavior of LNG upon release

- LNG is a cryogenic liquid formed from natural gas (NG) cooled to a very low temperature of –260 °F (-162 °C) at atmospheric pressure.
- When heat is added to LNG at atmospheric pressure, it boils and is converted into NG.
- LNG is colorless, odorless, and non-toxic.
- The volume ratio of LNG at –260 °F to atmospheric pressure NG at 70 °F is 1:600.
- LNG or vapor leakage is detected using only certified instrumentation, such as hydrocarbon concentration sensors.
- LNG is stored in insulated, thermos-like double -walled tanks.
- LNG leaks and spills lead to the formation of a cold, ground-hugging, white, visible natural gas cloud, which is visible due to water vapor from the atmosphere condensing into the cloud as a fog.

More Information

For more information on emergency response guidance:

- *BP Process Safety Series: LNG Fire Protection & Emergency Response*, Institution of Chemical Engineers, 2007
- *Emergency Response Guidebook*, U.S. Department of Transportation, 2012

U.S. Department of Transportation
Federal Railroad Administration

Emergency Responder Guidance

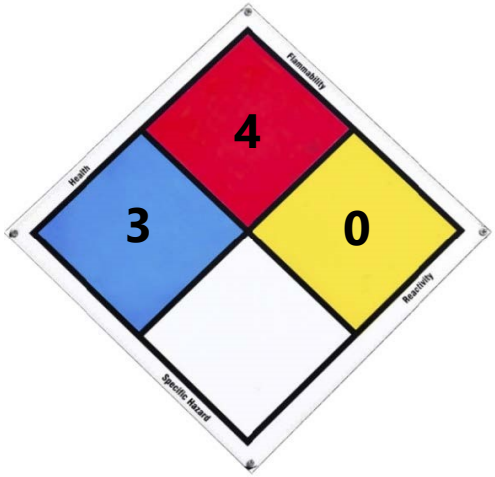
Liquefied Natural Gas (LNG)

Identification of LNG tenders and tank cars

- A fuel tender will always be coupled to a locomotive. It may have decals indicating that the tank content is "Liquefied Natural Gas."
- An LNG tank car or intermodal portable tank will have a placard with "UN 1972" and will be marked '"Refrigerated Methane Liquid."

Potential hazards — respiratory, cryogenic, and flammability

- **Chemical hazards**
  - The rapid evaporation of released LNG into vapor can displace air and can cause asphyxiating conditions in confined spaces.
  - If only a small amount of LNG is released, it will evaporate and the vapors generated will quickly dissipate in the atmosphere.
- **Cryogenic hazards**
  - Contact with cryogenic liquid, cold surfaces, or cold vapor can cause burns, also known as cold burns.
  - Breathing cold vapors can damage lung tissue.
  - LNG contact with materials, such as carbon steel, can lead to material embrittlement.
- **Flammability hazards**
  - The natural gas cloud formed by LNG vaporization and mixed with air will ignite only when the gas-air mixtures is in concentrations between **5% – 15%** by volume.
  - If a vapor cloud ignites, a flash fire will form and propagate (upwind) to the source of vapor. Occasionally, for short distances downwind of ignition point, the cloud may propagate a flash fire.
  - Natural gas flames burn cleaner and more luminously that gasoline flames of the same size.
  - LNG vapor mixed with air in the flammability range is not explosive in unconfined conditions.



Basics of LNG emergency response

- Stay upwind. Keep unauthorized personnel away.
- Do not enter an LNG cloud.
- Look for recognizable signs of escaping gas (sound and/or white cloud). Escaping gas is odorless.
- Eliminate ignition sources (no smoking, flares, sparks, or flames in the immediate area).
- Use thermal protective clothing and gloves in addition to respiratory protection.
- Initiate emergency shutdown functions.
- Stop the release if possible and safe to do so.
- Do not direct water at spill or source of leak.
- Verify whether cab sensor/detector has been activated in the locomotive if unsure about whether there is a leak.

Contact Us

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Pipeline & Hazardous Materials Safety Administration
Hazmat Grants Program

PHMSA Hazmat Grants

Pipeline and Hazardous Materials Safety Administration (PHMSA)

Every day PHMSA strives to meet the needs of our ultimate customers, the American public, to ensure **your** communities remain safe, livable, and free from transportation incidents involving hazardous products.

We rely on our **external partners** to work with us in promoting and supporting safe practices through resource utilization, **training and awareness**, new technology investments and other ways to help pipeline operators and hazardous materials transporters assure safety.

PHMSA's Vision and Mission

Vision

The most innovative transportation safety organization in world.

Mission

To protect people and the environment by advancing the safe transportation of energy and other hazardous material that are essential to our daily lives.

Today's Topics

Hazardous Materials (HM) Grant Program

The Purpose of HM Grant Program

Is to increase State, Territorial, Tribal, and local effectiveness in safely and efficiently handling hazardous materials incidents and ***to encourage a comprehensive approach to emergency training and planning*** by incorporating the unique challenges of responses to transportation situations.

PHMSA Hazmat Grants

HM Grant Program is comprised of four grants:

- Hazardous Material Emergency Preparedness (HMEP)
- Community Safety Training (CST)
- Supplemental Public Sector Training (SPST)
- Hazardous Material Instructor Training (HMIT)

HM Registration Program

- The program is funded by registration fees collected from hazardous materials (hazmat) shippers and carriers who offer for transportation or transport certain hazmat in intrastate, interstate, or foreign commerce in accordance with 49 CFR Part 107, Subpart G.
- Fees provide funding for training and planning grants, monitoring and technical assistance, curriculum development, and administration costs.

Hazardous Materials Emergency Preparedness (HMEP) Grant

- The HMEP grant program was established in 1990 by the Hazardous Materials Transportation Uniform Safety Act to develop, improve, and carry out emergency plans within the National Response System and the Emergency Planning and Community Right-To-Know Act of 1986.
- States, Tribes and Territories are eligible to apply.
- States and Territories are provided with an annual allocation using PHMSA's risk-based formula. Tribes are awarded competitively. The grant program is designed to allow grantees the flexibility to implement training and planning programs that address differing needs for each location based on demographics, emergency response capabilities, commodity flow studies, training needs and hazard analysis.
- The HMEP grant award amount prior to 2009 was $12.8 million; award amounts thereafter were increased to $21.8 million (less sequestration).

Hazardous Materials Emergency Preparedness (HMEP) Grant

- Governor of each state designates a state agency to administer the HMEP grant.
- The designated agencies receive the HMEP grant announcement.
  - Allocation amount received via email.
  - Application are submitted via Grants.gov.
- PHMSA reviews all applications
- Grants are awarded no later than September 30 of each fiscal year.

Hazardous Materials Emergency Preparedness (HMEP) Grant

Grant cycle

- States and Territories
  - Three year performance period.
  - Funds awarded each fiscal year.
- Tribes
  - One year performance period.
  - Awarded each fiscal year.

Community Safety (CS) Grant

- Authorized through the Fixing America's Surface Transportation Act (FAST Act) (P.L. 114-94 - December 4, 2015), provides funding authority for PHMSA's Community Safety Grant Program.
- Grants are awarded competitively to non-profit organizations to:
    - Conduct national outreach and training programs to assist communities in preparing for and responding to accidents and incidents involving the transportation of hazardous materials, including Class 3 flammable liquids by rail; and
    - Train state and local personnel responsible for enforcing the safe transportation of hazardous materials, including Class 3 flammable liquids. One million dollars per year is available for the CST program.
- Funding available up to $1M.

Supplemental Public Sector Training (SPST) Grant

- Grants are awarded competitively to national non-profit fire service organizations.
- The purpose of this grant is to train instructors (train-the-trainer) to conduct hazardous materials response training programs for individuals with a statutory responsibility to respond to hazardous materials accidents and incidents.
- The International Association of Fire Fighters (IAFF) has been sole recipient since the inception of the SPST grant program.
- The SPST grant award amounts prior to 2009 were $250,000; award amounts thereafter were increased to $1 million (less sequestration).

Assistance for Local Emergency Response Training (ALERT) Grant

- The Consolidated and Further Continuing Appropriations Act, 2015 (P.L.113-235) authorized PHMSA to use prior year recoveries to fund the ALERT grant.
- Through a competitive process, awards grants to non-profit organizations to train emergency responders to effectively respond to incidents that involve shipments of crude oil, ethanol, and other flammable liquids by rail.
- Availability of funds varies depending on the amount of funds recovered in a given fiscal year.
- Since 2015, awarded $8.3M (FY15 – $5.9M & FY17 – $2.4), to three non-profits:
  - International Association of Fire Chiefs (IAFC)
  - Center for Rural Development (CRD)
  - University of Findlay (UoF)

Hazardous Materials Instructor Training (HMIT) Grant

- Grants are awarded competitively to non-profit hazmat employee organizations demonstrating expertise in conducting train-the-trainer hazmat programs for employees.
- Purpose of this grant is to train instructors who will then train private-sector hazmat employees. The program also allows limited direct training.
- Grantees must have the expertise in conducting a training program for hazmat employees and the ability to reach and involve, in a training program, a target population for hazmat employees.
- Funding available up to $4M (less sequestration and administrative costs).

PHMSA Hazmat Grant Program Contact Information

- General Inquiries: HMEP.Grants@dot.gov, HMIT.Grants@dot.gov
- Website: www.phmsa.dot.gov/hazmat/grants
- Phone: 202-366-1109


Questions
Answers

PHMSA/NFA Town Hall Meeting Report

Emergency Preparedness Issues Related to

Proposed LNG Transportation by Rail

Lancaster County (PA) Public Safety Training Center

November 18, 2019

Sponsored by the USDOT Pipeline and Hazardous Materials Safety Administration (PHMSA), the FEMA U.S. Fire Administration (USFA)

PHMSA
Pipeline and Hazardous Materials Safety Administration

U.S. Fire Administration

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I. EXECUTIVE SUMMARY

As part of an anticipated future permitting process on the transportation of Liquid Natural Gas (LNG) via rail transportation, the United States Department of Transportation (DOT) Pipeline and Hazardous Materials Safety Administration (PHMSA) and the Federal Emergency Management Agency (FEMA) National Fire Academy (NFA) conducted a Town Hall Meeting in Lancaster County, Pennsylvania, on October 14, 2019. The purpose of the Town Hall Meeting was to seek the input from and concerns of the emergency preparedness community and its stakeholders in the mid-Atlantic region and specifically Pennsylvania and New Jersey. This report documents the proceedings of the Town Hall Meeting and the inputs and articulated concerns of the emergency preparedness attendees.

In the meeting, attendees received a series of technical presentations on LNG transportation risks and incident response protocols, and then participated in open discussions related to the topics in question and the general LNG rail transportation focus of the meeting. In general, the inputs from attendees focused on scientific and technical issues related to improving an effective response capability in the event of a possible rail accident involving an LNG release. There was no particular heightened concern expressed regarding the proposed rail transport of LNG because the hazardous materials preparedness community was already well oriented to the challenges of LNG incident response in other transportation modes and fixed facility environments. However, there were several very useful discussions and ideas explored by attendees about ways Mid-Atlantic region response and planning capabilities might be improved, both for LNG rail transport issues and for regional response to hazardous materials risks in general.

To stimulate feedback and input from the Town Hall Meeting attendees, six topical areas were identified related to the issues associated with LNG rail transport. Each topical area was introduced with a presentation followed by attendee discussion and issues identification. The six topical areas were:

1. The Transportation Research Board Special Report (TRB) 325: Safely Transporting Hazardous Liquids and Gases in a Changing U.S. Energy Landscape (NOTE: Electronic copies of the TRB report were provided to all attendees prior to the Town Hall.)
2. Emergency Responder Perspectives on LNG
3. Marine Transport of LNG
4. Risk Assessment of Surface Transport of LNG
5. LNG Transportation: Terminal and Transfer Operations
6. LNG Transportation by Rail

In the report below, summaries of the presentations and of the attendees subsequent discussions are presented in the sequence they occurred in the meeting. As noted in the attendee list below, there were approximately 30 emergency preparedness representatives from the Mid-Atlantic region, and 10 federal government and federal contractor attendees. In all discussions, the federal attendees were observers only and were not discussion participants. The guidance to the emergency preparedness attendees was that there were no restrictions whatsoever on the topics they wished to discuss or issues they wished to raise. Rather the only guidance provided to the attendees was to ensure that ideas and opinions would be fairly and respectfully heard by the group.

Meeting goals were to:

1. Provide science-based/risk-based data and information to the emergency response community on LNG storage and transportation.
2. Provide a forum for PHMSA and USFA NFA to seek input and concerns of the emergency preparedness community on rail transportation.
3. Keep communities and emergency responders safe.

II. MEETING PARTICIPANTS

Special Acknowledgments

Special acknowledgment is given to Gregory Noll, member and past chairperson of the National Fire Protection Association (NFPA) Technical Committee on Hazardous Materials / Weapons of Mass Destruction Emergency Response and member and past chairperson of the InterAgency Board for Emergency Preparedness and Response—Training and Exercise SubGroup (IAB), who acted as meeting leader and facilitator.

Special acknowledgement is also extended to Drue Pearce, Bill Quade, Aaron Mitchell, and Wayne Yoder.

Finally, special acknowledgment is given to the U.S. Department of Transportation—Pipeline Hazardous Materials Safety Administration, and the United States Fire Administration—National Fire Academy, without whose sponsorship, this Town Hall meeting would not have been possible.

Attendees

John Al-Khal, Lehigh County Special Operations / HMRT	**Sean Hart**, Berks County, PA Dept. Emergency Services
Eric Bachman, Lancaster County EMA	**Larry Jantzen** (RET), Austin (TX) Fire and Rescue
Walter Bair, PA Dept. of Environmental Protection	**William Kelly**, Delaware State Fire Commission
Larry Bak, Delaware County (PA) Dept. of Emergency Services	**Joe Kratochvil**, International Association of Fire Chiefs
Jerry Bimle, PA Office of the State Fire Commissioner & PA State Fire Academy	**Kinha Lester**, Bloomsburie LLC (Contractor)
Chris Bosnyak, PA Dept. of Environmental Protection	**Mark Maday**, Federal Railroad Administration
Richard Brooks, Cecil County (MD) Dept. of Emergency Services	**Haydn Marriott**, Montgomery County (PA) Dept of Public Safety EMA / HMRT
Arthur Buff, Pipeline and Hazardous Materials Safety Administration	**Don McLaughlin**, US Environmental Protection Agency
Nicole Burton, Lehigh County (PA) Special Operations / HMRT	**Aaron Mitchell**, Pipeline and Hazardous Materials Safety Administration
Tim Butters, Burke, VA Fire and Rescue Department	**Martyn Nevil**, South Central (PA) Task Force
Chris Callan, Camden County, NJ	**Drue Pearce**, Pipeline and Hazardous Materials Safety Administration
Chris Christopoulos, Lebanon (NH) Fire Department	**Gregory Noll**, GGN Technical Resources, LLC and South Central (PA) Task Force
Susan Denning, US Fire Administration, National Fire Academy	**William Quade**, Pipeline and Hazardous Materials Safety Administration
David Donohue, US Fire Administration National Fire Academy	**Jim Rist**, International Association of Fire Chiefs
Patrick Durkin, Pipeline and Hazardous Materials Safety Administration	**Scott Russell**, Baltimore County (MD) Fire Dept HazMat Team
Chris Fisher, Dauphin County (PA) Dept. of Public Safety	**Stephen Shaw**, Fort Lauderdale (FL) Fire Rescue
Edward Fletcher, New York Division of Homeland Security & Emergency Services	**Frank Sullivan**, Chester County (PA) Dept. of Emergency Services
Edward Glassman, Camden (NJ) Fire Department	**Mark Trombore**, Allentown (PA) Fire Department
	Agri Verrija, Bloomsburie LLC (Contractor)
	David Willauer, Cambridge Systematics
	Wayne Yoder, US Fire Administration, National Fire Academy
	Cynthia Znati, US Coast Guard

Disclaimer

The Town Hall Meeting attendee discussions do not necessarily reflect the views of PHMSA or USFA. Please note that governmental representatives observed the LNG Rail Transport Town Hall Meeting process and provided agency subject matter expertise. They were not involved in drafting the meeting notes and neither they nor their agencies are responsible for any conclusions, suggestions, or recommendations contained within the report.

III. MEETING DISCUSSIONS

The Town Hall Meeting was organized into six topical areas. In each area below, the topical content that was presented and attendee discussions of that topic are summarized. The topics and discussion summaries below are in the meeting's chronological sequence.

1. Safely Transporting Hazardous Liquids and Gases in a Changing U.S. Energy Landscape, Transportation Research Board Special Report 325

Presented by Gregory Noll

(NOTE: Electronic copies of the TRB report were provided to all attendees prior to the Town Hall.)

This topical area focused on LNG safe transportation issues identified in the Transportation Research Board Special Report on safely transporting hazardous liquids and gases, on related preparedness issues including Local Emergency Planning Committee (LEPC) planning challenges, and on concurrent supporting observations in the 2019 HazMat Roundtable report. Topics addressed in the presentation and subsequently discussed in the Town Hall meeting were:

- The origins and mission of the Transportation Research Board
- The role of LEPCs in preparing for future LNG transport
- Evolving US energy landscape and regional variations in hazmat transport
- The need to foster strategies to blend local response preparedness with various federal agencies.
- The need to reduce the separation of hazmat and environmental related issues in the LEPC process.
- The need for improved guidance materials / training educational opportunities focusing in identifying risks.
- Need to ensure delivery of hazmat is done on risk-based basis.
- The need for increased training delivery and adoption of more risk-based training and exercise opportunities.
- The need to develop information and training materials to response community in timely manner.
- The need for clearer standard of care for hazmat emergency planning and response.
- The need for improved *Information Sharing* at local/regional levels of emerging threats, risks, operational, and support capabilities.

Key points of the presentation and follow-on discussions included the following:

- Recommendations from the Joint PHMSA / USFA-NFA / IAFC HazMat Roundtable (February 2019) pertaining to emergency preparedness were noted.

- It was observed that the TRB reports contain a lot of good information, and that attendees should attempt to read the summaries of the different reports as they relate to emergency response, and to incorporate some of the operational recommendations into their respective response planning and preparation.
- The role and importance of both the State Emergency Response Commission (SERC) and the Local Emergency Planning Committees (LEPCs) was also noted. It was observed that those states with an active, responder-represented SERC tend to have more effective and active LEPCs.
- What will the future look like for the emergency preparedness community? As it related to the Town Hall, attendees concurred that we will continue to see new challenges for many parts of the emergency response community being generated by our national "energy renaissance."
- Emergency preparedness (prevention, planning, response, recovery) must be considered when assessing Management of Change (MOC) as outlined in both regulatory and consensus standards.

2. Emergency Responder Perspectives on LNG

Presented by Larry Jantzen, Assistant Chief, Special Operations (Retired), Austin TX Fire and Rescue

This topical area focused on identifying what is already known in the emergency response and preparedness community regarding LNG, known hazards in emergencies involving the release of LNG, known procedures for handling LNG and responding to an accidental release, and the readiness of the trained emergency response community to safely handling LNG emergencies. Topics addressed in the presentation and subsequently discussed in the Town Hall were:

- LNG Awareness
- LNG and Its Expanding Horizon
- LNG as a Fuel
- LNG as a Transport Fuel
- LNG Safety
- What is LNG
- Properties of LNG (Methane)
- Properties of LNG
- Producing LNG
- Storing LNG
- Storing LNG – Insulation
- Safety and Control Features
- LNG Refueling Station
- Road Transport LNG Experience
- LNG Release
- Impact of LNG Release

- Managing LNG Incidents
- No Release
- Release with No Ignition
- Release with Ignition
- Extinguishment / Fire Control
- Water Application
- Foam Application
- Dry Chemical Application
- Standards
- Codes / Regs/ Permits
- References

Key points of the presentation and follow-on discussions included the following:

- In general, it was felt that the hazards and challenges of a potential LNG transportation release are fairly well understood by a portion of the emergency response community, mainly depending upon their training and skill level - especially those at the Hazardous Materials Technician level. There is an increasing body of knowledge pertaining to LNG as a motor fuel, cargo tank truck transport, and marine transport.
- Attendees noted that the emergence of LNG transportation coincides with it being used as fuel source to power locomotives, ships, motor-vehicles, etc.
- A key question is what additional training is needed for local responders, especially those below the Technician level, to be ready to address potential LNG release challenges. For experienced personnel, it was noted that they use/deal with products with far greater potential hazardous results/impact daily than LNG. However, any guidance on the handling of LNG incidents must be based upon risk-based response procedures.
- There was discussion of the physical and chemical properties of LNG impacting its behavior when released and the tactics to handle the released product. It was noted that LNG is stored in both bulk and non-bulk containers similar to a regular thermos container. Such tanks are equipped with relief valves or systems to recover vapors as the LNG warms, such as re-liquefaction, used as a fuel or sent to a pipeline system/grid. LNG as a transportation fuel comes in two forms: unsaturated and saturated. Unsaturated LNG can be used by "dual-fuel" engines and saturated LNG is used by newer engines. LNG fuels stations are typically equipped with both cold (unsaturated) and warm (saturated) LNG to allow the refueling of either type of LNG powered vehicle engine.
- A clear distinction must remain between liquified petroleum gas (LPG) and LNG. Many incidents in the past involving LPG were reported as LNG incidents, whereas the two are different in terms of chemical properties and behavior, both in storage and when released. In handling LNG, especially in cases of spills and leaks, atmospheric conditions play a key role in its behavior.

3. Marine Transport of LNG

Presented by Cynthia Znati, Ph.D., Lead Chemical Engineer, U.S. Coast Guard, Hazardous Materials Division

This topic focused on the role of the U.S. Coast Guard (USCG) in managing LNG marine transport emergency preparedness and addressed some of the current issues faced in LNG marine transport nationally. Topics addressed in the presentation included:

- U.S. Coast Guard Role in Shipping
- Transport of LNG in Bulk
- Transport of LNG as Packaged HazMat
- LNG as Fuel

Key points of the presentation and follow-on discussions included the following:

- USCG deals with the prevention and shipping of LNG into the United States via marine vessels. The USCG has dual role - domestic and international. Internationally, USCG represents the US as both flag and port state. Domestically, it carries regulatory authority for bulk shipments design standards and operating standards.
- The U.S. has additional regulations in addition to international regulations that stipulate various additional features that ships/tankers must have. For example, the steel chosen for vessels must meet cold water temperatures in the U.S. where the vessel will operate.
- One of the main USCG goals in regulating LNG marine transport is *prevention,* including the applicability of international codes. As regulations for LNG do not apply retroactively, the USCG makes sure that ships bringing LNG in the US meet the code(s) they were issued when the vessel initially entered service. It also oversees the compliance of IGC codes and U.S. regulations.
- U.S. regulations tend to be stricter and mandatory for ships bringing LNG in the U.S. It was noted that most LNG tankers worldwide are built in accordance with U.S. standards.
- LNG can be found in bulk shipments on a tanker or as a packaged hazardous material (e.g., portable tank container).
- There was some discussion regarding the LNG quantities when shipped in packaged hazmat shipments. For example, the volume of LNG is inversely related to the number of passengers on a vessel (i.e., more passengers will result in less LNG on the ship).
- Tanks are built so that no venting is allowed during the journey.

4. Risk Assessment of Surface Transport of LNG

Presented by David Willauer, Cambridge Systematics, Bethesda, MD

This topical area focused on the known risks and emergency preparedness challenges of current modes of surface transportation of LNG. Topics addressed in the presentation and discussions included:

- Natural Gas Properties, Trends
- Marcellus/Utica Region
- Supply Chain Analysis
- Quantitative Risk Assessment
- Rail LNG Risk Factors
- LNG Hazard Characteristics
- Emergency Response
- Study Findings

Key points of the presentation and follow-on discussions included the following:

- Natural gas is often generated through the extraction of crude oil. Separation of natural gas in product streams remains a challenge in certain areas of the U.S. given the enormous surplus currently found in the country and the limited number of separation and cracking facilities.
- There is an increasing utilization of natural gas for export activities; primarily from the U.S. Gulf Coast by ship. The leading countries that are financing the construction of U.S. LNG facilities and subsequently importing LNG include Japan, India and the Pacific Rim.
- Natural gas is used for commercial, residential and industrial heating purposes in the U.S. and will be used a replacement of nuclear and coal generated energy as the latter are phased out.
- Long distance shipments of LNG by rail are less likely in the future because it is less expensive to transport natural gas in a pipeline, and the U.S. has an extensive natural gas pipeline network.
- Reiterating an earlier point that rail supplements pipeline networks, tank trucks (MC-338) are currently used to transport LNG in places where a pipeline network does not exist (e.g., New England).
- There was considerable discussion of ideas to improve LNG emergency response. The importance of first responder information and training were noted, including response to incidents involving crude oil and ethanol shipments and high hazard flammable trains (HHFT). Since HHFTs are defined as shipments of Class 3 (flammable liquids) such as crude oil and ethanol, LNG by rail would not currently be defined as HHFT since LNG is classified as 2.1 (flammable gas). As LNG transportation increases, first responders in communities through which LNG is transported will require supplemental information and training that complements current hazmat training.

- The USCG and MARAD continue to examine LNG fueling operations in light of interest on the part of cargo ships, cruise ships and petroleum supply vessels being fueled by LNG or as a dual (diesel/LNG) fuel. Some vessels are using LNG for both propulsion and cargo transport. This will impact bunkering operations in marine ports, including Jacksonville, FL, Miami, FL, Houston, TX, and Fourchon, LA.
- It was observed that with increasing use rail transportation for LNG, it will be very important that the Mid Atlantic regional area improve its LNG incident preparedness. Pennsylvania is second only to Texas in terms of railway miles and is also a most important center of domestic natural gas production.
- There was significant support among attendees on the need to ensure improved emergency preparedness.

5. LNG Transportation: Terminal and Transfer Operations

Presented by Arthur Buff, Community Liaison, PHMSA Office of Pipeline Safety / Southern Region

This topical area focused on LNG terminal and transfer operations, on PHMSA's mission as a federal partner in the regulation of the LNG industry, and on the state of the LNG industry both today and in the future, including the rationale for considering rail transport of LNG nationally. Topics addressed in the presentation and discussions include:

- Who is PHMSA?
- Our National Presence
- PHMSA Office of Pipeline Safety
- Regulated Pipeline Systems (as of Oct. 2019)
- LNG Facilities PA and NJ
- Why Pipeline Safety Laws?
- Energy Friendly Administration
- Prudhoe Bay Oil Field, North Slope
- What is LNG?
- LNG Exports
- LNG Incidents in U.S.
- Is LNG Hazardous or Toxic?
- LNG Vapors – Non-Toxic
- LNG Does Not Harm Fish
- LNG Does Not Burn
- Drinking Water with LNG
- LNG Risks
- Types of LNG Facilities
- Gas Purification
- LNG Import Terminal

- LNG Export Terminal
- LNG Export Production to Distribution
- Federal Oversight of Liquefied Natural Gas Value Chain
- PHMSA and FERC Regulatory Authority
- Pipeline Safety Regulations
- Regulations Open to Interpretation
- Part 193 Regulatory Requirements
- Liquefaction Refrigerants
- Liquefaction LNG Chain
- Elba Island LNG Expansion
- Elba Island LNG Facility
- Eagle/Crowley LNG Facility, 1,000,000 Gallon Storage, 200,000 gpd, Maxville, FL
- Proposed Northstar Jacksonville LNG Piping along Pier to Serve Marine based Markets (fuel for ships)
- Small-Scale LNG Facilities
- Miami LNG Plant – 100,000 gpd
- LNG Safety Research and Studies
- LNG Plant Requirements - FAQs
- LNG Advisory Bulletins (ADB)

Key points of the presentation and follow-on discussions included the following:

- The U.S. is the #1 producer of oil and gas and is now energy independent and moving towards energy dominance.
- Approximately 81% of the 2.8 million miles of pipelines in the U.S. are used for natural gas distribution and are regulated by PHMSA.
- With a 1:600 liquid to vapor expansion ratio, there are significant advantages in liquefying natural gas for rail, highway, and marine transport. Shipping natural gas in its liquid form remains the most economical method for transporting and storing natural gas.
- PHMSA regulates LNG facilities used in the transportation of natural gas if there is a pipeline transporting natural gas to or from the LNG facility. PHMSA currently regulates 26 interstate and 131 intrastate LNG facilities. FERC is responsible for siting onshore and near shore LNG import or export facilities and issuing permits.
- A total of 17 LNG export terminals have been approved by FERC and are either under construction or are awaiting construction.
- Since 1964 – 33,000 LNG ship voyages (>60,000,000 miles) have occurred without a significant spill, loss of cargo, or environmental incident. Insurance rates for LNG marine shipments 25% less than crude oil rates.
- LNG plant requirement Frequently Asked Questions (FAQ) can be found at https://www.phmsa.dot.gov/pipeline/liquified-natural-gas/lng-plant-requirements-frequently-asked-questions.

6. LNG Transportation by Rail

Presented by Mark Maday, Federal Railroad Administration, HM Division Office of Technical Oversight, Washington, DC

This topical area focused directly on the question of the viability of LNG transportation by rail, on the possible national need for increasing LNG transport through use of rail transportation, and on the hazards and concerns that need to be addressed in undertaking LNG rail transportation. Topics addressed in the presentation and discussions include:

- Abundant Affordable Natural Gas from Shale
- UN1972, Methane, refrigerated liquid (cryogenic liquid), 2.1
- Flammable Commodity Comparison
- Modal Packaging Transport Of LNG
- Surface LNG Movements (Highway)
- Background
- Currently Approved Rail Movements of LNG in UN Portable Tanks
- UN Portable Tank Shipment Experience for LNG
- Relevant Tank Car Transportation Experience
- DOT-113C120 Cryogenic Tank Car
- DOT-113 FAQ's
- LNG Research
- Special Permit Request SP-20534
- Regulatory Actions
- LNG Use as a Locomotive Fuel

Key points of the presentation and follow-on discussions included the following:

- Attendees observed that the volume, abundance, and location of natural gas production locations may very well necessitate LNG transportation via rail. As noted throughout the program, rail transportation supplements the current pipeline network, with a major challenge being an insufficient number of rail cars currently available for LNG shipment.
- Methane, the main component of natural gas, is not currently an authorized commodity for transportation by rail. Current regs only authorize bulk shipments by rail in UN T-75 cryogenic portable tanks (10,000-gallon capacity) under a special permit. Federal Railway Administration (FRA) must approve the method of transportation on the rail car. All Class I railroads have prohibitions on Class 2 materials in Intermodal Service, and current regulations do not authorize shipments in tank cars.
- At the present time only two railroads have approached FRA to ask to move LNG via rail -Florida East Coast Rail (FECR) and the Alaska Railroad (AKRR). FECR transportation routes are limited to Port Everglades and from Hialeah (near Miami) to Jacksonville, FL, even though it has permit to move LNG across the country.

- Cryogenic flammable gases such as ethylene have moved via rail for over 60 years with very sound safety record (DOT-113 tank car).
- Operational issues and/or challenges that were raised for the LNG rail transport included the following:
    - Cryogenic liquid tank cars are larger than regular tank cars.
    - As a time sensitive material, LNG would have 21 days to move from its initial shipping point to its destination.
    - There is currently no fleet of LNG tank cars; all tank cars would need to be custom built at an estimated cost of $650,000 to $750,000 per tank car.
- While Class I railroads have conducted tests using LNG as a fuel for locomotives, at the present times those projects have been postponed due to economic reasons (i.e., low cost of diesel fuel). FECR has used dual (LNG-diesel) for locomotive fuel without major issues, with performance better than originally expected.
- FRA discussions continue on requirements for the composition and thickness of the inner and outer tank shells. Full scale shell Impact Testing and analysis of a DOT-113 tank car will occur in November 2019, and an ISO tank fire test will occur in Spring 2020.

IV. OPEN DISCUSSION

Throughout the course of the Town Hall, numerous questions and discussions focused on the facts, science, risks and experiences associated with LNG transportation. At the conclusion of the Town Hall, there was agreement of the following points pertaining to LNG emergency planning and response:

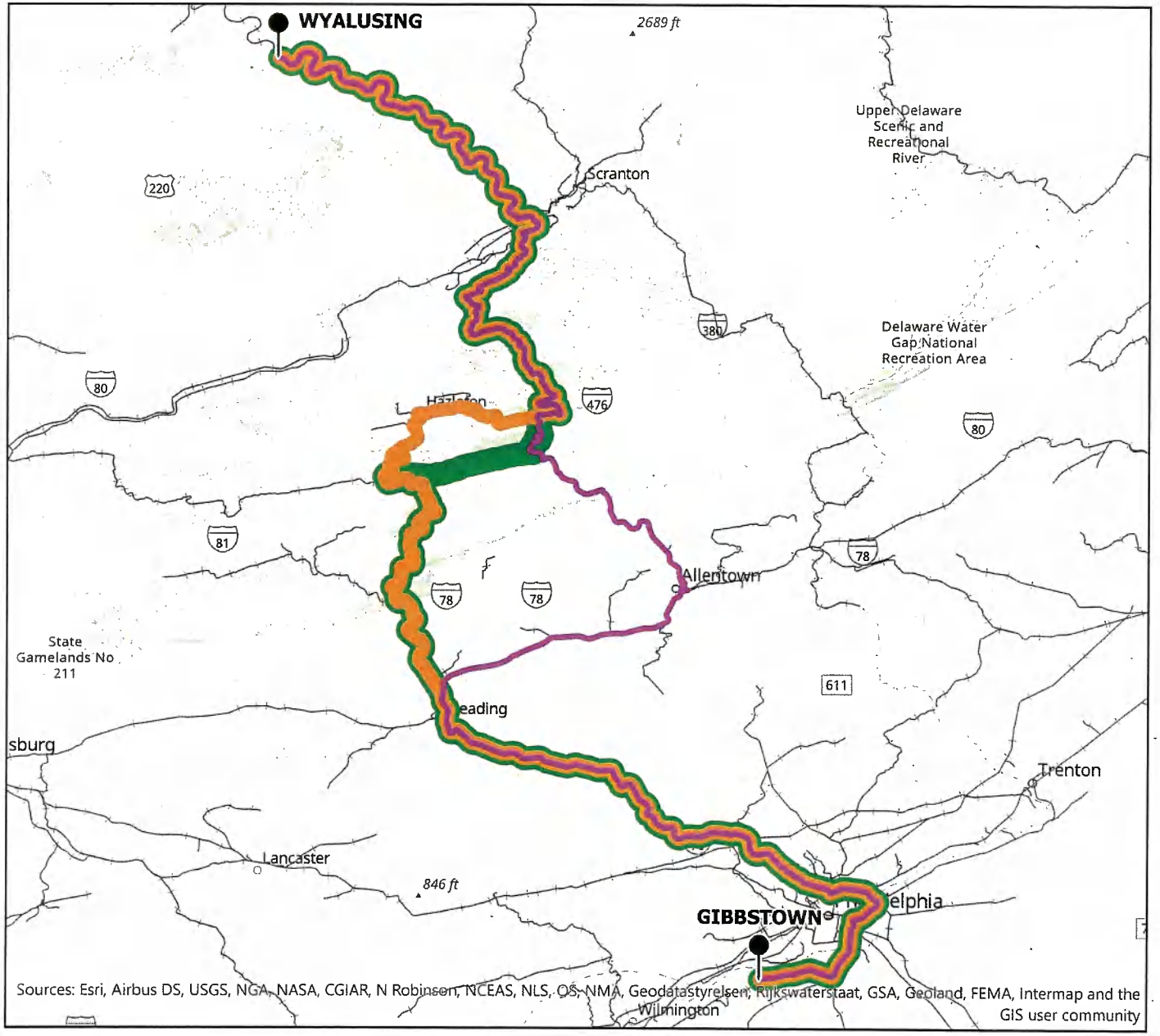
1. There is a significant body of knowledge and experience-base associated with LNG transportation via cargo tank trucks, marine, and as a modal fuel source (e.g., trucks, locomotives, marine vessels).

2. The transportation and emergency response risks associated with the surface transportation of LNG are less than those associated with the transportation of Class 2.1 flammable liquefied gases (e.g., LPG), Class 3 flammable liquids (e.g., crude oil), and Class 2.3 Toxic Inhalation Materials (TIM).

3. The emergency planning and information sharing requirements promulgated for HHFT's (HM-251 B) represent a good starting point for developing commensurate requirements for the rail transportation of LNG.

4. Pending future regulatory actions, shipper, carrier and PHMSA actions should include developing and delivering critical product, container and emergency response information and related training materials for the emergency planning and response communities.

Materials developed as a result of the HHFT issue (e.g., PHMSA TRIP-R Program, HHFT White Paper, EPA Region 5 HHFT Workshops) provide effective examples and a template for future actions.



FROM FACTOR -
(NOT NS)
AWAITING WM. TYSON (NS)
1/6 AUDIT SCHEDULED

CAN GO NORTH
BUT THRU HTUA (NY)

RBMN & LEHIGH RWY
LEHIGH RWY WYALUSING TO MAHOOPANY

RBMN MAHOOPANY
TO LEHIEGHTON

POTENTIAL FOR ALLENTOWN RTE

WEST FALLS THRU
STRAIGHT THRU PAUONIA
TO GIBBSTOWN

IF FRANFURT JUNCTION