

# Paths Forward and On-going Activities



# Task Order to Update the 2016ERG

- Incorporate new sciences
  1. Organize lab experiments that PHMSA funded in 2013 and 2016
  2. Incorporate the new algorithm for heavy gas dispersion model (DEGADIS)
  3. Perform comparisons of the IIDs and the PADs with JRI and JRII results
- Participate in industry outreach and WG
- Update the databases for chemical properties and recalculate the IIDs and PADs using the improved modeling



# Tasks to be Added to the Technical Support Document to Address Stakeholders' Concerns

- Section dealing with reduction in the distances due to national mitigation
  - TIH experiments
    - Chlorine
    - Ammonia
    - Sulfur dioxide
    - Hydrogen fluoride
    - Hydrogen chloride
    - Ethylene oxide
  - Media used for mitigation
    - 3 soil types
    - 2 or more vegetation types
    - Organic debris (leaf litter)
  - Reliability of Pamphlet 74 of the Chlorine Institute by comparing the lab data, JR data, and other improved methodology



# Tasks to be Added to the Technical Support Document to Address Stakeholders' Concerns (cont'd)

- Heavy gas dispersion modeling – DEGADIS
- Any new findings based on coordination with stakeholders including
  - Center for Toxicology and Environmental; Health
  - AAR
  - The Chlorine Institute
  - Interested Parties – Fred Millar
  - CANUTEC
- Update databases for chemical properties and toxicology
- Section including a user's manual for CD-ROM software along with an electronic copy of the software for use by emergency responders for simplified scenarios



# Timelines for Deliverables

TASK	TIMELINE
1. Compilation of 2013 and 2016 lab experiments	March 31, 2019
2. Compilation of JR I and II data for use validation	April 30, 2019
3. Documentation of 1. and 2. above to be included in the Technical Report	May 31, 2019
4. Documentation of meetings and participation to be included in the Technical Report	March 31, 2019
5. Preliminary IID and PAD values	July 31, 2019
6. Final IID and PAD values	November 30, 2019
7. A technical Support Document including <ul style="list-style-type: none"> <li>• Sections on scientific materials</li> <li>• Sections on comparison of data using lab data, JR data, and Pamphlet 74</li> <li>• Section on CD-ROM user's manual and CD-ROM</li> </ul>	Draft: July 31, 2019  Final: September 30, 2020



# PHMSA Emergency Response Research & Development Projects

- Hazardous Materials Emergency Preparedness (HMEP) Support Grant
  - Task 6: ERG2020 Orange Page Review by National Fire Academy Instructors and Subject Matter Experts
- Hazardous Materials Transportation Safety Research and Development (2017) BAA
  - Emerging Technologies: “Investigate the Development of “Smart Technology” or other Hazardous Communication Technology for HM Transporters, First Responders, HM Inspectors, and Other Stakeholders”



# Hazardous Materials Emergency Preparedness (HMEP) Grant

- The HMEP grant program was established in 1990 by the Hazardous Materials Transportation Uniform Safety Act
- In 1993, PHMSA began issuing grants to assist States, Territories, and Native American Tribes 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
- Curriculum and HMEP Support Services provided by DHS/United States Fire Administration/ National Fire Academy





# HMEP Task 6: ERG 2020 Orange Pages Research

- Task: Complete an independent validation of the safety instructions and data contained in the Orange Guide pages of the ERG, and provide updates, identification of omissions, and suggestions for reorganization.
  - Verify physical and health hazards for all 61 Orange Guide pages
  - Review stand-off distances and PPE recommendations in all 61 Orange Guide pages
  - Identify gaps, omissions, or outdated directives in all 61 Orange Guide pages
  - Review the organization of the Orange Guide pages, solicit input from the first responder community and present recommendations for improvements in reports





# HMEP Task 6: Timeline

- NFA awarded HMEP Grant support contract to Bloomsburie LLC. in Autumn 2018
- Subject Matter Experts (SME) were chosen from NFA Faculty and advisors
- Contractor chaired initial teleconference with SMEs and PHMSA in November 2018 to discuss expectations & process
- Contractor convened in-person meeting with SMEs at NFA (Emmitsburg, MD), December 2018
- January 2019
  - Interim Recommendations delivered to PHMSA
- February 2019
  - Follow-up teleconference between SMEs and PHMSA
  - PHMSA delivered response to Interim recommendations
  - Final report and recommendations delivered to PHMSA



# HMEP Task 6: Deliverables

- Reviewed all 61 Orange Guide Pages
  - SMEs classified 39 general recommendations into three tiers as determined by impact on first responder effectiveness at an accident site
- Detailed review of 260 specific hazmat commodities
  - Recommendations for change of Guide Page assignment for 41 hazmat commodities
- Recommendations are undergoing adjudication by the ERG Orange Pages Working Group



# Hazardous Materials Transportation Safety Research and Development (2017) BAA

- Broad Agency Announcement (BAA) posted on January 19, 2017
- Responses were due by April 22, 2017
- Topic 3 under “Emerging Technologies”
  - Investigate the Development of “Smart Technology” or Other Hazardous Communication Technology for HM Transporters, First Responders, HM Inspectors, and Other Stakeholders
- Three topics chosen for funding, kicked-off in Autumn/Winter 2018



# HazSMART Application

- Submitted by project partners Factor, Inc. and Spill Center, Inc.
- HazSMART will function as an ecosystem of technologies – accessible through web, desktop, and mobile platforms - that are seamlessly integrated for rapid, real-time sharing of critical HM information between diverse stakeholder groups, even across multiple transportation modes.



# 1R Mobile Application

- Submitted by A-P-T Research, Inc.
- APT will develop a mobile open architecture app that provides vehicle/cargo-specific HM data to first responders in the event of incidents involving a transport carrying HM. It will provide a capability to search for material-specific information, communicate with other emergency entities, and extract other emergency information relevant to the scene. Builds on existing “Smart City” architecture.



# Rail Smart Project

- Submitted by project partners Vanderbilt University, Olin Corp. and Lat-Lon, LLC
- The project has three distinct objectives:
  - 1) Transferring product knowledge of a recently developed and operational system to hazmat shippers who use the rail mode,
  - 2) testing new functionality for rail system application using additional technologies, and
  - 3) exploring the transferability of the rail system application to hazmat shipments by barge and truck.



# Future Research

- The next PHMSA BAA is expected in Autumn 2019
- Plan to include language soliciting recommended technology and guidance updates to the ERG2024

