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Evaluating vapor dispersion models for safety analysis of LNG facilities

FINAL REPORT BY:

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FOREWORD

This report describes a Model Evaluation Protocol (MEP) that can be used for assessing the suitability of Liquefied Natural Gas (LNG) dispersion models for estimating the size of exclusion zones around LNG facilities. The development of this MEP was funded by the Fire Protection Research Foundation (FPRF) of the National Fire Protection Association (NFPA) and the work was carried out by the UK Health and Safety Laboratory. This led to the publication of the first edition of this report in 2007 by Ivings et al. (2007).

Following the publication of this report in 2007, further work was carried out in the period 2008 to 2010 to develop and revise a database of experimental data that could be used to validate models as part of the MEP process (Coldrick et al., 2010). In addition, a review of LNG source models was produced (Webber et al., 2009) and PHMSA published an Advisory Bulletin clarifying the process for model validation (PHMSA, 2010).

More recently, substantial changes to the validation database have been made and further advice has been produced to describe how the MEP should be applied in practice (Stewart et al., 2016). This has led to a requirement to update the MEP and hence the publication of this second edition of the MEP report. This revision was carried out by the UK Health and Safety Laboratory, funded by Oak Ridge National Laboratory.

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The content, opinions and conclusions contained in this report are solely those of the authors and do not necessarily represent the views of the Fire Protection Research Foundation, NFPA, Technical Panel or Sponsors. The Foundation makes no guaranty or warranty as to the accuracy or completeness of any information published herein.

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