

Contents

Atmospheric Dispersion of Heavy Gases and Small Particles

G. OOMS and N.J. DUIJM: Dispersion of a Stack Plume Heavier than Air	1
J.M. LOTTEY, J.L. LUMLEY and T.-H. SHIH: Inclusion of Particles in Second-Order Modeling of the Atmospheric Surface Mixed Layer	25
J.A. FAY: Experimental Observations of Entrainment Rates in Dense Gas Dispersion Tests	39
O. ZEMAN: Entrainment in Gravity Currents	53
P.C. CHATWIN: The Incorporation of Wind Shear Effects into Box Models of Heavy Gas Dispersion	63
K.S. MUDAN: Gravity Spreading and Turbulent Dispersion of Pressurized Releases Containing Aerosols	73
D.L. MORGAN, jr, E.J. KANSA and L.K. MORRIS: Simulations and Parameter Variation Studies of Heavy Gas Dispersion Using the Slab Model - Condensed	83
D.M. DEAVES: Application of Advanced Turbulence Models in Determining the Structure and Dispersion of Heavy Gas Clouds	93
S.T. CHAN and D.L. ERMAK: Recent Results in Simulating LNG Vapor Dispersion over Variable Terrain	105
N.O. JENSEN: On the Dilution of a Dense Gas Plume: Investigation of the Effect of Surface Mounted Obstacles	115
J. McQUAID: Large Scale Experiments on the Dispersion of Heavy Gas Clouds	129
S. HARTWIG, G. SCHNATZ and W. HEUDORFER: Improved Understanding of Heavy Gas Dispersion and its Modelling	139
H.C. RODEAN: Effects of a Spill of LNG on Mean Flow and Turbulence under Low Wind Speed, Slightly Stable Atmospheric Con- ditions	157

A. BADR:	Temperature Measurements in a Negatively Buoyant Round Vertical Jet Issued in a Horizontal Crossflow	167
J.A. HAVENS and T.O. SPICER:	Gravity Spreading and Air Entrainment by Heavy Gases Instantaneously Released in a Calm Atmosphere	177
D.J. HALL, E.J. HOLLIS and H. ISHAQ:	A Wind Tunnel Model of the Porton Dense Gas Spill Field Trials	189
S.C. CHEAH, S.K. CHUA, J.W. CLEAVER and A. MILLWARD:	Modelling of Heavy Gas Plumes in a Water Channel	199
F.G.J. ABSIL and G.L.H. BEUGELING:	The Entrainment of Small Particles by a Turbulent Spot	211
M.W. REEKS:	On a Model for the Turbulent Re-Entrainment of Small Particles	221
J. McQUAID:	Observations on the Current Status of Field Experimentation on Heavy Gas Dispersion	241
D.J. RIDE:	A Probabilistic Model for Dosage	267
G.W. COLENBRANDER and J.S. PUTTOCK:	Maplin Sands Experiments 1980: Interpretation and Modelling of Liquefied Gas Spills onto the Sea	277
B.W. BOREHAM and J.K. HARVEY:	Monitoring the Atmospheric Diffusion of Puffs and Plumes with Bipolar Space Charge at Small Scale in Wind Tunnels	297
K. EMBLEM and P.A. KROGSTAD:	Experimental and Theoretical Studies in Heavy Gas Dispersion. Part I. Experiments	307
T.B. MORROW, J.C. BUCKINGHAM, F.T. DODGE:	Water Channel Tests of Dense Plume Dispersion in a Turbulent Boundary Layer	323
D.D. STRETCH, R.E. BRITTER and J.C.R. HUNT:	The Dispersion of Slightly Dense Contaminants	333
J.W. ROTTMAN and J.E. SIMPSON:	The Initial Development of Gravity Currents from Fixed-Volume Releases of Heavy Fluids	347
J.C.R. HUNT and J.W. ROTTMAN:	Some Physical Processes Involved in the Dispersion of Dense Gases	361

D.M. WEBBER:

Gravity Spreading in Dense Gas Dispersion Models 397

Ø. JACOBSEN and T.K. FANNELØP:

Experimental and Theoretical Studies in Heavy Gas Dispersion. Part II: Theory 407

A.P. van ULDEN:

A New Bulk Model for Dense Gas Dispersion: Two-Dimensional Spread in Still Air 419