Guidance on petroleum road tanker loading (Ripple loading)

energy institute

GUIDANCE ON PETROLEUM ROAD TANKER LOADING (RIPPLE LOADING)

1st edition

March 2015

Published by
ENERGY INSTITUTE, LONDON
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Registered charity number 1097899

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Vattenfall
Vitol
World Fuel Services

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ISBN 978 0 85293 729 7

Published by the Energy Institute

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FOREWORD

This *Guidance on petroleum road tanker loading (ripple loading)* has been prepared for the Energy Institute's (EI) Distribution and Marketing Safety Committee.

It provides information on the risk benefits of ripple loading of petroleum tankers, identifies procedural differences between terminals, identifies factors to be considered when developing a road tanker loading procedure and defines an industry procedure for road tanker loading.

Time costs have been investigated for the various loading options and the results show that the time difference in loading the tanker is minimal between the different loading options. This demonstrates that by using the maximum number of loading arms, it is not necessarily more efficient and safety can be compromised due to human failure.

The time model can be adjusted to suit terminal flow rates and can therefore assist terminal operators to develop a suitable road tanker loading procedure and help find an optimal balance between safety and time costs.

ACKNOWLEDGEMENTS

The EI wishes to acknowledge the members of the EI's Distribution and Marketing Safety Committee who contributed to the development of this publication:

Anthea Aggus	Shell
David Athersmith	Consultant
Russell Best	Phillips66
Dr. Hugh Bray	Tank storage Association
Tony Brown	FPS
Colin Fenwick	Wincanton
Vickie Knight	Shell
Neil Leyshon	BP
Barrie Salmon	Tank Storage Association
Stuart Walker	ExxonMobil
John Wormald	TOTAL

The EI is particularly grateful to Russell Best, Chairman of the Distribution and Marketing Safety Committee, who was the author for this publication.

The EI would also like to acknowledge the Distribution and Marketing Committee and the Road Tanker Panel, who reviewed drafts of this publication, in particular those who contributed to the peer review:

Robert Harris	Amber Engineering Consultants (Chair – Road Tanker Panel)
Martin Coleman	BP
Mark Scanlon	EI
Eddie Stephenson	BP

Technical editing and project co-ordination was carried out by Toni Needham (EI).

1 INTRODUCTION

Ripple loading is a term used in the UK downstream petroleum industry to describe a method of bottom loading petroleum road tankers: the basic principle used is that a single tanker compartment is connected and its filling is commenced before the driver couples to and fills another compartment. It has been adopted at the majority of large fuels distribution terminals in the UK.

There is no generic procedure for ripple loading although many UK terminals have developed quite detailed loading procedures which explain the ripple loading process; however, these procedures differ slightly from terminal to terminal.

Developing or reviewing terminal loading procedures based upon the discussions and methods in this document may help to manage loading risks. The development of a time model which takes account of flow rates and loading arm availability may highlight where there are opportunities to even out the peaks of demand on the loader and build in opportunities to check, and remove the opportunity to rush.

This document sets out to:
- explain the risk benefits of ripple loading;
- identify procedural differences between some terminals;
- identify factors to be considered when developing a ripple loading procedure, and
- define a model industry detailed procedure for road tanker loading.

2 SCOPE

This document discusses the bottom loading of petroleum tankers at UK downstream petroleum terminals; it does not consider the loading of bitumen, heavy fuel oils, lubricants or LPG products.