

THE INSTITUTE OF PETROLEUM  
RESEARCH REPORT

INVESTIGATION OF FACTORS CAUSING LEAKAGE  
AT ROAD TANKER LOADING GANTRY  
COUPLER/TANKER ADAPTOR INTERFACE

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# FOREWORD

This publication provides the report of an investigation that the IP Distribution and Marketing Committee commissioned into the mechanical factors which may cause leakage of petroleum product at the interface between the road tanker loading gantry coupler and the road tanker adaptor. The work was undertaken by Mechanical Engineering Consultancy Service<sup>1</sup>, University of Southampton, U.K. under contract to the IP during 2002.

The investigation was commissioned to enhance the knowledge of the petroleum distribution industry of the mechanical factors that may lead to product leakage from the road tanker loading gantry/road tanker connection during loading operations. There is experience of the loading gantry coupler/road tanker adaptor connection being correctly made but product 'weeping' from it, and also limited experience of complete disconnection of the components. Although distribution facilities are designed and operated to ensure the continued safety of personnel and avoidance of damage to equipment following such product release incidents, their occurrence is undesirable.

The focus of this study was on the mechanical wear that occurs to loading gantry couplers and road tanker adaptors during normal operations and on providing options that may reduce loss of containment incidents.

The results of this work will be incorporated into appropriate industry publications, including IP Model Code of Safe Practice Part 2 *Design, construction and operation of distribution installations*<sup>2</sup>.

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<sup>1</sup> Mechanical Engineering Consultancy Service, Research Institute for Industry (*RIfI*), School of Engineering Sciences, Mechanical Engineering, University of Southampton, Highfield, Southampton, SO17 1BJ, United Kingdom. Tel: +44 023 8059 4881, Fax +44 023 8059 3230, [www.mech.soton.ac.uk/consult.htm](http://www.mech.soton.ac.uk/consult.htm)

<sup>2</sup> A new edition is currently in preparation.

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