Session 2a: Higher capacity vehicles 1

Monitoring results of two PBS demonstration vehicles in the forestry industry in South Africa

Paul Nordengen, CSIR Built Environment, South Africa, pnordengen@csir.co.za

As a result of initiatives in Australia, New Zealand and Canada, the application of performance-based standards in the heavy vehicle sector in South Africa was identified by the CSIR as a research area warranting Parliamentary Grant funding because of the potential benefits in terms of transport efficiency, road/vehicle safety and the protection of road infrastructure.

As part of the PBS research programme, a need was identified to design, manufacture and operate a number of PBS demonstration projects in South Africa in order to gain practical experience in the performance-based standards approach for heavy vehicles and to quantify and evaluate the potential safety and productivity benefits of this approach for road freight transport. To this end, two PBS demonstration projects were implemented in the forestry industry. Operators of these vehicles are required to be accredited through the Road Transport Management System (RTMS) self-regulation programme. The two PBS vehicles were designed and manufactured to comply with Level 2 safety standards of the Australian PBS system. These include high and low speed directional and non-directional manoeuvres such as startability, gradeability, acceleration capability, frontal swing, tail swing, slow speed swept path, tracking ability on a straight path, static rollover threshold, rearward amplification, yaw damping and high speed transient off-tracking.

Further research work is planned to develop an appropriate PBS framework for South Africa.

This paper presents the monitoring and evaluation results of the operation of two PBS demonstration vehicles that commenced operation in November and December 2007 respectively, in the forestry industry in KwaZulu-Natal, South Africa, until July 2008. Initial findings in terms of their performance are presented together with some conclusions and recommendations.

Based on the initial positive results in terms of road wear, safety, emissions and productivity, the following recommendations are made:

• Promote the planning and implementation of PBS demonstration projects in other industries in South Africa. There are currently a number of potential projects that are all in the concept phase representing the mining, agriculture, steel and manufacturing sectors.

• Implement a larger scale PBS demonstration project in the forestry industry in order to obtain a larger sample of data, particularly for the evaluation of safety performance.

• Continue with the research programme to develop a proposed framework for the design, manufacture and operation of PBS vehicles in South Africa.

• Develop and implement a requirement for improving the control of PBS vehicles on the road network through vehicle tracking devices to enable real time and historic monitoring of PBS vehicles by road authorities and auditors.