Discussion Paper #3

Standardized Tests

Issue

Currently, there is no nation-wide standardized curriculum and test that allows employers, via institutions, to uniformly and consistently test and certify their employees who are involved in the transportation of dangerous goods (TDG). This lack of a measurable national benchmark does not provide an objective framework to assess whether individuals involved in the transport of dangerous goods are adequately trained. In addition, while individuals can demonstrate that they are qualified by providing a valid certificate, there is no way to validate what "qualified" means.

This paper reviews options for a standardized test for TDG training based on tests that have been developed at Transport Canada (TC) but not directly related to the transportation of dangerous goods, and tests that have been developed externally by international trade associations or other governments, which are directly related to the transportation of dangerous goods.

The goal of this paper is to stimulate discussions and present options for the development of a standardized test(s) through potential amendments to Part 6 (Training) of the regulations.

Background

According to the SAGE Encyclopedia of Social Science Research Methods, a *standardized test* has certain distinct features such as:

- having clearly stated purposes;
- being developed using highly structured procedures;
- having carefully controlled conditions of administration;
- utilizing systematic score interpretation; and
- possessing various technical properties.[1]

This implies that a standardized test is well structured, however its development may be resource intensive as various iterations of the test need to be evaluated and agreed upon by consensus. By providing a national benchmark, a standardized test can be used as a tool to accredit institutions, certify trainers, and confirm an employee's eligibility for subsequent certification by an employer.

Research indicates that other areas within TC already have standardized tests, for example, marine tanker safety training courses, and Railway Employee Qualification Standards. Collectively, these programs utilize general testing to assess the basic skills required to do the

[1] The SAGE Encyclopedia of Social Science Research Methods, Volume 1. By Michael S. Lewis-Beck, Alan Bryman, Tim Futing Liao. ISBN: 0-7619-2363-2 p. 1070.

job, and specialized testing to assess special knowledge and skills, based on the concept of competency-based training and assessment.

Considerations

Possible advantages of Standardized Curriculum and Testing:

- Allow for the assessment of an employee's understanding of what they need to know to do their job and to comply with the legislation.
- Identify specific areas of training where the employee has a poor understanding and therefore needs to pay particular attention.
- Improve training programs by identifying problem areas that are not attributed to the employee but to the program itself.
- Provide guidance to trainers since standardized tests often have an instructional framework that specifies what needs to be taught and the most appropriate training tools and/or approach for effective delivery.
- Establish performance standards that would allow employees, trainers, and training institutions to monitor and improve performance on an ongoing basis.
- Expand the existing pool of trained employees available to an employer by allowing for mobility between employers and within jurisdictions, thereby reducing labor shortages.

Possible disadvantages of Standardized Curriculum and Testing include:

- They can cause trainers and institutions to only "teach or train to pass the test," thereby not allowing for the development of analytical thinking and judgment that is necessary to ensure compliance.
- They evaluate an employee's performance on one particular day which may not be reflective of the employee's ability to retain and apply the knowledge over a period of time, nor the employee's commitment to continuous improvement.
- They can be resource intensive and time consuming to develop, especially where there may be difficulties in reaching consensus.

Special instances

Recognizing the complexity of the TDG regime, based on the various classes of dangerous goods and multiple job functions, there may be varying capacity conditions nationwide depending on geographical locations. Therefore standardized testing may need to allow for greater flexibility, yet maintain a degree of consistency. For example, in remote areas, an employee may hold multiple job responsibilities (e.g., consignor and truck driver primarily dealing with air transport) which requires a wide base of knowledge; however, the employee may not need to have knowledge, or be tested, in another area (e.g., rail transport) because their job responsibility may never require it.

However, in cases where the employee transitions to another role or geographical location, standardized testing, based on a bank of questions, would allow for a form of graduated testing and would provide flexibility for this transition. For example, if the employee moves to a large city that primarily transports dangerous goods by rail, then a test specifically on Part 10 (Rail) of the *Transportation of Dangerous Goods Regulations* could be administered to ensure specialized knowledge in that area.

Using a nation-wide standardized test would also allow for transferability insofar as this would be similar to how drivers' test are transferable between provincial and territorial jurisdictions, allowing for individuals to move from one province/territory to another and not require another driver's test to be taken unless they are changing class type.

Potential Option

A potential option could entail working with partners and stakeholders (e.g., Employment and Social Development Canada, provinces and territories, training institutions, trade associations, etc.) to develop an approved competency framework that would form the basis for developing a standardized curriculum and test. This would set a nationwide baseline to assess individuals who must achieve a set pass mark that demonstrates that they are adequately trained and can be certified, and that they possess the necessary skills to be involved in the safe transport of dangerous goods nationally.

Generalized Test

One method that could be employed in the testing is to use a bank of questions where each part of the regulations (e.g., classification, documentation, means of containment, etc.) has a pre-approved bank of questions from which the training institution can draw upon to test individuals. Variance in the testing could either be through a set number and a set selection of questions to be used, or either through a set number and a randomized selection of questions to be used by the institution; in any case, the questions would be originating from a pre-determined set that would allow for a controlled setting.

Specialized Test

Specialized tests may need to be administered to demonstrate an employees' knowledge based on specific job responsibilities. For example, someone who is a consignor may require different knowledge than a truck driver who is transporting the dangerous goods, as the consignor is responsible for areas such as classification, documentation, Safety Marks, Means of Containment, etc; whereas a truck driver requires knowledge in Safety Marks, Documentation (placement within the truck), Emergency Response Assistance Plans, and Accidental Release and Imminent Accidental Release Report Requirements. In order to achieve this, it may be possible to develop additional tests with the other questions in the bank of questions that the consignor (or the truck driver) would need to pass for an extra level of certification in the respective specialized areas.