Technical Circular T – 11/04
Date: September 30, 2004

To: District Managers, Transportation
Director, Construction and Maintenance Branch
Director, Engineering Branch
Engineering Branch Section Heads
Regional Managers of Engineering
Regional Managers, Operations
Regional Geotechnical and Materials Engineers
Manager, Engineering and Real Estate Operations, MoF
Director, Commercial Vehicle Safety and Enforcement, MPSSG

Subject: Tire Pressure Control Systems
Use During Seasonal Load Restriction Period

Objective:

The Ministry of Transportation (MoT) will now allow exemptions to the Seasonal Load Restrictions Program when Tire Pressure Control System (TPCS) technology is used.

Background:

Seasonal Load Restrictions, restricting the legal loads carried by trucks, are placed on many roads used by industry during the spring. The load restrictions are intended to prevent excess damage to the roads during a time when the roads are weakened and the restrictions can be in place from 6 to 8 weeks or even longer. With these restrictions in place, it can become uneconomic for industries to use the roads.

The Seasonal Load Restrictions are put in place by use of frost probe data, historical beam reading data and weather data for the current year. Typically, the timing for the removal of load restrictions is based on regional beam data but also on historical data and visual observations. It has been shown that with the use of reduced tire pressures with TPCS, there is no increase in damage to the road during the later portion of the Seasonal Load Restriction period. Trucks can therefore start hauling at an earlier date during this period on selected roads.

TPCS allows truckers to automatically reduce and increase tire pressures to pre-set optimum levels over the course of a trip by use of an onboard computer. A data logger installed in the truck records tire pressures and vehicle speeds during the trip and this information will be downloaded. This information along with vehicle axle weights, will be monitored by government staff to ensure compliance with the regulations and to ensure safety.

The benefits to the truck based industries and to the Provincial economy include the following:

- more efficient use of trucks,
- traffic congestion at times will be reduced,
- inventory carrying costs and land use costs are reduced,
- multiple log handling in yards is reduced
- the yield and value of wood is increased due to the hauling of fresh logs during this period
- extended employment season for workers
- highway infrastructure degradation is reduced if Tire Pressure Control systems are used outside the Seasonal Load Restriction period.

It is intended that, with this technology, the government will ensure that the resource roads are not significantly damaged by inappropriate use during the spring thaw.

Details of the TPCS program:

Individual firms (i.e. forestry companies, trucking companies, mining companies, oil and gas industry, fuel hauling companies, etc.) would make formal application to MoT District offices for inclusion of specific roads and trucks into the program. Individual MoT Districts would then review the application for suitability and issue the exemption letter of authorization. Enforcement of the exemption would be the jurisdiction of Ministry of Public Safety and Solicitor General. This would done by accessing data loggers installed in each truck with information made available for viewing. Hauling on specified roads would commence when road strength has reached permitted values. See attached flow chart of process.

Application to MoT would need to include the following details:

- List of proposed roads and posted speeds
- Firm making application and contact information (address, phone and fax numbers, email)
- Beam Consultant registered in MoT Registration Identification Selection and Performance Evaluation System (RISP)
- Truck Company Name and contact information
- Truck and trailer configuration. A list of typical truck configurations is provided for information in Attachment 3. This list is not a list of acceptable configurations but only provides configurations for discussion, terminology and identification.
- Truck and trailer vehicle Identification number
- Truck and trailer plate numbers
- Number of proposed daily loads and days of hauling

- Precondition survey data (loaded and unloaded lanes):
    1. Beaming of key road segments at peak strength (early fall) (one 1000m long control section per proposed road segment, one beam reading per 100 m, control section placed at the weakest point within the road)
    2. Video of proposed segment taken as driving along the road segment and under good lighting at a speed of less than 50km/h

This policy does not permit the use of single axle rear jeeps. It should also be noted that all single non steer axles are restricted to axle weights of 8,000 kg. Also, this policy does not affect tire pressures for steer tires. Applicable tolerances are not included in determination of vehicle axle weights.

District will review the roads for suitability considering the age, condition, structural make up of the road and other traffic loading. Some roads may be excluded as they are deemed to be at very high risk of deterioration. Roads to be excluded from the program will be those that have peak fall strength reading above 1.5mm.

The Letter of Authorization to the applicant is to be reviewed by Manager of Commercial Transport, Ministry of Public Safety and Solicitor General.

When issuing the approval, the District will specify the following:

- List of roads for which the approval applies,
- List of acceptable trucks, configurations (TABLE)
- Required tire pressures will be 55 psi for travel speeds of 50km/h and 65 psi for travel speeds of 80 km/h. The Ministry District offices will review travel speeds as provided in the Industry applications according to the posted speed limits and the road alignment challenges.
- Threshold rebound value (as proven by the Benkleman Beam testing) will be 1.5mm before hauling can commence (i.e. trucks may still be prohibited from hauling during the very weakest road strength conditions).
- Required TPCS truck equipment shall include data loggers to permit enforcement audits. Data loggers must collect and collate the following data for that portion of the route that is load restricted:
    - trip route,
    - TPCS-controlled tire pressures, and
    - truck speeds.

  Data must be collected at a frequency that allows enforcement for any point along the route.
- Axle weights for each trip must be added by the applicant to the trip data and posted on the web site.
- Benkleman Beam data collection requirements – the applicant is responsible for beaming of the road to determine when the rebound value reaches the required threshold value at which time hauling can begin. Beaming must be carried out at the same location as the early fall test section where the maximum strength was determined.
- Signage on approved TPCS road shall be erected before start of hauling.

Applications must be submitted by no later than October 15 for the following road strength loss season.

Penalties

Penalties for failing to follow the terms of the exemption as determined by audits of the data logs would be incremental:

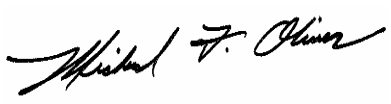
1. First offence – written warning to trucker and applicant firm
2. Second offence – exemption voided for remainder of load restriction season to trucker and written warning to applicant firm
3. Third offence - a three year moratorium would be placed on that trucking company and/or the division of the applicant firm for application to the program anywhere in the province

Ministry reserves the right to immediately revoke permissions for individual truckers and/or the trucking company for gross violations without proceeding through the intervention process described above.

Additional Conditions:

1. MoT retains the right to revoke the exemption at any time without notice during the TPCS Haul Program.

Contact:
Mike Oliver, P. Eng.
Chief, Geotechnical, Materials and Pavement Engineer
Engineering Branch



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Mike Oliver for
Dirk Nyland, P. Eng.
Chief Engineer

Attachments

1. Sample Letter of Authorization
2. Application Form
3. Truck configurations
4. General Benkelman Beaming Guidelines in Support of Tire Pressure Control Systems
5. Flow Chart of application and approval process
6 Standard TPCS Haul Route signage