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TITLE OF DIPLOMA THESIS:

An integrated Safety Management System (SMS) of the railway engineering structures; Railroad overpasses and lineside fences

AUTHOR: Angeliki Kalatha

ABSTRACT

Safety is one of prime importance target for railway companies and depends on a number of factors such as the condition of the railway infrastructure. Consequently, safety level of individual subsystems in rail transport should be analyzed and assessed separately. The term "Safety Management System" includes the processes which are followed, the means used and the measures taken to achieve the safety level required. Adopting a structured approach to safety enables the identification of hazards associated with the activities of the organization and an ongoing risk management with the aim of accident prevention. The assessment of the consequences and of probability for each of the identified hazards allows the prioritization of main threats that need to be analyzed in greater detail. This diploma thesis constitutes an approximate attempt at presenting this dynamic and important issue, in a simple way for the user and focuses on the field of rail engineering structures. The engineering structures under examination are road overpasses and lineside fences. Both of these engineering structures serve a common purpose which is the reduction of risks associated with the interfaces of the rail network with its environment. The proposed system includes the following interdependent processes: a) identification of all reasonably foreseeable hazards through field inspections, b) production and maintenance of a hazard record for the system that is to be assessed, c) systematic safety monitoring using indicators related to the engineering structures and accidents, d) detailed recording of incidents occurring in both categories, e) risk assessment principles taking into account the data obtained from the field and statistics, and f) decision-making methodology that will assist the railway infrastructure managers to decide, based on robust processes, the size and type of interventions to be made at the engineering structures in order to improve the level of functional safety. Ultimate aim is the provision of a practical tool for the railway companies and the simultaneous compliance with all specified safety requirements concerning the examined structures

KEYWORDS

Safety management system; railroad overpass; lineside fence; risk assessment criteria; risk reduction measures; decision making system