1.0 Purpose of Project

1.1 Objective

This project involved an extensive over-the-road test of a combined set of promising *fatigue management technologies* (FMT) in trucking operations in Canada and the United States (U.S.). The objective was to determine how drivers engaged in over-the-road trucking operations reacted to such technologies, and whether the technologies would improve the alertness and fatigue awareness of commercial truck drivers by providing them with information feedback about changes in sleep need, in drowsiness, and in driving performance.

1.2 Task

This study included an experimental design and instrumentation plan, and a pilot field trial test of commercial truck drivers' reactions to a combination of some of the more promising *fatigue management technologies* (FMT), under current federally-mandated hours-of-service in both Canada and the U.S. Since it was neither cost-effective nor practical to conduct a separate study of each individual technology, the selected technologies were combined and tested as a set within in a single field trial that had two phases—one completed in Canada and a second phase completed in the U.S.

1.3 Specific aims

The primary specific aim of the project was to experimentally evaluate whether the fatigue management behaviors of commercial motor carrier drivers in the U.S. and Canada would be influenced by information feedback from a combination of some of the more promising *fatigue management technologies,* during routine driving schedules. Specifically, we sought to determine whether feedback from combined fatigue management technologies would enhance drivers' alertness and performance at work, and increase their sleep times on workdays and/or non-work days. A secondary specific aim was to obtain drivers' reactions to the fatigue management technologies.

1.4 Primary hypothesis

It was hypothesized that deployment of a combination of *four fatigue management technologies* would result in objectively more sleep (determined by actigraphy) and improved driver alertness and driving (as assessed by lane tracking and PERCLOS measure of slow eyelid closures) under both current U.S. and Canadian hours-of-service rules.