Exponent®
Engineering and Scientific Consulting

Accident Reconstruction

Overview

Exponent's accident reconstruction engineers are educated and experienced in a broad range of technical disciplines. This combination of skills enables us to analyze complex accidents involving virtually every type of on-road, off-road, and industrial vehicle or utility equipment. We analyze single- and multiple-vehicle accidents of all types and investigate the roles of operator, environmental, and vehicle factors in such accidents. Our multidisciplinary approach provides clients with accurate and timely solutions to their technical problems.

Our services include:

- Analysis and reconstruction of accidents involving vehicles of all types
- Evaluation of vehicle, human, and environmental factors
- Examination and evaluation of vehicle systems and components
- Full-scale crash tests and handling demonstrations
- Documentation of accident sites
- Computer-aided simulation and animation of accidents
- Analysis of perception/reaction and vision/visibility issues
- Rapid-response accident investigation teams
- Analysis of pedestrian/vehicle accidents
- Articulated vehicle dynamics and braking systems
- Vehicle/equipment specification evaluation
- Occupant kinematics and injury analysis
- Fleet/commercial maintenance regulations and evaluation
- Commercial vehicle driver regulations
- Risk analysis
- Commercial vehicle OSHA safety procedure evaluation
- Commercial vehicle environmental and hazardous material procedures evaluation
- Identification of actions that could have been taken to avoid the accident

Our clients rely on us to determine what happened in an accident and why it happened. In many cases, they also want us to discover what could have been done to reduce the severity of the accident or to reduce injuries to those involved. Exponent performs thorough analyses to develop a sequential "history" of the accident that is consistent with physical evidence. Our analytical procedure consists of a series of systematic steps that includes reviewing documents, identifying technical issues, documenting the accident site, and conducting vehicle and component inspections.

Our rapid-response accident investigations provide factual information regarding vehicle accidents. The primary purpose of these fact-gathering inspections is to develop the technical information necessary to permit the client to make a meaningful assessment of the accident in the preliminary stages of investigation. A preliminary technical evaluation after such an inspection would include identifying possible causes of the accident, contributing factors, and other potential issues that could be raised, and would document and preserve the physical evidence. Our analyses also include conducting information searches, analyzing the dynamic behavior of vehicles, testing vehicles or components, and communicating technical results in a clear and timely manner.

We have analyzed complex accidents involving a wide range of commercial vehicles, fleet vehicles, and utility equipment.

Along with more conventional accident reconstruction techniques, Exponent uses state-of-the-art, three-dimensional computer simulation and analysis software, full-scale vehicle testing, and practical experience gained from conducting crash, vehicle handling, braking, and component tests to determine the crash and occupant dynamics in single- and multi-vehicle accidents. Our engineers' education and experience in a broad range of technical disciplines enables us to analyze complex accidents involving a wide range of vehicles.