



Introduction to Consequence Analysis

**A Five-Day Course Prepared and Conducted By
Quest Consultants Inc.
Norman, Oklahoma, U.S.A.**

Recent major incidents involving vapor clouds, explosions, and fireballs have intensified industry and government efforts to understand and manage these risks. The increased use of risk analysis requires consequence modeling of such accident scenarios.

The objective of this course is to explain the basic physical principals of consequence modeling as it relates to the petrochemical industry. The course presents practical state-of-the-art methods for evaluating the consequences of flammable and toxic vapor cloud dispersion, vapor cloud explosions, confined explosions, pool fires, flare and torch fires, and Boiling Liquid Expanding Vapor Explosions (BLEVEs). Theoretical research and experimental data will be presented that support the choice of models for specific applications. Examples of actual accidents illustrate and validate the models used.

During the course, all participants will be encouraged to use the CANARY by Quest® consequence modeling software. Other software will also be available for use during the course.

This course is intended for engineers and safety professionals who are required to understand and quantify the effects of accidental releases that result in toxic and flammable vapor clouds, explosions, and BLEVEs with fireballs.

Course Contents

- Introduction to modeling procedures
- Basic concepts used in consequence analysis
- Fire Radiation Models
 - Pool Fires
 - Flares
 - Torch Fires
 - BLEVEs and Fireballs
- Release Models
 - Liquid
 - Vapor
 - Aerosol
- Vapor Dispersion
 - Source Models
 - Aerosols
 - Pool Vaporization
 - Dense Gas Dispersion
 - Momentum Jet Dispersion
- Explosions
 - TNT Models
 - TNO Multi-Energy
 - Baker-Strehlow
- Examples of model applications to accidental releases