All New Pipeline Toolbox 2013

The Standard of the Pipeline Industry for Over 17 Years and Counting

The Pipeline Toolbox is the most comprehensive suite of Pipeline software tools on the market.   It is designed to increase the productivity and efficiency of the user by providing an "integrated" suite of "technical tools" to solve day-to-day pipeline design, analysis, integrity, maintenance, safety, compliance and related engineering problems.

This new version contains an added set of software applications for estimation, assessment, and modeling of accidental releases from pressurized gas and liquid hydrocarbon pipelines. The mathematical models implemented in the software are based on extensive industry research and current technology. Every attempt has been made to make the user interface intuitive, simple and as straight forward as possible.

New Software Modules:

- Calculations of product lost during accident as required by 49 CFR 195 and 49 CFR 191/192
- Risk consequence analysis and environmental impact estimation for existing or new pipelines, or simply for calculation of the product lost.

The new applications will provide the user with the capability to run different scenarios depending on the accident leak location, pipeline section details, product flowing data, and other information.

Two models have been included that cover both gas and liquid hydrocarbon pressurized pipelines:

- For accidental release from a hole in the pipeline (usually referenced as a "small hole")
- For accidental release from a full-bore pipeline rupture (Usually referenced as "guillotine" type of pipeline rupture)

For gas pipelines the accidental release flow rates from a hole in the pipeline cover both sonic (choked) and subsonic conditions, as well as gas lost due to a full bore pipeline rupture

For an accidental discharge from a liquid hydrocarbon pressurized pipeline, the software includes calculation of the spray zone in addition to flow rate/spill volume with a full bore rupture.

Updated Help & Reporting Functionality:
The context sensitive Help system has been updated with a detailed description for each of the new implemented calculation procedures/equations in the Pipeline Toolbox 2013. The Reporting system has also be updated for all implemented procedures.

Updated Pipeline Regulations:
The Pipeline Toolbox 2013 also includes up-to-date US DOT/PHMSA pipeline regulations in searchable electronic format:

REFERENCES: The below documents/models were researched/referenced in the analysis and design of the new software application modules contained in the Pipeline Toolbox 2013:
1. Handbook of Chemical Hazard Analysis Procedures, US FEMA, DOT, EPA
2. Risk Management Program Guidance for Offsite Consequence Analysis, US EPA
3. GRI-00/0189, A Model for Sizing High Consequence Areas Associated with Natural Gas Pipelines, Gas Technology Institute
4. TTO Number 14, Delivery Order DTRS56-02-D-70036, Derivation of Potential Impact Radius Formulae for Vapor Cloud Dispersion Subject to 49 CFR 192, Michael Baker Jr., Inc.

5. API Recommended Practice 520, Sizing, Selection, and Installation of Pressure-Relieving Devices in Refineries, Part I, American Petroleum Institute,

6. API Recommended Practice 521, Guide for Pressure-Relieving and De-pressuring Systems, American Petroleum Institute,

7. Crane Limited, Flow of Fluids through Valves, Fittings, and Pipe, Technical Paper No. 410-C, Crane Engineering Division

8. Bosch, C.J.H. van den and N.J. Duijm, The Netherlands Organization of Applied Scientific Research. Methods for the Calculation of Physical Effects, *CPR 14E: Part (TNO Yellow Book)*,

9. Ramskill, P.K., Discharge Rate Calculation Methods or Use in Plant Safety Assessments, Safety and Reliability

10. Bird, R.B., Stewart, W.E., and Lightfoot, E.N., Transport Phenomena , John Wiley & Sons, New York, New York, USA

11. California State Fire Marshal, Hazardous Liquid Pipeline Risk Assessment, California, USA,

12. Perry's Chemical Engineers' Handbook, Eighth Edition / Edition 8, McGraw-Hill Professional Publishing

13. 49 CFR 195, 191, 192

14. ASME B31.8 and ASME 31.4