Leading provider of software for managing risk

6th July 2011

Dear Phast User,

About Phast v6.7

We are pleased to announce the release of Phast v6.7 containing updates in a number of areas of the program and a new Study Manager application for combining the risk results from several .psu files. Many of the new features and enhancements are described briefly below. For a more detailed description, please refer to the release notes.

Major New Features and Enhancements - For Consequence and Risk

Droplet Modelling Enhancement
As well publicised over the last few years, DNV Software has initiated a number of Joint Industry Projects (JIP) to improve the modelling of rainout. The most recent of these, JIP Phase IV, on flashing and sub-cooled liquid releases, has provided an improved version of the 1994 CCPS correlations to characterise droplet size and size distribution. This new correlation is included in Phast v6.7 as the default option.

Added output for toxic mixtures
Phast 6.7 now contains the following additional outputs of toxic effect from mixtures:

- Graphs:
  - ERPG concentration contours.
  - Mixture lethality contours in addition to component lethality contours.
- Report: component probit/lethality versus distance and mixture lethality versus distance.

Warehouse Model improvements
Phast Risk 6.7 includes a number of modifications and enhancements to the Warehouse Fire Model.

The enhancements include:
- Extension to the model for instances when there is not enough material present for the specified fire duration
- Enabling mixture lethality contours for warehouse models

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- Enabling ERPG equivalent mixture concentration contours

The modifications include
- Rename of K1/K2 liquids to ADR Class 3
- Removal of ADR Class 3 materials from appropriate fire extinction systems
- Enabling user specified reaction rate for non-PGS15 fire extinction systems

In-building model improvements
The following enhancements have been implemented in Phast 6.7 to the in-building model:
- In version 6.7, the release duration is set so that the contribution of re-evaporating liquid from instantaneous release is considered in the release duration. This corrects an inconsistency whereby the release duration previously was always equal to one air change for instantaneous cases.
- For continuous releases the release duration from a building can never be less than one air change.
- The release duration can never be more than the maximum release duration as set in the parameters (currently 1800 seconds).

Unified Dispersion Model version 2 made default
The UDM version 2 model, introduced in Phast 6.6 is now the default selection for dispersion modelling in Phast 6.7.

**External CAD Connection Wizard**
In earlier versions of Phast users who wished to import CAD files had to go through a lengthy process to create a CAD Server Schema file (CSD file). Phast v6.7 has a new wizard that will create the CSD file in fewer steps. The release notes provide instructions on using the new wizard.

**Updates to the materials physical property system**
Physical property system data updates have been applied to toxic probit values of CO_2 and N_2 (to account for their asphyxiate potential). Additionally, physical properties for the behaviour of pools on water have been applied to several materials; further information is given in the Release Notes and in the Property Database Property List.pdf provided with the Technical Documentation.

Modified Pool Location in case of Bunds
Previously bunds were centred at the rainout location if rainout occurred inside a bund. In version 6.7 the release location is maintained as the bund centre, and the more correct assumption that the bund would spread back upwind from the downwind bund wall is applied.
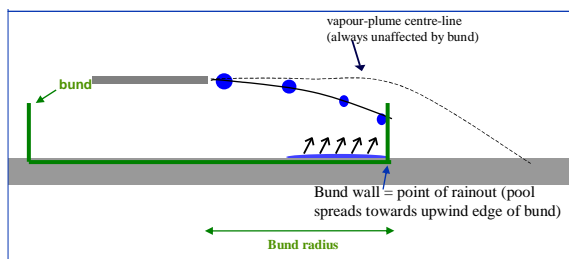
Help Menu Additions
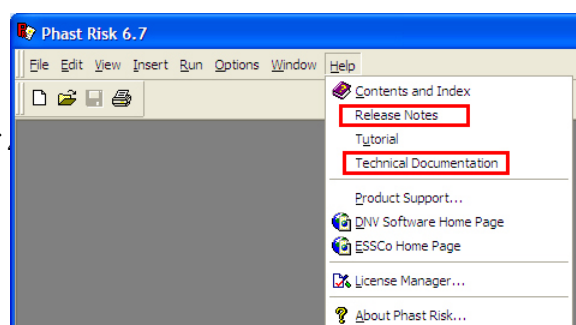
The Release Notes and the Technical Reference Documentation provide an invaluable resource for understanding Phast and Phast Risk. For this reason, these documents are now installed automatically to the hard disk with Phast and Phast Risk. They can be accessed via the help menu. Note that the Technical Documentation is provided as password protected PDF files. The password can be obtained from:
Software.Support@dnv.com

Major New Features and Enhancements - For Risk Only

Improved workflow for transferring risk results to Extended Reporting
The process by which the risk results database file is generated and stored has been extensively redesigned. These improvements increase efficiency in usage of Phast Risk and avoid issues arising whilst working with very large studies. Improvements include generation of the database file only at the end of the calculation process when results are ready to be viewed. The database file (*.mdf) is no longer offered as an alternative to .psu files for storage of input data. Additionally, for improved handling of very large studies which can be limited by system resources, available calculation time and database size limits, several calculation schemes have been established for selective calculation and risk result generation.

New 3D Cloud ME/Purple Book Explosion Method
There are now three explosion methodologies available in Phast Risk.
2D Effect Zone Model, also knows as the Wiekema model – this method has been traditionally used by default in Phast Risk in all versions up to and including Phast Risk 6.7

3D Extended Explosion Modelling – this method was introduced in Phast Risk 6.6. It accounts for multi energy and Baker Strehlow Tang congested volumes, and considers overlap of the 3D cloud volume when deriving flammable mass. This is a chargeable extension to Phast Risk and not available by default. Further details are provided in the Phast Risk 6.6 release notes. Or please contact dnv.software@dnv.com for sales information or software.support@dnv.com for support information on this topic.

3D Cloud ME/Purple Book Explosion Method – this new approach, introduced in Phast Risk 6.7 uses a similar methodology to the 2D Effect Zone Model in that no location specific congested volumes are described. However, this method derives the explosion energy from the three dimensional cloud envelope rather than two-dimensional effect zone ellipses. Additionally, the Multi Energy explosion method is used to calculate explosion overpressures achieved by ignition of the cloud. This option is available by double clicking the root level of the study tree in Phast Risk

The Study Manager

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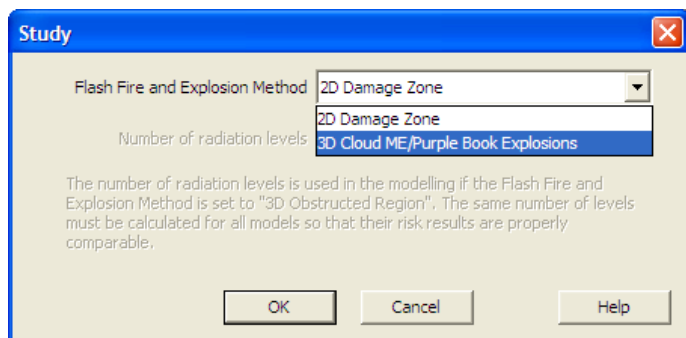
This new utility can now be installed with Phast Risk. The Study Manager is used to combine risk results from a collection of studies that have been saved with results. The Study Manager uses a Phast Risk license, but standalone Study Manager licenses can also be purchased. In this way the study manager can be used for a number of applications:

- Separating studies between different project teams and later combining
- Looking at the joint impact of adjacent facilities
- Looking at large scale combination of studies for the purposes of land use planning
- Providing a risk result viewer and analysis tool to people who are not Phast Risk users and do not require a Phast Risk license

Other New Features and Enhancements - For Consequence and Risk

Minor enhancements have been made in the following areas; details are provided in the release notes.

- Specification of breach location larger than the total pipeline length
- Discharge from vessels and short pipes (leak, line rupture, relief valve scenarios)
- User-defined model no longer allows as input initial air in case of pressurised instantaneous releases
- Corrected wet air density
- In calculation of ambient temperature, now dry air specific heat instead of wet air is used
- The default value for the parameter for maximum step size for instantaneous releases has been reduced from 1000s to 100s
- Modified pool fire maximum burn rate mixing rule
- Corrected density calculations for jet fires
- Warehouse fires, with warehouse material including Br and F

There are other smaller changes, including bug fixes, alerts and workarounds, which will also affect results and these are described in more detail in the release notes.

Thank you for your continued support of DNV Software products and we look forward to serving your software needs now and in the years to come.

Kind regards,

Colin Hickey

Colin Hickey
Head of Section
Safeti Product Management
DNV Software

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