



Release Notes BREEZE Incident Analyst 2.0

BREEZE Software
+1 (972) 661-8881
breeze@trinityconsultants.com
breeze-software.com



BREEZE Incident Analyst 2.0

Release Notes

What's New in 2.0

Source Term Wizard

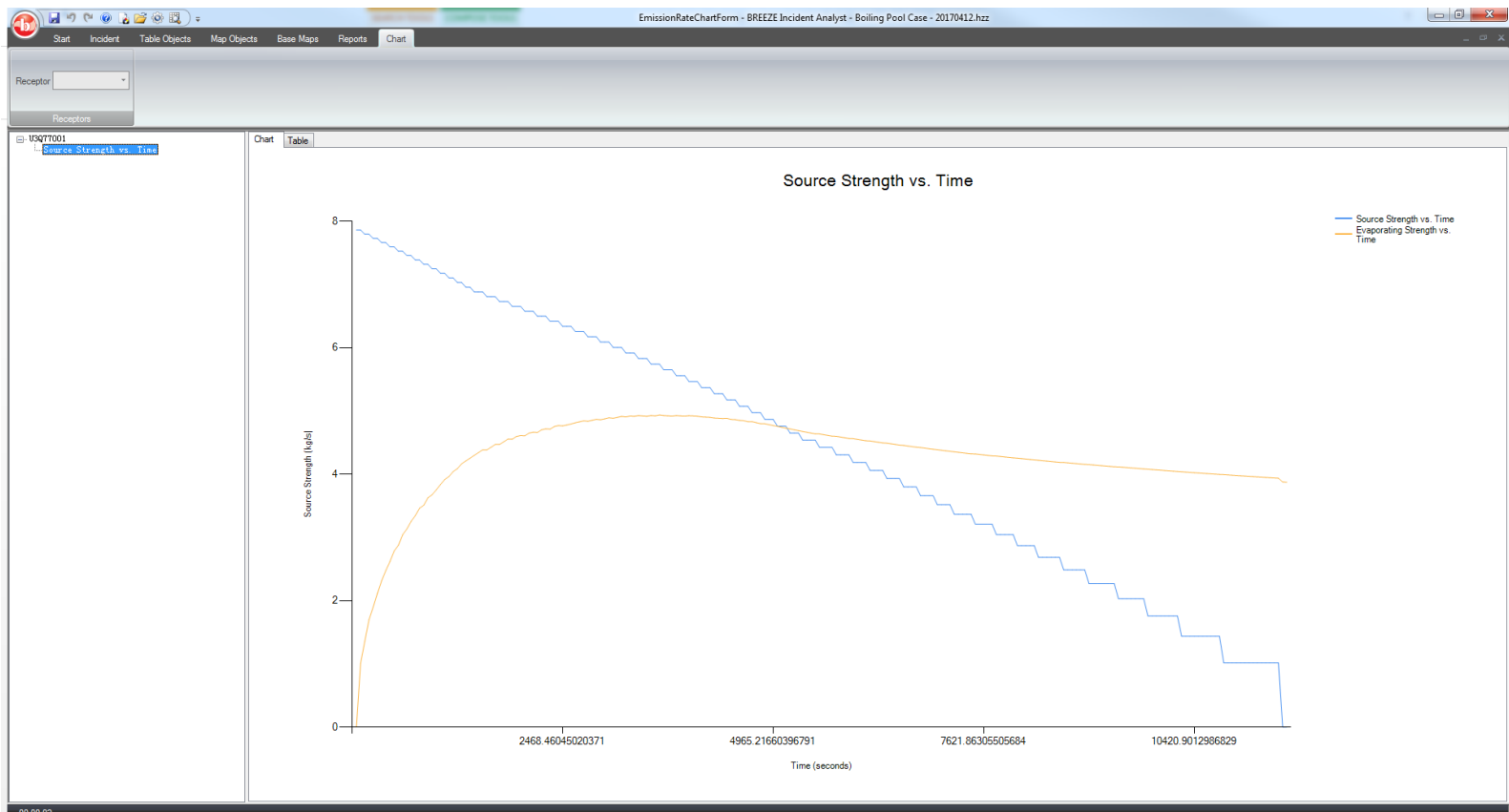
- Updated numerous Source Term Wizard calculation methods to generate time-varied emission rates for the following algorithms. Using more modern and accurate methods will improve the accuracy and realism of modeling for cases such as pressurized vessels where a release rate will drop as pressure bleeds off.
 - Gas release
 - Liquid Flow Rate
 - Pool Evaporation
 - Two-phase release

- Added the capability to model a leak through a pipe connected to a tank in the Source Term Wizard, giving users the ability to explicitly model a wider range of scenarios
- Added an option to delete a previously saved source from the Source Term Wizard

The screenshot shows the 'Source Term Wizard' window. The title bar reads 'Source Term Wizard'. The main content area has a header 'Step 1: Description/location' with a red decorative graphic. Below the header, the text says 'Enter the location and an optional description for this source.' There are four radio button options: 'Create a new source' (selected), 'Edit an existing source', 'Delete an existing source' (highlighted with a red box), and 'View an existing source result'. Below these options is a dropdown menu labeled 'Existing source term objects'. Further down are input fields for 'ID' (containing 'P4JDA001'), 'Description', 'X coordinate' (containing '0' with 'meters' to the right), and 'Y coordinate' (containing '0' with 'meters' to the right).

System Enhancements

- Added a new Chart Tab that allows users to view the time series Source Term Wizard results and dispersion concentration results in a table or chart format. This provides a useful new way to graphically display model results and will also help users to better understand the behavior of each release case.



- Enhanced the Chemical Database by adding new chemical properties in the Pool Evaporation Tab including molecular diffusivity and constants to calculate liquid and gas kinematic viscosity. The new properties allow Incident Analyst to use an improved array of pool evaporation models, with more powerful source term calculations and the ability to simulate time-varying evaporation rates. By providing more options on how evaporation parameters are defined, it will be easier for users to find the information needed when adding a new chemical to the chemical database.

Chemical

Common | Concentration Limit | Vapor Pressure | Pool Evaporation | Flammable | Dispersion | Mixture

Liquid Density

Default method: Guggenheim

Fixed value: 602 kg/m³

Liquid Density Constant A: 1.902

Liquid Density Constant B: 0.794

Shell evaporation model parameters

Effective diameter molecular: 5.414 Angstrom

Energy of molecular interaction: 313.55 Joules

Other

Gas Viscosity Coef. A	0	Liquid Viscosity Coef. A	-7.247
Gas Viscosity Coef. B	0.694	Liquid Viscosity Coef. B	534.82
Gas Viscosity Coef. C	227.66	Liquid Viscosity Coef. C	-0.575
Gas Viscosity Coef. D	-14610	Liquid Viscosity Coef. D	0
Molecular Diffusivity	0 m ² /s	Liquid Viscosity Coef. E	10
Gas Dynamic Viscosity at 20 °C	0 m ² /s	Liquid Dynamic Viscosity at 20 °C	0 m ² /s

OK Cancel Help

- Enhanced the SLAB model to allow the user to specify the time step used for calculating and displaying at discrete receptors. This allows the user to decide how much detail they want when viewing the evolution of a plume over time.

Source - 004 (1 / 1)

Source SLAB

Release type

Vertical jet/Stack Continuous
 Horizontal jet Finite duration 300 seconds
 Instantaneous
 Evaporating pool

Vertical jet/Stack parameters

Emission rate 3.33 kg/s
Source area 0.02 m**2
Release height 1 meters
Release temperature 239.1 K
Liquid mass fraction 0.88

Calculations

The SLAB dispersion model will compute concentrations along the plume centerline until a particular concentration is estimated or until a particular distance downwind is reached. Select the option that defines the maximum downwind distance SLAB will compute concentrations for.

Stop when the distance to the lowest level of concern is reached
 Stop when the receptor farthest from the source has been reached
 Stop at the following downwind distance from each source:
10000 meters

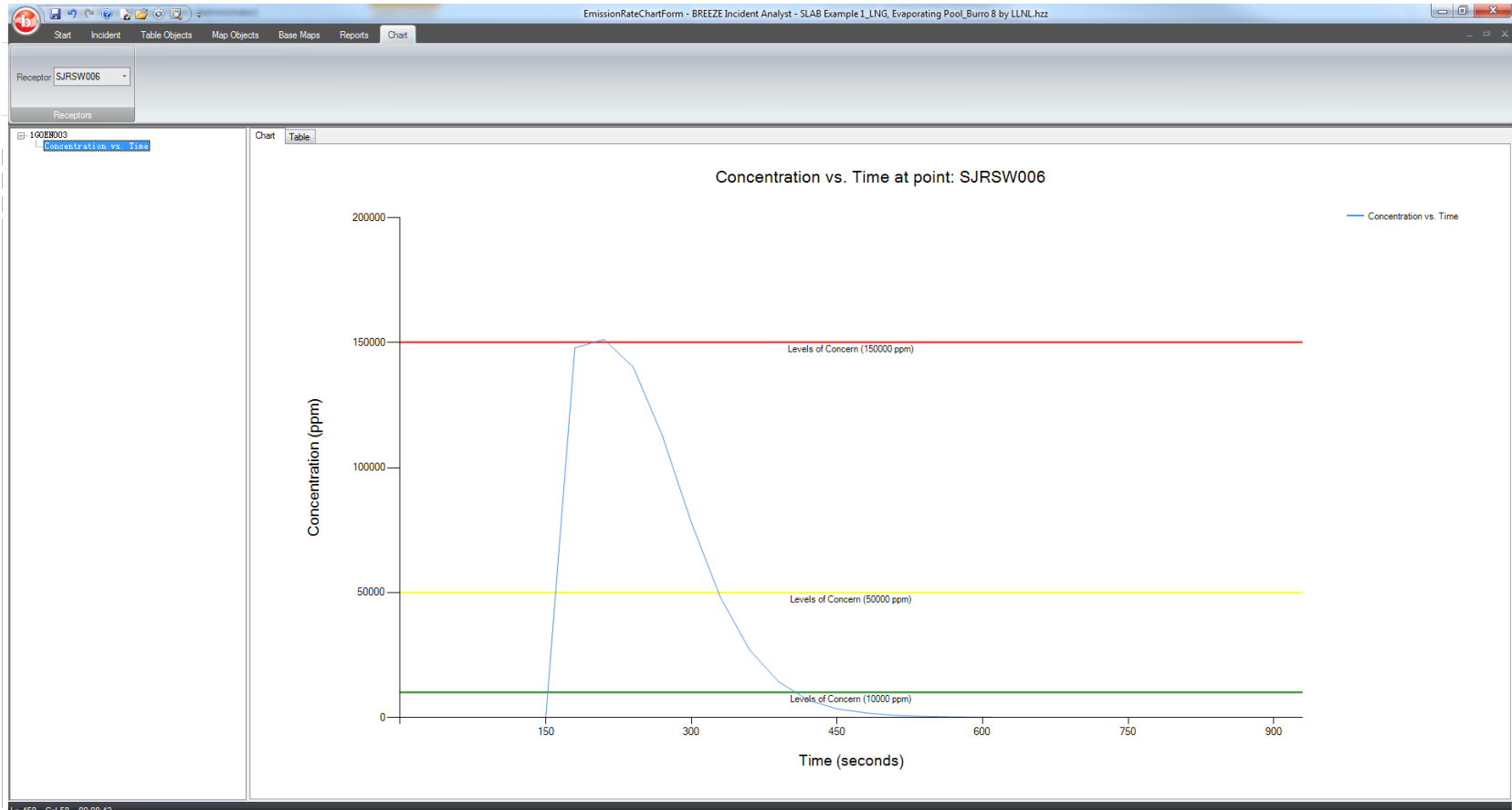
Specified calculation time interval 20 seconds

Parameters	Setting	Units
Chemical Name	Chlorine	
Boiling point	239.1	K
Critical temperature	417.15	K
Liquid density	1562.0	kg/m**3
Ambient temperature	276.0	K
Averaging time	1	seconds
Height of interest	1	meters

Navigation: [Back] [Previous] [Next] [Forward] [Home] [Add] [Print] [Close]

Buttons: OK Cancel Help

- Added a graph to display the release concentration at user-specified time intervals for discrete receptors in the Chart Tab, allowing the user to view the impacts over time of a release on a specific point of interest



- Updated the default “height of interest” in the Output Options from 0.5 m to 1.5 m
- Improved the database conversion tool that imports the SQLite database file, allowing automated import of all types of chemical database files from older versions of Incident Analyst
- Updated the Richardson Number calculation method to incorporate more commonly used equations

Bug Fixes

- Fixed a bug that produced incorrect overpressure values for gridded receptors in the TNT model
- Fixed a bug that incorrectly recorded the percentage of the components in a newly added mixture to be a few decimal places more than what the user entered in the Chemical Database Tab
- Fixed a bug that could cause incorrect receptor concentration output for some Degadis model runs
- Fixed a bug that entered an incorrect height of interest value into the INPUFF input file when only discrete receptors were specified

Known Issues

- The INPUFF model requires multiple meteorological data to be manually entered individually
- For a pool fire, the equation to calculate maximum surface emissive power, has to be manually entered in the Chemical Database
- The current jet fire model in BREEZE Incident Analyst is only explicitly for gaseous releases