

RiskWare: Technological Risk Management

<http://www.ess.co.at/RISK>

Objectives and Mission:

RiskWare is a management information and decision support system for technological risk assessment and management. The system is designed to support the implementation of the Directive 96/82/EC of December 1996 (Seveso II) and related national legislation. The system is fully web based for distributed access with minimal client hardware requirements.

Application domains:

- **Risk analysis** and the management of safety reports and safety analyses in a dynamic, multi-media (hypermedia) document, that integrates data bases, text, GIS, CAD, graphics and imagery, and a dynamic expert system as well as interactive emergency simulation models (release, fire, explosion, dispersion, soil/water contamination);
- **Real-time** decision support for **emergency management**, with rule-based processing of emergency plans and dynamic simulation and forecasting of impacts, including continuous (6 hourly updates) numerical high-resolution weather forecasts.
- **Training applications** for risk assessment and management, using simulation of emergencies combined with didactic multi-media material, tests.

The Benefits:

Improved and more efficient Risk Management through:

- Consistent management of risk related data, hazardous installations, substances
- Integration of Risk Analysis and Risk Management
- Integration of all available information resources
- Integration of legacy data and tools
- Improved risk analysis with state-of-the-art stochastic simulation models
- Automation of complex tasks in risk assessment
- Decision support with a rule-based expert system
- Improved documentation and communication, compliant with European and national legislation and technical norms
- Improved access to relevant information (search functions, Intranet)
- Efficient maintenance and update of the information
- Improved data quality through automatic consistency checking
- Multiple use of the data bases
- Consistent and up-to-date information for all users
- Modular design, flexible fully data driven configuration, multi-language support.

RiskWare supports a consistent compilation and efficient maintenance of all risk relevant information in different formats into one common, consistent and modular system; RiskWare makes it possible to check consistency, plausibility, completeness, and currentness of the data basis with formal methods. The system provides fast retrieval and interpretation of data, and tools for complex analysis and simulation, but at the same time is easy to use and offers intuitively understandable user interface (fully web based) with multi-media formats.

System Functionality:

- **RiskWare** supports the development and management of safety reports and alarm plans (96/82/EC Art. 5) and in particular Art. 7, 9 (Safety Reports) and 11 (Alarm Plans). It provides tools for the simulation of accident scenarios, as well as for public information (Art. 13, 1,4)
- The simulation models, embedded in a command-and-control expert system, can be used for decision support for real-time emergency management, as well as training applications.
- The modular system can be easily extended with optional components for environmental monitoring, data analysis, and modeling for normal operating conditions, and can address problems of hazardous material transportation.

RiskWare base system:

Hazardous Installations Data Base

- Georeferenced data base of hazardous installations, multi-media object oriented data and web-based display functions; secure remote uploading of data
- Multi-criteria ranking and benchmarking
- Hazardous substances data base and MSDS

Management of Safety Reports and Emergency Plans:

- Following Seveso II and national regulations (e.g., ÖNORM A 9030) in a relational data base and XML/HTML format for easy data management and exchange between enterprises (domino effects) and enterprise and competent authorities as well as external rescue services;
- Integration of simulated emergency scenarios;
- Design, analysis, simulation and documentation of incident scenarios, safety measures, and emergency plans, e.g., in the form of event trees.

Emergency Simulation:

- Models describe release, fire, explosion, atmospheric dispersion, infiltration, water bodies, including several dynamic models (3-D wind field and FD dispersion model for near-field simulation with building obstacles); models use an embedded GIS for the display and animation of dynamic simulation results.
- Simulation of domino effects through the cascading of models by the expert system.
- Simulation results can be directly and interactively integrated into the safety reports

and analyses.

Real-time decision support for emergency management:

Processing of emergency plans including forecasting models and the external communication management is controlled by a rule-based real-time expert system.

Probabilistic Risk Analysis

Simulation with Monte Carlo methods is based on frequency/probability distributions of source terms and weather parameters.

Optional components and functions:

- Export of (parts of) the data (safety reports, external emergency plans) with a web server (public information) or to the competent authorities.
- Support for environmental monitoring, data analysis, simulation of emission under normal operating conditions, real-time continuous simulation, forecasts.
- Optional models for noise and groundwater quality
- Technical training applications for distance learning (Intra/Internet)

Implementation:

RiskWare is available as a client-server system for Linux and UNIX servers and PC clients (standard web browser); we offer complete ASP solutions as well as turn-key systems with continuing support and maintenance through the Internet or dedicated ISDN/ADSL/XDSL/ATM lines.

RiskWare can be used, in part (e.g., for complex simulation models) or in its entirety, as an application service over secure Internet or dedicated peer-to-peer connections.

DDr. Kurt Fedra
Environmental Software
& Services GmbH.



Postfach 100 A-2352
Gumpoldskirchen AUSTRIA

Tel.: +43.2252.63305
Fax.:+43.2252.63305-9

e-mail: info@ess.co.at

www: <http://www.ess.co.at>

Cev ENVIRONMENTAL Information System

Chemical Installations (Seveso II class): Ranking and Selection

Scope: Inrichting

Sorted by: Inventory

Cases: 133 Valid: 132 Unit: ton

Total: 4681537.50 Maximum: 3000000.00
 Mean: 35199.53 Minimum: 0.00

Inrichting	Value	Name
1	3000000	Vopak Terminal Euro
2	1500000	Shell Ned. Raffinader
3	50100	Shell Nederland Chem
4	47900	Te Winkel en Oomes
5	20700	DSM Agro IJmuiden
6	16000	Anker, van den
7	13130	Kemira Pernis BV
8	9000	Van Der Helm
9	5000	Industrial Park Vlissin
9	5000	Vopak Terminal Botte
11	2045	Du Pont de Nemours
12	1925	Solvay Chemie, Hert
13	1600	Borden Chemicals H
14	1438	Chemie Pack Nederla
15	1200	Benegas Vulcentrum

Please select.

Georeferenced hemical installations data base

Donau Chemie AG

Adresse
 Donau Chemie AG
 Werk Pischelsdorf
 Industriegelände
 3435 Zwentendorf
 02277 25 10 215
 Ing. Wolfgang Roth
 Wolfgang.Roth@donauchemie.

Kennzahlen

Seveso II	ja
StörfallVO	ja
Gesamtfläche	4.50 ha
Mitarbeiter gesamt	228.00
Mitarbeiter vor Ort	180.00
Schichtbetrieb	7*24
Monitoring Sensoren	4.00
Betriebsfeuerwehr	12.00
Ext.Feuerwehr	Pischelsdorf
Rettungsdienst	RK Tulln
Krankenhaus	LKH Tulln

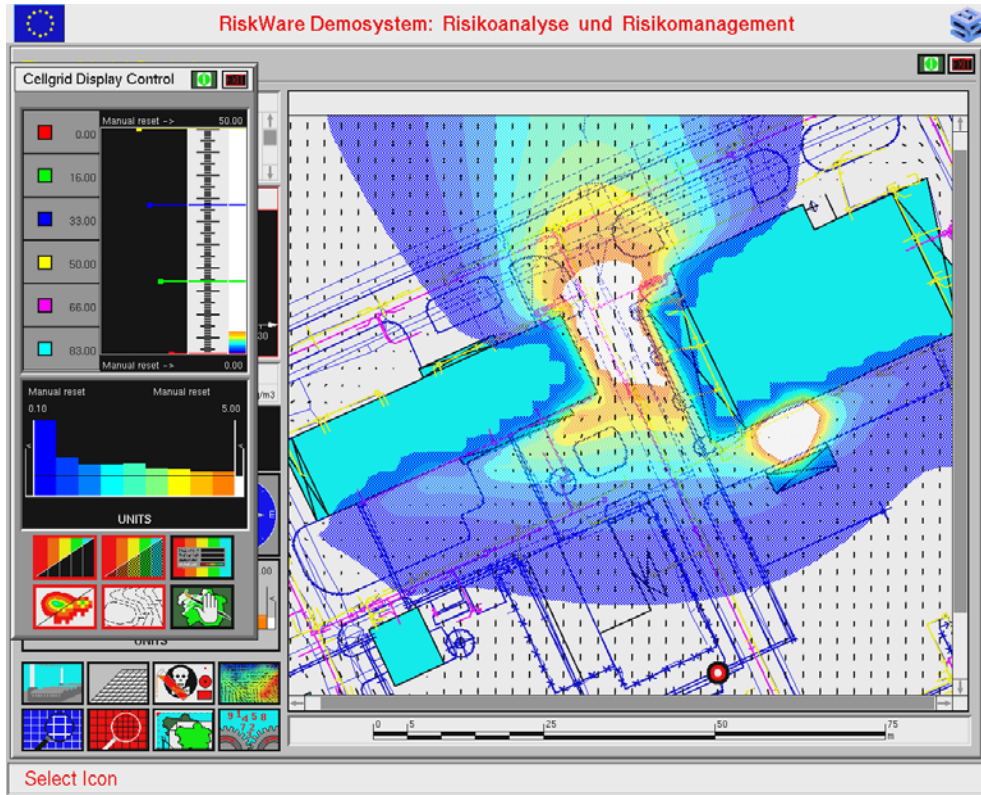
Produktionsanlagen

- Ammoniak_Tanklager
- Latex_Anlage
- Düngemittelanlage
- Schwefelsäureanlage
- Gipsanlage
- Festschwefellager
- Flüssigschwefellager
- Burdientanklager
- Styroltanklager
- Schwefelsäuretanklager
- Phosphorsäuretanklager
- Rohstofflager_DM

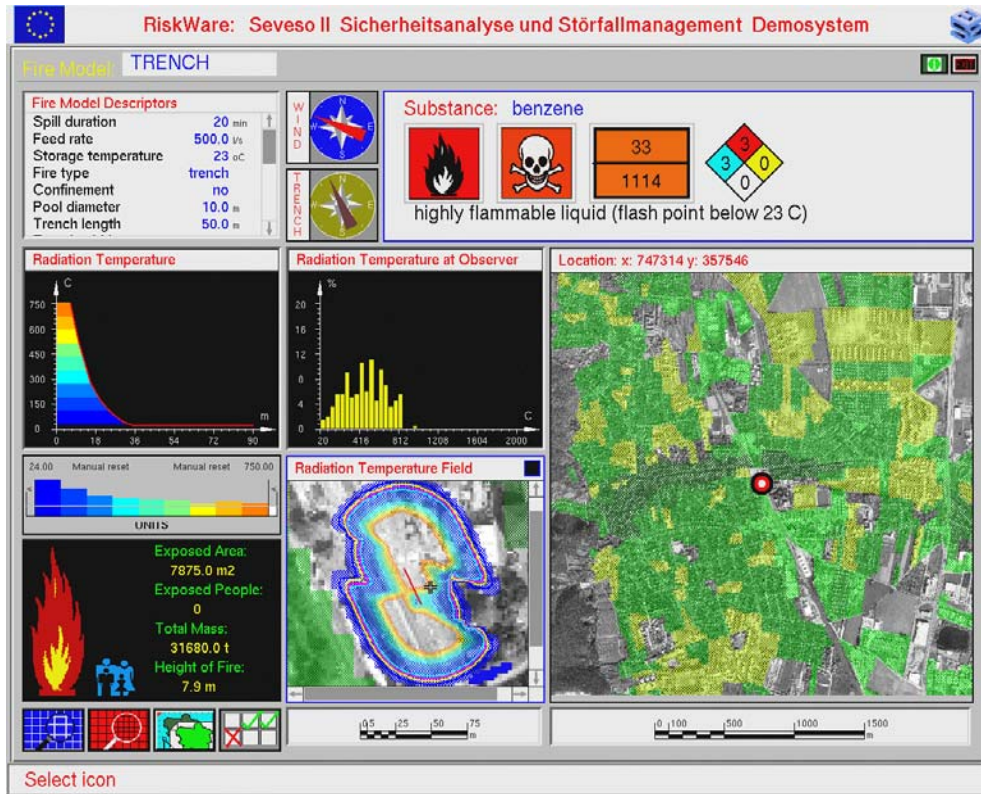
Nahegelegene Objekte

- Rhodia_Austria
- KG_Pischelsdorf
- KG_Kleinschönbichl
- Kraftwerk_Dümrohr

Multi-media display of individual plant object



near-field dynamic 3D atmospheric dispersion model with building obstacles



spatially explicit probabilistic chemical fire model