GexCon
A company in the CMR Group

MINUTES OF MEETING

Meeting	**:**	**FLACS USER GROUP WORKSHOPS AND MEETING**
Venue	**:**	**CESI, via Rubattino, Milano, Italy**
Date	**:**	**Nov 2nd-4th, 2005**
Prepared by	**:**	**Idar Storvik, Olav R. Hansen**

Participants:

Chris Savvides	BP
Francesco Chille	CESI
Franco Polidoro	CESI
Valter Rebecchi	CESI
Gladys Nalvarte	DNV Principia Rio
Savio Vianna	DNV Principia Rio
Jef Snoeys	FIKE
Malika Madoui-Barmasse	Gaz De France
Jerome Renoult	GexCon
Olav Roald Hansen	GexCon
Idar Storvik	GexCon
Abdelhamid Nazih	IRSN
Olav Sæter	Norsk Hydro
Anette Urheim	Safetec
Bernt Natvig	Scandpower RM Inc
Andreas Obrist	SKS Ingenieure
Jens K. Holen	Statoil
Henri Tonda	Total
Gauthier Polet	Tractebel Engineering

Additional Distribution: FLUG mailing list

For participation in the open seminars, see attached participants list.

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1. Welcome

Olav R. Hansen (GexCon) wished welcome to the FLUG workshops and meeting. Gratitude was expressed towards CESI and Francesco Chille for hosting the seminars.

The three days seminars consisted of:

Release of Flashing Liquids (FLIE-project)	13.00-17.30	November 2, 2005
Explosion Risk Assessment and CFD	9.00-17.00	November 3, 2005
FLACS-User Group Meeting	9.00-16.00	November 4, 2005

2. Seminar, Release of Flashing Liquids (FLIE-project), Wednesday 2nd November

See attached agenda for the topics discussed.

3. Workshop, Explosion Risk Assessment and CFD, Thursday 3rd November

See attached agenda for the topics discussed.

4. FLACS user group meeting, Friday 4th November

The FLUG chairman Bernt Natvig (Scandpower) welcomed and the agenda was adopted. The proposed minutes of the previous meeting were considered for comments. It was commented that the list of participants had a couple of mistakes.

Olav R. Hansen mentioned some relevant conferences in the future, among others the 21st Annual CCPS International Conference in April 2006, Orlando, Florida.

The agenda was as shown below:

FLACS USER GROUP MEETING (FLUG)
November 4th 2005
09.00 Workshop; Case studies and feedback
- New geometry import tool
- New dispersion developments in cooperation with DuPont
- Recent R&D activities, hydrogen, LNG
- DESC
- Users perspective, example studies etc.

12.00 Lunch
13.00 FLACS Users group meeting
16.00 End of meeting

Actions:

- Bug fix release (soon)
- User manual ? (no plans for the time being)
- Simplified (engineer's) scenario template could be supplied
- Release notes on FLUG web site (ok)
- Try to provide examples on FLUG web site (best practise)

Workshop Friday morning:

Idar Storvik presented current status of the geo2flacs import utility. Users can get the latest update from GexCon. Positive feedback from "early testers" have been received. Tool represents a significant improved efficiency when importing large geometries.

Valter Rebecchi CESI presented the use of FLACS-INERT, a special version of FLACS developed for the needs of CESI. This functionally is aimed at being merged into the standard version of FLACS.

Jerome Renoult, GexCon Consulting, presented a project in which ethanol explosions were modelled. The USERSPEC option for definition of new gases was used, and the experience was positive.

Olav Sæter, Norsk Hydro, presented experience with variation in grid resolution when exploding gas clouds of different sizes (degree of filling of the room 1% to 100%). Conclusions were that the grid independency was sometimes surprisingly good, but in special situations there was a need to follow the current guidelines of minimum 13 grid cells across the flammable cloud (in all directions).

Olav Roald Hansen presented current R&D activities, including work on hydrogen, LNG, dust explosions and dispersion. Much of this had been covered more in detail in previous workshops.

Olav Sæter gave a short status presentation on the VR-safety project.

Issues informed about and discussed:

Olav Hansen presented some experience with small scale hydrogen explosions. A problem

- Simulation of hydrogen explosions in cylindrical vessel.
- Stability problems and strange results.
- Using Pasquill stability class A-C and large CVs.
- Small-scale geometries (CV ~ 0.5-1 cm) show 'strange' results.
- Ignition < 5mm3 is now ok.
- GexCon has been looking into time step and grid size limits.
- Stability problem with WIND, set TLS ~< 0.001m and RTI ~ 0.01

FLUG Wishes:

GexCon Consulting: Would like to be able to simulate fire simulations with FLACS. A. Nazih mentioned the availability of other fire models e.g. FDS from NIST. Another tool used by FLACS-users is KFX from ComputIT.

Henri Tonda mentioned the importance of being able to model the effect of terrain.

It was also mentioned need to be able to evaluate geometry representation in old designs (geometry models). GexCon mentioned that cofile1.0 utility (equipment counting) will be available in future releases.



A question was raised whether FLACS can handle supersonic flows. The answer was that this can be done to some extent. By switching off "Choked flow" some effects will be modelled.

The ability better to model hinged and popout panels as moving objects was expressed. This would require a significant development, and further due to arbitrary release modes it will be very difficult to estimate the exact trajectory of the panels. Events to trigger panels (P, T, PROD) have been implemented, however, this functionality must be further quality checked.

It was asked how to estimate the loads on louver panels, that this either was an output, or recommendations for how to estimate load were given.

It was expressed a wish for volume flux fans, currently only mass flux is handled. More realistic characteristics for fans were also asked for.

Some more guidance on the use of logarithmic wind profiles were asked for.

A wish was also expressed to be able to define more than one gas monitor regions. GexCon informed that this can be handled using cs*.MON file functionality.

GexCon also encouraged users to contact our support service when needed.

Election of new chair-person:

Gauthier Polet from Tractebel was proposed and he also was interested, however, it was uncertain whether he could commit himself to regular future participation in FLUG meeting. Election was postponed until next meeting.

4.1 Next FLUG meeting

Time and place of next meeting was proposed:

28 April 2006, mini meeting in Orlando (this was actually held 27 April)
11-12 May 2006, Gexcon Bergen, topics to be decided later