GexCon
A company in the CMR Group

MINUTES OF MEETING

Meeting : **FLACS USER GROUP**

Venue : **GexCon AS, Bergen, Norway**

Date : **May 3rd, 2002**

Prepared by : **Hans Fredrik Nordhaug**

Participants:

Kari Frederichsen	Aker Kværner
Simen R. Armond	Det Norske Veritas
Arve Kvien	Det Norske Veritas
Pierre Foisselon	Gaz de France
Are Bratteteig	GexCon AS
Hans Fredrik Nordhaug	GexCon AS
Hans-Christen Salvesen	GexCon AS
Idar Storvik	GexCon AS
Jan Roar Bakke	GexCon AS
Jerome Renoult	GexCon AS
Ole Jacob Taraldset	GexCon AS
Olav R. Hansen	GexCon AS
Olav Sæter	Hydro ASA
Abdelhamid Nazih	IPSN
Jan Terje Birkeland	Lilleaker
Bernt Natvig	Scandpower
Thomas Magnussen	Statoil

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Henri Tonda	TotalFinaElf
Martyn Ramsden	Vectratech
Gary Walker	Vectratech

1. Welcome
Olav Sæter (Hydro) welcomed to the meeting. BP, Dupont and SKS apologized for not being able to attend.

2. Adoption of Agenda
Two presentations by FLACS users were added to the agenda: "Comparison between FLACS and Kameleon for a light downwards pointing leak." by Bernt Natvig, Scandpower, and "What are we doing with FLACS today?" by Pierre Foisselon, Gaz de France. The agenda was then adopted.

3. Minutes of previous meeting
Olav Sæter went through the previous minutes of meeting. There were no comments.

4. Actions

- FLACS guidance document or "best practise"-manual should be published on FLUG web site within the next meeting.
- In the new "wishes"-section on the FLUG web site all old wishes should be added.
- Jan Roar Bakke, GexCon may hold a presentation on P36 next FLUG meeting.
- Next FLUG meeting: October 16th, 2002 in Porsgrunn, Norway. Please send some results from FLACS simulations to Olav Sæter for presentation in Hydro's Virtual Reality room.

5. Presentations by GexCon

5.1 New developments of FLACS, Idar Storvik

Idar Storvik gave a presentation about developments in FLACS. These includes:

- Handling of particles/droplets.
- Release, dispersion and explosion of oilmist.

He also presented some of the modeling behind the new code. The code is still at the validation stage.

Comment Olav Sæter, Hydro: How will such a model for oilmist be validated.
Answer Olav R. Hansen, GexCon: By experiments on small and large scale.

5.2 New developments of Casd and Flowvis, Ole Jacob Taraldset

Ole Jacob Taraldset gave a presentation and a live demonstration of the new features in Casd and Flowvis.

Casd 4.5:

- True color support
- Change background and foreground color
- Database compatibility
- Bug fixes

Flowvis 3.5:



- True color support
- Extended export capabilities:
  - png, jpeg, gif
  - html
  - pdf
  - mpeg, mng, animated gif
- Online help

Comment Olav Sæter, Hydro: It should be possible to set title for layout when exporting to html.

5.3 Gas detector optimizing using FLACS, Are Bratteteig

Are Bratteteig gave a presentation on gas detector optimizing using FLACS. The main issues are:

- Quantify/improve existing gas detection systems
- Propose new systems
- Detector requirements, criteria and layout
- Measure effects of proposed layout and detection level

Comment Olav Sæter, Hydro: What is the time usage for such a study.
Answer Are Bratteteig, GexCon: From 2 days to 2 weeks.
Comment Are Bratteteig: Main problems are character of detectors, weather protection.

5.4 FLACS development and validation, Olav R. Hansen

Olav R. Hansen gave a presentation on FLACS development and projects. FLACS handles release, cloud, explosion and blast simulations. The code has developed and developes through the following projects/areas:

- Phase 3B (finished 2001) – release
- LICOREFLA (finished june 2002, extension 2002) – droplets, oilmist
- SEBK (extension 2002) – transformer explosion
- FLIE (EU-project 2001-2004) – release of flashing liquids
- Toxic (and flammable) release onshore
- LNG (and LPG) releases
- Hydrogen explosions
- DESC (EU-projects) – dust explosions

Software improvements: ExploFLACS and Windows FLACS.

6. Presentations by FLACS users

6.1 “Comparison between FLACS and Kameleon for a light downwards pointing leak.” by Bernt Natvig, Scandpower.

Big difference in the computed wind field is observed. In the Kameleon simulation the leak end up in the moon pool.

Comment Jerome Renoult, GexCon: 10 seconds is too small build up, at least 30 seconds.
Comment Are Bratteteig, GexCon: Stable solution not possible.

Comment Olav R. Hansen, GexCon: Temperature difference may be important.
Comment Ole Jacob Taraldset, GexCon: Difference in grid is most important. Kameleon has completely block or unblocked computational cells while FLACS uses the porosity principle.

6.2 “What are we doing with FLACS today?” by Pierre Foisselon, Gaz de France.

Gas de Franze is writing a FLACS handbook. The final product will be added to the FLUG web site.

Comparison of gas dispersion simulations in open air for FLACS and Kameleon. Results are validated against experiments.

6.3 “Improved Safety using Virtual Reality; Possible to use FLACS?” by Olav Sæter, Hydro.

Olav Sæter explained how Hydro has ported results from CFD codes into formats useful for VR software. FLACS and Fluent is already ported. He gave an impressing presentation of the use of VR together with results from FLACS simulations. The goal is develop value adding VR-applications for process safety and emergency preparedness.

7. General discussion

- The usefulness of the FLUG meetings were discussed.
- Olav Sæter, Hydro, mentioned diversion problems using FLACS99. Hydro has gone back to FLACS98 to solve the problems.
- Jerome Renoult, GexCon, is writing a guideline for ventilation that will be put on the FLUG website.
- Bernt Natvig will submit a form used by Scandpower for testing input and output to FLACS, to the FLUG website.
- Jan Roar Bakke, GexCon, mentioned that PDMS file in xml-format will be handle be Casdint.
- Are Bratteteig, GexCon, commented that big geometries are not a problem. The first trick is to do some filtering to reduces the number of objects. Another trick is to removed the co-file since Casd does not need all the information. Maybe a guide for speed-up of Casd and Flowvis should be written.