



## 9th MEETING OF THE SNX COUNCIL

Annecy (France)

Thursday 5th and Friday 6th June 2008

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In Attendance: SNX Council, SNBL Administrative Manager, Observers from RCN and SER, BL Scientists.

### 1. Approvals and Review

[D. Nicholson]

#### 1.1. Approval of the Agenda

M. Chairman, **David NICHOLSON** requested an additional item, point 3.5.

The agenda is approved by all, with the addition of point 3.5.

**Appendix No. 1.** Approved New Agenda.

#### 1.2. Approval of the minutes of the 8th SNX Council

The minutes of the 8<sup>th</sup> SNX Council are approved by all members.

#### 1.3. Review and results of actions decided at last meeting

**8.3.1** – On the Swiss side, look for sources for educational projects. **Rafael ABELA, Vladimir DMITRIEV and Martin STEINACHER** – **Deadline June 2008.**

**Martin STEINACHER** reported that it is difficult, for the time being, to find within SER resources for educational projects.

**David NICHOLSON** underlined the parallel process from the Norwegian side. There might be possibilities within the NORDIC MASTER PROGRAM. The Norwegian side will look into this.

**Jeroen VAN BOKHOVEN** mentioned the master for students who do research using synchrotron, MaMaSELF (Master of Materials Science exploiting European Large Scale Facilities). This possibility should be further investigated.

Action re-issued as 9.1.1:

**9.1.1.** Look at the education aspects of the SNBLs, CH and NOR process to converge. Will further explore the possibilities. **Helge LARSEN and Jeroen VAN BOKHOVEN.** **Deadline: next SNX meeting in November 2008.**

**8.3.2.** Input from SNBL for a 2009 project, so that requests can be prepared. **Deadline June 2008.**

This point will be discussed under the CoF point, points 5.1 and 5.2.

**8.5.1.** Philip PATTISON is to write a summary on the outcome for the future developments raised during the workshops. **Done May 2008.**

Report from Philip PATTISON, see **Appendix No. 2**

**8.5.2.** The Committee of the Future is to collect and identify the specific research directions, the impact on manpower, and the developments to be undergone. On the Swiss side: Rafael ABELA, on the Norwegian side: David NICHOLSON. Deadline: **Draft for Meeting in December 2008.**

This point will be discussed under points 5.1 and 5.2. **Action re-issued as 9.5.1.**

## **2. Report of the SNX Director**

**[V. Dmitriev]**

### **2.1. SNX and A-SNG operations**

See Vladimir DMITRIEV's full presentation in **Appendix No. 3.**

#### **A. Technical Operations**

For 2007 fewer shifts were devoted to commissioning than the previous run, but there will be additional requests next run for commissioning.

#### **B. Administrative Actions**

Shifts for commercial purposes. There will be a few shifts for Vertex Pharmaceuticals which will be taken from IHR.

### **2.2. Report on Meetings and Workshops**

#### **Past events:**

**Nordic synchrotron Radiation initiative, 26th April, at NTNU.** Rafael ABELA, David NICHOLSON and Vladimir DMITRIEV attended this meeting.

**Norwegian subcommittee CoF (N) committee of the future for SNBL, 30th April 2008, at IFE.** Meeting organized by Bjorn HAUBACK and Ragnvald MATHIESEN. Vladimir DMITRIEV attended this meeting.

#### **Forthcoming events:**

**Simultaneous Raman-X-Ray diffraction/absorption studies SNBL/ESRF, Grenoble, France. 18-19 June 2008.** Organized by Wouter VAN BEEK. Number of registration to this workshop will be just below one hundred.

#### **Performance Contract of the Swiss Confederation with SNX Foundation:**

##### **a) Foster the use of the SNBL including the training of students.**

A three-day Theory and Practice Workshop for PhD students was organized by St. Petersburg Nuclear Physics Institute (Russia). Dmitry CHERNYSHOV was invited as a lecturer for the course, lecture on "Powder diffraction with the synchrotron radiation". It is important to start early to teach students on how to work with synchrotron radiation.

##### **b) Maintain a close link with the user community to form the strategy of the SNBL development**

See below, point 5, on the CoF, Committee of the Future

**c) Improve the visibility of the SNX Director as the first correspondent vis-à-vis third parties for any SNBL matters.**

- We had the visit of a Norwegian journalist, Atle ABELSEN, who wrote two articles on the SNBL for the technical magazine T&V and in the weekend magazine A-magasinet of Aftenposten which is Norway's leading newspaper. In addition Abelsen wrote 2 articles for web-publication (Teknisk Ukeblad og forskning.no)

- There have been around 40 different publications on the hydrogen storage, article which appeared in Angew Chemie Int., in French local and national newspapers, and also in foreign newspapers. It was also on the French television local news.

- New SNBL website. Our site had to be modified according to ESRF standard. There are round 800 visits/month to our website.

David NICHOLSON represented SNBL in the beamtime allocation panel for DUBBLE. It might be a good point to have a member from DUBBLE in the beamtime allocation panel for SNX, this point will be discussed later on in the meeting.

See Vladimir DMITRIEV's full presentation in **Appendix No. 3**.

### **2.3. Refurbishment program: current status**

1. Refurbishment of the End Stations
2. Modification of the Stepper Motors Control Systems
3. Refurbishment of the Vacuum System
4. Refurbishment of the Fluids System
5. Refurbishment of the Electric Supplying System

A few pictures were shown by Vladimir DMITRIEV to show the state of the beamlines during the refurbishment program. The main parts of the refurbishment are now finished. The result of the refurbishment is that the beamlines are almost as new, and they correspond to the new ESRF standard.

The new motor control systems are now installed on SNBL.

**Gervais CHAPUIS** asked whether improvements are already noticeable, to which Vladimir DMITRIEV is affirmative.

**Vladimir DMITRIEV** stressed that the refurbishment is considered as being finished now, there remains only the painting of the hutches to be done, and improved facilities for storing equipment and tools in the hutches and laboratory space.

Philip PATTISON and Herman EMERICH will comment further, on their respective beamlines, and on the improvements due to the refurbishment.

Financial aspects of the refurbishment will be seen under point 3.4.

See Vladimir DMITRIEV's full presentation in **Appendix No. 3**.

## **3. Financial Matters**

### **3.1. Audit 2007 (Income 2007)**

**[C.Heurtebise]**

Income 2007, Compte d'exploitation (Spending) 2007, Audit report and Balance 2007, see **Appendix No. 4**.

The accounts for 2007 are approved by all.

**3.2. Income 2008 (payments by funding agencies, other income) [C.Heurtebise]**

Income 2008, see **Appendix No. 5.**

A new presentation of income will have to be shown for our next SNX Meeting, mentioning separately the "Other Contribution" as "OUTSIDE CONTRACT" namely CHF 105'000 for 2008.

Regarding this OUTSIDE CONTRACT amount, each SNX Member has to enquire on how to find this amount.

**9.3.1.** OUTSIDE CONTRACT amount. Each SNX Member is to enquire on how to find this amount. **Rafael ABELA and David NICHOLSON to coordinate. Deadline, November 2008.**

**3.3. Spending 2008 as of Mid-May 2008 (compte d'exploitation) [C. Heurtebise]**

Compte d'exploitation as of 25th May 2008, see **Appendix No. 6.**

**3.4. Financial aspects of the Refurbishment program [V. Dmitriev]**

See Vladimir DMITRIEV's full presentation in **Appendix No. 7.**

	<b>Budget</b>	<b>Paid</b>
Vacuum System (EUR)	39'500	43'500
Motor Controls (EUR)	65'000	66'500
Fluids (EUR)	8'100	9'800
Computing Network (EUR)	5'000	12'500
Building (EUR)	20'700	4'200
Miscellaneous (EUR)	5'000	3'600
Electricity (EUR)	75'000	73'500
Total (EUR)		<b>213'600</b>
VAT (EUR)		42'000
Total (EUR)		255'600
Total (CHF)		<b>409'000</b>
Provision for other Expenses CHF		<b>51'000</b>
<b>Grand Total in CHF</b>		<b>460'000</b>

Suggested re-injection from SNBL Budget :

Total Cost CHF		<b>460'000</b>
Already re-injected (over 2007 and 2008)	170'000	
From 2009 Budget	100'000	
From 2010 Budget	100'000	
From 2011 Budget	90'000	
Total re-injected	<b>460'000</b>	

**Vladimir DMITRIEV** suggested re-injecting into the RESERVE an amount of CHF 100'000 each year until 2011. This is approved by all.

### 3.5. Internal Matters

[David NICHOLSON]

See *Appendix No. 8*

## 4. Status of the SNBL operations

### 4.1. Beamline A: Operations

[P. Pattison]

See Philip PATTISON's full presentation in *Appendix No. 9*.

#### Planned Activities 2008:

##### To be completed

- Refurbishment (Cables / Controls / Motors / Vacuum system / Painting / Floors) – completed during summer shutdown
- Crystal bender (repair), motors purchases, installation August 2008.
- Beamline realignment – extend spectral range. Scheduled for 26 August 2008. Test of crystal bender during the same period.
- Focussing mirror. Detailed design, not yet completed. Mechanical components, not yet purchased. Installation, provisionally January 2009.
- Precision slits – Thin film experiments. Installed and operation. Improved alignment system under construction, installation September 2008.

##### Operational

- Combined Raman and in-situ X-ray diffraction experiments
- Single crystal diffraction on KM6 diffractometer
- High pressure Diamond Anvil Cell (DAC) on mar 345
- In-situ catalysis

##### Some examples of current research activities

- Cryo-radiolytic reduction
- Influence of external HV electric fields
- Diffuse scattering – electron-phonon

**Philip PATTISON** stressed the importance of collaboration with other groups at the ESRF as it induces new fields of research.

##### The future (short term trends)

- Experiments at higher photon energy
- improved focussing, which will allow smaller crystal size
- Electronic strip detector from SLS (3 modules), delivery date planned for end of August 2008: these will give better time–resolution for powder data on BM1B.

**Vladimir DMITRIEV** commented as follows:

- We have a very close collaboration with SLS. As an example, Philip PATTISON is invited as an advisor to the group working on Swiss Free Electron Laser Project.
- SNBL trend. In the past, the two beamlines were more separated, now the two beamlines are often collaborating. Examples of this collaboration:

1) Wouter VAN BEEK and Hermann EMERICH took the responsibility for the modifications and repairs done on **BM1A optics**.

**2)** Regarding the **new gas system**, Olga SAFONOVA is in charge of this new system for both stations.

**3)** The new **Raman** equipment is working on both beamlines, assisted by Wouter VAN BEEK.

It appears that now some techniques are valid for both stations, the responsibility is for the technique more than for the beamline.

**4)** Philip PATTISON, Dmitry CHERNYSHOV and Yaroslav FILINCHUK are responsible for installation on the B-station, for commissioning and calibration of the new strip detector from SLS.

**Aase Marie HUNDERE** and **Martin STEINACHER** are impressed by the different techniques used at SNBL.

Regarding the BLR, Beamline Review, to be done by the ESRF on 4th-5th November 2008, Vladimir DMITRIEV will keep the SNX members informed.

## 4.2. Beamline B: Operations

[H. Emerich]

**1) Infrastructural changes on SNBL**

**2) Status Raman installation**

**3) Recent progress regarding the B-station**

**4) Outlook and future progress**

**1)** The old electrical installation dating from the beginning of the beamlines has not been up to ESRF standard anymore.

Therefore we were urged by the ESRF to replace our entire electrical equipment (Sockets, Cable trays, circuit-breakers, wiring and electrical cupboards but also the UPS system).

All preparative work (i.e. cable trays and sockets) has been executed in the winter shutdown whereas the complete rewiring has been done during the April shutdown.

Another important upgrade has been the replacement of the whole stepper motor control system. This includes the installation of Ethernet linked "intelligent power cards" and again a complete rewiring of all stepper-motors and cables.

This modification has already boosted the performance of our beamlines by providing a hard and software platform allowing running our stepper motors more smoothly and quickly.

The principal advantage is however that combined motions and parameter changes as required by modern (complex) experiments can be programmed and executed very easily.

Furthermore we are about to exchange the error prone feedback system we have been using for all monochromators and the powder diffractometer in the past against a robust system.

Another improvement concerning both stations is the installation of so called "Wago Boxes" which should be finished in the summer shutdown. These units read the state of all parameters relevant for a safe beamline operation (Flow of cooling water, Compressed air supply, temperature readings etc.) The units are again linked via an Ethernet connection and their read-out is feed back to our interlock system

As a last point "cosmetic efforts" like repainting the hutches and a new floor in the experimental stations were presented.

**2)** The Raman system is now almost working according to specification. The central unit (spectrometer+lasers) has already been installed in 2007, as well as the optical fibres linking it to the respective hutches. Missing items are video-heads (for both stations) allowing to align the optical head by visualizing the sample and the point where it is hit by the laser and a scanning device

allowing to sweep the laser over the sample in order to reduce the heat load and/or average the signal.

In a summarizing remark it was mentioned that the Raman tool has found a very broad acceptance within the SNBL user community and beyond.

**3)** According to the planned changes presented in the last SNX winter meeting the full installation of a second (channel-cut) monochromator in the optics enclosure was presented.

This second monochromator permits to switch within seconds from Exafs measurements (variable wavelength, done with the previous monochromator) to powder diffraction measurements (stable fixed wavelength). Future developments could allow performing fully simultaneous PD and EXAFS measurements as well as parallel XAFS measurements at two different absorption edges.

Another advantage of this system consists in an accelerated switching procedure allowing moving from the Si 111 to the Si311 crystal pair (thus switching between high resolution and high flux XAS measurements) within minutes instead of hours as before.

Other activities have been improvements in the control system allowing running the diffractometer as well as the EXAFS monochromator at a much higher speed.

Last not least it is worthwhile to mention that the new gas system as presented in the last SNX meeting has generated a broad interest amongst SNBL and ESRF users.

#### 4) Outlook:

The following projects were presented: The upgrade and installation of the A-mono bender, the installation and commissioning of a new 3-element strip detector system and last not least- the construction and installation of an in-vacuum X-.ray mirror system for harmonic suppression on SNB.

**Jeroen van BOKHOVEN** enquired whether it would be possible to improve the EXAFS data-quality, and to be more precise whether it would be possible to investigate the origin of the glitches in the data.

## 5. Future of SNBL

**David NICHOLSON** pointed out that we should be concerned to maintain the popularity of the SNBL. In order to do so, it was decided during the 8th SNX Meeting, to have an action regarding the future of the SNBL. The CoF (Committee of the future) is to collect and identify the specific directions, the impact on manpower, and the developments to be undergone. Two committees have been set up, COF(N) (on the Norwegian side), and COF(CH) (on the Swiss side).

This action has been re-issued:

**9.5.1.** The Committee of the Future is to collect and identify the specific directions, the impact on manpower, and the developments to be undergone. **On the Swiss side: Rafael ABELA, on the Norwegian side: David NICHOLSON. Deadline: Draft for consideration at the SNX Meeting in November 2008.**

**Martin STEINACHER** asked for a clarification concerning the two CoFs, each being assigned one beamline, to which David **NICHOLSON** replied that the two CoFs will converge once each committee has finished its investigations.

### 5.1. Swiss CoF

[G. Chapuis]

The Swiss CoF, CoF(CH), is composed of the following Members: Marc SCHILTZ, Jeroen VAN BOKHOVEN, and Philip WILLMOTT. **Gervais CHAPUIS** reported that the committee is now working on this investigation and a report is expected for the end of the year.

**Gervais CHAPUIS** recommended that Marc SCHILTZ be informed of the CoF(N) meeting in September 2008.

## 5.2. Norwegian CoF

[K.Knudsen]

David NICHOLSON reported that the Terms of Reference were sent by the Norwegian Committee Terms of Reference, see **Appendix No. 10**.

The Norwegian CoF, CoF(N) is composed of the following members: Rangvald MATHIESEN, Bjorn HAUBACK. The preliminary deadline is September 2008 (meeting organized in La Fauvelle, France on 11th and 12th September). Rafael ABELA is invited to this meeting. The project team will be present. The draft of CoF(N) will be written during that meeting. Kenneth KNUDSEN mentioned that a survey has been established on the Norwegian side. Regarding the Norwegian survey, it was questioned whether it should be the same kind of survey on either sides, or whether each side should have its own survey. The aim of the survey/s is to encourage users to think ahead.

The users survey and the minutes of the CoF(N) meeting from the Norwegian side are to be sent to the Swiss side, that is to Marc SCHILTZ, who the Norwegian side would like to invite to La Fauvelle.

David NICHOLSON reports that Frode Mo suggested that the current status of the beamline should be considered as well.

Kenneth KNUDSEN underlined the importance of the interest for near future projects and not only the longer term future projects.

### **Conclusion from discussions on the above two-points:**

Some of the basic equipment are almost 15 years old. It is now time to think about replacing these equipments (for example MAR, CCD).

**9.5.2.** SNX Council will work on acquiring funding from CH and N to replace old equipment, for example MAR, **responsibles Kenneth KNUDSEN, Gervais CHAPUIS/Marc SCHILTZ. Deadline next SNX meeting, November 2008.**

## 6. Any other business

[D. Nicholson]

### 6.1. Internal Matters

See reports in **Appendix No. 11**.

### 6.2. DUBBLE /SNBL

David NICHOLSON was invited to the sub-committee regarding discussion of proposals on the DUBBLE beamline.

David NICHOLSON suggested that we should perhaps organize a seminar including users from DUBBLE. DUBBLE already contributed to two seminars (*Synchrotron Radiation in Studies Nanoscaled Materials* held in June 2006, and *SNBL High gas pressure workshop* in November 2007).

David NICHOLSON invited Wim BRAS to the Norwegian Synchrotron Users Meeting to be held in Lillehammer June 2009.

### 6.3. Renewal mandate for Helge Larsen.

The mandate of Helge LARSEN ends in June 2008. The Norwegian side suggest that Helge Larsen´s mandate be renewed . This was approved by the SNX Council.

Martin STEINACHER thanked everybody for this meeting which is as always a real pleasure to attend. He was impressed by the achievements over the past half year under the new performance contract and noted the continued strong engagement of all the SNBL Staff. As observer from one of the funding agencies, he was pleased to read about the smooth and accurate closing of the annual accounts for 2007 which was confirmed by the external audit companies.

Aase Marie HUNDERE thanked everybody for the meeting and supported the above statement.



In Attendance: SNX Council, SNBL Administrative Manager, BL Scientists.

## 7. Discussion of Proposals

[Shepherds]

Commissioning is requested during 16 bunch time.

Requests and Allocations of Beamtime on BM1A and BM1 B, see **Appendix No. 12**

### BM1 A

Total Number of shifts available		225
Shifts for ESRF	- 75	
Shifts available for scheduling		150
Long Term	- 60	
Dubble request	0	
<b>Shifts available for discussion</b>		<b>90</b>

All the proposals with Grade **A** and over will get beamtime

### BM1 B

Total Number of shifts available		225
Shifts for ESRF- 75 (plus 3 for SERRE) ) - 78		
Shifts available for scheduling		147
Long Term	- 27	
Dubble request	0	0
<b>Shifts available for discussion</b>		<b>120</b>

All the proposals with Grade **B+** and possibly some Grade B will be offered beamtime.

Proposal for Astrid Lund to be inserted if beamtime becomes available.

## 8. Summary of actions to be taken

[C. Heurtebise]

**9.1.1.** Look at the education aspects of the SNBLs, CH and NOR process to converge. Will further explore the possibilities. **Helge LARSEN and Jeroen VAN BOKHOVEN.** **Deadline: next SNX meeting in November 2008.**

**9.3.1.** OUTSIDE CONTRACT amount. Each SNX Member is to enquire on how to find this amount. **Rafael ABELA and David NICHOLSON to coordinate.** **Deadline, November 2008.**

**9.5.1.** The Committee of the Future is to collect and identify the specific directions, the impact on manpower, and the developments to be undergone. **On the Swiss side: Rafael ABELA, on the Norwegian side: David NICHOLSON.** **Deadline: Draft for consideration at the SNX Meeting in November 2008.**

**9.5.2.** SNX Council will work on acquiring funding from CH and N to replace old equipment, for example MAR, **responsibles Kenneth KNUDSEN, Gervais CHAPUIS/Marc SCHILTZ.** **Deadline next SNX meeting, November 2008.**

**9.9.1.** The 11<sup>th</sup> SNX Meeting will take place in June 2009, in Lugano. Final dates to be decided by end of June 2008. **Chantal Heurtebise. Deadline end June 2009. Result : The final dates for the 11<sup>th</sup> SNX Meeting are Thursday 11<sup>th</sup> and Friday 12<sup>th</sup> June 2009.**

## 9. Concluding remarks

[D. Nicholson]

**10<sup>th</sup> SNX Meeting.** As agreed during 8<sup>th</sup> SNX Meeting, this will take place in Grenoble on Thursday 27<sup>th</sup> and Friday 28<sup>th</sup> November 2008.

**11<sup>th</sup> SNX Meeting.** The June 2009 SNX Meeting is to be organized by the Norwegian side. After discussion, it was decided to organize this meeting in Lugano, Switzerland. Gervais CHAPUIS agreed to book a meeting place in Lugano. The suggested dates are Tuesday 2<sup>nd</sup> and Wednesday 3<sup>rd</sup> June 2009. Chantal HEURTEBISE will send an e-mail to each SNX participant in order to finalize the dates of that meeting.

**9.9.1.** The 11<sup>th</sup> SNX Meeting will take place in June 2009, in Lugano. Final dates to be decided by end of June 2008. **Chantal Heurtebise. Deadline end June 2009. Result : The final dates for the 11<sup>th</sup> SNX Meeting are Thursday 11<sup>th</sup> and Friday 12<sup>th</sup> June 2009.**

**12<sup>th</sup> SNX Meeting.** This meeting will take place in Grenoble, on Wednesday 2<sup>nd</sup> and Thursday 3<sup>rd</sup> December 2009.

**David NICHOLSON** pointed out that this meeting has been very pleasant. He is impressed by the state of the beamlines and by the team. The SNBL Staff is highly appreciated. The visibility of SNBL has increased, this is impressive.

Regarding the upcoming evaluation of the beamlines by the ESRF, Mr. Chairman is confident that this will be positive. Dates for the beamline review: 4<sup>th</sup> and 5<sup>th</sup> November 2008.

Everyone is warmly thanked.

The director, **Vladimir DMITRIEV**, underlined that the team acknowledges the **strong support** from the Norwegian side and from the Swiss side.

**List of appendices, showing the page number on which they appear in the minutes.****Appendix A are available only to SNX Members and Observers****Appendix B are available to all.**

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