

INTERESTING TIMES

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GENERAL OVERVIEW

2002 was a year full of change and opportunity. Certain significant events, such as the successful completion of the SLS (**S**wiss **L**ight **S**ource) project and the retirements of the PSI director and the GFA department leader, opened the path to a reorientation and adaptation of the organisational structure. The carefully prepared reorganisation was implemented on July 1st, 2002 and has also had an impact on the (**A**bteilung **T**echnik, **K**oordination und **B**etrieb, **A**TK) division.

Such a reorganisation of a company or an institute should not just consist of moving people around to fill the empty boxes. The opportunity to increase efficiency and eliminate duplication must be grasped. This is the case at PSI. The new organisation merges the operation, maintenance and development of large research instruments, such as the existing proton accelerator and the brand-new SLS, into the same department. This is a sensible and natural development.

Before this reorganisation became effective, the specialised fields of vacuum technology and surveying were covered by two separate groups in different parts of the institute. They are now combined into a single vacuum section and a single surveying group and have become a part of ATK. A further consequence of the reorganisation is the transfer of the magnet section to ATK. A fruitful co-operation with the ATK technical support group has already developed. Design, establishment and commissioning of research facilities, as well as their operation and future development, demand an optimal deployment of manpower and financial funds. The reorganisation reflects these considerations and the enhanced resources achieved by synergies will be indispensable for new interesting projects such as PROSCAN, LEM (**L**ow **E**nergy **M**uons), UCN (**U**ltra **C**old **N**eutrons) and Megapie.

Contrary to industry, our resources are not simply controlled by supply and demand, but by priorities set by the executive of the institute. They are in turn based on recommendations formulated at the PSI departmental level. The gap between the services requested and the available resources grows. This is mainly due to the increasing number of projects and the slightly decreasing financial means. In addition, the manpower in the ATK division had been steadily reduced. This contradiction has been recognised and, in agreement with the management, it was corrected in July 2002. The division was reinforced with additional manpower.

ATK was formed four years ago. The responsibilities and duties have not changed significantly. The six main tasks are described below. They have to be treated with particularity and seriousness, even though their character is not spectacular.

MISSION AND OBJECTIVES

- General planning and co-ordination of the annual shutdowns of the accelerator complex, the Spallation Neutron Source (SINQ) and SLS.
- Technical support for the operation of the accelerator facilities and the realisation of experiments.
- Assistance in the infrastructure planning and the co-ordination of large projects such as the PROSCAN, LEM, UCN and Megapie. Development and monitoring of the timetable and generation of the program for the installation, assembly and construction of the large facilities.
- Development of concepts for the assembly of new and large installations for the accelerator and realisation of the radiation shielding.
- Management of the PROSCAN project together with the establishment of the accompanying project structure.
- Vital technical groups in specialist fields such as magnet technology, vacuum technology, surveying, mounting technology and cryogenics.

The primary goal is the efficient use of the limited manpower and financial resources available at PSI. This can only be achieved through comprehensive planning and co-ordination. Early definition of realistic fixed dates, adherence to them and the integration of all our experience is necessary.

SHUTDOWN 2002

Following what has almost become a tradition, 2002 was ushered in by the well-prepared shutdown of the accelerator complex (Injector 2, Ring machine, Experimental hall EH, SINQ) and the nucleon hall (NA). Before mid-April, a long and precisely detailed list of tasks had to be carried out, each within its prescribed time slot. A precise schedule of such activities is essential for the preparation of the experiments and for the users of the accelerator facilities.

In retrospect, we can report that the maintenance work was accomplished without significant unforeseen complications and with a collective radiation dose lower than had been estimated by the health physics controllers. The maintained machines could be given back to the scientists on time.

UNDERGROUND STORAGE BUILDING (WAKA)

All components that get exposed to the proton beam, or the particles it creates, will become activated to a greater or lesser extent. This also includes the secondary beam lines and experimental equipment. When the configuration of experiments is changed, some components may be replaced. Quite often these components represent a high monetary value and are therefore stored for future use rather than being scrapped. This previously took place in three different isolated storage buildings for activated components.

After the new underground storage building WAKA was completed in summer 2002, the transfer of components from the existing active storage places could begin. This was, however, not a simple removal job. They first had to be checked for their continuing usability and whether they were still activated. On the basis of these investigations, about one-third could be disposed of by conventional means, one-third had to be disposed of by ATEC (Group for disposal of activated materials) and one-third was retained for storage in WAKA. After this transfer operation, the regular storage of activated components from PSI-West could begin. Since WAKA is actually an underground extension of the main experimental hall, active components can be transferred for storage without leaving the controlled zone. This represents an important simplification of the storage process and increases overall safety.

DISASSEMBLY OF EXPERIMENTS

Besides the above-mentioned activities of ATK, there are several less spectacular jobs to be done. For example, ATK is involved in the complete disassembly of large experimental equipment, which have been in use for long periods at different secondary beam lines and has to sort, store or dispose of many different components, which are sometimes quite valuable. This may be electronics, iron for magnets, vacuum components etc.

PROSCAN

The PROSCAN project will soon enter the exciting and labour intensive installation phase. ATK is responsible for the project management and is becoming increasingly involved in the project itself. One prerequisite for a successful project execution is fulfilled by the permanent support and co-operation of our colleagues in the ABE (Accelerator Facilities and Systems) and ASM (Radiation Medicine) divisions together with the LOG (Logistics and Marketing) department.

The preparation work in the nucleon hall (NA) is finished and the first construction work for the new cyclotron COMET and the cancer treatment facility, Gantry 2, could begin. The cyclotron will be built and supplied by the German company ACCEL Instruments during autumn 2003. The required infrastructure has to be ready by this time.

Two technical reviews with international participation were held in 2002. The first review covered the cyclotron and its related beam lines and the review of the control system followed later. The results are encouraging. The layouts of the beam lines, the extensive shielding, the labyrinth entrances and infrastructure etc. could be refined and fixed.

OUTLOOK AND CONCLUSION

ATK, with its 62 members, is structured into five sections and five groups. The staff's experience, capability and willingness have been engaged to 65 % by GFA (Department Large Research Facilities). Beside the standard tasks of co-ordination of the shutdowns, technical support and development of concepts, ATK is becoming increasingly involved in priority projects such as PROSCAN, UCN, LEM and Megapie. They are the spice in the existence of the division, which provides services in the widest sense to the operation and maintenance of scientific systems and instruments. Reflections, studies and concepts for future PSI projects motivate our staff and force us to a permanent extension of our capabilities.

The main tasks for ATK in 2003 are the organisation, monitoring and support of the shutdowns (until mid-April), the pre-assembly of the new beam line μ E4 (LEM), design and preparations tasks for the commissioning of the cyclotron COMET, as well as the mounting of the beam lines in the nucleon hall NA.

Furthermore, the new staff members have to be integrated so that ATK stays fully functional and efficient. In face of the upcoming tasks, we must determine the setting of priorities in order to reduce the gap between the services required and the available resources.

There is much to do:

interesting times - hard times - modern times