The organization and on-site follow up of the electrical installation work for the LHC

A. Vairo 6th ST Workshop April 2003

Organization and follow up on site.

The following has been mandate to the section ST/EL-WO:

- Management of the works for new electrical installations
- Tests for commissioning

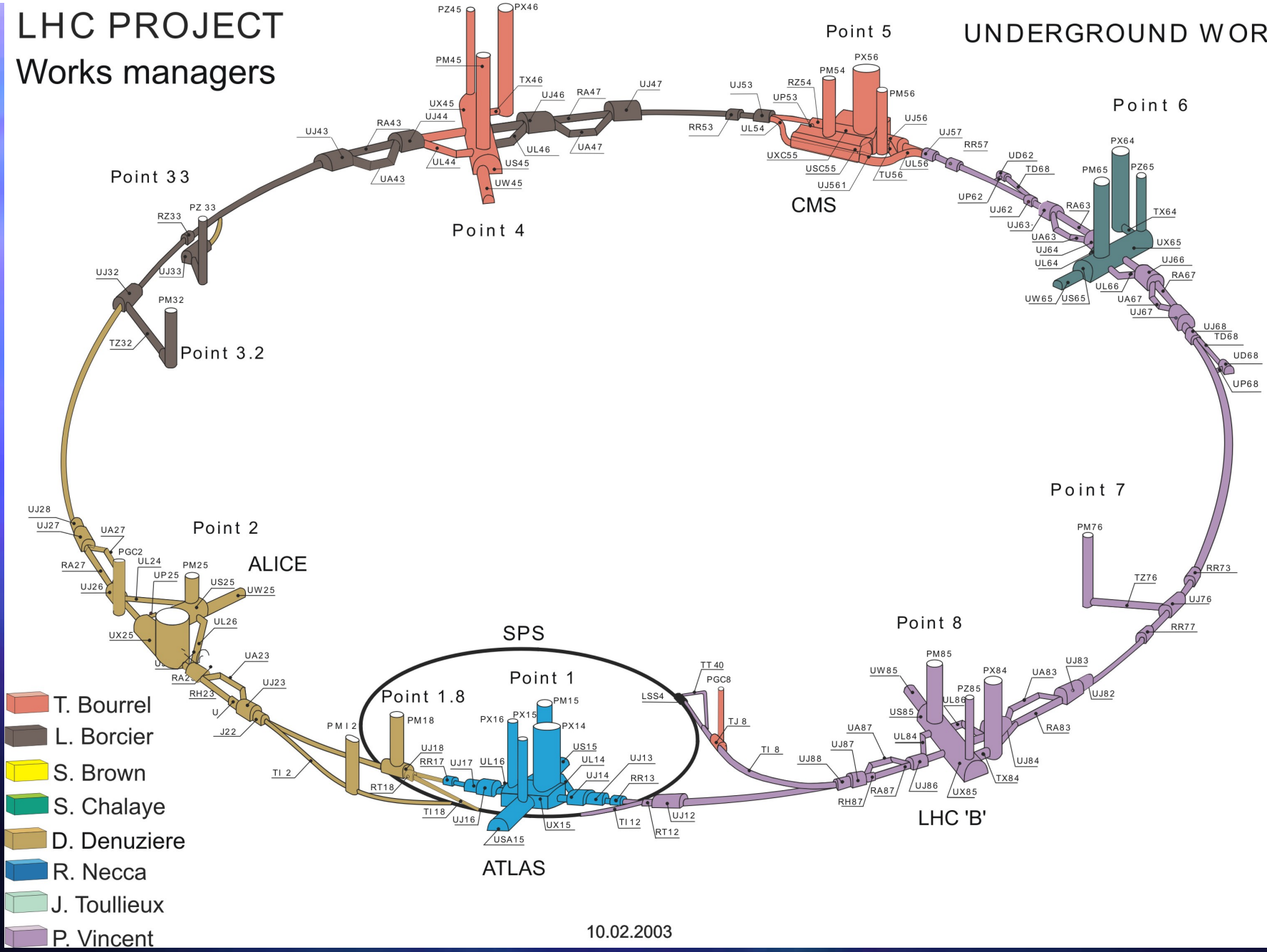
The results of these activities are:

- An installation that is in conformity with the specifications, delivered within the scheduled time.
- Ready for handover and commissioning by the EL-MO section

Works managers' role:

- Manage the on site logistic of the work
- Check all the necessary administrative task for the contractors
- Organize the inspections at the start of the work (safety and technical)
- Assure the safety during the execution of the works (in collaboration of the safety inspectors)
- Set up provisional electrical power for the work
- Organize, with the operation section the power outage.
- Site coordination of the activities of the contractors
- Follow up of the planning during the execution of the works
- Perform tests for commissioning

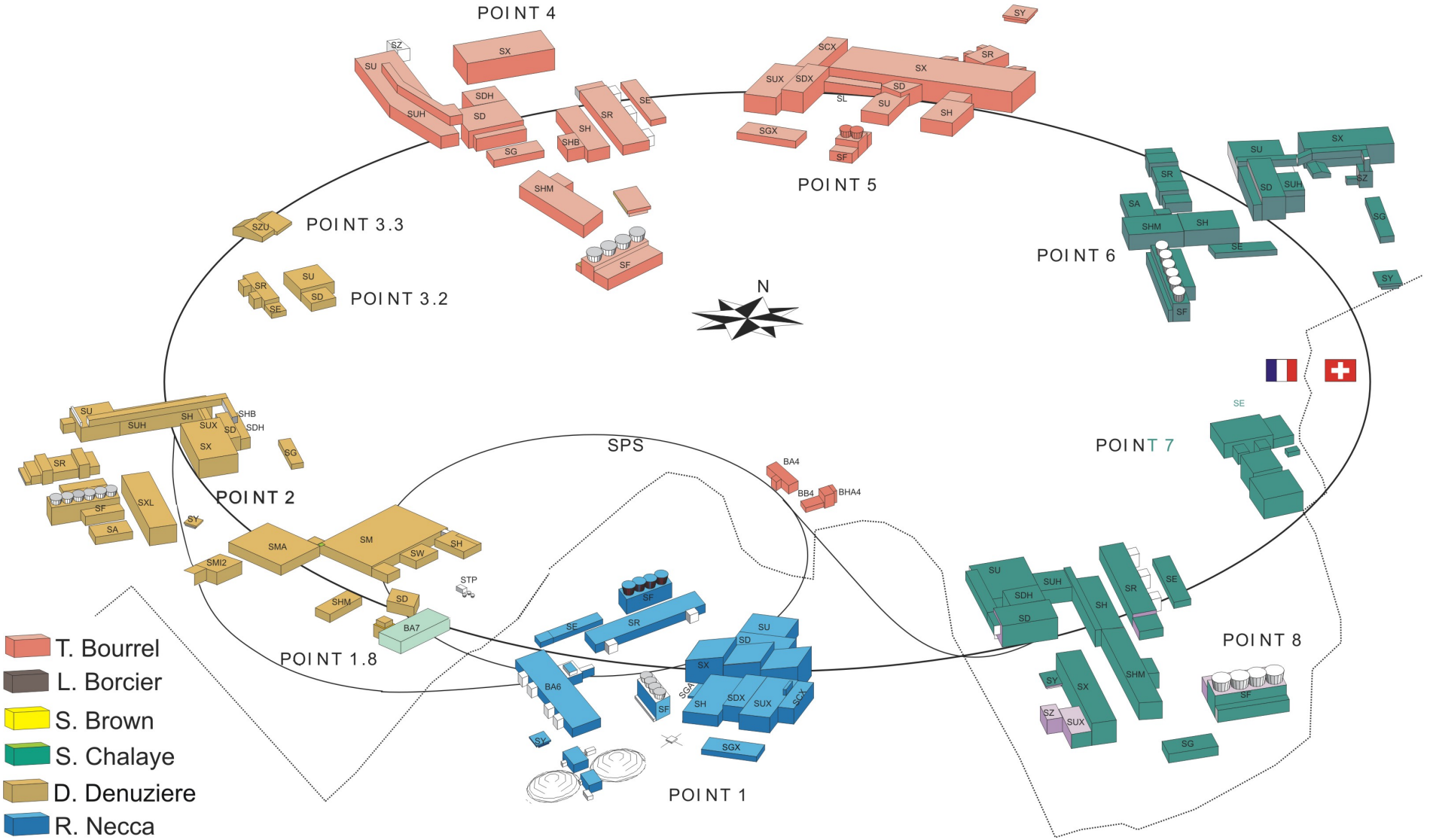
LHC PROJECT
Works managers



LHC PROJECT

Works Managers Zones

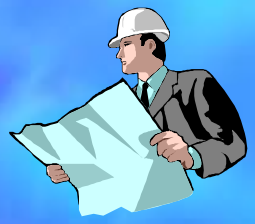
SURFACE BUILDINGS



05.02.2003

Management of the installation works ST/EL

Study phase



Project Manager

Project documents

- Overall schematic of the installation
- Lay out of the equipement
- List of cables
- Equipement documents
- Data for the protection relais
- Planning
- Etc.

Feedback

Works Manager

Installation Works

Interface with the contractors

General CERN regulations and instructions:

- "Regles de securite applicable aux activites des enterprises sur le domain du CERN".
- IS 39, Notice of start of works (AOC).
- Overall safety coordination and health protection plan.
- Sapoco 42, Basic safety regulations and rules

Contracts set up with the contractors specific ST/EL.

Consequent actions:

- Check that the contractors have all the necessary documents to perform work .
- Verify that all the personnel followed the appropriate safety course and are in possession of the necessary official documents
- Establish the Notice of Start of Works (AOC, "Avis d'Ouverture de Chantier").
- Verify, in collaboration with the safety coordinators, the aspects of the Safety Prevention Plan with respect to the job.
- Carry out regular site inspections.

Interface with the ST/EL main contractors.
The large majority of the installation work is done by holders of contracts C170/ST and C171/ST

The interface to these contractors is governed by the Quality Plans

- The interface of the contractors to CERN is covered by means of procedures dealing with all the phases of development of a job. These procedures have been developed in collaboration with the CERN.

- Efficent processing of all non conformities.

On site coordination

On site coordination between different disciplines

- Regular on site coordination meetings in the context of the LHC Installation and Coordination organization, or in the context of experimental areas coordination.
- This coordination aims at solving interface problems between different trades either:
  - On site or
  - Bringing up the information at the r competent level

Coordination of the works at different levels

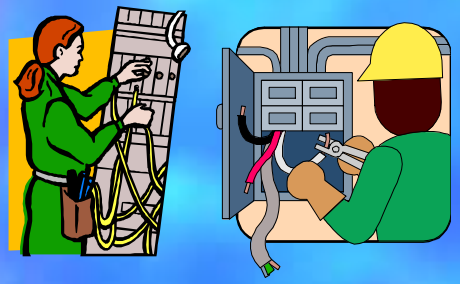
EL group coordination:

- Follow up of the advancement of the works, checking the conformity with the general planning LHC. Presence of the LHC planning team.
- Review the preparation of the works
- The main contractors being present at the meeting, solution can be immediately analized.
- ST/EL inscribes itself in the ST coordination for LHC works

Coordination of the installation of the LHC machine (or experimental areas):

- Review all the installation works for the LHC.
- Coordination, logistic, safety

Test of the installation



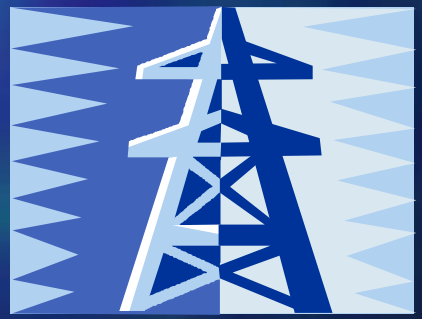
Works Manager

Project Manager

Test of all equipment
Functional test of the installation

Test reports

Installation ready for commissioning



Installation hand over to the exploitation service for commissionig

The transfer of the installation takes place with a site inspection with the following attendants

- Works Manager
- The exploitation service, section EL-MO
- Project Manager
- Representative of TIS
- User

During the inspection a formal procedure is followed with the check of:

- The documents constituting the technical dossier
- The test reports
- The dossier must allow the EL/MO section to operate the installation in a safe an proper way.
- The conformity the installation.

Conclusions

Some data about the activity of the EL-WO section:

- 40 Notices of Start of Work (AOC) estabilished from the beginning of 2003

- From October 2002 5 Medium Voltage installations have been built up and tested