

# **SAFETY DURING DISMANTLING**

**(G.Lenzen)**

## **1. Safety organisation and applicable documents**

**SAPOCO42 document by Safety Policy Committee deals with CERN's policy concerning occupational health, work safety and environmental protection, generally called SAFETY.**

**Therein is described organisational structure applicable to Safety:**

**GLIMOS responsible for Safety during dismantling.**

**Appointment of Safety Linkmen to ensure continuity during work (B.Corajod and J.Renaud). They are immediate supervisors to all persons working in the pit during the dismantling of DELPHI, be it CERN staff, registered visitors or temporary labour personnel.**

**TIS has published additional documents which deal with special applications of SAPOCO42 (safety codes, safety instructions, safety notes, divisional safety plans, operational instructions, etc.).**

**The Safety Note NS 20 in French ( "Travaux de demolition et demontage") gives guidelines for demolition and dismantling work in general.**

## **2. Preparatory safety relevant tasks**

**Careful preparation and testing of all tools necessary for dismantling.**

**Certain number of safety helmets, gloves, and harnesses will be made available by DELPHI, **BUT ALL PERSONS WORKING IN THE CAVERN DURING DISMANTLING ARE OBLIGED TO HAVE THEIR OWN PERSONEL EQUIPMENT WITH THEM.****

### **3. The dismantling zone**

The dismantling zone consists of the DELPHI experiment in the UX cavern and the SX and SG areas on the surface, where the dismantled parts of the detector will be stored for a while or prepared for transport.

**ACCESS FOR AUTHORISED PERSONS ONLY!**

Access and emergency escape routes are clearly marked and barriers separate storage space for material and tools from these routes.

**VISITS WILL NOT BE POSSIBLE!**

### **4. Securing the experiment**

Before the start-up of the dismantling work in the UX cavern:

- 0 Flushing of all flammable gas systems with Nitrogen
- 0 Demagnetise yoke of the sc solenoid by inverting field
- 0 Stop and empty all water cooling devices
- 0 Empty all RICH fluorocarbon radiator fluids
- 0 Switch off all HV circuits, preamplifiers, electronics, etc.  
Cut all electricity circuits including uninterrupted PS.  
Installation of moveable power plants for light in counting rooms.
- 0 Installation of scaffolding and platforms.

## **5. Safety relevant services**

After all electrical power in the counting rooms is disconnected, the following systems will be disabled:

### **0 FIRE, SMOKE, GAS LEAK DETECTION IN DELPHI**

**Fire and smoke detection system DEF and VESDA.**

**SDN and BINOS systems detecting smoke, fire, and flammable gas inside the DELPHI detector.**

**Catalytic IGD detectors for detection of leaks in gas racks.**

**PERREN halon systems.**

### **0 All telephones in counting rooms.**

Risks of explosion and fire is considerably reduced by purging the detector from flammable gas mixtures and by removing all electrical power inside the counting rooms.

Though all safety relevant services in the counting rooms and inside the DELPHI detector itself are cut, **ALL SERVICES INSIDE THE UNDERGROUND CAVERN WHICH GUARANTEE SAFETY TO A CERTAIN EXTENT WILL BE KEPT OPERATIONAL.**

### **0 Portable fire extinguishers before all counting rooms and on top of the detector.**

### **0 BIOCELL breathing apparatus before B3 and on top of D3.**

### **0 Telephone system inside the DELPHI cavern including the so-called “Red Telephone”.**

### **0 Portable GSM phones will continue to work.**

### **0 Ventilation systems for cavern and elevators, system against inundation of the UX area, and evacuation alarm system will stay activated.**

### **0 GSS system and all relevant level-3-alarms remain operational.**

## **6. Protection of persons**

**All persons working, even temporarily, in an underground area must be informed about safety rules, presence of hazards, alarm characteristics and emergency escape routes.**

Therefore it is indispensable that all persons working for the dismantling of the detector have **UX-clearance**.

The CERN fire brigade gives this special **safety briefing** in a three hours course, covering the particular safety problems encountered in underground areas.

DELPHI specific information about safety issues are given by the GLIMOS in written and/or oral form:

- 0 Access to the cavern and emergency exits
- 0 Safety relevant services
- 0 Names of contact persons and supervisors

All dismantling activities are coordinated by a small team of CERN staff members (**C.Joram, J.Renaud, B.Corajod**), who will supervise the work of those who come from outside CERN institutes, firms or universities, either to dismantle a specific detector part or to take care of the safe handling and transport of material.

This coordination team has determined the period and duration of the different operations needed for a safe dismantling, and they are in charge of the tools and equipment for this task. They will also look to keep an adequate working speed to avoid safety risks.

All persons working in the DELPHI area are obliged to take in addition **individual measures** for their own protection.

**It is obligatory to wear a protective helmet and safety shoes during any dismantling activity; gloves, glasses, and noise protection devices have to be worn under special conditions.**

**THE QUALIFICATION AND THE KNOWLEDGE OF THE PERSONNEL WILL REDUCE SAFETY RISKS CONSIDERABLY DURING THE DISMANTLING ACTIVITIES.**