MERcury Intense Target (MERIT) Experiment Layout

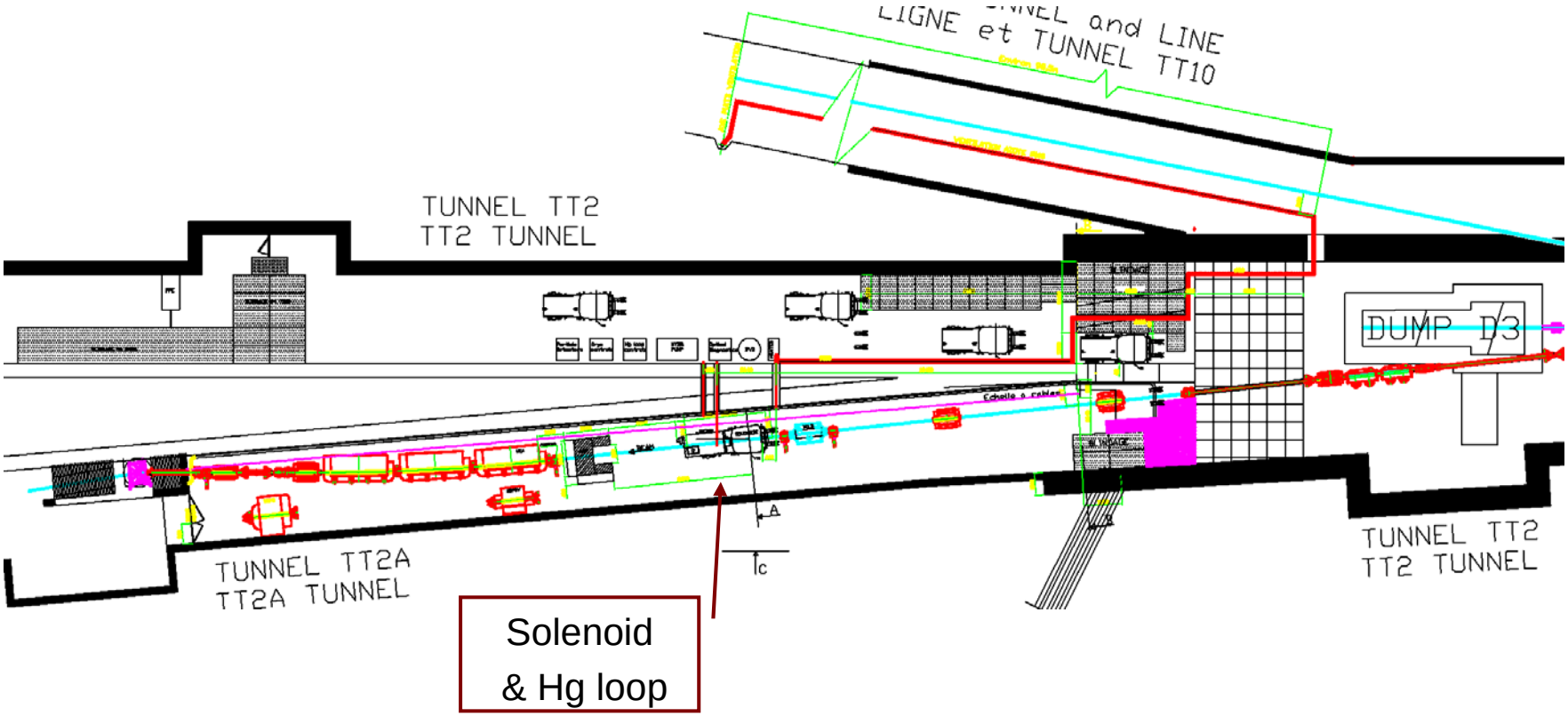
A.Fabich for CERN AB-ATB

The Experimental Layout

- Detailed ACAD drawings of the TT2 and TT2A tunnels are now available
  - Include all the shielding walls and services for nTOF already installed in the area
  - Used to define the passage of the cryogenics exhaust line into TT10 and the layout of the cable passage holes between TT2/TT2A tunnels
- A preliminary rack allocation of the experimental services in TT2 tunnel is included
  - Subject of discussion – a decision is needed before the first cables are ordered/installed.

The Experimental Layout

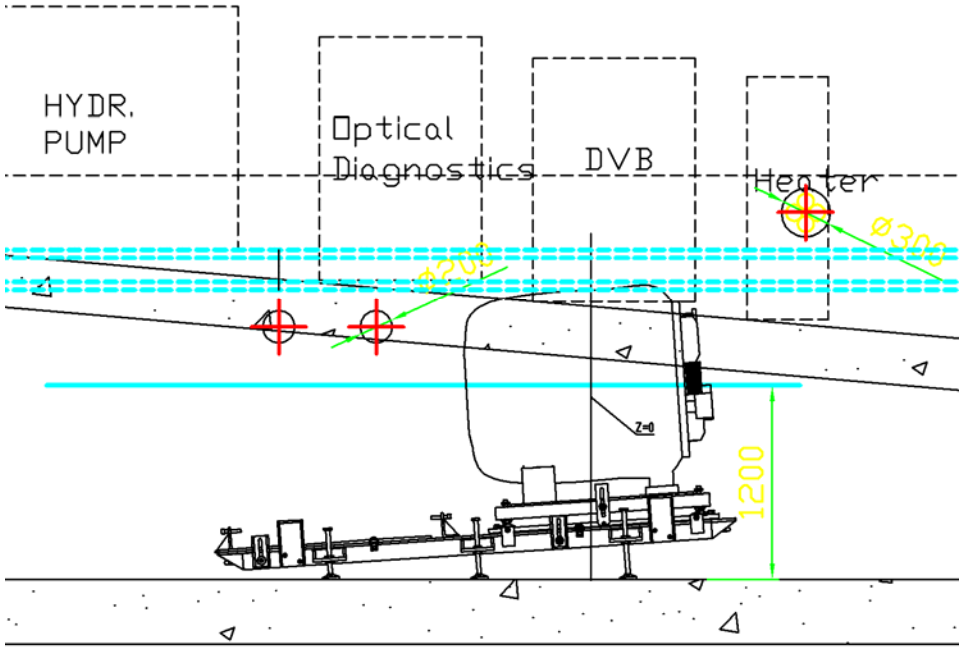
General layout



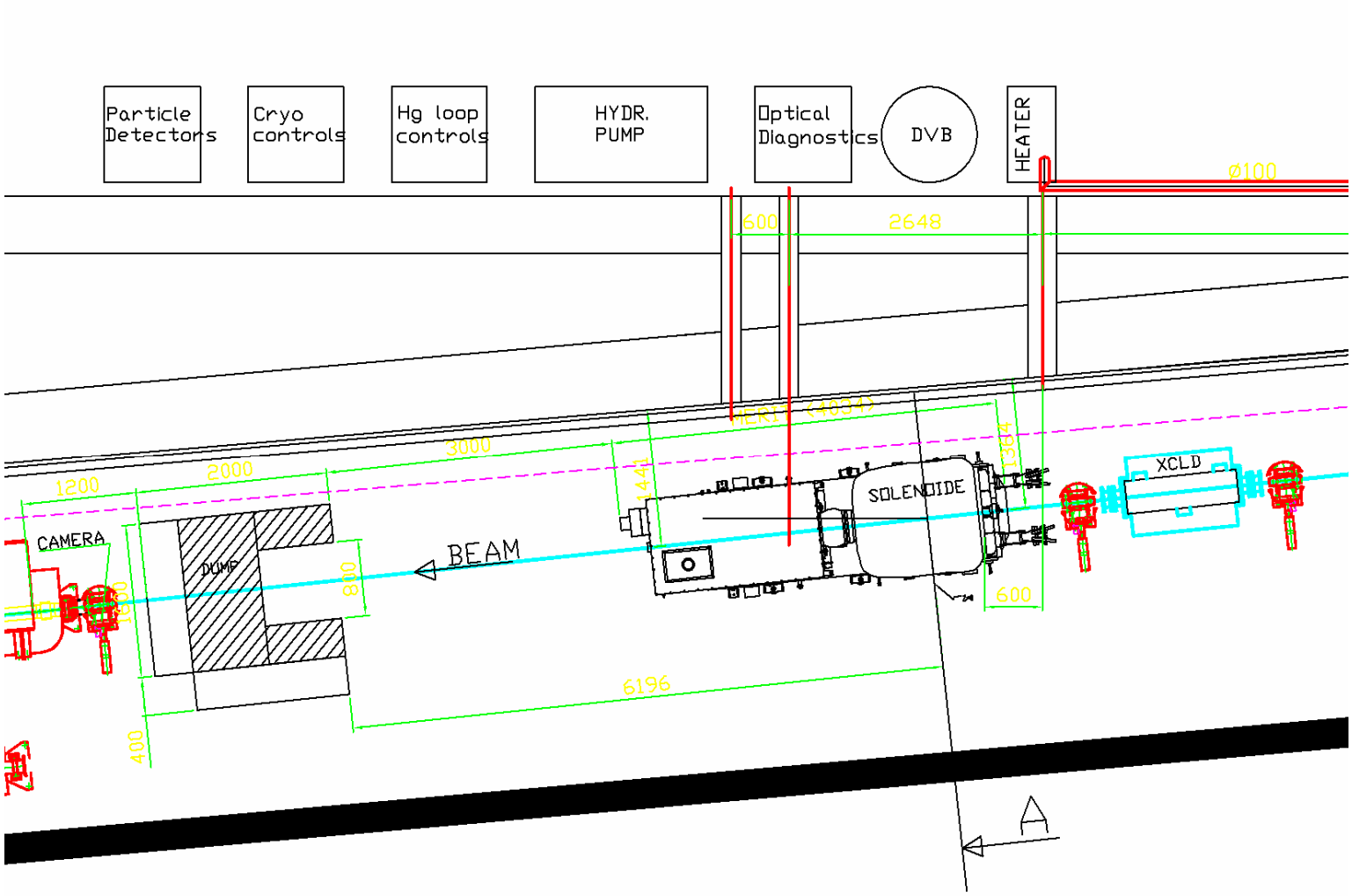
The Experimental Layout

Cable passages

- Three holes will be drilled:
  - Upstream: OD=30cm for cryogenics
  - Middle: for optical diagnostics, OD=20cm
  - Downstream: for hydraulic system piping, OD=20cm
- The direction is optimized to minimize radiation leakage to TT2 tunnel
  - Could be filled with sand bags after the installation of the cables if radiation is an issue



The Experimental Layout



The Experimental Layout

Control Room

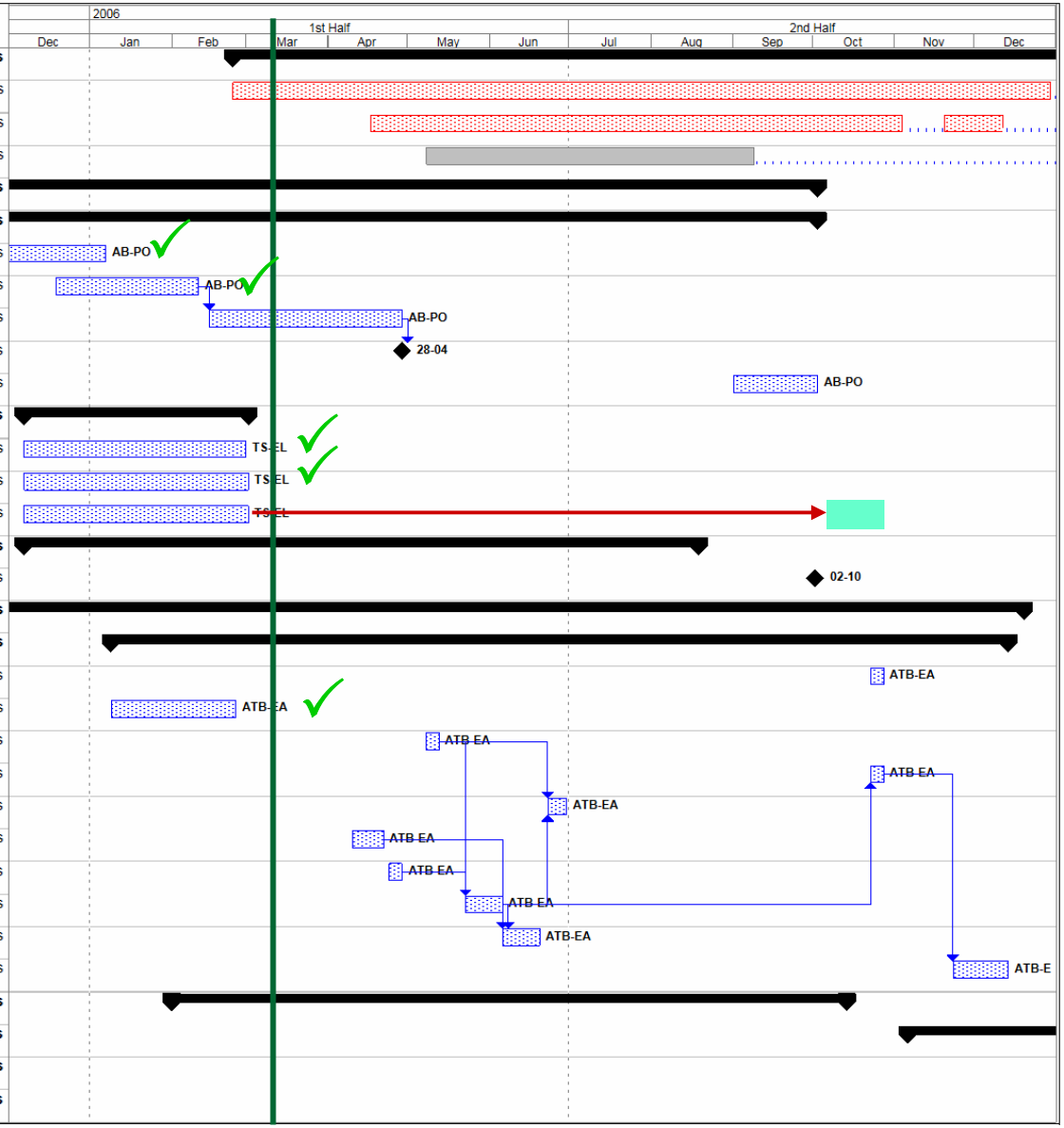
- Location to be decided – two options:
  1. At the ISR tunnel at the exit from TT2 tunnel
     - Need to reserve the space from other users
     - Not the ideal place for a control room
  2. Use the old West Area CR in bat.272
     - Further away but at walking distance from the tunnel door
     - Next to the cryogenics lab there the surface tests will be made
- Decisive factor would be the cabling. Are cables installations required between TT2 & CR?
  - Can all communication be based on Ethernet network?
- Aim to conclude on this issue by end of April 2006

Installation Schedule

- Target date: **November 2006**!
  - Ready to receive and install the solenoid and Hg-loop into the tunnel
- Infrastructure in the tunnel has to be finished beforehand
- Installation and commissioning of solenoid and Hg-loop only at the TT2A tunnel
- Working schedule available taking into account:
  - Installation delays: manpower, tendering, ordering, ...
  - Access limitations due to PS/SPS operation in 2006

Schedule at CERN

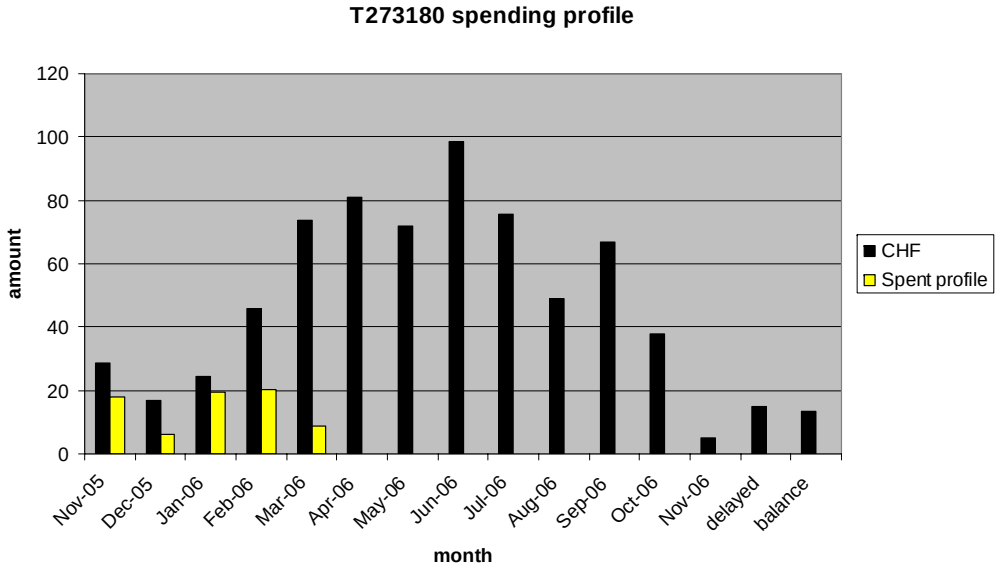
ID	Task Name	Resource Names	Start	Finish	Duration
1	**Accelerator Operation**		**24 Feb '06**	**14 Nov '08**	**711 days**
2	PS/SPS closed	PS/SPS	24 Feb '06	14 Nov '08	589 days
3	PS run	PS	17 Apr '06	31 Oct '08	446 days
4	AD run	AD	08 May '06	05 Sep '08	269 days
5	**Solenoid Power**	**AB-PO**	**07 Nov '05**	**02 Oct '06**	**236 days**
6	**DC power supply**	**AB-PO**	**07 Nov '05**	**02 Oct '06**	**236 days**
7	Preparation BA6 & AD193	AB-PO	07 Nov '05	06 Jan '06	45 days
8	Installation	AB-PO	19 Dec '05	10 Feb '06	40 days
9	Refurbishment	AB-PO	15 Feb '06	28 Apr '06	53 days
10	installation bat.193	AB-PO	28 Apr '06	28 Apr '06	0 days
11	Interlock connections	AB-PO	01 Sep '06	02 Oct '06	22 days
12	**-AC cirquitry**	**TS-EL**	**07 Dec '05**	**01 Mar '06**	**61 days**
13	Installation transformer	TS-EL	07 Dec '05	28 Feb '06	60 days
14	Installation AC cabling	TS-EL	07 Dec '05	01 Mar '06	61 days
15	AC cell	TS-EL	07 Dec '05	01 Mar '06	61 days
16	**DC Cabling**	**TS-EL**	**07 Dec '05**	**18 Aug '06**	**183 days**
19	Operational	AB-PO	02 Oct '06	02 Oct '06	0 days
20	**Cryogenics**	**AT-ECR**	**01 Aug '05**	**19 Dec '06**	**362 days**
42	**Experimental Area**	**ATB-EA**	**09 Jan '06**	**13 Dec '06**	**243 days**
43	Open shaft	ATB-EA	23 Oct '06	27 Oct '06	5 days
44	Vent line to TT10	ATB-EA	09 Jan '06	24 Feb '06	35 days
45	transport platform TT2 - TT2A	ATB-EA	08 May '06	12 May '06	5 days
46	Transport of solenoid	ATB-EA	23 Oct '06	27 Oct '06	5 days
47	Beam attenuator	ATB-EA	23 Jun '06	29 Jun '06	5 days
48	Beam layout	ATB-EA	10 Apr '06	21 Apr '06	10 days
49	Cut/removal vacuum	ATB-EA	24 Apr '06	28 Apr '06	5 days
50	Dismount nTOF line elements	ATB-EA	23 May '06	05 Jun '06	10 days
51	Drill holes TT2 - TT2A	ATB-EA	06 Jun '06	19 Jun '06	10 days
52	Installation of beam elements	ATB-EA	23 Nov '06	13 Dec '06	15 days
53	**Installation of experiment**	**ATB-EA**	**01 Feb '06**	**13 Oct '06**	**183 days**
56	**Commissioning**	**MERIT**	**06 Nov '06**	**02 Mar '07**	**85 days**
60	**Data taking**	**MERIT**	**11 May '07**	**13 Jun '08**	**286 days**
65	**Dismantling**	**ATB-EA**	**02 Jul '07**	**19 Oct '07**	**80 days**



Budget

CERN Code status – March 2006

- Total credited: 700 CHF (560 USD)
- Committed from BNL: 320 kCHF
- Spent to date: 85 kCHF
  - Pipeline : 25 kCHF



Conclusions

- Lot of progress on MERIT installation issues
  - Power supply, DC cabling, TT10 vent line, cable passages, …
- Experiment layout available with preliminary allocation of the various system components
- Progress on Safety issues
  - ISIEC form and presentation in relevant committees
  - Review of solenoid and cryogenics systems
- Integration schedule on track
  - Tendering & construction of cryogenics DVB on critical path
  - Cryogenics must proceed to schedule
- Our goal remains to have beam at the startup in 2007