



Mercury Delivery System Design Update

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Targetry Teleconference

8 Apr 2005

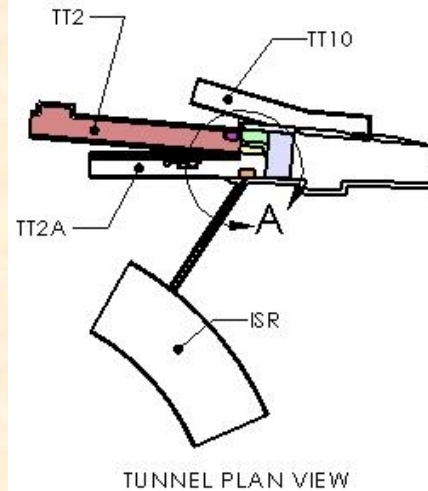
**OAK RIDGE NATIONAL LABORATORY
U. S. DEPARTMENT OF ENERGY**

Collaboration Meeting March 15-17 at CERN

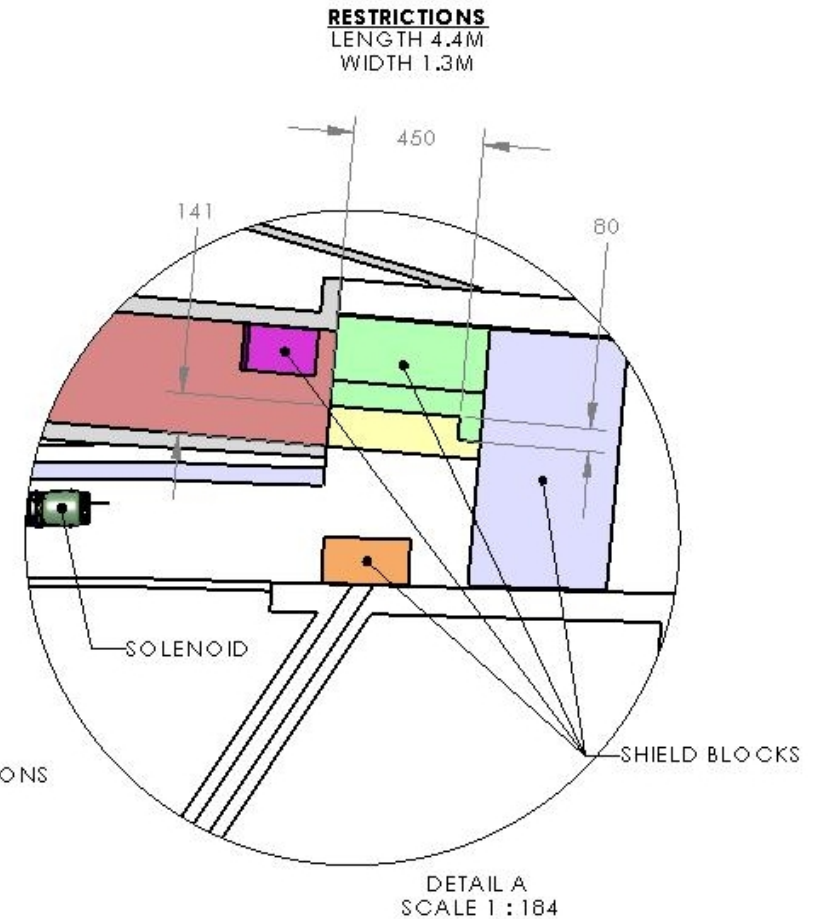
- **Discuss design & proposed operations with CERN facility & safety personnel**
 - Chemical safety
 - Fire safety
 - Mechanical safety
 - Electrical safety
 - Radiation safety
 - Transportation & rigging
- **View experiment location in tunnel TT2A, measure/verify access restrictions**

Access Restrictions

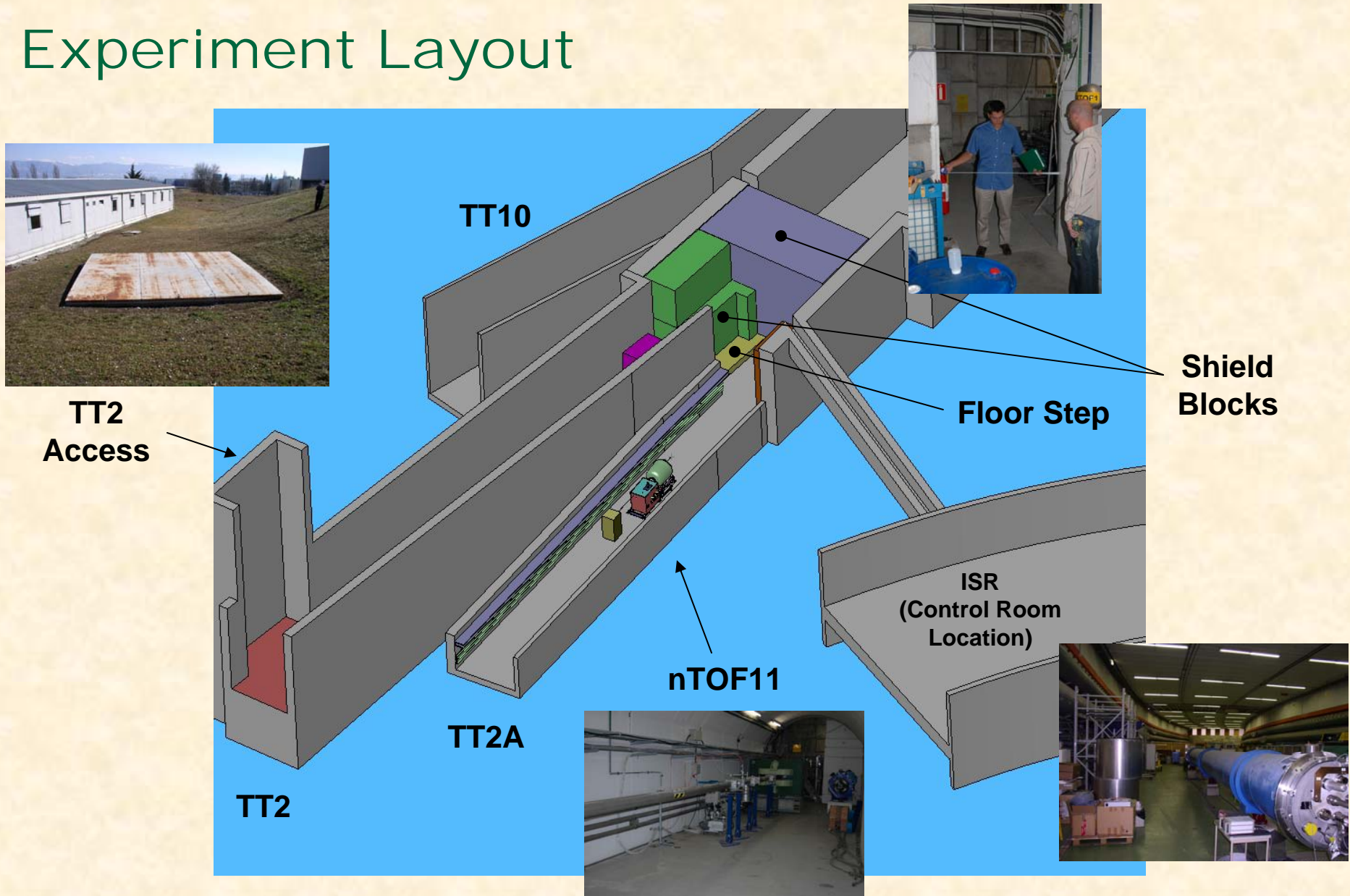
- Prior to CERN trip, assumed component footprint restriction was 1.3m X 3m
- Measurements indicate additional length available
 - New size restriction 1.3m X 4.4m



CERN EXPERIMENT ACCESS RESTRICTIONS
VB GRAVES
29 MAR 2005



Experiment Layout

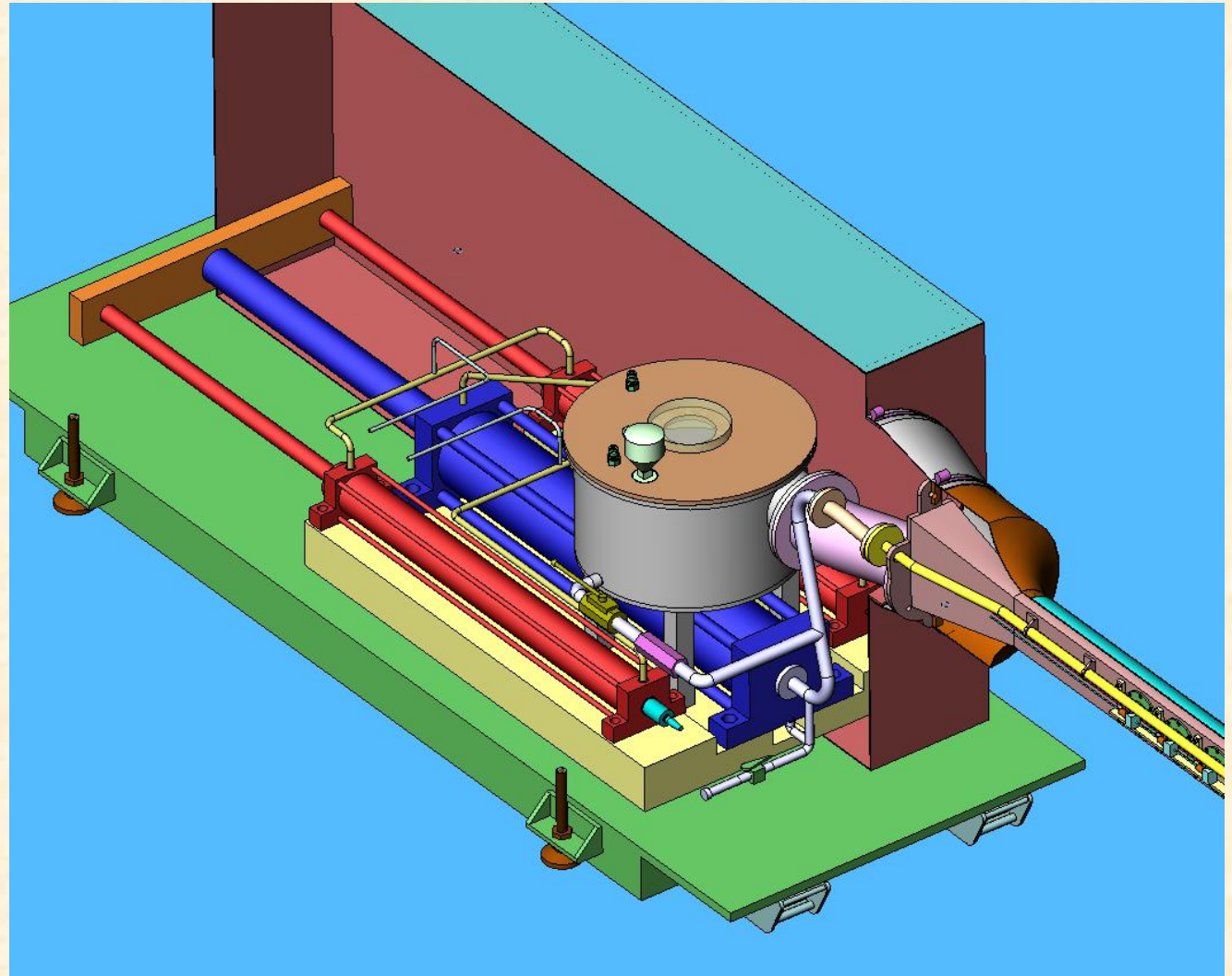


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UT-BATTELLE

Baseline Concept Presented at Berkeley Collaboration Meeting

- Hg piston pump actuated by dual hydraulic cylinders
- Hg capacity for 20sec jet duration (35 liters)
- Hg system length required assembly inside TT2A tunnel



Primary Results of CERN Discussions

- **Operating procedures & design calcs will be reviewed by Safety Committee**
- **Consider component fire ratings, non-flammable hydraulic fluids**
- **Beam windows must be monitored to detect failure**
- **Hg loading/unloading to be performed in TT2A**
- **Portable Hg vapor filtration system should be considered**
- **Pistons should be resized to eliminate in-tunnel assembly**
- **Hg jet duration decreased from 20sec to 12sec**

Current Work

- **Reconfiguring piston system to reduce length**
 - Height also needs to be considered due to beam elevation
 - Hg volume for 12sec jet is 23 liters
- **Integration with solenoid on common baseplate**
 - Primarily beam alignment and positioning issues
- **Future efforts will be directed towards nozzle and beam window details**

