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# Updated RPC Gas System Installation Plan

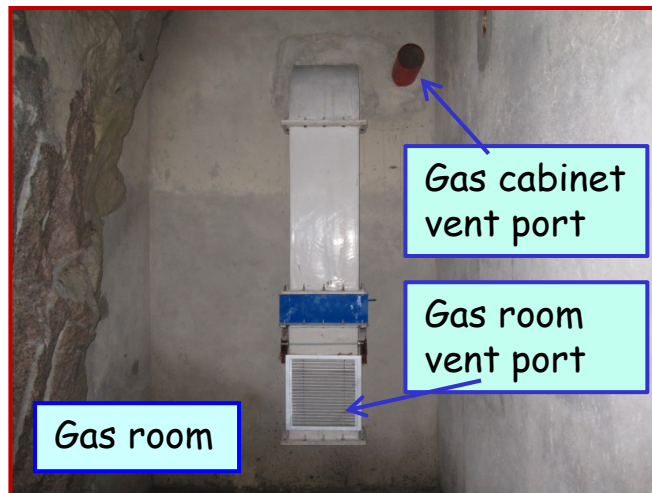
Changguo Lu  
*Princeton University*



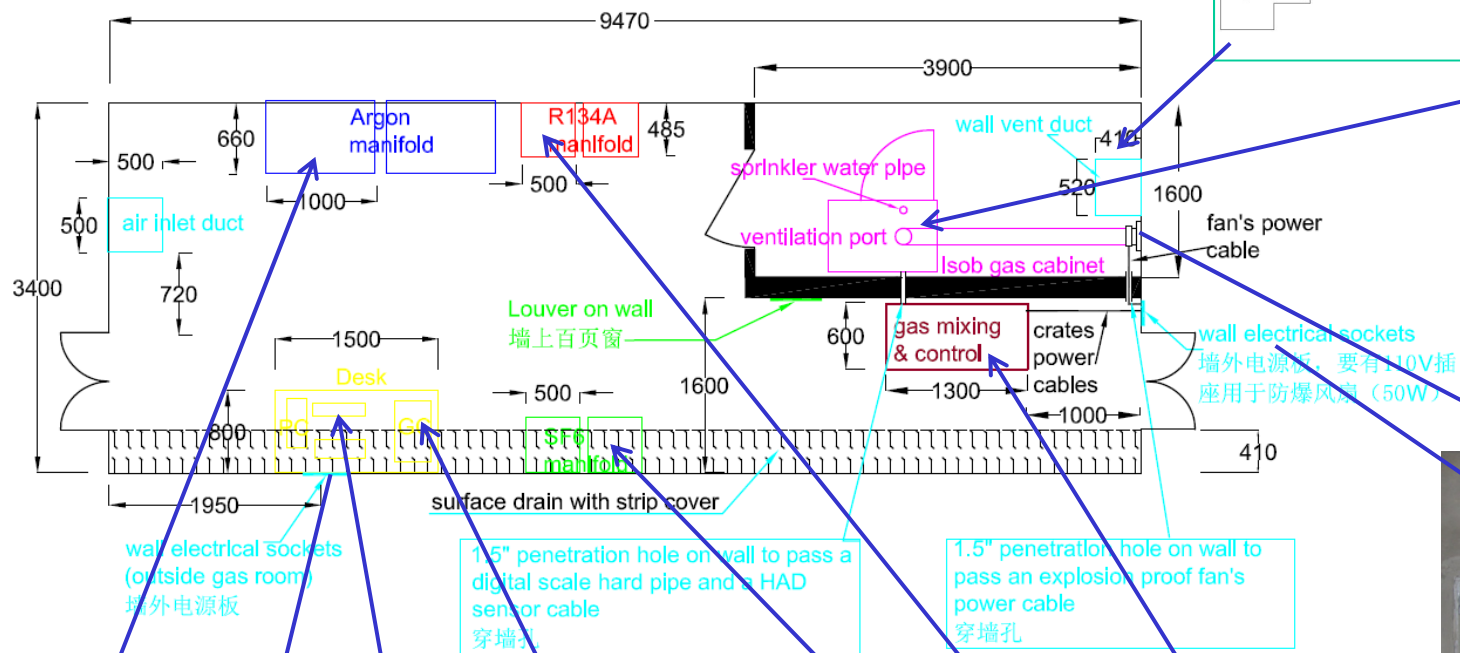
# Outline of the installation schedule

## The tasks relevant to RPC gas system installation in MuonInstallationRLS.mpp

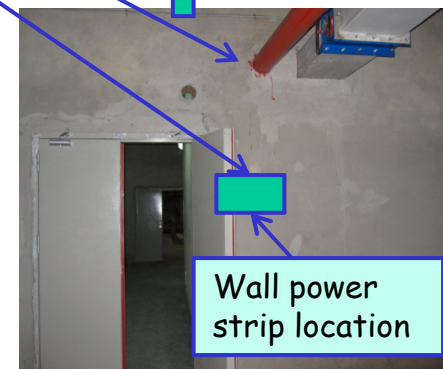
WBS	Task Name	Start	Finish	Activity location	Work description for gas system
6.4.6	EH1 Install RPC Gas Mixing System	10/8/2010	11/5/2010	gas/mixing rooms, E.H.	(1)Install gas mix and control crates, (2)Install GCs, (3)test software, (4)Temporarily install gas distribution/digital bubbler system in gas room and test, (5)lay gas pipe in gas/mix rooms and E.H. (6) Connect to DCS interface box.
6.4.7	EH1 Install Gas Distribution & Digital Bubblers	11/5/2010	11/30/2010	RPC support struc. E.H.	Move gas distribution/digital bubbler racks to RPC support structure.
6.4.8	EH1 Install & Route Gas Lines in Tray	11/30/2010	12/7/2010	RPC support struc. E.H.	Cut, label and route plastic gas tubing in tray.
6.8	EH1 RPC: Connect Utilities to Modules	12/21/2010	1/10/2011	RPC support struc. E.H.	Connect gas tubing to RPC modules/gas distribution crates.
6.9.2	EH1 Route Cables & Gas Lines in Flex Tray	1/18/2010	2/1/2011	E.H.	Lay one flexible gas hose in flex tray.
6.9.3	EH1 Run & Test Completed RPC Array	2/2/2011	3/30/2011	Gas room, E.H.	Monitor/debug digital bubbler and GC operation



# Layout of the gas/gas mixing rooms



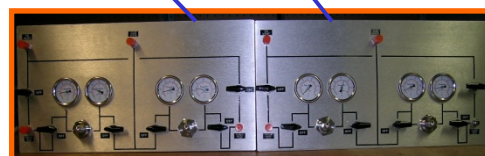
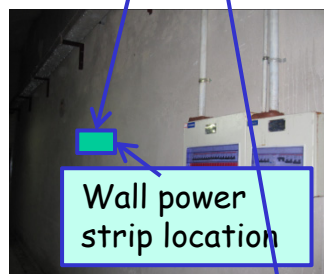
View direction



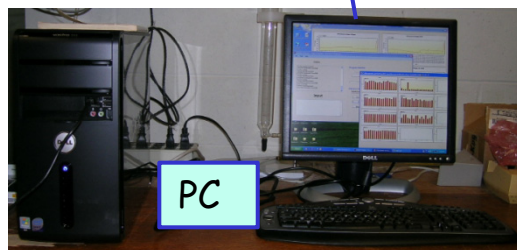
Wall power strip location



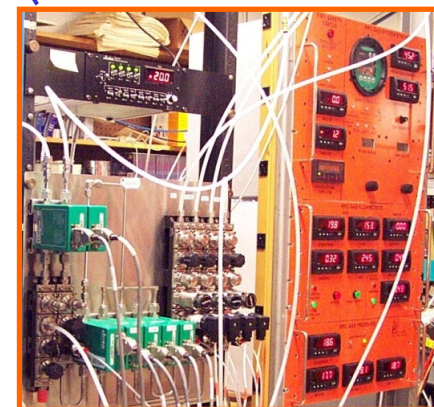
Wall power strip location



GC



PC



## Detailed plan for WBS items

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- 3.1.12 Daya Bay near hall RPC gas system and three GC systems delivered to Daya Bay by 8/30/2010;
- 6.4.6 Install gas mixing/control system and 2 GC systems, DCS interface boxes, 10/8 - 11/5/2010 (we may need to start this task earlier due to the warranty deadline for 2 GCs is due on 10/21/2010)

### Prerequisites:

- Shipping boxes of gas mixing/control system and GCs delivered to gas/gas mixing rooms;
- Network wall plugs activated;
- DCS interface box cable ready, Desk for PC and GC;
- Power line activated;
- Water line for sprinkler installed.

### Manpower:

C. Lu, (possible S. Chidzik) + Chinese labor contractor.



## Detailed plan for WBS items (cont'd)

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### Chinese labor contractor tasks:

- Install gas manifolds for Argon, SF6 and R134A in gas mixing room;
- Route copper gas pipe from gas mixing panel to EH1;
- Hook up 6" gas ventilation pipe of the gas cabinet to gas room venting port;
- Connect water pipe to gas cabinet sprinkler;
- Mount emergency shut-off switch on wall and route wires to gas control panel.

### Coordination with other Muon installation tasks:

Since this part of gas system installation is within gas/gas mixing rooms, it won't interfere with any other installation tasks.

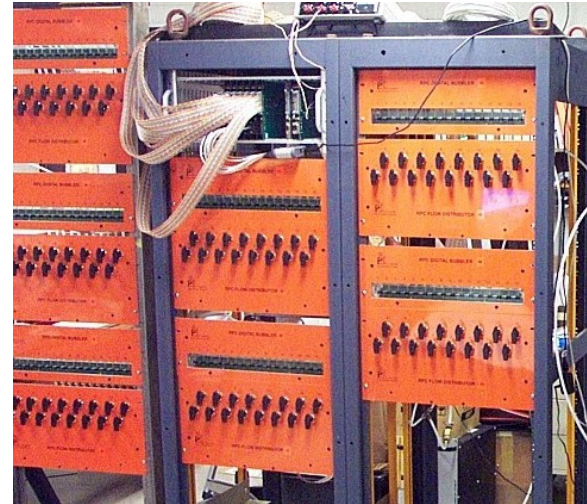


## Detailed plan for WBS items (cont'd)

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6.4.7 Install gas distribution and digital bubbler system in 10/8 - 11/5/2010

Temporally install it in gas mixing room.



### Prerequisites:

Gas racks are available.

### Manpower:

Princeton will take care of this installation. Occasionally may need 1 or 2 assistants from labor contractor.

### Coordination with other Muon installation tasks:

There is no foreseeable conflict with other installation tasks during this period.

## Detailed plan for WBS items (cont'd)

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6.8 Connect gas tubing between RPC modules and gas distribution & digital bubbler crates in 12/21 - 1/10/2011.

### Prerequisites:

Gas distribution/digital bubbler crates moved onto supporting structure and tested in-situ;

Utility tray on RPC module supporting structure installed.

### Manpower:

Princeton supervises the installation, Chinese labor installs.

### Coordination with other Muon installation tasks:

We need to coordinate with HV cable installation.

### Chinese labor contractor's tasks:

Cut plastic tubing to length and label two ends of each tube;

Connect each end to its destination connector.

IHEP may want to install support structure earlier, so this task also can be done earlier.



## Detailed plan for WBS items (cont'd)

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### 6.9.2 Route Cables & Gas Lines in Flex Tray (1/18/2010 - 2/1/2011)

#### Prerequisites:

Gas pipe from gas mix room to EH has installed;

Gas distribution/digital bubbler racks have moved to supporting structure.

#### Manpower:

Princeton supervises, Chinese labor installs.

#### Coordination with other Muon installation tasks:

Since HV cables also need to be installed into the flex tray, we need to coordinate these two tasks.

#### Chinese labor contractor's tasks:

Lay down the hose into the tray and connect each end to its destination connector.



## Detailed plan for WBS items (cont'd)

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6.9.3 Run and test entire RPC system, 2/2/2011 - 3/30/2011

Princeton will maintain the gas system at this start-up period, locally or remotely. Right now it is still too early to make detailed plan for this task.

