HWC Requirements

- **GMPMA**
  - ☐ Concentrate on pre-beam requirements
    - ■ Post-quench analysis ([semi-] automatic)
    - ■ Integrity checks
    - ■ Soft inhibit of power permit
- **Analysis**
  - ☐ Individual systems
  - ☐ Lead through versus automatic
  - ☐ Three level analysis: ISA, LSA, GSA

- **What is the timeline for delivery of analysis tools?**
  - ☐ Clear this isn't going to arrive as a turn key solution
    - ■ Manual check clearly essential, at least, at first
    - ■ But looking at 40 minutes per auxiliary circuits
    - ■ [time required for commissioning and testing tools]

HWC Requirements

- **Analysis trigger module**
  - □ Should be straightforward
- **Data completeness checks**
- **Data sanity checks**
- **Cross system signal browsing**
  - □ Lack of cross system analysis at the moment
- **Saved signal queries**

Individual system requirements have been specified.

Are the global requirements clearly specified?

HWC Observations

- **Collection, conversion, storage**
  - architecture and implementation look impressive
  - Performance
    - Stability & load balancing tests in progress

- **Long term data storage**
  - Shouldn't be a problem – needs clarification

- **Alarms**
  - A cross system time order list of faults is a definite requirements
  - LHC only, off-line extraction utility

- **Logging**
  - Looks good, measurement v. logging databases – PM extraction from both

Open Issues

- **PM versus triggered acquisition**
  - No compromise

- **Long term data storage**

- **QRL: no alarms, no logging?**

LabView development

- **Specifications should be clear at this stage**

- **Analysis with LabView:**
  - ☐ Plugin in modules [C, Matlab, C++(QPS)]

- **What is the state of:**
  - ☐ Implementation of specified requirements?

- **Get the impression that this is reactive development**
  - ☐ No clear planning for the next 6 months deliverables presented
  - ☐ Details of present status…

State of play

	Expert	Browser	Analysis
QPS	Own facilities	OK – need multiple buffers etc.	Missing
PIC	OK	OK Correlations	OK Sequencer to automatic tools
Power Converters	Workable in stand alone mode - Digital signals - Correlations	OK (just!)	Missing
Cryo	Logging: plant OK; cold mass?		
Vacuum	Logging OK		
QRL	Where's the logging?		
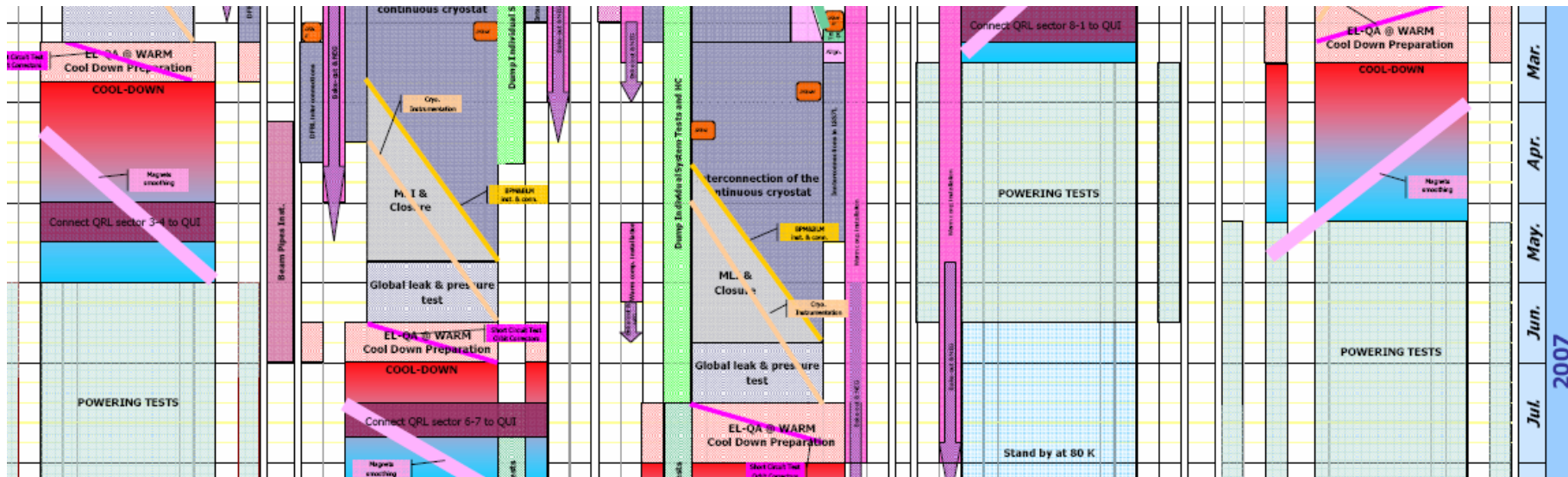
March: Single threaded, partially manual: acquisition, browsing, analysis

May: Multi-threaded, automatic, cross-system: browsing, analysis, verification

SEQUENCER [not strictly PM]

- **HWC sequencer (Francois)**
  - ☐ Two years of development. Tailored explicitly to HWC.
  - ☐ Francois unfortunately off sick for an extended period
  - ☐ Prototype of new version to be tested sooner on PIC tests.
  - ☐ Data provider for PM [test details]
  - ☐ Interaction with analysis modules

  - ☐ Going to have to move fast for new version to be ready for parallel HWC
    - ■ Interface to MTF, PM, test configuration, monitoring, SOC

  - ☐ HWC requirements do not equal Beam requirements

IQC

- **Injection Quality Checks [lower initial priority]**
  - ☐ SIS? Good candidate?
  - ☐ Reaction time?
  - ☐ SDA??? YADS? Event based acquisition, storage & retrieval
  - ☐ Front-ends checks versus high level checks
    - Spread in bunch currents
    - Trajectory analysis
    - RF – further discussion required

XPOC

- Full and extensive list of requirements

- Version 1 – November 2007

- Triggered acquisition

- Data archiving & retrievial

- Clear need for programmed dump PM suppression

PM & Beam Operation

- Analysis might be difficult!

- Analysis components already exist

- LSA & PM technology mismatch?

- C++/Java???? Where's the expertise?

- SDDS 2 CVS, root??? Default or on choice…

- Analysis free for all

PM & Beam Operation

- Expert analysis – knowledge capture
  - ☐ PM pattern matching,

- PM data format is given, as is push.

- Trigger Unit
  - ☐ What is this going to do?
  - ☐ Does it has have enough time?
  - ☐ Data integrity checks
  - ☐ Data completeness

- **Non PM event based acquisition and storage & retrieval & analysis tools *N**

- Scalability tests to be performed

Timing

- Looking good…

- Some clarification required:

- Same PM event per beam?

- Soft link between BICs
  - Wandering off into machine protection
  - Linking and unlinking of 2 rings' dumps

- PM suppression?

HWC

- **HWC poses an immediate challenge**
  - ☐ Clear statement of requirements
  - ☐ Resource loaded implementation schedule

- **Complete mayhem coming up**
  - ☐ Support, maintenance, mods, improvements etc.
  - ☐ Plus sequencer v2

- **Do Adriaan & team have the resources?**

Beam

- **Large number of systems, huge amount of data incoming**
  - BI (BPM, BLM etc. etc.), RF, Kickers, Dump, Collimators etc.
  - Impressive set of requirements specified

- **Going to need a basic system in place for November**
  - Spec?

- **Requirements?**

- **Technology?**

- **Resources?**

Post Mortem

- Follow-up??????