Experiment Liaison Duties

The art of effective experiment preparation and setup

Michael Aiken

Our Machine

- CEBAF
  - 6 GeV
  - ~100uA
- Experimental Halls
  - 2 Electron
  - 1 Photon
- Experiment types/classes
  - Class 1 & 2

The Operations Group

- Operational Hours
  - 24/7
- Duration of Runs
  - Typically 3-6 months
  - Downtimes of 1-3 months
- Shift Rotation
  - 6 Crews
  - 8 Hour shifts

The Operations Group

- Staff Structure
  - Group Leader
  - Crew Chiefs / Supervisors
  - Operators
- Typically Shift Staff
  - 1 Crew Chief
  - 2+ Operators

Experiment Setup Complexity

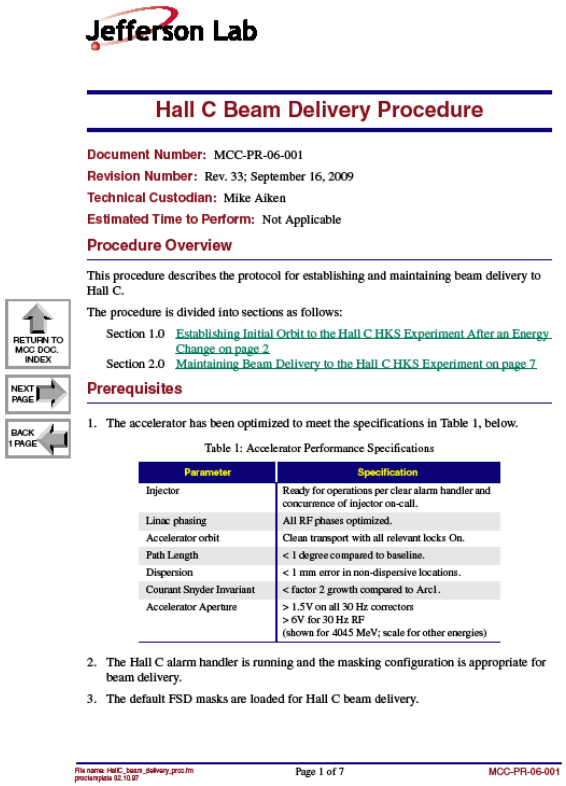
- Beamline Components
  - Chicanes
  - High Magnetic Fields
  - Multiple Dumps
- Required Readbacks
  - Magnet Currents
  - Insertable Devices
- Liaison needed
  - Crew Chief or Operator for each Hall

Collecting Information

- Meetings
  - Weekly Meetings
  - Collaboration Meetings
  - Installation Meetings
- Feedback provided
  - Extra Viewers
  - Extra Correctors

Relaying Information

- Setup Procedure
- Expert Talks



Jefferson Lab

Hall C Beam Delivery Procedure

Document Number: MCC-PR-06-001
Revision Number: Rev. 33; September 16, 2009
Technical Custodian: Mike Aiken
Estimated Time to Perform: Not Applicable

Procedure Overview

This procedure describes the protocol for establishing and maintaining beam delivery to Hall C.

The procedure is divided into sections as follows:

Section 1.0 Establishing Initial Orbit to the Hall C HKS Experiment After an Energy Change on page 2
Section 2.0 Maintaining Beam Delivery to the Hall C HKS Experiment on page 7

RETURN TO MCC DOC. INDEX
NEXT PAGE
BACK 1 PAGE

Prerequisites

1. The accelerator has been optimized to meet the specifications in Table 1, below.

Table 1: Accelerator Performance Specifications

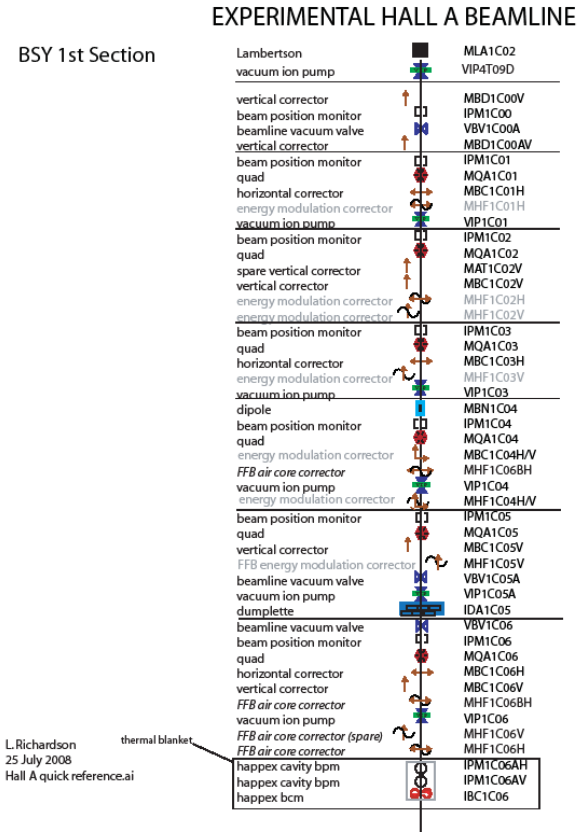
Parameter	Specification
Injector	Ready for operations per clear alarm handler and concurrence of injector on-call.
Linac phasing	All RF phases optimized.
Accelerator orbit	Clean transport with all relevant locks On.
Path Length	< 1 degree compared to baseline.
Dispersion	< 1 mm error in non-dispersive locations.
Courant Snyder Invariant	< factor 2 growth compared to Arc1.
Accelerator Aperture	> 1.5V on all 30 Hz correctors > 6V for 30 Hz RF (shown for 4045 MeV; scale for other energies)

2. The Hall C alarm handler is running and the masking configuration is appropriate for beam delivery.
3. The default FSD masks are loaded for Hall C beam delivery.

File name: HallC_beam_delivery_proc.fm
proctemplate 02.10.07
Page 1 of 7
MCC-PR-06-001

Knowing the Beamline

- Beam line Drawings
- Tours



The Hall Binder

- Binder

EXPERIMENT LIAISON CHECK LIST

Name:_____.
Experiment Number:_____.

All questions in the following table require a Yes or No response. If a Yes box is checked, you will need to perform a follow up with the experimenter. Insert all pertinent information in the *Experiment Liaison Binder* and also pass it along to the group via email or during the group meetings.

No	Question
	Should a tour of the hall be scheduled?
	Are there **new** MPS issues?
	- FSD channels
	- Raster issues
	- Additional Interlocks
	- BLMs or Ion Chambers
	Are there **new** PSS issues?
	- R/S boxes
	- Sweep procedures
	- Expected access rate per shift
	Are changes or additions to the Operational Restrictions Power Requirements needed?
	Are there **additional** safety concerns (i.e., physical hall hazards)?
	Are there **new** beam line changes that require new song sheets?
	Are there **odd** energies or currents that require changes to standard operating procedures?
	Are **routine** measurements needed?
	- Polarization
	- Energy
	- Current
	Are there target concerns that **differ** from standard?
	Are there **new** systems or **significant changes** to existing systems?
	- Magnets
	- Diagnostics
	- Other
	Are there signals that **need to be routed** to the MCC?
	Are **new** procedures required?
	In your opinion is Operator training required?
	- Hardware
	- Software
	- Physics
	Is there a minimum or maximum run length?
	Does the experimenter have any MCC concerns?
	Does this experiment impact operations such that a liaison needs to be assigned?
	Is the information on the Physics/MCC Experiment Planner form correct?

SICS/MCC EXPERIMENT PLANNER

nt Title:

riment #	**Hall**	**Start/Finish Dates**		**Total Beam Hours**
		Start:	Finish:	
nt Contact Person:			Phone: Pager:	E-mail: Office:
iaison:			Phone: Pager:	E-mail: Office:
or Representative:			Phone: Pager:	E-mail: Office:
s Representative:			Phone: Pager:	E-mail: Office:
Meeting Times: eetings/Presentations:			Meeting Location:	

cription of Experiment (as relevant to Operations):

e Reading Material:

quirements:

	0.845 GeV (1-pass)	**1.645 GeV (2-pass)**	**2.445 GeV (3-pass)**	**3.245 GeV (4-pass)**	**4.045 GeV (5-pass)**
Standard Energy (pass)					
Nonstandard Energy (specify)					
Current(s) @ Given Energy					
# of Hours at Each Energy/Current					
Polarization (%)					
ΔE/E					
Beam Energy Stability					
Beam Size (horizontal)					
Beam Size (vertical)					
Beam Size Stability					
Target Types					

oncerns:

IPS or PSS Issues:

:

Webpage

- Webpage
  http://www.jlab.org/accel/ops/ops_liaison/Hall_C/qweak.html