Requirements Review

*preferably higher, pending info on background

Parameter	DVCS unpolarized	DVCS polarized	WACS	DES $\pi 0$	SIDIS $\pi 0$	Eta production
Coordinate Resolution				2-3mm	2-3mm	
Energy Resolution						
Distance from target				4 m	4 m	
Sweeping magnet	0.3 Tm	0.3Tm	0.3Tm	0.3Tm	0.3Tm	
Second arm spectrometer	HMS	HMS	HMS	HMS	HMS	
Photon angles	12.4-23.0		50-60	10.1-23.4	16.3-19.2	
Photon energies				3.1-5.7		
Luminosity						
Acceptance				60%/25msr	10-60%/25	
Currents	2.5-25 μA	60(?)μA	40μA	1-2 μA*	1-2 μA*	
Targets	LH2	30cm ^{3}He	15cm LH2	10cm LH2	10cm LH2	
Special req.			8% Cu	Non-standard energies for $\Delta\varepsilon$	LD2	

Neutral Particle Detector: Options

Material	PbWO4	PbF2
Dimensions	64cm x 74cm	
Crystal size	2.05cm x 2.05cm	3.0cm x 3.0cm
Number crystals	1116	208
Distance from target	4 m	1-3 m
Position resolution	2-3 mm	2-3 mm
Solid angle/crystal	5 mrad	10-30 mrad
Angular resolution	0.5-0.75 mrad	
Energy resolution at 4 GeV/c	1.25%	2.5%
Timing resolution		
Radiation hardness		

Components of the detector

- Calorimeter blocks (PbWO4 or PbF2)
- Small-diameter PMTs with new active HV base (PbWO4)
- Temperature controlled frame (PbWO4)
- Sweeping magnet (PbWO4 and PbF2)
- Digitizing electronics (PbWO4 and PbF2)
  - Essentially dead-time-less (PbWO4)

Neutral Particle Detector: Components

Material	PbWO4	PbF2
Calorimeter blocks	PrimEx* or need to buy	208 available
PMTs with active bases	Active base design tested	
Temperature controlled frame	Would use PrimEx design	
Sweeping magnet	Initial conceptual design done	
Digitizing electronics (dead time less)	~35 fADC250 available, need to buy the other half	

*in principle available, but scheduling constraints could be an issue for global facility