Table 1: Technical Systems Parameters – Phase I/Stage 1 (09/08/00)

New linac front end	
H^- source:	
Extraction energy (keV)	50
Current (mA)	115
Pulse length (μs)	90
Rep rate (Hz)	15
Normalized transverse emittance (95%, mm-mrad)	1.0 π
RFQ:	
Extraction energy (MeV)	1 (1st RFQ)
	2.235 (2nd RFQ)
RF frequency (MHz)	201.25
Current (mA)	100
Modified Tank 1:	
Extraction energy (MeV)	10
RF frequency (MHz)	201.25
Current (mA)	90
Normalized transverse emittance (95%, mm-mrad)	2.5 π
End of linac:	
Extraction energy (MeV)	400
RF frequency (MHz)	805
Current (mA)	86
Normalized transverse emittance (95%, mm-mrad)	3.0 π
12 GeV ring (lattice)	
Circumference (m)	711.3
Max β_x, β_y (m)	35, 30
Max D_x (m)	2.8
Horizontal/vertical tune	11.4/12.4
Transition γ_t	42
Number of straight sections	3
Momentum acceptance	$\pm$2.5%
Dynamic aperture	$> 100\ \pi$

12 GeV ring (beam)	
Normalized transverse emittance (95%, mm-mrad)	
Injection beam	$3\ \pi$
Circulating beam	60π
Longitudinal emittance (95%, eV-s)	
Injection beam	coasting
Extraction beam	0.1
Extracted bunch length σ_t (rms, ns)	3
Momentum spread at extraction (95%)	$\pm 0.1\%$
Laslett tune shift	
Injection	0.36
Extraction	0.06
Injection turns	27
RF system	
Frequency (MHz)	37.86-53.0
Accelerating voltage (kV/cavity)	66
Maximum rf voltage (MV)	1.2
Cavity type (modified booster cavity)	Ferrite tuned
Magnets	
Dipoles:	
Max/Min field (T)	1.1445/0.0846
Vertical/horizontal full aperture (cm)	12.7/31.8
Good field region (cm)	± 10
Quadrupoles:	
Max gradient (T/m)	6.6758
Pole tip radius (cm)	8.52
Power supplies	
Type	dual resonance
Magnet current	
Peak (A)	4819
DC/15 Hz/30 Hz component (A)	2588/2169/271
Magnet stored energy, peak (MJ)	7
Voltage to ground, peak (kV)	2
Total loss (MW)	5
Vacuum system	
Beam vacuum (torr)	1×10^{-8}
Beam pipe	thin Inconel
Pipe dimensions (cm$\times$cm)	12.7$\times$22.9
Collimators	
Type	2-stage
Efficiency	$> 99\%$