Apr 28 2006 (Update Data)

WATER AND AIR HEAT LOAD

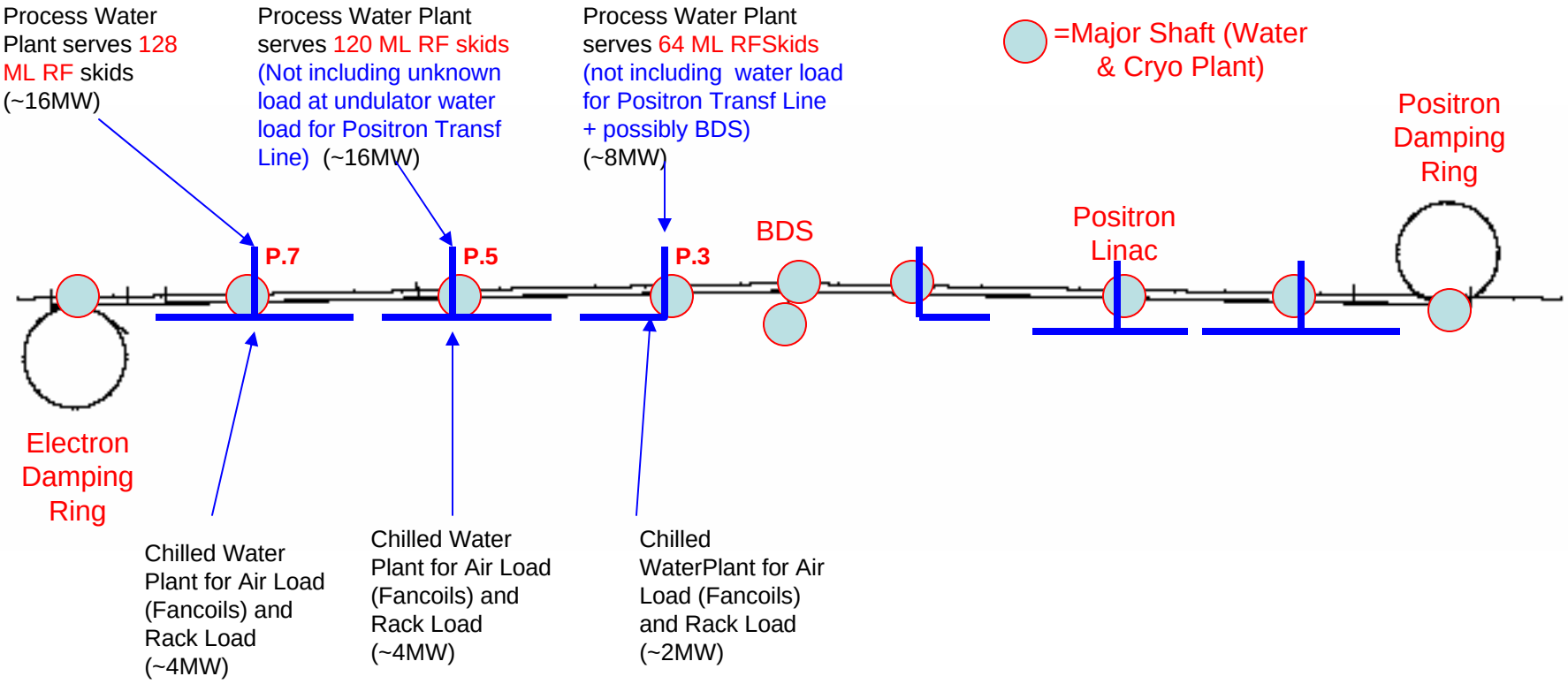
Data As of APR 28 2006

MAIN LINAC - ELECTRON & POSITRON

Components	Quantity	Location	Total Heat Load (KW)	To Deionized Water: Heat Load to Water (KW)	Supply Temp (variation) (C)	Delta Temperature (C delta)	Maximum Allowable Pressure (Bar)	Typical (water) pressure drop Bar	Acceptable Temp Variation delta C	To Air: Heat Load to Air (KW)	Max Space Temp (C)	Source
RF AC Pwr Transformer 34.5-.48 kV		Service Tunnel	4.00	0.00						4		* Clay email 3-14-06 typical 225 kVa oil xfmr
AC Pwr Transformer 34.5-.48 kV		Service Tunnel	2.00	0.00						2		* Clay email 3-14-06 typical 112.5 kVa oil xfmr
Emerg. AC Pwr Transformer 34.5-.48		Service Tunnel	1.00	0.00						1.3		* Clay email 3-14-06 typical 75 kVa oil xfmr
DC Charging Supply 0.48KvAC-11KvDC		Service Tunnel	7.50	6.00						1.5		* C.Jensen email 2-27-06 183 kVa 0.84pf oil ps xfmr **Shigeki Apr 18 2006
Modulator		Service Tunnel	7.50	3.50						4		* Shigeki Fukuda Email 3-1-06 **Shigeki Apr 18 2006
Pulse Transformer		Service Tunnel	6.00	5.00						1		**Shigeki Apr 18 2006
Klystron Socket Tank		Service Tunnel	1.00	1.00						0		**Shigeki Apr 18 2006
Klystron Focusing Coil		Service Tunnel	8.40	8.40	*34>					0		* Shigeki Fukuda Email 4-05-06
Klystron Collector		Service Tunnel	61.00	61.00	*35>			2		0		* Shigeki Fukuda Email 3-1-06
Klystron Body		Service Tunnel	10.00	10.00	*35>			5	None	0		* Shigeki Fukuda Email 3-1-06
Klystron Windows		Service Tunnel	0.50	0.50	*35>			1		0		* Shigeki Fukuda Email 3-1-06
Relay Racks		Service Tunnel	13.3	11.3	N/A	N/A		N/A		0		* Shigeki Fukuda Email 3-30-06 **Shigeki Apr 18 2006 (chilled water)
Circulators & Dummy Load		Accelerator Tunne	24.3	24.3								**Shigeki Email Apr 28 2006
Waveguide		Accelerator Tunne	4.00	4.00	N/A	N/A		N/A		0.00		* Shigeki Fukuda Email 3-30-06
Other components?????		????									N/A	
Total			150.5	135.0						13.8		
RF Component only Loads			143.45									
Total Heat load to Air & Chilled water per RF				**25.1 KW**								
Total Heat load to LCW per RF				**124 KW**								
Total Heat Load (Accelerator Tunnel)			28.30	28.3 KW						0.00		
Total Heat Load (Service Tunnel)			122.15	106.7 KW						13.80		

~124KW per RF for LCW

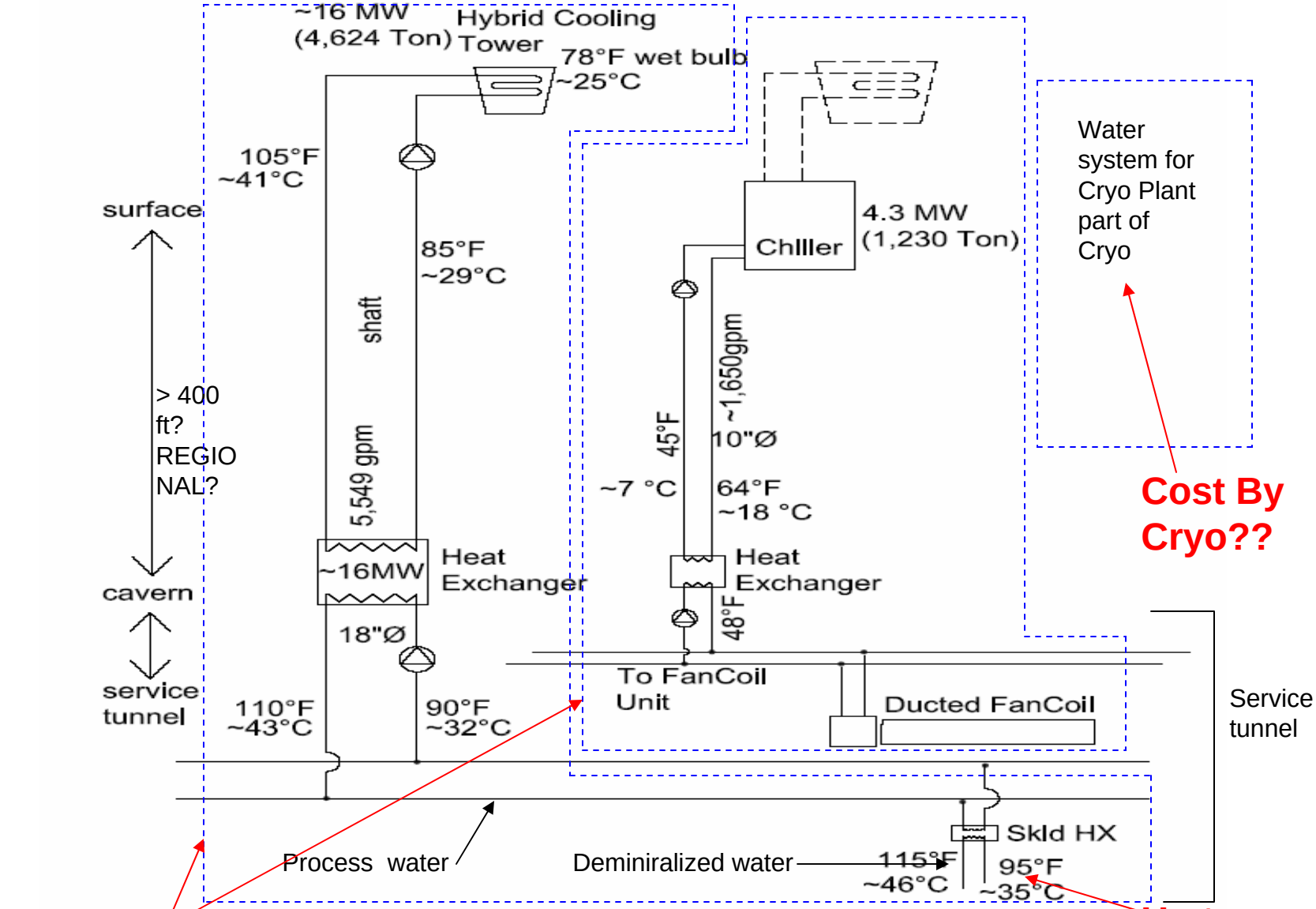
~25 KW per RF for Chilled Water



Electron Main Linac has a total of 312 RF unit-that equate to 312 LCW Skid per each Linac (Main Linac only) @ ~124 KW heat load each skid. (assume each skid per RF).

TEMPERATURE UPDATE: Supply Temp 95F (35C)ok. Assume 18F to 20 F (10 – 11 C)delta

WATER PLANT SIZE



water cooling - main linac RF

Apr 5 2006