

<b>BNL Operations Jobs and Costs</b>	manpower	Equipment	\$	Comments
<b>Electronics</b>				
Power supply installation and testing	Ken			
power cable assembly, install test	techs			What can scientists and students do? Applies to all below
Cable tray install or modifications	techs			
FEE installation				prep work and install
Pull data cables test	techs Ken			Endcap did a lot on their own
Pre insertion testing	Danny Ken ?			
DAQ interface install and test	Danny Ken ?			
Crate cooling Fire suppression				What needed?
General supervision of work	Danny			
<b>Mechanical</b>				
Delivery and unpacking	riggers?			
Assembly in clean area				
Modifications to existing mounting hardware	techs, shop time			
Modify installation jigs	techs, shop time			
how much riggers and carpenters needed?				
Test fit cone	techs			
Survey before install				Do we get charged for surveying?
Insertion	techs			Do this yearly. Only incremental cost of new system?
Post install survey and alignment				Part of yearly survey not assigned to project? Only incremental?
General supervision of work	Ralph replacement			
<b>Detectors</b>				
Set up local test area	techs			
pre install testing	Ken			
Assembly in clean area				
Install on cone	techs			
Final testing				
Prep for install in STAR	techs			
Final hookup				
<b>Utilities</b>				
Air Cooling				Existing air flow for tpc? Anything from SVT?
Rack space for crates and power supplies				FTPC vacated?
Power for crates, and power supplies				Enough in FTPC racks?
Slow controls integration	Danny Ken			
Slow controls in control room - install computer	Wayne			
<b>Gas system</b>				
FTPC existing system				Assume use this
Modifications to existing system	techs			
<b>Safety Systems</b>				
Gas system interlocks				FTPC existing?
Power system interlocks				Necessary?
HV interlocks				Necessary?
Integration to STAR Global Interlocks	BNL techs?			Necessary?
Safety Reviews	Danny			Are these costs assigned to project?
<b>Disassembly of existing systems</b>				Does this get assigned to project?
<b>Reviews</b>				
STAR Electronics reviews	Danny			Std Operations or assigned to project?
STAR Mechanical reviews	Ralph Replacement			Std Operations or assigned to project?