RFA's for Particle Test Integration Readiness Peer Review, June 22nd, 2004					
Item #	**Action**	**Reviewer**	**Action for**	**Response**	**Status**
1	The Muon telescope may need upgrade to take TOF and eliminate slow muon.	Tune Kamae	Gary Godfrey / Elliott Bloom	Cosmic ray muons will be used in I&T for surveying the LAT, calibrating the calorimeter with the muon minimum ioniozing peak, and measuring the timing jitter of the various triggers. Currently, we have a muon telescope with 24" x 24" paddles which are slightly larger than our 15" x 15" towers. We also have a 50 cm stack of Pb that can be placed over the bottom scintillator. This stack fits under the LAT when the LAT is in its rotation stand. The Pb allows >690 MeV kinetic energy muons to pass between the scintillators and make a trigger. This was used successfully in the testing of EM1. Currently, there is no plan to use this Pb in LAT testing. The TKR subsytem indicate that they intend to use tkr fitted track residuals and so do not need stiff muons selected by the Pb. The CAL also does not require Pb selected muons for their calibration. Momentum selection could be done with TOF, though it would require a very good TOF resolution. The TOF is (6.667 ns, 6.726 ns, 6.856 ns) for (infinite, 690 Mev, 345 Mev kinetic energy). Thus a 345 Mev muon and a 690 Mev muon have only a 130 ps TOF difference.	Closed
				The existing system is sufficient to measure the timing jitter to the required accuracy. As the existing muon telescope satifies all existing requirements, I&T cannot justify the considerable expediture (~$20 k) to construct a much better system.	Closed
2	If VdG is going to be used to test 3-16 towers, it may be wise to buy a new ~500kV accelerator.	Tune Kamae	Gary Godfrey / Elliott Bloom	Quotes were obtained from HV Engineering for two different accelerators. 1) 1.0 MeV Coaxial Singletron (>$592 K, 12 month delivery) and 2) .5 MeV Coaxial Singletron (>$523 K, 12 month delivery). The cost of a new machine is very high, and, in any case, the delivery time does not allow sufficient lead time before the macnine is neede. Thus the current plan to make the existing VdG into a production machine (see 8 below) is our only possible recourse.	Closed
3	The Particle test tool VdG needs to be incorporated into the I&T standard processes. Once baselined, the VdG needs to be operated via I&T workorders, verified / calibrated periodically & certified by QA as required.	Dick Horn	Elliott Bloom	This process is underway. The VdG operation procedure is in LAT-TD-01805. The VG photon flux calibration process is in LAT-TD-01396. The procedure for simultaneously taking BGO calibration data while LAT data is acquired is LAT-PS-04133. Once baselined, the VG will be operated by executing the operation procedures as called out by the AIDs. QA signature will be required on all procedures. These documents are just at the stage of going out for signatures.	Closed
4	Notify OHP regarding new radiation levels on VdG. Establish a written understanding with OHP regarding how often and under what conditions they need to be notified of changes. Is a bean authorization sheet an appropriate model?	John Wiesend	Gary Godfrey	A new "Operation of Van de Graff Accelerator Authorization Form, Rev 2" which updates Rev 1 is being signed by SLAC OHP. It includes the max contact and 30 cm radiation rates at which the VG must be shut off and OHP notified. It also reiterates the weekly inspection requirement. Since the VG is <10 Mev, OHP classifies the VG as a "Radiation Generating Device" under Section 365 of the SLAC Radiological Control Manual (www.slac.stanford.edu/esh/manuals/RCM.pdf). OHP similarly regulates other Radiation Generating Devices in the Klystron department, BBAR, and SSRL. Beam Authorization Sheets are only required under Section 364 for devices classified as accelerators.	Closed
5	Do we need to have GERT required for all people who have omni-lock codes for room 104?	Elliott Bloom	Gary Godfrey / Larry Wai	Currently, OHP only requires GERT badging when the Crane Room is a "Radiation Area". Since the VG is ON such a small fraction (~1%) of the time, OHP has allowed the VG operator to flip the room signs and rope off the VG to establish these spaces as Radiation Areas only when the VG is operating. However, the I&T Manager has decided to avoid confusion by making the normal position of the signs to designate the Crane Room a Radiation Area. GERT will therefore be required of all people working in the room. In the exceptional cases when unbadged visitors come (and the VG is OFF), the escort for the visitor, who mus be GERT, may flip the signs to allow public access, and flip them back when the access is complete. The operator of the VdG is required to check that the signs are flipped to the correct postion before begining VdG operations. The status of the signs at the begining of each day of VdG operation will be recorded in the VdG logbook under the signiture of the operator.	Closed
6	All documents must to be released by IRR. Must identify draft due dates, release dates. Must provide weekly status of document release progress.	Brian Grist / Elliott Bloom	Gary Godfrey	Yes, documents are written and in the release/signature process to be completed by IRR. Dates are being tracked by Brian Grist.	Closed
7	Coordinate with QA for approval of VdG training program. Get agreement of required training an process for recording training. Coordinate effort with IFCT to make sure agreements are consistent with their training records.	Brian Grist	Gary Godfrey	The present VG Training Program is with SLAC OHP. OHP requires 1) Rad Worker I Training, 2) SLAC Course 270 "Operating a Radiation Generating Device", and 3) Training by the VdG physicist (Gary Godfrey) in the operation of the VdG. This is stated in LAT-TD-01805 "Van de Graaff Accelerator Safety/Operations Handbook". Gary Godfrey has contacted Darren Marsh to bring these trainings into the LAT QA process. Gary Godfrey has confirmed with Larry Wai (the IFCT Manager for I&T) that he already maintains a record of these trainings for VG operators. These records are also maintained by SLAC OHP.	Closed
8	Address schedule risks due to VdG reliability. - Minimum 1 day turn around to fix. - Mean time to failure ~10 hours. - Justification for High rate VdG running.	Bill Atwood	Gary Godfrey / Elliott Bloom	The VdG logbook contains the VdG on/off times. Using this, the VdG has had a mean run time between failures of 27 hours during the past year. We are actively trying to increase the VdG reliablity. Two SLAC physicists, Jim Clendenin (Linac source) and Tom Weber (EFD), are working with Gary Godfrey to do this. The root cause of the VdG failures, since the successful EM1 test, has been trying to push the machine to higher than design energies to achieve high rate on the Li target of 17.6 MeV gamma rays. Several accelerator stages in the accelerator column were shorted out in attempting to do this. We are etching the accelerator column and expect to restore the VdG to its past performance. This accelerator was used routinely for years with no adverse effects to produce a very high rate of 6.1 MeV gammas from a Li-F target, running below the Li 440 kev resonance but above the F 340 kev resonance. After etching column and installing a new belt, we will slowly condition the machine and stay below the voltage that causes excess corona current to be drawn. This can be monitored by measureing th	Closed
9	Can information such as pulse heights from telescope PMT's be incorporated into data stream? Candidate Data Items: 1) Pulse Heights form 2 PMT's 2) TOF between telescope PMT's.	Bill Atwood	Gary Godfrey / Elliott Bloom	Information could be incorporated into the LAT data stream with the purchase of two reflective memory modules. A similar approach will be used for the LAT high energy beamtest in 2006. In the current VdG setup there is no info to incorporate, and the modules required to provide this information are not in the budget. Curently, the only required use of the muon telescope for TOF is to provide a stable t0 for making LAT trigger jitter measurements. For this, every trigger from the telescope does not have to be a muon. Some telescope triggers where no muon passes through the LAT are allowed. The scintillators have been plateaud (they are efficient for muons) so no run time is being wasted. Improvements to this system are not in the budget, and currently are not required.	Closed