LSD Risk Registry (Rebaselined)

10 total risks identified; Cryo, Safety and Performance aspects were analyzed in depth; mitigation plans are reviewed every 3 weeks, at the Thursday LSD meetings.

Nr	Risk* Statement (A risk event statement states what might happen in the future)	Plan/Steps for Mitigation (Include implementation dates for high impact actions)	Mitigated Risk High / Mod / Low
1	LSD budget will be significantly constrained and the Accelerator will not restart per the current schedule	✓ 6 month Continuing Resolution in place ✓ Prioritized ACC OPS funding for Cryo warmup issues ✓ Plan implemented for optimized electrical costs ✓ Lab staff shifted to address resource needs (vs. external spending) ✓ Sequential integrated scheduling, including items not normally associated with Downs but having an impact ✓ Identification and tracking of critical items in each milestone ✓ Resource alignment plan ✓ Regular status meetings with key personnel ✓ CASA / Ops Operational restart plan ✓ Re-baseline in November with updated information ✓ Lengthen the Long Shutdown depending on budget variables	High
2	Reassignment of key personnel to support the superconducting magnets for the 12 GeV Project will negatively impact LSD activities	• *Risk identified via AD feedback Dec 12th – mitigation plans TBD*	High

LSD Risk Registry (Rebaselined)

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3	Cryo system warm-up / cool-down will involve extensive unexpected CHL1 / Transfer Line maintenance work	✓ Prioritized ACC OPS funding for Cryo warmup issues, allowing currently scheduled work to happen ✓ Maintenance schedule created and resource loaded; necessary parts and equipment ordered ✓ Transfer line maintenance 90% complete as of mid-December • Controlled warmup incorporated into overall plan in order to mitigate loss of gradient – 2k by week of January 21	Moderate
4	There will be a significant loss of Accelerator gradient, resulting in a corresponding decrease in Accelerator performance	✓ Cryomodule recommissioning and reprocessing Program Manager appointed (Mike Drury) ✓ Klystron maintenance plan Program Manager appointed (Bill Merz) ✓ Cryomodule failure modes and responses, including timing required, thought through and plan put in place • Rapid recharacterization of existing Cryomodules • Accelerated Cryomodule refurbishment program • Reprioritize / claim cryomodule(s) slated for the FEL • Controlled warmup and cooldown incorporated into overall plan in order to mitigate loss of gradient – 2k by week of January 21 • Helium processing plans for Cryomodules when in tunnel • Use known performance correlation between VTA and Tunnel to better plan replacement	Moderate

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5	Recommissioning problems with 2K Coldbox #1, specifically cold compressors and associated controls, will cause unrecoverable schedule delays.	✓ EES support assigned to help with card repair and testing for quicker turn around. ✓ SNS test stand used to repair and test cold compressor cards until JLab test stand is operational ✓ Spare cold compressor control cards being sought from SNS as backup or way to advance recommissioning date for Coldbox #1 • 2K Coldbox opportunistic commissioning when two CHL's are operationally available (on either LINAC) • Possible to advance Coldbox commissioning if a 4 week interruption in CHL1 Cryomodule commissioning is tolerable & sufficient cold compressor controls are available.	Moderate
6	There will be unrecoverable schedule delays due to a significant learning curve associated with the newly reconfigured Cryogenics system - Infant / elder mortality associated with equipment will be a factor here	✓ Refrigerators not needed for specific programs are de-energized until needed. ✓ CTF preventive maintenance postponed ✓ Certain spare parts for a warm compressor skid supporting CHL2 are available ✓ Critical spares have been identified (but not funded) • Detailed commissioning plans and procedures being written for Hall D refrigerator and CHL 2 commissioning. • Continuous parallel operation of CHL1 and CHL2 until Summer 2013	Moderate

LSD Risk Registry (Rebaselined)

Nr	Risk* Statement (A risk event statement states what might happen in the future)	Plan/Steps for Mitigation (Include implementation dates for high impact actions)	Mitigated Risk High / Mod / Low
7	Unanticipated OL04 equipment (R100) problems will result in injector commissioning delays	• Install but do not energize R100 (since higher energy injector is not needed until 2014 / CD4B) • Relocate C100 to Injector area	Low
8	There will be significant unplanned work associated with Hall A and C dumps prior to first beam delivery, resulting in a schedule delay.	✓ Planning and work team in place ✓ Detailed work such as Visual inspections, ultrasound analysis and resealing of dump window entrances being planned and scoped • Replacement parts ordered for FY13, staged for immediate delivery in FY14 to avert budget issues • FY13 funding in place for an FTE to work this issue • Physics program to Hall A does not require dump to perform tests of Moeller • Temporary shielding can be provided for Halls A and C • Hall C work extends into FY14	Low

LSD Risk Registry (Rebaselined)

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9	There will be significant degradation in Safety levels within the Halls, caused by Safety system degradation related to age, new hardware installation, and construction conditions	✓ Fire Hazard Analysis for each Hall ✓ Fire Protection System will be continually op-tested, since it is in continuous operation and maintenance ✓ Component self-tests ✓ PSS and MPS are in continuous maintenance and undergoing tie-in / testing at significant milestones • Vendor participation in assessment of equipment • Development of Hot Checkout process • Known failed and high-radiation equipment has been identified and cycling through repair / replacement • High susceptibility areas and equipment identified and prioritized for inspection and potential replacement • Readiness Reviews for the systems to be conducted	Low
10	CHL1 Header Line replacement work will be more extensive than scheduled **COMPLETE**	✓ RFQ released with contractor specific mitigation plan (CHL2 substitution) and expectations incorporated, including critical dates required to be met; translates to contract as well ✓ Ample float incorporated into schedule ✓ Prioritized ACC OPS funding for Cryo warmup issues	Low

NOTE: The following risks were initially considered by the LSD team, but found to be within the 12GeV Project scope:

1) Box Power Supply Delivery
2) New 4K Coldbox commissioning
3) Fabrication and installation of CHL2 Distribution Header