

MECO

RSVP Review Status Sheet

Date: 1/13/05

WBS No. 1.4.4.2

Title: MECO Proton Beamline

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Current Cost Est.(FY05 \$M) \$5.60

Assigned Contingency % 24.4%

Cost Elements (FY05 \$M)

Matls	\$1.44
Effort	\$2.25
Ohd	\$1.01
Conting	<u>\$0.90</u>
Total	<u><u>\$5.60</u></u>

WBS Dictionary Definition:

Design, fabrication and installation of the A-Line transport system for the delivery of the primary beam from the Switchyard to MECO. The existing A-Line and the part of the D-Line will be cleared of existing equipment. New shielding for the Transport Solenoid and Cosmic Ray Shield will be purchased. The 480V power distribution system and controls for magnet power supplies will be updated. The primary transport will have 16 refurbished magnets from existing inventory and 2 new magnets will be designed and built. The vacuum system includes costs for a section of high vacuum for the RFMM, the downstream vacuum closure for the Production Solenoid (PS) and a Helium box between the PS and the beam dump. ODH and fire detection systems will be installed. Facility improvements include Bldg 912 roof repairs (vent fans not covered by preventive plant project maintenance by BNL) and enclosures for instrumentation, controls and RFMM.

Technical Level of Confidence: (choose one)

Prototype Demonstrated	<u> </u>	Elements Built & Tested	<u> </u>
Similar System Exists	<u> X </u>	Similar Technology Works	<u> </u>
Novel System Concept	<u> </u>	No Candidate Concept Yet	<u> </u>
Other (Comment)	<u> </u>		

Basis of the Cost Estimate: (by percentage of total cost: sum of fractions = 100%)

Commercial Product	<u> 20% </u>	Engineered Design	<u> 20% </u>
Engineered Conceptual	<u> 40% </u>	Scientist Conceptual	<u> 15% </u>
Guess	<u> 5% </u>	Other (specify)	<u> 0% </u>
		Total	<u> 100% </u>

Status of Hardware/Software Development:

Most equipment for MECO Proton Beamline either exists or is similar to an existing design. Relatively minor exceptions are the Production Solenoid vacuum end cap and the use of bulk zinc shielding as a cost effective non-magnetic radiation shielding for the Transport Solenoid and the Cosmic Ray Shield.

Issues (funding, collaborator shortage, engineering help, etc.):

- 1) Using shielding from inventory for the Cosmic Ray Shield is a potential cost savings which requires rigging to locate shield blocks with "low" activation levels.
- 2) The design of beam pitching onto the target needs to be completed, this could increase costs if collimation & shielding are more involved than assumed and it can decrease costs if the new pitching magnets can be replaced with magnets from inventory.
- 3) The need for ODH detection in the beam cave may be eliminated if the design of the Production Solenoid is changed from bath cooling to conduction cooling.
- 4) Interfaces with the RFMM need to be better defined.

