**MUSE Basis of Estimate**

**Element WBS #5**

I. General Information

Task Name: Labor for construction of LH2 target

Unique ID Number

Date of Estimate: 3/19/2014 Last update

Estimate Generator: Briscoe, Ransome

Cost Category:

 M&S

XSWF

Comments:

Vendor Quote Number if Applicable:

Drawing Reference Number or Attachment:

Costing Method: Estimate based on past experience with similar projects

Total Task Cost: $579,021

Total Contingency: $99,968

II. Cost Estimate Breakdown

Cost of each element, along with justification

Cryo Tech: 2 years @ $75,600/year, 26% fringe, 52% F&A

Total of $190,512 + F&A of $99,066 ($289,578) plus contingency of $57,916

Post-Doc 1 year @ $63,600, 26% fringe, 52% F&A

Total of $80,136 + F&A $41,671 ($121,807) plus contingency of $12,181

Grad Students 1.75 years @36,000/year, 6% fringe, 52% F&A

Total of $66,780 + F&A $34,726 ($101,506) plus contingency of $10,506

External Labor (shops) $49,000 plus F&A of $25,480, plus contingency of $19,365

III. Contingency and risk analysis

The primary risks are in delay of finding a cryo-tech at start of project, having to pay the tech a higher salary, and in hiring additional hourly labor. We estimate a contingency for this of 25%.

Salaries for grad students and post-docs are well known and not anticipated to change significantly, so we estimate a contingency of 10%.

The Post-doc and Grad Student labor is shared with WBS 6. The ability to shift between the two projects eliminates some risk to both.

External labor contingency is estimated at 26%.





