

***GDE ACCELERATOR ADVISORY
PANEL REVIEW***

***CONVENTIONAL FACILITIES
AND SITING GROUP***

Tom Lackowski

Purpose

- *The Main Linac Tunnel Configuration study is a “Value Engineering” of the underground construction.*
 - *This is one of the CFS TD Phase 1 primary goals.*
- *This study will provide CFS cost data to Project Management to assess the overall value of various tunnel configurations.*
 - *Technical Considerations*
 - *Installation and Operations*

Tunnel Configurations

- ***Development of study configurations***
 - ***The deep twin tunnel arrangement used in the RDR is used as the baseline for functional requirements. Adjustments are made to suit the configuration under study.***
 - ***Configurations have been adapted from the XFEL and Project X Collaborations. Additional configurations have been generated to optimize the requirements of alternative technical arrangements such as the KlyCluster.***
 - ***This study is evaluating both deep tunnel excavation and near surface solutions.***

Configurations

Configuration Matrix

—

- ***Electrical power levels remains constant. Clustered RF reduces electrical distribution.***

Cost Estimate Methodology

- ***Estimates are prepared in the same WBS format as the U.S. RDR estimate. This allows for line by line comparisons at the lowest WBS level.***
- ***The Estimate is color coded so that changes are clearly highlighted.***
- ***A description for each line in the cost estimate describes the basis for changes.***
 - ***Estimates done for the KlyCluster can be obtained from Cost Engineers.***

Unit Assembly Costs

- *Deep tunnels, caverns and shaft taken from RDR.*
- *Open cut excavations, enclosures and surface galleries from Project X.*
- *Near surface tunnels cost are being generated by consulting Engineer.*
- *Material costs, labor and equipment rates used are for the Midwest U.S.*
- *Estimate comparisons are made in common year dollars (2006).*

Summary

- **Hanson Professional Consulting Engineers:**
 - **Will complete unit costs.**
 - **Will assemble Main Linac Cost estimate for remaining five configurations**
- **Hughes Associates:**
 - **Perform Life Safety and Exiting Analysis for all configurations.**
- **Main Linac Tunnel Configuration study will be brought to completion and assembled into a final report to document the work done.**