Representation of SLS Core Stage in the B-2 Test Stand
SLS Core Stage in the B-2 Test Stand

WP #1

Main Derrick Crane

Summary of WP #1 Major Structural Modifications

Level 7

Aspirator
SLS Core Stage in the B-2 Test Stand

WP #1 & WP #2

Summary of WP #1
Major Structural Modifications

Summary of WP #2
Major Structural Modifications

Main Derrick Crane

"Battleship"
Booster Support Frame

Level 8

Level 7

Aspirator

Flame Deflector
(Tension Rods)

Ancillary Structures:
• Platforms & Stairs
• Tie-Down Tendons

Basement & Sub-Basement
SLS Core Stage in the B-2 Test Stand with New Superstructure

Summary of WP #1
Major Structural Modifications

Summary of WP #2
Major Structural Modifications

Summary of WP #3
Major Structural Modifications, Mechanical Restoration and Electrical Restoration

Main Derrick Crane

Top of Stage Core Stage Access

Intertank Region SLS Weight/Thrust Takeout Elevation

Existing MPTA Structure

"Battleship" Booster Support Frame

"Battleship" Booster Support Frame

Aspirator

Ancillary Structures:
- Platforms & Stairs
- Tie-Down Tendons

Flame Deflector (Tension Rods)

Flame Deflector (Segment Repairs)

Basement & Sub-Basement

Design Concept for Upper Superstructure

Level TBD

Level 7

Level 8

Level 100 ft

Level 11

Level 16

Level 18
**Structural Buildout**

- Relocate existing MPTA structure will be moved 20’ 3” north
- Add bracing and supports (increase load bearing capacity) of MPTA structure and battleship
- Construct new tower, including thrust take out
- Includes stairs and ladders for egress
- Includes design of special access platforms for vehicle
Plan View: MPTA Structure
"Corvette" Above Battleship

Battleship (Level 11)

Existing MPTA Structure

Level 16 - "Corvette"

South Elevation

Battleship

Level 11

Current Position
of MPTA Structure

Weight of MPTA Structure: 1.161 Mlbs
Plan View: MPTA Structure
"Corvette" Above Battleship

Battleship (Level 11)

Existing MPTA Structure

Roll Back Position of MPTA Structure

20 feet, 3 inches to the North

Weight of MPTA Structure: 1.161 Mlbs

Battleship

Level 11

Level 16 - "Corvette"

South Elevation
Plan View: MPTA Structure
"Corvette" Above Battleship

Why Consider Rollback?
• Anticipated cost savings of $2+ M compared with building out the existing MPTA structure to accommodate the Core Stage.
• Anticipated schedule savings of 1-3 months.
• A Note on Risk: PEI’s lead structural engineer has designed numerous successful rollbacks of larger, heavier, and more top heavy “precipitators” for the pulp and paper industry.

Weight of MPTA Structure: 1.161 Mlbs

20 feet, 3 inches to the North

Roll Back Position of MPTA Structure

Existing MPTA Structure

Battleship (Level 11)

Battleship (Level 11)

Level 16 - "Corvette"

Level 11

South Elevation

Weight of MPTA Structure:
1.161 Mlbs

Why Consider Rollback?
• Anticipated cost savings of $2+ M compared with building out the existing MPTA structure to accommodate the Core Stage.
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Structural Wind Tunnel Testing

- Scale model of B-2 was tested in wind tunnel at CPP Wind Engineering, Fort Collins, CO
- Test results used in accordance with Method 3 of ASCE7-05 to calculate forces due to wind load
- Forces were significantly lower than forces calculated strictly analytically
- Resulted in cost savings greater than the cost of testing ($100K) and increased margin in design
- Effort being made to return model to SSC
Buildout Complete: August 2015

Restoration Complete: February 2015
12NCBZ B-2 Test Stand MEP Demolition
Level 7 North Box Beam - After
12NCBZ B-2 Test Stand MEP Demolition
Level 8 - After
12NCBZ B-2 Test Stand MEP Demolition
Level 16 - Before
WP #1: Installation of Aspirator Girders at Level 7
WP #1: Aspirator Main Girders Installed
WP #1: Aspirator Corner Section Installation
WP #1: Level 7 Diving Board Restoration
WP #2: Coiling Door Demolition on Level 8
Busy Stand!

WP #1: Level 7

WP #2: Levels 8 and 8½
Questions