



WBS 2.4 PVC Extrusions

Cost and Schedule Breakout

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Richard L. Talaga



PVC Production

- Extrusions made at a rate of 1,000 lbs/hr
 - 20 minutes to make one 51 ft horizontal extrusion (16 cells)
 - 28 minutes to make one 51 ft vertical extrusion (16 cells)
- Nominal Weights
 - Horizontal extrusion: 325 pounds
 - Vertical extrusion: 455 pounds
- Production rates
 - 73.8 horizontal extrusions per 24 hr day
 - 52.7 vertical extrusions per 24 hr day
- Truckload
 - 60 extrusions per truck
 - Independent of type (horizontal or vertical)



Production Plan Overview

- FY 2009
 - Purchase Order to PVC Resin Vendor
 - Purchase Order to Extrusion Vendor
 - Fabricate dies/tooling for Horizontal and Vertical Extrusions
 - 6 months
 - Tune the dies, produce samples: iterative process
 - 6 months
- FY 2010
 - Produce “final quality” pre-production extrusions
 - 2 months
 - Deliver to module assembly factories
 - » Determine “real” sizes for manifolds and bottom plates
 - » First extrusions for assembly



Production Plan Overview

- FY 2010, continued
 - Production (at a slow pace): 1 week every 2 months
 - ~ 1 week of production → H or V Extrusions for one Block
 - Block 1 H 29 Oct – 5 Nov
 - Block 1 V 8 Dec – 17 Dec
 - ...
- FY 2011
 - Block 4 H 11 Oct – 18 Oct
 - Block 4 V 9 Dec – 20 Dec
 - **Block 5 H 22 Dec – 3 Jan Continuous production begins**
 - ...
- **FY 2013**
 - **Block 38 V 21 Nov – 4 Dec (2012) Production Completed**



M & S Costs

	Cost	Contingency
• PVC Resin: \$0.98 pound: <ul style="list-style-type: none">– 12,087,557 pounds of Resin for NOvA	\$11.9M	30%
• PVC Extrusions: <ul style="list-style-type: none">– Hardware: \$0.4 M– Horizontal: \$4.4 M– Vertical: \$6.1 M	\$10.9 M	25%
• Trucking: \$445 per truck load <ul style="list-style-type: none">– 540 truckloads →	\$0.24M	29%
• Pallet and Motion Systems → <ul style="list-style-type: none">– Four Locations (2x WBS 2.5 + WBS 2.9)<ul style="list-style-type: none">• Motion systems– Includes pallet system re-circulation	\$0.48M	25%
• Bottom Line M & S Unburdened:	\$23.5 M	27.7%