

Replacement HOV Update

DESSC
May 2007

Personnel Sphere

- **Titanium ingot received & passed chemical receipt inspection**
- **Contract let with forger:
Ladish Co., Milwaukee, WI**



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RHOV PERSONNEL SPHERE FORGING SCHEDULE

ID	Task Name	Duration	Start	Finish	2008											
					A	M	J	J	A	S	O	N	D	J	F	M
1	RHOV HULL FORGINGS - LADISH	248 days	Wed 4/18/07	Wed 3/26/08												
2	Hemisphere Forgings	248 days	Wed 4/18/07	Wed 3/26/08												
3	Tooling Design, Material Procurement & Fabrica	33 wks	Fri 4/27/07	Thu 12/13/07												
4	Billet Preparation	48 days	Fri 9/21/07	Tue 11/27/07												
10	Forge Disk into Hemisphere	4 wks	Fri 12/14/07	Thu 1/10/08												
11	Post Forging Inspection	32 days	Fri 1/11/08	Mon 2/25/08												
18	Post-Forging Heat Treatment	239 days	Wed 4/18/07	Mon 3/17/08												
22	Post Heat Treatment Inspection	7 days	Tue 3/18/08	Wed 3/26/08												
25	Component Forgings	81 days	Tue 12/4/07	Tue 3/25/08												
26	Billet Preparation	40 days	Tue 12/4/07	Mon 1/28/08												
31	Forge into Nine Pancake Forgings	2 wks	Tue 1/29/08	Mon 2/11/08												
32	Machine into Nine Forged Components	2 wks	Tue 2/12/08	Mon 2/25/08												
33	Heat Treat Component Forgings	1 wk	Tue 2/26/08	Mon 3/3/08												
34	Target Machine Component Forgings	2 wks	Tue 3/4/08	Mon 3/17/08												
35	Inspection	6 days	Tue 3/18/08	Tue 3/25/08												



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Cost Issues

Options to reduce costs

- Loosen/modify technical specifications
- Reduce programmatic requirements
- Shift more work to WHOI
- WHOI managerial costs – savings achieved to date
- Cross-deck more *Alvin* equipment
- Change contract structure/approach



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Cost Reduction Initiatives

Loosen/modify technical specifications

- Remove requirement for training simulation system
- Remove requirement for whole vehicle pressure test

Reduce programmatic requirements

- Focus hazard analysis based on WHOI experience
- Emphasize models vs. 2D drawings
- Eliminate or scale back low value-added analysis/documentation:
 - Reliability predictions
 - Maintainability predictions



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Cost Reduction Initiatives

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Shift more work to WHOI

- WHOI purchase and provide as OFE high cost material and equipment (saves pass-through fee)
- WHOI contract with ABS for vehicle certification (saves pass-through fee)
- Design and build atmosphere control, fire detection and suppression, emergency breathing systems

WHOI managerial costs – savings to date

- Manpower savings based on the fact that expenditures to date have been less than expected



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Cost Reduction Initiatives

Cross-deck more *Alvin* equipment

EPIRB

Inertial navigation system

Cameras

Emerg breathing equip

Radio communications

Acoustic modem

Underwater telephone (UWT)

Depth sensors

Collision avoidance sonar

Atmosphere control equip

Fire extinguishers

Manipulators

Sci instrumentation/equip

UWT transducers



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Cost Reduction Initiatives

Revised Contracting Strategy

- **Contract Structure**

- Cost Plus Fixed Fee (CPFF) level of effort for CLIN 1
- CLIN 2 for fabrication will be a cost-plus-incentive fee (CPIF) level of effort option at contract award
- Negotiate the price for CLIN 2 six weeks after completion of PDR
- Include clause that allows WHOI to cancel contract based on estimate received after PDR

- **Contracting Approach (Alpha Contracting Methodology)**

- Collaboration between WHOI and contractor in developing SOW, specs, and cost estimates
- The advantage of Alpha contracting is a clearer understanding by both parties of the requirements
- Will reduce risk to contractor and mitigate potential cost overruns



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Cost Reduction Initiatives

Anticipated savings:

<u>Item</u>	<u>Item Amount</u>	<u>Subtotal</u>
Enhancements (delete)	\$1.1M	\$1.1M
Loosen tech specs	\$1M	\$2.1M
Reduce program rqmnts	\$0.7M	\$2.8M
Shift more work to WHOI	\$0.41M	\$3.21M
WHOI mgt costs (savings achieved)	\$0.5M	\$3.71M
Cross-deck ALVIN equip	\$1.295M	\$5.00M
Change fab contract strategy	\$2.5M	\$7.5M



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Source Selection

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Ongoing...



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Schedule

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