

This document contains excerpts from the X-34 Independent Assessment Report (title page shown below). Only those sections which relate to the PBMA element **Acquisition** are displayed.

The complete report is available through the PBMA web site, Program Profile tab.

**X<sup>34</sup>**

**Safety & Mission Assurance Review**



NASA  
Office of Safety & Mission Assurance

June 17, 1998

## 2.2 X-34 Contract

In response to NASA Research Announcement (NRA) 8-14, the X-34 contract was competitively awarded to Orbital Sciences Corporation (OSC) on August 28, 1996. The initial contract specified a firm-fixed-price amount of \$49,540,584, including Government Task Agreements in the amount of \$9,631,433 for a period of performance through February 9, 1999. Including the latest Characterization and Validation (change of scope) modification, the current value of the contract and Government Task Agreements is \$75,165,938 and \$11,843,083, respectively, with a performance period through October 1999.

Under this contract, Orbital is responsible for the design, development, fabrication, integration and flight testing of the X-34 test bed demonstration vehicle including completion of post-flight activities, reports, and analyses associated with the two flights specified in the Basic Flight Test Program. The contract also contains a 25 flight Optional Flight Test Program to investigate operability issues and host key technology experiments relevant to X-33 and other reusable launch vehicles (RLV).

### X-34 Risk Sharing Partnership

Issues of liability and indemnification are described in Section H.7 of the contract. This section, in part, states:

“The parties recognize that potential liability to third parties is a concern against which OSC desires indemnification by NASA. If legislation is enacted which provides NASA specific authority, NASA agrees to process OSC’s application to indemnify OSC against claims of third parties for death, bodily injury, or loss of damage to property resulting from flight testing of the X-34 vehicle in the performance of this contract. In the event that indemnification is not provided, either because legislation is not enacted or because an application for indemnification submitted by OSC is disapproved for good reasons, OSC shall be responsible, either through insurance or otherwise, for any third party liability it may incur under this contract. In this event, the parties rights and obligations will be governed by FAR 52-228-7, Insurance-Liability to Third Persons, with the proviso that the government shall not be responsible for more than 50% of the third party liability insurance premiums, at the time the policy goes into effect, and these costs are subject to the Contracting Officer’s prior approval. At such time, an equitable adjustment will be made to the Contract to cover the Government’s payment of the Government’s share of the insurance premiums. OSC shall be responsible for insurance premiums above the Government’s agreed payments. The insurance policy value shall be \$500 Million maximum liability.”

Under pending legislation (Senate Bill 1250), indemnification or partial indemnification would be granted for contractors conducting NASA X-program research and development activities. However, this legislation also states: “The Administrator may not provide liability insurance or indemnification unless the developer establishes to the

satisfaction of the Administrator that appropriate safety procedures and practices are being followed in the development of the experimental aerospace vehicle.” To meet this requirement, NASA, as the government risk-sharing partner, must possess adequate insight and understanding into the X-34 safety and mission assurance processes.

#### X-34 Government and Industry Partners

In addition to Orbital Sciences Corporation of Dulles, VA, the X-34 industry team includes:

- Allied-Signal Corporation, Tempe, Arizona, - responsible for the flight control actuators and hydraulic pump system;
- Oceaneering Thermal Systems, Houston, Texas - responsible for thermal protection blankets;
- C.S. Draper Laboratory, Cambridge, Massachusetts, - responsible for reentry and approach algorithm and software.

Government facilities involved on the X-34 program include:

- NASA Marshall Space Flight Center, Huntsville, Alabama, - responsible for program management, Main Propulsion System Design, FASTRAC engine;
- Langley Research Center, Hampton, Virginia, - responsible for wind tunnel testing and analysis;
- Ames Research Center, Mountain View, California, - responsible for rigid thermal protection system;
- Dryden Flight Research Center, Edwards AFB California, - responsible for certification testing
- Holloman AFB, New Mexico, - responsible for flight support operation
- White Sands Test Facility, New Mexico, responsible for flight support operation
- White Sands Missile Range, New Mexico, responsible for testing and flight support operation.