

A photograph of the Space Shuttle Columbia being launched from the launch pad. The shuttle is ascending vertically, with a large plume of white smoke and orange fire at its base. The launch pad structure is visible in the foreground, and a tall water tower stands to the left. The sky is a clear blue.

exploring

columbia

by Lisa Norgren and Emily LeDuc

gsa contractor supports
columbia accident
investigation board (caib)



On February 1, 2003 the **Columbia was lost** during its return to Earth. Investigators now **understand the cause...**

Released in August of this year, the CAIB report on the Space Shuttle Columbia disclosed specific information with regard to the Columbia tragedy that occurred earlier this year. It also discussed necessary changes to the NASA management infrastructure and safety procedures.

A number of immediate recommendations were proposed to be implemented prior to returning to shuttle spaceflight. The

report left the future of the shuttle program in doubt, inferring that for the long term, a new delivery system for human spaceflight should be developed.

The Columbia Accident Investigation Board (CAIB) was established in February 2003 to determine the facts, as well as the actual or probable causes of the Shuttle accident, and to recommend preventive and other appropriate actions to preclude the recurrence of future incidents. Once convened, the board anticipated a need for technical, programmatic, administrative, and independent testing services to support their investigation. On February 14, 2003, NASA Langley Air Research Center turned to the MOBIS Schedule to obtain general support services for the CAIB over an eleven-month period.

Working with the Executive Secretary of the CAIB, the contractor established the board's operational infrastructure within 5 days. This infrastructure included the following elements:

- Independent Analysis Support Team
- Travel Office
- Congressional Liaison Office in Washington, DC
- Public Website

A Reconstruction Team member uses 1:1 engineering drawings as a tool in the process of identifying recovered RCC debris material



CAIB Photo by Rick Stiles 2003



Air Gun at Southwest Research Institute (SwRI) in San Antonio, TX used for shuttle External Tank foam insulation impact tests. The large blue tank on the left is pressurized with nitrogen which when released fires a foam projectile through the long brown horizontal barrel. In this test, the barrel is aimed for an impact point on reinforced carbon carbon (RCC) panel #8 on the left wing test article.

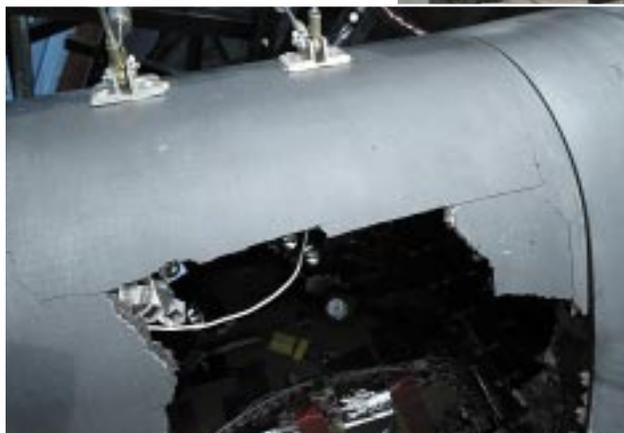
As the investigative activities evolved, the contractor provided technical experts in hypersonic aero thermodynamics, Space Shuttle systems and operations infrastructure, Space Shuttle history, space policy, orbital dynamics, micrometeoroid and orbital debris, sensor reconstruction and analysis, modeling and simulation, trajectory visualization, ceramics analysis, materials analysis, material and structural forensics, and corrosion.

The contractor also established CAIB contractual relationships, supported the CAIB Public Affairs Officer, and analyzed the public risk related to re-entry breakup.

For additional information on the Space Shuttle investigation, please visit the CAIB website at: <http://www.caib.us/default.asp>



Above: Test engineers and high-speed camera technicians prepare for the test. The test will shoot a foam projectile through the brown barrel (left) to an impact point on panel #8 at a speed of approximately 775 feet per second.



Right: View from top of test article (into leading edge) showing a pattern of cracks leading from the hole created in the test. Sensor wire bundles and cameras can be seen inside the hole.



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