



<http://www.aletro.org>

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June 16, 2008

## Proposal for

## Aerospace Legacy Engineering and Technology Recovery Organization (ALETRO)

Supporting NASA's Constellation Program and Aerospace Programs

### Background

Legacy programs for Apollo technical data and hardware have become vital to NASA's current and future efforts for human exploration of space. The recent *Go for Lunar Landing* conference sponsored by Arizona State University, the Lunar and Planetary Institute, and the University of Arizona in March 2008 is an example of the value of tapping the diminishing resources of the Apollo team to transfer lessons learned then to the new challenges faced by present and future generations of technologists. ALETRO is applying for a 501(c) (3) nonprofit corporation status with the IRS as an Arizona Corporation

The success of new space exploration programs will, in large part, depend on how well the building blocks of programs like Apollo are utilized to conserve both financial and human resources in a significantly different political/economic environment than that of the 1960s. (Conference details can be found at <http://www.lunarlanding.info/>) The onset of digital acquisition, storage, and distribution/access via the Internet is an essential tool in succeeding in future missions.

### The Closing Window of Opportunity

Most major technological programs of the past share a common dilemma for historians and those needing the intricate details of critical design, operations, and management decisions and rationale. The lack of custodial continuity and access and wide dispersal or destruction of the data combines to deny future investigators an adequate accounting of how success and failures transpired. Typically, much of the data and corporate memory end up in personal collections, which in turn often end up destroyed or hopelessly lost in probate after the individual expires. Even those materials stored deep in government and industry archives often need the guidance of the individuals involved to make successful organization and recovery possible. It is this dilemma that ALETRO proposes to address, specifically with an initial pilot program that includes the digitization and public release of the private collections of persons connected with the Lunar Landing Research Vehicles (LLRV) and the Lunar Landing Training Vehicles (LLTV).

**Proposed: the Aerospace Legacy Engineering and Technology Recovery Organization d/b/a ALETRO, <http://www.aletro.org>**

ALETRO plans to:

- 1) Digitize and make available NASA program-based materials, including Apollo program technical reports, documents, memos, films, and other supporting materials. This will be accomplished using the following methodology, common to digital preservation efforts.
  - a) ALETRO will identify areas of need and establish volunteer oversight groups of those who were involved in the subject area to advise on the relevance and needs of the materials.
  - b) We will acquire by loan or gift the personal and previously unavailable collections of materials.
  - c) With the assistance of volunteer, subject-matter experts, we will organize and catalog the materials, eliminate unnecessary duplication of materials, and work with and support the University of Arizona Libraries (UAL) and/or other academic institutions in the digitization and preservation of the materials. The academic institution will make available the digitized

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materials as collections and sub-collections through its website, a publicly available institutional repository that supports OAI-PMH, Dublin Core, and open federation and harvesting protocols and standards. Note that its exposure will include RSS 2.0, SRU, and ATOM 1.0 support.

- 2) Help fund the academic institution's preservation efforts of ALETRO materials.
- 3) Form collaborations with various other academic and corporate institutions to help identify and integrate additional digital assets and resources.
- 4) Extend the design and function of the <http://www.lunarlanding.info> Web site and provide for its maintenance. The site will be expanded to provide:
  - a) public access to technical documents, collections, and other materials and oral histories that reference this documentation;
  - b) private access and functionality to support various government, scientific, academic, and corporate collaborators in an open environment where ideas and difficult questions and concepts can be freely debated;
  - c) organized exhibit space(s) for the collections preserved by the ALETRO and the academic institution; and
  - d) Work with other responsible and respected groups to investigate educational and collaborative opportunities for technological endeavors around the world.
- 5) Establish an organization Web site and secure the domain <http://www.aletro.org> to support organization membership, scholarly communications, and periodic conferences and meetings.
- 6) ALETRO has identified over a dozen key LLRV and LLTV key personnel, including test pilots, engineers, managers, and technicians; and who are available for reviewing and contributing to the Altair design and development activities. ALETRO is proposing to help coordinate their consultation services to the aerospace community. This will complement and enhance the preservation of the private collections.
- 7) Immediately launch the efforts with \$350,000 initial funding, followed by a recruiting effort to find key personnel to plan and execute a long term commitment to the technology preservation program. These kick start funds will:
  - a) Complete the formation of the 501(c) (3) corporation (qualify for the IRS 501 (c) (3) status.
  - b) Prioritize the inventory of several key LLRV/LLTV participants and determine the scope and specific object types included in the various personal collections. The collections include technical reports, memos, and other documents, images, and video and audio files. The quantities and values of each remain unknown and must be determined. The result of these findings will be an accurate cost analysis for digitization and five- and ten-year preservation (storage and access) costs. Approximately 25,000 pages of documents are now being scanned and indexed and will be posted on <http://www.lunarlanding.info> by late 2008.
  - c) Prioritize and digitize the materials according to usefulness by applicable Constellation projects.
  - d) Establish a pilot preservation program at the academic institution.
  - e) Identify subsequent phases and determine funding requirements for each, using our initial efforts as a model for these and other projects.
  - f) Continue to enhance and extend the functionality of the Web site to facilitate dialogue in the aerospace community.
  - g) The funding will support the academic institution's accumulation and formatting of metadata, ingest of the materials into the institutional repository, and long-term preservation expenses (hardware recoup).
  - h) Continue the LLRV/LLTV and explore other programs, such as the X15, Lifting Bodies, Mercury, and Gemini for year two based on the needs of NASA and industry.

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**Initial Funding Allocations**

To support ALETRO's first-year efforts, the following funding is required.

**Proposed First Year Budget:**

<u>Projected Budget Item</u>	<u>Annual Expense</u>
<a href="http://www.lunarlanding.info">http://www.lunarlanding.info</a> and <a href="http://www.aletro.org">http://www.aletro.org</a>	
Site registration and hosting fees	\$1,000
Administrative Support	25,000
Technical Development	40,000
Development recovery	6,000
Hosting and software expenses	4,000
Site expenses recovery	1,000
Maintenance and site upgrade (labor)	5,000
<b><u>Preservation Efforts</u></b>	
Digitization	35,000
Storage (hardware recovery)	15,000
Cataloging (administrative labor)	15,000
Academic Institution	20,000
Astronaut Personal Collections (MIT)	20,000
On-line editing and additions	10,000
<b><u>Administrative</u></b>	
Home Offices' Expense and Equipment	30,000
Communications	4,000
Travel & Conference Attendance	22,000
Shipping and Handling	5,000
Directors Expenses and fees	5,000
Management & Secretarial	60,000
Legal & Accounting	17,000
Year Two Program Preparation	\$10,000
<b><u>Total Estimated. Funding Requirements Year 1</u></b>	<b>\$350,000</b>

**Written by:**

**C. Wayne Ottinger** [wottinger@cox.net](mailto:wottinger@cox.net)

Co-Chair, and originator of the *Go For Lunar Landing* Conference  
 NASA LLRV Project Engineer (retired)  
 Bell Aerosystems LLTV Technical Director (retired)

**Steven Nicolas Jury** [jurys@u.library.arizona.edu](mailto:jurys@u.library.arizona.edu)

Information Systems, Digital Library Manager, University of Arizona

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## **THE BOARD OF DIRECTORS, ALETRO**

President: C. Wayne Ottinger of Phoenix, Arizona

Mr. Ottinger has more than fifty years of aerospace engineering and management experience including positions with federal and state agencies, industry, consulting, and small business. His aerospace technology experience includes jet and rocket propulsion, flight testing, engine control systems, ejection systems, energy conservation and renewable energy sources and state-of-the-art industrial imaging and diagnostic systems. He has organized and run workshops, provided graphic production and publishing services, written and produced technical films and founded and managed a not-for-profit corporation dedicated to improving education for aerospace technology. He was the Lunar Landing Training Vehicle Technical Director and Base Manager (Ellington AFB LLTV Flight Test) for Bell Aerosystems Co. and for the NASA Flight Research Center he was Project Engineer (Flight Operations) for Lunar Landing Research Vehicle & X-15 Propulsion Engineer. In 2007, Ottinger conceived and initiated the Go for Lunar Landing Conference held in Tempe, AZ, March 4<sup>th</sup> & 5<sup>th</sup>, 2008.

Education:

BSME University of Arizona, 1955

Graduate Studies at the University of Southern California, Math and Rocket Propulsion, 1957 & 1958

Secretary/Treasurer: Rich Van Riper of Phoenix, Arizona

Richard Van Riper started his engineering career in 1962 at North American Aviation in Downey, California, as an Electronic Design Engineer working on Servo-control Systems for the Apollo Mission's J-2 Rocket Engine Thrust Vector Control System, and the Apollo Command Capsule's Guidance and Attitude Stabilization Control Systems. In 1965, he joined Bell Aerospace in Wheatfield, New York, and designed and developed the updated Avionics for the Lunar Landing Training Vehicle (LLTV). From 1967 through 1969, Van Riper was Avionics Engineer for the LLTV at NASA Houston as the astronauts used it for flight training prior to their moon landings. He joined Sperry Flight Systems' R&D group in Phoenix in 1970 and worked to develop new Avionic and Control Systems used in many NASA, military and government agency space missions; among these are the space shuttle, space station, spacelab, and GPS satellites. Mr. Van Riper held several positions at Honeywell, including R&D Manager and Chief Engineering Fellow. He retired in 1999 and lives in Phoenix.

He has been married to his wife, Lucille, for 45 years and has two children and three grandchildren. He volunteers as a chess teacher/coach at a local middle school and high school.

Education:

BSEE from Rutgers University, 1962

MSEE from the University of Southern California, 1965

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Director: Dr. John L. Mason of Palos Verdes Estates, California

Dr. John L. Mason served in the U.S. Air Force and the Air Force Reserve from 1942 to 1957. In August 1950, Dr. Mason went to work for The Garrett Corporation, a major aircraft equipment company. Mason stayed with Garrett and its successor company Allied-Signal (since renamed Honeywell) until his retirement as Vice President Engineering and Technology of Allied-Signal Aerospace in January 1989. In his early work at Garrett, under Air Force sponsorship, he led pioneer studies on vapor cycle cooling and refrigerant selection for aircraft. In his final assignment at Allied-Signal, he was responsible for the engineering performance of 26 company business units and three research centers.

Dr. Mason has taught extension courses at UCLA on aircraft air conditioning, aircraft equipment cooling, and spacecraft thermal management. He served on a NASA research advisory committee on biotechnology and human research. In 1993 he chaired a panel of the California Council on Science and Technology that under contract to the State of California studied a new transportation research center, the scope of which included both ground transportation and aerospace. Dr. Mason currently consults on the on the design of energy-efficient pumps, compressors, and engines.

Dr. Mason was the 1990 president of the Society of Automotive Engineers (SAE), and continues as a member of the SAE Southern California Section Governing Board. For SAE's "A World in Motion" K-12 educational program, he is a current volunteer at a public intermediate school in Inglewood, CA, co-designing and teaching a course in electronics. He has served on SAE's Aerospace Council and chaired its Technical Board, the responsible SAE body for Aerospace Standards.

Dr. Mason is a Fellow of SAE and an Associate Fellow of AIAA. He is also a member of AAAS, ASME, and NAE.

He is a Trustee of the 501(c) (3) Planetary Science Institute in Tucson, and has been a recent member of an advisory panel to the USC Aerospace & Mechanical Engineering School.

Education:

B.S. in Meteorology from the University of Chicago, 1944

Ph.D. in Chemical Engineering from Caltech, June 1950

Director: Lloyd Walsh of Kingman, Arizona

Employed by the National Aeronautics and Space Administration (NASA) and its predecessor the National Advisory Committee for Aeronautics (NACA), as the Director of Procurement for the Dryden Flight Research Center, Edwards, California (20 years) and the Ames Research Center, Mountain View, California (10 years). Also served in a temporarily assignment with NASA Headquarters as the Acting Director for Procurement Policy and Assistant Administrator for Procurement Research.

Post NASA Retirement: Served as a Senior Associate with Business Management Research

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Associates, Inc., Arlington Virginia and also formed a partnership which provided consulting services.

Education: LLB, LaSalle

Professional Affiliations:

National Contract Management Association  
Honorary Life Member  
Fellow  
Past National President  
Certified Professional Contract Manager

Other Related Affiliations:

Saint Mary's College, Master of Science, Member, Advisory Council  
People to People International, Citizen Ambassador Program  
Delegation Leader, People's Republic of China, 1986 and 1988, Contracts and Joint Ventures

Director: Nick Jury of Tucson, Arizona

Following two years of research as a tumor biologist and electron micrographer, Nick Jury has over a dozen years experience in information technology, designing and implementing enterprise-wide, data-centric systems, including systems for business intelligence, corporate data-mining, data systems architecture and engineering, and document archiving, preservation, and warehousing. Nick has worked as IT liaison for corporate relations with local, state, and federal divisions of government and maintained technical collaborations between corporate and academic institutions and various federal agencies, including the Department of Health and Human Services and various departments of nine of the states and the District of Columbia. Currently, Nick is developing a memorandum of understanding with UN FAO for his department at the University of Arizona and is putting the finishing touches on a major research proposal (NSF NSDL 08-554).

Nick has held leadership roles in corporate IT in five states as well as senior technical positions at the Universities of Michigan and Arizona, where he is currently leading the efforts to design and implement the university's institutional repository. Nick and his wife, Marion, are the proud parents of ten children—five boys and five girls.

Education:

B.S. from the University of Alabama, Natural Sciences

Professional Affiliations:

Phi Kappa Phi  
Born Digital IT Infrastructure Advisory Group (U.S. Land Grant Institutional Advisory)