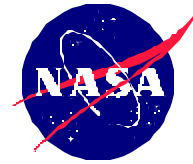


National Aeronautics and
Space Administration

Office of Inspector General
Headquarters
Washington, D.C. 20546-0001



Reply to Attn of: Office of Inspector General

December 22, 1999

The Honorable George R. Nethercutt, Jr.
House of Representatives
1527 Longworth Building
Washington, DC 20515

Dear Mr. Nethercutt:

In response to your letter of November 3, 1999, (Appendix A) we have reviewed NASA's compliance with language in Conference Report 106-379 concerning the Triana project.

I. BACKGROUND

On October 20, 1999, the President signed H.R. 2684, the Fiscal Year 2000 Departments of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act (Public Law 106-74). The Conference Report that accompanied the Act (H.R. 106-379) contains the following language in the "Science, Aeronautics and Technology" section of its discussion of NASA's budget:

EARTH SCIENCES

The conferees have not terminated the Triana program as the House had proposed. Instead, the conferees direct NASA to suspend all work on the development of the Triana satellite using funds made available by this appropriation until the National Academy of Sciences (NAS) has completed an evaluation of the scientific goals of the Triana mission. The conferees expect the NAS to move expeditiously to complete its evaluation. In the event of a favorable report from the NAS, NASA may not launch Triana prior to January 1, 2001. The conferees have no objection to NASA's reserving funds made available by this appropriation for potential termination costs. The conferees recognize that, if a favorable report is rendered by the NAS, there will be some additional costs resulting from the delay.

No other references to the Triana mission are made in either the Conference Report or the Act.

You asked us to report to you on four areas related to NASA's conduct of the Triana mission following the passage of Public Law 106-74. We respond to your four questions below:

II. RESPONSE TO QUESTIONS

1. Are FY2000 funds appropriated by the above Act being used to continue Triana development activities?

NASA's budget authority is divided into four lump-sum appropriation accounts: (1) Human Space Flight; (2) Science, Aeronautics and Technology; (3) Mission Support; and (4) Office of Inspector General. Research and development activities acquired from outside sources are accounted for under the Human Space Flight and the Science, Aeronautics and Technology appropriations. Almost all civil servant costs are accounted for under the "Mission Support" appropriation account.¹ Most NASA programs use some combination of funding from the Human Space Flight; Science, Aeronautics and Technology; and Mission Support appropriation accounts.²

According to NASA officials, the Agency interprets the prohibitions cited in the Conference Report H.R. 106-379 as applying only to the use of funds for Triana development within the Science, Aeronautics and Technology appropriation, which provides funding to both the Office of Earth Science and the Office of Space Science. Neither of these offices is spending FY 2000 funds made available from the Public Law 106-74 Science, Aeronautics, and Technology appropriation on the Triana mission. However, NASA has sought permission from the Committees on Appropriations to spend \$1.5 million of unused FY 2000 Continuing Resolution (P.L 106-62) monies from the Science, Aeronautics, and Technology appropriation. According to NASA officials, concurrence has been obtained on the use of these funds for the Triana mission.

NASA's interpretation allows the Agency to spend FY 2000 funds from NASA's Mission Support and Human Space Flight appropriation accounts on activities in support of Triana. NASA's Office of Space Flight, which is funded through the Human Space Flight appropriation, is expending funding to prepare for the launch of Triana on STS-107. In addition, civil servants assigned to the Triana program prior to the passage of H.R. 2684 are continuing to work and are being paid through the FY 2000 Mission Support appropriation. NASA officials stated that civil servants are needed during this period to work with the remaining Triana contractors and to minimize the costs to the taxpayer of either canceling or fully restarting the project.

¹ Civil servant costs associated with the Office of Inspector General staff are paid from the Office of Inspector General appropriation account.

² NASA's Full Cost Initiative, which was initiated in 1995, is expected to provide a complete "snapshot" of all costs, including civil servant salaries, associated with individual NASA programs; however, this initiative is still undergoing considerable refinement.

2. Who has initiated the National Academy of Sciences study of Triana and what specific questions has the NAS been tasked to answer?

In an October 14, 1999 letter (Appendix B), Ghassem Asrar, NASA Associate Administrator for Earth Science, asked Bruce Alberts, President of the National Academy of Sciences, to undertake an evaluation of the scientific goals of Triana, as specified in the Conference Report.

National Research Council³ (NRC) staff developed a Statement of Task for a Review of the Scientific Aspects of the NASA Triana Mission (Appendix C). The Task states that the study will review:

- (1) The extent to which the mission goals and objectives are consonant with published science strategies and priorities.
- (2) The likelihood that the planned measurements can contribute to achieving the stated goals and objectives.
- (3) The extent to which the mission can enhance or complement other missions now in operation or in development.

The NRC has assembled a committee to conduct the review. Short biographies of the committee members will be posted on the web⁴ for public comment until January 3, 2000. The earliest the NRC expects to release its consensus peer-reviewed report is the end of February 2000.

3. Is NASA making plans to launch Triana no earlier than January 1, 2001, in event of a favorable report from the NAS?

Yes. At the Space Shuttle Program (SSP) Special Program Requirements Control Board (SPRCB) meeting of November 10, 1999, NASA officially scheduled the launch of Triana for January 11, 2001, on Shuttle flight STS-107.⁵

4. Is NASA otherwise following the letter and the spirit of P.L. 106-74 with regard to Triana?

We believe NASA followed the letter and the spirit of P.L. 106-74 in initiating the formation of the NAS committee and in scheduling the launch of Triana to occur after January 1, 2001.

³ The National Research Council is the operating arm of the National Academies of Science and Engineering.

⁴ Committee member biographies can be found (until January 3) at <http://www4.nas.edu/cp.nsf> by clicking on "Committee Membership Open for Public Comment."

⁵ Triana project management told us that the Shuttle's launch slipped into 2001 not because of the Triana mission, but because the Shuttle Columbia entered its planned maintenance period behind schedule and will require additional wiring inspections before it is ready to fly.

With regard to the suspension of work, NASA's interpretation of the report language has allowed the Agency to continue to work on the Triana mission using civil servants and unused funds, albeit at a reduced pace. The Triana project originally expected to have \$14.483 million to spend outside the Agency between October 15, 1999 and January 15, 2000. However the spending restrictions imposed after the passage of H.R. 2684 left the Agency with only \$5.7 million in unspent FY 1999 monies and FY 2000 Continuing Resolution funds to spend outside the Agency until the NAS review is complete.

The effect of the reduction in available funds has significantly impacted the forward momentum of the Triana project. Although civil servant staffing levels have remained effectively constant—approximately 70 civil servants work for the Triana project at Goddard Space Flight Center and a handful more are working on the mission at Kennedy Space Center and Johnson Space Center—NASA has been forced to delay many of the contracted elements of the project and stop work on others. If, as is expected, the NAS report is not released until the end of February, the impact will be even greater.

Appendix D contains NASA's initial plan for operating under the H.R. 106-379 restrictions. Project officials told us they were concentrating available resources on the fabrication of the spacecraft and on meeting the 2001 launch schedule. The Agency's current emphasis on hardware fabrication should make it relatively easy to store the spacecraft or cannibalize spacecraft components for other programs if the Triana mission is cancelled.

We hope this information fully responds to your inquiry. Copies of this letter will be provided to relevant members of Congress and posted on the NASA Office of Inspector General web site at <http://www.hq.nasa.gov/office/oig/hq/> If you have any further questions on this issue, please call me at (202) 358-1220.

Sincerely,



Roberta Gross
Inspector General

4 Enclosures

Appendix A: Letter requesting OIG review

Appendix B: Letter requesting NAS study

Appendix C: Charter of NAS study

Appendix D: Triana 90-day suspension summary plan

Appendix A

Letter Requesting OIG Review

GEORGE R. NETHERCUTT, JR.
5TH DISTRICT, WASHINGTON

COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEES:

AGRICULTURE
INTERIOR
NATIONAL SECURITY

COMMITTEE ON SCIENCE

SUBCOMMITTEE:

SPACE AND AERONAUTICS

Congress of the United States
House of Representatives
Washington, DC 20515-4705

November 3, 1999

Ms. Roberta L. Gross
Inspector General
National Aeronautics and Space Administration
300 E Street, SW -- Code W
Washington, D.C. 20546

Dear Ms. Gross:

On October 20, 1999, the President signed H.R. 2684, the Fiscal Year 2000 Departments of Veterans Affairs and Housing and Urban Development, and Independent Agencies Appropriations Act, P.L. 106-74. The Act included report language directing NASA to suspend all work on the development of the Triana satellite using appropriated funds until the National Academy of Sciences completed an evaluation of the scientific goals of the mission. The conferees further directed NASA to not launch Triana prior to January 1, 2001.

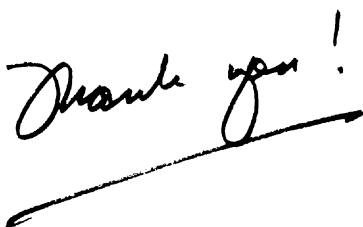
Recent reports in the media, however, have raised the question of whether NASA intends to comply with both the spirit and the direction of this report language. Accordingly, please investigate and report on:

- 1) If, as required, no FY2000 funds appropriated by the above Act are being used to continue Triana development activities—including the use of NASA civil service employees;
- 2) Who has initiated the National Academy of Sciences (NAS) study of Triana and what specific questions the NAS has been tasked to answer;
- 3) Whether, as required, NASA is making plans to launch Triana no earlier than January 1, 2001 in the event of a favorable report from the NAS; and
- 4) If NASA is otherwise following the letter and the spirit of P.L. 106-74 with regard to Triana.

Because of the time deadlines related to the Act, please report the results of this investigation no later than January 31, 2000. Thank you for your assistance with this important matter.

Sincerely,


George R. Nethercutt, Jr.
REPRESENTATIVE IN CONGRESS



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Appendix B

Letter Requesting NAS Study

National Aeronautics and
Space Administration
Headquarters
Washington, DC 20546-0001



OCT 14 1999

Reply to Attn of: Y

Dr. Bruce Alberts
President
National Research Council
2101 Constitution Avenue, NW
Washington, DC 20418

Dear Dr. Alberts:

The Conference Report (House Report 106-379) accompanying H.R. 2684, the FY 2000 VA-HUD-Independent Agencies appropriations bill, states:

“The conferees have not terminated the Triana program as the House had proposed. Instead, the conferees direct NASA to suspend all work on the development of the Triana using funds made available by this appropriation until the National Academy of Sciences (NAS) has completed an evaluation of the scientific goals of the Triana mission. The conferees expect the NAS to move expeditiously to complete its evaluation. In the event of a favorable report from the NAS, NASA may not launch Triana prior to January 1, 2001. The conferees have no objection to NASA’s reserving funds made available by this appropriation for potential termination costs. The conferees recognize that, if a favorable report is rendered by the NAS, there will be some additional cost resulting from the delay.”

This is to request that the National Research Council (NRC) undertake the evaluation of the scientific goals of Triana, as specified in the Conference Report.

In July 1998, NASA released an open, competitive Announcement of Opportunity for a Triana mission to conduct Earth remote sensing investigations from L1. In October 1998, Dr. Francisco Valero of the Scripps Institution of Oceanography was selected as Principal Investigator to implement the Triana mission based upon the scientific merits of his proposal; the supporting team includes scientists from 8 universities, industry, international and government research laboratories. The mission selection also included enhancements to proposed instrumentation and the addition of a Space Science-funded space weather


monitoring instrument suite. The scientific themes addressed by Triana are:

- solar radiation and climate, including cloud radiative properties;
- ozone, aerosols and ultraviolet radiation;
- stratospheric dynamics;
- vegetation canopy structure; and,
- solar wind and space weather.

The Triana science team will assure the technical specifications for the mission will meet these objectives.

NASA is prepared to support the NRC review with assistance from the Triana science team. Triana is a very important mission for the future direction of NASA's Earth Science Enterprise, and an objective and thorough review of the scientific goals of the mission by the NRC will be valuable. Because the suspension of work on Triana while the evaluation is underway will undoubtedly impact the total cost of the mission, NASA is seeking the completion of the evaluation at the earliest possible date. Thank you in advance for undertaking this challenge. I look forward to hearing from you soon.

Sincerely,



Ghassem R. Asrar
Associate Administrator for
Earth Science

Appendix C

Charter of NAS Study

Review of Scientific Aspects of the NASA Triana Mission

Statement of Task

The NRC will evaluate the scientific aspects of the Triana mission in terms of research strategies and priorities in relevant disciplines as they have been outlined in recent relevant NRC reports. The scientific themes for the mission to be examined include the following:

- Solar radiation and climate, including cloud radiative properties
- Ozone, aerosols, and ultraviolet radiation
- Stratospheric dynamics
- Vegetation canopy structure
- Solar wind and space weather

The study will review:

1. the extent to which the mission goals and objectives are consonant with published science strategies and priorities,
2. the likelihood that the planned measurements can contribute to achieving the stated goals and objectives, and
3. The extent to which the mission can enhance or complement other missions now in operation or in development

Appendix D

Triana 90-Day Suspension Summary Plan

TRIANA STATUS



- PROJECT SUSPENDING WORK TO SURVIVE 90-DAY NAS REVIEW

Per the United States Congress Conference Report (House Report 106-379) accompanying H.R. 2684, the FY 2000 VA-HUD-Independent Agencies appropriation's bill, the Triana Project has begun the rapid suspension of its development work in a manner that is consistent with the legislated withholding of FY 2000 funding. This suspension plan covers a 90 day period of time, from mid-October to mid-January, the expectation being that the NAS review and subsequent report be completed expeditiously as decreed in the Appropriation Bill.

As acknowledged in the Conference Report, this will result in additional cost to implement the mission should a favorable report be rendered by the NAS. The Triana project will use the remaining funds from prior appropriations in an effort to minimize the costs associated with restart should the NAS findings be favorable and to minimize the loss to the taxpayer should the NAS findings be negative. Thus, priority uses of these funds are:

- Preserve to the best extent possible the assets in which the government has already invested at the expense of drastically curtailing supporting engineering, science development, and operations development. This action occurs at a particularly difficult phase of the mission development as over 90% of the mission hardware is in final fabrication and/or assembly. Execution of the plan requires partial layoff of the workforce, the issuance of some stop work orders and potentially some contract termination notices, and the slowdown of all remaining work to focus on delivery of items in fabrication.
- Complete to the extent possible those items that present the most significant risks to meeting the projected launch schedule in early 2001, as missing the planned Shuttle flight will increase mission cost substantially.

TRIANA 90 DAY SUSPENSION SUMMARY PLAN



WBS ELEMENT	APPROACH	90 DAY SUSPENSION FUNDING PLAN \$M	ORIGINAL FUNDING PLAN for SAME PERIOD	IMPACT
SCRIPPS CONTRACT	Maintain EPIC assembly but defer test. Stop work on NISTAR. Stop all TSOC work.	.800	2.293	Funded at 30% level. Partial loss of Lockheed team. Deferred EPIC testing. Loss of NISTAR engineering team at BALL. Critical delay in ground system development.
NIST	Stop funding, allow to coast to stop.	.025	.132	Funded at 19% level. Only C/S can support calibration work – 80% loss in schedule.
PI ASMAG	Maintain instrument work but stop S/C support functions.	.104	.200	Funded at 52% level. Boom procurement stopped-delay in integration readiness.
SPACECRAFT • Power • ACS • RF, Comm • Comp Hub • Mechanical • Thermal • Harness • Software • Propulsion	Maintain H/W fabrication activities. Slow assembly work. Defer all non- schedule critical support engineering.	2.178	3.567	Funded at 34% level. Significant delay in reaching integrated observatory. Approximately 50% of engineering team laid off.
STS LAUNCH • GUS • SIU • IRIS • HST • Cargo • Integration • Safety	Maintain critical design & fabrication elements-delay assembly. Maintain safety review schedule and STS interface engineering.	1.601	5.316	Funded at 30% level. Slow GUS development, Stop work at PRIMEX on NCS. Stop work at Alenia. Stop all HST hardware work. IRIS Reflight Safety Review delayed.

TRIANA 90 DAY SUSPENSION SUMMARY PLAN (Cont.)



GROUND SYSTEM • FOT • MOCC • SOMO//USN • ITOS	Maintain only "launch critical" efforts-defer all "Data delivery/mission performance" developments.	.156	1.992	Funded at 26% level. Stopped FOT staff-up. Stopped MOCC & ITOS development. Slowed ground network development.
PROJECT SUPPORT AND MISSION INTEGRATION • Support • R&QA • EEE Parts • Environmental test • Contamination	Maintain core infrastructure. Support H/W fabrication & delivery.	.611	.838	Funded at 73% level, minimal impact. Testing delayed due to late assembly and lost engineering support. Continue EEE parts testing and qualification in support of fabrication tasks.
TOTAL EXPENSES		5.835*	14.843	4 -5 month delay in reaching integrated observatory readiness for environmental test. TBD mission increase.

* Consists of 3.088 due to cover work already completed or to be completed soon and 2.747 to cover continued efforts

AVAILABLE FUNDS:	
\$4.064M	FY'99 Project Carry-over
\$0.136M	FY'99 Funds De-obligated from NIST
<u>\$1.500M</u>	FY'00 Continuing Resolution Funding
\$5.700M	