1.6 S.F. Chronicle, 11/14. 7 87

By Charles Petit
Science Correspondent

KEYWORD-HIT

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"We screwed up," Fletcher told The Chronicle. "Lord help us, but I should have gotten into the whole space station cost analysis much earlier."

The estimated price, now anywhere from $14 billion to more than $20 billion over the next decade or more, is well above double the $8 billion used until a few weeks ago for a project given high priority by President Reagan in his 1984 State of the Union Address. The target date for occupation of the station is 1994.

Fletcher first confirmed in congressional testimony a month ago that the old estimate was far too low, but a detailed cost review, ordered by Fletcher, is still under way.

Some mid-level NASA managers already knew the cost was badly underestimated, he said yesterday. "They knew, but they didn't tell me. I guess you'd say I'm pretty angry about it." Fletcher is here for consultations at the space agency's Ames Research Center in Mountain View.

The inflating price tag for the orbiting manned laboratory comes at a bad time for NASA managers who must convince critics that they have revamped management practices blamed for a lack of warnings that there were problems with the design of the space shuttles.

Recently, some staff workers at the White House Office of Management and Budget and at the Congressional Budget Office have suggested canceling altogether the space station that NASA leaders, and Reagan, have pushed as the centerpiece for post-Challenger recovery of American preeminence in space.

At the same time, some space scientists who believe the space station is a political showpiece that will only soak up money better spent on unmanned space science, are certain to step up criticism.

Despite the damaging revelations over costs, Fletcher said, "In my own mind, there is no way to stop the space station." He cited extensive design work, its key role for U.S. manned space activity into the next century and resurgent public support for a vigorous space program.

On the whole, he said, the space agency is "back on track" and will soon release results of internal studies led by astronaut Sally Ride to define long-range goals for expansion into the solar system.

Concealment of the high costs goes back more than a year, Fletcher said.

William Graham, who was acting head of the National Aeronautics and Space Administration when the shuttle Challenger exploded Jan. 28, 1986, "was misled also," Fletcher said.

Graham is now the White House science adviser, a post that could be crucial in maintaining Reagan's enthusiasm for the project.

"Bill Graham is a little negative about the space station," Fletcher said. One reason, he said, is Graham's bitterness over failure by NASA staffers to tell him that space station cost estimates were unreasonably low when he was in charge.

END OF STORY REACHED

4/

Nancy - after you talk to Fletcher about the need to exercise discipline and a constructive attitude toward the White House, please let me know what transpired!

Bill

S.F. Chronicle, MAR. 7 '87

By Charles Petit
Science Correspondent

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END OF STORY REACHED

4/

Copy to Jim Miller

THE WHITE HOUSE

WASHINGTON

March 10, 1987

MEMORANDUM FOR HOWARD H. BAKER, JR.
JAMES M. CANNON

FROM: NANCY J. RISQUE

SUBJECT: Space Station

Issue:

In his 1984 State of the Union Address, the President called for the construction of a space station to be completed in the early 1990s. NASA now estimates that the space station will cost $14.5 billion (1984$) substantially more than the original estimate of $8 billion. This raises two issues, one short-term, the other longer-term.

1. NASA would like to solicit bids for construction of the station. OMB has put a hold on them pending resolution of the budget question. Congress has also put a hold on the RFPs, pending a statement of the Administration's cost estimate for the station. Can we move forward with these bids?

2. Do we go forward with a space station, what should we expect from it, and how much are we willing to spend for it?

Discussion:

There is probably no one in the Administration who thinks we should cancel the space station. Likewise there is probably no one in the Administration who has a firm idea of what we would like to get out of the space station.

The original decision was a design to cost station: we decided to spend $8 billion and designed a station that cost $8 billion. Unfortunately, that original estimate was overtaken by a number of factors, including increased costs for ground-based supporting infrastructure, the need for greater funding reserves, and higher design and assembly costs.

In hindsight, the proper way to approach the station funding question should be to look at it from cost to design approach: determining what we want from the station and estimating its cost.

Almost every agency in the Federal Government is interested in the design question: DoD from national security perspective; State from the perspective of foreign participation; the Departments of Transportation and Commerce, who are interested in commercializing space; and the Department of Treasury, OMB and CEA from a fiscal perspective, as well as an economic policy question; and of course NASA.

Both the Economic Policy Council and the National Security Council have interagency working groups that have presented space issues to the President for decision. The President's science adviser serves on both groups.

Recommendation:

I recommend that:

1. OMB and NASA be pushed to agree on a short-term course of action regarding construction bids. NASA should be permitted to begin to solicit private sector proposals. However, because the private sector expends a great deal of money in developing these proposals, we must take care that these bids not be overturned by later decisions regarding the design of the space station.

   This will not be an easy task. NASA believes the minimum cost of the station is now $11 billion. OMB will argue that the $3 billion increase must be offset somewhere. The dispute may have to be resolved in the West Wing.

2. I confer with Secretary Baker and Frank Carlucci to place the question of the design and uses of the space station in the appropriate interagency group: the EPC, NSC, or both. The objective would be to present to the President within four or five months a range of options covering both design and cost questions that reflect all the Cabinet agency positions.

INFORMATION

MEMORANDUM FOR THE PRESIDENT

FROM: Frank C. Carlucci
James C. Fletcher
William R. Graham
James C. Miller III

SUBJECT: Space Station New Cost Estimates

SUMMARY

This memorandum is a follow-up to Jim Miller's earlier report to you. In response to your concern over the magnitude of the cost increase in the Space Station program, representatives of the National Security Council (NSC), the Office of Science and Technology Policy (OSTP), and the Office of Management and Budget (OMB) have met with NASA officials to understand the new estimates and to explore lower cost alternatives. This memorandum describes the process we have agreed upon for developing a range of alternatives for your decision in the FY 1989 budget.

DISCUSSION

In 1984, you approved a program to achieve a permanently manned Space Station in the mid-1990's at a cost of $8 billion. NASA has since spent $0.6 billion on studies to further define the Space Station. NASA's current estimate is that a Space Station with enhanced capabilities can be achieved at a cost of $13.0 billion (in 1984 dollars) with permanently manned capability in 1995. In addition, NASA has identified increases of $1.5 billion to augment program support. These estimates do not include the costs of on-board experiments, transportation for assembly and resupply, operations, and a possible "life boat" for emergency return of crew members.

NASA would like to proceed with the detailed design and construction phase as soon as possible to preserve the momentum of the program, but is currently withholding the request for contractor bids. In addition, FY 1987 Congressional action for NASA prohibits release of funds for this phase until NASA provides the Congress with an acceptable implementation plan and cost estimate (in review at OMB at this time).

The $13.0 billion cost estimate would result in outlay increases of over 30 percent above your current budget estimates through 1992 for Space Station development. These increases would require large offsets in funding levels for other Administration priorities and costs could grow further.

The Space Station is an important Administration priority for U.S. technological leadership in space, international cooperation, and national security. We believe that the program should not be terminated. We also believe that the Administration should examine more intensively lower cost alternatives for meeting your objective of achieving a permanently manned Station in the mid-1990's. To accomplish this, we have reached an agreement on the following actions.

1. NASA will seek Congressional approval to request proposals from industry for a phased configuration. NASA believes that the cost of the first phase of this plan (a revised baseline) will be $10.9 billion (in 1984 dollars), with additional program support costs of $1.3 billion. Outlays through FY 1990 would be unchanged from your current budget projections. This phase would result in an initial manned capability in 1995, leading to permanently manned operations by early 1996. NASA will also seek industry ideas for lower cost methods of achieving the design configurations, as well as industry estimates for the enhanced ($13 billion) configuration.

2. We will establish an independent technical and cost review of the Space Station program, reporting to OMB, with full participation by OSTP, NSC and NASA. This review will proceed in parallel with the request for industry proposals and will not delay the program schedule. Working with NASA, the review process will examine a full range of cost alternatives. This review will be completed by September 1, 1987.

We will present the results of these actions to you this fall. NASA will need authority to proceed with the development contracts at that time. Decisions on the total Space Station cost, capability, and annual funding projections will be incorporated in FY 1989 budget. In addition, OMB will recommend specific legislation for a rolling three-year Congressional commitment and a total cost ceiling on the program.

In summary, we believe that these actions will demonstrate your firm commitment to the Space Station, and ensure that the program is implemented in a cost-effective manner consistent with our current fiscal constraints. We will keep Congress informed of the Administration's actions to help ensure support by key Congressional committees.

Please advise if you agree with this approach or wish to pursue another course of action. Meanwhile, we plan to keep you informed on the progress of activities.

Copies to Jim Miller - 74E
Ken Cribb - 74E

THE WHITE HOUSE

WASHINGTON

March 10, 1987

MEMORANDUM FOR HOWARD H. BAKER, JR.
JAMES M. CANNON

FROM: NANCY J. RISQUE

SUBJECT: Space Station

Issue:

In his 1984 State of the Union Address, the President called for the construction of a space station to be completed in the early 1990s. NASA now estimates that the space station will cost $14.5 billion (1984$) substantially more than the original estimate of $8 billion. This raises two issues, one short-term, the other longer-term.

1. NASA would like to solicit bids for construction of the station. OMB has put a hold on them pending resolution of the budget question. Congress has also put a hold on the RFPs, pending a statement of the Administration's cost estimate for the station. Can we move forward with these bids?

2. Do we go forward with a space station, what should we expect from it, and how much are we willing to spend for it?

Discussion:

There is probably no one in the Administration who thinks we should cancel the space station. Likewise there is probably no one in the Administration who has a firm idea of what we would like to get out of the space station.

The original decision was a design to cost station: we decided to spend $8 billion and designed a station that cost $8 billion. Unfortunately, that original estimate was overtaken by a number of factors, including increased costs for ground-based supporting infrastructure, the need for greater funding reserves, and higher design and assembly costs.

In hindsight, the proper way to approach the station funding question should be to look at it from cost to design approach: determining what we want from the station and estimating its cost.

Almost every agency in the Federal Government is interested in the design question: DoD from national security perspective; State from the perspective of foreign participation; the Departments of Transportation and Commerce, who are interested in commercializing space; and the Department of Treasury, OMB and CEA from a fiscal perspective, as well as an economic policy question; and of course NASA.

Both the Economic Policy Council and the National Security Council have interagency working groups that have presented space issues to the President for decision. The President's science adviser serves on both groups.

Recommendation:

I recommend that:

1. OMB and NASA be pushed to agree on a short-term course of action regarding construction bids. NASA should be permitted to begin to solicit private sector proposals. However, because the private sector expends a great deal of money in developing these proposals, we must take care that these bids not be overturned by later decisions regarding the design of the space station.

   This will not be an easy task. NASA believes the minimum cost of the station is now $11 billion. OMB will argue that the $3 billion increase must be offset somewhere. The dispute may have to be resolved in the West Wing.

2. I confer with Secretary Baker and Frank Carlucci to place the question of the design and uses of the space station in the appropriate interagency group: the EPC, NSC, or both. The objective would be to present to the President within four or five months a range of options covering both design and cost questions that reflect all the Cabinet agency positions.

THE WHITE HOUSE

WASHINGTON

March 20, 1987

MEMORANDUM FOR HOWARD H. BAKER, JR.
JAMES M. CANNON

FROM: NANCY J. RISQUE

SUBJECT: Space Station

This is a follow-up to my March 10 memorandum regarding the space station. I understand that OMB, OSTP, NASA, and the NSC are sending a memorandum to the President stating that they have reached agreement on:

1. Permitting NASA to solicit bids for phased construction of the space station; and

2. Establishing an independent technical and cost review of the space station program, reporting to OMB, with full participation by OSTP, NSC, and NASA.

I'd like to reiterate that there are a number of Cabinet agencies that have a major stake in space policy. These include the State, Commerce, and Transportation Departments, as well as the Treasury Department, and CEA. Secretaries Baldrige and Dole have committed a great deal of time and interest to space policy.

It seems to me that space policy should be developed in the same manner as any other kind of policy: through the Cabinet. The question of what we want from the space station should be considered by the Cabinet, through either the NSC or the EPC. Indeed, part of the problem in determining the cost of the station may be that we've never defined what the functions/goals of a Federal space station should be.

I know many of the Cabinet officers would appreciate having the opportunity to discuss these matters with the President before he makes any decisions regarding the future of the space station.

attachments

THE SECRETARY OF THE TREASURY

WASHINGTON

March 17, 1987

Dear Jim:

Thank you for your letter on the role of the private sector in both commercial launch services and economic activities in space. Your effort as Vice Chairman of the Commercial Space Working Group was crucial in helping to develop the commercial space launch policy, and I appreciate your offer to bring to the attention of the Economic Policy Council those issues that may impede its smooth and timely implementation.

I agree that it is appropriate now to develop a policy statement on the Administration's economic goals in space and the scope and nature of the government's role in helping to achieve them. A policy statement in this area, like that on space launch policy, would be useful for business planning and would provide guidance for government agencies. I look forward to receiving the Commercial Space Working Group's report by June 1, 1987, for consideration by the Economic Policy Council. I have asked Eugene McAllister to coordinate with you on the report.

Sincerely,

James A. Baker, III

The Honorable James C. Fletcher
Administrator
National Aeronautics and
Space Administration
Washington, D.C. 20546

cc: Eugene McAllister

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Sincerely,

James A. Baker, III

The Honorable Malcolm Baldrige
Secretary of Commerce
Washington, D.C. 20230

cc: Eugene McAllister

Ken Cribb - 7-4-L

THE WHITE HOUSE

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In summary, we believe that these actions will demonstrate your firm commitment to the Space Station, and ensure that the program is implemented in a cost-effective manner consistent with our current fiscal constraints. We will keep Congress informed of the Administration's actions to help ensure support by key Congressional committees.

Please advise if you agree with this approach or wish to pursue another course of action. Meanwhile, we plan to keep you informed on the progress of activities.

THE WHITE HOUSE

WASHINGTON

March 30, 1987

MEMORANDUM FOR NANCY J. RISQUE

FROM: SHELLYN G. McCAFFREY SM

SUBJECT: Commercial Implications of Space Station

It occurs to me that the ongoing budget discussion of space station has been devoid of economic or commercial sector considerations, a concern shared by the Departments of Commerce, Transportation and Treasury. Were these interests considered, the current issue of just how much we should spend for the space station would be clearer.

Following are some points to consider:

- There is a tremendous amount of potential commercial activity in space, specifically in the two outer orbits closest to Earth.
  - -- "Space" is a market analagous to national and global markets on Earth. Federally sponsored activities in space should not dislodge or burden commercial activities and opportunities in space.
  - -- Towards this end, the President last year directed that the Federal Space Shuttle should no longer have a monopoly for launching into space satellites and experiments that do not require a manned presence.
- The President has announced the goal of a U.S. space station, but there has been no interagency deliberation on what the functions or operation of a Federal space station should be. It is little wonder that the issue of cost has been contentious.
- If current plans for Space Station proceed, NASA would bar entry of commercial competitors (a proposed private sector space building costing approximately $500 million, if launched, could provide commercial users with 80-85 percent of the functions that a $14-20 billion Federal Space Station could). Traditionally private sector activities, such as manufacturing, would be constrained to taking place on board the Federal Space Station, potentially in competition with NASA.
- Were commercial interests taken into account now in designing Space Station, it is likely that a minimal-cost Space Station would emerge defined as: (1) a Federal laboratory in space doing basic science and research and (2) a life support system (e.g. supplying oxygen and fuel) for commercial buildings or other endeavors in space.

THE WHITE HOUSE

WASHINGTON

July 6, 1987

MEMORANDUM FOR NANCY RISQUE

THROUGH: EUGENE J. McALLISTER

FROM: SHELLYN McCAFFREY SM

SUBJECT: Space Station Report

ISSUE: The National Research Council Committee on Space Station (NRCSS) made its first report of findings and conclusions last week. Their report thus far raises several points that support our efforts to broaden Administration consideration of Space Station (SS) beyond a mere budgetary exercise.

BACKGROUND: Administration debate over NASA cost estimates for SS earlier this year caused OMB et al. to request an independent report by the NRC (1) assessing NASA cost estimates on the proposed SS and (2) examining SS mission requirements and alternative configurations. NRC's interim report presented last Thursday to White House representatives, including Jim Miller, William Graham, and Frank Carlucci responded primarily to the first question. The NRC's findings and conclusions will eventually be released to the public. A second report will be ready September 1. Several findings, thus far, are significant from a policy view:

o SS may end up costing significantly more than the $16.0 B (1984 dollars) estimated most recently by NASA.

-- According to NRCSS, when additional equipment costs unique to SS, e.g. flight servicer, orbital maneuvering vehicle, and emergency rescue vehicles, are included the total is closer to $18 B.

-- Further, NASA reserve estimates of $3.5 B for potential cost increases may be too low by $1-1.5 B. This increases the initial estimate to more than $20 B.

-- Even this total, according to NRCSS, does not include services and support such as launch services, salaries, spares and other operational parts, and construction of SS facilities. Including these costs brings the estimated total costs for developing and deploying SS to more than $27.5 B.

The NRCSS has not, as yet, addressed the operational costs of SS from Day 1 of the first launch.

- o The potential for problems prior to initial operation of SS is great.

  -- NASA launches of the 29 SS "packages" must be regular and continuous. Assuming that SS sections are launched on the Shuttle raises concerns regarding future Shuttle payload demand and capacity and potential SS launch and construction delays due to Shuttle failure. Use of heavy lift ELVs or Shuttle-derived vehicles could mitigate this threat.

  -- Because only one set of hardware is being produced, failures in hardware could cause costly or abortive delays.

  -- Unlike Shuttle and other NASA programs, there will be no complete on-Earth prototype to guide pre- or post-launch assessment of problems. SS will be assembled, for the first time, in space.

- o Several points stated or inferred by the NRC study are significant:

  (1) Current estimates for a completed SS are probably conservative at near $30 B. This does not include operation. SS will absorb NASA's resources for at least the next two to three decades.

  (2) Launch, construction in space, and management of SS will be a complex task with a high risk factor for NASA.

DISCUSSION: The NRC report in September will respond to: questions raised last Thursday; operational cost estimates for SS; user needs v. SS design; program alternatives; and defense and international factors and requirements.

While much of the NRC fodder for a comprehensive policy discussion of SS has yet to be written, an important policy inference can be drawn thus far:

SS design should be kept as "simple" or lean as possible, i.e. not "representing all things to all people," in order to: (1) keep unforseen costs and technical problems to a minimum and (2) permit NASA to respond to other potential Presidential goals.

RECOMMENDATION: I will be forwarding to you, per your request, a comprehensive memo suggesting the need for interagency policy consideration of the SS configuration and U.S. space goals.