

RECOMMENDATIONS IN THE AFTERMATH OF THE CHALLENGER ACCIDENT

On February 7 1986 the National Security Council tasked the Interagency Group for Space with the assessment of the impacts of the CHALLENGER accident on the nation's space launch capabilities and the development of recommendations that will reduce the adverse consequences of these impacts. The Working Group of the IG(Space) was also invited to consider the policy implications that should be derived from the accident. This is the summary of the IG(Space) recommendations, endorsed by the Senior Interagency Group for Space.

The broad space policy goals of the U.S. should remain unaffected by the accident. As mandated by the currently prevailing NSDD-42, our goals are to explore the potential of space for the benefit of mankind; to use space-based or space-related systems to enhance the security of the United States and of its Allies; to use the U.S. Government space activities to maintain leadership among the world's nations in scientific and technological matters; and to further the U.S. economic interests by creating an environment favorable for private involvement and investment in space-related commercial and industrial activities. None of these policy goals are less valid today than the day they were promulgated; if anything, the growing space activities of the Soviet Union, of the major Western industrial powers, of the Peoples Republic of China and of a number of Third World nations should prompt us to pursue our space goals with unrelenting vigor. At the same time, both the military and the civil sectors of space are poised to make major advances in space-related concepts and experiments: the SDI, with its attendant consequences in terms of the evolution of our strategic posture, the Manned Space Station, with all its potential for industrial space developments and as a symbolic fo-cal point for Western space cooperation, are outstanding illustrations.

Specific space policy elements and the corresponding implementation directives should be modified. The CHALLENGER accident brought sharply into focus the risks inherent in relying almost exclusively on the Space Transportation System ("shuttle") as the *primary* means for providing assured access to space, as mandated by currently prevailing directives. The Department of Defense was, until the accident, in the process of shifting most of its spacecraft launches to the shuttle, including some associated with missions judged vital from the national security standpoint. The Air Force, Executive Agent for DoD launch services, has been proceeding with the development of the Complementary Expendable Launch Vehicle (CELV), in order to serve its own needs, as well as to provide a complement to the shuttle, should that prove necessary at some future point. The modified policy directive should mandate increased emphasis on a balanced U.S. space launch capability, comprising the reconstituted shuttle orbiter fleet and the appropriate number of expendable launch vehicles.

The CHALLENGER accident also reminded the potential shuttle users about the value of the STS as an irreplaceable, unique national asset. As such, given that risks of incapacitation can be reduced but never completely eliminated in systems of comparable complexity, it should be used for missions that are important in terms of the nation's space goals and where its unique capabilities are clearly required. It should not be offered to all potential users for routine space transportation tasks, where expendable launch vehicles can serve the purpose. The modified space policy should mandate that the shuttle be no longer offered for routine space transportation tasks (beyond fulfilling currently contracted commitments). In addition to decreasing the risk of attrition for the shuttle, such a policy change will clearly signal to the U.S. private industry that the Government will not compete for launch services where private industry-supplied launch vehicles can effectively service the market.

The STS is essentially sound and the investment in the orbiter fleet reconstitution is warranted. The conclusions of the Presidential Commission on the causes of the CHALLENGER accident are likely to result in recommendations covering improved design, more stringent manufacturing, inspection, test and launch procedures. NASA has at this time a number of these likely recommendations under implementation and is confident that its related cost estimates are adequate. It is widely held that the Commissions's recommendations will not affest the basic design concept of the orbiter. The STS, with perhaps minor evolutionary improvements, is the only manned space launcher/transportation system that will be at hand prior to the late 1990's, thus the integrity of the STS orbiter fleet is crucially important to the U.S. space program.

Procurement of the replacement orbiter is necessary. With the remaining three orbiters, it is not possible to eliminate the rapidly accumulating U.S. Government launch backlog, both military and civil, without unprecedentedly high shuttle flight rate projections. Attempting to achieve such high flight rates could create increased attrition risks for the STS; completely unacceptable over more than a decade for a depleted (three-orbiter) system. The alternative, namely to eliminate a significant proportion of the U.S. Government space missions, would weaken our ability to support the Space Station, would create pressure to curtail the SDI-related experiments and, in a broad sense, would cause significant retrenchement in our planned space activities. The other alternative, namely to use expendables at an increased rate, cannot address the problem created by insufficient manned space launch capability.

The decision to replace the orbiter is urgent. The Administration must convey to Congress, to the nation and to our Allies, as well as to potential adversaries, its firm resolve to continue the momentum of the U.S. space program, in keeping with our established policy goals and objectives. At a time when the Soviet Union seems to step up its publicized efforts aimed at manned presence in space, the U.S. cannot project an image of hesitancy or faint-heartedness. The political risk in the appearance of undercutting the Presidential Commission on the Causes of the CHALLENGER accident can be eliminated

by including in the decision appropriate wording to the effect of making the replacement orbiter procurement contingent upon implementing the Commission's recommendations.

The replacement orbiter should aim at the earliest possible operational capability. During the interim period (of the order of three and a half to four years) the 3-orbiter STS will have to carry the whole burden of U.S. manned space flight programs. Delaying or protracting the replacement orbiter procurement (as advocated in the interest of avoiding undesirable additional deficit in the U.S. Federal budget) will, first, increase substantially the total cost of the replacement orbiter. Second, and perhaps most importantly, the virtual cost of the additional risk of flying the 3-orbiter STS fleet for two or more years at relatively high rates **without practical means of recovery in the case of even the slightest incident,** by far outweighs the value of the corresponding budget savings.

The additional ELV procurement should be at the most effective procurement rates. The program recommended by the IG(Space) corresponds to this rate. Launch rates will only change should the mission requirements or the shuttle availability projections are modified so as to require such change. In the meantime, operational proficiency will be retained and certain payloads will be modified, so as to be compatible with both shuttle and ELV launch. The unused ELV's will be used as a reserve for surge capability.

The commitment of the Department of Defense to the STS should remain unchanged. While DoD strongly advocates the increased emphasis on the **balanced** aspects of the future U.S. space launch posture, it does not intend to lessen its commitment to fly as many shuttle payloads as can be accommodated without undue stress on the timing of critical civil missions planned by NASA. The two agencies have been working together to define the composite STS flight schedule (the "manifest") that best serves the national interest as defined by the President's space policy and they will continue to do so without additional detailed directives.

The increased opportunities for private U.S. launch services industry. should be aggressively pursued. With NASA deliberately withdrawing from the commercial and foreign launch services competition (where the unique shuttle capabilities are not required), the competitive opportunities for the U.S. private industry could become attractive. The Department of Transportation, with the support of other agencies, will plan and implement the actions necessary to ensure that the U.S. industry takes full advantage of these unfolding opportunities.

The magnitude of the proposed funding and the modalities for providing the same should be in substance and form acceptable to Congress in the present budget environment.

The proposed funding requests will comprise the following:

a. A single-item budget authority for NASA, submitted as a supplemental request for FY 1986 of $ _____, covering the replacement orbiter, the replacement of orbiter-associated equipment, the estimated cost of implementing the design and procedural changes resulting from the Commission's recommendations. Other changes to upgrade safety and turnaround capability, as well as provision for long-lead structural spares should also be included.

b. A single-item budget authority for DoD, submitted as a supplemental request for FY 1986 of $ _____, covering the changes necessary in the current ELV program to increase the production rate to the level required; it also covers the cost of payload and launch facility modifications in order to accommodate the best use of the STS / ELV mix during the interim period, before the availability of the replacement orbiter.

c. Additional budget authority for a total of $ _____ to cover the procurement of additional expendable launch vehicles, during the FY87 through FY 1991 period.

The outlays against these budget authority items will be kept within bounds in order to reduce as much as possible the impact on the Federal budget deficit.

RECOMMENDATION

The enclosed NSSD-XX will give effect to the policy implementation changes and decisions recommended by the Interagency Group for Space following the CHALLENGER accident. The Report of the Group is attached.

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