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January 26, 1961

H. J. Brown 10-01 1  
cc: W. M. Hawkins  
R. R. Kearton  
L. E. Root

R. Smelt/W. M. Hawkins 11-01 1 25027

ASSESSMENT REPORT - WEEK ENDING JANUARY 27, 1961

Since Mr. Hawkins is away from the plant, I am combining our reports.

### SATELLITE SYSTEMS

The chief scheduling problem in the satellite program is still the horizon scanner problem on Midas III (1201). We have worked out a possible method of increasing the scanner output, without adding another amplification stage, by modifying the present circuits. Although this may correct the original error in the G. E. design, we still have to check it out; in consequence, although we are hoping to launch Midas in mid-April, the exact launch date still remains tentative. The same horizon scanner problem may delay the first NASA vehicle.

We are in the middle of FY61 funding difficulties on our satellite program. The Air Force (BMD) has asked us to reduce the costs of our C&C work from the [ ] forecast figure to a total of [ ]. The only feasible way of doing this (BMD concurs with us) is to differ equipment for the tracking stations until after June. This is risking some delay in next year's schedules. We understand that BMD is about to request a similar reduction in Samos funds, where they would like to reduce the total by about [ ].

We have completed a cost proposal on the EROS program for von Braun at Huntsville. The program proposes two flights, each using two vehicles, together with two spare vehicles, making a total of six.

### POLARIS

The major problem in Polaris this week has been to improve the operational firings. We have now arranged to make specific readiness tests before future SDAP firings, so as to ensure that the missiles are in proper shape for launch.

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GENERAL

During our visit to the IAS Meeting in New York, Willis Hawkins and R. Smelt had the opportunity to discuss with K. C. Black arrangements for obtaining his services as consultant to us. He is going to contact us in a few days, after he has established that his present work in the Institute of Naval Studies will not conflict with outside consultant activities. In any case, whether he is a consultant to us or not, he would like to be brought up to date on the Polaris developments, and particularly the NATO-POLARIS activities, before his visit to Europe in April. A briefing to him before he leaves would be extremely valuable to us, since he will arrive in Europe before the next meeting of the Foreign Ministers.

At the request of Mr. Brown, Dr. Hoyt has reviewed the problem of obtaining authorization for the first flight of a nuclear APU in the Agena programs (SNAP-SHOT program). His report is attached.

Original Signed by R. Smelt

R. SMELT

RS:cd  
Attach.

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NUCLEAR HAZARDS IN THE SNAPSHOT PROGRAM

A thorough analysis of the nuclear hazards in this program (which has not as yet been made) will in all probability demonstrate that these hazards are not greater than those normally associated with missile launching operations. Of all the proposals for use of nuclear power in space, the Snapshot program poses the least serious problems of nuclear hazards. There will be no appreciable fission product inventory on the ground as in the use of isotope sources, and the power levels to be used are relatively low. It has to be borne in mind, however, that there is a peculiar political sensitivity (both internal and external) toward nuclear accidents, and a tradition of extreme conservatism in AEC policy. This is largely because a nuclear accident, because of its psychological impact, can discredit a nuclear development program in a way that is far out of proportion to the actual damage produced. The recent incident in Idaho is an example. It has led to the shutdown of at least one military reactor that was in operation.

Consequently, the problems of nuclear hazards in Snapshot are apt to be political, administrative, and legal, rather than strictly technical. In the end, a Presidential decision may well be required for the first flight of a nuclear device.

It is unfortunate that the pattern of jurisdiction and responsibility for nuclear hazards is complicated and unclear. There is an interlocking network of advisory and study groups and committees. Some of the existing or

proposed groups that will be involved in any decision or approval are listed below.

AEC

Advisory Committee on Reactor Safeguards (ACRS).

This is a statutory committee of the AEC, made up of experts on a consultant basis. Teller was once Chairman. L. Silverman is now Chairman. Its main concern so far has been stationary power reactors.

Reactor Hazards Evaluation Board (RHEB).

This is a working group within the AEC which provides technical assistance to the ACRS above. Clifford Beck is the head of it.

Aerospace Nuclear Safety Board.

This is in the Aircraft Nuclear Propulsion Office in the AEC reporting to General Branch. Lt. Col. Connor is Chairman, and the group seems to be quite active. We have a good technical report from them which tends to minimize the hazards of an operation like Snapshot. For military uses this board analogue of the ACRS does not yet exist, but Connor is proposing the formation of a group of experts like those in ACRS.

USAF

Defense Nuclear Safety Review Board (DNSR).

This is set up under the Deputy Inspector General of the Air Force and is under a Col. Stewart. It functions at AFSWC in Albuquerque.

Nuclear Safety Study Groups.

In the Research Directorate of AFSWC (also in Albuquerque) AFBMD has

requested studies of the nuclear hazards of individual programs. AFSWC presumably give technical support to DNSR in the same way as RHEB supports ACRS.

The above list is not complete (there is a Federal Radiation Council, and NASA must have something), but it gives an idea of the consistency of the alphabet soup.

A question that is not resolved and which may cause trouble is that of where the ultimate authority rests for approval of an actual flight test. There could be a jurisdictional dispute on this between AEC and DOD and a resulting bottleneck. The Atomic Energy Act of 1954 places different legal restrictions on military and civilian uses of atomic energy, with the former presumably less severe. The status of a military development program like Snapshot may not be clear, though Connor's Committee seems to regard it as coming under Air Force jurisdiction. It is likely that both military and civilian approval will be required in the end.

Questions of legal responsibility and insurance coverage will have to be carefully considered in connection with Snapshot.

Adequate technical capability in the general area of nuclear safety for missile operations is imperative for other LMSD activities in addition to Snapshot. We are not properly covered at the present time.