

Sounding Rocket Working Group

National Aeronautics and Space Administration

Meeting of June 30/July 1, 2011

Findings

1. Black Brant Motor Situation

Summary

The SRWG remains very concerned about the status of the Black Brant vehicle, including reported problems with the “improved” MK1 vehicle, particularly those regarding evidence for unacceptable angles of the exit cone at burn out (non-symmetric throat erosion), spin up anomalies, combustion instabilities, and regressive pressure curves possibly caused by different blending/pre-blending procedures with the ammonium perchlorate. The SRWG strongly supports an aggressive test program led by the SRPO to identify and remedy these problems.

Background

The safety concerns resulting from recent issues with the stability performance of the Black Brant motors resulted in a moratorium on the entire Black Brant fleet while the cause of the instability was investigated and mitigated. Although the BBIX configuration has been approved for a return to flight, stability issues still linger. In fact, the moratorium remains on the BBX, BBXI, and BBXII rocket configurations due to safety concerns resulting from the increased impact dispersion of the Nihka motor due to the Black Brant coning and concerns that the instability has on payload loss/recovery. In addition, the BBIX now has a slight altitude performance loss (resulting in a science loss) due to the motor modifications implemented to resolve/mitigate the instability issue. Increasing the nozzle diameter and the use of unblended ammonium perchlorate (AP) have enabled the BB motor stability to be sufficient to obtain acceptable altitudes for the BBIX payloads. However, the inability to launch the BBX, BBXI, and BBXII rockets is a severe impact to auroral zone missions that require high altitudes to carry out their research objectives. The SRWG encourages the SRPO to continue its pursuit of options to retain the performance capabilities of these launch vehicles.

2. NSROC-II Personnel and Staffing Levels

Summary

The SRWG recognizes the efforts of NSROC-II under Orbital Sciences Corporation to both retain and recruit experienced personnel at all levels. However, the SRWG is concerned that the number of available technicians may be quite insufficient – in some cases, to our understanding that the technician workload is so high that project schedules and morale are suffering. The SRWG requests a briefing on available NSROC-II staffing at the technician and engineer levels including anticipated future plans and a general comparison to previous levels (i.e., under NSROC-I) if this information is available. We are eager to learn NSROC-II’s assessment of the impact (if any) that staffing has had on recent mission schedules.

Background

One of the hallmarks of the NASA sounding rocket program since its inception has been an excellent working relation between the PI team and the Wallops payload team, which is comprised of NSROC personnel. Adequate staffing on both sides is required for a well-working and efficient teaming relationship.

Recent anecdotal experience suggests that the workflow on some missions has been impeded by understaffing of NSROC-II technician positions, requiring the available technicians to work six-day weeks for months at a time to meet the schedule. This has resulted in delays to integration particularly in cases where the same technician has too many tasks assigned to him and where he can not possibly handle them all simultaneously. Due to work rules, as well as issues of experience, engineers often cannot substitute for technicians “in a pinch” and thus schedules must be delayed until technicians are available. This situation may have existed under NSROC-I as well, although the SRWG is not aware of its severity.

The SRWG requests a briefing on available NSROC-II staffing at the technician and engineer levels including anticipated future plans and a general comparison to previous levels (i.e., under NSROC-I) if this information is available. We are eager to learn NSROC-II’s assessment of the impact (if any) that staffing has had on recent mission schedules.

3. Poker Flat Environmental Impact Statement

Summary

The SRWG strongly supports the work, and appreciates the tremendous efforts, of the SR Program Office to ensure a fully functioning launch range at Poker Flat with all available launch corridors maintained. To meet this objective, we understand that an environmental impact statement must be completed for this launch range. The SRWG committee members stand ready to help with this impact statement, as appropriate, and in particular to provide any input needed regarding why certain launch azimuths and trajectories are required for scientific research purposes.

Background

The Poker Flat research range remains an unparalleled and unique facility to carry out scientific investigations of the earth’s high latitude geospace environment. Indeed, the SWRG has written on this subject before and our view of the importance of this range to the research needs of NASA and the nation remains unchanged.

The SRWG has been informed that certain launch corridors and azimuths at the Poker Flat Research Range are in danger of being closed to sounding rocket use due to environmental concerns, as well as the influx of people who wish to use the land for other purposes, such as hunting. Although we respect these other interests, the SRWG believes that the existing launch corridors and available azimuths be maintained for use as regions where NASA sounding rocket missions might be safely carried out. As such, we fully support the SRPO efforts to work with the various agencies to maintain the launch capabilities at the Poker Flat range, including the writing of an environmental impact statement. We also urge the SRPO to work with the Geophysical Institute at the University of Alaska, Fairbanks, who owns and operates the Poker Flat Rocket Range, to ensure that this vital and unique national treasure be maintained for space research needs for the foreseeable future.

NASA Sounding Rocket Working Group

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