

~~(S)~~ NATIONAL RECONNAISSANCE OFFICE

WASHINGTON, D.C.

OFFICE OF THE DIRECTOR

MEMORANDUM FOR THE DIRECTOR, INTELLIGENCE COMMUNITY STAFF

SUBJECT: FARRAH Status

The P989 program is under financial strain resulting from the anticipated launch delay of HEXAGON 17. This problem has recently been exacerbated by difficulties encountered during the payload and system test phases of the FARRAH I development. A brief description of each program impact is attached.

We have scheduled Program Office briefings in Washington during the period 8-10 April 1981 which will describe recovering alternatives in terms of their technical, performance and financial consequences. Our preliminary assessment is that the difficulties can be adequately addressed within threshold reprogramming in FY 1982. Some FY 1983 budget relief will be required along with rephasing FARRAH II's availability to more closely correspond to its projected need date. A briefing on this subject is on the SIGINT Committee agenda for 10 April 1981. Any additional briefing requirements can be arranged through Major Jim Beale who may be contacted at 694-1896 or on the secure phone system at 2191.

Robert J. Hermann

1 Attachment  
Program Impact~~HEXAGON~~ HANDLE VIA  
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## FACTORS IMPACTING P989 PROGRAM

- HEXAGON 17 Launch Deferral

The current budget for P989 assumes FARRAH I will be launched with HEXAGON 17 during the summer of FY 1981 and FARRAH II will be delivered in January 1983. The probable delay in launching HEXAGON 17 results in an unprogrammed requirement to store and subsequently retest FARRAH I. Additionally, the period of retest would conflict with FARRAH II's test schedule necessitating either acquisition of duplicate test equipment/personnel or stretching the FARRAH II build. The current budget does not support either approach. FARRAH II is not currently scheduled to launch until March 1984, thus deferred availability need not impact its launch date. A preliminary assessment of the cost delta to the current P989 program associated with restructuring the FARRAH I and II contracts is \$2.0M in FY 1982 and \$5.3M in FY 1983.

- FARRAH Power System Shortfall

Power consumption of the FARRAH SIGINT collection payload has grown substantially beyond the level anticipated during its definition. As a result, the battery complement is only marginally adequate for the minimum FARRAH mission. In January the prime contractor estimated that battery life would reduce the overall MMD below the specified 36 months. This problem has been resolved by lowering the battery operating temperatures. However, the existing FARRAH power system will not permit full exploitation of the vehicle's capabilities against current and anticipated future requirements. During periods when the

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spacecraft operates in less than 100 per cent sun, (about two thirds of the year), the power available on certain passes is insufficient to accomplish the desired tasking. This situation occurs primarily during passes which access the highest priority Soviet and eastern European target areas.

Based on these considerations we should add a third battery to the FARRAH spacecraft. This addition would relieve the existing power constraints and provide improved flexibility to fully exploit FARRAH features and meet current requirements for increased technical intelligence, indications and warning, ocean surveillance augmentation and support of multiple ITEP deployments. Today's Program 989 provides a combination of RAQUEL and URSALA vehicles to satisfy these requirements. After 1982 we will be totally dependent on FARRAH I. Addition of a third battery to each FARRAH spacecraft would slip FARRAH I availability until December 1981 and resulting test conflicts would require a FARRAH II slip until August 1983. A funding delta which provides for both the schedule slips and the addition of batteries is estimated as follows (\$ in millions):

<u>82</u>	<u>83</u>	<u>84</u>
\$2.0	\$8.3	\$2.0

- OMNI Sensitivity Reduction

During review of final FARRAH I payload acceptance test data, an 8 db reduction in gain in one of the two OMNI receivers was discovered. The primary function of these receivers is mainbeam technical intelligence. We have determined the failure to be in an IF switch module and have

12-18 GHz

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to assume that complete loss of this circuit will eventually result. We have assessed the collection impact caused by loss of this circuitry and find the remaining receiver/antenna capabilities overlap the failed unit considerably.

The prime contractor has developed a recovery alternative which optimistically plans to meet a March 1982 launch date at a funding delta of \$5.1M. However, this alternative is tentatively not recommended. There is a major risk to other subsystems and payload wiring during disassembly, repair, reassembly and environmental testing. The most critical component of concern is the 20-layer motherboard used in the data handler subsystem. It is a complex board consisting of hard and flexible layers intertwined to enable a portion of the board to be mounted 90 degrees to the remainder. The supplier has been unable to produce a second board in many attempts. A redesigned board will be used for FARRAH II, utilizing a hard board with point-to-point wiring. There is a high probability that the FARRAH I board would be damaged during rework and subsequent payload vibration. We would then be forced to incorporate the FARRAH II design into FARRAH I requiring four to six months added effort. This would delay the launch of FARRAH I well beyond March 1982 and require at least another \$6-7 million investment in the satellite.

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