SECRET [redacted]

Part #2 of Mr. Boenning's Question posed by WHIG 8443 of 18 Dec.

What is the Cost? Enclosure #3 of NRL letter BYE-51911-68 offers the following cost estimate for the [redacted] digital system:

II. Ground Station (Investment) = FY-69= $395K for Digital system

III.

IV. Services . . . . . FY-70 . . . . . 32K for Field Engineer 1 Yr.

TOTAL $427K .....

The $395K is made up of A-to-D Data Conversion system @ $120K
SEL Model 810-A computer " @ 245K
Spares and consumables " @ 30K
395K

DONT FORGET THAT ALL POPPY STATIONS SHOULD BE DIGITIZED TO TAKE FULL ADVANTAGE OF THE SATELLITES BEING LAUNCHED ON MISSION 7106. Otherwise only two of the payloads can be used at a time due to limitations at the data collection site. These might be corrected at great expense to the community since it would involve changing from ½ inch tape recordi ng to the ONE inche width tape systems with the overpowering demand for a new type of Magnetic tape to be carried in the NSA Pipeline. The investment in ½ " wide magnetic tape and the existence of second and third generation users for this POPPY tape would not be present for the wider tape. KEEP IN MIND THAT Over 18,000 tapes have been made in 19 months. for Mission 7105.....at $20 per tape that is $360,000.oo in tape alone. If this tape largely goes on to another user this cost is recoverable, However if the tape is of an Oddball width and no users can be found then the community sufferes the entire costs for tape resupply. The use of VIRGIN tape is still mandatory in the POPPY Program. This material is the major consumable in the ANALOG station.

In the DIGITAL STATION the consumables are greatly varied and supplied by NRL as parts peculiar except for the DIGITAL MAGNETOC TAPE, and this is consumed at a much lower rate that the rate of tape consumption in the analog site. One Orbit requires a separate reel of magnetic tape for each analog site that the payloads fly by, but the data from as many as five orbits can be packed into a single Digital Magnetic tape due to the homogenious packing and the greater packing density(556 bits per inch)

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HANDLE VIA
BYEMAN
CONTROL SYSTEM ONLY

~~SECRET~~

VIII Continued:

3

C- The increased use of the paylods by a Factor of FOUR TIMES will result by going from an ANALOG to a DIGITAL ground based receiving system.... Analog can handle only two birds at a time and only two pulse width modulations on each of two transmittors at a time giving only 8 collection bands for maximum use of the payloads;

On the other hand the digital site can simultaneously monitor all four payloads at the same time and can separate the data from four collection bands on each of ~~four~~ two transmittors giving a maximum total or 32 bands possible simultaneously with the Field Digitizing System .....

D- The modern Digitizer technique employeed at the site makes the data insensitive to Faraday Rotation of the signal polarization as the signal is transmitted from the satellite to the ground site. All other amplitude variations in the data are no longer extracting a penalty in the accuracy of the observation of TIME in the data.

Conversely the FIXED LEVEL SLICER used at NSA does not employ this technique on the A-to-D data conversion of ANalog data being processed. Therefore it is imperative that the A-to-D conversion be made at the field site to assure that the highest quality data possible will result.

E- NSA will gain a new demension in versatility not thus far attained by the Machine processing being done at Fort Meade with the ~~E~~ Selective Man/Machine interface which is possible in the Field Digitizing/Analysis system. In those areas where by extreme data density NSA can not economically deploy their resources, the site can profitabily endeavor to make selective location analysis.

~~SECRET~~