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From: NRL Member TOG
To: Project Director
Subj: NSA Control of Project GREB
Encl: (1) Draft Project GREB Future Objectives

1. We continue to hear rumblings from Mr. Deeley of NSA in TOG meetings that NSA desires to take over more and more control of this project. It is my desire to set the record straight and review NSA's record of performance to date.

2. Dubbing of Tapes: With the advent of GREB II NSA early in the project expressed their desire to secure the originals of the tapes so they would not have to work with Dubs. We opposed the idea of any processing work with the original tapes since this was 1 mil Mylar tape and is extremely fragile. Deeley indicated that they were "Big Boys" and knew the facts of life about tape and were capable of doing the job of handling the tapes correctly. C-15 however had had considerable experience with thin Mylar tape and concurred with NRL's Position. It was finally resolved that NSA would take over the tape dubbing after they had assembled the necessary machines to do this properly and had demonstrated to NRL's satisfaction suitable quality control. This original request to control the tapes is about two months old and only last week did they finally send two engineers down to inspect the set up at NRL. After this meeting it was concluded that NSA did not have proper machines to do the job readily available and would require additional machines and people to do an effective job.

3. Data Processing:

A. (GREB I) In the data processing for GREB I after many attempts by C-15 and the newly established groups under Deeley little concrete had happened until SAC produced results on the [] fixing program. After numerous proposals and trials of Audico and Bausch and Lomb readers it was finally conceded that the spinning head system of paper tape read out associated with the Gerber system for reduction to punched paper tape and hard copy is the fastest system to date to achieve burst sort and tabulation of GREB I material. NRL has continued to supply the machines and NSA the manpower for reduction of this data to hard copy. This task is nearing completion and should be finished in about four weeks. Further work at NSA on GREB I data has been relegated to the programers.

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B. (GREB II) With the advent of GREB II and its superior FM data recording system high hopes have been held for use of Audico Machine processing methods. We have had undulating reports of success and failure over the past two months. In the beginning reports received indicated that NSA was processing data the same day they were receiving tape. Then suddenly a comparison of hand processed data from C-15 revealed wide discrepancies in results. This was soon deduced to be Audico failure. What is actually needed is to bring C-15 personnel skilled in ELINT processing into a working relationship with those mathematicians working with the Audico. We have ultimate faith in the fact that machine processing methods will be utilized to process this data but present progress has not as yet produced usable output. Until the discrepancies in digitization are resolved this data could be reduced using the Gerber system at the cost of an estimated 5 to 10 mandays total effort for each complete mission.

4. Computer Programming: A big effort has been going on in connection with this effort at NSA since GREB I. It seemed befroght with many problems until SAC succeeded in producing data on the [] Radars in a minimum of time. Then utilizing the SAC formulas NSA began producing similar data. Still to be solved in the GREB I product is data on [] and conventional search radars. To date we have not had any report of SAC's results in [] data processing. NSA's efforts while interesting and promising have not produced a usable product. Even if all the [] were located only about 10% of the Soviet Radars in "S" Band are of these two types and the biggest problem of locating search radars is yet to be solved in GREB I and II. The programming effort at NSA is a commendable effort but it lacks coordination of ELINT knowledgeable people and Programming people.

5. Satellite Design: From time to time we continue to hear proposals from NSA that, because of their wide experience with Satellite collection systems, they should have control of the design parameters of these systems. To date I believe the Navy has the only successfully operating and producing ELINT Satellite system in the United States. Many thousands of hours have been spent in assuring the success of this system and todate no suggestions for improvements have been put forth which are compatible with the basic concept of the Satellite. We stand ready to consider any improvements proposed which will not require a complete new system concept and design or will result in a complexity which will reduce reliability.

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6. Reporting Of Satellite Data: NSA only recently proposed that they should do all the reporting of GREB Satellite data rather than have the Navy issue the reports as it has previously done under TOG surveillance. To date the finished intelligence produced by NSA has been so limited that the majority of the actual intelligence derived has been directly from the contributions of STIC and [redacted] in particular. Until NSA has solved most of the basic problems reviewed herein it is suggested that they restrict their activities to the problems at hand. At some future time, when the NSA's contributions in the intelligence make up of these reports are major, then the Navy can consider relinquishing its responsibilities.

7. Summary: The problems reviewed in this paper are not insurmountable and each in itself is soluable. To assist in restating the Project Director's position it is believed a letter to TOG and the Director of NSA is in order. A proposed draft of such a letter is attached as enclosure (1).

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From: GREB Project Director

To: TOG
Director of Naval Security Agency

Subj: Project GREB Future Objectives

1. For sometime now there have been developing certain influences which might effect the future course of the GREB Satellite program. The Director desires at this time to reaffirm his responsibilities for this project as deligated by the White House and point out certain future objective guide lines for those associated with the program.

2. I again desire to restate the objective that every facet of the data processing connected with this project be thoroughly checked and standardized so that any decrepency between the various manual and machine processing techniques can be resolved and the results certified by the TOG. to produce data acceptable to the entire intelligence community.

3. The original tape records which result from this program must be carefully preserved. Any duplication processes must be monitored carefully to assure faithful reproduction of the original tapes under carefully controlled conditions. It is anticipated as more of the data becomes available to a wider group of intelligence consumers that, as in the case of the U-2 ELINT tapes, these original records will be referred to many times, therefore the careful preservation of the originals is of prime importance. Nothing should be done which would deteriorate the original data recordings in any way.

4. The Navy desires to maintain under the TOG cognizance in accordance with the original charter, the responsibility for issuing periodic summary reports on the results of GREB I and II. These reports must contain both processed and raw intelligence data which can be used by others in connection with their National intelligence responsibilities.

5. There are many proposals for changing the parameters for the Satellite design. The Director is keenly aware of the National requirements for frequency coverage and has endorsed the present program now underway at NRL. It is hoped that the future flexibility in instrumentation design planned by NRL will allow the Navy to be responsive should an urgent change in the National requirement become suddenly evident. Because of the necessity of meeting the booster schedule no new instrumentation designs should be considered which do not result in easy adaptations of the existing techniques. Other more sophistacted Satellites should provide answers not presently available from the GREB Satellites.

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6. It is noted with some concern that all the data from GREB I has not been completely processed to date in spite of the passing of the first anniversary of its launching. The programs for processing this data should receive first priority of concern in TOG and at NSA. Every effort should be made to complete each stage of the processing and check the results as rapidly as possible.

7. A continuing concern is felt for the machine processing methods as applied to GREB II data. Every effort should be made to resolve the differences between the manual and machine processes. Since the signal density is not great in GREB II and the processing time considerably shorter than in GREB I, consideration should be given to pressing a complementary program of machine and manual processing to allow valid results to be available to the community as early as possible.

8. The Director is aware of the many technical problems which beset the data processors but TOG and NSA must also realize that the Project Director is being pressed continuously for a more concrete display of results.

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