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Declassified
Authority EO 12356
DEC 23 1961

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Name.... Chief, Declass Br
Rec. Mgt. Div. WHS

209.9
X 111 Whitehouse

Dear Jerry:

With respect to the matters raised in your letter of July 19, 1961, and in my interim reply dated August 7, 1961, concerning the declassification of scientific information from Project AHEAD, and concerning the exact location of the stars, the following additional information is forwarded:

I. In order to meet the needs of a sensitive project, a computer program of the stars was developed by a civilian organization. The basis of this computer program was the "Basic Catalog of Stars", published by the Naval Observatory. In the development of the program, a number of errors were uncovered and IBM 709 programs are available to correct the catalog. The Naval Observatory has been contacted, the details have been worked out to correct the catalog and the new star data will be distributed in a normal and routine manner.

II. In regard to Project AHEAD, the solution to the problem is more difficult. At the present time it appears that this project has been a victim of circumstance because of its close relationship to other sensitive projects and the fact that the results may be used as an intelligence end product. In regard to the first item, I found it necessary to issue an interim directive on 11 October 1961 (Annex A), pending completion of a RADM review (Annex B). The purpose of the review was to resolve the intelligence problem and is summarized below:

a. The Russian Ellipsoid (1958) used by the Russians has semi-major axis = 6 378 243 meters, flattening = 1/298.3. The World Geodetic System (1960) used by the United States military was an ellipsoid with semi-major axis = 6 378 165 ± 30 meters, flattening = 1/298.3 ± .1. Since the flattening of the two are identical, the only difference is a scale factor of 1.000 013, or 120 meters in 5000 nautical miles.

b. The Russians have completed triangulation ties from Siberia to Alaska, and, since United States Coast and Geodetic Survey triangulation data have been available on an unclassified basis, the Russians have the capability of placing the United States in what we consider to be the best available ellipsoid and get positions which we identify as RADM. By classifying geodetic data this way we are not denying information to the potential enemy, but are making our own use of the data so difficult that a high priority U.S. missile project (POLARIS) retains the ellipsoid system for test and evaluation in preference to a high classification.

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- c. Geodetic knowledge has been improved greatly in the past $\frac{1}{2}$ years through the observation of satellites. The coefficient of the second harmonic of the earth's mass attraction potential was changed by almost 1% by crude observations of the earliest satellites, and has steadily been improved.
- d. The principle advantage of ANNA as a geodetic tool is the fact that it is instrumented for three different types of measurements, so that the ability to track it accurately will be greatly improved and higher order anomalies of earth shape will be determined. It will be impossible to obtain all the undulations of the geoid and the deflection of the vertical since measurements are being made at 1000 km altitude and the effect of small mass anomalies which affect earth surface deflection will be reduced by distance.
- e. The accuracy of any program such as ANNA can be improved by increasing the amount of data measured. In view of the cost of tracking, it would appear that the most feasible method of increasing the amount of data measured would be to open the door to a cooperative effort with the international scientific community.
- f. The following criteria were used as a guide for considering the classification of geodetic and gravimetric data (Annex C).
 1. Importance of the information both to the United States and to the enemy.
 2. Difficulty imposed by classification in obtaining the information.
 3. Hardship imposed by classification on the ability to use information for defense purposes.
 4. Requirement for such information for civil purposes.
 5. Availability of equivalent information to potential enemies.

III. A. As you possibly know, the United States is hosting an International Committee on Space Research (COSPAR) meeting in April, 1962, and geodetic satellites will be discussed. If it becomes evident that the United States is discussing COSPAR development of a satellite while hiding one under a thin or dubious cloak of security, an embarrassing international incident is likely to result. The European Space Launcher Development Organization is also involved, and an attempt to observe our own satellite without inviting their participation may result in refusal of U.S. entry rights to their soil in order to make the necessary observations (Annex D).

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b. Additional informal information, which is not contained in the review and has not been substantiated, is that the parameters of the Department of Defense WGS ellipsoid have been publicly released by RML Baker of USIA.

c. The strongest arguments supporting the classification of this project center on the fact that we may be providing information to the Russians that will be useful in their targetting program. In view of all of the above and the detailed information contained in the SORM review (Annex B) this does not seem to be very likely.

IV. Project ABBE could, with very few exceptions, be conducted on essentially an unclassified basis. For your convenience and review, a classification guide for Project ABBE is attached (Annex C). Recommended downgradings are indicated. In addition to the items listed, it should be noted that the coding used in the TRANSMIT package must, of necessity, remain classified to prevent compromise of the TRANSMIT navigational satellite system and to prevent the use of precise navigational fixes by Soviet seaborne missile launchers. In addition, because of certain locations of special significance to the military for which positional data must be obtained and retained on a classified basis, the DOD must control the programming of the light flash sequences. For these reasons, and others, it is essential that Project ABBE continue under DOD auspices. However, this should not preclude free participation on the part of others.

V. Heretofore, the NASA has been reluctant to participate in Project ABBE because of classification and military overtones. With the downgrading suggested, I believe that the NASA could and should actively participate in the program and should be responsible for highly desirable COSPAR and related international scientific participation. This, however, should not prejudice the DOD negotiations with, and need to establish and man sites in, foreign countries to meet DOD requirements.

Such a cooperative approach would provide for expanded participation, would improve data acquisition, and would assist in dispelling, to a great extent, the unfortunate and misleading atmosphere prevailing in many quarters to the effect that space activities conducted by the DOD are "unpeaceful."

VI. The project is moving rapidly toward a March 1962 launch and should continue to proceed on an expedited basis. I believe that the political considerations are extremely important and should be accommodated as rapidly as possible without project interference. However, these views and the suggested classification downgrading have not been coordinated within the DOD.

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VII. Copies of this letter and attachments are being forwarded to the Joint Chiefs of Staff, the Director of the Intelligence Agency and to the NASA for comment. I would appreciate your reaction for my own information and for distribution to the recipients of this letter.

Sincerely,

78/ Harold Brown *HB*
HAROLD BROWN

4 Inclosures
Annexes A through D

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cc: Chairman, Joint Chiefs of Staff
Director, Defense Intelligence Agency
Director, National Aeronautics & Space Administration

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Coordination: _____

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