



DEPARTMENT OF THE NAVY  
U.S. NAVAL OBSERVATORY  
34TH AND MASSACHUSETTS AVE., NW  
WASHINGTON, D.C. 20390

IN REPLY REFER TO  
6C  
3162/7100  
Ser 718  
29 Sep 1981

Dr. Morton S. Roberts, Director  
National Radio Astronomy Observatory  
Edgemont Road  
Charlottesville, Virginia 22901

ADDITIONAL BASELINE TO INTERFEROMETER  
MEMO No. 148

Dear Dr. Roberts:

I acknowledge receipt of your letter of September 11, 1981. While I am very disappointed with the price escalation, I have decided to go forward with the construction as indicated in my letters to Dr. Howard of the National Science Foundation (copies enclosed). I appreciate the difficulties encountered by the National Radio Astronomy Observatory at a time of rampant inflation, but hope the final costs will remain well below the estimate. I understand that my staff is being kept informed of the progress of the project in detail. I have no doubt that this close cooperation will benefit both institutions.

Sincerely,

RAYMOND A. VOHDEN  
Captain, USN  
Superintendent



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IN REPLY REFER TO

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Ser 768  
29 Sep 1981

Dr. William E. Howard  
Director, Division of Astronomical Sciences  
National Science Foundation  
1800 G Street, N. W.  
Washington, D. C. 20550

Dear Dr. Howard:

The proposed estimate for the cost of operating the National Radio Astronomy Observatory (NRAO/Green Bank) 35km interferometer for fiscal year 1982, which was submitted by Mr. T. R. Riffe in his letter of July 2, 1981, has been inspected, further discussed with Mr. Riffe in order to clarify some points, and approved.

It is expected that the sum of \$527,219 will be transferred to the National Science Foundation (NSF) to cover the FY82 operating costs.

Further, it is expected that the sum of \$400,000 will be transferred to the NSF to provide for the continued construction of the East-West baseline of the NRAO interferometer. Since we expect to be working under a continuing resolution for some time to come, only a fraction of the \$927,219 will be available to the U. S. Naval Observatory (NAVOBSY) at the start of FY82. Therefore, we propose to transfer the funds in four equal quarterly installments of \$231,805, with the proviso that the entire remainder may be transferred at one time if the NAVOBSY budgetary situation allows. We have included appropriate wording in the enclosed proposal for Modification No. 5 to the Memorandum of Understanding between the NSF and the NAVOBSY for the operation of the 4-element interferometer at Green Bank, West Virginia. The estimated costs are increased from \$2,271,063 to \$3,198,282, which includes \$1,220,000 for the East-West baseline and \$1,978,282 for operations of the interferometer. Contrary to the request in my letter to you of 19 March 1981, and its confirmation in a letter from Aileen Buie of the NSF to me dated April 21, 1981, I now request that the new telescope and all other equipment associated with the new East-West baseline be identified as NSF property.

Enclosed please find three signed copies of a proposed Modification No. 5. If the proposed Modification is acceptable, please execute the three copies and return one copy to my office as soon as possible. The remaining copies are for your files.

Sincerely,

RAYMOND A. VOHDEN  
Captain, USN  
Superintendent

Enclosure

Modification No. 5

Memorandum of Understanding  
between the  
National Science Foundation  
and the  
U. S. Naval Observatory

Pursuant to the mutual agreement of the Parties, the Memorandum of Understanding is modified as follows:

In Section 3, Funding, Budget Estimates and Reports, the first two sentences are revised to read:

"USNO has obligated the sum of \$3,198,282 to cover costs incurred by NRAO under this Memorandum of Understanding for the four-year period October 1, 1978 through September 30, 1982. These funds shall be provided to the NSF by means of interagency fund transfers, the first \$2,502,867 within 30 days after execution of this Memorandum of Understanding and any subsequent modifications thereto, the remaining \$695,415 in three equal installments of \$231,805 in January, April, and June of 1982, or as a lump sum as much earlier as practicable"

In Section 8, Term of Agreement, the entire paragraph is revised to read:

"This agreement shall run for a period of four (4) years, beginning October 1, 1978 and ending September 30, 1982, and may be extended for successive one (1) year terms at the mutual agreement of the parties."

The Memorandum of Understanding remains otherwise unchanged in all other provisions except as modified herein.

FOR: NATIONAL SCIENCE FOUNDATION

FOR: U. S. NAVAL OBSERVATORY

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Date

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Date



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IN REPLY REFER TO  
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3162/7100  
Ser 770  
29 Sep 1981

Dr. William E. Howard  
Director, Division of Astronomical Sciences  
National Science Foundation  
1800 G Street, N. W.  
Washington, D. C. 20550

Dear Dr. Howard:

As you are undoubtedly aware, the estimate for the construction of the East-West baseline for the National Radio Astronomy Observatory (Green Bank) 35-km interferometer has escalated by \$363,700 to a total of \$1,771,000. The latter sum includes \$231,000 for a 15% contingency; the estimated construction cost is now \$1,540,200. This escalation is due to an increase of \$160K in the telescope price, for which NRAO now has a firm bid in hand, and to an allowance for price escalation for labor and material omitted in the budget submitted by NRAO on December 19, 1980. It is unfortunate that an escalation of 26% within one year was necessary. However, after extensive discussions between my staff and the NRAO technical staff, I believe the new estimate to be realistic, although perhaps somewhat on the conservative side.

Since in our budgeting process we had planned for the originally estimated cost, this escalation at such a late date will cause considerable U. S. Naval Observatory (NAVOBSY) difficulties. Consequently, I had to consider carefully whether the effort in Green Bank should not be abandoned at this point. However, I have decided that the investment remains worthwhile and is wholly compatible with the mission of the NAVOBSY.

Consequently, I reaffirm the request I made in my letter to you dated 19 March 1981, that NRAO proceed with all deliberate speed with the construction of the East-West baseline. The revised budget is acceptable to the NAVOBSY and funding will be made available in FY82 and FY83 to complete construction. At the same time, I request that NAVOBSY and NRAO personnel work closely together in an attempt to keep construction costs at a minimum.

As you are aware, the international MERIT campaign (Monitor Earth Rotation and Intercompare Techniques) in which all modern and classical techniques will be used intensively for a period of one year, will start in September 1983. During the 10-week try-out for MERIT in fall 1980, the Green Bank data were the only modern data provided on a daily basis, and it is quite likely that the Green Bank data will provide the baseline against which all other techniques will be measured in 1983-84. It is, therefore, of the utmost importance that all possible efforts be made to have the East-West baseline in operation by September 1983, so that not only UT, but also polar motion data can be contributed. The NRAO staff is aware of this, and I hope these efforts will indeed be successful so that again the Green

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Bank interferometer will stand out as the unique facility it is.

Sincerely,

RAYMOND A. VOHDEN  
Captain, USN  
Superintendent