Interoffice

VLB ARRAY MEMO No. 201

National Radio Astronomy Observatory

Very Large Array

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To: G.M. Peery, C. Bignell

From: W.G. Horne

Subject: Memo 191, Control Building

In a quick review of Memo 191 and the accompanying sketch I note several omissions which are not clearly provided for. These omissions are primarily in a function which could be described as:

(1) Warehouse
(2) Mechanical Shops
(3) Structural Shops
(4) Servo Shops

I am sure that the intent of using existing facilities at Green Bank and the VLA occasioned the omission of these facilities from Memo 191, but readers of Memo 191 should be aware of this intent since this plan will have an impact on the location of the Array Operations Center.

Some comments on each of the facilities mentioned above would be:

1. Warehouse

Fairly sizeable storage required for spare parts, obsolete equipment, components planned for future systems and consumable supplies. As a rather minor comment I do not see obvious storage set aside in the control building for the rather large volume of paper (computer, correspondence, reports, etc.) which I am sure an operation of this size will generate and consume. Will it be practical to keep a continual flow between the operation center and warehouses located on appreciable distance away.

With ten operating antennas I am sure we will have a fairly large storage of spare parts. While the electronics shops will probably store at the control building most of their consumable parts and spare parts since they are small the same cannot be said for mechanical parts which will require more space. Because of long lead times in procurement I am sure that we will be storing some or all of the following; Drive motors and drive motor parts, hydraulic pumps and pump parts, brakes and brake parts, bearings of all kinds, mechanical seals, gears maybe even gear boxes, focusing feed mount components, air conditioning components, compressors, cryogenic components and electrical control components.

2. Mechanical & Structural Shops

It should be realized that the control building shown in Memo 191 has no room for mechanical trades such as steelworkers and machinists and their tools and equipment. At the VLA for example the antenna mechanics have approximately 8900 sq. ft. of fabrication and storage space (no, that is not the full size of the Assembly building). The machinists have about 1500 sq. ft. of space for their tools and equipment. If the building shown in the sketch of Memo 191 is the only facility at the operations center all of the support, maintenance and fabrication activities required for VLBA with the exception of Electronics activities will have to come from some other location.

3. Servo Shops

With 10 servo systems for the VLBA we will undoubtedly maintain a supply of spare antenna control units, position indicator systems, inductosyns, motor controllers as well as spare cards, power supplies and other components for the servo system. Since we will want to repair servo modules ourselves rather than send them to the manufacturer for repair we will probably also need a complete test set-up similar to the one which we have for the VLA. (For those readers not familiar with the VLA we have a test set-up which simulates an axis drive system including speeds, drive loads and pointing system) The servo shop area for the VLA encompasses some 1800 sq. ft. and a similar area would need to be provided for VLBA if the service center (or centers) are located other than at VLA or Green Bank.

WGH/bmg