

National Radio Astronomy Observatory

Socorro, New Mexico

August 17, 1983

To: H. Hvatum, Cville

From: W. Horne

VLB ARRAY MEMO No. 262

Subject: Antenna Schedule - VLBA

Attached is an estimate of a schedule for the engineering and construction for the VLBA based on an assumed funding schedule which will permit us to establish an authorization schedule of 3 antennas in 1985, 4 antennas in 1986, and 3 antennas in 1987. It is also assumed that we will have sufficient funds to authorize purchase of all structural steel in 1985 as well as all aluminum material for the surface panels. I have based the schedule on the wheel and track antenna - concept I.

This schedule has been prepared as realistically as I could but taking an optimistic viewpoint. It should be pointed out that I don't think it could be accelerated without authorization to the subcontractor to maintain continuous fabrication and assembly and to procure all major components such as panels, gearboxes, bearings and servo so that continuous manufacture could proceed. We might have some items such as gear reducers and pintle bearings that have longer lead times than I have used that cannot be determined until the actual order is placed.

Projected Schedule

25 Meter VLBA Antennas

Wheel and Track Antenna - Concept I

(A) Engineering Phase

Preparation of RFP	Nov. 1, 1983 to Jan 1, 1984.
Request for Proposal	Jan. 1, 1984 to Mar. 15, 1984
Review of Proposals, Negotiation	Mar. 16 - May 30, 1984
Engineering - Initial Design	June 1 - Sept. 1, 1984
AUI Review	Sept. 1 - Sept. 30, 1984
Final Design & Specs	Oct. 1 - Dec. 1, 1984

Authorization to begin purchase, Mfg. by Dec. 1, 1984

(B) Manufacturing & Construction Phase I

Schedule based on the initial contract with supplier covering both engineering and antenna supply.

Purchase of Components to Start	Jan. 1, 1985
(1) Steel Structure Materials	Jan. 1 - Feb. 15, 1985
Steel Materials Delivery	Mar. 1 - June 1, 1985
Fabrication Ants. 1	Apr. 1 - Aug. 1, 1985
2	Apr. 15 - Sept. 1, 1985
3	May 1 - Oct. 1, 1985
(2) Surface Panels	
Subcontract for Panels	Jan. 1 - Feb. 15, 1985
Subcontractor Design	Feb. 15 - Apr. 15, 1985
Purchase Material	Apr. 1 - May 1, 1985
Fabricate Tooling	Apr. 15 - May 15, 1985

(2) Surface Panels (cont.)

Fabricate Panels Ant. 1	May 15 - July 30, 1985
Ant. 2	June 1 - Aug. 15, 1985
Ant. 3	July 1 - Sept. 15, 1985
Delivery Ant. 1-3	Aug. 15 - Oct. 30, 1985

(3) Mechanical

Gear Reducers Subcontract	Feb. 1, 1985
Mfr.s Design	Feb. 1 - Mar. 15, 1985
(6 mo.)Fabrication Reducers#1	Mar 1 - Sept. 1, 1985
	#2 Mar. 15 - Sept. 15, 1985
	#3 Apr. 1 - Oct. 1, 1985
Az. Bearing Purchase Order	Feb. 1, 1985
Fabrication (7 mos.) #1,2,3	Mar. 1 - Oct. 1, 1985
El. Bearing Purchase	Feb. 15, 1985
Delivery (5 mos.)	July 15, 1985
Brg. Hsgs.	Mar. 1 - July 1, 1985

(4) Drive & Control

Servo Design - Initial	Jan. 1, 1984 - May 1, 1984
Servo Design - Final	Oct. 1, 1984 - Nov. 1, 1984
Motors	Procure Feb. 1, 1985 - Del. July 1, 1985
Servo Manufacture #1 Start	Mar. 1, 1985 - Compl. July 1
	#2 Mar. 15, 1985-Compl. July 30
	#3 Mar. 15, 1985-Compl. July 30
Servo Tests	#1 July 1, 1985
	#2 & #3 July 30, 1985
Position Systems	Feb. 1 - July 1, 1985

- (5) Construction Schedule - Antenna Fndn. installed by site contractor - Rail installed by Antenna Contractor.

Fndn Complete Ant. 1 July 15, 1985

 Ant. 2

 Ant. 3

Assembly Ant. #1 (16 wks) July 1, 1985 - Nov. 1, 1985

 Ant. #2 (16 wks) Aug. 1, 1985 - Dec. 1, 1985

 Ant. #3 (16 wks) Nov. 1, 1985 - Mar. 1, 1985

(C) Manufacturing & Construction Phase II (Four Antennas)

(1) Steel Structure

Fabrication Ant. 4 Jan. 1, 1986 - Apr. 15, 1986

 Ant. 5 Feb. 15, 1986 - May 15, 1986

 Ant. 6 Apr. 1, 1986 - July 1, 1986

 Ant. 7 May 15, 1986 - Aug. 15, 1986

(2) Surface Panels

Fabrication Ant. 4 Mar. 1 - May 1, 1986

 Ant. 5 Apr. 1 - June 1, 1986

 Ant. 6 May 1 - July 1, 1986

 Ant. 7 June 1 - Aug. 1, 1986

(3) Mechanical

Gear Reducers Fabrication

 Ant. 4 Jan. 1 - June 1, 1986

 Ant. 5 Jan. 1 - June 1, 1986

 Ant. 6 Feb. 1 - July 1, 1986

 Ant. 7 Feb. 1 - July 1, 1986

Az. Bearing (6 mos.) Jan. 1 - July 1, 1986

(3) Mechanical (Cont.)

El. Bearings & Hsgs,	Feb. 1 - July 1, 1986
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(4) Drives & Control

Motors	Feb. 1, 1986 - July 1, 1986
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Servo Manufacture #4	Feb. 1, 1986 - June 1, 1986
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#5	Feb. 15, 1986 - June 15, 1986
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#6	Mar. 15 - July 15, 1986
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#7	Mar. 15 - July 15, 1986
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Servo Tests #4, 5	June 15, 1986
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#6, 7	July 15, 1986
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Position Systems	Feb. 1 - July 15, 1986
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(5) Antenna Assembly

Ant. #4 (16 wks)	May 1 - Sept. 1, 1986
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Ant. #5 (16 wks)	June 1 - Oct. 1, 1986
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Ant. #6	Sept. 1 - Jan. 1, 1987
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Ant. #7	Oct. 1 - Feb. 1, 1987
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(D) Manufacturing and Construction (Phase III) 3 Antennas

(1) Steel Structure

Fabrication Ant. 8	Jan 1, 1987 - Apr. 15, 1987
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Ant. 9	Feb. 15 - May 15, 1987
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Ant. 10	Apr. 1 - July 1, 1987
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(2) Surface Panels

Fabrication Ant. 8	Feb. 1 - May 1, 1987
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Ant. 9	Mar. 1 - June 1, 1987
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Ant. 10	Apr. 1 - July 1, 1987
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(3) Mechanical

Gear Reducers Ant. 8	Jan. 1 - June 1, 1987
Ant. 9	Feb. 1 - July 1, 1987
Ant. 10	Mar. 1 - Aug. 1, 1987
Az Bearings (6 mos.)	Jan. 1 - July 1, 1987
El. Bearings & Hsgs.	Feb. 1 - July 1, 1987

(4) Drives and Controls

Motors	Feb. 1 - July 1, 1987
Servo Manufacture #8	Feb. 1 - June 1, 1987
#9	Feb. 15 - June 15, 1987
#10	Mar 1 - July 1, 1987
Servo Tests	July 1, 1987
Position Systems	Feb. 1 - July 15, 1987

(5) Antenna Assembly Ant. 8

Ant. 8	May 1 - Sept. 1, 1987
Ant. 9	June 1 - Oct. 1, 1987
Ant. 10	Sept. 1 - Dec. 30, 1987

WH/bmg