Interoffice

SGP Memo 13A

National Radio Astronomy Observatory

Very Large Array

April 26, 1982

To: Addressee

From: B. Clark and C. Bignell CB lgc

Subject: Short term "Pipeline" Plans

In accordance with the recommendation of the Computer Advisor Committee a plan for the short term development of the SORTER/GRIDDER (or "pipeline") system has been organized. The principle objective of these plans is to achieve a stable system which can be utilized as the full time operational system for continuum data processing. This will be carried out in two separate phases (I and II). The major tasks are listed in Table I. Spectral line development will occur during Phase III.

PHASE I

The goal is to achieve a working continuum system (excluding B and D IFs). There will be some serious limitations in the system: there will be no self-calibration, and there will be very few options for listing and plotting data or maps. Map display will probably be limited to IMPS or AIPS. The system, in general, will not be friendly.

The task dependencies and work load distribution are presented in Figures I and II. Our current best estimate for completion of Phase I is mid October.

Other tasks which will be started during this period include:

(1) installation of floating point format (?)
(2) transfer of APs to GRIDDER (?)

Phase II

The continuum system will be greatly improved in that (1) self-calibration will be installed, (2) many more options will be added to the listing, plotting and mapping capabilities (3) completion of other tasks begun during Phase I and (4) general system improvements will be caried out. The best guess for completion of these functions is approximately 6 months after completion of Phase I.

PAHSE III

The development of spectral line capability and the installation of software to handle the B and D IF's will be carried out during this phase. Although a small amount of spectral line work will begin during the latter part of Phase I, most of the development will take place concurrently with Phase II work and will extend beyond the completion of Phase II.

It is difficulat to plan the spectral line work in detail since some of the details depend on gaining experience with the yet incomplete continuum system. A wild and very uncertain guess for the the time scale of Phase III is one year beyond the end of Phase I.

The Usual Caveat

Although the time scales presented in Figure II are our best estimates, it is not feasible to account for all possibilities and the estimates themselves are probably uncertain by at least 50 percent.

TABLE I

MAJOR SOFTWARE TASKS FOR PAHSE I AND II

(1) UV Database

Programs to create and validate the database structure used to store visibility data sorted in UV order on SORTER's disks

(2) On-line Filler

Sort and transfer data from the MODCOMP system to the UV database on SORTER's disks.

(3) Database Backup/Restore/Delete

Backup on and restore from tape the UV databases on SORTER. Delete the the UV Data bases from SORTER disks.

(4) Gridding and Fourier Transform (WB Package)

Grid and Convolve the UV data and carry out the FFT using the array processor. This software has been written by Wim Brouw and is currently undergoing tests.

(5) Interface UV Database and WB Package

Interface the gridding and FFT software package written by Wim Brouw with the UV database structure .

(6) Stabilize the WB Package

Carry out extensive tests on the WB package in order to stabilize its operation.

(7) UV CATLST

A program which will summarize the contents of the UV Databases on SORTER.

(8) UV VISPLT
A program to plot data stored in UV Database on SORTER.

(9) Flagging Data
Flagging will be carried with the existing software on the DEC10. Flagging by scan is all that will be permitted.

(10) Install MAPCON
Bring the WB package under the control of MAPCON, the "controller" software developed by Eric Graham on MAPPER.

(11) LISTER and VISPLT for BT Data
Programs to list and/or plot visibility data which can be sorted in baseline-time order by the WB package.

(12) CLEAN
The CLEAN program has already been brought up on SORTER.

(13) FITS
The FITS program already runs an SORTER.

(14) SELF-CAL
Programs to self-calibrate the visibility data stored in the UV database.

(15) Tape FILLER
Program to read the MODCOMP archive data tape and store the visibility data in UV database on SORTER.

(16) Export Tape
Program to write an export tape from the WB package.

(17) Graphics
Programs for flexible graphical displays of visibility data and maps. This system is currently being designed. Item (II) may become a part of this general graphics display system for the "pipeline".

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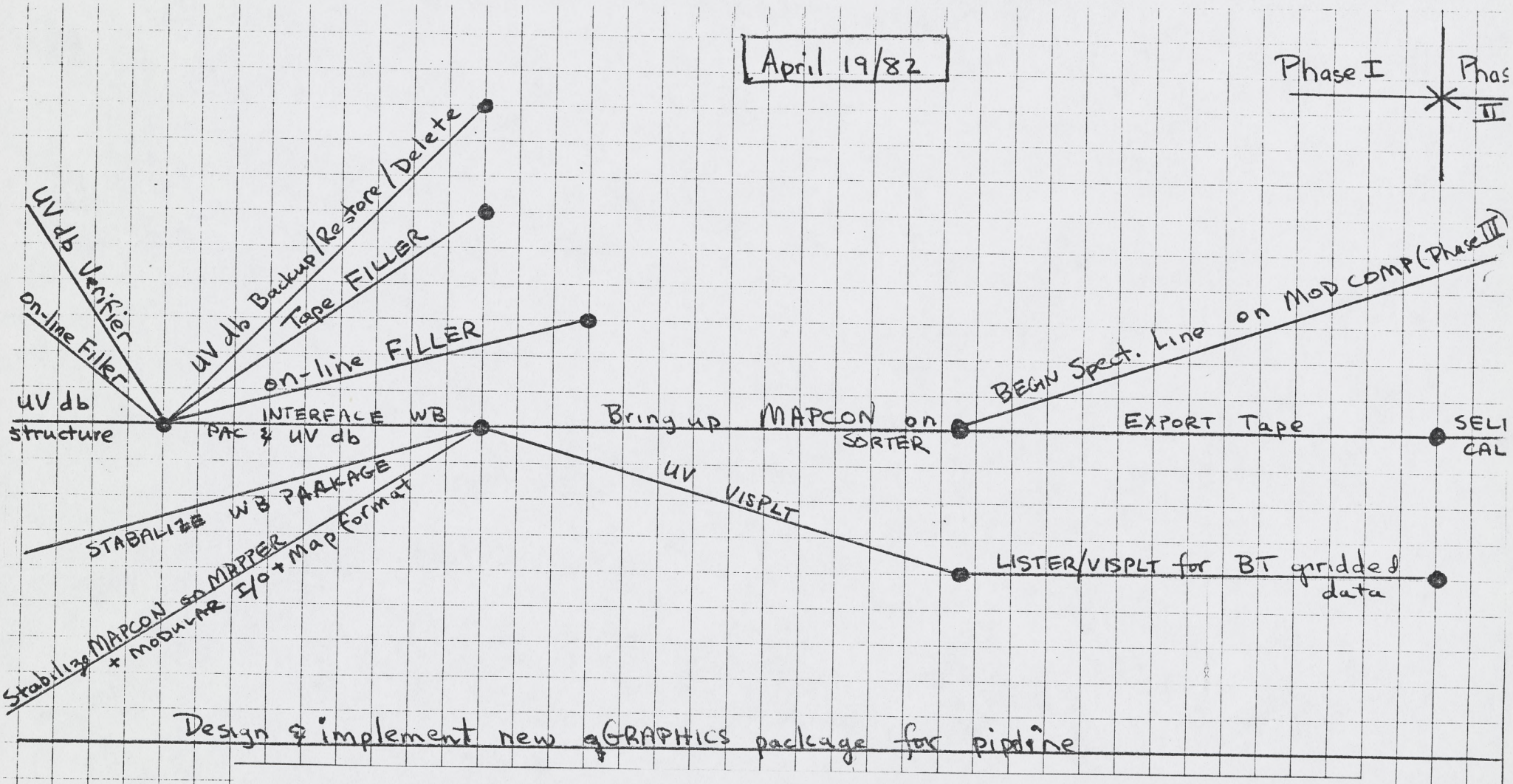

FIGURE 1 Software Task Dependenci

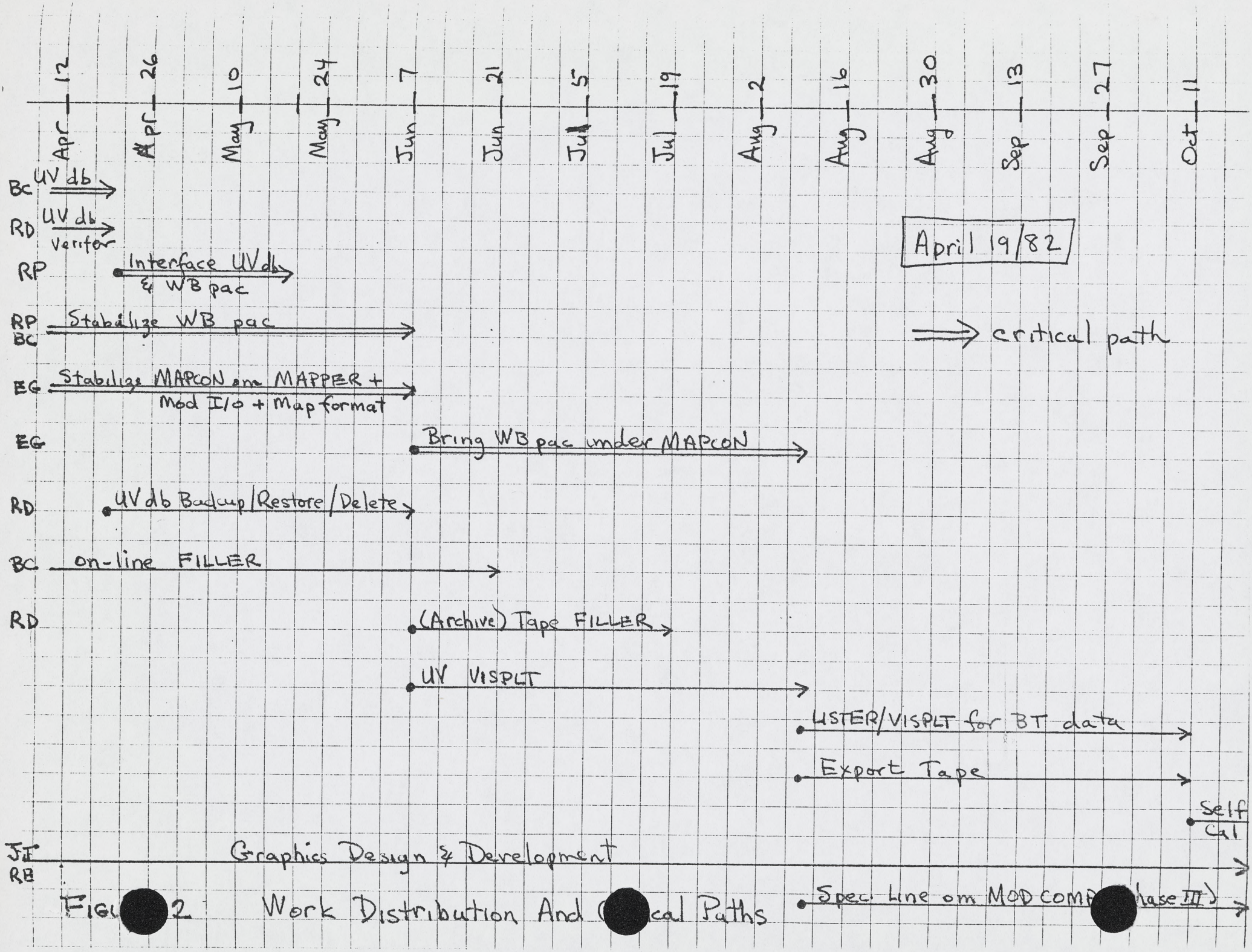

FIGURE 2 Work Distribution And Critical Paths