

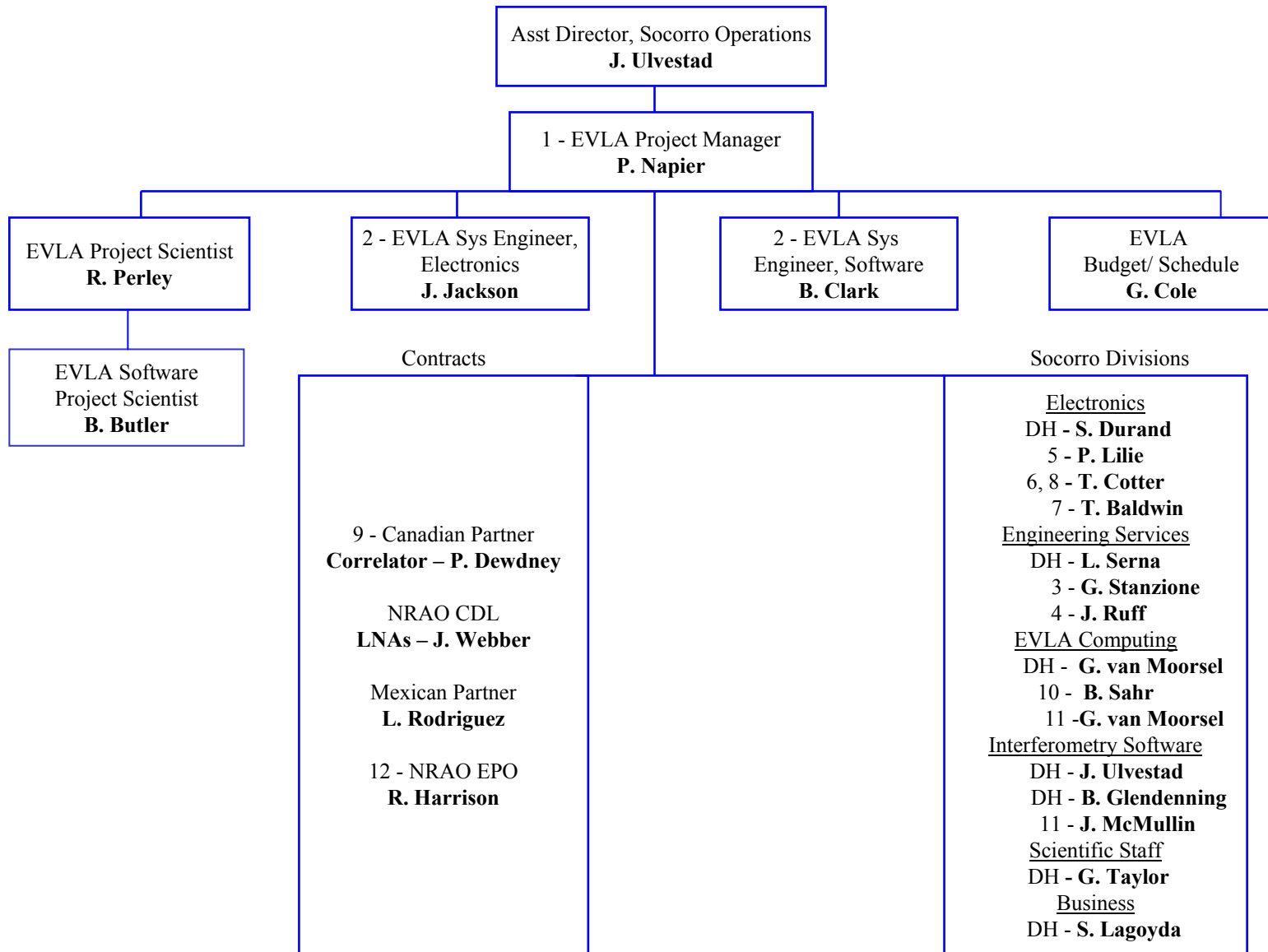
EVLA Advisory Committee Project Overview

P. Napier, Project Manager

- Management, Schedule, Budget
- Recent Progress
- Issues from previous meeting

EVLA MANAGEMENT CHART

28 August 2003



Note: DH means Division Head
Numbers refer to WBS Level 2 Tasks

EVLA Project Milestone Summary

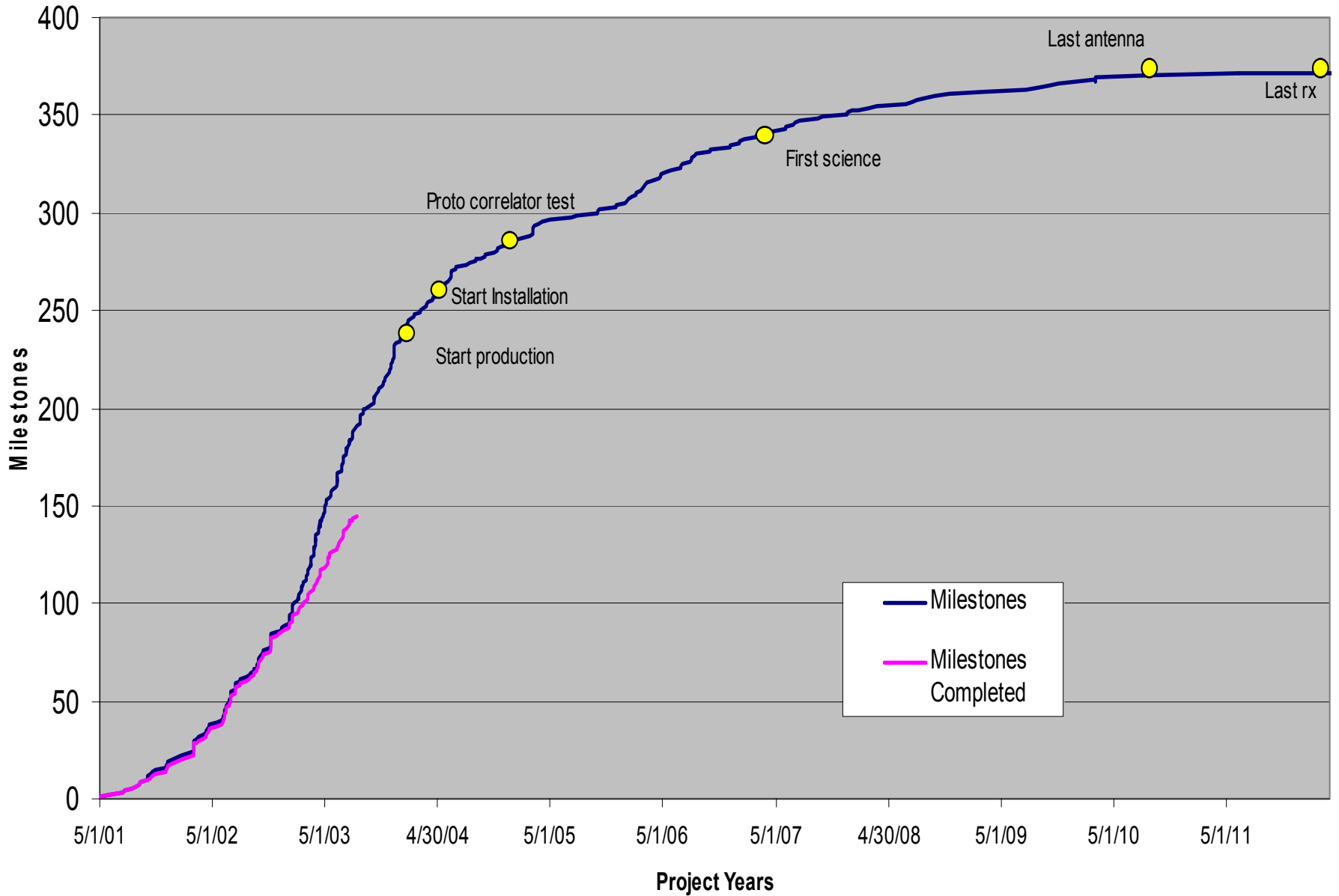


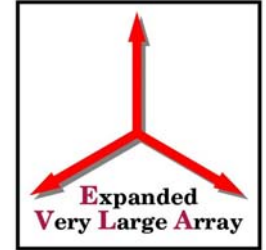
Table 12.2 EVLA Project Budget Plan

All amounts are in \$k dollars (FY2003)

| WBS | Task Name | Actual | Actual | Budgeted | | | | | | | | | | | Totals |
|------|-------------------------------|--------|--------|----------|--------|--------|--------|--------|--------|-------|-------|-------|-------|--------|--------|
| | | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | | |
| 6.01 | Project Management | 77.0 | 204.6 | 272.0 | 323.5 | 278.6 | 271.5 | 249.3 | 232.5 | 177.5 | 136.5 | 135.5 | 0.0 | 2358 | |
| 6.02 | System Integration & Testing | 212.0 | 479.5 | 351.1 | 530.7 | 180.4 | 180.4 | 184.9 | 176.9 | 174.9 | 76.0 | 0.0 | 0.0 | 2547 | |
| 6.03 | Civil Construction | 0.2 | 252.1 | 52.0 | 242.8 | 509.0 | 30.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1086 | |
| 6.04 | Antennas | 0.0 | 46.8 | 268.0 | 183.0 | 75.2 | 45.5 | 28.0 | 22.0 | 8.2 | 8.0 | 0.0 | 0.0 | 685 | |
| 6.05 | Font End Systems | 385.4 | 124.1 | 868.4 | 2285.1 | 1113.0 | 1006.0 | 1185.7 | 1046.8 | 884.1 | 695.1 | 285.4 | 114.4 | 9993 | |
| 6.06 | Local Oscillator System | 14.1 | 292.3 | 560.5 | 477.0 | 367.0 | 367.0 | 367.0 | 356.0 | 353.0 | 352.5 | 0.0 | 0.0 | 3506 | |
| 6.07 | Fiber Optic System | 4.7 | 642.8 | 1125.0 | 1382.0 | 933.2 | 783.2 | 873.2 | 743.2 | 719.2 | 643.6 | 478.4 | 0.0 | 8328 | |
| 6.08 | Intermediate Frequency System | 0.0 | 96.0 | 355.6 | 575.4 | 285.0 | 285.0 | 285.0 | 285.0 | 285.0 | 283.0 | 0.0 | 0.0 | 2735 | |
| 6.09 | Correlator | 149.0 | 362.0 | 155.0 | 618.0 | 37.0 | 4281.5 | 1879.0 | 45.0 | 17.0 | 0.0 | 0.0 | 0.0 | 7544 | |
| 6.10 | Monitor & Control System | 0.0 | 216.8 | 474.9 | 423.4 | 280.0 | 201.3 | 193.2 | 193.5 | 208.9 | 62.0 | 54.0 | 0.0 | 2308 | |
| 6.11 | Data Management & Computing | 2.8 | 3.0 | 208.0 | 160.0 | 85.5 | 26.0 | 177.0 | 119.0 | 519.0 | 0.0 | 0.0 | 0.0 | 1300 | |
| 6.12 | Education & Public Outreach | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 250.0 | 250.0 | 0.0 | 0.0 | 0.0 | 0.0 | 500 | |
| | M&S Total | 845 | 2720 | 4690 | 7201 | 4144 | 7477 | 5672 | 3470 | 3347 | 2257 | 953 | 114 | 42891 | |
| | Travel | 8 | 47 | 89 | 123 | 152 | 167 | 105 | 57 | 48 | 32 | 2 | 4 | 834 | |
| | NRAO Wages & Benefits | 322 | 2667 | 4041 | 4535 | 4155 | 3867 | 3316 | 3021 | 2618 | 554 | 399 | 232 | 29565 | |
| | Canadian Labor | 54 | 414 | 671 | 533 | 468 | 365 | 532 | 321 | 136 | 0 | 0 | 0 | 3494 | |
| | Sub Total | 1229 | 5847 | 9493 | 12392 | 8918 | 11877 | 9625 | 6869 | 6149 | 2843 | 1355 | 350 | 76785 | |
| | Contingency | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 406 | 764 | 2973 | 1861 | | 6010 | |
| | Redirected NRAO Effort | -195 | -1549 | -2317 | -2186 | -1985 | -1872 | -1703 | -1475 | -1325 | -382 | -246 | -232 | -15195 | |
| | Canadian Contribution | -203 | -776 | -826 | -1151 | -505 | -4647 | -2411 | -366 | -153 | 0 | 0 | 0 | -11038 | |
| | Mexican Contribution | | | | -1000 | -1000 | | | | | | | | -2000 | |
| | EVLA Project Funds | 831 | 3523 | 6349 | 8055 | 5434 | 5358 | 5511 | 5434 | 5434 | 5434 | 2970 | 119 | 54562 | |
| | Carryover to next yr | 2170 | 3648 | 2621 | | | 76 | | | | | 119 | | | |
| | Carryover from prior yr | | -2170 | -3648 | -2621 | | -6 | -76 | | | | | -119 | | |
| | NSF Funded | 3001 | 5000 | 5322 | 5434 | 5434 | 5428 | 5435 | 5434 | 5434 | 5434 | 3089 | 0 | 54562 | |



Progress Over last Year



1 Management

- Restructuring of software management

2 Systems

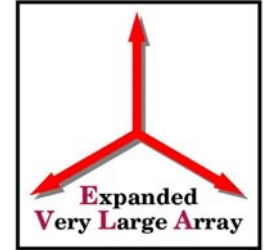
- RFI-tight racks, bins, modules built and tested
- Power supplies selected and purchased
- Bench integration proceeding

3 Civil Construction

- Fiber burial complete on W and E arms 6 mo ahead of schedule



Progress (Cont.)



4 Antennas

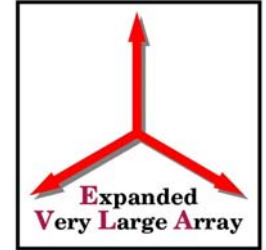
- Feed cone and structural mods complete on Test Antenna.
- Assembly of L and C band feeds beginning

5 Front Ends

- Scale model of L band feed built and tested
- Design of wideband OMT completed
- Design of new L and C band receivers completed
- MMICs for Ka and Q bands produced by Caltech
- Existing X band rx remounted in test antenna



Progress (Cont.)



6 Local Oscillator

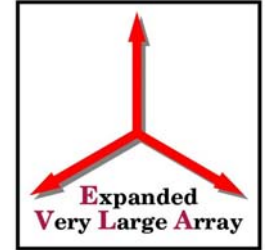
- High frequency synthesizers designed and prototyped

7 Fiber Optics

- Testing in support of installation continuing
- Control building distribution and fiber installed
- Fiber installed on test antenna
- Fiber phase stability tests under way
- Digital transmission modules tested @ 10 Gbps



Progress (Cont.)



8 Intermediate Frequency

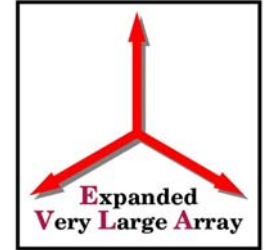
- Converter module prototypes completed
- Integrated down converter design under way
- Commercial supplier for integrated U/X converter selected

9 Correlator

- Canadian funding secured
- Detailed design proceeding
- Decision made to forego FPGA prototype, proceed directly with new correlator chip



Progress (Cont)



10 Monitor and Control

- Recruitment problem solved
- Ethernet fiber to Test Antenna tested
- Module Interface Board (MIB) Tested

11 Computing

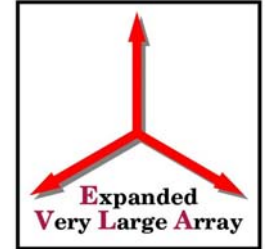
- New management structure for AIPS++ and e2e
- New archive in use and ready for EVLA

12 EPO

- Presentations and displays on EVLA at major meetings



Phase II

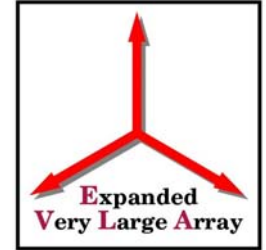


Phase II proposal

- Proposal completed and in internal NRAO review
- Engineering effort limited by Phase I priorities



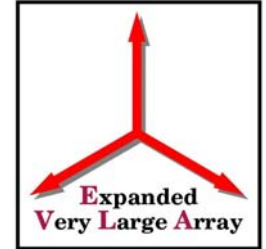
Issues From Previous Advisory Meeting



- Phase I is too slow.
 - We make the case with NSF but no extra money yet
- Connection between science drivers and design goals
 - Project Book Chap 2 now has information on this
- Make more use of MMICs, surface mount and integration
 - Used in Ka-Q receivers, converter modules, switches etc
- Need better coordination of software effort
 - New software management should help this. Software Division Head, Software Systems Engineer and Software Project Scientist appointed.



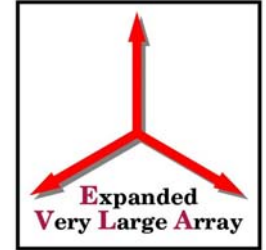
Past Issues (Cont)



- Receivers – define solar observing mode
 - Coupler-fed scheme selected for two bands
- RFI concerns
 - Significant effort, Perley will report
- LO-IF – phase stability spec not good enough for L band
 - Specification improved but in-beam self cal possible
- Correlator – concerns about funding and software
 - Funding secured, NRAO/HIA joint software effort



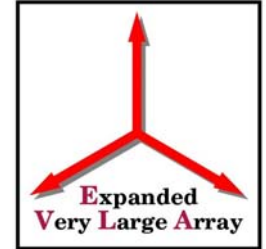
Past Issues (Cont)



- Need for top-level M/C software design
 - Not yet complete. Priority given to hardware M/C
- Consider using ALMA M/C software
 - Monthly coordination meeting between EVLA/ALMA
- Need more astronomer involvement in software.
 - Project scientists (Myers, Frail, Butler) appointed, requirements documents written
- Need for clear software “deliverables”
 - Van Moorsel and Butler will address this



Past Issues (Cont)



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- AIPS++ needs to be widely accepted
 - Significant effort under way for ALMA acceptance milestone, M^cMullin will report
 - Submit Phase II Proposal ASAP
 - Complete and under internal NRAO Review
 - Fund E Array or low frequencies from Phase I contingency
 - Maybe E Array at end of Phase I, but unlikely
 - Consider focal plane array for low frequencies
 - Looks interesting (Memo 53), needs more work.