



Title: QSU 2 FY2015	Author: NRAO staff	Date: 5/13/2015
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National Radio Astronomy Observatory

Quarterly Status Update 2 FY2015

January – March, 2015

PREPARED BY	ORGANIZATION	DATE
L. Wingate/ADs	Director's Office	5/13/2015

NRAO Quarterly Status Update (QSU2 FY2015)
January - March 2015

05/13/2015

dark gray (completed), blue (early), green (on track), yellow (behind), red (critically behind)

Q1 Performance Assessment

Q2 Performance Assessment

POP Section Number	POP Milestone	Task Name	Completion Date	Cost	Schedule	Technical	Cost	Schedule	Scope
2.6		Atacama Large Millimeter/submillimeter Array (ALMA)							
		Operations							
			12/31/2014						
			3/31/2015						
			6/30/2015						
			9/30/2015						
	1	Carry out AoD shifts at the OSF							
	2	Hire two data analysts and two scientists	12/31/2014						
	3	Cycle 2 Status Update	12/31/2014						
	4	Support Long Baseline Campaign	12/31/2014						
	5	Eliminate Backlog in Cycle 2 Data Reduction	12/31/2014						
	6	Participate in Cycle 3 Obsmode go / no-go meeting	12/31/2014						
	7	Participate in ALMA Intl Science Conference and Postdoc Symposium	12/31/2014						
	8	Participate in ALMA Operations Readiness Review	3/31/2015						
	9	Offer Data Processing Workshop in Charlottesville	3/31/2015						
	10	Cycle 3 Prep: SNV tests, Documentation Prep, Call for Proposals	3/31/2015						
	17	Pipeline Heuristics: Input on Reference Imaging	12/31/2014						
	18	Pipeline Heuristics: Input on Improved Calibration heuristics	3/31/2015						
		Development							
	19	NA ALMA Development Studies initiated in FY2014 will be completed	3/31/2015						
	20	NA ALMA Development Studies Call for Proposals date – next round (preliminary date)*	3/31/2015						
	21	NA ALMA Ongoing Development Projects initiated in FY12 will be completed	12/31/2014						
		Maintenance and Renewal							
	22	Commission the FE test cryostat at the NTC	3/31/2015						
		NRAO-Chile Office							
	25	Hire NRAO-Chile Chief of Staff	12/31/2014						
			12/31/2014						
	26	Support ALMA HR Department							
			3/31/2015						
			6/30/2015						
	28	Study Alternative Office Locations	12/31/2014						
3.4		New Mexico Operations							
		VLA Science Operations							
	1	Define VLA capabilities to be offered for semester 2015B	12/31/2014						
	3	Update VLA documentation to support 2015B Call for Proposals, perform proposal technical reviews	3/31/2015						
	5	Determine baselines and pointing for antennas moving into their C configuration locations	12/31/2014						
	6	Determine baselines and pointing for antennas moving into their CnB and B configuration locations	3/31/2015						
	10	Complete VLITE tests requiring B configuration and integrate VLITE into operations	3/31/2015						
	12	Make frequency averaging available in the CBE to lower data rate	3/31/2015						
		VLA Array Operations							
	13	Reconfigure array to C configuration	12/31/2014						
	14	Reconfigure array to CnB, then B configuration	3/31/2015						
	17	Establish DSOC control room for VLA Operations	3/31/2015						
		VLA Antenna Maintenance							
	21	Perform preventive maintenance on each of two transporters prior to array reconfiguration	12/31/2014						
		VLA Technical Upgrades and Enhancements							
	27	L-Band solar upgrade, 2 additional receivers with full RF upgrade installed	3/31/2015						
	30	Ku-Band solar upgrade, 1 additional receiver with 20 dB switched attenuators on outputs only, no solar Tcals, installed	3/31/2015						
	33	FE card cage upgrades, 35 units installed	3/31/2015						
	41	Install prototype F318 module in antenna	12/31/2014						
		VLA Operational Enhancements							
	50	Commission and document improvements to ionospheric calibration	3/31/2015						
		VLBA Science Operations							
	52	Define VLBA capabilities to be offered for semester 2015B	12/31/2014						
	54	Update VLBA documentation to support 2015B Call for Proposals, perform proposal technical reviews	3/31/2015						
		VLBA Observing Capability Enhancements							
	59	Commission and document DDC-8 on Effelsberg for 2016B	9/30/2015						
		Site Operations							
	61	Complete electronic door access for the DSOC	12/31/2014						
	62	Renew leases for OV and SC	12/31/2014						
4.4		West Virginia Operations							
		GBT Development							
	1	Commissioning of MUSTANG1.5	12/31/2014						
	2	Commissioning of ARGUS receiver	3/31/2015						
5.3		Central Development Laboratory							
		Repair, Maintenance, Production, Support							
	2	Design, build and test Qty. 4 MIC LNAs	12/31/2014						
	3	Build and test Band 1 amplifiers	3/31/2015						
	4	Design ALMA Band 2 optical system	12/31/2014						
	5	Test Band 2 optical system	12/31/2014						
	6	Deliver Band 2 optical system	12/31/2014						
	7	Complete ALMA Phasing System hardware and firmware acceptance tests.	12/31/2014						
6.5		Science Support & Research							
		Telescope Time Allocation (TTA)							
	1	CIP for semester 2015B	3/31/2015						
	3	SRP and tech review process, semester 2015B	3/31/2015						
	5	TAC meeting for semester 2015A	12/31/2014						
	7	Update SW tools requirements for TAC support 2015A	12/31/2014						
	8	Update SW tools requirements for PST 2015B	3/31/2015						
	11	Update documentation for CIP and tools 2015B	3/31/2015						

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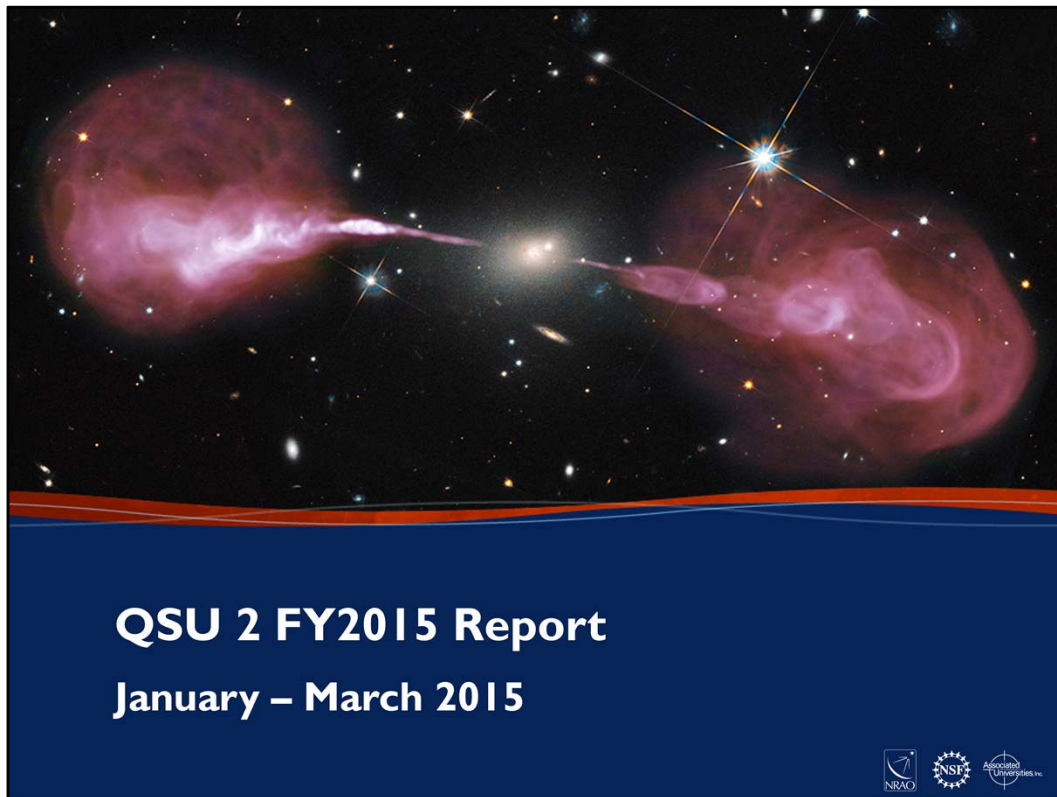
Q1 Performance Assessment				Q2 Performance Assessment					
POP Section Number	POP Milestone	Task Name	Completion Date	Cost	Schedule	Technical	Cost	Schedule	Scope
		Science User Support (SUS)							
	13	4th VLA data reduction tutorial	12/31/2014						
	14	SPF 1 CDE	3/31/2015						
	16	Filaments workshop	12/31/2014						
	17	Revolution in Astronomy	12/31/2014						
	18	AAAS session on Galaxy Assembly	3/31/2015						
	19	SPF 1 meeting	3/31/2015						
	20	Integrated HD requirements	12/31/2014						
	21	RPI and NRAO archive user testing	12/31/2014						
	23	Summer student selection	3/31/2015						
	24	Summer student offers	3/31/2015						
	28	Update CASAGUIDES	12/31/2014						
	29	Review ALMA user documents	3/31/2015						
		SSR Services							
	31	Library contracts negotiated	3/31/2015						
	32	Metrics web interface requirements	3/31/2015						
7.4		Data Management & Software							
		Scientific Information Services							
	1	SSO aligned for MyNRAO and ALMA accounts	12/31/2014						
	2	Merger of helpdesk	3/31/2015						
	4	Increase bandwidth to sites	12/31/2014						
	5	Increase bandwidth to sites	3/31/2015						
	8	XSEDE access	3/31/2015						
	9	Federated identity management evaluation	3/31/2015						
	12	Multi-core development testbed installed	12/31/2014						
		ALMA System Software							
	14	ALMA Fall 2014 Release	12/31/2014						
		VLA/VLBA System Software							
	17	Deploy software to support Semester 2014B observing.	3/31/2015						
	18	Deploy software to support Semester 2015A commissioning.	3/31/2015						
	21	Integrate VLITE Operations	3/31/2015						
	22	Deliver Frequency Averaging	12/31/2014						
	23	Write Pointing Table	3/31/2015						
		GBT System Software							
	25	Modify Astrid to Use Streaming	12/31/2014		Cancelled				
	26	Operations software update	12/31/2014						
	27	Vegas Pulsar Modes	12/31/2014						
	28	NRQZ software	3/31/2015					Cancelled	
	31	Parallelize Pipeline	12/31/2014						
	33	Test Pipeline with PSC – evaluate candidates	3/31/2015						
		Software Development							
	34	Operationalize the new NRAO Archive and RPI	3/31/2015						
	36	Release CASA version 4.3	12/31/2014						
	38	Implement PST updates for Semester 2015B Call for Proposals	12/31/2014						
	42	Implement OPT updates for Semester 2015A VLA Observing	12/31/2014						
	44	Create Architecture for Observatory Tools	3/31/2015						
8.5		Program Management Department							
		Headquarters							
	1	SOP and Templates available	3/31/2015						
			12/31/2014						
	2	Quarterly Status Updates	3/31/2015						
			6/30/2015						
			9/30/2015						
		New Mexico							
	6	Finalize NM Ops and DMS Training Plan (1st Phase)	12/31/2014						
	7	PM 101 Training	3/31/2015						
	10	Host learning session	12/31/2014						
	11	Host learning session	3/31/2015						
		Central Development Laboratory							
	14	Develop Training Plan	12/31/2014						
	15	Training lessons provided	12/31/2014						
	16	Training lessons provided	3/31/2015						
	20	Call for Study Proposals	3/31/2015						
		Green Bank							
	21	Finalize Green Bank Training Plan	12/31/2014						
	22	PM/SE Implementation Training	3/31/2015						
	23	Host learning session	12/31/2014						
	24	Host learning session	3/31/2015						
10.3		Education and Public Outreach							
		STEM Education							
	1	Second round of SJS professional development meetings for educators	12/31/2014						
			3/31/2015						
			6/30/2015						
	3	Develop "vision" for new VLA Visitor/Education Center	12/31/2014						
	4	Develop plan for VLA Visitor/Education Center Capital Fundraising Campaign	3/31/2015						
	7	Decide upon admission fee structure for existing VLA Visitor Center	12/31/2014						
	8	Implement new admission fee at VLA Visitor center on 1 January 2015	3/31/2015						
	11	STEM Career Day at Dominion Virginia Electric	12/31/2014						
	12	10th Grade STEM Day at Piedmont Virginia Community College (if invited)	3/31/2015						
	14	SPOT: Introduce new feature presentation	12/31/2014						
	15	SPOT: Recruit new UVa-based undergraduate ambassadors	12/31/2014		Cancelled				
		News and Public Information							
	16	Convert NRAO public website to Joomla 3 CMS	12/31/2014						
	18	New planetary system content for The Milky Way Explorer	12/31/2014						
	20	Functional spec and design completed for "RadioSky" app	12/31/2014						
11.4		Computing & Information Services							

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				Q1 Performance Assessment			Q2 Performance Assessment		
POP Section Number	POP Milestone	Task Name	Completion Date	Cost	Schedule	Technical	Cost	Schedule	Scope
	1	Cross training for coverage between sites	3/31/2015						
	3	CCE coordination meeting	12/31/2014						
	4	Migration to Windows 7 compete	12/31/2014						
	6	Migration to RHEL 6	3/31/2015						
	8	Document Management system	3/31/2015						
	9	Network upgrade review	3/31/2015						
	12	Replacement of end-of-life Video Hub	12/31/2014						
	13	Replacement of legacy room reservation SW	3/31/2015						
12.3		Diversity							
		Diversity Council							
	1	Office of Diversity Initiatives/Diversity Council	3/31/2015						
		National/Domestic Outreach							
	4	Undergraduate Intern Program for SOC Electronics Division	3/31/2015						
		International Outreach							
	7	NINE- NRAO Staff to South Africa – teaching and recruitment	3/31/2015						
	8	UVA/NRAO Chilean PhD Sponsorship	3/31/2015						
		Improve Workplace Culture							
13.7		Human Resources							
		Policy							
	1	Complete the final revisions, formatting and refinement of the combined Supervisor's Manual and Employee Handbook and ensure posting readiness to NRAO internal website. Obtain appropriate legal review and final review/ approval from NRAO and AUI	12/31/2014						
		Training							
	2	Deliver 4 newly designed Mgmt/Supervisory courses. Courses are: 1) Time off/Attendance/FML, 2) Harassment/ Bullying/Discrimination, 3) The Electronic PEP Process, and 4) Effective Planning and Goal Setting	3/31/2015						
		Compensation							
	4	Ensure all reconfiguration changes/improvements are complete in order to launch the electronic PEP process for the FY2014 performance period	12/31/2014						
	5	All preparations complete and salary review worksheets are open to pay decision managers for final merit review decisions	3/31/2015						
		Benefits							
	8	HR prepares and distributes all open enrollment materials to employees and makes enrollment changes into JDE and with vendors	12/31/2014						
		Employment							
	11	Update WFM and Staffing Plans	3/31/2015						
14.1		Communications							
		Science Communications							
	1	Complete science meeting exhibit re-design	12/31/2014						
	2	Update Research Facilities brochure	12/31/2014						
15.6		Administration							
		Business Services							
	2	Establish a time-line and strategize the design of a new chart of accounts.	3/31/2015						
	4	Review current methodologies. Prepare new ones and review with site directors and NRAO Director.	3/31/2015						
		CAP							
	5	Design policy, review and socialize with assistant directors and business managers	12/31/2014						
	6	Design program and obtain approval of Assoc. Director of Administration	3/31/2015						
		ES&S							
	8	Implement Hazcom Database	3/31/2015						
		MIS							
	10	Top-level gap analysis review of the JD Edwards enterprise resource planning (ERP) system	3/31/2015						
16.5		Spectrum Management							
		Spectrum Management							
	1	Iridium: Initial discussions	12/31/2014						
	2	ITU-R: SG7 WP 7D meetings	12/31/2014						
	3	ITU-R: WP 5B meeting	12/31/2014						
17.1		Director's Office							
		ALMA							
	1	ALMA Board Meeting	12/31/2014 3/30/2015 6/30/2015 9/30/2015						
	2	ALMA Director's Council	12/31/2014 3/30/2015 6/30/2015 9/30/2015						
	3	ALMA Completion Review	3/31/2015						
		Corporate Meetings							
	4	AUI Board of Trustees meetings	12/31/2014 3/30/2015 6/30/2015						
	5	AUI Executive Committee meetings	12/31/2014 6/30/2015 9/30/2015						
		Science Community							
	6	Appoint new Users Committee members	12/31/2014						
	7	Users Committee meeting	6/30/2015						
		Management Review							
	8	NSF Annual Program Review	12/31/2014						
	9	All Hands presentation	12/31/2014 6/30/2015						



POP MILESTONE #2.6.2

TITLE: ALMA

Hire two data analysts and two scientists

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Labor Actuals</td> <td style="width: 50%; padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>		Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE:		
Labor Actuals	Expected															
\$	\$															
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\$	\$															
SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%; padding: 2px;">Milestone</th> <th style="width: 35%; padding: 2px;">Schedule</th> <th style="width: 35%; padding: 2px;">Target</th> </tr> <tr> <td style="padding: 2px;">1. Hire 2 DAs</td> <td style="padding: 2px;">12/31/14</td> <td style="padding: 2px;">12/31/14</td> </tr> <tr> <td style="padding: 2px;">2. Hire 2 Sci Staff</td> <td style="padding: 2px;">12/31/14</td> <td style="padding: 2px;">5/31/15 Hire 9/1/15 Start</td> </tr> </table>		Milestone	Schedule	Target	1. Hire 2 DAs	12/31/14	12/31/14	2. Hire 2 Sci Staff	12/31/14	5/31/15 Hire 9/1/15 Start	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%; padding: 2px;">Risk</th> <th style="width: 50%; padding: 2px;">Mitigation</th> </tr> <tr> <td style="padding: 2px;">1. Delays in DR delivery</td> <td style="padding: 2px;">Additional DA hires</td> </tr> </table>		Risk	Mitigation	1. Delays in DR delivery	Additional DA hires
Milestone	Schedule	Target														
1. Hire 2 DAs	12/31/14	12/31/14														
2. Hire 2 Sci Staff	12/31/14	5/31/15 Hire 9/1/15 Start														
Risk	Mitigation															
1. Delays in DR delivery	Additional DA hires															

2
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: This tasks called for hiring two data analysts (DA) to help with data reduction and helpdesk and to replace two scientific staff vacancies. The DAs were hired and trained in Q2. The Sci Staff recruitment and interviews proceeded in Q2. Offers are expected in Q3, with start by Q4.

SCOPE: N/A

RISK & MITIGATION: Delays in data reduction delivery. Additional DA hires; higher proportion of data reduction work by other scientific staff at expense of other tasks (outreach, optimization, etc.)

POP MILESTONE #2.6.8

TITLE: ALMA

Participate in ALMA Operations Review

Cost

Schedule

Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Labor Actuals</td> <td style="width: 50%; padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>		Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE:	
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Milestone	Schedule	Target													
I. Participate in Ops Readiness Review	3/31/15	4/28/15													
Risk	Mitigation														
I. No specific additional risk in most recent 3 mo delay in review scheduling	None required														

3
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: NA ALMA Operations management, including the operations manager, ARC manager, IET, ICT leads will participate as offsite representatives and will prepare materials and presentations for the ALMA Operations Review. The preparations have proceeded actively but the review itself was postponed from an anticipated January 2015 date listed at the time the POP was written until late April 2015.

SCOPE: N/A

RISK & MITIGATION: The further delay in scheduling the review beyond the listed 3/31/2015 milestone does not pose additional quantifiable risk to ALMA. The review is an overall deliverable of the ALMA Director. NA ALMA had several tasks in support of the review (documents, presentations) which delivered to schedule. This review has been postponed several times beginning in 2013. Overall, this delay has posed risk both to the operations and to the partners, but this has been discussed at previous QSUs is a matter for the ALMA Executives and Board.

POP MILESTONE #2.6.9

TITLE: ALMA

Offer Data Processing Workshop in CV

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Labor Actuals</td> <td style="width: 50%; padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>		Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE:	
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Milestone	Schedule	Target													
I. Offer Data Processing Workshop in CV	3/31/15	5/15/15													
Risk	Mitigation														
I. Some Cy1 / 2 Pls will experience small delay in CASA training & result publication	I. Ensure workshop as planned														

4
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: The NAASC plans a data processing workshop in CV to facilitate reduction of Cy1 / Cy2 data and to train ALMA users in CASA. Workshop is scheduled but was deferred from originally envisioned Q2 date to early Q3 to allow pressure on Cy 3 proposal deadline, CDEs, etc. to pass.

SCOPE: N/A

RISK & MITIGATION: Some Cy 1 / 2 Pls will experience small delay in CASA training & result publication. No serious risk in delaying ~1.5 months to scheduled date. Important to hold workshop before summer break period.

POP MILESTONE # 2.6.2I

TITLE:ALMA

Ongoing Development Projects Initiated in FY14

Cost

Schedule

Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">Labor Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$ Various</td> <td style="padding: 2px;">\$ Various</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$ Various</td> <td style="padding: 2px;">\$ Various</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$ Various</td> <td style="padding: 2px;">\$ Various</td> </tr> </table>			Labor Actuals	Expected	\$ Various	\$ Various	Material Actuals	Expected	\$ Various	\$ Various	Travel Actuals	Expected	\$ Various	\$ Various	SCOPE:		
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SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%; padding: 2px;">Milestone</th> <th style="width: 20%; padding: 2px;">Schedule</th> <th style="width: 20%; padding: 2px;">Target</th> </tr> <tr> <td style="padding: 2px;">I. Project Close</td> <td style="padding: 2px;">12/31/2014</td> <td style="padding: 2px;">09/30/2015</td> </tr> </table>			Milestone	Schedule	Target	I. Project Close	12/31/2014	09/30/2015	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%; padding: 2px;">Risk</th> <th style="width: 50%; padding: 2px;">Mitigation</th> </tr> <tr> <td style="padding: 2px;">I. Fiber Optic Permits</td> <td style="padding: 2px;">Continue to fund alternate route</td> </tr> </table>		Risk	Mitigation	I. Fiber Optic Permits	Continue to fund alternate route			
Milestone	Schedule	Target															
I. Project Close	12/31/2014	09/30/2015															
Risk	Mitigation																
I. Fiber Optic Permits	Continue to fund alternate route																

5
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: Fiber Optic Connectivity: System is fully functional. We are waiting for Silica who is actively working on the transition of the rights of pass of the area where the cable is laid, from Gas Atacama to them. This is done with the Chilean competent authority (Bienes Nacionales).

SCOPE: N/A

RISK & MITIGATION: While awaiting the permits for the Fiber Optic Connection we will continue to fund and use the current microwave communications link at no additional cost to the project.

POP MILESTONE # 3.4.12

TITLE: New Mexico Operations Implement Frequency Averaging in CBE

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border-bottom: 1px solid black;">Labor Actuals</td> <td style="border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2"><i>Not tracked at this level</i></td> </tr> <tr> <td style="border-bottom: 1px solid black;">Material Actuals</td> <td style="border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2"><i>No materials budget for this activity</i></td> </tr> <tr> <td style="border-bottom: 1px solid black;">Travel Actuals</td> <td style="border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2"><i>No travel budge for this activity</i></td> </tr> </table>	Labor Actuals	Expected	<i>Not tracked at this level</i>		Material Actuals	Expected	<i>No materials budget for this activity</i>		Travel Actuals	Expected	<i>No travel budge for this activity</i>		SCOPE: <p>Frequency averaging for VLA continuum observations will be enabled at a low level in the online software system (CM, CBE, and VCI).</p> <p>This capacity will enable a reduction in data rates for continuum observing.</p>				
Labor Actuals	Expected																
<i>Not tracked at this level</i>																	
Material Actuals	Expected																
<i>No materials budget for this activity</i>																	
Travel Actuals	Expected																
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SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 35%;">Milestone</th> <th style="width: 20%;">Schedule</th> <th style="width: 25%;">Target</th> </tr> <tr> <td>1. Implement Frequency Averaging (DMS)</td> <td>12/31/15</td> <td>3/31/15</td> </tr> <tr> <td>2. Test Frequency Averaging in CBE (DMS & NM OPS)</td> <td>3/31/15</td> <td>5/30/15</td> </tr> <tr> <td>3. Available in RSRO program</td> <td>N/A</td> <td>6/30/15</td> </tr> </table>	Milestone	Schedule	Target	1. Implement Frequency Averaging (DMS)	12/31/15	3/31/15	2. Test Frequency Averaging in CBE (DMS & NM OPS)	3/31/15	5/30/15	3. Available in RSRO program	N/A	6/30/15	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Risk</th> <th style="width: 50%;">Mitigation</th> </tr> <tr> <td>I. Frequency Averaging not available in FY2015</td> <td>Buy more archive disk space.</td> </tr> </table>	Risk	Mitigation	I. Frequency Averaging not available in FY2015	Buy more archive disk space.
Milestone	Schedule	Target															
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3. Available in RSRO program	N/A	6/30/15															
Risk	Mitigation																
I. Frequency Averaging not available in FY2015	Buy more archive disk space.																

6
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level. There are no material or travel costs for this item, only labor.

SCHEDULE: Scientific testing will be straight forward after software development finishes.

Progress in software development includes a successful proof of concept in the Correlator Back End (CBE) and a first cut of the definition of the Virtual Correlator Interface (VCI). Next step is to achieve coordination between CBE and the Configuration Mapper (CM). This coordination needs a final version of the VCI definition. The final step will be to test this. We expect to begin testing in May 2015 and be done with this milestone before the end of Q3.

The availability of the feature for the Resident Shared Risk Observing (RSRO) program is the first step to making this feature available through the Shared Risk Observing (SRO) and General Observing (GO) programs.

SCOPE: There are no substantial scope issues.

RISK & MITIGATION: Risk of not having the Frequency Averaging implemented in FY2015. The mitigation strategy would be to buy more disk space.

POP MILESTONE # 3.4.50

TITLE: New Mexico Operations Ionospheric Calibration

Cost

Schedule

Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black;">Labor Actuals</td> <td style="width: 50%; border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2"><i>Not tracked at this level</i></td> </tr> <tr> <td style="border-bottom: 1px solid black;">Material Actuals</td> <td style="border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2"><i>No materials budget for this activity</i></td> </tr> <tr> <td style="border-bottom: 1px solid black;">Travel Actuals</td> <td style="border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2"><i>No travel budget for this activity</i></td> </tr> </table>	Labor Actuals	Expected	<i>Not tracked at this level</i>		Material Actuals	Expected	<i>No materials budget for this activity</i>		Travel Actuals	Expected	<i>No travel budget for this activity</i>		SCOPE: <p>At low frequencies, variability in the ionosphere becomes the limiting factor determining the quality of images that can be produced.</p> <p>Methods for improving Ionospheric calibration are being investigated, commissioned and documented.</p>	
Labor Actuals	Expected													
<i>Not tracked at this level</i>														
Material Actuals	Expected													
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Travel Actuals	Expected													
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Milestone	Schedule	Target												
1. Commissioning Observations	01/31/15	01/31/15												
2. Final Documentation	03/31/15	06/30/15												
Risk	Mitigation													
1. No improvements in Ionospheric Calibration for reduction of A and B configuration data.	Use past techniques for calibration and imaging. Potentially re-reduce data after best-practices are established and documented.													

7
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level. There are no material or travel costs for this item, only labor.

SCOPE: N/A

SCHEDULE: Commissioning observations have been undertaken and the data has been analyzed. Best-practices are mostly defined for calibration and imaging. Some documentation has been written, but is not final. The plan is to release final documentation by end of June.

RISK & MITIGATION: Documentation not ready for reduction of A and B configuration data; its mitigation is to continue using past techniques and potentially re-reduce data after best-practices are established and documented.

POP MILESTONE # 3.4.62

TITLE: New Mexico Operations

Renew of VLBA land leases

Cost

Schedule

Scope

COST: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">Labor Actuals</td> <td style="width: 50%;">Expected</td> </tr> <tr> <td colspan="2"><i>Not tracked at this level</i></td> </tr> <tr> <td>Material Actuals</td> <td>Expected</td> </tr> <tr> <td colspan="2"><i>No materials budget for this activity</i></td> </tr> <tr> <td>Travel Actuals</td> <td>Expected</td> </tr> <tr> <td colspan="2"><i>No travel budget for this activity</i></td> </tr> </table>	Labor Actuals	Expected	<i>Not tracked at this level</i>		Material Actuals	Expected	<i>No materials budget for this activity</i>		Travel Actuals	Expected	<i>No travel budget for this activity</i>		SCOPE: <p>St. Croix, VI site land use lease has been renewed.</p> <p>Owens Valley, CA site is not renewed yet. NRAO is awaiting lease negotiation outcome by Cal Tech (we sublease from Cal Tech).</p>			
Labor Actuals	Expected															
<i>Not tracked at this level</i>																
Material Actuals	Expected															
<i>No materials budget for this activity</i>																
Travel Actuals	Expected															
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SCHEDULE: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 40%;">Milestone</th> <th style="width: 20%;">Schedule</th> <th style="width: 40%;">Target</th> </tr> <tr> <td>1. St. Croix Lease renewed</td> <td>12/31/14</td> <td>12/31/14</td> </tr> <tr> <td>2. Owens Valley Lease renewed</td> <td>03/31/15</td> <td>TBD</td> </tr> </table>	Milestone	Schedule	Target	1. St. Croix Lease renewed	12/31/14	12/31/14	2. Owens Valley Lease renewed	03/31/15	TBD	RISK & MITIGATION: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Risk</th> <th style="width: 50%;">Mitigation</th> </tr> <tr> <td>1. Impact on VLBA operating budget (increase in lease cost)</td> <td>Adjust VLBA Operating budget.</td> </tr> <tr> <td>2. Impact on VLBA operations</td> <td>Avoid by periodic follow up of Cal Tech negotiation progress.</td> </tr> </table>	Risk	Mitigation	1. Impact on VLBA operating budget (increase in lease cost)	Adjust VLBA Operating budget.	2. Impact on VLBA operations	Avoid by periodic follow up of Cal Tech negotiation progress.
Milestone	Schedule	Target														
1. St. Croix Lease renewed	12/31/14	12/31/14														
2. Owens Valley Lease renewed	03/31/15	TBD														
Risk	Mitigation															
1. Impact on VLBA operating budget (increase in lease cost)	Adjust VLBA Operating budget.															
2. Impact on VLBA operations	Avoid by periodic follow up of Cal Tech negotiation progress.															

8
QSU 2 FY2015

COST: So far the lease cost has been a symbolic token paid yearly to Cal Tech.

TECHNICAL: N/A

SCHEDULE:

- St Croix Lease: The lease has been signed by all parties. The lease is for 10 years with two 5 year options.
- Owens valley Lease: Cal Tech negotiates this lease and it has been expired for 1 ½ years. NRAO sub leases from Cal Tech. Progress has been marginal in the last quarter, according to Cal Tech Owens Valley Radio Observatory Executive Director.

RISK & MITIGATION:

1. Cal Tech has leased Owens Valley, CA for a low yearly fee. Probability of a cost increase is low. Budget would need adjustment if happens.
2. Impact VLBA Operations is unlikely to occur.

POP MILESTONE 4.4.1

TITLE: West Virginia Operations

Commissioning of MUSTANG 1.5

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Labor Actuals</th> <th style="text-align: left; border-bottom: 1px solid black;">Expected</th> </tr> <tr> <td>\$ 144,003</td> <td>\$122,304</td> </tr> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Material Actuals</th> <th style="text-align: left; border-bottom: 1px solid black;">Expected</th> </tr> <tr> <td>\$0</td> <td>\$0</td> </tr> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Travel Actuals</th> <th style="text-align: left; border-bottom: 1px solid black;">Expected</th> </tr> <tr> <td>\$0</td> <td>\$0</td> </tr> </table>		Labor Actuals	Expected	\$ 144,003	\$122,304	Material Actuals	Expected	\$0	\$0	Travel Actuals	Expected	\$0	\$0	SCOPE: The MUSTANG 1.5 development project ended on March 9, 2015. All NRAO deliverables are complete.
Labor Actuals	Expected													
\$ 144,003	\$122,304													
Material Actuals	Expected													
\$0	\$0													
Travel Actuals	Expected													
\$0	\$0													
SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Milestone</th> <th style="text-align: left; border-bottom: 1px solid black;">Schedule</th> <th style="text-align: left; border-bottom: 1px solid black;">Target</th> </tr> <tr> <td>I. Commissioning start</td> <td>12/31/2014</td> <td>3/9/2015 (complete)</td> </tr> </table>		Milestone	Schedule	Target	I. Commissioning start	12/31/2014	3/9/2015 (complete)	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Risk</th> <th style="text-align: left; border-bottom: 1px solid black;">Mitigation</th> </tr> <tr> <td>I. Receiver efficiency</td> <td>Penn continues to study and address improvements</td> </tr> </table>	Risk	Mitigation	I. Receiver efficiency	Penn continues to study and address improvements		
Milestone	Schedule	Target												
I. Commissioning start	12/31/2014	3/9/2015 (complete)												
Risk	Mitigation													
I. Receiver efficiency	Penn continues to study and address improvements													

9
QSU 2 FY2015

COST: The project has completed. Cost overruns occurred in the last month of the project as commissioning efforts were complete.

SCHEDULE: The project completed on March 9, 2015.

SCOPE: N/A

RISK & MITIGATION: N/A

POP MILESTONE 4.4.2

TITLE: West Virginia Operations

Commissioning of ARGUS receiver

Cost

Schedule

Scope

COST:			SCOPE:	
Labor Actuals	Expected		NRAO is to receive ARGUS from the PI institution (Stanford) and integrate it into the GBT observing systems	
\$32,763	\$82,110			
Material Actuals	Expected			
\$315	\$0			
Travel Actuals	Expected			
\$0	\$0			
SCHEDULE:			RISK & MITIGATION:	
Milestone	Schedule	Target	Risk	Mitigation
1. Commissioning	3/31/15	9/15/15*	1. ARGUS obs. delayed	Accept delay
			2. Does not meet Spec.	Readiness review (PCR)

10

QSU 2 FY2015

NRAO

NSF

Accretion University

COST: Costs are tracked at a higher WBS level.

SCHEDULE: Schedule delay is due to delivery of ARGUS from Stanford.

* While ARGUS commissioning can occur over the summer, final on-sky commissioning will need appropriate high-frequency observing weather conditions. These typically occur starting in October.

SCOPE: N/A

RISK & MITIGATION: A Project Change Request was submitted in Q2 FY 2015 to add a readiness review to the scope of the ARGUS project. Action on the change request is expected very early in Q3 FY 2015 so the review may be designed and implemented before ARGUS ships from Stanford.

POP MILESTONE # 5.3.2

TITLE: Central Development Lab Design, Build, & Test 4 Band 2 MIC LNAs

Cost
 Schedule
 Scope

COST: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">Labor Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">CDL funds at a higher WBS</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>		Labor Actuals	Expected	\$	CDL funds at a higher WBS	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE: 50% of the original scope has been delivered with acceptable performance, two remaining LNAs are intended as spares. Overall scope is not at risk.
Labor Actuals	Expected													
\$	CDL funds at a higher WBS													
Material Actuals	Expected													
\$	\$													
Travel Actuals	Expected													
\$	\$													
SCHEDULE: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">Milestone</td> <td style="width: 30%; padding: 2px;">Schedule</td> <td style="width: 40%; padding: 2px;">Target</td> </tr> <tr> <td style="padding: 2px;">I. Deliver 4 LNAs</td> <td style="padding: 2px;">2014Dec31</td> <td style="padding: 2px;">On hold</td> </tr> </table>		Milestone	Schedule	Target	I. Deliver 4 LNAs	2014Dec31	On hold	RISK & MITIGATION: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Risk</td> <td style="width: 50%; padding: 2px;">Mitigation</td> </tr> <tr> <td style="padding: 2px;">I. Suspension of testing (1-2 weeks)</td> <td style="padding: 2px;">Timely response to an LNA failure</td> </tr> </table>	Risk	Mitigation	I. Suspension of testing (1-2 weeks)	Timely response to an LNA failure		
Milestone	Schedule	Target												
I. Deliver 4 LNAs	2014Dec31	On hold												
Risk	Mitigation													
I. Suspension of testing (1-2 weeks)	Timely response to an LNA failure													

11
QSU 2 FY2015

COST: Delay with this milestone does not impact project costs.

SCHEDULE: The delay with this milestone does not impact the Band 2 project schedule, since only 2 LNAs are required for Band 2 cartridge testing.

SCOPE: The two LNAs delivered exhibit acceptable performance and are sufficient to support ongoing Band 2 cartridge tests. A quantity of four was planned so there would be two spares, but the CDL prefers to delay these spares to preserve the stock of discrete devices, and also potentially further optimize performance.

RISK & MITIGATION: The risk in constructing the spares is that in the event of a failure, a spare LNA is not immediately available, resulting in the temporary loss of one of the two polarization paths. The impact of a failure would result in suspension of testing at full capacity for 1-2 weeks until a failed unit could be repaired or replaced. Mitigation includes having adequate resources readily available to repair or replace a failed LNA.

POP MILESTONE # 5.3.3

TITLE: Central Development Lab

Deliver 10 ALMA Band I Amplifiers

COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

SCOPE:

Four LNAs were delivered on schedule under a prototype contract. A follow on proposal for 6 more is pending but ASIAA has delayed that order.

Milestone cancelled

SCHEDULE:

Milestone	Schedule	Target
I. Deliver 10 LNAs	2015Mar31	cancelled

RISK & MITIGATION:

Risk	Mitigation

12

QSU 2 FY2015



COST: Costs are tracked at a higher WBS level.

SCHEDULE: The milestone for these 10 LNAs was based on the premise that the amplifier group would receive an order for 4 prototype LNAs and 6 production LNAs during FY 2015, but cash flow constraints has delayed ASIAA's order for additional LNAs, therefore, we are cancelling the milestone.

SCOPE: N/A

RISK & MITIGATION: N/A

POP MILESTONE # 6.5.21

TITLE: Science Support & Research

RPI and NRAO archive user testing

Cost

Schedule

Scope

COST:

Labor Actuals	Expected
DMS funds this activity at a higher WBS level.	
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

SCOPE:

RPI and NRAO archive user testing

SCHEDULE:

Milestone	Schedule	Target
1. Deliver Initial Archive/RPI for internal testing (DMS)	N/A	8/31/2015
2. Internal Testing Done (SSR)	N/A	9/30/2015
3. Operationalize the Archive and RPI	3/31/2015	TBD

RISK & MITIGATION:

Risk	Mitigation
1. Operational issues with existing NRAO archive	See DMS 7.4.34

13

QSU 2 FY2015

NRAO

NSF

Associated Universities Inc.

COST: DMS funds this activity at a higher WBS level. Costs are not tracked for this milestone.

SCHEDULE: Schedule is delayed due to loss of key DMS staff and underestimation of the integration work involved in moving from a prototype through testing to a production system. A testable NRAO Archive and separate Reprocessing Pipeline Interfaces (RPI) for the EVLA and ALMA are anticipated in August 2015. See DMS four-square for POP Milestone 7.4.34.

SCOPE: User testing of RPI and NRAO archive

RISK & MITIGATION: Operational issues with the existing NRAO archive may divert attention from this effort and delay the schedule. User testing awaits delivery of DMS milestone.

POP MILESTONE # 7.4.22

TITLE: Data Management & Software

Deliver Frequency Averaging (VLA)

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; border-bottom: 1px solid black;">Labor Actuals</td> <td style="width: 50%; border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2"><i>DMS funds this activity at a higher WBS level.</i></td> </tr> <tr> <td style="border-bottom: 1px solid black;">Material Actuals</td> <td style="border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td>\$0</td> <td>\$0</td> </tr> <tr> <td style="border-bottom: 1px solid black;">Travel Actuals</td> <td style="border-bottom: 1px solid black;">Expected</td> </tr> <tr> <td>\$0</td> <td>\$0</td> </tr> </table>	Labor Actuals	Expected	<i>DMS funds this activity at a higher WBS level.</i>		Material Actuals	Expected	\$0	\$0	Travel Actuals	Expected	\$0	\$0	SCOPE: <p>Software updated for frequency averaging.</p> <p>This capacity will enable the reduction in visibility data rates from the Correlator for continuum observing.</p>				
Labor Actuals	Expected																
<i>DMS funds this activity at a higher WBS level.</i>																	
Material Actuals	Expected																
\$0	\$0																
Travel Actuals	Expected																
\$0	\$0																
SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 60%;">Milestone</th> <th style="width: 20%;">Schedule</th> <th style="width: 20%;">Target</th> </tr> <tr> <td>1. Implement Frequency Averaging (DMS)</td> <td>12/31/15</td> <td>3/31/15</td> </tr> <tr> <td>2. Test Frequency Averaging in CBE (DMS & NM OPS)</td> <td>3/31/15</td> <td>5/30/15</td> </tr> <tr> <td>3. Available in RSRO program</td> <td>N/A</td> <td>6/30/15</td> </tr> </table>	Milestone	Schedule	Target	1. Implement Frequency Averaging (DMS)	12/31/15	3/31/15	2. Test Frequency Averaging in CBE (DMS & NM OPS)	3/31/15	5/30/15	3. Available in RSRO program	N/A	6/30/15	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">Risk</th> <th style="width: 50%;">Mitigation</th> </tr> <tr> <td>1. Frequency Averaging not available in FY2015.</td> <td>Buy more archive disk space.</td> </tr> </table>	Risk	Mitigation	1. Frequency Averaging not available in FY2015.	Buy more archive disk space.
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3. Available in RSRO program	N/A	6/30/15															
Risk	Mitigation																
1. Frequency Averaging not available in FY2015.	Buy more archive disk space.																

14
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level. There are no material or travel costs for this item, only labor.

SCOPE: Software updated for frequency averaging. Frequency averaging will enable the reduction in visibility data rates from the correlator for continuum observing, resulting in a reduced need for data processing and storage.

SCHEDULE: The milestone is reached by coordinated effort between Science Support and DMS; Science Support has their task scheduled in FY2015 POP for Q2, reference: #3.4.12. Progress in software development includes a successful proof of concept in the Correlator Back End (CBE) and a first cut of the definition of the Virtual Correlator Interface (VCI). Next step is to achieve coordination between CBE and the Configuration Mapper (CM). This coordination needs a final version of the VCI definition. The final step will be to test this. We expect to begin testing in May 2015 and be done with this milestone before the end of Q3.

The availability of the feature for the Resident Shared Risk Observing (RSRO) program is the first step to making this feature available through the Shared Risk Observing (SRO) and General Observing (GO) programs.

RISK & MITIGATION: Risk of not having the Frequency Averaging implemented in FY2015. The mitigation strategy would be to buy more disk space.

POP MILESTONE # 7.4.28

TITLE: Data Management & Software

NRQZ Software

COST:

Labor Actuals	Expected
<i>DMS funds this activity at a higher WBS level.</i>	
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

SCOPE: Replace and optimize the existing system used for propagation path analysis within the National Radio Quiet Zone (NRQZ).

Milestone cancelled

SCHEDULE:

Milestone	Schedule	Target
I. Start Development	3/31/2015	canceled

RISK & MITIGATION:

Risk	Mitigation
I. Missed opportunity	Current system works, accept risk

15

QSU 2 FY2015



COST: DMS funds this activity at a higher WBS level. Costs are not tracked for this milestone.

SCHEDULE: Milestone cancelled – This requires a science resource (project scientist) to provide requirements and ongoing assistance with development, in addition to effort from DMS to do the work. No resource availability is anticipated to address this.

SCOPE: Replace and optimize the existing system used for propagation path analysis within the National Radio Quiet Zone (NRQZ) and West Virginia Radio Astronomy Zone (WVRAZ).

RISK & MITIGATION: This is an opportunity to re-design the NRQZ approval process which would streamline it and reduce current staff effort. However, the effort gain would not cover the cost of additional scientific staff.

The existing system, while not optimal, will continue to meet the need for NRQZ request review.

POP MILESTONE # 7.4.34

TITLE: Data Management & Software

Operationalize the new NRAO Archive and RPI

Cost

Schedule

Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; border: 1px solid black;">Labor Actuals</td> <td style="border: 1px solid black;">Expected</td> </tr> <tr> <td colspan="2" style="padding: 2px;"><i>DMS funds this activity at a higher WBS level.</i></td> </tr> <tr> <td style="border: 1px solid black;">Material Actuals</td> <td style="border: 1px solid black;">Expected</td> </tr> <tr> <td style="border: 1px solid black;">\$</td> <td style="border: 1px solid black;">\$</td> </tr> <tr> <td style="border: 1px solid black;">Travel Actuals</td> <td style="border: 1px solid black;">Expected</td> </tr> <tr> <td style="border: 1px solid black;">\$</td> <td style="border: 1px solid black;">\$</td> </tr> </table>			Labor Actuals	Expected	<i>DMS funds this activity at a higher WBS level.</i>		Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE: Operationalize the New NRAO Archive and RPI prototyped in FY14.								
Labor Actuals	Expected																						
<i>DMS funds this activity at a higher WBS level.</i>																							
Material Actuals	Expected																						
\$	\$																						
Travel Actuals	Expected																						
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SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%; border: 1px solid black;">Milestone</th> <th style="width: 20%; border: 1px solid black;">Schedule</th> <th style="width: 20%; border: 1px solid black;">Target</th> </tr> <tr> <td style="border: 1px solid black;">1. Deliver Initial Archive/RPI for internal testing (DMS)</td> <td style="border: 1px solid black;">N/A</td> <td style="border: 1px solid black;">8/31/2015</td> </tr> <tr> <td style="border: 1px solid black;">2. Internal Testing Done (SSR)</td> <td style="border: 1px solid black;">N/A</td> <td style="border: 1px solid black;">9/30/2015</td> </tr> <tr> <td style="border: 1px solid black;">3. Operationalize the Archive and RPI</td> <td style="border: 1px solid black;">3/31/2015</td> <td style="border: 1px solid black;">TBD</td> </tr> </table>			Milestone	Schedule	Target	1. Deliver Initial Archive/RPI for internal testing (DMS)	N/A	8/31/2015	2. Internal Testing Done (SSR)	N/A	9/30/2015	3. Operationalize the Archive and RPI	3/31/2015	TBD	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%; border: 1px solid black;">Risk</th> <th style="width: 50%; border: 1px solid black;">Mitigation</th> </tr> <tr> <td style="border: 1px solid black;">1. Operational issues with existing NRAO archive</td> <td style="border: 1px solid black;">Use non-project resources when possible</td> </tr> <tr> <td style="border: 1px solid black;">2. ALMA development needed</td> <td style="border: 1px solid black;">Use local database and SSO2 signon</td> </tr> </table>			Risk	Mitigation	1. Operational issues with existing NRAO archive	Use non-project resources when possible	2. ALMA development needed	Use local database and SSO2 signon
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Risk	Mitigation																						
1. Operational issues with existing NRAO archive	Use non-project resources when possible																						
2. ALMA development needed	Use local database and SSO2 signon																						

16
QSU 2 FY2015

COST: DMS funds this activity at a higher WBS level. Costs are not tracked for this milestone.

SCHEDULE: Schedule is delayed due to loss of key staff and underestimation of the integration work involved in moving from a prototype through testing to a production system. A testable NRAO Archive and separate Reprocessing Pipeline Interfaces (RPI) for the EVLA and ALMA are anticipated in August 2015. The final delivery date is TBD due to the need to fill the positions and train new staff.

SCOPE: Operationalize the New NRAO Archive and RPI prototyped in FY14. No scope issues.

RISK & MITIGATION: Operational issues with the existing NRAO archive may divert attention from this effort and delay the schedule. To the extent possible this work will be directed to non-project resources.

Access to ALMA data using the VO software may require agreement and development work by the ALMA project. Also, federated signon across NRAO and ALMA would require ALMA development effort. To address this, fallback plans include accessing the data from an NRAO copy of the ALMA database, and using authentication capabilities similar to the existing SSO2 until federation could be agreed and put in place.

POP MILESTONE # 7.4.44

TITLE: Data Management & Software

Create Architecture for Observatory Tools

Cost
 Schedule
 Scope

COST: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Labor Actuals</td> <td style="width: 70%;">Expected</td> </tr> <tr> <td colspan="2"><i>DMS funds this activity at a higher WBS level.</i></td> </tr> <tr> <td>Material Actuals</td> <td>Expected</td> </tr> <tr> <td>\$</td> <td>\$</td> </tr> <tr> <td>Travel Actuals</td> <td>Expected</td> </tr> <tr> <td>\$</td> <td>\$</td> </tr> </table>			Labor Actuals	Expected	<i>DMS funds this activity at a higher WBS level.</i>		Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE: Review the current design of user facing tools, in particular the PST, PHT, and OPT. Develop an architecture for improvement.		
Labor Actuals	Expected																
<i>DMS funds this activity at a higher WBS level.</i>																	
Material Actuals	Expected																
\$	\$																
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Milestone	Schedule	Target															
I. Create Observatory Tools Architecture	3/31/2015	TBD															
Risk	Mitigation																
1. Continuing user frustration with tools	Prioritize/address key issues																
2. Focus on New Archive & RPI	Accept																

17
QSU 2 FY2015

COST: DMS funds this activity at a higher WBS level. Costs are not tracked for this milestone.

SCHEDULE: Schedule was delayed due to lack of clear input on requirements. Schedule is TBD. An initial workshop was held in September 2014 to gather ideas for reorganizing the toolset. The consensus opinion was that moving towards an ALMA-like toolset for proposing, reviewing, approving, and setting up observations might be possible. More detailed requirements are needed to evaluate the practicality of this approach. A proposed model with additional detail will be circulated in the July timeframe in order to gather additional input.

SCOPE: Review the current design of user facing tools, in particular the PST, PHT, and OPT. Develop an architecture for improvement.
No scope issues.

RISK & MITIGATION: The Users Committee and other similar groups have pointed out deficiencies in the toolset. These have been prioritized by the Committee and evaluated by the development team. High priority/low effort items will be implemented in the current software.

Focus on New Archive and RPI will continue to delay this, as the resources required for development and testing are for the most part the same people needed for providing input to and developing the architecture/direction for this toolset.

POP MILESTONE # 8.5.1

TITLE: Program Management Dept. SOP and Templates Available

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Labor Actuals</td> <td style="width: 50%; padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>		Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE:	
Labor Actuals	Expected														
\$	\$														
Material Actuals	Expected														
\$	\$														
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\$	\$														
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Milestone	Schedule	Target													
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Risk	Mitigation														
1. Out of Process activities	Prioritize AD-facing processes														
2. Time to stabilize/normalize prior to PMD External Review	Focus on process documentation (SOPs) first; then work instructions/templates														

18
QSU 2 FY2015

COST: Cost is held at the PMD core level for this activity. No funding issues.

SCHEDULE: The Standard Operating Procedures and Template development is progressing at a slower rate due to 1) conflicting priorities within PMD (project needs versus core activities) and 2) the needed level of involvement of the ADs to validate the processes. The planned completion of all processes (7 major processes), templates, and work instructions is July 31, 2015.

SCOPE: N/A

RISK & MITIGATION: The implementation of SOPs, templates, and work instructions only impacts ADs in limited areas (documentation development, new ideas and proposal development, Observatory Risk Management). The risk is in out of process activities, so these areas have been addressed as a higher priority and will be done first as a mitigation. The other SOPs, etc. are predominantly inward facing to PMD and provide structure that the PMD staff can use (in collaboration with the PI/PL) to ensure consistency and standard implementation. The risk is in not having the SOPs completed (through validation and approval) with enough time to stabilize and normalize their use prior to a planned PMD External Review (planned for August 25-26, 2015). This is being mitigated through an approach to first focus on the process documentation (SOPs), and then address the work instructions and templates. It is also being mitigated through the use of PMD staff on projects since they are knowledgeable of the process requirements for the areas of PM/SE that are being documented.

POP MILESTONE # 10.3.4

TITLE: Education & Public Outreach

New VLA Visitor/Education Center Fundraising Plan

Cost

Schedule

Scope

COST: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="width: 50%; padding: 2px;">Labor Actuals</td> <td style="width: 50%; padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>	Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE: Project is being reevaluated.									
Labor Actuals	Expected																					
\$	\$																					
Material Actuals	Expected																					
\$	\$																					
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\$	\$																					
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Risk	Mitigation																					
1. Vision not accepted	Stop and re-evaluate scope with stakeholders																					
2. Loss of project director	Accept, or transfer project to incumbent																					

19
QSU 2 FY2015

COST: N/A

SCHEDULE: Although the first two milestones were completed on time, the project director left NRAO employ, and the project is being re-evaluated. This will negate the current schedule.

SCOPE: The project is being reevaluated.

RISK & MITIGATION: The project reset is accepted, because the project idea will enter the formal project management process and will result in SMART goals matched to greater stakeholder and end user buy in.

POP MILESTONE # 10.3.16

TITLE: Education & Public Outreach

Convert public website to Joomla 3

Cost

Schedule

Scope

COST: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width: 50%;">Labor Actuals</th> <th style="width: 50%;">Expected</th> </tr> <tr> <td>\$</td> <td>\$</td> </tr> <tr> <th style="width: 50%;">Material Actuals</th> <th style="width: 50%;">Expected</th> </tr> <tr> <td>\$</td> <td>\$</td> </tr> <tr> <th style="width: 50%;">Travel Actuals</th> <th style="width: 50%;">Expected</th> </tr> <tr> <td>\$</td> <td>\$</td> </tr> </table>	Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE: <p style="margin-top: 10px;">Update failed, and process will be reset with a larger team.</p>					
Labor Actuals	Expected																	
\$	\$																	
Material Actuals	Expected																	
\$	\$																	
Travel Actuals	Expected																	
\$	\$																	
SCHEDULE: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width: 33%;">Milestone</th> <th style="width: 33%;">Schedule</th> <th style="width: 33%;">Target</th> </tr> <tr> <td>1. Upgrade new CMS</td> <td>12/31/14</td> <td>TBD</td> </tr> <tr> <td>2. Caching software running</td> <td>06/30/15</td> <td>TBD</td> </tr> </table>	Milestone	Schedule	Target	1. Upgrade new CMS	12/31/14	TBD	2. Caching software running	06/30/15	TBD	RISK & MITIGATION: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <th style="width: 50%;">Risk</th> <th style="width: 50%;">Mitigation</th> </tr> <tr> <td>1. Security breach due to outdated, unsupported version of Joomla</td> <td>Avoid, upgrade to supported Joomla as soon as possible</td> </tr> <tr> <td>2. Absence/oversubscription of shared developers</td> <td>Accept delay or engage stakeholders in priority setting</td> </tr> <tr> <td>3. Upgrade fails</td> <td>Enlist Security Committee and hire outside Joomla support</td> </tr> </table>	Risk	Mitigation	1. Security breach due to outdated, unsupported version of Joomla	Avoid, upgrade to supported Joomla as soon as possible	2. Absence/oversubscription of shared developers	Accept delay or engage stakeholders in priority setting	3. Upgrade fails	Enlist Security Committee and hire outside Joomla support
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3. Upgrade fails	Enlist Security Committee and hire outside Joomla support																	

20
QSU 2 FY2015

COST: EPO funds this activity at a higher WBS level. Costs are not tracked for this milestone.

SCHEDULE: The milestone is typically reached by coordinated effort between EPO, CIS, and WDG; however, CIS/WDG oversubscription continues to delay milestones.

SCOPE: Joomla's "one-click" upgrade was false advertising, and CIS/WDG process for restoring from backup failed. Requires a cross-department rethink of the workflow and resources needed to upgrade the public website.

Once the new Joomla/K2 system is stable, then we will revisit the varnish caching system. However, web caching system relies on WDG, which currently is oversubscribed.

RISK & MITIGATION: The update is fueled by a need to provide continued web security for NRAO, so failure is not an option. However, with no budget assigned to hire externally, the process requires shared but oversubscribed resources across NRAO, which means acceptance of delays.

POP MILESTONE # 12.3.7

Cost

Schedule

Scope

TITLE: Diversity

NINE-NRAO Staff to South Africa:Teaching & recruitment

COST:

Labor Actuals	Expected
\$	\$
Material Actuals	Expected
\$	\$
Travel Actuals	Expected
\$	\$

SCOPE:

To coordinate with the NASSP program teaching / recruitment of students from South Africa – delayed due to scheduling issues on both sides + lack of mentors on NRAO side

SCHEDULE:

Milestone	Schedule	Target
I Staff to RSA	Q2	Q3 (May 2015)

RISK & MITIGATION:

Risk	Mitigation
I Fewer students in NINE	Continued engagement with RSA and NRAO partners / planning visit in May

21

QSU 2 FY2015

NRAO

NSF

Associated Universities, Inc.

21

QSU 2 FY2015



COST: This FY 2015 the main cost will be travel to South Africa for K. Sheth and possibly one other NRAO member. Funds already allocated in the NINE budget.

SCHEDULE: The schedule has slipped a bit due to scheduling difficulties on both sides (the extragalactic course in the NASSP (National Astronomy and Space Sciences Program) ended earlier than expected) – still we have put in at least one MSc project and are expecting to get one additional student signing on to the co-mentored NINE model. K. Sheth will visit with Kurt van der Heyden (director of the NASSP program) and Yunus Manjoo (National Research Foundation, South Africa) in early June to discuss how to use the new funds allocated by South Africa for the NINE program. These funds will help support air travel for South African students to the US for the co-mentored projects with US-based scientists and possibly fund local expenses for visiting US scientists in South Africa.

SCOPE: Coordinating with the NASSP program – our main partner in the NINE program.

RISK & MITIGATION: This year we will only take on one more student – partly limited by capacity on our side. We will try and improve upon this by continued engagement with NRAO staff and RSA faculty.

POP MILESTONE # 12.3.8

TITLE: Diversity

UVA/NRAO Chilean PhD Sponsorship

COST:			SCOPE:	
Labor Actuals	Expected		Originally intended to pay for a UVa student from Chile. Now rolling program into NINE / developing partnership with Chilean Universities directly.	
\$	\$			
Material Actuals	Expected			
\$	\$		Milestone cancelled	
Travel Actuals	Expected			
\$	\$			
SCHEDULE:			RISK & MITIGATION:	
Milestone	Schedule	Target	Risk	Mitigation
1 Sponsoring Chilean student	Q2	Q3 or Q4	1.No NRAO sponsored Chilean in US grad program	Continuing conversations with Aravena, Hardy and others to recruit Chilean students for NINE format program.
2			2	
3			3	

22

QSU 2 FY2015



COST: No cost at the moment. Once student(s) are identified we will try and find funding for them via the NINE budget.

SCHEDULE: Originally we had hoped to fund someone in Q2. The local Uva student from Chile was funded from the Grote Reber fund. We decided to expand the program to be less exclusive and roll it into the broader NINE program as described below. If we are successful we will aim to get a student for Q3 or Q4 2015.

SCOPE: Originally this program was specifically targeted at recruiting and paying for a Chilean woman graduate student studying at Uva. The program seemed too narrowly focused and after discussion we decided that it made more sense to cancel it and roll the intent of the program into the growing NINE partnership with Chile. We have already begun conversations with faculty at Chilean Universities via the Office of Chilean Affairs. A meeting was organized last year where ~15-20 faculty from across Chile gathered at the OCI office or via teleconference to hear about the on-going NINE activities in South Africa and then to brainstorm ideas for Chile. We are continuing to build on this meeting, now also involving NRAO staff at the JAO (specifically Hales, Cortes and Cortes). We hope to reach out to underserved and under-represented Chilean students through Chilean faculty across the country for co-mentored programs with NRAO staff and faculty – the same model as that for South Africa.

RISK & MITIGATION: One risk is that for this fiscal year we do not manage to get a Chilean student. This is a possibility as the program is just getting started but we are working to try

and identify students for this program in partnership with OCI, JAO and Chilean university faculty partners (specifically through Aravena at UDP).

POP MILESTONE #13.7.11

TITLE: Human Resources

Update Workforce Management and Staffing Plans

Cost

Schedule

Scope

COST:		SCOPE:	
Labor Actuals	Expected	Change in scope to invite stakeholders across the Observatory.	
\$	\$		
Material Actuals	Expected		
\$	\$		
Travel Actuals	Expected		
\$	\$		
SCHEDULE:		RISK & MITIGATION:	
Milestone	Schedule	Target	
I. 3/31/2015		07/2015	
		Risk	Mitigation
		I. Low	Plan Staffing Summit

23
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: It is strongly recommended that this milestone be part of a strategic Observatory wide exercise with focused involvement from the division heads. In order to update and/or develop a robust and relative workforce management plan that will be effectively realized, consultation with stakeholders should occur. A considerable amount of effort has been extended in the re-competition staffing plan regarding future staffing needs. An Observatory Staffing Summit should be organized to ensure a collaborative, orchestrated approach is designed to update the WFMP.

SCOPE: Scope change due to involving Observatory wide stakeholders to be involved in updated the WFMP.

RISK & MITIGATION: Low risk – mitigation – Coordinate Observatory wide Staffing Summit

POP MILESTONE #15.6.5

TITLE: CAP - Design (Contractor) policy, review and socialize with assistant directors and business managers

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 2px;">Labor Actuals</td> <td style="width: 50%; padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>		Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE:	
Labor Actuals	Expected														
\$	\$														
Material Actuals	Expected														
\$	\$														
Travel Actuals	Expected														
\$	\$														
SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%; padding: 2px;">Milestone</th> <th style="width: 30%; padding: 2px;">Schedule</th> <th style="width: 40%; padding: 2px;">Target</th> </tr> <tr> <td style="padding: 2px;">I. Complete policy</td> <td style="padding: 2px;">12/31/2014</td> <td style="padding: 2px;">06/19/2015</td> </tr> </table>		Milestone	Schedule	Target	I. Complete policy	12/31/2014	06/19/2015	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%; padding: 2px;">Risk</th> <th style="width: 50%; padding: 2px;">Mitigation</th> </tr> <tr> <td style="padding: 2px;">I</td> <td style="padding: 2px;"></td> </tr> </table>		Risk	Mitigation	I			
Milestone	Schedule	Target													
I. Complete policy	12/31/2014	06/19/2015													
Risk	Mitigation														
I															

24
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: This project is being performed in collaboration with HR. In Q1 the HR Division was focused on other deliverables. In Q2 the Contracts and Procurement Manager retired. A draft was completed on April 7 and is under review.

SCOPE: N/A

RISK & MITIGATION: Steven Geiger had met with HR and Contracts and the policy is being reviewed and edited.

POP MILESTONE # 15.7.6

TITLE: CAP - Design (Grants Lifecycle) training program and obtain approval from AD of Administration

Cost

Schedule

Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">Labor Actuals</td> <td style="width: 70%; padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>			Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE:		
Labor Actuals	Expected																
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Material Actuals	Expected																
\$	\$																
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\$	\$																
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Milestone	Schedule	Target															
I. Complete the program	3/31/2015	06/19/2015															
Risk	Mitigation																

25
QSU 2 FY2015

COST: N/A

SCHEDULE: CAP is seeking input from PMD so that PMD procedures can be referenced; also the Associate Director of Administration has suggested additions to the training from the NSF Proposal and Award Policies and Procedures Guide.

SCOPE: N/A

RISK & MITIGATION: N/A

POP MILESTONE # 17.1.9

TITLE: Director's Office

All Hands Presentations

Cost
 Schedule
 Scope

COST: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; padding: 2px;">Labor Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Material Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> <tr> <td style="padding: 2px;">Travel Actuals</td> <td style="padding: 2px;">Expected</td> </tr> <tr> <td style="padding: 2px;">\$</td> <td style="padding: 2px;">\$</td> </tr> </table>			Labor Actuals	Expected	\$	\$	Material Actuals	Expected	\$	\$	Travel Actuals	Expected	\$	\$	SCOPE: All Hands presentations twice yearly		
Labor Actuals	Expected																
\$	\$																
Material Actuals	Expected																
\$	\$																
Travel Actuals	Expected																
\$	\$																
SCHEDULE: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%; padding: 2px;">Milestone</th> <th style="width: 30%; padding: 2px;">Schedule</th> <th style="width: 40%; padding: 2px;">Target</th> </tr> <tr> <td style="padding: 2px;">I. Presentation</td> <td style="padding: 2px;">6/30/2015</td> <td style="padding: 2px;">Completed</td> </tr> </table>			Milestone	Schedule	Target	I. Presentation	6/30/2015	Completed	RISK & MITIGATION: <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%; padding: 2px;">Risk</th> <th style="width: 50%; padding: 2px;">Mitigation</th> </tr> <tr> <td style="height: 100px;"></td> <td></td> </tr> </table>			Risk	Mitigation				
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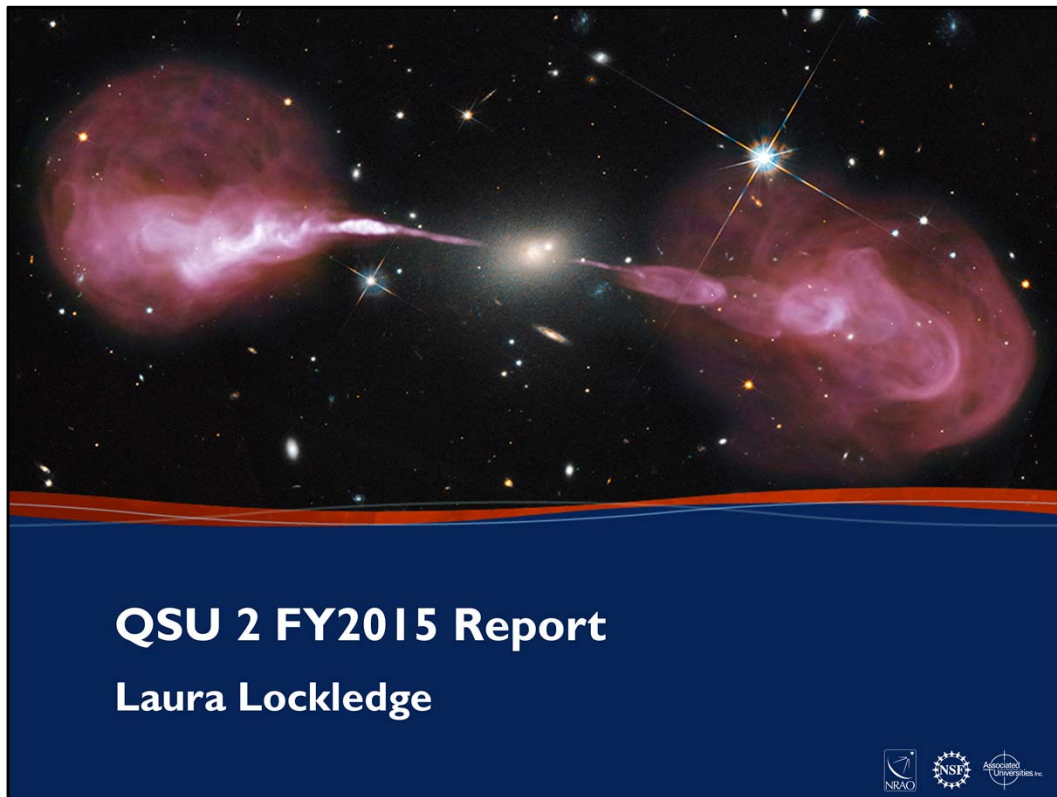
26
QSU 2 FY2015

COST: N/A

SCHEDULE: Completed early due to scheduling All Hands meetings to coincide with existing travel to Chile and Socorro.

SCOPE: N/A

RISK & MITIGATION: N/A



Q2 FY15 Summary

- Overall Issues
 - Benefits – Running ahead of budget for current fiscal year, effect of y/e accrual + Q1 is 4th quarter of the benefits year. Beginning to moderate.
 - 2.5% merit based raises effective in January/February.
 - Promotions take effect with May payroll
 - ICC currently under-recovered for actual expenses; two large payments (DSOC, insurance)
- NRAO Ops
 - Budget includes distribution of FY15 over-guidance & carry-forward items.
 - Reserve for FY16 shows as CSA-I NET
 - Activities not yet committed in FY15 carried in Admin (Infrastructure Reserve)

FY15 YTD by Major WBS Category

NRAO Ops – Q2

	FY15 POP Budget	FY15 Rev. Budget	FY15 YTD Actual	YTD % Rev Budget
NSF	40,000	43,140	21,570	50.0
Telescope Time Sale	2,391	1,915	1,257	65.6
Carryforward/Other	1,750	4,908	4,961	101.1
Total CSA-I Revenues	44,141	49,963	27,788	55.6
Telescope Ops	17,966	18,832	8,245	43.8
Development	2,787	2,880	1,254	43.5
Science Ops	5,475	5,699	2,334	41.0
Admin Services	14,255	16,448	7,266	44.2
Director's Office	3,488	3,600	1,553	43.1
FY15 , Total	43,970	47,459	20,652	43.5
FY15 CSA-I NET	171	2,504	7,136	

- C/F includes prior year open commits of \$790K.
- Reclass of some POP items from Common Costs to Program.
- Admin services reflects reserved salary increments and other allowances not yet distributed.

FY15 YTD by Major WBS Category

ALMA Ops – Q2

	FY15 POP	FY15 Rev.	FY15 YTD	YTD % Rev
	Budget	Budget	Actual	Budget
Telescope Ops	23,607	25,919	9,870	38.1
Development	5,626	8,081	1,690	20.9
Science Ops	6,627	6,973	2,156	30.9
Admin Services	4,460	5,684	2,473	43.5
Director's Office	2,949	3,367	1,336	39.7
FY15 , Total	43,269	50,024	17,525	35.0
Development Reserve	1,231			
Open Commits	4,406		5,472	
C/F For FY15 Fuel		1,800		
C/F for Future Years	4,950	2,032		
All ALMA Resources	53,856	53,856	22,998	42.7

- Development Reserve & Open Commitments are reflected in the revised budget.

Open commitments includes JAO (Newrest), awarded external development projects and studies, and SOS/Reber grants.

FY15 YTD by Major WBS Category

ICC – Q2





	FY15 POP Budget	FY15 Rev. Budget	FY15 YTD Actual	YTD % Rev Budget
Telescope Ops	68	69	48	69.6
Development	779	787	279	35.5
Science Ops	1,722	1,742	772	44.3
Admin Services (Gross)	10,911	11,192	5,354	47.8
Director's Office	1,367	1,367	554	40.5
FY15 Total, Non CSA Sources	14,847	15,157	7,007	46.2
Admin Recoveries (CSA's)	(13,654)	(13,899)	(6,035)	43.4
External Recovery	(1,193)	(1,193)	(867)	72.7
FY15 NET	(1)	65	105	

- Small under-recovery
- Spending lag in CSA's
- Large payments for insurance & DSOC in Q2

ALMA-C contributing to higher external recovery. Also keeping under-recovery in reasonable range.

FY15 Budget Exceptions

Overguidance Funding Approach

- Review POP & fund items id'd as next to be done/what had to be given up 
- Strategically position GB & VLBA for their post-CSA life
 - * invest in new business development
 - * invest in key infrastructure maintenance items
 - * secure key personnel/skills
- Prepare for initiatives of the new contract
 - * Position development efforts for VLA NBT 
 - * Diversity Initiatives 
- Pre work on VLA infrastructure to enable move up of VLA NBT
- Matters arising 

FY15 Exceptions

Overguidance Funding Items: NRAO Ops

Item	FY15 Base Cost	FY16 Base		Base +	Total Cost
		Base +	Cost		
Reserve			265,000	344,500	344,500
FY16 Raises 3%			574,035	746,245	746,245
FY16 Page Charge Support			64,000	83,200	83,200
GB Infrastructure	100,000	137,000			137,000
VLA Infrastructure: 3 ACU's	112,800	146,640	-	-	146,640
Next Gen VLA Start Up	200,000	274,000	300,000	411,000	685,000
CDL Research Engineer Start Up (100K equip + 1 tech)	95,563	131,064	235,895	323,530	454,594
NAC/NINE FY15 & 16	49,600	68,026	53,600	73,512	141,539
STEM Education Lead (4/12 in 2015)	33,750	46,288	103,275	141,642	187,930
FY16 NanoGRAV Revenue Timing			210,000	210,000	210,000
Total	591,713	803,018	1,805,805	2,333,629	3,136,648

Note the \$2.3M FY16 expenses are shown in the NRAO Ops budget sheet as carryforward.

FY15 Exceptions

Overguidance Funding Items: ICC

ICC Expenses	FY15 Base Cost	FY16 Base Cost	Total Cost
ICC Increment	177,514	478,741	656,255
FY16 Raises		196,641	196,641
Operational Rollback	44,000	41,000	85,000
HR Head	47,250	144,200	191,450
CDL Head (8 months in 2016)		157,500	157,500
Maintain Env Safety (ESS) Adjustments		16,000	16,000
Contingency for Senior Hires		9,664	9,664
ICC Net	86,264	-	(86,264)



POP MILESTONE # FY14 4.2.15

TITLE: Scientific Evaluation of ACU 1st and 2nd unit

Cost
 Schedule
 Scope

COST: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Labor Actuals</td> <td>Expected</td> </tr> <tr> <td colspan="2"><i>Not tracked at this level</i></td> </tr> <tr> <td>Material Actuals</td> <td>Expected</td> </tr> <tr> <td colspan="2"><i>No materials budget for this activity</i></td> </tr> <tr> <td>Travel Actuals</td> <td>Expected</td> </tr> <tr> <td colspan="2"><i>No travel budget for this activity</i></td> </tr> </table>			Labor Actuals	Expected	<i>Not tracked at this level</i>		Material Actuals	Expected	<i>No materials budget for this activity</i>		Travel Actuals	Expected	<i>No travel budget for this activity</i>		SCOPE: <p>The first two new ACU units were installed on VLA antennas and have been tested for scientific performance.</p> <p>The ACUs perform to specification and a memo describing the results has been published.</p>			
Labor Actuals	Expected																	
<i>Not tracked at this level</i>																		
Material Actuals	Expected																	
<i>No materials budget for this activity</i>																		
Travel Actuals	Expected																	
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SCHEDULE: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Milestone</th> <th style="width: 20%;">Schedule</th> <th style="width: 20%;">Actual</th> </tr> <tr> <td>1. Super-sidereal test</td> <td>2/1/15</td> <td>2/1/15</td> </tr> <tr> <td>2. Memo</td> <td>2/15/15</td> <td>3/26/15</td> </tr> </table>			Milestone	Schedule	Actual	1. Super-sidereal test	2/1/15	2/1/15	2. Memo	2/15/15	3/26/15	RISK & MITIGATION: <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 30%;">Risk</th> <th style="width: 70%;">Mitigation</th> </tr> <tr> <td>1. 1st and 2nd unit do not meet performance</td> <td>Retired, units met performance required.</td> </tr> </table>			Risk	Mitigation	1. 1 st and 2 nd unit do not meet performance	Retired, units met performance required.
Milestone	Schedule	Actual																
1. Super-sidereal test	2/1/15	2/1/15																
2. Memo	2/15/15	3/26/15																
Risk	Mitigation																	
1. 1 st and 2 nd unit do not meet performance	Retired, units met performance required.																	

36
QSU 2 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE:

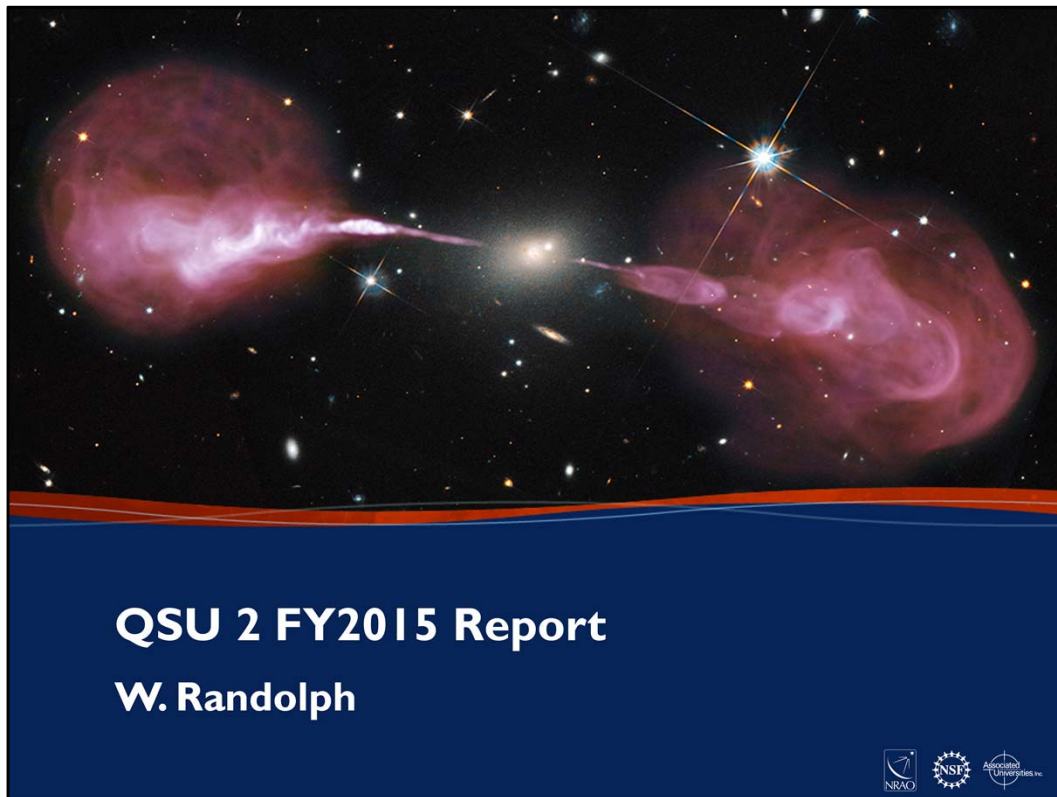
The ACU scientific evaluation of 1st and 2nd unit consisted in two tests :

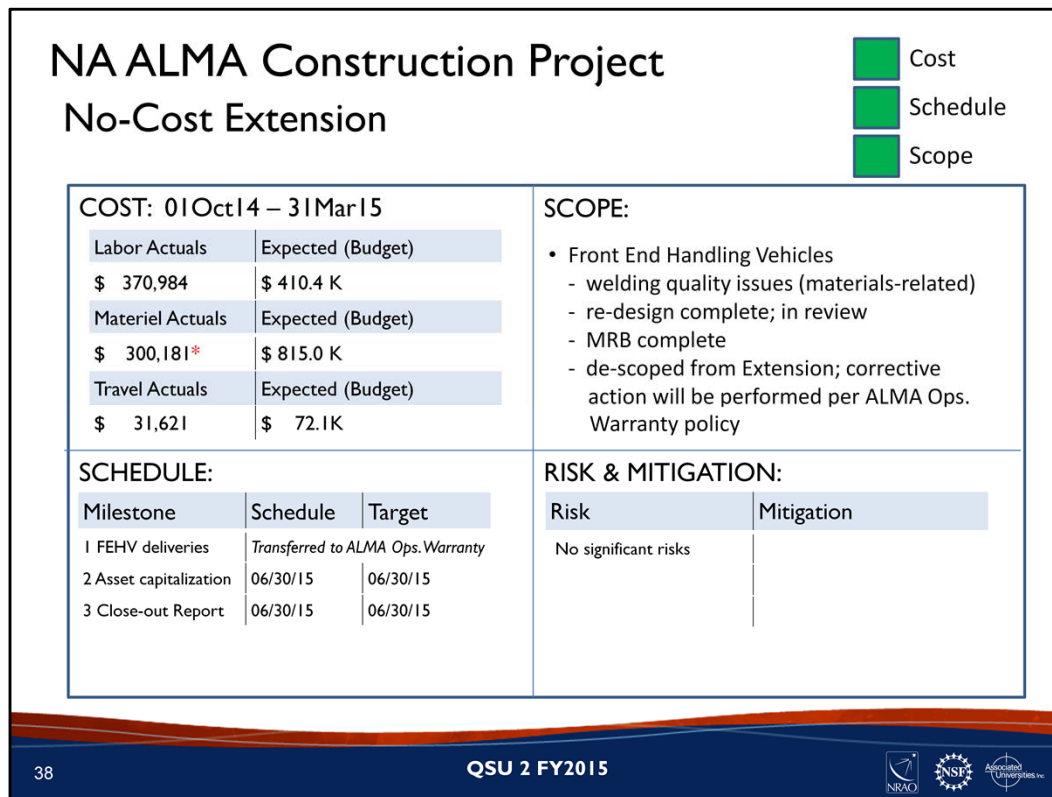
1. Observation consisting of repeated normal pointing cycles at L, C and X bands.
2. Super-sidereal test using OTFM observing mode 8x sidereal rate.

Both were executed and a memo stating the results has been published.

SCOPE: N/A

RISK & MITIGATION: The risk of 1st and 2nd ACU units not performing as expected in the super-sidereal test is retired.





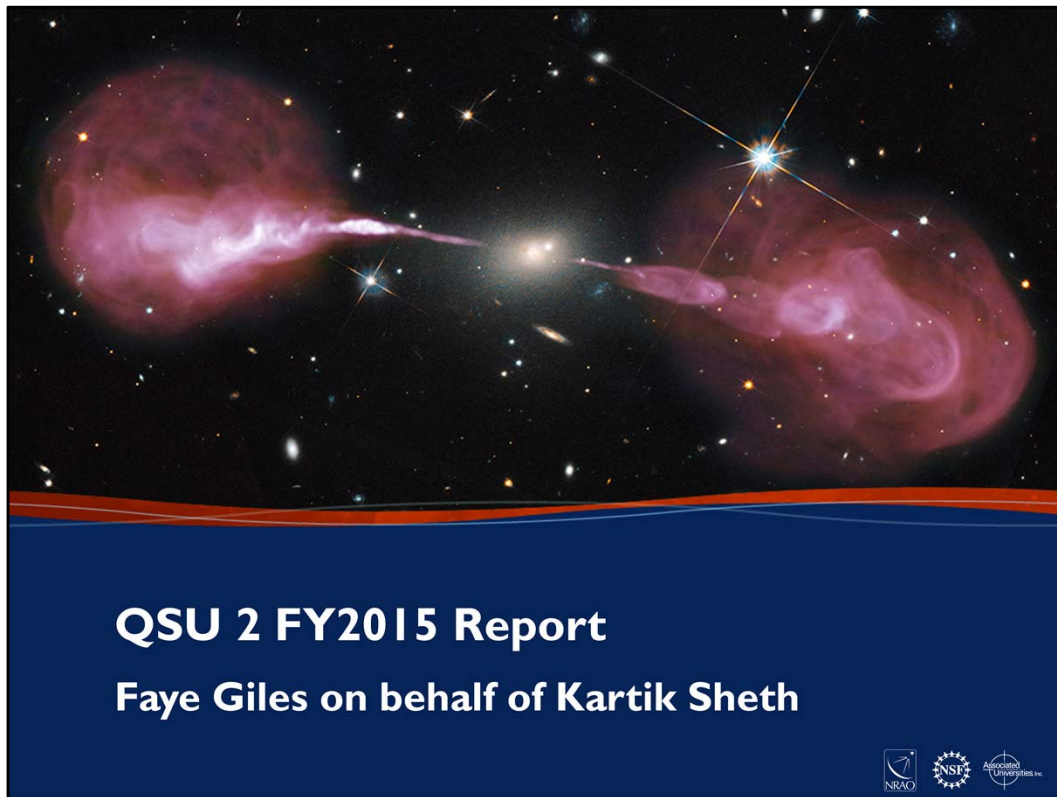
COST: The No-Cost Extension was funded from budget remaining at the scheduled end date of Scientific Program Order 2 (30 September 2014). Except for administrative close-out and the FEHVs (described in the ‘Scope’ section, below) all remaining workscope is complete. The Project forecasts a \$630K positive Variance-At-Complete.

** Materiel Actual Costs are restated (in the QSU2 Report) relative to the QSU1 Report; Open Commitments were mistakenly ‘double-counted’ in the QSU1 Report and falsely inflated the figure.*

SCHEDULE: Administrative close-out will complete in early June, and the Project Final Report and Outcomes Report will be delivered to the NSF by 30 June.

SCOPE: The JAO identified numerous (approximately 150) discrepancies during the PAI/Workmanship Inspections of the FEHVs. The most serious discrepancies are welding-related; specifically, the primary structure is composed of an aluminum alloy (Al 7075) that is incompatible with fusion welding. Consequently, most of the welds are cracked. The proposed re-design eliminates Al 7075 components and replaces them with a readily weldable aluminum alloy (Al 1100 and Al 6061). The time scale to implement this corrective action far exceeded the remaining time of the No-Cost Extension (expiration 31 March 2015). The JAO agreed to Conditionally Accept the FEHVs, as-is, to facilitate the Construction Project close-out and submitted a warranty claim. The No-Cost Extension was de-scoped and the corrective action will be performed per ALMA Operations Warranty policy.

RISK & MITIGATION : No significant risks.



Progress on the National Astronomy Consortium 2015 Cohort

- After a written application, and oral interviews, **19 students** have been selected for the NAC 2015 Cohort
- Each student is paired with individual mentor and the cohort utilizes the “Posse” Foundation model as done in previous years
- There will be **5 cohorts** across the nation:
 - NRAO – Charlottesville (Lead: Drew Brisbin)
 - NRAO – Socorro (Lead: Betsy Mills)
 - NASA – Goddard Space Flight Center (Lead: Padi Boyd)
 - Space Telescope Science Institute (Lead: Lou Strolger)
 - University of Wisconsin – Madison (Lead: Bob Benjamin)
- Goal is to create future STEM leaders (not necessarily more astronomers)

NAC 2015 Cohort Timeline

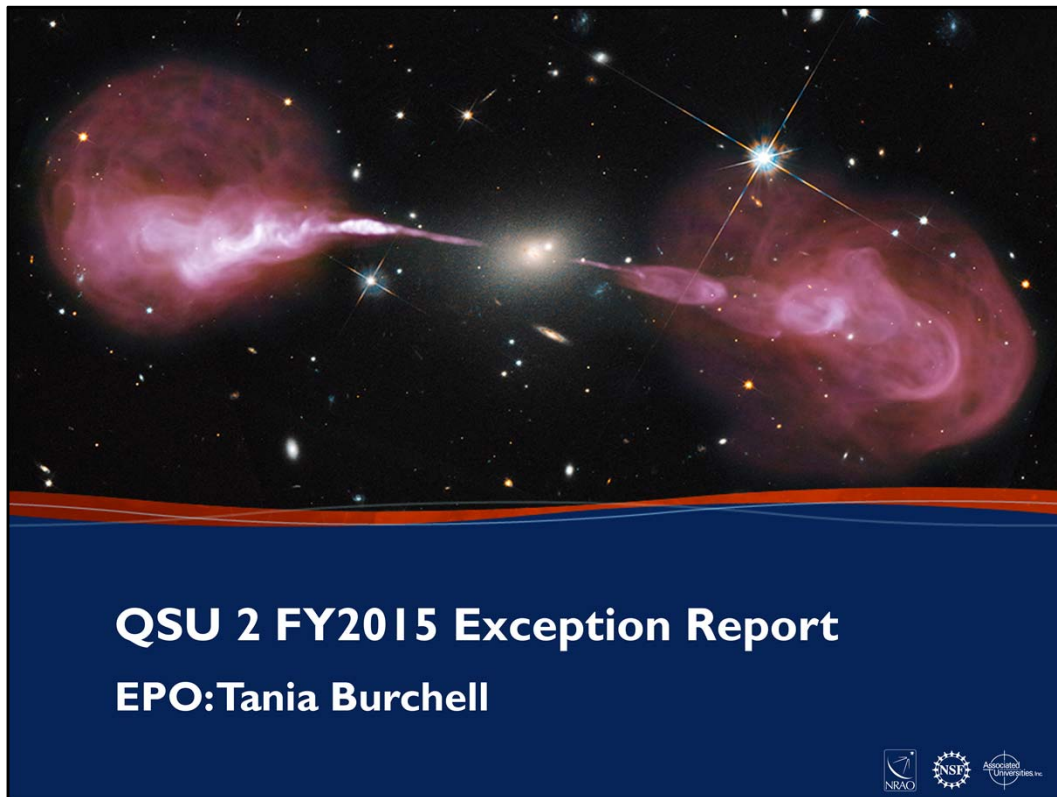
- April / May: Mentor Training for new sites (GSFC, STScI)
 - Also virtual meetings acquaint cohort members with each other
- June, July – core months of NAC summer activities (10-12 weeks)
 - Usual intense REU-like research project w/ mentor(s)
 - Weekly NAC group meetings (multiple mentor model, learning to be a scientist, tools to overcome common obstacles and pitfalls esp. for non-majority students)
 - Planning a 4-day field trip to Greenbank, U. Maryland, STScI, GSFC, + a possible visit to Congress
 - Diversity speaker series (4 role models 2 day visit to interact w/ students / give lessons from own life story)
 - Weekly informal get-togethers build community / cohesiveness

NAC 2015 Cohort Timeline

- Late Aug / Early Sep – NAC Annual Workshop at Howard U.
- Sep – May – Monthly NAC hangouts / students continue to be engaged, do research / learn about STEM / STEM careers
- January – AAS Meeting / informal get together / touch base
- Misc:
 - 2 NAC interns will do projects in Project Management w/ Lory Wingate's group (one in Cville, one in Socorro)
 - All mentors / mentees commit for at least one full year of NAC activities
 - Hope is NAC students do 2-3 research summers with the consortium

NINE 2015 Highlights

- 3 MSc + 1 Honors student in South Africa working with in co-mentored projects:
 - Marc Harries Yao Fortune – Honors thesis on offset bars
 - Simon Malings – MSc -- dust in elliptical galaxies
 - Henri Braanken – MSc -- dark matter in brightest cluster galaxies
 - Buntu Ngcebetsa – MSc – star formation in bars
 - Also visited NRAO for 8 weeks in Aug / Sep 2014 as first NINE exchange student
- Expansion of NINE to Chile
 - Met with 15 Chilean faculty in November from across Chile
 - We are now recruiting students from underserved groups for co-mentored projects w/ NRAO staff



EPO – STEM Education

Students and teachers education



45

QSU 2 FY2015



- 12 school groups for research on 40ft telescope in GB
- 1393 users of 20m telescope in GB via SKYNET
- 116 students and 18 NRAO staff participated in the Pocahontas Science Fair at NRAO Green Bank
- 87 students and 22 NRAO staff participated in the Hour of Code event in Green Bank
- 17 Alamo Navajo teachers and 53 students engage in our Phases of the Moon activity
- 160 Alamo Navajo students and teachers engage with Starlab
- ~500 guests to star parties/planetarium shows

EPO – STEM Education

Students and teachers education



46

QSU 2 FY2015



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EPO – STEM Education

Students and teachers education



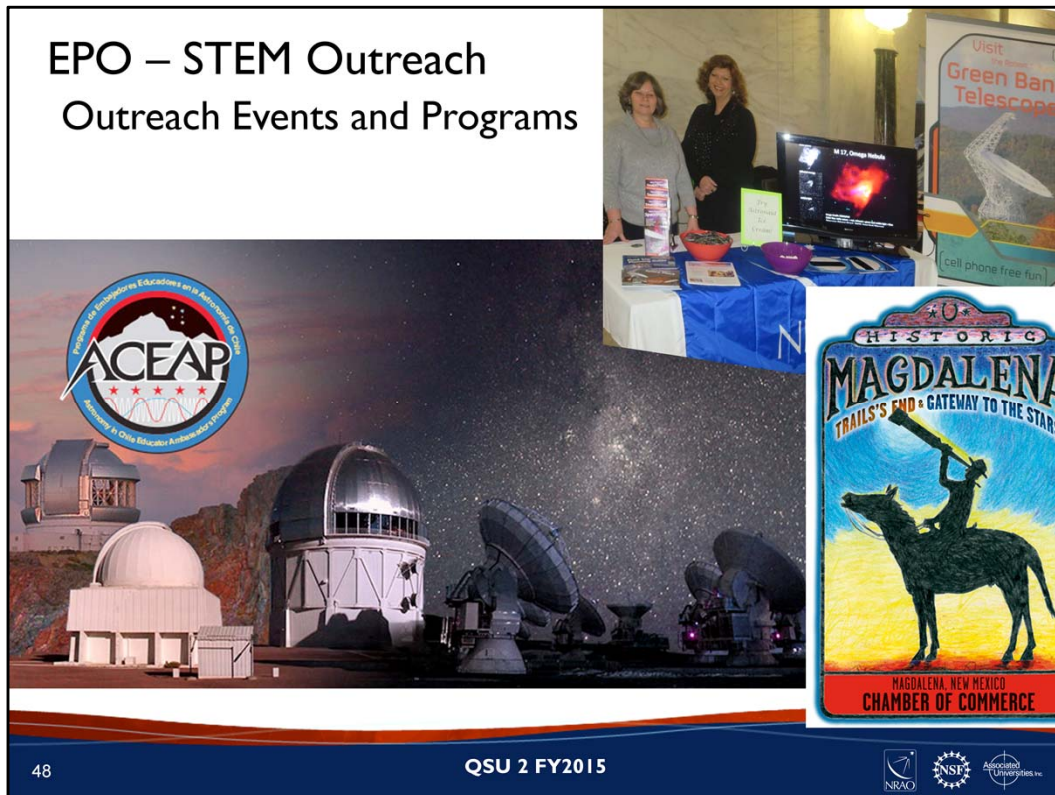
47

QSU 2 FY2015



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EPO – STEM Outreach Outreach Events and Programs



48

QSU 2 FY2015

NRAO NSF Association of Universities Inc.

- Two NRAO booth opportunities at State Legislature
- Nine ACEAP Ambassadors chosen
- First Chilean-American Education in Astronomy Summit (US observatories, US Embassy, CONICYT, *Imagen de Chile* Foundation)
- National Society of Black Physicists conference presentation
- West Virginia Professional Development Conference presentation
- Magdalena Chamber of Commerce coordinated events planning (Now rebranded as Gateway to the Stars)
- Dia de la Astronomia en Chile
- Ruckersville Science Expo
- Virginia Piedmont Science Fair

EPO – STEM Outreach Outreach Events and Programs



EPO – STEM Outreach Site and Online Visitors



50

QSU 2 FY2015



- 4,275 visitors to Green Bank Science Center this Quarter
- 3,638 visitors to VLA Visitor Center this Quarter (fees and advertisements started March 1)
- Couple of dozen visitors to VLBA stations, including one honeymooning couple
- 9,752 users of public.nrao.edu this Quarter
- 145,408 people reached by Facebook this Quarter (www.facebook.com/TheNRAO)
- 6,589 followers on Twitter this Quarter (@TheNRAO, @ALMANRAO, @IamGBT, @VLArray)

EPO – STEM Outreach Site and Online Visitors



51

QSU 2 FY2015



EPO – STEM Outreach

News Releases and Media Features

52 QSU 2 FY2015

- 11 press releases: 3 ALMA, 2 VLA, 3 GBT, 1 VLBA, 1 CDL, 1 VLA+GBT
- 3 announcements: All ALMA
- NRAO articles in *Discover*, *Popular Science*, *Astronomy*, *Washingtonian*, *The Atlantic*, *Wired*
- Made the cover of *Astronomy Magazine*
- GB featured on *ABC News 20/20*, *CBS Sunday Morning*, *Lateline* on Australia Broadcasting Corporation, *TFI*, *France 2*
- ALMA on *CBS News 60 Minutes*
- VLA on *NM True TV*





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