Title: QSU 1 FY15	***Author:*** L. Wingate, ADs	***Date:*** 02/11/2015
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National Radio Astronomy Observatory

Quarterly Status Update 1 FY2015
October – December 2014

PREPARED BY	ORGANIZATION	DATE
L. Wingate, ADs	PMD/Director's Office	02/06/2015

APPROVALS (Name and Signature)		ORGANIZATION	DATE
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Change Record

VERSION	DATE	REASON
0.02	02/06/2015	Edits made after Internal Review Meeting
0.01	02/04/2015	Initial Draft

NRAO Quarterly Status Update (QSU1 FY2015)
October - December 2014

dark gray (completed), blue (early), green (on track), yellow (behind), red (critically behind) **Q1 Performance Assessment**

POP Section Number	POP Milestone	Task Name	Completion Date	Cost	Schedule	Technical
2.6		**Atacama Large Millimeter/submillimeter Array (ALMA)**				
		Operations				
	1	Carry out AoD shifts at the OSF	12/31/2014			
			3/31/2015			
			6/30/2015			
			9/30/2015			
	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			
	17	Pipeline Heuristics: Input on Reference Imaging	12/31/2014			
		Development				
	21	NA ALMA Ongoing Development Projects initiated in FY12 will be completed	12/31/2014			
		NRAO-Chile Office				
	25	Hire NRAO-Chile Chief of Staff	12/31/2014			
	26	Support ALMA HR Department	12/31/2014			
			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			
	5	Determine baselines and pointing for antennas moving into their C configuration locations	12/31/2014			
		VLA Array Operations				
	13	Reconfigure array to C configuration	12/31/2014			
		VLA Antenna Maintenance				
	21	Perform preventive maintenance on each of two transporters prior to array reconfiguration	12/31/2014			
		VLA Technical Upgrades and Enhancements				
	41	Install prototype F318 module in antenna	12/31/2014			
		VLBA Science Operations				
	52	Define VLBA capabilities to be offered for semester 2015B	12/31/2014			
		VLBA Observing Capability Enhacements				
	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			
5.3		**Central Development Laboratory**				
		Repair, Maintenance, Production, Support				
	2	Design, build and test Qty. 4 MIC LNAs	12/31/2014			
	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)				
	5	TAC meeting for semester 2015A	12/31/2014			
	7	Update SW tools requirements for TAC support 2015A	12/31/2014			
		Science User Support (SUS)				
	13	4th VLA data reduction tutorial	12/31/2014			
	16	Filaments workshop	12/31/2014			
	17	Revolution in Astronomy	12/31/2014			
	20	Integrated HD requirements	12/31/2014			
	21	RPI and NRAO archive user testing	12/31/2014			
	28	Update CASAGUIDES	12/31/2014			

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POP Section Number	POP Milestone	Task Name	Completion Date	Cost	Schedule	Technical
7.4		**Data Management & Software**				
		Scientific Information Services				
	1	SSO aligned for MyNRAO and ALMA accounts	12/31/2014			
	4	Increase bandwidth to sites	12/31/2014			
	12	Multi-core development testbed installed	12/31/2014			
		ALMA System Software				
	14	ALMA Fall 2014 Release	12/31/2014			
		VLA/VLBA System Software				
	22	Deliver Frequency Averaging	12/31/2014			
		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			
	31	Parallelize Pipeline	12/31/2014			
		Software Development				
	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			
8.5		**Program Management Department**				
		Headquarters				
	2	Quarterly Status Updates	12/31/2014			
			3/31/2015			
			6/30/2015			
			9/30/2015			
		New Mexico				
	6	Finalize NM Ops and DMS Training Plan (1st Phase)	12/31/2014			
	10	Host learning session	12/31/2014			
		Central Development Laboratory				
	14	Develop Training Plan	12/31/2014			
	15	Training lessons provided	12/31/2014			
		Green Bank				
	21	Finalize Green Bank Training Plan	12/31/2014			
	23	Host learning session	12/31/2014			
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			
	7	Decide upon admission fee structure for existing VLA Visitor Center	12/31/2014			
	11	STEM Career Day at Dominion Virginia Electric	12/31/2014			
	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**				
	3	CCE coordination meeting	12/31/2014			
	4	Migration to Windows 7 compete	12/31/2014			
	12	Replacement of end-of-life Video Hub	12/31/2014			
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			
		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			
		Benefits				
	8	HR prepares and distributes all open enrollment materials to employees and makes enrollment changes into JDE and with vendors	12/31/2014			

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POP Section Number	POP Milestone	Task Name	Completion Date	Cost	Schedule	Technical
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**				
		CAP				
	5	Design policy, review and socialize with assistant directors and business managers	12/31/2014			
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			
		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			
		Management Review				
	8	NSF Annual Program Review	12/31/2014			
	9	All Hands presentation	12/31/2014			
			6/30/2015			

QSU 1 FY2015 Report

October – December 2014

POP MILESTONE # 2.6.21

TITLE: ALMA

Ongoing Development Projects initiated in FY12

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
Various	Various
Material Actuals	Expected
Various	Various
Travel Actuals	Expected
Various	Various

TECHNICAL:

- APP all hardware validated and accepted.
- Fiber Optic Connectivity: System fully functional, awaiting final permits.
- Band 5 LO: Change Request for additional scope and schedule within current budget approved.

SCHEDULE:

Milestone	Schedule	Target
1. APP	12/31/14	8/31/15
2. Fiber Optic Connectivity	12/31/14	3/15/15
3. Band 5 LO	12/31/14	9/31/15

RISK & MITIGATION:

Risk	Mitigation
1. APP Software	Closely Monitor
2. Fiber Optic Permits	Continue to fund alternate route
3. Band 5 photomixers	Closely monitor

2 QSU 1 FY2015

COST: All three projects are on Budget

SCHEDULE: ALMA Phasing Project (APR): All hardware has been delivered, validated and accepted.

TECHNICAL: The APP control software has not been validated. Commissioning of the software began in January and testing is underway. The project contract was renewed on 10/1/2014 with a close-out date of 8/31/2015. 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). Band 5 LO: Change Request for additional scope and schedule within current budget approved. New close out date is 9/30/2015. All additional work will be accomplished inside of the current budget. The additional scope will enable integration of the photomixers with the local oscillator before verification and transition to Chile.

RISK & MITIGATION: We will continue to monitor progress on APP /CASA software. While awaiting the permits for the fiber optic connection we will continue to fund and use the current microwave shot at no additional cost to the project. Band 5 photomixers may not arrive from Rutherford Appleton Laboratory (RAL) on time. We will monitor this closely and if some do not arrive, we will ship without integration.

POP MILESTONE # 3.4.59

Cost
Schedule
Technical

TITLE: New Mexico Operations
Commission and document DDC-8 on Effelsberg for 2016B

COST:

Labor Actuals	Expected
Ops funds this activity at a higher WBS level	
Material Actuals	Expected
-	-
Travel Actuals	Expected
-	-

TECHNICAL:

- Commissioning tests of the DDC-8 system at Effelsberg in the Fall of 2014 met their objective entirely.
- This capability was offered through the SRO program for semester 2015B, approximately a year ahead of its original schedule (milestone 3.4.52)

SCHEDULE:

Milestone	Schedule	Target
1. Define VLBA capabilities	12/31/14	12/31/14
2. DDC-8 on Effelsberg	09/30/15	12/31/14

RISK & MITIGATION:

Risk	Mitigation
All risks retired	

3 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: The observing capability was implemented ahead of schedule. The achievement of this milestone contributes in making all VLBA observing modes available in other stations of the High Sensitivity Array.

TECHNICAL: No technical issues.

RISK & MITIGATION: No risks identified.

POP MILESTONE # 3.4.62

TITLE: New Mexico Operations
Renew of VLBA land leases

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
No Labor budget	
Material Actuals	Expected
0	0
Travel Actuals	Expected
No travel budget	

TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. St. Croix Lease renewed	12/31/14	12/31/14
2. Owens Valley Lease renewed	12/31/14	09/30/15

RISK & MITIGATION:

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.

4 QSU 1 FY2015

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

SCHEDULE:

1. St Croix Lease: The lease has been signed by all parties and the lease received by NRAO February 3, 2015 . The lease is for ten years with two five year options. First new lease payment was made February 1, 2015.
2. Owens Valley Lease: Cal Tech negotiates this lease and it has been expired for 1 ½ years. NRAO sub leases from Cal Tech. As of 26 December 2014, John Carpenter of Cal Tech reported that "The negotiations on the lease are still on going. We received the latest iteration on the lease from DWP. I am now waiting for the Caltech attorney to respond."

TECHNICAL: No technical issues.

RISK & MITIGATION:

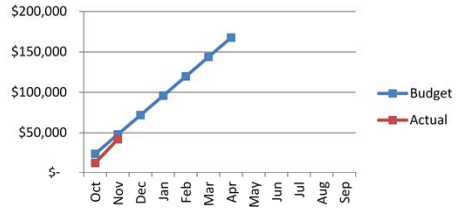
1. Cal Tech has leased Owens Valley, CA for a low yearly fee. Probability of a cost increase is low. Budget would need adjustment if happens.
2. Impact VLBA Operations is unlikely to occur.

POP MILESTONE 4.4.1

TITLE: West Virginia Operations Commissioning of Mustang 1.5

Cost
Schedule
Technical

COST:



TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. Commissioning Start	12/31/2014	1/20/015

RISK & MITIGATION:

Risk	Mitigation
1. Shared Risk Obs. delayed	Inform Observers of delay

5 QSU 1 FY2015

COST: The Q1 - FY15 expenditures for are in alignment with the FY15 budget

SCHEDULE: The actual commissioning started in January, approximately 3 weeks behind the milestone date due to issues getting the installed receiver operating. The integration on GBT was delayed by single-thread design work due to staff cutbacks; unpredictable designer challenges, and the holiday season.

TECHNICAL: No technical issues.

RISK & MITIGATION: Risk: Shared risk observation is delayed due to the late start of commissioning. Mitigation: Inform shared-risk observers of the delay.

POP MILESTONE # 5.3.2

TITLE: Central Development Laboratory
Design, build & Test Qty 4 MIC LNAs

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- Two Band 2 LNAs have been assembled and are in test.
- Remaining two units will be assembled following completion of tests on the first two.

SCHEDULE:

Milestone	Schedule	Target
1. Deliver 4 LNAs	12/31/14	02/28/15

RISK & MITIGATION:

Risk	Mitigation
1. Delay to start of cartridge tests	Monitor progress against a four month lead, prior to scheduled tests

6 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: These units were scheduled for completion by the end of FY15 Q1 and have slipped past that goal. A new target for final completion of this work is set for Feb 28, 2015. Since these are not currently holding up testing (nor are they likely to); the schedule is flagged yellow instead of red.

TECHNICAL: Two Band 2 LNAs have been assembled and are in test (a total of four are to be delivered). Performance is being tuned on these first two units to meet design goals. Once performance on the first two is satisfactory, the remaining two units will be assembled. Outstanding work includes suppression of parasitic oscillation and determination of the final bonding schedule. All components and resources are available to complete the remaining two units and the metal work for the amplifier bodies is complete.

RISK & MITIGATION: This chip and wire amplifier is the same technology as used in many other VLA, GBT and ALMA cryogenic IF systems, so the technical risk is low and this delay is not expected to affect the Band 2 schedule.

POP MILESTONE # 5.3.5

TITLE: Central Development Lab
Test Band 2 optical system

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- Components are currently in the shop workflow for fabrication, from there, they go to the plating lab for a few weeks, and testing will follow.

SCHEDULE:

Milestone	Schedule	Target
1. Range test	12/31/14	05/31/15
2. Dewar test	12/31/14	06/30/15

RISK & MITIGATION:

Risk	Mitigation
1. Range availability	Coordinate - Green Bank
2. Dewar not ready	Close monitoring

7 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: Since testing is dependent upon completion of the design and fabrication of the prototype described in Milestone 5.3.6, this milestone is delayed pending completion of that task. The new target dates are 5/31 for the range test and 6/30 for the dewar test.

TECHNICAL: Components are currently in the machine shop workflow for fabrication, with these tasks assigned as highest priority for the shop. Following machining, components will be in the plating lab for a few weeks and testing will follow final inspection of the plating.

RISK & MITIGATION:

1. Time on the test range in Green Bank must be scheduled in advance. This will be mitigated by keeping communication open and coordinating overall priorities for use of the test range with their needs.
2. Testing is dependent upon delivery and performance of the cryostat (dewar), which is about 6 months behind schedule from RAL. Cryostat delivery is expected in February 2015 and preparation of the unit in the NTC FEIC will be a high priority in order for the test plan to be executed as soon as is practical.

POP MILESTONE # 5.3.6

TITLE: Central Development Lab
Deliver Band 2 optical system

Cost
Schedule
Technical

COST:

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

TECHNICAL:

No known technical issues.

SCHEDULE:

Milestone	Schedule	Target
1. Deliver Feed	12/31/14	03/15/15
2. Deliver Lens	12/31/14	03/15/15

RISK & MITIGATION:

Risk	Mitigation
1. Machining tolerances	Build three units
2. Lens material	Eval. Different designs
3. Lens fabrication	Outsource fabrication
4. Design error	External review by NAOJ

8 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: The work on this milestone is the responsibility of a single CDL engineer, who was delayed by two months due to late completion of a preceding project. Machining of the feed horn mandrel is nearly complete and will finish 6 Feb 2015. Electroforming will then take about three weeks, and afterwards, additional machining and gold plating will require one more week. Those tasks all have the highest priority at the CDL. Lens fabrication has been outsourced to the Green Bank shop, and it will take three weeks for the proper tools to arrive there and another week for the actual machining. All this work is expected to be completed around the mid March 2015.

TECHNICAL: No known technical issues.

RISK & MITIGATION:

1. Inherent risk is relatively low associated with machining the feed horn mandrel and electroforming the horn because of the relatively low frequencies of Band 2 and owing to CDL experience in electroforming other feed horns.
2. Risk due to variation in the average dielectric constant of the lens and its isotropy vs. the value used for the optical path analysis is being reduced by building simultaneously three different lenses, with separate lens designs, assuming dielectric constants spanning the low, mid, and high range as specified by the HDPE manufacturer. Again, lens performance within specifications is critical to maintaining the project schedule, by substituting alternate lenses if necessary.
3. To reduce risks to the lens fabrication schedule, that work will be outsourced to the Green Bank shop.
4. To reduce the risk of design errors, NAOJ is carrying out analysis in parallel with ours to confirm our simulations.

POP MILESTONE #6.5.21

TITLE: Science Support & Research

PRI/NRAO archive user testing

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. Archive user testing	12/31/14	03/31/15

RISK & MITIGATION:

Risk	Mitigation
1. Delayed rollout of RPI and archive	Focused testing effort in Q2

9 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: Departures of DMS personnel and the subsequent restructuring of SSA and the web applications groups have delayed the availability of the Pipeline Reprocessing Interface (RPI) and NRAO archive for testing. The new target date is 3/31.

TECHNICAL: No NRAO technical issues are out of tolerance.

RISK & MITIGATION: Delayed rollout of archive and RPI; however, a focused testing effort will recover some schedule.

POP MILESTONE # 7.4.22

TITLE: Data Management & Software
VLA - Frequency Averaging

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- Frequency averaging in the VLA Correlator will become an operational capability.
- This capacity will enable the reduction in visibility data rates from the Correlator for continuum observing.

SCHEDULE:

Milestone	Schedule	Target
1. Implement Frequency Averaging	12/31/14	03/31/15
2. Test Frequency Averaging	03/31/15	04/30/15

RISK & MITIGATION:

Risk	Mitigation
1. Impact to schedule due to need for coordination across NM divisions	Weekly Thursday coordination meetings

10 QSU 1 FY2015

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

TECHNICAL: 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 typically reached by coordinated effort between Science Support and DMS; however, in this case, the agreed upon date was not captured correctly. Science Support has their task scheduled in FY2015 POP for Q2, reference: #3.4.12. to align, the new target date is 3/31.

RISK & MITIGATION: It is possible that the schedule could slip due to the need for coordinated work across NM divisions. Coordination of efforts will be discussed at the Thursday weekly meetings.

POP MILESTONE # 7.4.25

TITLE: Data Management & Software
Modify Astrid To Use Streaming

COST:

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

TECHNICAL:

- The need for this was fulfilled in the VEGAS Data Display software, which was delivered in FY14.

SCHEDULE:

Milestone	Schedule	Target
1. Modify ASTRID	09/30/14	cancelled

RISK & MITIGATION:

Risk	Mitigation

11 QSU 1 FY2015

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

SCHEDULE: Milestone cancelled – 1) needed functionality was delivered in the VEGAS Data Display, 2) other efforts judged to be more impactful and higher priority by GB management at this time.

TECHNICAL: The modifications to Astrid were originally included in the POP as part of the work to modify the M&C (Management & Control) system to use data streaming. The old system (M&C and Astrid) used/uses disk-based files as inter-process communication which is insufficient for the larger data rates associated with modern instrumentation (e.g. VEGAS). The benefit for Astrid would be that astronomers could use an existing interface to view VEGAS data in a way similar to how they view spectrometer data. Higher priority work (e.g. WFO) diverted resources from data streaming so effort was prioritized to deliver data streaming on the M&C system, which was required in order to support eventual changes to Astrid. However, GB scientists requested a tool for viewing VEGAS spectral data to support commissioning and subsequent trouble shooting. So the VEGAS Data Display was built, using modern web technology and the data streaming modifications made to the M&C system. This approach provides an iterative move towards a solution for Astrid by allowing new technology evaluation and the data streaming changes without starting a large Astrid upgrade project. This work is targeted for inclusion into Astrid via a refactor starting in 2016, provided resources are available.

RISK & MITIGATION: Risk mitigated via delivery of Vegas Data Display in Q4FY14.

POP MILESTONE # 7.4.36

TITLE: Data Management 7 Software
CASA 4.3 Release

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- Improved final testing revealed a series of previously undiscovered issues. These were fixed in 4.3.

SCHEDULE:

Milestone	Schedule	Target
1. CASA 4.3 Linux	11/14/14	01/12/15
2. CASA 4.3 OSX	11/28/14	01/12/15

RISK & MITIGATION:

Risk	Mitigation
1. Delay Past ALMA Cycle 2 Start	CASA 4.2.2 Release
2. Weights & Imaging Testing Conflict	CASA 4.2.2 Release
3. Staffing Delays	Training & Buffer

12 QSU 1 FY2015

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

SCHEDULE: As reported in in previous reviews, the development schedule for CASA 4.3 was changed due to packaging and release problems at the end of the CASA 4.2 cycle. In an effort to accommodate all critical stakeholder needs, the scope of the CASA 4.3 cycle was revised and split into two deliverables. An intermediate release, CASA 4.2.2 would offer the most pressing functionality in time for ALMA Cycle 2 observing at the beginning of Q4. An expanded CASA 4.3 release was rescheduled for FY15 Q1.

CASA 4.2.2 was released in FY14Q4 as planned and work in progressing on the CASA 4.3 release for FY15Q1. Schedule dates reported above reflect the rebaselined schedule. The final schedule was impacted by the technical issues discussed below.

TECHNICAL: Technical progress on the CASA 4.3 cycle is largely matched the rebaselined plan developed in FY14Q2. Improved final testing revealed a series of previously undiscovered issues, fixes which have been included in 4.3. Both the Linux and OSX versions were released on 1/12/2015.

RISK & MITIGATION: The highest risk to the project was not releasing CASA 4.3 in time to support ALMA Cycle 2 observing. CASA 4.2.2 was built and delivered off the CASA 4.2 release branch in order to mitigate this risk.

The risk of complicated and ineffective testing given simultaneous major changes to the calibration tasks and imaging tasks was also identified as a concern early in the planning of the 4.3 cycle. This risk was also mitigated with the CASA 4.2.2 release by providing the calibration changes in 4.2.2

and the imaging changes in 4.3. This allows for independent testing of each set of changes.

Vacancies within the CASA group and the DMS Testing group were identified as a risk to the 4.3 release. These vacancies have now been filled, and a combination of cross-training existing staff and a schedule buffer helped keep the 4.3 development work on track.

POP MILESTONE # 10.3.3

TITLE: Education & Public Outreach
New "vision" for VLA Visitor Center

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. Booklet, etc.	12/31/14	4/10/15

RISK & MITIGATION:

Risk	Mitigation
1. Continued architect delays	Have multiply impressed on architect the need to complete this work;

13 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: The project to put a fundraising vision booklet and associated products together was delayed because the contracted architect, Antoine Predock Architect PC, fell way behind contracted delivery dates for conceptual design drawings for the new building. That work should be completed in Q2, allowing the booklet, etc. to be completed in early Q3, if not sooner. In the meantime, a comprehensive Implementation Plan for the new VLA Visitor Center has been written, and other work on the project is continuing.

TECHNICAL: No NRAO technical issues are out of tolerance.

RISK & MITIGATION:

1. There's no serious risk yet caused by the delay. However, continued architect delays could impact the project. We have impressed on the architect the need to complete this work. The pace of work has improved and we anticipate completion of this conceptual design phase within weeks.

POP MILESTONE # 10.3.14

TITLE: Education & Public Outreach
New SPOT Presentation

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- May incorporate an EPO student intern position to develop this position. This is contingent upon funding and upon finding a successful applicant

SCHEDULE:

Milestone	Schedule	Target
1. Presentation	12/31/14	8/15/15

RISK & MITIGATION:

Risk	Mitigation
1. No funding for intern	GB-based Education Specialist will create this presentation if necessary

14 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: The WV Space Grant Consortium has suggested the strong possibility of funding for a summer EPO student intern position. We are applying for funds and would like that person to lead the development of this new presentation. The general theme and flow of this presentation has been developed, but developing this program would be an excellent opportunity for a summer EPO student intern, our first such position. The presentation would thus be developed during the summer. If funding for the intern is not forthcoming, we will continue with development by staff.

TECHNICAL: An additional summer EPO student intern position may be funded.

RISK & MITIGATION: There is a possibility (unlikely, given their verbal enthusiasm) that WV Space Grant funding for the intern will not come through. In that case, GB-based education specialist Kathryn Williamson will create this presentation. No other observatory activities are contingent upon the success of this task.

POP MILESTONE # 10.3.15

TITLE: Education & Public Outreach
New SPOT Student Presenters

COST:

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

TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. Recruit new student	12/31/14	cancelled

RISK & MITIGATION:

Risk	Mitigation

15 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: This project attempted to expand the successful WV-SPOT ambassador program to Virginia by recruiting students from UVA. Despite a well-advertised opportunity, no student interest materialized. An attempt was made to solicit the interest of the local community college in Charlottesville, Piedmont Virginia Community College. However, there was no response. The program does continue to draw student participation in West Virginia. This milestone is therefore being cancelled.

TECHNICAL: No NRAO technical issues are out of tolerance.

RISK & MITIGATION: None identified.

POP MILESTONE # 10.3.16

TITLE: Education & Public Outreach
Convert public website to Joomla 3

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. Upgrade new content management system	12/31/14	09/30/15

RISK & MITIGATION:

Risk	Mitigation
1. Existing instance of Joomla CMS is no longer supported	Upgrading to v.3 will resume once programmer returns from leave

16 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: At the time of the POP writing, it was not known that the programmer would be going out on leave. The upgrade to the new content management system version is therefore delayed to 9/30/15.

TECHNICAL: No NRAO technical issues are out of tolerance.

RISK & MITIGATION: EPO's sole web programmer is on leave, so we have little capability for web development at this time. Mitigation: We are restricting public website activities to simple content creation (i.e., new pages for new press releases, etc.) and page content maintenance; no new website capabilities are being pursued until the programmer returns. The website is stable and functioning well; we receive no complaints about technical performance.

POP MILESTONE #: 13.7.1

TITLE: Human Resources

Complete Supervisor's Manual & Employee Handbook

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. HR Policy	12/31/14	02/27/15

RISK & MITIGATION:

Risk	Mitigation
1. Prioritization risks. 2. Staffing risks.	-Accommodate completion of other priorities w/reset of target date to 2/27/15 -Open position to be filled in Q2 -Re-allocation of HR resource support

17 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: Current policies are posted to the HR Website. This deliverable combines existing posted policy manual and handbook into one comprehensive resource with some refinements to existing policies for re-posting/communication to all employees. Competing priorities: Large Q1 time-bound projects/hard deadlines - Performance review, salary review, re-compete prep.

TECHNICAL: No issues. All final policy revisions are complete and approved. Completion of accepting all document changes and final formatting is almost complete to website posting readiness.

RISK & MITIGATION: Competing priorities of a more critical nature at fiscal year end, calendar year end and in early Q2. Open/posted position within HR/short staffed. These are being mitigated by extending the deadline by one quarter, opening a position to be filled in Q2, and re-allocation of HR resource support.

POP MILESTONE #14.1.1

TITLE: Communications

Complete science meeting exhibit design

Cost
Schedule
Technical

COST:

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

TECHNICAL:

- No technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. Complete Exhibit	12/31/14	06/19/15

RISK & MITIGATION:

Risk	Mitigation

18 QSU 1 FY2015

COST: Costs are tracked at a higher WBS level.

SCHEDULE: This milestone has been re-planned for completion 19 June 2015, in FY 2015 Q3, in support of the NRAO exhibit at the International Astronomical Union (IAU) General Assembly exhibition, 3-14 August 2015 in Honolulu, Hawaii, that is being hosted the American Astronomical Society and is expected to be the largest astronomy science meeting event of FY 2015. The re-planned milestone is the date when the new exhibit and its support materials will need to ship from NRAO-Charlottesville to the IAU General Assembly venue in Hawaii.

TECHNICAL: No technical issues identified.

RISK & MITIGATION: No significant risk or need for mitigation.

POP MILESTONE # 15.6.5

TITLE: Administration - CAP

Develop NRAO Consultant Award Policy

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$0	$0
Material Actuals	Expected
$0	$0
Travel Actuals	Expected
$0	$0

TECHNICAL:

- There is no technical Risk only a schedule slip based on NRAO workload priorities for HR.

SCHEDULE:

Milestone	Schedule	Target
1. Consultant Award Policy	12/31/14	06/30/15

RISK & MITIGATION:

Risk	Mitigation
1. Delay in establishing a standard consultant award policy	CAP must meet with HR to develop the HR part of the policy.

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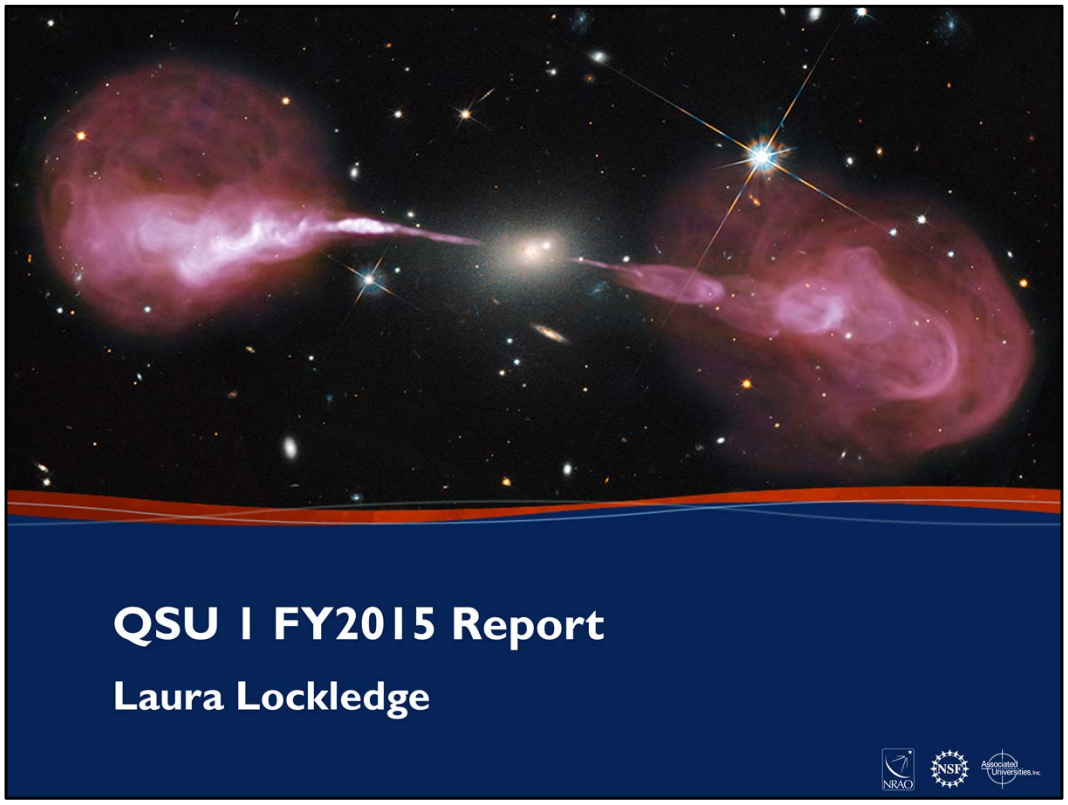
COST: Costs are tracked at a higher WBS level.

SCHEDULE: The schedule has slipped due to the fact that CAP and HR need to interface to develop the Policy. HR has had several high priority issues that takes precedence over this lower priority policy development and has not been able to find the needed time to interface with CAP. Once CAP and HR have developed a draft Consultant Award policy then we will discuss with AUI for any further edits. The target completion date is 6/30/2015.

TECHNICAL: No technical issues identified.

RISK & MITIGATION: No Risk to organization other then delay in establishing a standard consultant award policy. In order to proceed with this goal CAP must meet with HR to develop the HR part of the policy.


QSU 1 FY2015 Report
Laura Lockledge
NRAO
NSF
Associated Universities, Inc.

Q1 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
  - 2.5% merit based raise pool effective in January/February.
  - ICC currently over-recovered for actual expenses; continuation of construction recovery through Q2.

- NRAO Ops
  - NRAO Ops working to prioritize & distribute FY14 carry forward and FY15 $3.14M budget increment over FY15-FY16. All distributions should be reflected in budget for Q2.

FY15 YTD by Major WBS Category

NRAO Ops – Q1

	FY15 POP Budget	FY15 Rev. Budget	FY15 YTD Actual	YTD % Rev Budget
NSF	40,000	43,140	10,000	23.2
Telescope Time Sale	2,391	1,891	1,364	72.1
Carryforward/Other	1,750	4,957	4,927	99.4
Total CSA-1 Revenues	44,141	49,988	16,291	32.6
Telescope Ops	17,966	18,509	4,012	21.7
Development	2,787	2,837	708	25.0
Science Ops	5,475	5,450	1,076	19.7
Admin Services	14,255	16,202	3,517	21.7
Director's Office	3,488	3,539	704	19.9
FY15 , Total	**43,970**	**46,537**	**10,017**	**21.5**
FY15 CSA-1 NET	**171**	**3,451**	**6,274**	

- 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 carry forward allowances not yet distributed.

$3.4M revised budget balance includes NSF budget increment, (3.14) + budgeted carryover ($171K) + add'l revenues (IP)
Q2 will show rebudgetting of this balance.

FY15 YTD by Major WBS Category

ALMA Ops – Q1

	FY15 POP Budget	FY15 Rev. Budget	FY15 YTD Actual	YTD % Rev Budget
Telescope Ops	23,607	25,919	3,817	14.7
Development	5,626	8,287	518	6.3
Science Ops	6,627	7,232	852	11.8
Admin Services	4,460	4,460	1,117	25.0
Director's Office	2,949	3,009	633	21.0
FY15 , Total	**43,269**	**48,906**	**6,937**	**14.2**
Development Reserve	1,231			
Open Commits	4,406		7,093	
C/F For FY15 Fuel		1,800		
C/F for Future Years	4,950	3,150		
All ALMA Resources	**53,856**	**53,856**	**14,030**	**26.1**

- Shows all ALMA resources.
- Development Reserve & Open commits reflected in Revised Budget
- Development reflects open commitments for external awards.

Major Open Commitments

$1.2M in Development Open PO's (subawards)
$1.7M JAO Open PO's (year end spending)
$ .6M Offsite HW Spares & Equipment
$ .2M UVML

FY15 YTD by Major WBS Category

Observatory Central Services – Q1

	FY15 POP Budget	FY15 Rev. Budget	FY15 YTD Actual	YTD % Rev Budget
Telescope Ops	68	68	31	45.6
Development	779	779	118	15.1
Science Ops	1,722	1,722	354	20.6
Admin Services (Gross)	10,911	10,774	2,343	21.7
Director's Office	1,367	1,350	238	17.6
FY15 Total, Non CSA Sources	**14,847**	**14,693**	**3,084**	**21.0**
Admin Recoveries (CSA's)	(13,654)	(13,919)	(3,022)	21.7
External Recovery	(1,193)	(1,193)	(254)	21.3
FY15 NET	**(1)**	**(419)**	**(192)**	

- Second year for Observatory Central Services Pool.
- 30% rate on all allowable expenses.
- Reclass of some POP items from Common Costs to Program.
- Pool currently running over-recovered.

FY15 Budget Exceptions

Use of FY14 Carryover Monies

NRAO Ops Carry/Forward FY15		
Balance, NRAO Ops Only	$	4,078
less: Prior Obligations		
FY15 POP Budget	$	(1,660)
GBT Inspection	$	(350)
CDL Band 1 Revenue	$	(50)
IP Sale Revenue/CIS	$	(103)
Benefits Accrual	$	(136)
Payroll Advance Rope Off	$	(433)
Balance, Allocable C/F	$	1,346
Revenue Contingency	**$**	**(500)**
Additional Page Charges	**$**	**(64)**
NRAO Ops Raise & Promo Pools	**$**	**(550)**
ICC/IDC on add'l expenses	**$**	**(232)**
Balance Remaining	$	-

- Revenue Contingency - $500K offset to shortfall in anticipated NANOGrav purchase of GBT time in FY15
- Page Charge Support – Funds available to the Scientific Community, brings page charge support back to historical levels
- NRAO Ops Raise & Promo Pools – 3% pool for FY15, sustainable through FY16. Administered as a 2.5% merit pool with a .5% promotion pool.
- ICC/IDC – NRAO common costs and AUI IDC on page charge and raise pool expenses.

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 Budget Exceptions

Overguidance Funding Items: NRAO Ops

Item	FY15 Base Cost	Base +	Y16 Base Cos	Base +	Total Cost
FY16 Raises @3%			574,035	746,245	746,245
FY16 Page Charge Support			64,000	83,200	83,200
GB Infrastructure (from Budget Summit)	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
EPO Head (5 months in 2015, 12 months in 2016)	73,125	100,291	179,010	245,512	345,803
STEM Education Lead (4 months in 2015, 12 months in 2016)	33,750	46,288	103,275	141,642	187,930
FY16 NanoGRAV Revenue Shortfall			210,000	210,000	210,000
Total	664,838	903,309	1,719,815	2,234,642	3,137,951

POP Items VLA NBT Diversity Other

FY15 Budget Exceptions

Overguidance Funding Items: ICC

ICC Expenses	FY15 Base Cost	FY16 Base Cost	Total Cost
ICC Increment	**199,451**	**515,944**	**715,396**
FY16 Raises		196,641	196,641
Operational Rollback	44,000	41,000	85,000
HR Head	78,750	144,200	222,950
CDL Head (8 months in 2016)		157,500	157,500
Maintain ESS Adjustments		16,000	16,000
Contingency for Senior Hires		37,000	37,000
ICC Net	76,701	(76,397)	304

POP Items VLA NBT Diversity Other

FY14 POP Milestones

Exception Reports

FY14 POP MILESTONE # 4.2.15

TITLE: New Mexico Operations
Scientific evaluation of ACU

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
Ops funds this activity at a higher WBS level	
Material Actuals	Expected
-	-
Travel Actuals	Expected
-	-

TECHNICAL:

The ACU scientific evaluation of 1st and 2nd unit consist 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.

First was executed and a report distributed. Second has started and will finish in February.

SCHEDULE:

Milestone	Schedule	Target
1. Super-sidereal test	02/01/15	02/01/15
2. Memo	02/15/15	02/15/15

RISK & MITIGATION:

Risk	Mitigation
1. 1st and 2nd unit do not meet performance	1. Do not offer OTFm through SRO and re-design ACUs to meet performance

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COST: Costs are tracked at a higher WBS level.

SCHEDULE: Two tests were deemed sufficient to evaluate the scientific performance of the new ACU units (in two VLA antennas): first, an observation consisting of repeated normal pointing cycles, at three frequencies (L-, C-, and X-bands); second, a super-sidereal test. The first was executed and a report distributed. The procedure is ready for the second (using On the fly mosaicking (OTFm) observing mode). Execution has started and will finish in February.

TECHNICAL: There are no technical issues

RISK & MITIGATION:

1. The risk of 1st and 2nd ACU units not performing as expected in the super-sidereal test will require both to remove OTFm from SRO offer and ACU re-design.

FY14 POP MILESTONE # 4.2.29

TITLE: New Mexico Operations Pipeline heuristic development

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
Ops funds this activity at a higher WBS level	
Material Actuals	Expected
-	-
Travel Actuals	Expected
-	-

TECHNICAL:

A heuristic for use of weak calibrators was implemented for a test project, but additional development of CASA is needed to generalize. Improved L-band RFI flagging was developed for a particular set-up, but it has not been possible to extend to other set-ups yet

SCHEDULE:

Milestone	Schedule	Target
1. Heuristic for weak calibrators developed	09/30/15	09/30/15
2. Improved L-band RFI flagging	09/30/15	09/30/15

RISK & MITIGATION:

Risk	Mitigation
1. Limit use of weak calibrators in pipeline	1. User reduce observations with weak calibrators by hand, assisted by NRAO staff
2. RFI not flagged properly by pipeline at L-band	2. Users continue to flag additional RFI before imaging

31 QSU 1 FY2015

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

SCHEDULE: General heuristics for handling weak calibrators require additional development in CASA before they can be implemented. These are scheduled for the CASA 4.4 release, due in FY15 Q3. More work is needed on general methods of L-band RFI flagging, and will continue in FY15-16.

TECHNICAL: Considerable progress made in FY2014, but not completed. The heuristics for handling weak calibrators have been defined conceptually, and successfully tested on high frequency data (see Isella et al. 2014, ApJ, 788, 129). The technique has the potential to be more generally applicable; however, further development in CASA is needed to associate frequency to gain calibration solutions instead of spectral window IDs. This development is planned for CASA 4.4. Improved L-band RFI flagging techniques have been investigated, and found that improvements can be made when tailored to specific observing set-ups. As a result of the work done so far new options have been made available in the CASA task "statwt", and additional modifications are being requested for CASA 4.4.

RISK & MITIGATION: The risks associated with a delay in the delivery of pipeline heuristics are that users have to continue to reduce and flag data by hand. The mitigation is to provide NRAO staff support through the helpdesk and face-to-face visits. In addition, we advise against using weak calibrators at observe time, if at all possible. If additional RFI flagging is needed prior to imaging this is noted in the QA2 reports sent to investigators upon completion of pipeline runs.

FY14 POP MILESTONE #: 5.3.2, 5.3.3

TITLE: West Virginia Operations
ARGUS Modules, and IF/LO Complete

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$ 18,560	$ 32,850
Material Actuals	**Expected**
$ -	$ -
Travel Actuals	**Expected**
$ -	-

TECHNICAL:

No identified technical concerns with the NRAO deliverables.

SCHEDULE:

Milestone	Schedule	Target
5.3.1 Cryostat delivery	Complete	
5.3.2 Module delivery	6/30/14	See notes
5.3.3 IF/LO delivery	6/30/14	See notes
5.3.4 Warm electronics	Complete	
5.3.5 Feeds complete	Complete	

RISK & MITIGATION:

Risk	Mitigation
1. Delayed FY 2015 expenditures	1. Spend profile will be updated
2. Delayed shared risk obs.	2. Observations will be carried forward into next semester

32 QSU 1 FY2015

COST: No issues identified.

SCHEDULE: This ARGUS receiver delivery from Stanford, the primary PI, has been delayed due to integration issues. Stanford has not yet updated their delivery schedule with specific dates, but it is NRAO's estimate that the receiver will be delivered to Green Bank in early summer 2015. A Project Change Request is being created for this project.

TECHNICAL: No identified technical concerns with the NRAO deliverables.

RISK & MITIGATION: Risks include delayed FY 2015 expenditures and delayed shared risk observing. Mitigations including updating the spend profile and carrying forward into the next semester the observations.

FY14 POP MILESTONE # 6.8.12

Title: Computing and Information Services
Prox-card solution for Socorro doors

Cost
Schedule
Technical

COST:

Fixed Price Contracts	Expected
$	$50,500

TECHNICAL:

No Technical issues identified.

SCHEDULE:

Milestone	Schedule	Target
1. RFP issues	06/14	06/14
2. Bid award	07/14	09/14
3. Installation	12/14	12/14

RISK & MITIGATION:

Risk	Mitigation
All risk retired	

33 QSU 1 FY2015

COST:

SCHEDULE: Project completed in Q1 FY2015 as stated in FY14 Q4SU. System is operational.

TECHNICAL: No Technical issues identified. Compatible Millennium proximity key-card system used in CV and GB was specified , implemented in Q1 FY2015 and is operational now.

NOTE1: This FY14 Q4 "Computing and Information Services (CIS)" milestone is connected to a "New Mexico Operations (NM OPS)" milestone included in FY15-16 POP Q1 (3.4.62).

NOTE2: This CIS FY15 Q1SU exception report exist because this was not carried as a CIS milestone to FY15-16 POP due to the timing on the delay.

RISK & MITIGATION: No significant risk or need for mitigation.

FY14 POP MILESTONE #6.9.1

Title: Communications
Publish NRAO 2013 Annual Report

Cost
Schedule
Technical

COST:

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

TECHNICAL:

SCHEDULE:

Milestone	Schedule	Target
1. Publish Report	09/30/14	Q1 FY15

RISK & MITIGATION:

Risk	Mitigation

34 QSU 1 FY2015

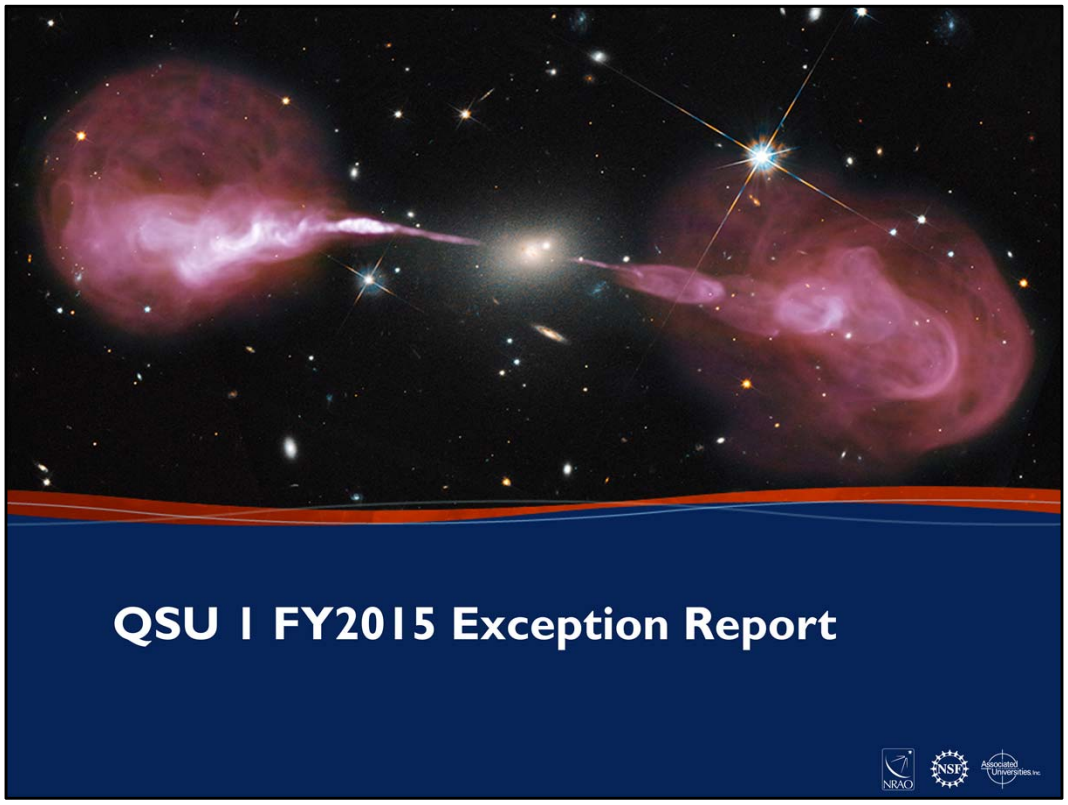
COST: Costs are tracked at a higher WBS level.

SCHEDULE: Milestone is now complete.

- The Director's Review of the NRAO 2013 Annual Report was completed on 2 December 2014.
- This milestone was completed on 3 December 2014 with publication of this Annual Report to the NRAO science website.
- An article was published in the 4 December 2014 edition of the NRAO eNews (Vol. 7, Issue 12) that notified the science community of the 2013 NRAO Annual Report's publication.

TECHNICAL: No issues identified.

RISK & MITIGATION: No significant risk or need for mitigation.


QSU 1 FY2015 Exception Report

NA ALMA Construction Project

No-Cost Extension

Cost
Schedule
Technical

COST:

Labor Actuals	Budget	% Consumed
$ 244.1 K	$ 410.4 K	59 %
Material Actuals	**Budget**	**% Consumed**
$ 888.3 K	$ 815.0 K *	109 %
Travel Actuals	**Budget**	**% Consumed**
$ 12.7 K	$ 72.1 K	18 %

TECHNICAL:

- Vertex antenna surface accuracy (astigmatism)
  - Near and long-term approaches defined
  - Vertex long-term plan delivered; in review
- Front End Handling Vehicles
  - welding quality issues (materials-related)
  - safety issue (chain guard); design change required

SCHEDULE:

Milestone	Schedule	Target
1. Vertex Review	10/29/14	Complete
2. FEHV deliveries	11/09/14	02/28/15
3. Vehicle deliveries	11/31/14	Complete
4. Asset capitalization	11/31/14	03/31/15
5. Cat B punch-list	12/07/14	Complete
6. Close-out Report	12/31/14	03/31/15

RISK & MITIGATION:

Risk	Mitigation
1 Constrained, high-frequency observing schedule	Re-set antenna surfaces to reduce astigmatism effect
2 Delayed FEHV acceptances prevent contract closure	JAO conditionally accepts FEHVs; quality issues remediated under warranty

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COST: see slide

SCHEDULE: see slide

TECHNICAL: see slide

RISK & MITIGATION: see slide

NA ALMA Construction Project

No-Cost Extension

- Scope and Budget
  - Obligated tasks (General Ledger open commitments) *

• Front End Handling Vehicle (FEHV) Units 2, 3 & 4 delivery	$237.0K
• General purpose utility vehicles delivery	$502.6K
	$739.6K

  - Unobligated tasks (funded from underrun)

• Site Erection Facility permitting	$ 23.4K
• "B Category" punch-list tasks and switchgear rework	$167.2K
• Asset capitalization	$ 7.1K
• Labor extensions	$184.2K
• Project records retention and archiving	$ 31.3K
• NSF Close-out Report and Impact Statement	$ 19.7K
• Review Panel for Vertex astigmatism investigation	$125.0K
	$557.9K

Education and Public Outreach (EPO)

STEM Education

- Multiple groups visited GB for overnight educational research using 40 Foot telescope, etc. (see notes)
- Multiple special tours and events in GB (see notes)
- Multiple outreach events and tours in NM (see notes)
- Submitted AISL grant application with WVU to scale-up the Pulsar Search Collaboratory
- Participated in STEM Career Day at Dominion Virginia Power Nuclear Station; attended by hundreds of H.S. students
- New Astronomy in Chile Educator Ambassador Program began recruiting; see https://public.nrao.edu/look-deeper/aceap

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GB Overnight Educational Groups: Albemarle High School (VA); Robinson High School (VA); Juniata College (PA); St Joseph High School (WV); Nysmith School (VA); BS Troop 209 (DC); WVU Honors (WV); Girl Scout Troop 3116 (VA); University of Maryland (MD); George C. Marshall High School (VA); Glenville State College (WV); Virginia Tech. (VA); Broadway High School (VA); BS Troop 91(VA); Penn State U (PA); Randolph College – two groups (VA)

Educational Events at GB Science Center: 4-H National Science Experiment (25 4-H club members and parents); Family Science Lab (a 2-hour activity for families themed around some science topic – latest was on the night sky)

Outreach/Other Events in WV: Southeast Regional Space Grant Consortium Meeting presentation; Elderhostel Workshop near Blacksburg, VA for 30 participants; WV Science Teachers Association Conference Presentations (2); Online professional development for 25 youth leaders as part of Skynet Junior Scholars

Outreach Events & Tours in NM: 10/4/14 Open House; 10/5/14 Antenna Climb UNM/NM Tech 24 students; 10/7/14 TAAS Digital Starlab school star party 138 attended; 10/17/14 Hamfest tour 17 attended; 10/18 thru 10/20 Roswell Goddard Days events, Starlab presentations 270 attended 9 shows, 4 demos, 1 star party; 10/25/14 Magdalena Star party 68 attended; 11/2/14 NM Physics Student Assoc. tour 16 students; 11/4/14 TAAS Digital Starlab school star party 98 attended; 11/7/14 Jansky Lecture, Jill Tarter, over 300 attended; 11/19/14 Festival of the Cranes VLA tour 48 attended; 11/19/14 Night Photo class at VLA 32 attended; 11/22/14 Festival of the Cranes VLA tour 64; 11/22/14 Night photo class at the VLA 28 attended; 12/6/14 First Saturday Tour 68; 12/17/14 ABQ HS Student job Shadow

Education and Public Outreach (EPO)

Press/Media Activity

- Issued 11 press releases and 5 media announcements; for the second year running NRAO broke its all-time record for press releases
  - ALMA HL Tau story broke all-time record for NRAO coverage and public website traffic, by a wide margin. NSF's OLPA collaborated on this, expanding the coverage and richness of the package.
- ALMA result by Indebetouw et. al. selected by Astronomy Magazine as one of top ten space stories of the 2014. Illustration by NRAO EPO artist Alexandra Angelich was magazine cover.
- NM Tourism video featuring VLA aired several times during Balloon Fiesta, a major tourist draw
- PBS ALMA documentary updated with new addendum (featuring the inauguration and science results, for re-broadcast in 2015

Education and Public Outreach (EPO)

Social Media, Web, and Print

- Facebook audience increased from 45,798 to 50,572 during Q1
- Twitter following increased from 5,605 to 6103 during Q1
- New web content
  - New page for Astronomy in Chile Educator Ambassador Program
  - Jansky Lecture 2014 video posted online
  - Spanish version of ALMA Explorer: https://public.nrao.edu/explorer/alma-spanish/TheAlmaExplorer.php
  - Emergency Communications Feature for NRAO's main homepage
  - New standalone pages for each facility's documentary or visitor center film
- New print products
  - 2015 GB Science Center Brochure
  - Jansky Lecture posters and postcard
  - VLBA handouts for visitors
  - VLA Admission Fee Signs

Education and Public Outreach (EPO)

Visitor/Science Centers and Events

- VLA Public Visitation counted: 5,286
- Green Bank Science Center visitation counted: 10,048
- Green Bank Turkey Trot 5K/10K, hosted by NRAO. Proceeds benefit county high school track team and athletic scholarship. ~50 participants.
- Jansky Lecture (Jill Tarter) drew capacity crowds in CV, NM, and GB

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