Title: QSU#3 FY 2013	***Author:*** L. M. Wingate	***Date:*** 08/08/2013
NRAO Doc. #: PMD00032		***Version:*** 2.0

National Radio Astronomy Observatory
Quarter Status Update #3 FY 2013

April – June 2013

PREPARED BY	**ORGANIZATION**	**DATE**
L. Wingate/S. Marks/ADs	PMD	08/08/2013

APPROVALS (Name and Signature)	**ORGANIZATION**	**DATE**
Enter Name	Enter Organization	Enter Date
Lory Wingate Digitally signed by Lory Wingate DN: cn=Lory Wingate, o=PMD, ou=PMD, email=lwingate@nrao.edu, c=US Date: 2013.08.09 16:21:24 -04'00'	NRAO	08/09/2013
Tony Beasley	NRAO	08/09/2013

NRAO Quarterly Status Update 3 FY 2013
April - June, 2013
08/07/2013

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POP Milestone	TASK NAME	QUARTERLY DEADLINE	Q1 Performance Assessment			Q2 Performance Assessment			Q3 Performance Assessment		
			COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL
	NRAO All Funding										
	Observatory Science Operations										
	Observatory Time Allocation										
1	PST will be updated to support the observing modes for 2 Calls for Propsoals (for 2013B and 2014A)	03/29/13									
		09/30/13									
2	The final revisions and restructuring of the PHT will be complete, to include LST pressure plotting for the VLBA in time for the 2013B TAC and will be updated for 2014A TAC	03/29/13									
		09/30/13									
	Scientific User Services										
	Helpdesk/User Forums										
4	Upgrade to ensure transfer of tickets and knowledgebase articles from Kayako v3.0 into Kayako v4.0 complete	12/31/12									
5	Dedicated pipeline department setup in NRAO helpdesk system and new Kayako v4.0 deployed to international ALMA community	03/29/13									
	User Documentation										
6	Update of 'casaguides' for 6th CASA Release	12/31/12									
7	All relevant OPT documentation converted to PLONE	03/29/13									
8	Final conversion of GBT relevant user documentation into PLONE	06/28/13									
	Data Processing										
10	Automated calibration of standard VLA observations completed	12/31/12									
11	Access by external user for initial version of VLA pipeline reprocessing	03/29/13									
12	Deployment of ALMA pipeline for reduction of Cycle 1 data products	06/28/13									
	Science Software Development (CASA)										
15	CASA upgrade 4.0: migration of Python Binding infrastructure, support for ALMA and EVLA Low Frequency Polarization, focus on system performance and parallelization	12/31/12									
16	CASA Upgrade 4.1: robustness and usability of parallel code, imaging infrastructure cleanup for usability and flexibility, pipeline integration	06/28/13									
	ObsPrep Software										
18	OPT release will include capabilities, resource set-ups, and documentation ready for VLA Full Science Operations	12/31/12									
19	SCHED release ready for VLBA dual-RDBE 8-channel configuration	06/28/13									
	Data Access Software										
20	ASA query and retrieval tool deployed	03/29/13									
	Applications Software: Splatalogue										
21	New line lists sent to the ALMA OT and CASA	03/29/13									
22	User interfaces within the OPT and GBTIDL completed	06/28/13									
	Software Research & Development										
24	Resolve the outstanding numerical issues in the combined MS-MFS and Wide-band A-Projection algorithm	12/31/12									
25	Implement the algorithm in the test CASA code branch, with parallelization	06/28/13									
26	Develop and formalize algorithm development plan	06/28/13									
	Data Management (See CIS)										

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	Observatory Telescope Operations										
	ALMA Construction										
27	Complete AAER	12/31/12									
28	Complete AOS power and fiber optic connections to antenna stations	12/31/12									
29	Deliver nutator unit 1	12/31/12									
30	Deliver nutator units 2-5	03/29/13									
31	Complete OPT acceptances	12/31/12									
32	Deliver Band 10 WCAs to OSF	12/31/12									
33	Deliver Band 10 WCAs to OSF	03/29/13									
34	Deliver FE test set	12/31/12									
35	Deliver FEHV unit 1 to OSF	12/31/12									
36	Deliver FEHV units 2-4 to OSF	03/29/13									
37	Deliver BE AA Test Stand	12/31/12									
	EVLA Construction										
38	All hardware delivered and under NM Ops purview	12/31/12									
39	All construction equipment and space transferred to NM Ops	12/31/12									
40	Risk Plan closed out	12/31/12									
41	All WBS project accounts closed	03/29/13									
42	Documents complete and archived	06/28/13									
43	Project successes documented	06/28/13									
44	Project lessons learned documented	06/28/13									
45	Construction report complete	06/28/13									
46	Final cryogenic system installed on antennas	12/31/12									
47	Final X-Band receiver installed on antennas	12/31/12									
48	Final Ku-Band receiver installed on antennas	12/31/12									
49	Computing hardware purchased	12/31/12									
	VLA Commissioning and Support										
50	Support semester 2012B Early Science observing	12/31/12									
51	Complete commissioning of capabilities offered for 2013A	12/31/12									
52	Begin full operations (capabilities offered for FY 2012 Q4 CfP)	03/29/13									
53	Define and document capabilities for semester 2013B CfP	12/31/12									
54	Support semester 2013B CfP	03/29/13									
55	Complete commissioning of capabilities offered for 2013B	06/28/13									
57	Define and document capabilities for semester 2014A CfP	06/28/13									
	VLA Modifications/Upgrade Projects										
	VLA Prototype Replacement ACU Milestones										
59	Critical Design Review prior to installation in antenna	03/29/13									
60	Install hardware system into a lab prototype	03/29/13									
61	Integrate full software system	03/29/13									
62	Testing, fine tuning, and operational evaluation complete	06/28/13									

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	VLBA Infrastructure Modifications/Upgrade Projects										
64	Narrow-bandwidth modes verified	12/31/12									
65	Transition of legacy proposals to DDC completed	03/29/13									
66	Second RDBE & network switch installed at all stations	03/29/13									
67	Scientific VLBI observations started in a subset of modes	03/29/13									
	GBT Modifications/Upgrades Projects										
	Digital Servo Replacement										
68	Control kernel delivered into integration test lab	12/31/12									
69	Integration tests complete	06/28/13									
	Multi-color Tipper										
72	Complete mitigation efforts	03/29/13									
	GBT Sub-reflector Actuator Replacement										
75	Actuator replacements complete	03/29/13									
76	Updated focus tracking model	03/29/13									
	20m Telescope Modification/Upgrade Projects										
	RadioSkyNet										
77	L-Band receiver installed on 20m	12/31/12									
78	Telescope refurbishment complete	12/31/12									
79	Skynet science reaches 'operational phase'	03/29/13									
	Observatory Development Programs										
	Central Development Laboratory										
	Low Noise Amplifiers										
80	Test 68-90 GHz LNA using cryo3 devices	12/31/12									
81	Test 33-50 GHz LNA using cryo3 devices	03/29/13									
82	Test 75-120 GHz LNA using cryo3 devices	06/28/13									
85	Measure 35nm MMIC LNAs from APRA-3 wafer	03/29/13									
	Millimeter/Sub-Millimeter Detectors										
86	Measure 375-500 GHz balanced mixer	12/31/12									
87	Measure band 6 balanced mixer (Nb/AlOx/Nb junction)	03/29/13									
88	Measured band 6 mixer with Nb/AlN/Nb junction	06/28/13									
	Optics and Electromagnetic Components										
90	Test 33-50 GHz turnstile junction OMT	12/31/12									
91	Test 67-90 GHz turnstile junction OMT	03/29/13									
	Phased Array Feeds										
94	Fiber installations complete	12/31/12									
95	Control software complete	03/29/13									
96	New BYU signal processor received and tested	06/28/13									
98	Fabrication of lower-noise LNAs complete	03/29/13									
	Next Generation Receivers										
101	Cryogenic measurement of S-band triangular digital OMT	06/28/13									
102	Snapshot noise spectra though unformatted digital fiber-optic link	06/28/13									
104	Measure flexible thermal transition	03/29/13									
105	Measure 67-93 GHz IQ downconverter module	06/28/13									

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			COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL
	PAPER/HERA										
107	Ship first 25 elements of upgrade	12/31/12									
108	Ship second 25 elements of upgrade	03/29/13									
109	Ship third 25 elements of upgrade	06/28/13									
	DARE										
112	Develop calibration technique using temperature dependent models of the front-end	03/29/13									
	ALMA Development										
	Band 5 Local Oscillator										
114	"Kick-off" meeting	12/31/12									
115	Band 5 pre-production LO built & test complete	12/31/12									
116	Frequency doublers procurement and test complete	12/31/12									
117	Integration and test with Band 5 cold cartridge complete	12/31/12									
118	Band 5 LO Critical Design & Manufacturing Readiness Review	03/29/13									
119	Production start	06/28/13									
	2nd Generation Receiver for ALMA Band 6										
121	"Kick-off" meeting	12/31/12									
122	Preliminary definition of instrument requirements	06/28/13									
123	Intermediate performance review	06/28/13									
124	Technical specifications established	06/28/13									
	Design Study for Production of Band 2 Cartridges										
127	"Kick-off" meeting	12/31/12									
128	Draft specifications & ICD	12/31/12									
129	MMIC LNA delivered to ARO	12/31/12									
130	MIC LNA delivered to ARO	12/31/12									
131	Band 2 OMT and horn demonstrated	06/28/13									
132	Modifications to 12m receiver inserts complete	06/28/13									
	mm/submm VLBI with ALMA										
139	"Kick-off" meeting	03/29/13									
140	Intermediate performance review	06/28/13									
141	Final definition of instrument concept requirements	06/28/13									
142	Final report	06/28/13									
	Increase the ALMA Data Rate										
143	"Kick-off" meeting	06/28/13							N/A	N/A	N/A
	Ultra-Wideband Quantum Limited Amplifiers										
147	"Kick-off" meeting	12/31/12									
148	Intermediate performance review	03/29/13									
149	Final definition of instrument concept requirements	06/28/13									
150	Final report	06/28/13									
	Unleashing Large Dataset Science										
151	"Kick-off" meeting	12/31/12									
152	Intermediate performance review	03/29/13									
153	Final definition of instrument concept requirements	06/28/13									

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POP Milestone	TASK NAME	QUARTERLY DEADLINE	COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL
	A Visualization Portal for ALMA Data										
155	"Kick-off" meeting	03/29/13									
156	Intermediate performance review	06/28/13									
157	Final definition of instrument concept requirements	06/28/13									
158	Final report	06/28/13									
	ALMA Band 1 Receiver Development Study										
159	Science & functional requirements definition	03/29/13									
160	Technical specifications	06/28/13									
	VLA Development										
	VLA Low-Frequency Receivers										
165	First observations using 16 receivers with low-band	12/31/12									
166	18 functional receivers installed	03/29/13									
167	24 functional receivers installed	09/30/13									
	Prototype Low-Band Feed Development										
169	Finish building and testing new designs	03/29/13									
170	Selection of the best design and PDR for its deployment (if any of the new designs prove acceptable)	06/28/13									
	VLBA Development										
	VLBA Synthesizer Development										
173	CDR	03/29/13									
174	Prototype synthesizer installed at PT station	06/28/13									
	GBT Development										
	VEGAS Development										
176	Wideband spectrometer mode successfully tested on GBT	12/31/12									
	ARGUS (GBT 4x4 Comet Camera)										
179	Focal plane and cryostat Critical Design Review	12/31/12									
	GBT MUSTANG1.5										
181	Cryogenic parts delivered	12/31/12									
182	Initial cool down	12/31/12									
183	Detectors received from NIST	03/29/13									
184	HEMT amplifier delivery	06/28/13									
185	First light (lab)	06/28/13									
	Observatory Administrative Services										
	Administration										
	Business Services										
191	All business units aligned with the WBS in JD Edwards	12/31/12									
192	FY2014 Budget process and materials consistent with POP presentation	03/29/13									
193	Reports created and formatted	06/28/13									
	MIS										
195	Implementation to Chart of Accounts complete	09/30/13									
	CAP										
197	Export Compliance Program implemented across NRAO	12/31/12									

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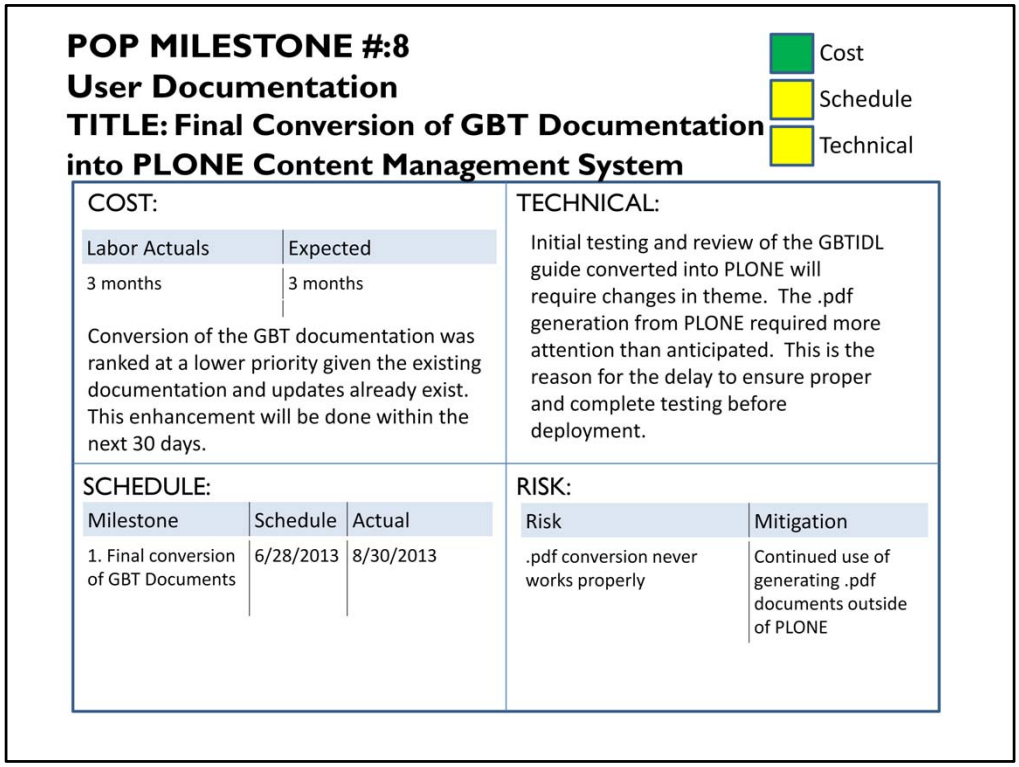
POP Milestone	TASK NAME	QUARTERLY DEADLINE	COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL	COST	SCHEDULE	TECHNICAL
	Human Resources										
	Compensation										
198	An assessment of NRAO's management structure complete.	12/31/12									
199	*Updated job descriptions for all NRAO jobs available*	03/29/13									
200	An electronic Performance Evaluation Process implemented	03/29/13									
	Benefits										
201	Implementation of the revised HSA/HDHP Plan complete	12/31/12									
	Employee Relations										
202	Complete an assessment of NRAO's Ombudsman Program	12/31/12									
	Training and Development										
	CIS										
	Common Computing Environments										
204	Power and carbon footprint review for Computing resources.	12/31/12									
205	Completion of major OS upgrades.	03/29/13									
206	Install 12 Archive (NM)+ 12 mirror (CV) storage nodes for VLA support .	03/29/13									
	Data Management										
208	Implementation of ALMA Science Archive access from the NAASC Web Portal	12/31/12									
209	Automation of ALMA QA level 2 product delivery from NAASC to JAO and other ARCs	03/29/13									
210	Upgrade of Observer Helpdesk Kayako V4	06/28/13									
	Information Infrastructure										
211	Web-based user interface for CASA pipeline tasks	12/31/12									
	Networking and Telecom										
213	Installation of a secure 10Gigabit/s Internet link for the GB site	12/31/12									
214	Upgrade of the Chilean link to SCO	03/29/13									

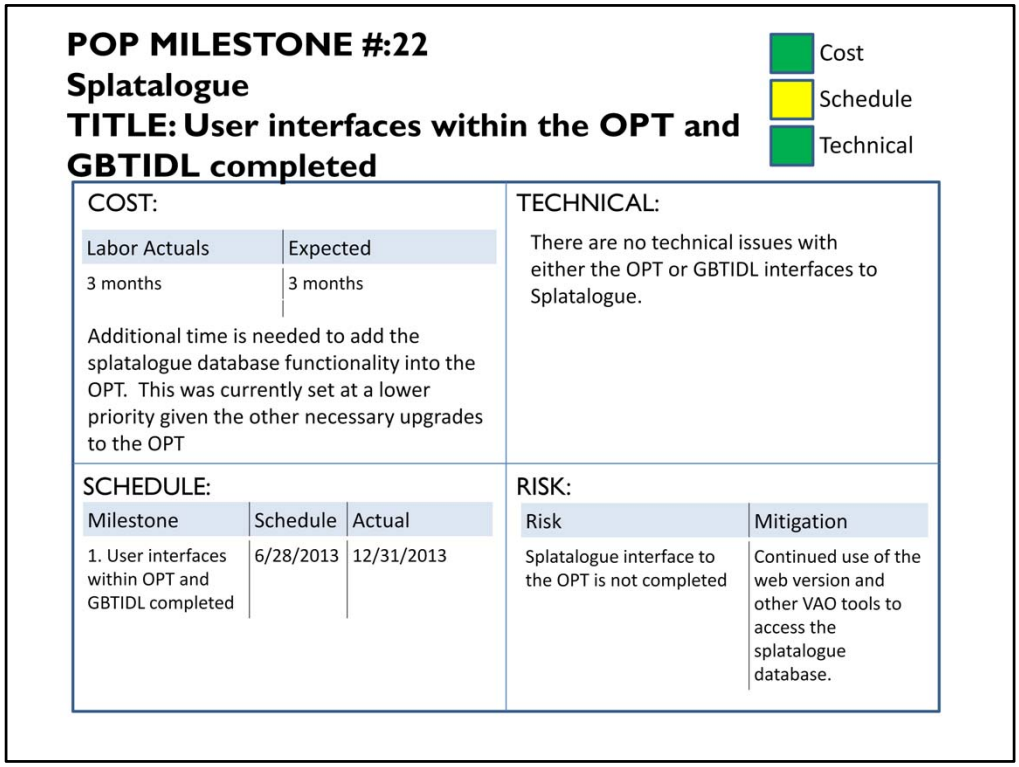


COST: There is no additional cost added to this milestone excepted additional time needed for testing and deployment.

SCHEDULE: The schedule has slipped to accommodate the adequate amount of testing before being released to the community. In order to perform the proper testing of the .pdf converter from PLONE, we needed the added time.

TECHNICAL: There is a small technical aspect to the project as an added plugin to the PLONE content management system is required for the .pdf conversion. Difficulties in installing and testing the plugin caused some of the delay in the schedule.

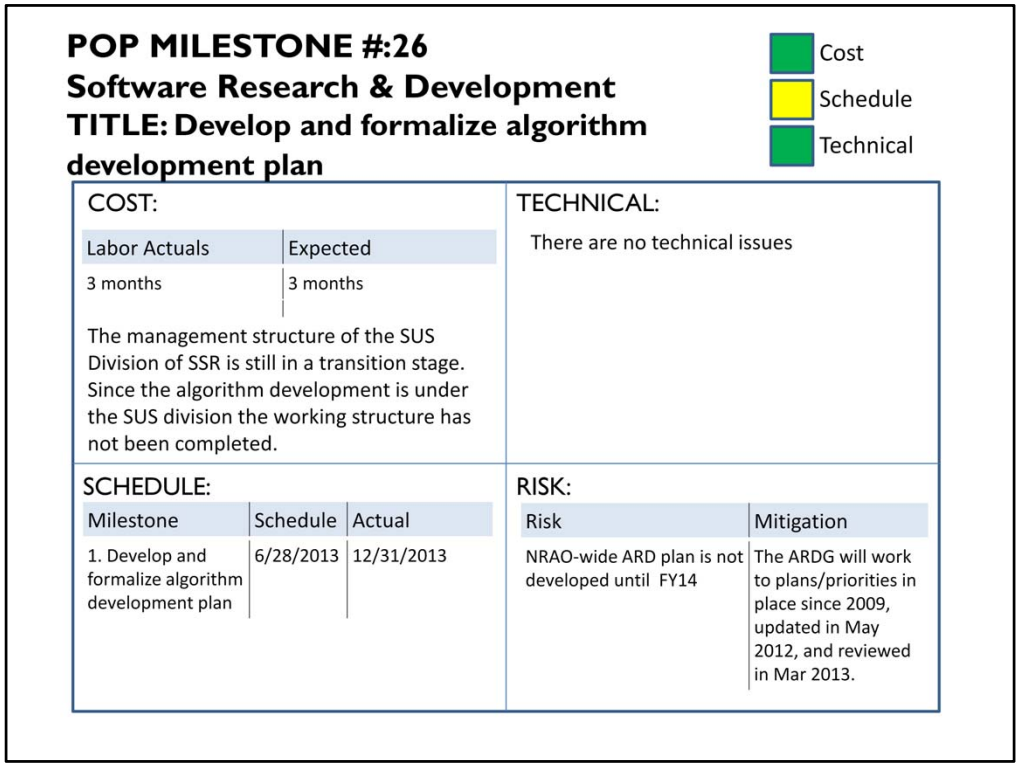
RISK & MITIGATION: The risk to this milestone is very low in the .pdf versions of all the existing GBT documentation exist and are routinely maintained by GB staff.



COST: There is no additional cost added to this milestone accept additional time needed to incorporate the splatalogue functionality into the OPT. A new update to GBTIDL is now available and is currently undergoing testing and edits to increase the usability of the new splatalogue line list for the GBT.

SCHEDULE: The schedule has slipped to accommodate appropriate prioritization of this functionality into the OPT. The GBTIDL user interface is now available and is undergoing testing in this quarter.

TECHNICAL: There is no technical issues associated with this milestone. It is just a matter or prioritizing the work for the OPT at this point.
RISK & MITIGATION: The risk to this milestone is very low. Users can still use the online interface to access the splatalogue database or other VAO tools.



COST: There is no additional cost added to this milestone accept additional time needed to develop the plan within the new SUS management structure.

SCHEDULE: The schedule has slipped due to the new organizational structure of the SSR Department and the SUS Division.

TECHNICAL: There is no technical issues associated with this milestone.

RISK & MITIGATION: The risk to this milestone is medium. The current ARD plan was formalized in 2009. It was subsequently updated in May 2012. It was reviewed in Mar 2013 as part of the broader CASA review. ARD personnel continue to work to this plan formalized in 2009.

POP MILESTONE #: 28
ALMA Construction
TITLE: Complete AOS power and fiber optic connections to antenna stations

Cost
Schedule
Technical

COST:

Actuals	Expected
$50,317k	$48,820k

1. Expected Cost (Budget at Completion) includes Budget Change Requests for $1,200k total
2. BCRs are in process for the difference.

TECHNICAL:

- Fuse disconnects specification is being reviewed to confirm compliance with technical specification
- Protective Earth (PE) in Low Voltage cable of 51 stations needs improvement. Solution to install missing PE is underway

SCHEDULE:

Milestone	Schedule	Actual
1 Complete AOS Utilities contract	30/04/13	30/10/13
2 Complete AOS fuse disconnectors	30/10/13	30/10/13

RISK & MITIGATION:

Risk	Mitigation
Delay of CSV and Early Science until missing PE is installed	Speed solution and look for simpler installation method

COST: New BCRs are in the approval process to cover the cost to complete activities for the AOS Utilities work. They will be implemented now that the PMCS server has returned to service. Procurement process for AOS Extended Array power disconnectors was completed in Q2; use of contingency was required to complete the installation. Construction will proceed until October 2013.

SCHEDULE: The Contractor is behind schedule in finishing the work and the harsh winter conditions have delayed even further the completion of the work to Q1 FY2014 (October 2013). The procurement process to issue work on the Extended Array power disconnectors is complete and approval has been received. Their construction will proceed in until Q1 2014.

TECHNICAL: The low voltage (400 V) cables between transformers and antenna stations for a number of locations within the inner array were not installed in accordance with the technical specifications as a protective earth (PE) is missing. To correct this, the PE cable must be installed, but the soil immediately above the cable that needs to be exposed is frozen and efforts to expose it may damage the cable. Special techniques will be tested to thaw the soil and reach the buried cable and tie the missing one. These tests can only be performed once the weather conditions allow it.

Risk: Delay of CSV and Early Science. Mitigation: Speed up the installation of the PE without compromising safety of personnel and equipment.

POP MILESTONE #: 30
ALMA Construction
TITLE: Deliver nutator units 2 – 5

Cost
Schedule
Technical

COST:
Total Nutator System:

Actuals	Expected
$1,939k	$2,030k

Units #2-5 Delivery & Acceptance:

Actuals	Expected
$0k	$165k

TECHNICAL:
- FATs confirmed satisfactory performance of units #2 – 5

SCHEDULE:

Milestone	Schedule	Actual
1. JAO acceptance of Nutator #2-3	28/02/13	25/08/13
2. JAO acceptance of Nutator #4-5	29/03/13	25/08/13

RISK & MITIGATION:

Risk	Mitigation
1. Additional schedule delay	Support JAO during acceptance. Resolve ACRV action items

COST: Cost for Nutator delivery is on track.

SCHEDULE: Factory Acceptance Testing (FAT) for Units #2 & #3 was satisfactorily completed on 4-8 May 2013. FAT of Units #4 & #5 was satisfactorily completed on 22-27 June. All 4 units have been shipped from Taiwan to Chile. On-site acceptance for Units #2 through #5 currently scheduled for 5-25 August. Successful acceptance depends upon JAO ability to support review and if any action items remain.

TECHNICAL: Units #2-5 built identical to Unit #1, which complies with specifications as modified by CREs. Site Acceptance Testing will verify that units operate properly on antennas.

RISK & MITIGATION: To minimize the risk of additional schedule delays, ASIAA and NAAIPT Lead Engineers will be on-site along with NRAO Control System Engineer for FATs. To monitor Contractor status, weekly teleconferences continue.

POP MILESTONE #: 31
ALMA Construction
TITLE: Complete OPT acceptances

Cost
Schedule
Technical

COST:

Actuals	Expected
$769 k	$812 k

TECHNICAL:
- None: all OPT units perform satisfactorily
- Final acceptance pending delivery of updated documentation

SCHEDULE:

Milestone	Schedule	Actual
1. JAO acceptance of OPTs #3 - #6	25/02/13	30/08/13

RISK & MITIGATION:

Risk	Mitigation
1. Additional schedule delay	Continue to monitor documentation delivery. Encourage JAO acceptance.

COST: Cost for OPT acceptances is on track.

SCHEDULE: All OPTs have been delivered to Chile and acceptance testing of all units is complete. ACRVs for the units are delayed pending delivery of final documentation from the vendor (updated drawings, operations manual and software manual). While delivery is behind schedule, OPTs currently are not needed within the project. Consequently, unit acceptance is a low priority for JAO in comparison to other deliverables.

TECHNICAL: No issues.

RISK & MITIGATION: NA AIPT continues to closely monitor documentation delivery and will encourage JAO to facilitate acceptance upon documentation delivery.

POP MILESTONE #: 35 & 36
ALMA Construction
TITLE: Deliver FEHV Units 1 – 4

Cost
Schedule
Technical

COST:

Actuals	Expected
$316 k	$611 k [1]

(1) Expected Cost (Budget at Completion) includes a Budget Change Request for $340k.

TECHNICAL:

- Design is mature to make a first unit and test it

SCHEDULE:

Milestone	Schedule	Actual
1. Fabrication and acceptance of Unit #1	6/1/13	1/31/14
2. Fabrication of Units #2-4	11/1/13	8/31/14

RISK & MITIGATION:

Risk	Mitigation
Delay in antenna maintenance due to slower FE handling equipment	JAO has alternate FE handling equipment

COST: Cost to produce four FEHV units exceeds allocated budget. Budget change request submitted for FEHV cost-to-complete. Decision to implement change request and start production is on hold pending availability of budget.

SCHEDULE: Once decision is made to finalize design and start production, 12 months will elapse to fabricate the 4 units; this would go into FY2014

TECHNICAL: First test unit will be a proof of concept and will be the go ahead for the fabrication of the subsequent units.

RISK & MITIGATION: JAO has an alternate FE exchange equipment that has been in use for many years. The new FEHV would increase efficiency and safety of the operation, but its unavailability is not stopping the operation.

POP MILESTONE #: 65
VLBA Infrastructure
TITLE: Transition of legacy proposals to DDC completed

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
Ops funds this activity, delay has no impact	Operations, no impact
Material Actuals	Expected
$0	$0
Travel Actuals	Expected
$0	$0

TECHNICAL:
Several PIs with ongoing monitoring projects using the legacy data acquisition system have requested that we continue to operate the legacy system into FY 2014 for consistency of instrumental performance and calibration. No technical problems identified.

SCHEDULE:

Critical Path	Schedule	Actual
PI cooperation	3/29/13	9/30/13
Milestone	Schedule	Actual
1 Finish transition	3/29/13	Is now expected to continue into FY 2014

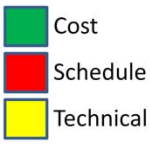
RISK:

Risk	Mitigation
1 Legacy formatter fails	PIs piggyback legacy on DDC system

SCHEDULE: A number of PIs have requested that we maintain the legacy VLBA recording system for ongoing monitoring projects into FY 2014, for consistency of instrumental performance and calibration. We continue to work with individual investigators to participate in “piggyback” observations using both the new and old systems in parallel, to improve acceptance of the new hardware. No new proposals are being accepted for the legacy system. The retirement of the legacy system is now scheduled for FY 2014 Q3.

RISK & MITIGATION: The primary risk associated with not retiring the legacy system is that the legacy formatter may fail, leaving our legacy users with no choice but to transition to the DDC without adequate preparation. The risk of this happening is relatively low, but the formatter is becoming antiquated and is difficult to repair. Detailed instructions have been prepared to aid PIs in converting their legacy observe files to using the DDC.

POP MILESTONE #: 68 & 69
GBT Modifications/Upgrades Projects
TITLE: Digital Servo Replacement



COST:

Labor Actuals	Expected
$215k	$288k
Material Actuals	Expected
$0	
Travel Actuals	Expected
$0	$0

TECHNICAL:

The remaining digital engineer is working on re-factoring the incomplete work of the lead engineer who was laid-off and this is taking some time to recover

SCHEDULE:

Critical Path	POP	Actual
Lab testing	Q1 FY13	N/A
Milestone	POP	Actual
1 Integration Test	Q3 FY13	N/A
2 Acceptance test	Q4 FY13	N/A
3 Axle Encoders	Q4 FY13	N/A

RISK:

Risk	Mitigation
1 Resource availability	None

COST: The costs are running below projections due to the availability of resources to work on the project.

SCHEDULE: As a result of losing the primary development resource and subsequently moving the project to a low-priority internal project, the POP schedule is no longer applicable. Work is accomplished as resources are available.

TECHNICAL: The biggest issue is the learning curve for the servo engineers picking up the work abandoned when the primary engineer was laid off.

RISK & MITIGATION: The primary risk is resource availability to do the work. Since this is a low-priority project, there is no specific mitigation.

POP MILESTONE #: 75 & 76
GBT Modifications/Upgrades Projects
TITLE: GBT Sub-Reflector Actuator

Cost
Schedule
Technical

COST:

Actuals	Expected
$54.6k	$68.1

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
Replacement Comp	Q2 FY13	Q4 FY13
Milestone	**Schedule**	**Actual**
1 Replacement Complete	Q2 FY13	Q4 FY13
2 Focus model	Q2 FY13	Q1 FY14

RISK:

Risk	Mitigation
1 Lack of a renewed pointing model affects HF observing.	Accelerate the modeling (data collection)

COST: As this is an operations project only an overall budget was established.

SCHEDULE: The final actuator reconditioned for the GBT has been received and installation will be coordinated with other activities. At that time the removed actuator will be reconditioned and returned as a spare.

RISK & MITIGATION: High frequency observing may be affected if the modeling for the new pointing corrections with the replaced actuators is not complete by the start of the high-frequency observing season. Mitigation: Attempt to accelerate the data collection phase of the modeling (Intermixed with observation scheduling).

POP MILESTONE #: 82
Central Development Laboratory
TITLE: Test 75-120 GHz LNA using cryo3 devices

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$120,092	$142,083
Material Actuals	Expected
--	--
Travel Actuals	Expected
--	--

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
Test LNA	06/30/13	09/30/13
Milestone	Schedule	Actual

RISK:

Risk	Mitigation
M. Pospieszalksi unavailable	Make sure no WFO commitments for remainder of FY

SCHEDULE: This is a R&D activity. Dr. Pospieszalski has taken on a IEEE Proceedings editor role, which has taken away some of his research time. In the next quarter, we shall mitigate the risk of this milestone slipping further by ensuring that no work-for-others commitments interfere.

POP MILESTONE #: 85
Central Development Laboratory
TITLE: Measure 35nm MMIC LNAs from APRA-3 wafer

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$18,831	$40,000
Material Actuals	Expected
--	--
Travel Actuals	Expected
--	--

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
Measure MMIC LNAs	03/29/13	09/30/13
Milestone	Schedule	Actual

RISK:

Risk	Mitigation
Engineering time unavailable	Applying some time available from engineer on ALMA development project

COST: Some budgeted labor now in M&A due to decision to delay CDL AD hire.

SCHEDULE: Engineer (Dr. Eric Bryerton) responsible for this R&D effort has been filling in for another role. To mitigate risk of this milestone slipping again next quarter, we shall enlist the help of another engineer (Dustin Vaselaar) to assist Dr. Bryerton in these measurement. Dustin should have some available time as the ALMA Band 5 LO Development Project has been delayed.

POP MILESTONE #: 88
Central Development Laboratory
TITLE: Measure band 6 mixer with Nb/AlN/Nb junction

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$406,990	$636,956
Material Actuals	Expected
--	--
Travel Actuals	Expected
--	--

TECHNICAL:

UVML SIS foundry having difficulties with AlN barrier process

SCHEDULE:

Critical Path	Schedule	Actual
Measure Nb/AlN/Nb mixer	06/28/13	09/30/13
Milestone	Schedule	Actual

RISK:

Risk	Mitigation
Continued foundry fabrication problems	Increase focus on solving AlN issues

COST: Some budgeted labor now in M&A due to decision to delay CDL AD hire, ALMA band 6v2 design study also supporting this work.

SCHEDULE: Complete dependent on technical issues of AlN barrier fabrication (see below).

TECHNICAL: The process to produce high-quality AlN barriers for SIS mixers is at the leading edge of development. (No foundry has yet demonstrated a consistent process.) Extra effort on our part, besides increased communication with UVML to focus their efforts, cannot expedite this development.

POP MILESTONE #: 91
Central Development Laboratory
TITLE: Test 67-90 GHz turnstile junction OMT

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$89,402	$150,936
Material Actuals	Expected
--	--
Travel Actuals	Expected
--	--

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
Measure OMT	03/29/13	08/31/13
Milestone	Schedule	Actual

RISK:

Risk	Mitigation
None	-

COST: ALMA Band 2 design study also supporting this work

SCHEDULE: Machining of OMT has taken much longer than anticipated. It is likely we have reached the upper frequency limit of this design (which has been scaled originally from 8-12 GHz). Machining is nearly complete however (anticipated completion 8/15/13) and no more problems are anticipated.

POP MILESTONE #: 96
Central Development Laboratory
TITLE: New BYU signal processor received and tested

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$272,896	$300,634
Material Actuals	Expected
--	--
Travel Actuals	Expected
--	--

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
Test signal processor	06/28/13	09/30/13
Milestone	Schedule	Actual

RISK:

Risk	Mitigation
BYU decides not to send us their beamformer for testing	Design and build our own beamformer

SCHEDULE: BYU sent signal processor to Arecibo for Cornell PAF tests. They have promised to send to Green Bank in August after completion of Arecibo tests.

RISK & MITIGATION: FY14 plans include effort to build our own FPGA beamformer.

POP MILESTONE #: 101
Central Development Laboratory
TITLE: Cryogenic measurement of S-band triangular digital OMT

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$267,095	$311,862
Material Actuals	Expected
--	--
Travel Actuals	Expected
--	--

TECHNICAL:

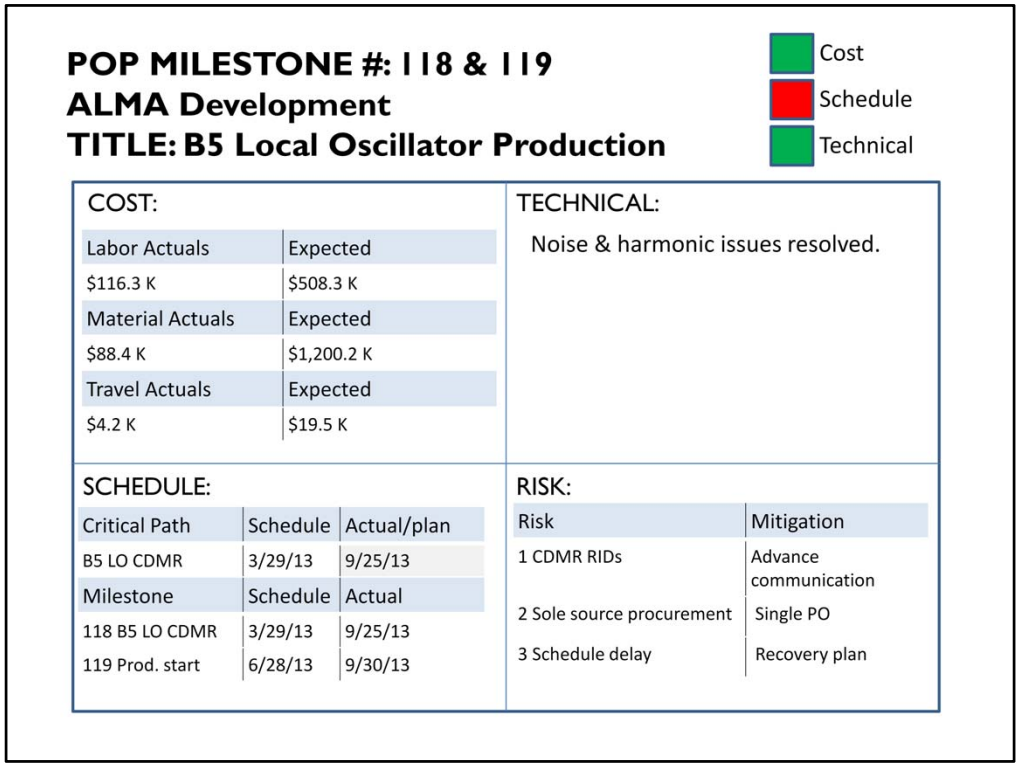
SCHEDULE:

Critical Path	Schedule	Actual
Cryo test DOMT	06/28/13	09/30/13
Milestone	Schedule	Actual

RISK:

Risk	Mitigation
None	--

SCHEDULE: Now that a dedicated test cryostat for this effort has been completed, all equipment is in hand to complete measurement in the next quarter.



COST: Project under-running total budget by $1.54M (%88) due to the delayed start of production. FY3013 under-run will be carried over into FY2014.

SCHEDULE: Performance issues (on both sides of the local oscillator/cold cartridge interface) have prolonged detail design, integrated testing, and the Critical Design and Manufacturing Readiness Review (CDMR). Proceeding with procurement of low-risk components.

TECHNICAL: Noise and harmonic have been remedied by means of a frequency doubler substitution (now employing a version that uses low-barrier diodes) and incorporation of a filter inside the multiplier block.

RISK & MITIGATION:

a) CDMR Review Item Discrepancies – periodic teleconferences with ESO to coordinate CDMR input and preempt RIDs.
b) Sole source procurement – NRAO is also responsible for providing ESO with cold multipliers (two per cartridge). NRAO will subcontract the production of 150 multipliers. Two potential suppliers are competing for the work and each is proposing a different design. The preferred design will be selected prior to the CDMR. The associated supplier (either Virginia Diodes or RAL) will be issued a single Purchase Order for the entire 150 multipliers. Thus, mitigating business risk.
c) Schedule delay - Recovery planning complete; Q4 FY2014 production complete date preserved (assumes early September start of production operations). Pre-production components on-hand or on-order for initial deliveries; ESO schedule unaffected.

POP MILESTONE #: 131
ALMA Development
TITLE: Design Study for B2 Cartridges

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$53.2 K	$59.7 K
Material Actuals	Expected
$32.7 K	$38.4 K
Travel Actuals	Expected
$0.6 K	$0

TECHNICAL:

OMT fabrication

SCHEDULE:

Critical Path	Schedule	Actual
OMT demo	6/28/13	Open
Milestone	Schedule	Actual
1 OMT demo	6/28/13	Open
2 12m receiver insert mods	6/28/13	3/31/13

RISK:

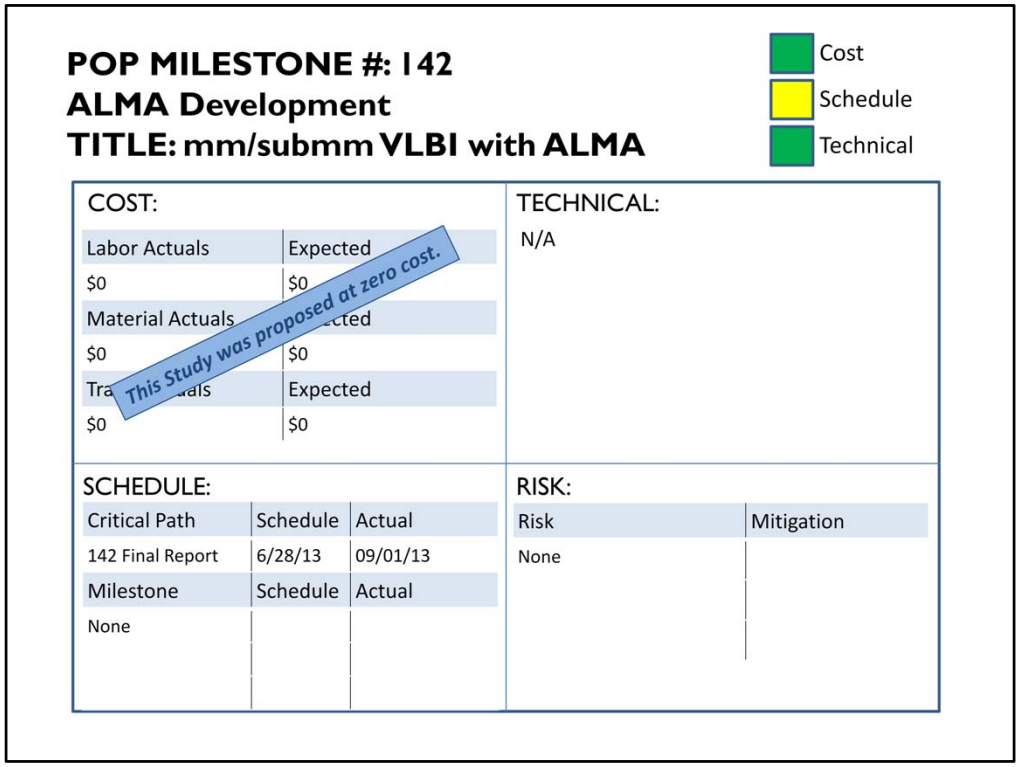
Risk	Mitigation
1 Late finish	FY13 under-run will carry over into FY14; no schedule "knock on" effect.

COST: Study under-running total budget by $11.6 K (12%)

SCHEDULE: OMT demonstration incomplete (see technical note below).

TECHNICAL: Machining of Orthogonal Mode Transducer (OMT) is taking longer than anticipated (probably reaching the upper frequency limit of this design). Machining now scheduled to complete by mid August, with electrical measurements to follow in late August.

RISK & MITIGATION: If continued delay extends the finish date into FY2014, unexpended FY13 funds will transfer to FY14 account; thus ensuring Study completion.



COST: N/A

SCHEDULE: Final Report in work.

POP MILESTONE #: 143
ALMA Development
TITLE: Increase the ALMA Data Rate

COST:

Labor Actuals	Expected
$0	$0
Material Actuals	ected
$0	$0
Tra uals	Expected
$0	$0

This Study was proposed at zero cost.

TECHNICAL:

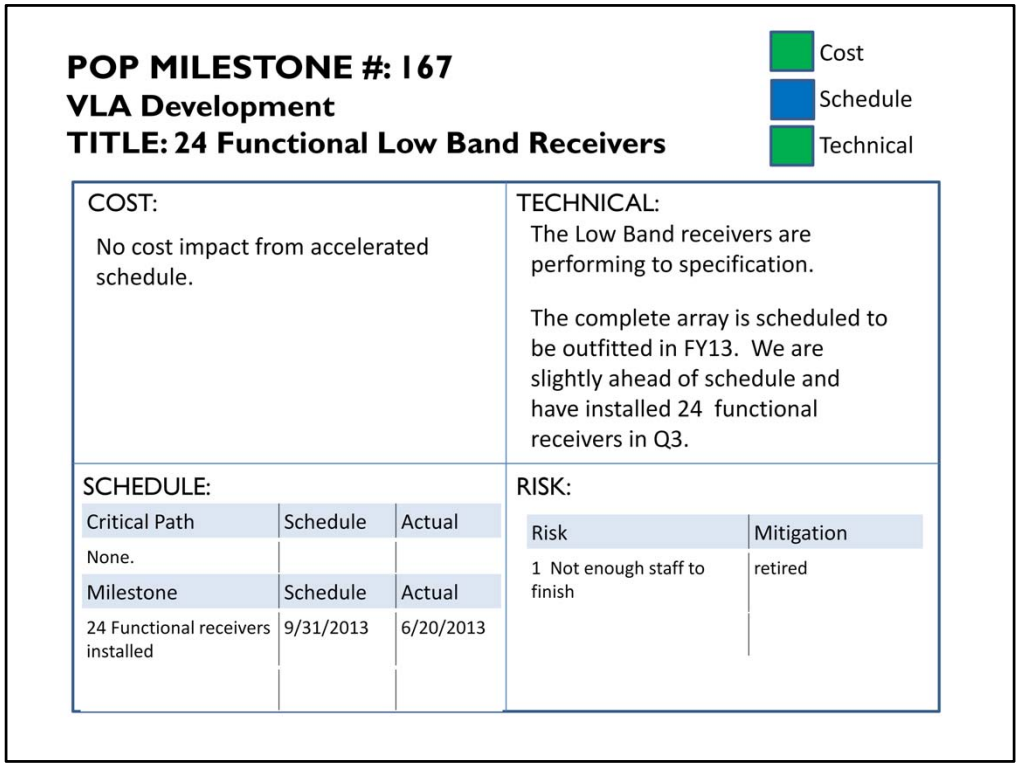
The current Operations Plan (Version D) supports three (3) times the average data rate specified by the ALMA Construction project (this was also the CONOPS assumption). This study topic remains worthwhile but is not urgent, and will be undertaken by DMSD as a cross-observatory initiative. **This Study is cancelled.**

SCHEDULE:

Critical Path	Schedule	Actual
143 Kick-off	6/28/13	N/A
Milestone	Schedule	Actual
144 Review	Q1 FY14	N/A
145 Requirements	Q1 FY14	N/A
146 Final Report	Q1 FY14	N/A

RISK:

Risk	Mitigation
N/A	



COST: There is no projected impact of the feed re-design on the allocated budget for this project.

SCHEDULE: We are slightly ahead of schedule and have installed 24 functional in Q3 vs. plan of Q4.

TECHNICAL: The Low Band receivers are performing to specification.

RISK & MITIGATION: The complete array is scheduled to be outfitted in FY13. The 2013B Call for Proposals promised 20 antennas to be outfitted by the start of the B-configuration (scheduled to begin October 4, 2013). Although we may not have all 28 antennas outfitted by that time, we will have more than originally promised.

POP MILESTONE #: 169
VLA Development
TITLE: Finish building and testing new low-band feed designs

Cost
Schedule
Technical

COST:

Material Actuals	Expected
$10.4k	$26.3k

No cost impact for additional designs and testing.

TECHNICAL:
The 1st prototype had low sensitivity & narrow bandwidth. The design was modified by RSRO participant and RF feed expert Steve Ellingson. The new feed has been deployed in an antenna with testing continuing into Q4. The extended testing is not expected to impact the schedule for the CDR in Q4.

SCHEDULE:

Critical Path	Schedule	Actual
Design Decision	Orig. 6/2013	8/31/2013
Milestone	**Schedule**	**Actual**
1 Test proto. feed in array	3/12/2013	4/8/2013
2 2nd proto. feed tested	8/15/2013	

RISK:

Risk	Mitigation
1 Feed design interferes with higher frequency receiver performance	Redesign feed
2 The 1st Feed was not sensitive enough	Redesign feed

COST: There is no projected impact of the feed re-design on the allocated budget for this project.

SCHEDULE: Items in the schedule for the low-band feed design have been re-ordered to take advantage of the expertise and residency of Steve Ellingson, an expert in low-band feed design. The PDR of the original design (originally scheduled for Q3) has already taken place, including field testing on an antenna. The CDR for the re-designed feed is still expected to take place in Q4, if the performance is found to be acceptable at that time.

TECHNICAL: The prototype strut-straddling low-band (74MHz) feed was built and fully tested. The design was shown to work and can be used in observations, and it does not produce significant blockage during L-band observations. However, the prototype feed is not as sensitive as the original Erickson dipoles that have been installed in special 74MHz "campaigns" in the past. A modification to the original design was developed in collaboration with RSRO visitor Steve Ellingson, to determine if the sensitivity and bandwidth could be improved to a useful level. Initial tests were not promising, but a modification to how the feed is being mounted on the antenna is being investigated into Q4.

RISK & MITIGATION: The new feed aimed to provide a 74MHz capability that could remain installed at all times with minimum impact on other observing bands. The mitigation of the risk associated with not having a 74MHz system is to continue to have special 74MHz dipole campaigns using the Erickson dipoles, as in the past.

POP MILESTONE #: 176
GBT Development
TITLE: VEGAS Development

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$135k	$110k
Material Actuals	Expected
$3.6k	$0
Travel Actuals	Expected
$1.8k	$0

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
All Vegas Modes	Q4 FY13	Q4 FY13
Milestone	Schedule	Actual
1 VEGAS Mode #1	Q1 FY13	Q3 FY13
2 VEGAS Data steam	Q4 FY13	Q4 FY13

RISK:

Risk	Mitigation
1 Finish mode testing on time	Monitor

COST: As reported earlier, the NRAO costs to support for Univ. of Calif. at Berkeley during mode development were higher that anticipated. The pace has fallen back to the projected budget profile, but the ~$50k delta will likely not be recovered.

SCHEDULE: The schedule is mainly driven by UC-B and the NSF grant that expires the end of FY2013, unless UC-B requests for a no-cost extension. The Mode #1 acceptance will happen in March.

TECHNICAL: All NRAO technical issues are considered as nominal at this time

RISK & MITIGATION: There is only one key risk at this time and that is the ability for NRAO to finish the mode testing before the grant funding expires. NRAO and UC-B meet weekly to monitor progress, and the PIs meet monthly for a status and strategy review.

POP MILESTONE #: 183, 184, 185
GBT Development
TITLE: GBT MUSTANG 1.5

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
$241k	$309
Material Actuals	Expected
$11.3k	$10k
Travel Actuals	Expected
$0.33K	$1.5k

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
First light (lab)	Q3 FY13	Q4 FY13
Milestone	Schedule	Actual
1 Cryo fabrication	Q1 FY13	Q2 FY13
2 Initial cooldown	Q1 FY13	Q2 FY13
3 NIST Detectors	Q2 FY13	TBD (Q4 target)

RISK:

Risk	Mitigation
1 Missed winter commissioning	Monitor & Adjust

COST: Costs are currently running below a linear projection, but the NRAO costs will ramp up as the integration activities increase in Q4FY2013.

SCHEDULE: The detectors from NIST are running behind schedule. These are donated by NIST so the leverage for pushing the schedule is limited and the NIST relationship is in Univ. of Penn's control. The HEMT amplifier delivery from CDL is behind schedule, but alternate devices are being used to prevent any delay due to the amplifiers.

TECHNICAL: All NRAO technical issues are nominal for this point in the project.

RISK & MITIGATION: The risk currently is that the NIST-donated detectors may not arrive in time to meet the commissioning schedule. If MUSTANG 1.5 is not available for shared-risk use in winter 2013, the existing MUSTANG will do whatever science can be accomplished with MUSTANG's capabilities.

POP MILESTONE: 193
Administration: MIS
TITLE: Reports created and formatted

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
n/a	
Material Actuals	Expected
n/a	
Travel Actuals	Expected
n/a	

TECHNICAL:

SCHEDULE:

Critical Path	Schedule	Actual
	06/30/13	09/30/13
Milestone	Schedule	Actual
1 Design reports	05/15/13	08/15/13
2 Report approval	06/07/13	09/07/13
3 Reports installed	06/30/13	09/30/13

RISK:

Risk	Mitigation
Staff time and availability insufficient to complete project.	Improved reports will be beneficial, but current reports are satisfactory. Postpone to 2014.

SCHEDULE: Vacancy in Observatory Budget Division was not filled until January 2013, and existing staff were unable to work on and complete this project.

POP MILESTONE #: 199
Human Resources: Compensation
TITLE: Updated job descriptions for all NRAO jobs available

Cost
Schedule
Technical

COST:

Labor Actuals	Expected
n/a	n/a
Material Actuals	Expected
0	0
Travel Actuals	Expected
0	0

TECHNICAL:

Only notable or current items
If Technical stoplight is yellow or red, add issue description here

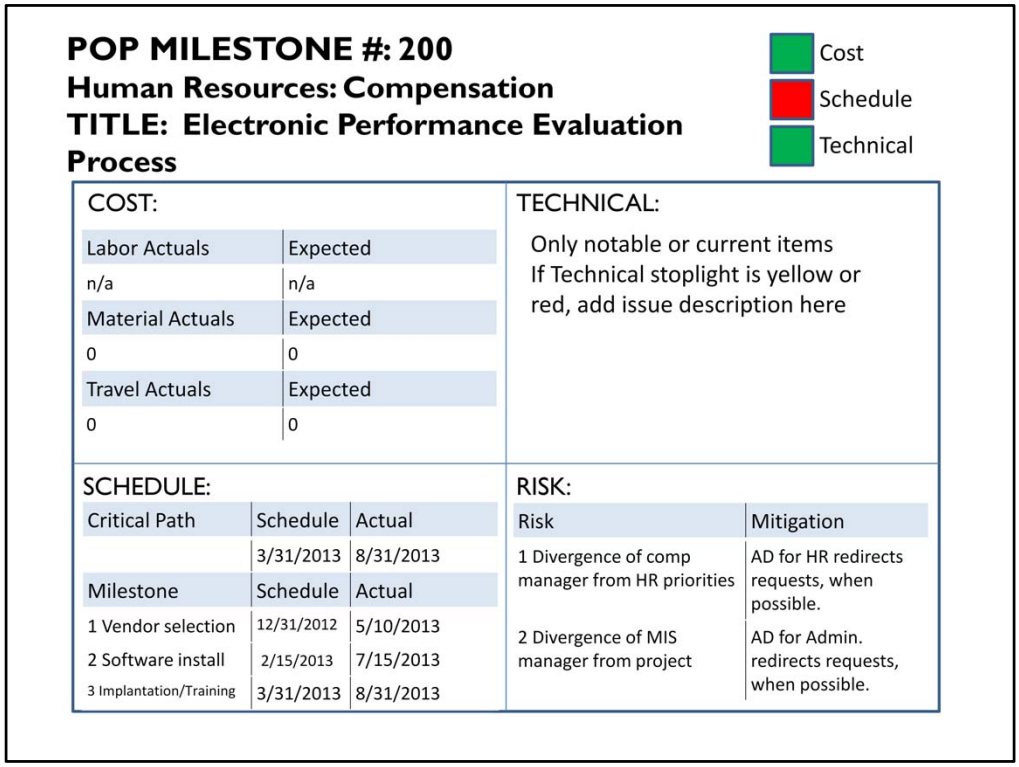
SCHEDULE:

Critical Path	Schedule	Actual
	3/31/2013	7/31/2013
Milestone	Schedule	Actual
1 Project start	10/5/2012	10/5/2012
2 JDs due to HR	12/31/2012	65% Complete
3 Final JDs	3/31/2013	7/31/2013

RISK:

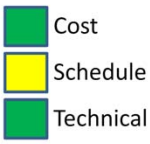
Risk	Mitigation
1 Lack of response on request	Track & report to DO on outstanding JDs
2 Divergence of comp manager from HR priorities	AD for HR redirects requests, when possible.

COST: The Manager of Compensation and HRIS is conducting the project and was on medical leave for most of FY13 Qtr 1.



SCHEDULE: The Manager of Compensation and HRIS is a key contributor to the project and was on medical leave for most of FY13 Qtr 1. The PEP timeline was also changed for 2013 to coordinate with NRAO's fiscal year cycle, thereby creating an 18-month review for 2013 (4/1/2012-9/30/2013).

POP MILESTONE #: 210
CIS: Data Management
TITLE: Upgrade of NRAO Observer Helpdesk to Kayako V4



COST: No cost issues

TECHNICAL: No technical issues

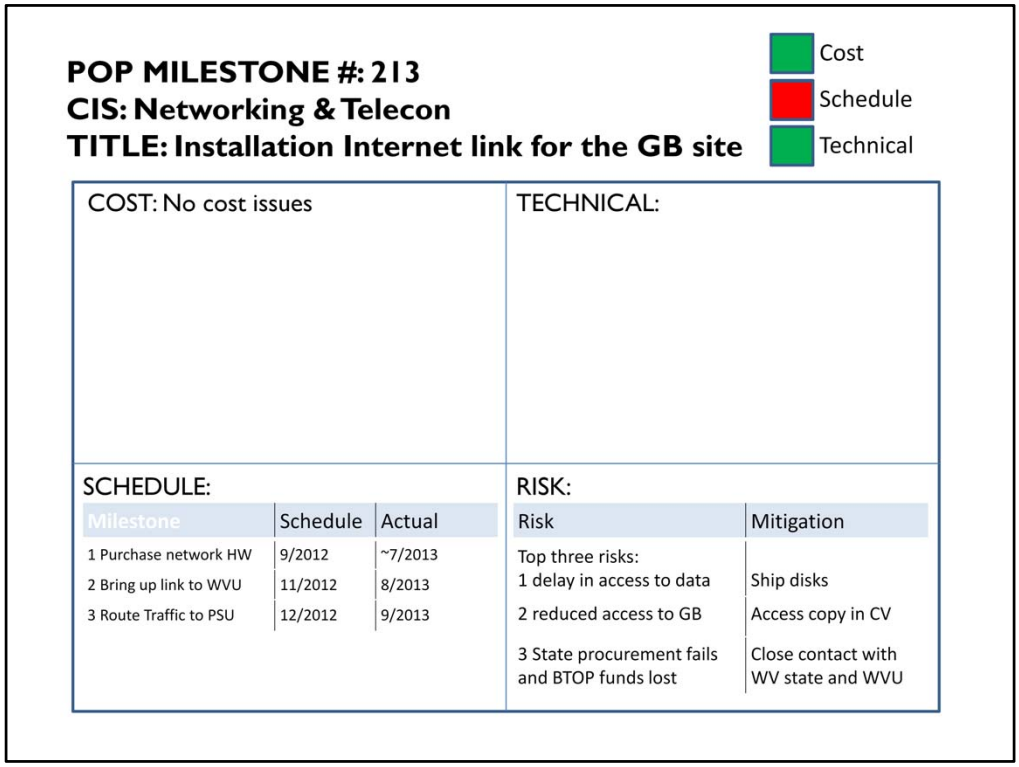
SCHEDULE:

Milestone	Schedule	Actual
1 Helpdesk Testing	5/2012	7/2013
2 Upgrade to V4	6/2012	8/2013

RISK & MITIGATION: Helpdesk upgrade is in final testing, but release scheduled for late August to minimize risk to observer support during 2014A proposal call.

SCHEDULE: Delayed until late August 2013 to minimize impact to observer support.

RISK & MITIGATION: Upgrade delayed until after 2014A proposal deadline.



COST: No cost from delay in short term ($5k/month link charge is avoided).

SCHEDULE: Driven by the procurement process of WV State for network hardware in both GB and WVU.

RISK & MITIGATION: Risk that BTOP Stimulus funds for WV State will expire, continue to coordinate network hardware bid activities with State.

QSU #3 FY13 Exceptions

April 1 – June 30 2013

Atacama Large Millimeter/submillimeter Array
Karl G. Jansky Very Large Array
Robert C. Byrd Green Bank Telescope
Very Long Baseline Array

New Activities Outside the FY2013 POP

ODP	Fiber Optic Connectivity Project
ODP	ALMA Phasing Project
OAS	Diversity Review Panel
EPO	STEM Education
EPO	Press/Media Activity
EPO	Social Media & Web
EPO	Visitor/Science Centers
OAS	Cost Allocation Project

Exception Title: Fiber Optic Connectivity Project

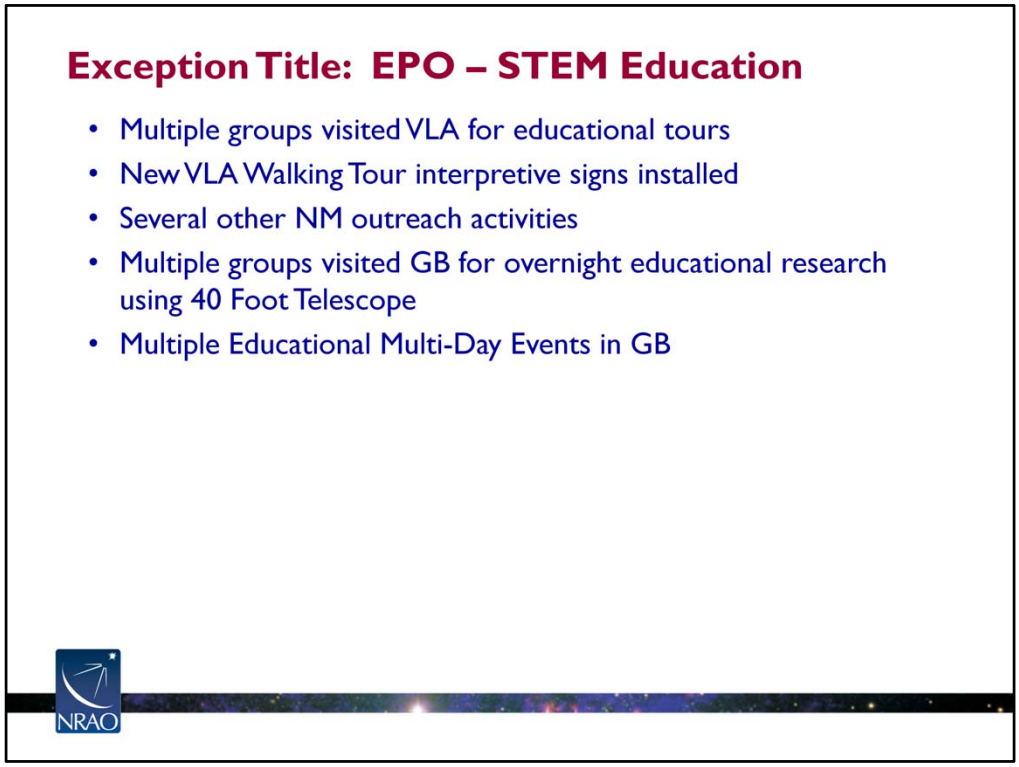
- NA ALMA Development funded work …
  - FO from AOS to Calama: Silica Networks
    - » *construction permit pending (critical path constraint)*
  - FO from Calama to Antofagasta: Telefónica Emprasas
    - » *hardware upgrade (Dense Wavelength Division Multiplexing) in work*
- Contributions in kind …
  - FO from Antofagasta to SOC (existent): ESO
- Developments …
  - Redundant FO path (no cost) from AOS to Santiago
- Construction and commissioning schedule delay: ≈ 60 days
- Silica Networks performance bond in force (fixed-price contract)
- Final payments (≈ 700K USD) due upon acceptance of system
- Present 100Mbps microwave link will remain active

Exception Title: ALMA Phasing Project

- Critical Design Review RIDs
  - NRAO actionees have submitted responses; awaiting feedback/disposition from Review Team.
- NRAO will seismic harden Maser racks (rather than U. de Chile)
- Phase I implementation budget established (NRAO/JAO cost share)
- Integration Plan in work
- Verification Matrix in work
- Phase I implementation complete Q3 FY 2015

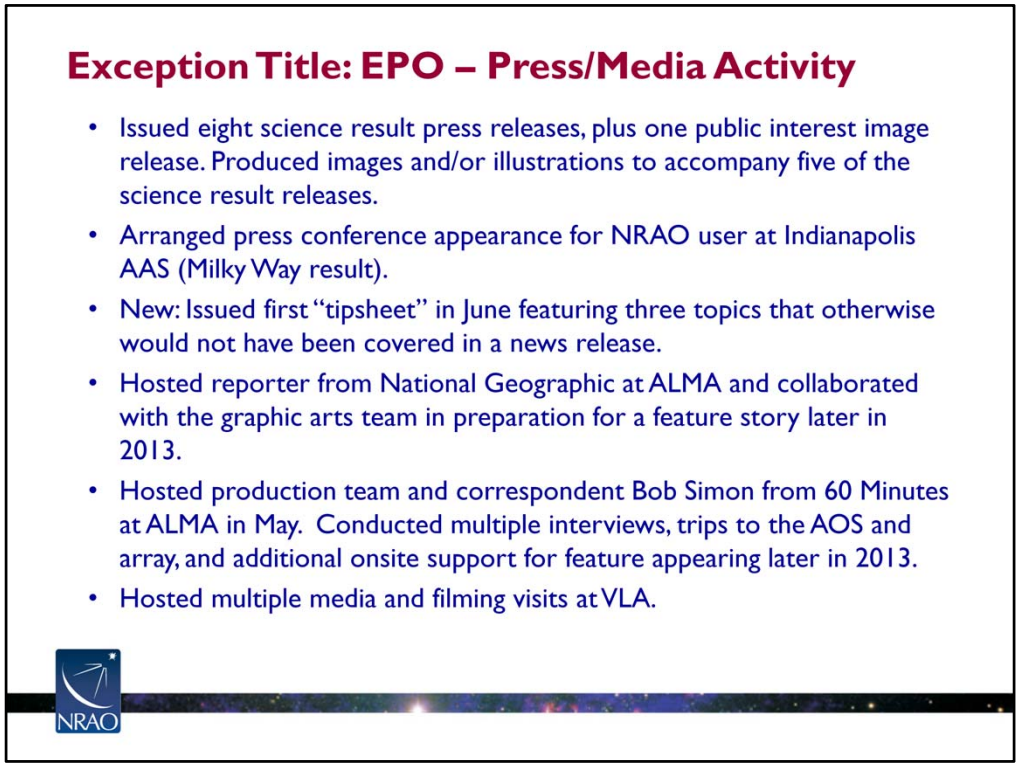
Exception Title: Diversity Review Panel

- The panel consisted of seven distinguished diversity professionals invited by Tony Beasley to review NRAO's diversity program and provide recommendations that can improve our program.
- The review was conducted on June 25 and 26 in Charlottesville, VA
- The Diversity Review Panel Members included:
  - Dr. Hector Arce, Astronomy Department, Yale University
  - Sheryl Bruff, HR Branch Chief – Space Telescope Science Institute
  - Dr. Dara Norman, Assistant Scientist – National Optical Astronomy Observatory
  - Dr. Lawrence Norris, National Society of Black Physicists
  - Dr. Ashanti Johnson, Executive Director of the Institute of Broadening Participation and Faculty Research Associate, University of Texas at Arlington
  - Dr. Charles Liu, Professor of Astrophysics, City University of New York
  - Darlene Scott-Scurry, Director of Equal Opportunity Programs, University of Virginia
- The final report is scheduled to be completed on or before July 31.



VLA Group Visits: University of CO 28 students; Esperanza HS 23 students 1 teacher; Rio Rancho HS 20 students 2 teachers; Mark Twain ES 68 students, teacher, parents; ABQ HS MESA 9 students 1 teacher; Van Buran HS 51 students/teachers; Oasis Senior Citizens 29; NM Tech Astro Club 8 students; LFG tour Dale Frail/Finley 71; Belen HS 9 students 2 teachers; Cottonwood Charter school 48 students, teachers, parents; NNMC 10; USC Archti. students 16; ABQ Boy Scouts 34; Wabash Indiana MS 20 students/teachers; Mercedes Benz Car Club tour 52; Greg Taylor's astro class, antenna climb 9 students
VLA Walking Tour Signs: Representative signs can be viewed at http://alma-epo.smugmug.com/Other/New-Outdoor-Walking-Tour-Signs/29675001_jPV9b7#!i=2540499129&k=rnbPCVr. There are a total of 16 “stops” on the walking tour; each stop now has at least one sign.
Other VLA Education/Outreach Activities: Mark Twain ES Starlab 120 students/teachers; Family School 44 hours of instruction this quarter; Socorro Library program comet demo; NM Tech Master of Science Teaching Astronomy Class Universe at your fingertips lessons; three “First Saturday” public tours (April, May, June); three REU student-led tours in June.
GB Overnight Groups/40 Foot Telescope Research: Grosse Pointe High School (MI); Annadale High School (VA); Eden Christian Academy (PA); Northern Dauphin Christian School (PA); Boy Scout troop 1 (WV); Metz Middle School; Rutgers University (NJ); Washington and Lee (VA); Robert Bland Middle School (WV); Spring Ridge Middle School (MD); Roberto Clemente Middle School (MD)- 2 groups; West Green High School (PA); Manassas Middle School (VA); Carolina Friends School (NC); Midway Elementary School (WV); Washington PA Gifted Students; UVA LSAMP students (VA); Valley Ridge Gov. School (VA)

GB Educational Multi-Day Events: Glenville State College/Fairmont State University 4-day Institute for preservice teachers; Skynet Science and Education Workshop (2.5 day workshop brought 32 scientists and educators together to discuss the potential of using the Skynet Robotic Telescope Network for education); Chautauqua Short Course (20 participants this year – new content focus on black holes and pulsars); Space Race Rumpus Cycling festival- increase in participation of ~20% over previous year. 1600 dollars raised for local Wellness Center; Skynet Junior Scholars Development workshop (Seventeen educators convened to write activities for the Skynet Junior Scholars project including 2 participants who are blind, and one who is deaf); 3-day Capstone seminar (held at WVU) for Pulsar Search Collaboratory students and teachers



Press Releases: ALMA Detects Signs of Star Formation Surprisingly Close to Galaxy's Supermassive Black Hole; Massive Star Factory Churned in Universe's Youth
; Einstein's Gravity Theory Passes Toughest Test Yet; VLA Gives Deep, Detailed Image of Distant Universe; Astronomers Discover Surprising Clutch of Hydrogen Clouds Lurking among Our Galactic Neighbors; Accurate Distance Measurement Resolves Major Astronomical Mystery; Earth's Milky Way Neighborhood Gets More Respect; 'Dust Trap' around Distant Star May Solve Planet Formation Mystery
Public Interest Image Release: http://www.nrao.edu/pr/2013/magwater/
Tipsheet: http://www.nrao.edu/pr/2013/tipsheetjune/template.shtml
VLA Media/Filming Visits: -- NHK B-roll and timelapse for physics documentary; "Transcendence" movie aerial shoot; Writer for Atlantic, and photographer; NM Magazine writer and photographer; KRQE-TV (Abq) timelapse

Press Conferences: Featured NRAO users discussing GBT observations of Milky Way and VLBA NGC 660 observations

Exception Title: EPO – Social Media & Web

- Facebook followers grew from 10,055 to 14,766 during Q3
- Twitter followers grew from 3,648 – 3,990 during Q3
- New public.nrao.edu site produced and under internal testing
  - Includes new gallery of 660 unique media elements
  - Includes new GB virtual tour featuring 70 "tour stops" and staff interviews

Exception Title: EPO – Visitor/Science Centers

- VLA public visitation counted: 4,754 during period
- GB public visitation counted: 11,409 during period
- Several community group events hosted in GB
  - Pocahontas County Convention and Visitors Bureau Board of Directors Retreat
  - Pocahontas County High School Prom
  - Forest Service Training
  - Mon National Forest Service Regional Health Fair
  - NANOGrav Conference
  - Farmers Market
- Several special tours hosted at the VLA:
  - VIP tour for staffer of Sen. Martin Heinrich (D-NM),
  - Tour for NSF-Large Facilities Workshop participants

Exception Title: Cost Allocation Project

- Currently NRAO utilizes two related, but different, methods for allocating NRAO's joint costs: Common Cost Recovery (CCR) for non-NSF work & Cost Pool Allocations for NSF work
- NRAO will simplify its cost recovery mechanism to a single method.
- OH costs will be accounted for in a pool and allocated across all CSA's, SPO's, grants, and other activity by that methodology.
- Project is on schedule to take effect in FY 2014

QSU# 3 2013 - Financials

Associated Universities, Inc.

Atacama Large Millimeter/submillimeter Array
Karl G. Jansky Very Large Array
Robert C. Byrd Green Bank Telescope
Very Long Baseline Array

NRAO

Q3 FY13 Forecast

- Overall Issues
  - Benefits running at 38% vs. 35% budgeted.
  - Impact of HDHP.
  - Regular benefits true-ups impact all operations.
  - Budget adjustments made and accounted for a projected $1M overrun.
- NRAO Ops
  - Growing WFO & research activity providing CCR revenue assistance and salary support.
  - Accommodated budget error & benefits overruns through combination of revenue opportunities, elimination of infrastructure investments and capture of open positions.
  - Overall, on track to a balanced budget, however unable to respond to any equipment issues/opportunities.

FY13 YTD by Major WBS Category
ALMA Ops – Q3

	FY13 POP Budget	FY13 YTD Expenses	YTD %
Telescope Ops	20,263	18,092	89.3
Development	2,992	3,008	100.6
Science Ops	5,363	3,902	72.8
Admin Services	5,045	3387	67.1
Director's Office	2,291	1,635	71.4
Total	35,954	30,024	83.5

- Telescope Ops includes power installment payment to ESO (not part of POP.) Many open PO's for long lead spares & for year long services & spares.
- Development overspend related to expenditure of FY12 development projects during FY13 + planned fiber-optic infrastructure project in Chile.
- ALMA Ops will come in within resource envelope.

FY13 YTD by Major WBS Category
NRAO Ops – Q3

	FY13 POP Budget	FY13 YTD Expenses	YTD %
Telescope Ops	16,793	13,445	80.1
Development	4,056	3,802	93.8
Science Ops	6,414	5,240	81.7
Admin Services	13,944	9,643	69.2
Director's Office	4,545	3,282	72.2
Total	45,752	35,413	77.4

- Telescope Ops – maintenance loaded in 2nd half.
- Development programs – includes some expenses being funded by WFO revenue not yet recognized (~1 million).
- Science Ops – major travel in first half, open PO's for summer students & Post Docs.
- Admin services – benefits expenses running high; full year payouts for some lease expenses & insurances. Includes planned revenue offsets.