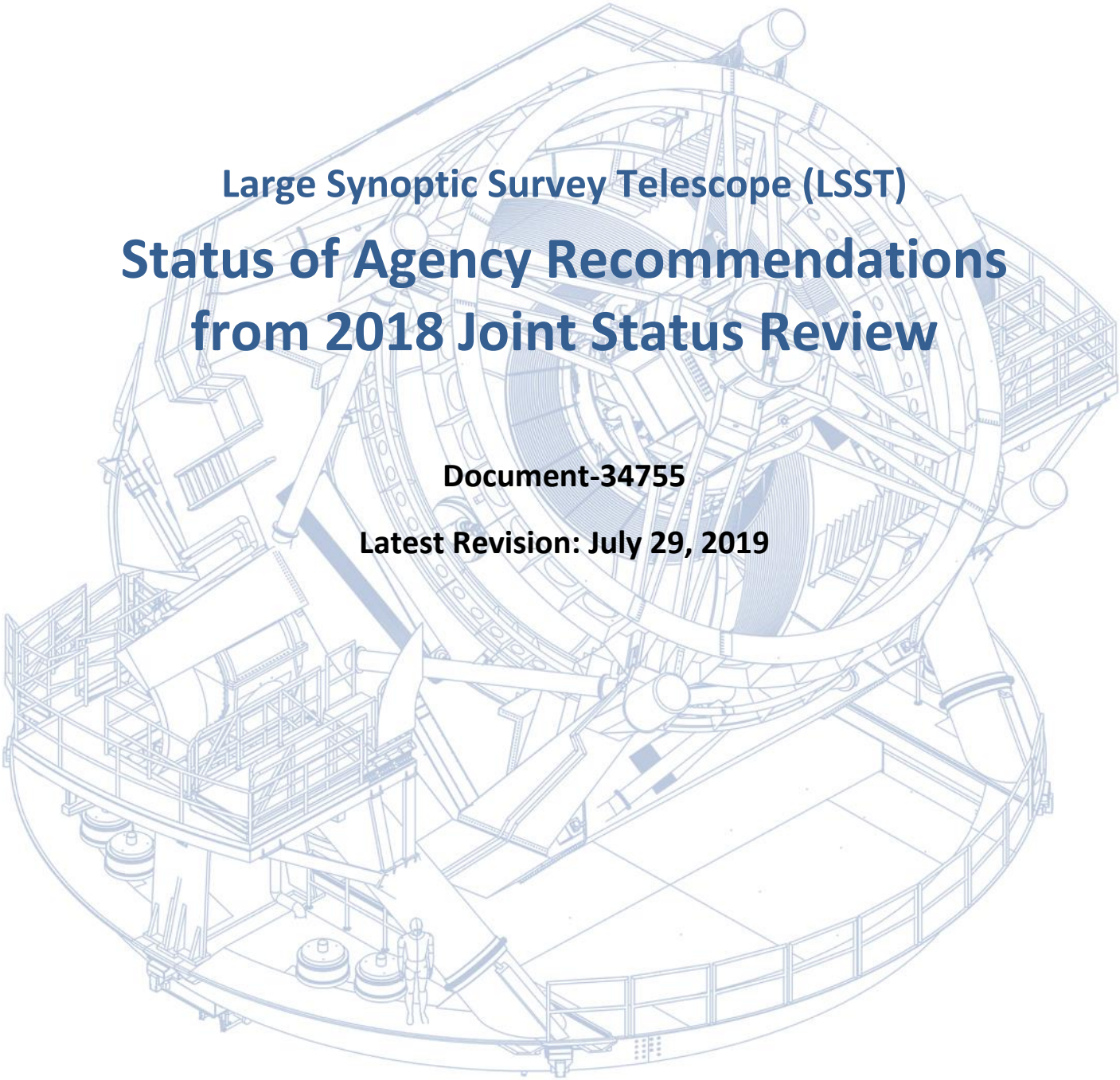
LARGE SYNOPTIC SURVEY TELESCOPE



Large Synoptic Survey Telescope (LSST)

Status of Agency Recommendations from 2018 Joint Status Review

Document-34755

Latest Revision: July 29, 2019

Change Record

Version	Date	Description	Owner name
1	2018-06-20	Initial version for 2018 JSR	Victor Krabbendam
2	2018-07-11	Updated status on three recommendations	Cathy Petry

Table of Contents

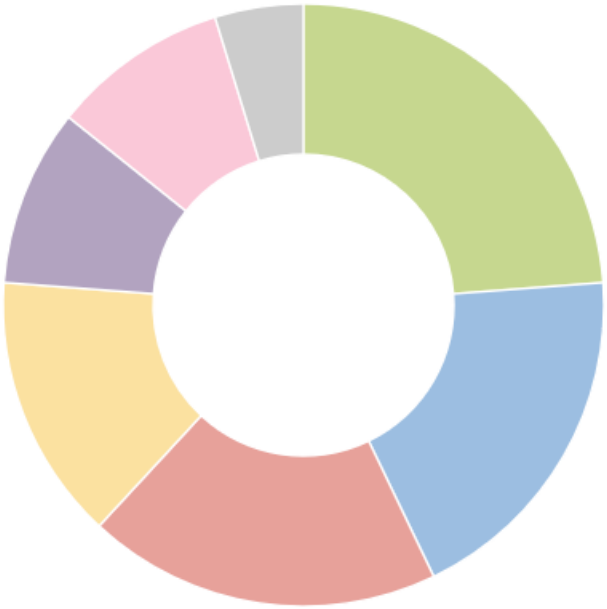
Status of Agency Recommendations from 2018 Joint Status Review

Introduction

This report captures the status of the LSST Issue Tracker for the recommendations offered by Joint Status Review 2018 review committee. Response documents are provided for all reviews and then entered into the Project Issue tracking system. Additional activity to address the recommendation is captured in the specific ticket until specifically addressed or further action is captured in baseline plan. Upon such satisfactory completion the ticket is closed by the Project Manager.

Recommendations by Review

The recommendations were received from the Joint Status Review July 30-August 3, 2018 that included an EVMS surveillance and a review of the Commissioning WBS. The chart at right shows the distribution of the issues across project subsystems.



Components	Issue Count (21)
Commissioning	5
Project Management Office	4
Telescope & Site	4
Camera	3
Data Management	2
Education & Public Outreach	2
Systems Engineering	1

Recommendation Status

Nineteen of the 21 recommendations are closed. The details of each recommendation are provided in the following pages.

[LIT-545] The Commissioning WBS should be segregated at lower levels to clearly identify DOE and NSF effort and procurements. Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Commissioning

Type:	Review Recommendation	**Priority:**	Major
Reporter:	Aime Brown Wiest	**Assignee:**	Chuck Claver
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The resource assignments already support separate evaluation of DOE and NSF costs but the resources have now been separated in the Project Plan so each work package is assigned to only one resource type (DOE/NSF).

Description

The Commissioning WBS should be segregated at lower levels to clearly identify DOE and NSF effort and procurements.

Comments

Comment by Aime Brown Wiest [26/Apr/19]

Done – see recommendation from SC16 above.

Comment by Chuck Claver [11/Jun/19]

Accepted and implemented recommendation.

Comment by Victor Krabbendam [23/Jul/19]

Implemented

[LIT-544] The cost and schedule presented was based on the early finish of the MREFC project Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Commissioning

Type:	Review Recommendation	**Priority:**	Major
Reporter:	Aime Brown Wiest	**Assignee:**	Chuck Claver
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Acknowledged
Review Response:	We acknowledge that the DOE Commissioning Plan is integrated with the baseline MREFC schedule. The Project will continue to work closely with both Agencies to review funding levels necessary to support the work. Specific scenarios are not in place but the close coordination with the DOE supports the necessary discussions so both the Agency and the Project can evaluate funding level contingencies.

Description

The cost and schedule presented was based on the early finish of the MREFC project. Schedule slips in the MREFC project will shift the commissioning schedule later. The Project should work with the DOE office to provide planning scenarios. [January, 2019]

Comments

Comment by Aime Brown Wiest [26/Apr/19]

Several strategic planning scenarios have been developed to adapt to schedule uncertainties depending on the source – DOE driven, MREFC driven and globally driven. These have been presented in detail to the AMCL at the January 2019 meeting and summarized to the Agencies at the January Progress Update meeting. Further an AIV-Commissioning workshop was held in February 2019 where several detailed scenarios were developed that pull forward in time significant Commissioning work scope that will serve to relieve schedule risks.

Comment by Chuck Claver [11/Jun/19]

Acknowledged.
Comment by Victor Krabbendam [23/Jul/19]
Recent LCR for Schedule change included just such an impact on Commissioning.
[LIT-543] Update the Commissioning WBS to facilitate cost accounting between DOE and NSF Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 23/Jul/19

Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Commissioning

Type:	Review Recommendation	**Priority:**	Major
Reporter:	Aime Brown Wiest	**Assignee:**	Chuck Claver
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The resource assignments already supported separate evaluation of DOE and NSF costs but the resources have now been separated in the Project Plan so each work package is assigned to only one resource type (DOE/NSF).

Description

Update the Commissioning WBS to facilitate cost accounting between DOE and NSF. (2018 Sep 30)

Comments

Comment by Aime Brown Wiest [26/Apr/19]
The Baseline Project Plan has been updated to include separate activities for DOE and MREFC funded work scope.
Comment by Chuck Claver [11/Jun/19]
Recommendation was accepted and implemented.
Comment by Victor Krabbendam [23/Jul/19]
Implemented

[LIT-542] Maintain the current level of safety officer staffing (3 FTE) through the AIV/commissioning phase Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Commissioning

Type:	Review Recommendation	**Priority:**	Major
Reporter:	Aime Brown Wiest	**Assignee:**	Chuck Claver
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Acknowledged
Review Response:	The budget remains in place to maintain the current level of Safety staffing through the AIV and System Integration periods. As the work evolves on the summit the Project will continue to evaluate the appropriate staffing that continues the same level of safety oversight and coordination.
RR Item ID:	SC15 - 15.1

Description

Maintain the current level of safety officer staffing (3 FTE) through the AIV/commissioning phase to help ensure that effective safety management, work planning, and control mechanisms are implemented for activities associated with this phase of the project.

Comments

Comment by Chuck Claver [11/Jun/19]

Acknowledge.

Comment by Victor Krabbendam [23/Jul/19]

Safety staffing plan continues to include three coordinators on site and the staffing levels also continue to be reviewed.

[LIT-541] Demonstrate that the DM software can successfully support full science operations Created: 26/Apr/19 Updated: 23/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Commissioning

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Chuck Claver
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The Project will work with the Agencies and Operations team to establish a robust transition plan that includes readiness reviews at all appropriate completion milestones.

Description

Demonstrate that the DM software can successfully support full science operations by scheduling an operational readiness review of the DM software, after the final DM software release and prior to the commencement of full science operations.

Comments

Comment by Chuck Claver [11/Jun/19]

Accepted.

Comment by Victor Krabbendam [23/Jul/19]

The ORR continues to be part of the baseline plan.

[LIT-540] Identify significant cost savings to offset liens in order to maintain sufficient contingency Created: 26/Apr/19 Updated: 23/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Project Management Office

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Victor Krabbendam
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The Project has updated the EAC in October 2018, reviewed the significant available scope options and changed the process for maintaining the Liens/EAC.

Description

Identify significant cost savings to offset liens in order to maintain sufficient contingency, and include these cost-offsets in the EAC so that the EAC can be used as an accurate assessment of expected execution and as a prelude to bringing these into the baseline. (October, 2018)

Comments

Comment by Aime Brown Wiest [26/Apr/19]

EAC is now being updated monthly and all accepted liens are being included.

Comment by Victor Krabbendam [23/Jul/19]

In June 2019 the Project implemented a comprehensive EAC process as part of the formal Change Request process. This is a further enhancement over the monthly updates to liens put in place just after the 2018 JSR.

Throughout the past year LSST has monitored and pursued scope options to preserve contingency. Several changes to the program plan were put in place to reduce costs, including changes to the development of the science user interface in DM and changes to the system

integration effort. Each of these had positive impacts to the BAC however during this same period the calls on contingency have had an inverse impact.

The Project held a specific meeting with both Agencies in January 2019 to discuss the contingency levels, scope options and an evaluation of the contingency as a function of remaining work.

LSST Mgmt will continue to pursue optimization in the program to save budget and schedule and will monitor the effectiveness of scope options. The past year demonstrates the Project focus on scope options, the EAC, and the preservation of contingency to healthy levels so this action is considered closed.

Comment by Victor Krabbendam [23/Jul/19]

The Project has completed what it could on this action but will continue to pursue development and deliverable options. Considering the accomplished work and continued efforts, this action is considered closed.

Comment by Victor Krabbendam [23/Jul/19]

Approved for closure.

[LIT-539] The Project should revisit and revise the Descoping Plan Created: 26/Apr/19 Updated: 23/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Project Management Office

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Victor Krabbendam
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	LPM-72 has been updated and continues to be renewed quarterly. The document and associated data spreadsheet have been updated to clearly identify the remaining value at the time of document publishing. The value as a function of time has always been calculated and plotted but the register is now sortable by remaining value to support focused evaluation. The Project Schedule has been updated to include the trigger dates for the available Scope Options.

Description

The Project should revisit and revise the De-scoping Plan to ensure that potential cost avoidance values are accurate and up to date. Provide milestone dates for potential de-scope execution. (September, 2018)

Comments

Comment by Ranpal Gill [22/Jul/19]

https://project.lsst.org/groups/ccb/node/3453

LCR created to baseline the revised document

Comment by Victor Krabbendam [23/Jul/19]

The Project has continued to refresh the Scope option analysis quarterly and has completed more substantive updates annually.

[LIT-538] Incorporate Decision Milestones for remaining Scope Contingency Options into the P6 Schedule Created: 26/Apr/19 Updated: 23/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Project Management Office

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Victor Krabbendam
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The Project Schedule has been updated to include the trigger dates for the available Scope Options.

Description

Incorporate Decision Milestones for remaining Scope Contingency Options into the P6 Schedule to trigger timely management decisions to implement, defer, or reject Scope Contingency Options. [To be completed shortly after updating the Scope Contingency Options document.]

Comments

Comment by Ranpal Gill [22/Jul/19]

Kevin Long Note LCR https://project.lsst.org/groups/ccb/node/3453 has been opened to baseline the updated LPM-72 Scope options document. The project schedule should be reviewed and any updates needed to trigger dates should be made.

Comment by Victor Krabbendam [23/Jul/19]

Milestones added and process will be maintained going forward.

Comment by Victor Krabbendam [23/Jul/19]

Approved for action closure.

[LIT-537] Update the Scope Contingency Options in document LPM-72 Created: 26/Apr/19 Updated: 23/Jul/19 Resolved: 23/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Project Management Office

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Victor Krabbendam
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	LPM-72 has been updated and continues to be renewed quarterly. The document and associated data spreadsheet have been updated to clearly identify the remaining value at the time of document publishing. The value as a function of time has always been calculated and plotted but the register is now sortable by remaining value to support focused evaluation.

Description

Update the Scope Contingency Options in document LPM-72 to identify which options remain open to the Project including their updated projected cost savings as a function of time. [Sept 2018]

Comments

Comment by Ranpal Gill [22/Jul/19]

https://project.lsst.org/groups/ccb/node/3453

LCR created to baseline the revised document

Comment by Victor Krabbendam [23/Jul/19]

The Project has continued the quarterly update process and plans to maintain the process going forward.

[LIT-536] Understanding user needs and characteristics is critical to LSST EPO success Created: 26/Apr/19 Updated: 22/Jul/19 Resolved: 22/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Education & Public Outreach

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Amanda Bauer
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	We agree that the field of education research and the emergence of teaching with big data is important and that LSST may have potential to be part of this. Prior to Operations, EPO will engage in discussions with education researchers to understand more about their work and needs and then evaluate the appropriate way, if any, to be involved. EPO is committed to evaluating deliverables and components. The purpose of evaluation is to determine the extent to which program outcomes are achieved and improve program functioning (National Science Foundation; W.K. Kellogg Foundation; Pell Institute). EPO recognizes that this is different from the purpose of education research which uses rigorous methods and "seeks to describe, understand, and explain how learning takes place throughout a person's life and how formal and informal contexts of education affect all forms of learning" (American Education Research Association). Sources W.K. Kellogg Foundation The Step-by-Step Guide to Evaluation, 2017 https://www.wkkf.org/resource-directory/resource/2017/11/wk-kellogg-foundation-step-by-step-guide-to-evaluation

	National Science Foundation. (2010). The 2010 User-Friendly Handbook for Project Evaluation. Retrieved from https://www.purdue.edu/research/docs/pdf/2010NSFuser-friendlyhandbookforprojectevaluation.pdf The Pell Institute Pathways to College Network. (n.d.) Evaluation 101: The Basics. Retrieved from http://toolkit.pellinstitute.org/evaluation-101/ American Educational Research Association. (n.d.) What is Education Research. Retrieved from http://www.aera.net/About-AERA/What-is-Education-Research

Description

Understanding user needs and characteristics is critical to LSST EPO success. The EPO team should engage with education researchers focused on teaching and learning with big data to inform the construction of EPO data collection infrastructure, and analysis practices.

Comments

Comment by Amanda Bauer [17/Jul/19]

The EPO team has been consulting regularly with Ed Prather, a nationally-recognized expert in astronomy teaching and learning research who has extensive experience relevant to what the recommendation describes.

Comment by Victor Krabbendam [22/Jul/19]

The initial response, ongoing collaborations, and the EPO development approach that features community engagement combine to satisfy this action as completed.

[LIT-535] Seat an advisory group that includes elementary and middle school education specialists and/or curriculum developers Created: 26/Apr/19 Updated: 22/Jul/19 Resolved: 22/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Education & Public Outreach

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Amanda Bauer
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Acknowledged
Review Response:	We agree that an advisory committee is a potential benefit to the EPO effort and we are preparing to set one up. We feel that including elementary and traditional middle school education specialists on the panel would not be an appropriate use of the time of those individuals. Those student group are not part of our target audiences and any activities focused on them that are distinct from what we are already planning would be adding scope to the EPO Project, which we cannot do at this time.

Description

Seat an advisory group that includes elementary and middle school education specialists and/or curriculum developers, and explore with them LSST EPO products targeting elementary and traditional middle school students that can be developed and integrated into the EPO work plan.

Comments

Comment by Amanda Bauer [17/Jul/19]

The EPO Team works with individual consultants who are experts in the content areas of focus for the primary audience groups of EPO. The Head of EPO regularly reports progress to the AMCL, the Project Science Team, the Science Collaboration Chairs, and occasionally the Science Advisory Committee.

Comment by Victor Krabbendam [22/Jul/19]

Approved as acknowledged with appropriate response. Further specific efforts would be additional scope as indicated and would need to be added to the Baseline through the CCB process.

[LIT-534] Perform a cost/benefit analysis as to whether the Camera team should be required to use the new SE V&V tools for managing the V&V process Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 24/Jul/19

Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Systems Engineering
Fix Version/s:	None

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Chuck Claver
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	Accept in part. We believe forcing the Camera team to change their V & V methodologies at this stage would be too disruptive given current programmatic pressures within the DOE MIE effort. For the V & V effort at SLAC the Camera team will continue as is. However, once the Camera is accepted at SLAC and transferred to Chile the planning and tracking of its re-verification will be managed through the Project's SE V & V process and tooling as part of the joint DOE/NSF System Integration and Commissioning effort.

Description

Perform a cost/benefit analysis as to whether the Camera team should be required to use the new SE V&V tools for managing the V&V process for in-house acceptance at SLAC. The benefit would be project-wide consolidation on a single approach, at the cost of disruption to existing Camera teamwork practices. This analysis should be performed prior to the start of Camera in-house AIV activities.

Comments

Comment by Chuck Claver [11/Jun/19]
LSSTCam will not use the V&V framework during MIE part of the project and will switch over when re-verification starts in Chile.
Comment by Aime Brown Wiest [12/Jul/19]
We believe forcing the Camera team to change their V & V methodologies at this stage would be too disruptive given current programmatic pressures within the DOE MIE effort. For the V & V effort at SLAC the Camera team will continue as is. However, once the Camera is accepted at SLAC and transferred to Chile the planning and tracking of its re-verification will be managed through the Project's SE V & V process and tooling as part of the joint DOE/NSF System Integration and Commissioning effort.
Comment by Victor Krabbendam [24/Jul/19]
V&V tooling and process are well underway to support the re-verification as described in the original response. This action is approved to be closed.

[LIT-533] For determination of the absolute accuracy of M2 conic constant Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 24/Jul/19

Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Telescope & Site

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	William Gressler
Resolution:	Done	**Votes:**	0
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	Prior to the closeout of the Harris contract, the final M2 optical test data package was thoroughly reviewed to understand the optical test set design and approach, final measured results, measurement uncertainties, and computations/calculations of optical parameters. Several closed loop active control tests were also conducted to verify opto-mechanical model

	predictions versus measured optical values. These tests of low order aberrations demonstrated an extremely high level of agreement between simulation and measurement. Both parties have agreed on the optical test results and these parameters have been included into the baseline LSST as-built optical model.

Description

For determination of the absolute accuracy of M2 conic constant, LSST Optical Systems Lead and the M2 Vendor Metrology Lead should review all details of the tests and agree on at least two independent methods of verification.

Comments

Comment by Victor Krabbendam [24/Jul/19]
This action was completed with the closeout of the M2 contract as described.
Comment by Victor Krabbendam [24/Jul/19]
M2 Conic and optical parameters were confirmed.
Comment by Victor Krabbendam [24/Jul/19]
Approved to be closed

[LIT-532] Allocate additional SE effort to T&S systems testing and contract oversight Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 24/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Telescope & Site

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	William Gressler
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The T&S systems engineer efforts are being assisted via the increased participation in verification activities by subsystem CAMs, technical documentation resources, and additional SE members from the LSST PO. In parallel, Chilean resources are being organized to support increased on-site verification as final acceptance efforts are being completed.

Description

Allocate additional SE effort to T&S systems testing and contract oversight. [within 6 months, or earlier, if needed.]

Comments

Comment by Victor Krabbendam [24/Jul/19]

The TMA factory testing was a good example of the resources put to bear on the SE effort and Systems testing. Over 10 staff were deployed to support the effort for over 3 months.

The SE team has also directed 3 FTE to supporting the test and verification planning work for the T&S. Requirements and verification tests are being developed in the Magicdraw/Jira system to support the upcoming subsystem acceptance efforts.

Comment by Victor Krabbendam [24/Jul/19]

Resources have been assigned as needed.

Comment by Victor Krabbendam [24/Jul/19]

Approved to be closed.

[LIT-531] Create and maintain a test-driven software schedule demonstrating delivery of software capabilities Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 24/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Telescope & Site

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Andy Clements
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The LSST Baseline Primavera plan has been updated with T&S Software epics tied to key Project milestones. The T&S Software Team has implemented tests for SAL, XML, and recently integrated the vendor-provided tests for the Pointing Component. The Software Team has moved to a new continuous integration platform on Jenkins and is collaborating with DM to complete an end-to-end process to build, test and deliver code prior to the need dates for AIV and Commissioning. The Team has setup a test environment for the Auxiliary Telescope and conducts regular integration tests as new components become available. In addition, we have a cluster of machines dedicated to functional and integration testing using vendor-supplied and internally-developed application simulators. Both environments are used as deployment test locations, allowing the Team ample opportunities to implement and refine the software deployment process.

Description

Create and maintain a test-driven software schedule demonstrating delivery of software capabilities prior to the dates needed for AIV or Commissioning. [within the next three months.]

Comments

Comment by Andy Clements [24/Jul/19]

As stated in the review response, we have implemented automatic tests against the SAL, XML and pointing components within our continuous integration platform. This will soon contain the integration tests from Auxiliary Telescope using internally developed and vendor supplied simulators. We have updated Primavera with new T&S epics that are tied to key project milestones. We will continue to add and refine this process as we finish the telescope. Sending for review.
Comment by Andy Clements [24/Jul/19]
We have completed what is stated in the Review Response, issue ready for review.
Comment by Victor Krabbendam [24/Jul/19]
Approved to be closed.

[LIT-530] 3.1 Implement a software deployment configuration process prior to the beginning of AIV. Created: 26/Apr/19 Updated: 24/Jul/19	
Status:	In Progress
Project:	LSST Issue Tracker
Component/s:	Telescope & Site

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Andy Clements
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The T&S Software deployment architecture has been implemented and is being tested both on the summit and in Tucson. It includes the following elements: (1) a puppet based system for automated deployment of assets; (2) RPM repositories containing pre-complied runtimes (will be moved to a Nexus server soon); (3) Github repositories for version controlled source code; (4) a Jenkins continuous integration system including "Robot Framework" test management.

Description

Implement a software deployment configuration process prior to the beginning of AIV.

Comments

Comment by Andy Clements [24/Jul/19]

T&S has been hard at work designing and implementing a continuous integration process that includes deployment. From the Review Response above we have so far implemented:

(2) RPM repositories containing pre-complied runtimes on a Nexus3 server

(3) Github repositories for all source code.

(4) Jenkins continuous integration system with testing against github pull requests

We have generated a design for the a Puppet based system for automatic deployment that will be tested tomorrow.

[LIT-529] The LSST Optical Systems Engineer should develop an aerial image best focal suface to Focal Plane Array Error Budget Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 24/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Camera

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Vincent Riot
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	Several documents generated during the design process and definition of the requirement flow down have been collected and are available to the review committee. The list of relevant documents to be provided is listed below: Document-7866 (08/20/2009): Focal Plane surface height (aka non-flatness) distributions and their effect on image size and ellipticity Document-7824 (07/29/2009): A parametric model for LSST's PSF: Optical design version 3.2

Description

The LSST Optical Systems Engineer should develop an aerial image best focal surface to Focal Plane Array Error Budget and compare to CBE sensor flatnesses, positions, and angles. [Feb. 2019]

Comments

Comment by Victor Krabbendam [24/Jul/19]

Identified documents address the action. This ticket is approved to be closed.

[LIT-528] Continue the tiger team effort to explore technical for the cryostat vacuum requirements Created: 26/Apr/19 Updated: 26/Apr/19	
Status:	In Progress
Project:	LSST Issue Tracker
Component/s:	Camera

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Vincent Riot
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted

Review Response:	The tiger team effort led by Martin Nordby for the camera has continued as planned and is described below:
	• Final recommendations regarding the vacuum design upgrade required were completed by end of August 2018. Cost and schedule impact analysis were completed as part of this phase. The following items were addressed:
	  • Definition of a dryout plan prior to closing the cryostat (Dry out cryostat using cryo and cold plate trim heaters, pumping and purging cryostat with room-temp N2)
	  • Definition of a bakeout plan to be implementing during initial pumping (heat the cryo plate and CCDs to 40C, heat the cold plate and REBs to 60C, and heat the outer housing, L3, and back flanges to 40C)
	  • Completion of updated schematics with additional on-camera holding pumps
	• Implementation of the dryout and bakeout plan using temporary pumping system was completed by December 2018 and tested successfully in February 2019.
	• Implementation of on-board additional pumping capacity planned by end of April 2019 in support of start of raft integration. This phase will include revised vacuum system performance verification, including vibration impact to image quality if any.

Description

Continue the tiger team effort to explore technical solutions for achieving the cryostat vacuum requirements within a time frame commensurate with the current I&T plan. [Nov. 2018]

[LIT-527] Increase oversight of the heat exchanger vendor for the remainder of the fabrication/testing period. Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 24/Jul/19

Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Camera

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Vincent Riot
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The LSST Camera team concurs with the committee and the camera refrigeration team has continued visiting the vendor to assess manufacturing process and review testing results. A local consultant was contracted to provide on-site weekly oversight at the vendor every Tuesday and also participate with the weekly oversight telecon with the team at SLAC. The LSST Camera team has also reached out to Tom Nicol (camera sub-committee reviewer) from FNAL and collected lessons learned that were available and applicable to the LSST heat exchanger scope of work. The LSST camera team, as a result, has re-tested all received part for leaks and flow rates at SLAC in B25 and plans to re-test parts to be delivered.

Description

Increase oversight of the heat exchanger vendor for the remainder of the fabrication/testing period. Consider visiting the vendor as soon as possible to ensure the integrity and quality of the internal components prior to closing the vacuum vessel, as well as visiting immediately before shipment of the final assembly, to ensure all QA/QC is completed properly. [Oct. 2018]

Comments

Comment by Victor Krabbendam [24/Jul/19]

Response addresses action. In the meantime, the effort has been completed. This action is approved to be closed.

[LIT-526] Start a process within the next 6 months to demonstrate how the Science Platform will satisfy the full suite of envisioned users and use cases Created: 26/Apr/19 Updated: 24/Jul/19 Resolved: 24/Jul/19	
Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Data Management

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Wil O'Mullane
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	The Project agrees that the activity of engaging the community with the Science Platform must continue. A detailed design review of the full operations-era platform, involving members of the Science Collaborations and other stakeholders, has been scheduled for the first quarter in 2019. We will continue to engage the community with tutorials during meetings (such as the recent Project and Community Workshop), and actively solicit feedback in response.

Description

Start a process within the next 6 months to demonstrate how the Science Platform will satisfy the full suite of envisioned users and use cases, by engaging the user community to evaluate the functionality of the Science Platform against those use cases and different types of LSST users.

Comments

Comment by Aime Brown Wiest [26/Apr/19]

The Science Platform Review is scheduled for 10 April 2019. The reviewers include both internal and external participants. See the review site for details of the committee, charge and agenda. https://project.lsst.org/reviews/lsp-fdr/agenda (credentials required)

Comment by Leanne Guy [27/Jun/19]

All recommendations from the review have now been put into LIT tickets. A filter to show all review recommendation LIT tickets is linked.
Comment by Wil O'Mullane [27/Jun/19]
The review was the start of this process - I consider this actions closed.
Comment by Victor Krabbendam [24/Jul/19]
Approved to close action

[LIT-525] Reassess risks associated with relying on a non-path-redundant summit-to-base optical fiber network connection Created: 23/Apr/19 Updated: 23/Jul/19 Resolved: 23/Jul/19

Status:	Manager Approved
Project:	LSST Issue Tracker
Component/s:	Data Management

Type:	Review Recommendation	**Priority:**	Undefined
Reporter:	Aime Brown Wiest	**Assignee:**	Jeff Kantor
Labels:	JSR_2018_07		

Review Title:	Joint NSF/DOE Review of LSST Project Status and Commissioning Plan July 30 – Aug. 3 2018
Review Category:	Agency - Joint
Review Response Type:	Accepted
Review Response:	Based on the experience with the fiber this past period, the Project acknowledges that reassessment of the summit-to-base network risk is needed. This will be carried out before Feb 2019.

Description

Reassess within the next year the risks associated with relying on a non-path-redundant summit-to-base optical fiber network connection, based on recent project experience.

Comments

Comment by Aime Brown Wiest [23/Apr/19]
We examined all the posts in the fiber run and implemented the following improvements:

- *A single contractor was engaged for repair, improvement, and maintenance of power and fiber posts*
- *Fiber was moved to separate posts (not on same posts as power lines) in the steepest parts of the path up to Cerro Pachón*
- *Wooden posts were replaced by concrete posts in areas where both fiber and power lines are on the same post such as in river beds and bends >20deg*
- *Wooden posts were retained where terrain and access did not permit concrete posts*
- *Brackets connecting fibers to posts were corrected where they had been mounted improperly*
- *We will continue to monitor the failure rate and maintenance status of the posts, and a diverse underground path remains a future option*

Comment by Victor Krabbendam [23/Jul/19]

The Project considers the upgrades to the fiber run, in combination with summit storage, to be consistent with the requirements and there are no further plans for additional path redundancy.