

Rapid Aerial Small Methane Leak Survey (RASMLS), 4th Quarterly Report

September 30, 2016

Date of Report: 4th Quarterly Report-September 30, 2016

Contract Number: DTPH5615T00016

Prepared for: DOT, PHMSA

Project Title: Rapid Aerial Small Methane Leak Survey

Prepared by: Ball Aerospace & Technologies Corp.

Contact Information: Phil Lyman, plyman@ball.com 303.939.6869 & Jarett Bartholomew, jbarthol@ball.com 303.939.5951

For quarterly period ending: September 30, 2016

1.0 Funds and Work Completed During this Quarterly Period:

As of the end of the 4th quarter, the RASMLS project is behind plan for milestone completion. **Figure 1-1** shows the value of milestones achieved vs. the value of the milestones planned through the fourth quarter. The primary cause for the delay in billing (and associated work) is that the completion of RASMLS instrument prototyping is slipping into Q5, whereas it had originally been planned to be completed in Q4. Section 1.1 provides detail on milestone status.

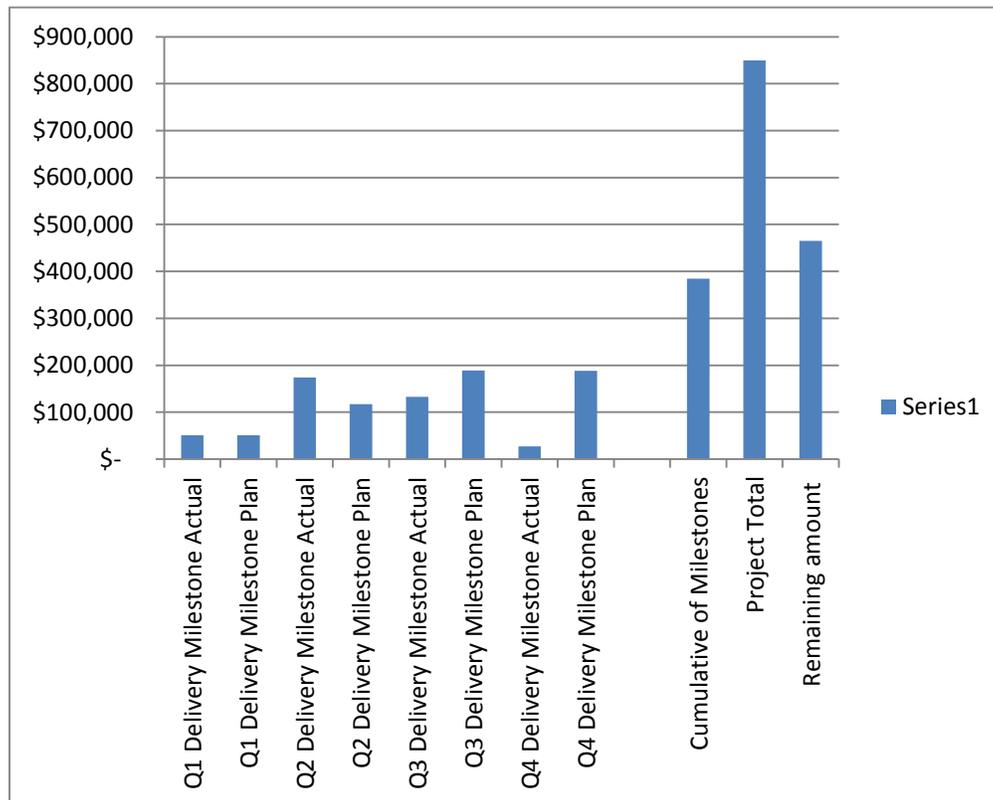


Figure 1, The RASMLS project is behind the plan through the fourth quarter, because completion of the prototype instrument is slipping into Q5.

1.1 Technical Status and Progress

Delivery Milestone D8, Task T0, Technical and Project Management (accomplished): This task consists of a level-of-effort for project system engineering, project management and business administration. Effort associated with this milestone includes preparation of this Report.

Delivery Milestone D4, Task T2, Early Flight Test and Data Collection (additional, unplanned testing accomplished): This activity and milestone was completed in May (i.e. last quarter). However, Ball Aerospace funded another customer demonstration for commercial business development purposes. That testing was completed on August 15th, 2016. The test data supports improve leak rate quantification and demonstrated higher flight altitude and wider swath mapping that enhances the RASMLS technical progress. A summary of the test results that shows the improvements from May through August is provided in Appendix A.

Delivery Milestone D9, Task T3, Finish Assembly of the RASMLS-Specific Instrument Prototype (not accomplished): D9, Task T3 has slipped. This is primarily due to procurement decisions and procurement lead times.. Components are due for delivery in October, 2016. Therefore, we should finish instrument integration in Q5. There should be no impact on the overall project performance as there is a large margin on the overall schedule..

Delivery Milestone D10, Task T4, Finish Leak Rate Quantification Algorithms (not accomplished): This milestone is also slipping into Q5.

2.0 Business Status –

2.1 Budget Analysis: Budgeted, Actual and Cumulative Expenditures

Project cost are detailed in the full report..

Ball Aerospace performs quarterly reforecasting and re-assesses the estimate to complete (ETC) and estimate at completion (EAC) on all projects. This reforecasting takes into account issues that have been encountered and any changes in the design, test and procurement planning. The latest quarterly update to cost incurred and forecast budgetary performance is included in Appendix B in the full report.

2.2 Contributions Analysis

Contribution analysis is presented for the Delivery Milestones completed in the fourth quarter in the paragraphs below.

Delivery Milestone D8, Task T0: No Cost Share contribution is associated with this Delivery Milestone.

Delivery Milestone D4, Task T2: Additional Cost Share contribution associated with Delivery Milestone D4 was accomplished in Q3 with the completion of additional flight testing in August, which relied on Ball Aerospace funding.

3.0 Schedule

The project Pert chart and schedule is show in **Figure 3** (next page).

4.0 Payable Milestones

As described in Sections 1 and 1.1, above, payment Delivery Milestone D8, has been achieved and should be invoiced this quarter.

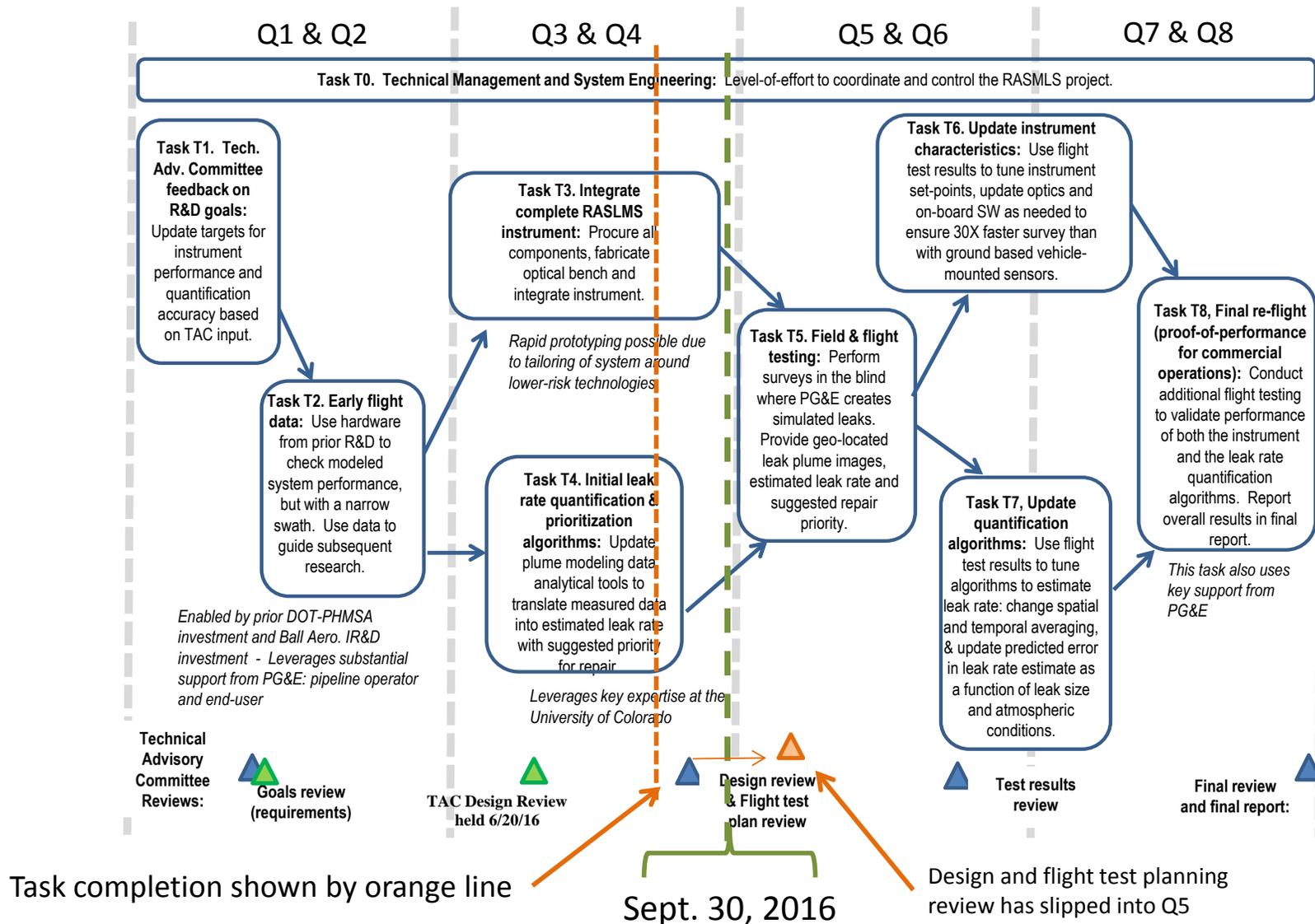


Figure 3, RASMLS project schedule has slipped by 1-2 months through the fourth quarter of the project

Appendix A:
Materials Describing Advancements Towards RASMLS Technical Objectives From May to August Flight Testing

Appendix B:
Project Budget History and Quarterly Reforecast

