

## Quarterly Report – Public Page

**Date of Report:** 7<sup>th</sup> Quarter Report – June 30, 2020

**Contract Number:** 693JK31810016

**Prepared for:** Department of Transportation/Pipeline and Hazardous Materials Safety Administration

**Project Title:** Reliability of Subsurface Safety Valves

**Prepared by:** Battelle Memorial Institute

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**For quarterly period ending:** June 30, 2020

### 1: Items Completed During this Quarterly Period:

<i>Item #</i>	<i>Task #</i>	<i>Activity/Deliverable</i>	<i>Title</i>	<i>Federal Cost</i>	<i>Cost Share</i>
15	4	<i>7<sup>th</sup> Quarterly Status Report</i>	<i>Submit 7<sup>th</sup> quarterly report</i>	<i>\$13,500</i>	<i>N/A</i>

### 2: Items Not-Completed During this Quarterly Period:

<i>Item #</i>	<i>Task #</i>	<i>Activity/Deliverable</i>	<i>Title</i>	<i>Federal Cost</i>	<i>Cost Share</i>
10	3	<i>Develop Recommendations and Improvements to Current Designs and Standards</i>	<i>Report on recommendations for product line revisions and propose candidate installations design for UGS applications</i>	<i>\$51,312</i>	<i>N/A</i>
12	3	<i>Develop Recommendations and Improvements to Current Designs and Standards</i>	<i>Report on recommendations for product line revisions and propose candidate installations design for UGS applications</i>	<i>\$69,340</i>	<i>N/A</i>
14	3	<i>Develop Recommendations and Improvements to Current Designs and Standards</i>	<i>Report on recommendations for product line revisions and propose candidate installations design for UGS applications</i>	<i>\$69,204</i>	<i>N/A</i>

See Table 1 – Task Schedule and Milestone Payments. Contractually agreed milestone payments do not necessarily align with completion of tasks. Invoices will reflect Payable Milestone amounts in Table 1.

### 3: Project Financial Tracking During this Quarterly Period:

Quarterly payable milestones/invoices are summarized in Figure 1.

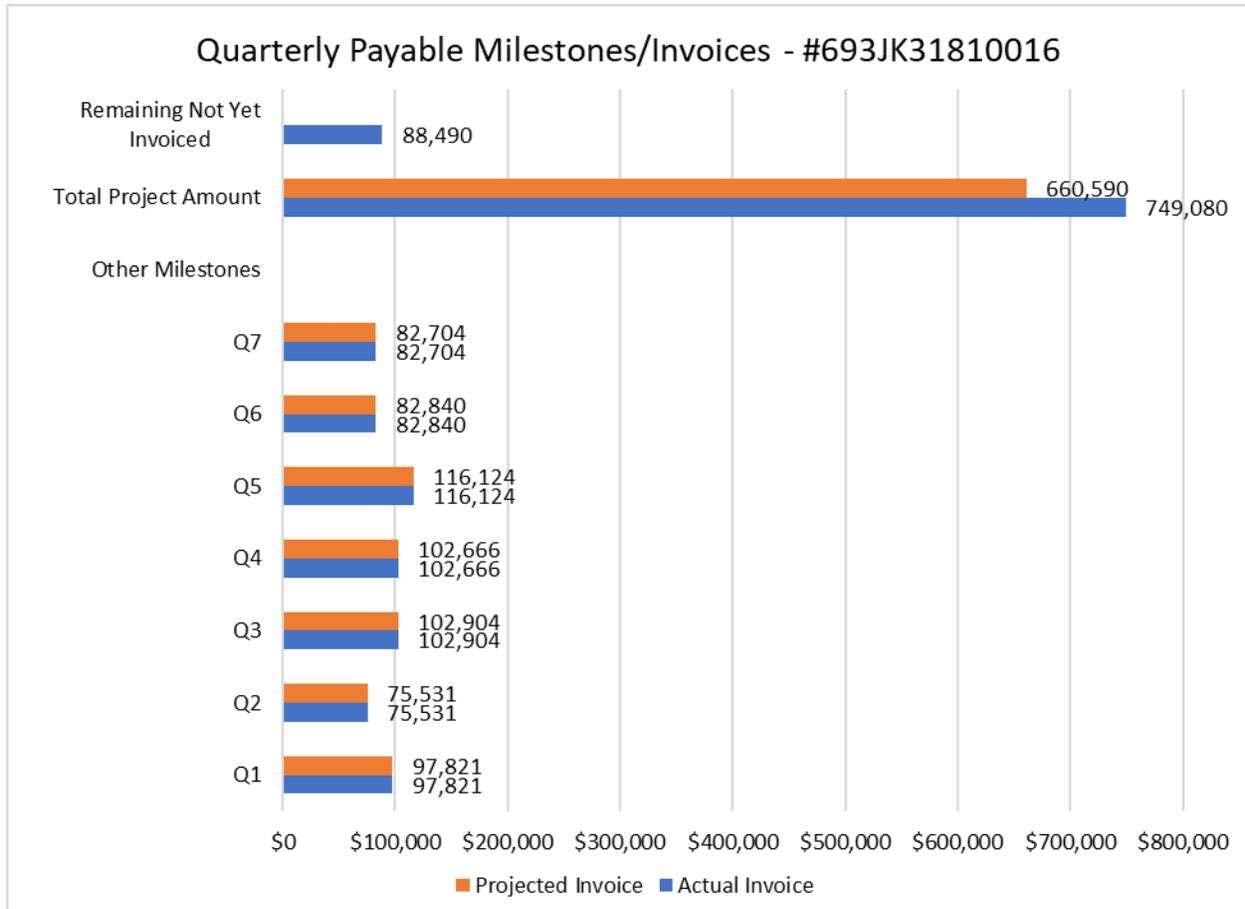


Figure 1. Quarterly Payable Milestones and Invoices.

### 4: Project Technical Status

Project team activities during the seventh quarter include:

1. Conducted call with INGAA regarding the Denver SSSV Industry Workshop, discussing feedback and suggestions related to industry concerns and needs moving forward
2. Finalized the SSSV failure rate model
3. Used the failure model to analyze applicability of SSSVs for combinations of several common UGS well design styles, various reservoir pressures and volumes, and different geographic locations with different population density

4. Held WebEx call with two former vendors regarding reliability/failure and safety of SSSV and how human factors plays a role
5. Working on cost and risk of SSSV implementation estimates
6. Working to create method for failure model use via Python and Excel programs
7. Prepared and submitted the Quarterly Status Report

The project deliverables completed during the seventh quarter include:

1. Quarterly status and progress report

During the seventh quarter of this project, collaboration with Stephen Nowaczewski and the Battelle-Sandia team continued. The team conducted a call with INGAA to discuss materials covered/discussed during the Denver SSSV Industry Workshop. Discussions were related to feedback from workshop participants and suggestions related to industry concerns and future needs. Progress related to Task 3 continued. A call was conducted with two safety valve experts, discussing the reliability/failure and safety aspects of SSSVs and how human factors play a role in failures. Additionally, the team progressed to fine tune and finalize the SSSV failure rate model and is working on the cost and risk of SSSV implementation estimates. Lastly, the team is working to create a user-friendly method to utilize the failure rate model via Python and Excel programs.

## **5: Project Schedule**

A schedule in graphic form is presented in Appendix 1 of this document. The project is on schedule. Task completion and milestone status described in the Technical Status section is summarized in Table 1. All tasks are on schedule and completed tasks were completed within the schedule timeline.

**Table 1 – Task Schedule and Milestone Payments**

Technical and Deliverable Milestone Schedule								
Item No.	Task No.	Activity/Deliverable	Quarter No.	Expected Completion Date/Mos	Payable Milestone	Percent Complete	Federal Payment	*Total
	(per proposal)	ACTIVITY/DELIVERABLE			TITLE			
1	1	Compile and Review Literature and Data on Incidents for UGS and Production	1	6 months	Report on the literature review, interviews with subject matter experts, and state occurrence report reviews	100%		84,321
2	4	1st Quarterly Status Report	1	3 months	Submit 1st Quarterly Report	100%		13,500
		<b>First Payable Milestone</b>	<b>1</b>	<b>3 months</b>	<b>SUBTOTAL</b>		<b>97,821</b>	<b>97,821</b>
3	1	Task 1 Report	2	6 months	Submit Final Task 1 Report (Report on literature review, interviews with subject matter experts, and state occurrence report review)	100%		62,031
4	4	2nd Quarterly Status Report	2	6 months	Submit 2nd Quarterly Report	100%		13,500
		<b>Second Payable Milestone</b>	<b>2</b>	<b>6 months</b>	<b>SUBTOTAL</b>		<b>75,531</b>	<b>75,531</b>
5	2	Develop Evaluation Criteria	3	15 months	Report on failure evaluation criteria	100%		89,404
6	4	3rd Quarterly Status Report	3	9 months	Submit 3rd Quarterly Report	100%		13,500
		<b>Third Payable Milestone</b>	<b>3</b>	<b>9 months</b>	<b>SUBTOTAL</b>		<b>102,904</b>	<b>102,904</b>
7	2	Task 2 Report	4	15 months	Submit Final Task 2 Report (Report on failure evaluation criteria)	100%		89,166
8	4	4th Quarterly Status Report	4	12 months	Submit 4th quarterly report	100%		13,500
		<b>Fourth Payable Milestone</b>	<b>4</b>	<b>12 months</b>	<b>SUBTOTAL</b>		<b>102,666</b>	<b>102,666</b>
9	2	Sponsor Industry Workshop	5	18 months	Sponsor industry workshop to communicate and socialize findings of the data review	100%		51,312
10	3	Develop Recommendations and Improvements to Current Designs and Standards	5	24 Months	Report on recommendations for product line revisions and propose candidate installation design for UGS applications	75%		51,312
11	4	5th Quarterly Status Report	5	15 months	Submit 5th Quarterly Report	100%		13,500
		<b>Fifth Payable Milestone</b>	<b>5</b>	<b>15 months</b>	<b>SUBTOTAL</b>		<b>116,124</b>	<b>116,124</b>
12	3	Develop Recommendations and Improvements to Current Designs and Standards	6	24 Months	Report on recommendations for product line revisions and propose candidate installation design for UGS applications	75%		69,340
13	4	6th Quarterly Status Report	6	18 months	Submit 6th Quarterly Report	100%		13,500
		<b>Sixth Payable Milestone</b>	<b>6</b>	<b>18 months</b>	<b>SUBTOTAL</b>		<b>82,840</b>	<b>82,840</b>
14	3	Develop Recommendations and Improvements to Current Designs and Standards	7	24 Months	Report on recommendations for product line revisions and propose candidate installation design for UGS applications	75%		69,204
15	4	7th Quarterly Status Report	7	21 months	Submit 7th quarterly report	100%		13,500
		<b>Seventh Payable Milestone</b>	<b>7</b>	<b>21 months</b>	<b>SUBTOTAL</b>		<b>82,704</b>	<b>82,704</b>
16	3	Task 3 Final Report	8	24 Months	Submit Final Task 3 report on recommendations for product line revisions and propose candidate installation design for UGS applications			40,000
17***	4	Prepare and Submit Draft Final	8	24 Months	Submit draft final report			48,489
		<b>Eighth Payable Milestone</b>	<b>8</b>	<b>24 months</b>	<b>SUBTOTAL</b>		<b>88,489</b>	<b>88,489</b>
18	N/A	Prepare & Present Paper at public event or publish paper in journal/magazine	N/A	N/A	Prepare & Present Paper at public event or publish paper in journal/magazine			
19	N/A	Final Virtually Held Info Dissemination Meeting	N/A	N/A	Final Virtually Held Info Dissemination Meeting			
20**	N/A	Peer Review #1 - Virtually Administered	N/A	N/A	Prepare presentation and present. Submit presentation file.			
21**	N/A	Peer Review #2 - Virtually Administered	N/A	N/A	Prepare presentation and present. Submit presentation file.			
22****	4	Address Comments and Submit Final Report	N/A	N/A	Submit final report			
23*****	4	Public Version of Final Report	N/A	N/A	Submit public version of final report			
					<b>GRAND TOTALS</b>		<b>749,080</b>	<b>749,080</b>

## Appendix 1 – Project Timeline

Task		Q1		Q2		Q3			Q4			Q5			Q6		Q7		Q8							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
<b>1</b>	<b>Task 1 - Literature Review</b>																									
1.1	Kick-Off Meeting	◆																								
1.2	Open Lit and Case Study Review					◆																				
1.3	Interview SMEs					◆																				
1.4	Review Individual State Occurences					◆																				
1.5	Task 1 Final Report						◆																			
<b>2</b>	<b>Task 2 - Develop Evaluation Criteria</b>																									
2.1	Evaluate Failure Criteria							◆																		
2.2	Review API Standards									◆																
2.3	Task 2 Final Report														◆											
2.4	Sponsor Industry Workshop																	◆								
<b>3</b>	<b>Task 3 - Develop Recommendations and Improvements</b>																									
3.1	Review Success/Failure Info															◆										
3.2	Review Existing Product-Line Offerings																			◆						
3.3	Develop Recommendations for Product Line Revisions																							◆		
<b>4</b>	<b>Task 4 - PM and Reporting</b>																									
4.1	DOT Project Review Meeting			◆												◆										
4.2	Mid-Term Team Meeting												◆													
4.3	Final Team Meeting																							◆		
4.4	Quarterly and Final Project Reports			◆			◆			◆			◆			◆			◆			◆			◆	
4.5	Publish Papers and Present																								◆	
		◆ = Objective Deadline							= Period of Performance																	