



**2016 ECR Plan Status Update Report
Quarterly Report – Update #13
October 30, 2019**

Executive Summary:

General

This report covers LG&E and KU's ("Companies") progress on the 2016 Environmental Cost Recovery ("ECR") Plan through the third quarter of 2019.

The overall 2016 ECR Plan safety performance through the third quarter of 2019 remains excellent with a year-to-date OSHA Recordable Incident Rate of 0.37 and an inception-to-date OSHA Recordable Incident Rate of 0.52, compared to the industry average of 3.2.

The total 2016 ECR Plan projected cost remains \$890.2 million (net) compared to the filed total of \$996.4 million as provided in Case Nos. 2016-00026, 2016-00027, and 2017-00483. Total spend to date increased from \$603.2 million (net) last quarter to \$652.7 million (net) through September 30, 2019.

CCR Compliance (CCR Rule and State CCR Pond Closures)

Safety performance through the third quarter is excellent with a year-to-date OSHA Recordable Incident Rate of 0.55 and an inception-to-date Recordable Incident Rate of 0.56, compared to an industry average Recordable Rate of 3.2.

The total projected costs for the Coal Combustion Residual ("CCR") Closure Program remains \$862.9 million (net). Total spend to date through September 30, 2019 has increased from \$580.9 million (net) last quarter to \$628.5 million (net).

The remaining engineering activities primarily consist of corrections for "as-built" field changes during construction on the projects completed or under construction, and the final design engineering associated with the clean closure of the Trimble County Gypsum Storage Pond. Remaining procurement activities are associated with contract maintenance of all awarded contracts through completion of the work and warranty periods, the development of the remaining RFQ documents for the closure scopes for the Trimble County Bottom Ash and Gypsum Storage ponds, as well as Phase III of Ghent's Ash Treatment Basin ("ATB") #2.

The Company continues to monitor and evaluate changes to the CCR Rule proposed by the U.S. Environmental Protection Agency ("EPA"). Lawsuits filed by the Sierra Club challenging the EPA's Phase I, Part I Rule have been settled. The Phase I, Part I has been remanded without vacatur of the October 31, 2020 requirement for CCR impoundment to cease operation if they fail a ground water protection standard, or if the bottom of the impoundment has less than 5-feet of separation from groundwater. The Companies have not made any design or construction changes to their compliance plan as a result of the EPA's Rule

and subsequent resolution of litigation related to the Phase I, Part I rule. On July 30, 2019 the EPA issued a pre-publication copy of the Phase 2 CCR proposal for comments.

CCR Impoundment Closures

- Ghent – Tetra Tech’s Phase II scope (construction of the South Cooling Pond and closure of ATB #1) has been limited to management of process inflows, installation of dewatering wells, construction of access/haul roads throughout ATB #1, and dredging to address underwater elevation changes. Overall, Tetra Tech is progressing the Ghent projects well with no compliance issues forecasted. As previously reported, closure of ATB #2 will now be bid separately as a Phase III scope.
- E.W. Brown – Thalle Construction Company (“Thalle”) will begin CCR excavation and regrading work in the Auxiliary Ash Pond in October 2019, with dewatering beginning in November 2019 when the new KPDES permit will become effective.
- Green River – All work associated with closure of the Main Ash Pond and SO₂ Pond has been completed. Weather has negatively impacted Trans-Ash’s ability to finish grading activities in ATB #2. While the closure work was substantially completed in September, it is anticipated the project will be completed during the fourth quarter of 2019 to complete activities like seeding and site cleanup.
- Mill Creek – MAC completed the excavation of CCR material from the Dead Storage Pond, the placement of soil backfill, and completed the closure work for the pond in August, 2019. Tetra Tech has made significant progress in the Main Ash Pond closure with dredging of CCR from the south end of the pond to the north to normalize the CCR elevations under the surface of the water. Tetra Tech has also constructed access/haul roads throughout the Ash Pond. Construction of the diffuser in the Ohio River is progressing ahead of plan with Tetra Tech and their subcontractors expecting to complete the diffuser portion in the Ohio River in October. Work continues on the installation of the land-based piping that interconnects existing infrastructure with the diffuser.
- Pineville – Thalle has completed the installation of the synthetic liner system as well as the 18-inch thick protective soil cover layer over the CCR impoundment. Perimeter stormwater drainage ditches have been completed with the installation of fabric-formed concrete. Work is expected to be completed as planned during the fourth quarter of 2019.
- Tyrone – Thalle has completed the cap system over the CCR impoundment. Onsite borrow areas have been restored and seeded for vegetation. A punch-list was created in late summer 2019 and Thalle is expected to complete work by the end of October 2019 at which time they will demobilize from the site.

The CCR Impoundment Closure Program is on schedule to be completed on or before the CCR Rule regulatory deadlines.¹ To ensure the Companies' CCR Compliance projects comply with the regulations and to share best-practices and lessons-learned, the Companies continue to hold program-wide meetings with internal project management teams and affected stations to provide opportunities for all parties to deliver updates and to ensure the contractors are providing similar deliverables across the projects.

PWS Projects

- Trimble County – AMEC completed performance guarantee testing during the quarter, which indicated passing results. AMEC is working towards achieving Commercial Operation in the fourth quarter of 2019 and continues addressing punch-list items.
- Mill Creek – AMEC is nearly complete and is expected to reach Commercial Operation in October, 2019 after passing all performance testing in July. MAC completed the new Knockout Pond, which is a small pond that allows heavy solids to fall out prior to reaching the process water pond.
- Ghent – Burns & McDonnell (“B&McD”) continues to work on finalizing construction of mechanical/electrical systems, as well as addressing punch list items. During the third quarter of 2019, B&McD continued with cold commissioning and started hot commission activities in preparation of achieving Mechanical Completion. B&McD achieved Mechanical Completion on October 01, 2019 and will progress towards performance testing in the fourth quarter of 2019. Bowen Engineering, a local contractor and a subcontractor to B&McD, is performing most of the civil/structural/mechanical construction.
- E.W. Brown – Bowen completed the ABS Maintenance Drain System and is currently working through the punch-list items. Construction is complete on the Process Water System (“PWS”) treatment system with startup and checkup activities taking place in September and October 2019. The performance test originally scheduled for October and November of 2019 will be postponed until the first quarter of 2020 as a result of a 9-week station outage which began on October 4, 2019. The Toe Drain and Coal Pile Runoff (“TDCPR”) treatment system design was modified during the construction phase to include an additional chemical used in the treatment system, along with modifications to the piping systems to allow both the Toe Drain and Coal Pile Runoff Pond flows to be treated together through the system. The changes also resulted in creating two trains

¹ EPA has committed to revising various portions of the CCR Rule in the period between mid-2018 and the end of 2019. The revised regulatory language is expected to provide clarification to some portions of the Rule which are nebulous while effectively addressing other parts of the Rule which have had legal challenges upheld. An August 21, 2018 decision by the DC Circuit Court has potentially expanded the universe of facilities and units that are subject to the Rule and is expected to force EPA to revise portions of the Rule which it had not anticipated. While these conditions may suggest uncertainty, the Rule's baseline requirements have not changed and the Companies' plans were developed to meet those requirements, even at locations that were not previously subject to the Rule. The Companies are well-positioned to comply with the evolving CCR Rule and, as a result, have not significantly changed any of the efforts already underway to comply with the Rule's basic requirements and deadlines. The Companies will continue to track actions related to the Rule and to ongoing litigation and will provide updates to the Commission as they relate to construction schedules and activities.



which provides redundancy for a critical plant system. These changes result in the TDCPR treatment system completion being deferred to the first quarter of 2020.

Suez, the water treatment technology supplier for the Ghent, Mill Creek, and Trimble County PWS projects, is primarily focused on working in concert with both AMEC and B&McD on initial commissioning activities, as well as performance testing support. To ensure the Companies' PWS projects share best-practices and lessons-learned across all projects, the Companies continue to hold program-wide meetings with the owner's engineers ("OEs"), internal project management teams, and all affected stations. These meetings provide an opportunity for all parties to deliver updates and ensure the OEs and contractors continue to provide similar deliverables and lessons learned across the projects.

Schedules

CCR Rule and State CCR Impoundment Closures

<u>Project</u>	<u>Project #</u>	<u>EPC Status</u>	<u>Planned Construction Completion³</u>
E.W. Brown Aux Pond	KU Project 42	Awarded July 9, 2018	December 2020
E.W. Brown Main Ash Pond (Deleted Phase III of Landfill)	KU Project 36	Awarded July 9, 2018	December 2019
Ghent ATB #1	KU Project 40	Awarded September 7, 2018	December 2021
Ghent ATB #2	KU Project 40	Issue RFQ 4Q 2019	December 2024
Ghent Gypsum Stack	KU Project 40	Amended Sept. 7, 2018	December 2020
Green River Main Pond	KU Project 39	Completed	Cap and Closure Completed
Green River ATB #2	KU Project 39	Awarded July 28, 2017	4Q 2019
Green River SO2 Pond	KU Project 39	Completed	Clean Closure Completed
Mill Creek Ash Pond	LG&E Project 29	Awarded April 4, 2019	December 2021
Mill Creek Clearwell Pond	LG&E Project 29	Completed	Closure Completed & New Pond in Service
Mill Creek Construction Runoff Pond	LG&E Project 29	Completed	Closure Completed and New Pond in Service
Mill Creek Emergency Pond	LG&E Project 29	Completed	Closure Completed
Mill Creek Dead Storage Pond	LG&E Project 29	Awarded December 27, 2017	Closure Completed
Pineville Ash Pond	KU Project 39	Awarded December 7, 2017	4Q 2019
Trimble County Bottom Ash Pond	KU Project 41, LG&E Project 30	Issue RFQ 1Q 2020	December 2024
Trimble County Gypsum Storage Pond	KU Project 41, LG&E Project 30	Issue RFQ 1Q 2020	December 2021
Tyrone Ash Pond	KU Project 39	Awarded December 7, 2017	4Q 2019

PWS Projects

<u>Project</u>	<u>Project #</u>	<u>EPC Status²</u>	<u>Planned In-Service Date³</u>
E.W. Brown PWS	KU Project 42	Awarded June 14, 2018	1Q 2020
Ghent PWS	KU Project 40	Awarded August 1, 2017	December 2019
Mill Creek PWS	LG&E Project 29	Awarded July 19, 2017	October 2019
Trimble County PWS	KU Project 41, LG&E Project 30	Awarded July 7, 2017	October 2019

² Engineering, Procurement, and Construction (“EPC”) Status - the red font signifies actuals.

³ The Planned In-Service Dates reflect the executed EPCs. Ghent ATB #2 and Trimble County BAP was changed to 2024 to reflect a mid-point between the original rule and the proposed rule changes being litigated. Trimble County GSP was accelerated to reflect the clean-closure plan being completed prior to the original plan of cap and closure.

E.W. Brown Landfill Phase II

Thalle has completed grading the subgrade of Phase II of the landfill and installation of the leachate liner system. Work will be completed in the fourth quarter with the completion of leachate piping, installation of gypsum protective cover, and installation of surround gravel roads and rip-rap lined channel and slopes.

Quarterly Status Update:

State Division of Waste Closure Projects:

KU Project 39 – Green River (GR)/Pineville (PV)/Tyrone (TY) Impoundment Closure

Green River: Trans-Ash has completed the installation of the process pond, main ash pond closure and relocation of the SO₂ pond material into ATB #2, as well as clean closure of the SO₂ pond. Trans-ash has substantially completed the closure of ATB #2 and is expected to complete the work in October and demobilize during the fourth quarter of 2019. Associated Engineers, Inc. is providing Construction Quality Assurance (“CQA”) services while AMEC continue to provide OE services on the Green River project.



Green River CCR Impoundments – Site View – June 2019



Green River CCR Impoundments – Site View – October 2019

- Pineville: Thalle has completed the installation of the synthetic liner system as well as the 18-inch thick protective soil cover layer over the CCR impoundment. Perimeter stormwater drainage ditches have been completed with the installation of fabric-formed concrete. Work is expected to be completed in the fourth quarter of 2019. AMEC continues to provide CQA and OE services.



Pineville Ash Pond – June 2019



Pineville Ash Pond – September 2019

Tyrone: Thalle has completed the cap system over the CCR impoundment. Onsite borrow areas have been restored and seeded for vegetation. Thalle is expected to be complete by the end of October 2019, including demobilization from the site. AMEC continues to provide CQA and OE services.



Tyrone Ash Pond – June 2019



Tyrone Ash Pond – September 2019

Federal CCR Rule Closure Projects:

KU Project 40 – Ghent (GH) Station CCR Rule Compliance Construction and New PWS

KU continues to hold weekly and monthly project update meetings. Tetra Tech’s Phase II scope (construction of the South Cooling Pond and closure of ATB #1) has been limited to management of process inflows, installation of dewatering wells, construction of access/haul roads throughout ATB #1, and dredging to address underwater elevation changes. Overall, Tetra Tech is progressing the Ghent projects well with no compliance issues forecasted. As previously reported, closure of ATB #2 will now be bid separately as a Phase III scope. AMEC continues to provide CQA services while AECOM continues to provide OE services for KU.

With regards to the PWS, B&McD’s engineering activities are focused on picking up field construction changes. B&McD continues to work on finalizing construction of mechanical/electrical systems, as well as addressing punch list items. During the third quarter of 2019, B&McD continued with cold commissioning and started hot commission activities in preparation of achieving Mechanical Completion. B&McD reached Mechanical Completion on October 01, 2019. Bowen Engineering, a local contractor and a subcontractor to B&McD, is performing most of the civil/structural/mechanical construction. Black & Veatch (“B&V”) continues to provide OE services on the Ghent PWS project.



Ghent Gypsum Stack – Looking East – June 2019



Ghent Gypsum Stack – Looking East – September 2019



Ghent ATB #1 Cooling Channel – Looking West – June 2019



Ghent ATB #1 Cooling Channel – Looking East – September 2019



Ghent PWS Facility – Site View – June 2019



Ghent PWS Facility – Site View – October 2019



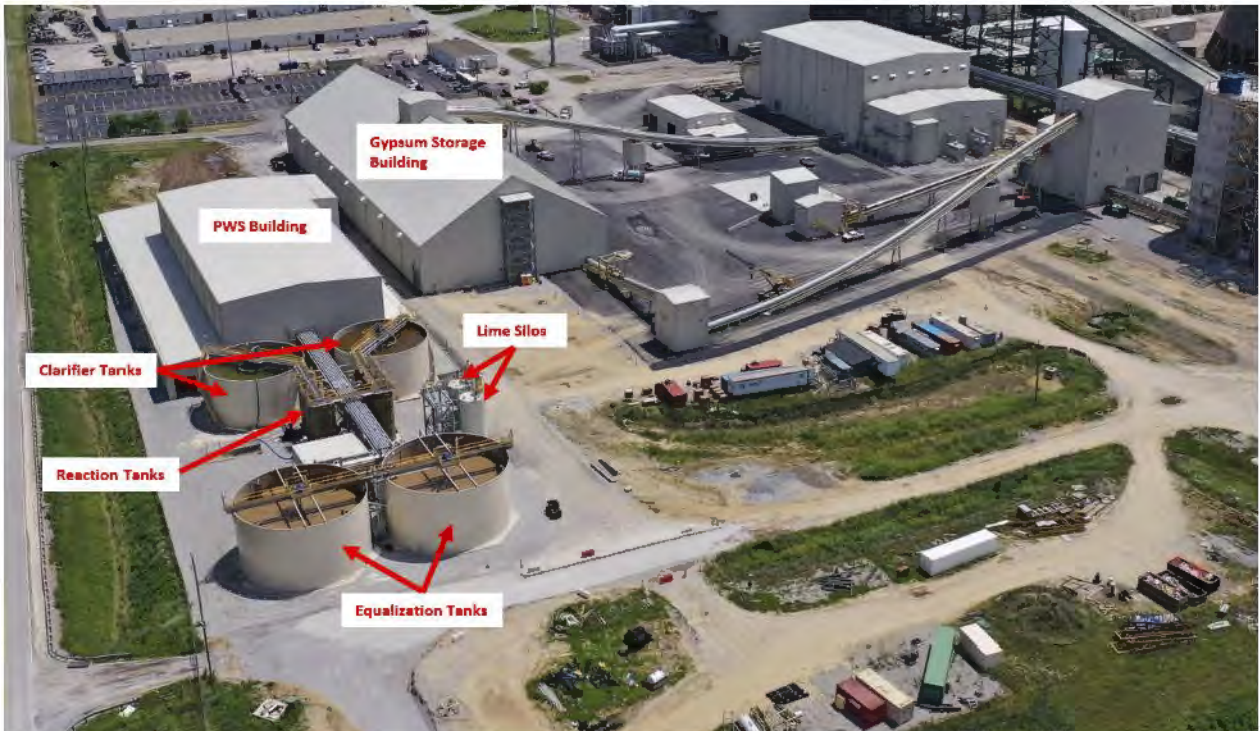
KU Project 41 and LG&E Project 30⁴ – Trimble County (TC) Station CCR Rule Compliance Construction and New PWS

The Companies met with the EPA in April 2019 in Washington D.C. to discuss the Bottom Ash Pond (“BAP”) dewatering options and review the aforementioned reports. The Companies held additional meetings with the EPA and provided additional water chemistry information to support the propose dewatering method. In September, the EPA granted approval to move forward with preparing a KPDES permit modification application to allow BAP water to continue be used as Wet Flue Gas Desulphurization (“WFGD”) makeup water and then treat the chloride purge stream through the new gypsum dewatering facility and then through the new state-of-the-art PWS.

AMEC completed performance guarantee testing on the PWS in September 2019, which indicated passing results and is now focused on completing punch-list activities and working towards achieving Commercial Operation in October 2019. AMEC completed installing and commissioning of the new Process Water Pond sumps. AMEC’s subcontractor, MAC, completed placing the final asphalt surface and constructing the stormwater holding ponds throughout the PWS site. Black & Veatch (“B&V”) continues to provide OE services on the Trimble County PWS project.

MAC began working on the Process Pond North Basin and completed mass excavation and installation of the geosynthetic clay liner (GCL), flexible membrane liner (FML), and cushion geotextile. MAC’s subcontractor, RTC Southern, mobilized and began installing fabric-form in the Process Pond North Basin.

⁴ KU and LG&E’s net costs are split 48%:52% respectively.



Trimble County PWS Facility – Site View Looking Southwest – June 2019



Trimble County PWS Facility – Site View Looking Southwest – September 2019



Trimble County Process Water Ponds – Looking Northeast – June 2019



Trimble County Process Water Ponds – Looking Northeast – September 2019



KU Project 42 – E.W. Brown (BR) Station CCR Rule Compliance Construction and New PWS

Thalle will begin CCR excavation and regrading work in the Auxiliary Ash Pond in October 2019, with dewatering beginning in November 2019 when the new KPDES permit will become effective.

Bowen completed the ABS Maintenance Drain System and is currently working through the punch-list items. Construction is complete on the PWS treatment system with startup and checkup activities taking place in September and October 2019. The performance test originally scheduled for October and November of 2019 will be postponed until the first quarter of 2020 as a result of a 9-week station outage which began on October 4, 2019. The Toe Drain and Coal Pile Runoff (“TDCPR”) treatment system design was modified during the construction phase to include an additional chemical to the treatment system, along with modifications to the piping systems to allow both the Toe Drain and Coal Pile Runoff Pond flows to be treated together through the system. The changes also resulted in creating two trains which provide redundancy for a critical plant system. These changes result in the TDCPR treatment system completion being deferred to the first quarter of 2020.



E.W. Brown Aux Pond – June 2019



E.W. Brown Aux Pond – September 2019



E.W. Brown Landfill Phase II and Closure – June 2019



E.W. Brown Landfill Phase II and Closure – September 2019



E.W. Brown ABS Maintenance Drain System – June 2019



E.W. Brown ABS Maintenance Drain System – October 2019



E.W. Brown Toe Drain and Coal Pile Runoff Treatment System – June 2019



E.W. Brown Toe Drain and Coal Pile Runoff Treatment System – October 2019



E.W. Brown PWS Treatment System – June 2019



E.W. Brown PWS Treatment System – October 2019

LG&E Project 29 – Mill Creek (MC) Station CCR Rule Compliance Construction and New PWS

MAC has completed the excavation of CCR material from the Dead Storage Pond, the placement of soil backfill, and completed the closure work for the pond in August, 2019. Tetra Tech has made significant progress in the Main Ash Pond closure with dredging of CCR from the south end of the pond to the north to normalize the CCR elevations under the surface of the water. Tetra Tech has also constructed access/haul roads throughout the Ash Pond. Construction of the diffuser in the Ohio River is progressing ahead of plan with Tetra Tech and their subcontractors expecting to complete the diffuser portion in the Ohio River in October. Work continues on the installation of the land based piping that interconnects between existing infrastructure and the diffuser. AMEC is performing CQA services while AECOM continues to provide OE services on the Mill Creek closure projects.



Mill Creek South Ponds – June 2019



Mill Creek South Ponds – October 2019

AMEC completed procurement activities with engineering focused on picking up field corrections on the PWS project. AMEC completed the installation of the mechanical and electrical subsystems. Performance testing of the PWS systems was completed in July 2019 and is expected to reach Commercial Operation in October 2019. B&V is performing OE services on the MC PWS project.



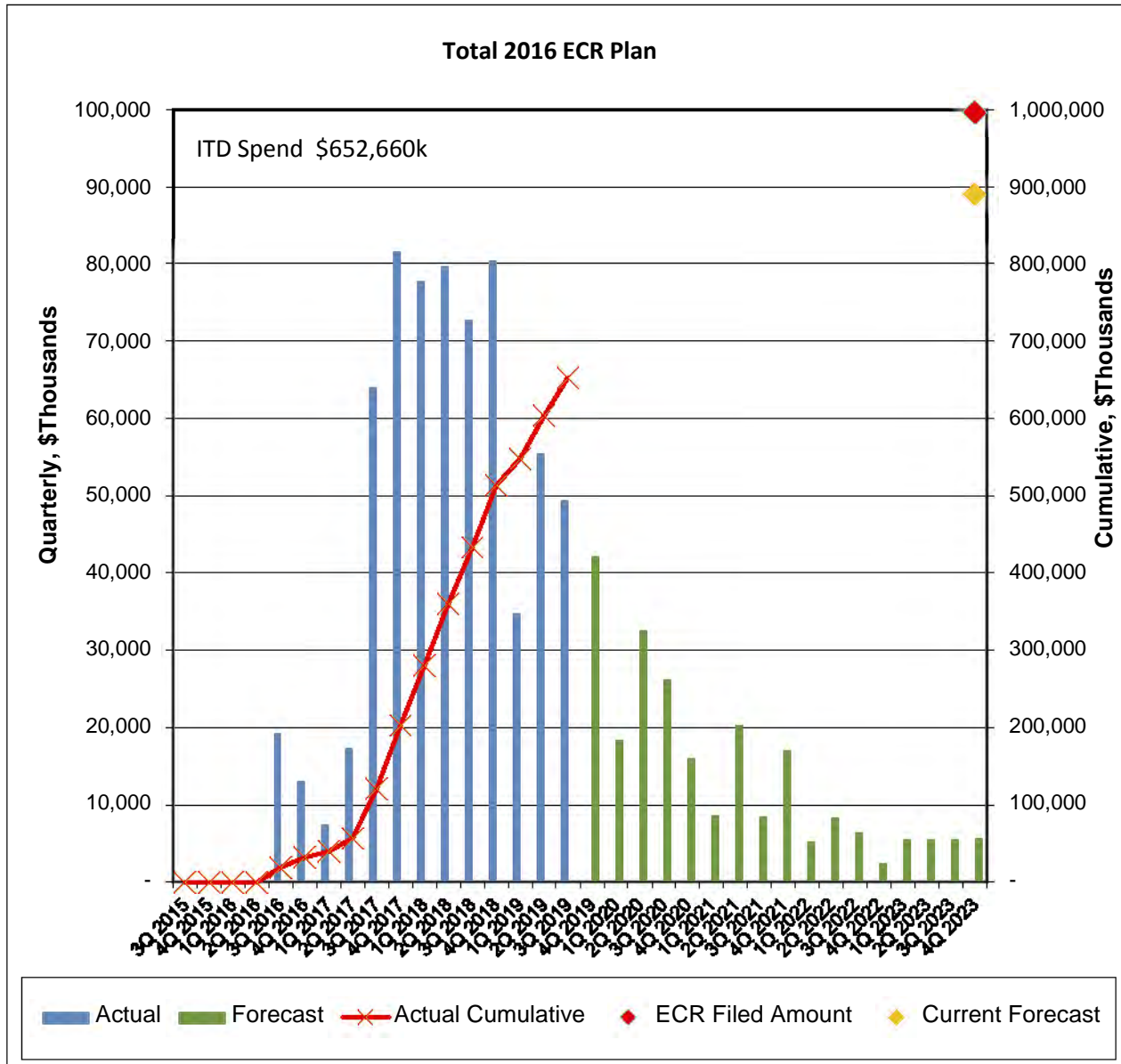
Mill Creek PWS Facility – Site View – June 2019



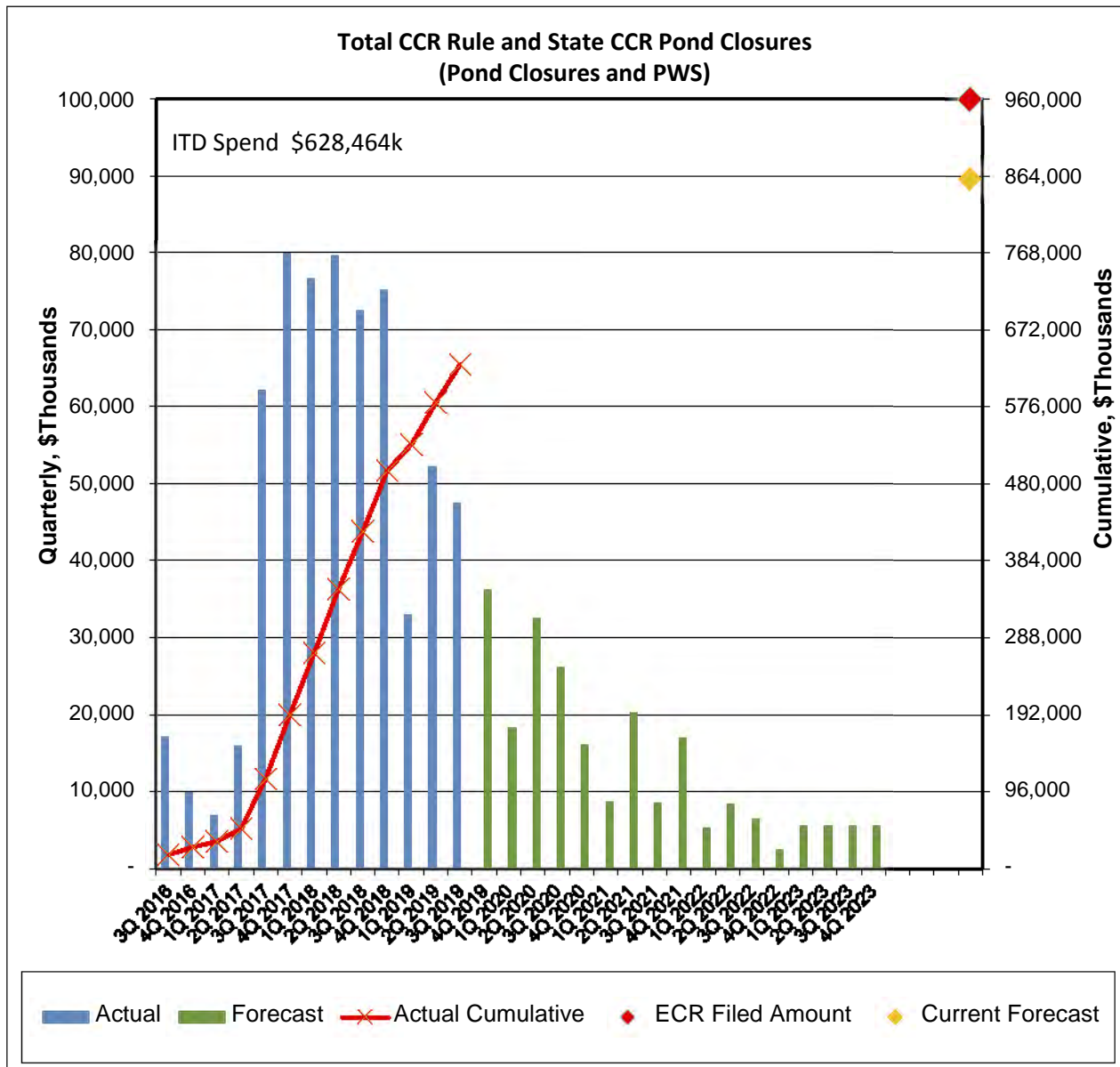
Mill Creek PWS Facility – Site View – September 2019

Financials:

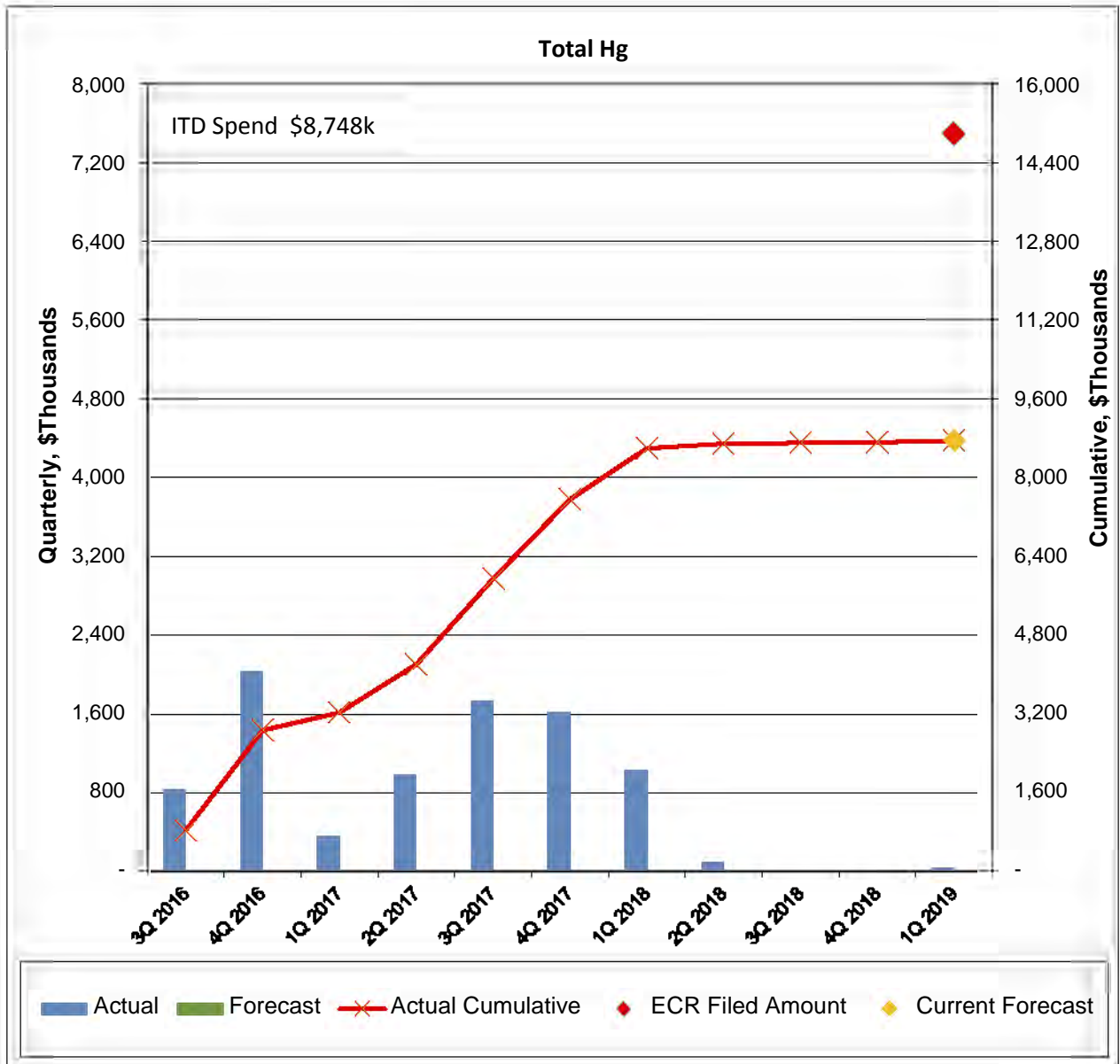
The total 2016 ECR Plan forecasted cost remains \$890.2 million (net). Total spend through September 30, 2019 has increased from \$603.2 million (net) last quarter to \$652.7 million (net). For the graph below: 1) the chart includes a symbol (◆) to show the current forecast to completion; and an (2) inception-to-date (“ITD”) Spend shown in the upper left of the chart.



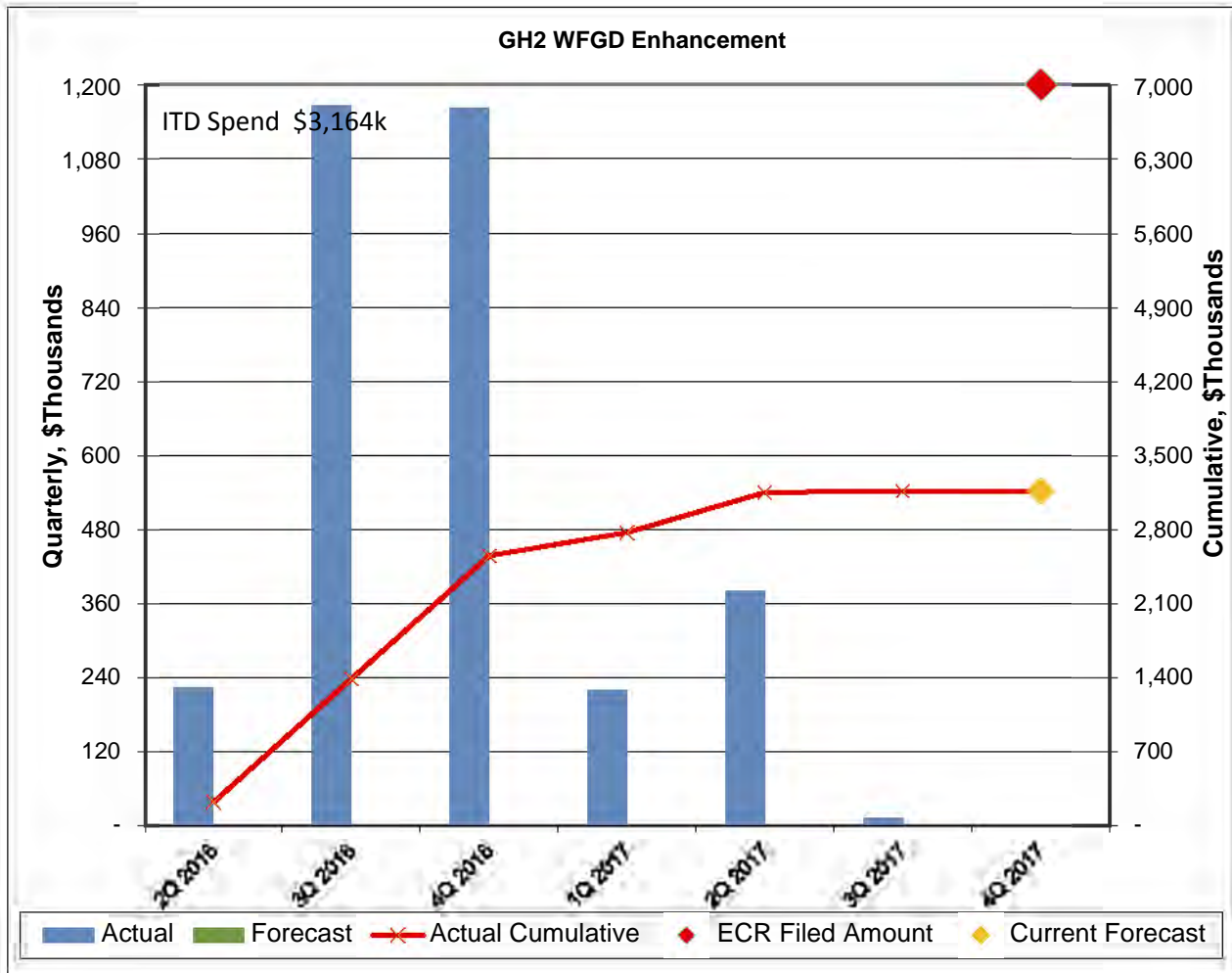
The CCR Impoundment Closure total forecasted cost remains \$862.9 million (net). Total spend through September 30, 2019 has increased from \$580.9 million (net) last quarter to \$628.5 million (net). Note for the graph below: (1) the chart includes a symbol (◆) to show the current forecast to completion; and (2) ITD Spend is shown in the upper left of the chart.



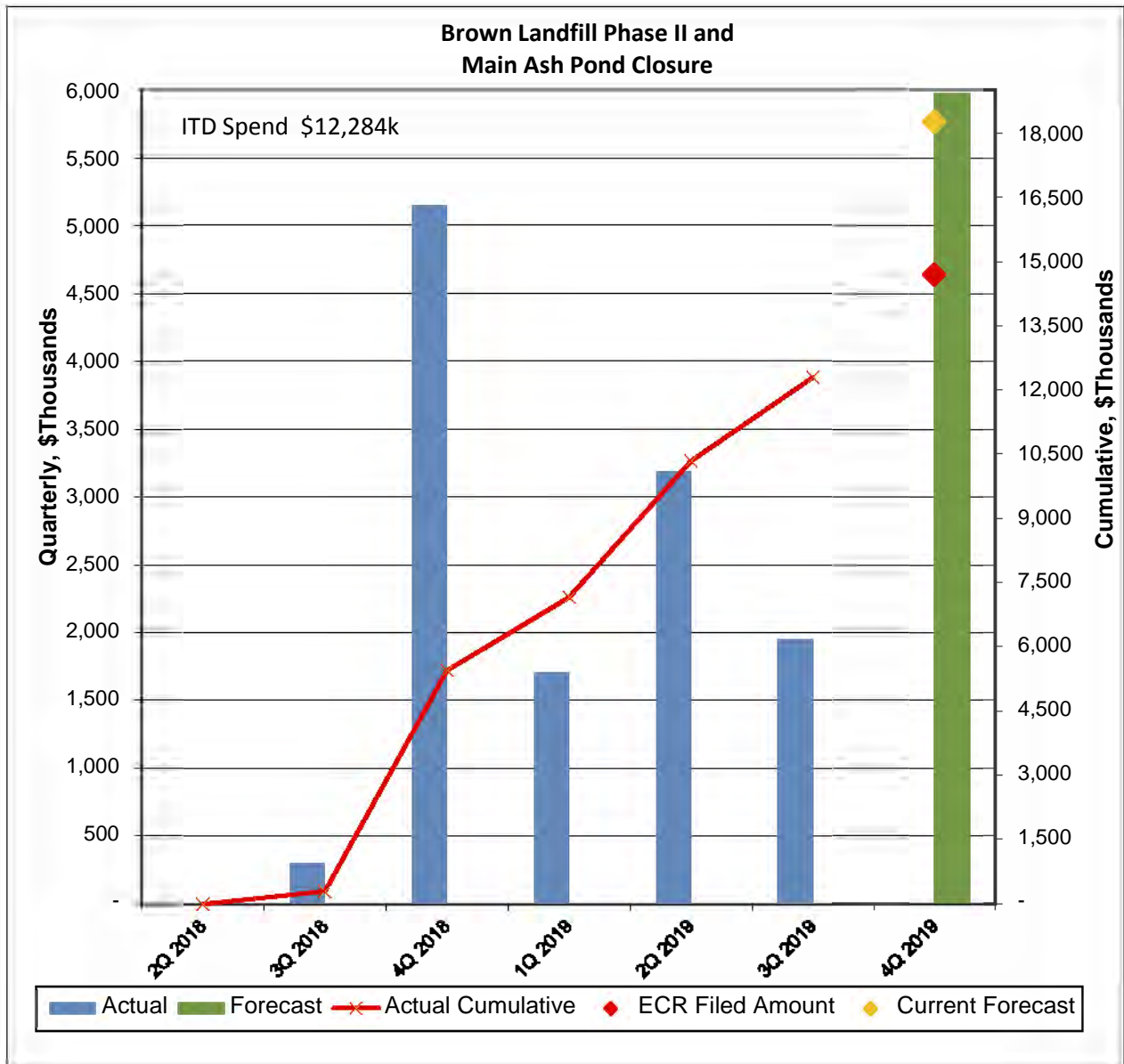
The Mercury Injection projects have been completed and commissioned. The project’s total spend was \$8.7 million compared to the filed estimate of \$15.0 million.



The Ghent Unit 2 WFGD Enhancement project has been completed. Total spend on the project was \$3.2 million compared to the filed estimate of \$7.0 million.



The E.W. Brown Landfill Phase II and Phase III Closure project forecasted cost increased in June from \$17.3 million to \$18.3 million to account for weather impacts, where it remains. In the previous report, the increased amount was reflected in the chart, but was not reflected in the narrative. Total spend through September 30, 2019 has increased from \$10.3 million (net) last quarter to \$12.3 million (net). Note for the graph below: (1) the chart includes a symbol (◆) to show the current forecast to completion; and (2) ITD Spend is shown in the upper left of the chart.



Planned Activities for Next Quarter:

State Division of Waste Closure Projects

Closure work on the Green River ATB #2 impoundment by TransAsh will continue with completion expected in the fourth quarter of 2019. Thalle is also expected to reach completion on the closure work of the CCR impoundment at Pineville and Tyrone in the fourth quarter of 2019.

Federal CCR Rule Closure Projects

CCR Closures:

Tetra Tech will continue with Phase II closure activities at Ghent, as well as closure activities on the Mill Creek Main Ash Pond. Construction by Thalle will continue for the E.W. Brown CCR impoundment closure scope.

PWS Projects:

AMEC is expected to reach Commercial Operation on both the Mill Creek and Trimble County PWS projects in early fourth quarter of 2019. B&McD will continue progressing the Ghent PWS project with hot commissioning transitioning to Performance Testing during the fourth quarter of 2019. Both AMEC and B&McD, along with the Companies and the Companies' OE, will continue reviewing final engineering designs, procurement activities, and the operation of Suez's PWS equipment and process at all three stations (Ghent, Mill Creek, and Trimble County). MAC will complete constructing the Trimble County PWS Process Pond North Basin.

E.W. Brown Landfill Phase II and Phase III Closure

Thalle will complete the Landfill Phase II and Phase III Closure scope of work.