

**2016 ECR Plan Status Update Report  
Quarterly Report – Update #14  
January 30, 2020**

**Executive Summary:**

**General**

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

The overall 2016 ECR Plan safety performance through the fourth quarter of 2019 remains excellent with a year-to-date OSHA Recordable Incident Rate of 0.32 and an inception-to-date OSHA Recordable Incident Rate of 0.49, 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 \$652.7 million (net) last quarter to \$696.9 million (net) through December 31, 2019.

**CCR Compliance (CCR Rule and State CCR Pond Closures)**

Safety performance through the fourth quarter is excellent with a year-to-date OSHA Recordable Incident Rate of 0.46 and an inception-to-date Recordable Incident Rate of 0.52, 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 December 31, 2019 has increased from \$628.5 million (net) last quarter to \$668.8 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 the negotiations of Phase III of Ghent's Ash Treatment Basin ("ATB") #2.

The Companies continue 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 Rule has been remanded without vacatur of the October 31, 2020 requirement for CCR impoundment to cease operation if they fail a Groundwater Protection Standard ("GPS"), 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. The EPA issued additional proposals to revise the CCR Rule on August 14, 2019 and December 2, 2019. While neither of these proposals have resulted in any design or construction changes by the Companies, the most recent proposal requires the initiation of closure of CCR impoundments which fail a GPS or cannot demonstrate 5 feet of separation from groundwater by August 31, 2020 (61 days earlier than was identified in the Phase I, Part I Rule). The Companies expect to be able to initiate closure for all affected CCR impoundments by the proposed deadline of August 31, 2020.

### 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 rerouting process inflows, installation of dewatering wells, construction of access/haul roads throughout ATB #1, and constructing a buttress. Overall, Tetra Tech is progressing the Ghent projects very well with no compliance issues forecasted. Discussions are in progress with Tetra Tech relative to closure of ATB #2.
- E.W. Brown – With the new KPDES Permit having become effective in November 2019, Thalle Construction Company ("Thalle") began removing free water from the Auxiliary Ash Pond along with excavation and regrading of CCRs. Thalle began installing deep dewatering wells within the Auxiliary Ash Pond and mobilized and installed a dewatering treatment system to treat the interstitial waters.
- Green River – All work associated with closure of the Main Ash Pond, the SO<sub>2</sub> Pond and ATB #2 have been completed. Warranty work related to final seeding and minor earthwork will continue into spring; however, the site CCR closure work is considered in service and completed. Trans Ash has demobilized from the site.
- Mill Creek – 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, and dewatering well installation activities are ongoing. Construction of the diffuser in the Ohio River was completed in December 2019.
- Pineville – Thalle achieved substantial completion with the installation of fabric-formed stormwater ditches at the impoundment and placement of topsoil over the protective soil layer along with seeding and placement of straw. Thalle focused on completing remaining punch-list work and began demobilizing from the site in December.
- Trimble County – Work has begun interviewing potential bidders for the clean closure of the gypsum storage pond and the closure-in-place of the main pond. Project Engineering's commercial group and project team have begun developing the project specification and contract documents that will be issued for bid to the market early in the second quarter of 2020.

- Tyrone – Thalle completed the majority of the punch-list work in the fourth quarter of 2019 and demobilized from the site.

The CCR Impoundment Closure Program is on schedule to be completed on or before the CCR Rule regulatory deadlines.<sup>1</sup> 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.

### Process Water System Projects

- Trimble County – AMEC achieved Commercial Operation in October 2019 and continues addressing punch-list items. MAC Construction completed the Process Pond.
- Mill Creek – AMEC achieved Commercial Operation in October 2019 and is nearing completion of the punch-list items.
- Ghent – Burns & McDonnell (“B&McD”) continues to address punch-list items. During the fourth quarter of 2019, B&McD completed commission activities and began performance testing of Train A. The first testing identified minor control issues that were corrected. The testing of Train A was restarted and is expected to pass early in the first quarter of 2020. Performance testing of Train B will follow Train A and is expected to pass in the first quarter of 2020.
- E.W. Brown – Bowen completed the modified two-train Toe Drain and Coal Pile Runoff (“TDCPR”) treatment system and successfully met the performance test guarantee. Bowen completed the construction of the Process Water System (“PWS”) treatment system but was unable to tune or complete the performance test due to a Station outage that extended into mid-December. The performance test will be completed during the first quarter of 2020. Work is expected to be complete by March 2020 at which time Bowen will demobilize from the site.
- 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,

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<sup>1</sup> 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.

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<sup>2</sup></u>	<u>Planned In-Service Date<sup>3</sup></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	June 2020
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	Cap and Closure Completed
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	Clean Closure Completed & New Pond in Service
Mill Creek Construction Runoff Pond	LG&E Project 29	Completed	Clean Closure Completed and New Pond in Service
Mill Creek Emergency Pond	LG&E Project 29	Completed	Clean Closure Completed and area structurally backfilled.
Mill Creek Dead Storage Pond	LG&E Project 29	Awarded December 27, 2017	Clean Closure Completed and area structurally backfilled
Pineville Ash Pond	KU Project 39	Awarded December 7, 2017	Cap and Closure Completed
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	Cap and Closure Completed

PWS Projects

<u>Project</u>	<u>Project #</u>	<u>EPC Status<sup>2</sup></u>	<u>Planned In-Service Date<sup>3</sup></u>
E.W. Brown PWS	KU Project 42	Awarded June 14, 2018	1Q 2020
Ghent PWS	KU Project 40	Awarded August 1, 2017	1Q 2020
Mill Creek PWS	LG&E Project 29	Awarded July 19, 2017	Placed in Service October 2019
Trimble County PWS	KU Project 41, LG&E Project 30	Awarded July 7, 2017	Placed in Service October 2019

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

<sup>3</sup> The Planned In-Service Dates reflect the executed EPCs – the red font signifies actuals. 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 completed the installation of the liner system of Phase II of the landfill in the fourth quarter of 2019 but began to experience water infiltration under the liner. The water hydrated the geo-composite clay liner. An engineering solution is being developed to address the water impacts. A plan to delay the work until the spring of 2020 is being discussed with Thalle in order to complete the work during more favorable weather. Upon completion of the liner repair work, Thalle will work to complete the remaining leachate piping, gypsum cover, and installation of surrounding 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, clean closure of the SO<sub>2</sub> pond, and closure of ATB #2. Trans-Ash has demobilized from the site.

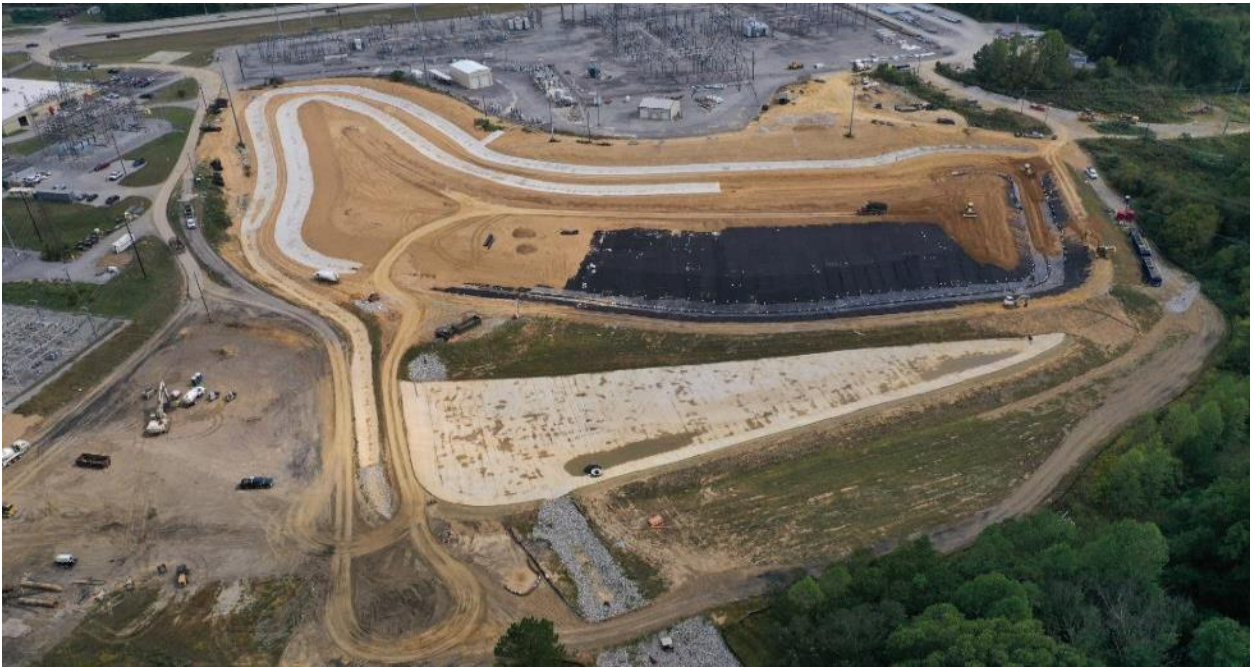


*Green River CCR Impoundments – Site View – October 2019*



*Green River CCR Impoundments – Site View – December 2019*

- Pineville: Thalle achieved substantial completion with the installation of fabric-formed stormwater ditches at the impoundment and placement of topsoil over the protective soil layer along with seeding and placement of straw. In December, Thalle focused on completing remaining punch-list work.



*Pineville Ash Pond – September 2019*



*Pineville Ash Pond – December 2019*



Tyrone: Thalle completed the majority of the punch-list work in the fourth quarter of 2019 and demobilized from the site.



*Tyrone Ash Pond – September 2019*



*Tyrone Ash Pond – December 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 rerouting process inflows, installation of dewatering wells, construction of access/haul roads throughout ATB #1, and constructing a buttress. Overall, Tetra Tech is progressing the Ghent projects very well with no compliance issues forecasted. Given Tetra Tech’s high performance, the fact that they competitively won Phase I and II scopes, and the interaction of Phase III with Phase II scope and daily plant operations, Project Engineering has begun discussions with Tetra Tech relative to closure of ATB #2.

With regards to the PWS, B&McD’s engineering activities are focused on picking up field construction changes. B&McD continues to work on completing punch-list items and system tuning. B&McD continued hot commission activities and achieved Mechanical Completion in October, 2019. Performance testing for the PWS was started in the fourth quarter of 2019 but experienced control issues that invalidated the first testing of Train A. B&McD has addressed the control issues and restarted performance testing on Train A before the end of 2019. Train A performance testing is expected to pass in January 2020, with Train B testing beginning immediately thereafter with expectations to pass in the first quarter of 2020.



*Ghent Gypsum Stack – Looking East – September 2019*



*Ghent Gypsum Stack – Looking East – December 2019*



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



*Ghent ATB #1 Cooling Channel – Looking East – December 2019*



*Ghent PWS Facility – Site View – October 2019 – No Change*



*Ghent PWS Tank Farm – Site View – October 2019*



## **KU Project 41 and LG&E Project 30<sup>4</sup> – 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 proposed dewatering method. In September, the EPA granted approval to move forward with preparing a KPDES permit modification application to allow BAP water to continue to be used as Wet Flue Gas Desulfurization (“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. The Companies submitted the KPDES water permit modification application in November 2019 and expect to have a response from the state late in the first quarter of 2020.

AMEC achieved Commercial Operation in October 2019 and continues working on outstanding punch-list items. Black & Veatch (“B&V”) continues to provide OE services on the Trimble County PWS project.

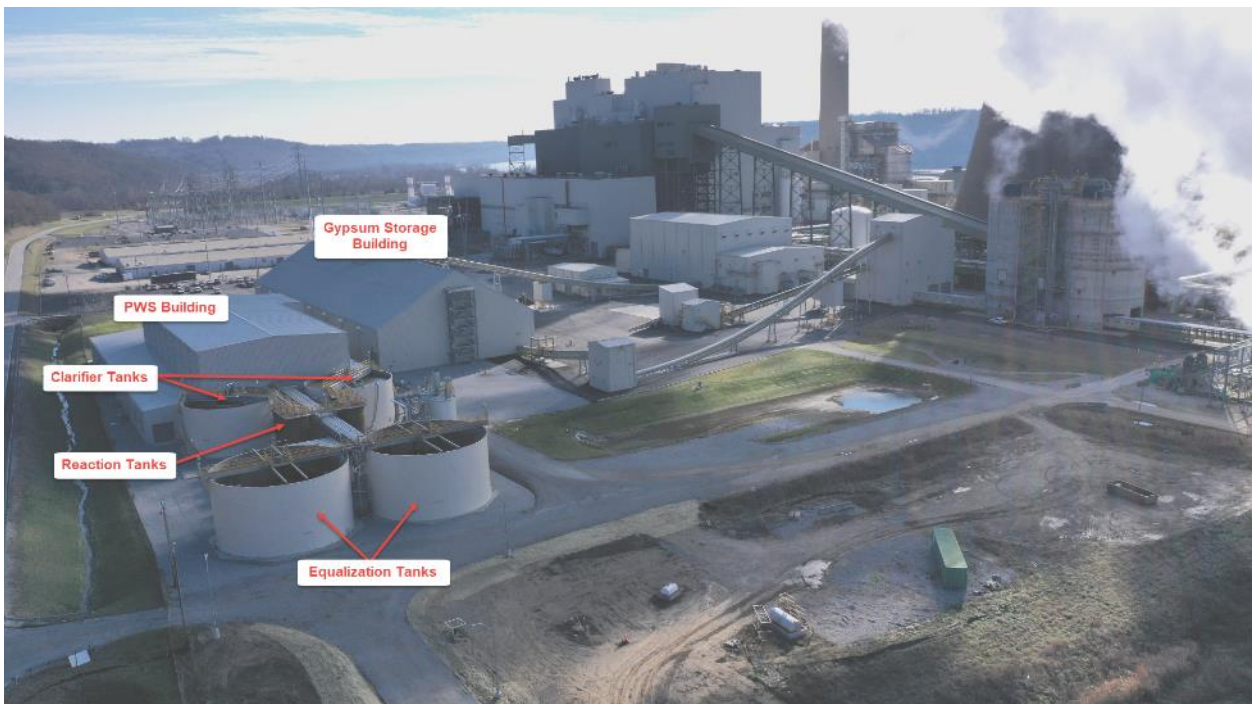
MAC completed the Process Pond and demobilized from the site during the fourth quarter of 2019. The Knockout Pond and Process Pond have now been placed into service. This subsequently placed the new internal outfall, that collects the Process Pond discharge water, into service as well.

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<sup>4</sup> KU and LG&E’s net costs are split 48% and 52%, respectively.



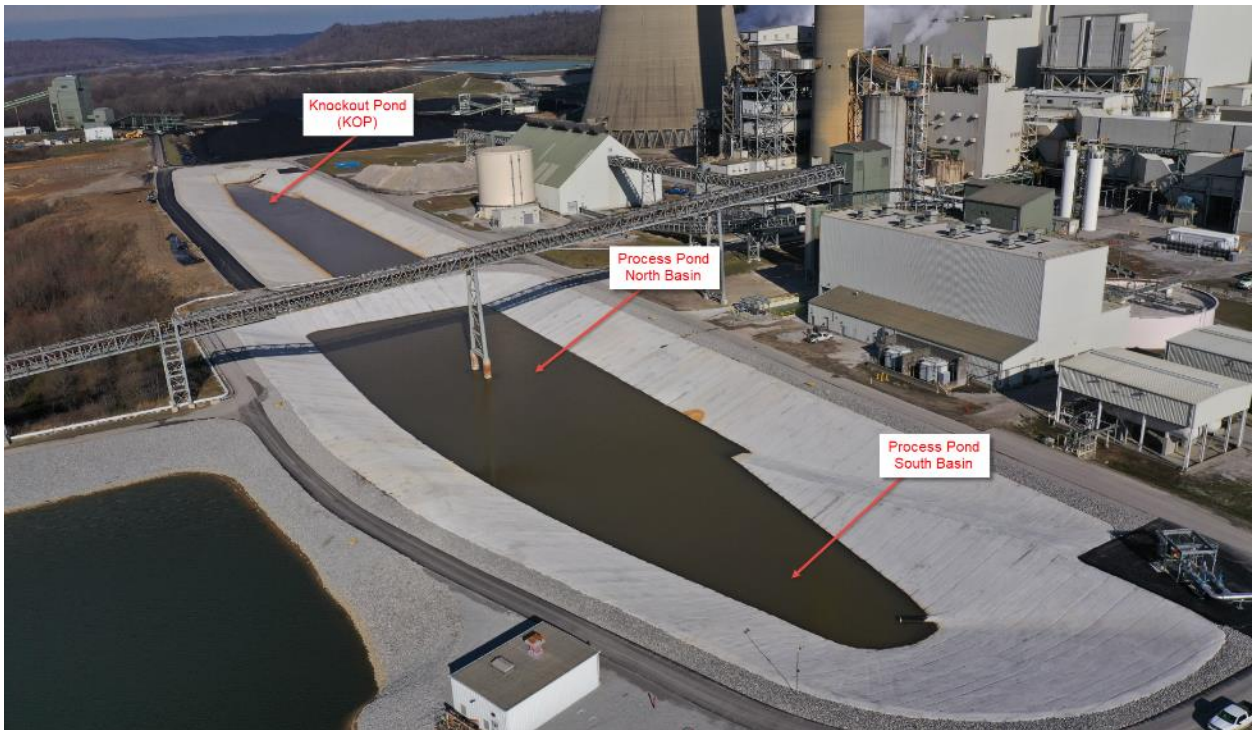
*Trimble County PWS Facility – Site View Looking Southwest – September 2019*



*Trimble County PWS Facility – Site View Looking Southwest – December 2019*



*Trimble County Process Water Ponds – Looking Northeast – September 2019*



*Trimble County Process Water Ponds – Looking Northeast – December 2019*



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

Thalle will continue CCR excavation and regrading work in the Auxiliary Ash Pond during the first half of 2020, with continued dewatering of free water and removal of interstitial water through use of the deep wells. Additional deep wells will be installed as the impoundment is further dewatered and as the CCRs are stabilized for safe construction.

In the fourth quarter of 2019, Bowen completed the modified Toe Drain and Coal Pile Runoff (“TDCPR”) treatment system and successfully met the performance test guarantee. Bowen completed the construction of the Process Water System (“PWS”) treatment system but was unable to tune or complete the performance test due to a Station outage that extended into mid-December. The performance test as well as remaining punch-list work will be completed during the first quarter of 2020. Work is expected to be complete by April 1, 2020 at which time Bowen will demobilize from the site.



*E.W. Brown Aux Pond – September 2019*



*E.W. Brown Aux Pond – December 2019*



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



*E.W. Brown Landfill Phase II and Closure – December 2019*



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



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



*E.W. Brown PWS Treatment System – October 2019*



*E.W. Brown PWS Treatment System – December 2019*

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

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, and dewatering well installation activities are ongoing. Construction of the diffuser in the Ohio River was completed in December 2019. AMEC is performing CQA services while AECOM continues to provide OE services on the Mill Creek closure projects.

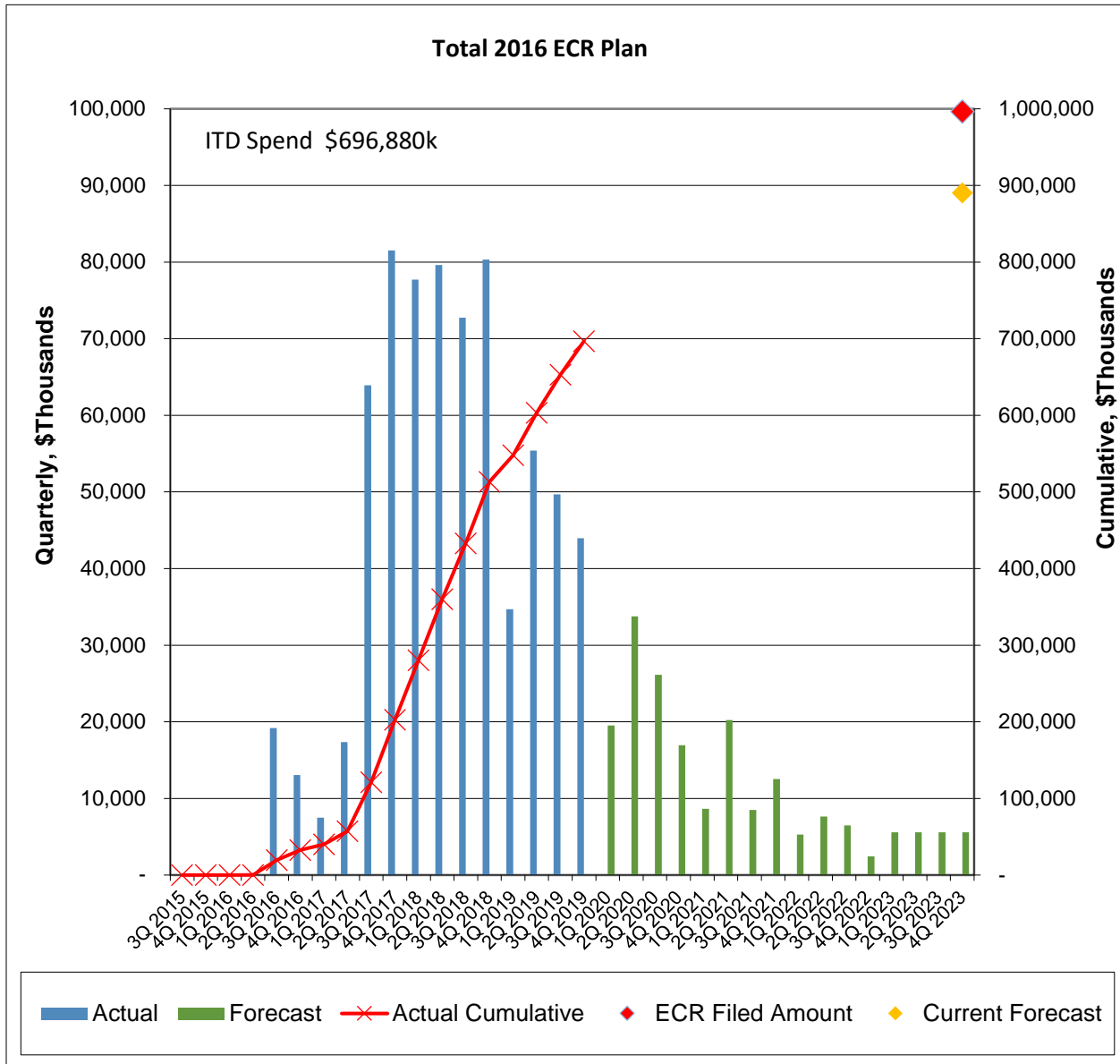


*Mill Creek Main Ash Pond Closure – December 2019*

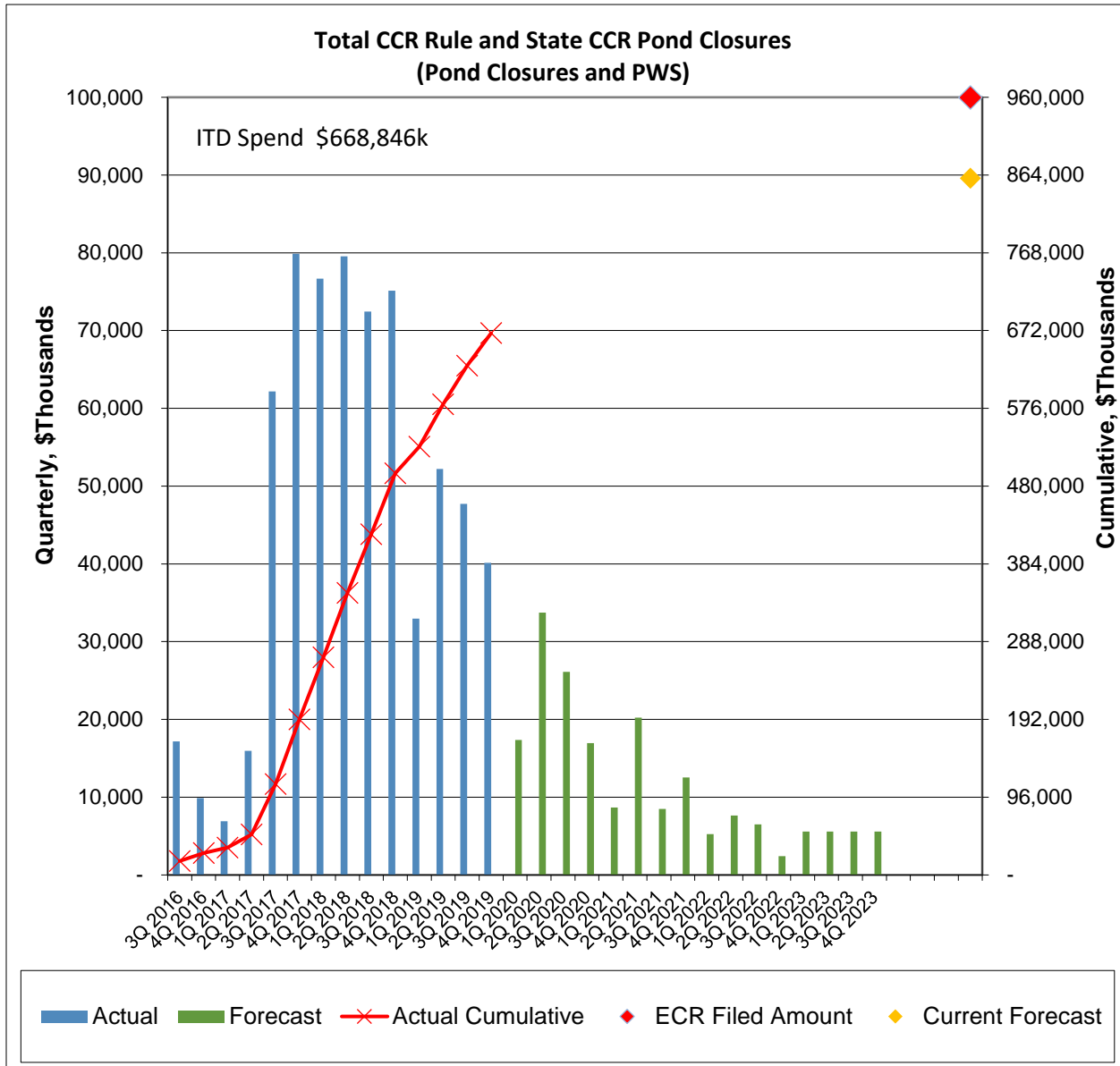
AMEC completed procurement activities with engineering focused on picking up field corrections on the PWS project. AMEC completed the installation of the mechanical and electrical subsystems. Performance testing of the PWS systems was completed in July 2019 and achieved Commercial Operation in October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

**Financials:**

The total 2016 ECR Plan forecasted cost remains \$890.2 million (net). Total spend through December 31, 2019 has increased from \$652.7 million (net) last quarter to \$696.9 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.

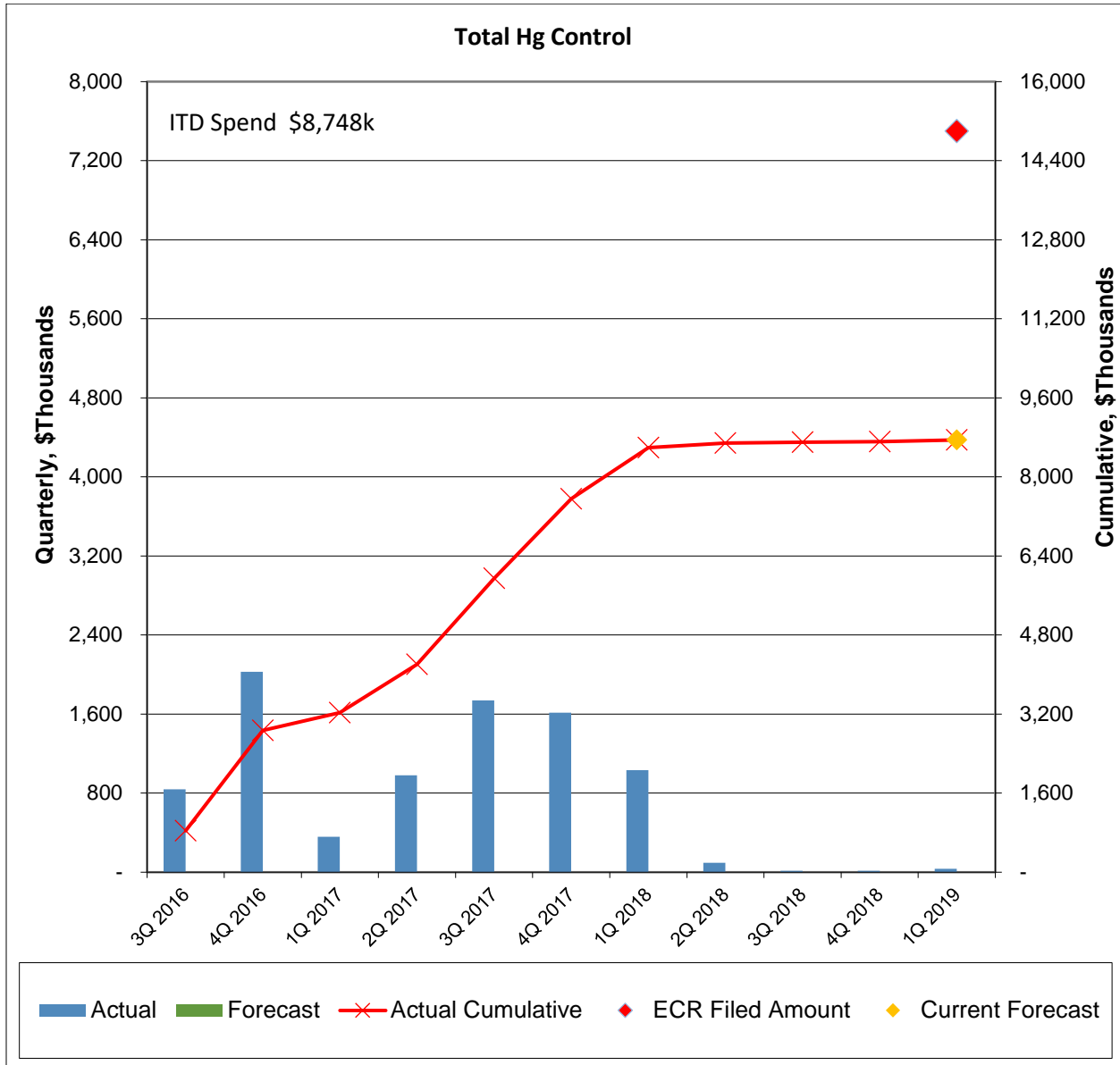


The CCR Impoundment Closure total forecasted cost remains \$862.9 million (net). Total spend through December 31, 2019 has increased from \$628.5 million (net) last quarter to \$668.8 million (net). Note for the graph below: (1) the chart includes a symbol ( ) to show the current forecast to completion; and (2) ITD Spend is shown in the upper left of the chart.

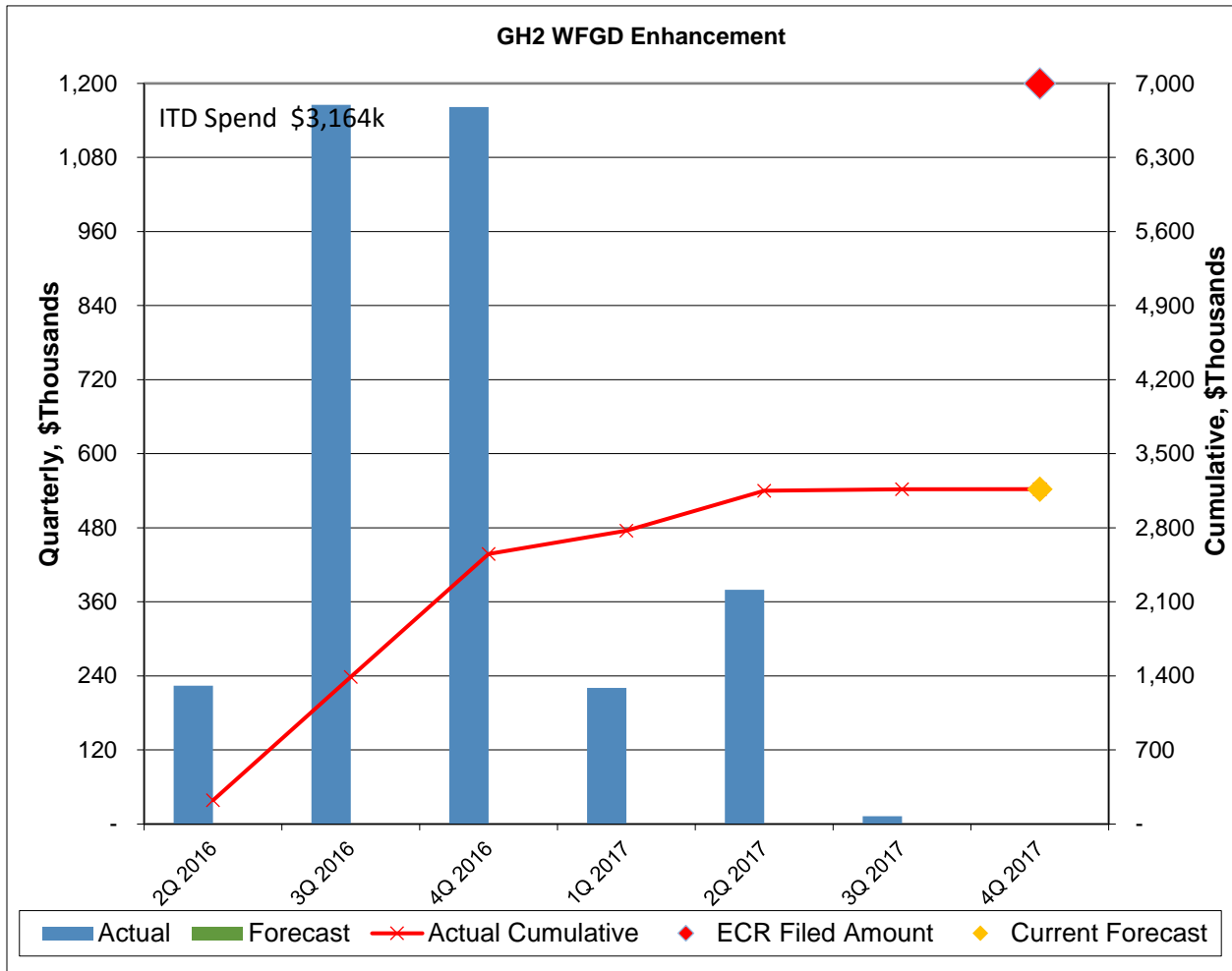




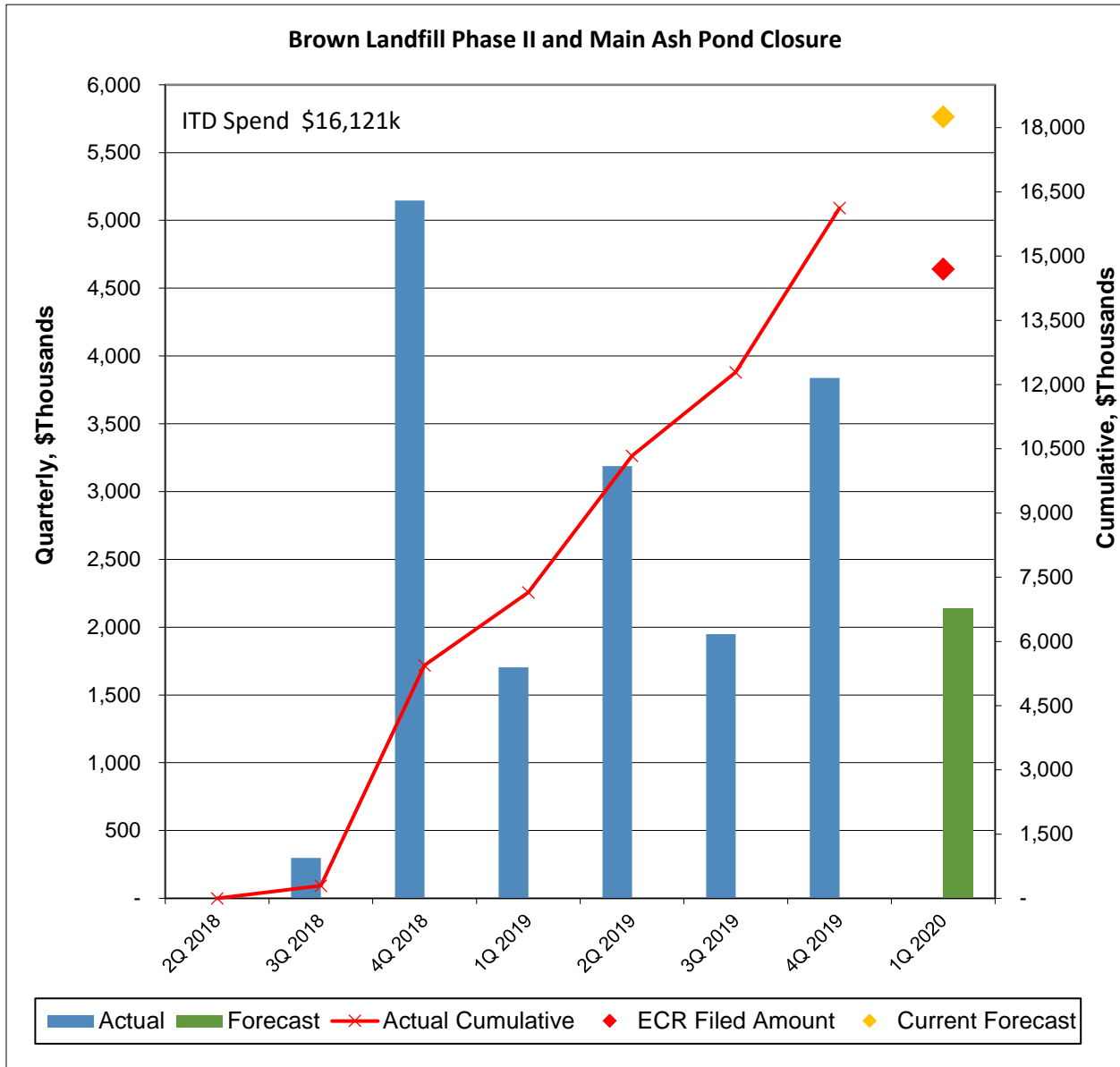
The Mercury Injection projects have been completed and commissioned. The project’s total spend was \$8.7 million compared to the filed estimate of \$15.0 million.



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 remains \$18.3 million. Total spend through December 31, 2019 has increased from \$12.3 million last quarter to \$16.1 million. 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**

Demobilization of Thalle at Pineville will be completed. Review of turf growth and winter impacts on earthwork will be evaluated for warranty repairs, if any, at Tyrone, Pineville and Green River.

### **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. The negotiations of Phase III with Tetra Tech are expected to be completed with Phase III being included in the Phase I and Phase II agreement through an amendment. Construction by Thalle will continue for the E.W. Brown CCR impoundment closure scope. The Companies are expected to receive a response to the Trimble County KPDES permit modification application for the dewatering of the Bottom Ash Pond (BAP). The Trimble County BAP and Gypsum Storage Pond (GSP) closure RFQ will be ready for issuance to the market. The current schedule indicates a contract award in the third quarter of 2020.

#### **PWS Projects:**

AMEC will continue working on punch-list and warranty items on both the Mill Creek and Trimble County PWS projects. B&McD will continue Performance Testing with the goal of passing all tests during the quarter. 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).

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

Thalle will restart the Landfill Phase II and closure scope on Phase III that were shut down during the winter months.