



**2016 ECR Plan Status Update Report**  
**Quarterly Report – Update #5**  
**October 30, 2017**

**Executive Summary:**

**General**

This report covers LG&E and KU’s (“Companies”) progress on constructing the projects in the 2016 Environmental Cost Recovery (“ECR”) Plan through the third quarter of 2017, as well as listing any significant events that have occurred in the third quarter.

Safety performance through the third quarter of 2017 has a year-to-date Recordable Incident Rate of 1.14 and an inception-to-date Recordable Incident Rate of 1.16 compared to the industry average of 3.90. The fatality experienced on October 5, 2017 by a contractor, Tetra Tech, on the Ghent closure work will be covered in the fourth quarter 2017 report.

As originally reported in the fourth quarter report for 2016, the total 2016 ECR Plan projected costs decreased from \$993.6 million (net) to \$866.7 million (net).<sup>1</sup> No changes in the projected cost occurred during this reporting period. Total spend to date increased from \$58.5 million (net) last quarter to \$121.0 million (net) through September 30, 2017.

With regards to impoundment closures, work on constructing the Ghent Cooling Channel in Ash Treatment Basin (ATB) #1 and the new North Cooling Pond (Phase I) scope was awarded to Tetra Tech and is in progress. Tetra Tech has deployed the erosion and sediment control facilities, constructed the haul road and started hauling of gypsum from the Gypsum Stack to ATB #2. The Green River Impoundments Closure project was awarded to TransAsh. TransAsh has mobilized to the site, deployed erosion and sediment control measures, and begun initial site grading activities. The clean closure of the Mill Creek Emergency Pond has been completed by Charah. Request for Quotations (RFQ) were issued for the Ghent Phase II, Mill Creek South Ponds, and the Pineville and Tyrone Impoundments Closure projects. Responses to the RFQ were received and are being evaluated. Contracts are expected to be awarded during the fourth quarter.

With regards to the Process Water System (“PWS”) scopes, the Trimble County scope was awarded to AMEC and incorporated into an amended and restated Engineering, Procurement and Construction (“EPC”) contract, thereby engaging AMEC to work on both the PWS scope reported on within this report and the CCR Treatment and Transport scope that is reported separately in the *Phase I Trimble County Landfill & CCRT Project Quarterly Report- Third Quarter 2017*. The Mill Creek PWS EPC contract was also awarded to AMEC through an EPC that incorporates both the PWS and the CCRT (dry bottom ash system and pyrite

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<sup>1</sup> The total 2016 ECR Plan projected costs were provided in Case No. 2016-00026 and Case No. 2016-00027 on a net basis. Co-Owners of the Trimble County plant: Illinois Municipal Electric Agency (IMEA) and Indiana Municipal Power Agency (IMPA) are responsible for 25%. IMEA owns 12.12% and IMPA owns 12.88%. Co-owner share is not included in the costs provided in this report where “net” is shown.



transport systems) scopes of work. The Ghent PWS EPC contract was awarded to Burns & McDonnell and they are currently working on initial engineering activities. Suez was chosen as the water treatment technology supplier for the Ghent, Mill Creek and Trimble County PWS projects, with their contracts being subcontracts under the respective AMEC and Burns & McDonnell EPCs.

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

Safety performance through the third quarter has a year-to-date Recordable Incident Rate of 3.20 and an inception-to-date Recordable Incident Rate of 3.13.

Total projected costs for the CCR closure program remain unchanged from the previous report at \$839.0 million (net). Total spend to date through September 30, 2017 has increased from \$50.7 million in the last report to \$111.4 million (net).

Relative to the Companies' progress during this reporting period on the CCR impoundment closures, the detailed design for the CCR Rule and State Impoundment Closure programs throughout the Companies' fleet are nearing completion. Construction activities are ongoing for the Ghent Phase I and Green River Impoundments Closure projects. The Companies issued RFQ packages for construction of Ghent Phase II (ATB #1 Closure, ATB #2 Closure, Secondary Pond Clean Closure, and South Cooling Pond), Mill Creek South Ponds (Clean Closure of the Runoff Pond, Clearwell Pond, and Dead Storage Pond), and the Impoundments closure at Pineville and Tyrone. The clean closure of the Mill Creek Emergency Pond was completed by Charah. Communications with the Owner's Engineers ("OE") of AMEC and AECOM for the CCR impoundment closure design and permitting continues through scheduled weekly meetings. The CCR impoundment closure program is on schedule to be completed on or before the Environmental Protection Agency's ("EPA") CCR Rule regulatory deadlines.<sup>2</sup>

During the third quarter, engineering designs are ongoing for the Ghent, Mill Creek and Trimble County PWS projects. Black and Veatch was selected as the fleet OE for the PWS projects to provide consistency in engineering design reviews across the three stations and provide consistent support of oversight of the PWS construction phases being performed by the two EPC firms. The Companies awarded the Trimble County PWS scope to AMEC in June 2017 as an amended and restated EPC to the CCRT scope that AMEC is performing as part of the Trimble County Phase I Landfill Project. The Companies awarded the EPC for the Mill Creek CCRT and PWS scopes to AMEC in July of 2017. The execution of the EPC with AMEC at Mill Creek included the full assignment of the dry bottom ash equipment agreement previously awarded by the Companies to United Conveyor Corporation ("UCC"). The Ghent PWS EPC contract was awarded to Burns & McDonnell in August 2017.

To ensure the Companies' projects will comply with the EPA's CCR Rule requirements, the Companies continue to hold program-wide meetings with the OEs, internal project management teams, and all affected

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<sup>2</sup> EPA sources indicate that the EPA Administrator has decided to reconsider the provisions of the final rule addressed in pending petitions requesting the EPA to initiate rulemaking to reconsider certain provisions of final CCR Rule. If the EPA decides to begin the process of potentially revising provisions of the final rule, the EPA will provide an opportunity for notice and comment. The final CCR Rule is also subject to a legal challenge in the District of Columbia Circuit (DC Circuit No. 15-1219). The Companies will continue to track EPA's actions and the litigation, provide updates to the Commission through future reports and, if appropriate, adjust their construction schedules and activities.



facilities to provide an opportunity for all parties to deliver updates on their work and to ensure the OEs are providing similar deliverables and lessons-learned are applied across the projects. In addition to the program-wide meetings, the Companies are holding weekly meetings with the individual OEs and the affected plants. The contracted completion dates for each facility are currently as follows:

## CCR Rule and State CCR Pond Closures

<u>Project</u>	<u>Project #</u>	<u>EPC Status</u>	<u>Planned Construction Completion<sup>1</sup></u>
E.W. Brown Aux Pond	KU Project 42	Issue RFQ 2Q 2018	December 2020
Ghent ATB #1	KU Project 40	Issued RFQ 3Q 2017	December 2022
Ghent ATB #2	KU Project 40	Awarded 2Q 2017	December 2022
Ghent Gypsum Stack	KU Project 40	Awarded 2Q 2017	December 2020
Green River Main Pond	KU Project 40	Awarded 2Q 2017	2Q 2019
Green River ATB #2	KU Project 39	Awarded 2Q 2017	2Q 2019
Green River SO2 Pond	KU Project 39	Awarded 2Q 2017	2Q 2019
Mill Creek Ash Pond	LG&E Project 29	Issue the RFQ in 3Q 2018	4Q 2021
Mill Creek Clearwell Pond	LG&E Project 29	Issued RFQ 3Q 2017	4Q 2018
Mill Creek Construction Runoff Pond	LG&E Project 29	Issued RFQ 3Q 2017	2Q 2018
Mill Creek Emergency Pond	LG&E Project 29	Construction Completed	Construction Completed
Mill Creek Dead Storage Pond	LG&E Project 29	Issued RFQ 3Q 2017	2Q 2019
Pineville Ash Pond	KU Project 39	Issued RFQ 3Q 2017	2Q 2019
Trimble County Bottom Ash Pond	KU Project 41, LG&E Project 30	Issue RFQ 1Q 2018	December 2023
Trimble County Gypsum Storage Pond	KU Project 41, LG&E Project 30	Issue RFQ 1Q 2018	December 2023
Tyrone Ash Pond	KU Project 39	Issued RFQ 3Q 2017	2Q 2019

<sup>1</sup> The red font signifies actuals.

## Process Water Systems (PWS)

<u>Project</u>	<u>Project #</u>	<u>EPC Status</u>	<u>Planned Construction Completion<sup>1</sup></u>
E.W. Brown Process Water System	KU Project 42	TBD	TBD
Ghent Process Water System	KU Project 40	Awarded 2Q 2017	2Q 2019
Mill Creek Process Water System	LG&E Project 29	Awarded 2Q 2017	4Q 2019
Trimble County Process Water System	KU Project 41, LG&E Project 30	Awarded 2Q 2017	2Q 2019

<sup>1</sup> The red font signifies actuals.

## Fleet Mercury Control Injection Systems Project

Safety performance through the third quarter remains good with a year-to-date Recordable Incident Rate of 0.00 and an inception-to-date Recordable Incident Rate of 0.00. The total projected costs remain at the \$12.8 million (net) reported last quarter, which compares favorably to the original estimate in the 2016 ECR Plan of \$15.6 million (net). Total spend to date has increased from \$4.6 million to \$6.4 million through September 30, 2017. The expected in-service dates for the following facilities are currently as follows:

## Fleet Mercury Control Injection Systems

<u>Project</u>	<u>Planned Construction Completion<sup>1</sup></u>
Mill Creek Unit 3	June 2016
Mill Creek Unit 4 Organo-sulfide System	July 2017
Mill Creek Units 1&2 Organo-sulfide System	July 2017
Mill Creek Unit 1 Halogenated Liquid System	August 2017
Mill Creek Unit 2 Halogenated Liquid System	August 2017
Trimble County Unit 1 Organo-sulfide System	November 2017
Ghent Unit 4 Organo-sulfide System	November 2017
Ghent Unit 2 Halogenated Liquid System	November 2017
Ghent Unit 1 Organo-sulfide System	November 2017
Ghent Unit 2 Organo-sulfide System	November 2017
Ghent Unit 3 Organo-sulfide System	November 2017

<sup>1</sup> The red font signifies actuals.

### **Ghent Unit 2 Wet Flue Gas Desulfurization Improvements (WFGD) Project**

This project's construction and testing was completed last quarter with this quarter's activities being commercial closing of contracts. All work was performed as planned and performance testing passed. Projected cost remains unchanged at \$3.2 million. Spend through September 30, 2017 is \$3.16 million compared to \$3.15 million last quarter. This project will not be reported on in future quarterly update reports, but will be included in the financials.

### **E.W. Brown Landfill Phase II**

As reported last quarter, the Companies continue to evaluate the timing of, and capacity needs for, storage of CCR relative to Phase II of the E.W. Brown Landfill. The E.W. Brown Landfill Phase II has not begun; and construction did not begin prior to the one-year expiration of the CPCN authorization.

### **Quarterly Status Update:**

#### **State Division of Waste Closure Projects:**

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

Green River: KU continues to hold weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on April 15, 2016 and final design was completed in June 2017. An initial permit meeting was held with the Kentucky Division of Waste Management ("KYDWM") on October 17, 2016 to present the design philosophy and solicit feedback on the permitting process. CH2M submitted the KYDWM permit application in the first quarter of 2017. KU

received the first Notice of Deficiency (“NOD”) on May 16, 2017 and is currently working with AMEC on a response to the items identified. Going forward, AMEC will be the Engineer of Record on the Green River closure project. The impoundment closure work was awarded to TransAsh in July 2017 and onsite activities for the third quarter of 2017 have consisted of site mobilization, deployment of erosion and sediment control measures, and initial site grading.

Pineville: KU is holding weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on September 30, 2016 and the final design was completed during this reporting period. AMEC has started development of the KYDWM permit application and will build upon the experience gained during the Green River permitting process. The closure RFQ was issued in the third quarter of 2017. Responses were received and are being evaluated. The award of this contract is targeted for the fourth quarter of 2017.

Tyrone: KU is holding weekly and monthly update meetings to review the current status of the project. As with Pineville, conceptual design was completed on September 30, 2016 and the final design was completed in the third quarter of 2017. AMEC has started development of the KYDWM permit application and will build upon the experience gained during the Green River permitting process. The closure RFQ was issued in the third quarter of 2017 as a combined scope with the Pineville closure scope.

## **Federal CCR Rule Closure Projects:**

### **Program-wide Items**

The Companies completed two subprojects related to interstitial dewatering of the CCR Impoundments. Interstitial water, also known as pore water, is water contained within the voids of the CCR stored within the impoundment. Feedback from various industry sources indicate that interstitial dewatering presents the most execution and commercial risk for construction contractors to price in their bids. In an effort to obtain better bids that do not include this bid risk, the Companies performed a pilot dewatering test at Ghent’s ATB #2 and Cone Penetration Testing (“CPT”) at E.W. Brown, Ghent, Mill Creek, and Trimble County stations to better assess the dewatering options. The goal of this work is to clarify the risk and costs of the interstitial dewatering by better understanding what will be expected through on-site pilot scale dewatering. The results of these tests were issued in draft in the third quarter of 2017 and are currently under review.

Black and Veatch was selected as the OE in September 2017 to support the Ghent, Mill Creek, and Trimble County PWS projects. Having a single OE provides a consistent review of Suez treatment designs across the three projects, as well as a consistent engineering review of the engineering designs performed by AMEC (Mill Creek and Trimble County) and Burns & McDonnell (Ghent) on the three PWS projects. Black and Veatch will also provide consistent assistance to Project Engineering in the oversight of PWS construction at the three stations.

### **KU Project 40 – Ghent (GH) Station CCR Rule Compliance Construction and New Process Water Systems**

KU is holding weekly and monthly update meetings to review the current status of the project. The RFQ for execution of the Phase I work was awarded to Tetra Tech in June 2017. The RFQ for the Phase II closure scope was issued in the third quarter of 2017. Responses are being evaluated with a targeted award in the fourth quarter of 2017. To date, Tetra Tech has mobilized to the site, deployed the erosion and sediment control facilities, is constructing a haul road and has started hauling gypsum from the Gypsum Stack to ATB #2. Burns & McDonnell was awarded the PWS scope at Ghent in August 2017. Currently activities to date include, project kickoff, engineering activities, initial site investigations, and selection of the PWS technology supplier (Suez).

### **KU Project 41 and LG&E Project 30<sup>3</sup> – Trimble County (TC) Station CCR Rule Compliance Construction and New Process Water Systems**

LG&E and KU are holding weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on June 1, 2016 and final design was achieved in the third quarter of 2017. It is anticipated that the RFQ package for the closure of the Bottom Ash Pond and Gypsum Storage Pond will be issued to the market in the first quarter of 2018. To date, onsite activities have been limited to site visits by the OE, geotechnical explorations, and installation of groundwater monitoring wells.

AMEC was awarded the PWS scopes at Trimble County through an amended and restated EPC that incorporates the CCRT scope under the Phase I Landfill Project and the PWS scopes under this report into a single EPC agreement. AMEC has begun its design, engineering, and procurement activities.

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

KU is holding weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on September 30, 2016 and the final design was completed in the third quarter of 2017. An RFQ package for closure of the auxiliary CCR pond is targeted for the second quarter of 2018. To date, onsite activities have been limited to site visits by the OE, geotechnical explorations, and installation of groundwater monitoring wells.

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

LG&E is holding weekly and monthly update meetings to review the current status of the project. An award was given to Charah in the second quarter of 2017 for the clean closure of the emergency pond and that work was completed during the third quarter of 2017. Design of the south ponds and Main Ash Pond closures were completed in the second quarter of 2017. A RFP for the South Pond project was issued during the third quarter 2017 with a targeted award late fourth quarter of 2017.

### **Fleet Mercury Control Injection Systems Project**

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<sup>3</sup> KU and LG&E's net costs are split 48%/52% respectively.



Mill Creek - Hall Contracting performed the construction and installation for the Mill Creek Unit 1, 2, and 4 systems. The organo-sulfide systems were placed in service in July 2017 and the halogenated liquid systems placed in service in August 2017 for the three remaining units. As previously reported, the injection systems for Mill Creek Unit 3 are now operational.

Ghent - Hall Contracting was awarded the construction and installation for the Ghent 1 through 4 organo sulfide systems and Ghent 2 halogenated liquid system. The expected in-service dates for the Ghent systems are November 2017.

Trimble County - A&D Constructors was awarded the construction and installation for the Trimble County Unit 1 organo sulfide system and the modifications to the existing Trimble County Unit 2 organo sulfide system. The expected in-service date for the Trimble County Unit 1 system, as well as the completion of the Trimble County Unit 2 system modifications, is November 2017.

### **Ghent Unit 2 Wet Flue Gas Desulfurization Improvements (WFGD) Project**

This project was completed last quarter with this quarter's activities being commercial closing of contracts. All work was performed as planned and performance testing passed. Projected cost remains unchanged at \$3.2 million. Spend through September 30, 2017 is \$3.16 million compared to \$3.15 million last quarter. This project will not be reported on in future quarterly update reports, but will be included in the financials.

## **Planned Activities for Next Quarter:**

### **State Division of Waste Closure Projects**

The Companies plan to award the construction contract in December 2017 for the Pineville and Tyrone Impoundment closure projects. Closure work on the Green River impoundments will continue.

### **Federal CCR Rule Closure Projects**

CCR Closures:

Plans for the fourth quarter of 2017 include ongoing construction on the Ghent Phase I closure scopes, as well as the award of the construction contract for the remainder of the Ghent closure subprojects (Phase II). The Mill Creek Construction Runoff, Clearwell, and Dead Storage subprojects (South Ponds) are planned to be awarded.

PWS:

AMEC continues mobilization to Mill Creek and Burns & McDonnell to Ghent for the PWS projects. AMEC and Burns & McDonnell will continue design, engineering, and procurement activities, in concert with Suez (the treatment technology supplier) along with commencement of initial onsite construction activities at all three stations (Ghent, Mill Creek, and Trimble County).



### **Fleet Mercury Control Injection Systems Project**

Construction and installation work at Trimble County and Ghent will continue with completion of all mercury injection systems being planned during the fourth quarter of 2017.

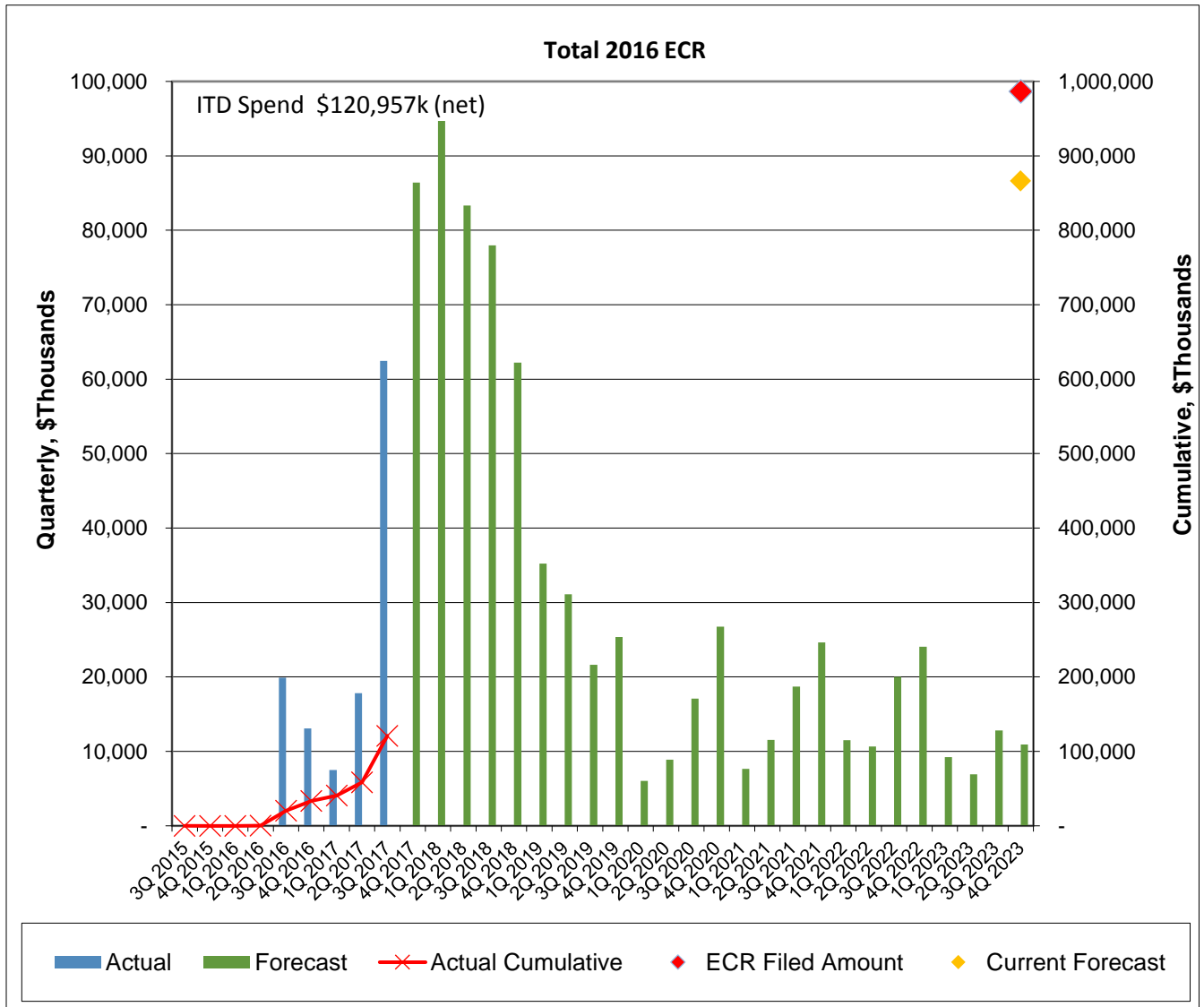
### **Ghent Unit 2 Wet Flue Gas Desulfurization Improvements (WFGD) Project**

The Companies plan to commercially close this project through final payments and certifications with the contractor as the work is successfully completed and performance testing passed.

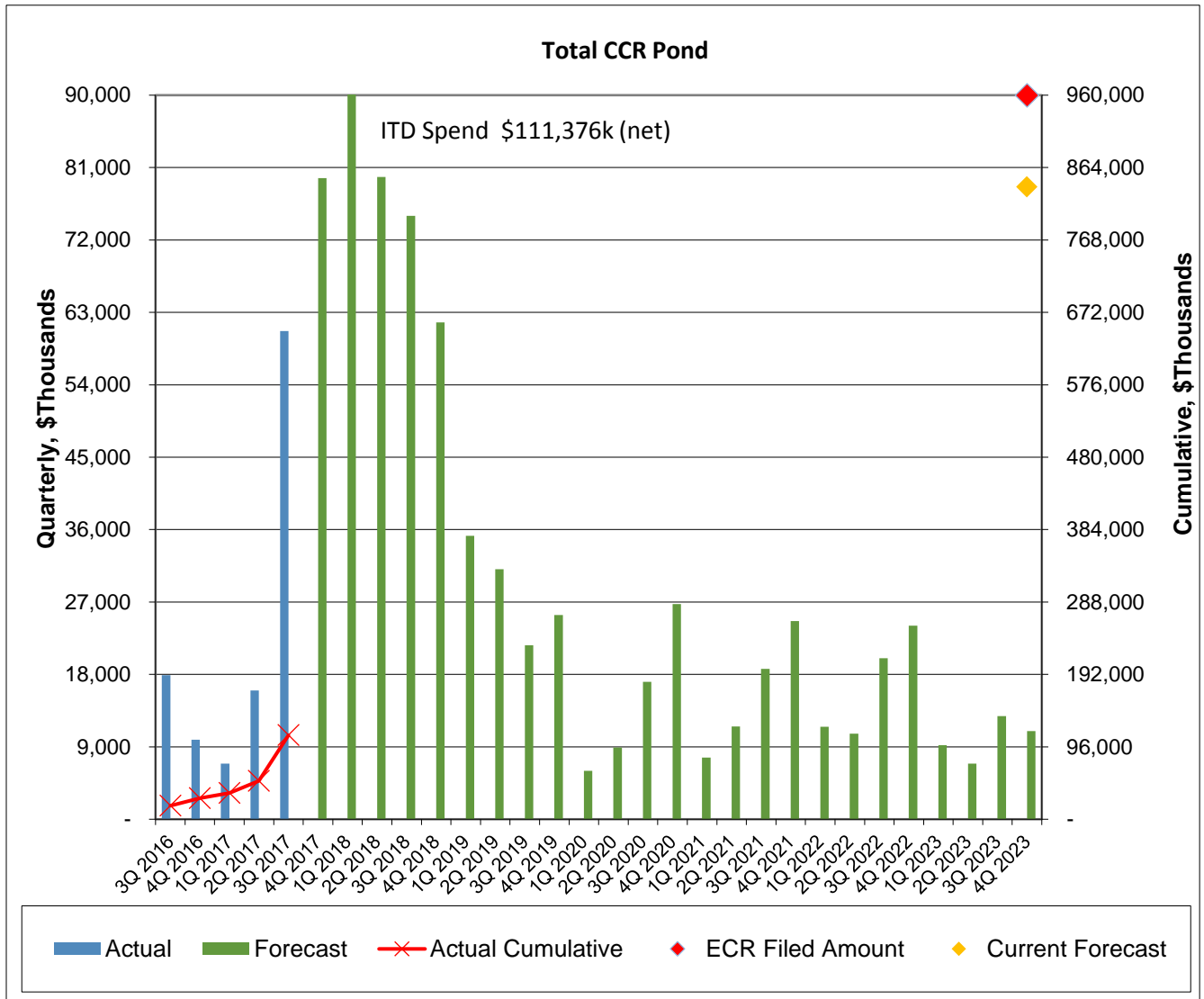


**Financials:**

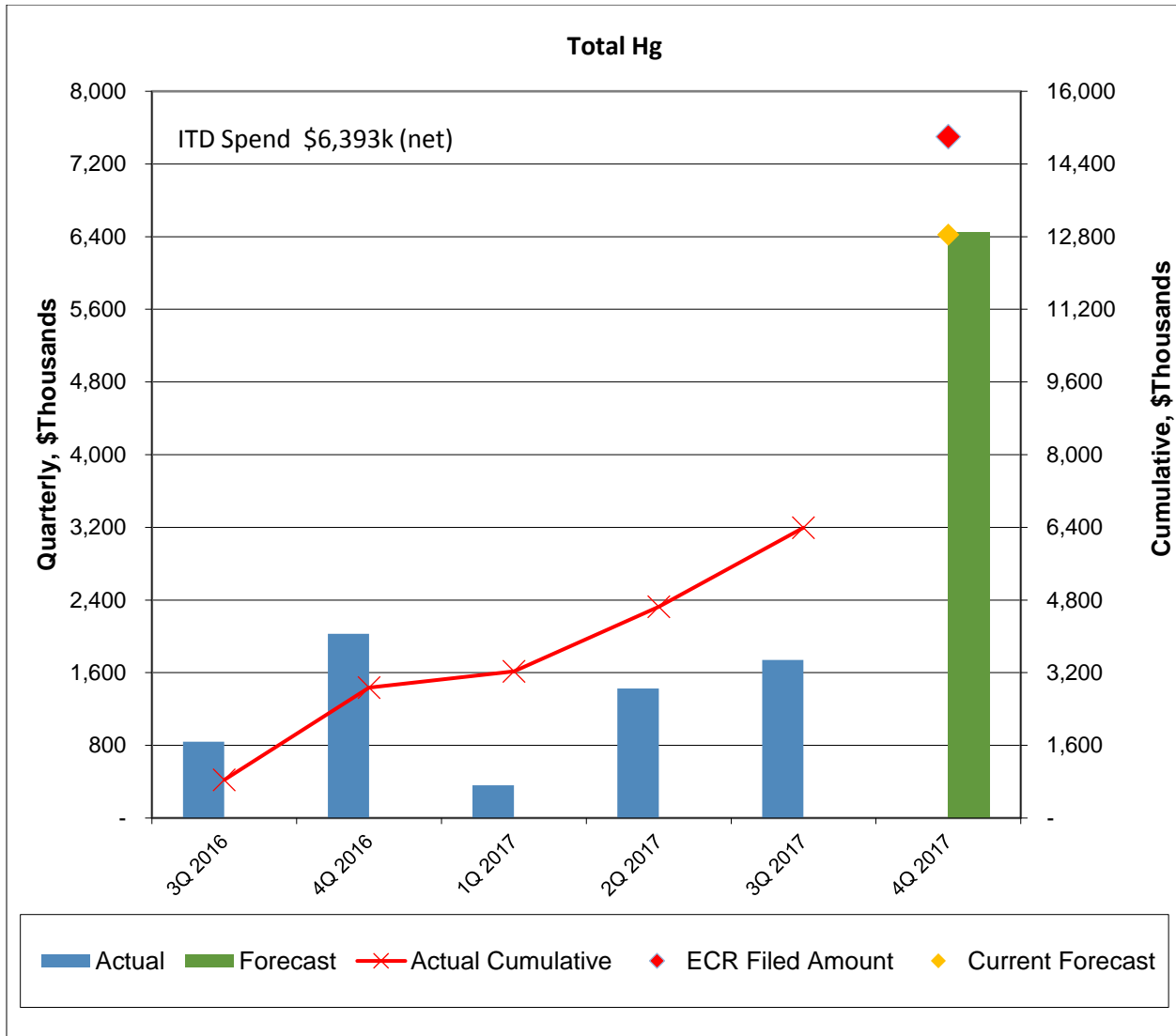
The total ECR Plan forecasted cost remains at \$866.7 million (net). Total spend through September 30, 2017 has increased to \$121.0 million (net). For the graph below: (1) the chart includes a symbol (◆) to show the current forecast to completion; and an (2) inception-to-date (ITD) spend shown in the upper left of the chart.



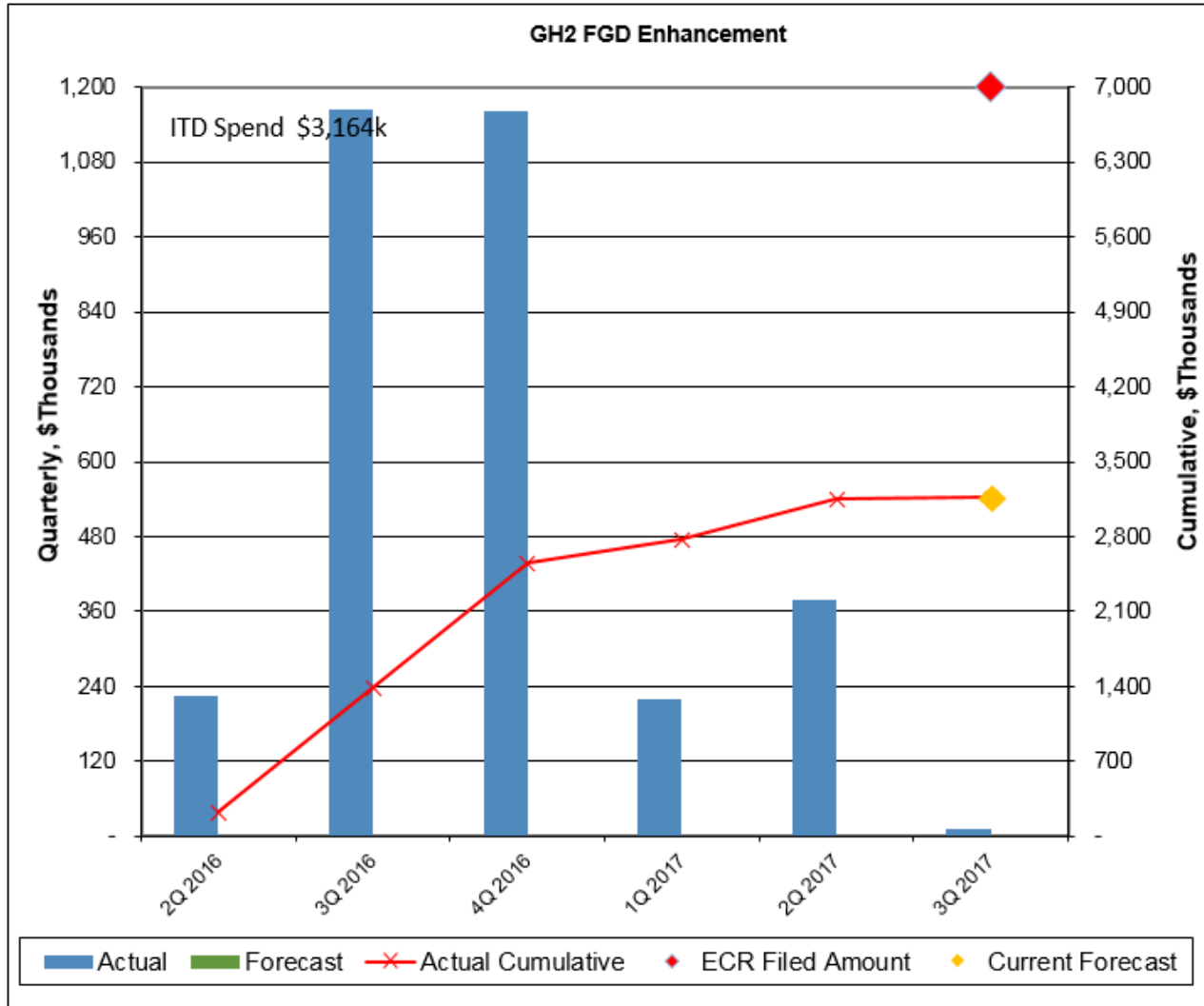
No change in CCR Impoundment Closure total forecasted cost occurred during this reporting period. Total spend through September 30, 2017 has increased to \$111.4 million (net). Note for the graph below: (1) the chart includes a symbol (◆) to show the current forecast to completion; and (2) inception-to-date (ITD) Spend is shown in the upper left of the chart.



The Mercury Injection projects total forecasted cost remains at \$12.8 million (net) in this reporting period. Total spend through September 30, 2017 increased to \$6.4 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.



No change in Ghent 2 WFGD Enhancement total forecasted cost occurred during this reporting period. Total spend through September 30, 2017 is \$3.16 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.



No change in Brown Landfill Phase II forecasted cost occurred during this reporting period. As reported last quarter, the Companies continue to evaluate the timing of, and capacity needs for, storage of CCR relative to Phase II of the E.W. Brown Landfill. Total spend through September 30, 2017 is \$0.024 million. As previously discussed, the construction for this project did not begin prior to the one-year expiration of the CPCN authorization. Note for the graph below: (1) ITD Spend is shown in the upper left of the chart.

