

**2016 ECR Plan Status Update Report**  
**Quarterly Report – Update #2**  
**January 30, 2017**

**Executive Summary:**

**General**

This report covers progress on the 2016 Environmental Cost Recovery (ECR) projects during the fourth quarter of 2016, as well as listing any significant events that have occurred to date. Safety performance to date remains very good with a year-to-date Recordable Incident Rate of 1.34 and an inception-to-date Recordable Incident Rate of 1.34, compared to the industry average of 3.90. Total 2016 ECR projected costs have decreased from \$993.6M (net<sup>1</sup>) as provided in Cases 2016-00026 and Case 2016-00027 to \$866.3M, a reduction of \$10.2M from last quarter (net). Total spend to date is \$33.2M (net) through December 31, 2016. The majority of the decrease in projected total cost of the 2016 ECR projects is attributed to the refinement of the Coal Combustion Residual (CCR) impoundments closure designs which now include less quantities of closure material being needed and a reduction in contingency given the closure designs have progressed from sixty (60) percent to nearly ninety (90) percent engineered.

From an execution perspective, the project work at Mill Creek to bring the current CCR facilities into compliance with the Hydraulic and Hydrological (H&H) requirements of the CCR Rule were placed into service. The new outfall structure of the Mill Creek ash pond, along with the gypsum dewatering facility storage mat were all successfully engineered, constructed and placed into operation. The modifications to the Ghent spillway on the No. 2 Ash Treatment Basins (ATB) was completed and the modification work on the No. 1 ATB has begun. The Request for Quotation (RFQ) for the CCR Process Water Systems, which are required to facilitate closure of ash treatment basins by treating the process waters that currently go to the basins, for Ghent, Mill Creek and Trimble County were issued to the market on December 16, 2016 with bids due March 10, 2017.

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

Safety performance to date remains excellent with a year-to-date Recordable Incident Rate and an inception-to-date Recordable Incident Rate of 0.00, compared to the industry average of 3.90. Total projected costs for the CCR closure program has decreased from \$959.7M (net) to \$839.0M (net) as a result in the refinement of the closure designs which have resulted in a decrease in quantities of closure material being forecasted, as well as a reduction in contingency associated with the maturation of the closure designs from sixty (60) percent to nearly ninety (90) percent engineered. Total spend to date through December 31, 2016 is \$27.8M (net).

Currently, the CCR Rule and State Closures program is focused on detailed design for the CCR impoundment closures and conceptual designs for the process water systems. Communications with

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<sup>1</sup> 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.



AMEC, AECOM, and CH2M (the Owner's Engineers (OE) for the conceptual and final closure design, permitting, and Construction Quality Assurance (CQA) scope of work) continues as planned with meetings being held no less than once a week. LG&E and KU ("Companies") have updated the implementation schedules to reflect the current status of the program development and to provide guidance to the OE's on the critical path activities. The program is on schedule to be completed on or before the Environmental Protection Agency's (EPA) CCR Rule regulatory deadlines.

To ensure compliance with the EPA's CCR Rule, the Companies continue to hold program-wide meetings with the OEs to provide an opportunity for all parties to provide updates on their work and to ensure the OEs are providing similar deliverables. In addition to the program-wide meetings, the Companies are holding weekly meetings with the individual OEs and the effected plants as well as bi-weekly internal meetings to ensure all parties are in sync with each other. The Companies successfully completed the Design and Operating Criterion requirement as outlined in the EPA's CCR Rule by the October 17, 2016 deadline. The required information was uploaded to the operating record on October 17, 2016 and on the Companies' public facing website on November 16, 2016, as required by the CCR Rule.

The Companies, in an effort to inform the market and to continue evaluating potential civil contractors for the execution of the closure plans, held an all-day meeting on October 27, 2016 in downtown Louisville with 24 civil contractor firms with over 100 persons in attendance. The goal of the meeting was to provide the market a forward look into the Companies' CCR Rule program relative to scopes, timing, contractual terms and conditions, safety expectations and other facets of the program, as well as provide the potential bidders an opportunity to ask questions for all participants to hear the Companies' responses. The contractor list was developed as a result of market research, Companies' experience, and interviews/discussions with contractors.

The Companies completed their evaluation of potential bidders for the process water systems' installation contracts and finalized a bidders list for the CCR Process Water RFQ. Engineering by the OE (Sargent & Lundy) on the conceptual designs and specifications for Ghent, Mill Creek, Trimble County and E.W. Brown's Engineering, Procurement and Construction (EPC) contracts for the process water systems installation continues as planned. The RFQ was issued to five bidders for the Ghent, Mill Creek and Trimble County CCR Process Water Systems on December 16, 2016 with bids currently due March 10, 2017.

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

Safety performance to date remains excellent with a year-to-date Recordable Incident Rate of 0.00 and an inception-to-date Recordable Incident Rate of 0.00, compared to the industry average of 3.90. Total projected costs have decreased from \$15.6M (net) to \$12.4M (net). Total spend to date is \$2.9M through December 31, 2016. The expected in-service dates are currently:

- Mill Creek Unit 3 – Completed (placed in service in June 2016)
- Mill Creek Unit 4 Organo-sulfide System - June 2017
- Mill Creek Units 1&2 Organo-sulfide System - June 2017
- Mill Creek Unit 1 Halogenated Liquid System - June 2017
- Mill Creek Unit 2 Halogenated Liquid System - June 2017

- Trimble County Unit 1 Organo-sulfide System - April 2017
- Ghent Unit 4 Organo-sulfide System - July 2017
- Ghent Unit 2 Halogenated Liquid System- July 2017
- Ghent Unit 1 Organo-sulfide System - July 2017
- Ghent Unit 2 Organo-sulfide System - July 2017
- Ghent Unit 3 Organo-sulfide System - July 2017

NOTE: The dates in the last quarterly report were incorrect.

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

The work on the Ghent Unit 2 WFGD is mechanically complete. Contractual performance testing is expected to be completed in the first quarter of 2017. Total projected costs have decreased from \$4.0M to \$3.2M as a result of a refinement of the scope, award of the work under a lump sum agreement, and release of contingencies to account for the lump sum awards. Spend through December 31, 2016 is \$2.6M.

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

As planned, work on the E.W. Brown Landfill Phase II has not begun.

### **Quarterly Status Update:**

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

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

Green River: CH2M was awarded the OE contract in late 2015 to perform the conceptual and final design, permitting, and CQA services. KU is holding weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on April 15, 2016 and the final design is currently 90% complete. 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 is nearing completion of the KYDWM permit application, with an anticipated submittal by the end of January 2017. Final design is scheduled to be completed by the end of February 2017 and the Request for Quotation (RFQ) will be issued in March 2017. To date, onsite activities have been limited to site visits by the OE and geotechnical explorations.

Pineville: AMEC was awarded the OE contract in late 2015 to perform the conceptual and final design, permitting, and CQA services. 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 is currently 60% complete. AMEC will start development of the KYDWM permit application as the final design has attained 60% completion, and will build upon the experience gained during the Green River permitting process. Final design is scheduled to be completed by the end of 2017 and the RFQ will be issued the first quarter of 2018. To date onsite activities have been limited to site visits by the OE and geotechnical explorations.

Tyrone: AMEC was awarded the OE contract in late 2015 to perform the conceptual and final design, permitting, and CQA services. 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 is currently 60% complete. AMEC will start development of the KYDWM permit application as the final design has attained 60% completion, and will build upon the experience gained during the Green River permitting process. Final design is scheduled to be completed by the end of 2017 and the RFQ will be issued the first quarter of 2018. To date, onsite activities have been limited to site visits by the OE and geotechnical explorations.

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

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

AECOM was awarded the OE contract in late 2015 to perform the conceptual and final design, permitting, and CQA services. KU is holding weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on June 1, 2016 and the overall final design is currently 60% complete. In an effort to support the overall CCR Rule compliance plan at Ghent, AECOM accelerated the final design for the north end of the Gypsum Stack (Phase I). AECOM submitted the final design in January 2017 for Phase I. AECOM will start development of the KYDWM permit application as the final design has attained 60% completion, and will build upon the experience gained during the Green River permitting process. The RFQ for the execution of the Phase I work is planned to be issued to the market first quarter of 2017. Phase II design (Gypsum Stack South Cell, ATB No. 1 and ATB No. 2) is scheduled to be completed in the second quarter of 2017. The RFQ will be issued in the third quarter of 2017. To date, onsite activities have been limited to site visits by the OE, geotechnical explorations, and installation of groundwater monitoring wells. KU awarded a contract to TransAsh on October 17, 2016 for spillway improvements on ATB #1 and ATB #2 to comply with H&H requirements outlined in the CCR Rule. Improvements to the emergency spillway on ATB No.2 have been completed and installation of a new emergency spillway on ATB #1 is ongoing. It is anticipated that the new spillway on ATB #1 will be completed in the first quarter of 2017.

### **KU Project 41 and LG&E Project 30<sup>2</sup> – Trimble County (TC) Station CCR Rule Compliance Construction and New Process Water Systems**

AMEC was awarded the OE contract in late 2015 to perform the conceptual and final design, permitting, and CQA services. KU is holding weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on June 1, 2016 and the final design is currently 60% complete. AMEC will start development of the KYDWM permit application as the final design has attained 60% completion, and will build upon the experience gained during the Green River permitting process. Final design is scheduled to be completed late in the second quarter of 2017. The RFQ package for the Bottom Ash Pond will be issued in the third quarter of 2017. To date onsite activities have been limited to site visits by the OE, geotechnical explorations, and installation of groundwater monitoring wells. KU awarded a contract to Riverside to install an abutment on the

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<sup>2</sup> KU and LG&E's net costs are split 48%/52% respectively.



Bottom Ash Pond north embankment to comply with stability requirements outlined in the CCR Rule. This work was completed in 2015.

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

AMEC was awarded the OE contract in late 2015 to perform the conceptual and final design, permitting, and CQA services. 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 is currently 60% complete. AMEC will start development of the KYDWM permit application as the final design has attained 60% completion, and will build upon the experience gained during the Green River permitting process. Final design is scheduled to be completed by the end of 2017 and the RFQ package will be issued 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.

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

AECOM was awarded the OE contract in late 2015 to perform the conceptual and final design, permitting, and CQA services. LG&E is holding weekly and monthly update meetings to review the current status of the project. Conceptual design was completed on June 1, 2016 and the overall final design is currently 60% complete. In an effort to support the overall CCR Rule compliance plan at Mill Creek, AECOM accelerated the final design for the Emergency Pond (Phase I). AECOM submitted the final design in January 2017 for Phase I. AECOM will start development of the KYDWM permit application as the final design has attained 60% completion, and will build upon the experience gained during the Green River permitting process. Phase II design (south ponds and Main Ash Pond) are scheduled to be completed by the end of the second quarter of 2017. To date, onsite activities have included site visits by the OE, geotechnical explorations, and installation of groundwater monitoring wells. LG&E awarded a contract to East & Westbrook on March 11, 2016 to install a concrete pad underneath the temporary gypsum storage facility. The concrete pad was completed in the third quarter of 2016 and was required to ensure the temporary storage facility was not classified a CCR landfill per the CCR Rule. MAC was awarded a contract on August 12, 2016 for spillway improvements on the bottom ash pond to comply with H&H requirements outlined in the CCR Rule. The H&H work was placed into service on December 22, 2016.

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

Equipment supplier, Nalco, completed Mill Creek Unit 3 Organo-sulfide System post-startup activities such as Operation and Maintenance (O&M) manual revisions and performing training for plant personnel. These activities were overseen by LG&E with consultation from AECOM.

AECOM began the design phase of the systems for Mill Creek Units 1, 2, and 4. This phase included weekly project conference calls, completion of action items, finalizing the equipment layouts, information collection, and site visits.



In addition, Nalco, with involvement from LG&E and KU and AECOM, finalized the design of the systems for Mill Creek Units 1, 2, and 4. Pump skids, tanks, and pump enclosures were delivered in December 2016 for Mill Creek Units 1, 2 and 4 Organo-sulfide Systems and Mill Creek Unit 1 and 2 Halogenated Liquid Systems. Award for the installation contract is expected in February 2017.

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

The work on the Ghent Unit 2 WFGD is mechanically complete.

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

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

The OEs will continue to mature the closure designs towards ninety (90) percent completion while starting to develop the KYDWM permit application. The Companies will start the RFQ process for impoundment closure at Green River.

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

H&H punch list items at Mill Creek's Main Ash Pond will be completed. H&H work at Ghent will continue with a planned completion of that scope of work on ATB No. 1 in February. The OEs will continue to mature the closure designs towards ninety (90) percent completion while starting to develop the KYDWM permit application. The Companies will start the RFQ process for impoundment closure at Ghent Phase I and Mill Creek Emergency Pond.

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

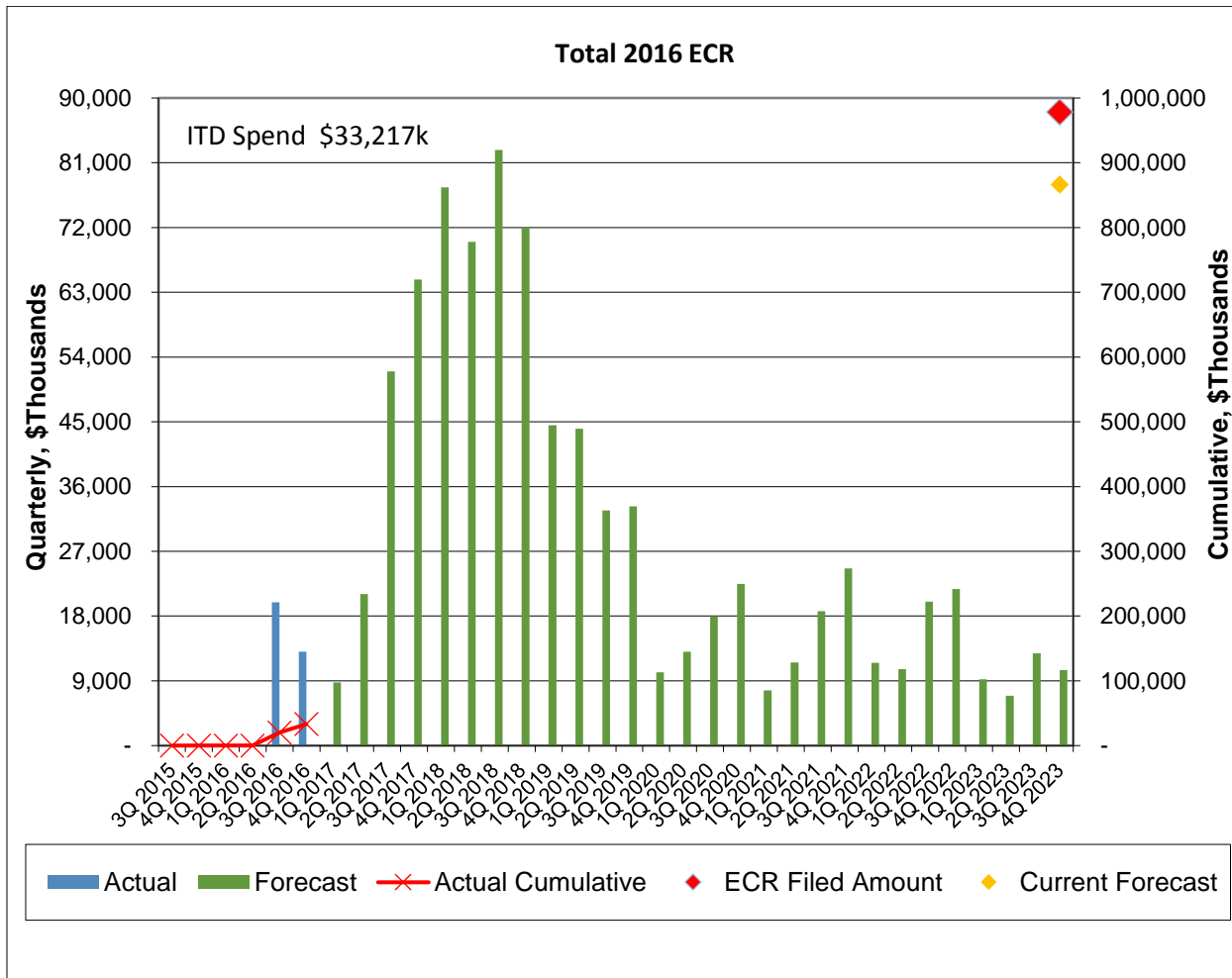
Foundations were completed in December 2016 to coincide with the delivery of the Mill Creek Units 1, 2, and 4 systems. The RFQ for the balance of work at Mill Creek (inclusive of electrical power, instrumentation and controls, piping, and miscellaneous mechanical construction) is planned to be issued in January 2017 with an expected award in March 2017.

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

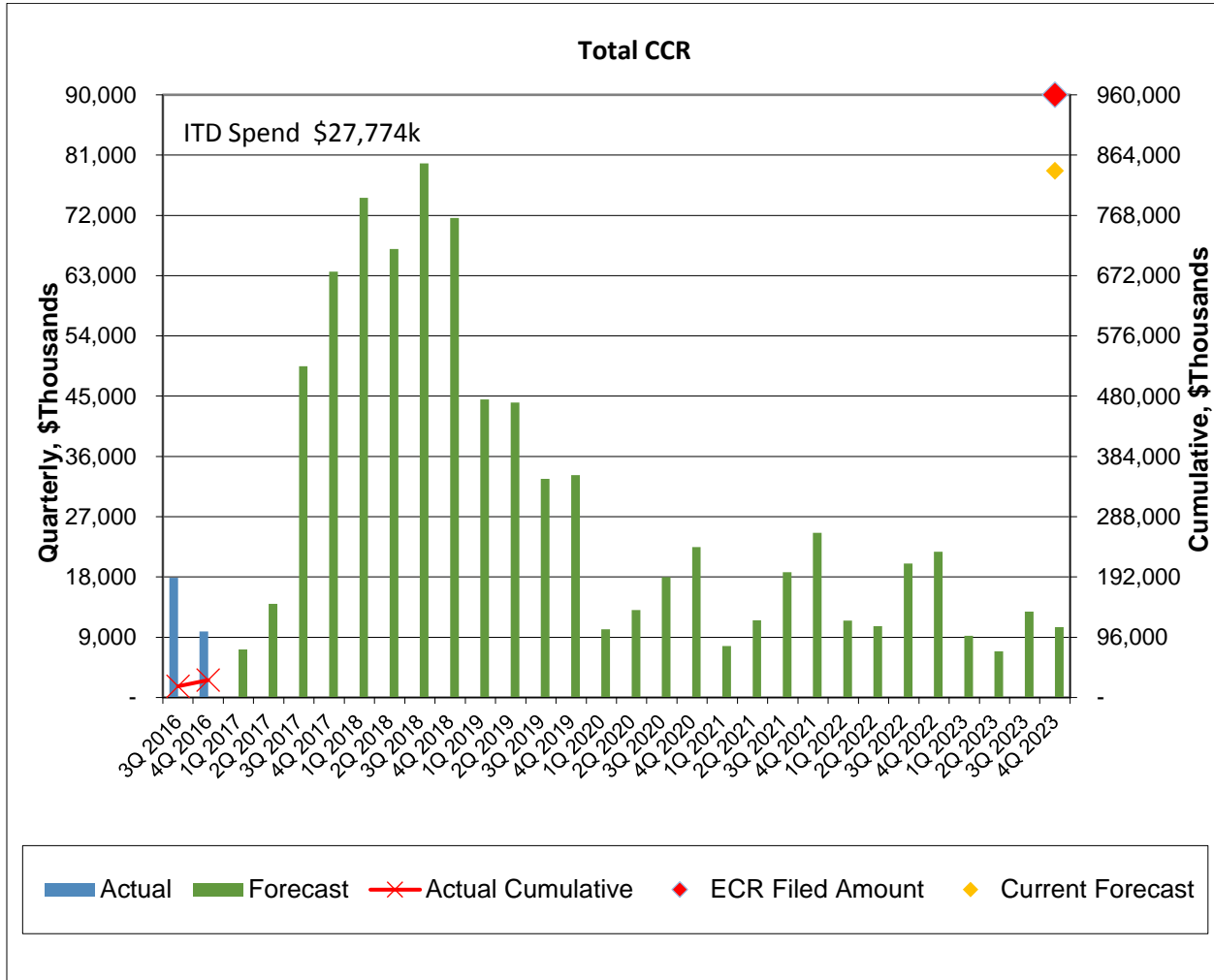
Perform and complete the performance testing in the first quarter of 2017.

**Financials:**

The forecasted cost for the 2016 ECR projects has decreased from the ECR Filing amount of \$993.6M (net) to \$866.3M (net). Total spend through December 31, 2016 is \$33.2M (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.

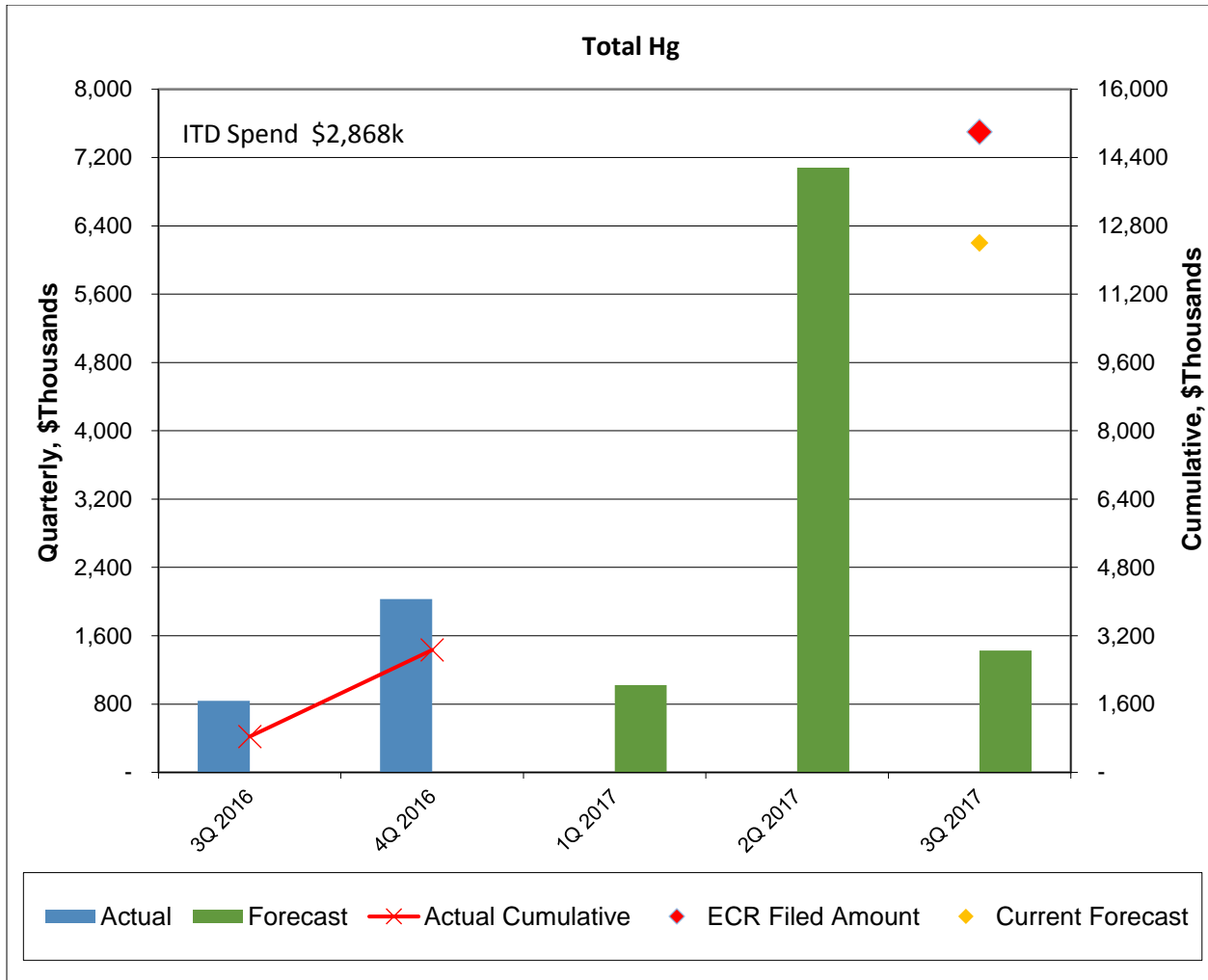


The forecasted cost for the CCR Closure scopes has decreased from the ECR filing amount of \$959.7M (net) to \$839.0M (net). Total spend through December 31, 2016 is \$27.8M (net). Note for the graph below: (1) the chart includes a symbol (◆) to show the current forecast to completion; and (2) Inception-to-Date (ITD) Spend is shown in the upper left of the chart.

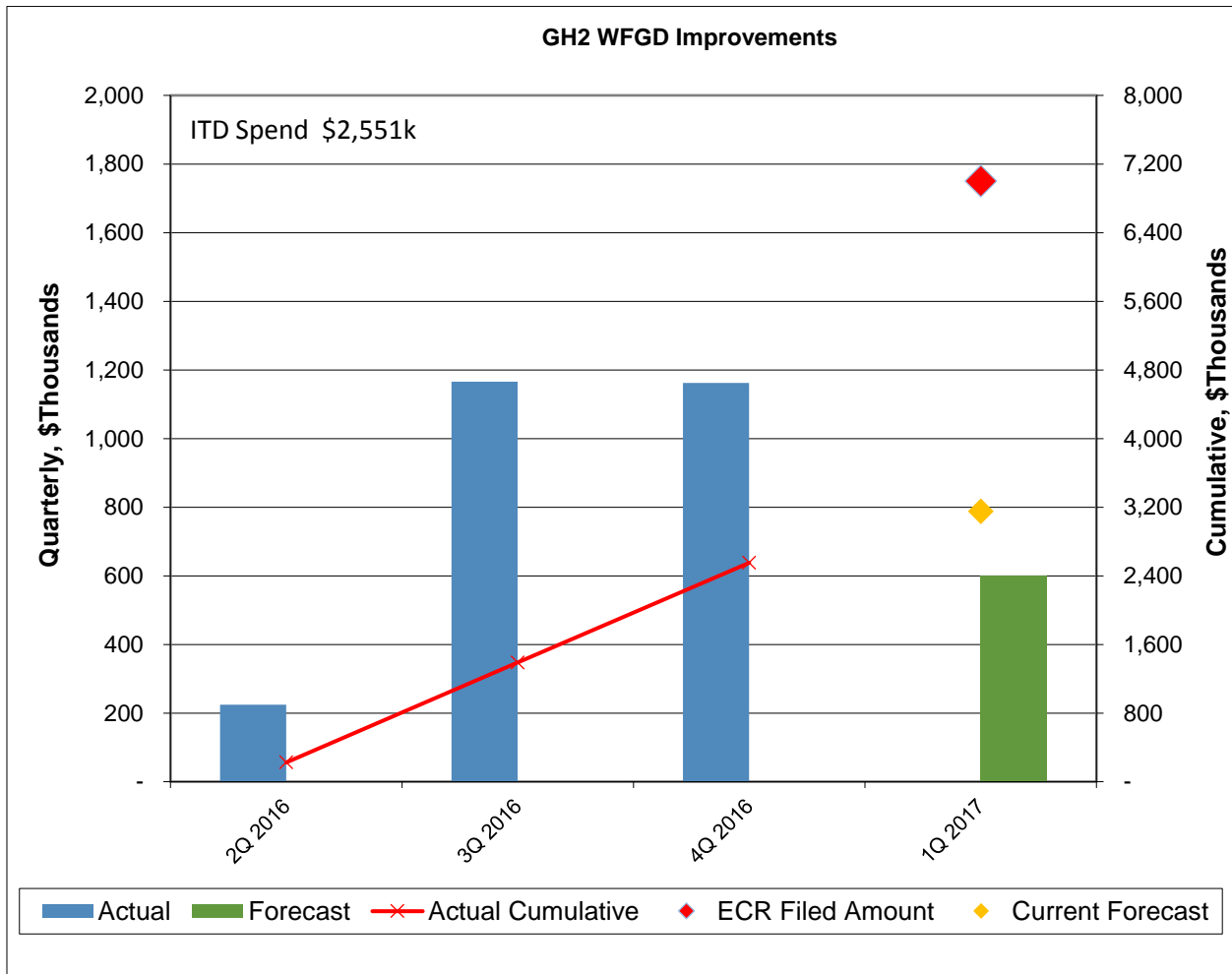




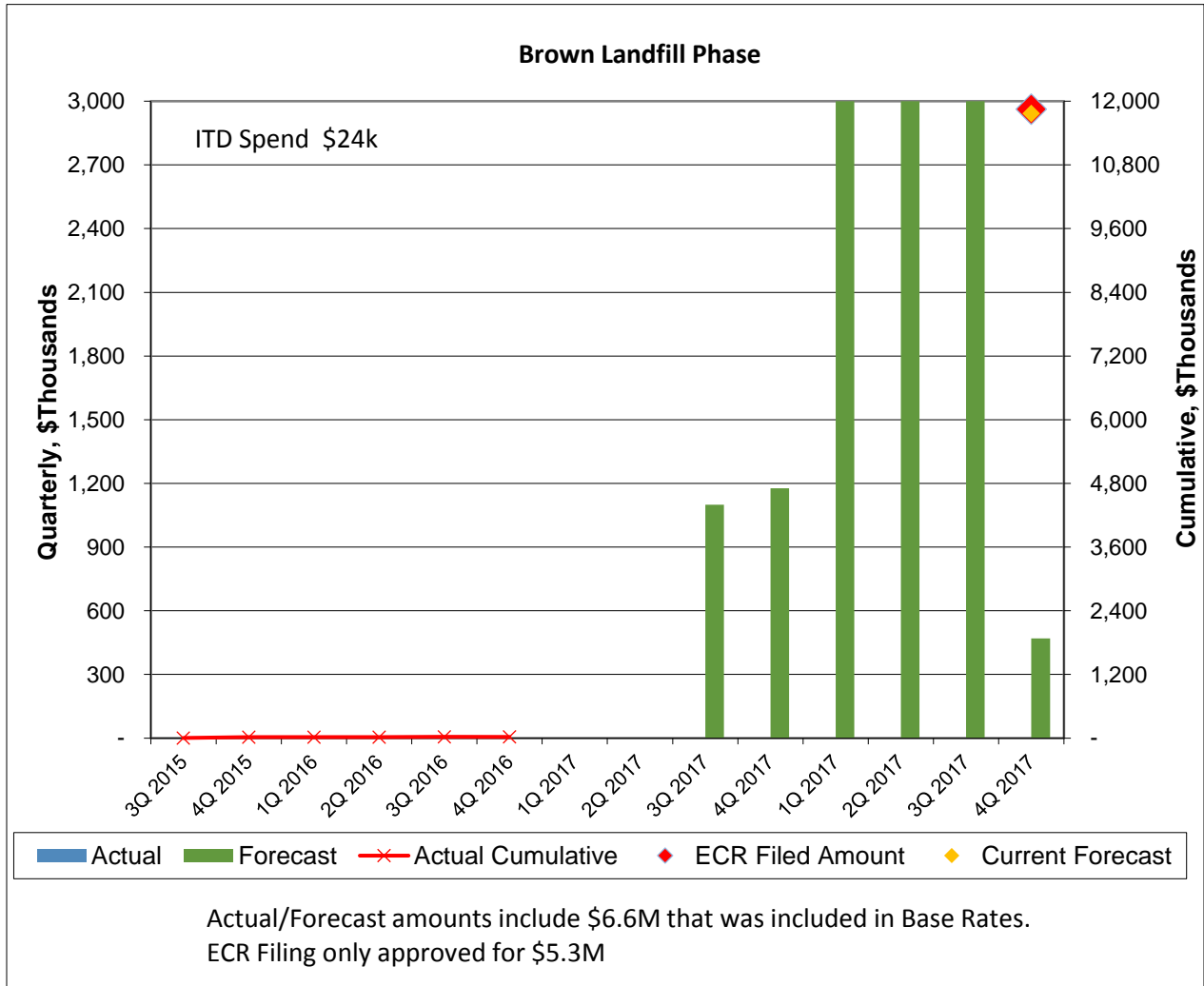
The forecasted cost for the Fleet Mercury Control Injection Systems Project scopes have decreased from the ECR filing amount of \$15.0M (net) to \$12.4M (net). Total spend through December 31, 2016 is \$2.9M. Note for the graph below: (1) the chart includes a symbol (◆) to show the current forecast to completion; and (2) ITD Spend is shown in the upper left of the chart.



The total projected cost of the Ghent Unit 2 WFGD Improvements has decreased from the ECR filing amount of \$7.0M to \$3.2M, which is attributed to finalization of scope and contract award. Total spend through December 31, 2016 is \$2.6M. 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 forecasted cost for the E.W. Brown Landfill Phase II Project scopes remains \$11.9M. Total spend through December 31, 2016 is \$0.024M. 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.



## **APPENDIX**

### **Scope:**

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

The Fleet Mercury Control Injection Systems Project is composed of the design, procurement, fabrication, and installation of chemical injection systems for all coal-fired Units at Mill Creek, Ghent, and Trimble County Unit 1. Trimble County Unit 2 and all Brown Units already have operational systems.

All Mill Creek Units, all Ghent Units, and Trimble County Unit 1 will receive chemical injection systems that will deliver Organo-sulfide to its respective Unit's WFGD.

Mill Creek Unit 1, Mill Creek Unit 2, and Ghent Unit 2 will receive chemical injection systems that will deliver Halogenated Liquid to its respective coal feeders. These Units do not have Selective Catalytic Reduction (SCR), therefore the Halogenated Liquid is required to oxidize mercury.

All systems are comprised of pump skids, bulk storage tanks, pump enclosures, piping, electrical power, and instrumentation and controls.

### **Previously Reported Contract Awards:**

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

The Mercury Control Systems contract was awarded to Nalco Company, LLC. The equipment purchase was awarded to Nalco due to extensive testing that showed their chemical to be the most effective at controlling mercury emissions.

The Owner's Engineer contract was awarded to AECOM who has supported various projects for the Companies. The Mill Creek Unit 3 installation was awarded to Zachry as part of the Mill Creek Environmental Air Compliance Project.