



**2016 ECR Plan Status Update Report**  
**Quarterly Report – Update #1**  
**October 28, 2016**

**Executive Summary:**

**General**

This report covers progress on the 2016 ECR projects during the third quarter of 2016, as well as listing any significant events that have occurred to date. 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 2016 ECR projected costs have decreased from \$993.6M (net<sup>1</sup>) as provided in Cases 2016-00026 and Case 2016-00027 to \$876.5M (net). Total spend to date is \$20.2M (net) through September 30, 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 progress on closure designs.

**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 \$845.5M (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. Total spend to date through September 30, 2016 is \$17.9M (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 AMEC, AECOM, and CH2M (the Owners 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”) are updating 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 are holding programmatic 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 programmatic 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

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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.



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 will be made public 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. 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 have been evaluating potential bidders for the process water systems' installation contracts. 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 contracts for the process water systems installation continues as planned.

### **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 increased from \$15.0M (net) to \$15.6M (net). Total spend to date is \$0.8M through September 30, 2016. The contractual in-service dates are:

- Mill Creek Unit 3 – Completed (placed in service in June 2016)
- Mill Creek Unit 4 Organosulfide System - January 4, 2017
- Mill Creek Units 1&2 Organosulfide System - January 4, 2017
- Mill Creek Unit 1 Halogenated Liquid System - January 6, 2017
- Mill Creek Unit 2 Halogenated Liquid System - January 6, 2017
- Trimble County Unit 1 Organosulfide System - March 8, 2017
- Ghent Unit 4 Organosulfide System - March 22, 2017
- Ghent Unit 2 Halogenated Liquid System- March 22, 2017
- Ghent Unit 1 Organosulfide System - April 12, 2017
- Ghent Unit 2 Organosulfide System - April 12, 2017
- Ghent Unit 3 Organosulfide System - April 14, 2017

### **Ghent Unit 2 Wet Flue Gas Desulfurization Improvements (WFGD) 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 \$7.0M to \$4.0M as a result of a refinement of the scope and award of the work under a lump sum agreement. Total spend to date is \$1.4M through September 30, 2016.

The work on the Ghent Unit 2 WFGD was awarded to AECOM, a leading national engineering and construction company. The work is proceeding on schedule with the first of three WFGD modules being worked on.

### **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 60% 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 has begun development of the KYDWM permit application. Companies plan to file permit application in late fourth quarter of 2016. Final design is scheduled to be completed by the end of 2016 and the Request for Quotation (RFQ) will be issued the first quarter of 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 30% complete. AMEC will start development of the KYDWM permit application once 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 30% complete. AMEC will start development of the KYDWM permit application once 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 final design is currently 30% complete. AECOM will start development of the KYDWM permit application once the final design has attained 60% completion building upon the experience gained during the Green River permitting process. Final design is scheduled to be completed in two phases to support construction activities. Phase I design (Gypsum Stack North Cell and Cooling Pond) is scheduled to be completed by the end of 2016. 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, Ash Treatment Basis (ATB) #1 and ATB #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 Hydraulic and Hydrological (H&H) requirements outlined in the CCR Rule. Work is scheduled to start in October and be completed by the end of 2016.

### **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 30% complete. AMEC will start development of the KYDWM permit application once 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 by the end 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 Bottom Ash Pond north embankment to comply with stability requirements outlined in the CCR Rule. This work has been completed.

### **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

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

design is currently 30% complete. AMEC will start development of the KYDWM permit application once 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 final design is currently 30% complete. AECOM will start development of the KYDWM permit application once the final design has attained 60% completion building upon the experience gained during the Green River permitting process. Final design is schedule to be completed in phase to support construction activities. The Phase I design (south ponds Phase I) is scheduled to be completed by the end of 2016. Phase II design (south ponds Phase II) and Phase III design (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 Hydraulic and Hydrological (H&H) requirements outlined in the CCR Rule. The H&H work is scheduled to be completed by the end of 2016.

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

Equipment supplier, Nalco, completed Mill Creek Unit 3 Organosulfide 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. Fabrication of pump skids, tanks, and pump enclosures began in August 2016 for the Mill Creek Unit 4 and Mill Creek Unit 1&2 Organosulfide Systems. Fabrication of pump skids, tanks, and pump enclosures began in September 2016 for the Mill Creek Unit 1 and 2 Halogenated Liquid Systems.

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

The Ghent Unit 2 WFGD consists of three, 50% capacity absorber towers. The 2-1 absorber tower modifications are on schedule to reach Mechanical Completion in October 2016. The remainder of the work in absorber towers 2-2 and 2-3 is scheduled for completion in November 2016, ahead of the January 17, 2016 contractual dates.

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

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

The OEs will continue to mature the closure designs towards 60% completion (90% at Green River) 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 work on Mill Creek's Main Ash Pond will be completed. H&H work at Ghent will continue with a planned completion of ATB-2's H&H work, with construction of ATB-1's H&H commencing after issuance of permit which is expected in November 2016.

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

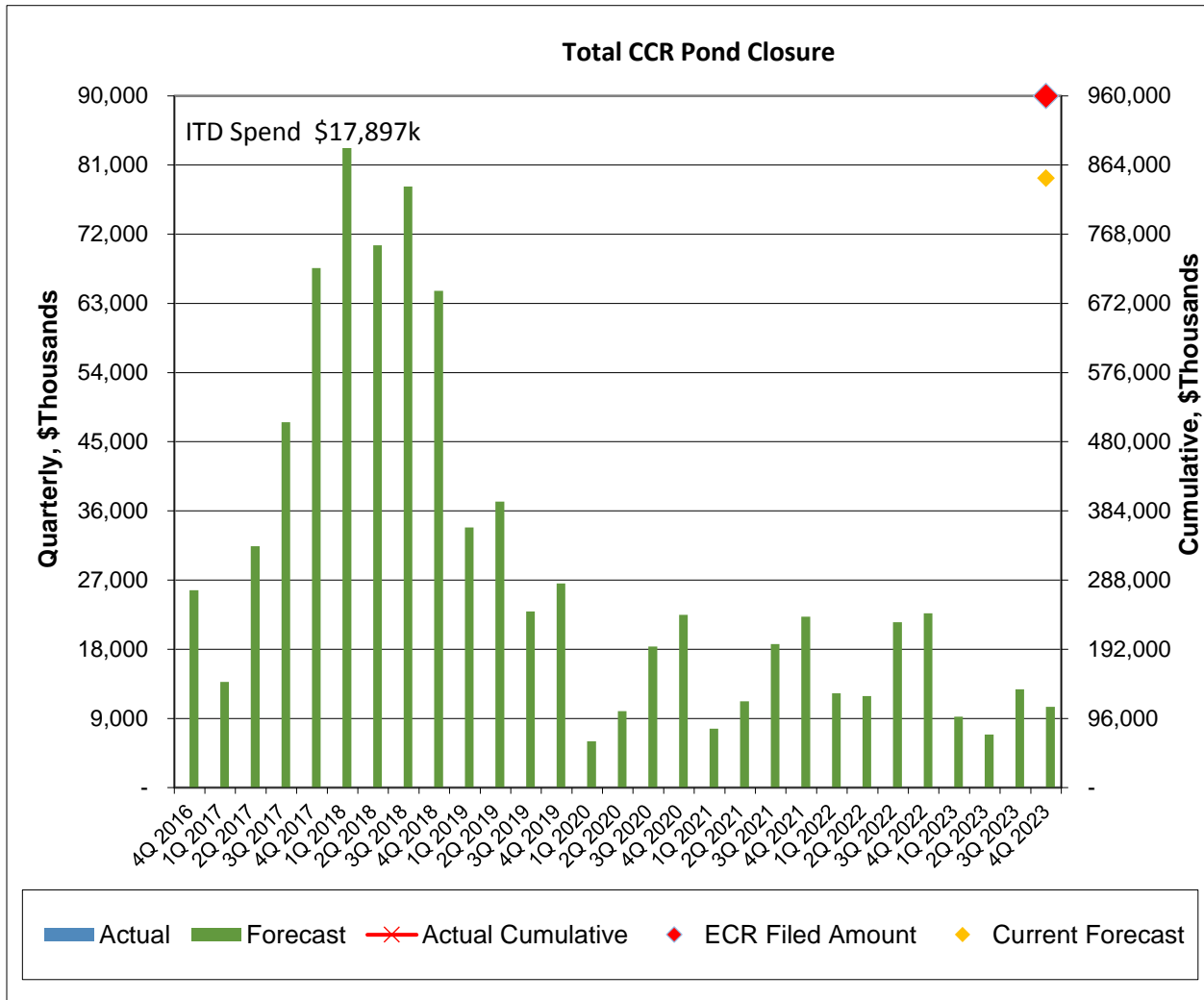
In coordination with Owner's Engineer AECOM, the RFQ for excavation and foundation work for all Mill Creek Units will be issued in October 2016. Foundations are planned to be completed by the end of 2016 to coincide with the delivery of the Mill Creek Units 1, 2, and 4 systems. The RFQ for the balance of work at Mill Creek (inclusive of electrical power, instrumentation and controls, piping, and miscellaneous mechanical construction) is planned to be issued in November 2016 with an expected award in January 2017.

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

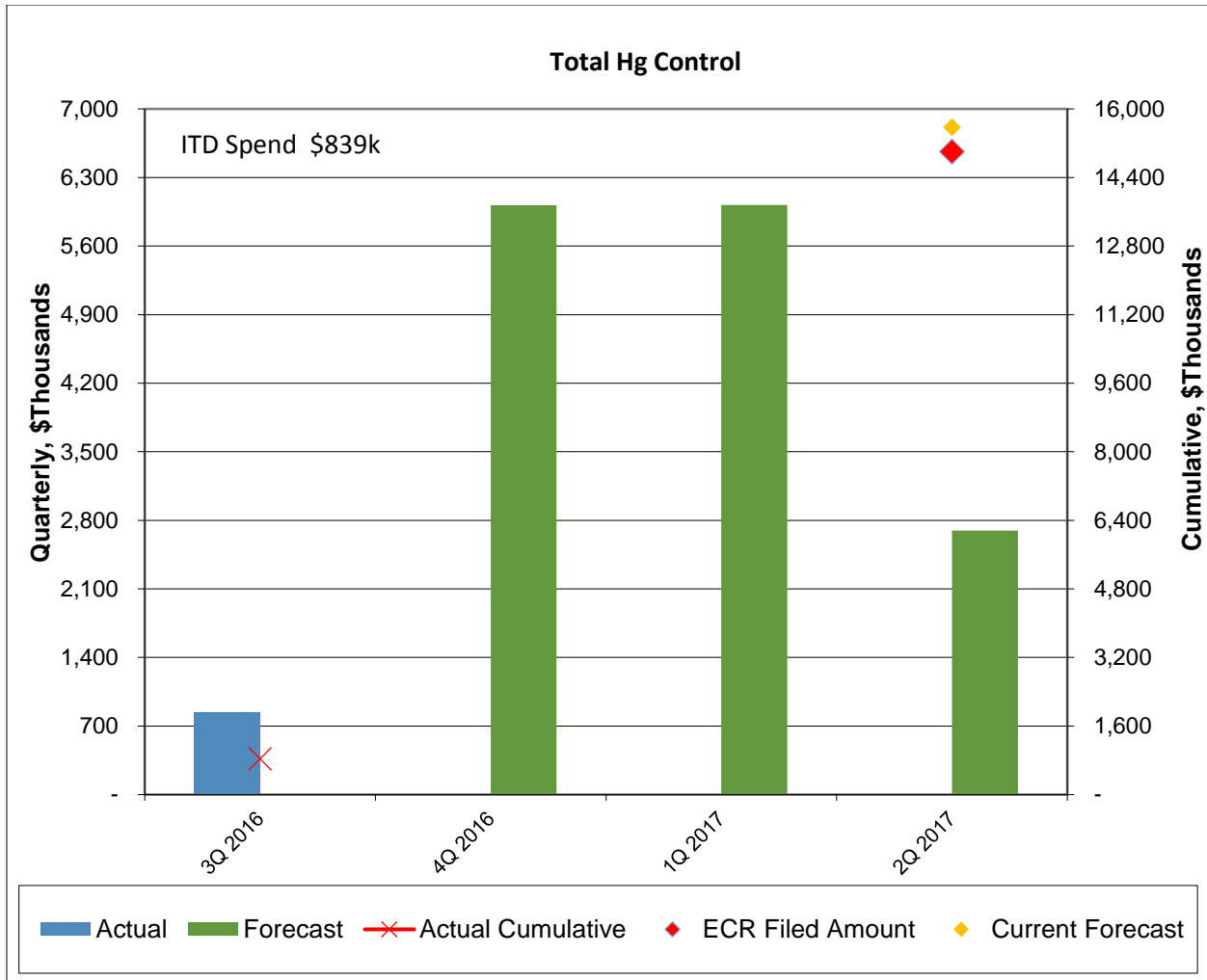
AECOM is expected to complete the installation of the Ghent Unit 2 absorber modifications, including the dual hollow cone nozzles and protection plates. Performance testing will commence thereafter.

**Financials:**

The forecasted cost for the CCR Closure scopes has decreased from \$959.7M (net) to \$845.5M (net). Total spend through September 30, 2016 is \$17.9M (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.

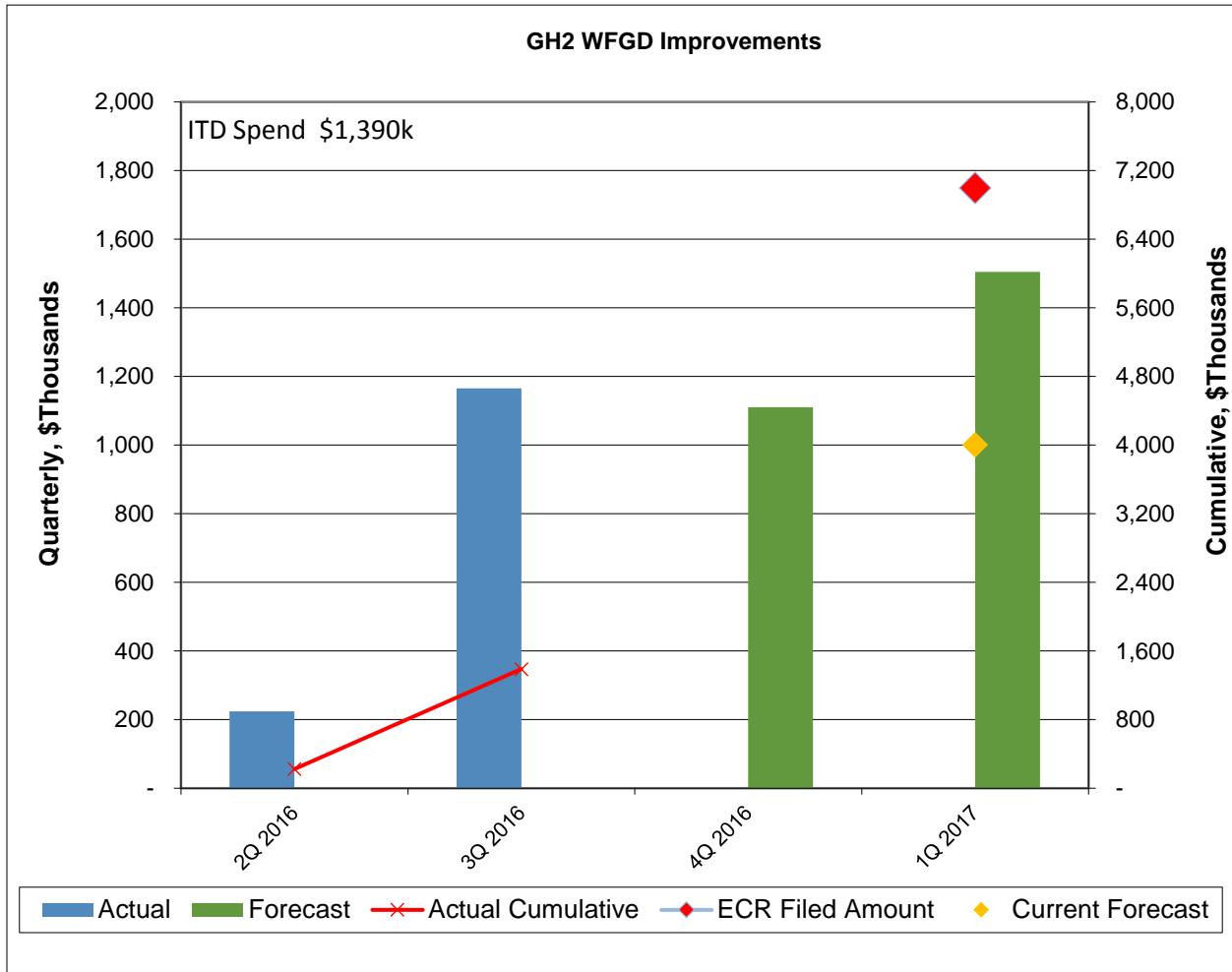


The forecasted cost for the Fleet Mercury Control Injection Systems Project scopes have increased from \$15M (net) to \$15.6M (net). Total spend through September 30, 2016 is \$0.8M. Note for the graph below: (1) the chart includes a symbol (◆) to show the current forecast to completion; and (2) ITD Spend is shown in the upper left of the chart.

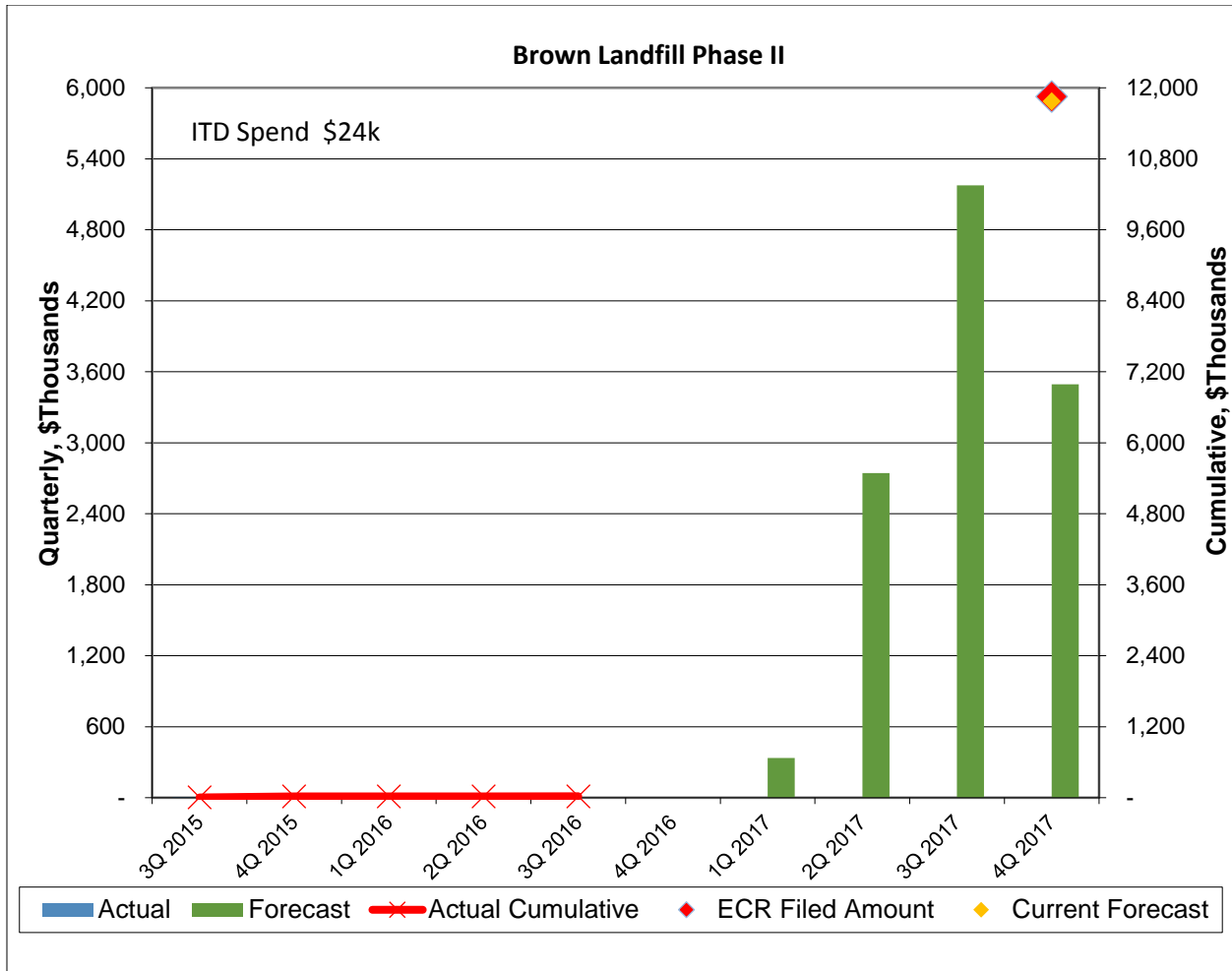




The total projected cost of the Ghent Unit 2 WFGD Improvements has decreased from \$7.0M to \$4.0M, which is attributed to finalization of scope and contract award. Total spend through September 30, 2016 is \$1.4M. Note for the graph below: (1) the chart includes a symbol (◆) to show the current forecast 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 September 30, 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 Organosulfide 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.