



Memorandum from the Office of the Inspector General

May 11, 2012

Robert M. Deacy, Sr., LP 5D-C

FINAL REPORT – INSPECTION 2011-14109 – REVIEW OF NON-TIME-CRITICAL KINGSTON ASH RECOVERY PROJECT ACTIVITIES

Attached is the subject final inspection report for your review. Your written comments, which addressed your actions taken, have been included in the report. No further action is needed at this time.

Information contained in this report may be subject to public disclosure. Please advise us of any sensitive information in this report which you recommend be withheld.

If you have any questions, please contact Jake A. Stanford, Auditor, at (423) 785-4812 or Greg R. Stinson, Director, Evaluations at (865) 633-7367. We appreciate the courtesy and cooperation received from your staff during the inspection.

Robert E. Martin

Robert E. Martin
Assistant Inspector General
(Audits and Evaluations)
ET 3C-K

JAS:FAJ

Attachment

cc (Attachment):

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OIG File No. 2011-14109



Tennessee Valley Authority
Office of the Inspector General

Inspection Report

REVIEW OF NON-TIME- CRITICAL KINGSTON ASH RECOVERY PROJECT ACTIVITIES

Inspection 2011-14109
May 11, 2012

ABBREVIATIONS

CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
EE/CA	Engineering Evaluation/Cost Analysis
EPA	Environmental Protection Agency
KIF	Kingston Fossil Plant
OIG	Office of the Inspector General
PWS	Perimeter Wall Stabilization
TDEC	Tennessee Department of Environment and Conservation
TVA	Tennessee Valley Authority

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Inspection 2011-14109 – Review of Non-Time-Critical Kingston Ash Recovery Project Activities

EXECUTIVE SUMMARY

Why the OIG Did This Review

Based on the OIG's (Office of the Inspector General) ongoing commitment to provide oversight of the Kingston Fossil Plant ash spill cleanup, we reviewed the Tennessee Valley Authority's (TVA) non-time-critical Kingston Ash Recovery Project activities.

The objectives of this review were to determine (1) the overall status of the non-time-critical phase of the Kingston Ash Recovery Project and (2) if TVA is meeting the schedule for non-time-critical activities.

What the OIG Found

Through interviews, site visits, and review of documentation, we found that TVA has made significant progress in the non-time-critical phase of the Kingston Ash Recovery Project. Specifically, TVA has recently completed the following activities:

- Removing ash from the North Embayment.
- Buttressing of Dike C.
- Transferring a portion of the ball field to the Kingston Fossil Plant.
- Replacing the skimmer wall in the intake channel.

In addition, TVA has ongoing non-time-critical activities that include:

- Excavating ash from the Middle Embayment.
- Constructing the Perimeter Wall Stabilization around the on-site disposal areas.
- Disposing of ash on-site.
- Studying the effects of residual ash on the river system.
- Creating a master plan for park and recreation areas.

While TVA is making progress in the completion of non-time-critical activities, we found that five of nine activities reviewed did not meet the scheduled completion date. If the project continues late completion of activities, there is an increased risk that the overall project completion date of 2015, disclosed in the company's financial statements, could be delayed.



Inspection 2011-14109 – Review of Non-Time-Critical Kingston Ash Recovery Project Activities

EXECUTIVE SUMMARY

What the OIG Recommends

We recommend TVA's Senior Vice President, Generation Construction, evaluate the current schedule to determine if the identified delays have caused overall schedule slippage. If it is determined that the overall schedule will be delayed beyond the date disclosed in the footnotes to TVA's financial statements, then the disclosure should be updated.

TVA Management's Comments

TVA management agreed with our recommendation and has taken actions to address it. Management also provided a few administrative and clarifying comments that were evaluated and incorporated as appropriate. See Appendix B for TVA's complete response.

Auditor's Response

The OIG concurs with actions taken by TVA to correct the identified issue.

BACKGROUND

On Monday, December 22, 2008, the ash containment area at the Kingston Fossil Plant (KIF) failed. Approximately 5.4 million cubic yards of fly ash and bottom ash were released onto land and adjacent waterways, including the Emory River that flows into the Clinch River near the plant. The approximate 1 billion gallons of coal combustion waste slurry covered about 300 acres of which 8 acres were privately owned lands, not owned or managed by the Tennessee Valley Authority (TVA).

TVA is working with the Environmental Protection Agency (EPA) and the Tennessee Department of Environment and Conservation (TDEC) to manage the cleanup of the Kingston ash spill in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).¹ The major recovery work necessary at Kingston is divided into time-critical (Phase I) and non-time-critical (Phase II) activities. The time-critical work focused on removing the ash from the Emory River's main channel and the waters directly east of the site's ash-storage area. The non-time-critical ash consists of the ash in the embayments and the ash on the land west of Dike 2 (see Appendix A for a map of the project site). TVA finished removing the time-critical ash necessary for the reopening of the Emory River at the end of May 2010.² A majority of the ash was sent to a disposal site in Perry County, Alabama, and this off-site disposal was completed in December 2010.

In order to transition from the time-critical ash removal to the non-time-critical ash removal, TVA prepared a non-time-critical CERCLA Engineering Evaluation/Cost Analysis (EE/CA). The EE/CA presented three alternatives to meet the CERCLA requirements. The requirements were to (1) protect public health and the environment over the long term, (2) comply with state and local regulations, and (3) be cost effective. The differences between the three alternatives included the (a) amount of coal ash disposed off-site versus on-site, (b) final elevation of closed dredge cell, (c) type and amount of construction traffic, (d) duration of work, and (e) cost. Common elements among the three alternatives included (1) restoration of embayments and sloughs to pre-spill conditions, (2) closure of failed dredge cell and adjacent ash pond, and (3) enhanced perimeter dikes designed to withstand liquefaction of foundation ash at earthquake loads.

The plan was made available for public comment, and those comments were individually addressed by TVA. In the end, an alternative was selected that TVA and EPA believe meets the Removal Action Objective, complies with the applicable requirements, effectively and safely contains the ash, minimizes

¹ On May 11, 2009, TVA and EPA entered into an Administrative Order and Agreement on Consent under Sections 104(a), 106(a), and 107 of the CERCLA of 1980 pursuant to which TVA will perform the removal action described in the Agreement on Consent. This removal action involves the removal, processing, and disposal of a major portion of the ash material that was released into the Emory River from KIF.

² Some small pockets of Phase I critical ash not necessary for the reopening of the Emory River were addressed in June 2010.

off-site transportation and disposal impacts, reduces uncertainty associated with acceptability of off-site disposal, and is the most cost effective. This alternative calls for all non-time-critical ash to remain on-site and includes constructing a new dike, that is to reach the shale bedrock, around the perimeter of the on-site disposal area.

The Non-Time-Critical Removal Action Work Plan includes the following objectives:

- Embayment Ash Removal – Removing ash from the embayment, drying the ash, and transporting the ash to on-site disposal areas.
- Embayment Restoration – Restoring the embayment ecosystem to pre-spill conditions.
- Perimeter Containment – Creating a stabilization zone that surrounds the former Dredge Cell and Ash Pond (Perimeter Wall Stabilization [PWS]).
- Ash Stacking – Stacking ash in phases in the Dredge Cell, Lateral Expansion Area, and Ash Pond.
- Dredge Cell and Ash Pond Closure – Capping cell with a soil cover, which will be seeded and mulched.
- Operations and Maintenance/Post Closure Care – Comprehensive engineering monitoring, long-term ground and surface monitoring, periodic repairs and inspections, and environmental monitoring.

According to the first quarter 2012 financial statement, TVA estimates the physical cleanup work will be completed in the last quarter of 2014, and the overall project completion date will be in 2015.

Office of the Inspector General Monitoring

This review is a continuation of TVA Inspector General Richard W. Moore's commitment to conducting follow-up reviews in regard to reparations to victims and assessing TVA's actions in cleaning up the Kingston ash spill.

Prior to this review, TVA's Office of the Inspector General (OIG) completed several reviews pertaining to the initial emergency response, root cause analysis, environmental monitoring, impoundment stability, and the time-critical phase of the cleanup and recovery efforts.³

³ 2008-12283-01 – Kingston Fossil Plant Ash Slide Interim Report; 2008-12283-02 – Review of the Kingston Fossil Plant Ash Spill Root Cause Study and Observations About Ash Management; 2008-12283-07 – Review of the Environmental Sampling and Monitoring Plans for the Kingston Ash Spill; 2009-12910-01 – Peer Review of Stability Analysis of Dike C at Kingston Fossil Plant; and 2010-13034 – Review of TVA's Kingston Ash Spill Clean-up and Recovery Efforts.

OBJECTIVES, SCOPE, AND METHODOLOGY

The objectives of this review were to determine (1) the overall status of the non-time-critical phase of the Kingston Ash Recovery Project and (2) if TVA is meeting the schedule for non-time-critical activities. The scope of this review included the progress of the Kingston Ash Recovery Project from the beginning of the non-time-critical phase through December 2011, including restoration and enhancement of the surrounding areas.

To achieve our objectives, we:

- Interviewed key TVA personnel about the status of non-time-critical Kingston Ash Recovery Project activities, the restoration to the surrounding areas, and any hard spots in the project moving forward, in order to determine the plans and progress of the project.
- Conducted a walkdown of the non-time-critical removal areas, as well as the future park and recreation areas, in order to observe the progress that has been made.
- Obtained and reviewed schedule and timeline documentation from the beginning of the non-time-critical phase through December 2011, in order to determine the plans and progress of the project.
- Identified completed non-time-critical activities in order to verify completion and timeliness. If items were not completed on time, we determined the cause of the delays. Specific steps taken included:
 - Judgmentally selecting nine of the most significant, completed non-time-critical activities for testing.
 - Obtaining the planned start date, actual start date, planned finish date, and actual finished date for the nine activities reviewed.
 - Reviewing documentation, when available, to verify the completion dates. If schedule items were not completed on time, we looked for reasons or explanations as to why they were not completed as planned.

This review was conducted in accordance with the “Quality Standards for Inspection and Evaluation.”

FINDINGS

While TVA is making progress in the completion of non-time-critical activities, we found that five of the nine non-time-critical activities reviewed were completed after their scheduled completion date. However, according to Kingston Ash Recovery Project management, none of these delays have affected the overall project schedule. If the project continues late completion of activities, there is an increased risk that the overall project completion date could be delayed.

TVA IS MAKING PROGRESS ON THE NON-TIME-CRITICAL PHASE OF THE KINGSTON ASH RECOVERY PROJECT

Through interviews, site visits, and review of documentation, we found that TVA has made progress in the non-time-critical phase of the Kingston Ash Recovery Project. Specifically, TVA has recently completed the following activities:

- Removing ash from the North Embayment.
- Buttressing of Dike C.
- Transferring a portion of the ball field to KIF.
- Replacing the skimmer wall in the intake channel.

In addition, TVA has ongoing non-time-critical activities that include:

- Excavating ash from the Middle Embayment.
- Constructing the PWS around the on-site disposal area.
- Disposing of ash on-site.
- Studying the effects of residual ash on the river system.
- Creating a master plan for park and recreation areas.

Completed Non-Time-Critical Activities

Activities that have recently been completed include removal of ash in the North Embayment, buttressing of Dike C, transferring a portion of the ball field to KIF, and replacement of the skimmer wall in the intake channel. The completion of each of these activities is important to achieving the objectives described within the Non-Time-Critical Removal Action Work Plan.

North Embayment

TVA has completed ash removal in the North Embayment, which began in November 2010. The work plan for the North Embayment included removing ash and restoring the area to pre-spill conditions. In order to confirm that TVA had completed ash removal in this embayment, testing was required to make sure the level of ash in the soil met EPA criteria. On December 7, 2011, TVA received signed confirmation from EPA that the North Embayment met the required criteria. The North Embayment has since been filled with water, as seen in Figure 1.

Figure 1: Restored North Embayment



Source: Picture provided by Kingston Ash Recovery Project management.

Dike C

During the time-critical phase, Stantec Consulting was commissioned to inspect and evaluate the structural integrity of ash storage facilities at all TVA fossil plants. Stantec conducted a study to evaluate the stability of Dike C at KIF. This study found that the condition of Dike C did not exhibit acceptable factors of safety for long-term stability. Therefore, Stantec recommended that “TVA build a buttress on Dike C, which surrounds the ash collection pond and the stilling pond, in order to improve the overall safety of the dike.” In order to accomplish the goal, TVA needed to add layers of sand, stone, and Class B⁴ riprap along Dike C. This added thickness and weight to the dike, which increased resistance to movement and strengthened the dike. The reinforcement of Dike C began in December 2009 and was completed in October 2011. Figure 2 shows the completed Dike C.

Figure 2: Completed Dike C



Source: December 2011 EPA Status Update

⁴ Tennessee Department of Transportation Class B Machined Riprap – Consists of quarry stone varying in size from 3 inches to 2.25 feet.

Ball Field

During the time-critical phase, ash was placed on the ball field to dry before being loaded into rail cars for transportation to the landfill in Alabama. Currently, it is being used for moisture conditioning of the non-time-critical ash that is being removed from affected areas, such as the embayments. A portion of the ball field was turned back over to KIF on November 11, 2011, to be used for the dry fly ash system conversion project. In order to turn the ball field over to KIF, remaining ash was placed in the on-site disposal area, and the field was contoured to a new elevation. Figure 3 shows the ball field.

Figure 3: Ball Field



Source: Picture provided by Kingston Ash Recovery Project management.

Skimmer Wall

The skimmer wall located inside the intake channel at KIF was damaged during the ash spill and has been replaced as seen in Figure 4. The skimmer wall allows cool water to enter the intake channel for use in plant processes and blocks debris from entering the intake. The construction of the skimmer wall began June 24, 2010, and was completed on December 3, 2010.

Figure 4: Skimmer Wall and Intake Channel



Source: Picture provided by Kingston Ash Recovery Project management.

Ongoing Non-Time-Critical Activities

Ongoing activities include, but are not limited to, excavating ash from the Middle Embayment, construction of the perimeter wall stabilization, stacking ash in the on-site disposal areas, performing a study of the effects of residual ash on the river system, and designing park and recreation areas.

Middle Embayment

The Middle Embayment is an area affected by the ash spill that is located just south of Swan Pond Circle Road, as seen in the map in Appendix A. TVA is working to excavate the ash and bring the area back to pre-spill condition. TVA began excavating ash from the Middle Embayment in August 2010 in order to allow an underpass to be built under Swan Pond Circle Road. During construction of the underpass, ash removal in the Middle Embayment stopped until work was complete in the North Embayment. However, portions of the Middle Embayment were used to process ash that was being removed from the North Embayment. After ash removal in the North Embayment was complete, TVA continued the removal of ash from the Middle Embayment. Ash removal in the Middle Embayment is scheduled to be completed in late 2012.

Perimeter Wall Stabilization

TVA contracted with Geo-Con⁵ to build a stabilized perimeter containment around the Ash Pond, Lateral Expansion, and Dredge Cell areas. The PWS is an underground wall that extends 2-3 feet into the shale bedrock and is being created using a slurry trenching method.⁶ The PWS is being built, as seen in Figure 5, to prevent ash from releasing outside the ash landfill and is designed to mitigate factors that contributed to the failure of the former Dredge Cell. The wall is designed to withstand a 6.0 earthquake on the East Tennessee Fault and a 7.6 earthquake on the New Madrid Fault.

A demonstration was performed in order to provide information necessary to refine the wall design. For the demonstration, Geo-Con built a segment of the PWS, which was then thoroughly tested for stability and strength. The construction of the demonstration wall began on April 11, 2011, and ended April 20, 2011. The results of the testing showed the demonstration wall did not meet strength requirements, and the specifications needed to be improved. New specifications were submitted to the EPA on July 11, 2011, and TVA started building Segment 1A of the PWS on July 19, 2011. However, the approval for the new specifications was not signed by the EPA until August 4, 2011.

Figure 5: Construction of the PWS



Source: Picture provided by Kingston Ash Recovery Project management.

⁵ Geo-Con is a geotechnical contractor with experience and capabilities that include environmental remediation, wetlands mitigation, enhancement and restoration, and geotechnical construction.

⁶ Based on information provided by TVA, the walls will be excavated using slurry trench methods; as the trench is excavated, viscous slurry will be added to the trench to support the sidewalls. The slurry trench method used for the PWS is a cement-bentonite method, which uses self-hardening slurry that becomes a permanent backfill.

According to TVA management, the construction of the PWS has become a hard spot. Engineering design, which is proceeding in parallel with construction, has resulted in higher than previously estimated material quantities. It has also been necessary to increase slurry strength in order to accommodate uncertainties in field testing of the material. Finally, wet weather and unexpected subsurface conditions have increased difficulty of PWS installation in some areas. Each design phase goes through site, corporate, and regulatory reviews, which also have some impact on the schedule for design delivery. TVA management indicated that numerous activities are underway to address this hard spot, including the installation of wick drains⁷ to improve wet conditions on and below the working surface.

On-site Ash Disposal

Non-time-critical ash will be placed in on-site disposal areas. Those areas have been designated as the Dredge Cell, Lateral Expansion, and Ash Pond. The following process is being used to place the ash into those areas:

- Once ash has been excavated from the embayment, it is dewatered (dried), if needed.
- When the ash has reached the proper moisture content, between 21 and 27 percent, it is transported to the on-site disposal areas in the Dredge Cell and Ash Pond.
- Some of the wetter ash is spread out and disked or rolled in order to allow it to reach the correct moisture content.
- Dust suppression is periodically sprayed on the ash in order to control dust.
- Water run-off from the drying areas flows into the Stilling Pond. There are also settling basins that serve as treatment systems for the water.

⁷ According to TVA, a wick drain is a prefabricated vertical draining system.

Currently, TVA is in the process of stacking ash in these on-site disposal areas, as seen in Figure 6. Once all ash has been stacked into the on-site disposal areas, the Dredge Cell, Ash Pond, and Lateral Expansion will be closed in accordance with the Tennessee Solid Waste Rule 1200-1-7.⁸ The closure will include a soil cover and a geosynthetic liner system. The cap will then be seeded and mulched.

Figure 6: Ash Stacking in On-site Disposal Area



Source: December 8, 2011, EPA Public Presentation

Environmental Monitoring

TVA, EPA, and TDEC are continuing to monitor air and water. As of December 7, 2011, samples taken confirm that the air and water in the Kingston ash spill area meet public health standards. In addition, TVA will be doing real-time monitoring of the ash pond until it is capped. According to TVA management, TVA is no longer conducting river-based monitoring. TVA stopped the river-based monitoring because EPA and TDEC both agreed that test results have proven that large amounts of ash are no longer being mobilized by storms.

In addition to Phase I (time-critical) and Phase II (non-time-critical), there is a Phase III that involves a separate EE/CA, initiated in May 2010, that is intended to focus on potential sub-lethal, cumulative, and long-term effects of residual ash in the Emory, Clinch, and Tennessee Rivers. Sampling for the EE/CA includes, but is not limited to: ash deposits, fish, wildlife, aquatic vegetation, surface and ground water, sediments, and benthic invertebrates.⁹ The EE/CA is scheduled to be completed in June 2012 and will help to determine how much long-term monitoring will be necessary in the Emory River.

⁸ The Tennessee Solid Waste Rule 1200-1-7 gives specific rules and regulations regarding the construction and use of various types of solid waste disposal areas within the state of Tennessee, including, but not limited to ash.

⁹ "Benthic invertebrates are organisms that live on the bottom of a water body (or in the sediment) and have no backbone." (Source: OzCoasts.gov.au)

Proposed Recreation Areas

TVA has proposed to develop recreation areas near KIF to enhance and restore some of the land and recreation opportunities that were impacted by the spill. TVA has purchased about 900 acres of residential property as a result of the ash spill and will use a portion of that land for the recreation areas. A public meeting was held in Kingston on August 2, 2011, to discuss conceptual plans for the properties with the community. Conceptual drawings include proposed ball fields, recreation areas, and a wetland/wildlife observation area. In November 2011, TVA completed a final environmental assessment that found no significant environmental impacts that would affect the planned recreation areas. The first draft of the master plan for the recreation areas was completed in March 2012. According to TVA documentation, the park and recreation areas are expected to be completed in 2014.

FIVE OF THE NINE PROJECTS REVIEWED HAVE BEEN DELAYED, WHICH INCREASES THE RISK THAT THE OVERALL PROJECT COULD BE DELAYED

Testing of Non-Time-Critical Activities

In the disclosures to TVA's financial statements, the company states the clean-up project will be completed by 2015. To get a sense of whether TVA will meet this target date, we reviewed TVA's progress in meeting dates for nine specific non-time-critical activities. While not meeting dates on specific projects does not mean TVA will miss its overall target date, it would be an indicator of risk.

As part of our review, we tested nine non-time-critical activities to determine if they were being started and completed on time. For each activity, we obtained the planned start date, actual start date, planned finish date, and actual finish date as seen on the following page in Figure 7.¹⁰

Figure 7, on the following page, shows that six of the activities had a delayed start, delayed finish, or both. Five of the projects had a delayed finish. Explanations for the delays were obtained through documentation and management interviews and include inclement weather, removal of excessive debris, such as trees, changes in conceptual drawings, design changes, and unexpected delays in procurement. The delays for the five projects ranged from 1 to 7½ months.

In addition, one project finished approximately 6½ months early--the removal of bulk ash from the North Embayment. This project finished early due to a more focused effort driven by TVA's Senior Vice President, Generation Construction.

¹⁰ We reviewed documentation to verify the dates given and compared the verified dates back to the overall project schedule dates.

In conclusion, the results of our testing show that five of the nine projects had a delayed finish with a range of 1 to 7½ months. If the project continues late completion of activities, there is an increased risk that the overall project completion date could be delayed.

Figure 7: Non-Time-Critical Activities Selected for Testing

Activity	Planned Start	Actual Start	Start Date Met?	Planned Finish	Actual Finish	Finish Date Met?
Relocated civil projects material access point for access to segment 8 wall construction.	9/2/2011	9/2/2011	Yes	10/14/2011	10/14/2011	Yes
Replacement of skimmer wall at intake channel.	6/24/2010	6/24/2010	Yes	9/9/2010	12/8/2010	No
Wrote, submitted, and received regulators' approval of Non-Time-Critical EE/CA and Action Memo documents.	6/24/2009	6/24/2009	Yes	5/18/2010	5/18/2010	Yes
Designed and constructed underpass structure for North Embayment access for ash removal.	2/15/2010	2/15/2010	Yes	10/5/2010	11/10/2010	No
North Embayment bulk ash removal.	10/6/2010	11/19/2010	No	6/26/2012	12/7/2011	Yes
Repaved Swan Pond Road as follow-up to public utilities work.	9/12/2011	9/12/2011	Yes	9/16/2011	9/16/2011	Yes
Design for first segment of the PWS with regulators' approval.	6/7/2010	6/7/2010	Yes	12/17/2010	8/4/2011	No
Procured and awarded contract for PWS construction, and began full scale production.	10/7/2010	9/20/2010	Yes	3/23/2011	7/19/2011	No
Phase 2 ash stacking in the Central dredge cell area.	8/16/2010	9/16/2010	No	5/25/2011	8/2/2011	No

RECOMMENDATION

We recommend TVA's Senior Vice President, Generation Construction, evaluate the current schedule to determine if the identified delays have caused overall schedule slippage. If it is determined that the overall schedule will be delayed beyond the date disclosed in the footnotes to TVA's financial statements, then the disclosure should be updated.

TVA Management's Comments – TVA management agreed with our recommendation and provided a few administrative and clarifying comments for our consideration. We reviewed and modified the report as appropriate. At the time the draft report was issued to TVA, the OIG was aware that rebaselining was being performed but was not made aware it had been finalized. The rebaseline shows the Kingston Recovery Project is still on schedule for the physical cleanup work to be completed in the last quarter of 2014 and the overall project completion date to be in 2015. See Appendix B for TVA's complete response.

Auditor's Response – The OIG concurs with the actions taken.

Map of the Kingston Ash Recovery Project Site



Source: EPA's Kingston Web site (www.epakingstonva.com)

May 1, 2012

Robert E. Martin, ET 3C-K

REQUEST FOR COMMENTS – DRAFT INSPECTION 2011-14109 – REVIEW OF NON-TIME-CRITICAL KINGSTON ASH RECOVERY PROJECT ACTIVITIES

We appreciate the opportunity to review the draft of the subject inspection report. Attached you will find a few clarifying comments on your draft report which do not change your conclusions. We agree with your recommendation that any schedule variances should be addressed, as appropriate; in TVA's 10-Q report to assure that the project's scope, cost, and schedule are recorded accurately. To this end, the 10-Q report has been reviewed against the schedule delays which were addressed in your inspection report and the language in the report is accurate. The following explanations further explain how this is done on a routine basis and how the project responds to missed milestones that have the potential to impact overall performance.

The Kingston Recovery Project (KRP) developed and implemented a comprehensive project controls system (PCS). The PCS's foundation is the baseline; it contains all of the necessary features for understanding and managing KRP's scope, cost, and schedule. It includes a Work Breakdown Structure (WBS), a cost estimate, a resource loaded schedule, earned value metrics, a risk register, and contingency. The Project Control's organization maintains the responsibility, with input from the Project Managers, to ensure that KRP's baseline accurately reflects cost and schedule trends. The Generation Construction project management team, including staff from the TVA Business Services and Supply Chain organizations, then uses this information when conducting monthly project performance reviews to identify any issues or trends that could be detrimental to the outcome of the project. The same people who participate in these meetings are also the people that are tasked with reviewing the language in the 10-Q report prior to dissemination to the Securities and Exchange Commission (SEC). A formal process is in place to review and approve changes. Any use of contingency is approved at the executive level.

All critical path milestones are tracked and reviewed weekly. In addition to the monthly performance review, the project team conducts a weekly schedule look ahead which focuses on near-term milestone problems and critical-path trends. Recognizing that Cost and Schedule Performance Indices (SPI and CPI) typically lag the work by approximately 35 to 45 days; updates to the "commodity" curves, which track day to day earned value metrics for the major work features, are posted weekly and used by the project team to mitigate emerging problems. The Project Team also conducts a monthly risk register review in order to score existing or developing risks and assure that the remaining contingency is adequate. In summary, we believe that a comprehensive, transparent management process is in place and it is used to accurately report and aggressively manage the project.

Addressing the specific milestones reviewed in your report, they are a good representative mix of the work that is currently underway during the non-time-critical phase of the project. They include temporary construction activities (the civil projects materials area), infrastructure requirements (the bridge), CERCLA documents, and major work components that are critical to the overall completion of the job (i.e.: ash removal, ash stacking, and Perimeter Wall Stabilization (PWS)).

Robert E. Martin
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Again, we fully agree with the importance of your conclusion that missed schedules could be an indicator of a more significant problem and would certainly put TVA in a difficult position if not appropriately reported in the Q-10 report. All activities are logically tied to completion of the project, and schedule problems can be quickly identified. Of the work addressed in your report, the PWS is on the critical path for project completion and is the only milestone, at this time, which has the potential to impact the overall job. The negative trend for this work was identified as a significant issue in the May/April 2011 timeframe. In addition to a longer than expected pilot phase, which then resulted in a delay to full scale production (i.e.: the missed milestones addressed in your report), we have encountered other hard spots including increased quantities that are required to build the PWS and construction difficulties due to subsurface conditions. These problems prompted a full scale definitive review of the project baseline to establish the optimum overall project schedule logic, to relook at probable cost, and to assure that the project retains a reasonable contingency amount to cover risk. The full scale definitive review was completed in January 2012, and the conclusion that was reached is that the project can still be completed within the cost and schedule objectives that were established in early 2010. The Total Project Cost Estimate (including contingency) remains at \$1,178M; completion of the basic work will be at the end of calendar year 2014 (note: the "in service" date of the closed dredge cell will be mid-November 2014); and demobilization from the site (including closure of the borrow area and final restoration) will be in early calendar year 2015. Closure reports will be issued in the May/June 2015 timeframe.

If you have any questions please feel to give me a call.



Robert M. Deacy, Sr.
Senior Vice President
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Attachment

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