

**Tennessee Valley Authority  
Regional Resource Stewardship Council  
September 11-12, 2019  
Meeting Minutes**

The Tennessee Valley Authority (TVA) Regional Resource Stewardship Council (RRSC or Council) convened for the fourth meeting of the tenth term at 8:30 a.m. CDT on Wednesday, September 11, 2019, at the Pickwick Pines Resort Activities Center, 11 Ashley Avenue, Iuka, Mississippi, 38852.

Council members attending:

|                  |                    |                 |
|------------------|--------------------|-----------------|
| Robert Englert   | Ray Hardin         |                 |
| Richard Holland* | Mark Iverson       | Avis Kennedy    |
| Kim Klinker      | Whitney Lipscomb** | Tom Littlepage  |
| Gary Myers       | Will Nelson        | Danette Scudder |
| Catherine Via    | Randy Wiggins      |                 |

\* Present Day Two

\*\* Administrative Approval Pending

Designated Federal Officer: Joe Hoagland  
Designated Federal Officer Alternate: Amy Henry  
Facilitator: Elizabeth Upchurch

Appendix A identifies the TVA employees, members of the public, and others who attended.

Appendix B is the agenda for the meeting.

Copies of the presentations given at the meeting can be found at <http://www.tva.gov/rrsc>.

The majority of the meeting was devoted to presentations by TVA staff and partners about TVA's Dam Safety Program and its work at the Pickwick Dam; a yearlong erosion control study on the Tennessee River in Hardin County, Tennessee; repair projects after major flooding at Pickwick Dam Campground; and TVA River Management and TVA Natural Resources activities. The Council and TVA staff also participated in a field trip to the Pickwick Dam worksite, which is the site of the erosion control study and the Pickwick Dam Campground. TVA did not seek Council Advice at this meeting, and the Council members shared individual observations regarding the tenth term. This meeting was the final, official meeting of the tenth term.

## **1. Welcome and Introductions**

**A.** Mark Iverson, RRSC chair, welcomed everyone to the meeting and asked for a moment of silence for the 18<sup>th</sup> anniversary of September 11th. In his welcome remarks, he noted that at the April 2019 RRSC meeting, the Council drafted a resolution for the TVA Board of Directors, recognizing TVA's flood control and mitigation efforts during major flooding in February. He also welcomed the newest proposed (approval pending) Council member, Whitney Lipscomb, who is Deputy Chief of Staff and Counsel

for Mississippi Governor Phil Bryant. Ms. Lipscomb is also Governor Bryant's primary policy advisor for energy, environment, environmental issues and emergency management.

**B.** Amy Henry, TVA's Alternate Designated Federal Officer (DFO) and Sr. Manager of Innovation and Research's Enterprise Relations & Strategic Partnerships welcomed the Council and explained that one of TVA's goals is to hold RRSC meetings in different locations across the Tennessee Valley so Council members can get a sense of TVA activities across the Valley. Ms. Henry thanked the Tennessee Valley farmers for attending the meeting and partnering with TVA on erosion control efforts. In addition, she thanked the three retiring members for their years of service on the Council: former Chair Avis Kennedy, Gary Myers and Brad Kreps, who have each served multiple terms and provided thoughtful and relevant comments and advice.

**C.** Elizabeth Upchurch, Facilitator and Sr. Program Manager for Enterprise Relations & Strategic Partnerships at TVA, welcomed the Council and provided a safety moment. Then, she asked each Council member to introduce themselves by saying their name, organization and favorite water-based activity this summer. After that, Ms. Upchurch discussed the agenda for Day One of the meeting, its goals and reviewed meeting protocols for RRSC members when commenting or asking questions.

## **2. FACA Briefing** (Presentation can be found at [www.tva.gov/rrsc](http://www.tva.gov/rrsc))

Kendra Mansur, TVA's Office of General Counsel, noted that as a Federal Advisory Council, the RRSC must comply with Federal Advisory Act Committee (FACA) requirements. Ms. Mansur said the TVA's new bylaws had been signed; a quorum was present at the meeting; and that while there was not a formal advice request on the meeting's agenda, advice could be offered upon motion of a member. She said the Council's members represent a wide variety of interests and are leaders within their community, and their input is important to TVA. The Council has been in effect for 20 years, and Ms. Mansur emphasized that TVA and Council members review the advice of previous terms. She noted that meeting minutes will be made available.

## **3. Designated Federal Officer (DFO) Briefing** (Presentation can be found at [www.tva.gov/rrsc](http://www.tva.gov/rrsc))

Amy Henry, Alternate Designated Federal Officer, provided an update on actions taken by TVA's Board of Directors at the August 2019 Board meeting.

- The Board approved the 2019 Integrated Resource Plan (IRP), which is TVA's long-range plan for how it will generate electricity for the next 20 years.
- The Board approved the long-term financial plan, which is focused on further reducing TVA debt and maintaining stable, low rates.
- The Board announced a new way that local power companies (LPCs) can partner with TVA through 20-year contracts. Previously, an average contract could terminate in as little as five years' notice. So far most LPCs have signed

20-year contracts, and others are considering it. TVA considers this a positive move to keep rates stable and move forward with LPCs as partners in the public power model.

Ms. Henry reviewed some specifics of the IRP. She explained that during the development of the IRP, the IRP Working Group (IRPWG) and Regional Energy Resource Council (RERC) suggested that TVA also develop near-term plans for the next five years. As a result, TVA established IRP near-term actions around renewables and flexibility, TVA's existing fleet, energy usage and distribution planning. For example, TVA is looking at adding solar and is evaluating how to enhance system flexibility to integrate renewables and distributed resources. Another example is that as nuclear licenses could expire, TVA is pursuing options for license renewal for TVA's nuclear fleet. Regarding energy usage, one of TVA's near-term actions is to conduct a market potential study for energy efficiency, especially to address low-income energy efficiency so customers' bills remain low. TVA also is collaborating with states in the Tennessee Valley to deploy initiatives to stimulate the local electric vehicle market.

Ms. Henry also provided updates on two initiatives:

- TVA is committed to environmental sustainability and evaluating its own systems and environmental footprint. It recently prepared an ESG (Environmental, Social, Governance) report, which is a brief report designed to provide sustainability information to investors and companies. TVA will provide a link to the ESG to Council members, and at a future meeting, it will bring in the team working on the Corporate Social Responsibility report — another report that demonstrates TVA's commitment to sustainability.
- TVA is establishing community action groups in communities near coal plants to exchange information about Coal Combustion Residuals (CCR). TVA would like to exchange information and receive input from community members. TVA will email Council members with information on who to contact if they or someone in their community would like to be part of one of the groups.

The Council asked a question about whether TVA considered electric vehicles during the IRP process. Ms. Henry noted that TVA modeled different electric vehicle projections — from the low number of electric vehicles that currently exist in the Valley to a future in which every household had an electric vehicle — to evaluate how electric vehicles would affect its load and demand for energy. The Council also asked what TVA hoped to gain from forming community action groups. Ms. Henry responded that TVA wants to gather community input and understand community concerns so it can consider that input as it works with the Tennessee Department of Environment & Conservation (TDEC) on testing, planning and management of coal ash. Liz Upchurch responded that TVA wants to be transparent about coal ash and the community action groups will help ensure that TVA gathers community input and that community members in return share these facts with other members of the community.

#### **4. Pickwick Landing South Embankment Dam** (Presentations can be found at [www.tva.gov/rrsc](http://www.tva.gov/rrsc))

TVA is upgrading Pickwick Landing South Embankment Dam for safety reasons, in the unlikely event of an earthquake. Bernie Auld, TVA's responsible Engineering Manager, provided background information on TVA's Dam Safety Program, which oversees 121 TVA dams and impoundments and manages 87 river dams across six states. The program protects lives and property by ensuring the dams are designed, constructed, operated and managed as safely and reliably as is practicable. Pickwick Landing Dam, a hydraulic fill dam located on the Tennessee River in Hardin County, has performed well for 86 years, but at the time of construction, little was known about building for earthquake safety. In a hydraulic dam, compaction of materials is not required. Course material settles on the outside, fine material settles on the inside, and the clay part works its way to the middle to form a core water barrier. Case histories show that hydraulic fill dams do not perform well during significant earthquakes. Pickwick Dam is located about 100 miles from the New Madrid Seismic Zone, which experienced significant earthquakes in 1811-1812. It is unlikely, but since there could be a significant earthquake on the fault line in the future, TVA is rehabilitating the south embankment. Pickwick Reservoir is at the junction between the Tennessee River and the Tombigbee River, which provides a direct route to the Gulf of Mexico and quick waterway access to the East Coast.

TVA has worked together with stakeholders and regulators to implement mitigation measures at dam's south embankment. As Mr. Auld described, the efforts have included developing a state-of-the-art surveillance and monitoring system; installing a system for warning the public; using communications tools such as newsletters and meetings to provide information to the public; working with local Emergency Management Agencies to ensure the public knows what to anticipate; and enhancing emergency action plans for quick evacuation. The enhanced surveillance and monitoring system is state-of-the-art with a seismic recorder (a time domain reflectometer, or TDR); a mile-long cable laid horizontally to detect seismic activity; and live, high-definition video feed and thermal imaging so operators in the TVA River Forecast Center can see what is happening at the dam. TVA is among the first to lay cable horizontally to measure possible seismic activity at a dam, and the Corps of Engineers and the Bureau of Reclamation have adopted the practice. The protocol is to immediately alert residents downstream from the dam. Mr. Auld noted that TVA and its partners have finished the design to update the berms and extended fills, and the work to fill the berms upstream and downstream is under way.

The Council asked what is proposed for the area near the lock wall that protrudes into Pickwick Lake. Mr. Auld responded that extended fill is planned for the area, upstream and downstream. The new fill, liquefiable soils, will extend 70 to 80 feet below the natural ground surface. The updated dam project includes enhancing the gravity system to add mass that would keep the lower subsoils in place in the unlikely event of a significant earthquake.

Jacob Horton, TVA's Construction Manager on the Seismic Remediation Project, followed Mr. Auld and described where the Pickwick Landing South Embankment Dam Project started and where it is today. He stated that the construction team saw the effect of record rainfall in 2018, which inundated the surface for a month. Construction started two years ago, and the team is adding weight and mass so the dam could sustain a high-magnitude earthquake. The team has added soil downstream and rock upstream. The work included installing dewatering wells to draw water down before excavating down to a new toe drain, which has been put in place in the event the old toe drain would fail. The dewatering wells are set up on an automated flow management system that alerts the team if anything in the system shuts down, so the team knows whether it needs to start backfilling or whether it can continue with construction.

TVA and its partners placed sand and soil in the fill area and conducted compaction testing to ensure it could meet the intent of the design. As Mr. Horton explained, the goal is to ensure the system is hydraulically connected so it will last long-term. The system includes layers — a couple feet of sand, a couple feet of stone and then more sand — so soil materials will not clog the drainage system. Currently, almost all of the old toe drain tie-in and new toe drain have been installed. Manhole structures have been added to the new system so TVA can inspect it through the years. On the upstream side, to protect two intakes from the construction, the TVA team created a two-layer protection system. As an additional protection for the intakes, sensors have been put in place to measure the turbidity of the water. Upstream, there was three to 14 feet of sediment built up to the dam over the years. Using equipment with GPS to determine the exact location of each piece of stone (many pieces taller than a human), the TVA team placed stone down to the bottom of the original ground.

The Council asked numerous questions related to the project. The Council members asked about the size of the toe drain and how TVA will dispose of the sediment. Mr. Horton responded that the toe drain is a 12-inch pipe. Sediment will stay in place and will fill in the voids between the large stone that is being pushed down to the original ground. The Council asked if the Kentucky Dam is a hydraulic-fill dam. Mr. Horton deferred to Mr. Auld, who responded that it is a compacted-fill dam, and that there are only two TVA hydraulic-fill dams — Pickwick, and Blue Ridge in Georgia. After being asked if TVA is doing work on the lower side of the Kentucky Dam, Mr. Horton responded that the dam was evaluated as part of the Dam Safety Assurance Program and TVA is putting an additional berm at the bottom of the Kentucky Dam to increase stability there. That project is separate from the lock project there. The Council asked the cost of the Pickwick Dam project, and Mr. Auld responded that the project, from start to finish, will cost \$150 million. He noted that TVA will be working on the project for three or four years, and that some of the stone, which will be placed upstream and downstream, is equivalent to the size of a Volkswagen car. Mr. Horton added that the project has put \$5 million into the local economy with the cost of materials and trucks, and that there is additional money going into the local economy with contractors spending their dollars in the area and TVA spending \$15 million on construction. Mr. Auld added that TVA purchased the large stone from Missouri and Kentucky because it could not find local rock that met the hardness and size requirements, although the

material used downstream was purchased locally. The Council also asked if TVA received its seismic information from the University of Memphis. Mr. Auld responded that he receives input on seismic events through a University of Memphis app, and he also contacts internal TVA seismic specialists. The Council asked about the timeline for the project. Mr. Horton responded that the project is about 40 percent complete. TVA is ahead of schedule, and the finish date is early summer 2020. The project is currently a few months ahead of schedule. Mr. Auld added that because of the National Environmental Policy Act (NEPA) process, there will be work that occurs after the berm is completed.

**5. Savannah, Tenn., Erosion Study** (Presentation can be found at [www.tva.gov/rrsc](http://www.tva.gov/rrsc))

TVA is partnering with the West Tennessee River Basin Authority on an erosion study on the banks of the Tennessee River from Pickwick Dam to Savannah, Tenn., a 10-mile stretch. David Blackwood, PE, Executive Director, West Tennessee River Basin Authority, provided information on the unique geology of the river bank in that area, which is mostly sand, with silts and clay mixed in. This stretch of the river operates as both a river and a lake, which increases the challenges. There are agricultural concerns, where waves wash to the shoreline and the buffer is almost gone. There also are cultural resource concerns, as the bank slides into the water and the resources are exposed and fall into the river. Mr. Blackwood said that as researchers watched the erosion process, they realized it is a repeating cycle, so it was important to develop a benchmark for the erosion. Mr. Blackwood said that boat and wind waves prompt loose materials from the banks to get swept into the channel, and the river flows and flushes the sediment.

Mr. Blackwood said the West Tennessee River Basin Authority, TVA and the Nature Conservancy - along with Cardno, an engineering services company - conducted a pilot to study the erosion cycle in one area to determine the drivers of the erosion and how to stop it. From that, a detailed study is being conducted. The study includes modeling and evaluating water flow patterns and soil properties on the banks. The team put wave loggers and time-lapse cameras in three locations to gather data associated with boats. It conducted a wave study over Memorial Day weekend and determined that waves from wind are a big factor in the erosion. Mr. Blackwood explained that the end goal of the broader erosion study, which is halfway through its yearlong collection of wave data, is to understand the quantity, drivers and the effects, and to identify locations and associate them with most cost-beneficial stabilization practice. The report is due in 2020.

The Council asked questions about the erosion study, and a lengthy discussion based on the questions and responses occurred. Noting that wake boats have become popular on local lakes, the Council asked if these boats are creating erosion and whether they may be outlawed. Mr. Blackwood responded that the team didn't have data on the impact of wave boats, but that it seemed likely that they would have an impact on erosion. He noted that barges have a minimal impact on erosion. The Council asked



how TVA will implement best practices beyond the 10-mile stretch being studied, given that erosion occurs in other areas along the Tennessee River. Mr. Blackwood said one of the team's first evaluations will be to determine if the erosion just looks bad, or whether it is a progressive problem. The Council asked if landowners are suggesting that TVA or the state pay for remediation. Mr. Blackwood responded that the purpose of the study is to determine the magnitude of the issue and what solutions are possible, then, those results will help determine what partners become involved in the solutions.

Shannon O'Quinn, a water resource specialist with TVA leading the study, reminded the Council that this section of the river has different issues than other sections. He said that once the study is completed and the team has information on what is causing the erosion, TVA can talk to organizations and agencies that might be interested in being a partner. He mentioned that this is not something that will happen overnight. It will be expensive and will take several years to stabilize. He said this study is going to help identify what is causing the erosion, and with that information, TVA will be able to go out, tell the story and recruit other partners.

The Council asked if someone could say that since TVA built the lakes, it should be responsible for the erosion, since the bank would not have eroded if the elevation of the river had not changed. Mr. O'Quinn said the study will show that there is not just one source of erosion. He noted that, to date, the team is seeing that wind plays a larger impact in erosion than originally thought. He said the research is important because it will provide the data that explains what is causing the erosion. Mr. Blackwood explained that people bring up this topic up to him from time to time, and he tells them that if it were not for TVA, people would not be using this piece of the river because they would not feel safe having their boats on it.

The Council said it has long advocated for partnership, is not looking to TVA to be the sole problem solver and a lot of people will benefit from this work. The Council asked how TVA and its partners will evaluate economic benefits for sediment and nutrient removal or ecological services. Mr. Blackwood responded that the team will have to look at effects first to know what categories to evaluate for cost, and that that is considered in the scope. The Council asked what landowners on that part of the river are saying. Tennessee Valley farmers were in attendance at the meeting, and Ron Robertson, a landowner and Tennessee Valley farmer, responded.

Mr. Robertson said he grew up a mile from the Tennessee River, 30 miles south of the Pickwick Dam. In his lifetime, he has seen land that he owns fall into the river. He said people used to walk to the water; now it is a 20-foot drop. He has a 100-acre farm that has about 3,000 feet of river frontage. His family has owned the property since 1945, and in that time, about eight to 10 acres have fallen into the river. He has spoken at TVA Board of Directors' meetings, and he notes that the erosion is a regional problem that affects people bringing boats down the river from Chicago, barges and a multitude of river users. Mr. Robertson said he understands that it is a huge problem that will probably cost several hundred million dollars to fix. He said he recognizes that it has taken years to get where it is, but that he'd like to see some progress by starting with

the worst areas of erosion and progressing from there. He noted that the Tennessee Valley farmers have worked diligently for the past six or seven years to draw attention to the concern, and since the erosion won't stop on its own, the farmers are going to need assistance to do the work. Mr. Robertson applauded TVA and its partners for their work. He said a lot of things have happened that were beyond TVA's control, and the landowners just want a way to resolve the problem.

After looking at photographs of the eroding banks in the presentation, the Council noted the 20-foot drop and asked if it needs to be cut back to create slope. Mr. Blackwood responded that in the pilot study, TVA worked with the Tennessee Department of Environment and Conservation to talk about where vegetation could be used to have some effect. There are distinct lines in the bank where it becomes too wet or too dry for one kind of dominant vegetation to take over, so it ends up being a dead zone. The team is bringing rock to the edge of the zone to stabilize it. The team is also using a stone toe to try to break the wave action and see if vegetation will establish there. Mr. Blackwood said this might be the best approach there, because removing trees or sloping the bank would affect cultural resource sites in the area.

Amy Henry noted the importance of partnerships and asked, "What's next?" Mr. Blackwood responded that the West Tennessee River Basin Authority, which is part of the Tennessee Department of Environment & Conservation, covers Western Tennessee. Charged with maintaining and protecting rivers and lakes, it is involved with projects related to stream restoration, water quality and water quantity. Mr. O'Quinn commented that the West Tennessee River Basin Authority has been a very big part of the effort, noting that Mr. Blackwood designed the project and helped locate funding for materials. The partners have worked with the Tennessee Valley farmers and have prioritized this site for stabilization. He noted that, given the significant fresh water mussel population, funds have been targeted to protect the mussels. He also noted that the Natural Resources Conservation Service (NRCS), a federal agency that provides support and money to agriculture, is coming to the table. That partnership project may take several years to happen. Mr. O'Quinn said the study and collaborative efforts are enhancing the agencies' ability to recruit other partners and funding.

## **6. Pickwick Dam Reservation** (Presentation can be found at [www.tva.gov/rrsc](http://www.tva.gov/rrsc))

Tina Guinn, Manager of Recreation within Natural Resources at TVA, presented information on TVA's work to restore the Pickwick Dam Campground after significant flooding in February. The restoration work showcases teamwork within TVA as well as collaboration with external partners. Pickwick Dam Reservation is a popular fishing area and has a 100-site campground that includes RV sites, tent sites, Americans with Disabilities Act (ADA) compliant sites, and bathhouses in each of the three loops of the campground. It is one of six dam reservations managed for TVA by Recreation Resource Management. February was the rainiest on record for the Tennessee Valley (269 percent of normal). Pickwick Reservoir, which is above the dam, can hold 4.5 inches of runoff at winter pool. The campground and the day use area are right below the dam, and at one point, four million gallons of water were going through the dam.



The result was that the campground was fully flooded, became a hazard zone, and had to be closed. The flooding was so bad that a roof from one of the bathhouses was pulled off and floated away. TVA evaluated safety, timing, funding constraints and public interest as it considered whether to restore the campground. TVA conducted an in-house analysis and found that the recreation value was very high. As the second most-visited TVA campground, the site's three-year average (2016-2018) was 16,458 individual user days with a three-year recreational economic value of \$577,170 annually. TVA decided to rebuild the campground to its full capacity. It had some scheduled goals it wanted to meet, and it needed to find funding. TVA does not have flood insurance, and it delayed other Recreation projects to cover the costs of rebuilding the campground. It decided that if it is going to rebuild the campground, it would use the best materials available so the buildings and site would be more flood-resistant.

Ms. Guinn explained that the restoration has included six main projects: installing new restrooms, tree removal, debris removal, restoration of campsites, work on day use areas, and restoring the boat ramp. Once TVA determined it would restore the campground, it decided to install new restrooms that are more stable and flood resistant. The restrooms, which cost almost \$200,000 each, were expected to be installed in mid-September. The trees at the campground were mostly pine trees, and TVA cleared 50 percent of the tree stand to improve safety and the health of the trees. TVA repaired damage to Loop C at the campground, including repairing electric and water facilities, addressing campsite grading and site timber, and replacing lost amenities such as picnic tables, site numbers and grills. In the day use area, TVA addressed damage by putting gravel down on the road and replacing the boat ramp, a fisherman's pier, picnic tables, garbage cans and signs.

Wanting the public to be able to return as soon as possible, TVA worked diligently and was able to temporarily open the boat ramp for Memorial Day weekend and Loop C by the July 4<sup>th</sup> weekend, when it was at full capacity. The new restrooms were installed in September, and TVA is working to open the full site — including Loops A and B — by spring 2020. The work is estimated to cost \$1.4 million. Ms. Guinn discussed the ways TVA worked to inform the public about its efforts and when the campground would be ready for public use. TVA spread the word through social media and media interviews, which were conducted by Derek South, who is heading the campground restoration project for TVA. TVA also provided its Public Land Information Center with up-to-date information so when people called, they received the latest information. Internally, the work required the efforts of many departments, including Recreation, Facilities Management, Recreation Resource Management Inc. (the TVA contractor managing the site), Supply Chain, Environment — Cultural Compliance, Public Land Information Center, Communications, Public Outreach and Support, and Natural Resource Management. TVA has received positive feedback from the public, which is appreciative that the popular site is being restored.

The Council asked questions about the restoration, including if the work is being funded by TVA. Ms. Guinn said TVA is funding all of the work. Recreation Resource Management Inc., which runs the campground under contract with TVA, did a lot of the

work. The Council asked if the remaining trees are the same species. Rebecca Hayden, Senior Manager of Recreation and Shoreline Management at TVA, said the trees are not all a single species but are the same type of tree. She noted that one of the roof structures had banged against the trees, so some were removed for long-term safety reasons. Ms. Hayden said TVA thinned out the stand for safety purposes, but that internal foresters will make a plan for the trees to ensure the stand provides campers with shade. The Council advised that TVA diversify the trees, citing an area of pine trees years ago that was attacked and all of the trees needed to be removed. The Council asked if Recreation Resource Management is gaining revenue from the new campground and whether Recreation Resource Management has put money into the restoration. Bucky Edmondson of TVA responded, noting that in 2011, TVA operated its campgrounds, but since it did not specialize in that work, it now uses a concessionaire — Recreation Resource Management. As part of their three-year arrangements, Recreation Resource Management does routine maintenance such as cleaning the bathrooms and mowing the grass. The concessionaire receives revenue generated by the campground, but the campground is TVA-branded. Mr. Edmondson said his group went to top-level management at TVA to explain the need for funding to rebuild the campground, and TVA leadership agreed immediately to allocate funding for the project.

Jim Kerr, from the Tennessee Valley farmers and representing Hardin County, Tenn., thanked TVA for its restoration work. He said there was a fishing tournament and people needed to get to the boat ramp shortly after the flooding, and TVA came through and got people in there. Mr. Kerr said the dam is something to be proud of; it is an icon of Hardin County. Edmondson thanked Derek South for his tireless work in getting the campground open. David Bowling of TVA thanked the Tennessee Valley farmers for providing their input to the TVA Board of Directors and to the RRSC. He also thanked David Blackwood for presenting information about the erosion study, noting that the collaboration with the West Tennessee River Basin Authority is important, and that TVA appreciated his willing to present information to the Council.

## **7. Wrap Up and Day One Adjournment for Field Trip**

Cathy Coffey, Sr. Program Manager, Enterprise Relations & Strategic Partnerships, TVA, explained that this is the last meeting of the RRSC's Tenth Term. Term 11 will begin in spring 2020, with an April 2020 meeting as a possibility.

## **8. Day 2 Welcome and Impressions from Individual Council Members**

After Mark Iverson and Amy Henry welcomed everyone back for Day 2 of the meeting, Elizabeth Upchurch reviewed the activities of Day One. The Council heard information about dam safety and the ways that TVA ensures that all dams are safe, well-managed and maintained. The Council also heard about upgrades at the south embankment of Pickwick Dam to make the dam more robust in the unlikely event of an earthquake, and visited the site where the work is taking place. The Council learned about TVA's work with the West Tennessee River Basin Authority to study bank erosion on 10 miles of the Tennessee River, and it visited the site and talked with Tennessee Valley farmers whose properties are impacted. The Council also heard a presentation about work to restore the Pickwick campground after major flooding in February, and it toured the popular fishing and camping site to see the restoration work firsthand. Ms. Upchurch also mentioned how long-term Council members Gary Myers and Avis Kennedy, both of whom are stepping down from the Council, were recognized at a dinner the night before for their years of service and dedication. For Day Two, the agenda included seeing videos about invasive carp in the Tennessee River and how to control them, as well as updates from TVA River Management and TVA Natural Resources.

Council members had an opportunity to share their impressions at the beginning of Day Two. A Council member thanked TVA for its work on the campground repair on behalf of recreation users in the Valley. Another member said it was great to hear that TVA determines needs, then partners with other operating groups to address the work. One Council member said that related to the erosion work, TVA is doing everything it should be to study the problems, understand the causes and determine what needs to be done. The Council member said that once the issues are better understood, then TVA can re-evaluate and determine what, if anything, would need to be taken on by TVA and what other funding is available. Another Council member thanked TVA for its work with the Tennessee Valley farmers and said she also was impressed with the work at Pickwick Dam, noting that waterways would be a major source of transportation to get resources into the area in the event of a major disaster.

A Council member said the Regional Resource Stewardship Council is a good way for groups to present their concerns or thoughts to TVA, and she wondered if Council meetings would provide an opportunity for stakeholders to talk to TVA outside of the public listening scope. Ms. Henry responded that that is a great point and something that TVA will consider in the future, both for Regional Resource Stewardship Council and for its other advisory council, the Regional Energy Resource Council. Another

Council member complimented TVA for keeping stakeholders informed and for its work on a variety of projects in Hardin County, including the erosion study.

A Council member said he encourages people in the public to find their voice and advocate for causes such as the bank erosion. He also thanked Bucky Edmondson for advocating internally within TVA for the Pickwick campground and its repair. A Council member thanked TVA for pulling together the diverse topics for the meeting, from recreation, to the dam improvement, to the erosion study. She said it is a good feeling of security to know that TVA has hands and eyes on all of the different issues affecting the Tennessee Valley.

## **9. Public Comment Period**

No public comments.

## **10. Videos**

TVA showed videos produced by the Tennessee Aquarium in Chattanooga, Tenn., on invasive silver carp, invasive Asian carp, and how commercial fishing could control the population by selling them as food if the industry could change people's perception of them. Shannon O'Quinn commented that TVA is partnering with the Tennessee Aquarium and other organizations on events and education related to this issue.

## **11. River Management Update** (Presentation can be found at [www.tva.gov/rrsc](http://www.tva.gov/rrsc))

Tom Barnett, P.E., General Manager of River Management at TVA, provided a River Management update. He explained that TVA River Management takes its mission seriously. It has been a busy year, given the flooding in February, which caused damage up and down the Tennessee River and even at TVA plants. As background, he explained that TVA River Management manages the Tennessee River system — 42,000 square miles of watershed and 49 dams. The integrated river system provides multiple benefits, including navigation, flood control, hydropower generation, water supply, recreation and water quality. Mr. Barnett said heavy rainfall in the spring continued into the early months of summer. He said annual runoff, the amount of water that ends up in the river system, is typically 22 inches, and is currently four or five inches ahead of normal. He noted that the tributary reservoirs were full in the spring and through July, and the public was pleased with how they were managed. August and September were drier. Although lake levels started coming down during that time, for the most part, lake levels were good over the summer.

Mr. Barnett described highlights, including a unique study that TVA resurrected after a staff member ran across it at the National Archives. The study, which TVA initiated in the 1930s, measures the width of tree rings to quantify water supply. TVA has partnered with the University of Tennessee (UT), and is measuring the widths of tree rings, then lining them up with years of gauged data to forecast or hind-cast what the rainfall was in those particular years based on the width of the tree ring. Wider rings represent more

growth and a wetter year. Mr. Barnett said that one of the interesting findings is that there was a drought bigger than the 2007/2008 drought, and it lines up with the year that the lost colony went missing. He said some of the correlations they're finding are very strong. TVA plans to use the water supply intake data and lake information to work with municipalities and industries that might have water reliability issues to develop more detailed drought management plans. TVA also is engaged in paleo flood research with the University of Alabama at Huntsville. The study entails looking at sediment deposits from past floods to determine when and how high the huge floods came through the Valley and determine periods for when the next big floods will occur. The research will help inform TVA's Dam Safety Program and possible areas of focus from a risk perspective.

Mr. Barnett noted that, from a navigation perspective, TVA's motor vessel side view sprung a leak and is in dry dock. Before that, the staff completed two round trips of the Tennessee Valley and its secondary channels and maintained over 1,500 navigation aids with a perfect safety record. Mr. Barnett said that over the past three years, TVA has developed and put into production the first operational 3-D hydrothermal forecasting model for Browns Ferry Nuclear Plant. The tool will help TVA optimize hydropower scheduling and nuclear assets at Browns Ferry. As another highlight, Mr. Barnett explained that TVA is accomplishing a lot of its River Management objectives and measures. One indicator is minimum flows, such as how well TVA has done with Chickamauga Dam minimum flows on the Tennessee River throughout the summer. Another indicator is tributary balancing that ensures TVA is drawing down all tributaries equally. Mr. Barnett explained that TVA is at 99.9 percent of its minimum flow achievement for the year, noting that through August, TVA achieved 9,702 of its 9,715 tailwater recreation commitments.

Mr. Barnett described TVA's proactive public outreach efforts, noting that the Council, about five years ago, recommended that TVA increase its communication efforts related to river management so the public knows about TVA's work in this regard. Mr. Barnett explained that TVA held a River/Recreation Tour May 13-17 with teams visiting the Eastern Tennessee Valley (North Georgia, Western N.C. and East Tennessee); Western Region (West Tennessee/Kentucky and Middle Tennessee); and Central Valley (North Alabama/Mississippi and Southeastern Tennessee) to talk about TVA's flood control efforts during the February flooding. Internal TVA organizations — River Management, Natural Resources, Government Relations, and Communications & Marketing — visited nearly 60 local media outlets, held eight stakeholder briefings, and held a media event in Tri-Cities. TVA received feedback that people appreciate its flood control efforts. TVA provided information through social media, traditional media, website posts and informational emails. Social media posts were done at least two or three times a week, and hourly during the flood. The team received emails about the flooding, and every email was answered. In February, TVA set up phone bank outside River Forecast Center to answer questions and provide information about the crest forecast.

Jim Kerr, a member of the Tennessee Valley farmers and also representing the mayor of Hardin County, made a presentation. He said Hardin County is closely associated with the Pickwick Dam. He said he has worked with TVA to retrieve artifacts used in homes during the construction of Pickwick Dam for the collection at a local museum. Mr. Kerr thanked TVA for its work to stabilize the waterway and river banks in Hardin County. He presented Derek South (accepted on Mr. South's behalf by Tina Guinn) with a certificate of recognition for his work in re-establishing Pickwick Dam Campground. He also presented Bucky Edmondson with a t-shirt from the popular Hardin County restaurant, Hagys, where the Council, Tennessee Valley farmers and TVA partners had dinner together the night before.

## **12. Natural Resources Update** (Presentation can be found at [www.tva.gov/rrsc](http://www.tva.gov/rrsc))

Rebecca Hayden, Sr. Manager of Recreation and Shoreline Management within Natural Resources at TVA, offered an update of TVA's Natural Resources activities. As background, she explained that Natural Resources has 10 focus areas: Reservoir Lands Planning, Section 26a & Land Use Agreements, Public Land Protection, Land & Habitat Stewardship, Nuisance & Invasive Species Management, Cultural Resource Management, Water Resource Stewardship, Recreation, Ecotourism, and Public Outreach & Information.

As Ms. Hayden described, Natural Resources helps fulfill TVA's mission. It works to ensure that there are places across the Tennessee Valley for recreation and learning; that TVA promotes and protects cultural, biological and other resource areas; and that TVA works with communities to help promote economic development and use of TVA lands for that.

Offering a Fiscal Year 2019 year-end summary, she highlighted that TVA:

- Completed 306 stewardship projects in 112 counties,
- Offered projects in 12 new counties, with the goal of hitting all Tennessee Valley and power service areas,
- Conducted 72 recreation projects aimed at increasing tourism (which is economic development, one of TVA's missions),
- Garnered 110 news stories about how TVA is involved in the community,
- Pulled together 4,100 volunteers through 34 organizations for cleanups that resulted in 250 tons of trash being removed from lakes and public lands,
- Engaged 18,000 children through environmental education programs, including TVA Science Kids World Water Monitoring program.

Ms. Hayden gave an update on TVA's inventory assessment, which it completed this year and which will help TVA determine when its public assets need maintenance work. TVA has inventoried more than 5,000 assets and assessed the conditions of more than 10,000 acres of land. For the land assessments, TVA determines what is in use, what the impact of the land use has been, if there are unauthorized trails or other activities that are going to damage the land. Ms. Hayden also discussed TVA's fish and aquatic work. She noted that the movie, "Hidden Rivers," through Freshwater Illustrated,



highlights biodiversity in the Tennessee River. It previewed in Washington, D.C., and there were rollout events in Chattanooga, Knoxville and Nashville.

Ms. Hayden noted that Shannon O'Quinn received a stewardship award from the Boone Watershed Partnership Group. She said the award shows there is synergy and energy and recognizes how TVA and partners are working together to benefit the Valley.

TVA is completing its 2020 Natural Resource Plan, a long-term plan that is being updated from the 2011 plan to guide TVA's management of the public lands and waters within its power service area and the Tennessee River watershed. The plan's final Environmental Impact Statement (EIS) currently is being prepared. TVA conducted four open houses to share information about the Natural Resource Plan with the public. TVA is also working on three- to five-year action plans that will serve as directives for what needs to be done in the near-term. Ms. Hayden then discussed reservoir lands planning, which creates the foundation for a lot of

TVA's Natural Resources work. The Watts Bar Reservoir Land Plan Amendment is just about completed in fall 2019, and the Tellico Reservoir Land Management Plan is in progress, with public scoping scheduled to begin in winter 2020. Ms. Hayden said these plans are part of a vision that Mr. Edmondson had for an interactive map (<https://www.tva.gov/landplans>) that shows all of TVA's land planning efforts. Its development has been a major achievement for TVA, and since January, it has received 2,000 external clicks on the TVA website. The map can be used to find individual parcels and land use allocations for TVA reservoir properties. TVA plans to incorporate the map into its online permitting information.

Ms. Hayden also discussed land use activities. She noted that major land use actions include requests for long-term use of public lands, easement requests (utility, recreation, etc.) and deed modifications. Ms. Hayden said TVA has completed 18 disposal actions. She said TVA has a meeting planned with local power companies to review the best ways for them to apply for Section 26a (shoreline construction permits) or other permits so that TVA processes don't hold them up. TVA also has given 1,500 Section 26a permits to private landowners, and TVA visits each landowner, giving TVA an opportunity to get to know the landowner and to provide information about the reservoir system.

Ms. Hayden also gave a progress report on the Floating Cabin Program. She said Phase 1 rules, which went into effect in 2018, say there will be no new floating cabins, which are defined as structures meant for habitation, not for navigation or recreational purposes. Phase 2 rules are in the process of being developed. TVA used a stakeholder advisory group to gather different viewpoints, and TVA staff continue to be engaged with marinas and with the public about next steps. TVA also is increasing communications, with plans to update its Floating Cabin webpage. It has given posters to the marinas, and will be attending an upcoming Tennessee/Kentucky Marina Association meeting. It also is working to create an inventory that links each cabin with the people who own it.

Related to water resources stewardship, Ms. Hayden described TVA's work with partners to increase awareness about the concerns related to Asian carp invasive species in the Tennessee River Watershed. Related to public outreach and communications, Ms. Hayden highlighted numerous TVA community engagement efforts, including having taken more than 8,000 calls on the Public Lands Information Center 1-800 number and holding 615 outreach events in 93 counties across the Tennessee Valley. She also noted that TVA helped launch the National Geographic Tennessee Valley Map Guide and film. Ms. Hayden said that on a local level, the My Lake Gunterville Campaign ([www.mylakegunterville.com](http://www.mylakegunterville.com)) — aimed at raising awareness and money to address threats to the healthy and safe lake, managing invasive species and halting erosion, water contamination and trash — was becoming very successful. She noted that the community recognizes that economic development and economy are connected.

She said that looking ahead to FY20, TVA will complete its 2020 Natural Resources Plan, be implementing the Floating Cabins regulations, have further increased community engagement efforts, and completed its flood damage work. Looking ahead, TVA plans to continue to balance its 10 areas of focus within Natural Resources. Ms. Hayden showed a map of counties reached by TVA's stewardship efforts. TVA is 33 counties shy of reaching every county on the map, and having reached 12 new counties this year, it is hopeful it will increase the number next year.

At the end of the presentation, the Council asked if TVA actively partners with local power companies on activities such as the Science Kids World Water Monitoring program. Rachel Terrell, TVA Natural Resources, responded that Natural Resources works through the TVA Customer Service Group, which has the primary relationship with the local power companies. She said Natural Resources will talk to the Customer Service Group when they have an idea for a program and location, and the group will work with the local company.

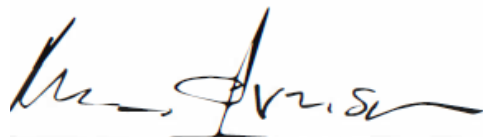
### **13. Closing Comments**

Liz Upchurch explained that as the RRSC's tenth term ends, TVA would like to ask Council members for their observations as well as suggestions for topics or areas of focus for the future Council. One Council member said he has been impressed with the work the staff does in putting information together so RRSC members are made aware of what TVA is working on and can provide advice statements for the Board of Directors. Another Council member suggested holding a meeting in Fort Loudoun to hear about natural resources, recreation and partnerships within the community. Another Council member said she appreciates the RRSC and TVA's work with partner agencies. She recommended that TVA invite partners to RRSC meetings so they can learn about TVA's broad management activities across and the region. They would also realize TVA receives advice from the diverse group of knowledgeable RRSC members

Avis Kennedy, former Chair of the Council, who was stepping down after eight years on the RRSC thanked the group for welcoming her and enriching her life in so many ways. She said she appreciated the opportunity to serve a leadership role for a couple terms, and she thanked the TVA staff for their help and support over the years. The our pending Council member also thanked everyone for being welcoming and said she already was seeing ways that the RRSC and the State of Mississippi, her employer, could collaborate.

Ms. Coffey of TVA reminded the Council that the September meeting was the last meeting of the Tenth term. The Eleventh Term will begin in April 2020. She told the members she would send an email asking what dates might work for the next meeting, which will be held in spring 2020. She asked the group to send a note for dates they were not available during that time period. Topics for the next meeting might include an update on cultural activities and agreements and discussion about TVA's efforts to consolidate buildings and shrink its footprint. Ms. Coffey said she would send each Council member a recap of comments provided during the meeting, a link to TVA's EPI, and a book documenting the February flooding. Ms. Henry, Ms. Upchurch, Mr. Iverson and Ms. Coffey thanked everyone for their participation in the meeting. TVA will finalize the minutes for the meeting and submit it for approval. The meeting adjourned at approximately 11 a.m. CT.

**Minutes Approved:**

A handwritten signature in black ink, appearing to read "Mark Iverson", written over a horizontal line.

**Mark Iverson, RRSC Chair**

**Appendix A  
Non-Council Meeting Attendees**

|  |   |
|--|---|
| TVA  |   |
| Amy Henry, Alternate DFO and Sr. Mgr.,<br>Enterprise Relations & Innovation                      | David Bowling, VP, River & Resources<br>Stewardship |
| Liz Upchurch, Facilitator, Sr. Program<br>Mgr., Enterprise Relations & Strategic<br>Partnerships | Bucky Edmondson, Director, Natural<br>Resources     |
| Cathy Coffey, Sr. Program Mgr.,<br>Enterprise Relations & Strategic<br>Partnerships              | Rebecca Hayden, Sr. Manager, Natural<br>Resources   |
| Tom Barnett, River Management  | Bernie Auld, Dam Safety                             |
| Kelie Hammond, Resources and River<br>Management   |   |
| Kendra Mansur, Office of General<br>Counsel  | Barbie Perdue, Communications                       |
| Derek South, Research & River<br>Management  | Spencer Collins, ON Services                        |
| Ella Guinn, Research & River<br>Management   | John Csaszar, ON Services                           |
| Rachel Terrell, Natural Resources  | Josh Tait,  |
|  | Ashley Moore,                                       |
|  |   |
| Shannon O'Quinn, Natural Resources   |   |
| Jacob Horton, Natural Resources  |   |

| <b>Members of the Public</b> |  |
|------------------------------|--|
| None                         |  |

| <b>Others</b>   |  |
|---|--|
| Jennifer Short, Elite Reporting                       |  |
| Karl Forsbach, Tennessee Valley Farmers               |  |
| Jim Kerr, Tennessee Valley Farmers                    |  |
| Ron Robertson, Tennessee Valley Farmers               |  |
| David Blackwood, West Tennessee River Basin Authority |  |

**Appendix B - Agenda  
Tenth Term Regional Resource Stewardship Council (RRSC)  
September 11-12, 2019**

**DAY One — Agenda - September 11**

|       |                                    |  |
|-------|------------------------------------|--|
| 8:30  | Welcome                            | Mark Iverson, Chair, and Amy Henry, Alternate DFO  |
| 8:40  | Introductions and Agenda Review    | Liz Upchurch, Facilitator  |
| 8:55  | FACA Briefing                      | Kendra Mansur, Office of General Counsel   |
| 9:00  | DFO Briefing                       | Amy Henry  |
| 9:20  | Break                              |  |
| 9:35  | Dam Safety Program                 | Bernie Auld, Responsible Engineering Manager, Dam Safety Program   |
| 10:00 | Pickwick Dam project               | Jacob Horton, Construction Manager, TVA  |
| 10:15 | Erosion Control Study              | Shannon O'Quinn, Water Resource Specialist, TVA, and David Blackwood, West Tennessee River Basin Authority |
| 10:45 | Break                              |  |
| 11:00 | Pickwick Campground Repair Project | Tina Guinn, Mgr. of Recreation, TVA, and Derek South, Research and River Mgt, TVA                          |
| 11:35 | Announcements                      | Liz Upchurch   |
| 11:45 | Wrap up and adjourn                | Cathy Coffey, Sr. Program Manager, Enterprise Relations & Strategic Partnerships                           |

**DAY Two — Agenda - September 12**

|       |                                      |  |
|-------|--------------------------------------|--|
| 8:30  | Welcome and recap                    | Liz Upchurch   |
| 8:40  | Council Discussion                   | Mark Iverson/Amy Henry/Liz Upchurch                  |
| 9:25  | Break/Prep for Public Comment Period | Liz Upchurch   |
| 9:30  | Public Comment Session               |  |
| 10:30 | Break                                |  |
| 10:45 | River Management Update              | David Bowling and Tom Barnett, River Management, TVA |
| 11:15 | Natural Resources Update             | Rebecca Hayden, Natural Resources, TVA               |
| 11:45 | Finalize Observations                | Council  |
| 12:00 | Wrap Up/Adjourn                      | Mark Iverson/Amy Henry/Liz Upchurch/Cathy Coffey     |