Monday, May 12, 2014
3 p.m.

DENR Response to Duke Energy Coal Ash Spill

Sunday, Feb. 2

- A separate state agency, the N.C. Department of Public Safety Division of Emergency Management, was notified by Duke Energy at 6:53 p.m. The EM43 report, which is used to record reports of emergencies in North Carolina, stated in an Event Description that "Duke Energy reported the release of an unknown amount of wastewater due to a busted line. An unknown amount made it's (CQ) way into the Dan River, which is not a source of drinking water. Duke Energy will conduct cleanup and repair operations over the next few days."

Monday, Feb. 3

- 8 a.m. - Staff members in DENR's Winston-Salem Regional Office were first notified of the coal ash spill when employee Lon Snider received a phone call regarding the spill from Duke representative Allen Stowe.
- 8:30 a.m. - State Dam Safety Engineer Steve McEvoy received a call from Duke Energy representative Tim Russell informing him of a coal ash spill incident at the Dan River Plant site involving the Primary Ash Pond. It was further reported that a sinkhole had formed just inside the reservoir, which appeared to be the result of a break in the 48-inch stormwater pipe. Ash material within the reservoir escaped through the break in the pipe, flowing out into the Dan River. The sinkhole was also in close proximity to the embankment adjacent to S. Edgewood Road and precipitated a slope failure in the upstream face of the embankment.
- 9 a.m. - Sherri Knight, Lon Snider and Shuying Wang, water quality specialists from the regional office, travelled to Eden to investigate the telephone report.
- 10:30 a.m. – Water quality staff began the inspection.
- 11 a.m. – Shannon Leonard and Matt Gantt, engineers from the Winston-Salem Regional Office, arrived at the site and conducted an inspection of the Primary Ash Pond. They observed failure within the interior of the embankment of the dam but unstable conditions prevented them from taking measurements. A visual inspection of the remaining embankment of the pond found that it appeared to be stable. Contractors were observed working on plugging up the broken pipe with an inflatable bladder. The first bladder that was installed did not adequately seal the pipe. Staff then inspected the secondary ash pond which appeared to be performing satisfactorily.
- 3:15 p.m. - Regional office staff notified DENR Office of Public Affairs of the spill.
- 4 p.m. - Division of Water Resources Director Tom Reeder notified Public Water Supply staff of the spill. PWS staff confirmed that Danville, Va. officials had been notified and contacted the Winston-Salem Regional Office water plant consultant to identify any downstream public water systems to make sure they were aware of the spill. Downstream communities identified and notified were Henderson/Kerr Lake, Roanoke Rapids and Town of Weldon.
- 5:32 p.m., - DENR issued news release, "DENR staff working with utility at site of Dan River spill in Rockingham County."
- 6:30pm - Regional Office supervisor Corey Basinger, Knight, Wang and Carter returned to the spill site, walked and assessed it, contacted the EPA and began sampling the Dan River at three locations (one upstream, two downstream). Sampling continued until about 10:30 p.m.

Tuesday, Feb. 4

Morning Update

- Water samples collected late Monday night were delivered to the Division of Water Resources lab in Raleigh for analysis.
- A second round of samples was taken on the Dan River.
- At 9:04 a.m., DENR issued a news release, "DENR Secretary Skvarla heading to Eden, as agency staff members work with Duke Energy to control coal ash spill."
- DENR Secretary John Skvarla and DWR Director Tom Reeder travelled to Eden, N.C. to inspect the site and confer with staff.

- Public Water Supply staff contacted Danville officials as follow-up. Danville staff said they are successfully filtering out ash material and waiting for results from metals testing.

6:30 p.m. Update

- Twelve media representatives attended the noon press conference.
- At 5:53 p.m., DENR issued a news release, "DENR releases initial water test results from Duke Energy coal ash spill."
- The pipe breach was located and excavated by mid-afternoon.
- Efforts to record video inside the pipe were successful beginning around 3:30 p.m.
- It was determined that a portion of the 48" pipe under the basin is actually corrugated metal (original assumption was that the entire pipe length was concrete).
- The pipe failed in the corrugated metal section.
- Video of the first 120' of pipe was completed. Images past the point of pipe failure could not be obtained due to the pipe having dropped an estimated 12' vertically (the camera is unable to travel vertically, only horizontally).
- Efforts will begin tomorrow to video inside the pipe starting from the river side and working back toward the failure to make certain that no other cracks, breaks or failures exist.
- Working through the night, the plan is to excavate around the breach, install a safety trench box, build a bulk head form on both sides of pipe, install pipes and vents to be used to fill remainder of pipe after initial grout/concrete plug is in place, and finally, install grout/concrete plug. Water will be pumped out of work area to another part of basin to significantly reduce discharge to river. Once the grout/concrete plug is in place and has set up, the discharge will cease and efforts to completely fill the pipe with grout/concrete will begin. When the entire pipe is filled with grout/concrete, the trench box will be filled with concrete as an additional safety measure at the failure location.
- In the interim, water from the facility's sump will need to be re-routed away from the basin, which will require an emergency NPDES permit modification. DENR staff expects to receive an application to modify the permit from Duke Energy in the immediate future.
- EPA will have a technical expert for sediment contamination on site on Wednesday.
- U.S. Fish and Wildlife will conduct sampling and also be involved in long term remediation.
- The ash plume in the river has traveled past the South Boston water intake in Virginia and is approximately 4-5 miles from the Kerr Lake Reservoir.
- The Danville Water Plant has not had any problems treating and providing safe drinking water. Daily updates are being provided by DENR Public Water Supply staff.
- Regional office staff continued water sampling at the three designated sites.
- Additional testing parameters will be added to mirror the sampling being conducted by Duke Energy.

Wednesday, Feb. 5

3 p.m. Update

- Rain began late Tuesday evening and ended about 10 a.m. Wednesday.
- Late last night work continued to excavate the pipe breach. Earthen material was placed in the basin to create a platform for heavy equipment and for work to commence on plugging the breach.
- About 2 a.m. the earthen platform collapsed into the crater created by the initial pipe failure. There were no injuries or equipment loss.
- Earthen material actually plugged the pipe following the platform collapse and discharge to the river ceased. This continued until approximately noon today.
- Around noon, a slight discharge was observed from the pipe.
- Following the platform collapse, plans have changed and the intent is now to plug the pipe from the river side. Work in/around the river and riverbank will be necessary and the Army Corps of Engineers has been contacted per federal requirements.

- At 9:52 a.m. Division of Energy, Mineral and Land Resources director Tracy Davis advised that Duke Energy is operating under emergency provisions under the Dam Safety Act of 1967 to stabilize and repair the embankment that has been compromised on the western side of the ash pond.
- At 6:23 p.m., DENR issued a news release, "DENR expects water sampling results from river near coal ash spill this week."
- DENR launched a website to provide information on the spill: www.danriverspill.ncdenr.gov.
- An application for emergency NPDES permit modification was received by DENR staff at noon and was approved at 1:15 p.m.
- Public Water Supply staff reported that Virginia Department of Health metal testing came back negative for drinking water. Based on this, impacts to North Carolina water systems are not anticipated but local officials are being apprised of new developments.
- Regional office staff continued to conduct the sampling at the three designated sites. Water sampling will continue until further notice; weekend sampling will be conducted unless advised otherwise.
- Staff reports that turbidity at both downstream locations has returned to normal river conditions. This is attributed to the discharge ending at 2 a.m.
- Staff reported a substance that appears to be ash deposits in the river and along riverbank.
- Supervisors with DENR's Raleigh Regional Office and Environmental Sciences Section were notified that additional staff resources may be necessary now that the ash plume has reached Kerr Lake Reservoir. They will mobilize resources whenever necessary.
- A large 200' crane has been brought on site to lower a pump into the basin to dewater the area and further reduce or eliminate discharge to the river.
- A third round of samples was collected and taken directly to DENR's Raleigh laboratory for analysis.

11:30 p.m. Update
- Dewatering of the basin at the pipe breach began about 6 p.m.
- A video camera inserted in the pipe starting at the river end obtained video of approximately 760' of pipe. No visual evidence of any further pipe leaks or breaks were observed in this section. This is approximately halfway across basin. The video showed the pipe to be 1/3 to 1/4 full of debris.
- A second attempt to plug pipe at failure point is planned. If unsuccessful, the plan is to plug the pipe from the river side pending Army Corps of Engineers approval to install working pad onto riverbank and into river. The Corps meeting was postponed until Thursday.
- The failed stormwater pipe has been plugged and the pump around to the secondary ash basin is to be completed tonight.
- Media continued to visit and were escorted by Duke personnel on site.
- Regional office staff completed three rounds of samples at the designated sites.
- DENR is working closely with EPA, Duke Energy and U.S. Fish and Wildlife to coordinate both immediate and long term sampling strategies.
- U.S. Fish and Wildlife conducted sediment samples in the river in Virginia. There is sediment accumulated on the river bottom.

Thursday, Feb. 6

5:30 p.m. Update
- Efforts continued to establish a working platform (stone) for heavy equipment near the pipe failure. Once complete, excavation can commence. When excavation is complete, water can be pumped from the work area to another part of basin. A trench box will be lowered to create a safe working space.
- In compliance with the modified NPDES permit, the temporary treatment system is in place for the facility's sump discharge. The system has not been operated and will only be used if necessary.
- WSRO staff conducted the fourth round of water sampling and will deliver the sample to DENR's Raleigh laboratory.

- DWR sample results for Monday and Tuesday are now available. Results are being assessed and compared with data collected by other entities.
- Staff continued to work in conjunction with the EPA, U.S. Fish & Wildlife and Duke Energy to safely and quickly eliminate the discharge and establish long term sampling and remediation.
- DENR regional office staff has formulated a weekend schedule to continue sampling Saturday and Sunday. Arrangements have been made with the lab to conduct analyses over weekend.
- Governor McCrory and senior DENR staff visited the site early this afternoon.
- Duke Energy is working with the DENR regional office staff to develop an emergency sediment and erosion control plan for spoiling ash material at the site.
- At this point in time, construction of the concrete plug at the pipe breakpoint is the primary focus as this will shut off flow from the ash pond area.

10:30 p.m. Update

- At 4:41 p.m., the Governor's Press Office issued a news release, "Governor McCrory directs Duke Energy to bring coal ash spill under control."
- At 6:59 p.m., DENR officials issued a news release, "State test results of water quality sampling near coal ash spill released."
- Test results completed today for a number of water quality parameters, including 17 metals, show no violations of state water quality standards for most samples taken Monday and Tuesday near the site of the coal ash spill in Eden.
- Test results for the remaining parameters will be released as soon as they are available.
- One metal, copper, was above the state action level surface water standard both Monday and Tuesday. Because copper is a naturally occurring element in North Carolina waters, action level exceedances are used to trigger further investigation. While levels of copper decreased significantly on Tuesday, DENR will continue to monitor copper and the other elements.
- At 6 p.m., work began to create a small sandbag dam inside the river end of the 48-inch pipe in order to capture the small flow of clear discharge. A small pump was installed behind the dam to pump the water up into a small tank and then back to the basin.
- At 7 p.m., discharge from the 48-inch pipe ceased.
- Work continues with excavation of the pipe failure area. Dewatering will follow.
- Once the site is dewatered, a trench box will be set in place. Plugging the pipe with grout/concrete will be conducted inside this trench box.
- The process is expected to be completed during the day on Friday.
- Following successful plugging of the pipe failure, the remainder of the pipe to the river will be filled with grout/concrete.
- DENR regional office staff collected the fourth round of surface water samples and delivered to the DWR Lab for analysis. We continue to modify our sampling efforts to provide the best possible assessment of current surface water quality.
- ESS staff will be collecting sediment samples and potentially benthic studies on Friday. They will coordinate with US Fish and Wildlife staff to provide the best possible coverage.
- Coordination with all DENR sections continues to be most helpful. All requests for assistance have been met quickly and with highest level of oversight.
- Work continues on establishing a long term monitoring/sampling plan. EPA, NCDENR-DWR, Duke Energy, U.S. Fish and Wildlife Service and Virginia Department of Environmental Quality have been involved.

Friday, Feb. 7
5 p.m. Update

- DENR staff attended a public outreach meeting in Danville, Va. at 1 p.m. The Danville Community Leader Meeting was conducted by Duke Energy staff in order to provide the City of Danville leaders and public with information about the spill and the measures being taken to resolve the problem and remediate the river. EPA staff was also in attendance as a resource from the regulatory perspective.
- Work continued toward completion of the pipe plug.
- There continues to be NO discharge from the pipe as a result of the sandbag/pump around system.
- DENR staff conducted the fifth round of sampling at all three locations. Samples were delivered directly to the lab.
- Coordination and planning between the regional office sampling staff and the Raleigh lab were confirmed for Saturday and Sunday sampling and analysis.
- Staff from the DENR's Environmental Sciences Section visited the site and began sediment assessment in the river. ESS Supervisor Dianne Reid and Jason Green are coordinating these activities. They are also coordinating with EPA and the U.S. Fish and Wildlife Service on these activities.
- DENR public relations staff Cathy Akroyd and Charlie Peek attended the Danville meeting and returned to the site to assist in coordination of DENR public relations from the site.
- Winston-Salem Regional Office supervisor Corey Basinger plans to stay at the site and coordinate DENR efforts until further notice.

10:45 p.m. Update

- At 7:38 p.m., DENR issued a news release, "DENR releases remaining test results from water quality sampling near coal ash spill."
- The installation of the pipe plug is proposed to begin at approximately 1 a.m.
- Brief description of how the bulkhead will work: The bulkhead that is very slightly smaller than the 48-inch pipe. Outside the bulkhead is attached a tractor tire inner tube. This inner tube will be inflated to create a seal against the concrete pipe. The bulkhead is on caster wheels and will be pushed approximately 44-feet into the pipe from the river side. An open pipe in the bulkhead will allow water to pass through during the installation phase. The steel cable will be attached to the cap that will be attached to the end of the pipe (at the river). As grout/concrete is pumped into the void between the wood form and the end cap, the cable will keep the two in place so the grout/concrete can set up. This should create the concrete plug in the pipe to finally plug/seal the pipe and cease the discharge.
- A long rake was fabricated to rake any debris from the pipe. This debris will be bagged and properly disposed prior to insertion of the bulkhead.
- At approximately 7 p.m., an increase in the discharge was observed into the sandbag/pump around. Rather than risk pressure building up in the pipe, the sandbag was removed. A short term discharge occurred but flow quickly returned to a small amount. This small amount of discharge will not hamper the efforts to commence plugging the pipe at 1 a.m.
- The complete Monday/Tuesday sample data has been summarized and released.
- A planning meeting with all parties conducting water sampling resulted in a better understanding of what data is being collected and where it is being collected.
- Virginia DEQ now has a presence on the site. DENR staff is coordinating efforts with them.
- If work begins on schedule at 1 a.m., the entire process is expected to be completed by 3 a.m.

Saturday, Feb. 8

4:55 a.m. Update

- The bulkhead and end cap were set in place shortly after midnight.
- The bulkhead was set approximately 27 feet into the pipe
- Grout/concrete began to be pumped in the pipe at approximately 3 a.m.
- The grout/concrete pumping process was completed at 4:30 a.m. The grout/concrete will require 6-12 hours to cure/set up.

- Assuming proper cure/set up, there will now be a 27 foot plug in the pipe at the river end. Once this is assured to be stable and permanent, the remaining entire length of pipe will be filled with grout/concrete.
- Winston-Salem regional office staff collected the sixth round of daily samples on Saturday and delivered directly to the state lab.

8:15 p.m. Update
- There has been no further discharge from the pipe.
- All heavy equipment operations ceased at the site today until the 4:30 p.m. engineering inspection of the pipe plug. Engineers gave the thumbs up that the plug was cured and work could begin again to uncover the actual pipe failure. Once the area is excavated, the process of grouting/concreting the entire remainder of the pipe will commence (probably Monday).
- Now that the discharge has completely ceased, regulatory focus has shifted to data collection and analysis (short term and long term) and remediation efforts (short term and long term).
- Efforts were conducted today to locate "pockets" of ash in the river that may have the potential to be removed. Evaluations are under way.
- Sen. Mike Woodard (Caswell/Person counties) visited the site today at 4 p.m. He toured the site with DENR staff, Duke Energy representatives and the EPA. He was briefed on DENR's immediate response and ongoing efforts, both at the site and with sampling.
- Rep. Pricey Harrison is expected to visit the site tomorrow.
- DENR has, and will continue, to mobilize all available resources to not only assess this situation, but to work to restore the natural resources.

Sunday, Feb. 9
11 a.m. Update
- Work continues to excavate the pipe so that grouting/concreting of the entire remaining pipe can commence.
- A deposit of ash has been identified by the EPA and Duke Energy immediately downstream from the discharge pipe. It has been estimated to be about 300 cubic yards. Assessment and planning are underway to develop a plan to remove this material. The U.S. Army Corps of Engineers is in the communication loop as is the DENR's 401 certification staff. EPA is directing this activity from two perspectives: (1) the ash deposit should be removed and is easily accessible, and (2) it is an excellent opportunity to test the technique/equipment for potential use in other areas.
- DENR regional office staff is collecting the seventh round of samples today and will deliver directly to the state lab. Staff will continue to monitor four locations (one upstream and three downstream) until further notice.
- Community briefings are tentatively scheduled this week by EPA in Danville, Va. (Tuesday), Eden, N.C. (Wednesday), and South Boston, Va. (Thursday). All meetings will begin at 6:30 p.m. NCDENR representatives have been invited along with the Virginia Department of Environmental Quality.

10 p.m. Update
- At 2:24 p.m., DENR issued a news release, "State regulators clarify reports on arsenic test results near coal ash spill."
- Work continued in an effort to excavate the pipe so that grouting/concreting of the entire remaining pipe can commence.
- DENR regional office staff collected the seventh round of samples today and delivered them to the state lab.
- Duke Energy crews are developing a plan to remove a large deposit of ash near the discharge pipe. They are working closely with the U.S. Army Corps of Engineers, DENR, EPA and U.S. Fish and Wildlife to develop a viable plan to remove this material in a manner that will have the least impact on the habitat and downstream waters.
- DENR regional office supervisor Corey Basinger met with a representative of the Dan River Basin Association to provide details of our efforts, answer questions and confirm that all regulatory agencies are

working tirelessly and cooperatively to ensure that Duke Energy continues the progress they have made to resolve this problem and restore the natural resources. EPA and Duke Energy representatives also attended this meeting.

- Basinger also met with Rep. Pricey Harrison providing a tour of the site and briefing of the state's efforts to date.

Monday, Feb. 10

9 a.m. Update

- The pipe failure area was located during the excavation. Crews are moving forward with setting the trench boxes and will begin to grout/concrete the remaining length of pipe. This process may take several days as there is over 800 feet of pipe left to grout/concrete.
- Plans should be finalized this morning with regard to the removal of the ash deposit near the discharge pipe. U.S. Army Corps of Engineers is directly involved in this process.
- DENR staff will be collecting the eighth round of samples at four locations this morning and deliver them directly to the state lab.

8 p.m. Update

- A video camera will be inserted to collect information on the length of pipe that runs from the failure point to the permanent plug at the river. Once video is evaluated and assessed, final plans for grouting/concreting the remainder of the pipe can be completed and implemented.
- Additional booms were added in the river at the ash deposit near the discharge pipe as a secondary measure to prevent migration of the material.
- The U.S. Army Corps of Engineers will be on site on Tuesday, Feb. 11 to evaluate the plan for removal.
- DENR regional office staff members collected the eighth round of sampling at all four locations and delivered them to the state lab.
- DENR Environmental Sciences Section Chief Dianne Reid will be visiting the site tomorrow. Reid, along with on-scene DENR staff, will meet with EPA representatives and take a tour of the site and DENR sampling locations. They will also attend the community meeting scheduled by EPA in Danville, Va. at 6:30 p.m.
- Community meetings in Eden, N.C. and South Boston, Va. have been rescheduled due to predicted adverse winter weather.
- DENR regional office staff members will collect the ninth round of sampling tomorrow and deliver them to state lab.

Tuesday, Feb. 11

12 p.m. Update

- Video efforts stopped at roughly 20 feet due to debris in the line. Alternate methods are being evaluated.
- U.S. Army Corps of Engineers issued approval to move forward with the ash deposit removal. DENR followed suit.
- Grouting/Concreting of remainder of pipe will be done in five stages. Plans are being prepared to accomplish this activity.
- Crews are mobilizing to begin the ash deposit removal. Process should begin around 2 p.m. and continue through daylight hours.
- The EPA's community meeting in Danville, Va. is going to take place 6:30-8 p.m. at City Council Chamber. DENR staff members Corey Basinger, Dianne Reid and Sherri Knight will be in attendance.
- The Eden, N.C. and South Boston, Va. meetings have been postponed until next week due to the weather forecast.
- DENR regional office staff collected the ninth round of samples at four sampling sites and will deliver them to the state lab.

- Weather conditions Wednesday will dictate whether or not staff will be able collect samples. Safety is a top priority.
- Weather predictions are still for 6-12+ inches of snow between now and Thursday afternoon.
- At 11:43 a.m., DENR issues news release, "State regulators outline action on coal ash ponds."

Wednesday, Feb. 12
10:30 a.m. Update

- Removal of the ash deposit from the river is underway and will continue until the weather becomes unsafe.
- Work continues with respect to plugging the remainder of the pipe.
- DENR regional office staff has suspended sampling today due to winter weather. The safety of staff is of paramount concern and slippery/icy conditions in and around the water is not conducive to safe conditions. Driving conditions will also deteriorate quickly as the winter storm progresses. Thursday and Friday sampling will be evaluated each morning pending existing conditions.
- Last night, DENR staff Corey Basinger, Sherri Knight and Dianne Reid attended a community meeting hosted by the EPA in Danville, Va.
- The Eden, N.C. community meeting is scheduled for next Wednesday, Feb. 19 at 6:30 p.m.
- Senior staff with DEMLR met with Duke Energy personnel yesterday, at the Dan River Plant site. They were also briefed by Duke Energy on details of the grouting operation.
- Duke Energy provided video copies of camera inspections performed on the failed 48-inch pipe of the Primary Ash Pond. Staff will review these tapes over the next several days.
- Duke Energy may not be able to remove some of the debris inside the failed pipe as it may be encapsulated by grout in the injection process.
- Duke Energy is concentrating on the failed pipe at this time. No schedule of action relative to the existing 36-inch pipe beneath the ash reservoir further north has been developed. Duke Energy informed DEMLR that camera inspection indicated the full length of the 36-inch pipe was reinforced concrete pipe. Duke Energy was informed that they will be requesting a determination of what treatment is necessary to ensure that this pipe does not present a threat of ash release.
- Several other pipe network openings on the west side of the ash pond containment dike were explored by camera. These networks seemed to end shortly after penetration into the ash reservoir area.

6 p.m. Update

- Due to severe winter storm conditions, most operations ceased at the spill site this afternoon.
- DENR staff has been informed by Duke Energy that work will continue on the failed pipe.
- Duke Energy said this afternoon that a new ash volume study for the Primary Ash Basin estimates the volume of ash released at 35,600 cubic yards.
- Removal of the ash deposit from the river continued until conditions became unsafe. Work will resume once conditions improve.
- A question was asked at the Danville community meeting last night about "orange rocks" near the spill site. Further investigations by the EPA today confirmed this to be a stormwater outfall that has an accumulation of what EPA has determined to be iron bacteria or iron residue, thus the orange color. The EPA collected both surface water and sediment samples to verify their conclusions.
- DENR staff will add this location to their sampling sites to further confirm those conclusions. However, severe weather conditions will likely prevent DENR staff from collecting water and sediment samples on Thursday. Sampling will resume as soon as weather conditions permit.
- At 4:16 p.m., DENR issued a news release, "State releases additional water quality test results from Dan River coal ash spill."

Thursday, Feb. 13
7:20 p.m. Update

- No new developments at the spill site today due to severe weather conditions.
- DENR supervisor Corey Basinger was in contact with EPA multiple times throughout the day. EPA had nothing new to report.
- Duke Energy issued a news release today regarding an unpermitted wastewater discharge at a location different from the original coal ash discharge.
- At 4:40 p.m., DENR issued a news release, "State environmental agency investigating wastewater discharge at site of coal ash spill."
- DENR staff could not collect samples today due to severe weather conditions. Sampling will resume as soon as conditions improve.

Friday, Feb. 14
9 p.m. Update

- During an afternoon meeting, DEMLR staff informed DENR senior staff that there are concerns about deficiencies in a second 36-inch stormwater pipe that runs under the ash basin. The deficiencies were discovered when state dam safety engineer Steve McEvoy reviewed video of the pipe's interior, which was provided to DENR by Duke Energy.
- Winston-Salem regional office supervisor Corey Basinger was contacted about this new development. He travelled with regional office staff to the spill site to investigate.
- McEvoy informed senior staff that a letter was sent today to Duke Energy engineer Scott Harris notifying him that upon receipt of the letter, the company has 10 days to provide DENR with a design and implementation schedule to fix the pipe.
- State authorities in Virginia were notified of DEMLR's findings when reviewing the video.
- At 7:20 p.m., DENR issued a news release, "State probing structural integrity of second pipe under Dan River coal ash pond."

Saturday, Feb. 15
12:15 a.m. Update

- Winston-Salem regional office supervisor Corey Basinger reported that due to weather conditions on Friday, very little happened at the spill site. He visited the site in the morning and had nothing new to report, thus no Friday morning update.
- While there he visited two of DENR's three sampling sites to determine if it was safe for staff to resume sampling. These two sampling points still had considerable snow and ice accumulations. Snowy and icy conditions near the water are unsafe conditions for staff. Based on rising temperatures and sunny conditions today, DENR hopes to resume sampling on Sunday.
- After receiving a request from DWR management mid-afternoon, Basinger returned to the spill site to conduct sampling on the 36-inch stormwater pipe identified by DEMLR staff following their review of the pipe video.
- DENR regional office staff conducted this sampling beginning at approximately 4:30 p.m. The samples will be delivered to the state lab this morning.
- Three new sites were sampled: (1) the outlet of the36-inch pipe, (2) the inlet of the 36-inch pipe, and (3) a completely separate stormwater pipe.
- The sampling parameters at these three locations will match those collected in the river over the past two weeks.
- Work continued Friday to permanently plug (grout/concrete) the entire length of the 48" pipe.
- Due to a significant increase in river flow, the ash deposit removal work has been suspended for safety. The plan is to resume on Sunday if river flow subsides.
- EPA community meetings are scheduled for Wednesday in Eden, N.C. and Thursday in South Boston, Va. Both meetings are scheduled to begin at 6:30pm.
- DENR regional office staff member Sherri Knight will be at the spill site on Sunday and Monday.

Sunday, Feb. 16
9 p.m. Update

- Weather conditions continued to hamper sampling efforts for all parties. Virginia Department of Environmental Quality and U.S. Fish & Wildlife Service plan to resume sampling tomorrow.
- Duke Energy sampled sites 2-8 today. The EPA contractors also sampled some locations today.
- DENR regional office staff member Sherri Knight visited all four sampling sites to determine if it was safe for DENR staff to resume sampling. There has been considerable snow melt, but there is still some slush which may refreeze tonight. Staff is planning to resume sampling on Monday, however all parameters may not be able to be collected due to site conditions.
- Danville's wastewater treatment plant intake is showing more turbidity due to the high river flows but they are able to treat it with the normal amounts of flocculants.
- The wastewater treatment plant is not sending residuals to the wastewater treatment plant as is normal. DENR regional staff will check on the permit for Danville's wastewater treatment plant to determine if residuals are included.
- Work continues to permanently plug (grout/concrete) the entire length of the 48-inch pipe. Preparations will begin at 6:00 a.m. tomorrow, with concrete trucks expected to be on site about 7:30 a.m. Grouting for this section is expected to take 5-6 hours.
- Attempts were made to remove ash deposit form the river. However, increased river flow, which crested today, hampered efforts.
- DENR staff will be at the spill site throughout the day tomorrow.

Monday, Feb. 17
1:30 p.m. Update

- DENR regional office staff took water samples at several locations including the 36-inch stormwater pipe's inlet and outlet, discharge near the boat ramp (orange colored rocks), and the four other stations where staff has conducted sampling since last week.
- Sediment samples were also collected.
- DENR environmental sciences staff was on site to collect fish tissue samples but could not due to extremely high river flow from recent weather.
- Regional office staff resumed collecting water samples at the four establish sites today. Additional sampling began downstream at H. Kerr Lake Reservoir. Staff will continue daily throughout the week. Samples will be delivered to the state lab today.
- At 5:25 p.m. DENR issued a news release, "State environmental agency starts water quality sampling at John H. Kerr Reservoir."

9 p.m. Update

- Influent to and effluent from the 36-inch stormwater pipe were also sampled today by regional office staff, along with the stormwater outfall at the plant near the boat landing (orange stained rock area). This was a repeat of sampling conducted at these locations last Friday.
- Steps are being built at the outfall (effluent) of the 36-inch stormwater pipe for safer access.
- DENR environment sciences staff sampled sediment at three locations on the Dan River today and surveyed areas for possible fish tissue collection, which will be possible when river flow diminishes.
- EPA contractors also sampled at the Danville wastewater treatment plant.
- Work continues to permanently plug (grout/concrete) the entire length of the 48-inch pipe. Grouting was initiated this morning. About 200-300 feet of grout was put into place before operations halted due to poor grout flow. The Duke Energy crew is working on a plan of action and hope to resume grouting activities by the end of the week.
- Attempts have been made for ash deposit removal in the river. However, the increase in river flow continues to hamper efforts. Duke Energy will attempt this later in the week if water levels recede.

- EPA community meetings are scheduled for Wednesday in Eden, N.C. and Thursday in South Boston, Va. Both meetings are scheduled to begin at 6:30 p.m.
- DENR's regional office supervisor Corey Basinger will be back at the spill site tomorrow. DENR PIO Sarah Young will also be on site tomorrow.

Tuesday, Feb. 18

1 p.m. Update

- Work continued this morning in the primary ash basin to construct an access road for heavy equipment to complete the process of grouting/concreting 48-inch pipe
- Planning and assessment continues with respect to the re-routing of stormwater around the 36-inch pipe.
- Winston-Salem regional office staff collected the eleventh round of surface water samples. Samples will be delivered to state lab today for analyses.
- DENR staff is evaluating the land application permit issued to the Danville wastewater treatment plant for residuals application in North Carolina. The plant sends filter backwash/filter cake from water treatment process to WWTP for ultimate disposal. At this point, DENR staff believes that none of this material that may contain coal ash has been transferred to the wastewater treatment plant.
- DENR's Sherri Knight and Dianne Reid will be attending an on-site meeting tomorrow with the EPA, U.S. Fish and Wildlife Service, Virginia Department of Environmental Quality and Duke Energy to continue the process of long-term remediation planning.
- At 12:44 p.m. DENR issued a media advisory, "State environmental agency to hold briefing for news media."

Wednesday, Feb. 19

12 a.m. Update

- At approximately 4 p.m. this afternoon, Division Of Water Resources Director Tom Reeder informed on-site field staff that sample results from the 36-ince stormwater pipe yielded high arsenic values (consistent with Duke Energy's arsenic sample result). Based on our sample results, coupled with the video evidence inside the pipe of infiltration into the pipe, it was determined that an unauthorized discharge to the Dan River was present. Duke Energy staff were immediately alerted to this condition and instructed to immediately cease the discharge.
- Duke Energy began work to develop a plan to cease the discharge. The plan is to (1) plug the inlet to the 36-inch pipe to eliminate the stormwater flow into the pipe, and (2) create a sandbag dam in the outlet of the 36-inch pipe, place a sump pump behind the sandbag dam and pump the discharge back to the primary basin. This is the same process that occurred with the 48-inch pipe prior to the permanent plug installation.
- An inflatable plug for the inlet of the 36-inch pipe is in route to the site. In the interim, a sandbag dam was built to stop the flow into the pipe. A sandbag dam has also been built in the outlet of the pipe and the water is being pumped backed into the primary basin. This is being accomplished with 2-inch and 3-inch submersible pumps. A contract pumper/vacuum truck will be on site by 1 a.m. to take over pumping operations at the outlet.
- Pumping operations will continue until a permanent plug can be installed in the outlet of the 36-inch pipe.
- DENR regional office supervisor Corey Basinger will remain on site until the pumper/vacuum truck arrives and takes over the pumping operation.
- The discharge has been significantly reduced as a result of the above activities, but a small discharge still exists at this time.
- At 5:06 p.m. DENR issued a news release, "DENR orders Duke Energy to halt discharges from second pipe under coal ash basin."

2:15 a.m. Update

- The pumper/vacuum truck crew arrived on site about 1 a.m. and set up to begin pumping from the outlet. Sandbags have been reconfigured to best suit the truck pump hose. This reconfiguration should all but

eliminate the discharge, or minimize it to only seepage through the sandbags, until a permanent plug can be installed.
- The inflatable bladder plug will be on site by 4 a.m. and will be installed immediately upon arrival. The inlet sandbag dam will be left in place to take any head pressure off the bladder plug, once it is installed.
- Crews appear to have it under control at this point and will be stationed at the inlet and outlet to ensure continued operation throughout the night.

9 a.m. Update
- EPA's Kevin Eichinger reported to DENR staff that he met with Duke Energy at the 36-inch pipe outfall to the Dan River at approximately 7:30 a.m. The crews installed a cofferdam with sump pumps and a vacuum truck to contain and pump the water from this outfall to the primary ash basin, similar to the setup installed initially on the 48-inch pipe outfall.
- They currently have approximately 90-95 percent containment of the discharge and are reworking the setup to achieve the additional 10 percent containment.
- Plans are currently in development to install a concrete plug similar to the one used for the 48-inch pipe. There is no ETA on this operation as of yet.
- Crews have also plugged the 36-inch inlet with a pneumatic plug. Stormwater from the detention area is not entering the inlet to the 36-inch pipe and will be pumped out by contractor A+D Environmental.

9:30 p.m. Update
- When DENR staff returned to the site this morning, the inflatable bladder had been delivered and installed in the inlet of the 36-inch pipe. This stopped all stormwater flow into the pipe. Stormwater is now being pumped and hauled off site
- The sandbag dam on the outlet of the 36-inch pipe was reconfigured to eliminate the discharge. When DENR staff inspected the outlet around mid-afternoon, the sandbag dam was maintaining a temporary plug in the pipe to allow pumping of the discharge up to a pumper/vac truck. There was no evidence of discharge at this point.
- Water being pumped out of the 36-inch pipe is extremely clear.
- Permanent bulkheads are being fabricated (similar to the 48-inch pipe bulkheads) to be installed so that a grout/concrete plug could be pumped in, thus creating a permanent plug in the pipe. The plan is for grouting/concreting to occur either over night or early Thursday.
- All the regulatory agencies (including U.S. Fish and Wildlife) met for nearly four hours today to begin discussion of long-term remediation plans. The group will have regular Wednesday meetings moving forward until a final plan is agreed upon and ready for implementation. Such a plan would likely include complete grouting/concreting the entire length of both the 48-inch and 36-inch pipes, removal of ash from the river, continued sampling (surface water, drinking water, sediment, fish tissue, benthic, biological, groundwater and stormwater), permit modifications, ash basin closeout, and private well sampling.
- EPA's second community meeting was held in Eden from 6:30 p.m. to 8:30 p.m. DENR staff in attendance included Corey Basinger, Tracy Davis, Tom Reeder, Jay Zimmerman, Dianne Reid, Jeff Poupart, Debra Watts, Sherri Knight, Susan Massengale, Toby Vinson, Bradley Bennett and Matt Gantt.
- Sherri Knight will be the DENR on-site contact for the next several days.

Thursday, Feb. 20
10:15 a.m. Update
- High water levels are still high hampering removal of ash from the river.
- Duke Energy expects to have materials on site by around noon for a permanent fix for the 36-inch pipe. Crews will set the form (bulkhead) for grouting and put a collection basin in place to collect what comes out of the pipe when they remove the temporary plug
- Crews hope to begin grouting today but it may not be possible until tomorrow. They are waiting for state approval to reroute water that was coming into the pipe to the other pond.

- Work on the 48-inch pipe has halted to allow efforts to be focused on plugging the 36-inch pipe.
- Duke plans to set up a drill rig at the end of the 48-inch pipe around noon to facilitate clean out of pipe.

6 p.m. Update
- State Dam Safety Engineer Steve spoke by phone with Henry Taylor of Duke Energy concerning the 36-inch stormwater pipe. Taylor is a senior engineer with Duke Energy standing in for Scott Harris. Taylor was DEMLR's first primary point of contact with Duke Energy when DEMLR took over jurisdiction. Taylor informed McEvoy that the Duke crew was preparing to install a 40-foot grout plug in the downstream end of the 36-inch pipe similar to that installed in the 48-inch pipe. He mentioned that they may have the plug installation completed sometime tomorrow. Taylor indicated that he was preparing a plan to fully grout the 36-inch pipe.

Friday, Feb, 21
12:15 p.m. Update
- The 36-inch stormwater pipe was successfully plugged near the river about 2:30 a.m. this morning. The concrete material will need approximately 72 hours to cure before other grouting activities can commence.
- Duke Energy crews plan to continue grouting a section of the 48-inch tomorrow morning provided the all components are ready.
- DENR's Winston-Salem regional office staff sampled at all four Dan River sites today. There are no plans to sample this weekend. Sampling will resume next week in coordination with DENR's environmental sciences staff and Duke Energy.
- Removal of ash deposits from the river is still hampered by the high river flow.
- DENR staff attended EPA community meetings Wednesday in Eden, N.C. and Thursday in South Boston, Va. Both meetings were well attended with many questions. Many were related to the safety of the drinking water, safety of the river as a recreational source, removal of ash in the river and along the banks, and ultimate disposal of the ash in the ponds.

4:30 p.m. Update
- At 4:13 p.m. DENR issued a news release, "Aluminum and iron still exceed surface water quality standards near coal ash spill site."

Saturday, Feb. 22
4 p.m. Update
- The grout installed in the 36-inch stormwater pipe continued to cure.
- A vent line was installed in the 48-inch pipe to facilitate additional grouting.
- A section of the 48-inch pipe was grouted by mid-afternoon, approximately 90% of what was proposed. This section will need to cure prior to attempting additional grouting.
- Attempts to removal the ash deposit in the river was still hampered by the high river flow. Plans are to attempt removal on Tuesday or Wednesday depending on river levels.

Monday, Feb. 24
7:45 p.m. Update
- Testing was conducted today to ensure that the grout/concrete plug in the 36-inch pipe had properly set.
- An additional sump pump was installed in the inlet of the 36-inch pipe to better manage stormwater pumping.
- Grouting/concreting of the remainder of the 36-inch pipe will begin once tests confirm the initial plug has cured properly.
- Grouting/concreting of the remaining 48-inch pipe section will resume following installation of an additional vent pipe.
- New EPA representatives and Virginia Department of Environmental Quality representatives were on site today.

- The next long-term planning meeting for site and river remediation is set for Wednesday, Feb. 26 at 10 a.m. Representatives from DENR, EPA, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, Virginia Department of Environmental Quality and Duke Energy will be in attendance.
- Weather predictions are for snow/ice on Wednesday, which may affect operations. At this point, there is little accumulation expected.
- River levels are steadily dropping. Once the water level reaches a safe point, ash removal activities can resume, hopefully late Tuesday or Wednesday.

Tuesday, Feb. 25

3 p.m. Update

- DENR Dam Safety Engineer Steve McEvoy sent a letter to Duke Energy giving approval for the design and implementation schedule for repairing the failing 36-inch pipe.
- At 2:51 p.m. DENR issued a news release, "State environmental agency considers requiring Duke Energy to move coal ash from Dan River site."

7:30 p.m. Update

- At 1 p.m. today all regulatory agencies met with Duke's Environmental Unit to discuss the ash deposit removal process and schedule. River levels are still high and the flow is swift making it unsafe to conduct the ash removal operation today. The plan for Wednesday is to attempt ash deposit removal in the shallow areas.
- All indications are that the river levels will continue to subside and allow the removal process to progress until completion. All booms and turbidity skirts have remained in place since the previous attempt at ash deposit removal.
- At 3 p.m. today representatives from the City of Danville (mayor, city manager and city council members) visited the site. Also in attendance were the mayor of Eden and a representative from Virginia U.S. Senator Haine's staff. Representatives from DENR, the EPA and Virginia Department of Environmental Quality answered questions and talked with individuals about the emergency response phase and the ongoing sampling and remediation planning phases.
- The grouting/concreting operation of the remainder of the 36-inch pipe should commence on Wednesday.
- The final phase of grouting/concreting the last section of the 48-inch pipe is being planned. That schedule should be available tomorrow.
- DENR staff will conduct sampling tomorrow at all four river sampling locations. In addition, they will collect samples at one of the NPDES outfalls and a third set of samples from the upstream stormwater ditch (commonly referred to as the "orange rock ditch").
- DENR is awaiting sample results verification/validation from the lab on the first two sets of samples taken on Feb. 14 and Feb. 17 at the orange rock ditch. The results of these samples will determine any further action the Division will take with regard to this stormwater outfall.
- Wilmington Regional Office Supervisor Corey Basinger will attend the second planning session for long-term sampling and remediation with all involved regulatory agencies and Duke Energy tomorrow 10 a.m.–2 p.m. There is also a 4:30 p.m. meeting scheduled with the Duke Environmental Unit to discuss the ash deposit removal process and schedule.
- Late today Governor McCrory sent a letter to Duke Energy instructing the company to turn over details of what it plans to do with coal ash ponds at 14 locations across the state, including the one at Duke's Dan River facility.

Wednesday, Feb. 26

8 p.m. Update

- Ash removal activities began at 7 a.m. and continued for several hours, concentrating on shallow areas. Removal efforts continued until the crew moved into deeper water and conditions made it unsafe to continue the operation. An entire vac/pump truck of material was removed from the river. Removal of coal ash will continue as river conditions allow for safe access.

- A second meeting was held today with all agencies regarding near-term and long-term sampling plans, as well as near-term and long-term remediation plans. Those in attendance included DENR, the EPA, Virginia Department of Environmental Quality, Virginia Department of Public Health, U.S. Fish and Wildlife, U.S. Army Corps of Engineers, City of Danville and Duke Energy.
- The main topic of discussion was ash removal from the river. Assessment is ongoing and areas identified as potential sites to recover material were discussed along with method/techniques to be used to accomplish this task. There was also a discussion with U.S. Army Corps of Engineers regarding what permits are needed to conduct these activities and what the process is to obtain necessary approvals. The focus area at this point will be from the spill site to Danville where initial assessments prior to the snow storm identified areas of ash deposit. Once river levels drop further, agencies can reassess these areas.
- Winston-Salem Regional Office staff collected samples at the four sampling sites, as well as samples at the upstream stormwater outfall ("orange rock ditch") and NPDES permitted outfall 001. Surface water samples in the river were also collected at the point where the upstream stormwater outfall empties into the river and upstream of this point to determine if any impacts are occurring in the river.
- When test results become available for the upstream stormwater outfall that data will be used to evaluate what further action DENR will take with respect to this stormwater outfall. DENR staff has been working closely with EPA on this issue.
- Another phase of grouting/concreting in the 48-inch pipe is underway and should be completed later this evening.
- Grouting/concreting of the remainder of the 36-inch pipe is set to begin on Friday morning.
- Regional office staff will return to the site on Thursday to collect another set of samples at the upstream stormwater outfall and surface water samples in the river at this location.

Friday, Feb. 28
9 p.m. Update

- Winston-Salem Regional Office staff collected samples on Thursday at the stormwater outfall (orange rock ditch) and in the river at this location, as well as upstream.
- Work on Friday focused on grouting/concreting the 36-inch pipe. Work started at 8:05 a.m. and progressed without issue until about 1:35 p.m. when a grout/concrete leak was noted and the operation ceased. A small amount of grout/concrete (estimated at less than 10 gallons) actually discharged to the river. The bulk of what leaked was captured by the extra measures that were in place (sand bags and silt fence). The area was thoroughly cleaned and additional measures installed.
- No further grouting/concreting was attempted today because the 21 truckloads of grout/concrete need time to cure. The cure process will require a minimum of 48 hours. Approximately 500 feet of pipe was grouted/concreted.
- Grouting/concreting of the remaining phases of the 48-inch pipe will begin at 8 am on Saturday.
- River levels continue to drop and it is expected that ash removal may be able to resume as early as Sunday morning.
- Further investigations along the river were conducted today to assess possible locations for additional ash removal.
- DENR officials issued two notices of violation to Duke Energy for violations at the Dan River facility. One is for failure to obtain an NPDES stormwater permit, the other is for violations of the facility's current NPDES wastewater permit.
- At 4:56 p.m. DENR issued a news release, "State agency issues violation notices, enforcement recommendations to Duke Energy for coal ash spill."
- DENR officials issued notices of violation to Duke Energy for failure to obtain NPDES stormwater permits for five additional facilities.

Saturday, March 1
7:35 p.m. Update

- Next phase of grouting/concreting 48-inch pipe began prior to 8 a.m. this morning. Work was to continue for 6-8 hours today.
- River assessment was conducted by EPA at the ash deposit to determine where to concentrate efforts for removal. Ash deposits from a couple inches to 12 inches were observed and documented.
- Ash removal operations will begin at 7a.m. on Sunday and continue into Monday when rain is expected.
- No grouting/concreting operation will be conducted on Sunday in order for the prior work to cure. Grouting/concreting will resume on the 36-inch pipe early in the week and in the 48-inch pipe by mid-week.

Monday, March 3
10:30 p.m. Update

- At 12:25 p.m. DENR issued a news release, "State issues notices of violation for five more Duke Energy facilities."
- Ash removal continued throughout the day on Sunday, March 2. Several tanker truckloads of ash material were removed from the river. Divers were employed to better identify and remove the ash. This process will be repeated as river levels and weather allows. It may take 1-2 more days of work to remove the ash deposit.
- Saturday's grouting operation on the 48-inch pipe yielded over 230 feet of successful grouting/concreting.
- No grouting operations were conducted Sunday or Monday. Grouting/concreting will resume midweek.
- Due to wintry weather on Monday, very little activities were being conducted.
- Activities should resume as temperatures rise following extremely cold temperatures predicted for Tuesday morning.
- Wednesday's planning meeting with all agencies is scheduled for 10 a.m. – 2 p.m.

Tuesday, March 4
9 p.m. Update

- Extreme winter weather has hampered work today. Snow and sleet blanketed the area overnight and very cold temperatures prevailed most of the day.
- Planning continued for the final phases of grouting/concreting the 36-inch and 48-inch pipes. Grouting/concreting operations should resume toward the end of the week.
- Plans are nearly complete to brick and mortar the outlets (locations where they discharge to the Dan River) of both the 36-inch and 48-inch pipes.
- Ash removal operations are set to resume on Wednesday morning at 7:30 a.m. Divers will again be on site to lead the operation.
- The weekly agency stakeholder meeting will be held Wednesday 10 a.m.-2 p.m. to further detail the short- and long-term river remediation plans. These meetings include the N.C. Department of Environment and Natural Resources, U.S. Environmental Protection Agency, Virginia Department of Environmental Quality, Virginia Department of Public Health, U.S. Fish and Wildlife Service, U.S. Army Corps of Engineers, City of Danville and Duke Energy. For the sake of brevity, this group of agencies shall be referred to as "agency stakeholders" for the remainder of this report.
- DENR's Winston-Salem Regional Office staff will collect surface water samples in the river on Wednesday.

Wednesday, March 5
7:15 p.m. Update

- At 1:09 p.m. DENR issued a news release, "State regulators to request plans, video of pipes at coal ash facilities and announce inspections."
- Ash deposit removal commenced again this morning and continued until after 5 p.m. Under the direction of EPA's river assessment team, the work was completed to remove the ash deposit just downstream of the 48-inch outfall pipe. The EPA reports that the operation was successful in removing the ash deposit that remained following the snow storm.
- The next area of focus for ash removal will be at the Danville water intake dam.

- The outlet end of the 48-inch pipe was bricked and mortared today. This same process will be completed on the 36-inch pipe in the very near future.
- The grouting and concreting of the remainder of the 36-inch and 48-inch pipes has been completed and is awaiting engineering approval. Once approvals are received, the grouting/concreting work can commence on the remaining portions of the pipes.
- Repairs to the boat ramp are ready to proceed and are waiting for DEMLR to approve the Erosion Control Plan. This is expected by Friday.
- Winston-Salem Regional Office supervisor Corey Basinger attended the agency stakeholder meeting today. Notes from the meeting are as follows:
  1. All agency reps shared their most recent validated data. This included surface water, drinking water, sediment and biological (benthic and fish tissue).
  2. The EPA shared their most recent mapping tool that denotes the areas of documented ash accumulation.
- Following today's successful completion of the ash removal at the 48-inch pipe, the group agreed that the next area of focus will shift to the Danville WTP dam. This is an area where both EPA and USFWS have documented accumulations of ash. This process may require permits from the USACE. Staff from USACE provided feedback on what that process would entail and how quickly it could be accomplished. Their involvement will depend upon the method/technique used to remove the ash. USFWS have given their approval since endangered species are not present at this location.
- Other required information is the assessment of historical data.
- Duke interviewed contractors today to conduct the long-term work of ash removal in the river. The hiring process should be concluded by next week.
- Craig Zeller from the EPA will be joining the agency stakeholder group at the next Wednesday meeting. Mr. Zeller was responsible for oversight of the long-term ecological assessment and ash removal operations for the TVA ash spill.
- The EPA is awaiting the results of an ash particle size analysis that will be helpful in creating a river model that will show how the ash will settle out and in what locations this is most likely to occur. This will be valuable information in determining the final long-term assessment plan.

Wednesday, March 19
7:30 p.m. Update

- DENR Winston-Salem Regional Office supervisor Corey Basinger attended the weekly agency stakeholder meeting today. Those in attendance were DENR-Division of Water Resources, EPA, U.S. Fish and Wildlife Service, U.S. Army Corp of Engineers, Virginia Department of Environmental Quality, representatives from Danville, South Boston and Clarksville, and Duke Energy staff. Of special note was Craig Zeller (EPA) who has been in charge of the long-term assessment and remediation of the TVA ash spill. Notes from the meeting are as follows:
  - All agency reps shared their most recent validated data. This included surface water, drinking water, sediment and biological (benthic and fish tissue).
  - Duke has hired a contractor (Phillips and Jordan) to conduct ash removal operations in the river. There are two identified deposits that will be the initial focus: (a) a deposit behind the dam at the Danville water intake that is estimated to be approximately 3000 cubic yards, and (b) a deposit at the confluence of Towns Creek in North Carolina about one mile downstream from the facility that is estimated to be approximately 50 cubic yards.
  - The larger deposit in Danville will require between two and three months to remove. All applicable permits will be obtained and mobilization of equipment will begin in the near future.
  - The smaller deposit at Towns Creek will be conducted in parallel with the larger operation.
  - River assessment will continue and other areas of deposition will be identified.
  - The agency stakeholder group continues to make progress toward completion of a long-term remediation plan.

- Craig Zeller with EPA talked to the group about the TVA ash spill long-term remediation plan. Mr. Zeller was the lead EPA representative in that process. All the details can be found at the website: www.epakingstontva.com. In short, the TVA remediation effort has been successful and recovered ash taken to a lined landfill in Alabama via train car. The data demonstrates that the river ecosystems continue to recover and long-term monitoring will continue into the future. One interesting note is that approximately 500,000 tons of ash were left in the river in the TVA spill (over five million tons were spilled).
- At the conclusion of the meeting, Duke Energy said that a contractor working on the boat ramp repairs had hit the abandoned dredge line. This abandoned dredge line had been plugged at the discharge end back in February and also disconnected at the inlet end. There was a sag in the abandoned pipe at the point where the contractor hit the pipe and the water in the sag in the pipe discharged. Duke staff calculated that if the entire length of pipe was full of water, the amount of discharge could have been as much as 1006 gallons. There were several booms, silt fence and turbidity curtains in the river surrounding the boat ramp construction site. There was no ash-related water involved. A notice of violation will be issued for this unauthorized discharge.

Thursday, April 3

8 p.m. Update

- DENR Winston-Salem Regional Office supervisor Corey Basinger attended the weekly agency stakeholder group meeting on Wednesday, April 2. Notes from the meeting are as follows:
  - Plans to remove the ash deposit upstream of the Danville wastewater treatment plant (Schoolfield Dam) have continued to move forward. Equipment mobilization is beginning in the park adjacent to the site.
  - Duke Energy is working with the EPA, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, U.S. Coast Guard, Virginia Department of Environmental Quality and the City of Danville to obtain all appropriate permits in order to begin this effort.
  - The project is expected to begin by mid-April and will require approximately 2-3 months to complete.
  - The ash deposit has been estimated to be about 3,000 cubic yards.
  - Another ash deposit has been identified in North Carolina at the confluence of Town Creek, which is within a mile of the Dan River site. This deposit is estimated to be about 40-50 cubic yards.
  - Efforts to remove this deposit will be conducted in conjunction with the Schoolfield Dam effort. This project will require several days to 2 weeks to complete. Again, all applicable permits will be obtained before work in the river begins.
  - Duke Energy is currently working with the Danville and South Boston wastewater treatment plants to remove the sediment/ash/solids that have been captured in the water treatment process since Feb. 2.
  - The Agency Stakeholder Group is continuing to work on the long-term remediation and sampling plan.
  - The N.C. Division of Waste Management has joined the Agency Stakeholder Group
  - In prior updates, we failed to mention that the Rockingham County Environmental Health Department is participating in the Agency Stakeholder Group.

Monday, May 12

3 p.m. Update

Surface water

- Short-term data shows that surface water quality has improved and levels of metals and other contaminants are the same or similar to levels found in the Dan River prior to the Feb. 2 spill.
- In first batch of tests following the spill, surface water samples downstream of the spill showed exceedences for water quality standards for arsenic, aluminum, copper and iron. A similar pattern was seen at the Virginia line where both copper and arsenic exceeded state standards for the first two sampling rounds and then dropped to within standards.

- Aluminum and iron remain above water quality standards at both Draper Landing and the Virginia line – a condition also present at a site upstream of the spill. This can be attributed to the naturally metal-rich soil structure found in this area of North Carolina.
- We remain concerned for the long-term health of the Dan River. DENR and its partner agencies with the EPA, U.S. Army Corps of Engineers, U.S. Fish and Wildlife, Virginia Department of Environmental Quality and health agencies from N.C. and Va. continue to assess the river and downstream water bodies for long-term impacts. Several agencies are sampling sediment and fish tissue and surface water testing continues, as well.
- Also, the federal and state agencies are working with the utility on a long-term monitoring and assessment plan for the river.

Drinking water

- Fortunately, those drinking water treatment facilities downstream of the spill have been able to filter out ash particles and metals sufficiently enough so the water distributed to households and businesses through the drinking water systems meet federal requirements at all times and downstream locations since the spill occurred.

Benthic tests

- Unfortunately, water levels have been too high and currents too swift to safely conduct testing for benthic species in the Dan River. Benthic monitoring would involve wading into waters to gather for testing benthic species such as crayfish and mayflies – both of which are crucial to indicate the water quality in freshwater. DWR will be sampling when water levels allow. Virginia will also be conducting benthic monitoring.

Livestock/irrigation

- In the short-term, there appears to be no problem with irrigation or livestock watering, although we will see what happens if strong storms cause flooding or stir up sediments. See N.C. State's April 15 assessment (attached).
- DENR has taken samples of fish tissue along the run of the river that will serve as a baseline to see if there is any bioaccumulation of metals or other contaminants over time.

Ash deposit removal

- Duke Energy started May 12, 2014 a six-week effort to recover the largest of three, known deposits from North Carolina's Feb. 2 coal ash spill. The deposit is estimated to be about 2,500 tons of coal ash and rests in the Dan River near the Schoolfield Dam, the water intake system for Danville, Va.
- The EPA and the Army Corps of Engineers are doing modeling to determine where the most likely areas are for deposits of sediment. This information will be used to identify areas for field reconnaissance and removal as appropriate. That process will continue for some time.