

U.S. ENVIRONMENTAL PROTECTION AGENCY  
POLLUTION/SITUATION REPORT  
Eden NC Coal Ash Spill - Removal Polrep



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
Region IV

**Subject:** POLREP #1  
Continuation of Emergency Response Actions  
Eden NC Coal Ash Spill  
B41W  
Eden, NC  
Latitude: 36.4878601 Longitude: -79.7189733

**To:**

**From:** Kevin Eichinger, Region 4 OSC, Perry Gaughan, Region 4 OSC, Myles Bartos, Region 3 OSC

**Date:** 3/3/2014

**Reporting Period:** 02/21/2014 through 02/28/2014

## 1. Introduction

### 1.1 Background

<b>Site Number:</b>	B41W	<b>Contract Number:</b>	
<b>D.O. Number:</b>		<b>Action Memo Date:</b>	
<b>Response Authority:</b>	CERCLA	<b>Response Type:</b>	Emergency
<b>Response Lead:</b>	PRP	<b>Incident Category:</b>	Removal Assessment
<b>NPL Status:</b>	Non NPL	<b>Operable Unit:</b>	
<b>Mobilization Date:</b>	2/3/2014	<b>Start Date:</b>	2/3/2014
<b>Demob Date:</b>		<b>Completion Date:</b>	
<b>CERCLIS ID:</b>		<b>RCRIS ID:</b>	
<b>ERNS No.:</b>	1073018, 1073040	<b>State Notification:</b>	
<b>FPN#:</b>		<b>Reimbursable Account #:</b>	

**NOTE:** Fifteen (15) Situation Reports (SITREPS) were generated for the reporting period beginning February 3, 2014 through February 21, 2014. The SITREPS can be found at [http://epaossc.org/site/doc\\_list.aspx?site\\_id=9065](http://epaossc.org/site/doc_list.aspx?site_id=9065). Future response updates will be transmitted via Pollution Reports (POLREPS) using the established POLREP distribution process.

#### 1.1.1 Incident Category

Emergency Response, Inactive Facility

#### 1.1.2 Site Description

The Dan River Steam Station is a decommissioned coal-fired electric generation plant operated by Duke-Energy. The plant is located in Eden, NC adjacent to the Dan River. Duke-Energy began decommissioning the plant in 2012 when a new natural gas-fired electric generation facility was brought on-line. The main powerhouse building and two wet coal ash storage impoundments remain along with ancillary structures. Two dry coal ash storage landfills also remain on-site.. The two ash impoundments (primary and secondary) contain a total of approximately 1.2 million tons of coal ash.

##### 1.1.2.1 Background and Description of Threat

While conducting a routine security inspection at approximately 1500 hrs on February 2, 2014, security officials at the Duke Energy Plant located in Eden, North Carolina noticed a drop in the levels of the primary coal ash pond. Duke Energy's Environmental Division conducted a subsequent inspection and identified a coal ash release into the Dan River through a storm sewer management pipe. The pipe runs beneath the coal ash pond and drains rainfall off the facility. The pipe is not part of the ash management system. Initial efforts by Duke Energy to stop the flow were unsuccessful, and the North Carolina Department of Environment and Natural Resources (NCDENR) was notified of the release later in the day on February 2, 2014. Upon responding to the scene, NCDENR notified the United States Environmental Protection Agency (EPA) Region 4 and requested EPA assistance in the oversight of cleanup activities. Following coordination with the EPA Region 4 Telephone Duty Officer, two On-Scene Coordinators (OSC)s were deployed to the scene from Atlanta, Georgia. Due to proximity and the potential for cross-regional impacts, an OSC was deployed from EPA Region 3 to provide additional assessment and oversight support. Region 4 OSC's Eichinger and Negron arrived just after midnight on 02/04/2014. EPA is currently in Unified Command with Duke Energy and NCDENR and Virginia Department of Environmental Quality (VDEQ). EPA Region 4 Science and Ecological Support Division (SESD) personnel are also assisting with the response.

Duke Energy reported that 50,000 – 82,000 tons (60,000 – 100,000 Cubic Yards) of coal ash and 27 million

gallons of coal ash contaminated water was released to the Dan River. This estimate was later updated to 30,000 - 39,000 tons of coal ash after a third party Engineering Firm completed an engineering study and analysis.

There are two ash ponds (primary and secondary) that contain a total of approximately 1.2 million tons of coal ash. The source of the release was a damaged 48" storm sewer line extending under the primary ash pond. The dike wall on the river side of the primary ash pond was undamaged and completely intact. The dike wall on the plant side of the ash pond was eroded and compromised, but did not release material.

On February 6, 2014, a 27' concrete plug was installed in outfall of the 48" storm sewer line that completely ceased the coal ash and coal ash water release to the Dan River.

On February 14, EPA and NCDENR identified a second storm sewer line extending under the primary ash basin as a potential source of an additional release from the ash basin. On February 18, 2014, Duke Energy was ordered to immediately halt unauthorized discharges of groundwater from this second 36-inch concrete storm water pipe after sample results indicated that this line was releasing water that contained elevated levels of arsenic. This line was sealed with a 40-foot section of concrete on February 21, 2014.

A third storm water outfall to the Dan River, up-river from the release locations was sampled and the preliminary results have been received. NC DENR is reviewing the current NPDES Permit and evaluating this discharge.

EPA has been collecting water quality and sediment samples at the spill source and multiple locations upstream and downstream from the spill site. Sampling locations include both raw water intakes and finished potable water at the Danville, South Boston and Clarksville Drinking Water Treatment Plants. To date, none of the finished water samples have shown any detections above Federal Maximum Contaminant Levels. Sample results and sample location maps can be found at <http://epa.gov/region04/duke-energy/>.

NCDNER and VADEQ has also been conducting water quality samples at the spill source and multiple locations upstream and downstream from the spill site. Both organizations are also collection fish tissue samples.

- NCDENR Dan River Site Information can be found at <http://portal.ncdenr.org/web/guest/dan-river-spill>
- VADEQ Dan River Site Information can be found at <http://deq.virginia.gov/ConnectWithDEQ/EnvironmentalInformation/NorthCarolinaCoalAshSpill.aspx>

#### **1.1.2.1 Removal Site Inspection**

Duke Energy reported that 50,000 – 82,000 tons (60,000 – 100,000 Cubic Yards) of coal ash and 27 million gallons of coal ash contaminated water was released to the Dan River. This estimate was later updated to 30,000 - 39,000 tons of coal ash. Coal ash deposits in the river vary from up to 6 feet at the storm drain outfall to a few inches down-river. The majority of the coal ash appears to have deposited between the release location and the City of Danville Dam, approximately 20 river miles for the release site. Initial water quality monitoring and sampling indicated elevated metals concentrations that exceeded State water quality standards and EPA Removal Screening Levels.

## **2. Current Activities**

### **2.1 Operations Section**

#### **2.1.1 Narrative**

The following activities occurred during this reporting period:

#### **Friday, February 21, 2014**

The 36" storm-water pipe was successfully plugged near the river about 2:30 am. The concrete material will need approximately 72 hours to cure before other grouting activities can commence.

NCDENR conducted surface water sampling at all 4 Dan River sites. There are no plans to sample this weekend and NCDENR is planning sampling for next week in coordination with ESS and Duke-Energy.

Attempts for removal of ash deposit removal in the river is still hampered by the high river flow.

#### **Saturday, February 22, 2014**

The grout installed in the 36" storm-water pipe continues to cure. A vent line was installed in the 48" pipe to facilitate additional grouting. A section of the 48" pipe was grouted by mid-afternoon, approximately 90% of what was proposed. This section will need to cure prior to attempting additional grouting. Attempts for removal of the ash deposit in the river is still hampered by the high river flow.

#### **Monday, February 24, 2014 and Tuesday, February 25, 2014**

Duke project managers and project engineers switched out with previous weeks engineering team to develop plans for three major operations; 48" stormwater pipe grouting operations, 36" stormwater pipe grouting and coal ash removal from the Dan River near the 48" outfall.

EPA had discussions with Phillpot Dam Corp of Engineers Tony Young requesting ability to decrease flow at the hydroelectric plant to assist in ash recovery near the 48" outfall. Mr Young stated that Phillpot typically decreases hydro output on Fridays at approximately noon and restarts hydro electric output on Monday morning. For ash removal operations, this coming weekend will be ideal. This should decrease river flow at

the Site by 20% to approximately 2100 cubic feet per second.

### **Wednesday, February 26, 2014**

Ash removal activities were conducted at 0700 hours. The concentration was on the shallow areas. Work continued until they moved into deeper water and were unable to safely continue the operation. An entire vacuum/pump truck of material was removed from the river. This operation will continue as river conditions allow for safe access.

A second meeting with all agencies regarding near term and long term sampling plans as well as near term and long term remediation plans was held. Those in attendance included EPA, NCDENR, VADEQ, VAPH, US Fish/Wildlife, Army Corps of Engineers (ACOE), City of Danville, and Duke-Energy. Main topic of discussion was ash removal from the river. Assessment is on-going and areas identified as potential sites to recover material were discussed along with the method/techniques to be used to accomplish this task. Also discussed with ACOE what permits may be necessary to conduct these activities and what the process is to obtain any necessary approvals. The focus area at this point will be from the spill site to Danville. Initial assessments conducted prior to the snow storm identified areas of ash deposit. Once river levels drop further, agencies can re-assess these previously identified areas.

NCDENR staff collected surface water samples at the 4 sampling sites as well as samples at the upstream storm-water outfall (commonly referred to as the orange rock ditch). This outfall is identified in Duke-Energy's NPDES permitted as outfall 001. Surface water samples in the river were also collected at the point where the storm-water outfall empties into the river and upstream of this point to determine if any impacts are occurring in the river. NCDENR will evaluate what further action they will take with respect to this storm-water outfall.

Another phase of the grouting/concreting in the 48" is underway and should be completed later this evening. Grouting/concreting of the remainder of the 36" pipe is set to begin on Friday, February 28, 2014, morning.

### **Thursday, February 27, 2014**

Further investigations along the river were conducted today to assess possible locations for additional ash removal. NCDENR staff collected additional samples at the upstream storm-water outfall (commonly referred to as the orange rock ditch). This outfall is identified in Duke-Energy's NPDES permitted as outfall 001.

### **Friday, February 28, 2014**

Work on Friday centered around grouting/concreting the 36" pipe. Work commenced at 0805 hours and progressed without issue until about 1345 hours 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 measure installed. No further grouting/concreting was attempted today in order for the 21 truckloads of grout/concrete to cure. The cure process will require a minimum of 48 hours. Approximately 500 feet of pipe was grouted/concreted. Further investigations along the river were conducted today to assess possible locations for additional ash removal.

#### **Drinking Water Treatment Plants Status and Sampling**

Both the Danville and South Boston WTPs will continue to monitor the situation and report any problems. EPA is currently assessing the possibility of a standardized action plan to sample the WTPs during high turbidity events. Both plants report no problems with removing the increased sediment, and there is no impact to the finished water. No impacts to drinking water have been reported by either the Danville or South Boston water treatment facilities. The EPA Region 3 OSCs continue to communicate with downstream WTPs, Virginia Department of Health, and Virginia Department of Emergency Management. START is currently validating and managing sample data as it is received from the laboratory.

#### **Surface Water and Sediment Sampling**

SESD will re-mobilizing to complete the river sediment sampling once river conditions improve. SEDS has 5 more sediment samples to collect to complete their sediment sampling task.

Start continues sampling support which has scaled back to one day a week (and episodic sampling based on high turbidity events), essentially splitting surface and drinking water samples when Duke collects. VADEQ and NCDNR have also scaled back to once per week on surface and drinking water samples. VADEQ and NCDNR have collected fish tissue samples over the previous two weeks. Duke has also collected fish tissue samples and is running XRF analysis at their own lab. No results yet.

START is currently validating and managing sample data as it is received from the laboratory. New summary data tables will be available soon.

#### **Fish Tissue Studies**

VADEQ collected 200 fish tissue samples from 18 species of fish at the Schoolfield Dam in Danville. The analyses are expected to take several weeks to process.

NCDENR will also collect fish tissue samples.

#### **2.1.3 Enforcement Activities, Identity of Potentially Responsible Parties (PRPs)**

Duke Energy is the Potentially Responsible Party

#### 2.1.4 Progress Metrics

<i>Waste Stream</i>	<i>Medium</i>	<i>Quantity</i>	<i>Manifest #</i>	<i>Treatment</i>	<i>Disposal</i>
Coal Ash	Solid/Liquid	~50 CU. FT.	N/A	N/A	Returned to the Coal Ash Basin

## 2.2 Planning Section

### 2.2.1 Anticipated Activities

Continue to develop, refine and implement river ash removal plans.

Review surface and drinking water sample data provided by NCDENR, VADEQ and Duke-Energy.

Continue to engage and include all response partners.

Continue to review, validate and post EPA sample data to the Site Website.

Continue to develop and release site fact sheets.

Keep the community informed through fact sheets and State/Local contacts.

#### 2.2.1.1 Planned Response Activities

Remove the large ash deposit near the release point.

## 2.3 Logistics Section

Mustang work suits are being procured and will be mobilized to the site for EPA staff to wear while completing river operations.

Data management personnel resources being evaluated.

## 2.4 Finance Section

No information available at this time.

## 2.5 Other Command Staff

### 2.5.1 Safety Officer

Duke-Energy, with EPA oversight, is providing safety officers and assistant safety officers.

### 2.5.2 Liaison Officer

The EPA Region 4 Office of External Affairs continues to be actively engaged in fulfilling information requests in coordination with external affairs programs in EPA Region 3 and EPA Headquarters.

### 2.5.3 Information Officer

#### Public Information and Community Involvement

The EPA Region 3 and 4 Community Involvement Coordinators (CIC) are engaged with Duke Energy developing site-specific information updates to inform the community of on-going activities. Community briefing were held in Danville, VA, Eden, NC and the South Boston, VA. While public outcry over the spill is understandably high, the sessions were generally well-received, and EPA collected questions from the public to generate an FAQ sheet. EPA Region 4 continues to share validated sampling results with our response partners. Validated data is prepared for public release in coordination with the Region 4 Regional Emergency Operations Center, Region 4 Office of External Affairs, and EPA Headquarters on the incident-specific website. Duke and NCDENR analytical results are posted on their websites.

## 3. Participating Entities

### 3.1 Unified Command

EPA Region 3 and 4

North Carolina Department of Environment and Natural Resources

Virginia Department of Environmental Quality

Duke Energy

### 3.2 Cooperating Agencies

US Fish and Wildlife  
US Army Corp of Engineers  
North Carolina Health and Human Services  
North Carolina Wildlife Resources Commission  
North Carolina Office of Emergency Management  
North Carolina, Rockingham County Department of Health and Human Services  
City of Eden, NC  
Dan River Basin Association  
Virginia Department of Environmental Quality  
Virginia Department of Health  
Virginia Department of Game and Inland Fisheries  
City of Danville, VA  
City of South Boston, VA  
Virginia Halifax County

#### **4. Personnel On Site**

- 1 Region 4 On-Scene Coordinators
- 1 Region 3 On-Scene Coordinators
- 6 Region 4 SEDS Personnel
- 2 Superfund Technical Assistance Response Team Member
- 2 Community Involvement Coordinators (CIC) - providing support from the Regional Offices

#### **5. Definition of Terms**

1. OSC - On-Scene Coordinator
2. CIC - Community Involvement Coordinator
3. SEDS - Science and Ecological Support Division
4. PRP - Potential Responsible Party
5. VADEQ - Virginia Department of Environmental Quality
6. NCDENR - North Carolina Department of Environmental and Natural Resources
7. EPA - Environmental Protection Agency
8. WTP - Water (drinking) Treatment Plant
9. ACOE - Army Corp of Engineers

#### **6. Additional sources of information**

##### **6.1 Internet location of additional information/report**

- EPA sample results and sample location maps can be found at <http://epa.gov/region04/duke-energy/>
- EPA Operational Information can be found at <http://epaosc.org/edencoalash>
- NCDENR Dan River Site Information can be found at <http://portal.ncdenr.org/web/guest/dan-river-spill>
- VDEQ Dan River Site Information can be found at <http://deg.virginia.gov/ConnectWithDEQ/EnvironmentalInformation/NorthCarolinaCoalAshSpill.aspx>

##### **6.2 Reporting Schedule**

Pollution Reports (POLREPS) will be transmitted using the established distribution process. The distribution frequency of POLREPS will vary based on the operational needs of the emergency response.

#### **7. Situational Reference Materials**

No information available at this time.