Working for a Just and Sustainable Future

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Campaign Briefing Paper

PROTECT THE MIDDLE FORK

From Coal Ash Pollution

BACKGROUND

- Each year coal combustion for power generation and industrial processes generates over 100 million tons of coal ash in the U.S.

- Coal ash is the material left over after coal is burned, much like ash from a fireplace, only coal ash contains many toxins including arsenic, mercury, cadmium, chromium, selenium, aluminum, antimony, barium, beryllium, boron, copper, lead, manganese, molybdenum, nickel, vanadium, and zinc. These contaminants have been shown to cause birth defects, cancer, and neurological damage in humans, and similar damage to wildlife.

- From 1956 to its closure in March of 2011, Illinois Power and its successors operated a coal-fired power plant along the Middle Fork of the Vermilion River in Vermilion County Illinois. During the 55-year period, over 3.3 million cubic yards of toxic coal ash were deposited in three pits located within the floodplain of the river. Toxic materials from these pits have been shown to be leaching into the adjacent groundwater and the river.

- A cubic yard is slightly larger than the average kitchen stove. The three Dynegy pits hold over 3.3 million cubic yards of coal ash. This is a volume equivalent to 2,000 acres covered one foot deep, or 1547 NFL football fields covered to the same depth. This volume also is enough material to fill the Middle Fork/Vermilion River with over two feet of ash from the power plant all the way to the Wabash River (36 miles downstream).

- In 2000 Dynegy Energy took over ownership of the plant and its disposal pits as part of a purchase agreement with Illinois Power.

- In light of the major coal ash spills that have occurred in other parts of the country, area residents are deeply concerned that the coal ash pits constitute a hazard to public health and safety both from the continued discharge of toxic materials into surface and groundwaters, and from the potential breaching of the ponds by the hydraulic action of the river which would result in a discharge of coal ash downstream.

SIGNIFICANCE OF THE AREA

- The Middle Fork of the Vermilion River flows from its headwaters in Ford county, east and south toward a confluence with the Vermilion River. The Vermilion then flows easterly through Danville, Illinois and on to the Wabash River. In the midst of Vermilion county over 5,500 acres of state owned land lie north and south of the abandoned power plant, including the Middle Fork State Fish & Wildlife Area and the Kickapoo State Recreation Area.

- The Middle Fork is Illinois' only stream to be included in the National Wild Scenic Rivers System. It is designated as both a state and national scenic river, and is protected by state and federal laws because of its outstanding scenic, recreational, ecological, and historical characteristics.

- The Middle Fork is one of the most popular water trails in the state and attracts visitors spring through fall for canoeing, kayaking, row boating and tubing. Kickapoo Landing, a canoe livery located in the state park, puts over 10,000 people on the Middle Fork River system in canoes, kayaks and tubes each year. On the busiest days upward of 400 people may be using their equipment on the section of the river where the Dynegy coal ash pits are located.

- The river system is inhabited by 24 species officially identified as state and federally threatened and endangered species. Among the 57 fish species collected at sample sites in the river corridor during the 1980's are the state endangered blue-breasted darter and many other species that are rare or uncommon in Illinois, or that are indicator species of high water quality. Mussel populations include the federally-endangered Northern Slippershell; the state-endangered Creek Heelsplitter; and six state-threatened species.

- The City of Danville, just twelve miles downstream from the coal ash pits, is currently embarking on an ambitious riverfront development project. Proposed redevelopment would create commercial and open space areas, taking advantage of the esthetic and recreational potential of the Vermilion River. The project is called "Re-Envisioning Downtown Riverfront.

THE COAL ASH PITS

- Coal ash refuse lies in three disposal pits created over the lifetime of the now-closed power plant.

- All three pits lie within the floodplain of the Middle Fork River.

- All intersect the water table, overlaying alluvium and reworked glacial deposits. Groundwater adjacent to and underlying coal ash ponds is connected to the river.

- Two of the three ponds are unlined (i.e.: Old East Pond and North Pond).

- One pond lies over mine voids created by historical underground coal extraction. There is a concern that mine subsidence could compromise the structural integrity of the pit.

- Old East Pond:
    - Constructed in the mid-1950's and taken out of service in mid-1970's.
    - 19.3 acres in size; approximately 55 feet deep.
    - Contains 1.18 million cubic yards of coal ash.
    - Located in area where natural seeps are common.

- North Pond:
    - Constructed in the mid-1970's and taken out of service as disposal site (continued as stormwater storage) in 1988.
    - Contains 1.62 million cubic yards of coal ash.

- New East Pond
    - Constructed in 1988, expanded in 2002 and decommissioned in 2011.
    - Contains 534,013 cubic yards of coal ash.

  The U.S. EPA has classified the New East Ash Pond as having significant hazard, While loss of human life would not be expected if a failure would occur, there would be economic and environmental losses due to the presence of the Middle Fork of the Vermilion River and the Kickapoo State Park in the immediate downstream vicinity.

- In 1978, with the river meandering closer to the North and Old East ash impoundments, the company proposed a channelization project to relocate the river channel far away from the ash dumps.That idea was subsequently abandoned. Instead, the ash impoundment dams were simply raised and moved closer to the river bank, where gabions were installed in 1981 to protect the toe of the dam. For years before and after the gabions were installed, banks were saturated and stained orange by the leachate oozing from the unlined ash dump. Within 20 years, the leachate had dissolved the wire cages, allowing gabions to begin collapsing into the river and contents swept downstream. Shredded 'geotextile' fabric, once intended to prevent leaching, now hangs from many places along the banks where gabions used to be.

- The "New East" ash impoundment was built in 1989, and raised in 2005. Unlike the other two dams, this one is subject to dam safety laws. Leaching of coal ash pollutants has not yet been detected in adjacent groundwater, possibly due to its compacted clay liner. However the impoundment was knowingly built over two known coal mine shafts, enlarged in 2005 to encroach as close to the river as legally allowed by the State's easement. A few years later, in 2008 the owner reported that the river was meandering closer, urgently requesting issuance of a permit from the Corps of Engineers for

construction of gabions. The permit application failed to meet regulatory requirements and was withdrawn in 2010 with the intent to re-submit a different design. Also withdrawn was another application for a permit to armor the banks near the New East ash dam's outlet structure.

- The vicinity of the Vermilion Power Plant experienced extensive coal-mining activity from 1893 to 1970. Two coal mines, called the Crawford Mine (ISGS Mine Index No. 3889) and Fletcher's Middlefork Mine (ISGS Mine Index No. 3888) are located beneath the New East Ash Pond and extend to within 120 feet of the southernmost edge of the Old East Ash Pond system." The New East Ash Pond was constructed in 1992 and the mapping and research for the report on the area's hydrogeology was completed in 2003. According to p.viii-ix of the Executive Summary of Regional and Local Hydrogeology and Geochemistry, Vermilion Power Plant, Volume 1 (November 30, 2003): "The coal mines in the vicinity of the East Ash Pond System have been shown to have significant collapse features where the overlying shale has collapsed or partially collapsed downward into the void or mined coal seam. The collapse of the shale into the void translates upward through the shale, resulting in fracturing and in some cases surface subsidence." Dynegy actually enlarged the pond, in spite of their awareness of the existence of collapsing mine shafts underneath.

- While Dynegy is preparing for site closure and the possible sale or transfer of property, groundwater contamination and surface water impacts continue. According to the "Hydrogeology and Water Quality Report", groundwater flow maps prepared for the two primary water-bearing units at the site, the Middle Groundwater Unit and the Lower Groundwater Unit, demonstrate that groundwater flow within each of the units moves from the western side of the river valley, beneath the ash ponds, towards and discharging into the Middle Fork. In fact, during the majority of a typical year, the Middle Fork to the east and downstream of the Dynegy facility is "a gaining stream with groundwater entering the river via baseflow from the alluvial, glacial and bedrock deposits".

- The report states "the primary indicator parameters for coal combustion residuals (CCR) impacts to groundwater at the site are boron and sulfate, both of which have elevated concentrations above Class I groundwater standards in downgradient monitoring wells within the Middle Groundwater Unit". Other parameters that were found to exceed Class I groundwater standards or that are present at highly elevated concentrations due to CCR impacts to groundwater include iron, manganese, and total dissolved solids within the Middle Groundwater Unit.

- There are 20 private wells within one mile of the ash impoundments.

- Toxicological studies of aquatic invertebrates conducted by the Illinois Natural History Survey found concentrations of coal ash-related pollutants higher in organisms

downstream from the plant than those collected upstream. Higher concentrations were attributed to discharges from the coal ash pits.

- The natural hydraulics of the river have scoured the walls of two of the ash pits. Gabions constructed on the river side of the berm are disintegrating and leachate from the ponds is entering the stream. Reinforcement of the walls has repeatedly failed to prevent the erosion and the direct seepage of the coal ash constituents into the river. It appears that in the last seventy years, the river has moved half its width towards the ash ponds and the trend is for that to continue.

WHAT'S AT STAKE

- Under current conditions, the toxic coal ash represents a threat to public health and safety. The coal ash stored on the Dynegy site is polluting surface and groundwater. Should the berms holding the coal ash in place spring a leak, coal ash could flow into the river causing devastating impacts to fish and wildlife; downstream development; and human health.

- In December of 2008, a coal ash storage facility in Kingston, Tennessee burst, sending 5.5 million cubic yards of coal ash into the Clinch and Emory rivers, eventually covering 300 acres of surrounding area in up to five feet of coal ash. The spill was about 5.5 million cubic yards and clean-up costs have, thus far, exceeded $1.2 billion.

- In 2014 another major spill occurred at a Duke Energy plant in North Carolina, sending over 46,000 cubic yards of toxic material into the Dan River. Over 70 miles of stream were smothered in coal ash. The Charlotte Observer reported that Duke removed 2,389 cubic yards of ash from the river at a cost of $20 million, leaving the remainder of the ash behind. A subsequent study has estimated that the long-term cost of habitat loss, diminished recreation potential, human health and property damage is closer to $295 million.

- The Dynegy-Vermilion coal ash ponds are the source of an accident waiting to happen. If just one percent of the material in the ponds was to enter the Middle Fork, the volume and ensuing impacts could be comparable to those experienced on the Dan River (46,594 cubic yards).

- Kickapoo State Park lies immediately downstream from the plant, and the City of Danville is only 12 miles downstream. In the event of a coal ash spill, the economic impact to state recreation areas and the proposed riverfront development in Danville would be catastrophic.

- Taxpayers could be left with clean-up costs easily reaching tens of millions of dollars.

WHY ACT NOW?

- Federal rules recently adopted to regulate coal ash disposal do not apply to the Dynegy-Vermilion site because the plant ceased operation prior to the effective date of the rules.

- Currently there are no state rules specifically addressing the disposal of coal ash.

- Dynegy has proposed closure of the ponds by leaving them in place, capping them with a 40-mil. PVC liner overlaid with a 250 mil. geocomposite layer and 36 inches of earth. A 2014 corrective action plan was submitted to the Illinois EPA for their approval. Subsequently, it was rejected, based on the need for additional technical information. In June of 2015, Dynegy advised the IEPA that it would not invest in additional technical studies unless or until it could be assured of permit approvals by the U.S. Army Corps of Engineers and the U.S. Department of the Interior for proposed in-stream work.

- Dynegy's closure plan is a cap and run solution that will leave the liability for this dangerous site to future generations.

- Dynegy has dismissed the option of removing the coal ash from the floodplain citing "unfavorable costs".

- Precedent has been set for the responsible closure of leaking coal ash ponds. Following the Dan River spill, North Carolina passed a Coal Ash Management Act requiring Duke Energy to remove coal ash from many of its disposal sites. Two ponds at Dan River are among six the NC Department of Environmental Quality says must be cleaned up by 2019. Fourteen additional ponds must be excavated and the ash reburied in lined landfills by 2024 and eight more ash ponds could be designated for the same treatment. This would bring the total to 28 ash ponds that would relocated.

- Moving the coal ash to a properly-designed facility on-site, away from the river and installing modern pollution controls and monitoring is the only permanent solution that will ensure that area groundwater and surface waters will be protected for future generations and that the cost of future repairs and clean-up will not fall on state and county taxpayers.

WHAT YOU CAN DO

Contact Eco-Justice Collaborative (EJC) at 773.556.3417 or ejc@ecojusticecollaborative.org to learn more and to get involved.

- Host an educational fireside chat in your home or through your organization. EJC will provide you with all the materials and support you need.

- Watch and share Eco-Justice Collaborative's video on coal ash pollution and the Middle Fork.

- Sign the online petition/letter to Governor Rauner at www.ecojusticecollaborative.org.

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- Write a letter to the editor or send in a guest editorial to your local newspaper. See http://ecojusticecollaborative.org/campaign-to-protect-the-middle-fork/act-today/ for talking points.

- Call your Illinois state representative. Ask him or her to call on Governor Rauner and the IEPA to require Dynegy Energy to:

    - Remove its toxic coal waste from the floodplain of the Middle Fork of the Vermilion River; and

    - Relocate the toxic waste on-site, to an upland location designed to ensure maximum protection of area groundwater and surface waters from future contamination.

- Then, place a call to Governor Rauner. Need a sample script? Visit: http://ecojusticecollaborative.org/campaign-to-protect-the-middle-fork/act-today/.