



The Environmental Synopsis

A Monthly Update from the Joint Legislative Air and Water Pollution Control and Conservation Committee

OCTOBER 2017



The Chairman's Corner Senator Scott E. Hutchinson

Last month marked the 16th anniversary of the 9/11 terrorist attacks. The haunting memories of that day are still

fresh in minds of many Pennsylvanians, particularly those living near the crash site of United Airlines Flight 93 near Shanksville, Somerset County. Today, the Flight 93 National Memorial pays tribute to those who fought back against the hijackers to save countless others from tragedy. Each year, the memorial welcomes 400,000 visitors from across the country who come to pay their respects to these fallen heroes.

The memorial sits on roughly 2,200 acres of land in an area known as Lambert's Run, a community steeped in coal mining heritage, like much of southwestern Pennsylvania. Should you have the chance to visit, you'll notice that the benches and representation of the aircraft's flight path are colored black. This was an effort by the U.S. National Park Service to incorporate coal's significance to the region. What is often overlooked, however, is the advanced treatment system being used to remediate acid mine drainage near the impact site.

Prior to the crash, Lambert's Run was home to decades of underground and surface mining operations. Unfortunately, due to a few bad actors, the watershed

surrounding the crash site became polluted with heavy concentrations of iron and manganese. Active and passive treatment systems were installed by the former mine operator in the early 2000s, but were unable to fully remediate the site. Once the land was dedicated as a national memorial, government officials and families of the victims started searching for additional ways to treat the contaminated watershed.

In 2012, the U.S. Department of the Interior's Office of Surface Mining Reclamation and Enforcement provided over \$300,000 in federal grants to construct new water treatment systems at the crash site. The announcement followed a yearlong study to determine what treatment methods could effectively clean the water using the smallest

possible footprint. Those involved in the project felt that preserving the memorial's natural surroundings was important to honoring the sacrifices made by the crash victims and their families.

The study had uncovered two important findings. First, the existing passive treatment system could be greatly enhanced by directing the pumped mine water against large rocks in the settling pond. The resulting aeration helps better separate iron from the water, allowing it to sink to the bottom of the pond, while the cleaner water continues through the purification process. This finding was significant, but even with this modification, additional steps would be necessary to completely remediate the acid mine drainage problem.

Hydrologists found that the impact site could benefit from a wetland area, rather than additional settling ponds.

Continued on page 8

IN THIS ISSUE

October 2017
Volume 18, Number 10

The Chairman's Corner.....	1
Notes from the Director	2
Research Briefs	3
• Nuclear Plant Construction on the Decline	
• Possible Carcinogen Found in Public Water Systems	
• Climate Change Impacts Midwest Infrastructure	
• Consumers Embracing Organic Food	
On the Horizon.....	7
Committee Chronicles.....	7

Notes from the Director

Tony M. Guerrieri, Executive Director

Energy companies in the Midwest have not been able to take advantage of the hydraulic fracturing revolution like those in Pennsylvania, but other companies are experiencing an economic heyday by supplying an ingredient that is playing a big role in the fracking boom. States like Wisconsin, Minnesota and Iowa do not have the vast reserves of natural gas, but they do have huge quantities of pure silica sand deposits, branded “Northern White” sandstone.

The demand for sand has soared with the explosion in hydraulic fracturing in Texas, North Dakota, Pennsylvania and elsewhere. The fine, white fracking sand is the type of sand drillers prefer. Industry analysts believe that oil and natural gas wells in the U.S. will demand 120 million tons of the high-quality sand in 2018, up from the previous forecast of 95 million.

The sand is perfect for the hydraulic fracturing process, which uses force to open cracks in the shale and free up natural gases, oil and other lucrative products such as propane, ethane and butane. The fracking sand is nearly 100 percent pure silica, or quartz. Most sand is 60 to 70 percent quartz, while some run-of-the-mill river sand has zero. Sands with at least 95 percent silica are desirable for fracking and certified by the American Petroleum Institute.

Fracking sand is also round and spherical. It is also incredibly hard and strong. It is resistant to water and chemicals. It flows almost like a liquid and can survive heavy pressures deep underground with a compressive strength between 6,000 and 14,000 pounds of pressure per square inch. Most sands are too soft, the wrong shape or too prone to react with water and other chemicals.

Energy companies use the sand to help maximize their oil and gas wells. The grains of sand act as a “proppant,”

a material used to “prop” open the underground cracks like trillions of tiny marbles. This keeps fissures open so that more dislodged natural gas or crude oil can be extracted.

The process used to mine fracking sand is not without controversy, however. Negative impacts include wear and tear on rural roads from hundreds of sand trucks hauling heavy loads. Wisconsin, which produces no oil or natural gas, is currently the nation’s largest producer of frack sand. In Wisconsin alone, there are 92 active large-scale facilities related to the frack sand mining industry.

The economic benefits of the natural gas boom aren’t limited to gas-producing states. The Midwest is cashing in on the production of high quality sand, a key component of fracking fluid.

Shipping 5 million tons of valuable sand can require 200,000 truckloads, according to a 2013 study by the University of Wisconsin. A number of counties in Wisconsin and other states have created road impact fees that shift the costs of damage and improvements to the sand companies.

In addition, people living near mining and processing operations are concerned about the health effects of dust. The sand grain particles themselves are harmless – think of sand on the beach – but the silica dust particles created by the sand are essentially tiny glass shards. Exposure to silica dust can cause silicosis, a potentially fatal lung disease. Representatives of the sand mining and processing industry

indicate that silicosis is prevented with ventilation and engineering practices that keep dust in enclosed spaces. Some mines and processing plants also monitor the air outside their facilities.

Industry experts suggest that while new horizontal drilling activity has declined in recent years, the demand for frack sand remains quite healthy. The quantity of proppant can vary from as low as 2.5 million pounds to roughly 7 million pounds, depending on geological variations and characteristics of a shale formation.

The trend, however, has been to increase the use of frack sand. The more sand, the better the result. In Louisiana, for example, an energy company pumped a record 50.2 million pounds of sand into a horizontal well roughly 1.8 miles long.

A report about frack sand by the Chicago-based Heartland Institute confirms the trend, noting that silica sand comprised 9.5 percent of fracking fluid a few years ago, but can now represent up to 20 percent of the fracking fluid during horizontal drilling activity.

The price of sand is a key factor in shale wells. Sand prices soared in 2016 as energy companies ramped up shale drilling and production. The tightening market has already sent prices marching toward \$50 a ton or more – up from \$15 to \$20 a ton in the second half of 2016.

While the sand found in the Midwest remains the highest quality and generates the highest yields for fracking, it costs up to \$70 a ton to transport it to drill pad sites several hundred miles away, and more companies are exploring the possibility of using local, inferior sands to save on transportation costs. Ceramic beads and other synthetic alternatives exist, but they are more expensive to manufacture and transport.

Research Briefs

Is the Nuclear Power Industry Heading for a Meltdown?

Tony M. Guerrieri, Executive Director

The U.S. possesses the largest nuclear energy fleet in the world, with 99 commercial reactors in 62 power plants. They provided 805 terawatt hours of electricity in 2016, a slight increase over the 798 TWh in 2015, but still below the 2010 peak of 807.1 TWh.

According to a recent World Nuclear Industry Status Report, with the exception of China, most nations are moving away from nuclear – the plants have been plagued by huge cost overruns, lower cost competitors, public fear and unmanageable waste problems.

The report contains a country-by-country analysis of nuclear programs around the world. It provides quantitative and qualitative information about nuclear power plants in operation, under construction, and in the planning phases. It assesses the economic performance of past and current nuclear projects and compares their development to that of leading renewable energy sources.

China is leading the world in the number of nuclear reactors being installed, at 20, followed by Russia and India with six apiece. The number of nuclear reactors under construction is, however, declining for the fourth consecutive year, from 68 reactors in 2013 to only 53 in 2017.

The report further reveals that most nuclear reactor construction projects are behind schedule, with delays resulting in increased project costs and interruptions in power generation. There are 37 reactor projects behind schedule, of which 19 reported increased delays over the past year. In China, 11 of the 20 reactors under construction are behind schedule. Eight nuclear power projects have been under

construction globally for a decade or more, three of them for over 30 years.

Last year, nuclear power production grew by 1.4 percent thanks to an increase of 23 percent in China. At a global level, the share of nuclear power generation declined very slightly by 0.2 percent. By comparison, wind power output grew by 16 percent and solar by 30 percent. Wind power increased generation by 132 TWh or 3.8 times, and solar power by 77 TWh, or 2.2 times more than nuclear power's 35 TWh. Renewables represented 62 percent of global generating capacity additions.

With the exception of China, nuclear power is trending downward globally. The number of new reactors under construction dropped from a high of 15 in 2010, to only one in the first half of 2017.

Today, five countries (China, France, Russia, South Korea and the United States) produce 70 percent of the total nuclear energy in the world. The two largest manufacturers – the U.S. and France – account for more than half of all nuclear power generation worldwide.

According to the report, over \$240 billion was invested in renewable energy in 2016, down from a record high of \$312 billion the previous year. But the 23 percent fall in total investment volume mainly reflects the rapid reduction in investment costs per megawatt as total renewable capacities installed in 2016 added up to 138.5 gigawatts, greater than the 127.5 gigawatts the year before. Regarding nuclear, only three new power plants started construction in 2016, totaling 3 gigawatts of capacity and about \$10 billion in total investment.

Russia and the U.S. shut down reactors in 2016, while Sweden and South Korea both closed their oldest units in the first half of 2017, the report notes.

The report also documents the financial crisis plaguing the industry. In March, Westinghouse, one of the last private companies building nuclear reactors in the U.S. – and its parent, Toshiba, filed for bankruptcy after hitting big problems with its latest pressurized water reactor design, the AP1000. The company is now out of the nuclear construction business.

In July, after \$9 billion had already been spent on construction, two South Carolina utility companies abandoned two new Westinghouse reactors that were just 40 percent complete, dealing a major blow to the future of American nuclear power. The plan had been to build two AP1000 reactors to lead the nuclear revival in the U.S. The utilities have said rising costs, construction delays and the bankruptcy of chief contractor Westinghouse led them to walk away.

Closing the final chapter on the Fukushima nuclear power project in Japan, six years after the disaster began, the total official cost estimate for the catastrophe doubled to \$200 billion.



In the wake of the disaster, the number of new construction projects has dropped significantly worldwide. From a high of 15 in 2010, the number of construction starts of nuclear reactors dropped to 10 in 2013, eight in 2015, three in 2016, and just one so far in 2017.

The 267-page report, *The World Nuclear Industry Status Report 2017*, is available at: <https://www.worldnuclearreport.org/IMG/pdf/20170912wnisr2017-en-lr.pdf>.

Possible Carcinogen Found in Drinking Water, Consumer Products

Coleen P. Engvall, Research Analyst

Concerns about drinking water have been on Americans' minds as of late. The Flint Michigan Crisis made national headlines, but it was hardly an isolated case. Contaminated tap water is a major public health issue across the country. These breakdowns in critical infrastructure were sometimes caused by gross mismanagement or inadequate funding, but there is another angle.

Researchers with the Environmental Working Group have turned their attention to potentially harmful chemicals public water systems are not required



to screen for. In their report, *Hidden Carcinogen Taints Tap Water*, Consumer Products Nationwide, they focused on a chemical known as dioxane.

This chemical, which is used to stabilize other compounds and dissolve certain substances, is not regulated by the EPA for drinking water, though they are actively examining it. They have published findings in the past about the potential human and environmental health implications, designating that 0.35 parts per billion is the concentration where dioxane marginally increases the risk of cancer.

Dioxane, a widely-used chemical recognized as a possible carcinogen by the EPA and CDC, has been found in public water systems and certain consumer products across the U.S., often at alarmingly-high levels.

Additionally, the Centers for Disease Control and Prevention list dioxane as a catalyst for liver damage and kidney failure, as well as a possible carcinogen. Animal tests done in the past showed dioxane causing tumors in rats that were exposed to the chemical.

The EPA has added dioxane to a list of chemicals to be considered under the new Toxic Substances Control Act, which was passed in 2016. However, according to data collected by EWG, dioxane is already present in American drinking water. Using data from their Tap Water Database, they determined that 1,060 public water systems across the country show higher levels of dioxane than the EPA safety designation.

That amounts to over seven million people being routinely exposed,

including at least 50,000 people here in Pennsylvania. Unfortunately, researchers estimate this is not the full picture, due to the fact that small public water systems and private well owners do not tend to test for dioxane at all.

In many of the public water systems that were evaluated, the toxin was not only present, but present in alarming amounts. One water system in North Carolina reported levels that were 17 times higher than the EPA's health advisory limit.

So how did this level of contamination happen? Dioxane has been widely used in industrial processes since the 1950s as a way to stabilize other chemicals, particularly chlorinated solvents. It can also be found in certain soaps and cosmetic products, as well as anti-freeze and deicing agents. Dioxane can enter the environment from manufacturing effluent or when discarded by consumers.

The authors urge that dioxane be given a maximum limit for drinking water, given the prevalence of contamination suggested by their data. They agree with EPA's health advisory limit of 0.35 parts per billion and suggest it as the enforceable limit for public water systems. Alternatively, the researchers point to state reporting and "alert systems," seen in states like New Jersey. They also advocate for stricter enforcement on producers who discharge dioxane into surface and groundwater.

The EWG recommends that the FDA take steps to reduce dioxane levels in consumer products, which would help reduce direct human exposure as well as the amount of dioxane that gets reintroduced into the environment.

To read the full report, go to: <http://www.ewg.org/research/hidden-carcinogen-taints-tap-water-consumer-products-nationwide#.WdOnE1tSxhH>.

Climate Impacts Threaten Midwest Infrastructure

Tony M. Guerrieri, Executive Director

Infrastructure systems are designed to withstand severe weather and harsh climates. Civil engineers typically refer to historical records of climate, especially extreme weather events, when designing infrastructure systems. For example, bridges are often designed to withstand storms that have a probability of occurring only once or twice every 100 years. A report by the Midwest Economic Policy Institute warns that climate change may have potentially devastating impacts on transportation and infrastructure systems across the Midwest.

Climate change could impact Midwest infrastructure, bringing higher temperatures, increased rainfall and flooding. This puts extra stress on the region's aging roads and bridges.

Climate change is projected to increase the frequency and intensity of some extreme weather events. Rising temperatures and the likelihood of more storms reduce the lifespan of roads and bridges, cause railways to buckle, and threaten above-ground energy facilities and transmission lines. Without critical maintenance and modernization of these systems, everything from freight and commuter routes to the region's overall economic value as a net distributor of electricity could be jeopardized.

The report, *Climate Change and Its Impact on Infrastructure Systems in the Midwest*, noted that the region's average air temperature has risen by 4.5 degrees since 1980. The Midwest also has seen more electricity outages, a 27



percent increase in the number of "very heavy precipitation days" between 1958 and 2007, a reduction in Great Lakes ice coverage, and more frequent freeze-thaw cycles. All of these trends can affect roads, bridges and other infrastructure. The report indicates that increases in temperatures, and particularly in the frequency of extreme heat events, could increase material stress on pavement and bridge expansion joints. This can create rutting and potholes, particularly in high traffic areas. With these changes, it could become more costly to build and maintain roads and highways.

Climate change is projected to concentrate rainfall into more intense storms. These changes could affect surface transportation in two ways. First, an increase in heavy precipitation can lead to flooded roadways. Additionally, increased runoff weakens or washes out the soil and culverts that support roads, tunnels and bridges. Extreme weather associated with climate change, such as stronger electrical storms, high winds, ice and snow could impact the supply of electricity. Major weather events are directly related to power disruptions and outages, with damage to utility and customer equipment alike, in addition to economic opportunity costs. The Midwest is particularly susceptible to electricity outages, with four states ranking among the top 10 that experienced the most outages between 2003 and 2012.

Because electricity is an "on-demand" service, and supply and demand must be balance on a real-time basis, changes to demand have a direct and immediate bearing on supply. According to the report, rising temperatures caused by climate change have led to increased demand for cooling and will require \$6 billion in future infrastructure investments to keep up with the region's needs.

The report concludes that infrastructure is "grossly underfunded" to meet the maintenance and growth needs of the nation. Even without accounting for adaption for climate change, the funding gap between needs and revenues between 2016 and 2025 is over \$2 trillion for national infrastructure systems, the report said, citing the American Society of Civil Engineers.

The report offers a range of recommendations to help minimize the effects of future weather on transportation and electricity systems. These include:

- Limits on development in low-lying areas that have already experienced storm related damage
- Updating heat and rainfall standards used in the project design process
- Climate Action Plans with greenhouse emission targets; and adaption plans with asset management programs that can help state and local governments identify at-risk systems and develop cost-effective alternatives

Some state and local governments have taken their own action on climate change. Minnesota and Michigan lead the region in adequately preparing their systems for climate change, the report said. It also gave credit to the Illinois Department of Transportation, along with the state transportation departments of Michigan, Ohio and Minnesota, in pursuing programs to manage assets and identify vulnerabilities in response to climate change. The Midwest Economic Policy Institute is a division of the Illinois Economic Policy Institute, a non-profit think tank whose members include representatives from the construction industry and labor unions.

Read the Midwest Economic Policy Institute's report, *Climate Change and Its Impact on Infrastructure Systems in the Midwest*, at: <https://midwestepi.files.wordpress.com/2017/10/mepi-infrastructure-and-climate-change-final.pdf>.

Organic Food Consumption on the Rise

Coleen P. Engvall, Research Analyst

The organic food market is growing rapidly in most developed countries. In the past, organic food was often relegated to a small section of grocery stores, but now it can now be found in virtually every aisle for just about any product: dairy, meat, vegetables and even prepared food. So, what exactly is the difference between the usual grocery store staples and their organic counterparts? In the U.S., anything labeled as "organic," must meet several requirements outlined in federal law.

Producers are prohibited from using certain harmful substances, including:

- Synthetic substances, with exceptions given to some disinfectants and medical treatments
- Certain non-synthetic substances, such as tobacco dust, lead salt and arsenic
- Ionizing radiation
- Sewage sludge

Additionally, according to the U.S. Department of Agriculture, "organic production is not simply the avoidance of conventional chemical inputs, nor is it the substitution of natural inputs for synthetic ones... Organic producers implement a wide range of strategies to develop and maintain biological diversity and replenish soil fertility."

This label appears to hold appeal to consumers, who have been increasingly buying organic products over the last several years. Researchers at Aarhus University set out to better understand the motivations and patterns of these consumers,

and they published their findings in the *Journal of Consumer Research* in March. The study is entitled, *Will the Consistent Organic Food Consumer Step Forward?: An Empirical Analysis*.

The researchers followed 10,000 households for over a year to analyze organic food-buying trends. Milk and other dairy products were typically the starting point for households that hadn't previously purchased organic groceries. Milk is one of the most commonly bought organic products by weight, however, for consumers, milk is just the beginning, serving as the first step in a staircase effect. This means that once the consumer starts buying one kind of organic product, they tend to slowly increase the number of organic items as time goes on.

A study on consumer behavior discovered that people who start to buy organic goods are likely to continue and to branch out to other organic products.

Vegetables and eggs are usually next in the shopping cart, and given time, some of the consumers in the study were purchasing organic goods on a regular basis.

According to the study, there is no going back once you've started buying organic either. The researchers note that this is probably due to the moral connotation given to these products. Organic food is seen as better for one's health, the local economy and the environment. This designation as "better," regardless



of each individual's reasoning, keeps the customers coming back. Separate behavioral studies show that people rarely revert back to a "less-moral" stance after taking just one "moral" stance. The researchers speculate this is the reason for the continued shopping patterns seen in their study.

Combining this with the tendency for organic goods to serve as gateway products, leading to organic products in various categories, the organic food sector has grown significantly since the label was regulated by the USDA in 2002. In 2016, in the U.S. alone, the sector saw \$43 billion in retail sales.

The sector is expected to continue growing, and studies such as this one reinforce that certainty. Additionally, data on consumer trends can help producers and retailers improve sales strategies, targeting shoppers with products that they are likely to transition to next. The researchers note that their data is focused on trends, rather than the cause behind them.

To read *Will the Consistent Organic Food Consumer Step Forward? An Empirical Analysis*, go to: <https://academic.oup.com/jcr/article-abstract/44/3/519/3067077/Will-the-Consistent-Organic-Food-Consumer-Step?redirectedFrom=fulltext>.

On the Horizon

A look at upcoming Committee events

Thursday, November 2, 1 p.m.

Informational Briefing

South Terrace Conference Room, Philadelphia Museum of Art

The City of Philadelphia will host an informational briefing for Committee members and staff on the city's municipal energy master plan. The newly unveiled plan has set ambitious goals to reduce energy consumption, switch to cleaner fuels and reduce greenhouse gas emissions – all while creating jobs, establishing energy security and improving public health in the region. The city plans to meet their targets through a broad range of initiatives, from implementing LED streetlights, to targeted plans for high-energy consumers, such as the famous Philadelphia Museum of Art.

Monday, November 13, 12 p.m.

Environmental Issues Forum

Room 8E-A, Capitol East Wing, Capitol Complex, Harrisburg

The November forum will feature a presentation on pumped storage hydropower, a type of hydroelectric energy storage used for load balancing. Adam Rousselle, president of Bucks County-based Merchant Hydro Developers, will discuss his company's plans to develop 20 pumped storage facilities across the Commonwealth, many utilizing abandoned mines as water reservoirs. Pumped storage is increasingly viewed as a way to increase grid reliability during peak consumption.



• **Check Us Out on Social Media** •



You can now receive updates on committee events, new research and more by following the Joint Legislative Conservation Committee on social media.

You can find us on Facebook at www.facebook.com/jointconservationcommittee, or on Twitter at www.twitter.com/PA_JLCC. Take a moment and follow us today for the latest on issues related to Pennsylvania's diverse natural resources.

Committee Chronicles

A review of some memorable Committee events



On Monday, October 16, the Committee hosted its first Environmental Issues Forum of the fall session at the State Capitol Building in Harrisburg. The guest for the October forum was Mr. Paul Zeph, planning section chief for DCNR's Bureau of State Parks. Paul briefed legislators and staff on the bureau's ongoing update to the state park master plan, entitled "Penn's Parks for All – Planning for the State Parks of Tomorrow." Pennsylvania's award-winning park system spans over 300,000 acres and contains some of the most important natural "gems" our state has to offer.

Paul Zeph (pictured at right) explained the evolution of Pennsylvania's 121 state parks. Fulfilling the vision of the late Dr. Maurice Goddard, today there is a state park within 25 miles of nearly every Pennsylvanian. Together, our state parks receive 40 million visits each year.

Joint Legislative Conservation Committee

Contact Information

Phone : 717.787.7570

Website : jcc.legis.state.pa.us

Location:
Room 408
Finance Building
Harrisburg, PA 17120

Mailing Address:
Joint Legislative
Conservation Committee
PA House of Representatives
P.O. Box 202254
Harrisburg, PA 17120-2254



The Chairman's Corner

continued from page 1

Commonly referred to as constructed or engineered wetlands, this form of treatment system mimics natural wetlands by using vegetation and soils to filter contaminants from water. As the polluted water passes through the wetland, heavy metals, such as iron, cling to the vegetation and are removed. Despite the simplicity, constructed wetlands can be as effective as traditional treatment systems, at a much lower cost.

The Flight 93 National Memorial is a powerful tribute to those who made the ultimate sacrifice on 9/11. Constructed wetlands are being used at the site to restore the local watershed and improve the visitor experience.

Constructed wetlands aren't a new concept; there are currently over 1,000 constructed wetlands projects in the U.S. being used to remediate abandoned mine lands and other industrial sites. What makes them attractive is their natural appearance and low operating costs. They are also capable providing habitat for local wildlife. These redeeming qualities made it the perfect match for a more delicate project site, such as the Flight 93 memorial.

Construction of the wetland project began in late 2012 and took nearly eight months to complete. Project designers also added a 4-foot deep limestone gravel bed that helps further address the high levels of manganese. The results have been impressive; the treatment process has reduced the iron content in the wastewater by 77 percent and manganese by 95 percent. Once

purified, the wastewater is pumped into Stoneycreek River, which is popular with local anglers.

Officials from OSMRE and DEP believe similar constructed wetlands projects can be effective not only for abandoned mine reclamation, but also active mining operations. Mine operators are frequently required to have water treatment plans in place, and the low cost of constructed wetlands could be an attractive option, especially during a time when many mine operators are coping with slowed production.

It is worth noting that the acid mine drainage project isn't the only restoration effort underway at the Flight 93 memorial, the NPS also hosts an annual tree planting aimed at growing 15 different species of trees at the crash site including American chestnut, red oak and white pine. This year's planting, which took place in May, attracted more than 500 volunteers. The park service hopes to plant over 150,000 seedlings across several hundred acres, which will not only add to the beauty of the memorial, but also benefit the local ecosystem.

For more information on the Flight 93 National Memorial, or to plan a visit, check out the National Park Service's website at <https://www.nps.gov/flni/index.htm>.

