



KAW NATION ENVIRONMENTAL DEPARTMENT

environment

2014



**WHAT WE HAVE DONE,
ARE DOING AND WILL DO**
Goals and priorities
Braman Recycling Center
Services for tribal members
5-year development programs

**PRESERVE
PROTECT
& IMPROVE**



KNED'S GOALS AND PRIORITIES

- Represent tribal interest to public and private entities.
- Develop a communication network inside and outside the tribe on environmental principles and practices.
- Establish environmental management as a fundamental institutional part of the tribe.
- Support water rights and the development of enforceable water quality standards.
- Land acquisition and management.
- Facilitate safe drinking water and water quality for members of the public by supporting water treatment plants and distribution.
- Encourage environmental stewardship among nearby schools and tribal youth.
- Arkansas River Watershed Protection Program.
- Provide the professional capacity for environmental assessments.
- Restore ecologically degraded areas through wetland enhancement.
- Provide education materials to schools within the Kaw Nation service area.
- Strengthening our inspecting capacity and conducting outreach service to elders and youth groups.
- In cooperation with local municipalities and county commissioners, clearing illegal dump sites that affect the health and welfare of our society.



Left to right: Skyler Mathews, Cody Wingo, Toby Lavers, Francine Hackett, Dr. Dejene Alemayehu, Kayla Calhoun

WHO ARE WE?

The Kaw Nation Environmental Department (KNED) was established in 1996 by the Kaw Nation to PRESERVE, PROTECT AND IMPROVE the quality of our natural resources for the benefit of Kaw Nation and its future generations.

KNED has developed various environmental codes, including solid waste management, underground storage, food safety, fishing and hunting and water and air quality.

Each one was approved through a tribal resolution.

KNED was also approved by the U.S. Environmental Protection Agency for treatment in the same manner as the state tribal authority (TAS) for Section 106 and 319 of the Clean Water Act, as well as the TAS for air quality.

Our office is located at 801 Washunga Drive in Kaw City, Okla. We are available to address your concerns or answer any questions.

Office hours are 8 a.m. to 4 p.m. Monday through Friday. Our number is 580-269-1203.



Water Quality Monitoring



Following U.S. EPA guidelines, KNED monitors to:

- Characterize water and identify change or trends in water quality over time.
- Identify pollutants that affect water quality.
- Gather information to develop a plan for preventing pollution.

KNED studies:

- Fish
- Macroinvertebrates
- Temperature
- Productivity

KNED also looks at levels of:

- dissolved oxygen
- nutrients
- metals
- oils
- pesticides
- sedimentation

Sampling sites:

Kaw Lake

Washunga Bay

Sarge Creek

Coon Creek Cove

Osage Cove (two sites)

Kaw Dam

Arkansas River Lake Ponca (two sites)

Chilocco Creek

Newkirk Bridge

Other creeks

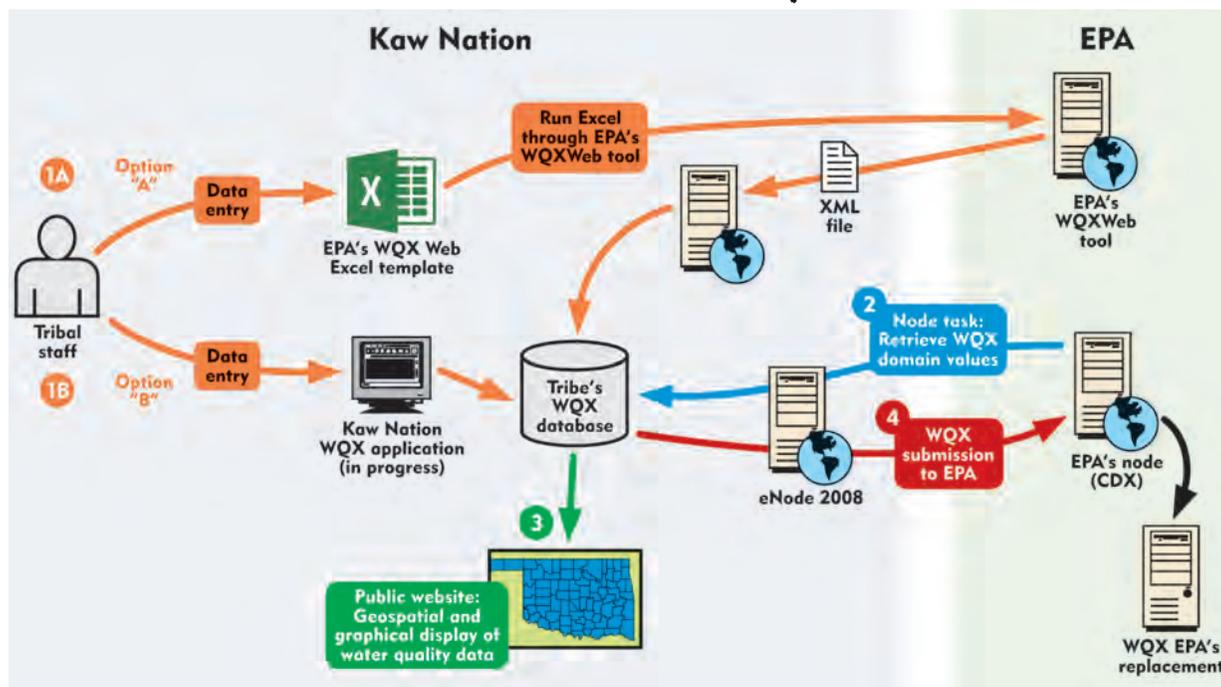
Beaver Creek

Little Bear Creek

Big Bear Creek

WQX: Water quality exchange data flow

How Kaw Nation submits data to the U.S. EPA



Fish Sampling



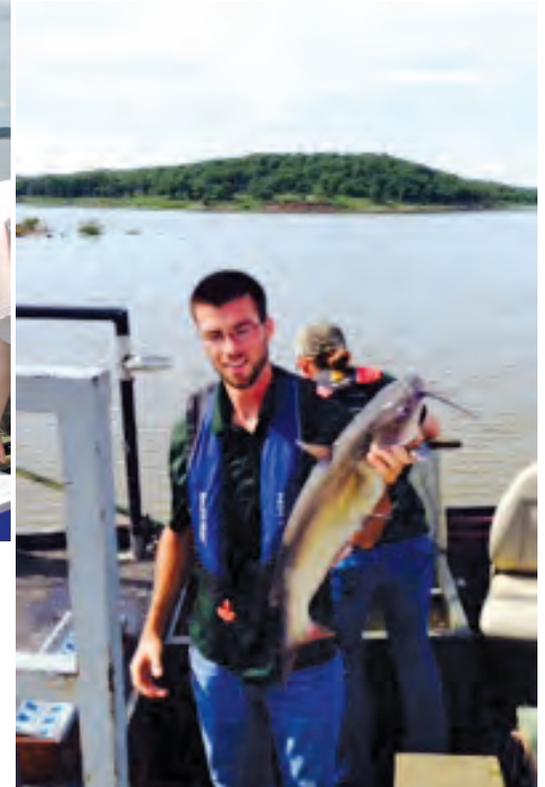
KNED conducts fish samples while testing water quality.

Working with the Oklahoma Department of Wildlife Conservation, KNED performed a study of the mercury levels in fish. This study is funded by the Water Quality Monitoring grant from the Environmental Protection Agency.

Consuming high amounts of mercury leads to health problems, especially for pregnant women. Those who may have consumed too much mercury should visit a doctor.

KNED collects samples of different species of fish. This allows department specialists to test the health of different fish. Besides checking mercury levels, KNED looks at the size and weight of the fish. Through this test, KNED may be able to find fish that are overpopulating the water.

After testing the sampled fish, they are sent to the Fish and Wildlife Service.



Macroinvertebrates

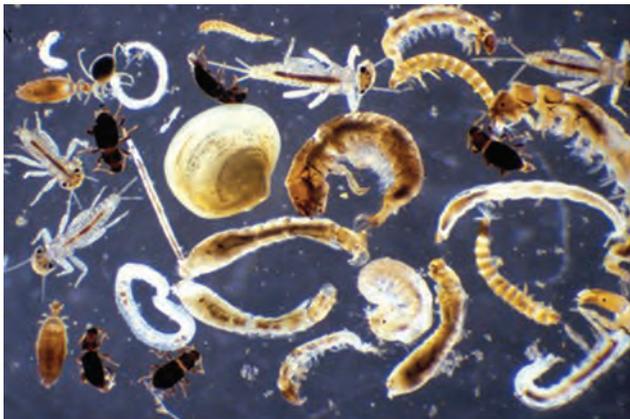


Macroinvertebrates are animals without backbones large enough to be seen by the naked eye. These include aquatic worms, leeches and the larval and nymph stages of many insects.

They are found in lakes, streams, ponds, marshes and puddles. Macroinvertebrates help preserve the health of the water ecosystem by eating bacteria and dead or decaying plants and aquatic creatures.

KNED uses the level of macroinvertebrates as one measurement of the water's health.

A high number of macroinvertebrates in the water means they are helping restore the water's nutrients, whereas a low level indicates the water is withholding microbes.



Clockwise from top: Layne Leven, Daniel Ceniti, Toby Lavers and Brice Murray sample macroinvertebrate, Ceniti and Kayla Calhoun analyze macroinvertebrates in the lab, Lavers shows off a macroinvertebrate, macroinvertebrates enlarged by a microscope.



BRAMAN RECYCLING CENTER



Kaw Nation's recycling center in Braman opened in June 2013. Since then, the nation has developed its operations and added clients in a few towns.

The recycling center has 32 partners in eight cities—Braman, Blackwell, Ponca City, Kaw City, Newkirk, Tonkawa, Kildare and Kaw City.

We have given recycling containers to schools and other locations.

The town of Braman and American Legion Post 259 have been gracious with their support. Post 259 legionnaires faithfully give time to assist with operations.

The partnership between Kaw Nation, Braman and Post 259 won a Keep Oklahoma Beautiful Team Builder award last year.

Check the list of items that we can and cannot recycle. We accept a wider array of plastics than other facilities. Be careful to rinse any plastic or metal containers before bringing them.

Please help the planet by recycling. Anyone who would like to drop off recyclables may visit 413-417 Broadway Ave. in Braman on Fridays between 9 a.m. and 3 p.m. If you would like us to pick up from your organization, call 580-269-1203.



Top to bottom: Toby Lavers carries away plastics from Northern Oklahoma College-Tonkawa, Lavers passes off a bag of recyclables at the recycling center, Lavers and Cody Wingo cart off cardboard from Kildare Elementary School with help from Principal Bruce Shelley.

What can we recycle?

	CAN	CANNOT
PAPER/BOOKS	office paper	napkins
	newspaper	tissue paper
	magazines and catalogs	wax paper
	phone books	wrapping paper
	paper towels, toilet paper, shredded paper, empty paper coffee cups, unwaxed food packaging	any paper product that could be contaminated by human waste
	empty paper milk, juice and soy cartons	
	books (covers removed)	
CARDBOARD	pizza boxes (without food waste or was paper)	cardboard lined with plastic (i.e. bubble wrap boxes)
	Corrugated cardboard	waxed or waterproof cardboard
	brown paper bags	
	boxboard	
PLASTICS	All plastics 1-7	styrofoam (sometimes labeled No. 5)
	Food and beverage containers	plastic tableware
	screw top jars	sandwich and freezer bags
	deli-style containers	
	plastic cups (lids and straws removed)	
	milk jugs	
	clean grocery bags	
	plastic jugs and bottles	
METAL	metal cans and caps	aerosol spray cans
	soda and other aluminum cans	aluminum foil





Teaching students about wetlands

The Kaw Nation Environmental Department brought students from area middle schools to the Beaver Creek Wetland between May 1 and 7. KNED toured them around the wetlands and taught them about how the wetland supports the ecosystem.

“The wetland is a huge filter for pollutants,” Environmental Specialist Daniel Ceniti told a Blackwell Middle School class.

Besides Blackwell, groups from Newkirk Middle School, Braman School and Shidler Middle School.

KNED taught kids about the roles of the wetland—water

storage and filtration, sediment trapping, nutrient cycling and flood control.

Dr. Dejene Alemayehu and Ceniti instructed them on soil, giving them the chance for hands-on exploration of different levels of soil. They helped the students understand the significance of the texture and moisture of soil.

Students played plant identification games and investigated the types of microinvertebrates that result from a certain quality of water.

Ceniti taught students how to take water samples and offered them the chance to sample on their own.



Clockwise from top: Newkirk Middle School students and Kaw Nation staff outside the Kanza Museum, Daniel Ceniti discusses wildlife with kids on the lookout, Ceniti teaches students to read sampling instruments, Shidler Middle School students explore the wetland.



Air Quality Monitoring

The Clean Air Act requires the Environmental Protection Agency to accept National Ambient Air Quality Standards (NAAQS) that protect public health and provide an adequate margin of safety.

Studies have shown that particulate matter (PM 2.5), emitted from sources like motor vehicles, power plants and wood burning, have adverse health effects on the respiratory system and can lead to heart disease.



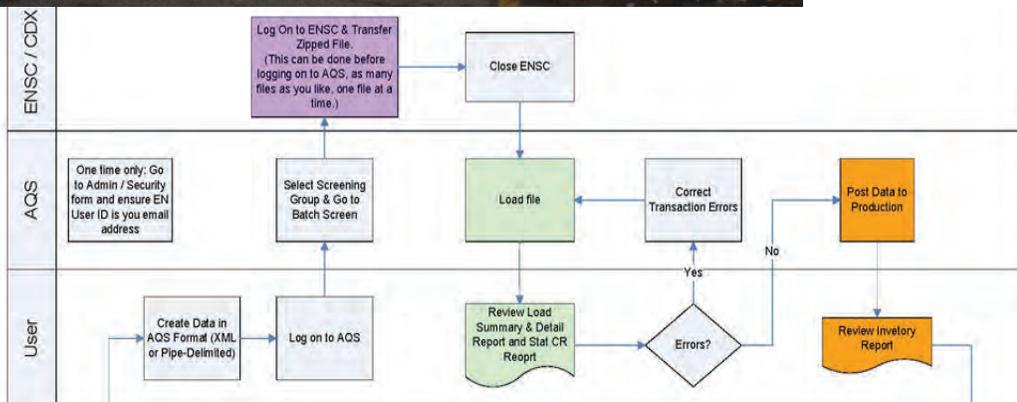
Because of the harmful health effects of particulate matter, KNED installed a PM 2.5 air monitor near the Kanza Travel Plaza in Braman, Okla. Information about the quantity and concentration of pollutants are transmitted electronically to KNED's office in Kaw City.

Once received, KNED analyzes and refines the data before submitting it to the U.S. EPA Air Quality Service to be shared with state and federal agencies.

Below is a chart that demonstrates the process in which data is submitted to the EPA.

Recently, KNED has expanded its work on air quality, making Kaw Nation the first tribe to obtain enforcement authority for air quality. This can further KNED's ability to protect the health of tribal members and others in the service area.

Check the daily air quality forecast for your area at airnow.gov.



Submission Date	File Name	User Name	Records in File	Date (UTC)	Load Status	Files Loaded	Recs to Load	Recs Count	StatCR	Records as Post	StatCR as Post	Records Posted
20120320 14:20	prod_test_raw_03.zip	NICK MANGUS	1177	20120320 17:40	COMPLETED	1177	0	0	0	0	0	0
20120319 16:14	prod_test_raw_03.zip	NICK MANGUS	1177	20120320 13:59	COMPLETED	1187	10	3	1187	0	0	0
20120319 16:13	prod_test_raw_02.zip	NICK MANGUS	1177	20120320 13:53	COMPLETED	1177	0	0	1177	0	0	0
20120319 16:12	prod_test_raw_01.zip	NICK MANGUS	1187	20120320 13:48	COMPLETED	1187	0	0	1187	0	0	0
20120319 16:11	prod_test_mems_1103.zip	NICK MANGUS	24	20120320 13:38	COMPLETED	24	0	0	0	0	0	0

PROCESS CONTROL

Process selected file through:

Results and Reports:



Solid waste and dump site cleanup



Dumping trash on roadsides takes away our natural wonders.

When people illegally dump large amounts of trash or unwanted goods on roadsides and secluded areas, they create small landfills.

Dumpsites not only create an eyesore, but also hurt the environment. Styrofoam containers and metals can seep into the groundwater or leak chemicals into nearby streams.

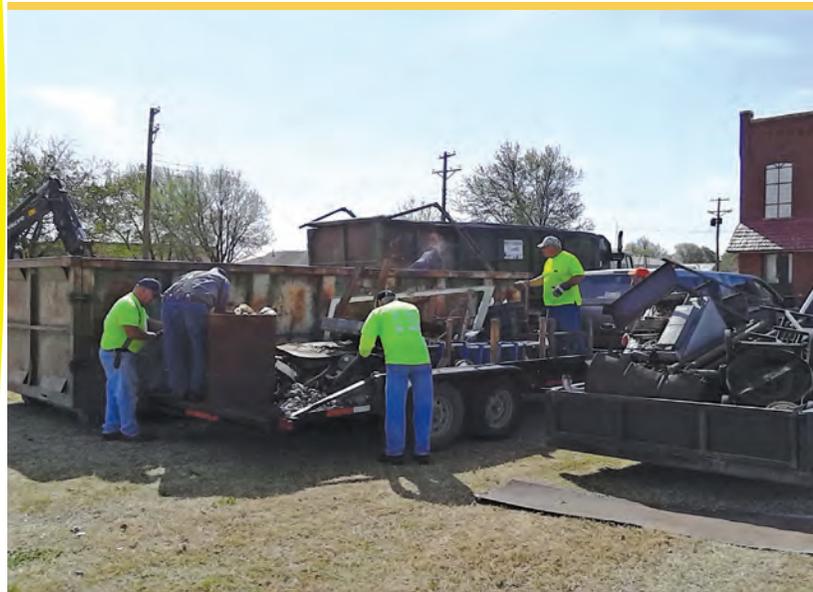
In time, as some of these items rot or decay, they become more difficult to clean up.

KNED cleaned two dumpsites in 2014, one near the Ponca City Municipal Airport and one on Highway 11 between Ponca City and Kaw City.

KNED cleans dump sites along Highway 11 with help from a contractor.

Whenever a dump site is cleaned, a sign is posted at the site warning people against dropping trash at the side of the road. These are good deterrents that remind travelers that they are responsible for keeping the Earth beautiful.

Remember that we all have a part in keeping our environment clean and pick up litter when you see it.



Hazardous waste cleanup

In early April, KNED worked with Braman, Kaw City and Newkirk to host hazardous waste collections in each town. Residents brought items such as old paint, tires, chemicals and furniture. The Newkirk collection gathered 1.64 tons of waste. In Kaw City, residents deposited 2.86 tons of waste. To the left, American Legion Post 259 legionnaires help with the collection in Braman.

Environmental Assessment



The Kaw Nation Environmental Department oversees environmental assessments performed by its contractor ENERCON, for trust applications and other lands used by the tribe.

In the past year, KNED filed assessments for the future site of the Kaw Lake Deli and Dollar Store, which the nation will open next year, and Allegawaho Park in preparation for the construction of a new dance arbor. The assessments for the deli and dollar store were key to determining its location.

Also, KNED oversaw an assessment at Chilocco before construction began for the wind farm.



Underground storage tank inspection

With help from Cherokee Nation, KNED began inspecting underground storage tanks at the Kanza Travel Plaza in late April. The tank inspection is required with the Kanza location entering federal trust status. Previously, the Oklahoma Corporation Commission required a tank inspection of the gas station. Since the land is now in trust, the travel plaza is under the Environmental Protection Agency's jurisdiction, placing the task with KNED. The KNED will inspect the travel plaza twice each year, checking for possible leaks and water quality and ensuring that the station follows regulations. In its first inspection, the KNED only made minor recommendations.



Training OSU seniors in water quality



On March 28, the KNED gave outreach assistance to three Oklahoma State University students for their senior projects by bringing them to Kaw Lake and teaching them water sampling fundamentals near Washunga Bay.

The students' sampling trip helped them prepare for their Capstone presentation for their projects.

Dr. Dejene Alemayehu supervised them on their senior projects on sedi-

ments.

Skyler Mathews showed them how to take water quality monitor readings, looking at turbidity (or cloudiness) and other indicators. Mathews also had them take soil sediment samples, sending a scoop down to dredge out sediment.

Dr. Dejene gave the students tips for things to look for while sampling. Since the area of the lake had received

runoff from Beaver Creek due to a salt water spill at an oil drilling site, the water would be more acidic than other sampling sites on the lake.

The students would compare their findings with other sampling data. The effects of the spill set their results apart from others.

An Oklahoma State University student fills a container with a sediment sample from Kaw Lake.



FIVE-YEAR DEVELOPMENT PROGRAMS

WATER

- Water sampling and analysis of Little Beaver, Bear, Big Beaver and Chilocco creeks
- Three creeks, two rivers, and four lake sites along the Arkansas River and Kaw Lake
- Nutrients (nitrogen and phosphorus)
- Heavy metals (iron, manganese, copper, lead, mercury, etc.)
- Examine bacteria.



FISH

At least five different species of fish will be examined for mercury.



MACROINVERTEBRATES

Macroinvertebrate samples will be collected and identified to correlate water quality.

SEDIMENT

Sediment samples will be collected for all the creek and river sites. The samples will be examined for nitrogen and phosphorus as well as Total Suspended Solids (TSS).

FIVE-YEAR DEVELOPMENT PROGRAMS

AIR QUALITY

- The air monitoring for PM 2.5 will continue.
- AQS data will be submitted to U.S. EPA AQS database.
- Emission inventory for non-point source will be collected and reported to the U.S. EPA through TEISS.
- AEROMOD modeling will be conducted once a year.
- Participate in providing permit through TAS.



RENEWABLE ENERGY RESOURCES

Install solar-powered wind turbines for Braman, Washunga, Newkirk and Kaw City.



WIND

Continue collecting wind data for Kaw City. Wind turbines will be constructed in Kaw City and Newkirk in the fall of 2014.



SOLID WASTE/HAZARDOUS WASTE

- Clean up some dump sites along the Arkansas River and Kaw Lake.
- Install a "Don't Litter" sign.
- Conduct a hazardous waste collection in Kaw City, Newkirk and Braman.



SERVICES OFFERED TO TRIBAL MEMBERS

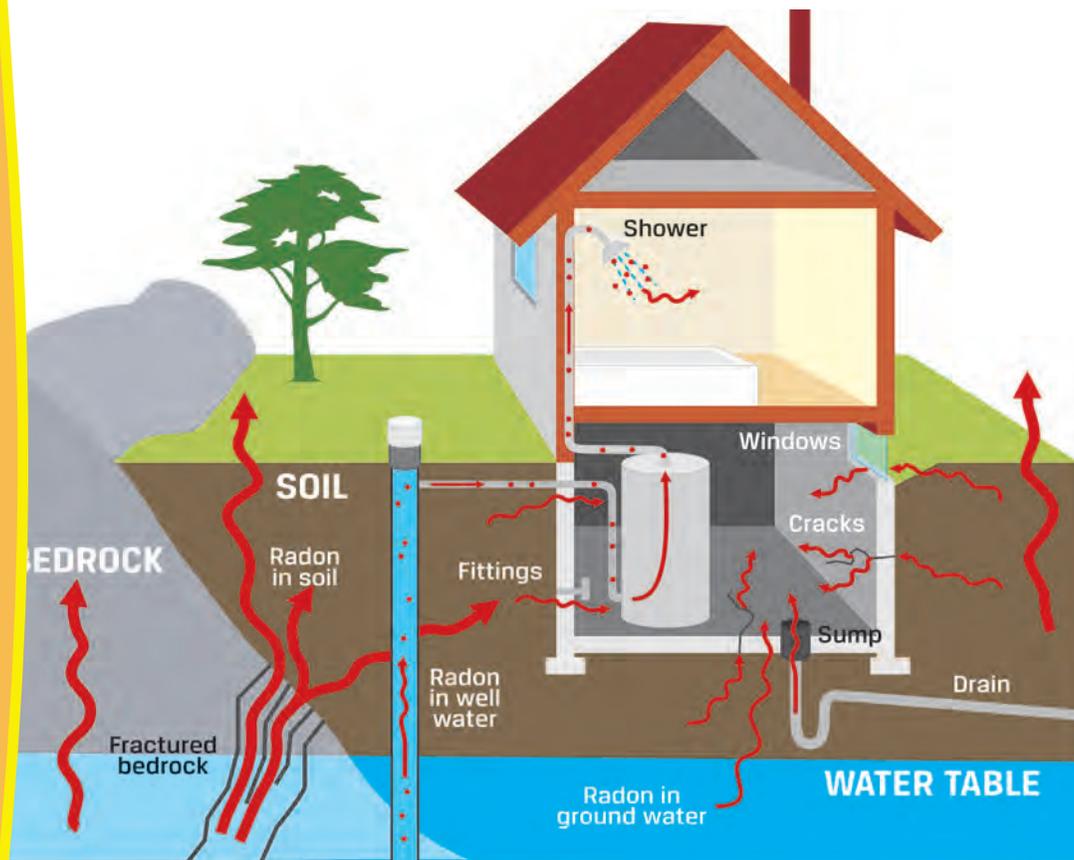
Radon testing



Radon, which is the heaviest known gas, is a colorless chemically-unreactive inert gas. Because it is a single-atom gas (unlike oxygen, which is comprised of two atoms), it easily penetrates many common materials like paper, leather, low-density plastic like plastic bags, most paints and building materials like sheet rock, concrete block, mortar, sheathing paper (tar paper), wood paneling and most insulations. Radon is also fairly soluble in water and organic solvents.

Radon is naturally occurring and comes from the radioactive decay of uranium. It is usually found in igneous rock and soil, but in some cases, well water may also be a source of radon.

The KNED is a state-certified radon tester. This is a simple procedure and can be fixed with well-ventilated techniques. Also, tribal members can obtain radon kits from KNED to test their own homes.



Ask KNED for a radon testing kit today!



SERVICES OFFERED TO TRIBAL MEMBERS

Tap and well water testing

Testing one's own tap or well water for quality can be easy. By the taste or appearance of the water, people can tell if there is anything unusual.

Some disturbances in the water aren't easy to see.

That's why calling on the KNED to test your water could be the safest call to make. A specialist will come and test the water for less apparent issues.

After taking water samples, the KNED tests water primers: pH, turbidity (the clarity or cloudiness of the water), dissolved oxygen, conductivity, bacteria, total dissolved solids, salinity (the level of salt), and chlorophyll.

Having well water or tap water inspected is a sure step towards ensuring that you and your loved ones are drinking clean water. The EPA recommends yearly water tests.

Not testing water quality is a risky decision. Many contaminants may go undetected. Water contaminants can cause an array of health ailments, such as



gastrointestinal illness and cancer.

Water testing supports the health of sensitive people, like pregnant women, small children and infants and elders.

Other measures people can take to safeguard their water include using a

filter or inspecting exposed parts of the well. Anyone who walks their dogs should clean up after them to prevent the waste from seeping into groundwater.

Also, be aware of any drinking water advisories issued in your area.

To learn more, read the EPA's consumer guide to the nation's drinking water
http://water.epa.gov/drink/guide/upload/book_waterontap_full.pdf

KNED tests for:

- True color
- Apparent color
- Alkalinity
- Total hardness
- Low-range sulfates
- High-range sulfates
- Ammonia
- Total low-range nitrogen
- Total high-range nitrogen
- Low-range phosphorus
- High-range phosphorus
- Low-range nitrite
- High-range nitrite
- Nitrite
- COD
- Chromium
- Cadmium
- Nickel
- Lead
- Aluminum
- Copper
- Iron



SERVICES OFFERED TO TRIBAL MEMBERS

Mold testing

Mold may occur naturally in the environment, but it poses significant health risks. Exposure to mold causes allergic reactions, asthma triggers and other respiratory ailments.

Mold spots should be cleaned quickly after it occurs in order to prevent spreading (optimally within 24 to 48 hours).

Tribal members who want to be sure about any presence of mold in their homes can call KNED to test areas for potential growth.

After testing the home for mold, KNED specialists can refer tribal members to professionals with experience in cleaning large areas containing mold.

However, if the affected area is smaller than 10 square feet, residents can clean it themselves. Often, spots can be cleaned by scrubbing it with water and bleach. Still, mold caused by sewage should be cleaned and repaired, if necessary, by a professional.

If there is standing water, it must be cleaned immediately. Do not clean standing water with an HVAC if the heating, ventilation or air conditioning contains mold.

Prevent mold growth by ensuring that ventilation is installed properly and free from mold, reducing condensation by improving insulation, using exhaust fans while cooking or cleaning, reducing indoor humidity and cleaning any flooding



quickly after it appears. Also, plumbing leaks should be fixed. Throw away moldy ceiling tiles or building materials.

Moldy surfaces should be cleaned and dried before painting. If you have any questions about mold and its possible appearance in your home, call KNED or the EPA Indoor Air Quality Information Clearinghouse (800-843-4314).

Additional mold information can be found at epa.gov/mold.

Lead testing

Lead is a heavy metal particle that is harmful if inhaled or swallowed.

High levels of lead exposure impact functions of almost all body organs, especially the kidneys, red blood cells and central nervous system.

Children are most vulnerable to health issues caused by lead exposure, which causes developmental disabilities, memory loss and behavior issues.

Older homes that were built or furnished before lead use was restricted are likely to contain lead, particularly in paint and plumbing.

Checking for lead

Tribal members should call on the KNED to perform a risk assessment. KNED specialists are certified to test for the prevalence of lead.

Also, people can buy lead kits from a store. These do-it-yourself kits are inexpensive and produce quick results. Applicators are filled with a chemical that determines if lead is present. The tool will change color if it detects lead.

Still, the safest way is asking KNED to perform the test. KNED specialists will obtain more accurate results and

conduct tests without charge for tribal members.

For a list of laboratories that have passed proficiency testing for analysis of lead in paint, soil and dust samples, call 1-800-424-LEAD or fax 202-659-1192. When calling or faxing these numbers, specify the respect NLLAP/ELPAT List of Laboratories. The Department of Housing and Urban Development's Lead Hazard Reduction Office also sponsors the Lead Listing, which contains a list of certified lead inspectors.

For more information, visit www.hud.gov/lea/leahome

KNED summer internship program

Every summer, KNED hires summer interns who are high-school graduates or college students.

Interns do valuable work in the department, helping with water quality monitoring, recycling and other services.

This is valuable experience for students majoring in environmental degrees.

Previous interns have advanced to work for KNED and other environmental organizations. Anyone looking for sound experience caring for the Earth should watch for postings on kawnation.com in May.



2014 summer interns Layne Leven (left) and Brice Murray (right).





DEJENE ALEMAYEHU, Ph.D.

KNED Director
dejene@kawnation.com

Dr. Dejene Alemayehu has lent his expertise in environmental protection to Kaw Nation since 2000. He earned a bachelor's degree in plant science from Alemaya University in Diredawa, Ethiopia, in 1982; a master's degree in agronomy from Oklahoma State University in 1995; and a Ph.D. in environmental science from OSU in 2000.

Last year, he was named an honorary Kaw tribal member for his work protecting the environment in Kaw Nation's service area.

In leading the department, he has grown programs and earned praise for KNED from the U.S. Environmental Protection Agency.



SKYLER MATHEWS

Recycling Center Manager
smathews@kawnation.com

Skyler Mathews, a Kaw tribal member, twice interned for KNED before becoming a water technician in 2005. He served with the 45th Oklahoma Army National Guard in Afghanistan in 2011 and 2012, receiving a Purple Heart and an Army Commendation for his service. In 2013, he started the Kaw Nation Recycling Center.

Skyler is also a member of the Kaw Nation Johnson O'Malley Parents Committee.



KAYLA CALHOUN

Environmental Assistant
kcalhoun@kawnation.com

Kayla Calhoun, who has been with Kaw Nation since August 2013, was born and raised in Ponca City. She has a husband of four years named Daniel and a beautiful three-year-old son named Carter. She attended Pioneer Technology Center for a certificate in medical assistance.



FRANCINE HACKETT
Environmental Technician

Francine Hackett joined Kaw Nation in December 2013. She has more than 10 years of experience designing and developing databases and web applications. She earned her master's degree in Information Technology, specializing in enterprise software architecture, from Capella University in Minneapolis, Minn., in September 2013. In 2003, she earned her bachelor's degree in computer science and applied and computational mathematics from Kansas Wesleyan University in Salina, Kan. She's Proficient in several computer languages such as HTML and JavaScript, and four databases, including Oracle, MySQL, SQL Server and MS Access.



TOBY LAVERS

Recycling Technician

Toby Lavers, a Kaw tribal member, started with KNED in January. He worked six months for River Ridge before coming onboard. He's a veteran of the U.S. Army, having served in the Afghanistan war.

In his spare time, Toby enjoys hunting.



CODY WINGO

Cody Wingo joined KNED in March. He interned for the department last summer.





801 Washunga Drive
Kaw City, OK 74641
580-269-1186
www.kawnation.com

PRSRT STD
U.S. POSTAGE PAID
PERMIT NO. 49
STIGLER, OK 74462

from the *chair* Kaw Nation

Dear friends,

For 18 years, the Kaw Nation Environmental Department has upheld its pledge to work on the core issues facing our environment. With each project, KNED strives to preserve, protect and improve the quality of our natural resources for Kaw Nation and its descendents.

Dr. Dejene and his staff devote themselves to protecting our environment. We are proud to have them caring for our natural resources. Through efforts such as air quality monitoring and cleaning spills in our waterways, they look after the health of tribal members.

We need a healthy planet to survive. Let us all help preserve our Earth.

—Guy Munroe
Chair, Kaw Nation

