



Environmental Protection Department

Our Mission is to protect, monitor, restore, and regulate Morongo's natural resources, honoring and protecting all life, land, and traditions and enhancing tribal sovereignty. We will promote environmental awareness and environmentally considerate actions by exemplifying environmental stewards, fostering collaborative relationships, expanding education and outreach activities, and continuing to enrich and develop our programs.

Air Quality Observation

Written by: Dana Morey, Director

The Morongo Community Air Monitoring network of low cost sensors provides real-time air pollution data at MorongoAir.com. Having multiple sensors at multiple locations on the reservation allows us to investigate sources of air pollution affecting the Morongo Community, understand how pollution travels through the community, and identify measures to reduce harmful air pollution. But just knowing there are elevated pollution levels is often not enough to tell us how to reduce or prevent air pollution. This is where community observations can help! Reports of smoke, fires, odors, and dust can all help us investigate sources of pollution and better understand the data. We can compare reports to sensor data and see if these events are indeed affecting air quality on the reservation. If you see an air quality concern or have questions about your air quality, send the Tribal Air team an email at tribalair@morongo-nsn.gov! And, as always, visit MorongoAir.com for real-time air quality updates so you can know your air quality and reduce your pollution exposure during poor air quality days.



Morongo Community Air Monitoring Project is part of California Climate Investments, a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment — particularly in disadvantaged communities.

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Report an Air Quality Concern!

Email tribalair@morongo-nsn.gov with the following information:

- Description of concern (Odor? Visible pollution?)
- Location (street crossing, address, etc.)
 - Date and time
 - Include a photo, if possible
- Contact information for follow-up

****Information will remain anonymous and will be used to inform the data, understand air pollution, and evaluate sensor performance!****



Effects of Traffic Pollution on Your Brain

Written by: Lina Luu, Environmental Specialist I



As the temperatures begin to warm and people are starting to travel more frequently, it is important to know and prepare for the effects that traffic pollution has on your body. It may come to no surprise that air pollution has serious consequences on the human body, but studies show that it also affects your brain.

NEW RESEARCH ON POLLUTION AND THE BRAIN: A study conducted by researchers from the University of British Columbia and the University of Victoria observed the effects of traffic pollution on 25 healthy adults whose ages ranged from 19 to 49

years old. This experiment exposed the participants to filtered air and diesel exhaust at different times in a controlled laboratory setting. Using a functional magnetic resonance imaging (fMRI) machine, the researchers were able to capture images and measure brain activity before and after the exposure.

RESULTS: The part of the brain that plays an essential role in memory and internal thought, also known as the brain's default mode network (DMN) was analyzed. The findings revealed that after the participants were exposed to diesel exhaust, there were regions in the DMN that had decreased functional connectivity. Decreases in brain connectivity can be linked to decreased working memory and behavioral performance. This study only looked at what happens in the brain after 2 hours of exposure. Imagine what consistent or continuous exposure could result in!



NEXT STEPS: After reading this article, you might want to think twice about rolling down your windows when you are stuck in traffic. The good news is, there are a number of options you can take to reduce your exposure to traffic pollution like supporting policies that aim to reduce air pollution and emissions. You can also find more eco-friendly modes of transportation to reduce the amount of diesel pollution. Carpooling is a good way to save money and reduce emissions! Taking public transportation is another carpool technique that can be utilized!



HELPFUL TIPS: If you are traveling by car, it would be a good idea to check that your air filters are in good condition. The engine air filter keeps the engine from being damaged by dust, dirt, and other contaminants in order to keep your car's performance from being negatively impacted. The cabin air filter decontaminates the air that is coming in and circulating within your car. If you are traveling by foot or bicycle, it would be beneficial to stay away from high traffic areas to limit exposure to pollutants. Taking a detour could be a nice change

of scenery and help your health. Wishing you a safe journey into spring!

References: *Environmental Health* - *Brief diesel exhaust exposure acutely impairs functional brain connectivity in humans: a randomized controlled crossover study*

<https://ehjournal.biomedcentral.com/articles/10.1186/s12940-023-00961-4>

Science Daily - *Traffic pollution impairs brain function*

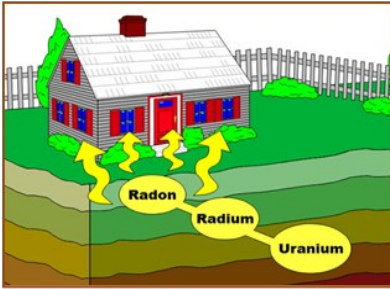
<https://www.sciencedaily.com/releases/2023/01/230124112731.htm>

Radon Indoor Air Pollution

Written by: Pamela Atcitty, Environmental Specialist II

As the leading cause of lung cancer in nonsmokers, radon has become a serious issue for many tribal communities and Morongo Reservation should not be an exception. Many believe radon is harmless and lacks urgency because its sources are considered natural and the symptoms may take up to 20 years to develop. However, radon is arguably the most lethal of indoor pollutants, and although levels vary from home to home, detection is easy and inexpensive. Morongo residents can reduce their risk to radon exposure by understanding how it may affect them, ways to reduce radon levels and testing options.

What is Radon?



Radon is a radioactive gas that comes from the natural decay of uranium that is found in most types of soils. As uranium decays, the radioactive radon gases moves up through the ground to the air above and into your home through holes or cracks in the foundation. Radon can build up over time, as your home traps radon inside. The geology beneath the building is the most important determining factor of radon levels in your home or building. You or your family members are most likely to get the greatest exposure at home, where you spend most of your time.

What Is the Radon Health Risk?

When radon breaks down it creates radon decay products. These radon products are extremely small solid particles that become suspended in air, easily inhaled and attaches to lung tissue. According to EPA estimates, exposure to radon is the leading cause of lung cancer among nonsmokers and is responsible for about 21,000 lung cancer deaths every year. Lung cancer is the only health effect which has been definitively linked with radon exposure however, the time between exposure and the onset of cancer could be several years. Smokers are at higher risk of developing radon-induced lung cancer, so if you smoke and your home has high radon levels, your risk of lung cancer is especially high.

How Can You Lower Radon Levels in Your Home?

There are several methods that have been proven to reduce radon in your home, but the one primarily used is a vent pipe and fan system. This method pulls radon from beneath the house and vents it to the outside. This system does not require major changes to your home, but sealing foundation cracks and other openings makes this kind of system more effective and cost-efficient. Radon contractors can use other methods that may also work in your home, but the right system depends on the design of your home. The cost of reducing radon in your home also varies, depending on how your home was built as well as the extent of the radon problem.

How Can You Find Out If You Have a Radon Problem?

Since you can't see or smell radon, the only way to know if your home is at risk is to test. Residents can purchase test kits that are relatively inexpensive and easy to use or hire a trained professional. Here are several other testing options to consider :

- ***Morongo residents can contact the Tribal Air Program at 951-755-5176 and receive a free radon screening test.***
- Low-cost "do-it-yourself" radon test kits purchased from most hardware stores.
- Contact a privately certified radon professional.
- Visit <https://www.epa.gov/radon/find-radon-test-kit-or-measurement-and-mitigation-professional>

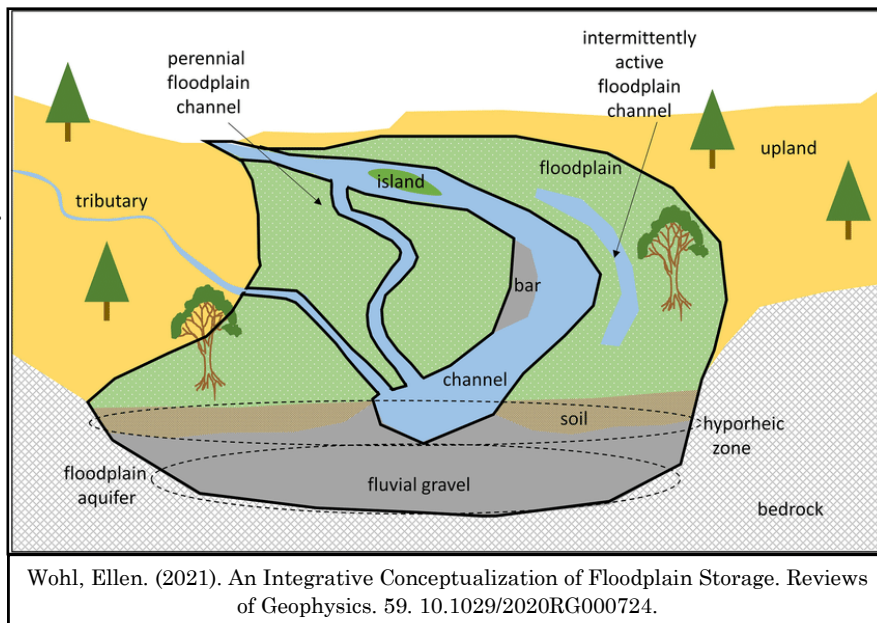


What is a Floodplain?

Written by: Kimberly Miller, Environmental Specialist II

Flooding can occur anywhere it rains; however, floods are also strongly associated with waterbodies such as rivers and coastal areas. Flooding around waterbodies occurs during times of increased precipitation, snowmelt, or high tides. The area that typically becomes flooded is known as the floodplain. Floodplains can be defined in many different ways. An active floodplain regularly receives overflow from a waterbody. This may occur during the wettest part of the season or every couple years. There are usually visual cues like different vegetation types compared to the stream channel or the uplands as well as terraces or matted vegetation. You may have heard of the 100 year flood zone. This is the area that has a chance of being inundated with a flood 1% each year and is commonly used for planning or insurance purposes.

Sometimes floodplains are discussed as the area just above where water is usually present beyond the “bankfull stage” or “ordinary high water mark.” Floodplains can change over time as waterbodies move. The main channel of rivers or streams moves with erosion and sediment accumulation. As streams widen or deepen and adjust where excess water flows, the floodplain will adapt to the new areas. In arid and semi-arid regions like ours, the floodplains of ephemeral and intermittent streams may be large due to very active channels that frequently change from storm events.



Floodplains can provide many benefits to ecosystems and people. Natural floodplains can reduce the risk of floods by reducing water flow and storing water in soils and vegetation. Floodplains are usually flat and wide, which slows down the high flows. Lower velocity water will also carry less debris and not cause as much damage through erosion. Floodplains also provide habitat to fish and wildlife. This can be through vegetation growing in the floodplain to vegetation or nutrient inputs added to waterbodies when flows are high. Floodplains help filter water through the ground, allowing for aquifer recharge and improved water quality.

Floods are one of the most frequent and expensive disasters in the United States. Flooding is a dangerous hazard and can threaten life and property. Natural, well functioning floodplains can help reduce these hazards in a sustainable way. The main threat to floodplains and the functions they provide is destruction through human development. This can include building within the floodplain, filling in wetlands, or channelizing rivers. When these things occur, water moves faster and has less of an opportunity to soak into the ground. This usually ends up increasing flood issues. You can help keep floodplains natural by supporting projects that protect natural waterways rather than those that build on or fill in floodplains. Also if you are in a flood prone area, remember to “turn around, don’t drown” rather than driving or walking through fast flowing water.

References: FEMA—Benefits of Natural Floodplains <https://www.fema.gov/floodplain-management/wildlife-conservation/benefits-natural>; Naturally Resilient Communities—Rivers, Streams, and Floodplains <https://nrcsolutions.org/floodplains/>

Mistletoe Mayhem

Written by: Micah Knox, Environmental Specialist I



The green orbs seen on this tree are mistletoe!

Why is tree health such an important factor in the longevity and vitality of this planet's forests? Why is clearcutting forest land and other naturally occurring biomes so detrimental to the health of all other species? The answer is simple. Tree health is the key for all other living things to survive. Trees provide the air we breathe, the shade and shelter wild animals need to survive, the fruit and sustenance we require, and the necessary carbon offset our planet depends on. Trees are a renewable resource under attack by both humans and nature alike. It is important to understand how trees are at risk and what we can do to help them.

We have a wide variety of trees on the reservation that you may have already encountered. Coulter Pines and Big Cone Douglas Fir are seen along the northern boundary. Sycamore, Alder, and Coast Live Oak are intermittently seen throughout the reservation. These trees are able to grow because the ample sunlight we experience on the reservation aids in photosynthesis. A number of factors can affect a plant's ability to grow. In this issue, we will discuss the effects of parasitism in plants.

Parasites, by nature, are parasitic flora or fauna whose sole purpose in life is to latch onto a tree species, piggyback off their ability to acquire nutrients, reproduce, and die. For example, Mistletoe is a parasitic plant that is commonly seen on our reservation. Its seeds latch onto a branch and begin rooting into the tree's nutrient shuttling systems, siphoning whatever it can in order to survive. You might think that one mistletoe plant may not cause much harm, but its effects can be detrimental to a plant's life. A Sycamore covered in Mistletoe is losing too much of the necessary nutrients to the parasites, which results in it being unable to sustain itself. Once the Mistletoe has reproduced dozens of times and has spread to surrounding trees, many trees will be left to die in its wake.



Mistletoe berries

So, what can we do to prevent such a spread? Removing the parasites early on is one of the most effective actions to take. Morongo's Environmental Protection Department periodically checks on the ongoing Mistletoe problem, assesses the damage, and schedules removal events, stopping the parasite dead in its tracks.

Mistletoe plants can be a destructive force that reduces the longevity and health of trees. Trees are an essential part to being able to maintain life of Earth, so we have to do our part in ensuring their safety!

Resources: University of Wisconsin-Madison

<https://hort.extension.wisc.edu/articles/mistletoe/>; University of California—Integrated Pest Management Program, <https://ipm.ucanr.edu/PMG/PESTNOTES/pn7437.html>

Universal Wastes: Handle with Care

Written by: Jessica Southard, Environmental Specialist I

What are Universal Wastes?

Universal Wastes are a category of wastes that need to be handled separately from regular trash and recycling. There are many types of wastes that are categorized as Universal Wastes. They include:

- Batteries
- Electronic Waste (e-waste) & Cathode Ray Tube (CRT)—(includes old CRT tube/LCD/OLED/Plasma TVs/monitors/smart displays/tablets/laptops, Computers, Printers, VCRs, DVD/Portable DVD players with video screens, Cell phones, Telephones, & Radios).
- Lamps—the bulb or tube portion of an electric lighting device (includes fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps).
- Mercury-Containing Equipment—a device or part of a device that contains elemental mercury (including thermostats).
- Aerosol Cans—a non-refillable receptacle containing a gas compressed, liquefied, or dissolved under pressure.
- Solar Panels/Photovoltaic (PV) Modules.



Batteries



Electronic Waste
and CRTs



Universal Waste
Lamps



Mercury Waste



Non-Empty Aerosol
Cans



Photovoltaic (PV)
Modules

Universal Waste Categories—photo from DTSC

Why can't Universal Wastes go in the trash?

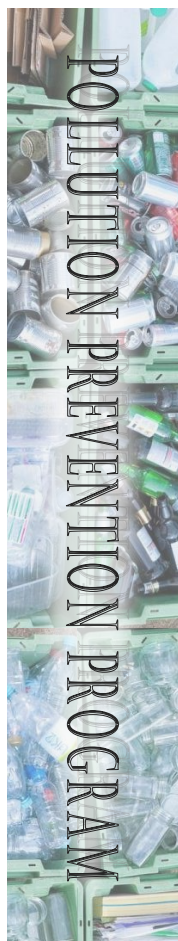
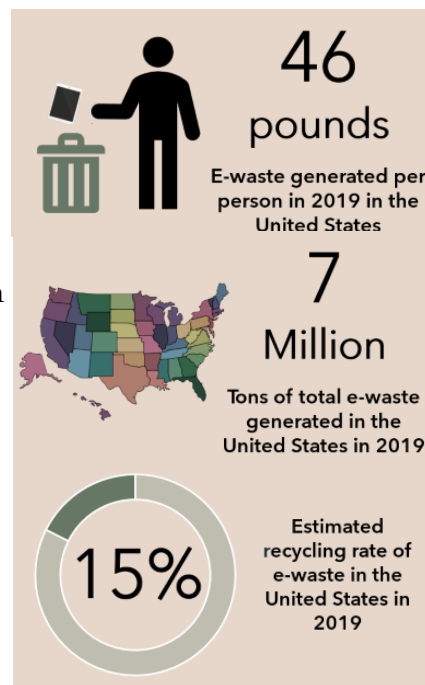
These wastes cannot be put in the trash or curbside recycling. Batteries contain a corrosive liquid electrolyte such as sulfuric acid. Mercury, an extremely toxic heavy metal is used in fluorescent light bulbs. E-waste frequently contains hazardous materials, predominantly lead and mercury. Many aerosol sprays contain highly toxic chemicals like xylene and formaldehyde. And solar panel waste can include heavy metals such as silver, lead, arsenic and cadmium. If not handled correctly, these materials could end up in our ground water, mix and create worse chemicals, or even ignite or explode.

How should Universal Wastes be discarded?

Universal wastes “can be handled and transported under more relaxed rules... because they pose lower immediate risk to people and the environment when managed properly. Nonetheless, universal wastes do still contain hazardous materials and must be taken to a designated handler or recycler.”

Luckily the Morongo Environmental Protection Department offers Universal Waste handling for Morongo Reservation residents. Residents can drop off their Universal Wastes on Friday, April 28th from 9am-12pm behind Public Works, or leave e-wastes at their convenience in the community drop-off area “E-waste” cage, also behind Public Works.

Reference: EPA—Universal Waste www.epa.gov/hw/universal-waste/ CA Department of Toxic Substances Control (DTSC)—Managing Hazardous Waste dtsc.ca.gov/universalwaste/



Upcoming Events / Internship Opportunities

Morongo Environmental Education

The Morongo Environmental Protection Department collaborates with the Morongo School every year to conduct environmental education and outreach to Pre-School through 8th Grade students. The goal of this partnership is to foster a desire to learn about tribal natural resources, the role the department plays in helping to fight pollution and resource depletion on the reservation. Our department manages programs that are designed to protect and conserve air, land, and surface water within reservation boundaries by utilizing federal grants to help the tribe to achieve department goals while developing and expanding current programs. Starting in March 2023, our specialists will spend four weeks with Morongo School students to expose them to topics relating to our air, water, pollution prevention, and resource conservation programs. Our annual Earth Day Event, scheduled for April 21, 2023, marks the end of the year's educational outreach and students will be able to celebrate what they've learned, and showcase their environmental projects at a free community event.



**Friday
April 21
9:30am-2:00pm**

Elder Round Table: 9:30am—11:00am
(Located in Council Chambers)

Earth Day Booths: 10:00am—2:00pm

at
Morongo Administration
12700 Pumarra Rd. Banning

*Only open to Morongo Community and employees.

For additional information, contact EPD at earthday@morongo-nsn.gov or 951-755-5127

Morongo Environmental Protection Department High School Summer Internship Program

An opportunity for high school Native American students to explore professional work experience in the environmental field. Students can receive school credit or volunteer hours upon successful completion!

When: 5 Weeks: June 13 - July 20, 2023
1 week off July 3-7

Details: Open to current 8th -11th grade students.

Internship days: Tuesday-Thursday, 9:00am-4:00pm with 1 hour lunch from 12:00pm-1:00pm.

Applications available at morongonation.org/employment/ soon!

Upcoming Events



Household Hazardous Wastes Drop-Off

**Friday
April 28, 2023
9am to 12pm
Behind Public
Works**

Staff available on-site to collect, sort, and store materials.

Open to Morongo Residents & Tribal Members Only

- Cleaning Products
- Paints
- Pesticides
- Oil & Antifreeze
- Sharps & Medication
- Batteries
- Electronics
- Bulbs

Morongo Reuse Center



**Friday
April 28, 2023
9am to 12pm
Behind Public
Works**

Donate usable household items or take what you need.

***Open to Morongo Residents & Tribal**

- Cleaning Products
- Paints
- Electronics
- Lawn Care
- Vehicle Care
- Pool Care

Morongo Reuse Center

'Shop' during the HHW Drop-off Days for gently used paints, electronics, lawn care products, and cleaners!



This and previous newsletters are available at <https://morongonation.org/environmental/>. If you would like to join our email list or would like a hard copy mailed to you, let us know at epd@morongo-nsn.gov or 951-755-5127.

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