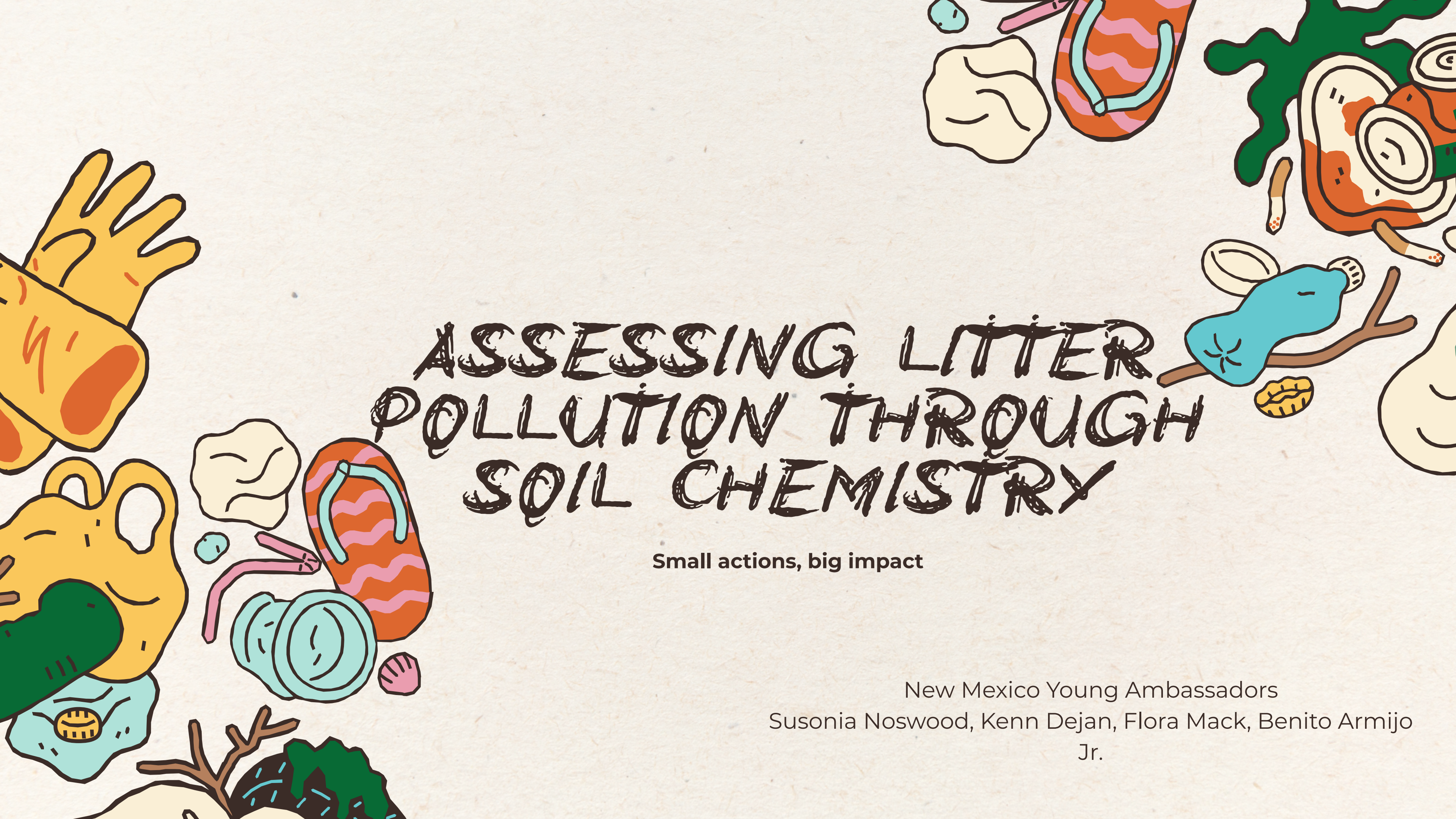




ASSESSING LITTER POLLUTION THROUGH SOIL CHEMISTRY

Small actions, big impact

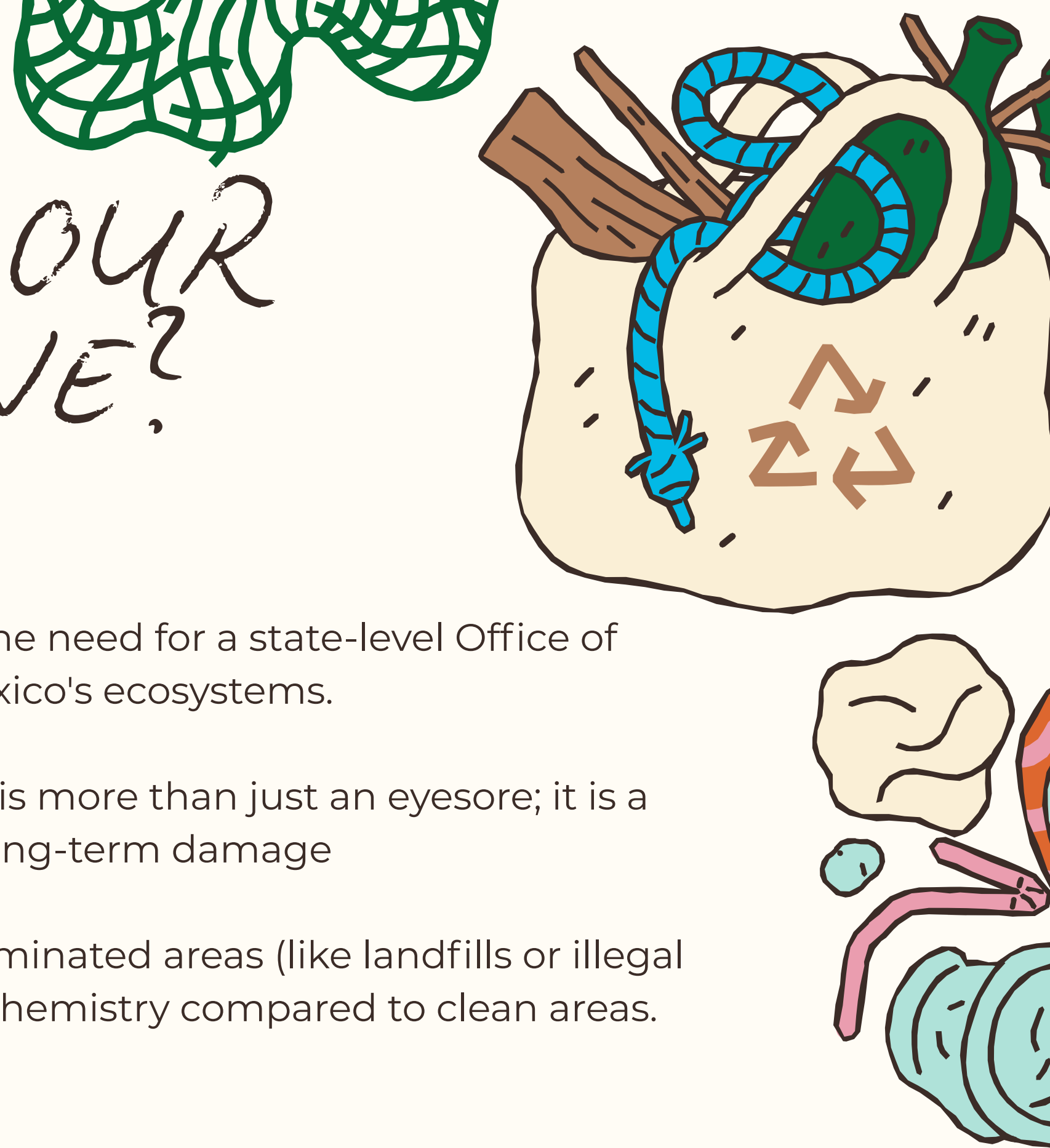
New Mexico Young Ambassadors
Susonia Noswood, Kenn Dejan, Flora Mack, Benito Armijo
Jr.

WHAT IS OUR CAPSTONE?

The Goal: Our capstone project is centered on the need for a state-level Office of Beautification to protect New Mexico's ecosystems.

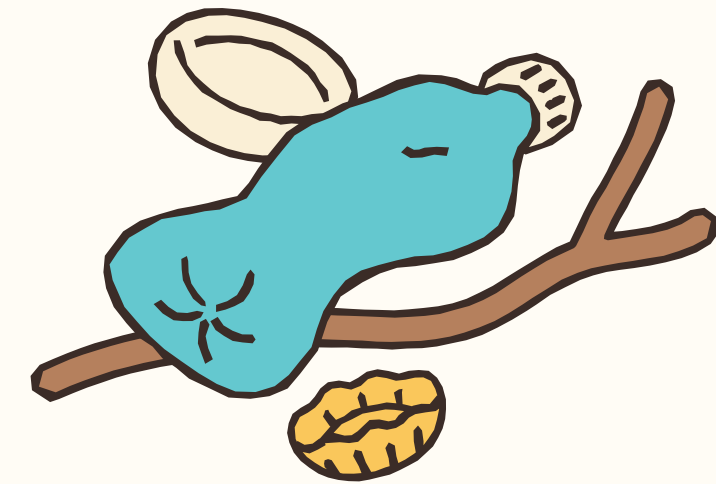
Why We Chose It: We wanted to prove that litter is more than just an eyesore; it is a chemical pollutant that causes long-term damage

Our Hypothesis: We predicted that soil from contaminated areas (like landfills or illegal dumps) would show higher pH levels and altered chemistry compared to clean areas.





WHY IS IT IMPORTANT?

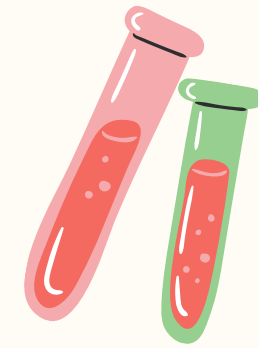


Beyond Appearance: Litter can alter soil chemistry and create environmental impacts that are not visible on the surface.

Scientific Evidence for Action: This research provides the data needed to support stronger environmental initiatives in our state.

Human Impact: Our study shows that waste left in our communities—like cleaning products or fertilizer runoff—permanently changes the earth we live on.





ANALYSIS



To analyze how litter affects the environment, one “clean” soil sample (with no visible litter present) and one “dirty” soil sample (with visible trash on the surface) were collected from each location.

The samples went through a triplicate lab analysis, analyzing differences in pH, nitrate, and N-P-K levels.

Example: Farmington Soil Sample



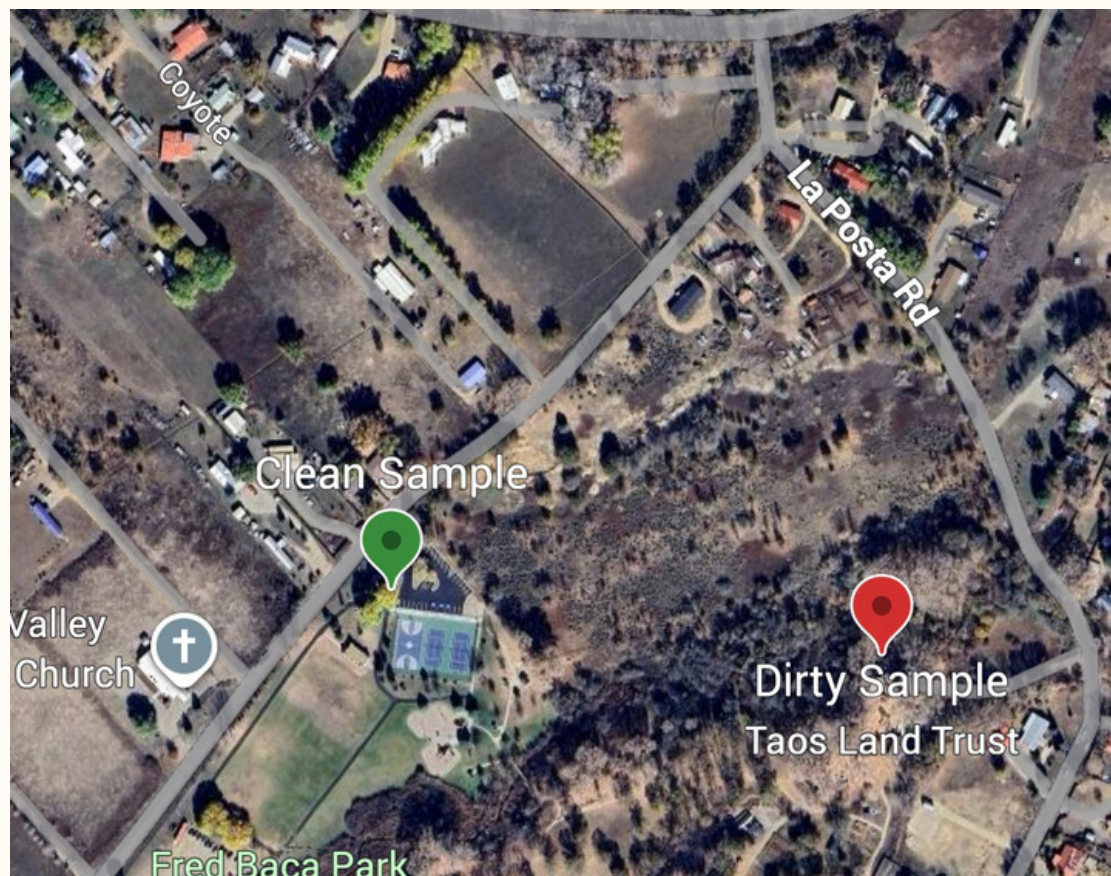
Dirty



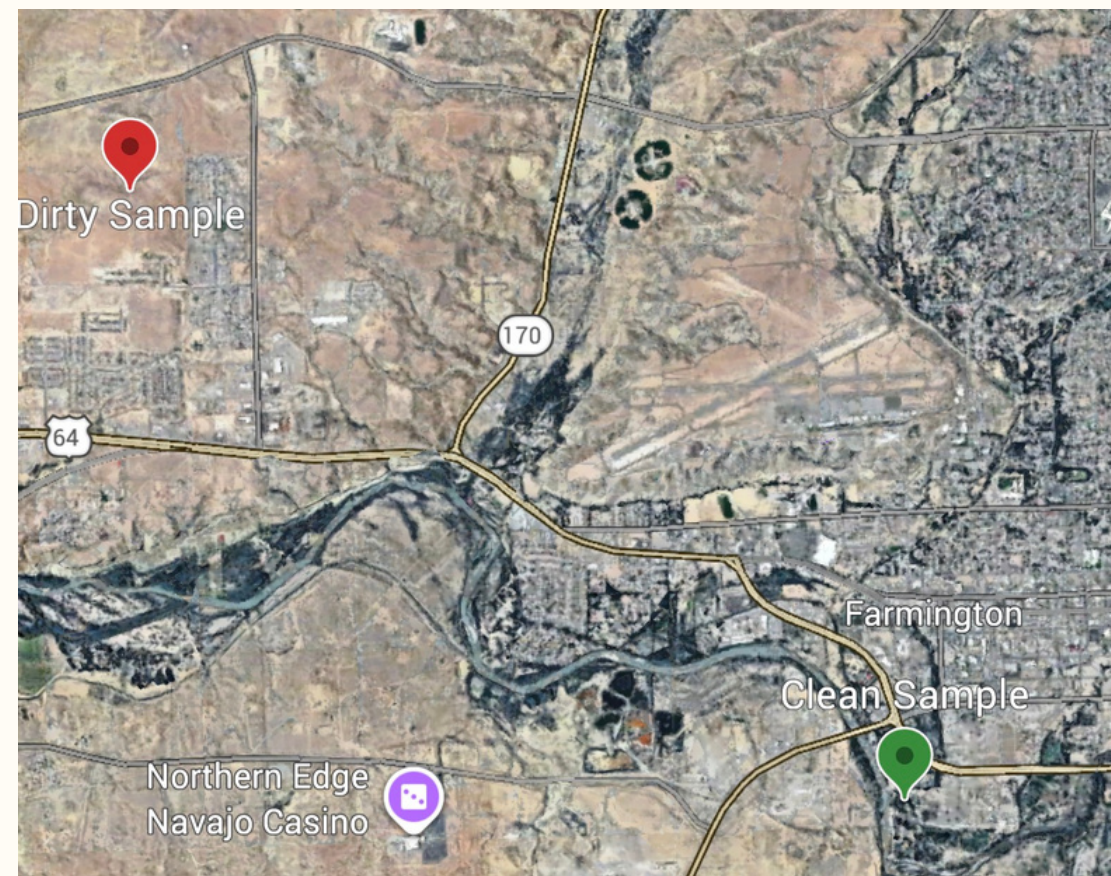
Clean



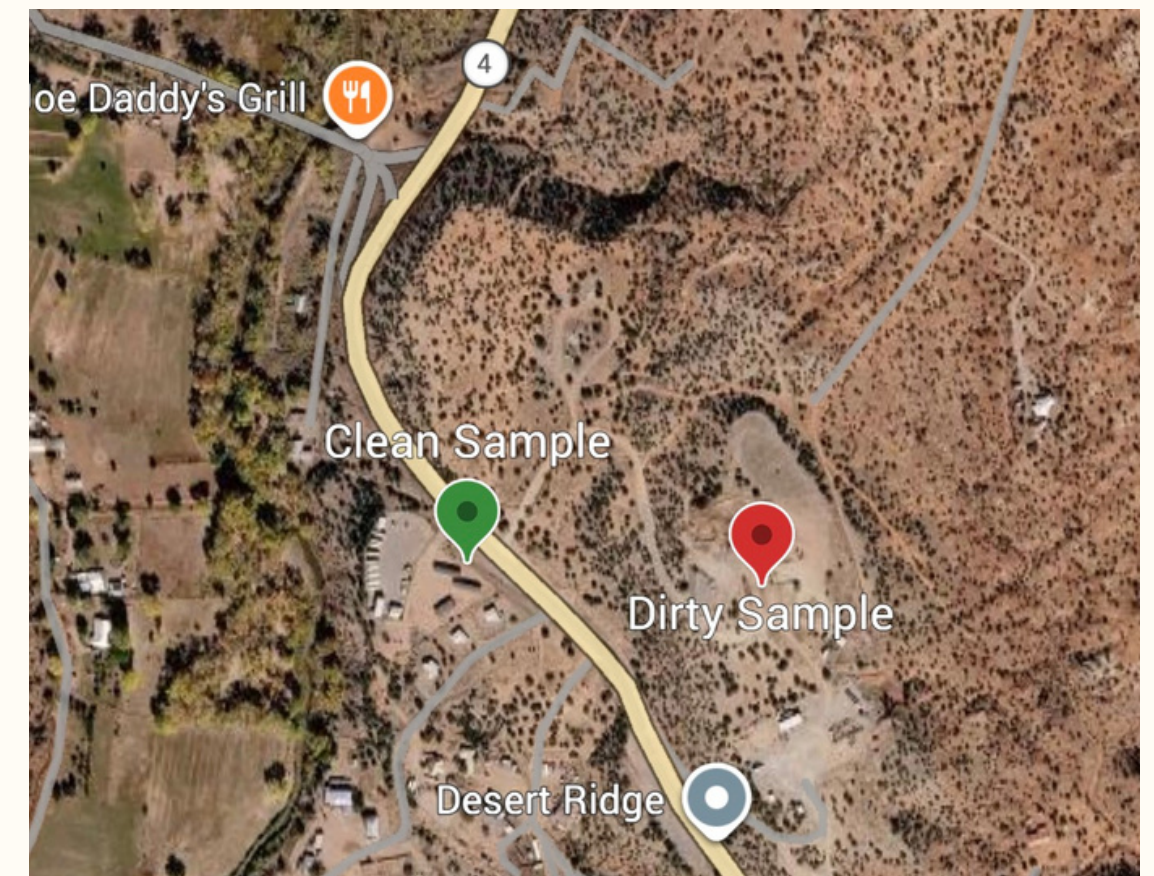
SAMPLE COLLECTION SITES



Taos



Farmington



Jemez Pueblo



why is
**ENVIRONMENTAL
EDUCATION**
essential?

Environmental education is important because it helps us understand how human actions affect the environment and teaches ways to protect natural resources. It encourages responsible decisions, sustainability, and community action while helping students connect science to real-world problems like pollution and climate change.



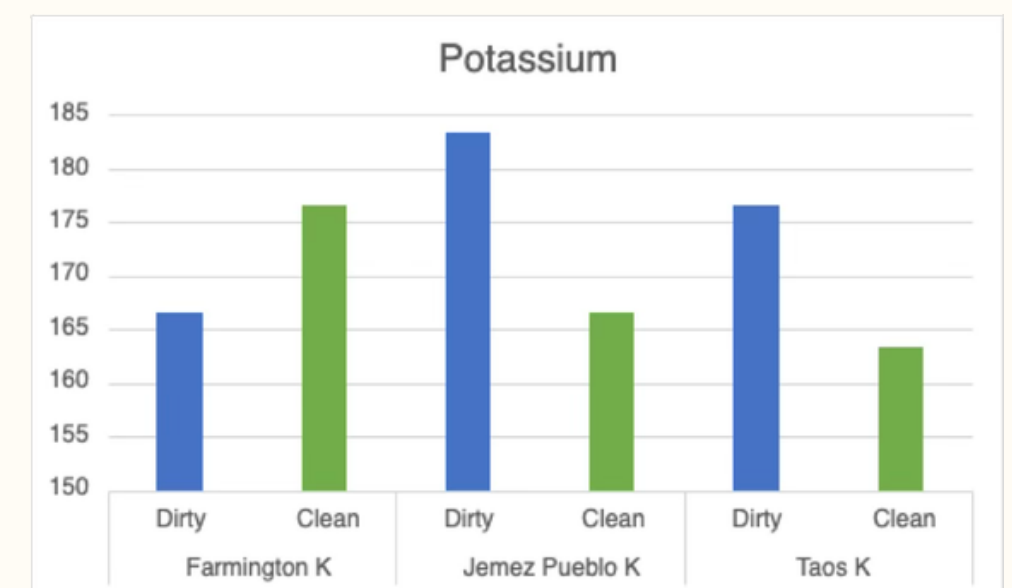
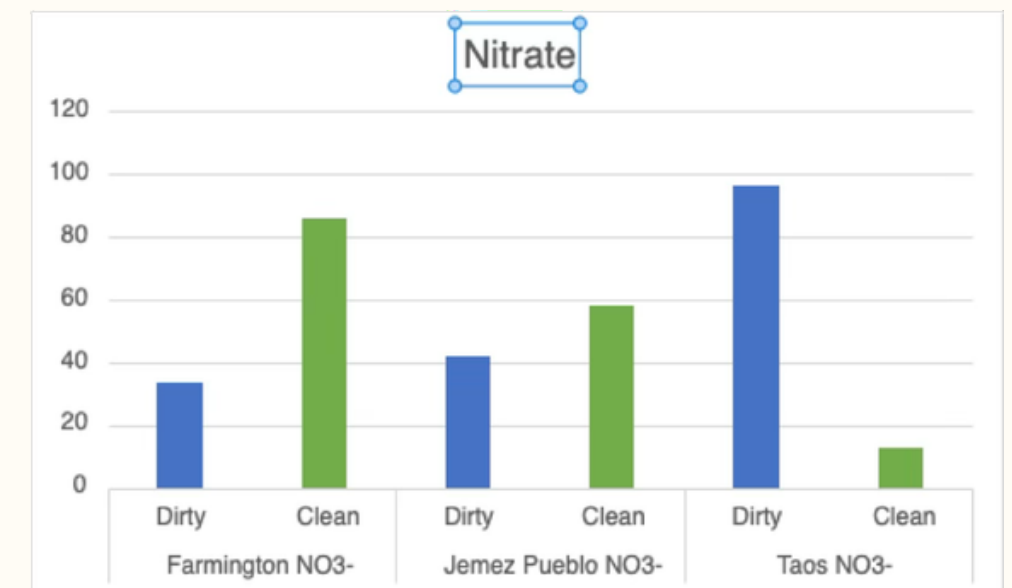
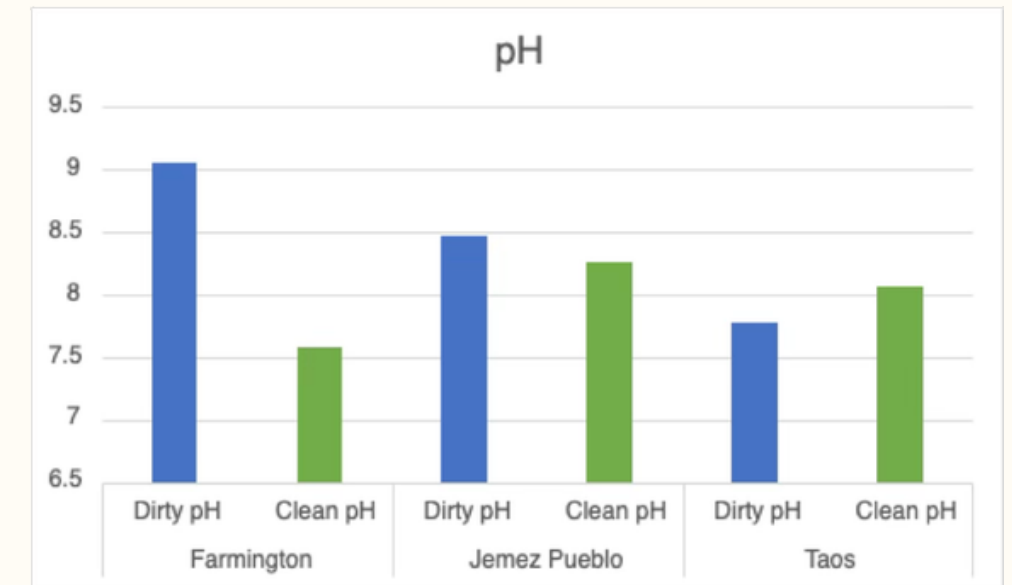
RESULTS

pH Levels: Farmington and Jemez samples had higher pH in contaminated areas, likely because waste was present for a long time at those landfill and illegal dumping sites.

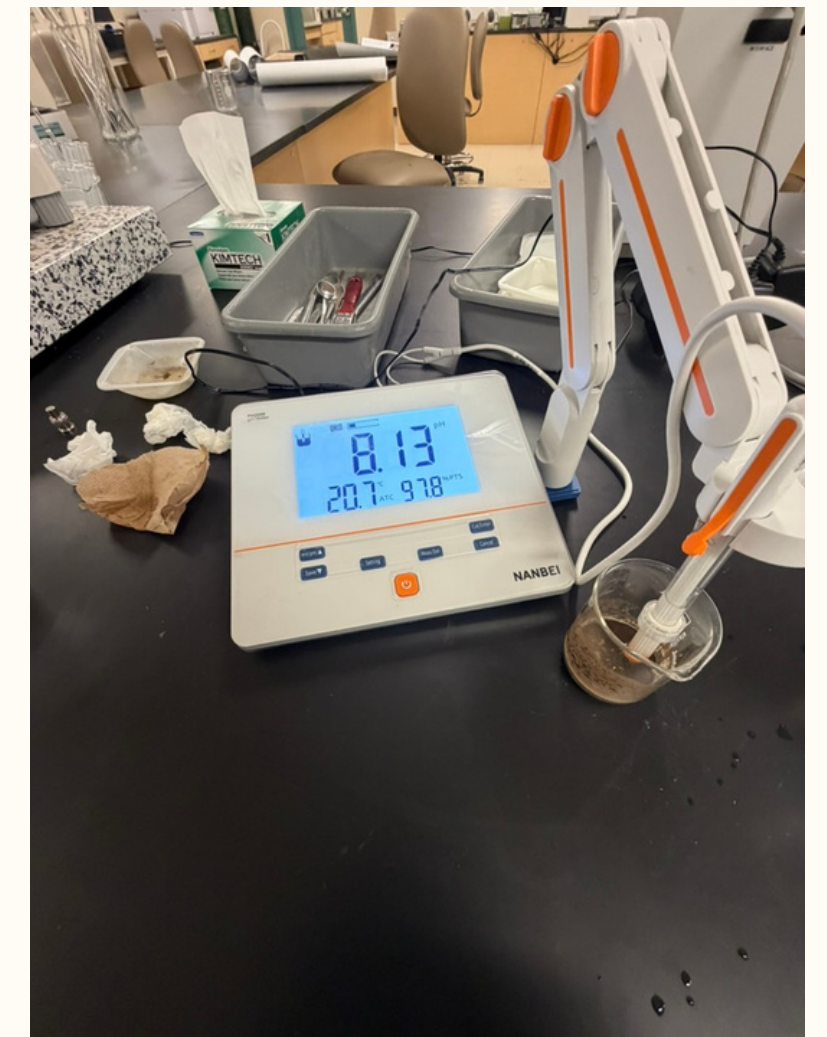
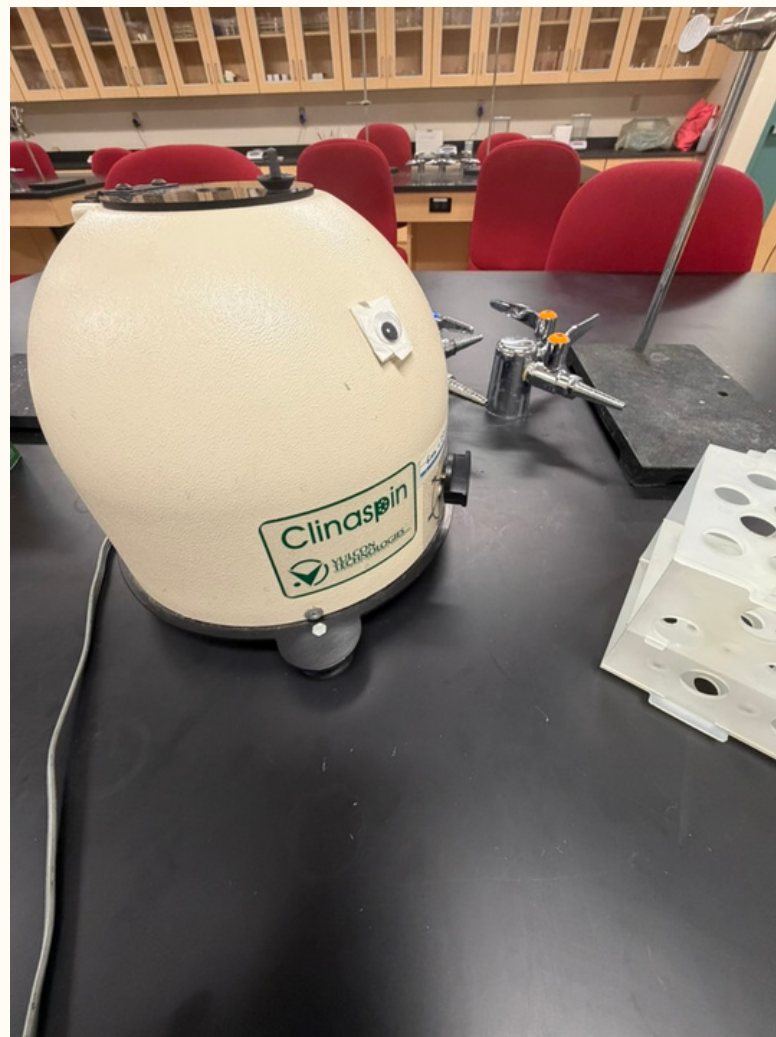
Nitrate Levels: In most sites, litter disrupted the natural nitrogen cycle, leading to lower nitrate production.

The Taos Exception: In Taos, the dirty sample actually had higher nitrate, likely due to human activity like fertilizer runoff from nearby tennis courts.

Potassium: We found that human activity and waste materials introduce extra minerals like potassium into the soil over time.



LAB ANALYSIS





WHAT ACTIONS
SHOULD YOU
TAKE?

let's see!

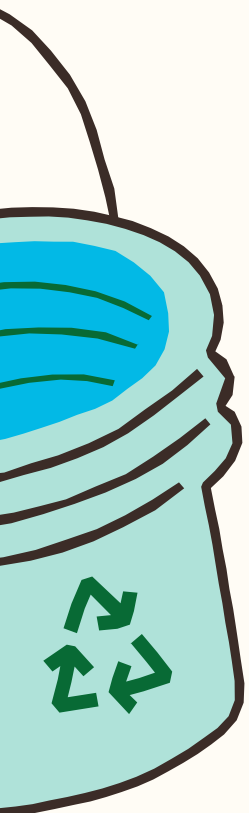




tip #1

RETHINK YOUR TRASH!

Every wrapper, plastic bottle, and takeout box adds up. Try reusing containers, bringing your own bags, and actually recycling the right way. Less waste = less pollution in oceans and landfills.



tip #2

PICK UP TRASH WHEN YOU SEE IT

More times than often, when litter is present, people look the other way. You can make a huge difference by picking up a waterbottle or wrapper off of the ground when you see it.



tip #3

BE THE VOICE

If you want to make a difference and be a leader, you HAVE to be the loudest voice in the room. Tell people to clean up after themselves, encourage others to care for the environment, and remind them that small actions can have a lasting impact.





tip #4

USE WHAT YOU HAVE

You don't have to have a big group of people, or support from others to make an impact. All you need is a positive mindset. Host a clean up event even if it's only you and a couple of friends! Speak up, because if you don't, no one will.



quick question:

WHAT'S
SOMETHING YOU
DO EVERYDAY TO
PROTECT THE
PLANET?





tip #5

GET INVOLVED LOCALLY

Look for park cleanups near you. Better yet, start one at your school! Real change doesn't always come from above, it starts right where you are.



tip #6

SPEAK UP

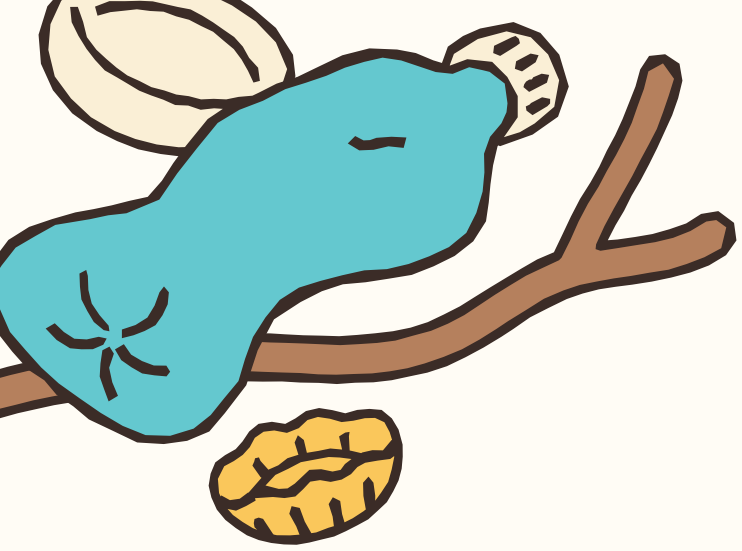
You don't need a million followers to raise awareness. Post about environmental issues, join school clubs, or even just talk to friends and family about simple eco-friendly habits. Change often starts with conversations.

RESOURCES

A huge thank you to the Department of Science, Math, and Engineering and the Department of Chemistry at San Juan College for allowing us to use their laboratory space and supplies to conduct our analysis.

We would also like to give a special thank you to Adam Graham, Chemistry Instructor at San Juan College, for taking time out of his busy schedule to guide and assist us throughout the laboratory analysis process.





Thank you!

