



# CAN MY DAUGHTER MAKE HER MUD PIES IN PEACE?

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## Abstract

Landfills and Asarco are contaminating El Paso soil. Can the contaminated soil harm our health? The chemicals that linger in the soil are Iron, Arsenic and Lead which can cause the human body to break down and may lead to high risks of cancer, liver and kidney disease, brain and nerve damage, or malaria. We collected soils from 1.) Clint Landfill 2.) Asarco Refinery 3.) El Paso Community College. We collected four samples from each site, the surface soil (top 8 inches) and the sub surface soil (12 to 23 inches). The data show there were at least two chemicals in each site, but not all three in one site was found. For example at EPCC we found both arsenic and iron in the soil but not lead. Even though we had found the chemicals we were looking for, none of the chemicals exceed the EPA standard limits. For arsenic the limit standard is 200 ppm (parts per million), for lead the limit standard is 1,000 ppm, and iron the limit standard is 1,000 ppm. Therefore it is safe to say the arsenic, lead, and iron lingering in the soil cannot harm our health because it does not pass EPA standards.

## Introduction

### Problem Statement:

To be aware of the harmful contaminants that linger in the soil due to Asarco and Landfills. Asarco was founded in 1883 and has been a smelter company for lead and copper products. Landfills also give off a lot of harmful chemicals into the soil but by our garbage. The trash that we throw away contaminates the soil and can get us sick. Some landfills allow the disposal of chemicals that have to deal with a car, and those chemicals can sometimes be very harmful if touched or inhaled.

### Objective:

The objective of the project is to be health cautious about the chemicals in your soil and if it can have an effect on your health. We would want to find out if the contaminated soil can harm your health because of the Arsenic, Lead, and Iron in the soil. Due to these chemicals your body can break down and have high risks of cancer, liver and kidney disease, brain and nerve damage, or malaria. We are hoping to find these chemicals in the soil so that we can be aware of the situation and follow safety precautions if needed to.

### Element: EPA standards:

Arsenic	200 ppm
Lead	1,000 ppm
Iron	1,000 ppm

### Area Pictures



Out side of Landfill

River of Asarco

## Results

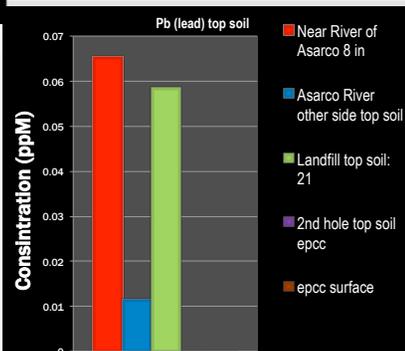


Figure A) Shows us the concentration of lead in our top soil

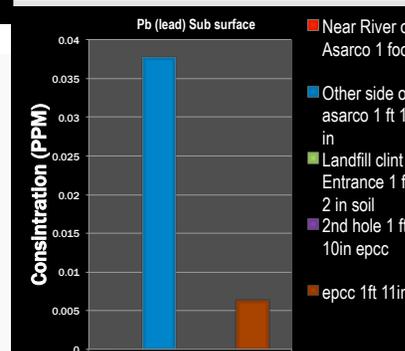


Figure B) shows u the concentration of lead in the sun surface

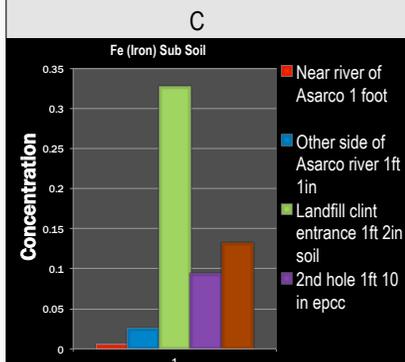


figure C) shows us the concentration of Iron in sub surface

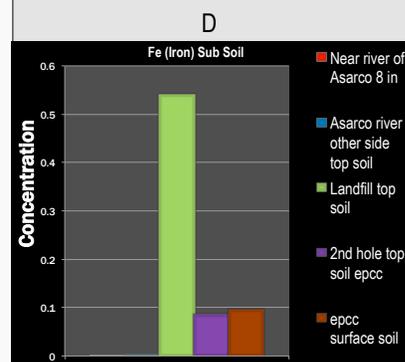


Figure D) shows us the concentration of Iron in the top soil.

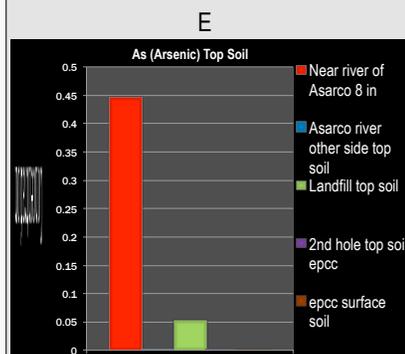


Figure B) shows u the consideration of arsenic in the top soil

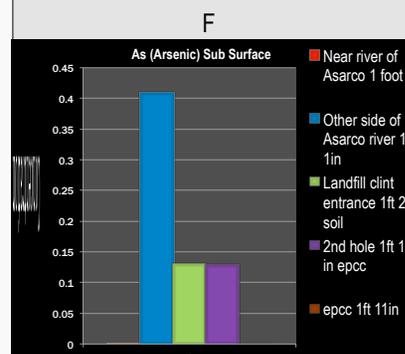


Figure B) shows u the consideration of arsenic in the sub surface

## Methods and Materials

Soils were collected from two contaminated sites and one control site : The Clint Landfill, ASARCO, and EPCC Trans mountain. We got soil from the outside and may be just as contaminated as it would be in the inside. Then we came back to the lab and let the samples dry out, weighed them to 10g. Then put the soul samples in tubes and added D.I water then nitric acid and put them through machines such as the shaker for 15 min, then centrifuged, and then we filtered them . Then ran them through ICPOES(Inductivity couple plasma optical emission Spectrometry) to tell us the types of elements in the soil samples. Then from there we ran it through the IC( Ion Chromatography). Then From there we got our results.

### ICPOES

### IC



## Conclusion

We found Iron, Lead and Arsenic but not all at the same sites. We found Arsenic in the top soil of Asarco, but we also found iron in the top soil of Clint landfill. We found the highest reading of iron at the Clint landfill sub soil. For Arsenic we found the highest readings near the river of Asarco. And for Lead we found the highest reading near the river of Asarco also.

### Future work:

- Dust Collection
- Investigate Environmental services etc...
- Precautions to follow from the contaminated soil.

## Acknowledgement

Special thanks to our families, our sponsors, the doctor Sei-Ling. Ms. Perez, Iliana Segoviano, Lorenza Valadez , Irvin High School, The working with a scientist program, NSF, and Thank you Doc (A.K.A Doctor Lee), thanks to our bus driver.

## References

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