

**The Impact of Ash Deposition on
Limnetic Systems**

New Mexico Adventures in Supercomputing Challenge

Final Report

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The ash deposition on limnetic systems is a threat that is steadily increasing for the Santa Fe Municipal Watershed. There are several contributing factors for this fire danger. Factors including tree density, overabundant vegetation litter, and the lack of precipitation consistency are the main resources for this problem to carry on. One other major problem for the Santa Fe Watershed is the many toxic metals that the trees and vegetation have accumulated through either the soil or the atmosphere. Having a fire will allow the chemicals to be dispersed into the atmosphere and collectively gather in the ash deposits. These metals, such as mercury, arsenic, manganese, and lead have created problems in other water reservoirs, making the drinking water unsafe. In the aftermath of a fire, drinking water is also greatly affected by sedimentation building up in the reservoirs, having enormous amounts of sediment invade a reservoir in only a few months. The sediment leaves no place for the river waters to collect, thus inducing flooding and further erosion.

We researched countless tons of data on past and current tree densities, precipitation fluxuations, and how many and what metals have been found in the trees. We looked up information on what these metals can do to the water and how it can affect a drinker of that water. We have seen first-hand the watershed and its tree density and vegetation litter problems.

This problem, like most all troublesome situations, has been forming since our very inhabiting of this land. We prevented fires because if made our lives inconvenient, whether or not this was a necessary natural process. In our research we can very nearly predict the explosion of the damed natural process, and as awareness has only recently begun and we can only hope the people of this town will take the warnings seriously.

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