

## Application Essay:

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Water is the basis for all life and access to clean water is one of the most fundamental roles of a civil engineer. For over thirty years, my grandfather has played a key role in providing reliable drinking water to rural residents in the Red River Valley.

Over the years, I've heard many stories from my grandfather and uncles about their jobs. To be honest, most of it went over my head when I was younger (reverse osmosis...what 12-year-old is going to know what that means). As a freshman at NDSU in the civil engineering department, I've had the opportunity to learn about many roles and it allowed me to relate water distribution to what they were always talking about.

After some more research, I better understand how a rural water system is essential for the health, livelihood, and well-being of rural communities. The importance of rural water systems includes:

- Improved health: Access to clean water and sanitation helps prevent the spread of waterborne diseases, improving public health and reducing health care costs.
- Enhanced livelihoods: Adequate water supply supports agricultural activities, livestock production and cottage industries, providing a source of income and food security. I learned that one of the East Central Regional Water Districts customers is American Crystal Sugar in Hillsboro. Without the reliable water supply, not only would food safety be in jeopardy, but hundreds of good paying jobs would need to be relocated.
- Improved quality of life: Access to water reduces the time and energy required to collect water, freeing up time and resources for other activities, such as education and recreation. This is one of the greatest advances in civilization and is often taken for granted.
- Increased economic development: Reliable water supply can attract investment and spur economic growth in rural areas. Providing low-cost water supply can be attractive to potential industries looking to expand in rural areas where land prices are more affordable when compared to urban centers.
- Environmental protection: A well-designed and managed rural water system can help conserve and protect water resources, reducing the impact of over-extraction and pollution.
- Emergency preparedness: A functional rural water system helps communities prepare for and respond to natural disasters and other emergencies. This is especially important for fire suppression.

These are just some of the reasons that investing in and maintaining rural water systems is critical for improving the quality of life in rural communities and promoting sustainable development. I'm proud of the work my grandpa does. He, and so many like him that are employed in the water industry, work diligently behind the scenes to ensure that every time we turn on a faucet, we don't have to wonder what will happen.