Chapter 10

CONCLUSION

Water is the lifeblood of any nation. It becomes an even more precious resource when it is scarce and in high demand. Thus we see the need to protect this resource from the impacts of man's development. This thesis is an attempt to discuss the issues surrounding the impact of coal mining on water resources with a few focal points taken from an extremely broad and complex subject.

Although this study did not reveal any significant pollution at the given sample sites in the Witbank and Middelburg Dam catchments, a number of conclusions may be made:

1. Grab samples are most likely to produce the most acid leachate.
2. Coal product samples are most likely to exhibit the highest alkalinity.
3. Ash samples, or samples with a high ash content are likely to produce highly alkaline leachate.
4. GIS maps are a very good method of correlating information contained in a series of databases and provide a user-friendly, interactive means to access a wide range of data at once.

Mining, by its nature, consumes, diverts and can seriously pollute water. These impacts depend on a variety of factors including the sensitivity of the terrain, the composition of minerals being mined, the type of technology employed, the skill, knowledge and environmental commitment of the mining company and our ability to monitor and enforce compliance with environmental legislation. For the sake of current and future generations we need to safeguard the purity and quantity of our water against irresponsible mineral development. We need to ensure the best pollution prevention strategies are employed in cases where the risks can be managed. We should also recognise that in some places mining should not

be allowed to proceed because the identified risks to other resources are too great. In the right place and with conscientious companies, innovative technologies and good planning many of the potential impacts of mining on the aqueous environment are avoidable. In fact, most mine pollution arises from negligence and not necessity, as some would have us believe. Once a mine is in operation water protection must remain the highest goal of the company, even if it means reduced mineral productivity. Adopting this ethic is the only way we can ensure that the golden dreams of mining do not turn into the nightmare of poisoned streams.