Urban drainage structures have increasing demands which can lead to increasing hydrogen sulphide related problems forming in places where they have not previously been prevalent. This puts pressure on the methods currently used to monitor and diagnose these problems and more sophisticated methods may be needed for identifying the origin of the problems. Molecular microbiological techniques, such as quantitative polymerase chain reaction, offer a potential alternative for identifying and quantifying bacteria likely to be causing the production of hydrogen sulphide, information that, when combined with an appropriate sampling programme, can then be used to identify the potentially most effective remediation technique. The application of these methods in urban drainage systems is, however, not always simple, but good results can be achieved. In this study bacteria producing hydrogen sulphide were quantified in three small combined sewer overflow storage tanks. Bacterial counts were compared between wastewater, biofilms and sediments. Similar numbers were found in the wastewater and biofilms,
with the numbers in the sediments being lower. If remediation methods for hydrogen sulphide are deemed necessary in the tanks, methods that target both the wastewater and the biofilms should therefore be considered.
Sulfate-reducing bacteria (SRB) facilitate the conversion of sulfate to sulfide with the sulfides reacting with heavy metals to precipitate toxic metals as metal sulfide. These metal sulfides are stable and can easily be removed from AMTW (Cohen, 2006). Sulfide oxidation and acid production in mining waste can be hindered by acid consuming processes in varying degrees, depending on the availability of acid consuming minerals. Carbonates (such as calcite and dolomite) and silicates can neutralize the effect of the low pH when present in mine tailings waste, thus, liberating heavy metals and other elements into solution and preventing them from being transported to the surrounding environment to any considerable amount. Sulfate-reducing bacteria, primarily of the genus Desulfovibrio, are responsible for anaerobic corrosion. These bacteria appear to cause corrosion by producing a highly corrosive product in addition to hydrogen sulfide. The fate of iron in anaerobic environments, conducive to the growth of sulfate-reducing bacteria, may depend on whether iron sulfide film formation by hydrogen sulfide occurs first, thereby inhibiting corrosion, or whether the highly corrosive substance comes in contact with the iron before film formation has occurred, thereby accelerating corrosion. Sulfate-reducing bacteria, primarily of the genus Desulfovibrio, are responsible for anaerobic corrosion. These bacteria appear to cause corrosion by producing a highly corrosive product in addition to hydrogen sulfide.

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