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ENG450

Contaminated Site progress report

Submitted to:

Dr Martin Anda
Murdoch University
MURDOCH PERTH WA
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A report submitted to the School of Engineering and Energy, Murdoch University in partial fulfilment of the requirements for the degree of Bachelor of Engineering

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FINAL REPORT

Brett Bower



Murdoch
UNIVERSITY





Executive summary

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This Final Project Report contains information on the contaminated site Project (ENG450) conducted at Golder Associates, which is located 10km from the CBD in Western Australia. It focuses on the procedures that were conducted for the August quarterly groundwater sampling round, the results obtained from the site investigation and my evaluation of Golder's performance in relation to the laws and regulations for contaminated sites, which are required within the scope of the project.

A total of 27 groundwater monitoring locations were sampled as part of the quarterly sampling round over 3 days. A peristaltic pump and low flow purging was the chosen technique for this site. The following is a brief summary of the results obtained.

Field parameters measured at each location were generally within the range observed during previous rounds. Conductivity was lower in MB14B than previously recorded at the site, and measured ORP (Oxidation Reduction Potential) was lower in MB13A and higher in MB20B than previously recorded. The remainder of the field parameters were similar to the May 2011 levels recorded.

The assessment of the field and laboratory data indicates that the quality assurance and quality control acceptance criteria for groundwater were met with the exception of RPDs greater than 50% for three of the triplicate samples. Never the less, based on the results of the overall QA/QC programme it is considered that the data has been validated.

The mass flux estimate for tetrabromoethane (TBE) in this quarterly monitoring round is 3.065 kg/year. The mass flux was calculated using the TBE concentrations from MB22A-C, MB48A-C, MB24A-C and MB47A-C. A decrease in TBE mass flux concentrations is noted from the August 2010 monitoring round (3.26 kg/year) to the August 2011 monitoring round.

Overall, the changes to the plume and hydraulics at the site are minor, despite the potential impacts of the changes in pumping regime. It is likely premature to draw any major conclusions based on results from the August monitoring event.

From my own personal research of the literature and time spent at Golder Associates I believe that they have been closely following all the laws, regulations and guidelines required by the DEC and ANZECC. Golder are very keen and eager to adopt new and improved techniques that emerge in order to maintain their reputation and prove the high regard they have for the environment, which is displayed in their company slogan "Engineering Earths Development, Preserving Earths Integrity". The DEC Contaminated Sites Management Series guideline documents are the main source of information for assessment for contaminated sites and throughout my review, Golder have taken on board all the guidelines as well as additional recommendations made by the DEC regarding contaminated sites for the project in which I was involved in.



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