

Saturday Morning Technical Talks
on
Young Geologists' Work Experiences

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Abstracts of Papers

Some experiences on contaminated ground assessment

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Environmental Geologist is a new promising career in Malaysia. This paper is explaining the task of Environmental Geologist in a Petrol Service Station and Depot or Terminal. The information such as site geology, hydrogeology and groundwater flow directions are important to understand an overall picture of the contamination present at the site that serve as a baseline for future comparison purposes.

The objectives of an Environmental Site Assessment (ESA) are to assess the existing soil and groundwater conditions at each site/facility, to assess potential subsurface soil and groundwater contamination due to past operations at the sites, to identify contamination sources, and to delineate the extent of contamination, if present.

The scope of work involved of soil sampling and groundwater monitoring well installations. Area of Potential Contamination (APC) with high impact such as tank farm area, oil water separators, drainage systems and the depot's former discharge area were identified. Boreholes were advanced and monitoring well installed to establish the site subsurface conditions and groundwater flow patterns.

Part of scope of work was to assess the potential offsite migration from the site to neighbouring properties and documented the potential of offsite contamination sources, from neighbouring properties. Based on the site investigation and laboratory analytical results, a site conceptual model was developed. The site environmental condition were evaluated through the sampling and analysis of soil and groundwater. Laboratory analyses of the samples was performed in accordance to US-EPA analytical protocol. Develop a site conceptual model based on the result of the site assessment.

As part of the project, a risk assessment was conducted in accordance with comparable standard such as the Australian Oil and Industry Environmental Guidelines Working Group (AOIEG) and Dutch Standard. The risk assessment was based on current and reasonably foreseeable site use and conditions, which was mainly industrial and/or commercial. Later the risk posed by the contamination identified was assessed and documented, and an effective and economical remedial alternative to remediate the site will also developed.