

# **A DATA GAPS EVALUATION: THE VALUE OF EXISTING INFORMATION TO ACHIEVE RE-CLASSIFICATION**

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## **Background/Objectives.**

As contaminated sites are often investigated over several years and in many cases decades, the potential exists for the historical assessment of site data to become out of date as guidelines and legislation change. Furthermore, where several phases of investigation have been conducted at a site, the overall assessment of risk at a site can become disjointed.

This case study relates to a former mine site which had been partially rehabilitated but classified as 'Remediated for restricted use' under the WA Contaminated Sites Act 2003 (CS Act). The overall objective was to achieve a 'Remediated for restricted use' (RRU) classification through the establishment of a suitable proposed deposited plan for interest purposes only (DP-IPO) and a managed approach to residual site contamination in line with the requirements of the CS Act. The study is a good example of how to gain as much value from existing data through a data quality review and a comparison of existing data against contemporary investigation levels which aided the development of a conceptual site model (CSM) for the site and identified outstanding data gaps in the site's characterization. These data gaps were then used to outline a roadmap for eventual classification of the DP-IPO to RRU.

The technical objectives of the data gaps evaluation were to:

- Update information relating to the environmental setting of the site;
- Extract and compile data from all available historical reports;
- Gain an understanding of current site conditions through a site walkover;
- Develop a CSM for the site using the above information to assess the potential risks to receptors from contamination at the site at the site;
- Determine wherever there are any data gaps in the site characterisation and whether additional investigation or risk assessment is required; and
- Provide a technical basis for the creation of a DP-IPO to allow eventual assignment of the proposed RRU classification.

## **Approach/Activities.**

The projects involved undertaking a qualitative approach. In order to understand any residual risks that may be present at the study area this was done through the following activities;

- A review of available existing historical information from the site;
- A desk-top study was carried out comprising a review of available background information relating to the site in the public domain;
- Completion of a data review of existing information from the site with a comparison against contemporary investigation levels as detailed in the Assessment of Site

Contamination (ASC) National Environmental Protection Measure (NEPM) (NEPC, 2013);

- Definition of the preliminary extent of the DP-IPO based on the findings of the historical review, desk-top study and data review;
- A site visit to document current site conditions, survey four existing groundwater monitoring wells at the site, gauge the depth to groundwater in the existing groundwater monitoring wells and refine the extent if DP-IPO;
- Survey of a DP-IPO by a licensed surveyor under the direction of AECOM and lodgement to Landgate as 'an order for dealings' for approval; and
- Completion of an interpretive data gaps evaluation report in general accordance with the DWER (2014) guideline Assessment and management of contaminated sites.

### **Results/Lessons Learned.**

The site was reported to the Department of Environment and Conservation (DEC<sup>1</sup>) prior to the commencement of the Contaminated Sites Act (2003) (CS Act). The site was later classified as 'Contaminated – remediation required' (C-RR) in January 2007. The primary reason for the classification was due to the presence of approximately 20,000 m<sup>3</sup> of tailings containing copper, lead, zinc and other heavy metals exceeding investigation levels that was reportedly present at the site.

The data review involved various steps of filtering information to make use of the years of study. Through this process it identified residual impacts above investigations levels for both soil and groundwater. This was an important learning curve of filtering data to ensure it is still valid and useful to understanding the potential for DP-IPO options on the site. The importance of this flows through to the conceptual site model where the risks, receptors and pathways become evident.

Following development and refinement of the conceptual site model (CSM), four potential source-pathway-receptor (SPR) linkages have been identified at the site as summarised below:

1. Residual mine tailings associated with former stockpile levelling and capping area may pose an unacceptable risk to terrestrial ecology;
2. Residual mine tailings on-site may pose an unacceptable risk to ecology in Nokanena Brook;
3. Residual on-site tailings in and adjacent to Nokanena Brook may pose an unacceptable risk to terrestrial ecology; and
4. Residual on-site tailings in and adjacent to Nokanena Brook may pose an unacceptable risk to ecology in Nokanena Brook.

This project allowed for an updated understanding potential risks arising from contamination may currently exist onsite and can assist regulators assessing the status of the site under the CS Act.

### **Speaker Biography**

Shimona is a Professional environmental scientist based in the AECOM Perth office within the Geoscience and remediation Services Group. She has over three years' experience in the resources and environmental sector as well as contaminated sites management.

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<sup>1</sup> Now known as Department of Water and Environmental Regulation (DWER)