Waste Classification and Acid Rock Drainage (ARD / ABA) Assessment of Mine Residue Deposits (MRD's)

WBC Water Business College

Online DIY Course

Project Description

A Waste Classification and Acid Rock Drainage (ARD or ABA) Assessment of Mine Residue Deposits (MRD’s). Case Study: A mine targeting platinum group minerals (PGM's) in the Bushveld Igneous Complex (BIC).

Purpose of the DIY Exercise

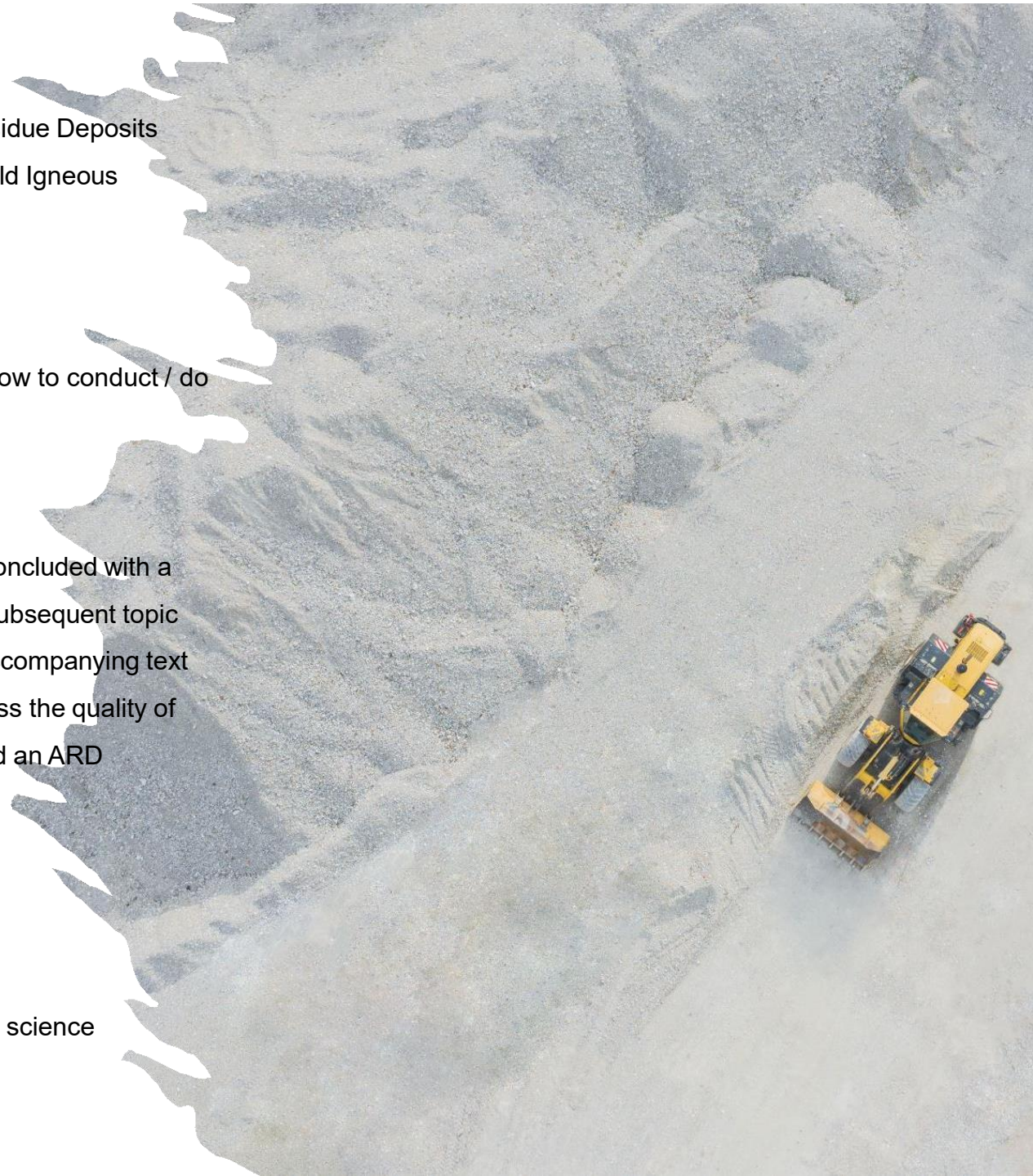
The primary focus of the **Online Do-It-Yourself (DIY) course** is on methodology, i.e. how to conduct / do a Waste Classification and an ARD assessment of MRD's / waste material.

Course structure

The content for the DIY course is sub-divided based on specific topics. Each topic is concluded with a quiz. Learners are expected to achieve 100% for each quiz. The course content for a subsequent topic can only be accessed if the learner achieves a 100% pass for a preceding quiz. The accompanying text and compulsory quizzes will guide learners through various tasks (or activities) to assess the quality of water resources associated with the MRD's and perform both a waste classification and an ARD assessment of the selected MRD’s.

Target Audience for the DIY Training Course

- Senior and Post-Graduate students in related disciplines.
- Young practitioners in the water resources, engineering, environmental and related science disciplines.



Overview

- **The introductory DIY courses are self-study courses**. The learner / participant completes, at his/her own pace, activities / tasks related to a specific topic. The total time allocated to complete the DIY course is two (2) months.
- The introductory DIY course is designed to provide learners with an overview of applied methods to conduct a waste classification as well as to assess the acid rock drainage (ARD) potential of Mine Residue Deposits (MRD's), such as tailings material, waste rock samples, sludge samples, soil, etc.

Engagement with Facilitator

The learner / participant will be able to post questions and/or comments on the activities / tasks. The developer of the DIY course will regularly respond to the questions and comments. The developer may also arrange an online meeting to respond to the questions and/or comments. The date and time for such an online meeting, specific to a DIY course, will be posted on the WBC LMS. All online meetings / forums, etc may / will be recorded and posted on the WBC LMS for the benefit of all learners / participants registered for the DIY course.

Flexibility / Accessibility of Course Material

The DIY courses are available 24/7 and the learner / participant can start at any time once registered!

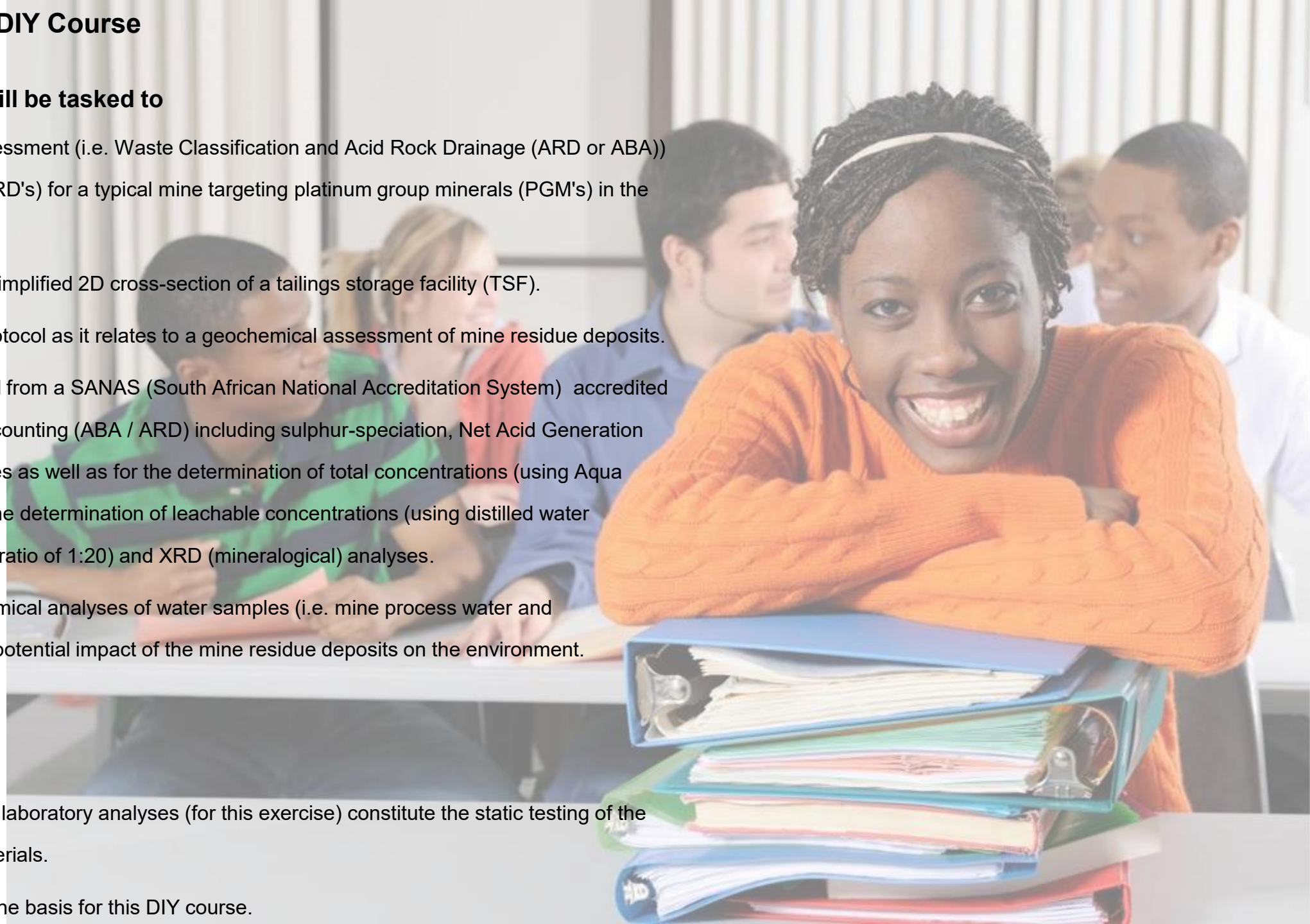
Topics included in the DIY Course

The learner / participant will be tasked to

- Conduct a geochemical assessment (i.e. Waste Classification and Acid Rock Drainage (ARD or ABA)) of mine residue deposits (MRD's) for a typical mine targeting platinum group minerals (PGM's) in the Bushveld Igneous Complex.
- Familiarise themself with a simplified 2D cross-section of a tailings storage facility (TSF).
- Understand the sampling protocol as it relates to a geochemical assessment of mine residue deposits.
- Interpret the results obtained from a SANAS (South African National Accreditation System) accredited laboratory for Acid-Base-Accounting (ABA / ARD) including sulphur-speciation, Net Acid Generation (NAG) and paste pH analyses as well as for the determination of total concentrations (using Aqua Regia digestion on solids), the determination of leachable concentrations (using distilled water extraction at a liquid to solid ratio of 1:20) and XRD (mineralogical) analyses.
- In addition, interpret the chemical analyses of water samples (i.e. mine process water and groundwater) to assess the potential impact of the mine residue deposits on the environment.

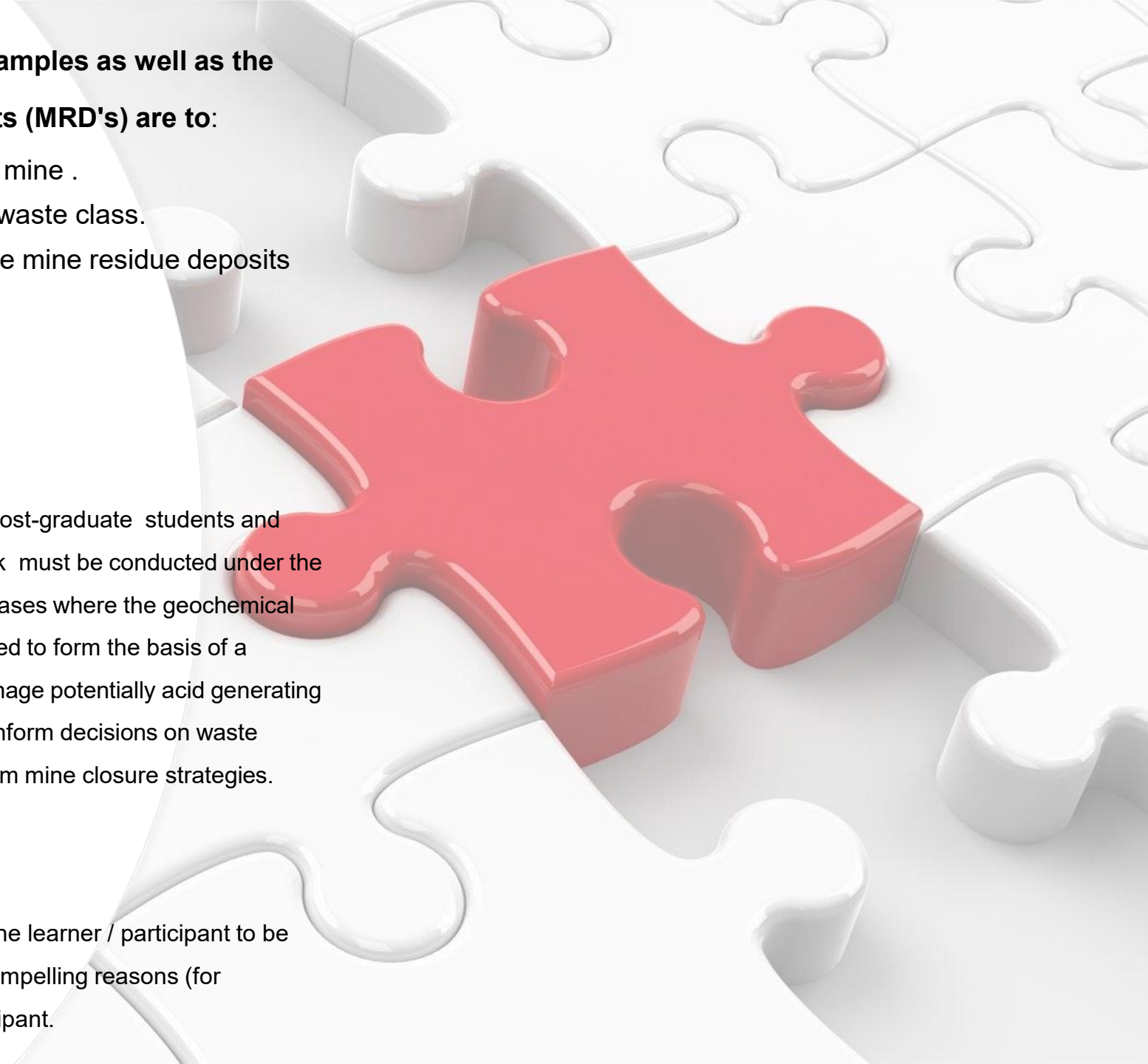
Please Note

- The conducted geochemical laboratory analyses (for this exercise) constitute the static testing of the selected MRD's / waste materials.
- The laboratory results form the basis for this DIY course.



The objectives for the characterisation of the water samples as well as the geochemical assessment of the mine residue deposits (MRD's) are to:

- Characterise the water resources in the vicinity of the mine .
- Classify the mine residue deposits (MRD's) i.t.o. of a waste class.
- Determine the potential acid generating capacity of the mine residue deposits (MRD's).



Please Note

This DIY training course is not intended to assist senior students, post-graduate students and younger practitioners with project related work. Project related work must be conducted under the guidance of experience staff members / colleagues, especially in cases where the geochemical study (i.e. waste classification and the ARD assessment) is intended to form the basis of a continuous ARD assessment programme (over life-of-mine) to manage potentially acid generating materials, to inform decisions on liner systems for waste sites, to inform decisions on waste management strategies and mitigation measures as well as to inform mine closure strategies.

Refunds

Cancelling and/or not completing the DIY course does not qualify the learner / participant to be eligible for a refund. Refunds will only be considered if there are compelling reasons (for cancellation / termination) beyond the control of the learner / participant.

In Addition

- The DIY courses are not related to any qualification but may serve to support specific content of a related qualification.
- The DIY courses are not associated with specific NQF levels.
- This DIY course is **accredited by the Engineering Council of South Africa (ECSA) and approved for two (2) CPD Credits / Points**. The DIY course is not yet accredited by South African Council for Natural Scientific Professions (SACNASP). The latter is not applicable to international participants.

Review(s)

As a student in geosciences, the DIY course was worthwhile! The course allowed me to broaden my understanding of ARD, how ARD & waste assessments are conducted and how to manage and analyze the data of a real-world project. Not only was the content informative, but the course itself was easy to navigate and understand. Learning how to manage and analyze data and seeing how theory and practical work fits together within the DIY course was exciting! I would definitely recommend this Waste Classification and Acid Rock Drainage Assessment Platinum Mine DIY course to others".

Postgraduate Honours Student – University of Kwazulu-Natal (UKZN)

Please submit your documentation to: students@waterbusinesscollege.co.za.

Course Fees

The **introductory fee** for the online DIY course is **R 2 500**.

Further information on the DIY course can be accessed on the WBC website at: https://waterbusinesscollege.co.za/

Registration for the DIY course can be done online at: https://waterbusinesscollege.co.za/. Locate the relevant DIY course on the WBC website.

Full-Time and Part-Time Students (Current Registrations)

The significantly reduced fee for **registered (current registrations) full-time and part-time students** at any tertiary institution is **R 350.**. Students will be required to provide a copy of their annual registration form (current year) issued by the tertiary institution. **Participants opting for the student course (with reduced course fee) will not receive CPD points**.

Please submit your documentation to: students@waterbusinesscollege.co.za.

Contact Information

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