



# Mineral Resources Infrastructure Work

NTQF Level -1

## Learning Guide -46

**Unit of Competence: - Read and Interpret Laboratory  
Procedures and Specifications**

**Module Title: - Reading and interpreting laboratory  
Procedures and specifications**

**LG Code: MIN MRI1 M13 LO1-LG-46**

**TTLM Code: MIN MRI1 TTLM 0819v1**

**LO No2: Recognize amendments**



## Instruction Sheet

## Learning Guide 48

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics

- Checking title panel to verify latest amendments to procedures
- Checking amendments to specifications to ensure currency information

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, **you will be able to** –

- Check and verify Title panel to latest amendments Procedures.
- check and ensure Amendments *specifications* to currency of information

### Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 2 to 7.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1 and self check 2 page4 and 7 respectively”.
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.





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| <b>Information Sheet-1</b> | <b>Checking title panel to verify latest amendments to procedures</b> |
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**Introduction :-** Mining and processing metal ores generates significant quantities of waste. The waste materials typically consist of a mixture of overburden, the mineral material overlying the ore deposit and tailings, and the residual material from mineral extraction. The level of contamination in these materials will depend on the efficiency of metal extraction. Aerial deposition of metals through smelter emissions and smelter slag are additional sources of contamination. These sites can impact significant area. For example, the Use of residual-based amendments to reduce metal availability in situ and restore ecosystem functions to these sites offers multiple benefits. However, it is necessary to identify appropriate combinations of amendments to reduce metal availability and reestablish ecosystem function. As part of this, determining so for the above reasons countries needs low of negotiation that amend every situations, Therefore amendments mines to improve the General provisions of working environment laws of the country.

Significantly, investors and other interested parties who have been waiting for the granting of new exploration licenses and the transfer of existing ones to be lifted will be pleased. Furthermore, the Amendments have scrapped pre-mining agreements going forward (whilst allowing for the preservation of existing ones), and extended the maximum term of exploration licenses to 10 years or above with the introduction of a third three year extension. We expect that investors will see these changes as positive. In our view, 10years for exploration licenses is in line with global best practice in this regard.

Those who had been expecting the Amendments to introduce a competitive tendering process for the issuance of new exploration licenses will be disappointed. The Amendments do not introduce this process, as had been expected in some quarters. In the absence of any changes, our view is that the status quo, direct applications on a first come first serve basis, will continue to apply to the issuance of new exploration licenses. An example of Malawi Amendments to the Minerals Law (2006)

| <b>Minerals law (2006)</b>   | <b>AMENDMENTS (2014)</b>  |
|--|---|
| <p><b>Art. 3</b> outline the scope of the Minerals Law. Pursuant to Art. 3.1 The Minerals Law does not apply to water, petroleum and natural gas. Pursuant to Art. 3.2 The Minerals Law does not regulate artisanal mining or micro mines which are regulated by their own separate law.</p> | <p><b>New Art. 3.3</b> provide that the exploration and exploitation of 'common minerals' are not governed by the Minerals Law but are rather regulated by their own separate law.</p>  |
| <p><b>Art.32</b> sets out the annual fees payable by exploration license holders.</p>  | <p><b>Revised Art. 32.2</b> now includes an annual fee of US\$5 per hectare which is payable for each of the tenth to twelfth years of an exploration license.</p>  |
| <p><b>Art. 33</b> sets out the minimum exploration expenditure requirements for exploration license holders</p>  | <p><b>New Art. 33.1.4</b> now requires an exploration license holder to undertake minimum reconnaissance and exploration expenditure of US\$10 per hectare for each of the tenth to twelfth years of an exploration license</p> |



Standard Operating Procedures (SOP) is a process document that describes in detail the way that an operator should perform a given operation. SOPs involve the purpose of the operation, the equipment and materials required, how to perform the set-up and operations required for the process, how to perform the maintenance and shutdown operations carried out by the worker, a description of safety issues, trouble-shooting, a list of spare parts and where to find them, illustrations, and checklists. The SOP is one of many process documents which is needed for consistent operation of a given process, with other documents involving process flow charts, material specifications, and so forth.

**Experimental Methods in Mineral Processing** Mineral processing is a core technology for mining and production of metals, minerals, and inorganic chemicals, as is clearly demonstrated by the great success of its global implementation. As such it forms a crucial link in the services that the mining sector delivers to society. Over the last two hundred years developments have been largely empirical activity with theoretical understanding lagging industrial practice and related observations

**Standard Procedures for Mineral Processing Laboratory Tests** There appears to be a lack of standardization for routine mineral processing laboratory tests at many mineral processing operations and labs. The exact situation ranges from strong, well-documented and followed to some documented and followed to few, if any standards root causes include lack of awareness of importance, availability, access, etc. Whether performing these tests in your own laboratory or using consultant or vendor facilities it is good practice to critically review and understand the procedures in use. This starts a good dialogue and has many positive impacts, e.g.,

- Verifying existence of standards. Lacking standards, how exactly are tests performed and repeated?
- Review of procedures and if they are being followed by lab staff.
- Vetting use of industry standards or not.
- Verifying the existence and adherence to of laboratory QA/QC procedures.

With this context, the state of standardization is surprisingly poor at many facilities:

- No written procedure
- Multiple written procedures
- Procedures not being closely followed
- Procedure modifications for ease of execution by technicians
- Use of non-standard procedures or equipment
- Poor sample preparation practice
- Difficulty in obtaining copies of Best Practices for running tests.
- Lack of experienced people to teach experimental procedures.
- Lack of QA/QC programs within laboratories.

Developing and maintaining a collection of such procedures will provide many benefits to mineral processing engineers.



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| <b>Self-Check -1</b> | <b>Written Test</b> |
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Name \_\_\_\_\_ Date \_\_\_\_\_

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Part 1 define the following questions each 1 points**

1. Describe briefly amendment
- 2, clarify the aberration SOP

**Part 2 Say true or false the following question each 1 points**

- \_\_\_\_\_ 1. To explore mine from any where we need law
- \_\_\_\_\_ 2. Low of client and owner is not needed amendment
- \_\_\_\_\_ 3. Mining it does not have waste especially gold

**Note: Satisfactory rating - 3 points**

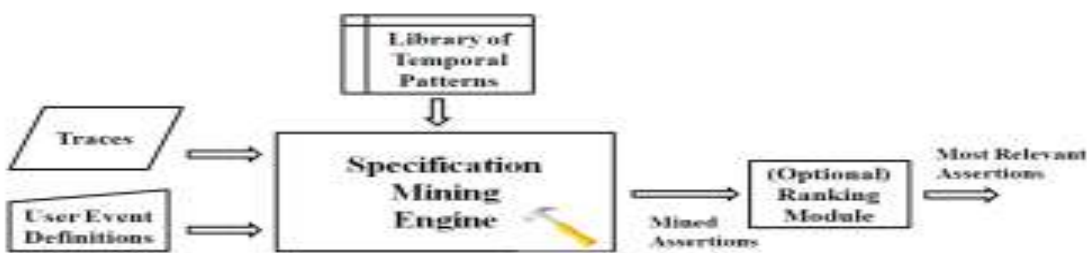
**Unsatisfactory - below 3 points**

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| Score = _____ |
| Rating: _____ |



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| <b>Information Sheet-2</b> | Checking amendments to specifications to ensure currency information |
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**Introduction:-** Formal specifications can precisely capture a system’s desired behavior. One can then leverage verification techniques such as model checking or assertion-driven simulation to ensure the correctness of the system however, the difficulty of manually creating a complete set of formal properties (assertions) and of maintaining those properties through design changes and evolution has significantly hindered the wide-spread adoption of formal specifications. There is therefore a need for scalable techniques for automatically generating formal specifications.



**Figure 1: Specification Mining for Verification**

fig 2.1

These amendments will deliver on the Government’s commitment to undertake necessary reforms to the Mining Acts to responsibly unlock the value and opportunities of our mineral resources. This Bill will be the first phase of a broader suite of legislative, regulation and policy review that will help this Government to deliver its agenda of increasing exports and employment, particularly in regional areas, and improving regulatory efficiency for business. A regular renewal process of review and amendment will be established to ensure that South Australia remains at the forefront of international trends and practices in mining regulation. We will consult on the regulations at the earliest opportunity, Checklist may include but not limited to:

- materials and quality of work
- quality assurance
- provision of Laboratory facilities
- details relating to performance including: standards of work ,tolerances ,characteristics and treatments and finishes



SOPs should describe how the checklist is to be prepared or on what it is to be based. Many activities use checklists to guarantee that steps are followed in order. Checklists are also used to document completed actions. Any checklists or forms involved as part of an activity should be referenced at the points in the procedure where they are to be used and then attached to the SOP. In some cases, detailed checklists are prepared specifically for a given activity. In those cases, the SOP should describe, at least generally, how the checklist is to be prepared, or on what it is to be based. Copies of specific checklists should be then maintained in the file with the activity results and/or with the SOP.

## **For example to check and amend the low Hazards in the working environment and environmental protection**

### **1. General provisions of working environment**

- It should be the duty of the operator of an opencast mine to ensure that persons are not exposed to airborne contaminants, harmful physical and chemical agents or other hazards present in the working environment.
- The manager should establish a suitable system of determining the quality of the air, and identifying any physical or chemical agent likely to be hazardous in the atmosphere in the vicinity of the mining operation, and of all locations in or about the mine where workers may be called upon to work or travel.
- National laws or regulations should specify and regularly review exposure limits for all airborne contaminants, harmful physical and chemical agents, and other hazards which may be encountered in the working environment.
- The mine operator should make the necessary provisions to ensure that:
- Where it is necessary in order to minimize the risk to workers, the manager should prepare written instructions specifying the correct procedure to be observed in these circumstances. The manager should also take the necessary steps to inform all workers of the possible hazards and the precautions to be taken when hazardous substances are likely to be encountered at the mine.
- National legislation should specify the standards necessary to protect workers in opencast mines situated at high altitudes. Specific regard should be paid to the particular characteristics of these mines and the hazards to which the miners are exposed because of the location of such mines.

**2. General Protection of the environment:-** In accordance with national laws, the operator of an opencast mine should ensure the introduction of a program me of environmental management to be taken into account at every stage of a mining project from the feasibility study, through the planning and operational phases, up to the closure of the mine and during subsequent monitor in The environmental management program@ for an opencast mine should provide guidelines covering:



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| <b>Self-Check -2</b> | <b>Written Test</b> |
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Name \_\_\_\_\_ Date \_\_\_\_\_

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Part 1 define the following questions each 2 points**

1. Describe briefly the use of check list
- 2, write at list three check lists

**Part 2 Say true or false the following question each 2 points**

- \_\_\_\_\_ 1. Any checklists or forms involved as part of an activity
- \_\_\_\_\_ 2. Procedures for the closure, abandonment, replanting and after-care of the site

Such that there are no external environmental impacts and no safety hazards

- \_\_\_\_\_ 3. Many activities use checklists to guarantee that steps are followed in order. Checklists are also used to document completed actions.

**Note: Satisfactory rating - 5- points**

**Unsatisfactory - below- 5- points**

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| Score = _____ |
| Rating: _____ |





## List of Reference Materials

1. **Process Diagnostics: a Method Based on Process Mining**
2. **Safety management systems in mines**
3. **The Use of Soil Amendments for Remediation,**
4. **Soil Amendments for Remediation, Revitalization, and Reuse**
5. **Overview of Mining and its Impacts**
6. **Quartz Mining Act Proposed Amendments**
8. **Lab manual practical technology**

