Australian Government

Assessment Requirements for MSL953004 Operate a robotic sample preparation system

Release: 1

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Modification History

Release	Comments
Release 1	This version was released in *MSL Laboratory Operations Training Package Release 2.0*. Supersedes and equivalent to MSL953002 Operate a robotic sample preparation system. Range of conditions removed. Assessment requirements amended.

Performance Evidence

There must be evidence the candidate has completed the tasks outlined in the elements and performance criteria of this unit, and:

- safely operated a robotic sample preparation system reliably and efficiently for at least 3 different samples with different preparation requirements and subsequent analysis, including:
  - accurately recording sample details in system
  - minimising rework, waste and environmental impacts.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- importance of good customer relations, optimising throughput and minimising costs and rework
- procedures for sorting and receiving samples used in job role
- sample preparation methods/processes for common mineral ore samples used in job role
- characteristics of materials to be sampled
- purpose of routine downstream analytical tests conducted on samples used in job role
- procedures for preventing contamination
- procedures for ensuring traceability of samples
- purpose of routine downstream analytical tests conducted on samples used in job role
- function of key components and operating procedures for robotic sample preparation system
- safe work procedures and operation of safety equipment relevant to job role
- robotic system parameters, such as grind time, crushing time and cleaning cycles to prevent cross-contamination

- materials typically sampled:
  - solids, such as rocks, minerals, soils, sands and stream sediments
  - pulverised core and other drill samples, such as rotary air blast (RAB), reverse circulation (RC) and air core samples
  - powder concentrates
  - dump samples and grab samples
- common sample preparation methods:
  - sorting, boxing and drying
  - sieving
  - milling
  - primary crushing (e.g. 10 mm, 2 mm)
  - fine pulverising (e.g. 100 micron, 75 micron)
- typical hazards to be addressed:
  - dust, silica and fibrous materials
  - asbestiform minerals
  - naturally occurring radioactive materials (NORM)
  - samples containing nickel and lead-based compounds
  - noise and vibration
  - crushing, entanglement and cuts associated with moving machinery
  - impact injuries from contact with robot arms
  - failure of pneumatic hoses
  - manual handling of heavy loads, such as sample bags/containers, racks and trolleys
  - heat exhaustion/stress and fatigue
- awareness of environmental sustainability issues as they relate to the work task
- legal, ethical and work health and safety (WHS) requirements specific to the work task.

Assessment Conditions

Skills must have been demonstrated in the workplace or in a simulated environment that reflects workplace conditions and contingencies. The following conditions must be met for this unit:

- use of suitable facilities, equipment and resources, including:
  - a robotic sample preparation system, sample preparation methods and service charges, reagents, sample containers and labels
  - sample preparation equipment including splitters, mills, bowls and tumblers, crushers, grinders and disc pulverisers, sieves and ovens
  - a variety of mineral ore samples
  - client documentation and preparation requests
  - safety equipment.

Assessors must satisfy the NVR/AQTF mandatory competency requirements for assessors.

Links

MSL Laboratory Operations Companion Volume Implementation Guide is available from VETNet - https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=5c63a03b-4a6b-4ae5-9560-1e3c5f462baa