



Australian Government

Assessment Requirements for MSL955002 Supervise a robotic sample preparation system

Release: 1

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Modification History

Release	Comments
Release 1	This version was released in <i>MSL Laboratory Operations Training Package Release 2.0</i>. Supersedes and equivalent to MSL955001 Supervise 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:

- ensured that the robotic sample preparation system operates efficiently and safely to produce outputs that meet the workplace and/or client quality requirements for at least 3 job sequences.

Knowledge Evidence

There must be evidence the candidate has knowledge of:

- geological and chemical characteristics of mineral ores handled in job role
- typical materials 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 aircore samples
 - powder concentrates
 - dump samples and grab samples
- sample preparation methods/processes for a range of mineral ore samples:
 - sorting, boxing and drying
 - sieving
 - milling
 - primary crushing (e.g. 10 mm, 2 mm)
 - fine pulverising (e.g. 100 micron, 75 micron)
 - robotic system parameters, such as grind time, crushing time and cleaning cycles to prevent cross-contamination
- sample preparation equipment:

- splitters (e.g. riffles and rotary dividers)
- mills (e.g. ball, ring and rod)
- bowls (e.g. chrome-steel, tungsten-carbide and zirconia) and tumblers
- crushers (e.g. cone, jaw and roll), grinders and disc pulverisers
- sieves
- ovens
- sample containers and labels
- purpose and key steps in routine downstream analytical tests for samples handled in job role
- workplace procedures for:
 - sorting, receiving and analysing samples
 - preventing contamination
 - ensuring security, integrity and traceability of samples
 - ensuring confidentiality of results
 - sampling for specific samples, sites and clients (labelling, preparation, storage, transport and disposal)
 - recording and reporting
- function of key components and operating procedures for robotic sample preparation system
- function of key components of laboratory information management system (LIMS), system software and layout of screens
- common hazards:
 - 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
- common system problems and corrective actions:
 - sample losses:
 - inspecting mill for mechanical problems and worn hoses
 - inspecting balance/load cell, clean and check calibration
 - checking sample for dryness and contamination
 - collision of sample buckets, transport belt problem:
 - clearing obstruction, cross-checking sample, worksheet, job sequence and synchronising belt
 - loss of air pressure:

- checking pneumatic lines, compressor and solenoid values
- laboratory information management system (LIMS) network connections:
 - checking all parameters are saved in system, if not, unloading and reloading data and cross-check samples with worksheets
- troubleshooting and problem-solving techniques relevant to job role
- importance of good customer relations, throughput, costs and minimising rework
- 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
 - mineral ore samples, sample preparation methods, equipment and reagents
 - client requests/documentation: client profile; sample identification; required preparation methods
 - safety equipment
 - workplace procedures.

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>