



Australian Government

RIIARO308 Use data in an autonomous workplace

Release: 1

RIIARO308 Use data in an autonomous workplace

Modification History

Release 1	This version first released with RII Resources and Infrastructure Industry Training Package Version 9.0. Newly created unit.
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Application

This unit describes skills and knowledge required to collect and use data to ensure continued safe and efficient operations in an autonomous work environment. It includes identifying data sources, collecting data with the human-machine interface (HMI), applying data analytics to inform decisions, and reporting information to key value chain stakeholders.

The unit applies to those working or intending to work in maintainer roles in an autonomous workplace, including mechanical and electrical trade roles.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Unit Sector

Coal mining

Metalliferous mining

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
Elements describe the essential outcomes	Performance criteria describe the performance needed to demonstrate achievement of the element
1. Source data from autonomous equipment or systems	1.1 Locate and examine work instructions and/or procedures for tasks performed alongside autonomous equipment or system controlling a related device 1.2 Access and apply current work health and safety (WHS) documentation relevant as detailed in work instructions 1.3 Receive relevant equipment and systems performance and maintenance data from remote operations controllers 1.4 Interpret information or data to confirm diagnostic work that may be required 1.5 Confirm that sensors, system components, and equipment interfaces used to source diagnostic data are in correct

ELEMENT	PERFORMANCE CRITERIA
	operational mode
2. Retrieve data through the HMI	2.1 Identify safety risks associated with data retrieval and apply workplace personal safety procedures relevant to own role, as required 2.2 Identify diagnostic tools and devices needed to collect relevant equipment or environment data 2.3 Prepare data acquisition tools or device according to task requirements and/or manufacturer operational guidelines 2.4 Receive and record data from sensors and/or the device interfacing with the equipment 2.5 Collect and save appropriate data in accordance with work task requirements and organisational procedures
3. Analyse data and apply data-driven decision making	3.1 Interpret data for preliminary indication of faults to inform decision making in real time, according to level of own responsibility and escalate according to procedures 3.2 Analyse data points, trends, and patterns using mathematical processes to confirm that components and environment conditions are within the normal safety limits, according to organisational protocols 3.3 Identify anomalies in data and assess accuracy and correlation to decreased operational efficiency and/or safety in line with organisational and manufacturer requirements 3.4 Diagnose potential issues and malfunctions and determine the best workable solution to rectify or optimise according to level of own responsibility, and escalate malfunctions where required
4. Finalise reporting activities and work processes	4.1 Identify internal and external end users of the data within the value chain 4.2 Clearly, promptly, and securely communicate data and recommendations to remote operations controller and other identified personnel in accordance with organisational communication protocols 4.3 Monitor impacts to confirm the desired results and report on outcomes to aid continuous improvement, as required by organisational processes 4.4 Exit work area according to autonomous system and component manufacturer specifications and site requirements 4.5 Securely document and store data, and log findings in accordance with operational requirements 4.6 Prepare diagnostic tools and devices for storage or further use according to manufacturer and operational instructions

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

SKILL	DESCRIPTION
Reading	Determines data requirements and sources from work instructions and control room information
Numeracy	- Uses basic mathematical operations to calculate and compare numerical information with expected values - Selects from and uses a variety of problem-solving strategies in a range of familiar and less familiar contexts
Communication	- Uses digital technologies and applications to access, organise and share data and information within organisation's network - Receives and presents information using a variety of mediums in an autonomous workplace
Digital literacy and technology	Operates computer-based data acquisition tools and devices to collect, interpret, and analyse data in differing formats

Unit Mapping Information

No equivalent unit. Newly created unit.

Links

Companion Volume Implementation Guide is found on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=88a61002-9a21-4386-aaf8-69c76e675272>

Assessment Requirements for RIIARO308 Use data in an autonomous workplace

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Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to:

- demonstrate the following on at least 3 occasions:
 - using diagnostic tools and devices to safely access and interpret autonomous equipment and systems data, including:
 - collecting
 - analysing
 - prioritising
 - storing
 - displaying
 - clear and timely communication of data information to necessary stakeholders within the value chain
 - compliance with organisational requirements and protocols for secure data storage and communication
- demonstrate data-driven decision making on at least 1 occasion using relevant data analytical techniques.

During the above, the candidate must:

- apply relevant work health and safety (WHS) and personal safety documentation, policies, and procedures.

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- data in an autonomous workplace, including:
 - data types
 - methods for identifying data types and sources, including:

- organisational, industry-wide, national, universal data types
 - readily available
 - difficult to collect and verify
- sources of data types in an autonomous environment, including:
 - sensor-generated
 - integrated systems
- operational functionality of diagnostic tools, devices, and technologies required by own work instructions
- organisational work health and safety (WHS) and personal safety procedures, documentation, and policies
- impacts on processes in own role of emerging developments in industry data functionality, including:
 - artificial intelligence
 - big data
 - data analytics
 - hybrid systems
- techniques for, and approaches to, handling data, including:
 - graphical representations – display and interpretation
 - algorithms and equations
 - simulation techniques
 - identifying and understanding anomalies and breaks in trends
 - volumes, variety and velocity (rate of change or growth in data)
- organisational requirements in relation to data security and their impact on:
 - maintenance and storage of data
 - communication of data
- operational functionality of sensors, devices, systems, remote interfaces, and human-machine interfaces (HMI) in providing data on autonomous operations, including how data may be applied to aid continuous improvement of organisational processes
- organisational value chain, including:
 - own role and responsibility within the value chain
 - key roles and personnel dependent on the outcomes of own work activities
 - appropriate communication channels and procedures across the chain
- operational procedures for communication devices used in own work role, including for radios, telephones, tablets, screens, and computers
- modes of operation and expected behaviours of autonomous equipment
- techniques to collect, interpret, and transmit different data types in own role
- communication protocols for:
 - radios
 - telephones
 - email
 - group instant messaging applications

- issues that impact personal safety in an autonomous workplace, including:
 - safety zones and behaviour in autonomous zones
 - isolation procedures and verification
- organisational escalation procedures and decision rights in own role.

Assessment Conditions

Mandatory conditions for assessment of this unit are stipulated below. The assessment must:

- include access to:
 - personal protective equipment
 - equipment required to safely source, retrieve, and analyse data in the autonomous workplace
 - policies, procedures, and protocols relating to WHS, data retrieval, and data handling
 - communications technology
- be conducted in a safe environment; and,
- be assessed in the context of this sector's work environment; and,
- be assessed in compliance with legislative and regulatory requirements and using policies, procedures and processes directly related to the industry sector for which the unit is being assessed; and,
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

Assessor requirements

Assessors must be able to clearly demonstrate current and relevant industry knowledge and experience to satisfy the mandatory regulatory standards as set out in the Standards for Registered Training Organisations 2015/Australian Quality Training Framework mandatory requirements for assessors, current at the time of assessment and any relevant licensing and certification requirements.

This includes:

- the minimum years of current** work experience after competency has been obtained as specified below in an industry sector relevant to the outcomes of the unit.

It is also acceptable for the appropriately qualified assessor to work with an industry expert to conduct assessment together and for the industry expert to be involved in the assessment judgement. The industry expert must have current industry skills directly relevant to the training and assessment being provided. This means the industry subject matter expert must demonstrate skills and knowledge from the minimum years of current work experience after competency has been obtained as specified below, including time spent in roles related to the unit being assessed:

Industry sector/Unit sector	AQF indicator level	Required assessor or industry subject matter expert experience
Drilling, Metalliferous Mining, Coal Mining, Extractive (Quarrying) and Civil Infrastructure***	1	1 year
	2	2 years
Drilling, Coal Mining, Extractive (Quarrying), Metalliferous Mining and Civil Infrastructure***	3-6	3 years
Units coded 'RIIARO' and 'RIIAUT' (Autonomous and Remote Operations)	Given that this is an emerging industry area, assessors are required to demonstrate vocational competencies at least to the level being assessed, and current industry skills directly relevant to the assessment being provided.	
Other sectors	Where this unit is being assessed outside of the resources and infrastructure sectors assessor and/or industry subject matter expert experience should be in line with industry standards for the sector in which it is being assessed and where no industry standard is specified should comply with any relevant regulation.	

*Guidance on simulated environments has been stipulated in the Companion Volume Implementation Guide located on VETNet.

**Assessors can demonstrate current work experience through employment within industry in a role relevant to the outcomes of the unit; or, for external assessors this can be demonstrated through exposure to industry by conducting a minimum number of site assessments as determined by the relevant industry sector, across various locations.

***Excluding units coded 'RIIARO' and 'RIIAUT' (Autonomous and Remote Operations).

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