



Australian Government

**Assessment Requirements for NWPHYS002
Interpret and analyse science principles for
hydrographic surveying**

Release: 1

Assessment Requirements for NWP HYS002 Interpret and analyse science principles for hydrographic surveying

Modification History

Release 1. This is the first release of this unit of competency in the NWP National Water Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria on at least one occasion and includes:

- applying the variance propagation law to a linear observation equation and deriving a measurement uncertainty as a function of observable co-variances
- defining natural features and characteristics of the seafloor using graphical representation
- performing an a-priori error budget calculation for a hydrographic survey
- solving mathematical calculations and analysing results of a hydrographic dataset including the following:
 - mean
 - variance
 - standard deviation

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements and performance criteria and includes knowledge of:

- characteristics of the following:
 - earthquakes zones
 - erosion and deposition
 - plate tectonics
 - rivers and estuaries
 - types of rocks
- characteristics of wave types including:
 - energy source
 - movement
- complex mathematical statistics including:
 - covariance and correlation
 - estimation of mean, variance and co-variance
 - mean

- normal distribution
- random variables
- standard deviation
- variance
- contribution to the error budget of different components
- covariance propagation law
- describe a random variable
- equipotential surfaces
- gravity field of the earth
- linear observation equations
- mechanics of physics including:
 - accelerations, angular and linear velocities of kinematics
 - characteristics of the Coriolis effect
 - characteristics of Newton's Laws of Motion including forces, accelerations, energy
- medium parameters impacts on the following:
 - radiation, emission and absorption
 - reflection, refraction, diffraction
 - wave propagation
- ocean basin structure and major processes affecting coastal morphology affected by the following:
 - different types of rocks
 - earthquakes zones
 - erosion and deposition
 - plate tectonics
 - rivers and estuaries
- wave generation and propagation including:
 - radiation, emission and absorption
 - reflection, refraction, diffraction
 - Snell's Law
- wave types including:
 - electromagnetic
 - pressure
 - ocean

Assessment Conditions

Assessors must hold credentials specified within the Standards for Registered Training Organisations current at the time of assessment.

Assessment must satisfy the Principles of Assessment and Rules of Evidence and all regulatory requirements included within the Standards for Registered Training Organisations current at the

time of assessment.

Assessment must occur in suitable workplace operational situations. Where this is not appropriate, assessment must occur in suitable simulated workplace operational situations reflecting actual workplace conditions.

Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

Resources for assessment must include access to:

- relevant and appropriate materials, tools, facilities, equipment and personal protective equipment currently used in industry
- applicable relevant documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume Implementation Guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=26336bc0-04e5-49d9-8c31-46c49b6a0037>