Assessment Requirements for NWPHYD017 Develop and maintain ratings

Release: 1

Assessment Requirements for NWPHYD017 Develop and maintain ratings

Modification History

Release	Comments
1	These Assessment Requirements were released in NWP Water Training Package release 1.0 and meet the Standards for Training Packages. • Assessment Requirements created drawing upon specified assessment information from superseded unit

Performance Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the candidate must demonstrate evidence of performance of the following on at least one occasion.

- collecting, storing, archiving and analysing data
- applying mathematical modelling and analytical tools
- interpreting and applying technical documentation to the collection, analysis and reporting of hydrometric data
- identifying and addressing potential or actual operational problems
- recording information
- interpreting a range of organisational documents
- using computer systems to create ratings
- using remote work communication systems
- checking hydrographic data for correctness and accuracy in preparation for creating ratings
- identifying characteristics of ratings appropriate to various cross-section types and flow
- identifying errors in rating, and incorrect and impossible ratings
- adjusting gaugings, hydrograph trace and ratings to a common datum
- creating ratings manually using various methods and for standard measuring structures
- developing rating techniques to handle seasonal rating changes
- identifying the possibilities and limitations of scale models for generating ratings
- identifying and recognising causes of progressive, cyclical and sudden rating changes
- identifying backwater-affected stations and using techniques to rate them
- identifying gradual stream changes and adopting rating techniques
- identifying short-term rating changes, their causes and means of correctly processing them
- applying Student's *t*-test to determine whether a new rating is required
- drawing an accurate rating by hand
- fitting a rating curve using a number of mathematical techniques available in relevant software packages
- identifying gross errors in ratings and the data used to compile them
- applying appropriate quality codes to a rating
- identifying the elements of a stream bed and channel that affect ratings
- estimating channel roughness from photographs
- calculating the overall roughness coefficient of a channel consisting of a number of elements
- using graphical logarithmic methods to extend a rating
- identifying appropriate sections to use for slope-area flow calculations
- calculating flow rates manually using a set of cross-sections and a long-section
- using a spreadsheet to perform calculations
- calculating flow rates through and over various structures
- establishing relationships between variables including stage versus flow and conductivity versus salinity
- gathering and interpreting complex documentation and applying it to the development and maintenance of rating curves
- identifying, reporting and providing solutions to a range of flow conditions

Knowledge Evidence

Evidence required to demonstrate competence must satisfy all of the requirements of the elements and performance criteria. If not otherwise specified the depth of knowledge demonstrated must be appropriate to the job context of the candidate.

- mathematical and other scientific techniques relevant to the analysis of hydrographic data
- Student's *t*-test
- elements of a stream bed and channel that affect the rating
- relationship between Chezy and Manning roughness coefficients
- computer software relevant to the analysis and archiving of hydrographic data
- the basis of statistical goodness of fit tests
- WHS procedures

Assessment Conditions

Competency should be assessed in an actual workplace or in a simulated environment, with access to equipment and infrastructure appropriate to the outcome. Competency should be demonstrated over time to ensure the candidate is assessed across a variety of situations.

Consideration must be given to holistic assessment for this unit. Refer to advice in the companion volumes.

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

Links

GSA website - http://www.govskills.com.au
NWP Implementation Guide -
http://www.govskills.com.au/guides/water/implementation-guide
NWP Assessment Guide - http://www.govskills.com.au/guides/water/assessment-guide
NWP Knowledge Guide - http://www.govskills.com.au/guides/water/knowledge-guide