

PRODUCT APPROVAL POLICY

Power and Water undertakes a formal and detailed assessment of products that may be considered suitable for use in its water supply and sewerage systems. From this assessment, approval of a product for use or otherwise and conditions and limitations of use are decided. Approval is normally given for five years except where certain conditions need to be achieved in some lesser time. Reassessment and approval is required on expiry of an approval.

Policy Objectives

The formalised product approval policy and process outlined seeks to satisfy a number of objectives:

- Remove the need for project by project approval of products
- Make clear to manufacturers and suppliers the conditions for product approval.
- Seek to minimise non-uniform assessment of products and thus any disadvantage this could cause to competing manufacturers
- Ensure a thorough and efficient assessment
- Remove unnecessary duplication of effort within Power and Water on product approval
- Reward manufacturers that seek to conform to acceptable standards for product and manufacturing quality
- Drive improvement in products and manufacturing quality where assessment finds products unacceptable
- Provide a means to accurately define product limitations prior to product use

Policy Benefits

In ensuring only suitable products are permitted for use this policy should deliver the following business and system operational benefits:

- Provide greater assurance that product and system life expectancies will be achieved
- Reduce the incidence of unpredictable and inadequate operation and performance of products/systems
- Reduce pipeline system operational and maintenance costs
- Reduce product and system life cycle costs
- Improve the level of service provided to Power and Water's customers.

Product Assessment Process

The main component of the approval assessment process is the approval application form. The form seeks the following details:

- Product sizes, materials, options etc
- Product compliance verification to national standards or Power and Water specifications
- Applicant and distributor information
- Manufacturer details and adequacy of quality systems for manufacture and supply
- Subcontractors details and adequacy of quality systems for manufacture and supply
- Other approvals, appraisals, assessments and usage

WSAA Product Appraisals

Since 1997, the Water Services Association of Australia (WSAA) has been appraising products to establish their acceptability for use in water supply and sewerage systems under the National Product Appraisal Scheme. Power and Water encourages manufacturers to have their products appraised by WSAA. Currently WSAA's appraisal focus is on products representing new technology, innovative changes to more traditional products and products from new manufacturers to the Australian market.

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WSAA seeks member agency input into the specific appraisal criteria of various products and as such Power and Water's product compliance requirements are generally addressed in a WSAA appraisal. Therefore Power and Water will not, in general, specify additional product compliance requirements for acceptance. However Power and Water reserves the right to require further appraisal criteria following a WSAA appraisal. This is to allow for such circumstances as local operating conditions or environmental conditions that may have been unable to be addressed by WSAA.

Experience has shown Power and Water will generally approve products recommended by WSAA as acceptable. However manufacturer's having had WSAA appraisals will still need to provide some information further to that sought in the WSAA appraisal, as indicated on the Power and Water product approval application form.

Standards and specifications for product approval

Power and Water has prepared product specifications for all products that it may use in its water supply and sewerage pipeline systems, excepting for pumps. Generally these specifications will only consist of the nomination of a national standard, normally an Australian developed standard (including WSAA water industry standards), but sometimes an overseas standard. For some products however some further requirements will be specified to that in a national standard. National standards allow a number of product options and the options permitted by Power and Water will be indicated in the Power and Water specification.

There are a few products, which Power and Water use for which there is no applicable national standard. In such cases the Power and Water specification will contain all product requirements.

WSAA have developed a number of water industry standards in recent years for instances where no Australian standard existed. This has and will continue to reduce the need for specifications to be prepared in entirety by Power and Water for some products.

Standard/specification requirements

Standards generally specify requirements relating to the following:

- Dimensions
- Materials
- Defects
- Product design
- Product assembly
- Product performance
- Product marking identification

Requirements relating to the above are proven satisfied through tests which include inspections. Test requirements for materials used in a product are sometimes defined by reference to specific material standards. Tests can function as;

- Type tests; and/or
- Process verification tests (previously known as quality control tests)

Type tests are intended to prove the product will perform satisfactorily over a specified period, hopefully the life that the user expects from the product. Process verification tests are intended to prove that the manufacturing process produces a consistent product. Some type tests will also be process verification tests.

Type tests are "one off" tests to prove that a product of a particular design and materials meets performance requirements. Whenever the design or materials of the product are changed then the type tests will need to be re-performed. Process verification tests are "ongoing" tests.

To ensure that tests are carried out on representative products it is necessary to specify requirements for sampling of products for testing. For type tests the requirement is for a product to

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be independently and randomly sampled. For process verification tests which are ongoing tests, it is required to specify how frequently products will be sampled for testing.

The sampling frequency will depend on how well the manufacturing process produces consistent product. The more exacting the controls on materials quality and manufacturing process variables, e.g. quantities of materials, heating temperatures, heating times etc, then the lower will be the sampling frequency. The materials quality and manufacture of some products cannot be controlled as well as others and so would be tested more frequently.

Where a sampled product fails a process verification test, then checking and adjustment of the manufacturing processes is required. Where further sampled product fail process verification tests the manufacturing process would need to be further checked and adjusted and also the frequency of sampling would need to be increased to reduce the possibility of faulty product leaving the factory. Where after a period where there were no failures of process verification tests the sampling frequency would revert to the minimum sampling frequency.

Third party product compliance verification

Power and Water requires third party product compliance verification where it is applicable to prove compliance to a standard.

Third party product certification is verification of compliance of a product to a standard in accordance with a verification scheme or system operated by a party other than the manufacturer or user. A third party removes any concerns with the manufacturer's integrity in proving product compliance and avoids multiple efforts by the many users in proving product compliance.

A compliance certificate is required to provide the following information:

- The standard the product complies with
- Certification or licence number
- Date of original certification
- Date of last audit for re-certification
- Period of certification
- Certification agency
- Product range to which certification applies

Product certification applying to Australian Standards

Product certification applying to Australian Standards follows the general rules for a certification scheme described in Guide 28 of the "*Guidelines for third party certification and accreditation*" handbook produced by Standards Australia, reference code SAA HB18.28. This guide is identical to ISO/IEC Guide 28 produced by the International Organisation for Standardisation (ISO).

SAA HB18.28 requires that compliance of the product to the standard be determined through:

- initial type testing from independently sampled production and subsequent verification of conformance
- determining the manufacturer has an effective quality system for the factory or quality plan for production
- ongoing surveillance of the quality system or quality plan and the testing of product samples from the factory and the open market.

Certification under this scheme as undertaken by the certifying body SAI Global is defined as StandardsMark. There are now other bodies providing certification of products to Australian Standards.

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Product certification to non-Australian standards

Certification schemes that may be applied to different national standards are not required to be identical. ISO/IEC Guide 65, *General requirements for bodies operating product certification systems* says the certification scheme may include one or more of the following:

- type testing or examination;
- testing or inspection of samples taken from the market or from supplier's stock or from a combination of both;
- testing or inspection of every product or of a particular product, whether new or already in use;
- batch testing or inspection;
- design appraisal;

which could be coupled with production surveillance or assessment and surveillance of the supplier's quality system or both.

Some certification schemes applying to non-Australian standards have less stringent requirements than the certification scheme applying to Australian Standards. Some certification schemes however, such as the Kitemark scheme applying to British standards, have more stringent requirements. It is therefore necessary to check the requirements of a certification scheme.

Compliance verification requirements for different product types

Power and Water requires third party product certification for the following product types where an applicable product standard exists:

- Pipes
- Pipe fittings including flanged fittings
- Valves (includes sluice, gate and non-return valves)
- Fire hydrants (right angle screw down type)
- Meter taps and ferrule or main taps

Third party product certification is mandatory also for all other product types as listed below where an applicable product standard exists **excepting in cases where only one or no** manufacturer's product is approved for the specific product type.

- Hoses
- Couplings, joiners, connectors and clamps for pipe and hose
- Jointing products, e.g. elastomeric seals, solvent cements etc
- Tapping bands and pre-tapped connectors
- Metal access covers
- Access chamber components, maintenance shafts, etc
- Ladders and step irons
- Identification or location aids for products or pipelines
- Surface boxes, pits, inspection openings, shroud pipes, associated fittings
- Protective tapes or tape systems, wraps, sleeving etc
- Paints, coatings, sealants, chemicals
- Flow meters
- Fire hydrants (screw down type)
- Miscellaneous operational items including hydrant upstands, hydrant or valve actuating keys, extension spindles etc

For products where there is no applicable national standard and Power and Water has developed a product specification in its entirety, product compliance verification will be by other means than product certification. This may also include field testing.

Acceptable third party product certification schemes

For those product types requiring third party product certification, currently acceptable certification schemes are as follows:

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- For Australian Standards, (includes joint Australian/New Zealand Standards) – StandardsMark,
- For an MP52 specification (from the Manual of Authorisation Procedures for Plumbing and Drainage Products published by Standards Australia) - WaterMark
- For Overseas Standards, ISO standards or overseas water industry approved specifications (only where the product is manufactured outside Australia and is intended primarily for overseas markets) - The product certification scheme is to meet the minimum requirements in ISO/IEC Guide 28, e.g. KiteMark certification scheme from British Standards Institution. The product certification scheme will need to be verified as acceptable by Power and Water on a product by product assessment basis. The certification body shall be accredited as conforming with the requirements in ISO/IEC Guide 65 (e.g. British Standards Institution) by a nationally recognised accreditation body which undertakes accreditation in conformance with ISO/IEC Guide 61 (e.g. the United Kingdom Accreditation Service (UKAS)). All details which are forwarded, including the product standard, must be provided with an accurate and understandable English translation as required.

Exceptions to third party product certification for compliance verification

Where a third party certification scheme conforming with ISO/IEC Guide 28 (SAA HB18.28) does not operate for or cannot be applied to the standard or specification to which the product is required to comply then product compliance may be demonstrated in one of the following ways:

- **Third party or second party (other than Power and Water) product compliance verification.** The party will be required to be acceptable to Power and Water and verification will generally be in accordance with ISO/IEC Guide 28 (SAA HB18.28). A report prepared by the party will be required to verify that product satisfies test requirements in a relevant product standard or specification and that the manufacturer maintains effective planning to control production (including an acceptable sampling and testing frequency plan).
- **First party product compliance verification.** Verification will be proved by the supplier or manufacturer submitting test reports for tests required by a relevant product standard or specification and submitting a quality plan for production control including a sampling and testing frequency plan. Tests shall be performed in a laboratory accredited as conforming with the requirements of AS ISO/IEC 17025. The laboratory shall be accredited by a laboratory accreditation body meeting the requirements of ISO/IEC Guide 58 (SAA HB18.58), e.g. National Association of Testing Authorities Australia (NATA). Test reports issued by accredited laboratories from countries which have a mutual recognition agreement (MRA) with NATA will be accepted. MRA's are held with most European countries, the UK, USA and some Asian countries. Otherwise testing shall be observed by a second party (other than PW) or third party acceptable to PW following assessment that the laboratory has competence for testing generally in accordance with ISO/IEC 17025.
- **Product compliance verification by Power and Water.** Product compliance verification will generally be in accordance with ISO/IEC Guide 28 (SAA HB18.28). Power and Water will, as a minimum, inspect the manufacturing facilities, witness inspection and testing of the product, examine test reports and audit the quality plan/quality system to establish that it ensures conformance of the product with the relevant standard or specification. All costs incurred by Power and Water in verifying compliance with the standard or specification shall be borne by the manufacturer and/or supplier.

Third party product certification not obtained

Where a certification scheme conforming with ISO/IEC Guide 28 (SAA HB18.28) operates for the standard or specification to which the product is required to comply but currently product certification has not been obtained, Power and Water will give consideration to the specific type of product before deciding whether to assess the product for approval.

The policy adopted by Power and Water in such cases is as follows:

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- Where for that specific type of product there is **no** other manufacturer of the product currently capable of supplying to Power and Water which has product certification, product compliance verification will be established using one of the options outlined above as determined by PW. Generally where approval is granted, approval will be for a lesser period than for if product certification was obtained. For renewal of approval, Power and Water **may** require product certification. The decisions for period of approval and future product certification will be made at the time of approval. In most cases the period of approval will be for no more than two years.
- Where for that specific type of product there is **one** other manufacturer of the product currently capable of supplying to Power and Water which has product certification, product compliance verification will be established using one of the options outlined above as determined by Power and Water. Generally where approval is granted, approval will be for a lesser period than for if product certification was obtained. For renewal of approval, Power and Water **will** require product certification. The decision for period of approval will be made at the time of approval but in most cases will be for no more than one year.
- In general where for that specific type of product there are **no less than two** other manufacturers of the product currently capable of supplying to Power and Water which have product certification, generally other products of that specific type which do not have product certification will not be assessed for approval. Power and Water may at its discretion require the minimum number of manufacturers having product certification be some number more than two before rejecting products of that specific type not having product certification.

Manufacturing quality systems standards

A quality system is required for assurance that a manufacturer can consistently maintain conformance of the product to a product standard. Third party product certification schemes require a quality system to ensure such continuous conformance. The type of quality system required varies with different third party product certification schemes.

The quality systems model described in the International Standard ISO 9001 has been universally accepted as the model able to provide the highest level of assurance of consistent product quality.

It should be noted that third party product certification schemes do not necessarily require compliance with ISO9001. StandardsMark and WaterMark product certification schemes applying to Australian Standards and WaterMark specifications currently do not require compliance to ISO 9001. The Kitemark certification scheme applying to British Standards however does require compliance to ISO 9001.

Power and Water's verification requirements for quality systems

Power and Water requires third party certification to prove quality systems comply with ISO 9001. Exceptions will be considered due to:

- Size of the company
- Importance of the product type in pipeline system
- Quantity of product used
- Experimental or innovative nature of product
- Newness of company or product
- The Corporation's need for the product
- The effectiveness of existing quality systems
- The company being NT based

Each manufacturing plant requires quality systems certification. The manufacturing plant's quality system shall be certified by a certifying body accredited by the Joint Accreditation System for Australia and New Zealand (JAS-ANZ). There are currently a number of quality management systems certification bodies accredited by JAS-ANZ. JAS-ANZ accredited quality systems certification bodies include bodies that operate outside of Australia as well as in Australia.

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For overseas made products which have had their quality system certified by a body not accredited by JAS-ANZ, Power and Water may accept the certification where the quality systems certification body has been accredited as conforming with the requirements of ISO/IEC Guide 62 by a nationally recognised accreditation body which undertakes accreditation in accordance with ISO/IEC Guide 61. For instance, the United Kingdom Accreditation Service (UKAS) is recognised as the principal body for accreditation of certification bodies in the UK.

The quality systems certification scheme operated by the certification body shall require auditing of the manufacturing plant and reissue of a certificate of registration at least every three years.