



Evaluation
Protocol (SQIDEP) for Stormwater Quality
Treatment Devices

JANUARY 2015
CONSULTATION RELEASE
Process Options Summary

Stormwater Quality Improvement Devices Evaluation Protocol (SQIDEP)

This paper has been prepared to assist Stormwater Australia's industry consultation on developing a nationally consistent approach to evaluating the performance of Stormwater Quality Improvement Devices (SQIDs).

While there is a focus on developing technical aspects of assessing the performance claim of stormwater treatment devices it recognises that this on its own may not adequately resolve issues from the perspective of a regulating or approving authority, especially where that body is limited in time and/ or skills to review extensive technical documentation.

For this reason the full SQIDEP consultation document intertwines the technical and process aspects that need to be addressed for a long term solution to be provided.

While there is optimism that technical aspects should be able to be resolved an overarching 'process' is not as well defined. Stormwater Australia is not committed to any process 'end point' and will be guided by industry feedback in developing future direction which responds to need, provides legitimate value and is able to be supported with a sustainable business case.

This document sits as a companion to a summary document requesting industry feedback on the technical considerations in developing an agreed methodology for performance testing.

An overarching document has been developed by Stormwater Australia which provides greater detail on both technical and procedural considerations and has been based on work completed by the Auckland Council.

Stormwater Australia would like to acknowledge the importance of this piece of work and the efforts of authors and contributors toward developing a framework for issues to be considered.

How to use this document

This document has been developed to provide a précis of the procedural considerations and options that could support the adoption of agreed technical standards.

It is primarily designed to elicit the views of industry and to determine what could be included in developing a viable business case. Overseas experience has demonstrated that schemes that are reliant on 'one off' funding grants or do not consider properly resourcing requirements for technical and administrative oversight are doomed to be short lived.

The issues presented are discussed within the context of exploring options and we would encourage people to consider how they will use technical protocols and what processes need to be in place to provide confidence, deliver efficiencies in use and lead to consistent outcomes.

Feedback is requested through the forums specifically set up for the purpose on the Stormwater Australia website or via email at feedback@stormwater.asn.au.

To support discussion and transparency of views feedback, is being sought through an open forum. Stormwater Australia reserves the right to moderate content it deems as inappropriate or offensive (e.g. derogatory remarks, posts critical of specific claims which name individuals or products)

SQIDEP Discussion paper

The complete SQIDEP discussion paper sets out a detailed glossary of terms and outlines some of the background behind Stormwater Australia’s desire to establish a nationally consistent approach to evaluating protocols, and seeks feedback in areas relating to technical and process issues, and are summarised below.

In this document the light blue breakout boxes in the SQIDEP discussion paper are provided (along with a page reference from the master document) along with a summary context. If you wish to understand the issue in the full context of the discussion paper you can refer to relevant section by referencing the page number.

Light gold breakout boxes are used throughout the SQIDEP consultation documents to identify areas where the SQID Advisory Committee seek technical feedback and further input.

Light blue breakout boxes are used throughout the SQIDEP consultation documents to provide commentary on how technical protocols could relate to an industry based scheme with more formalised approaches to receiving, assessing and certifying performance claims.

Further consultation with industry is required.

Technical Protocol Development	<p>SQIDEP provides clarity on key information requirements for performance claims to be assessed, including-</p> <ul style="list-style-type: none"> • Independence of testing agency; • Quality Assurance requirements for collection of evidence; • Acceptance will provide clarity for organisations currently undertaking or planning field test or supplying to industry. 	<p>SQIDAC seeks further input on specific areas:</p> <ul style="list-style-type: none"> • The role of historical information (e.g BoE route) and how this is best able to be used effectively; • Level of confidence placed in transposing laboratory results to field conditions; • Standardising definitions (in particular TSS); • Specific field conditions for qualifying storm events and sample collection; • The role of multiple performance metrics in increasing confidence; • Potential to consider data from different testing sites to improve levels of confidence in performance; • Specific techniques to account for gross solids/ pollutant sampling and presentation of results; • Structure of and information included in final performance report.
Supporting administrative arrangements	<p>Separate to the development of technical protocols there needs to be supportive administrative arrangements that offer confidence in outcome, potential efficiencies in evaluation and supported by a business and financial model that supports scheme longevity.</p>	<p>SQIDAC seeks further input on specific areas:</p> <ul style="list-style-type: none"> • How performance outcomes can be perpetuated through operation and maintenance cycles; • How industry could administer evaluation of claims assessment against agreed protocols; • Qualifications of persons undertaking evaluation; • The potential role of any certification of claims arising from evaluation; • Potential efficiencies in undertaking assessments and how this may be of benefit; • Mechanisms for dealing with unsubstantiated claims; • Expectations around assessment timeframes;

SQIDEP consultation areas

The Performance claim

The SQIDEP that is proposed is deliberately ‘pollutant’ and ‘outcome’ neutral, instead allowing a claimant to determine what performance they intend to target. While it is likely that devices will be developed to respond to regulatory drivers, the flexible approach offered provides flexibility for commercial decisions to be made when responding to market drivers, including:

- Flexibility to offer a cheaper solution that achieves a project or location specific treatment standard;
- Allowing devices to be developed to effectively target different pollutants as part of a treatment train;
- Providing ‘pathways’ for new entrants to industry, by providing different options for designing testing regimes (i.e.

Ultimately it is the results that are presented from any testing regime that will be scrutinised for validity. Stormwater Australia considers that devices which demonstrate different removal efficiencies should be able to compete in the marketplace, providing design and operational guidance is provided.

It is a separate question for designers to specify solutions that achieve regulatory requirements and regulators to accept and approve designs.

By developing a process that will allow a range of technologies to be developed (and is likely, at different price points) it is expected that cost effective solutions to suit specific requirements will be encouraged.

Limitations

The history of developing technical protocols has seen much focus on removal of physical pollutants, generally by structural devices which operated on gravimetric, screening or mechanical means.

Moving forward, it is expected that the marketplace will include a broader range of devices which are able to target a more diverse range of pollutants, make use of chemical, biological and biophysical processes as part of their treatment design, have a treatment response that is influenced by environmental (e.g. temperature), seasonal (e.g. summer versus winter), operational (e.g. maintaining healthy levels of biomass) or have a diminishing treatment capacity over their design life (e.g. clogging filters, depletion of active ingredients).

It is intended that the base technical framework can be adapted to accommodate these emerging considerations, however we seek industry views.

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The original Auckland PDEP upon which this protocol was developed had its roots in evaluation performance claims of devices which were primarily intended for removal of discrete, physical pollutants (e.g. TSS)

In framing the current SQIDEP the SQIDAC recognises the challenges and necessity to develop a generic process that addresses both historical and emerging pollutants of concern.

In particular, treatment of dissolved pollutants (e.g. nutrients) requires both an understanding of the technology employed, and operational aspects to ensure treatment media are operated and replenished in accordance with specifications, and any replacement components are representative of the materials included in the verified claim.

The SQIDAC seeks industry views on how performance claims which are reliant on specific physical, chemical and biological attributes of a treatment system can be perpetuated through operational and maintenance cycles.

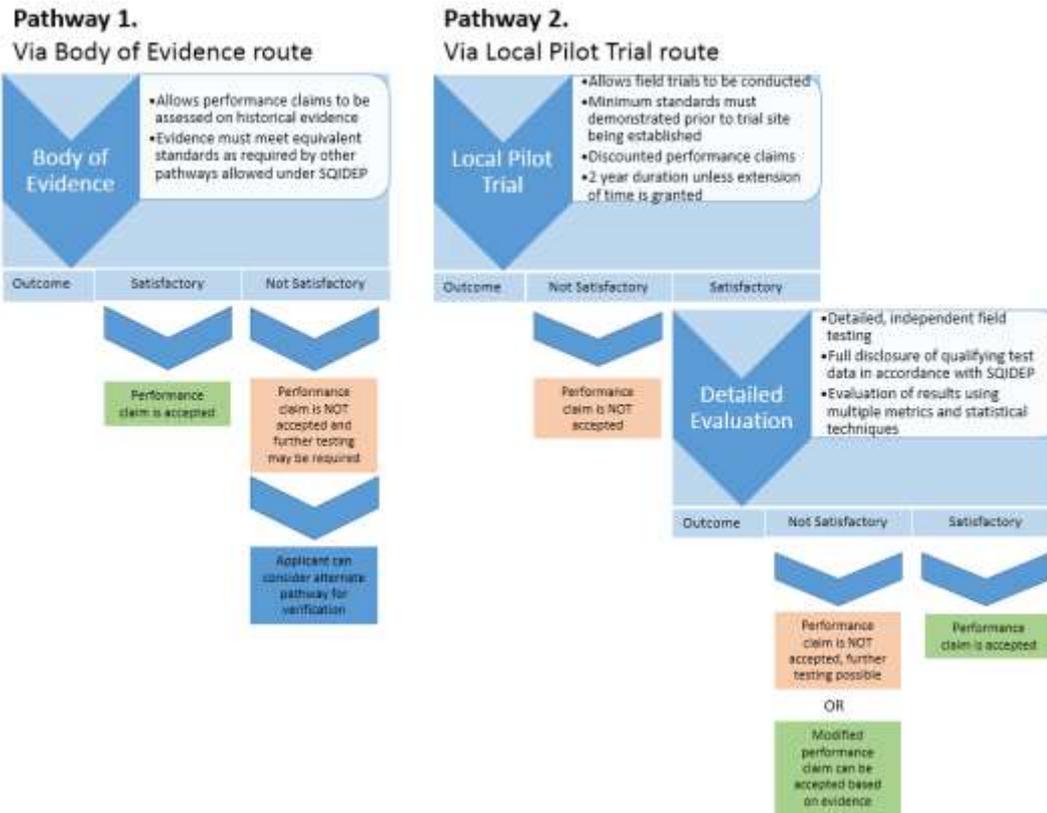
Evaluation routes

The remainder of this summary document has a focus on a process that allows two related pathways for performance claims to be considered, and an emphasis is on who will manage applications made on either of these pathways.

Pathway 1. Allows historical testing to be considered, but requires the same standard of evidence and robustness of process as for alternate pathways. If evidence does not meet requirements there is an option to use the alternate pathway (i.e. undergo further testing).

Pathway 2. Allows devices to undertake field validation (through a Local Pilot Trial) following prototype testing (e.g. laboratory testing). Guidance on expectations for the design, implementation and reporting of field trials is provided. Detailed evaluation of the results of a Local Pilot Trial is required before a claim can be accepted or rejected.

It is recognised that technical standards are being contemplated in the absence of a process to administer these, and feedback is sought on the appropriateness of providing a range of pathways and the possibility of a 'certification' end point.



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The SQIDAC has used the Auckland City Council’s SQIDEP as a guidance document to support the development of an Australian equivalent.

It is proposed that the evaluation should be developed using a framework similar to the Auckland SQIDEP, as outlined below.

- Application Phase;
- Body of Evidence (BoE) Phase, where existing data is summarised into a Performance Report;
- Local Pilot Trial (LPT) Phase, where an LPT is undertaken;
- Detailed Evaluation Phase; and
- Certification phase.

To enable technical testing protocols to be drafted there is a need for clarity around each of the evaluation phases.

To the extent that these protocols are developed ahead of formalised application and certification processes the SQIDAC requests industry to provide feedback and recommendations to Stormwater Australia on the administration of any adopted protocol.

The views of different industry sectors including academia, consultants, regulators, contractors, local government and operators is sought.

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Detailed Evaluation Phase

The DE should allow the veracity of claims to be determined by a third party independent of any testing body or any party responsible for commissioning the testing.

The DE should be a precursor to any performance certification or statement of claim being issued.

The DE should be undertaken by a panel of recognised experts with the following qualifications:

- Experience in scientific methods and scientific peer review;
- Relevant understanding of the behaviour of pollutant types for which claims being made; and
- Demonstrated independence from the testing body and organisation seeking the DE assessment.

Certification

Certification of claims follows on from the DE phase and allows a jurisdiction wide certification or performance statement to be issued.

The certification process should be clear in what is being certified, any conditional aspects on the claim, include information on limitations of device performance and outline operational requirements for a devices performance to be maintained.

To the extent that these protocols are developed ahead of formalised application and certification processes the SQIDAC requests industry to provide feedback and recommendation to Stormwater Australia on the administration of the DE and any subsequent certification process.

A number of QA process and templates are provided in the full version which are expected to assist in providing data in a consistent manner.

Building a business case for an assessment process

In the absence of a centrally administered system it would be useful to understand how applications/ information could be provided in individual jurisdictions. The requirements on claimants is considered to be quite rigorous, but interpretation is still required for end users to have confidence in their application.

A lesson from other jurisdictions is that, even with the best of intent the practicalities of continued use falls short if no enduring process is in place to help administer a scheme.

It is expected that there will be efficiencies with a central administration process, and that this benefit will be maximised if a consensus view is reached across multiple jurisdictions, however administration takes time and requires resource and commitments.

In responding to the next two breakout boxes we would be particularly interested in respondents considering what benefit they may derive from a central administration, any quantification of the benefit they expect (e.g. saved time from having to interpret information and convince decision makers, improved clarity in specifying design solution elements), and what financial commitment would be considered reasonable.

We are open to considering different business models, but need to understand what realistic options are available.

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Application Assessment

There is considerable amount of information that is required to be submitted as part of the application assessment, and to adequately consider detail provided any receiving authority should be suitably resourced with appropriately qualified personnel.

Feedback on the application assessment seeks commentary and/ or suggestions on how applications should be received and assessed, and the willingness of different industry sectors to contribute towards a resourcing model.

In particular SQIDAC is interested in understanding how the assessment of device claims could be of benefit to industry practitioners by either streamlining the process of understanding performance claims, leading to greater job effectiveness or leading to process efficiencies.

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Evaluation Timeframes

The SQIDAC recognises the interplay between evaluation timeframes and available resources, but considers for the purposes of an initial evaluation a timeframe of 30 days is adequate provided information is able to be presented in a systemised manner.

Excessive delays in initial approval are likely to act as a disincentive to innovation.

The SQIDAC would be interested in the views of industry to determine acceptable timeframes.

Dealing with unproven claims

The 'pathways' presented provide a necessary pathway for new devices to be field tested as a step in the process to attain the highest confidence in real world performance. It is expected that the decision to approve a field installation should be a matter of negotiation between the claimant and the owners and operators at the test site.

If test results fail to verify the claim there may be issues with continuing the installation (and in particular, in situations where regulatory approval is being sought or an installation is being handed over to a third party to operate).

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As above, if the claims made when advocating a device for field testing are not substantiated, there is a legacy risk associated with an inappropriately sized asset being installed.

The SQIDAC seeks feedback on mechanisms to consider and manage unproven performance claims and if technical or simplified approaches are preferred.

Maintenance

It is recognised that the performance of devices is impacted by the suitability and intensity of maintenance regimes, and often maintenance costs become significant over the lifecycle of a device. Also, if a device is not maintained or operated correctly in real world deployments it is difficult to expect the performance level to be achieved; in this instance the ability for suppliers to promote their product using agreed parameters consistent with substantiated claims should not be unduly compromised.

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Performance versus Operational considerations

The SQIDAC recognises the interplay between ideal performance and operational performance of devices.

For the purposes of conducting performance tests it is likely that operational aspects will be optimised (that is, the testing regime should ensure adequate maintenance is performed) and these requirements are provided as qualifiers in the final assessment outcomes.

Factors such as operational costs, resource implications and equipment requirements are likely to be considered by each authority that ultimately chooses to adopt a device and it is not within the scope of this protocol to provide definitive recommendations on these.

The SQIDAC is interested in the views of industry on how to present operational considerations and provide clear guidance on how these aspects can be considered by separate agencies.

Evaluation

Regardless of the final administration process it will be important to ensure that the qualifications of any person(s) responsible for interpreting test data to verify veracity of claims should have suitable knowledge and be able to demonstrate independence.

Different models (see section above) will have different resource requirements and there may well be trade-offs between the aspirations of establishing an evaluation panel and being able to fund it appropriately or identify sufficient expertise to make sufficient numbers.

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Evaluation panel

The SQIDAC recommends that a panel of pre-qualified experts be established to provide an evaluation service for claims being made.

As a minimum members of the panel involved in assessment would need to have relevant technical expertise and be able to demonstrate independence.

Developing and maintaining a panel and requesting evaluations be undertaken would involve administrative responsibility which currently doesn't exist.

The SQIDAC seeks views on how independent evaluation of testing processes should be undertaken.

Certification

A scheme that allows some level of certification is seen as one ultimate model that could be pursued, but comes with an increased requirement for longevity and financial viability of a certification agency, as well as an increased level of risk exposure and potential challenges to the independence of the process.

The appetite for certification and potential models that could be realistically supported is an area in which we are seeking feedback.

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Certification

While not in the technical scope of a testing and evaluation protocol the SQIDAC consider a resolution on how certifications or verification statements are going to be managed in practice.

This is an area where economy of scale makes sense, and additional effort in ensuring an extremely statistical robust regime may be justified if peak body recognition avoids the need to convince potential clients in multiple jurisdictions.

The SQIDAC seeks views on how a certification (or verification) scheme could be administered and how this is likely to be valued by industry.

Please provide examples or models that can be used.