



STORMWATER AUSTRALIA

Stormwater Quality Improvement Device Evaluation Protocol (SQIDEP)

VERIFICATION CERTIFICATE

Applicant Information

Applicant Name	Ocean Protect Pty Ltd
Applicant Address	PO Box 75, Casula Mall NSW 2170
Website	www.oceanprotect.com.au
Contact Email	michaelw@oceanprotect.com.au

Verified Technology

Product Title	OceanGuard
SQIDEP Pathway	Body of Evidence Pathway
Reviewed Documents	<p>The following documents form the basis of this independent evaluation:</p> <ul style="list-style-type: none">• Dalrymple B, Wicks M. (2021). A review of the application of OceanGuard® in Australia. Prepared on behalf of Ocean Protect.• Letter from Ocean Protect (3 March 2019) describing the equivalence of OceanGuard® technology to EnviroPod® technology.• Peer review report by Damian McCann of OceanGuard® (16 June 2021)• Goonetilleke A (2011), Kuranda Stormwater Treatment System Field Evaluation.• Butler K, Ockleston G, Foster M (2002), Auckland City's field and laboratory testing of stormwater catchpit filters.• Renew Solutions, 2023, Hydraulic testing of OceanGuard Technology.• Dalrymple B, Wicks M, Jones W, Allingham B (2021), "Gully pit inserts" shown to reduce pollutants in stormwater, Australian Water Association Water e-Journal, Vol 6, No.1.• White M, Pezzaniti D (2002), Evaluation of Gully Pit Inlet Litter Control Systems – Final Report. Prepared for Brisbane City Council.• Wicks M, Vigar N, Hannah M (2011), Nutrients and solids removal by an engineered treatment train – Field evaluation of a gully pit insert and cartridge media filter. Published in Water Journal of the Australian Water Association, September 2011.• Vigar N, Wicks M (2010), Kuranda Stormwater Treatment System Field Evaluation – StormFilter EnviroPod® (SFEP) Treatment Train with ZPGTM Media.• Michael Wicks, Brad Dalrymple, OceanGuard SQIDEP Compliance (undated) (spreadsheet data with more details regarding monitoring of OceanGuard at Western Sydney, NSW – includes spreadsheets of water quality results, event flows and sample aliquots).• Various supporting files from monitoring of OceanGuard at Western Sydney University including individual storm reports, chain of custody documentation, maintenance reports, statutory declarations, and photos.

Technology Information

Applicant's Verified Performance Claims (ER)	<table> <tr> <td>Total Suspended Solids (TSS)</td> <td>51.6 %</td> </tr> <tr> <td>Total Phosphorus (TP)</td> <td>64.7 %</td> </tr> <tr> <td>Total Nitrogen (TN)</td> <td>24.9 %</td> </tr> <tr> <td>Gross Pollutants</td> <td>100 %</td> </tr> </table>	Total Suspended Solids (TSS)	51.6 %	Total Phosphorus (TP)	64.7 %	Total Nitrogen (TN)	24.9 %	Gross Pollutants	100 %
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Total Phosphorus (TP)	64.7 %								
Total Nitrogen (TN)	24.9 %								
Gross Pollutants	100 %								
Test Stormwater Runoff	<p>The presented runoff pollutant test results complied with the SQIDEP typical stormwater pollutant concentrations for urban environments. The device has therefore been tested within the pollutant loading ranges specified by SQIDEP v1.3 for typical urban environments (urban roads, residential, industrial, commercial). The TN component of one event was removed from the performance claim as it was considered an outlier, and not representative of TN loading and treatment. The gross pollutant performance claim is based on independent laboratory testing.</p>								
Test Catchment	<p>Commercial</p>								
Maintenance Performed during monitoring	<ul style="list-style-type: none"> The OceanGuard at the site was maintained in accordance with typical/ standard maintenance procedures for these assets during the study period. In summary, the system was maintained approximately every four (4) months, with maintenance undertaken on 14 February 2020, 4 June 2020, 27 November 2020 and 25 March 2021 – noting the monitoring of the OceanGuard at the site was undertaken between March 2020 and June 2021. 								

**Verified method
to model in
MUSIC**

Modelling a OceanGuard in MUSIC is as follows:



Use a Generic node with the following properties:

High flow bypass/ treatment flow rate (TFR)	Pollutant removal up to TFR
20 L/ s per OceanGuard	51.6% for TSS 64.7% for TP 24.9% for TN 100% for gross pollutants

Input properties should reflect those given below:


Pollutant	Influent	Effluent	Reduction
Total suspended solids (TSS)	1000	484	51.6%
Total Phosphorus (TP)	10	3.53	64.7%
Total Nitrogen	100	75.1	24.9%
Gross Pollutants	1000	0	100%

Conditions/Notes

The limitations of the acceptance of these claims include:

- The results lie within acceptable inflow limits for this type of catchment and based on the analysis are found to be representative. The device has been tested within the pollutant loading ranges specified by SQIDEP v1.3. As with the majority of treatment devices, where the influent water is more polluted there would likely be a greater percentage of pollutants removed and a higher residual load in effluent water – and, where the influent water is cleaner (i.e. below limits of detection), there would likely be a lower percentage of pollutants removed and a lower residual pollutant load in effluent water.
- The OP OceanGuard filter bag is the only treatment mechanism applied by the device. The field results evaluated for the OP OceanGuard were for a device with a 200-micron filter bag. The OP OceanGuard filter bag can be supplied with multiple pore sizes from 200 micron or larger. This verification certificate is specific to filter bag with pore size of 200 microns.
- Design and installation should be performed in accordance with the manufacturer’s guidelines. Results are reliant on the maintenance of the device being consistent with the manufacturer’s guidelines.
- Regular inspection and maintenance should be performed in accordance with the manufacturer’s operation and maintenance manuals.

Independent Reviewers

Evaluator Signature	
Dr Baden Myers Director Baden Myers Consulting	

Issue of Verification Certificate

Acceptance by SQIDEP Governance Panel	13 November 2023
Acceptance by Stormwater Australia Board of Directors	1 December 2023
Verification Issued	1 December 2023
Stormwater Australia Verification Certificate Number Reference	SA-2023/08-VC

Verified under SQIDEP Version

1.3 Body of Evidence Pathway

