



**Center for Environmental Systems
Stevens Institute of Technology
One Castle Point
Hoboken, NJ 07030-0000**

November 1, 2017

Shashi Nayak
NJDEP
Division of Water Quality
Bureau of Non-Point Pollution Control
401-02B
PO Box 420
Trenton, NJ 08625-0420

Dear Mr. Nayak,

Based on my review, evaluation and assessment of the testing conducted on the SciClone™ Hydrodynamic Separator (Model SC-4) at Good Harbour Laboratories (GHL), an independent water technology testing lab based in Mississauga, Ontario Canada, the test protocol requirements contained in the “*New Jersey Laboratory Testing Protocol to Assess Total Suspended Solids Removal by a Hydrodynamic Sedimentation Manufactured Treatment Device (January 25, 2013)*” (NJDEP HDS Protocol) were met or exceeded. Specifically:

Test Sediment Feed

The mean PSD of the test sediments comply with the PSD criteria established by the NJDEP HDS protocol. The removal efficiency test sediment PSD analysis was plotted against the NJDEP removal efficiency test PSD specification. The test sediment was shown to be slightly finer than the sediment blend specified by the protocol ($<75\mu$); the test sediment d_{50} was 73 microns. The scour test sediment PSD analysis was plotted against the NJDEP scour test PSD specification and also shown to be finer than specified by the protocol.

Removal Efficiency Testing

In accordance with the NJDEP HDS Protocol, removal efficiency testing was executed on the SciClone™ (SC-4), a 4-ft. diameter commercially available unit, in order to establish the ability of the SciClone™ to remove the specified test sediment at 25%, 50%, 75%, 100% and 125% of

the target MTFR. The SC-4 demonstrated 50.03% annualized weighted solids removal as defined in the NJDEP HDS Protocol. The flow rates, feed rates and influent concentration all met the NJDEP HDS test protocol's coefficient of variance requirements and the background concentration for all five test runs never exceeded 20 mg/L (maximum of 2.5 mg/L).

Scour Testing

To demonstrate the ability of the SciClone™ to be used as an online treatment device, scour testing was conducted at 200% of the MTFR in accordance with the NJDEP HDS Protocol. The average flow rate during the online scour test was 1.4 cfs (630 gpm), which represents 200% of the MTFR (MTFR = 0.70 cfs). Background concentrations were <2.6 mg/L throughout the scour testing, which complies with the 20 mg/L maximum background concentration specified by the test protocol. Unadjusted effluent concentrations ranged from 2 mg/L to 2.9 mg/L. When adjusted for background concentrations, all effluent concentrations were <1 mg/L. These results confirm that the SC-4 did not scour at 200% MTFR and meets the criteria for online use.

Maintenance Frequency

The predicted maintenance frequency for all SciClone™ models is 96 months.

Sincerely,



Richard S. Magee, Sc.D., P.E., BCEE
Executive Director