WASHINGTON STATE DEPARTMENT OF ECOLOGY

July 2008 (Update February 2010)

(Updated to reinstate CONTECH CDS Oil Control PULD model name change)

GENERAL USE LEVEL DESIGNATION FOR PRETREATMENT (TSS) AND PILOT USE LEVEL DESIGNATION FOR OIL CONTROL

For

CONTECH Construction Products Inc. CDS® System

Ecology's Decision:

Based on the CONTECH Construction Products Inc. (CONTECH) application submission for the CDS® System and recommendations by the Technical Review Committee (TRC), Ecology hereby issues the following use designations for the CDS technology:

1. **General Use Level Designation (GULD) for pretreatment use, as defined in the Ecology Stormwater Management Manual for Western Washington Volume V, (a) ahead of infiltration treatment, or (b) to protect and extend the maintenance cycle of a basic or enhanced treatment device (e.g., sand or media filter). This GULD applies to 2400 micron screen CDS® units sized per the table below at the Water Quality design flow rate as determined using the Western Washington Hydrology Model (WWHM). The following table shows flowrates associated with various CDS models:**

Washington State System Sizing		
CDS Model ID	**Previous Model ID**	**Flowrate (cfs)**
CDS 2015	PMIU20-15	0.7
CDS 2015-4	PMSU20-15	0.7
CDS 2015-5	PMSU20-15	0.7
CDS 2020	PMSU20-20	1.1
CDS2025	PMSU20-25	1.6
CDS3020	PMSU30-20	2
CDS3030	PMSU30-30	3
CDS4030	PMSU40-30	4.5
CDS4040	PMSU40-40	6
CDS3020-D	PSWC30-20	2
CDS3030-D	PSWC30-30	3
CDS3030-DV	PSW30-30	3
CDS4030-D	PSWC40-30	4.5

CDS4040-D	PSWC40-40	6
CDS5042-DV	PSW50-42	9
CDS5640-D	PSWC56-40	9
CDS5050-V	PSW50-50	11
CDS5653-D	PSWC56-53	14
CDS5668-D	PSWC56-68	19
CDS5678-D	PSWC56-78	25
CDS7070-DV	PSW70-70	26
CDS10060-DV	PSW100-60	30
CDS10080-DV	PSW100-80	50
CDS100100-DV	PSW100-100	64
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***Specially designed CDS™ may be approved by Ecology on a site-by-site basis.**

2. **The pretreatment GULD has no expiration date, but it may be amended or revoked by Ecology.**

3. **Pilot Use Level Designation (PULD) for oil and grease treatment. This PULD applies to 2400 micron screen CDS® units sized per the table above at the water quality design flow rate as determined using the Western Washington Hydrology Model (WWHM).**

4. **The oil and grease PULD expires September 1, 2012 unless extended by Ecology.**

5. **All designations are subject to the conditions specified below.**

6. **Properly designed and operated CDS® systems may also have applicability in other situations (example: low-head situations such as bridges or ferry docks), for TSS and oil/grease removal where, on a case-by-case basis, it is found to be infeasible or impracticable to use any other approved practice. Jurisdictions covered under the Phase I or II municipal stormwater permits should use variance/exception procedures and criteria as required by their NPDES permit.**

7. **Ecology finds that the CDS®, sized according to the table above, could also provide water quality benefits in retrofit situations.**

Ecology's Conditions of Use:

CDS® systems shall be designed, installed, operated and maintained to comply with these conditions:

1. **CDS® Systems must be designed, assembled, installed, operated, and maintained in accordance with Contech's applicable manuals and documents and the Ecology decision and conditions specified herein. Ecology recommends the inspection and maintenance schedule included here:**


CDS
Maintenance&Inspect

2. **Discharges from the CDS® System shall not cause or contribute to water quality standards violations in receiving waters.**

3. **On or before September 1, 2010, Contech shall submit a QAPP that meets the TAPE requirements for attaining a GULD for oil treatment.**

4. **Contech shall complete all required testing and submit a TER on oil and grease removal for Ecology review by March 1, 2012.**

5. **Contech may request Ecology to grant deadline or expiration date extensions, upon showing cause for such extensions.**

Applicant: CONTECH Construction Products, Inc., Manufacturer and Vendor

Applicant's Address: 11835 NE Glen Widing Drive
Portland, OR 97220

Application Documents:

- Contech Construction Products Inc. Application to: Washington State Department of Ecology Water Quality Program for General Use Level Designation – Pretreatment Applications and Conditional Use Level Designation – Oil Treatment of the Continuous Deflective Separation (CDS™) Technology (June 2007)

- Strynchuk, Royal, and England, "The Use of a CDS Unit for Sediment Control in Brevard County".

- Walker, Allison, Wong, and Wootton, "Removal of Suspended Solids and Associated Pollutants by a CDS Gross Pollutant Trap", Cooperative Research Centre for Catchment Hydrology, Report 99/2, February 1999

- Allison, Walker, Chiew, O'Neill, McMahon, "From Roads to Rivers Gross Pollutant Removal from Urban Waterways", Cooperative Research Centre for Catchment Hydrology, Report 98/6, May 1998

Applicant's Use Level Request:

General use level designation as a pretreatment device in accordance with Ecology's 2005 *Stormwater Management Manual for Western Washington.*

Applicant's Performance Claims:

Based on laboratory trials, the CDS™ System will achieve 50% removal of total suspended solids with d_{50} of 50-µm and 80% removal of total suspended solids with d_{50} of 125-µm at 100% design flow rate with influent concentrations near 200 mg/L.

The CDS™ system equipped with standard oil baffle and the addition of oil sorbent is effective in the control of oil and can maintain the TPH level below 10 mg/L for applications in typical urban runoff pollution control.

Technical Review Committee's Recommendation:

The TRC finds that:

- The CDS™ system, sized per the table above, should provide, at a minimum, equivalent performance to a presettling basin as defined in the most recent *Stormwater Management Manual for Western Washington, Volume V, Chapter 6.*

Findings of Fact:

1. Laboratory testing was completed on a CDS2020 unit equipped with a 2400 micron screen using OK-110 sand (d_{50} of 106-µm) at flowrates ranging from 1 to 125% of the design flowrate (1.1 cfs) with a target influent of 200 mg/L. Laboratory results for the OK-110 sand showed removal rates from about 65% to 99% removal with 80% removal occurring near 70% of the design flowrate.
2. Laboratory testing was completed on a CDS2020 unit equipped with a 2400 micron screen using "UF" sediment (d_{50} of 20 to 30-µm) at flowrates ranging from 1 to 125% of the design flowrate (1.1 cfs) with a target influent of 200 mg/L. Laboratory results for the "UF" sediment showed removal rates from about 42% to 94% removal with 80% removal occurring at 5% of the design flowrate.
3. Laboratory testing was completed on a CDS2020 unit equipped with a 4700 micron screen using OK-110 sand (d_{50} of 106-µm) at flowrates ranging from 1 to 125% of the design flowrate (1.1 cfs) with a target influent of 200 mg/L. Laboratory results for the OK-110 sand showed removal rates from about 45% to 99% removal with an average removal of 83.1%.
4. Laboratory testing was completed on a CDS2020 unit equipped with a 2400 micron screen using "UF" sediment (d_{50} of 20 to 30-µm) at flowrates ranging from 1 to 125% of the design flowrate (1.1 cfs) with a target influent of 200 mg/L. Laboratory results for the "UF" sediment showed removal rates from about 39% to 88% removal with an average removal of 56.1%.
5. Laboratory testing was completed on a CDS2020 unit using motor oil at flowrates ranging from 25% to 75% of the design flowrate (1.1 cfs) with influents ranging from 7 to 47 mg/L. Laboratory results showed removal rates from 27% to 92% removal. A spill test was also run at 10% of the design flowrate with an influent of 82,000 mg/L with an average percent capture of 94.5%

6. Various field studies were completed by independent parties in California, Florida, and Australia. Field studies showed the potential for the unit to remove oils and grease and total suspended solids, and gross solids. A spill test was also run at 10% design flowrate with an influent of 82,000 mg/L with an average percent capture of 94.5%.
7. CDS Technology has over 6,200 installations in the United States and Canada with over 1,380 installations in Washington and Oregon.

Technology Description:

A technology description can be downloaded from the company's website.

Recommended Research and Development:

Ecology encourages Contech to pursue continuous improvements to the CDS™ system. To that end, the following actions are recommended:

1. Conduct testing to quantify the flowrate at which resuspension occurs.
2. Conduct testing on various sized CDS™ units to verify the sizing technique is appropriate.
3. The system should be tested under normal operating conditions, such that the swirl concentrator is partially filled with pollutants. Results obtained for "clean" systems may not be representative of typical performance.

Contact Information:

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