Richard J. Codey
Acting Governor

State of New Jersey
Department of Environmental Protection
Division of Science, Research and Technology
Bureau of Sustainable Communities & Innovative Technologies
PO Box 409
Trenton, NJ 08625-0409
Tel: 609-292-9692
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Bradley M. Campbell
Commissioner

January 12, 2005

James A. Heist, P.E.
Vice President – New Product Development
CDS Technologies Inc
105 Springbrook Place
Cary, NC 27511

RE: Interim Certification of the High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) by CDS Technologies, Inc.

Dear Mr. Heist:

In accordance with the Energy and Environmental Technology Verification (EETV) Act at N.J.S.A. 13:1D-134, the New Jersey Department of Environmental Protection (NJDEP) is pleased to issue a **Conditional Interim Certification** for the High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) developed by CDS Technologies, Inc. This technology uses the mechanism of continuous deflective separation to enhance separation of sediments from stormwater runoff. This conditional interim certification is being issued based on the New Jersey Corporation for Advanced Technology (NJCAT) verification addendum report, dated December 2004.

According to NJCAT's verification report, and as indicated in the attached Conditional Interim Certification Findings, the 500 GPM (1.1 cfs) High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5), with a 2400 micron screen opening an a configured outlet for best sediment control operating with an average influent Total Suspended Solids (TSS) concentration of 184 mg/L and zero initial sediment loading, has been shown to have a total mass TSS removal efficiency of 73.7% (per NJDEP treatment efficiency calculation methodology) for silica sand particles <100 microns (d_{50} particle size of 63 microns) in laboratory studies using simulated stormwater. Based on this demonstrated laboratory performance, NJDEP has a high degree of confidence that the High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) has the capability of achieving in field applications, at a minimum, a TSS removal efficiency of 50%. Therefore, NJDEP certifies that the High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) is capable of achieving a minimum TSS removal efficiency of 50% from stormwater runoff, and shall be permitted accordingly. In addition, the following conditions will apply to the conditional interim certification:

1. The High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) should be the first component, if used as part of a treatment train (i.e. utilized in front of best management practices methods such as detention, retention, and infiltration basins, as defined in the NJ Stormwater Best Management Practices Manual).
2. The High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) shall be designed in accordance with New Jersey's water quality design storm, as required in the Stormwater Management Rules (N.J.A.C. 7:8).
3. A Quality Assurance Project Plan, in accordance with the Technology Acceptance and Reciprocity Partnership (TARP) Tier II Protocol for Stormwater Best Management Practice Demonstration (July, 2003), and including any additional field testing requirements that the NJDEP may request, shall be submitted to NJDEP and NJCAT within six (6) months from the date of this conditional interim certification letter.
4. Field evaluation data that are consistent with the Tier II Protocol and additional NJDEP field test requirements shall be submitted to NJDEP and/or NJCAT by December 31, 2006.

Additionally, similar High Efficiency Continuous Deflective Separators units can be used to address different influent flow rate applications **providing that the hydraulic design of these units is the same as Model PMSU20_20_5**. Also, as specified in the verification report, all stormwater manufactured treatment devices sold in New Jersey must be high efficiency units configured with a sediment weir. Please note that this approval letter shall expire on June 30, 2007, unless extended by NJDEP. For final certification of the High Efficiency Continuous Deflective Separator Units, verified data must be generated from a full-scale field demonstration utilizing the TARP Tier II Protocol and incorporating any additional NJDEP field test requirements. If you have any questions about this conditional interim certification, please contact Ravi Patraju of my staff at (609) 292-0125.

Sincerely,

Martin Rosen
Chief, Bureau of Sustainable Communities
and Innovative Technologies

Enclosure

c: Sam Wolfe, Assistant Commissioner, Environmental Regulation
Ernest Hahn, Assistant Commissioner, Land Use Management
Narinder Ahuja, Director, Water Quality
Mark Mauriello, Director, Land Use Regulation
Larry Baier, Director, Watershed Management
Eileen Murphy, Director, Science, Research, and Technology
Rhea Brekke, Executive Director, New Jersey Corporation for Advanced Technology

January 12, 2007

ADDENDUM TO CDS TECHNOGIES, INC. INTERIM CERTIFICATION
High Efficiency Continuous Deflective Separator Units

CDS Storm Water Treatment Units For NJDEP Regulated Projects[1]
Capacities & Physical Features

Model* Designation			Treatment Capacity Range		Screen Diameter & Height		Sump Capacity (yd^3)	Depth Below Pipe Invert (ft)	Foot Print Diameter (ft)
			cfs	MGD	(ft)	(ft)			
Precast**	Inline	PMIU20_15 (Drop-in Inlet)	0.7	0.5	2.0	1.5	0.9	5.0	4.8
		PMSU20_15_4	0.7	0.5	2.0	1.5	0.9	5.0	4.8
		PMSU20_15	0.7	0.5	2.0	1.5	1.5	5.0	6.0
		PMSU20_20	1.1	0.7	2.0	2.0	1.5	5.6	6.0
		PMSU20_25	1.6	1	2.0	2.5	1.5	5.9	6.0
		PMSU30_20	2	1.3	3.0	2.0	2	6.0	7.3
		PMSU30_30	3	1.9	3.0	3.0	2.1	6.9	7.3
		PMSU40_30	4.5	3	4.0	3.0	5.6	8.6	9.5
		PMSU40_40	6	3.9	4.0	4.0	5.6	9.6	9.5
	Offline	PSWC30_20	2	1.3	3.0	2.0	3.1	7.0	7.2
		PSW30_30	3	1.9	3.0	3.0	1.5	6.9	5.4
		PSWC30_30	3	1.9	3.0	3.0	2.3	7.2	7.3
		PSWC40_30	4.5	3	4.0	3.0	5.6	8.5	8.3
		PSWC40_40	6	3.9	4.0	4.0	5.6	9.6	8.3
		PSW50_42	9	5.8	5.0	4.2	1.9	9.6	8.0
		PSWC56_40	9	5.8	5.6	4.0	5.6	9.6	9.5
		PSW50_50	11	7.1	5.0	5.0	1.6	10.3	8.0
		PSWC56_53	14	9	5.6	5.3	5.6	10.3	9.5
		PSWC56_68	19	12	5.6	6.8	5.6	12.6	9.5
		PSWC56_78	25	16	5.6	7.8	5.6	13.6	9.5
		PSW70_70	26	17	7.0	7.0	3.6	14.0	10.5
		PSW100_60	30	19	10.0	6.0	5.7 or 11.6	12.0	17.5
		PSW100_80	50	32	10.0	8.0	5.7 or 11.6	14.0	
		PSW100_100	64	41	10.0	10.0	5.7 or 11.6	16.0	
Cast in Place		CSW150_134	148	95.5	15.0	13.4	14.1***	19.6***	25.5
		CSW200_164	270	174	20.0	16.4	14.1***	22.6***	34.5
		CSW240_160	300	194	24.0	16.0	14.1***	21.2***	41

[1]All CDS Units provided for NJDEP Regulated projects are provided with a sediment weir for higher TSS removal

*CDS Model Prefixes
PMIU = Precast Manhole Insert Unit
PMSU = Precast Manhole Stormwater Unit
PSWC = Precast Stormwater Concentric
PSW = Precast Stormwater Concentric
*CDS Model Suffixes
Precast (P), and Cast-in-Place (C), Stormwater (SW)

**CDS Technologies can customize units to meet specific design flows and sump capacities.

**Precast or Cast in place unit can be designed to treat flows in between 64-cfs and 148-cfs. Please contact CDS design engineers.

***Sump Capacities and Depth Below Pipe Invert can vary due to specific site design

The above units are subjected to the conditions as described in the NJDEP Conditional Interim Certification Letter of January 12, 2005.

Conditional Interim Certification Findings

NJDEP Technology Certification Program:

Bureau of Sustainable Communities & Innovative Technologies
Division of Science, Research & Technology
401 E State Street, P.O. Box 409
Trenton, NJ 08625
(609) 292-9692

Manufactured Treatment Device:

High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5)

Applicant Information:

CDS Technologies, Inc.
105 Springbrook Place
Cary, NC 27511
(919) 858-8887

Technology Description:

The mechanism by which the CDS technology separates and retains gross pollutant is by first diverting flow and associated pollutants in a stormwater or combined sewer drainage system away from the main flow stream of the pipe or channel into a pollutant separation and containment chamber. The separation and containment chamber consists of a containment sump in the lower section and an upper separation section. Gross pollutants are separated within the chamber using a perforated plate allowing the filtered water to pass through to a volute return system and then to the outlet pipe. The water and associated pollutant contained within the separation chamber are kept in continuous motion by the energy generated by the incoming flow. This has the effect of preventing the separation plate from being blocked by the gross solids separated from the inflow. The heavier solids ultimately settle into the containment sump.

Figure 1 is a schematic representation of the solids separation mechanism of the CDS technology. The diversion of the stormwater and associated pollutants into a separation chamber overcomes problems associated with the direct filtration systems of conventional gross pollutant traps. The present design of the CDS system utilizes a simple solids diversion unit to divert flows into the separation chamber. The diversion unit is designed to divert all flows into the separation chamber as long as water levels are below the crest level of the diversion unit. As water levels exceed the crest of the diversion unit, some flows would by-pass the CDS system. The crest level of the diversion unit may be adjusted to suit individual installations.

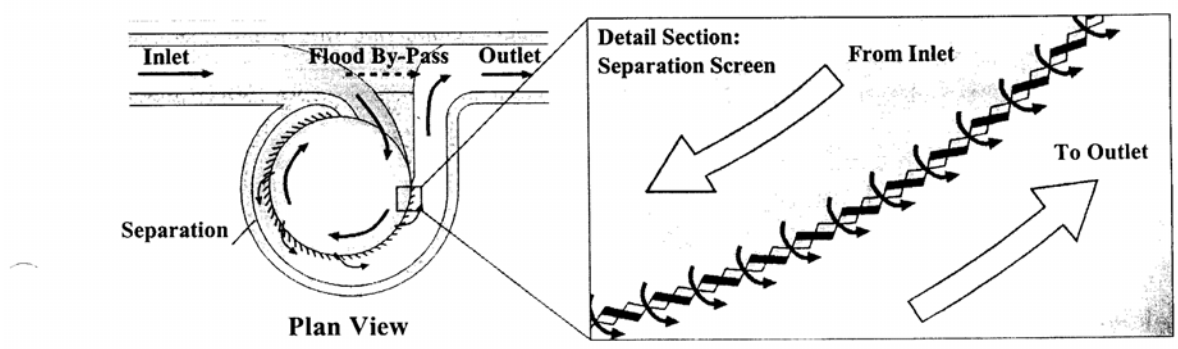

Figure 1 Schematic Representation of the CDS System

The solids separation system consists of a large expanded stainless steel plate, which acts as a filter screen with an outer volute outlet passage. The perforations in the separation screen are typically elongated in shape and are aligned with the longer axis in the vertical direction. The size of the elliptical holes can be specified according to performance requirements and typical width of the short axis ranges from 2.4 mm to 4.7 mm. The separation screen is installed in the unit such that the leading edge of each perforation extends into the flow within the containment chamber, essentially presenting a closed face to the direction of flow of solids and liquid.

CDS, recognizing that New Jersey requires protection of its water resources through the removal of a very fine gradation of particles, has developed a high-efficiency particle removal device. This device is referred to as a High Efficiency Continuous Deflective Separator, which combines the mechanism of continuous deflective separation, along with a sedimentation weir and increased diameter manhole, to enhance separation of sediments from stormwater. All stormwater units offered in New Jersey will be one of these high efficiency units.

New Jersey Corporation for Advanced Technology Verified Claim:

> **A 500 GPM (1.1 cfs) unit (Model PMSU20_20_5) with a 2400 micron screen opening and a configured outlet for best sediment control, operating with an average influent TSS concentration of 184 mg/L and zero initial sediment loading, has been shown to have a total mass TSS removal efficiency of 73.7% (per NJDEP treatment efficiency calculation methodology) for silica sand particles <100 microns (d_{50} particle size of 63 microns) in laboratory studies using simulated stormwater.**

Technology Limitations:

- The CDS Technologies, Inc.'s High Efficiency Continuous Deflective Separator device was tested with zero initial sediment loading.

NJDEP Conditional Interim Certification:

Based on the demonstrated and NJCAT verified laboratory performance, NJDEP has a high degree of confidence that the High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) has the capability of achieving in field applications, at a minimum, a TSS removal efficiency of 50%. Therefore, **NJDEP certifies that the High Efficiency Continuous Deflective Separator Unit (Model PMSU20_20_5) is capable of achieving a minimum TSS removal efficiency of 50% from stormwater runoff**, and shall be permitted accordingly. In addition, the following conditions shall apply to the conditional interim certification:

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