Klamath Falls Particulate Matter ($PM_{2.5}$) Attainment Plan

Interagency Agreement to Reduce Particulate Emissions from Winter Road Sanding

May, 2012

This agreement, effective the date shown on the signature page, is between Oregon Department of Environmental Quality (ODEQ), Oregon Department of Transportation (ODOT), Klamath County, and City of Klamath Falls, for the purpose of minimizing adverse air quality impacts related to particulate matter from winter road sanding activity.

Objective

This agreement recognizes that the Klamath Falls Nonattainment Area has violated the 24-hour National Ambient Air Quality Standard (NAAQS) for fine particulate matter (PM2.5). The objective of this agreement is to minimize air quality impacts from winter road sanding in the Klamath Falls PM2.5 Non-Attainment Area (map provided in Appendix A). Road dust generated from winter traction materials applied during the snow and ice season is entrained and suspended in air in a form of fine fraction particulates contributing to reduced air quality.

Procedure

In response to this issue, Klamath County, City of Klamath Falls, and ODOT agree to apply measures to mitigate the generation of road dust associated with winter traction materials including the material selection, application, and collection. The measures will be applied only when their effects do not compromise safety.

Klamath County, City of Klamath Falls, and ODOT agree to:

- Select durable material that is less likely to breakdown through road wear whenever available and cost effective.
- When deemed appropriate and as funding permits, apply de-icing agents in conjunction with abrasive material to spread it more easily and to help anchor the abrasives into the ice or snow on the road's surface.
- Limit the amount of material used and only sand intersections, hills, curves, and known trouble areas on roads that are critical for safety.
- Apply materials with appropriate equipment to limit spillage and redundant application of materials. Calibrate equipment at least one time per year for optimum application rates and avoid applying more material than necessary for safety.
- Schedule the removal of abrasive materials as early as possible to shorten the period of dust generation. It is expected to be done at least once a year at the end of season, or more often if possible.

- Ensure that only South Coast Air Management District certified sweepers or equivalent technologies are purchased in future for use in the Klamath Falls PM2.5 Non-Attainment Area. The current list of certified sweepers approved is in Appendix B. Equivalent sweepers are listed in Appendix C.

Reporting

- At the end of the winter vehicle traction season, or by June 30, of each year, submit to DEQ for the nonattainment area the following information:
  - Approximate amount of sanding material applied during the previous winter season.
  - Approximate amount of sanding material picked up during the previous winter season.
  - Types of equipment used to pick up sanding material.
  - Alternatives to sanding used, if any
    - Include anti-icing agents used
    - Geothermal roadways heated where sanding was not used
    - Other alternatives
  - Other methods used to reduce re-entrained road dust from roadways within the nonattainment area.
  - Road paving.

This agreement is entered into on the final date all signatures are signed:

For the Department of Environmental Quality 6/26/12
JOAN STEVENS-SCHWENGER FOR ANDY GINSBURG
Andrew Ginsburg Date

For the City of Klamath Falls 5/30/12
Mark Willrett Date

For Klamath County MAY 07 2012
Stan Strickland Date

For the Oregon Department of Transportation 5-18-12
Michael Stinson Date

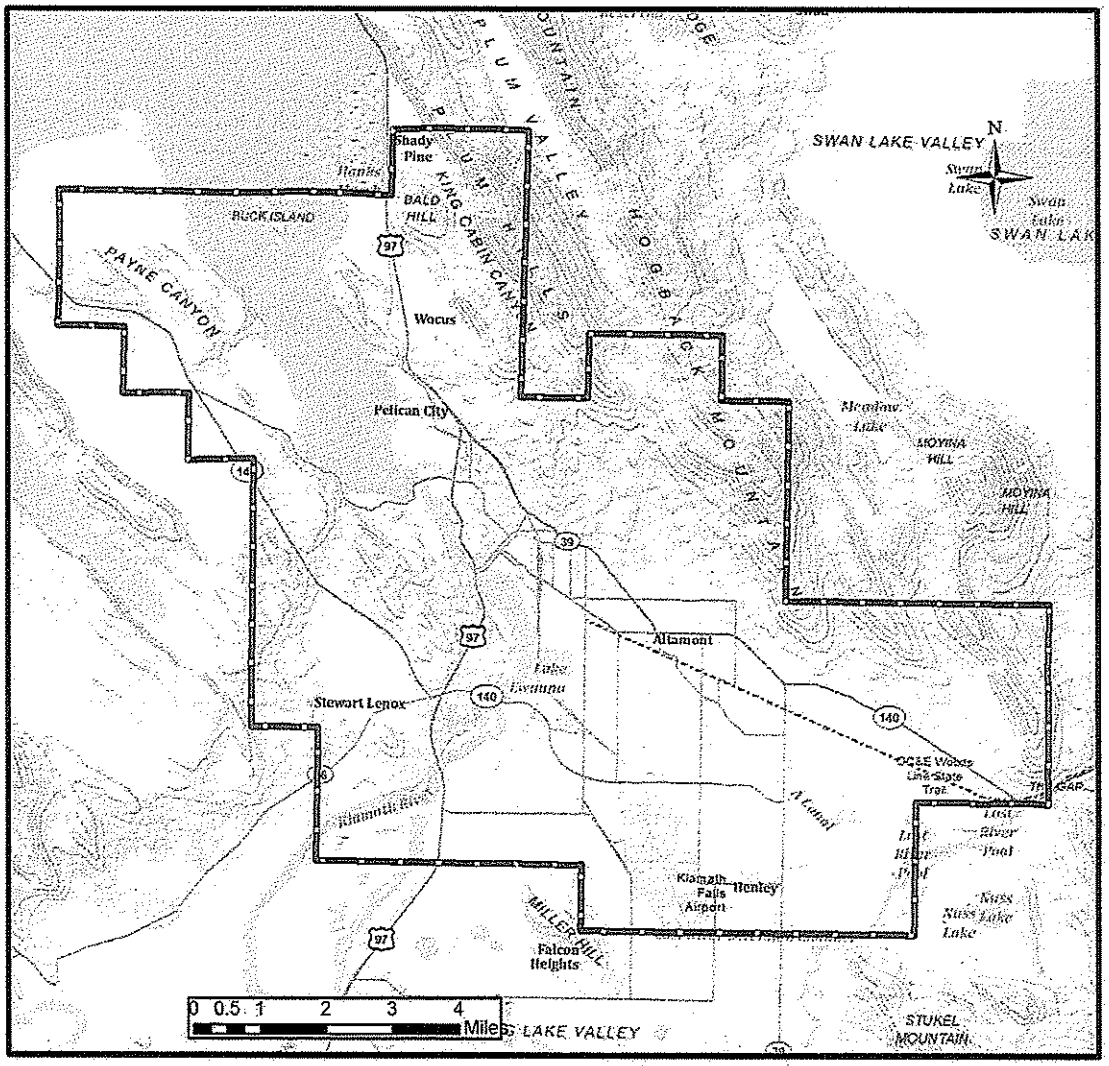
APPENDIX A

Klamath Falls

DEQ

Legend

Non-Attainment Area



Date: 8/9/11 \\DEQHQ1\EI_FILES\2008_KFalls_PM25\FinalEI\OpenBurning_Other\KFalls_OpenBurningOther_GIS\2008_KFalls_OpenBurningOther.mxd

APPENDIX B

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SCAQMD) RULE 1186 CERTIFIED* STREET SWEEPERS AS OF MARCH 11, 2010 THE FOLLOWING IS A LIST OF STREET SWEEPING EQUIPMENT THAT HAS CURRENTLY BEEN CERTIFIED FOR SCAQMD RULE 1186. ALL CERTIFIED EQUIPMENT MUST BE OPERATED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS. FUTURE TESTING MAY QUALIFY ADDITIONAL EQUIPMENT. CALL 1 (800) CUT-SMOG FOR THE CURRENT LIST. * In order to ensure compliance with Rule 1186 requirements, all certified equipment must be operated and maintained in accordance with the manufacturer's specifications. End users are responsible for ensuring that the dust control systems are in place for each certified sweeper. Note: The make and model of the sweeper must have the dust control system(s) specified above to be in compliance. (Standard or older models may not have all the systems). Please contact the manufacturer if you would like to ensure that your sweeper(s) are Rule 1186 compliant. 1

MAKE*	MODEL*	DUST CONTROL SYSTEMS*
CHALLENGER MANUFACTURING	CHALLENGER	☐ THREE (3) 0.03 INCH DIAMETER ORIFICE NOZZLES LOCATED AT EACH SIDE BROOM ☐ FOUR (4) 0.03 INCH DIAMETER ORIFICE NOZZLES CENTRALLY LOCATED BETWEEN THE MAIN BROOM AND THE CONVEYOR ☐ WATER PUMP TO PROVIDE 25 POUNDS PER SQUARE INCH WATER PRESSURE DURING OPERATION; MAXIMUM OF 45 POUNDS PER SQUARE INCH
ELGIN	AIR CUB (LX/DX) CROSSWIND FURY	☐ DIAMOND GRID DUST SEPARATION SCREEN ☐ LOUVERED CENTIFUGAL DUST SEPARATOR ☐ ONE (1) 0.06 INCH DIAMETER ORIFICE NOZZLE CENTRALLY LOCATED ABOVE FAN INLET IN THE HOPPER ☐ TWO (2) 0.047 INCH DIAMETER ORIFICE NOZZLES LOCATED INSIDE THE SUCTION TUBE ☐ FOUR (4) 0.051 INCH DIAMETER ORIFICE

		NOZZLES LOCATED AT EACH SIDE BROOM ☐ PUMP TO PROVIDE 40 POUNDS PER SQUARE INCH WATER PRESSURE
ELGIN	CROSSWIND J	☐ DIAMOND GRID DUST SEPARATION SCREEN ☐ S-TRAP CENTRIFUGAL SEPARATOR ☐ FOUR (4) 0.06 INCH DIAMETER ORIFICE NOZZLES LOCATED INSIDE HOPPER ☐ THREE (3) 0.059 INCH DIAMETER ORIFICE NOZZLES LOCATED INSIDE SUCTION TUBE ☐ THREE (3) 0.057 INCH DIAMETER ORIFICE NOZZLES LOCATED AT EACH SIDE BROOM ☐ WATER PUMP TO PROVIDE 80 POUNDS PER SQUARE INCH WATER PRESSURE
	MODEL*	**DUST CONTROL SYSTEMS***
ELGIN	PELICAN P & S PELICAN SE (WET SUPPRESSION)	☐ FOUR (4) 0.06 INCH DIAMETER ORIFICE NOZZLES CENTRALLY LOCATED BETWEEN THE MAIN BROOM AND THE CONVEYOR ☐ TWO (2) 0.057 INCH DIAMETER ORIFICE NOZZLES LOCATED AT EACH GUTTER BROOM ☐ WATER PUMP TO PROVIDE 80 POUNDS PER SQUARE INCH WATER PRESSURE
ELGIN	PELICAN P (WATERLESS SUPPRESSION)	☐ GUTTER/MAIN BROOM FULLY ENCLOSED SHROUD SYSTEM ☐ TWO CENTRIFUGAL DUST EVACUATION FANS ☐ SYNTHETIC MULTI-POCKET FILTER WITH HYDRAULIC SHAKER FOR DUST REMOVAL

ELGIN	PELICAN P (COMBINATION)	☐ ALL OF THE FEATURES OF THE WET AND WATERLESS SUPPRESSION PELICAN P STREET SWEEPER WITH THE EQUIPMENT OPERATED IN EITHER THE WET OR WATERLESS MODE
ELGIN	EAGLE E EAGLE F EAGLE (CNG) BROOM BEAR ROAD WIZARD	☐ FOUR (4) 0.06 INCH DIAMETER ORIFICE NOZZLES CENTRALLY LOCATED BETWEEN THE MAIN BROOM AND THE CONVEYOR ☐ THREE (3) 0.057 INCH DIAMETER ORIFICE NOZZLES LOCATED AT EACH GUTTER BROOM ☐ WATER PUMP TO PROVIDE 80 POUNDS PER SQUARE INCH WATER PRESSURE
ELGIN	EAGLE F (WATERLESS)	☐ GUTTER/MAIN BROOM FULLY ENCLOSED SHROUD SYSTEM ☐ CENTRIFUGAL DUST EVACUATION FAN ☐ SYNTHETIC MULTI-POCKET FILTER WITH HYDRAULIC SHAKER FOR DUST CONTROL
ELGIN	EAGLE F (COMBINATION)	☐ ALL OF THE FEATURES OF THE WET AND WATERLESS EAGLE F STREET SWEEPER WITH THE EQUIPMENT OPERATED IN EITHER THE WET OR WATERLESS MODE

MAKE*	MODEL*	DUST CONTROL SYSTEMS*
ELGIN	GEOVAC	

ELGIN

WHIRLWIND MV

□ DIAMOND GRID DUST SEPARATION SCREEN
□ FOUR (4) 0.06 INCH DIAMETER ORIFICE NOZZLES CENTRALLY LOCATED IN THE HOPPER
□ TWO (2) 0.059 INCH DIAMETER ORIFICE NOZZLES LOCATED INSIDE THE SUCTION TUBE
□ TWO (2) 0.057 INCH DIAMETER ORIFICE NOZZLES LOCATED AT EACH SIDE BROOM
□ FOUR (4) 0.06 INCH DIAMETER ORIFICE NOZZLES LOCATED AT THE EXTENSION BROOM
□ WATER PUMP TO PROVIDE 80 POUNDS PER SQUARE INCH WATER PRESSURE

□ DIAMOND GRID DUST SEPARATION SCREEN
□ FOUR (4) 0.06 INCH DIAMETER ORIFICE NOZZLES CENTRALLY LOCATED IN THE HOPPER
□ TWO (2) 0.059 INCH DIAMETER ORIFICE NOZZLES LOCATED INSIDE THE SUCTION TUBE
□ TWO (2) 0.057 INCH DIAMETER ORIFICE NOZZLES LOCATED AT EACH SIDE BROOM
□ FOUR (4) 0.60 INCH DIAMETER ORIFICE NOZZLES LOCATED AT THE EXTENSION BROOM

MAKE*	MODEL*	DUST CONTROL SYSTEMS*
JOHNSTON	310	☐ PUMP TO PROVIDE 80 POUNDS PER SQUARE INCH WATER PRESSURE
		☐ FOUR (4) 0.072 INCH DIAMETER ORIFICE NOZZLES LOCATED IN FRONT SPRAY BAR ☐ TWO (2) 0.072 INCH DIAMETER ORIFICE NOZZLES PER EACH GUTTER BROOM ☐ ONE (1) 0.026 INCH DIAMETER ORIFICE NOZZLE LOCATED IN THE FAN SUCTION HOOD ☐ WATER PUMP TO PROVIDE 50 POUNDS PER SQUARE INCH WATER PRESSURE
JOHNSTON	3000 MX450 4000 4000 SDS MST 350	☐ ENCLOSED ELEVATOR SYSTEM ☐ STEEL OR MIXED POLYESTER MAIN PICK UP BROOM ☐ ONE (1) 0.072 INCH DIAMETER ORIFICE NOZZLE PER EACH GUTTER BROOM ☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES PER EACH SIDE OF THE MAIN PICK UP BROOM ☐ THREE (3) 0.057 INCH DIAMETER ORIFICE NOZZLES IN SPRAY BAR LOCATED BEHIND THE MAIN PICK UP BROOM ☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES IN SPRAY BAR LOCATED UNDERNEATH THE CAB ☐ WATER PUMP TO PROVIDE 40 POUNDS PER SQUARE INCH WATER PRESSURE

MAKE*	MODEL*	DUST CONTROL SYSTEMS*

JOHNSTON	VT605 VT610 VT605 VT650	☐ TWO (2) 0.039 INCH DIAMETER ORIFICE NOZZLES PER GUTTER BROOM ☐ THREE (3) 0.042 INCH DIAMETER ORIFICE NOZZLES PER SUCTION BROOM ☐ THREE (3) 0.039 INCH DIAMETER ORIFICE NOZZLES PER SUCTION NOZZLE ☐ MULTI-POSITION SUCTION NOZZLE TWO ARM FACILITY ☐ ONE (1) 0.042 INCH DIAMETER ORIFICE NOZZLE FOR THE IMPELLER FAN ☐ WATER PUMP TO PROVIDE 50 POUNDS PER SQUARE INCH WATER PRESSURE
JOHNSTON	770 CYCLONE	☐ THREE (3) 0.067 INCH DIAMETER ORIFICE NOZZLES FOR GUTTER BROOMS ☐ TWO (2) 0.07 INCH DIAMETER ORIFICE NOZZLES FOR CENTER CURTAIN ☐ FOUR (4) 0.055 INCH DIAMETER ORIFICE NOZZLES FOR FRONT BUMPER ☐ TWO (2) 0.067 INCH DIAMETER ORIFICE NOZZLES FOR FRONT CURB SPRAY ☐ TWO (2) 0.07 INCH DIAMETER ORIFICE NOZZLES ON LEFT AND RIGHT SIDE OF PICK UP HEAD ☐ THREE (3) 0.082 INCH DIAMETER ORIFICE NOZZLES FOR PICK UP HEAD FRONT SIDE ☐ SEVEN (7) 0.079 INCH DIAMETER ORIFICE NOZZLES FOR PICK UP HEAD REAR SIDE ☐ THREE (3) 0.079 INCH DIAMETER ORIFICE NOZZLES FOR WINDROW PATH ☐ TWO (2) 0.045 INCH DIAMETER ORIFICE NOZZLES FOR PICK UP HEAD SUCTION ☐ ONE (1) 0.079 INCH DIAMETER ORIFICE NOZZLE FOR BLOWER FAN OUTLET

MAKE*	MODEL*	DUST CONTROL SYSTEMS*
SCHWARZE	EV-1	☐ TWELVE (12) POLYESTER DRY FILTER CARTRIDGES (MAINTAINED TO ENSURE PROPER INTEGRITY) ☐ FILTRATION CLEANED THREE TIMES PER MINUTE ☐ FILTRATION SYSTEM ACTIVE AT ALL TIMES
SCHWARZE	EV-2	☐ EIGHT (8) POLYESTER DRY FILTER CARTRIDGES (MAINTAINED TO ENSURE PROPER INTEGRITY) ☐ FILTRATION SYSTEM OPERATED AT ALL TIMES ☐ EACH FILTER CLEANED THREE TIMES PER MINUTE
SCHWARZE	DXR	☐ POLYESTER DRY FILTER CARTRIDGES (MAINTAINED TO ENSURE PROPER INTEGRITY) ☐ FILTRATION SYSTEM ACTIVE AT ALL TIMES ☐ FILTRATION CLEANED FOUR TIMES PER MINUTE AND A HALF
SCHWARZE	A4000	☐ FOUR (4) 0.036 INCH DIAMETER ORIFICE NOZZLES LOCATED ON THE SWEEPING

☐ PUMP TO PROVIDE 50 POUNDS PER SQUARE INCH WATER PRESSURE

HEAD
☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES INSIDE HOPPER
☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES FOR EACH GUTTER BROOM
☐ FOUR (4) 0.036 INCH DIAMETER ORIFICE NOZZLES INSIDE HOPPER ON SPRAY BAR
☐ WATER PUMP TO PROVIDE 70 POUNDS PER SQUARE INCH WATER PRESSURE

SCHWARZE

M5000/M6000

☐ FIVE (5) 0.036 INCH DIAMETER ORIFICE NOZZLES ON MAIN BROOM
☐ THREE (3) 0.036 INCH DIAMETER ORIFICE NOZZLES FOR EACH GUTTER BROOM
☐ WATER PUMP TO PROVIDE 70 POUNDS PER SQUARE INCH WATER PRESSURE

MAKE*
SCHWARZE

MODEL*
A 7000/
A 8000/ A 9000

DUST CONTROL SYSTEMS*

☐ SAWTOOTH DUST SEPARATION SCREEN, SELF DUMPING DUST SEPARATOR, FAN CENTRIFUGE
☐ FIVE (5) 0.036 INCH DIAMETER ORIFICE NOZZLES LOCATED ON THE SWEEPING HEAD
☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES LOCATED ON HEAD INTAKE TUBE
☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES IN RIGHT HAND GUTTER BROOM
☐ FOUR (4) 0.036 INCH DIAMETER ORIFICE NOZZLES LOCATED ON HOPPER SPRAY BAR
☐ WATER PUMP TO PROVIDE 70 POUNDS PER SQUARE INCH WATER PRESSURE
☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES IN LEFT HAND GUTTER BROOM (REQUIRED IF BOTH GUTTER BROOMS ARE

USED)

SCHWARZE	S348-I/ S348-LE	☐ FOUR (4) 0.036 INCH DIAMETER ORIFICE NOZZLES ON HOPPER SPRAY BAR ☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES IN HOPPER ☐ TWO (2) 0.036 INCH DIAMETER ORIFICE NOZZLES ON RIGHT HAND GUTTER BROOM ☐ WATER PUMP TO PROVIDE 70 POUNDS PER SQUARE INCH WATER PRESSURE
STEWART-AMOS	STARFIRE S-4, S-5, AND S-6	☐ FOUR (4) 0.05 INCH DIAMETER ORIFICE NOZZLES CENTRALLY LOCATED BEWEEN THE MAIN BROOM AND THE ELEVATOR ☐ FOUR (4) 0.05 INCH DIAMETER ORIFICE NOZZLES LOCATED BENEATH THE FRONT BUMPER OF THE CHASSIS ☐ TWO (2) 0.05 INCH DIAMETER ORIFICE NOZZLES LOCATED IN FRONT OF EACH GUTTER BROOM ☐ WATER PUMP TO PROVIDE 40 POUNDS PER SQUARE INCH WATER PRESSURE
MAKE*	**MODEL***	**DUST CONTROL SYSTEMS***
PYTHON	S2000	☐ FOUR (4) 0.008 INCH DIAMETER ORIFICE NOZZLES MOUNTED ABOVE AND AHEAD OF A 36 INCH FILL DIAMETER REAR BROOM ☐ WATER LINE WITH 0.02 INCH DIAMETER ORIFICE AND THREE (3) 0.06 DIAMETER OUTLETS ABOVE EACH 42 INCH DIAMETER GUTTER BROOM ☐ PUMP TO PROVIDE 24 POUNDS PER

		SQUARE INCH WATER PRESSURE DURING OPERATION *PLEASE NOTE THAT THE GUTTER AND REAR BROOM SIZES ARE DIFFERENT THAN THE STANDARD MODEL*
PYTHON	S3000	☐ FOUR (4) 0.008 INCH DIAMETER ORIFICE NOZZLES MOUNTED ABOVE AND AHEAD OF REAR BROOM ☐ WATER LINE WITH 0.02 INCH DIAMETER ORIFICE AND THREE (3) 0.06 DIAMETER OUTLETS ABOVE EACH GUTTER BROOM ☐ PUMP TO PROVIDE 24 POUNDS PER SQUARE INCH WATER PRESSURE DURING OPERATION
TENNANT	CENTURION	☐ SEVEN (7) 0.0925 INCH DIAMETER ORIFICE NOZZLES ON SPRAY BAR UNDERNEATH THE CAB ☐ TWO (2) 0.0925 INCH DIAMETER ORIFICE NOZZLES PER GUTTER BROOM ☐ (GUTTER BROOMS CAN BE OPERATED WITHOUT WATER SPRAYS IF FULLY ENCLOSED SHROUD SYSTEM IS UTILIZED AND MAINTAINED PER THE MANUFACTURERS SPECIFICATIONS) ☐ THREE (3) 0.0925 INCH DIAMETER ORIFICE NOZZLES ON SPRAY BAR ABOVE CONVEYOR ☐ 300 GALLON WATER TANK ☐ WATER PUMP TO PROVIDE MINIMUM OF SEVEN GALLONS PER MINUTE ☐ SINGLE FAN VACUUM SYSTEM ☐ GLAZED, POLYESTER FILTER SYSTEM (MAINTAINED TO ENSURE PROPOER INTEGRITY)

MAKE*	MODEL*	DUST CONTROL SYSTEMS*
TENNANT	SENTINEL	☐ GUTTER/MAIN BROOM FULLY ENCLOSED SHROUD SYSTEM ☐ DUAL FAN VACUUM SYSTEM (OPERATED AT ALL TIMES) ☐ SYNTHETIC-SINGED POLYESTER FILTER (MAINTAINED TO ENSURE PROPER INTEGRITY)
TENNANT	830 I / 830 II	☐ GUTTER/MAIN BROOM FULLY ENCLOSED SHROUD SYSTEM ☐ DUAL FAN VACUUM SYSTEM (OPERATED AT ALL TIMES) ☐ SYNTHETIC-SINGED POLYESTER FILTER (MAINTAINED TO ENSURE PROPER INTEGRITY)
TYMCO	210 300 350 435	☐ CYCLONIC, MULTIPASS, CENTRIFUGAL SEPARATION ☐ CENTER DEBRIS DEFLECTOR ASSEMBLY PERPENDICULAR TO THE PICK UP HEAD ☐ TWO (2) 0.043 INCH DIAMETER ORIFICE NOZZLES FOR EACH GUTTER BROOM ☐ ONE (1) 0.063 INCH DIAMETER ORIFICE NOZZLE FOR EACH GUTTER BROOM ☐ ONE (1) 0.063 INCH DIAMETER ORIFICE NOZZLE LOCATED IN THE HOPPER ☐ ONE (1) 0.063 INCH DIAMETER ORIFICE

MAKE*	MODEL*	DUST CONTROL SYSTEMS*
TYMCO	600 600 BAH FHD 500X	☐ CYCLONIC, MULTIPASS, CENTRIFUGAL SEPARATION ☐ CENTER DEBRIS DEFLECTOR ASSEMBLY PERPENDICULAR TO THE PICK UP HEAD ☐ FRONT DEBRIS DEFLECTOR CURTAIN ASSEMBLY PARALLEL TO THE PICK UP HEAD ☐ LOW EMISSION DUST GUARDS (ONLY APPLICABLE TO CABOVER TRUCKS) ☐ THREE (3) 0.063 INCH DIAMETER ORIFICE NOZZLES FOR EACH GUTTER BROOM ☐ TWO (2) 0.043 INCH DIAMETER ORIFICE NOZZLES FOR EACH GUTTER BROOM ☐ ONE (1) 0.093 INCH DIAMETER ORIFICE NOZZLE LOCATED IN THE HOPPER ☐ ONE (1) 0.093 INCH DIAMETER ORIFICE NOZZLE LOCATED IN BLOWER HOUSING ☐ TWO (2) [MINIMUM] HOPPER BAFFLE CURTAINS ☐ WATER PUMP WITH A MINIMUM SYSTEM RELIEF VALVE SET AT 25 POUNDS PER SQUARE INCH.
TYMCO	DST - 4	☐ CYCLONIC, MULTIPASS, CENTRIFUGAL SEPARATION ☐ SELF CONTAINED MULTIPLE FILTRATION SYSTEM UTILIZING PTFE MEMBRANE FILTERS

MAKE*
TYMCO

MODEL*
DST - 6

☐ TWO (2) 0.043 INCH DIAMETER ORIFICE NOZZLES FOR EACH 32 INCH DIAMETER GUTTER BROOM
☐ ONE (1) 0.063 INCH DIAMETER ORIFICE NOZZLES FOR EACH 32 INCH DIAMETER GUTTER BROOM
☐ ONE (1) 0.063 INCH DIAMETER ORIFICE NOZZLE LOCATED IN THE HOPPER
☐ WATER PUMP WITH A MINIMUM SYSTEM RELIEF VALVE SET AT 25 POUNDS PER SQUARE INCH.

DUST CONTROL SYSTEMS*

☐ CYCLONIC, MULTIPASS, CENTRIFUGAL SEPARATION
☐ SELF CONTAINED MULTIPLE FILTRATION SYSTEM UTILIZING PTFE MEMBRANE FILTERS
☐ THREE (3) 0.063 INCH DIAMETER ORIFICE NOZZLES FOR EACH GUTTER BROOM
☐ TWO (2) 0.043 INCH DIAMETER ORIFICE NOZZLES FOR EACH GUTTER BROOM
☐ ONE (1) 0.094 INCH DIAMETER ORIFICE NOZZLE LOCATED IN THE HOPPER
☐ TWO (2) [MINIMUM] HOPPER BAFFLE CURTAINS
☐ WATER PUMP WITH A MINIMUM SYSTEM RELIEF VALVE SET AT 25 POUNDS PER SQUARE INCH

VACALL

VS10/10D, VF10
VS13/13D, VF13
VS14/14D, VF14
VS16/16D, VF16
VS20/20D, VF20

☐ FOUR (4) 0.062 INCH DIAMETER ORIFICE NOZZLES LOCATED IN FRONT OF EACH 36 INCH GUTTER BROOM
☐ FOUR (4) 0.062 INCH DIAMETER ORIFICE NOZZLES LOCATED IN FRONT OF THE TRANSFER BROOM
☐ TEN (10) 0.125 INCH DIAMETER ORIFICE NOZZLES LOCATED INSIDE THE PICK UP HEAD
☐ SIX (6) 0.181 INCH DIAMETER ORIFICE NOZZLES LOCATED INSIDE THE SCRUBBER COLLAR OF THE PICK UP HEAD
☐ 48 INCH POWER VACUUM NOZZLE
☐ MINIMUM 300 GALLON GRAVITY FEED WATER SUPPLY SYSTEM WITH WATER CONTINOUSLY SUPPLIED TO ALL NOZZLES
☐ LOW VELOCITY DUST COLLECTION AIR CHAMBER
☐ MINIMUM OF SIX (6) EXPANDED METAL SCREENS