WASTECH
CONTROLS & ENGINEERING, INC.

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CONTINUOUS REMOVAL SYSTEMS (CRS)

Shown: CRS-M-60-10FP-AB-4-N4-FL-DL
60 gallon per minute heavy metal removal system with a 460 VAC PLC based indoor rated system.

The Continuous Removal System is designed for removing dissolved metals or fluorides from large process wastewater flows. The CRS automatically precipitates and filters dissolved metals/fluorides before discharging the treated wastewater to the sewer. Discharged metals or fluorides in solution will be below discharge limits. Removed metals or fluorides are filtered in a dry cake for disposal.

Wastewater sample required for lab testing to properly size system. Contact sales for each specific application.

Specifications:
- pH range 1-13
- Up to 2,000 ppm inlet concentrations can be treated
- 15 to 100 gpm models available
- Most of the equipment is skid mounted for ease of installation
- Factory programmed and tested before shipment
- Indoor or outdoor installation

Shown: CRS-F-15-6FP-AX-4-N4-DC-FL-DL
15 gallon per minute fluoride removal system with equalization tank (not shown) and a 460 VAC PLC based indoor rated system.

Standard Features
- UL Listed control panel
- NEMA 4 powder coated steel control panel
- PLC-based control system with color touchscreen HMI
- Polypropylene, Polyethylene, or fiberglass reaction tanks
- Chemical feed metering pumps
- Clarifier for solids settling
- Air operated diaphragm pump for sludge transfer
- Filter press for solids dewatering with air operated feed pump
- Seismic tie-down brackets
- Alarm integration to building management system

Optional Features
- Influent equalization tank with transfer pump skid
- Epoxy coated metal skids
- Heat exchanger systems available for concentrated wastes that generate excessive heat during treatment
- Extension legs and raised platforms for filter presses
- Double containment for skid (includes leak detection)
- Discharge flow meter with totalizer
- Digital data logger for effluent pH, fluorides, metals and/or flow

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CRS

ORDERING INFORMATION								
CRS	Continuous Removal System							
	Process (Choose One)							
	-F	Fluoride Removal						
	-M	Heavy Metal Removal						
		Flow Rate (Choose One)						
		-10	10 Gallons Per Minute					
		-15	15 Gallons Per Minute					
		-30	30 Gallons Per Minute					
		-60	60 Gallons Per Minute					
		-75	75 Gallons Per Minute					
		-90	90 Gallons Per Minute					
			Filtration Options (Choose One or Sizing Will be Specified After Sample Analysis)					
			-6FP	Filter Press – 6 Cubic Foot				
			-10FP	Filter Press – 10 Cubic Foot				
				Control Option (Choose One)				
				-IM	IDEC PLC with 10” Maple HMI			
				-AM	Allen-Bradley MicroLogix PLC with 10” Maple HMI			
				-AB	Allen-Bradley MicroLogix PLC with 10” PanelView Plus HMI			
				-AX	Allen-Bradley CompactLogix PLC with 10” PanelView Plus HMI			
					Power Requirements (Choose One)			
					-3A	208 VAC / 3 / 60 Hz		
					-3B	230 VAC / 3 / 60 Hz		
					-4	460 VAC / 3 / 60 Hz		
						Enclosure Rating (Choose One)		
						-N4	NEMA4 – Powder Coated Carbon Steel	
						-N4XS	NEMA4X – 304 Stainless Steel	
							Options (Choose Any)	
							-DC	Double Containment For Reaction Tanks; Includes Leak Switch and Drain Valve
							-HX	Heat Exchanger for Concentrated Waste Treatment
							-FP	Final pH Adjustment Pump Lift Station
							-FL	Discharge Line Flow Meter
							-DL	Data Logger (pH, F, or HM), Includes Flow W/ “FL” Option
Example Part Number								
CRS	-F	-15	-6FP	-AX	-4	-N4	-DC	CRS-F-15-6FP-AX-4-N4-DC

Heavy Metal Removal Typical process:

- Wastewater is sent form the facility to the optional equalization tank.
- Wastewater is transferred from the equalization tank to the first reaction tank where any metal complexes are broken (depending on the metal to be removed).
- Wastewater overflows to the second reaction tank where the pH is raised with hydroxide (type of hydroxide depends on the metal to be removed) to form metal hydroxides.
- Wastewater gravity overflows to the flash/floc chamber where polymer is added to create a larger solid.
- Wastewater gravity flows into the inclined plate clarifier where the solids settle on the bottom.
- Solids are transferred by an air operated diaphragm pump to the sludge thickening tank before being dewatered in the filter press.
- Clear liquid from the clarifier flows or is pumped through a final filtration stage using filter bags.
- Effluent pH is adjusted down if needed depending on the type of metal removed and the local sewer discharge limits.

Fluoride Removal Typical process:

- Wastewater is sent form the facility to the optional equalization tank.
- Wastewater is transferred from the equalization tank to the first reaction tank where calcium chloride is added (depending on the pH and amount of fluorides to be removed).
- Wastewater overflows to the second reaction tank where the pH is raised with calcium hydroxide to form calcium fluoride solids.
- Wastewater gravity overflows to the flash/floc chamber where polymer is added to create a larger solid.
- Wastewater gravity flows into the inclined plate clarifier where the solids settle on the bottom.
- Solids are transferred by an air operated diaphragm pump to the sludge thickening tank before being dewatered in the filter press.
- Clear liquid from the clarifier flows or is pumped through a final filtration stage using filter bags.
- Effluent pH is adjusted down if needed depending on the local sewer discharge limits.