

Market Overview

Indices Performance (% change)

	December 2019	LTM		December 2019	LTM
S&P 500	2.9%	28.8%	NASDAQ	3.5%	35.2%
Dow Jones Industrial Average	1.7%	22.3%	Russell 3000	2.7%	18.9%

Source: Federal Reserve; Bank of St. Louis

Environmental Services Market Overview

Environmental Services Movers and Losers (largest % changes in the month in December)

Perma-Fix Environmental Services	28.2%	Quest Resource Holding	(15.4%)
Darling Ingredients	18.0%	EEI	(4.9%)
Cypress Energy Partners	5.4%	Fuel Tech	(3.5%)
US Ecology	5.3%	Sharps Compliance	(2.8%)
Clean Harbors	3.8%	CECO Environmental	(2.7%)

Source: PitchBook

Publicly Traded Company Performance: Solid Waste

(\$ in millions, except per share data)

Company	Share Price 11/30/2019	% of 52 Wk High	Market Capitalization	Enterprise Value	Valuation Multiples			PE Multiples		LTM Operating Margins			Net Debt/EBITDA	
					TEV/Total Revenue	TEV/EBITDA	TEV/EBIT	LTM P/E	CY18 P/E	Gross	EBIT	EBITDA		
Waste Management	WM	\$112.91	92.7%	\$47,901	\$58,346	3.8x	14.0x	22.2x	27.6x	16.9x	38.1%	17.0%	27.1%	2.5x
Republic Services	RSO	\$88.65	97.8%	\$28,292	\$37,120	3.6x	12.8x	20.8x	26.4x	17.2x	38.7%	17.1%	28.0%	3.1x
Waste Connections	WCN	\$90.55	92.5%	\$23,876	\$27,834	5.3x	17.4x	32.9x	42.3x	26.9x	40.8%	16.0%	30.2%	2.5x
Advanced Disposal	ADSW	\$32.95	99.8%	\$2,946	\$4,808	3.0x	13.5x	58.3x	NA	43.5x	NA	5.1%	22.1%	5.2x
Casella Waste Systems	CWST	\$46.71	97.9%	\$2,232	\$2,836	3.9x	24.1x	85.4x	291.9x	30.3x	31.0%	4.6%	16.3%	5.1x
Mean				\$21,049	\$26,189	3.9x	16.4x	43.9x	97.1x	27.0x	37.2%	12.0%	24.7%	3.7x
Median				\$23,876	\$27,834	3.8x	14.0x	32.9x	35.0x	26.9x	38.4%	16.0%	27.1%	3.1x
High				\$47,901	\$58,346	5.3x	24.1x	85.4x	291.9x	43.5x	40.8%	17.1%	30.2%	5.2x
Low				\$2,232	\$2,836	3.0x	12.8x	20.8x	26.4x	16.9x	31.0%	4.6%	16.3%	2.5x

Source: PitchBook

Total Enterprise Value (TEV) = Market Capitalization + Preferred Equity + Debt + Minority Interest - Cash

LTM = Last Twelve Months

Environmental Services Industry Contacts

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Publicly Traded Company Performance: Special Waste

(S in millions, except per share data)

Company	Share Price 11/30/2019	% of 52 Wk High	Market Capitalization	Enterprise Value	Valuation Multiples			PE Multiples		LTM Operating Margins			Net Debt/EBITDA	
					TEV/Total Revenue	TEV/EBITDA	TEV/EBIT	LTM P/E	CY18 P/E	Gross	EBIT	EBITDA		
Stericycle	SRCL	\$62.82	96.8%	\$5,725	\$8,840	2.6x	NA	NA	NA	21.2x	36.4%	(11.6%)	(3.6%)	(25.9x)
Clean Harbors	CLH	\$82.65	95.9%	\$4,613	\$6,010	1.8x	11.7x	28.6x	51.7x	21.1x	30.4%	6.2%	15.1%	2.7x
Darling Ingredients	DAR	\$23.80	99.9%	\$3,896	\$5,631	1.7x	10.1x	24.3x	36.6x	19.2x	22.1%	6.9%	16.6%	3.0x
US Ecology	ECOL	\$54.99	78.0%	\$1,214	\$1,566	2.6x	12.0x	18.5x	24.2x	20.8x	29.8%	13.6%	20.9%	2.7x
Sharps Compliance	SMED	\$4.34	82.7%	\$70	\$75	1.6x	27.1x	69.2x	86.8x	NA	30.2%	2.3%	5.8%	1.9x
Perma-Fix Environmental Services	PEFI	\$7.10	95.3%	\$86	\$89	1.4x	73.0x	NA	NA	15.7x	19.3%	(0.2%)	1.9%	3.9x
Mean				\$2,601	\$3,702	1.9x	26.8x	35.2x	49.8x	19.6x	28.0%	2.9%	9.5%	-1.9x
Median				\$2,555	\$3,599	1.7x	12.0x	26.4x	44.1x	20.8x	30.0%	4.2%	10.4%	2.7x
High				\$5,725	\$8,840	2.6x	73.0x	69.2x	86.8x	21.2x	36.4%	13.6%	20.9%	3.9x
Low				\$70	\$75	1.4x	10.1x	18.5x	24.2x	15.7x	19.3%	-11.6%	-3.6%	(25.9x)

Source: PitchBook

Total Enterprise Value (TEV) = Market Capitalization + Preferred Equity + Debt + Minority Interest - Cash

LTM = Last Twelve Months

Publicly Traded Company Performance: Industrial Services

(S in millions, except per share data)

Company	Share Price 11/30/2019	% of 52 Wk High	Market Capitalization	Enterprise Value	Valuation Multiples			PE Multiples		LTM Operating Margins			Net Debt/EBITDA	
					TEV/Total Revenue	TEV/EBITDA	TEV/EBIT	LTM P/E	CY18 P/E	Gross	EBIT	EBITDA		
Covanta	CVA	\$14.71	80.0%	\$1,933	\$4,475	2.4x	12.4x	31.7x	367.8x	6.4x	NA	7.5%	19.2%	7.0x
Heritage-Crystal Clean	HCCI	\$30.93	97.9%	\$717	\$765	1.8x	21.0x	39.9x	55.2x	24.0x	18.7%	4.7%	8.8%	1.4x
CECO Environmental	CECE	\$7.87	80.0%	\$277	\$330	1.0x	11.9x	20.0x	28.1x	NA	32.9%	4.8%	8.0%	1.9x
Cypress Energy Partners	CELP	\$8.73	86.1%	\$105	\$226	0.6x	8.0x	9.9x	11.2x	6.5x	13.1%	5.7%	7.1%	2.5x
EEl	EEI	\$0.20	91.0%	\$210	\$401	0.9x	NA	13.4x	17.1x	8.0x	13.6%	6.8%	9.7%	NA
Fuel Tech	FTFK	\$0.98	32.2%	\$24	\$12	0.3x	NA	NA	NA	NA	40.4%	(6.2%)	(3.9%)	7.2x
Quest Resource Holding	QRHC	\$2.58	83.1%	\$40	\$44	0.4x	21.3x	71.1x	NA	NA	18.2%	0.6%	2.0%	2.0x
Mean				\$472	\$893	1.1x	14.9x	31.0x	95.9x	11.2x	22.8%	3.4%	7.3%	3.7x
Median				\$210	\$330	0.9x	12.4x	25.9x	28.1x	7.3x	18.5%	4.8%	8.0%	2.3x
High				\$1,933	\$4,475	2.4x	21.3x	71.1x	367.8x	24.0x	40.4%	7.5%	19.2%	7.2x
Low				\$24	\$12	0.3x	8.0x	9.9x	11.2x	6.4x	13.1%	-6.2%	-3.9%	1.4x

Source: PitchBook

Total Enterprise Value (TEV) = Market Capitalization + Preferred Equity + Debt + Minority Interest - Cash

LTM = Last Twelve Months

Select M&A and Capital Raising News

❖ Circulate Capital Closes \$106 Million to Prevent Ocean Plastic in SSEA

December 9, 2019 - Circulate Capital, the investment management firm dedicated to incubating and financing companies and infrastructure that prevent ocean plastic in South and Southeast Asia, announced the first close of the \$106 million Circulate Capital Ocean Fund. It is the world's first investment fund dedicated to addressing Asia's plastic crisis and is also one of the 10 largest ASEAN-based Venture Capital Funds in the market. CCOF's founding investors are among the world's leading companies, including PepsiCo, the first investor; Procter & Gamble; Dow; Danone; Unilever; The Coca-Cola Company; and Chevron Phillips Chemical Company LLC. With 60 percent of ocean plastic originating from the region, Asia is the biggest source of plastic leakage into global oceans. A recent Ocean Conservancy Report identified a net financing gap between \$28 and \$40 per ton for plastic waste collection in the five top ocean polluting countries in the world—China, Indonesia, Philippines, Thailand and Vietnam.

❖ GFL Proposes Private Offering of Senior, Unsecured, Secured Notes

December 10, 2019 - GFL Environmental Inc. is planning to commence, subject to market and other conditions, a private offering of \$275 million in aggregate principal amount of 7 percent unsecured senior notes due in 2026 and \$500 million in aggregate principal amount of senior secured notes due in 2026. GFL previously issued \$400 million in aggregate principal amount of its 7 percent unsecured senior notes due in 2026, and the unsecured notes will be treated as "additional notes" under the indenture governing the unsecured notes and will be treated as a single series with the existing unsecured notes under such indenture. In addition to the notes, GFL expects to raise a minimum of \$300 million of equity from existing shareholders of GFL. The closing of the equity financing and the notes offering are not contingent on each other.

❖ GFL to Acquire County Waste of Virginia

December 10, 2019 - GFL Environmental Inc. has entered into a definitive agreement to acquire County Waste of Virginia, LLC and its subsidiaries. The transaction, which is expected to close in January 2020, is subject to receipt of customary regulatory approvals, including approval under the Hart-Scott-Rodino Act. County Waste offers solid waste management services, including collection, transportation, transfer, recycling and disposal of non-hazardous solid waste for municipal, residential, commercial and industrial customers in Virginia and Eastern Pennsylvania. County Waste's collection and hauling operations utilize a fleet of more than 410 trucks that service more than 410,000 residential customers and 19,000 commercial customers. County Waste owns six transfer stations and one materials recovery facility and operates a landfill in Troutville, Virginia.

❖ Veolia Announces Pricing Terms of Tender Offer

December 13, 2019 - Veolia Environment S.A. announced the pricing terms of its previously announced offer to purchase for cash up to \$100 million aggregate principal amount of its 6.750 percent notes due in 2038. The offer to purchase dated November 26 sets forth in further detail the terms and conditions of the tender offer. On December 10, \$162,422,000 aggregate principal amount of the outstanding 2038 notes were validly tendered and not withdrawn. The tender offer will expire at 5 p.m. ET on January 3, 2020, unless extended or earlier terminated. However, because holders of 2038 notes validly tendered and did not validly withdraw 2038 notes on or prior to the early participation date for which the aggregate principal amount exceeds the maximum tender amount, the Company will not accept for purchase any 2038 notes tendered after the early participation date. The Company's obligation to accept the 2038 notes tendered in the tender offer is subject to the terms and conditions described in the offer to purchase.

Recent Industry News

❖ Ohio Recycling Center Installs Foam-processing Machine

December 5, 2019 - The Clark County Recycling Center has used a grant from the Ohio Environmental Protection Agency to buy and install a machine that processes polystyrene foam, better known as Styrofoam. The recycling center bought the machine for \$40,000—\$30,000 of which was paid for via the Ohio EPA grant. The machine grinds the foam into tiny pieces, which are then heated and pushed through a tube. According to a Springfield News-Sun report, the device can accept packaging from TVs, appliances, computers and furniture; it cannot accept packaging peanuts, food packaging or materials with colored polystyrene.

❖ Four Companies Join Alliance to End Plastic Waste

December 5, 2019 - The Alliance to End Plastic Waste announced that four new companies from across the plastics value chain have joined its ranks in an effort to help end plastic waste in the environment. The new members, Charter NEX Films, Milliken & Company, Pregis and Geocycle, add to AEPW's membership diversity, representing the manufacture and production of specialty films, specialty chemicals, protective packaging and waste management, respectively. The companies bring AEPW's global membership to 42, up from 27 at its January launch. AEPW also announced that Jean-Marc Boursier, COO of SUEZ, a global leader for environmental services, has joined David Taylor, chairman of the board, president and CEO of Procter & Gamble, and Bob Patel, CEO of LyondellBasell, as an officer of AEPW, following the successful tenure of Veolia's Laurent Auguste.

❖ CalRecycle Fines CVS \$3.6M for Failing to Redeem Bottle Deposits

December 11, 2019 - The California Department of Resources Recycling and Recovery is enforcing a \$3.6 million action against CVS Health Corp. for failing to meet its obligation to redeem Californians' deposits on recycled bottles and cans at stores throughout the state. Under California's beverage container recycling law, retailers located in "convenience zones" that are not served by a recycling center must redeem California Redemption Value beverage containers in store or pay a \$100 a day fee. An investigation by CalRecycle found that 81 of the CVS Pharmacy's 848 retail stores in California refused to redeem CRV beverage containers in store, failed to pay the required \$100 a day fee for not redeeming or failed to submit an affidavit to CalRecycle stating how they would comply with in-store redemption standards.

❖ EPA, DOJ Agree to \$245M Cleanup at Allied Paper Superfund Site

December 17, 2019 - The U.S. Environmental Protection Agency, the U.S. Department of Justice, the Kalamazoo River Natural Resource Trustee Council and the Michigan Department of Environment, Great Lakes and Energy have proposed a consent decree that would require NCR Corp. to clean up and fund future response actions at a significant portion of the Allied Paper Inc./Portage Creek/Kalamazoo River Superfund site. The consent decree also includes payments related to natural resource damages and past cleanup efforts at the site. The decree is subject to a 30-day public comment period.

❖ Michigan Lawmakers Seek to Update Bottle Bill

December 19, 2019 - Legislation introduced in Michigan would make long-needed updates to the state's 41-year-old beverage container deposit law by placing a new 10-cent deposit on non-carbonated beverages, including water, sports and energy drinks, juices, ready-to-drink iced tea and coffee, wine and liquor and mixed drinks. With the extensive growth of these product markets, they now comprise about 50 percent of all beverages consumed in Michigan. Michigan has long led the nation in recycling carbonated beverage containers due to its dime deposit (compared to a nickel in most other deposit states), with a 2018 redemption rate of 89 percent. In contrast, the state's recycling rate for (currently non-deposit) non-carbonated beverage containers stands at just 20 percent.

❖ Casella Appoints Michael Battles to Board of Directors

December 20, 2019 - Casella Waste Systems, Inc., a regional solid waste, recycling and resource management services company has appointed Michael L. Battles to Casella's Board of Directors, effective December 17. Battles is currently the executive vice president and CFO of Clean Harbors, Inc., a leading provider of environmental, energy and industrial services throughout North America. Battles joined Clean Harbors in September 2013 as senior vice president, corporate controller and chief accounting officer and was appointed as CFO in January 2016. Battles previously served in a variety of senior financial positions at PerkinElmer Inc., a global leader in human and environmental health. Battles holds a Bachelor of Science in business administration with a concentration in accounting from the University of Vermont and is a certified public accountant.

❖ Queen's Speech Addresses Plastic Exports Ban

December 23, 2019 - During her speech for the State Opening of Parliament in the United Kingdom on December 19, Queen Elizabeth II said environmental measures, including a ban on plastic exports, were to be "enshrined into law" as part of the proposed environment bill. The State Opening of Parliament marks the start of the parliamentary year, and the Queen's speech sets out the government's agenda. Letsrecycle.com reports that plastic exports are to be banned to countries outside the Organization for Economic Co-operation and Development, which has 36 member countries. In her speech, the Queen said the measures are to "protect and improve the environment for future generations" and that the plastic exports ban aims to establish "a new world-leading independent regulator in statute."

The Chicago Corporation Overview

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Additional information is available upon request.