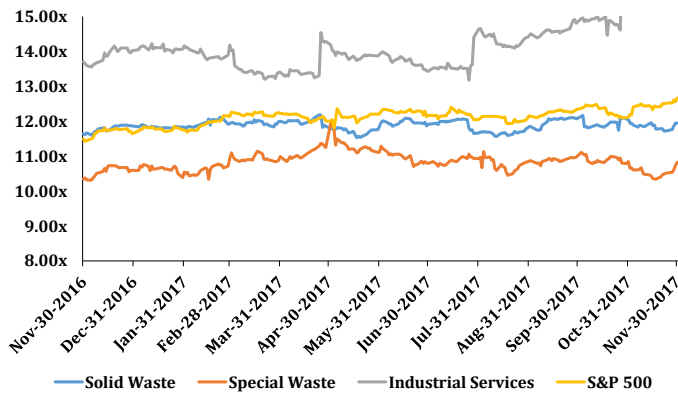


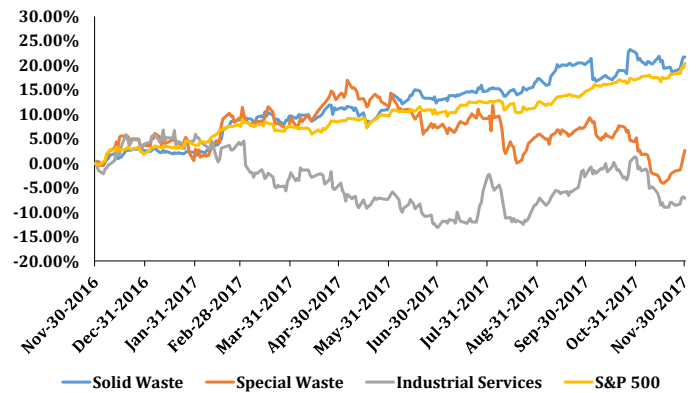
# Trash Talk

An Environmental Services  
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Environmental Services LTM TEV/EBITDA



Environmental Services LTM Share Price (Shown as % change)



Indices Performance (% change)

	November 2017	LTM		November 2017	LTM
S&P 500	2.6%	20.4%	Solid Waste	(0.7%)	21.7%
Dow Jones	3.6%	26.9%	Special Waste	(2.5%)	2.6%
NASDAQ	2.3%	29.1%	Industrial Services	(8.2%)	(7.2%)

(Source: CapitalIQ)

Largest Environmental Services Movers and Losers (largest % changes in the month of November)

Quest Resource Holding Corporation	66.7%	CECO Environmental Corp.	(38.3%)
Casella Waste Systems, Inc.	15.5%	Cypress Energy Partners, L.P.	(15.3%)
US Ecology, Inc.	8.2%	Ecology & Environment, Inc.	(9.8%)
Perma-Fix Environmental Services, Inc.	5.2%	Industrial Services of America, Inc.	(8.6%)
Fuel Tech, Inc.	4.3%	Stericycle, Inc.	(6.4%)

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## Select Public Trading Statistics (as of 11/30/2017)

### Solid Waste:

(\$ in millions, except per share data)

Company	Share Price 11/30/2017	% 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	CY17 P/E	CY18 P/E	Gross	EBIT	EBITDA		
Waste Management, Inc.	WM	\$82.25	99.1%	\$35,714	\$45,046	3.2x	11.7x	18.0x	26.4x	26.5x	24.4x	37.7%	17.9%	27.4%	2.4x
Republic Services, Inc.	RSI	\$64.94	96.7%	\$21,705	\$29,501	3.0x	10.8x	18.1x	27.5x	27.6x	25.6x	38.3%	16.7%	27.8%	2.8x
Waste Connections, Inc.	WCN	\$68.83	92.8%	\$18,146	\$21,620	4.8x	15.2x	26.7x	52.3x	36.0x	32.6x	41.6%	17.9%	31.5%	2.4x
Advanced Disposal Services, Inc.	ADSW	\$23.33	90.7%	\$2,064	\$4,025	2.7x	10.2x	32.2x	NM	54.5x	48.6x	37.0%	8.4%	26.6%	5.0x
Casella Waste Systems, Inc.	CWST	\$21.32	98.6%	\$896	\$1,379	2.3x	12.0x	25.9x	NM	33.5x	29.2x	32.7%	9.0%	19.4%	4.2x
Meridian Waste Solutions, Inc.	MRDN	\$1.01	9.6%	\$12	\$103	2.1x	29.3x	NM	NM	NM	NM	31.4%	(28.2%)	7.3%	25.6x
<b>Mean</b>				\$13,090	\$16,945	3.0x	14.9x	24.2x	35.4x	35.6x	32.1x	36.4%	7.0%	23.4%	7.1x
<b>Median</b>				\$10,105	\$12,822	2.9x	11.8x	25.9x	27.5x	33.5x	29.2x	37.3%	12.9%	27.0%	3.5x
<b>High</b>				\$35,714	\$45,046	4.8x	29.3x	32.2x	52.3x	54.5x	48.6x	41.6%	17.9%	31.5%	25.6x
<b>Low</b>				\$12	\$103	2.1x	10.2x	18.0x	26.4x	26.5x	24.4x	31.4%	-28.2%	7.3%	2.4x

Source: Capital IQ

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

LTM = Last Twelve Months

### Special Waste:

(\$ in millions, except per share data)

Company	Share Price 11/30/2017	% 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	CY17 P/E	CY18 P/E	Gross	EBIT	EBITDA		
Stericycle, Inc.	SRCL	\$66.31	75.4%	\$5,661	\$8,399	2.3x	11.2x	16.3x	NM	17.3x	17.3x	44.0%	14.3%	20.8%	3.6x
Clean Harbors, Inc.	CLH	\$53.86	87.4%	\$3,066	\$4,335	1.5x	10.5x	35.1x	NM	NM	NM	29.7%	4.3%	14.2%	3.1x
Darling Ingredients Inc.	DAR	\$17.95	96.2%	\$2,956	\$4,680	1.3x	9.7x	25.5x	46.7x	81.7x	29.4x	21.4%	3.7%	12.0%	3.8x
US Ecology, Inc.	ECOL	\$51.45	92.3%	\$1,123	\$1,393	2.9x	13.7x	23.4x	42.9x	34.3x	27.9x	29.1%	12.2%	20.9%	2.7x
Sharps Compliance Corp.	SMED	\$4.17	72.8%	\$67	\$64	1.7x	NM	NM	NM	NM	NM	31.1%	(0.4%)	3.6%	(1.9x)
Perma-Fix Environmental Services, Inc.	PESI	\$3.95	91.9%	\$46	\$50	1.0x	18.5x	NM	NM	NM	NM	21.3%	(3.8%)	5.3%	1.1x
<b>Mean</b>				\$2,153	\$3,153	1.8x	12.7x	25.1x	44.8x	44.4x	24.9x	29.4%	5.1%	12.8%	2.1x
<b>Median</b>				\$2,040	\$2,864	1.6x	11.2x	24.4x	44.8x	34.3x	27.9x	29.4%	4.0%	13.1%	2.9x
<b>High</b>				\$5,661	\$8,399	2.9x	18.5x	35.1x	46.7x	81.7x	29.4x	44.0%	14.3%	20.9%	3.8x
<b>Low</b>				\$46	\$50	1.0x	9.7x	16.3x	42.9x	17.3x	17.3x	21.3%	-3.8%	3.6%	(1.9x)

Source: Capital IQ

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

LTM = Last Twelve Months

### Industrial Services:

(\$ in millions, except per share data)

Company	Share Price 11/30/2017	% 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	CY17 P/E	CY18 P/E	Gross	EBIT	EBITDA		
Convanta Holding Corporation	CVA	\$15.20	92.1%	\$1,985	\$4,920	2.9x	17.5x	66.5x	NM	NM	NM	29.5%	4.2%	16.3%	10.5x
Heritage-Crystal Clean, Inc.	HCCI	\$19.15	86.2%	\$438	\$434	1.2x	10.3x	18.1x	22.0x	34.0x	28.8x	25.4%	6.7%	11.8%	(0.1x)
CECO Environmental Corp.	CECE	\$5.41	36.4%	\$188	\$285	0.8x	7.2x	12.0x	NM	19.3x	15.6x	33.4%	6.4%	10.7%	2.5x
Cypress Energy Partners, LP.	CELP	\$6.17	43.2%	\$73	\$168	0.6x	11.3x	18.4x	29.7x	18.0x	17.9x	12.1%	3.1%	5.1%	7.9x
Ecology & Environment, Inc.	EEL	\$10.60	81.2%	\$46	\$34	0.3x	4.9x	5.7x	15.1x	NM	NM	45.0%	5.3%	6.3%	(2.5x)
Quest Resource Holding Corporation	QRHC	\$2.00	66.7%	\$31	\$36	0.2x	NM	NM	NM	(16.7x)	NM	10.2%	(3.2%)	(0.6%)	(5.7x)
Fuel Tech, Inc.	FTEK	\$0.95	64.6%	\$23	\$17	0.4x	NM	NM	NM	NM	NM	34.5%	(27.9%)	(21.8%)	0.7x
Industrial Services of America, Inc.	ISDA	\$1.60	55.2%	\$13	\$20	0.4x	10.8x	NM	NM	NM	NM	6.4%	(0.8%)	3.6%	3.9x
<b>Mean</b>				\$350	\$739	0.8x	10.3x	24.1x	22.3x	13.7x	20.8x	24.5%	-0.8%	3.9%	2.1x
<b>Median</b>				\$59	\$102	0.5x	10.6x	18.1x	22.0x	18.7x	17.9x	27.4%	3.7%	5.7%	1.6x
<b>High</b>				\$1,985	\$4,920	2.9x	17.5x	66.5x	29.7x	34.0x	28.8x	45.0%	6.7%	16.3%	10.5x
<b>Low</b>				\$13	\$17	0.2x	4.9x	5.7x	15.1x	16.7x	15.6x	6.4%	-27.9%	-21.8%	(5.7x)

Source: Capital IQ

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

LTM = Last Twelve Months





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## Select Mergers and Acquisitions & Capital Raising News

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### ❖ Arkansas-based Cooking Oil Recycler Makes Acquisition

November 6, 2017 – Liquid Environmental Solutions has acquired the assets of privately held Value Stream Environmental Services, a leading provider of grease trap services and used cooking oil recycling in Arkansas. Terms of the transaction were not disclosed. Value Stream, based in Little Rock, expands Liquid's capacity to serve customer locations throughout Arkansas, providing grease trap service and used cooking oil recycling for restaurant and food service locations.

### ❖ Lakeshore Recycling Systems Makes Another Buy in Chicago

November 9, 2017 – Lakeshore Recycling Systems (LRS) has acquired DC Trash of Illinois, an independent waste and recycling collection provider serving 30,000 customers in Chicago's western suburbs. DCT represents LRS' sixth acquisition of a Chicago-area independent waste and recycling company over the last four years, as the company expands operations and its geographic service area throughout Illinois. Financial terms were not disclosed and the acquisition is effective immediately. DC Trash, founded by Dan Christensen, brings to Lakeshore additional waste and recycling collection and roll-off dumpster rental capabilities. As a result of the acquisition, LRS will add six new residential municipal contracts, a customer subscriber base, an expansive roll-off service area and commercial waste and recycling services. LRS also will add 40 DCT employees and 30 vehicles to its fleet. In less than five years, LRS has grown its annual sales to more \$170 million and now counts more than 760 employees across greater Chicagoland. Since 2013, Lakeshore has grown through a combination of strong organic growth coupled with the strategic acquisition of independent waste collection companies. This growth has led to a regional presence and LRS continues to seek acquisitions in Illinois, Wisconsin, Indiana, Minnesota and Southwest Michigan. In January, Lakeshore acquired K. Hoving Companies, a full-service waste management, recycling and dumpster rental company based in West Chicago. Earlier this month it also announced an expansion of its contract with the Village of Glencoe, Illinois.

### ❖ Deep Green Waste & Recycling Makes Acquisition

November 20, 2017 – Marietta, Georgia-based Deep Green Waste & Recycling Inc. successfully closed the acquisition of Compaction and Recycling Equipment Inc. (CARE) The transaction was completed for an undisclosed price. Clackamas, Oregon-based CARE has been in business since 1977. It designs, engineers, fabricates, installs, finances or rents and services waste equipment. Deep Green expects the financial contribution of CARE to be material to the company's combined operating results during the coming 12 months. Deep Green is a full-service waste & recycling company that manages services to and logistics for large commercial properties throughout the continental U.S. It has approximately 300 customers.

### ❖ Landfill Gas Collection Firm Lands Financing

November 28 2017 – Loci Controls, the firm specializing in automated landfill gas collection, announced that Turnbridge Capital, a Texas-based private equity firm focused on investments in energy service and equipment providers, has led, alongside the company's existing shareholders and management team, an equity financing and additional equity commitment to support Loci's growth and expansion. The amount of the funding was not disclosed.

### ❖ GFL Environmental Reportedly Planning IPO

November 30, 2017 – Canadian hauler GFL Environmental Inc. is seeking to raise as much as C\$1 billion (\$778 million) in an initial public offering that could be filed as early as the first quarter, according to a report by Reuters. GFL, which is currently owned by private equity investors, has been on a growth path in recent years, including in some U.S. markets. Notably, it purchased Sterling Heights, Michigan-based Rizzo Environmental Services Inc. last year. GFL has been working closely with Bank of Montreal and Canadian Imperial Bank of Commerce, which are likely to play a big role in the IPO. The company raised \$350 million in a bond offering in May. Led by Chief Executive Patrick Dovigi, GFL has grown through acquisitions into one of Canada's biggest waste management companies. GFL, whose flashy green-colored trucks are seen across the country, has about 140 facilities across Canada and in Michigan. It is a major provider of soil recycling services in Ontario.

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## Select Industry News

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### ❖ Michelin Joins Rubicon Global's Hauler Buying Program

November 1, 2017 – Michelin North America Inc. has joined Rubicon Global's RubiconPro buying program, which provides small haulers with fuel, equipment, financial, insurance and compliance benefits that previously were only available to the industry's largest regional and national haulers and truck fleets. With this partnership, which goes hand-in-hand with Michelin's goal to reduce the quantity of scrap rubber, textile piles and metallic piles used to manufacture tires that are sent to landfills, Michelin will provide independent hauling and truck fleets with discount pricing on new Michelin and BFGoodrich commercial tires and retreads. Michelin dealers across the United States are now empowered to provide haulers and fleets with available discounts through RubiconPro.

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## ❖ Lakeshore Recycling Systems Expands Illinois Footprint

November 3, 2017 – Lakeshore Recycling Systems (LRS) currently provides recycling collection services to nearly 3,000 households in the Village of Glencoe, Illinois. As of November 1, the company now provides waste collection services to those same households. In addition to that expansion, the company began offering waste and recycling collection services to 8,500 households in the city of Blue Island in July, expanding its Chicagoland footprint in both northern and southern suburbs. In September, LRS became the first privately-held company in the United States to introduce the use of an aerobic digester to process collected organic waste into a fertilizer byproduct. Launched in collaboration with Morton Grove, Illinois-based EcoloCap Solutions, the digester diverts organic waste from landfills, lowering the risk of water pollution and the emission of methane gas and odor into the environment.

## ❖ Republic Services Opens Hauling Facility in North Texas

November 10, 2017 – Republic Services has opened its newest and most advanced hauling facility in Lewisville, Texas, which is expected to serve local customers for generations. The new 25,000-square-foot facility features contemporary and collaborative workspace for employees, various amenities and modern infrastructure to support hauling and maintenance operations. The facility is also home to an eight-bay truck shop and maintenance area and a number of custom lockers equipped with USB chargers and multiple storage compartments for front line personnel. The new facility was designed as a model for future Republic hauling divisions, incorporating sustainability principles into both planning and construction. This involved using recycled steel in the building frame, high-efficiency heating and cooling systems and an LED lighting system. Republic Services of North Texas employs more than 1,400 people in the Dallas-Fort Worth area. This team serves approximately 53,000 commercial and industrial customers as well as roughly 423,000 residential customers, including 96 community collection agreements. Throughout the Metroplex, Republic owns and operates 655 collection vehicles, including 105 vehicles powered by compressed natural gas, eight hauling divisions, six active landfills and one recycling center.

## ❖ Former Rizzo Environmental Services CEO Pleads Guilty to Bribery, Fraud

November 10, 2017 – Last month, it was announced that Chuck Rizzo and his father Charles Rizzo were expected to plead guilty to the bribery and fraud charges in a federal court plea hearing on November 9. That expectation turned out to be true, and Chuck Rizzo pleaded guilty to bribery and fraud in the plea hearing this week. Rizzo will face up to 10 years in federal prison, forfeit \$4 million and help the government prosecute others involved in the scandal. Charles Rizzo is expected to plead guilty later this month and could face up to six years in prison.

## ❖ Stericycle to Lay Off 335 Employees as Part of Restructuring

November 17, 2017 – Lake Forest, Illinois-based medical waste disposal firm Stericycle will lay off 335 employees as part of a restructuring plan, according to a company filing. According to the filing, “the business transformation is a comprehensive multi-year initiative with the objective of transforming the company’s business processes, systems and organizational design to enable future profitable growth.” The company expects to incur severance costs in the range of \$7 million to \$10 million in connection with the plan.

## ❖ Haulers in Springfield, Missouri Fight to Keep Open-Market Waste, Recycling Collection System

November 20, 2017 – Trash haulers in Springfield, Missouri, requested a face-to-face meeting with the City Council after a waste and recycling study was released by Burns & McDonnell back in April. Last week, the haulers finally had their meeting, where they implored the City Council to keep the city’s current open-market trash and recycling system instead of moving forward with a franchised collection system. City leaders are expected to make a decision in 2018 about whether to overhaul the waste and recycling collection system.

## ❖ Rubicon Global Names Elaine Richards as New President

November 30, 2017 – Rubicon Global has named Elaine Richards as its new president, effective December 4, 2017. Elaine previously served as the executive vice president of business operations at Cars.com, where she was responsible for operationalizing the company’s long-term vision, overseeing the integration and onboarding strategies for new company acquisitions and leading the strategy to ensure alignment of Cars.com’s extensive operational touchpoints. Elaine also led the operations division, including customer support, account management and fulfillment.

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