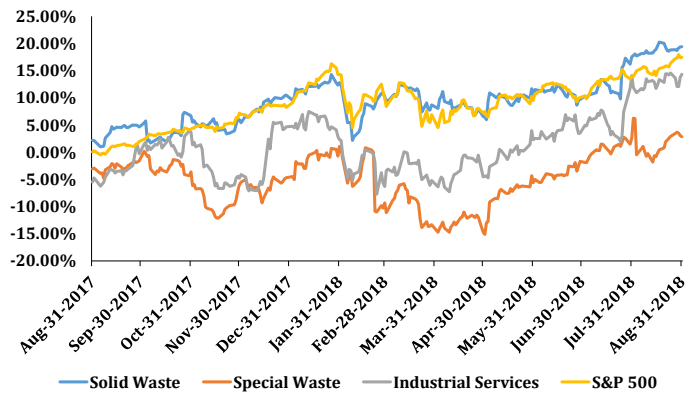
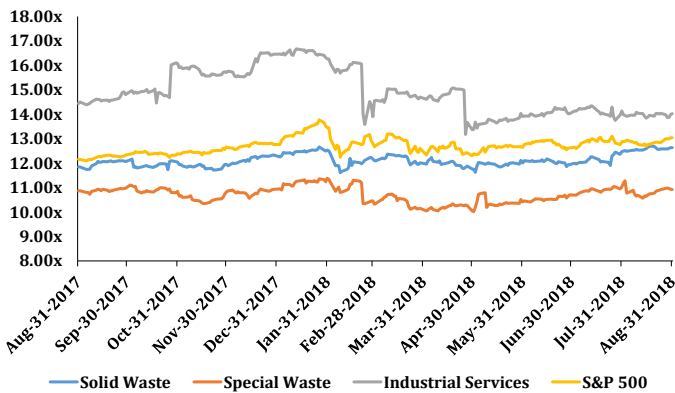


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Environmental Services LTM TEV/EBITDA

Environmental Services LTM Share Price (Shown as % change)



Indices Performance (% change)

	August 2018	LTM		August 2018	LTM
S&P 500	3.1%	17.4%	Solid Waste	1.6%	19.4%
Dow Jones	2.5%	18.3%	Special Waste	0.1%	2.8%
NASDAQ	5.2%	26.1%	Industrial Services	0.2%	14.3%

(Source: CapitalIQ)

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

Quest Resource Holding Corporation	22.9%	Attis Industries, Inc.	(15.7%)
CECO Environmental Corp.	22.9%	Stericycle, Inc.	(11.7%)
Clean Harbors, Inc.	20.5%	Heritage-Crystal Clean, Inc.	(3.3%)
Fuel Tech, Inc.	20.4%	Covanta Holding Corporation	(1.9%)
Industrial Services of America, Inc.	10.2%	Darling Ingredients Inc.	(1.5%)

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Select Public Trading Statistics (as of 8/31/2018)

Solid Waste:

(\$ in millions, except per share data)

Company	Share Price 08/31/2018	% 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	CY19 P/E	Gross	EBIT	EBITDA		
Waste Management, Inc.	WM	\$90.90	99.2%	\$38,970	\$48,721	3.3x	12.0x	18.5x	18.2x	23.3x	21.5x	38.0%	18.3%	28.0%	2.4x
Republic Services, Inc.	BSG	\$73.36	98.1%	\$23,886	\$32,087	3.2x	11.6x	19.5x	18.0x	24.3x	22.6x	38.2%	16.5%	27.7%	2.9x
Waste Connections, Inc.	WCN	\$79.39	99.0%	\$20,908	\$24,573	5.2x	16.4x	29.0x	29.9x	33.6x	29.8x	41.8%	17.9%	31.6%	2.4x
Advanced Disposal Services, Inc.	ADSW	\$26.68	99.6%	\$2,364	\$4,255	2.8x	10.7x	39.1x	41.9x	48.5x	41.8x	36.0%	6.9%	25.8%	4.8x
Casella Waste Systems, Inc.	CWST	\$28.38	95.4%	\$1,213	\$1,715	2.7x	14.9x	34.8x	40.2x	44.6x	36.5x	31.8%	7.9%	18.4%	4.4x
Attis Industries, Inc.	ATIS	\$0.33	9.1%	\$7	\$27	14.0x	NM	NM	NM	NM	NM	25.6%	NM	NM	(0.9x)
Mean				\$14,558	\$18,563	5.2x	13.1x	28.2x	29.6x	34.9x	30.4x	35.3%	13.5%	26.3%	2.7x
Median				\$11,636	\$14,414	3.3x	12.0x	29.0x	29.9x	33.6x	29.8x	37.0%	16.5%	27.7%	2.7x
High				\$38,970	\$48,721	14.0x	16.4x	39.1x	41.9x	48.5x	41.8x	41.8%	18.3%	31.6%	4.8x
Low				\$7	\$27	2.7x	10.7x	18.5x	18.0x	23.3x	21.5x	25.6%	6.9%	18.4%	-0.9x

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 08/31/2018	% 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	CY19 P/E	Gross	EBIT	EBITDA		
Stericycle, Inc.	SREL	\$61.69	80.4%	\$5,298	\$7,919	2.2x	11.6x	18.7x	32.0x	17.3x	16.6x	40.2%	12.0%	19.3%	3.8x
Clean Harbors, Inc.	CLH	\$68.59	98.9%	\$3,847	\$5,242	1.7x	11.7x	33.4x	34.1x	NM	NM	29.8%	5.1%	14.5%	3.1x
Darling Ingredients Inc.	DAR	\$19.78	94.4%	\$3,257	\$4,923	1.4x	8.5x	18.5x	18.3x	25.4x	23.0x	21.9%	3.7%	12.5%	3.5x
US Ecology, Inc.	ECOL	\$72.75	98.5%	\$1,595	\$1,819	3.5x	15.8x	24.5x	26.0x	30.5x	27.0x	31.0%	14.2%	21.9%	1.9x
Sharps Compliance Corp.	SMED	\$3.53	68.5%	\$57	\$54	1.3x	NM	NM	NM	NM	NM	28.4%	(1.4%)	2.5%	(3.2x)
Perma-Fix Environmental Services, Inc.	PESI	\$4.75	92.2%	\$57	\$57	1.1x	29.0x	NM	NM	NM	NM	23.0%	(0.7%)	3.9%	0.6x
Mean				\$2,352	\$3,335	1.9x	15.3x	23.8x	27.6x	24.4x	22.2x	29.0%	5.5%	12.4%	1.6x
Median				\$2,426	\$3,371	1.5x	11.7x	21.6x	29.0x	25.4x	23.0x	29.1%	4.4%	13.5%	2.5x
High				\$5,298	\$7,919	3.5x	29.0x	33.4x	34.1x	30.5x	27.0x	40.2%	14.2%	21.9%	3.8x
Low				\$57	\$54	1.1x	8.5x	18.5x	18.3x	17.3x	16.6x	21.9%	-1.4%	2.5%	(3.2x)

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 08/31/2018	% 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	CY19 P/E	Gross	EBIT	EBITDA		
Covanta Holding Corporation	CVA	\$17.65	97.8%	\$2,388	\$4,715	2.6x	14.1x	41.4x	7.4x	NM	NM	30.4%	6.1%	18.1%	7.3x
Heritage-Crystal Clean, Inc.	HCCI	\$23.30	92.5%	\$537	\$525	1.4x	13.5x	23.9x	24.1x	30.8x	22.4x	22.6%	5.7%	10.2%	(0.3x)
CECO Environmental Corp.	CECE	\$8.44	89.6%	\$295	\$345	1.1x	15.6x	47.4x	NM	31.6x	19.8x	33.9%	2.3%	7.1%	2.3x
Cypress Energy Partners, L.P.	CELP	\$7.60	89.4%	\$91	\$178	0.6x	10.4x	15.2x	11.0x	21.3x	NM	13.1%	4.0%	5.9%	3.9x
Ecology & Environment, Inc.	EEI	\$13.35	92.4%	\$58	\$43	0.4x	8.0x	9.9x	27.1x	NM	NM	44.7%	4.1%	5.1%	(3.0x)
Quest Resource Holding Corporation	QRHC	\$2.15	73.9%	\$33	\$37	0.3x	NM	NM	NM	NM	NM	14.1%	(4.0%)	(0.1%)	(24.3x)
Fuel Tech, Inc.	FTEK	\$1.18	64.5%	\$29	\$25	0.5x	NM	NM	NM	NM	NM	37.7%	(2.3%)	(0.1%)	79.9x
Industrial Services of America, Inc.	ISDA	\$2.32	85.7%	\$19	\$28	0.5x	9.2x	30.9x	57.0x	NM	NM	7.2%	1.5%	5.0%	3.0x
Mean				\$418	\$737	0.9x	11.8x	28.1x	25.3x	27.9x	21.1x	25.5%	2.2%	6.4%	8.6x
Median				\$74	\$111	0.5x	11.9x	27.4x	24.1x	30.8x	21.1x	26.5%	3.2%	5.5%	2.6x
High				\$2,388	\$4,715	2.6x	15.6x	47.4x	57.0x	31.6x	22.4x	44.7%	6.1%	18.1%	79.9x
Low				\$19	\$25	0.3x	8.0x	9.9x	7.4x	21.3x	19.8x	7.2%	-4.0%	-0.1%	(24.3x)

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

❖ Meridian Waste Acquires Three Companies in Virginia

August 3, 2018 – Meridian Waste, an integrated, non-hazardous solid waste services company, announced its asset acquisitions of Bob's Refuse Service, New River Container and Resource Management Group companies located in the greater Blacksburg/Christiansburg, Virginia, and marketplace. The acquisitions will operate under the Meridian Waste/CFS Group Blue Ridge company banner. Meridian Waste noted it will now provide environmental waste services to approximately 1,650 new commercial customers and 550 new residential customers from the company's existing Christiansburg location. In addition, the asset purchases include a fully permitted and operating construction and demolition debris materials recovery facility (MRF) in Radford, Virginia.

❖ GMG Acquires Solid Waste Management, Resource Recovery Facility

August 7, 2018 – Gold Medal Group (GMG) and its wholly-owned subsidiaries recently acquired Envirowaste and Commonwealth Commons, two companies that own and operate a fully permitted solid waste management and resource recovery facility located on 4.7 acres in South Philadelphia. Envirowaste is permitted for the processing of 1,000 tons of construction material and municipal solid waste per day. The LEED-certified facility provides construction and demolition recycling services utilizing an automated material sorting and recovery system. According to GMG, the acquisition gives the company control over a strategically located disposal asset in the Philadelphia market, where GMG currently collects approximately 150,000 tons of waste per year. The Envirowaste facility has direct rail service with Conrail to enable efficient and more environmentally friendly transportation of outbound materials, that cannot be recovered or recycled, to landfill destinations in the Northeast. As part of the acquisition, GMG acquired an option to purchase 4.5 acres of adjacent property to support the potential expansion of the facility. GMG sees a future opportunity to transform the entire site into an eco-park for the city of Philadelphia through the addition of expanded recycling operations and other sustainable services. GMG also said it is having preliminary discussions with BioHiTech Global to explore the possibility of co-developing a HEBioT renewable waste facility at the site, similar to the facility in Martinsburg, West Virginia, that is expected to commence operations later this year that the companies co-own.

❖ Covanta to Assume Operations of Two Florida EfW Facilities

August 13, 2018 – Covanta Holding Corporation announced its agreement to purchase a subsidiary of Babcock & Wilcox Enterprises, Inc., with the operating and maintenance contracts for two energy-from-waste (EfW) facilities in Palm Beach County, Florida, for \$45 million. The facilities are owned by the Solid Waste Authority (SWA) of Palm Beach County and have a combined capacity of 1.7 million tons per year. The transaction is expected to close during the third quarter of 2018.

❖ Acquisition Leads to New, Fresh Food Waste Solution

August 15, 2018 – A Philadelphia-based food preservation and waste reduction company has launched a new data-backed, insights-driven solution for monitoring produce quality through the supply chain. This new platform was made possible through a recent acquisition by the company. AgroFresh Solutions Inc., a food preservation and waste reduction solutions company for fresh produce, recently acquired Verigo, an Internet of Things (IoT) company offering end-to-end visibility and management of cold-chain logistics. This merger has led to the creation of FreshCloud, a comprehensive technology platform that prevents food waste by tracking produce quality throughout the value chain and providing actionable insights from farm to retailer.

❖ Alter Trading to Acquire Tenenbaum Recycling Group

August 16, 2018 – Alter Trading Corporation announced it is purchasing Little Rock, Arkansas-based Tenenbaum Recycling Group (TRG). The acquisition will combine two scrap metal recycling companies that are each more than 120 years old. According to Alter, the addition of TRG's 10 locations, which are primarily in Arkansas, further expands Alter's geographic reach and increases its number of facilities to more than 70. Alter stated it intends to continue to operate all of TRG's existing locations.

❖ PADNOS Acquires Interest in GLR Advanced Recycling

August 17, 2018 – Two family-owned recycling businesses, with nearly two centuries of combined years in operation, have joined forces to expand capabilities throughout Michigan. Holland-based PADNOS and Roseville-based GLR Advanced Recycling announced the formation of a strategic partnership, with PADNOS acquiring a significant interest in GLR. The PADNOS-GLR partnership will expand both companies' ability to recycle metals of all types, motor vehicles, paper, plastic and electronics. The two entities will operate under their current names. Founded in Holland in 1905 by Louis Padnos, PADNOS has 18 locations throughout Michigan and Indiana. GLR was founded in Metro Detroit by Henry Rosen in 1927. The company began in the paper and corrugated cardboard business and has expanded to plastic, electronics, metal and vehicle recycling, with an emphasis on the automotive and ferrous and nonferrous markets. The company operates six facilities in Michigan.



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❖ Full Harvest Closes on Investment to Tackle Food Waste Problem

August 17, 2018 – While the food industry struggles to meet increasing global production demands, more food reaches U.S. landfills and incinerators than any other waste, according to the U.S. Environmental Protection Agency (EPA). In an effort to help solve this problem, Full Harvest, a marketplace for excess produce that would otherwise go to waste, announced it has closed an \$8.5 million Series A round of financing led by Spark Capital. New investors Cultivian Sandbox Ventures, Rent the Runway Founder Jenny Fleiss, Jon Scherr (CircleUp) and Adam Zeplain of Mark.vc, as well as previous investors, including Seed lead Wireframe Ventures, also joined the round. Full Harvest said it will use the Series A investment to achieve its mission of eradicating food waste at the farm level by further scaling its technology platform, significantly expanding its U.S. footprint and tripling the size of its technology, sales and operations teams.

❖ Chinese Company to Acquire U.S. Paper Mill

August 29, 2018 – According to fiber markets research firm RISI, a subsidiary of Shanying International just signed an agreement with Verso Corporation to acquire its mill in Wickliffe, Kentucky. Shanying International is the third largest recycled board producer in China, RISI noted. This transaction is the latest investment a Chinese company has made in U.S. fiber production since China began restricting imports of recovered paper and old corrugated cardboard. Nine Dragons Paper recently acquired pulp and paper mills in Maine and Wisconsin.

Select Industry News

❖ Ryan Shannon Joins Waste Harmonics as CFO

August 2, 2018 – Rochester, New York-based Waste Harmonics, a waste management company providing service brokering, announced that Ryan Shannon has joined its leadership team as CFO. With almost 20 years' experience, Shannon previously held senior-level positions with Cooper Vision and Constellation Brands. As CFO, Shannon will bring his finance and accounting experience to the Waste Harmonics team. Having served in a leadership capacity with multiple large public companies, Shannon will help drive the financial strategy within the company. His main roles and responsibilities will focus on managing the company's finances, including financial planning, management of financial risks, record-keeping and financial reporting.

❖ ERA, Hi Tech Recyclers Partner to Reduce E-Waste

August 10, 2018 – Over the past five years, the Electronic Recycling Association (ERA) has been working with Hi Tech Recyclers, an Alberta, Canada, recycler, to reduce e-waste. According to a Recycling Product News report, electronic devices contain toxic metals, such as mercury, lead, beryllium and cadmium. ERA and Hi Tech Recyclers have been working together to recycle e-waste from TVs, printers and other electronics that could not be reused. Hi Tech Recyclers operates out of a facility that is secured for data protection. Each component is dismantled, shredded and shipped to an approved downstream processor, where they are then manufactured into new products to guarantee no electronic recycling ends up in landfill.

❖ Sean Jennings Named President of Waste Pro

August 14, 2018 – Sean Jennings has been elected president of Waste Pro USA by the company's board of directors. Waste Pro is the third largest privately-owned waste company in the United States. A third-generation garbage man, Sean Jennings is the son of Waste Pro Founder, CEO and Chairman John Jennings. Growing up, Sean was involved in every aspect of the business during summer vacations. Following graduation from the University of Alabama, where he majored in economics and finance, Sean spent a year working in collection and landfill disposal in Costa Rica. Upon his return to the U.S., he spent a year in operations and landfill construction in Georgia and Mississippi. In 2014, Sean became the division manager for the Tampa-Clearwater area and then assumed management of the Bradenton-Sarasota Division in 2016, building compressed natural gas and recycling facilities to meet the needs of Manatee County's seven-year contract extension. Sean is very proud of his local team, which has been Waste Pro's highest performing division for 2017 and 2018. In addition to his promotion as president, Sean serves as corporate secretary as well as serving on different community boards. Earlier this year, Sean was honored with a Waste360 40 Under 40 award at WasteExpo in Las Vegas.

❖ Wastequip Hires Kristin Kinder as Director of Research and Waste Stream Sustainability

August 14, 2018 – Wastequip, a North American manufacturer of waste handling equipment, has hired waste industry and environmental consulting veteran Kristin Kinder as its new director of research and waste stream sustainability. In this newly created role, Kinder will serve as the company's resident expert on waste stream improvements and efforts to drive positive environmental change. Reporting directly to CEO Marty Bryant and working closely with the company's marketing group, Kinder will represent Wastequip on key industry panels, spearhead internal and external research efforts, develop industry partnerships and serve as a subject matter expert and spokesperson on issues related to recycling and waste reduction.

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❖ New York Residents Sue Waste Management Over Landfill Odors, Noise

August 20, 2018 – More than 200 residents in Perinton-Macedon, New York, have complained about odors and noise coming from the High Acres Landfill. Now, those residents are suing the facility, which is owned by Waste Management Inc. According to a Democrat and Chronicle report, residents claim the odors and sounds coming from the landfill are “ruining their quality of life.” The publication first reported on the issue back in December. Officials from High Acres and Waste Management have attributed the odors to new technology, construction, water levels and a clogged pipe and publicly stated they were committed to mitigating the odors and getting back to “good neighbor” status.

❖ Law Aims to Increase Composting in Illinois

August 23, 2018 – A measure that would increase the use of compost in Illinois was recently signed into law. The law aims to increase the use of compost by incorporating composted soil in state-funded landscaping projects. The law also requires the Illinois Department of Transportation to conduct two pilot projects using compost. According to the state’s Environmental Council, the composting industry in Illinois handles more than 500,000 tons of leaves, grass and brush each year, a result of legislation enacted in 1990 banning such material from landfills.

❖ Kroger to Phase Out Single-Use Plastic Bags by 2025

August 24, 2018 – The Kroger Co. announced it will phase out single-use plastic bags and transition to reusable bags across its family of stores by 2025. Seattle-based QFC will be the company’s first retail division to phase out single-use plastic bags. The company expects QFC’s transition to be completed in 2019. According to the company, estimates suggest that 100 billion single-use plastic bags are thrown away in the U.S. every year. Currently, less than 5 percent of plastic bags are recycled annually in America, and single-use plastic bags are the fifth most common single-use plastic found in the environment by magnitude.

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