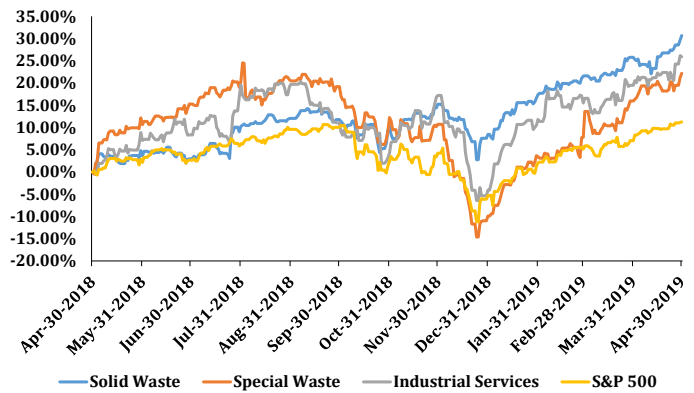
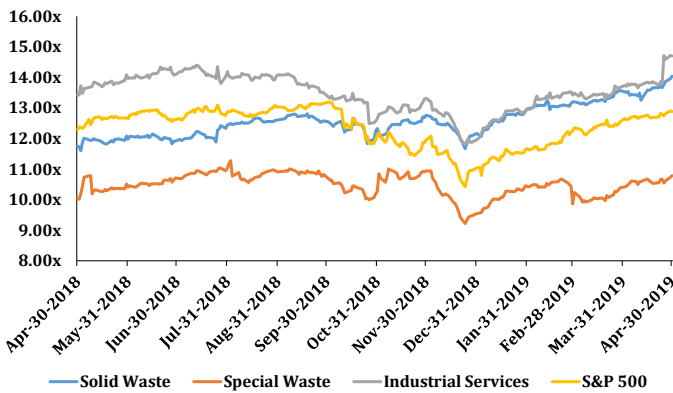


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Environmental Services LTM TEV/EBITDA

Environmental Services LTM Share Price (Shown as % change)



Indices Performance (% change)

	April 2019	LTM		April 2019	LTM
S&P 500	4.1%	11.1%	Solid Waste	3.9%	30.7%
Dow Jones	2.6%	9.9%	Special Waste	5.4%	22.2%
NASDAQ	6.1%	15.5%	Industrial Services	5.4%	25.9%

(Source: CapitalIQ)

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

Fuel Tech, Inc.	57.5%	Sharps Compliance Corp.	(7.9%)
Quest Resource Holding Corporation	26.7%	Cypress Energy Partners, L.P.	(2.7%)
Industrial Services of America, Inc.	22.0%		
Perma-Fix Environmental Services, Inc.	21.3%		
Advanced Disposal Services, Inc.	15.5%		

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Select Public Trading Statistics (as of 4/30/2019)

Solid Waste:

(\$ in millions, except per share data)

Company	Share Price 04/30/2019	% 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	CY19 P/E	Gross	EBIT	EBITDA		
Waste Management, Inc.	WM	\$107.34	99.9%	\$45,594	\$56,293	3.7x	13.4x	20.8x	24.6x	23.5x	25.7x	38.0%	18.2%	28.1%	2.5x
Republic Services, Inc.	BSG	\$82.82	99.9%	\$26,634	\$35,226	3.5x	12.8x	21.4x	26.2x	24.5x	25.9x	38.5%	16.8%	27.7%	3.1x
Waste Connections, Inc.	WCN	\$92.77	99.7%	\$24,454	\$28,350	5.6x	18.0x	32.2x	44.7x	33.8x	34.6x	41.5%	17.5%	31.4%	2.5x
Advanced Disposal Services, Inc.	ADSW	\$32.34	98.0%	\$2,873	\$4,784	3.0x	12.3x	47.5x	NM	49.1x	58.0x	35.3%	6.3%	24.6%	4.9x
Casella Waste Systems, Inc.	CWST	\$37.32	99.5%	\$1,763	\$2,298	3.4x	18.4x	43.4x	195.5x	52.6x	47.8x	31.2%	7.8%	18.5%	4.3x
Mean				\$20,263	\$25,390	3.9x	15.0x	33.1x	72.7x	36.7x	38.4x	36.9%	13.3%	26.1%	3.5x
Median				\$24,454	\$28,350	3.5x	13.4x	32.2x	35.4x	33.8x	34.6x	38.0%	16.8%	27.7%	3.1x
High				\$45,594	\$56,293	5.6x	18.4x	47.5x	195.5x	52.6x	58.0x	41.5%	18.2%	31.4%	4.9x
Low				\$1,763	\$2,298	3.0x	12.3x	20.8x	24.6x	23.5x	25.7x	31.2%	6.3%	18.5%	2.5x

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 04/30/2019	% 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	CY19 P/E	Gross	EBIT	EBITDA		
Stericycle, Inc.	SRCL	\$58.39	81.7%	\$5,300	\$8,059	2.3x	11.3x	17.5x	NM	14.3x	17.6x	39.1%	12.1%	19.8%	4.7x
Clean Harbors, Inc.	CHH	\$76.00	99.7%	\$4,246	\$5,539	1.7x	11.5x	30.1x	65.5x	NM	NM	30.3%	5.7%	14.7%	3.1x
Darling Ingredients Inc.	DAR	\$21.81	96.4%	\$3,592	\$5,222	1.5x	8.9x	19.5x	36.4x	62.6x	30.8x	21.9%	3.0%	12.6%	4.1x
US Ecology, Inc.	ECOL	\$61.01	79.1%	\$1,346	\$1,678	3.0x	13.9x	21.6x	27.1x	30.5x	28.8x	29.4%	12.9%	20.7%	2.9x
Sharps Compliance Corp.	SMED	\$3.37	80.0%	\$54	\$51	1.2x	NM	NM	NM	NM	NM	29.3%	(0.5%)	3.4%	(2.5x)
Perma-Fix Environmental Services, Inc.	PESI	\$4.26	82.7%	\$51	\$52	1.1x	44.3x	NM	NM	NM	NM	22.9%	(2.3%)	0.8%	16.7x
Mean				\$2,432	\$3,434	1.8x	18.0x	22.2x	43.0x	35.8x	25.7x	28.8%	5.2%	12.0%	4.8x
Median				\$2,469	\$3,450	1.6x	11.5x	20.5x	36.4x	30.5x	28.8x	29.4%	4.4%	13.7%	3.6x
High				\$5,300	\$8,059	3.0x	44.3x	30.1x	65.5x	62.6x	30.8x	39.1%	12.9%	20.7%	16.7x
Low				\$51	\$51	1.1x	8.9x	17.5x	27.1x	14.3x	17.6x	21.9%	-2.3%	0.8%	(2.5x)

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 04/30/2019	% 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	CY19 P/E	Gross	EBIT	EBITDA		
Covanta Holding Corporation	CVA	\$18.07	99.0%	\$2,362	\$4,883	2.6x	15.1x	47.0x	NM	NM	NM	29.6%	5.3%	17.0%	8.0x
Heritage-Crystal Clean, Inc.	HCCI	\$28.73	99.8%	\$691	\$677	1.7x	17.5x	30.0x	45.6x	38.9x	28.7x	20.2%	4.6%	8.5%	1.4x
CECO Environmental Corp.	CECE	\$7.76	84.5%	\$271	\$317	0.9x	11.6x	22.5x	NM	31.1x	16.3x	32.8%	5.2%	8.7%	2.2x
Cypress Energy Partners, L.P.	CELP	\$7.20	84.7%	\$87	\$169	0.5x	7.8x	10.5x	9.9x	NM	NM	13.5%	5.0%	6.6%	3.6x
Ecology & Environment, Inc.	EEI	\$11.40	78.9%	\$35	\$35	0.3x	6.4x	8.0x	23.1x	NM	NM	44.7%	4.1%	5.1%	(3.0x)
Fuel Tech, Inc.	FTKX	\$2.63	85.9%	\$64	\$52	0.9x	40.5x	120.8x	NM	NM	NM	35.3%	(0.2%)	1.4%	(7.4x)
Quest Resource Holding Corporation	QRHC	\$2.09	67.4%	\$32	\$35	0.3x	39.7x	NM	NM	NM	NM	16.9%	(0.8%)	1.3%	2.2x
Industrial Services of America, Inc.	ISDA	\$1.50	55.8%	\$12	\$20	0.3x	7.8x	46.1x	NM	NM	NM	5.7%	(0.3%)	3.2%	7.6x
Mean				\$446	\$773	1.0x	18.3x	40.7x	26.2x	35.0x	22.5x	24.8%	2.9%	6.5%	1.8x
Median				\$75	\$110	0.7x	13.4x	30.0x	23.1x	35.0x	22.5x	24.9%	4.3%	5.8%	2.2x
High				\$2,362	\$4,883	2.6x	40.5x	120.8x	45.6x	38.9x	28.7x	44.7%	5.3%	17.0%	8.0x
Low				\$12	\$20	0.3x	6.4x	8.0x	9.9x	31.1x	16.3x	5.7%	-0.8%	1.3%	(7.4x)

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 WCA Hauling Assets in Knoxville, Tennessee

April 1, 2019 – Meridian Waste, an integrated, non-hazardous solid waste services company, announced it has purchased the hauling assets of Waste Corporation of Tennessee, LLC (WCA), in the Knoxville, Tenn., marketplace. The assets include vehicles, containers and customer contracts. The acquired assets will be housed out of Meridian Waste’s newest hauling location at 6236 Rutledge Pike in Knoxville, 2.7 miles south of the company’s Poplar View Landfill. This purchase represents the seventh acquisition since Warren Equity’s acquisition of Meridian Waste in April 2018.

❖ Fortistar Acquires Two RNG Facilities in Pennsylvania

April 3, 2019 – Fortistar LLC, in partnership with Ares Capital Corporation, has acquired two landfill renewable natural gas (RNG) facilities, Greentree Landfill Gas and Imperial Landfill Gas, from EDF Renewables North America. Located in Western Pennsylvania, the two facilities have the capacity to produce 1.5 million dekatherms of RNG per year—enough to power 1,117 natural gas trucks and displace 12 million gasoline gallon equivalents (GGE) of diesel fuel. Fueling trucks with Fortistar’s RNG will reduce 107,485 metric tons of CO₂ per year—equivalent to planting more than 2.7 million trees each year, according to Fortistar. RNG extracted from landfills is carbon-neutral and chemically identical to natural gas, allowing it to be used as a transportation fuel in natural gas vehicles and trucks. The growth in America’s natural gas fueling infrastructure spurred on by companies such as TruStar Energy, an affiliate of Fortistar, has paved the way for a commercially viable RNG industry.

❖ Midwest Fiber Invests \$3M in Recycling Facility Upgrades

April 8, 2019 – Midwest Fiber is undergoing a \$3 million equipment addition and upgrade that will enable the facility to more efficiently sort materials from contamination and increase processing capabilities. The investment translates into a 33 percent increase in the plant’s recycling capabilities. Midwest Fiber receives single stream materials from throughout Central Illinois, which is upwards of 700 trucks delivering material each month. This expansion is Midwest’s third since the plant opened in 2011; the last expansion was in 2013. Midwest said it has invested a total of more than \$5 million in the plant expansions in the last seven years. These expansions have enabled Midwest to increase the number of recyclables diverted from landfills for its recycling partners.

❖ Routeware Adds EasyRoute and Webaspx to Product Line

April 11, 2019 – Routeware, Inc., a provider of computerized route management systems to the waste industry, announced the acquisition of EasyRoute, Inc. and its U.K. parent company Webaspx. Both companies serve municipal and for-profit haulers who operate residential, commercial and roll-off fleets. The companies, which have worked as partners for the last two years, will integrate their offerings, which include in-cab computers, route management software and software-based route optimization. Webaspx, a U.K. market share leader in route optimization, will continue operating under the same brand.

❖ Brightmark Energy Closes \$260M in Financing for Plastics-to-fuel Plant

April 15, 2019 – Brightmark Energy, a San Francisco-based waste and energy development company, announced the closing of a \$260 million financing package for the construction of the nation’s first commercial-scale plastics-to-fuel plant, which will be located in Ashley, Indiana. The financing for the plant includes \$185 million in Indiana green bonds, which were underwritten by Goldman Sachs & Co. As part of the financing closure, Brightmark has become the controlling owner of RES Polyflow, the Ohio-based energy technology company that innovated the process for converting plastics directly into transportation fuel and other products. The Ashley plant will take in mixed waste single-use plastics and convert them into usable products at commercial scale. The facility will initially convert approximately 100,000 tons of plastics into more than 18 million gallons a year of ultra-low sulfur diesel and naphtha blend stocks and nearly 6 million gallons a year of commercial grade wax in a process that is expected to be 93 percent efficient. Ultimately, the outputs of this technology also could be used to produce the feedstocks necessary for manufacturing plastic again, thus creating the world’s first truly circular economy technology for plastics.

❖ Waste Management to Acquire Advanced Disposal for \$4.9 Billion

April 15, 2019 – Houston-based Waste Management, Inc., North America’s largest environmental solutions company, just announced that it will buy Ponte Vedra, Fla.-based Advanced Disposal Services for a total of \$4.9 billion. Under the agreement, a subsidiary of Waste Management will acquire all outstanding shares of Advanced Disposal for \$33.15 per share in cash, representing a total enterprise value of \$4.9 billion when including approximately \$1.9 billion of Advanced Disposal’s net debt. The per share price represents a premium of 22.1 percent to Advanced Disposal’s closing share price as of April 12, the last trading day prior to the April 15 announcement and a premium of 20.9 percent to Advanced Disposal’s 30-day volume weighted average price as of the same date. With 2018 revenues of \$1.56 billion, adjusted EBITDA of \$427 million and approximately 6,000 employees, Advanced Disposal serves more than 3 million residential, commercial and industrial customers, including more than 800 municipalities primarily in 16 states in the Eastern half of the United States. Advanced Disposal’s solid waste network includes 94 collection operations, 73 transfer stations, 41 landfills and 22 owned or operated recycling facilities. The transaction is not subject to a financing condition. Waste Management intends to finance the transaction using a combination of bank debt and senior notes. Following completion of the transaction, Waste Management expects to maintain a strong balance sheet and solid investment grade credit profile with a pro forma leverage ratio within the company’s long-term targeted net debt-to-EBITDA range of 2.75 to 3 times. The transaction, which was unanimously approved by the boards of directors of both

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companies, is expected to close by the first quarter of 2020, subject to the satisfaction of customary closing conditions, including regulatory approvals and approval by a majority of the holders of Advanced Disposal's outstanding common shares.

❖ Recycling and Waste Solutions Acquires Sustainable Solutions Group

April 17, 2019 – Recycling and Waste Solutions (RWS), a provider of commodity recycling and waste services to the nation's largest supply chains, announced the signing of a definitive agreement to acquire Sustainable Solutions Group (SSG), a company that provides and manages recycling, waste and sustainability programs for regional and national companies throughout North America. Terms of the transaction were not disclosed. Founded in 2009, SSG is a provider of commercial waste reduction and recycling solutions nationwide. As a fast-growing company, SSG develops waste reduction programs for a large portfolio of commercial clients that include some of the nation's largest brands. RWS is a portfolio company of Atar Capital, which acquired the business in September 2017. This is Atar's third acquisition in six months.

❖ Santek Acquires All Pro Sanitation

April 17, 2019 – Officials with Santek Waste Services, LLC recently announced the acquisition of All Pro Sanitation in Maryville, Tenn. Santek purchased all of All Pro's assets. The transaction includes all the company's residential customers. Santek Chief Business Development Officer Edward Caylor said the purchase of All Pro Sanitation is a strategic complement to Santek's 2019 acquisition strategy.

❖ EnviroServe and Sunpro Merge Under the EnviroServe Brand

April 18, 2019 – Savage's environmental service companies, EnviroServe and Sunpro, are combining under the EnviroServe brand and adding three new regional offices in the areas of Detroit; Columbus, Ohio; and Minneapolis-St. Paul, Minn. EnviroServe provides environmental and rail services to remediate and prevent environmental releases, manage waste and respond to emergency and catastrophic events. The EnviroServe Detroit regional office is now operational, with the Columbus and Minneapolis-St. Paul locations opening later this spring. With these additions, EnviroServe will have 16 regional offices across the Midwest and other locations. Combined services available to all customers now include emergency and disaster response, waste transportation and disposal, remediation and other specialized services for the railroad industry, oil and gas companies, electric companies, hospitals and other large and small industrial facilities.

Select Industry News

❖ Rotochopper Appoints Brinkerhoff as New CEO

April 10, 2019 – Rotochopper announced the appointment of Tosh Brinkerhoff as the company's next CEO, effective immediately. Brinkerhoff has more than 20 years of industry leadership experience with an impressive track record in heavy equipment manufacturing. Rotochopper's Board of Directors, along with business partner Granite Equity Partners, conducted a comprehensive search that led to the selection of Brinkerhoff to lead Rotochopper.

❖ Industry Fatalities Increased in 2018

April 25, 2019 – According to a new report by the Solid Waste Association of North America (SWANA), at least 59 solid waste industry workers died on the job in 2018 in both the United States and Canada, an increase of 19 fatalities from 2017. Fifty-seven of these fatalities took place in the United States, and 71 percent of these fatalities occurred during waste or recycling collection. While reviewing data collected from various sources, SWANA found that struck-by incidents were the most common cause of fatality overall, followed by collisions and rollover incidents. These incidents represented nearly 50 percent of all worker deaths. About 10 percent of victims were on the riding step when the fatality occurred. The causes of deaths at landfills, materials recovery facilities and transfer stations were more diverse than in collection, though being struck by heavy machinery or lockout/tagout failures were common.

❖ Total Reclaim Owners Sentenced in E-waste Scam

April 25, 2019 – A U.S. District judge sentenced Total Reclaim Inc. owners Jeff Zirkle and Craig Lorch each to 28 months in prison after the two were found guilty of conspiracy to commit wire fraud in November. Total Reclaim had recycled electronics for the city of Seattle and other customers and also handled e-waste for the E-Cycle Washington program. However, instead of safely recycling the electronics they collected, Zirkle and Lorch allegedly sent the electronics to Hong Kong for disposal. The company reportedly sent more than 8 million pounds of flat screen monitors to Hong Kong between 2008 and 2015 to cut costs. Zirkle and Lorch allegedly used false records to hide the transactions. In addition, prosecutors say the monitors were smashed apart by low-wage workers who didn't have proper gear to protect them from exposure to mercury.



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❖ Illinois Company Develops New Way to Recycle Styrofoam

April 25, 2019 – Illinois-based Brohn Tech LLC has developed a way to constrict polystyrene, commonly known as Styrofoam, down into a usable plastic. Although polystyrene is recyclable, most materials recovery facilities do not accept it as part of their recycling program because of the cost to process it, noted Brohn Tech. The company explained that its Styro-Constrictor makes it cost effective to process this material.

❖ Waste Pro's Lockwood Promoted to Regional Vice President

April 26, 2019 – Waste Pro announced that Chris Lockwood, former divisional vice president in Southern Mississippi and a 2019 Waste360 40 Under 40 award recipient, has been promoted to regional vice president (RVP). This makes Lockwood the youngest RVP in the company. Lockwood will manage the newly formed Southern Mississippi region, which includes Waste Pro's Hattiesburg, Gautier, Gulfport, Brookhaven and Natchez operations. Lockwood joined Waste Pro in 2013 as a financial analyst in the corporate office in Longwood, Fla. The following year, he became a management trainee and was promoted to division manager in 2015. In 2018, Lockwood was appointed divisional vice president, managing Waste Pro's Natchez, Brookhaven and Hattiesburg divisions. He led the teams in those offices in overseeing daily operations and expanding across the area. In Hattiesburg, where Lockwood began his management career, Waste Pro is now the only residential service provider because of its exceptional service, noted the company.

❖ Waste Management of Hawaii, City of Honolulu to Pay in EPA Settlement

April 30, 2019 – Nearly 10 years ago, storms in Hawaii overwhelmed temporary pipes at the Waimanalo Gulch Landfill and sent water contaminated with trash into the ocean. Now, the city of Honolulu and Waste Management of Hawaii will have to pay \$425,000 as part of a settlement with the Environmental Protection Agency (EPA). According to a Hawaii News Now report, the EPA said following the storms, medical waste washed up onto nearby beaches for weeks. As part of the agreement, the landfill must upgrade its stormwater drainage pipeline and conduct a number of facility upgrades. In addition, the money from the settlement will be used to monitor and restore coral reefs off Leeward Oahu, noted the report.

❖ Republic Names Vander Ark President, Appoints Stuart COO

April 30, 2019 – Republic Services just announced that Jon Vander Ark has been named president of the company. As president, Vander Ark will be responsible for the company's ongoing transformation and continued growth. He will oversee operations, sales, marketing and business development and will continue reporting to Don Slager, CEO. In addition, Tim Stuart has been appointed COO, succeeding Vander Ark. Prior to this appointment, Vander Ark served as COO, developing greater rigor around safety, fleet readiness, labor effectiveness and route optimization, noted the company. He joined Republic Services in January 2013 as executive vice president, chief marketing officer, responsible for advancing the Republic Services brand, elevating the company's customer-centric service approach and introducing its Priority Based Selling technique and its Capture tablet-based pricing tool. Stuart, who will succeed Vander Ark as COO, has nearly 25 years in the industry. Starting as operations supervisor, Stuart has deep experience across of all aspects of business operations, according to the company. He joined Republic Services in 2006 as director of operations and has since held roles of increasing responsibility, including area president, vice president of customer experience, region vice president, region president and most recently EVP of operations.

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Sources include Waste360, Waste Dive and various publicly available news publications. Additional information is available upon request.

