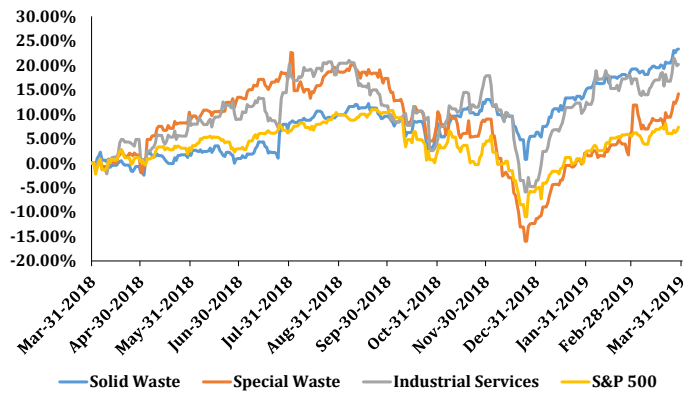
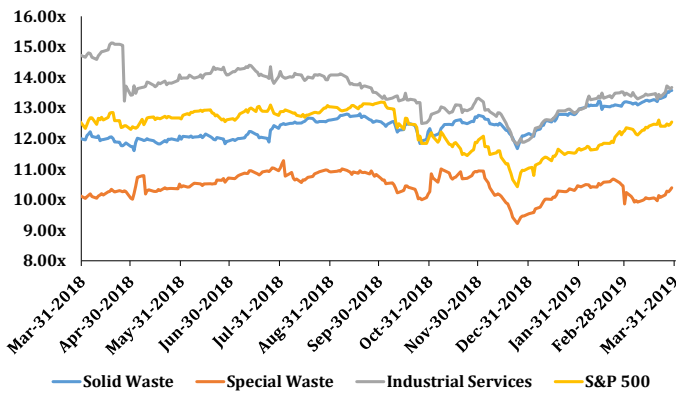


Trash Talk

An Environmental Services Newsletter

Environmental Services LTM TEV/EBITDA

Environmental Services LTM Share Price (Shown as % change)



Indices Performance (% change)

| | March 2019 | LTM | | March 2019 | LTM |
|-----------|------------|-------|---------------------|------------|-------|
| S&P 500 | 1.2% | 9.8% | Solid Waste | 3.5% | 23.3% |
| Dow Jones | (0.4%) | 9.7% | Special Waste | 7.8% | 14.2% |
| NASDAQ | 2.0% | 12.5% | Industrial Services | 3.4% | 20.2% |

(Source: CapitalIQ)

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

| | | | |
|----------------------------------|-------|-------------------------------|--------|
| Fuel Tech, Inc. | 31.2% | Ecology & Environment, Inc. | (6.9%) |
| Stericycle, Inc. | 19.1% | CECO Environmental Corp. | (5.4%) |
| Heritage-Crystal Clean, Inc. | 13.1% | Sharps Compliance Corp. | (2.9%) |
| Advanced Disposal Services, Inc. | 5.6% | US Ecology, Inc. | (2.4%) |
| Clean Harbors, Inc. | 5.1% | Cypress Energy Partners, L.P. | (2.1%) |

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Trash Talk

An Environmental Services
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Select Public Trading Statistics (as of 3/31/2019)

Solid Waste:

(\$ in millions, except per share data)

| Company | Share Price 03/31/2019 | % 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 | \$103.91 | 99.9% | \$44,129 | \$54,095 | 3.6x | 13.0x | 20.1x | 23.4x | 23.5x | 24.9x | 38.0% | 18.2% | 28.1% | 2.4x |
| Republic Services, Inc. | BSG | \$80.38 | 99.0% | \$25,851 | \$34,121 | 3.4x | 12.4x | 20.8x | 25.4x | 24.5x | 24.8x | 38.3% | 16.8% | 27.7% | 3.0x |
| Waste Connections, Inc. | WCN | \$88.59 | 99.3% | \$23,347 | \$27,205 | 5.5x | 17.5x | 31.3x | 42.8x | 33.8x | 33.8x | 41.5% | 17.5% | 31.4% | 2.5x |
| Advanced Disposal Services, Inc. | ADSW | \$28.00 | 98.8% | \$2,483 | \$4,380 | 2.8x | 11.3x | 43.6x | 263.9x | 49.1x | 55.8x | 35.3% | 6.4% | 24.8% | 4.9x |
| Casella Waste Systems, Inc. | CWST | \$35.56 | 96.2% | \$1,653 | \$2,195 | 3.3x | 18.0x | 42.4x | 237.1x | 52.6x | 48.3x | 31.3% | 7.8% | 18.5% | 4.4x |
| Mean | | | | \$19,493 | \$24,399 | 3.7x | 14.4x | 31.6x | 118.5x | 36.7x | 37.5x | 36.9% | 13.3% | 26.1% | 3.4x |
| Median | | | | \$23,347 | \$27,205 | 3.4x | 13.0x | 31.3x | 42.8x | 33.8x | 33.8x | 38.0% | 16.8% | 27.7% | 3.0x |
| High | | | | \$44,129 | \$54,095 | 5.5x | 18.0x | 43.6x | 263.9x | 52.6x | 55.8x | 41.5% | 18.2% | 31.4% | 4.9x |
| Low | | | | \$1,653 | \$2,195 | 2.8x | 11.3x | 20.1x | 23.4x | 23.5x | 24.8x | 31.3% | 6.4% | 18.5% | 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 03/31/2019 | % 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. | SIRCL | \$54.42 | 76.2% | \$4,936 | \$7,694 | 2.2x | 10.8x | 16.7x | NM | 14.3x | 16.5x | 40.0% | 13.2% | 20.5% | 3.8x |
| Clean Harbors, Inc. | CLH | \$71.53 | 98.7% | \$3,995 | \$5,289 | 1.6x | 11.0x | 28.7x | 61.7x | NM | NM | 30.1% | 5.6% | 14.6% | 2.7x |
| Darling Ingredients Inc. | DAR | \$21.65 | 95.7% | \$3,566 | \$5,196 | 1.5x | 8.8x | 19.4x | 36.1x | 62.6x | 26.1x | 21.9% | 3.2% | 12.7% | 3.6x |
| US Ecology, Inc. | ECOL | \$55.98 | 72.6% | \$1,255 | \$1,567 | 2.8x | 13.0x | 20.2x | 24.9x | 30.5x | 25.9x | 30.1% | 13.7% | 21.3% | 2.8x |
| Shaps Compliance Corp. | SMED | \$3.66 | 76.7% | \$59 | \$54 | 1.3x | NM | NM | NM | NM | NM | 29.3% | (0.5%) | 3.4% | (2.5x) |
| Perma-Fix Environmental Services, Inc. | PESI | \$3.51 | 68.2% | \$42 | \$44 | 0.9x | 23.2x | 126.4x | 22.1x | NM | NM | 23.8% | (0.7%) | 2.4% | 2.5x |
| Mean | | | | \$2,306 | \$3,307 | 1.7x | 13.3x | 42.3x | 36.2x | 35.8x | 22.8x | 29.2% | 5.8% | 12.5% | 2.2x |
| Median | | | | \$2,400 | \$3,381 | 1.6x | 11.0x | 20.2x | 30.5x | 30.5x | 25.9x | 29.7% | 4.4% | 13.7% | 2.7x |
| High | | | | \$4,936 | \$7,694 | 2.8x | 23.2x | 126.4x | 61.7x | 62.6x | 26.1x | 40.0% | 13.7% | 21.3% | 3.8x |
| Low | | | | \$42 | \$44 | 0.9x | 8.8x | 16.7x | 22.1x | 14.3x | 16.5x | 21.9% | -0.7% | 2.4% | (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 03/31/2019 | % 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 | \$17.31 | 95.9% | \$2,271 | \$4,707 | 2.5x | 14.0x | 39.9x | 15.1x | NM | NM | 29.6% | 4.5% | 16.3% | 8.1x |
| Heritage-Crystal Clean, Inc. | HCCI | \$27.45 | 95.6% | \$660 | \$646 | 1.6x | 16.7x | 28.7x | 43.6x | 38.9x | 25.0x | 21.2% | 5.5% | 9.4% | (0.4x) |
| CECO Environmental Corp. | CECO | \$7.20 | 78.4% | \$252 | \$297 | 0.9x | 10.9x | 21.1x | NM | 31.1x | 19.1x | 33.1% | 4.2% | 8.1% | 1.7x |
| Cypress Energy Partners, L.P. | CELP | \$7.40 | 87.0% | \$89 | \$172 | 0.5x | 8.0x | 10.7x | 10.2x | NM | NM | 14.0% | 5.0% | 6.8% | 2.8x |
| Ecology & Environment, Inc. | EEI | \$11.00 | 76.1% | \$47 | \$33 | 0.3x | 6.1x | 7.6x | 22.3x | NM | NM | 44.7% | 4.1% | 5.1% | (3.0x) |
| Fuel Tech, Inc. | FTEK | \$1.67 | 84.8% | \$40 | \$28 | 0.5x | 22.3x | 66.4x | NM | NM | NM | 35.5% | 0.8% | 2.3% | (9.4x) |
| Quest Resource Holding Corporation | QRHC | \$1.65 | 53.2% | \$25 | \$28 | 0.3x | 32.1x | NM | NM | NM | NM | 16.2% | (1.9%) | 0.9% | 3.5x |
| Industrial Services of America, Inc. | ISDA | \$1.23 | 45.7% | \$10 | \$17 | 0.3x | 6.9x | 40.9x | NM | NM | NM | 6.7% | 0.7% | 4.1% | 3.0x |
| Mean | | | | \$424 | \$741 | 0.9x | 14.6x | 30.8x | 22.8x | 35.0x | 22.1x | 25.1% | 2.9% | 6.6% | 0.8x |
| Median | | | | \$68 | \$102 | 0.5x | 12.4x | 28.7x | 18.7x | 35.0x | 22.1x | 25.4% | 4.1% | 5.9% | 2.2x |
| High | | | | \$2,271 | \$4,707 | 2.5x | 32.1x | 66.4x | 43.6x | 38.9x | 25.0x | 44.7% | 5.5% | 16.3% | 8.1x |
| Low | | | | \$10 | \$17 | 0.3x | 6.1x | 7.6x | 10.2x | 31.1x | 19.1x | 6.7% | -1.9% | 0.9% | (9.4x) |

Source: Capital IQ

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

LTM = Last Twelve Months





Trash Talk

An Environmental Services
Newsletter

Select Mergers and Acquisitions & Capital Raising News

❖ Waste Industries Purchases Wilmington, North Carolina-based Pink-Trash

March 6, 2019 – Waste Industries has just purchased Wilmington, North Carolina-based Pink-Trash, an area trash and recycling pickup service. The transaction went into effect on March 1. According to a WilmingtonBiz report, Raleigh-based Waste Industries has already begun informing customers about the purchase. In addition, Waste Industries said it will honor Pink-Trash rates for residential and commercial customers for both trash and recycling services. Pink-Trash launched in 2011 and is known for its pink trash cans. As part of its business model, the company donated 1 percent of its customers' bills toward cancer treatment.

❖ Republic Services Buys Bend Garbage Company

March 11, 2019 – Oregon-based Bend Garbage Company announced it has entered into an agreement to sell Bend Garbage & Recycling, High Country Disposal and Deschutes Recycling to Republic Services, Inc. Bend Garbage & Recycling and High Country Disposal provide waste management, recycling and hauling services in Bend, Redmond and Sisters. Deschutes Recycling is a recycling depot and compost facility located at Knott Landfill in Bend.

❖ WM Energy Services Holdings Acquires Petro Waste Environmental

March 12, 2019 – WM Energy Services Holdings, LLC, an indirect subsidiary of Houston-based Waste Management, Inc., has acquired Petro Waste Environmental, a leading provider of comprehensive oilfield environmental services and solid waste disposal serving the Permian Basin and Eagle Ford Shale Play, the most economically active oil and gas producing regions in the U.S. With its oilfield solid waste disposal solutions, waste handling capabilities and conveniently located disposal sites catering to the oil and gas industry, the addition of Petro Waste Environmental to WM Energy Services Holdings' portfolio greatly enhances the company's offerings. Waste Management now has a strong presence in the Permian Basin with multiple disposal sites in West Texas and an expanding footprint in the Eagle Ford Shale Play with one disposal facility currently under construction and a second permitted in south Texas.

❖ WCA Expands Presence in Texas, Kentucky with Two Acquisitions

March 13, 2019 – On March 1, WCA Waste Corporation acquired Outreach Disposal in West Columbia, Texas, and D&D Sanitation in Cadiz, Kentucky. Outreach Disposal provides service to residents of West Columbia, and D&D Sanitation provides residential and commercial services to the residents and businesses of approximately 2,600 customers in Cadiz and Princeton. These acquisitions mark WCA's strategic efforts to expand its footprint in markets where it has an established infrastructure.

❖ SunTrust Provides \$1.5M to Clean the World for Global Expansion

March 13, 2019 – SunTrust has provided more than \$1.5 million in term loan and working capital financing to support Clean the World, a global social enterprise and a leader in global health dedicated to WASH (water, sanitation and hygiene) and global sustainability. This financing will support the global expansion of the company's hospitality recycling program, the addition of internal and customer facing Corporate Social Responsibility (CSR) technology, the onboarding of new brand standard partnerships and the enterprises expansion in the impact event space. Further, Clean the World will be able to grow its staff focused on the global growth of their health, hygiene distribution, education programs and volunteerism, thereby helping more local communities worldwide. The hospitality industry discards millions of soap bars daily into landfills, damaging our planet's resources. Clean the World embraces this incredible opportunity, creating a truly sustainable and lifesaving solution. Since 2009, Clean the World has distributed more than 48 million soap bars globally to 127 countries with the onboarding of more than 8,000 hospitality partners. The company recycles from more than 1,100,000 hotel rooms daily, diverting 20 million pounds of waste from landfills. It has contributed to a 60 percent reduction in pre-adolescent deaths from hygiene-related illnesses by providing soap and hygiene education to make hand washing a lifelong habit and encourage vigorous childhood development.

❖ Covanta, Green Investment Group Reach Financial Close on Rookery South Energy Recovery Facility

March 22, 2019 – Covanta Holding Corporation and Green Investment Group Limited (GIG) announced that the Rookery South Energy Recovery Facility in Bedfordshire, England, has reached financial close and will commence construction. Covanta and GIG will each own 40 percent of the facility, and primary waste supplier Veolia ES Limited will own the remaining 20 percent. The Rookery facility will provide 545,000 tonnes of annual treatment capacity for non-recyclable waste, further enabling the U.K. to achieve national self-sufficiency in managing waste and compliance with landfill diversion targets. Veolia will deliver the majority of Rookery's waste supply under a long-term contract, with the balance of the waste sourced through other commercial, industrial and municipal counterparties. In processing this waste, Rookery will generate more than 60 megawatts of electricity that will be sold into the grid on a merchant basis, powering the equivalent of more than 112,500 homes. Construction of the facility will be led by Hitachi Zosen Inova under a turnkey engineering, procurement and construction contract and is expected to take approximately 36 months to complete. More than 300 jobs will be created during the construction period, providing related benefits to the local economy. Many opportunities will also be created for the local supply chain, with a commitment from the project to purchase goods and services from local companies wherever possible. Covanta will provide technical oversight during construction and will supply operations and maintenance services when the project commences operations in 2022.



Trash Talk

An Environmental Services
Newsletter

Select Industry News

❖ Nestlé Waters Names David Tulauskas VP, Chief Sustainability Officer

March 6, 2019 – Nestlé Waters North America (NWNA) announced that David Tulauskas has joined the company as vice president and chief sustainability officer, effective March 4. Tulauskas replaces Nelson Switzer, who left NWNA last year to join Loop Industries. Tulauskas comes from General Motors (GM), where he most recently served as sustainability director. In his new role, he will oversee NWNA's sustainability operations and will be responsible for driving the company forward on its sustainability journey, with a focus on continuing to integrate sustainability into NWNA's operations and brands. He will serve as a member of the NWNA executive team and will report to President and CEO Fernando Mercé. As GM's sustainability director, Tulauskas developed the company's sustainability strategy and was responsible for target setting, reporting and external engagement with key stakeholders. This work resulted in the integration of sustainability into the company's business model and throughout its operations. In his 27 years with GM, Tulauskas held various positions. He spent nearly half his career in Asia, helping GM expand its presence, including in China where he led the launch of Cadillac's first vehicles.

❖ Republic Services Expands Adoption of Redeem RNG

March 8, 2019 – Republic Services announced an agreement that it says represents the widest geographic usage of Clean Energy Redeem renewable natural gas (RNG) in North America. A growing number of Republic Services' natural gas-powered vehicles will utilize increasing amounts of Redeem fuel across 21 states over the next five years. This is projected to reduce fleet emissions by roughly 250,000 metric tons of CO₂e (carbon dioxide equivalent) per year, which is equal to taking 53,000 passenger vehicles off the road. RNG is derived from biogenic methane, or biogas, which is methane generated by the decomposition of organic waste from dairy farms, landfills and wastewater treatment facilities. Once the gas is processed and purified, it is sent into the natural gas pipeline and made commercially available to Clean Energy customers as Redeem. Republic Services is not only a natural gas customer of Clean Energy but also supplies some of the gas from its landfills to create Redeem, demonstrating Republic's commitment to the circular economy. As part of Republic Services' ongoing Blue Planet sustainability initiative, the company continues to build practices and programs across its sustainability platform. Nationwide, Republic Services operates a fleet of more than 3,000 natural gas vehicles and 43 natural gas fueling stations.

❖ Waste Management to Expand Recycling Operations in Salt Lake City

March 8, 2019 – Waste Management of Utah has announced plans to expand and improve its Salt Lake City recycling operations with the construction of a new, larger and technically advanced materials recovery facility (MRF). Building is expected to begin in the spring, and the new MRF is slated to be fully operational by early 2020. The new MRF will support recycling programs throughout the Salt Lake Valley, including processing the recycling for the municipality of Salt Lake City's roughly 41,000 residential customers. Waste Management of Utah plans to invest \$16 million to bring the new MRF online. The facility will occupy 50,000 square feet of an existing structure at the company's transfer station located south of the airport at 3405 West 900 South. Once operational, the MRF will be capable of processing and sorting 35 tons of material an hour, which is more than 700 tons of recycled materials per day. Machinery with improved automation capabilities, advanced sorting optics and ballistic 2D and 3D motion separators are on the list of equipment to be installed. Additionally, screens designed to reduce the safety concerns and production delays caused by non-recyclable plastic bags getting wrapped around rotating sorting equipment will be utilized. Currently, Waste Management services Salt Lake City's robust recycling program, processing approximately 750 tons of recyclables each month. At present, the municipality diverts more than 40 percent of its residential waste stream to recycling and compost. The modernized MRF will support this effort by producing a cleaner end product with higher value—which will ultimately lead to greater diversion from the landfill. The new MRF will remain a single stream operation that accepts and sorts clean metal cans, plastic bottles and containers, cardboard, paper and newspaper. Waste Management's current MRF, located in West Jordan, will continue to operate until the new facility opens.

❖ FCC Environmental Services Awarded \$215M Contract in Palm Beach County, Florida

March 12, 2019 – Palm Beach County, Florida, has awarded FCC Environmental Services a \$215 million contract for the collection of all residential and commercial solid waste for the next seven years, commencing October 1. The contract covers two zones out of the four considered by the tender, though no company could be awarded more than two zones, and FCC was the only firm to be awarded two zones. The scope of the service includes the collection of garbage, recycling, yard waste and bulky waste for about 50 percent of the total population in the county, which is around 1.3 million inhabitants. The contract also includes the exclusive franchise of the commercial waste for the two zones, which given the significance of tourism in the area, will play a very important role in the service. FCC will provide the service with a brand new fleet of 108 vehicles, including 90 collection trucks and other ancillary units, and will generate more than 120 jobs, including a significant part of them among local companies that FCC will subcontract. Palm Beach County is one of the three counties that make up the metropolitan region of Miami and one of the highest income in the U.S. FCC already has a significant presence in Florida in some of the largest counties, such as Orange County and Polk County, and will increase its activity in the southern portion of the state thanks to this new award. FCC has signed 10 contracts in Texas and three in Florida in the last few years, totaling more than \$1.1 billion dollars, and is currently providing services for more than 8 million Americans.



Trash Talk

An Environmental Services
Newsletter

❖ **Alpine Waste & Recycling Completes Third Plant Expansion**

March 13, 2019 – To stay ahead of the growing emphasis on recycling in Colorado, Alpine Waste & Recycling recently completed a \$2.5 million expansion and upgrade of its Altogether Recycling plant. According to the company, the investment translates into a 33 percent increase in the plant's recycling speed, helping the city of Denver and other clients divert increasing amounts of material away from landfills. Alpine currently recycles about 13,000 tons of material per month; this upgrade will allow the company to handle more than 17,000 tons. This expansion is Alpine's third since the plant opened in 2007. Alpine has invested a total of more than \$15 million in capital costs into the plant over the last 13 years, with the most recent expansion in 2015.

❖ **La Porte, Indiana Selects Recycle Track Systems as New Waste Manager**

March 19, 2019 – Recycle Track Systems (RTS), a waste and recycling management company, announced the city of La Porte, Indiana, has selected RTS to provide waste services for approximately 7,500 service locations. The arrangement will harness the company's intelligent fleet management technology for all the city's residential and governmental collections. The La Porte partnership marks the company's expansion into municipality services, where RTS' digital solutions will play a role in advancing the city's operations and connect local, independent haulers to the community. This move also gives RTS a greater presence in the Midwest, where it already serves businesses in Chicago. Under the agreement, RTS has deployed its tracking platform in each truck, which will allow the company to manage service appointments in real time and offer post-trip analysis to optimize collection routes and customer response times citywide. RTS, known for its environmental practices, will also take a leadership role educating La Porte's citizens and businesses about best practices for recycling, reuse and composting. Pasquale says, "as a company, we look forward to taking an active role in the community promoting sensible waste solutions and encouraging longer-term results to divert more waste from landfills."

❖ **Hauler's Canceled Contract Leaves Thousands of Michigan Residents without Trash Pickup Services**

March 21, 2019 – Last year, Odd Job Disposal began its streak of major delays in trash pickups in Orion Township, Michigan, leaving thousands of residents upset and without service for weeks. And now, following hundreds of complaints from residents, the township has ended its contract with the hauler, effective April 1. After April 1, former Odd Job Disposal customers will have to make arrangements with one of three other companies permitted to service the area: Advanced Disposal Services, GFL Environmental and Waste Management.

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