Onondaga County
Comprehensive Solid Waste Management Plan Update

Compliance Report for 2019 – 2020
Plan Update for 2021 – 2022

Submitted pursuant to 6 NYCRR Section 366-5.1

Submitted by:
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Planning Unit: County of Onondaga, excluding the Town and Village of Skaneateles

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1. EXECUTIVE SUMMARY

The Onondaga County Comprehensive Solid Waste Management Plan (the Plan, or Local Solid Waste Management Plan, LSWMP), was most recently prepared in 2016 and approved (through December 31, 2024) by NYS Department of Environmental Conservation (NYSDEC). The LSWMP remains a sound foundation for Onondaga County. The solid waste management system is managed by the Onondaga County Resource Recovery Agency (OCRRA, or the Agency) on behalf of the Planning Unit, Onondaga County. OCRRA continues to serve 33 of the 35 municipalities of Onondaga County with quality programs and environmentally sound waste solutions. OCRRA's award-winning, integrated solid waste program continues to exceed established recycling goals and provide safe and environmentally appropriate waste management. OCRRA funds the recycling program and its other operations through disposal tip fees (including a household recyclables tip fee that began in 2021) supplemented with revenues from the sale of electricity.

In 2019 and 2020, 71,507 tons of materials were collected from households through the blue bin curbside recycling program. In 2019 and 2020, 890,582 tons were recycled through mandatory and voluntary recycling efforts (both residential and commercial) in the community, for a total recycling rates of 55% in 2019 and 52% in 2020. Additional information regarding the Agency's recycling program for 2019 and 2020 can be found in OCRRA's Annual Recycling Reports, included as appendices to this report.

The United States Environmental Protection Agency (USEPA) reported that MSW generation was 4.9 pounds per person per day in 2018[1]. In comparison, the NYSDEC Beyond Waste Plan (NYSDEC, December 2012) identifies the average New Yorker's amount of MSW to be 4.1 pounds per person per day. As a result of the recycling and waste reduction efforts of Onondaga County residents, businesses and institutions, the MSW generation within the OCRRA system was 3.35 pounds per person per day in 2019 and 3.24 pounds per person per day in 2020.

OCRRA has established many top-tier program elements, including the following recent key program features:

- In 2019, OCRRA began construction to upgrade its Rock Cut Road (RCR) Transfer Station in Jamesville, NY, to comply with revised New York State (NYS) Solid Waste Regulations. When completed in 2020, the facility was opened to improve service to the county, reduce transportation costs, and decrease OCRRA's operating costs to ensure long-term fiscal and environmental vitality.

- In 2019, the OCRRA Board of Directors passed a resolution authorizing an extension of its contract with a local private sector Material Recovery Facility (MRF) to process materials contained in the curbside residential recycling stream through 2022. Costs for this service have increased exponentially in the wake of the China National Sword policy, approaching $2 million in 2020 (further discussed in Section 2.7.1). In 2020, to address this financial challenge to maintain the community's award-winning recycling program, the OCRRA Board of Directors Authorized a new recycling tip fee for residential recyclables starting in 2021 of $34 per ton; this is expected to partially cover the Agency's MRF processing costs. In addition, to identify potential short and long term solutions to the

[1] *Advancing Sustainable Materials Management: 2018 Fact Sheet; Assessing Trends in Materials Generation and Management in the United States*; United States Environmental Protection Agency, December 2020.

recycling crisis, the OCRRA Board established an ad hoc "Recycling 2020 Committee." The report issued by this committee is attached as Appendix I and is further discussed in Section 2.7.1.

- OCRRA's national award-winning food waste composting program is providing thousands of yards of compost to local residents, commercial landscapers and retailers. OCRRA is now selling over 8,000 bags of its STA-certified compost each year through a network of some 30 local home and garden centers in Central New York. The Agency has a partnership with ARC of Onondaga to provide compost bagging services. In 2020, OCRRA processed over 6 million pounds of food scraps into compost. This was down nearly 50% from the food scraps composted in 2019. This was mainly due to food waste reductions from the closure of area school cafeterias, colleges, restaurants, State Fair and less prepared foods from super- market buffets such as Wegmans during the pandemic.

- Metal recovery at the Waste-to-Energy (WTE) Facility (the Onondaga County Resource Recovery Facility, OCRRF) continues to recover ferrous and non-ferrous metal annually that would have otherwise been landfilled. During 2020, over 12,000 tons of metal were recycled and over 13,000 tons were recycled in 2019.

- OCRRA has continued its strategic investment in social media based public education campaigns, aimed at a variety of audiences to increase demand for its STA-certified compost, as well as promote recycling for various materials, including film plastics and textiles.

- With the support of the NYSDEC, OCRRA conducted a Waste Quantification and Characterization Study in 2019, analyzing the Municipal Solid Waste (MSW) stream, the residential recycling stream, and components of the Construction and Demolition Debris materials received by the OCRRA system. The study found that the majority of mandatory recyclable materials are being separated for recycling by both the residential and commercial/institutional sectors. Additional key study results are highlighted in Section 2.3 of this report.

- OCRRA continues to provide a key leadership role in the New York Product Stewardship Council and the Product Stewardship Institute, and several other coalitions focused on advancing a lower carbon, materials management economy in NYS that seeks to impact upstream material design, and results in more environmentally friendly products, increased recycling, and reduced local municipal solid waste management costs. The OCRRA Board of Directors passed Resolution #2238 in 2020, urging the New York State Legislature to update the state's Electronic Equipment Recycling and Reuse Act on its 10th Anniversary. Too much of the material management costs are still shouldered by municipalities which runs counter to the legislative intent.

The modification and use of the RCR Transfer Station was the only structural change to the planning unit during the reporting period 2019 and 2020. The major challenges that continue to face OCRRA are: 1) severely depressed global commodity markets resulting in significant and unprecedented escalation of costs borne by OCRRA to facilitate the processing and marketing of household recycling; 2) historically low energy market values reducing revenue from the sale of electricity; and 3) decreasing waste capacity locally and in New York State.

Through continuous innovation and adaptation, OCRRA strives to serve Onondaga County for decades to come.

2. SUMMARY REPORT

2.1 Changes to the Structure of the Planning Unit

There have been no changes to the structure of the planning unit since the LSWMP Plan was approved by the NYSDEC.

2.1.1 Municipalities Within the Planning Unit

The solid waste management system is managed by OCRRA on behalf of the Planning Unit. The service area described in this report consists of Onondaga County, with the exception of the Town and Village of Skaneateles. The 33 municipalities encompassed within the system are listed in Table 1, below.

Table 1 – Planning Unit Municipalities

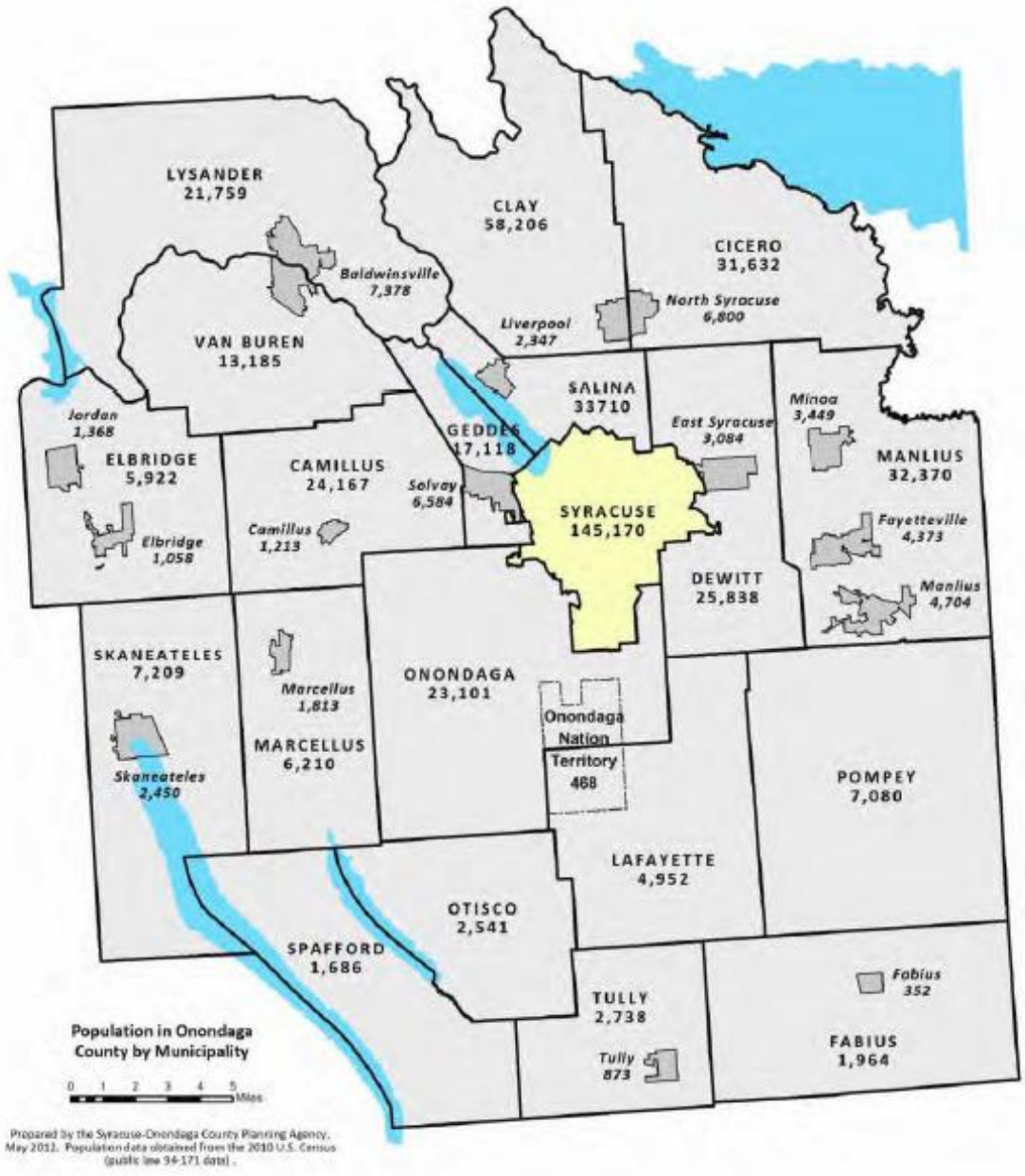
MUNICIPALITIES WITHIN OCRRA'S SERVICE AREA	
City of Syracuse	Village of Baldwinsville
Town of Camillus	Village of Camillus
Town of Cicero	Village of East Syracuse
Town of Clay	Village of Elbridge
Town of Dewitt	Village of Fabius
Town of Elbridge	Village of Fayetteville
Town of Fabius	Village of Jordan
Town of Geddes	Village of Liverpool
Town of Lafayette	Village of Manlius
Town of Lysander	Village of Marcellus
Town of Manlius	Village of Minoa
Town of Marcellus	Village of North Syracuse
Town of Onondaga	Village of Solvay
Town of Otisco	Village of Tully
Town of Pompey	
Town of Salina	
Town of Spafford	
Town of Tully	
Town of Van Buren	

- According to the 2019 data from the U.S. Census Bureau, there were approximately 460,530 people residing in Onondaga County and 183,220 households.

- The City of Syracuse is at the center of the 800-square mile area, with approximately 142,330 people and 55,280 households.

- Excluding the Town and Village of Skaneateles (population of roughly 7,180 with about 3,080 households), OCRRA's programs in 2019 and 2020 served approximately 453,350 people and 180,140 households. Figure 1, below, shows the population by township/city.

Figure 1 – Planning Unit Map & Populations



2.1.2 Mandatory Recyclables

There have been no changes to the list of recyclable materials since the LSWMP Plan was approved by the NYSDEC. Onondaga County Local Law #2 of 2012 mandates source separation of recyclables by waste generators. The Law, originally adopted in March 1989 and subsequently amended, made provisions for OCRRA to amend the law as warranted. Amendments are summarized in Table 2 below.

Table 2 – Onondaga County List of Mandatory Recyclables as Determined by Local Law #2 of 2012 Amendments

Effective Date of Amendment:	Action Affecting Residential Generators	Action Affecting Commercial/Institutional Generators
July 1, 1990	Glass and Metal food and beverage containers, Plastic bottles #1 & #2, Newspapers	High-Grade Office Paper, Corrugated Cardboard, Blue Bin items as feasible
March 1, 1992	Magazines and Catalogues	
April 1, 1992	Yard waste banned from MSW	Yard waste banned from MSW
Autumn, 1992		Encouraged to recycle all office paper – not yet mandated
January 1, 1993	Aerosol Cans (non-paint), Gable Top Milk and Juice cartons and Kraft Bags	All office paper
July 1, 1994	Corrugated Cardboard	
July 1, 1995	Discarded Mail and Home Office Paper	All office paper including third class mail
July 1, 1996	Paperboard	Paperboard
April 1, 1999	Pizza Boxes	
January 1, 2001	License Plates	
March 1, 2006	Aseptic Containers	
July 14, 2010	#5 Plastic Containers	
April 1, 2011	Soft Cover Books	

No additional materials have been added to the curbside collection program since the previous plan update. The Agency's 2019 Waste Quantification study indicates that there is some 30 million pounds of potentially reusable/recyclable textiles trashed annually in Onondaga County. Accordingly, OCRRA continues to vigorously promote, via a number of online platforms and print media, the collection of textiles through a county-wide network of convenient drop-off locations.

2.2 Actual Waste Generation, Recycling, and Disposal Data

OCRRA inventories and records recycling tonnages of all material recycled through the residential curbside program. Data collected from private commercial entities, as well as public and private institutions, are provided on a voluntary basis and are not audited by OCRRA.

The total annual municipal solid waste (MSW) data for 2019 is well within the projections of the LSWMP. The total MSW for 2020 was below the projection of the LSWMP; primarily due to impacts from Covid-19. MSW projections and actual tonnages are presented in Table 3, below.

Table 3 – MSW Projections and Actual Tonnages

	Projected MSW (tons, per LSWMP)			Actual MSW (tons)
	Low	**Mid**	**High**	
2019	273,600	276,000	278,400	**277,314**
2020	274,100	277,000	279,800	**268,356**

In Onondaga County, mandatory recycling includes the materials listed in Section 2.1.2 above. The total annual mandatory recycling materials collected from households through the blue bin curbside recycling program; and as reported by commercial entities and institutions, are presented in Table 4, below. Table 4 also summarizes mandatory recyclables and MSW as percentages of the totals of these two categories of solid waste.

Table 4 – Mandatory Recycling and MSW Tonnages and Percentages

	2019		2020	
	Tons	Percent	Tons	Percent
Mandatory Recycling				
Residential Curbside Program	36,974		34,533	
Commercial & Institutions	147,015		118,010	
Sub-Total Mandatory Recycling	**183,989**	**40%**	**152,543**	**36%**
Sub-Total MSW	**277,314**	**60%**	**268,356**	**64%**
Total Mandatory Recycling and MSW	**461,303**	**100%**	**420,899**	**100%**

In addition to MSW, OCRRA also processes construction and demolition (C&D) debris and other wastes. In addition to mandatory recycling, additional voluntary recycling occurs throughout the Planning Unit, including film plastics, textiles, and organic materials. Another voluntary effort is the removal of ferrous and non-ferrous metal from MSW processed at the WTE Facility. Table 5 presents these additional waste streams and voluntary recycling in addition to the data included in Table 4.

Table 5 – Recycling and Waste Totals and Percentages

	2019		2020	
	Tons	Percent	Tons	Percent
Mandatory Recycling				
Residential Curbside Program	36,974		34,533	
Commercial & Institutions	147,015		118,010	
Voluntary Recycling	271,181		257,040	
Ferrous & Non-Ferrous Metal from WTE Facility	13,286		12,543	
Sub-Total Recycling	**468,456**	**55%**	**422,126**	**52%**
MSW	277,314		268,356	
C&D	68,706		65,273	
Other Waste	35,792		37,200	
Sub-Total Waste	**381,812**	**45%**	**395,915**	**48%**
Total Recycling and Waste	**850,268**	**100%**	**818,041**	**100%**

Further detail on waste and recyclables accepted at both OCRRA and Non-OCRRA facilities are further described in Sections 3.1 and 3.2, respectively, below.

The LSWMP did not include tonnage projections of mandatory recycling. Table 6 includes projections for mandatory recycling material tonnages through 2022.

Table 6 – Projected Mandatory Recycling Tonnages

	Low	Mid	High
2021	155,000	170,000	190,000
2022	173,500	190,000	195,000

Based on the Planning Unit's population of 453,350, and MSW tonnages of 277,314 in 2019, and 268,356 in 2020, OCRRA estimates the MSW generated per capita per day is 3.35 pounds per person and 3.24 pounds per person respectively, for the reporting period.

OCRRA collects data from many sources to better understand recycling practices for materials generated in Onondaga County. For commercial recyclables, OCRRA sends out annual surveys to large recycling operations and commercial entities, as well as public and private institutions. This information is provided on a voluntary basis and the data is not audited by OCRRA. As part of the contract with the local MRF, OCRRA inventories and records recycling tonnages of all material recycled through the residential curbside program on an aggregated basis. OCRRA's annual recycling reports, submitted to the NYSDEC in March 2019 and 2020, summarize the data for each recyclable material. Annual recycling reports are included as Appendix A and B to this report.

2.3 Results of 2019 Waste Quantification and Characterization Analysis

In 2019, OCRRA contracted with a nationally-known consulting firm to provide an updated county-wide Waste Quantification and Characterization (Waste Q&C) study to analyze and quantify commercial and

residential MSW, as well as residential recyclables, that are collected in the OCRRA system. Within the OCRRA system, the study focused on evaluating disposed refuse, single-stream residential recyclables and construction & demolition debris. Based on statistical criteria, both commercial and residential vehicle loads were sampled, manually sorted and weighed. The percentage by weight of each component in the sorted sample was then calculated. Previous Waste Q&C Studies were periodically performed, with the most recent previous analysis conducted in 2005.

The 2019 Waste Q&C study, included as Appendix I to this report, found that the majority of mandatory recyclable materials are being separated for recycling by both the residential and commercial/institutional sectors. Some additional notable results from the two-season, (spring and fall), 2019 waste sort indicate the following (all as expressed by weight):

- Mandatory recyclables were not observed in the 2019 MSW stream in significant quantities, and generally, the presence of paper, plastics and metal in the refuse in 2019 was less than what was observed in the previous study in 2005. Specifically, of the MSW in 2019, approximately:
    - 10.8% is potentially recyclable fiber (cardboard 5%; office paper 0.7%; newspapers 1%; mixed paper 3.6%; and magazines 0.5%); and
    - 1.5% was recyclable plastic containers; and
    - 0.7% was recyclable metal cans.

- Film plastics, (including 1% retail plastic bags) add up to nearly 9% of a typical MSW ton in Onondaga County. Since approximately 17% of the total waste stream is comprised of plastics, it is significant that just over half of that, (8.8%), consists of film plastics such as retail shopping bags, commercial film wraps and flexible packaging, which are all recyclable through the retail store film plastic take-back program.

- Fiber comprised 65.1% of the curbside recyclables. Levels of corrugated cardboard in particular have continued to increase in the recyclable stream, from 11% in 2005 to 28.3% in 2019. This has been largely attributed to an increase in cardboard used in internet sales, shipping and home delivery. While in the MSW stream, potentially recyclable fiber, (cardboard, office paper, newspaper and magazines) was 10.8%, which is an improvement from 2005, when about 14% of the total waste stream was recyclable paper.

- Newspapers comprised 1% of the total MSW, while in the residential recycling stream, newspapers made up 10.8%. This illustrates a drastic reduction from the previous study in 2005, when newspapers were 42% of the curbside recyclables. This is consistent with other recent waste composition studies in the nation, and coincides with the rise of digital media, which has led to a decline in the use of newspapers and office paper.

- Other paper (non-recyclable but compostable paper such as tissues and paper towels) and food wastes continue to comprise relatively large proportions of the residential waste stream (approximately 7.3% and 21% of disposed MSW, respectively).

- Textiles comprise about 5.2% of the waste stream.

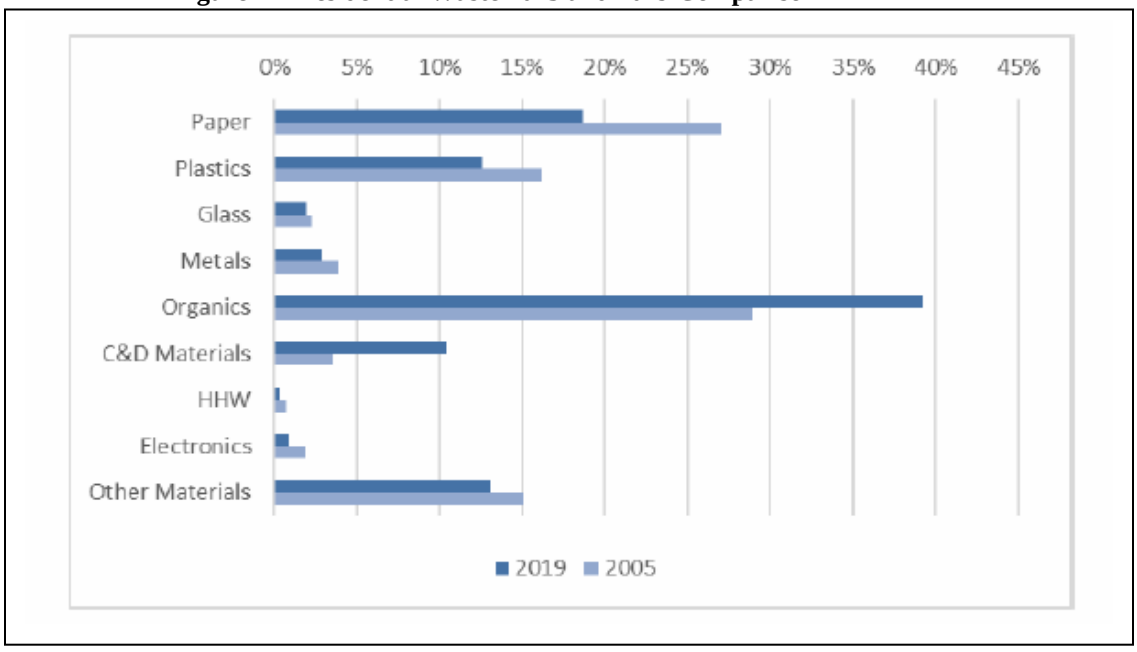
- Electronics constituted less than 1% of disposed MSW, which is consistent with the national average.

- Over half of the glass that was found in the typical curbside recycling bin included beverage containers such as wine bottles (3.9%), liquor bottles (1.5%) and non-alcoholic beverage containers like ice tea bottles (0.8%), all of which currently do not have a NY State deposit; they are not included in the New York State Bottle Bill. If the Bottle Bill were to be expanded to include these wine and liquor bottles, as well as the other non-alcoholic glass beverage containers, it would have a significant positive impact on recycling, as bottles that have a deposit are recycled at a much higher rate than those without one. When left in the blue bin, glass is typically used for daily cover and engineering purposes in a landfill, while bottles that are recovered through the deposit Bottle Bill are remanufactured into new glass containers. The 2019 study revealed that non-deposit plastic bottles were approximately four times more common in the trash than plastic bottles with a deposit redemption and thus, the Bottle Bill is proven to be a powerful economic incentive to return and recycle containers. OCRRA's board of directors has passed resolutions in support of expanding the New York State Returnable Container Act (Bottle Bill) to include the above mentioned glass beverage containers in order to increase recycling and improve both MRF processing efficiency and material quality.

- The majority of contaminants in curbside recyclables were bagged materials.

Figure 2 below compares the composition of residential waste in the 2019 Q&C Study to the previous study that was done in 2005, and shows there has been a relative decrease in paper and plastic in the residential solid waste stream. Organics include food waste, textiles/leather, and disposable diapers.

Figure 2 – Residential Waste 2015 and 2019 Comparison



2.4 Changes to Solid Waste Management Practices

OCRRA continues to provide the planning unit with critical solid waste management and recycling services, including composting of food waste, Waste to Energy processing of MSW, landfilling of system residues via strategic contracts with permitted disposal facilities, contracting for processing of residential curbside recyclables. These services are summarized in Appendix C. The key change to the solid waste management practices in the Planning Unit since the LSWMP involves the planned upgrades to the Agency's RCR Transfer Station. In 2018, OCRRA initiated efforts to upgrade the RCR Transfer Station in Jamesville, NY, to comply with revised NYSDEC Solid Waste Regulations. Construction began in 2019 and was completed in 2020.

The RCR Transfer Station underwent modifications to meet the requirements of the recently revised NYS solid waste management regulations and was designed to compliment the WTE Facility. Due to the proximity between the RCR Transfer Station and the WTE Facility, OCRRA has reduced transportation costs and avoid greenhouse gas emissions associated with waste transfer. Modifications to the site include construction of two additional waste processing buildings; utility (water, sanitary/leachate, electric and HVAC) modifications; fire suppression and protection; retaining walls; stormwater conveyance features and best management practices; fuel management system; building roofs; and attendant sheds, automated scales and scale house. In addition, an electric shredder was installed to process mattresses and other bulky MSW. The RCR transfer station continues to house OCRRA's truck fleet that transfers ash to landfills and transfers waste to the WTE Facility. The waste processing buildings have five loadouts to and haulers use automates scales to maximize efficiency. Smaller haulers who do not utilize the scale use separate buildings for transferring waste in order to provide additional flexibility to operations. The RCR Transfer Station is permitted to collect and transfer up to 800 tons per day of municipal solid waste, including construction and demolition debris and ragger tail waste from the West Rock facility, from commercial haulers only.

In 2019, OCRRA operated the Ley Creek Transfer Station in Salina. Both commercial and residential customers used the Ley Creek Transfer Station while the RCR Transfer Station was closed during construction. In June 2020, the RCR Transfer Station's construction was completed, and the facility began accepting commercial customers. Commercial customers were phased into the facility between June and the fall 2020. Once all commercial customers were using the RCR Transfer Station, residential customers continued to use the Ley Creek Transfer Station.

The Ley Creek Transfer Station will continue to serve residential customers until a new location is identified. The Ley Creek Transfer Station is permitted to collect and transfer up to 1,200 tons per day of municipal solid waste and construction and demolition debris. The Ley Creek Transfer Station provides contingency throughput for waste transfer if the WTE Facility was non-operational.

The transfer stations continue to serve as the collection and transfer location for 30,000 – 40,000 tons per year of bulky MSW that cannot be delivered directly to the WTE Facility. Most of this tonnage will be collected at the RCR Transfer Station servicing commercial haulers. Materials will continue to be separated at both transfer stations by mechanical and manual operations into three streams: recyclable materials (mainly scrap metal), processible material that can be processed at the WTE Facility, and "bypass waste" or non-processible waste that must be disposed of at a NYSDEC-permitted solid waste landfill.

During 2019 and 2020 other significant changes to solid waste management practices that have taken place include the following:

- **Changes to WestRock contract**
  In March of 2017, OCRRA began accepting two waste streams (ragger tail and plastic "fluff") from WestRock Company (WestRock) to convert the mill's recycling byproducts into electricity and recover metal for recycling. WestRock is a leading provider of differentiated paper and packaging solutions that operates a 100% recycled containerboard mill in Solvay, NY. WestRock is one of the premier containerboard mills in the northeast, handling recycled material from the local region and beyond. The Solvay Mill processes over 850,000 tons of old corrugated containers and other paperboard material into new cardboard each year. This collaboration supports local recycling jobs, reduces GHG production, and produces local energy.

  In June 2020, OCRRA and WestRock determined that the costs to process one of the two accepted waste streams was unable to be supported. When OCRRA transitioned to the RCR Transfer Station in 2020, the ragger tail waste stream was redirected to landfills by WestRock however the plastic "fluff" waste stream continues to be processed by OCRRA to generate electricity. These efforts continue to avoid diesel-fueled tractor trailer transport to an out-of-county landfill and this collaborative effort is helping our community to be more sustainable, while recovering thousands of tons of resources for the local economy and the environment.

- **Changes to sustain of municipal recycling**
  As described below in Section 2.7.1, the OCRRA Board of Directors established an ad hoc committee to identify potential short term and long term solutions to maintain the viability of OCRRA's award-winning municipal recycling program.

2.5 Summary of Outreach and Education Activities

The foundation for OCRRA's recycling program is community engagement, accountability, and education.

2.5.1 Recycling Team and Enforcement Officers

OCRRA employs a team of professional Recycling Specialists engaged in spreading the recycling message and delivering technical assistance to residents, schools, and businesses in Onondaga County. The Recycling Specialists regularly visit local businesses, apartment complexes, and schools to offer assistance in designing recycling programs as well as to offer free recycling containers and decals (see image, right). These outreach efforts were significantly curtailed in 2020 due to public health considerations caused by Covid-19. Details concerning outreach to businesses, schools, and apartment complexes can be found in the Agency's Annual Recycling Reports, included as Appendix A and B to this report.

OCRRA Enforcement Officer monitors MSW loads delivered to the WTE facility and the MRF to help ensure the integrity of the OCRRA system. When needed, OCRRA Enforcement Officers supports the efforts of the Recycling Specialists. An Enforcement Officer calls on businesses and apartment buildings if initial approaches have not resulted in cooperation. Enforcement Officers also spend a significant portion of their week inspecting loads of solid waste at the WTE Facility to ensure that loads do not contain more than approximately 5% of recyclables. Loads containing more than 5% of recyclable materials are issued warnings and/or notice of violations. Once a problem is identified, Recycling Specialists assist waste generators in designing a recycling program that will capture the mandated recyclables.

2.5.2 Business Recycling

OCRRA's Recycling Specialists regularly provide free businesses consultations in Onondaga County to assist business with designing effective collection systems for recyclables and to offer free containers and decals to all types of businesses. As mentioned above, these efforts were curtailed in 2020 due to Covid-19.

OCRRA's Blue Ribbon Recycler Program recognizes businesses that demonstrate recycling excellence in the workplace. Each applicant to the program must meet specific criteria in regards to recycling, such as providing recycling containers for all employees and purchasing recycled paper. Once a Recycling Specialist determines that a business qualifies, it receives a certificate from OCRRA and recognition on the OCRRA website. If a business does not meet all criteria, it provides an opportunity to identify areas for improvement. The Blue Ribbon Recycler Program is an incentive for businesses to achieve recycling excellence by offering them recognition that they can then share with their clients and customers. To date, there are over 65 certified Blue Ribbon Recyclers.

2.5.3. School Recycling

Schools generate a significant amount of the recyclables in a community, including paper, cardboard, and containers. Because of this and the importance of educating children early about recycling, schools are a major focus of OCRRA's public education program. Recycling Specialists regularly visit classrooms, school custodians, teachers and administrators to help them improve their recycling programs and to offer free recycling containers, decals, and other materials. As mentioned above, these efforts were curtailed in 2020 due to Covid-19.

OCRRA has also developed an innovative, cost-effective school recycling education program for County-wide implementation. Based on input from local teachers, the internet-based approach includes a series of five video "vignettes," each several minutes in length, highlighting our community's various recycling and waste system elements (including source separation, material recovery, waste-to-energy, and composting) that teachers can easily access online at their convenience. The program is aligned with NYS curriculum requirements in English Language Arts, and Science, and provides supplemental enrichment activities, including touch-screen games that students may access online, as well as more traditional support materials that do not require special technology. In 2016, the program received a gold environmental excellence award from the Solid Waste Association of North America. OCRRA actively promoted the availability of these online resources in 2020 to help teachers respond to the unique challenges presented by remote learning due to Covid-19.

To encourage more recycling in Onondaga County schools, OCRRA developed the School Recycling Pledge Program. The pledge is a large, custom-printed, framed poster with a statement for the school (administrators, custodians, teachers, and students) to sign. The pledge highlights school-wide commitments to recycling and has been effective in increasing recycling and raising awareness in the schools. This program is ongoing. OCRRA also recognizes outstanding recycling achievement through the annual Vonnell Mastri Award, which honors a school recycling program in the City of Syracuse.

2.5.4 Apartment Recycling

Onondaga County has hundreds of multi-unit apartment buildings, which present a unique set of challenges to recycling, such as space constraints and inconvenient community recycling bin locations. To assist residents, OCRRA Recycling Specialists visit apartment complexes and speak with landlords and property managers to ensure that the proper recycling infrastructure is in place. As mentioned above, these efforts were curtailed in 2020 due to Covid-19. To help facilitate a great recycling system, OCRRA provides complementary brochures, magnets, decals, and special containers, as well as presentations at group meetings.

2.5.5 Residential Recycling and Blue Bin Distribution

To support source separation, OCRRA purchases, stores, and distributes curbside recycling containers, also known as "blue bins," to Onondaga County residents free of charge. In most cases, residents can pick up a blue bin at their town or village highway department. Single-stream recycling is used through the blue bin program so residents do not have to separate recyclable papers from recyclable containers. Several haulers have transitioned to providing their residential customers with 95 gallon toters for their single stream recyclables.

2.5.6 Public Outreach

OCRRA is committed to maintaining high levels of community participation through its recycling program. Annually, OCRRA's recycling team participates in numerous area events and fairs. A variety of recycling information is distributed including recycling brochures, magnets, battery bags, and household hazardous information. OCRRA staff interacts with thousands of people at these events. Unfortunately, these efforts were curtailed in 2020 due to Covid-19.

In addition to events, OCRRA Recycling Specialists conduct numerous presentations to a wide variety of audiences, including school-age children, business office staff, teachers, Rotary Clubs, and neighborhood groups. These presentations provide recycling information and stress the importance of environmental stewardship. OCRRA Recycling Specialists also share their expertise and lessons learned with the recycling community by presenting at various annual conferences, including the Solid Waste Association's Recycling Conference in Lake George and the New York State Association for Reduction, Reuse, and Recycling (NYSAR^3) Conference in Cooperstown.

2.5.7 Special Collection Programs and Events

In addition to OCRRA's core recycling programs, the Agency offers the following special collection programs and events:

- **Year-long household hazardous waste drop-off program**: To enhance resident convenience, OCRRA has replaced the periodic "special event" model for household hazardous waste collection with a continuous drop-off service at Environmental Products and Services (EPS, more recently known as Miller Environmental) in Syracuse. Some 2,000 residents are typically served annually after completing a convenient online registration. OCRRA is mindful of the need for regular publicity (via newsletter, email blasts, Facebook page, OCRRA website, press releases, etc.) to remind the community of this service and to address a potential "lack of urgency" that may come with a continuous drop-off model. The program was placed on pause at various times in 2020 due to Covid-19, but is currently in full operation.

- **A county-wide program for the management of household batteries**: OCRRA's household battery collection program includes year-round drop-off at ten local Wegmans grocery stores, a curbside collection each July, and a partnership with the ARC of Onondaga for battery sorting. To comply with federal regulations regarding battery transport, OCRRA provides collection containers for the grocery stores that allow for the separation of alkaline, rechargeable, and button batteries. To improve sorting accuracy, OCRRA contracts with ARC of Onondaga to further sort the batteries for a modest fee. The program was briefly placed on pause in 2020 due to Covid-19, but is currently in full operation.

  For the recycling of rechargeable batteries, OCRRA uses Call2Recycle®, a no-charge rechargeable battery recycling organization funded by the battery industry. This is an example of an Extended Producer Responsibility program that it beneficial to both the environment and solid waste planning units. Residents in the OCRRA service area recycle more rechargeable batteries per capita than any other large community in New York State. Since 2010, Onondaga County residents and business have recycled over 200,000 pounds of rechargeable batteries.

- **A partnership with local hardware stores for the collection of fluorescent bulbs**: Fluorescent light bulbs are a popular household item because of their energy saving potential. However, these energy efficient bulbs contain mercury, a potentially harmful chemical, and should not be mixed with regular household trash at the end of their life. To encourage residents to dispose of these properly and keep mercury out of the trash, OCRRA partners with local hardware stores to provide residents with convenient locations to drop off old bulbs. From the stores they are shipped off for proper disposal. There are more than a dozen participating stores throughout the county and, since the program launched in 2007, over 100,000 bulbs have been collected.

- **Mercury thermometer and thermostat exchange program**: OCRRA partners with Covanta Energy to provide residents with a $5 Home Depot gift card in exchange for their old mercury thermometers and thermostats. OCRRA also sends Onondaga County residents a mercury-free thermometer after they drop-off their old thermometer. Thermometers collected are disposed of through OCRRA's HHW vendor. Thermostats are handled through the Thermostat Recycling Corporation (TRC), a national, voluntary Extended Producer Responsibility (EPR), industry-funded program that provides proper disposal of mercury-containing thermostats at no cost. In addition to the everyday drop off program, OCRRA and Covanta collaborate to offer a special one-day drop off event when a "double bounty" ($10) gift card is offered.

- **Annual "Shred-O-Rama" residential document shredding events**: In response to increasing public concern over identity theft, OCRRA launched its first Shred-O-Rama event in 2004. In the wake of overwhelming response, OCRRA moved this special event from the park lot of NBT Bank Stadium in Syracuse to the NYS Fairgrounds, which can safely and efficiently accommodate double the attendance of residents seeking to drop off confidential documents to be shredded. Paper is shredded on site and then recycled by local shredding companies. Over 1.4 million pounds of paper have been shredded and recycled since the program launch, and over $15,000 in voluntary contributions have been collected for

local community service organizations. Unfortunately, this event was not conducted in 2020 due to Covid-19.

- **An award winning community-wide Earth Day litter cleanup event:** This two-day event enjoys excellent community support, with over 5,000 volunteers each year. In the 21 years since OCRRA began the effort, more than 2 million pounds of litter have been removed from the community's streets, streams, and public spaces. Groups of all ages and sizes can volunteer to clean up any public area in the county they want. OCRRA provides special stickers to place on the bags of litter. The stickers enable free trash disposal. Unfortunately, this event was not conducted in 2020 due to Covid-19.

2.5.8 Investment in Public Education

OCRRA has won several national awards for its community outreach efforts and continues to invest heavily in public education to raise awareness about OCRRA's environmental programs. Our messaging focuses on recycling, composting and our special events. The following images highlight some examples of OCRRA's investment in public education.

OCRRA.org
Sponsored ·

Buying local can be a beautiful thing. Find OCRRA's award-winning compost at local retailers.

OCRRA.ORG
OCRRA's Got It in the Bag
Find a local retailer.
Learn More

Judy Nelepovitz, Mary Lou Fromey and 91 others 3 Comments 15 Shares

Like Comment Share

OCRRA.org
Sponsored · Paid for by Onondaga County Resource Recovery Agency ·

Plastic bags and stretchy wraps can be recycled - but they DON'T belong in your recycling bin. Learn where to recycle clean/dry plastic bags, bubble wrap and other film plastics!

OCRRA.ORG
WANTED: Film Plastics
Drop off plastic bags and wraps and reduce waste.
Learn More

Vanessa Johnson, Lorrie Raffa and 79 others 9 Comments 64 Shares

Like Comment Share

OCRRA.org
Sponsored ·

Help keep our county beautiful by joining OCRRA's annual Earth Day Litter Cleanup!

FRI, APR 26 - APR 27
Earth Day Litter Cleanup 2019
3 people interested
★ Interested

Like Comment Share

OCRRA's Shred-o-Rama 2019

Shred and recycle! Stop by the NYS Fairgrounds on July 13 from 8am - noon to participate.

Frequent and consistent prompting is required to maintain community recycling and composting behaviors. OCRRA's public message raises awareness about OCRRA's services and highlights the difference one person can make in preserving natural resources for future generations. The campaign, launched in 2009, was based on community surveys which asked what messages would best resonate with our community. It uses the slogan "Save the World a Little Each Day," demonstrating that the simple act of recycling or composting can help the environment in a meaningful way. The campaign also emphasizes the OCRRA website as a community resource.

OCRRA invests resources into direct public education through paid ads on social media, the internet, radio, and television. Examples of OCRRA's video ads are on our YouTube channel.

RECYCLING: www.tinyurl.com/OCRRArecyclingAd
COMPOST: www.tinyurl.com/OCRRAcompostSchools

In addition to paid media advertising, OCRRA continues to publish its quarterly newsletter, which includes relevant OCRRA stories and highlights about community members and businesses making an environmental difference. Through distribution in the Eagle Newspapers (four local weekly papers that serve Onondaga County) and the Sunday Post-Standard, the newsletter reached roughly 75,000 households each quarter. Some 3,000 newsletters reach the public via public libraries, government offices (village and town clerks) and special events each quarter. For examples of the Agency's newsletter, please see: https://ocrra.org/news-and-events/newsletters

OCRRA's website (www.OCRRA.org) boasts easy navigation and enhanced search features to allow users to quickly find recycling and disposal options for unwanted items. It allows users to make online reservations for the household hazardous waste drop-off program. In addition, it includes a recycling supply order form, which allows businesses, schools and apartment buildings to order free recycling containers and decals with a few simple clicks. Users may also purchase OCRRA essentials like compost site passes and trash bag stickers quickly and easily through the website. Check out the interactive order forms here: https://ocrra.org/order-supplies/ . In 2019 and 2020, the site served over 218,000 users annually.

OCRRA utilizes email as another efficient and effective means of communication. Through a web-based system, emails covering various recycling and disposal topics and upcoming events are sent twice a month to over 11,000 people. In addition to the main list, OCRRA has the ability to create smaller sub-lists and send emails to select groups of people (such as compost site users or school teachers). The software also allows for tracking of the number of people that open the emails, click on specific links, or forward the emails to others. Email blasts are an inexpensive and effective way of reaching thousands of people. Each year the list grows and more residents receive OCRRA's email outreach.

OCRRA also continues its social media presence with its Facebook page. The page allows people to actively engage in discussion about OCRRA's services and ask questions about disposal options. New information about upcoming special events, highlights of local recycling, and waste reduction achievements, and links to relevant environmental articles are posted on a regular basis. OCRRA maintains more than 10,500 followers Lastly, OCRRA's ongoing direct outreach efforts include letters to the editor, articles, press releases, and media appearances.

It is also worth noting that OCRRA provides numerous posters, brochures, and decals at no charge to businesses, residents, and institutions. These items can be ordered online at https://business.ocrra.org/, and prompt people to recycle and compost, and educates them on how to do these things in Onondaga County.

OCRRA prides itself on having one of the most aggressive community outreach programs of any solid waste system in NY State, and, as described above, continues to develop new, innovative, and cost-effective methods to reach target audiences with the recycling and waste reduction message.

2.6 Efforts to Comply with Local Recycling Laws

In 1989, the Onondaga County Legislature adopted Local Law No. 12 of 1989, better known as the County Source Separation Law or County Recycling Law. It was updated in 2012 by Local Law No. 2 of 2012. The purpose of the Onondaga County Source Separation Law is to:

- encourage and facilitate the maximum recycling practicable on the part of each and every household, business, apartment complex, industry, and institution within Onondaga County;

- establish, implement, and enforce minimum recycling practices and procedures to be applicable to all waste generators, waste haulers/recyclable collectors, and material recovery facilities (MRFs) located within Onondaga County;

- require onsite source separation by each and every waste generator within Onondaga County, and

- ensure that source separated recyclables are recycled properly and kept separate from other solid waste.

The law provides a list of items that must be recycled in Onondaga County, and includes certain penalties for non-compliance.

OCRRA ensures that waste generators comply with the law's requirements by a number of means, including:

- A sustained, high profile public education program that is fully described in Section 2.5 above.

- Making it easy for residents to participate in the community's curbside recycling through the provision of curbside recycling bins at no charge upon request; these are readily available at town and village highway garages; in the City of Syracuse, the Department of Public Works will deliver a bin(s) to residents upon contacting the City Line at 448-2489.

- Ongoing visitations to businesses, schools, and apartment complexes by the Agency's Recycling Specialists, providing guidance and free materials to help waste generators maximize their recycling efforts and comply with the local source separation law.

- Inspections by Agency Enforcement Officers of MSW loads delivered to the Waste to Energy facility to ensure that recyclables are not trashed and follow up with the waste generator if recycling laden loads are found. Such generators are subject to financial penalties if they do not comply with the local Source Separation Law.

- Provisions in the Agency's contract with local waste haulers that provide for contractual (financial) damages if the hauler is found to not be in compliance with the provisions in the law, including the requirements prohibiting mixing source separated recyclables with trash.

As indicated in Section 2.3 above, which summarizes the results of the Agency's most recent Waste Quantification and Characterization Study in 2019, relatively small percentages of recyclable materials are found in the trash; the strategies outlined above are successful and ensure that recycling is a commonly accepted (and expected) behavior in schools, homes, and businesses in Onondaga County, NY.

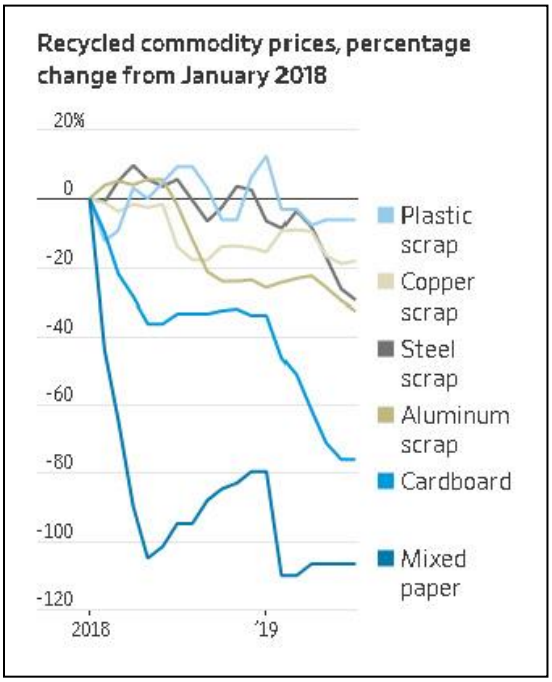
2.7 Obstacles that have prevented the planning unit from implementing tasks or achieving the goals of the LSWMP

The major obstacle challenging OCRRA's efforts to achieve the goals of the LSWMP is China's 2018 refusal to accept a wide variety of scrap materials for recycling, resulting in severely depressed material values, particularly mixed paper, and significantly undermining the Agency's ability to maintain the financial viability of the curbside recycling program.

The Covid-19 pandemic had a major impact on implementing tasks and achieving goals of the LSWMP as described in OCRRA's Quarterly Recycling reports submitted to the DEC throughout 2020. The 2020 Quarterly Recycling Reports can be found in Appendix K.

2.7.1 National Sword Guts Recycling Markets

Figure 3 – Recycled Commodity Prices[2]



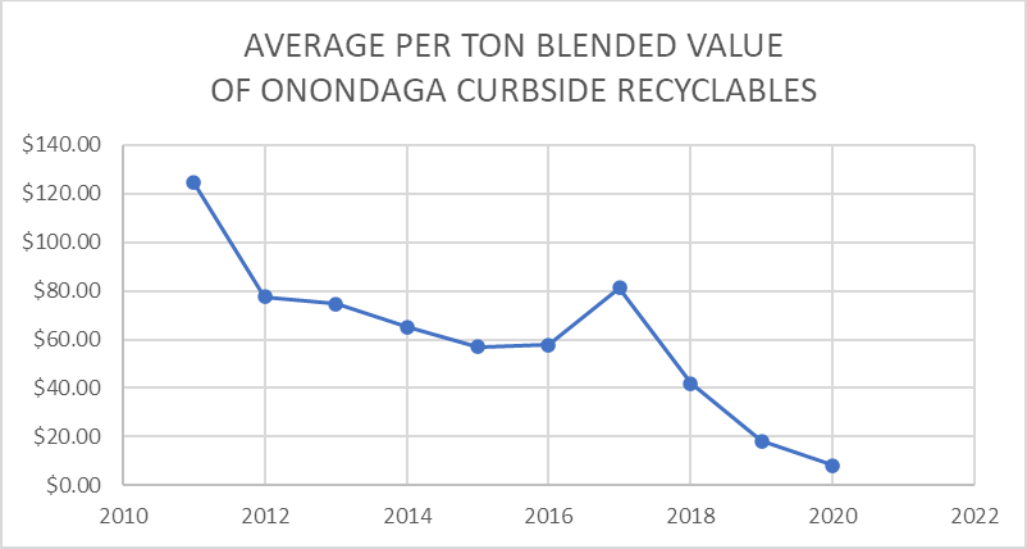
As reported in the 2017 Update to the LCSWMP, a glut of recyclables flooded the market in the wake of China's National Sword policy, resulting in severely depressed commodity values. On a local level, the cost of processing curbside recyclables was no longer offset by commodity values for fiber, plastic, and metal in the curbside recycling stream. In 2019 and 2020, this resulted in net processing costs of $1.8 million and nearly $2 million, respectively, for the Agency. The extreme decrease in values is evident in comparing recent MRF costs. In 2017, for example, the Agency actually received revenue of about $123,000 from the sale of recyclable curbside materials. In 2018, however, in the wake of China's National Sword program, the Agency had to pay its private sector MRF service provider over $667,000.

Market prices, particularly for mixed paper, have significantly reduced the Average Blended Value (ABV) of curbside recycling commodities. The ABV is received from the sale of processed residential recyclable commodities. The costs of processing and marketing materials is generally constant and is independent of market conditions, but increases over time due to inflation from rising labor costs and capital investments. The ABV is variable based on commodity market fluctuations and is therefore a useful number to track the performance of the recyclable commodity market

Figure 4 below indicates the decrease on a per ton basis of the average blended value of residential curbside recyclables as tracked since 2011. Such average blended per ton values are a weighted average based upon: 1) a predetermined percentage by weight of each commodity in curbside recycling, and 2) the market value for each commodity. Such average blended values are at record lows in the wake of China's National Sword policy. The trend line indicates the generally declining value of these materials on an aggregated basis; mixed paper and corrugated cardboard are the major driver of the average blended value calculation, as they comprise more than 50% of curbside recyclables by weight.

[2] Source: Wall Street Journal, September 8, 2019

Figure 4 – Average Blended Value of Residential Curbside Recyclables



As 2020 ended, commodity prices increased. OCC, mixed paper, aluminum, and natural HDPE values increased. The national average price for corrugated containers moved up 12% in December and was higher at the end of 2020 compared to 2019. Mixed paper was up 14% to an average of $32 per ton, and the last time the price for mixed paper was that high was October 2017. For additional detail on 2020 commodity values, please see the Agency's Quarterly Recycling Reports submitted to the NYSDEC, available online at OCRRA.org. While the price increase for commodity values is an encouraging sign, it nonetheless is a temporary condition as the values are extremely volatile. Municipalities, including the OCRRA system, can no longer face the market risk and uncertainty in the face of these continual market swings. As mentioned below, OCRRA strongly encourages NY State to adopt an Extended Producer Responsibility (EPR) model for product packaging and printed paper; the typical curbside residential recyclable materials.

The OCRRA Board of Directors established an ad hoc committee to identify potential short term and long term solutions to maintain the viability of OCRRA's award-winning municipal recycling program. The report of the "Recycling 2020 Committee" is found in Appendix I. The key conclusions of the ad hoc committee's report are as follows:

SHORT-TERM

- If market conditions worsen, begin charging haulers to deliver residential recyclables (currently OCRRA subsidizes this, so there is no fee to haulers).

- Seek permit variance from the NYSDEC to temporarily send recyclables to the WTE Facility, for electricity generation, when costs exceed budgeted resources.

- Explore removing glass from curbside recycling to control costs and improve quality of paper and cardboard recycling, prior to a NYS Bottle Bill expansion.

LONG-TERM The Committee recommends OCRRA continue to vigorously support the following policy solutions:

- Ask the Governor to direct municipal financial relief to help cover residential material sorting costs, estimated at nearly $60 million statewide (outside of NYC) in 2020.

- Expand the NYS Bottle Bill to include wine and liquor bottles, as well as non-alcoholic glass beverage containers, which comprise approximately 50% of the incoming glass stream at a Material Recovery Facility (MRF). If collected curbside, glass costs money to recycle; it contaminates other materials at the MRF and is abrasive to sorting equipment. Expanding the NYS Bottle Bill could result in recycling more than 100,000 tons of clean glass annually.

- Establish Extended Producer Responsibility (EPR) for packaging and paper, thereby shifting the end-of-life management of these materials to manufacturers and consumers, and relieving taxpayers and municipalities of the costs to sort, recycle and market these materials.

In 2020, the OCRRA Board authorized a new tip fee in 2021 for residential recyclables to help defray the Agency's MRF costs to sort and market the curbside materials; typically, over 37,000 tons of such materials are generated annually. While the fee will help defray the Agency's costs, it will not lead to reduced packaging waste, nor to the utilization of packaging materials that are more readily recyclable. OCRRA supports EPR.

2.8 Status of Adherence to the Implementation Schedule and Reasons for Deviations

The LSWMP set forth the following Implementation Schedule and Targets for 2019 and 2020. Table 7 below provides the status related to each of the Targets in the LSWMP.

Table 7 - Status of Implementation Schedule and Targets from LSWMP

PRIORITY	**2019/2020 Targets (per LSWMP)**	**STATUS**
Priority #1: Establish Key Contracts	Look at potential partnerships for the management of bypass waste that are unable to be processed at the WTE Facility	OCRRA secured 5-year contracts with High Acres and Seneca Falls landfills for waste that is unable to be processed at the WTE Facility.
Priority #2: Increase Waste Reduction and Recycling / Composting	Increase Food Waste Composting by 1,000 tons per year Explore the need for additional organics processing capacity Ongoing product stewardship advocacy and public education	Food scraps processing was maintained, not increased, in 2019 as part of an on-going inventory management and cost control effort. In 2020food waste composting was significantly decreased due to Covid-19 impacts. OCRRA is engaged in monitoring potential organics infrastructure that may be planned for additional capacity. This continues to be a top priority for OCRRA. See Section 2.7.1 for discussions regarding EPR.
Priority #3: Improve Data Collection and Management Systems	Develop recycling rates for specific waste categories	The Waste Q&C (see Section 2.3) established baseline quantities for waste categories for future planning.
Priority #4: Increase Operational Efficiency and Diversion Rates at Transfer Stations	Conduct hauler surveys to gain additional perspectives on efficiency opportunities	OCRRA met with haulers several times collectively and individually about the RCR Transfer Station and recycling to solicit feedback on specific initiatives.
Priority #5: Select Alternative for Sustainable Biosolids Management	Continue Researching best practices for biosolids management	Currently only one municipality has a permit for composting biosolids – the Village of Marcellus. There is also only one municipality with a permit for land application of biosolids – the Village of Tully. The remaining biosolids generated within the planning unit are disposed at landfills. The majority of biosolids are generated by Onondaga County at the Metro Wastewater Treatment Plant (WWTP) and the Baldwinsville Seneca Knolls WWTP. In October of 2018, the Onondaga County Department of Water Environment Protection (OCDWEP) entered into a five-year contract for biosolids transportation

		and disposal at fixed rates of $87.23/$97.23 per wet ton for Metro WWTP and Baldwinsville WWTP, respectively. The majority of OCDWEP's sludge is disposed at the Ontario County Landfill; lesser amounts are disposed of at Chemung County Landfill and Highland Landfill in Allegany County when the Ontario County Landfill exceeds daily capacity. The biosolids produced at the Metropolitan Syracuse Wastewater Treatment Plant (Metro), as well as biosolids transported from the County's other four (4) outlying WWTP's, are an anaerobically digested mixture of primary, waste-activated, biologically-nitrified, and chemical precipitated biosolids. It should be noted that to a lesser extent, approximately 3.5% of OCDWEP's annual biosolids production is also managed at the Baldwinsville Seneca Knolls WWTP. The aerobically digested sludge generated there is dewatered by belt filter presses to approximately 18 to 33 percent solids content (by weight). On average Onondaga County Department of Water Environment Protection disposes an approximate total of 36,000 tons of biosolids per year. As part of Onondaga County's longer-term biosolids management approach, OCDWEP has begun the process of upgrading their biosolids handling processes to include an additional drying process. This upgrade is in alignment with Onondaga County's continuous effort to take into account environmental and economic considerations while maintaining a potential for beneficial reuse. Onondaga County routinely reviews its biosolids strategy to maintain alignment with best management practices for biosolids.

The most recent LSWMP Update (completed at the end of 2019, for the compliance reporting period 2017-2018 and plan update for 2019-2020), included a revised implementation schedule for 2019-2020. Table 8 below provides the status related to each of the targets in the most recent LSWMP Update.

Table 8 - Status of Revised Implementation Schedule and Targets from most recent LSWMP Update

PRIORITY	**2019/2020 Targets (per most recent LSWMP Update)**	**STATUS**
Priority #1: Establish Key Contracts	Renew hauler contracts for 1 year term	One year hauler agreements were executed for 2019 and 2020.
	Negotiate MRF Contract with Waste Management - Recycle America	Agreements for 2019 and 2020 were negotiated and executed with Waste Management-Recycle America.
	Exercise option years at High Acres and Seneca Meadows for ash and bypass	Agreements for 2019 and 2020, through 2025, were executed with High Acres and Seneca Meadows.
	Renew household hazardous waste drop off contract with EPS/Miller Environmental	Agreements for 2019 and 2020 were renewed with EPS/Miller Environmental.

PRIORITY	**2019/2020 Targets (per most recent LSWMP Update)**	**STATUS**
Priority #2: Increase Waste Reduction and Recycling / Composting	Ongoing public education	Public education was continued through 2019 and 2020.
	Hold confidential paper shredding event	A confidential paper shredding event was held in 2019 and was postponed in 2020 due to Covid-19.
	Promote diverting textiles to Salvation Army/Rescue Mission	As shown in Section 2.5.8, OCRRA pursued social media campaigns to promote diversion of textiles.
	Promote diverting film wrap plastics to big-box retail outlets	As shown in Section 2.5.8, OCRRA pursued social media campaigns to promote diversion of film wrap plastics.
	Support NYS plastic bag ban effective March 2020	OCRRA pursued social media campaigns to support the plastic bag ban and distributed reusable bags to multiple social service organizations including the FoodBank and various community centers.
	Promote extended producer responsibility for packaging, batteries, glass	OCRRA pursued social media campaigns to support EPR. See Section 2.7.1 for other information regarding the status of EPR.
	Explore potential to further recover aggregates, fine metals, and other material with a Total Ash Processing System (TAPS).	OCRRA has determined that further recovery of aggregates, fine metals and other material with a TAPS is possible, although it is unclear if it is economically feasible in the near future. TAPS is not yet available for the OCRRF. Changes for material demands and recovery from Covid-19 impacts may determine when a TAPS system may be more viable.
	Promote food waste reduction and diversion efforts in collaboration with NOMOA among non-English speaking populations.	OCRRA continues to develop print, web-based and community outreach materials with NOMOA for distribution in the near future.
	Explore alternative uses for recovered bulky and C&D debris.	OCRRA continues to shred mattresses and recover metal from bulky and C&D debris.

PRIORITY	**2019/2020 Targets (per most recent LSWMP Update)**	**STATUS**
Priority #3: Improve Data Collection and Management Systems	Streamline data collection from voluntary sources Submit required data to regulators in a timely fashion.	Data collection was found to be most effective by using self=addressed stamped envelopes sent via US Mail and email follow ups as needed. OCRRA submitted all 2019 and 2020 data in a timely fashion and received no violations from regulatory agencies regarding unsubmitted data.
Priority #4: Increase Operational Efficiency and Diversion Rates at Transfer Stations	Complete Transfer Station Construction at RCR Integrate Commercial Hauling traffic to new RCR facility Evaluate space for residential drop off services for bagged MSW, bulky MSW and recyclables. Invest in multi-use dump trucks for hauling bypass, ash, and other material as needed.	Construction began in 2019 and was completed in 2020. Commercial haulers were integrated into the RCR Transfer Station in 2020. This was evaluated in 2020 and OCRRA has determined it will pursue options to integrate residential drop offs at the RCR Transfer Station. OCRRA purchased three multi-use dump trucks in 2019 and two in 2020.
Priority #5: Select Alternative for Sustainable Biosolids Management	Upgrade biosolids handling processes to include an additional drying process	OCDWEP received Onondaga County Legislative approval (project authorization and bonding authorization) for a Biosolids Dryer project in 2018. The dryer will be used to increase the solids content of the biosolids from approximately 30% dry content to up to 90% dry content; substantially decreasing the water content in the biosolids to provide a significant transportation and disposal cost savings to the County. The project is being performed as a design-build project under the NYS Energy Law. Design of the project began in December 2019 and 95% design documents were provided for County review on April 30, 2021. Construction is expected to start 3rd quarter of 2021 and be completed in late 2022 or early 2023. It is expected that biosolids will continue to be disposed of via landfill until the completion of the dryer project. Upon completion and operational use of the dryer for a period of time, alternative options for biosolids disposal may be reviewed, including beneficial reuse.

3.0 WASTE AND RECYCLABLES DATA

3.1 OCRRA Facilities That Accept Waste or Recyclables

The names and locations of OCRRA's facilities that accepted waste and recyclables for the reporting period 2019 and 2020 are as follows:

- RCR Transfer Station, 5808 Rock Cut Road, Jamesville NY 13078
- Ley Creek Transfer Station, 5158 Ley Creek Drive, Liverpool, NY 13088
- Jamesville Compost Site, 4370 Route 91, Jamesville, NY 13078
- Amboy Compost Site, 6296 Airport Road, Camillus, NY 13209
- Onondaga County Resource Recovery Facility (WTE Facility) 5801 Rock Cut Rd, Jamesville, NY 13078

In 2019, the RCR Transfer Station was closed for construction. Beginning in June 2020, the RCR Transfer Station serviced commercial/large haulers and contractors/small business users with C&D and mixed MSW/C&D loads. In 2019, and for the first half of 2020, the LC Transfer Station provided services for all solid waste transfer activities. In the second half of 2020, the LC Transfer Station provided trash and recycling drop-off services to residential customers only.

Data related to the waste and recyclable materials accepted at OCRRA facilities in 2019 and 2020 can be found in Appendices D through H in annual facility reports as previously submitted to NYSDEC.

3.2 Non-OCRRA Facilities that Accept Waste and Recyclables

The types of waste and recyclables that were generated by non-OCRRA facilities for the reporting period 2019 and 2020 are available in annual reports submitted to the NYSDEC at the following website:

ftp://ftp.dec.state.ny.us/dshm/SWMF/Annual%20Reports_Solid%20Waste%20Management%20Facility/Annual%20Reports_by%20Activity%20Type/

Please note that Internet Explorer is the preferred web browser for this website.

4.0 LSWMP SECTION UPDATES

As discussed above, in Section 2.4, the Agency has modifying transfer station operations in order to better serve the community while complying with revised 6 NYCRR Part 360 regulations. The LSWMP makes numerous references to the operations at OCRRA's Ley Creek and RCR Transfer Stations, primarily in Section 3.6 *Drop off Locations and Transfer Stations*. Section 3.6, 3.6.1 and 3.6.2 were previously updated in the most recent LSWMP update completed in 2019.

In addition, OCRRA has continued investing in facility upgrades to the WTE Facility as described in Appendix C.

4.1 OTHER REGULATED SOLID WASTES FACILITIES IN ONONDAGA COUNTY

In addition to OCRRA's solid waste facilities (including the WTE Facility, Ley Creek and RCR Transfer Stations, and Amboy and Jamesville Compost Sites), there are other independent solid waste operations within Onondaga County that are regulated by the DEC. These facilities are generally complementary to OCRRA's services, although some directly compete for waste materials – namely yard waste and C&D. As discussed in Section 2.5.1, in order to secure and achieve the public benefits of OCRRA's Local Solid Waste Management System (LSWMS), Onondaga County implements and enforces a regulatory system governing waste generated within the planning unit. Specifically, all municipal solid waste (including residential, governmental, commercial and institutional waste) must be directed to OCRRA's WTE Facility or transfer stations. This law specifically excludes recyclables, yard waste, and C&D.

4.2 Waste Transfer Stations

According to NYSDEC records for the 2019 calendar year (as reviewed in April 2021), there was one privately-owned and operated transfer stations and three municipally-owned and operated transfer stations within OCRRA's Planning Area, in addition to OCRRA's Ley Creek and RCR Transfer Stations. EPS/Miller Environmental, a private transfer station, primarily manages industrial waste streams. A municipal transfer station in the Town of Marcellus accepts construction and demolition debris. The second municipal transfer station is operated by the City of Syracuse on Peat Street that accepts C&D, mixed MSW and tires. The third municipal transfer station is operated by the Town of Spafford on Staton Road that accepts mixed MSW.

With respect to other transfer stations that did not appear in NYSDEC's records in April 2021, OCRRA has historical knowledge of transfer stations in the Town of Geddes that is used for municipal management of C&D, yard waste and metals which may or may not be delivered to OCRRA. Also, Syracuse Haulers has a solid waste permit to transfer C&D and recyclables – but not MSW.

5. REVISED IMPLEMENTATION SCHEDULE AND WASTE PROJECTIONS

The revised implementation schedule for the 2021-22 Planning Period, as compared to those defined in the LSWMP are as follows:

Priority #1: Establish/Extend Key Contracts
The target defined for the 2021/22 period is revised/replaced in its entirety to include the following:

- Preparation to extend hauler contracts, MRF contract and household hazardous waste contracts that expire in 2022.

Priority #2: Increase Waste Reduction and Recycling/Composting
The targets defined for the 2021/22 period are revised/replaced in its entirety to include the following:

- Restore food diversion to compost facilities following the Covid-19 pandemic.
- Support compliance for food waste generators due to the source separated organics ban
- Ongoing product stewardship advocacy and EPR support.

Priority #4: Increase Operational Efficiency and Diversion Rates at Transfer Stations
The target defined for the 2021/22 period is revised/replaced in its entirety to include the following:

- Implement findings from the Optimization Study commissioned for the renovated RCR Transfer Station.
- Extend hours of operation to integrate residential customer use at RCR for bagged MSW, bulky MSW, and recyclables.

5.1 WASTE PROJECTIONS

Without changes to state policy, OCRRA does not anticipate significant changes to the waste stream projections in the remaining years of the planning period. OCRRA is hopeful that New York State will adopt additional Extended Producer Responsibility (EPR) policies to shift the responsibility for material management from the municipality back to the product designer and manufacturer. Changes to incorporate EPR and organics diversion may impact MSW tonnages.

The table below is excerpted from the LSWMP, and provides the annual tonnage estimates for total MSW requiring disposal in the OCRRA system, based on the LSWMP's model developed using population growth and per capita MSW generation rates. As stated above, OCRRA is not anticipating any significant changes to the waste stream totals in the planning unit; the data below continues to reflect OCRRA's best prediction of MSW generation for 2021 -2024.

Table 9 - Tonnage Estimated for MSW Requiring Disposal

	LOW	MID	HIGH
2021	274,600	277,900	281,200
2022	275,100	278,900	282,700
2023	275,500	279,800	284,100
2024	276,000	280,700	285,500
2025	275,500	281,600	286,900

In terms of the projected composition of the MSW, it is anticipated that there will not be any significant changes to the waste stream for the remining years of the planning period as described in Section 5.1 of the Biennial Update. Appendix J includes the results of the 2019 Waste Characterization Study. Section 3.1 of the 2019 Waste Characterization Study describes the composition of the MSW (see Figure 3-1, page 3-1) and recoverability of the components of MSW (see Figure 3-4, page 3-3).

APPENDIX A: 2019 Annual Report on Recyclables Recovered

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Onondaga County Resource Recovery Agency

2019 ANNUAL REPORT ON RECYCLABLES RECOVERED

This report is submitted pursuant to:
NYSDEC Permit Number 7-3142-00028/00002-0 Certificate to Operate Onondaga County Resource Recovery Facility;
NYSDEC Permit Number 7-3156-00047/00001-0 Permit to Construct and Operate the OCRRA Landfill;
NYSDEC Permit Number 7-3148-00048/00001-0 Solid Waste Transfer Station-Ley Creek; and
NYSDEC Permit Number 7-3142-00036/00001-0 Solid Waste Transfer Station-Rock Cut Road.

Period reported: January 1, 2019 through December 31, 2019
Date: March 1, 2020
Planning Unit: **County of Onondaga** including the City of Syracuse, excluding the Town and Village of Skaneateles
Contact Person: Ms. Dereth Glance, Executive Director, OCRRA
100 Elwood Davis Road North Syracuse, NY 13212-4312

1. 2019 Recycling Data

OCRRA (Onondaga County Resource Recovery Agency) is a non-profit public benefit corporation charged with managing solid waste in Onondaga County (with the exception of the Town and Village of Skaneateles). This includes proper disposal of Municipal Solid Waste (MSW) and recycling. Since beginning operations in 1990, OCRRA has overseen the recycling of 12 million+ tons of material.

In 2019, **36,974 tons** of materials were collected from households through the blue bin curbside recycling program; there are approximately 180,000 households in the OCRRA Service Area, and a population of approximately 457,000.

In 2019, **468,456 tons** were recycled through mandatory and voluntary recycling efforts (both residential and commercial) in the community, for a **total recycling rate of 55%** (see Table 1). OCRRA also met permitting requirements for the Waste-to-Energy (WTE) facility set forth by the NYSDEC to maintain a 40% processible recycling rate[1], by reaching 40%, or comprising 183,989 tons (see Table 2).

OCRRA inventories and records recycling tonnages of all material recycled through the curbside program. Data collected from private commercial entities, as well as public and private institutions, are provided on a voluntary basis and are not audited by OCRRA.

Table 1 shows the total recycling and trash generation for 2019 in OCRRA's service area. In addition to the "mandatory recycling materials," meaning items that could be otherwise processed at the WTE Facility such as old corrugated cardboard (OCC), old newspaper (ONP), containers, paper, etc., this total also includes the "voluntary recycling materials," meaning items that could not otherwise be processed at the WTE Facility such as yard waste, sludge, construction debris, etc.

[1] The processible recycling rate, as defined by NYSDEC, considers only those materials recycled that could have otherwise been disposed of at the Waste-to-Energy facility. For example, it does not include yard waste, which is an unacceptable waste at the Waste-to-Energy facility.

Table 2 shows totals for only the "mandatory recycling materials," mentioned above. In Table 3, an estimated breakdown of tonnage by material is displayed, and finally, Table 4 shows greenhouse gas emission equivalents that were avoided by recycling in Onondaga County in 2019.

Table 1 - 2019 Total Mandatory and Voluntary Recycling and Municipal Solid Waste

Recycling	Tons	Percent of Total Waste
Curbside Recycling (Primarily Residential)	36,974	
Commercial Recycling (Primarily Business)	431,482	
Total Recycling	**468,456**	**55%**
Solid Waste		
OCRRA Municipal Solid Waste (MSW)	290,600	
Less MSW Ferrous & Nonferrous Recycling[1]	-13,286	
OCRRA Construction & Demolition Debris (C&D)	68,706	
Other Waste[2]	35,792	
Total Solid Waste	**381,812**	**45%**
Total Voluntary Recycling and Solid Waste:	**850,268**	

[1]Ferrous and nonferrous metals that are recovered from MSW at the Waste-to-Energy Facility and recycled are subtracted to avoid double counting.
[2]Includes biosolids currently being sent to a landfill.

Table 2 - 2019 Total Mandatory Recycling and Solid Waste[1]

Processible[2] Recycling	Tons	Percent
Curbside Recycling (Primarily Residential)	36,974	
Processible Commercial (Primarily Business)	147,015	
Total Processible Recycling	**183,989**	**40%**
Municipal Solid Waste (MSW)		
OCRRA Municipal Solid Waste	290,600	
Less MSW Ferrous & Nonferrous Recycling[3]	-13,286	
Total MSW	**277,314**	**60%**
Total Mandatory Recycling and Solid Waste:	**461,303**	

[1]Sources for these data include: recycling companies, retail and commercial firms, and governmental organizations which voluntarily report to OCRRA. Reported data have been adjusted to eliminate known double-counting. For example: If Generator A ships 500 tons of scrap metal to Recycler B and both organizations report 500 tons to OCRRA; OCRRA credits the system-wide total with 500, not 1,000 tons.
[2]Processible materials are those which could have been disposed of at the Waste-to-Energy Facility.

Table 7 - 2019 Estimated Recycling By Material		
MATERIAL	**TONS[1]**	**PERCENT OF TOTAL[2]**
Organic Wastes (excluding Paper)		
Food	95,409	20%
Yard Waste	5,293	1%
Wood	5,675	1%
Textiles	1,489	0.8%
Total Organic	**107,866**	**22.8%**
Plastics	**8,086**	**2%**
Metal		
Ferrous Metals, except MSW Ferrous	106,329	23%
MSW Ferrous and MSW Non Ferrous	13,287	3%
Non Ferrous Metals, except Aluminum and MSW Non Ferrous	11,022	2%
Aluminum	98	0.2%
Total Metal	**130,736**	**28.2%**
Paper		
Corrugated Cardboard	72,043	15%
Newspapers and Magazines	19,589	4%
Office / Mixed Paper	40,304	9%
Books	880	0.4%
Total Paper	**132,816**	**28.4%**
Sludge	**57,927**	**12%**
Other		
Glass	6,697	1%
Special and Hazardous Wastes	288	0.3%
Electronics and Batteries	5,738	1%
Appliances	224	0.3%
Miscellaneous	18,078	4%
Total Other	**31,025**	**6.6%**
TOTAL	**468,456**	**100%**

[1]Data reporting is voluntary and is not audited by OCRRA. Many businesses consider the tonnage and disposal of their special process wastes (the category "Special and Hazardous Wastes"), whether or not they are "hazardous", to be proprietary information. Therefore, the data concerning the recapture and recycling of waste, particularly in this category, may be underreported.

[2]Data may not equal 100% due to rounding.

Greenhouse Gas Avoidance

Recycling has many environmental benefits, including resource and energy savings due to avoidance of using virgin materials. The USEPA provides its WARM Model to allow users to estimate the amount of greenhouse gases (GHGs) saved due to recycling or composting. In the table below, the GHG emissions avoided for materials recycled in Onondaga County in 2019 has been calculated. In 2018, Onondaga County's recycling program **saved an estimated 821,792 metric tons of carbon dioxide equivalents** ($MTCO_2E$) from being emitted [2]. This is equivalent to **taking about 174,478 passenger vehicles off the road**.

Table 4 – 2019 Greenhouse Gas Emissions Avoidance

Material[1]	Recycling / Composting Emission Factors[2] (MTCO2E per short ton)	Combustion Emission Factors[2] (MTCO2E per short ton)	Difference	Tons Recycled/ Composted	GHG Emissions Mitigated ($MTCO_2E$)
Food	(0.18)	(0.13)	(0.05)	95,409	-4,770
Yard Waste	(0.18)	(0.17)	(0.01)	5,293	-53
Wood	(2.47)	(0.58)	(1.89)	5,675	-10,726
Mixed Plastics	(1.03)	(1.26)	0.23	8,086	1,860
Mixed Metals[3]	(4.39)	(1.02)	(3.37)	130,736	-440,580
Corrugated Box	(3.14)	(0.49)	(2.65)	72,043	-190,914
Newspaper and Magazines	(2.71)	(0.56)	(2.15)	19,589	-42,116
Mixed Paper - Office	(3.55)	(0.49)	(3.06)	40,304	-123,330
Books[4]	(3.10)	(0.47)	(2.63)	880	-2,314
Glass	(0.28)	0.03	(0.31)	6,697	-2,076
Electronics/Batteries[5]	(0.79)	0.39	(1.18)	5,738	-6,771
				TOTAL GHGs Mitigated	**-821,792**

[1]Some materials recycled were not included in this analysis due to a lack of equivalent emission factors: Sludge, Special and Hazardous Waste, Textiles, etc.
[2]GHG avoidance factors are taken from the USEPA's WARM Model, Version 15.0, updated May 2019: http://epa.gov/warm. Factors are based on recycling / composting vs. combustion.
[3]Mixed Metals include: Ferrous Metals, MSW Ferrous, Non Ferrous Metals, MSW Non Ferrous, Aluminum, and Appliances.
[4]Emission factor for textbooks was used for books.
[5]Emission factor for personal computers was used for electronics/batteries.

[2] Calculated using USEPA's Greenhouse Gas Equivalencies Calculator at http://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

Required Recycling

Onondaga County's local "Source Separation" (i.e. Recycling) Law was updated in 2011, and went into effect January 1, 2012. The original Source Separation Law, which mandated recycling of certain materials by all waste generators, was passed by the County Legislature in 1989.

The 2011 update:

- Clarifies requirements by simplifying language and spelling out specifics for businesses
- Requires haulers to provide recycling service to their customers
- Reinforces multi-tenant housing unit recycling requirements
- Requires that labeled recycling containers must be as easily accessible as trash cans

Below is a list of mandatory recyclables.

Table 5 – OCRRA Mandated Recyclables
• Office Paper and Discarded Mail
• Newspapers and Magazines
• Corrugated Cardboard, Brown Paper Bags, Paperboard, Pizza Boxes
• Milk and Juice Cartons, Gable-Top Cartons, Aseptic Cartons
• Glass Food and Beverage Containers
• Metal Food and Beverage Containers
• Aluminum Foil
• Aerosol Cans
• #1 and #2 Plastic Bottles
• #5 Plastic Dairy Containers
• Soft cover books

2. Markets, Trends and Material Recovery Facilities (MRF's)

Like other communities across New York State and the country, OCRRA has been hard hit financially by China's National Sword policy of ceasing to accept a wide variety of recyclable materials for reprocessing and remanufacture, particularly mixed paper grades, which, by weight, comprise 55% of sorted recyclables (see Appendix G). Under the MRF contract, the Agency received $123,000 in revenue from all materials recovered in 2017. In the wake of China's exit from the market in 2018, material values plummeted. In 2018, OCRRA paid more than $667,000 to the MRF; in 2019, OCRRA paid $1.8 million to the MRF. In 2020, there is a projected $2.5 million cost to OCRRA for the MRF to sort approximately 38,000 tons of residential recyclables. The Agency does not subsidize commercially-generated recyclables.

Market prices, particularly for mixed paper, have significantly reduced the Average Blended Value (ABV) of curbside recycling commodities, such that the value no longer covers the cost of processing the recyclables. The ABV is received from the sale of processed residential recyclable commodities. The costs of processing and marketing materials is generally constant, is independent of market conditions, but increases over time due to inflation from rising labor costs and capital investments. The ABV is a useful number to track the performance of the recyclable commodity market. Figure 1 depicts, on an average basis across the United States, the sharp decline in the ABV from $125 / ton at the end of 2016 to below $40 in the summer of 2019. Figure 2, on a broad scale, displays the drastic material value decline from 2015 to 2019 depicted by each commodity.

Figure 1 – U.S. MRF Average Blended Value (ABV) Per Ton Processed.
Source: Waste Management – Recycle America.

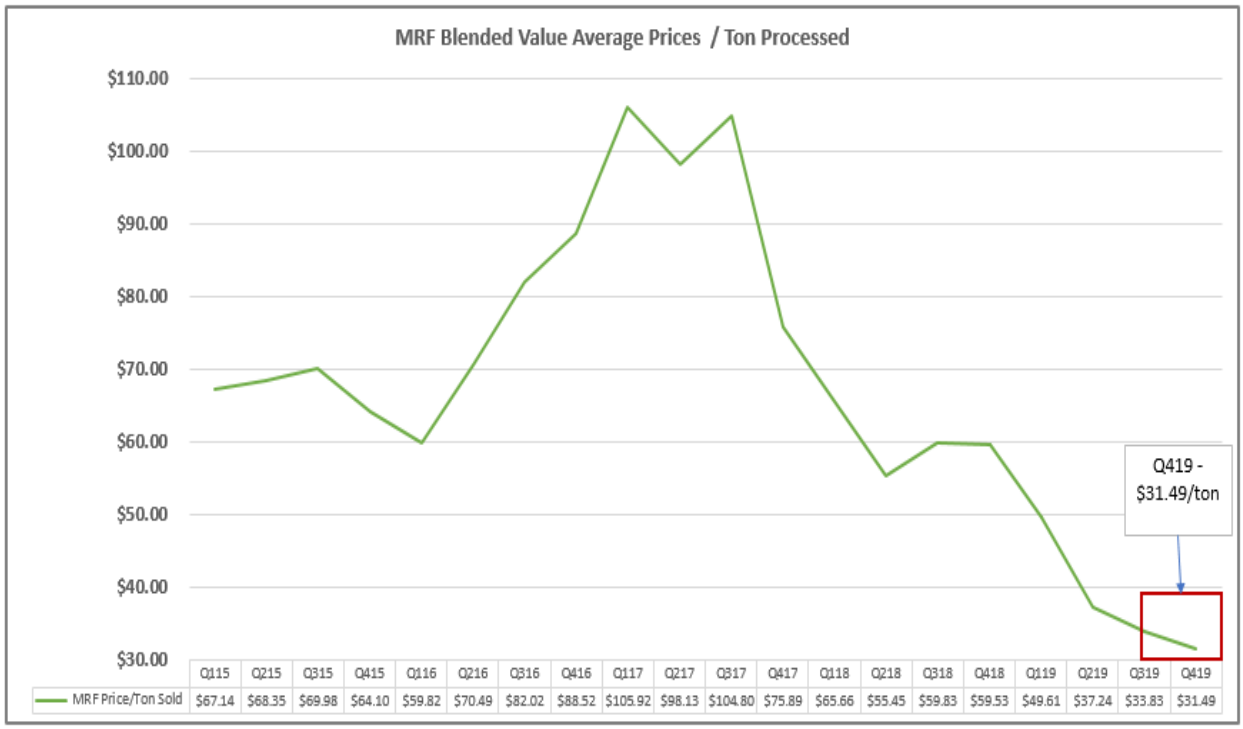
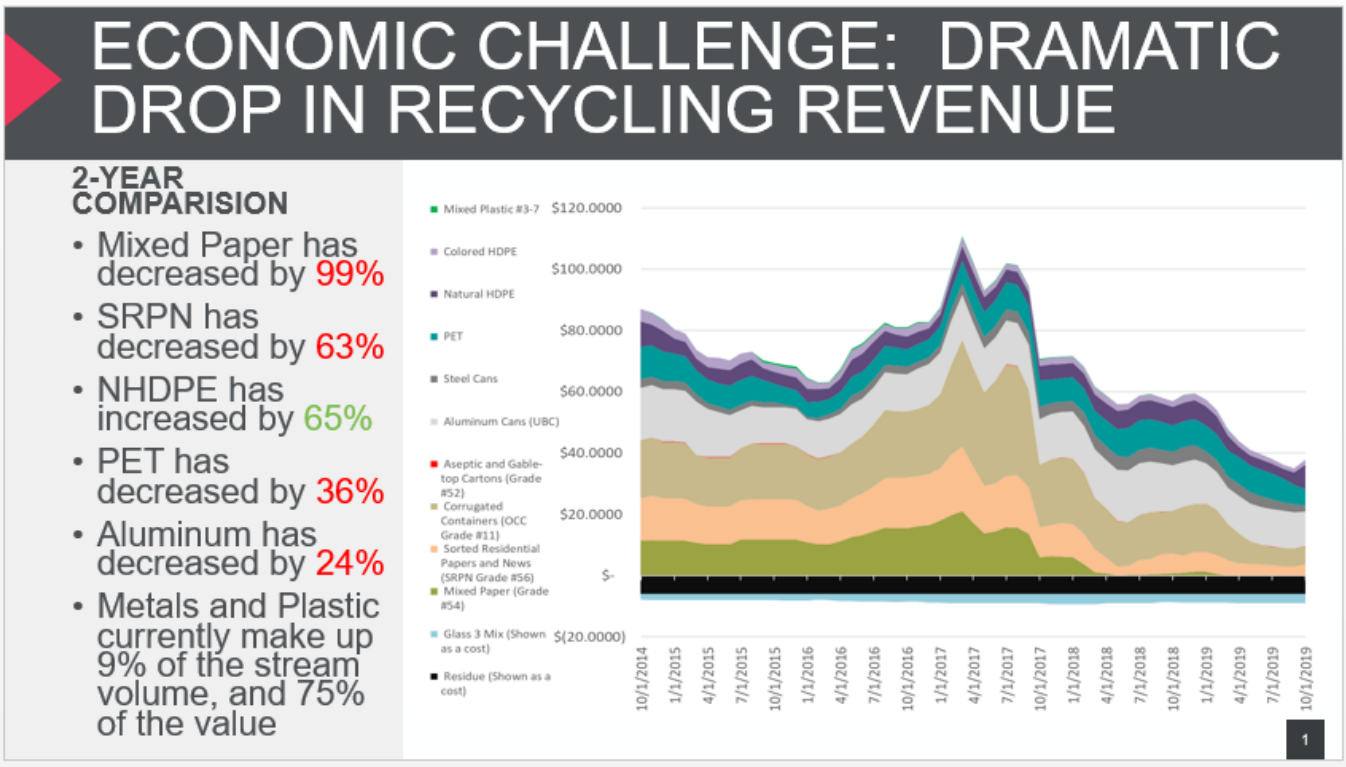


Figure 2 – Per Ton Recycling Revenue Trends by Commodity.
Source: Resource Recycling Systems (RRS).



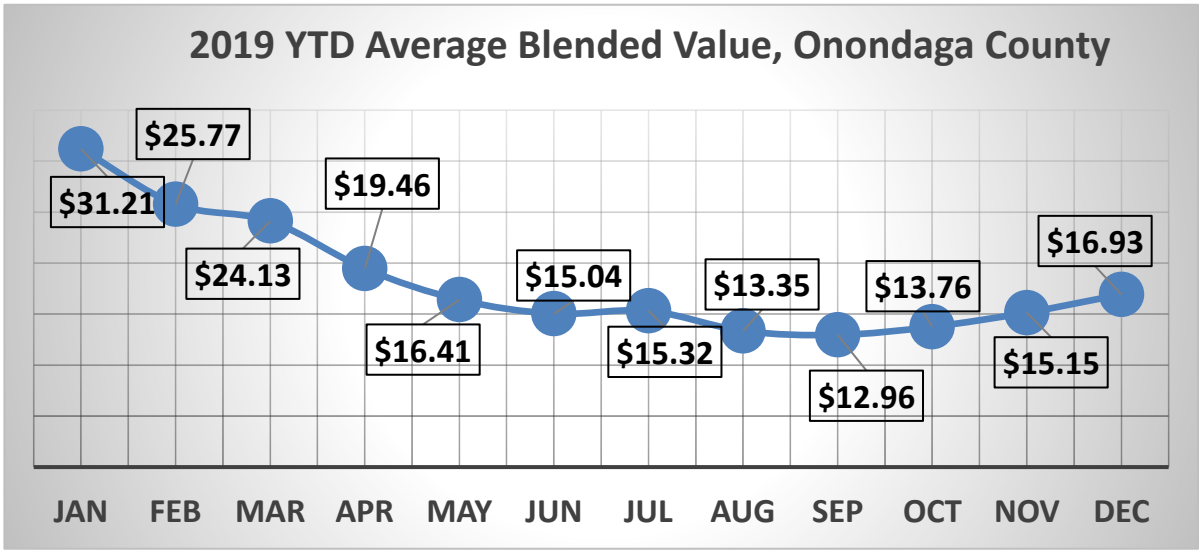
MRF Contract

For nearly 30 years, OCRRA has contracted with a local material recovery facility (MRF), that is owned and operated by Waste Management Recycle America, (WM-RA), to sort, bale and market the residential recycling material that is collected curbside by private haulers, municipal haulers and municipalities with private hauling contracts. There is no such contract arrangement for commercial materials, which is primarily commercial cardboard and office paper. The contract has been structured such that OCRRA pays a fee to WM-RA to perform the sorting, baling, marketing and transport of the recycled materials and shares in revenues created by material sale (if any). Depending on market conditions through the years, this contract has either cost or generated OCRRA revenue. In 2019, OCRRA paid $1,813,969 to the MRF.

Through this contract, OCRRA enabled private sector and municipal haulers to deliver residential recyclables to WM-RA at a tip fee of $0, thus providing an incentive for recycling to meet the County Source Separation Law and NYSDEC WTE permit requirements.

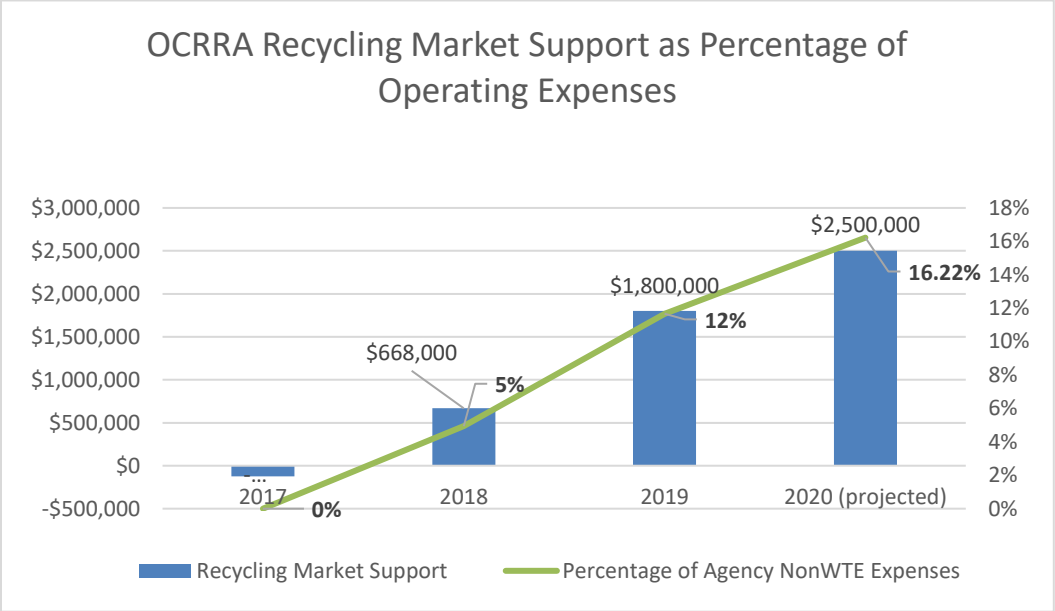
Figure 3 below indicates the decrease on a per ton basis of the average blended value of residential curbside recyclables as tracked during 2019. Such average blended per ton values are a weighted average based upon: 1) a predetermined percentage by weight of each commodity in curbside recycling, and 2) the market value for each commodity. Such average blended values are at record lows in the wake of China's National Sword policy, which is further discussed below.

Figure 3 – 2019 Declining Average Blended Value Per Ton of Blue Bin Commodities in Onondaga County

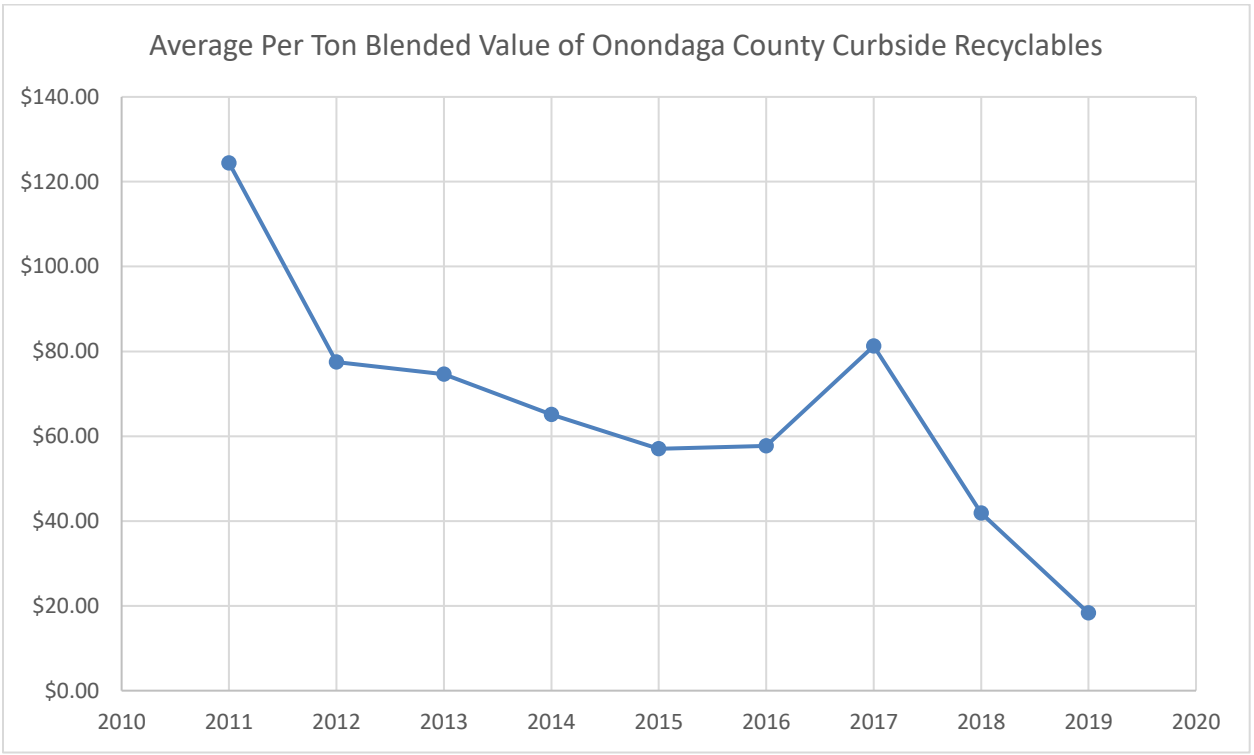


During the past decade, most of the demand for recycled material came from China. In 2018, China initiated their National Sword policy to drastically reduce material imports and put quality restrictions on imports of recycled material. As a result, the market prices for recycled material dropped precipitously. Payments to WM-RA went up to nearly $670K in 2018 and exceeded $1.8 million in 2019. In 2019, OCRRA had a contract with WM-RA in which the per-ton cost of sorting curbside recycling was not-to-exceed $49 / ton. The contractual per ton not-to-exceed cost increased to $65 / ton in 2020; which will result in projected MRF processing costs of $2.5 million paid by OCRRA to support curbside recycling. OCRRA's recycling costs now comprise 16.22% of the Agency expenses, excluding WTE fixed costs. These cost impacts are summarized in Figure 4.

Figure 4 – OCRRA Costs and Percentage of Total Agency Operating Budget for Recycling



The average blended per ton value of Onondaga County curbside residential recyclables on a multi-year basis is presented in Figure 5 below. The trend line indicates the generally declining value of these materials on an aggregated basis; mixed paper and corrugated cardboard are the major driver of the average blended value calculation, as they comprise more than 50% of curbside recyclables by weight.



Emerging Trends

There are multiple factors that can contribute to a reduction or an increase in recycling rates, including the following:

- The **decrease in newspaper and magazine** use due to continued growth of online news options, resulting in fewer subscriptions and therefore fewer papers printed.[3] Not only is the amount of papers printed decreasing, but so is the actual size of newspapers. There are less pages printed due to less advertising (because of a loss in readership), as well as a drop in classified pages as more people use online sites to sell items, services or search for jobs.

- **"Thinwalling"**, also a global trend, is where the materials used to create certain packaging, such as plastic water bottles, aluminum cans, and fiber packaging, are thinner and therefore weigh less. On an aggregated basis, the "loss" in material is significant.

- In the future, the trend of **smaller electronic products** could result in less recycling tonnage; a smart phone combines the functions of a telephone, video camera, still camera, watch, music player and more. This reduces the number of products in our homes and subsequently in the waste stream.[4]

- **Plastic bags are being banned** far and wide, including state-wide in New York, starting in March 2020.

- Increasing momentum for **Extended Producer Responsibility** legislation for product packaging as a long term strategy to buffer local municipalities from the volatility of global commodity markets by requiring manufacturers to assume responsibility for recovering and recycling the product packaging they introduce into the market place, and promoting upstream, engineered solutions to material recovery.

- **Zero Waste**: Many towns/villages/cities are ascribing to zero waste goals. This means that there is a conscious effort to reduce waste, reuse more and recycle just about everything leftover.

- **Organics Bans**: Some states have implemented mandatory food waste composting and banned all organics from landfills.[5] New York regulations are currently being developed.

- The use of **carts for trash and recycling** is a trend nationally and a few haulers in Onondaga County have chosen to embrace it as well. The use of carts could increase recycling and reduce litter.

- Increase of the use of robotics, and technology improvements, at material recovery facilities, to automate and advance the efficiency of sorting, in order to improve quality of recyclables.

Some of these trends result in less material generation. So, while there may be a significant net decrease in the available material for recycling, these trends do represent an overall environmental benefit due to waste reduction.

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[3] deThomas, D. The Shape of MRFs to Come. Resource Recycling, Dec 2011.

[4] http://waste360.com/blog/circular-file-less-less

[5] http://compostingcouncil.org/landfill-bans-on-organics/

Extended Producer Responsibility

Many states, including New York, have begun passing legislation requiring manufacturers to take responsibility for the end-of-life management of their unwanted products and product packaging, which relieves local municipalities of the responsibility of recovery and proper disposal / recycling, including the associated costs. There are over 110 such EPR laws in the US. NY State's EPR laws include the following:

- Rechargeable Batteries
- Electronics
- Mercury Thermostats
- Pharmaceuticals (passed in 2018; anticipated to go into effect in 2020)
- Paint; passed in 2019 session and signed by the Governor 12/19

Bottle redemption laws are also a form of EPR, which is also known as "Product Stewardship." In the wake of the devastating financial impact caused by China's National Sword campaign, several states, including Connecticut, Maine, Indiana, Washington and Vermont, are also now evaluating an EPR approach for all packaging and printed paper.

Currently, there are other EPR laws proposed in NY State for the following materials:

- **Product Packaging**
  A9790 (Englebright)
  S7718 (Kaminsky)
- **Primary Batteries**
  A04105 (Englebright):, same as S02610 (Metzger): – Referred to Environmental Conservation
- **Solar Panels**
  S00942 (O'Mara): – Referred to Environmental Conservation
- **Carpet and Mattresses**
  2020 Executive Budget Bill, Sub Section SS.

Under an EPR approach, material recovery is managed by product manufacturers. Program costs are paid through the purchase of the product, not through a taxing structure.

According to Scott Cassell, Chief Executive Officer of the Product Stewardship Institute, "The collapse of recycling markets following China's policy to restrict imports of recyclable materials has made it clear that communities are unfairly burdened by an inefficient and costly waste management system."

2019 Waste Quantification & Characterization

In the spring and fall of 2019, a Waste Quantification & Characterization (Q&C) study was performed to measure the composition of curbside recyclables and Municipal Solid Waste (MSW), brought to the Waste-to-Energy plant operated by Covanta Energy. Samples from these streams were sorted into more than 60 categories, and the results will be used to inform policy decisions concerning the list of mandatory recyclables, as well as provide areas of strategic focus for public education.

According to the findings of the study, the majority of mandatory recyclable materials are indeed being recycled. However, approximately 7.2% of MSW is potentially recyclable fiber (cardboard (5%), office paper (0.7%), newspaper (1.0%) and magazines (0.5%)) and 21% is food waste. These constitute the largest volume by far of potentially recyclable material that ends up in the trash.

Another key finding of the Waste Q&C was that much of the glass found in the typical curbside recycling bin (14.7%) was beverage containers such as wine bottles (6.3%), liquor bottles (3.0%) and non-alcoholic

beverage containers such as ice tea bottles (5.4%). None of these bottles currently have a deposit; they are not included in the New York State Bottle Bill. If the Bottle Bill were to be expanded to include wine and liquor bottles, it would have a significant positive impact on recycling, as bottles that have a deposit are recycled at a much higher rate than those without one. When left in the blue bin, glass is typically used for daily cover and engineering purposes in a landfill. Bottles that are recovered through the deposit Bottle Bill are remanufactured into new glass containers.

3. 2019 Recycling Program Costs

OCRRA manages the solid waste and recycling program for 33 municipalities in Onondaga County. Each municipality is unique in its solid waste collection. Some provide waste and recyclables collection through their own public employees, some contract with private waste hauling firms to provide services for their residents, and still others require residents to arrange for disposal and recycling by contracting with a private hauler or bringing their MSW and recyclables to an OCRRA transfer station.

OCRRA is not funded by taxes. The trash tipping fee revenue and energy revenue from sale of electricity generated by the WTE plant provide the bulk of the financing for recycling program components essential to achieving the mandated recycling rate. OCRRA applies for New York State grants through competitive applications as well. Program costs include OCRRA's comprehensive public education program which consists of radio, TV, web and print media campaigns; on-site visits to businesses, schools and apartment complexes by a staff of recycling professionals offering technical assistance; classroom presentations on recycling and environmental stewardship; and numerous brochures and educational materials. OCRRA received $1,258,005 in state grants in 2019, in connection with reimbursement of Household Hazardous Waste collection expenses, compost equipment, and curbside blue bin purchases, and the three-year recycling advertising and educational grant.

OCRRA's recycling program covers costs necessary to assure waste haulers a zero tip fee at the private sector Material Recovery Facility (MRF) for residential recyclables during poor commodity market conditions. OCRRA also manages a transfer station that allows for the drop-off of blue bin recyclables at no cost. The transfer station is also a drop-off point for additional materials such as scrap metal, small appliances, mercury thermostats, mercury thermometers, fluorescent lamps and household batteries.

During 2019, OCRRA's Recycling Program managed:

- Two yard waste compost sites.
- A commercial and institutional food waste composting program at the Amboy Compost Site (open year-round);
- A year-round Monday-Friday appointments for residents to drop off Household Hazardous Waste (HHW);
- A free "Shred-O-Rama" event, in which mobile shredding trucks shredded household confidential papers on-site and then recycled the clean shredded paper;
- Year-long household battery collection at local drop-off points and a curbside collection in July;
- A mercury thermometer and thermostat exchange program; and
- Special services and programs for businesses, schools and apartment building managers and owners.

Direct program costs in 2019 (unaudited) associated with the recycling services are as follows:

Table 7 –RECYCLING COSTS		
PROGRAM	**2019 EXPENSE**	**2018 EXPENSE**
Recycling Personnel *	$724,377	$656,929
Material Recovery Facility (MRF) Fees	$1,808,223	$667,920
Public Education - Outside Service	$436,488	$281,911
Composting**	$292,115	$256,507
Household Hazardous Waste (HHW) Collection	$91,862	$97,387
Blue Bin Expense	$192,980	$124,832
Other Recycling Programs	$255,825	$159,227
Total Cost	**$3,801,870**	$2,244,713

*Includes all permanent compost personnel.
** Includes all temporary personnel.

3. Public Education, Program Outreach and Enforcement

OCRRA continues to invest in a high-profile effort to ensure that residents, businesses and institutions understand and follow the local law mandating source separation of recycling.

Recycling Team

OCRRA employs a professional recycling team engaged in spreading the recycling message and bringing technical assistance to residents, schools and businesses in Onondaga County. In 2019, the Recycling Specialists visited hundreds of local businesses, apartment complexes and schools to offer assistance in designing effective recycling programs as well as to offer free recycling containers and decals.

When needed, OCRRA Enforcement Officers supplement the efforts of the Recycling Specialists. An enforcement officer calls on businesses and apartment buildings when it is determined that other approaches have not resulted in compliance. Each enforcement officer spends a significant portion of the week inspecting loads of solid waste at OCRRA's Waste-to-Energy facility to ensure that those containing recyclables are issued warnings and/or notice of violations. Recycling Specialists visit waste generators that may be in violation to determine the source of the problem and assist in designing a recycling program which will capture the mandated recyclables, before any fines are sought. Additionally, all members of OCRRA's recycling team are members of the New York State Association for Reduction, Reuse and Recycling (NYSAR[3]).

Highlights of the 2019 OCRRA Recycling Program:

Again in 2019, OCRRA's award-winning recycling programs demonstrated sound environmental solutions, excellent public participation and quality disposal and recycling services for the residents of Onondaga County, including:

- The community recycled over 450,000 tons of material in 2019, for a 55% recycling rate, resulting in waste disposal costs savings of over $44 million, while also avoiding over 800,000 metric tons of carbon dioxide.

- $1,258,005 in state grants were received in 2019, in connection with reimbursement of Household Hazardous Waste collection expenses, compost equipment, curbside blue bin purchases and the three-year

recycling advertising and education grant.

- OCRRA's Earth Day Litter Cleanup was held on Friday, April 24, and Saturday, April 25. More than 6,000 volunteers from 300 groups participated; **60,000+ pounds of litter were collected**; more than 2.5 million pounds of litter collected since 2003; one of the largest Earth Day litter collection events in the country.

- Over 44 tons of paper from 2,416 residents were shredded and recycled as part of a July "Shred-o-Rama" event at the NYS Fairgrounds. Since the Agency started this program in 2004 to help local residents prevent identity theft, over 1.3 million pounds of confidential personal documents have been recycled.

- OCRRA partnered with Covanta to host a mercury collection event in August. Thanks to over 140 residents, 188 mercury thermometers and 112 mercury thermostats were collected; **636 grams of mercury prevented from entering the environment**, which is comparable to recycling 150,000+ compact fluorescent light bulbs. Residents can recycle mercury thermometers and thermostats year-round at OCRRA's Ley Creek Drop-Off Site and get a $5 Home Depot Gift Card from Covanta and a replacement thermometer.

- OCRRA's pioneering food scrap composting service processed over **6,700 tons of food scraps** in 2019 from commercial and institutional generators. This included thousands of pounds of cafeteria food scraps separated daily by 7,000 local school children. After a 90-day processing period, this material was among the 4,500 yards of compost that was utilized to restore the habitat along the western shoreline of Onondaga Lake, as well as in other commercial and residential applications.

- OCRRA continued its compost bagging collaboration with Arc of Onondaga. Arc assists individuals with developmental disabilities to achieve their fullest potential. Thousands of bags of OCRRA's STA-certified compost were sold through a network of 30+ lawn and garden retail outlets, helping to return valuable nutrients to local soils.

OCRRA Communications

The Onondaga County community maintains an excellent recycling rate. Employing frequent and consistent communication from OCRRA is necessary to remind current residents of what is recyclable, to alert those who recently moved to the area of the recycling rules and to inform the public of special collection events.

To keep the public abreast of the recycling program, OCRRA continued its extensive public communication program throughout 2019, investing resources into direct public education through TV, web and print media. OCRRA's public message promotes the "why" of recycling and the difference one person can make in preserving natural resources for future generations. This campaign was based on community surveys which asked what messages would resonate. It uses the slogan "Save the World a Little Each Day," demonstrating that the simple act of recycling can help the environment in a meaningful way. This campaign also emphasizes the OCRRA website as a community resource. For examples of the ad campaign, please visit: https://ocrra.org/news-and-events/media/ad-campaign.

The Agency's comprehensive website, (www.OCRRA.org), provides enhanced search features to allow users to quickly find recycling options for their unwanted items, along with waste reduction and reuse tips for those items, when appropriate. It also allows users to make online reservations for household hazardous waste drop off, and purchase both compost passes and trash disposal stickers online. Additionally, it houses a recycling supply order form, which allows businesses, schools and apartment buildings to order free recycling containers and decals with a few simple clicks (see: https://ocrra.org/order-supplies/).

In addition to paid media advertising, OCRRA continues to publish its quarterly newsletter (see: https://ocrra.org/about-us/newsletter/) which contains articles written by OCRRA staff that highlight special recycling events, stand-out businesses and schools as models of excellence, and inform the public about specific recyclable materials. OCRRA distributed the newsletter as an insert in the Onondaga County Eagle Newspapers and in the Sunday Post-Standard. The newsletter also reaches the public through Onondaga County libraries, government offices (villages and town clerks) and special events. In total, more than 100,000 households receive the newsletter on a quarterly basis.

One of OCRRA's most effective means of communication is email. Through a web-based system, emails covering various recycling topics and upcoming events are regularly sent to nearly 8,000 people. In addition to this primary contact list, OCRRA has the ability to create smaller sub-lists and send emails to select groups of people (such as compost site users or school teachers). Email blasts are an inexpensive and effective way of reaching thousands of people and are growing in popularity as the email address list grows each year.

OCRRA also continued its social media presence with its Facebook page, and a YouTube channel in 2019, allowing people to actively engage in discussion about recycling and OCRRA services. New information about upcoming events and highlights of local recycling and waste reduction achievements are posted on a regular basis. Additionally, the community is able to learn about operations through a series of videos highlighting the Compost Site, Transfer Station, Waste-to-Energy Facility, and the privately-owned Materials Recovery Facility (MRF).

Lastly, OCRRA provides numerous posters, brochures and decals at no charge to businesses, residents and institutions. These items act as prompts to remind people to recycle, as well as to inform them of the correct rules.

Community Events and Public Outreach

OCRRA is committed to maintaining high levels of community participation through its recycling program. In 2019, OCRRA's recycling team participated in numerous area events and fairs, including Party for the Planet at the Rosamond Gifford Zoo in Syracuse, the Taste of Westcott Street (for Syracuse University students), Save the Rain's Clean Water Fair and the CNY Home & Garden Show, among others. Recycling, reduction and compost information was distributed including blue bins, recycling instructions and numerous recycling-related promotional items. OCRRA interacted with thousands of people at these community events.

In addition to events, OCRRA Recycling Specialists conducted multiple presentations to a wide variety of audiences, including school-age children, business office staff, teachers, Rotary Clubs, Boy and Girl Scout troops and neighborhood groups. These presentations all provided information about recycling, as well as the importance of environmental stewardship.

OCRRA Recycling Specialists also shared their expertise by presenting at various industry conferences in 2019, including the annual Federation of NY Solid Waste Associations Conference and the annual New York State Association for Reduction, Reuse and Recycling Conference.

Earth Day

OCRRA also sponsors an Annual Earth Day Litter Clean-Up, which is a community-wide, two-day event occurring in April each year. In 2019, **6,300+ volunteers from over 300 community groups participated, collecting 60,500+ pounds of litter** as part of this annual cleanup program. Volunteer groups consisted of schools, Girl and Boy Scout troops, community and neighborhood groups, and businesses. This program has been a continued success since 1994, with over 2 million pounds of litter cleaned up to date. *(At right, Earth Day cleanup volunteers in Syracuse.)*

Apartment Recycling

Onondaga County has hundreds of multi-unit apartment buildings, which present a unique set of challenges to recycling, such as space constraints and inconvenient recycling bin locations. To assist residents in 2019, OCRRA Recycling Specialists visited dozens of apartment complexes (over 100+ total apartments) and spoke with numerous landlords and property managers to ensure that proper recycling occurred. To help facilitate a great recycling system, OCRRA provided brochures, magnets, decals and special containers, as well as presentations at group meetings.

Business Recycling

OCRRA's Recycling Specialists regularly call on businesses in Onondaga County to help them design effective collection systems for recyclables. During 2019, OCRRA continued to provide free consultations, as well as free containers and decals to all types of businesses, over 165+ in total. Business can access a wide variety of information on OCRRA's website (https://ocrra.org/services/recycle/recycling-for-business/) to enhance onsite recycling and waste reduction efforts, including ordering containers, recycling guides, and posters to promote recycling within the office environment. Each year, business recycling accounts for some 80% of the community's total waste reduction effort. In 2019, businesses recycled over 145,000 tons of mandatory recyclable materials.

In the fall of 2009, OCRRA began the Blue Ribbon Recycler Program to recognize businesses that demonstrate recycling excellence in the workplace. Each applicant to the program must meet specific criteria in regards to recycling, such as providing recycling containers for all employees and purchasing recycled paper. Once a Recycling Specialist determines that a business qualifies, it receives a certificate from OCRRA and recognition on the OCRRA website. If a business does not meet all criteria, it provides an opportunity to identify areas for improvement. The Blue Ribbon Recycler Program is an incentive for businesses to achieve recycling excellence by offering them recognition that they can then share with their clients and customers. In 2019, two additional local business were certified as Blue Ribbon Recyclers through this program: The Intelligence Group and SWBR. To date, there are over 65 certified Blue Ribbon Recyclers in Onondaga County.

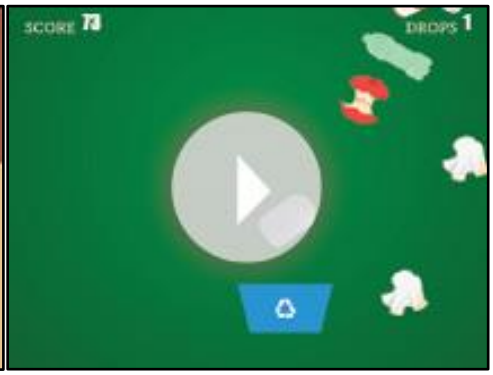
Recycling at Schools

Schools generate a significant portion of the recyclables in a community, in the form of paper, cardboard

and containers. Because of this and the importance of educating children early about recycling, schools are always a major focus of OCRRA's public education. Recycling Specialists regularly visit school custodians, teachers and administrators to help with design and improvement of their recycling programs. OCRRA's Recycling Specialists provided over 150 classroom presentations and assemblies for the 130 schools throughout the county in 2019. An additional triumph of OCRRA's school outreach results from those schools in the community that voluntarily participate in a cafeteria food scraps recovery compost program. In 2019, a total of 16 schools spread throughout 5 districts, yielding a total of 7,100+ students in Onondaga County, separated food scraps for OCRRA's large-scale compost efforts every day.

Students at Cherry Road Middle School in Syracuse participate in OCRRA's cafeteria food scraps recovery compost program. The Westhill School District is one of five total school districts that currently participate in this program: 7,169 total students, across 15 schools, in 5 districts, in Onondaga County are composting their leftover school lunch food scraps on a daily basis.

Additionally, 2019 continued the implementation of OCRRA's interactive, digital online education program. This web-based program includes a series of professionally-produced videos, interactive games and curriculum-aligned classroom activities. Aimed at third through fifth graders, this program teaches students about waste reduction, composting and the waste-to-energy process in a convenient online format. The videos and games can be accessed via the internet in and out of the classroom at teacher and student convenience. Students can participate on their own with individual computers, tablets and mobile devices, or they can work together on classroom "smart" boards. The content adheres to NYS curriculum requirements and all topics include a list of vocabulary words with full definitions to review, as well as pre- and post-testing questions to evaluate student knowledge. The program has been well received by both students and teachers in the 100+ classrooms that have executed it in the community so far, with student test scores increasing an average of 13% after completing the activities and videos. Check out the online education program here: http://ocrra.org/services/education-program/



Screenshots of OCRRA's online educational videos and digital games found at ocrra.org.

Yard and Food Waste Composting

OCRRA's composting facilities help New York State meet its environmental policy objectives to keep organics out of the trash by developing organics management infrastructure.

In 2019, OCRRA's state of the art food and yard waste Amboy Compost Facility processed over 6,000 tons of total food scraps.

Included in this total is food waste from:

- Arcadis
- Barton & Loguidice
- Bliss Ice Cream
- Crouse Hospital
- G&C Foods
- Jordan-Elbridge Central School District (Chartwell Services)
- Fayetteville-Manlius School District
- Giovanni Food Company, Inc.
- Holy Family School in Fairmount
- LaFayette School District (Grimshaw Elementary)
- LeMoyne College (Sodexo)
- Manlius Pebble Hill School
- Marriott Syracuse Downtown
- Novelis
- Onondaga Community College
- Pastabilities Restaurant
- Paul deLima Coffee
- Russo Produce
- Sheraton Syracuse University Hotel & Conference Center
- SUNY Upstate at Community General Hospital (Morrison)
- SUNY Upstate University Hospital
- Syracuse Banana
- Syracuse University
- The Centers at St. Camillus (Sodexo)
- The Sweet Praxis
- Wegmans, includes 8 CNY stores
- Westhill Central School District
- West Genesee School District (Split Rock Elementary)

In 2019, OCRRA continued its association with the US Composting Council and their Seal of Testing Assurance (STA) Program. OCRRA's finished compost is USCC STA certified, meaning that it is a high-quality material that is consistent from batch to batch and guarantees that it has been laboratory tested by a third party and meets all USCC, NYSDEC and US EPA criteria. Quarterly sample results are available at www.ocrra.org. The demand for OCRRA's compost products continued to grow and has been used in many "Green Infrastructure" projects across the State.

Finished compost sales from the Amboy and Jamesville Compost Sites included over 14,000 cubic yards of compost and 5,200 cubic yards of mulch in 2019. Through a partnership with ARC of Onondaga, OCRRA's premium compost was once again offered for sale in conveniently packaged 1 cubic foot bags (*seen in photos below*), at 30+ local retail outlets throughout the community.

As in previous years, OCRRA's finished compost was available for residents to take home as part of the Residential Pass Program. In 2019, the "Residential Pass Program" enabled residents to purchase a drop-off pass for $25, which allowed them to drop off an unlimited amount of food and yard waste at either of our compost sites. Residents were also able to purchase finished mulch and compost by the trunk load or in bulk. In 2019, residents purchased over 2,100 compost passes.

OCRRA again in 2019 offered its free Christmas tree recycling program to residents. The facilities were open for a two-week period in January for residents to drop off their Christmas trees for composting at no charge.

Batteries

Residents in the OCRRA service area are able to drop off their old batteries at nine local grocery stores, which are then collected weekly by OCRRA. In addition, OCRRA offers a curbside collection of alkaline batteries each year during the month of July. In 2019, over 60 tons of batteries were collected, including over 6,000 pounds of rechargeable batteries which are recycled at no cost through the Call2Recycle program. Residents in the OCRRA service area are now recycling more rechargeable batteries per capita than any other large community in New York State. More information about OCRRA's battery collection program is available online at: http://ocrra.org/resources/household-batteries/

Fluorescent Light Bulbs

Fluorescent light bulbs are a popular household item because of their energy saving potential. However, these energy efficient bulbs contain a small amount of mercury, a potentially harmful chemical, and should not be mixed with regular household trash at the end of their life. To encourage residents to dispose of these properly and keep mercury out of the trash, OCRRA partners with local hardware stores to provide residents with convenient locations to drop off old bulbs. From the stores they are shipped off for proper disposal. There are 15 participating stores throughout the county. Over 30,000 bulbs were collected in 2019 at these stores. Further information about this environmental program is available online at: http://ocrra.org/resources/fluorescent-bulbs/

Household Hazardous Waste

In 2019, OCRRA continued the convenient, year-round Household Hazardous Waste (HHW) collection model that was started in 2013 in response to residents' suggestions. This HHW program consists of a Monday-Friday drop –off at Environmental Products and Services of VT, Inc. This popular environmental service allows residents to safely dispose of their hazardous waste, keeping these materials out of the waste stream. Among the hazardous wastes collected are adhesives and resins; oil-based paint; paint thinner; solvents; thermometers, thermostats, and other mercury containing products, pesticides and fluorescent light bulbs. Direct costs are included in the fee per vehicle charged by the vendor to OCRRA. In 2019, 1,861 residents took advantage of this drop-off program, dropping off a total of 19,439 gallons and 17,580 pounds of hazardous materials for proper disposal.

Mercury Thermometer/stat Exchange Program

OCRRA partners with Covanta Energy to provide residents with non-mercury thermometers in exchange for their old mercury thermometers. Over 145 residents brought in 188 thermometers and 112 thermostats for recycling in 2019. This amounts to approximately 1.1 pounds of mercury being removed from the environment. This exchange program helps prevent mercury contained in household items from escaping into the environment when broken or improperly disposed. Thermostats are handled through the Thermostat Recycling Corporation (TRC), a national industry-funded program that provides proper disposal of mercury-containing thermostats at no cost.

Shred-O-Rama

In response to increasing public concern over identity theft, OCRRA held another annual Shred-O-Rama event in 2019 in Syracuse. Over 2,000 residents attended the event, and dropped off 44 tons of confidential documents to be shredded. Paper was shredded on site and then recycled by Confidata and Shred Solvers. Since OCRRA started offering this program in 2004, over 650 tons of paper have been shredded and recycled.

Non-Profit Recycling Incentive Program for Local Charities

In 2019, OCRRA again provided a "recycling credit" to the local Rescue Mission, Salvation Army, and Habitat for Humanity for each documented ton of material (clothing, furniture, etc.) recycled through their organizations. The organizations were credited toward their monthly waste disposal fees through the OCRRA system. In 2019, OCRRA credited these organizations with approximately $15,533.

APPENDIX B: 2020 Annual Report on Recyclables Recovered

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Onondaga County Resource Recovery Agency

2020 ANNUAL REPORT ON RECYCLABLES RECOVERED

This report is submitted pursuant to:
NYSDEC Permit Number 7-3142-00028/00002-0 Certificate to Operate Onondaga County Resource Recovery Facility;
NYSDEC Permit Number 7-3156-00047/00001-0 Permit to Construct and Operate the OCRRA Landfill;
NYSDEC Permit Number 7-3148-00048/00001-0 Solid Waste Transfer Station-Ley Creek; and
NYSDEC Permit Number 7-3142-00036/00001-0 Solid Waste Transfer Station-Rock Cut Road.

Period reported: January 1, 2020 through December 31, 2020
Date: March 1, 2021
Planning Unit: **County of Onondaga** including the City of Syracuse, excluding the Town and Village of Skaneateles
Contact Person: Ms. Dereth Glance, Executive Director, OCRRA
100 Elwood Davis Road North Syracuse, NY 13212-4312

1. 2020 Recycling Data

OCRRA (Onondaga County Resource Recovery Agency) is a non-profit public benefit corporation charged with managing solid waste in Onondaga County (with the exception of the Town and Village of Skaneateles). This includes proper disposal of Municipal Solid Waste (MSW) and recycling. Since beginning operations in 1990, OCRRA has overseen the recycling of 12 million+ tons of material.

In 2020, **34,533 tons** of materials were collected from households through the blue bin curbside recycling program; there are approximately 180,000 households in the OCRRA Service Area, and a population of approximately 457,000.

In 2020, **422,126 tons** were recycled through mandatory and voluntary recycling efforts (both residential and commercial) in the community, for a **total recycling rate of 52%** (see Table 1).

OCRRA's environmental programs, including the recovery of residential, commercial, and institutional recyclables, were negatively impacted in 2020 due to the pandemic health crisis.

OCRRA achieved a processible recycling rate of 36%, comprising some 152,543 tons of residential, commercial, and institutional materials (see Table 2). A 40% recycling goal[1] as set forth in the NYSDEC Waste to Energy facility permit was not realized due to the depressed quantity of recyclable materials generated by the commercial and institutional sectors in the wake of Covid-19 impacts on the local economy, particularly reduced generation of commercial cardboard and food waste.

[1] The processible recycling rate, as defined by NYSDEC, considers only those materials recycled that could have otherwise been disposed of at the Waste-to-Energy facility. For example, it does not include yard waste, which is an unacceptable waste at the Waste-to-Energy facility.

OCRRA inventories and records recycling tonnages of all material recycled through the curbside program. Data collected from private commercial entities, as well as public and private institutions, are provided on a voluntary basis and are not audited by OCRRA.

Table 1 shows the total recycling and trash generation for 2020 in OCRRA's service area. In addition to the "mandatory recycling materials," meaning items that could be otherwise processed at the WTE Facility such as old corrugated cardboard (OCC), old newspaper (ONP), containers, paper, etc., this total also includes the "voluntary recycling materials," meaning items that could not otherwise be processed at the WTE Facility such as yard waste, sludge, construction debris, etc.

Table 2 shows totals for only the "mandatory recycling materials," mentioned above. In Table 3, an estimated breakdown of tonnage by material is displayed, and finally, Table 4 shows greenhouse gas emission equivalents that were avoided by recycling in Onondaga County in 2020.

Table 1 - 2020 Recycling and Solid Waste

Recycling	**Tons**	**Percent of Total Waste**
Curbside Recycling (Primarily Residential)	34,533	
Commercial Recycling (Primarily Business)	387,593	
Total Recycling	**422,126**	**52%**
Solid Waste		
OCRRA Municipal Solid Waste (MSW)	280,899	
Less MSW Ferrous & Nonferrous Recycling[1]	12,543	
OCRRA Construction & Demolition Debris (C&D)	65,273	
Other Waste[2]	37,200	
Total Solid Waste	**395,915**	**48%**
Total Recycling and Solid Waste	**818,041**	

[1]Ferrous and nonferrous metals that are recovered from MSW at the Waste-to-Energy Facility and recycled

[2]Includes biosolids currently being sent to a landfill.

Table 2 - 2020 Processible Recycling and Municipal Solid Waste[1]		
Processible[2] Recycling	**Tons**	**Percent**
Curbside Recycling (Primarily Residential)	34,533	
Processible Commercial (Primarily Business)	118,010	
Total Processible Recycling	**152,543**	**36%**
Municipal Solid Waste (MSW)		
Incoming Municipal Solid Waste	280,899	
Less MSW Ferrous & Nonferrous Recycling[3]	-12,543	
Total MSW	**268,356**	**64%**
Total Processible Recycling and Solid Waste	**420,899**	

[1]Sources for these data include: recycling companies, retail and commercial firms, and governmental organizations which voluntarily report to OCRRA. Reported data have been adjusted to eliminate known double-counting. For example: If Generator A ships 500 tons of scrap metal to Recycler B and both organizations report 500 tons to OCRRA; OCRRA credits the system-wide total with 500, not 1,000 tons.

[2]Processible materials are those which could have been disposed of at the Waste-to-Energy Facility.

[3]When calculating recycling rates, ferrous and nonferrous metals recovered from MSW at the Waste-to-Energy Facility are subtracted to avoid double counting.

Table 3 - 2020 Total Recycling Composition (in tons)			
includes commercial/industrial and residential			
MATERIAL	**2020**		
Food Waste	77,570		18%
Yard Waste	7,064		2%
Wood	2,230		1%
Textiles	1,617		0%
Plastics	8,774		2%
Ferrous Metals, except MSW Ferrous	110,797		26%
MSW Ferrous & MSW Non Ferrous	12,550		3%
NonFerrous Metals, NonFerrous MSW	11,205		3%
Corrugated Cardboard	54,580		13%
Newspapers and Magazines	18,295		4%
Office / Mixed Paper	36,176		9%
Books	394		0%
Sludge	50,227		12%
Glass	6,185		1%
Special & Hazardous Wastes	182		0%
Electronics & Batteries	5,140		1%
Appliances	224		0%
Miscellaneous	18,918		4%
Total	**422,126**		**100%**

Greenhouse Gas Avoidance

Recycling has many environmental benefits, including resource and energy savings due to avoidance of using virgin materials. The USEPA estimates that there is a net reduction of 2.94 metric tons of CO^2 for every ton of material recycled (Greenhouse Gases Equivalencies Calculator - Calculations and References | Energy and the Environment | US EPA). Based upon the EPA's GHG reduction factor, OCRRA estimates a net greenhouse gas reduction of 1.2 million metric tons of CO^2 based upon the 422,126 tons of voluntary and mandatory materials recycled in 2020.

Required Recycling

Onondaga County's local "Source Separation" (i.e. Recycling) Law was updated in 2011, and went into effect January 1, 2012. The original Source Separation Law, which mandated recycling of certain materials by all waste generators, was passed by the County Legislature in 1989.

The 2011 update:

- Clarifies requirements by simplifying language and spelling out specifics for businesses
- Requires haulers to provide recycling service to their customers
- Reinforces multi-tenant housing unit recycling requirements
- Requires that labeled recycling containers must be as easily accessible as trash cans

Below is a list of mandatory recyclables.

Table 4 – OCRRA Mandated Recyclables
• Office Paper and Discarded Mail • Newspapers and Magazines • Corrugated Cardboard, Brown Paper Bags, Paperboard, Pizza Boxes • Milk and Juice Cartons, Gable-Top Cartons, Aseptic Cartons • Glass Food and Beverage Containers • Metal Food and Beverage Containers • Aluminum Foil • Aerosol Cans • #1 and #2 Plastic Bottles • #5 Plastic Dairy Containers • Soft cover books

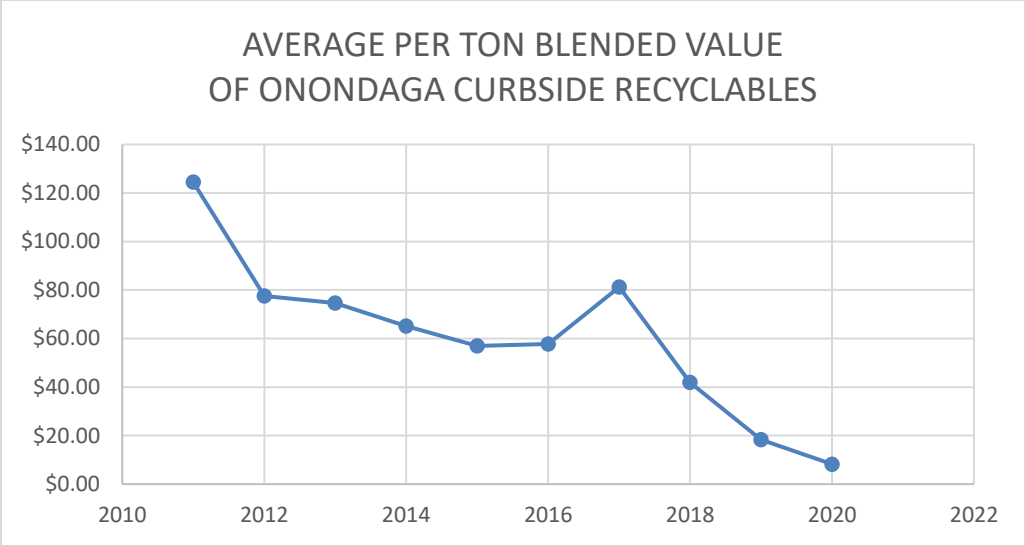
2. Markets, Trends and Material Recovery Facilities (MRF's)

Like other communities across New York State and the country, OCRRA has been hard hit financially by China's National Sword policy of ceasing to accept a wide variety of recyclable materials for reprocessing and remanufacture, particularly mixed paper grades, which, by weight, comprise 55% of sorted recyclables. Under the MRF contract, the Agency received $123,000 in revenue from all materials recovered in 2017. However, in the wake of China's exit from the market in 2018, material values subsequently plummeted. In 2018, OCRRA paid more than $667,000 to the MRF; in 2019, OCRRA paid $1.8 million to the MRF. **In 2020, OCRRA paid $1,997,345 for the MRF to sort 34,533 tons of residential recyclables.** The Agency does not subsidize commercially-generated recyclables.

Market prices, particularly for mixed paper, have significantly reduced the Average Blended Value (ABV) of curbside recycling commodities, such that the value no longer covers the cost of processing the recyclables. The ABV is received from the sale of processed residential recyclable commodities. The costs of processing and marketing materials is generally constant and is independent of market conditions, but increases over time due to inflation from rising labor costs and capital investments. The ABV is variable based on commodity market fluctuations and is therefore a useful number to track the performance of the recyclable commodity market

Figure 1 below indicates the decrease on a per ton basis of the average blended value of residential curbside recyclables as tracked since 2011. Such average blended per ton values are a weighted average based upon: 1) a predetermined percentage by weight of each commodity in curbside recycling, and 2) the market value for each commodity. Such average blended values are at record lows in the wake of China's National Sword policy, which is further discussed below. The trend line indicates the generally declining value of these materials on an aggregated basis; mixed paper and corrugated cardboard are the major driver of the average blended value calculation, as they comprise more than 50% of curbside recyclables by weight.

Figure 1 –Declining Average Blended Value Per Ton of Blue Bin Commodities in Onondaga County



As 2020 ended, commodity prices increased. OCC, mixed paper, aluminum, and natural HDPE values increased. The national average price for corrugated containers moved up 12% in December and was higher at the end of 2020 compared to 2019. Mixed paper was up 14% to an average of $32 per ton, and the last time the price for mixed paper was that high was October 2017.

For additional detail on 2020 commodity values, please see the Agency's Quarterly Recycling Reports submitted to the NYSDEC, available online at OCRRA.org.

MRF Contract

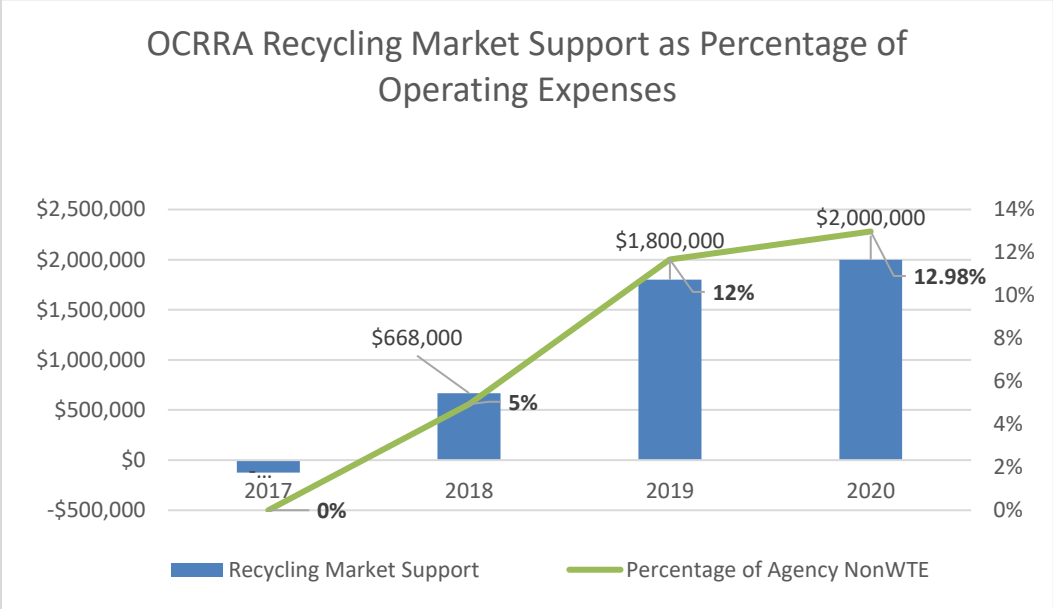
For nearly 30 years, OCRRA has contracted with a local material recovery facility (MRF), that is owned and operated by Waste Management Recycle America, (WM-RA), to sort, bale and market the residential recycling material that is collected curbside by private haulers, municipal haulers and municipalities with private hauling contracts. There is no such contract arrangement for commercial materials, which is primarily commercial cardboard and office paper. The contract has been structured such that OCRRA pays a fee to WM-RA to perform the sorting, baling, marketing and transport of the recycled materials and shares in revenues created by material sale (if any). Depending on market conditions through the years, this contract has either cost or generated OCRRA revenue. In 2020, OCRRA paid $1.99 million to the MRF.

Through this contract, OCRRA enabled private sector and municipal haulers to deliver residential recyclables to WM-RA at a tip fee of $0, thus providing an incentive for recycling to meet the County Source Separation Law and NYSDEC WTE permit requirements. Recognizing the sustained exponential increase in fully subsidizing the processing and marketing of curbside recycling, in October 2020, the OCRRA board adopted its FY2021 budget which ended the $0 tip fee for curbside recyclables and enacted a $35/ton tip on residential recyclables delivered to the OCRRA-contracted MRF effective January 1, 2021.

During the past decade, most of the demand for recycled material came from China. In 2018, China initiated their National Sword policy to drastically reduce material imports and put quality restrictions on

imports of recycled material. As a result, the market prices for recycled material dropped precipitously. Payments to WM-RA went up to nearly $670K in 2018 and exceeded $1.8 million in 2019. In 2019, OCRRA had a contract with WM-RA in which the per-ton cost of sorting curbside recycling was not-to-exceed $49 / ton. The contractual per ton not-to-exceed cost increased to $65 /ton in 2020, which resulted in total MRF processing costs of nearly $2 million paid by OCRRA to support curbside recycling. OCRRA's recycling costs now comprise 13% of the Agency expenses, excluding WTE fixed costs. These cost impacts are summarized in Figure 4 below.

Figure 2 – OCRRA Costs and Percentage of Total Agency Operating Budget for Recycling



Emerging Trends

There are multiple factors that can contribute to a reduction or an increase in recycling rates, including the following:

- The **decrease in newspaper and magazine** use due to continued growth of online news options, resulting in fewer subscriptions and therefore fewer papers printed.[2] Not only is the amount of papers printed decreasing, but so is the actual size of newspapers. There are less pages printed due to less advertising (because of a loss in readership), as well as a drop in classified pages as more people use online sites to sell items, services or search for jobs.

- **"Thinwalling"**, also a global trend, is where the materials used to create certain packaging, such as plastic water bottles, aluminum cans, and fiber packaging, are thinner and therefore weigh less. On an aggregated basis, the "loss" in material is significant.

[2] deThomas, D. The Shape of MRFs to Come. Resource Recycling, Dec 2011.

- In the future, the trend of **smaller electronic products** could result in less recycling tonnage; a smart phone combines the functions of a telephone, video camera, still camera, watch, music player and more. This reduces the number of products in our homes and subsequently in the waste stream.[3]

- **Plastic bags are being banned** far and wide, including state-wide in New York, starting in March 2020 (delayed briefly due to Covid-19).
- Increasing momentum for **Extended Producer Responsibility** legislation for product packaging as a long term strategy to buffer local municipalities from the volatility of global commodity markets by requiring manufacturers to assume responsibility for recovering and recycling the product packaging they introduce into the market place, and promoting upstream, engineered solutions to material recovery.

- **Zero Waste**: Many towns/villages/cities are ascribing to zero waste goals. This means that there is a conscious effort to reduce waste, reuse more and recycle just about everything leftover.

- **Organics Bans**: Some states have implemented mandatory food waste composting and banned all organics from landfills.[4] New York regulations are currently being developed and will go into effect in 2022.

- The use of **carts for trash and recycling** is a trend nationally and a few haulers in Onondaga County have chosen to embrace it as well. The use of carts could increase recycling and reduce litter.

- Increase of the use of robotics, and technology improvements, at material recovery facilities, to automate and advance the efficiency of sorting, in order to improve quality of recyclables.

Some of these trends result in less material generation. So, while there may be a significant net decrease in the available material for recycling, these trends do represent an overall environmental benefit due to waste reduction.

Extended Producer Responsibility

Many states, including New York, have begun passing legislation requiring manufacturers to take responsibility for the end-of-life management of their unwanted products and product packaging, which relieves local municipalities of the responsibility of recovery and proper disposal / recycling, including the associated costs.

Under an EPR approach, material recovery is managed by product manufacturers. Program costs are paid through the purchase of the product, not through a taxing structure. According to Scott Cassell, Chief Executive Officer of the Product Stewardship Institute, “The collapse of recycling markets following China's policy to restrict imports of recyclable materials has made it clear that communities are unfairly burdened by an inefficient and costly waste management system.” In the wake of the devastating financial impact caused by China's National Sword campaign, several states, including Connecticut, Maine, Indiana, Washington, Vermont, and New York are now evaluating an EPR approach for all packaging and printed paper; bills have been proposed in both the NYS Senate and Assembly.

OCRRA’s Board of Directors has, over the years, passed several resolutions in support of enacting extended producer responsibility laws in New York State.There are over 110 such EPR laws in the US.

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[3] http://waste360.com/blog/circular-file-less-less

[4] http://compostingcouncil.org/landfill-bans-on-organics/

NY State's EPR laws include the following:

Rechargeable Batteries
- Electronics
- Mercury Thermostats
- Pharmaceuticals (passed in 2018; anticipated to go into effect in 2021)
- Paint; passed in 2019 session and signed by the Governor 12/19

2019 Waste Quantification & Characterization

In the spring and fall of 2019, a Waste Quantification & Characterization (Q&C) study was performed to measure the composition of curbside recyclables and Municipal Solid Waste (MSW), brought to the Waste-to-Energy plant operated by Covanta Energy. Samples from these streams were sorted into more than 60 categories, and the results are being used to inform policy decisions concerning the list of mandatory recyclables, as well as provide areas of strategic focus for public education.

According to the findings of the study, the majority of mandatory recyclable materials are indeed being recycled. However, approximately 7.2% of MSW is potentially recyclable fiber (cardboard (5%), office paper (0.7%), newspaper (1.0%) and magazines (0.5%)) and 21% is food waste. These constitute the largest volume by far of potentially recyclable material that ends up in the trash.

Another key finding of the Waste Q&C was that much of the glass found in the typical curbside recycling bin (14.7%) was beverage containers such as wine bottles (6.3%), liquor bottles (3.0%) and non-alcoholic beverage containers such as ice tea bottles (5.4%). None of these bottles currently have a deposit; they are not included in the New York State Bottle Bill. If the Bottle Bill were to be expanded to include wine and liquor bottles, it would have a significant positive impact on recycling, as bottles that have a deposit are recycled at a much higher rate than those without one. When left in the blue bin, glass is typically used for daily cover and engineering purposes in a landfill. Bottles that are recovered through the deposit Bottle Bill are remanufactured into new glass containers.

OCRRA's board of directors has passed resolutions in support of expanding the New York State Returnable Container Act (Bottle Bill) to include the above mentioned glass beverage containers in order to increase recycling and improve both MRF processing efficiency and material quality.

3. 32020 Recycling Program Costs

OCRRA manages the solid waste and recycling program for 33 municipalities in Onondaga County. Each municipality is unique in its solid waste collection. Some provide waste and recyclables collection through their own public employees, some contract with private waste hauling firms to provide services for their residents, and still others require residents to arrange for disposal and recycling by contracting with a private hauler or bringing their MSW and recyclables to an OCRRA transfer station.

OCRRA is not funded by taxes. The trash tipping fee revenue and energy revenue from sale of electricity generated by the WTE plant provide the bulk of the financing for recycling program components essential to achieving the mandated recycling rate. OCRRA applies for New York State grants through competitive applications as well. Program costs include OCRRA's comprehensive public education program which consists of radio, TV, web and print media campaigns; on-site visits to businesses, schools and apartment complexes by a staff of recycling professionals offering technical assistance; classroom presentations on recycling and environmental stewardship; and numerous brochures and educational materials. OCRRA received $490,000 in state grants in 2020, in connection with reimbursement of Household Hazardous Waste collection expenses, compost equipment, curbside blue bin purchases, and recycling public education.

OCRRA's recycling program covers costs necessary to assure waste haulers a zero tip fee at the private sector Material Recovery Facility (MRF) for residential recyclables during poor commodity market conditions. OCRRA also manages a transfer station that allows for the drop-off of blue bin recyclables at no cost. The transfer station is also a drop-off point for additional materials such as scrap metal, small appliances, mercury thermostats, mercury thermometers, fluorescent lamps and household batteries.

During 2020, OCRRA's Recycling Program managed:

- Two yard waste compost sites.
- A commercial and institutional food waste composting program at the Amboy Compost Site (open year-round);
- A year-round Monday-Friday appointments for residents to drop off Household Hazardous Waste (HHW); paused operations intermittently during 2020 due to Covid 19;
- Year-long household battery collection at local drop-off points and a curbside collection in July; paused briefly in spring 2020 due to Covid-19;
- A mercury thermometer and thermostat exchange program; and

Direct program costs in 2020 (unaudited) associated with the recycling services are as follows:

Table 7 –RECYCLING COSTS

PROGRAM	2020 EXPENSE	2019 EXPENSE
Recycling Personnel *	$555,108	$724,377
Material Recovery Facility (MRF) Fees	$1,997,343	$1,808,223
Public Education - Outside Service	$ 129,084	$436,488
Composting**	$ 247,085	$292,115
Household Hazardous Waste (HHW) Collection	$ 73,729	$91,862
Blue Bin Expense	$ 33,240	$192,980
Other Recycling Programs	$132,723	$255,825
Total Cost	$3,168,312	**$3,801,870**

*Includes all permanent compost personnel.
** Includes all temporary personnel.

4. Public Education, Program Outreach and Enforcement

Community outreach efforts, including recycling visits to businesses, schools, and apartment complexes, were extensively curtailed in 2020 due to challenges associated with the Covid-19 health crisis. In the interest of protecting public health, the Agency also cancelled several community events: the April Earth Day Litter Collection, the mercury thermometer/thermostat drop off event, and the Shred-o-Rama for confidential residential documents.

The Agency continued to provide drop off for household hazardous waste, mercury containing fluorescent lamps, and household batteries. OCRRA also continued its compost bagging operation. Thousands of bags of OCRRA's STA-certified compost were sold through a network of 30+ lawn and garden retail outlets, helping to return valuable nutrients to local soils.

OCRRA Communications

Employing frequent and consistent communication from OCRRA is necessary to remind current residents of what is recyclable, to alert those who recently moved to the area of the recycling rules and to inform the public of special collection events.

To keep the public abreast of the recycling program, OCRRA continued its public communication program in 2020, primarily investing resources into social media.

OCRRA's public message in 2020 focused on what goes in the recycle bin and how to avoid contamination. The campaign continued to utilize the "Save the World a Little Each Day" slogan, which reminds residents of the difference one person can make in preserving natural resources for future generations. This slogan was developed based on community surveys that determined what messages would resonate most with our target demographic. This campaign also highlights the OCRRA website as a community resource.

The Agency's comprehensive website, www.OCRRA.org, provides enhanced search features to allow users to quickly find recycling options for their unwanted items, along with waste reduction and reuse tips for those items, when appropriate. It also allows users to make online reservations for household hazardous waste drop off, and purchase both compost passes and trash disposal stickers online. Additionally, it houses a recycling supply order form, which allows businesses, schools and apartment buildings to order free recycling containers and decals with a few simple clicks (www.ocrra.org/order-supplies/).

In addition to paid media advertising, OCRRA continues to publish its quarterly newsletter (www.ocrra.org/about-us/newsletter/) which contains articles written by OCRRA staff that highlight special recycling events, stand-out businesses and schools as models of excellence, and informs the public about specific recyclable materials. OCRRA distributes the newsletter as an insert in the Onondaga County Eagle Newspapers and in the Sunday Post-Standard. The newsletter also reaches the public through Onondaga County libraries, government offices (villages and town clerks) and special events. In total, more than 70,000 households receive the newsletter on a quarterly basis.

One of OCRRA's most effective means of communication is email. Through a web-based system, emails covering various recycling topics and upcoming events are regularly sent to 11,000+ people. In addition to this primary contact list, OCRRA has the ability to create smaller sub-lists and send emails to select groups of people (such as compost site users or school teachers). Email blasts are an inexpensive and effective way of reaching thousands of people. OCRRA works to regularly augment the email address list each year through promotions and events.

OCRRA also continued its social media presence with its Facebook page, and a YouTube channel in 2020, allowing people to actively engage in discussion about recycling and OCRRA services. Additionally, the community is able to learn about operations through a series of videos highlighting the

Compost Site, Transfer Station, Waste-to-Energy Facility, and the privately-owned Materials Recovery Facility (MRF).

Lastly, OCRRA provides numerous posters, brochures and decals at no charge to businesses, residents and institutions. These items act as prompts to remind people to recycle, as well as to inform them of the correct rules.

Additionally, 2020 continued the implementation of OCRRA's interactive, digital online education program. This web-based program includes a series of professionally-produced videos, interactive games and curriculum-aligned classroom activities. Aimed at third through fifth graders, this program teaches students about waste reduction, composting and the waste-to-energy process in a convenient online format. The content adheres to NYS curriculum requirements and all topics include a list of vocabulary words with full definitions to review, as well as pre- and post-testing questions to evaluate student knowledge. The program has been well received by both students and teachers in the 100+ classrooms that have executed it in the community so far. Check out the online education program here: www.ocrra.org/services/education-program/

Screenshots of OCRRA's online educational videos and digital games found at ocrra.org.

Yard and Food Waste Composting

OCRRA's composting facilities help New York State meet its environmental policy objectives to keep organics out of the trash by developing organics management infrastructure.

In 2020, OCRRA's state of the art food and yard waste Amboy Compost Facility processed over 3,250 tons of total food scraps. This was down nearly 50% from 2019 due to Covid-related impacts, including the closure of schools, restaurants, and less prepared foods from supermarkets, no public events and minimal activity at the NY State Fairgrounds.

More than 5,000 yards of STA-certified compost were utilized to restore habitat along the western shore of Onondaga Lake, and over 7,000 bags of premium ¼ inch compost were sold through a network of 30+ local home and garden centers.

In 2020, OCRRA continued its association with the US Composting Council and their Seal of Testing Assurance (STA) Program. OCRRA's finished compost is USCC STA certified, meaning that it is a high-quality material that is consistent from batch to batch and guarantees that it has been laboratory tested by a third party and meets all USCC, NYSDEC and US EPA criteria. Quarterly sample results are available at www.ocrra.org. The demand for OCRRA's compost products continued to grow and has been used in many "Green Infrastructure" projects across the State.

As in previous years, OCRRA's finished compost was available for residents to take home as part of the Residential Pass Program. In 2020, the "Residential Pass Program" enabled residents to purchase a drop-off pass for $25, which allowed them to drop off an unlimited amount of food and yard waste at either of our compost sites. Residents were also able to purchase finished mulch and compost by the trunk load or in bulk.

OCRRA again in 2020 offered its free Christmas tree recycling program to residents. The facilities were open for a two-week period in January for residents to drop off their Christmas trees for composting at no charge.

Batteries

Residents in the OCRRA service area are able to drop off their old batteries at nine local grocery stores, which are then collected weekly by OCRRA. Rechargeable batteries are recycled at no cost through the Call2Recycle program. More information about OCRRA's battery collection program is available online at: http://ocrra.org/resources/household-batteries/

Fluorescent Light Bulbs

Fluorescent light bulbs are a popular household item because of their energy saving potential. However, these energy efficient bulbs contain a small amount of mercury, a potentially harmful chemical, and should not be mixed with regular household trash at the end of their life. To encourage residents to dispose of these properly and keep mercury out of the trash, OCRRA partners with local hardware stores to provide residents with convenient locations to drop off old bulbs. From the stores they are shipped off for proper disposal. There are 15 participating stores throughout the county. Further information about this environmental program is available online at: http://ocrra.org/resources/fluorescent-bulbs/

Household Hazardous Waste

In 2020, OCRRA continued the convenient, year-round Household Hazardous Waste (HHW) collection model that was started in 2013 in response to residents' suggestions. This HHW program consists of a Monday-Friday drop –off at Environmental Products and Services of VT, Inc. (recently purchased by Miller Environmental Group). This popular environmental service allows residents to safely dispose of their hazardous waste, keeping these materials out of the waste stream. Among the hazardous wastes collected are adhesives and resins; oil-based paint; paint thinner; solvents; thermometers, thermostats, and

other mercury containing products, pesticides and fluorescent light bulbs. Direct costs are included in the fee per vehicle charged by the vendor to OCRRA.

Mercury Thermometer/stat Exchange Program

OCRRA partners with Covanta Energy to provide residents with non-mercury thermometers in exchange for their old mercury thermometers. Thermostats are handled through the Thermostat Recycling Corporation (TRC), a national industry-funded program that provides proper disposal of mercury-containing thermostats at no cost.

5. Conclusion

It is no understatement that 2020 challenged every aspect of our lives. Recycling, already under pressure from the impact of the Chinese export market, became even more challenged in the Covid-era. Average Blended Value (ABV) of the curbside bin dropped to negative values in the first and second quarters of 2020. Hope rebounded a bit at the end of fourth quarter, as commodity values, while still depressed, rose to levels that had not been seen since 2017.

The pandemic was a true stress test for recycling. OCRRA is pleased that its successful program endured while also realizing that there are several actions needed to make recycling more resilient and to ensure society reaps all the benefits from a robust recycling system. Key challenges include:

Challenge #1 – COVID-19 Pandemic Impacts

As reported in the prior Quarterly Recycling Report, the COVID-19 economic shutdowns continue to take their toll during the fourth quarter, impacting material supply and demand; market prices; and revenue for businesses and haulers. Continuing through the fourth quarter, several outlets for recycled goods were closed or limited to the public, which affected their recycling operations, such as textile collectors like the Rescue Mission and Salvation Army, as well as HHW and electronic-waste collectors. These particular businesses, in combination with the cancellation of community collection events such as planned textile and paper shredding recycling events that were cancelled due to public safety concerns, resulted in less overall material entering the recycling stream. With many offices and schools not operating throughout 2020, the demand for printing and writing paper was drastically reduced, which negatively impacted paper mills. As offices, restaurants and schools stay closed in the fourth quarter, and companies make long term plans for employees to work at home, the amount of commercial material entering the waste stream will likely continue to decrease.

Challenge # 2 – Focus on Quality

As reported in the prior Quarterly Recycling Report, the world of recycling abruptly changed in 2018 with the exit of China from the secondary materials export market. Enhanced quality is critical to ensuring reliable marketability in an oversupplied domestic system. The DEC recognized this reality with an enforcement discretion allowing increased residue to be disposed by MRF operators as an effort to enhance quality. The severe contraction of the economy in response to the necessary measures to control and contain the Covid-19 pandemic have further changed the demand for recycled commodities. Focusing on delivering targeted desirable high quality recovered material (such as cardboard and fiber to the local cardboard box manufacturer) is the most sustainable recycling solution. Commingled curbside recyclables has the potential to contaminate reliable and abundant recoverable fiber supplies.

Challenge #2 – Better than the Bin

As reported in the prior Quarterly Recycling Reports, capturing material upstream, at source separated locations, leads to successful high quality and reliable recycling in good and bad economic times. New York State's Returnable Container Act is incredibly successful in reducing litter and ensuring recycling of the glass, plastic and metal containers with a deposit. Glass is a known contaminant in a commingled recycling bin and is best captured for higher re-use through an expanded Returnable Container Act. OCRRA strongly supports the State's leadership in extending a deposit for wine and liquor bottles, which comprise over half of the glass material in a residential blue bin as reported in the *2019 Waste Characterization Study* (MSW Consultants, April 30, 2020). The Onondaga County Legislature as well as the Common Council of the City of Syracuse, the Towns of Van Buren and Camillus, have all enacted resolutions calling on New York State to expand the bottle bill to include wine and liquor bottles.

Challenge # 4 - Compost Scarcity

OCRRA's compost is made from locally provided food and yard waste. OCRRA previously (before Covid-19 related closures) received food waste from local university dining halls and school cafeterias. Covid-19 shutdowns have put a temporary stop to almost all of this incoming material and as a result, OCRRA predicts a shorter supply of available compost in 2021.

In closing, 2020 confirmed that recycling is an essential service that requires restructuring and reinvestment to better achieve its potential. Key take away messages for recycling in 2020 include:

- **Hope for recycling commodity markets is on the rebound.** As 2020 came to a close, commodity prices stopped their rapid decent and began to rise. OCC, mixed paper, aluminum, and natural HDPE values increased. The national average price for corrugated containers moved up 12% in December, and was higher at the end of 2020 compared to 2019. Mixed paper was up 14% to an average of $32 per ton, and the last time the price for mixed paper was that high was October 2017.

- **Recovering materials from the waste stream is essential for our domestic supply chain and to support local businesses and manufacturers.** Beyond China's retreat in the global recycling market, the Covid-19 pandemic has had significant influence on the world of recycling. Key products made from recycled materials became even more critical this year, highlighting the importance of recycling as a key supply stream for manufacturing. Immediate investment in MRF technologies to reduce contamination and improve processing capability is critical.

- **Brand Owners need to be invested in the recovery and recycling of their products.** Extended Producer Responsibility is urgently needed to ensure materials are properly managed from production design to end of life, as municipalities cannot afford to cover the externalized costs of product manufactures any longer.

Additional information about OCRRA's 2020 recycling program are available in its quarterly recycling reports submitted to the NYS DEC. These reports are available online at: https://ocrra.org/about-us/information/reports-and-policies/ From the fourth quarter 2020 report:

APPENDIX C: Summary of OCRRA's Compost, Waste to Energy, Landfill Disposal, and Curbside Recycling Processing Services

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Appendix C – Summary of OCRRA's Compost, Waste to Energy, Landfill Disposal, and Curbside Recycling Processing Services

OCRRA's Yard and Food Waste Composting Facility is Key Component of Local Green Infrastructure

Since 1992, OCRRA has provided municipalities and residents the opportunity to recycle their yard waste at two compost sites in Amboy and Jamesville. These sites offer a convenient service for residents, municipalities, and commercials entities to drop-off their yard waste. Finished compost and mulch are available for purchase for a small fee.

In 2004, long-term leases were established between OCRRA and Onondaga County for the Agency's compost site locations. The Agency invested several hundred thousand dollars to remove dilapidated structures from the Amboy Compost Site and to safely abate asbestos as part of the plan to redevelop the site as an institutional food waste compost operation. In 2008, a hangar building was completely renovated to serve composting operations for the long term.

In 2008, OCRRA began exploring the feasibility of composting institutional and commercial food waste through a pilot project at its Amboy Compost Site. The pilot project consisted of several hundred cubic yards of pre-consumer food waste from various participating grocers and institutions. The food waste is mixed with yard waste and injected with air, using an extended aerated static pile system, which allows the pile to maintain aerobic conditions. OCRRA was recognized for this innovative composting system by the US Composting Council in 2010 as the Composting Program of the Year.

Given the success of the pilot project, in 2013 OCRRA moved forward on a $4 million state-of-the-art facility for food and yard waste composting using the extended aerated static pile technology, with a design capacity to manage 9,600 tons of food waste annually. This program is consistent with the organics diversion goals of NYSDEC's *Beyond Waste: A Sustainable Materials Management Strategy for New York State* (December, 2010).

Since 2013 the Amboy site has achieved the following milestones:

- Over 50 million pounds of food waste composted and processed into STA-certified soil amendment.
- Over 25,000 cubic yards of OCRRA compost utilized to help restore the environmental health of Onondaga Lake's western shoreline and other nearby remediation zones.

- Over 7,000 local school children in 16 schools are separating their cafeteria food scraps every day and sent to OCRRA's Amboy Compost Facility for processing. This program was put on pause at certain times

during the Covid-19 health crisis in 2020.

- In 2017, the Amboy Compost Facility received a Gold Excellence Award from the Solid Waste Association of North America.

- Over 55,000 yards of STA-certified compost produced and now contributing to the soil health of local gardens as well as local environmental restoration projects.

- In addition to bulk material sales at the Agency's organics management sites, OCRRA also bags its ¼" screened compost through a partnership with ARC of Onondaga. The product is sold through an ever-expanding network of local garden retailers.

In addition to reducing the size of the waste stream requiring alternative disposal, the food waste composting process essentially "closes the loop" on organics management, meaning that food scraps are transformed into nutrient rich compost that could be used to grow new food. The facility is generating thousands of cubic yards of compost annually for subsequent sale to residents, landscapers, and soil producers, as well as for use in various green infrastructure projects. The resulting compost material has a wide variety of environmental benefits, including healthier, more fertile soil with better moisture absorption and retention properties; more vigorous plants; better nutrient cycling; and effective erosion control and storm water management

From a corporate and institutional perspective, OCRRA's food waste composting program enables a variety of food waste generators, including local supermarkets, hotels, restaurants, school districts, local businesses and food retailers, to clearly demonstrate their commitment to achieving their sustainability goals, as well as providing modest cost savings in reduced disposal costs. The per ton fee for OCRRA's food waste compost service is less than half the per ton fee for municipal solid waste disposal.

Waste-to-Energy

OCRRA's WTE Facility, located on Rock Cut Road in Jamesville off Route I-481, is a key component of OCRRA's solid waste management system. This Facility processes the large majority of the community's non-recyclable trash, while also producing enough electricity for approximately 30,000 households. The incineration process also reduces the volume of material that is landfilled by 90%. Air emissions are carefully monitored, with oversight by NYSDEC, to ensure that the Facility is in complete compliance with its strict Title V Air Permit.

The Facility employs state-of-the-art air pollution control technologies to comply with one of the strictest air permits in the nation. The air pollution control technologies include:

- aqueous ammonia injection in the boiler to control nitrogen oxides emissions;

- activated carbon injection in the scrubber to control mercury and dioxin/furan emissions;
- lime injection in the scrubber to control acid gas emissions; and
- particulate removal via the Facility's bag house (fabric filter system).

Emissions from the Facility are carefully monitored through continuous emissions monitors (CEMs) and annual stack testing, such that it complies with all federal and state emissions requirements.

In addition to the ferrous metal recovery system at the WTE Facility, OCRRA and Covanta Onondaga, L.P. ("Covanta") jointly invested in a non-ferrous metal recovery system. The system consists of a special type of technology called an eddy current separator that induces a magnetic field in metallic objects that are not ordinarily magnetic, such as aluminum, copper, zinc, and brass. Over 12,000 tons of metal in 2019, and over 13,000 tons of metal in 2020 were recovered for recycling, These metal recovery systems conserve natural resources by recovering metals that would otherwise end up in a landfill.

In order to sustain the long-term reliability and operational efficiency of the Waste-to Energy Facility, OCRRA began investing $15 million in capital improvements in 2015, which included upgraded air emissions monitoring and control systems to protect the health of our citizens and the environment. Facility improvements included new truck scales; upgrades to cranes that handle waste; use of aqueous ammonia in lieu of anhydrous ammonia for increased safety; a reverse osmosis system for boiler water treatment; a dry carbon injection system for improved emissions control and efficiency; new and improved ash dischargers for increased boiler reliability; and significant steel repair and replacement projects in the air pollution control devices (scrubber vessels and baghouses). Throughout 2019 and 2020, additional capital improvement were started to replace superheaters and waterwalls within each boiler. OCRRA is continuing capital improvement projects for on-going reliable performance of the Facility.

Landfill

OCRRA has only two streams of material go to a landfill: non-processible "bypass waste" from transfer station operations, and ash residue from the WTE Facility. "Bypass waste" or material that cannot be processed at the WTE Facility includes the following items:

- Dirt, rocks, concrete, and other non-burnable waste;
- Dry wall, sheet rock, plaster, and lathe;
- PVC piping and siding;
- Building insulation;
- Treated lumber of any kind including creosote railroad ties and telephone poles along with landscape timbers; and
- Mattresses and box springs that have not been shredded.

Ash residue from the WTE Facility is used for landfill daily cover under a Beneficial Use Determination (BUD) approved by the NYSDEC at three landfills including Madison County Landfill in Canastota, High Acres Landfill in Fairport and Seneca Meadows Landfill in Waterloo. This beneficial reuse of the ash means that other materials, such as clean soil or synthetics, do not need to be used for landfill daily cover. Ash residue is the by-product of the combustion process

and is about 10% of the original volume (or 25% of the original weight) of the trash processed at the WTE Facility. Approximately 80,000 tons of ash residue are generated annually. OCRRA has extended or established disposal contracts with the following disposal facilities for proper disposition of system residuals:

Disposal Contracts

Facility Name and Location	Type of Material	Contract Term
Madison County Landfill, Canastota, NY	Ash	Through 2027, with options through 2035.
Town of Camillus Landfill, Camillus, NY	Construction and Demolition Debris	Through 2023
Seneca Meadows Landfill, Waterloo, NY	Ash, Tires, Non-Combustible and Bypass Waste	Through 2025
High Acres Landfill, Fairport, NY	Ash, Non-Combustible and Bypass Waste	Through 2025

OCRRA has the required permits for the construction of an in-county landfill; however, the current economic climate has allowed OCRRA to benefit from competitive landfill disposal pricing at both privately and municipally owned landfills and thereby defer construction. Previous plan updates reported that the Agency's landfill project would proceed when there were favorable economic conditions (i.e., the project would proceed only when such development could be achieved at a lower cost than out-of-county transport and disposal, or in the event that out-of-county disposal capacity was unavailable).

The waste stream categories identified within the Plan were: MSW, which included C&D debris; sludge (currently referred to as "biosolids"); regulated medical waste; industrial waste; and other wastes (which included agricultural, food processing, and household hazardous wastes).

OCRRA was designated as having responsibility for MSW and household hazardous waste management. The Onondaga County Department of Drainage and Sanitation (currently the Department of Water Environment Protection) maintains responsibility for sludge (biosolids) management. Regulated medical waste, industrial waste, agricultural waste, food processing waste, and other wastes were to be handled by the private sector as follows:

- **Regulated Medical Waste**: Regulated medical waste continues to be managed by the private sector through contracts with private haulers and disposal at facilities permitted to accept such materials, with regulatory oversight by the NYSDEC and New York State Department of Health (NYSDOH).

- **Industrial Waste**: Industrial waste continues to be managed by the private sector through contracts with private haulers and disposal at facilities permitted to accept such materials, with regulatory oversight by the NYSDEC.

- **Other Waste – Agricultural**: Agricultural wastes have historically been managed on-site, in disposal areas and through residual management systems on-site. These wastes are generally not subject to regulation, through exemptions in 6 NYCRR Part 360.

- **Other Waste – Food Processing**: Food processing wastes are generated as a result of the commercial processing of food products by food production and packaging plants, butcher shops, restaurants, and other food service facilities. Most food processing waste can be recycled or reprocessed. This waste stream has historically been handled by the private sector; however, OCRRA's Amboy Site is now able to accept some food processing waste.

- **Other Waste – Household Hazardous Waste:** A small portion of MSW (<1%) is considered household hazardous waste. It includes materials such as oil-based paint, cleaning solvents, and pesticides, which would be considered hazardous if generated in larger quantities by industrial or commercial facilities. OCRRA provides programs for the collection and proper disposal of household hazardous waste through the private sector, and also supports extended producer responsibility solutions for these difficult-to-manage materials.

Processing of Curbside Residential Recyclables

OCRRA is currently in a two-year contract with a local MRF owned and operated by Waste Management - Recycle America. The contract achieves three goals: it defines OCRRA's annual risk in connection with payments to the MRFs for material processing; it has the potential to generate income for OCRRA under favorable market conditions; and it provides certainty and stability for the community's recycling system during commodity market lows. Under this contract, the MRF is required to accept the residential recyclables at no charge to the waste haulers, regardless of market conditions.

Residential and commercial recyclables are taken to the MRF by private and municipal haulers. The MRF accepts the recyclables and then sorts, bales, and markets the materials. Depending on the markets, the MRF may provide monetary incentives to the haulers for bringing their recyclables. Under current depressed material market conditions, however, haulers must pay the MRF for the delivery of commercially-generated recyclables that are not subsidized by OCRRA.

The MRF contract is a valuable tool which allows OCRRA to formulate and maintain a uniform definition of blue bin recyclables. The contract also encourages stability in the local market for recyclable commodities by attenuating the variation in global market demand and pricing. This uniformity helps facilitate the successful education and enthusiastic cooperation of the public.

For over three decades, the Agency has demonstrated its ability to form effective public-private partnerships with the MRF for contracted material processing services and continuing to pursue this model as its primary recycling management strategy. In 2019, the escalating cost of managing

recycling led the OCRRA Board to establish the *Recycling 2020 Adhoc Committee* to evaluate and consider alternative approaches in the future. One of the committee's recommendations, charge a processing fee for residential recyclables, was approved in 2020 for implementation in 2021.

APPENDIX D-1: Rock Cut Road Transfer Station - 2019 Permitted Transfer Facility Annual Report

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PERMITTED TRANSFER FACILITY ANNUAL REPORT

(If you need assistance filling out this form please email swmfannualreport@dec.ny.gov or call 518-402-8678.)

Complete and submit this form by March 1, 2020.

This annual report is for the year of operation from January 01, 2019 to December 31, 2019

SECTION 1 – GENERAL INFORMATION

FACILITY INFORMATION

FACILITY NAME: Rock Cut Road Transfer Station

FACILITY LOCATION ADDRESS:	FACILITY CITY:	STATE:	ZIP CODE:
5808 Rock Cut Road	Jamesville	NY	13078

FACILITY TOWN:	FACILITY COUNTY:	FACILITY PHONE NUMBER:
Onondaga	Onondaga	315-453-2866

FACILITY NYS PLANNING UNIT: (A list of NYS Planning Units can be found at the end of this report). Onondaga County (except Skaneateles (T) & (V))

NYSDEC REGION #: 7

360 PERMIT #: (Refer to DEC Permit)	DATE ISSUED:	DATE EXPIRES:	NYS DEC ACTIVITY CODE OR REGISTRATION NUMBER: (Refer to DEC Permit)
7-3142-00036/00003	3/3/14	3/2/24	

FACILITY CONTACT:	☒ public ☐ private	CONTACT PHONE NUMBER:	CONTACT FAX NUMBER:
Kevin Spillane		315-453-2866	

CONTACT EMAIL ADDRESS: kspillane@ocrra.org

OWNER INFORMATION

OWNER NAME:	OWNER PHONE NUMBER:	OWNER FAX NUMBER:
OCRRA	315-453-2866	

OWNER ADDRESS:	OWNER CITY:	STATE:	ZIP CODE:
100 Elwood Davis Road	North Syracuse	NY	13212

OWNER CONTACT:	OWNER CONTACT EMAIL ADDRESS:
Dereth Glance	dglance@ocrra.org

OPERATOR INFORMATION

OPERATOR NAME: ☑ *same as owner* ☒ public ☐ private

PREFERENCES

Preferred address to receive correspondence: ☐ *Facility location address* ☒ *Owner address* ☐ *Other (provide):*

Preferred email address: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Preferred individual to receive correspondence: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Did you operate in 2019? ☐ Yes; Complete this form.

☒ No; Complete and submit Sections 1 and 11. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, also complete the "Inactive Solid Waste Management Facility or Activity Notification Form" located at: http://www.dec.ny.gov/chemical/52706.html .

SECTION 2 - SOLID WASTE RECEIVED

Please provide the tonnages of solid waste received. Include all waste received. Report Recyclable Materials in Section 5. DO NOT REPORT IN CUBIC YARDS!

Specify the methods used to measure the quantities disposed and the percentages measured by each method:

_____% Scale Weight _____% Estimated

_____% Truck Count _____% Other (Specify: _____)

Type of Solid Waste	January (tons)	February (tons)	March (tons)	April (tons)	May (tons)	June (tons)	July (tons)
Asbestos							
Construction & Demolition (C&D) Debris							
Industrial Waste (Including Industrial Process Sludges)							
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)							
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							
Total Tons Received							

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 2 - SOLID WASTE RECEIVED (continued)

Type of Solid Waste	Tip Fee ($/ton)	August (tons)	September (tons)	October (tons)	November (tons)	December (tons)	Total Year (tons)	Daily Avg. (tons)
Asbestos								
Construction & Demolition (C&D) Debris								
Industrial Waste (Including Industrial Process Sludges)								
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)								
Oil/Gas Drilling Waste								
Petroleum Contaminated Soil								
Sewage Treatment Plant Sludge								
Treated Regulated Medical Waste								
Emergency Authorization Waste (Storm Debris)								
Other (specify)								
Total Tons Received								

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 3 – SERVICE AREA OF SOLID WASTE RECEIVED

Please identify where the waste is coming from. The total tons received reported below should equal the total tons received in Section 2 (Solid Waste Received). DO NOT REPORT IN CUBIC YARDS!

- If the waste ***WAS*** received from another solid waste management facility, please write in the name *and* address of the facility along with the appropriate state, county and planning unit/municipality.
- If the waste ***WAS NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the waste was generated.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

_____% Road: Waste Type(s):_____ _____% Rail: Waste Type(s):_____

_____% Water: Waste Type(s):_____ _____% Other (specify: _____): Waste Type(s):_____

SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Asbestos					
Construction & Demolition (C&D) Debris					
Industrial Waste (Including Industrial Process Sludges)					

SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)					
Oil/Gas Drilling Waste					
Petroleum Contaminated Soil					
Sewage Treatment Plant Sludge					
Treated Regulated Medical Waste (TRMW)*					
Emergency Authorization Waste (Storm Debris)					
Other (specify)					
				TOTAL RECEIVED (tons):	

* List generators that provide you Certificates of Treatment forms and quantities of TRMW from each _____

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 4 - TRANSFER OR DISPOSAL DESTINATION

Please identify destination of waste. Please only include waste sent off-site for disposal or further transfer prior to disposal. Exclude Recyclable Material amounts reported in Section 5. DO NOT REPORT IN CUBIC YARDS!

- If the waste is being sent to another facility for transfer or processing prior to disposal (e.g. Transfer facility or C&D debris handling and recovery facility), please identify name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the transfer destination and the amount of waste transferred in the "*Amount to Transfer Destination*" column.
- If the waste is being sent to a landfill or combustor, please identify the name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the disposal destination and the amount of waste being sent for disposal in the "*Amount to Disposal Destination*" column.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

_____% Road: Waste Type(s):_____ _____% Rail: Waste Type(s):_____

_____% Water: Waste Type(s):_____ _____% Other (specify: _____): Waste Type(s):_____

TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Asbestos							
Construction & Demolition (C&D) Debris							
Industrial Waste (Including Industrial Process Sludges)							

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TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)							
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							

TOTAL SENT (tons): _____

If the waste type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other waste name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other waste name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS

Is your facility <u>also</u> a permitted or registered Recyclables Handling & Recovery Facility?

☐ Yes; Complete Section 5 for material recovered from the mixed solid waste stream. Complete a Recyclables Handling & Recovery Facility (RHRF) form for material received as source separated. The RHRF form is located at: http://www.dec.ny.gov/chemical/52706.html .

☐ No; Complete Section 5 for material recovered from the mixed solid waste stream and for material received as source separated.

A. Service Area of Recyclable Material Received

<u>Please identify where the recyclable materials are coming from.</u> DO NOT REPORT IN CUBIC YARDS!

- If the materials ***WERE*** received from another solid waste management facility, please write in the name and <u>address</u> of the facility along with the appropriate state, county and planning unit/municipality.
- If the materials ***WERE NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the recyclables were generated.

SERVICE AREA OF RECYCLABLE MATERIAL RECEIVED (where the material is coming from)					
MATERIAL	SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"	SERVICE AREA STATE OR COUNTRY	SERVICE AREA COUNTY OR PROVINCE	SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS <u>Planning Units</u>	TONS RECEIVED
Commingled Containers (metal, glass, plastic)					
Commingled Paper (all grades)					
Single Stream (total)					
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					
				TOTAL RECEIVED (tons):	_____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

Please identify destination of recovered materials. Indicate the name of the facility, address, corresponding State/Country, County/Province, Destination Planning Unit/Municipality and the amount of material transferred. DO NOT REPORT IN CUBIC YARDS!

Specify transport method, list type of material(s) and percentages of total waste transported by each:

_____% Road: Material(s):_____ _____% Rail: Material(s):_____

_____% Water: Material(s):_____ _____% Other (specify: _____): Material(s):_____

PAPER RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Paper (all grades)					
Corrugated Cardboard					
Junk Mail					
Magazines					
Newspaper					
Office Paper					
Paperboard / Boxboard					
Other Paper (specify)					

TOTAL PAPER RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

GLASS RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Container Glass					
Industrial Scrap Glass					
Other Glass (specify)					

TOTAL GLASS RECOVERED (tons): _____

METAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Aluminum Foil / Trays					
Bulk Metal (from MSW)					
Bulk Metal (from CD debris)					
Enameled Appliances / White Goods					
Industrial Scrap Metal					
Tin & Aluminum Containers					
Other Metal (specify)					

TOTAL METAL RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

PLASTIC RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Plastic (#1 - #7)					
PET (plastic #1)					
HDPE (plastic #2)					
Other Rigid Plastics (#3 - #7)					
Industrial Scrap Plastic					
Plastic Film & Bags					
Other Plastics (specify)					

TOTAL PLASTIC RECOVERED (tons): _____

MISCELLANEOUS MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Electronics					
Textiles					
Other (specify)					

TOTAL MISCELLANEOUS MATERIAL RECOVERED (tons): .25

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

MIXED MATERIAL RECOVERED

RECOVERED MIXED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Containers (metal, glass, plastic)					
Commingled Paper & Containers					
Single Stream (total)					
Other (specify)					

TOTAL MIXED MATERIAL RECOVERED (tons): _____

ORGANIC MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					

TOTAL ORGANIC MATERIAL RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 6 – UNAUTHORIZED SOLID WASTE

Has unauthorized solid waste been received at the facility during the reporting period?

☐ Yes ■ No If yes, give information below for each incident (attach additional sheets if necessary):

Date Received	Type Received	Date Disposed	Disposal Method & Location

Radiation Monitoring

Does your facility use a fixed radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

Does your facility use a portable radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

If the radiation monitors have been triggered give information below for each incident:

Incident Number	Received		Hauler	Origin	Truck Number	Reading	Disposal Status	Removed	
	Date	Time						Date	Time

SECTION 7 - COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTS

Are there required cost estimates and financial assurance documents for closure?

☐ Yes ■ No If yes, attach additional sheets reflecting annual adjustments for inflation and any changes to the Closure Plan?

SECTION 8 – PROBLEMS

Were any problems encountered during the reporting period (e.g., specific occurrences which have led to changes in facility procedures)?

☐ Yes ■ No If yes, attach additional sheets identifying each problem and the methods for resolution of the problem.

SECTION 9 – CHANGES

Were there any changes from approved reports, plans, specifications, and permit conditions?

☐ Yes ■ No If yes, attach additional sheets identifying changes with a justification for each change.

SECTION 10 - PERMIT/CONSENT ORDER REPORTING REQUIREMENTS

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form?

☐ Yes ■ No If yes, attach additional sheets identifying the reporting requirements with their respective responses.

SECTION 11 - SIGNATURE AND DATE BY OWNER OR OPERATOR

Owner or Operator must sign, date and submit one completed form to the appropriate Regional Office (See attachment for Regional Office addresses, email addresses and Materials Management Contacts).

The Owner or Operator must also submit one copy by email, fax or mail to:

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Solid Waste Management
625 Broadway
Albany, New York 12233-7260
Fax 518-402-9041
Email address: SWMFannualreport@dec.ny.gov

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with a system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.

Signature

2/20/2020
Date

Dereth Glance
Name (Print or Type)

Executive Director
Title (Print or Type)

(315) 453-2866
Phone Number

100 Elwood Davis Road
Address

North Syracuse
City

13212
State and Zip

dglance@ocrra.org
Email (Print or Type)

ATTACHMENTS: ☐ YES ■ NO (Please check appropriate line)

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APPENDIX D-2: Rock Cut Road Transfer Station - 2020 Permitted Transfer Facility Annual Report

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NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

PERMITTED TRANSFER FACILITY ANNUAL REPORT

(If you need assistance filling out this form please email swmfannualreport@dec.ny.gov or call 518-402-8678.)

Complete and submit this form by March 1, 2021.

This annual report is for the year of operation from January 01, 2020 to December 31, 2020

SECTION 1 – GENERAL INFORMATION

FACILITY INFORMATION

FACILITY NAME: Rock Cut Road Transfer Station			
FACILITY LOCATION ADDRESS: 5808 Rock Cut Road	**FACILITY CITY:** Jamesville	**STATE:** NY	**ZIP CODE:** 13078
FACILITY TOWN: Onondaga	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
FACILITY NYS PLANNING UNIT: (A list of NYS Planning Units can be found at the end of this report). Onondaga County (except Skaneateles (T) & (V))		**NYSDEC REGION #:** 7	
360 PERMIT #: (Refer to DEC Permit) 7-3142-00036/00003	**DATE ISSUED:** 3/3/14	**DATE EXPIRES:** 3/2/24	**NYS DEC ACTIVITY CODE OR REGISTRATION NUMBER:** (Refer to DEC Permit)
FACILITY CONTACT: Kevin Spillane	☒ public ☐ private	**CONTACT PHONE NUMBER:** 315-453-2866	**CONTACT FAX NUMBER:**
CONTACT EMAIL ADDRESS: kspillane@ocrra.org			

OWNER INFORMATION

OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866	**OWNER FAX NUMBER:**	
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		

OPERATOR INFORMATION

OPERATOR NAME: ☑ *same as owner* ☒ public ☐ private

PREFERENCES

Preferred address to receive correspondence: ☐ *Facility location address* ☒ *Owner address* ☐ *Other (provide):*

Preferred email address: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Preferred individual to receive correspondence: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Did you operate in 2020? ☒ Yes; Complete this form.

☐ No; Complete and submit Sections 1 and 11. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, also complete the "Inactive Solid Waste Management Facility or Activity Notification Form" located at: http://www.dec.ny.gov/chemical/52706.html .

SECTION 2 - SOLID WASTE RECEIVED

Please provide the tonnages of solid waste received. Include all waste received. Report Recyclable Materials in Section 5. DO NOT REPORT IN CUBIC YARDS!

Specify the methods used to measure the quantities disposed and the percentages measured by each method:

90 % Scale Weight

10 % Estimated

_____% Truck Count

_____% Other (Specify: _____)

Type of Solid Waste	January (tons)	February (tons)	March (tons)	April (tons)	May (tons)	June (tons)	July (tons)
Asbestos							
Construction & Demolition (C&D) Debris						3325	5761
Industrial Waste (Including Industrial Process Sludges)							
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)						1095	2883
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							
Roofing						672	807
Ragger Tail						171	
Total Tons Received						5263	9451

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

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SECTION 2 - SOLID WASTE RECEIVED (continued)

Type of Solid Waste	Tip Fee ($/ton)	August (tons)	September (tons)	October (tons)	November (tons)	December (tons)	Total Year (tons)	Daily Avg. (tons)
Asbestos								
Construction & Demolition (C&D) Debris		5601	5546	5624	4839	4326	35022	250
Industrial Waste (Including Industrial Process Sludges)								
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)		1773	2690	1904	1328	1386	13059	93
Oil/Gas Drilling Waste								
Petroleum Contaminated Soil								
Sewage Treatment Plant Sludge								
Treated Regulated Medical Waste								
Emergency Authorization Waste (Storm Debris)								
Other (specify)								
Roofing		776	868	594	475	243	4435	32
Ragger Tail							171	
Total Tons Received		8150	9104	8122	6642	5955	52687	376

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 3 – SERVICE AREA OF SOLID WASTE RECEIVED

Please identify where the waste is coming from. The total tons received reported below should equal the total tons received in Section 2 (Solid Waste Received). DO NOT REPORT IN CUBIC YARDS!

- If the waste ***WAS*** received from another solid waste management facility, please write in the name *and* address of the facility along with the appropriate state, county and planning unit/municipality.
- If the waste ***WAS NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the waste was generated.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Waste Type(s): Mixed MSW, C&D

_____ % Rail: Waste Type(s): _____

_____ % Water: Waste Type(s): _____

_____ % Other (specify: _____): Waste Type(s): _____

SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Asbestos					
Construction & Demolition (C&D) Debris	Direct Haul	NY	Onondaga County	Onondaga County (exce	35022
Industrial Waste (Including Industrial Process Sludges)					

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SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)					
	Direct Haul	NY	Onondaga County	Onondaga County (exce	13059
Oil/Gas Drilling Waste					
Petroleum Contaminated Soil					
Sewage Treatment Plant Sludge					
Treated Regulated Medical Waste (TRMW)*					
Emergency Authorization Waste (Storm Debris)					
Other (specify) Roof	Direct Haul	NY	Onondaga County	Onondaga County (exce	4435
Ragger	Direct Haul	NY	Onondaga County	Onondaga County (exce	171
				TOTAL RECEIVED (tons):	52687

* List generators that provide you Certificates of Treatment forms and quantities of TRMW from each _____

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

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SECTION 4 - TRANSFER OR DISPOSAL DESTINATION

Please identify destination of waste. Please only include waste sent off-site for disposal or further transfer prior to disposal. Exclude Recyclable Material amounts reported in Section 5. DO NOT REPORT IN CUBIC YARDS!

- If the waste is being sent to another facility for transfer or processing prior to disposal (e.g. Transfer facility or C&D debris handling and recovery facility), please identify name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the transfer destination and the amount of waste transferred in the "*Amount to Transfer Destination*" column.
- If the waste is being sent to a landfill or combustor, please identify the name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the disposal destination and the amount of waste being sent for disposal in the "*Amount to Disposal Destination*" column.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Waste Type(s): Mixed MSW, C&D

_____% Rail: Waste Type(s): _____

_____% Water: Waste Type(s): _____

_____% Other (specify: _____): Waste Type(s): _____

TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Asbestos							
Construction & Demolition (C&D) Debris							
	Camillus Landfill		Onondaga Cou	Onondaga County (ex		12057	12057
	OCRRA WTE Facility		Onondaga Cou	Onondaga County (ex		22073	22073
Industrial Waste (Including Industrial Process Sludges)							

TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)							
	OCRRA WTE Facility		Onondaga Cou	Onondaga County (ex		13059	13059
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							
Roofing	OCRRA WTE Facility		Onondaga Cou	Onondaga County (ex		4435	4435
Ragger	Buffalo Fuel		Niagara Count	Niagara County		171	171

TOTAL SENT (tons): 51795

If the waste type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other waste name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other waste name.

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SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS

Is your facility also a permitted or registered Recyclables Handling & Recovery Facility?

☐ Yes; Complete Section 5 for material recovered from the mixed solid waste stream. Complete a Recyclables Handling & Recovery Facility (RHRF) form for material received as source separated. The RHRF form is located at: http://www.dec.ny.gov/chemical/52706.html .

☒ No; Complete Section 5 for material recovered from the mixed solid waste stream and for material received as source separated.

A. Service Area of Recyclable Material Received

Please identify where the recyclable materials are coming from. DO NOT REPORT IN CUBIC YARDS!

- If the materials ***WERE*** received from another solid waste management facility, please write in the name and address of the facility along with the appropriate state, county and planning unit/municipality.
- If the materials ***WERE NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the recyclables were generated.

SERVICE AREA OF RECYCLABLE MATERIAL RECEIVED (where the material is coming from)					
MATERIAL	SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"	SERVICE AREA STATE OR COUNTRY	SERVICE AREA COUNTY OR PROVINCE	SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECEIVED
Commingled Containers (metal, glass, plastic)					
Commingled Paper (all grades)					
Single Stream (total)					
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					
				TOTAL RECEIVED (tons):	

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

Please identify destination of recovered materials. Indicate the name of the facility, address, corresponding State/Country, County/Province, Destination Planning Unit/Municipality and the amount of material transferred. DO NOT REPORT IN CUBIC YARDS!

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Material(s): Metals

____ % Rail: Material(s): _____

____ % Water: Material(s): _____

____ % Other (specify: _____): Material(s): _____

PAPER RECOVERED					
RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Paper (all grades)					
Corrugated Cardboard					
Junk Mail					
Magazines					
Newspaper					
Office Paper					
Paperboard / Boxboard					
Other Paper (specify)					
				TOTAL PAPER RECOVERED (tons):	

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

GLASS RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Container Glass					
Industrial Scrap Glass					
Other Glass (specify)					

TOTAL GLASS RECOVERED (tons): _____

METAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Aluminum Foil / Trays					
Bulk Metal (from MSW)	Edward Arnold Scrap, Corfu, NY	NY	Genesee County	GLOW Region Solid Was	892
Bulk Metal (from CD debris)					
Enameled Appliances / White Goods					
Industrial Scrap Metal					
Tin & Aluminum Containers					
Other Metal (specify)					

TOTAL METAL RECOVERED (tons): 892

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

PLASTIC RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Plastic (#1 - #7)					
PET (plastic #1)					
HDPE (plastic #2)					
Other Rigid Plastics (#3 - #7)					
Industrial Scrap Plastic					
Plastic Film & Bags					
Other Plastics (specify)					

TOTAL PLASTIC RECOVERED (tons):

MISCELLANEOUS MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Electronics	Sunking Rochester NY	NY	Monroe County	Monroe County	211 units
Textiles					
Other (specify)					

TOTAL MISCELLANEOUS MATERIAL RECOVERED (tons): 211 units

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

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SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

MIXED MATERIAL RECOVERED

RECOVERED MIXED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Containers (metal, glass, plastic)					
Commingled Paper & Containers					
Single Stream (total)					
Other (specify)					

TOTAL MIXED MATERIAL RECOVERED (tons): _____

ORGANIC MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					

TOTAL ORGANIC MATERIAL RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 6 – UNAUTHORIZED SOLID WASTE

Has unauthorized solid waste been received at the facility during the reporting period?

■ Yes ☐ No If yes, give information below for each incident (attach additional sheets if necessary):

Date Received	Type Received	Date Disposed	Disposal Method & Location
7/9/20	Medical Waste	7/16/20	Landfill Seneca Meadows, Waterloo, NY
8/17/20	Corrosive Liquid	8/17/20	Miller Environmental removal and dispos

Radiation Monitoring

Does your facility use a fixed radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

Does your facility use a portable radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

If the radiation monitors have been triggered give information below for each incident:

Incident Number	Received		Hauler	Origin	Truck Number	Reading	Disposal Status	Removed	
	Date	Time						Date	Time

SECTION 7 - COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTS

Are there required cost estimates and financial assurance documents for closure?

■ Yes ☐ No If yes, attach additional sheets reflecting annual adjustments for inflation and any changes to the Closure Plan?

SECTION 8 – PROBLEMS

Were any problems encountered during the reporting period (e.g., specific occurrences which have led to changes in facility procedures)?

☐ Yes ■ No If yes, attach additional sheets identifying each problem and the methods for resolution of the problem.

SECTION 9 – CHANGES

Were there any changes from approved reports, plans, specifications, and permit conditions?

☐ Yes ■ No If yes, attach additional sheets identifying changes with a justification for each change.

SECTION 10 - PERMIT/CONSENT ORDER REPORTING REQUIREMENTS

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form?

☐ Yes ■ No If yes, attach additional sheets identifying the reporting requirements with their respective responses.

SECTION 11 - SIGNATURE AND DATE BY OWNER OR OPERATOR

Owner or Operator must sign, date and submit one completed form to the appropriate Regional Office (See attachment for Regional Office addresses, email addresses and Materials Management Contacts).

The Owner or Operator must also submit one copy by email, fax or mail to:

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Solid Waste Management
625 Broadway
Albany, New York 12233-7260
Fax 518-402-9041
Email address: SWMFannualreport@dec.ny.gov

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with a system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.

Signature _____ Date 2/24/2021

Dereth Glance	Executive Director	315 453 2866
Name (Print or Type)	Title (Print or Type)	Phone Number

100 Elwood Davis Road	North Syracuse	13212
Address	City	State and Zip

dglance@ocrra.org
Email (Print or Type)

ATTACHMENTS: [■] YES [ ] NO (Please check appropriate line)

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Onondaga County Resource Recovery Agency
Rock Cut Road Transfer Station
Permit ID 7-3142-00036-00003
Closure Cost Estimate (Year 2020)

Item No.	Decsription	Quanitity	Unit	Cost (2020 dollars)
Removal of Waste & Oils				
1	Refuse Removal (Load, Transport & Dispose)	1,250	tons	$78,063
2	Diesel Fuel	10,000	gallons	$30,000
3	Oil Drums (virgin misc. lube)	1,100	gallons	$1,430
4	Used Oil Tank	1,100	gallons	$4,400
5	Used Oil in Equipment	1,100	gallons	$4,400
Cleaning				
6	Refuse Tipping Floors & Transfer Areas	7,925	square feet	$3,963
7	Miscellanesous Facility & Grounds Cleaning	203,075	square feet	$10,154
Decontamination				
8	Refuse Tipping Floors	7,925	square feet	$1,981
9	Decontamination & closure of registered tanks	6	each	$30,000
SUBTOTAL				$164,390
OVERSIGHT & CONTINGENCY (10% of Subtotal)				$16,439
TOTAL				**$180,829**

APPENDIX E-1: Ley Creek Road Transfer Station - 2019 Permitted Transfer Facility Annual Report

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PERMITTED TRANSFER FACILITY ANNUAL REPORT

(If you need assistance filling out this form please email swmfannualreport@dec.ny.gov or call 518-402-8678.)

Complete and submit this form by March 1, 2020.

This annual report is for the year of operation from January 01, 2019 to December 31, 2019

SECTION 1 – GENERAL INFORMATION

FACILITY INFORMATION

FACILITY NAME: Ley Creek Transfer Station			
FACILITY LOCATION ADDRESS: 5158 Ley Creek Drive	**FACILITY CITY:** Liverpool	**STATE:** NY	**ZIP CODE:** 13088
FACILITY TOWN: Salina	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
FACILITY NYS PLANNING UNIT: (A list of NYS Planning Units can be found at the end of this report). Onondaga County (except Skaneateles (T) & (V))		**NYSDEC REGION #:** 7	

360 PERMIT #: (Refer to DEC Permit) 7-3148-00048/00003	**DATE ISSUED:** 3/3/14	**DATE EXPIRES:** 3/2/24	**NYS DEC ACTIVITY CODE OR REGISTRATION NUMBER:** (Refer to DEC Permit)

FACILITY CONTACT: Kevin Spillane	☒ public ☐ private	**CONTACT PHONE NUMBER:** 315-453-2866	**CONTACT FAX NUMBER:**
CONTACT EMAIL ADDRESS: kspillane@ocrra.org			

OWNER INFORMATION

OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866	**OWNER FAX NUMBER:**	
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		

OPERATOR INFORMATION

OPERATOR NAME: ☑ *same as owner* ☒ public ☐ private

PREFERENCES

Preferred address to receive correspondence: ☐ *Facility location address* ☒ *Owner address* ☐ *Other (provide):*

Preferred email address: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Preferred individual to receive correspondence: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Did you operate in 2019? ☒ Yes; Complete this form.

☐ No; Complete and submit Sections 1 and 11. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, also complete the "Inactive Solid Waste Management Facility or Activity Notification Form" located at: http://www.dec.ny.gov/chemical/52706.html .

SECTION 2 - SOLID WASTE RECEIVED

Please provide the tonnages of solid waste received. Include all waste received. Report Recyclable Materials in Section 5. DO NOT REPORT IN CUBIC YARDS!

Specify the methods used to measure the quantities disposed and the percentages measured by each method:

90 % Scale Weight

10 % Estimated

_____% Truck Count

_____% Other (Specify: _____)

Type of Solid Waste	January (tons)	February (tons)	March (tons)	April (tons)	May (tons)	June (tons)	July (tons)
Asbestos							
Construction & Demolition (C&D) Debris	3486	3136	3497	4226	4970	4925	5464
Industrial Waste (Including Industrial Process Sludges)							
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)	2280	1931	2626	3376	3509	3479	3770
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							
Roofing	325	229	560	1442	1583	1622	1767
Ragger Tail	1131	948	997	1068	1060	884	1166
Total Tons Received	7222	6244	7680	10112	11122	10910	12167

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 2 - SOLID WASTE RECEIVED (continued)

Type of Solid Waste	Tip Fee ($/ton)	August (tons)	September (tons)	October (tons)	November (tons)	December (tons)	Total Year (tons)	Daily Avg. (tons)
Asbestos								
Construction & Demolition (C&D) Debris		5293	4656	5292	4969	4351	54265	178
Industrial Waste (Including Industrial Process Sludges)								
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)		3739	3838	4164	3079	2533	38324	126
Oil/Gas Drilling Waste								
Petroleum Contaminated Soil								
Sewage Treatment Plant Sludge								
Treated Regulated Medical Waste								
Emergency Authorization Waste (Storm Debris)								
Other (specify)								
Roofing		2152	1740	1477	1021	520	14438	47
Ragger Tail		1062	1034	1148	1311	1170	12979	43
Total Tons Received		12246	11268	12081	10380	8574	120006	393

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 3 – SERVICE AREA OF SOLID WASTE RECEIVED

Please identify where the waste is coming from. **The total tons received reported below should equal the total tons received in Section 2 (Solid Waste Received). DO NOT REPORT IN CUBIC YARDS!**

- If the waste ***WAS*** received from another solid waste management facility, please write in the name *and* address of the facility along with the appropriate state, county and planning unit/municipality.
- If the waste ***WAS NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the waste was generated.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Waste Type(s): Mixed MSW, C&D

_____% Rail: Waste Type(s): _____

_____% Water: Waste Type(s): _____

_____% Other (specify: _____): Waste Type(s): _____

SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Asbestos					
Construction & Demolition (C&D) Debris					
	Direct Haul	NY	Onondaga County	Onondaga County (exce	54265
Industrial Waste (Including Industrial Process Sludges)					

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SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)					
	Direct Haul	NY	Onondaga County	Onondaga County (exce	38324
Oil/Gas Drilling Waste					
Petroleum Contaminated Soil					
Sewage Treatment Plant Sludge					
Treated Regulated Medical Waste (TRMW)*					
Emergency Authorization Waste (Storm Debris)					
Other (specify) Roof	Direct Haul	NY	Onondaga County	Onondaga County (exce	14438
Ragger	Direct Haul	NY	Onondaga County	Onondaga County (exce	12979
				TOTAL RECEIVED (tons):	120006

* List generators that provide you Certificates of Treatment forms and quantities of TRMW from each _____

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 4 - TRANSFER OR DISPOSAL DESTINATION

Please identify destination of waste. Please only include waste sent off-site for disposal or further transfer prior to disposal. Exclude Recyclable Material amounts reported in Section 5. DO NOT REPORT IN CUBIC YARDS!

- If the waste is being sent to another facility for transfer or processing prior to disposal (e.g. Transfer facility or C&D debris handling and recovery facility), please identify name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the transfer destination and the amount of waste transferred in the "*Amount to Transfer Destination*" column.
- If the waste is being sent to a landfill or combustor, please identify the name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the disposal destination and the amount of waste being sent for disposal in the "*Amount to Disposal Destination*" column.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Waste Type(s): Mixed MSW, C&D

_____% Rail: Waste Type(s): _____

_____% Water: Waste Type(s): _____

_____% Other (specify: _____): Waste Type(s): _____

TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Asbestos							
Construction & Demolition (C&D) Debris							
	Seneca Meadows Landfill	NY	Seneca County	Seneca County		1243	1243
	Camillus Landfill	NY	Onondaga Cou	Onondaga County (ex		40748	40748
	OCRRA WTE Facility	NY	Onondaga Cou	Onondaga County (ex		12274	12274
Industrial Waste (Including Industrial Process Sludges)							

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TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)							
	OCRRA WTE Facility	NY	Onondaga Cou	Onondaga County (ex		35450	35450
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							
Ragger	OCRRA WTE Facility	NY	Onondaga Cou	Onondaga County (ex		12371	12371
Roofing	OCRRA WTE Facility	NY	Onondaga Cou	Onondaga County (ex		14438	14438

TOTAL SENT (tons): 116524

If the waste type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other waste name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other waste name.

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SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS

Is your facility also a permitted or registered Recyclables Handling & Recovery Facility?

☐ Yes; Complete Section 5 for material recovered from the mixed solid waste stream. Complete a Recyclables Handling & Recovery Facility (RHRF) form for material received as source separated. The RHRF form is located at: http://www.dec.ny.gov/chemical/52706.html .

☐ No; Complete Section 5 for material recovered from the mixed solid waste stream and for material received as source separated.

A. Service Area of Recyclable Material Received

Please identify where the recyclable materials are coming from. DO NOT REPORT IN CUBIC YARDS!

- If the materials ***WERE*** received from another solid waste management facility, please write in the name and address of the facility along with the appropriate state, county and planning unit/municipality.
- If the materials ***WERE NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the recyclables were generated.

SERVICE AREA OF RECYCLABLE MATERIAL RECEIVED (where the material is coming from)					
MATERIAL	SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"	SERVICE AREA STATE OR COUNTRY	SERVICE AREA COUNTY OR PROVINCE	SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECEIVED
Commingled Containers (metal, glass, plastic)					
Commingled Paper (all grades)					
Single Stream (total)					
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					
				TOTAL RECEIVED (tons):	_____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

Please identify destination of recovered materials. Indicate the name of the facility, address, corresponding State/Country, County/Province, Destination Planning Unit/Municipality and the amount of material transferred. DO NOT REPORT IN CUBIC YARDS!

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Material(s): Metals

_____% Rail: Material(s): _____

_____% Water: Material(s): _____

_____% Other (specify: _____): Material(s): _____

PAPER RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Paper (all grades)					
Corrugated Cardboard					
Junk Mail					
Magazines					
Newspaper					
Office Paper					
Paperboard / Boxboard					
Other Paper (specify)					

TOTAL PAPER RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

GLASS RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Container Glass					
Industrial Scrap Glass					
Other Glass (specify)					

TOTAL GLASS RECOVERED (tons): _____

METAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Aluminum Foil / Trays					
Bulk Metal (from MSW)	Edward Arnold Scrap, Corfu, NY	NY	Genesee County	GLOW Region Solid Was	2874
Bulk Metal (from CD debris)					
Enameled Appliances / White Goods					
Industrial Scrap Metal					
Tin & Aluminum Containers					
Other Metal (specify)					
Ragger	Buffalo Fuel Co, Buffalo, NY	NY	Niagara County	Niagara County	608

TOTAL METAL RECOVERED (tons): 3482

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

PLASTIC RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Plastic (#1 - #7)					
PET (plastic #1)					
HDPE (plastic #2)					
Other Rigid Plastics (#3 - #7)					
Industrial Scrap Plastic					
Plastic Film & Bags					
Other Plastics (specify)					

TOTAL PLASTIC RECOVERED (tons): _____

MISCELLANEOUS MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Electronics	Sunking Rochester NY	NY	Monroe County	Monroe County	1020 units
Textiles					
Other (specify)					

TOTAL MISCELLANEOUS MATERIAL RECOVERED (tons): .25

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

MIXED MATERIAL RECOVERED

RECOVERED MIXED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Containers (metal, glass, plastic)					
Commingled Paper & Containers					
Single Stream (total)					
Other (specify)					

TOTAL MIXED MATERIAL RECOVERED (tons): _____

ORGANIC MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					

TOTAL ORGANIC MATERIAL RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 6 – UNAUTHORIZED SOLID WASTE

Has unauthorized solid waste been received at the facility during the reporting period?

■ Yes ☐ No If yes, give information below for each incident (attach additional sheets if necessary):

Date Received	Type Received	Date Disposed	Disposal Method & Location
1/7/19	Lithium Ion Batte	1/29/19	Elot Electronics Recycling, Glenmont, N

Radiation Monitoring

Does your facility use a fixed radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

Does your facility use a portable radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

If the radiation monitors have been triggered give information below for each incident:

Incident Number	Received		Hauler	Origin	Truck Number	Reading	Disposal Status	Removed	
	Date	Time						Date	Time

SECTION 7 - COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTS

Are there required cost estimates and financial assurance documents for closure?

☐ Yes ■ No If yes, attach additional sheets reflecting annual adjustments for inflation and any changes to the Closure Plan?

SECTION 8 – PROBLEMS

Were any problems encountered during the reporting period (e.g., specific occurrences which have led to changes in facility procedures)?

☐ Yes ■ No If yes, attach additional sheets identifying each problem and the methods for resolution of the problem.

SECTION 9 – CHANGES

Were there any changes from approved reports, plans, specifications, and permit conditions?

☐ Yes ■ No If yes, attach additional sheets identifying changes with a justification for each change.

SECTION 10 - PERMIT/CONSENT ORDER REPORTING REQUIREMENTS

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form?

☐ Yes ■ No If yes, attach additional sheets identifying the reporting requirements with their respective responses.

SECTION 11 - SIGNATURE AND DATE BY OWNER OR OPERATOR

Owner or Operator must sign, date and submit one completed form to the appropriate Regional Office (See attachment for Regional Office addresses, email addresses and Materials Management Contacts).

The Owner or Operator must also submit one copy by email, fax or mail to:

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Solid Waste Management
625 Broadway
Albany, New York 12233-7260
Fax 518-402-9041
Email address: SWMFannualreport@dec.ny.gov

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with a system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.

Signature _____ Date 2/20/2020

Dereth Glance — Name (Print or Type)

Executive Director — Title (Print or Type)

(315) 453-2866 — Phone Number

100 Elwood Davis Road — Address

North Syracuse — City

13212 — State and Zip

dglance@ocrra.org — Email (Print or Type)

ATTACHMENTS: ☐ YES ■ NO (Please check appropriate line)

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APPENDIX E-2: Ley Creek Road Transfer Station - 2020 Permitted Transfer Facility Annual Report

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NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

PERMITTED TRANSFER FACILITY ANNUAL REPORT

(If you need assistance filling out this form please email swmfannualreport@dec.ny.gov or call 518-402-8678.)

Complete and submit this form by March 1, 2021.

This annual report is for the year of operation from January 01, 2020 to December 31, 2020

SECTION 1 – GENERAL INFORMATION

FACILITY INFORMATION

FACILITY NAME: Ley Creek Transfer Station			
FACILITY LOCATION ADDRESS: 5158 Ley Creek Drive	**FACILITY CITY:** Liverpool	**STATE:** NY	**ZIP CODE:** 13088
FACILITY TOWN: Salina	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
FACILITY NYS PLANNING UNIT: (A list of NYS Planning Units can be found at the end of this report). Onondaga County (except Skaneateles (T) & (V))		**NYSDEC REGION #:** 7	

360 PERMIT #: (Refer to DEC Permit) 7-3148-00048/	**DATE ISSUED:** 3/3/14	**DATE EXPIRES:** 3/2/24	**NYS DEC ACTIVITY CODE OR REGISTRATION NUMBER:** (Refer to DEC Permit)

FACILITY CONTACT: Kevin Spillane	☒ public ☐ private	**CONTACT PHONE NUMBER:** 315-453-2866	**CONTACT FAX NUMBER:**
CONTACT EMAIL ADDRESS: kspillane@ocrra.org			

OWNER INFORMATION

OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866	**OWNER FAX NUMBER:**	
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		

OPERATOR INFORMATION

OPERATOR NAME: ☑ *same as owner* ☒ public ☐ private

PREFERENCES

Preferred address to receive correspondence: ☐ *Facility location address* ☒ *Owner address* ☐ *Other (provide):*

Preferred email address: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Preferred individual to receive correspondence: ☒ *Facility Contact* ☐ *Owner Contact* ☐ *Other (provide):*

Did you operate in 2020? ☒ Yes; Complete this form.

☐ No; Complete and submit Sections 1 and 11. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, also complete the "Inactive Solid Waste Management Facility or Activity Notification Form" located at: http://www.dec.ny.gov/chemical/52706.html .

SECTION 2 - SOLID WASTE RECEIVED

Please provide the tonnages of solid waste received. Include all waste received. Report Recyclable Materials in Section 5. DO NOT REPORT IN CUBIC YARDS!

Specify the methods used to measure the quantities disposed and the percentages measured by each method:

90 % Scale Weight

10 % Estimated

_____% Truck Count

_____% Other (Specify: _____)

Type of Solid Waste	January (tons)	February (tons)	March (tons)	April (tons)	May (tons)	June (tons)	July (tons)
Asbestos							
Construction & Demolition (C&D) Debris	4132.5	3448	4299	3998	4076.5	1809	
Industrial Waste (Including Industrial Process Sludges)							
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)	2479	2102	2733	2393	2703	2629	1484
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							
Roofing	409.5	182	606	515	1535	801	
Ragger Tail	880	1181	1175	1106	964		
Total Tons Received	7901	6913	8813	8012	9278.5	5239	1484

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

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SECTION 2 - SOLID WASTE RECEIVED (continued)

Type of Solid Waste	Tip Fee ($/ton)	August (tons)	September (tons)	October (tons)	November (tons)	December (tons)	Total Year (tons)	Daily Avg. (tons)
Asbestos								
Construction & Demolition (C&D) Debris							21763	181
Industrial Waste (Including Industrial Process Sludges)								
Mixed Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)		869	819	1070	884	594	20759	86
Oil/Gas Drilling Waste								
Petroleum Contaminated Soil								
Sewage Treatment Plant Sludge								
Treated Regulated Medical Waste								
Emergency Authorization Waste (Storm Debris)								
Other (specify)								
Roofing							4048.5	34
Ragger Tail							5306	53
Total Tons Received		869	819	1070	884	594	51876	216

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

SECTION 3 – SERVICE AREA OF SOLID WASTE RECEIVED

Please identify where the waste is coming from. The total tons received reported below should equal the total tons received in Section 2 (Solid Waste Received). DO NOT REPORT IN CUBIC YARDS!

- If the waste ***WAS*** received from another solid waste management facility, please write in the name *and* address of the facility along with the appropriate state, county and planning unit/municipality.
- If the waste ***WAS NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the waste was generated.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Waste Type(s): Mixed MSW, C&D

_____% Rail: Waste Type(s): _____

_____% Water: Waste Type(s): _____

_____% Other (specify: _____): Waste Type(s): _____

SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Asbestos					
Construction & Demolition (C&D) Debris	Direct Haul	NY	Onondaga County	Onondaga County (exce	21763
Industrial Waste (Including Industrial Process Sludges)					

SERVICE AREA OF SOLID WASTE RECEIVED (where the waste is coming from)					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units**	**TONS RECEIVED**
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)					
	Direct Haul	NY	Onondaga County	Onondaga County (exce	20759
Oil/Gas Drilling Waste					
Petroleum Contaminated Soil					
Sewage Treatment Plant Sludge					
Treated Regulated Medical Waste (TRMW)*					
Emergency Authorization Waste (Storm Debris)					
Other (specify) Roof	Direct Haul	NY	Onondaga County	Onondaga County (exce	4048.5
Ragger	Direct Haul	NY	Onondaga County	Onondaga County (exce	5306
				TOTAL RECEIVED (tons):	51876

* List generators that provide you Certificates of Treatment forms and quantities of TRMW from each _____

If the solid waste type is not listed, use one of the "Other" lines and fill in the name of the waste. If more "Other" lines are needed, cross out an unused type and fill in the other solid waste name. If still more "Other" lines are needed, attach another copy of this page, cross out an unused type, and fill in the other solid waste name.

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SECTION 4 - TRANSFER OR DISPOSAL DESTINATION

Please identify destination of waste. Please only include waste sent off-site for disposal or further transfer prior to disposal. Exclude Recyclable Material amounts reported in Section 5. DO NOT REPORT IN CUBIC YARDS!

- If the waste is being sent to another facility for transfer or processing prior to disposal (e.g. Transfer facility or C&D debris handling and recovery facility), please identify name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the transfer destination and the amount of waste transferred in the "*Amount to Transfer Destination*" column.
- If the waste is being sent to a landfill or combustor, please identify the name, address, corresponding State/Country, County/Province, and Destination Planning Unit of the disposal destination and the amount of waste being sent for disposal in the "*Amount to Disposal Destination*" column.

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Waste Type(s): Mixed MSW, C&D

____% Rail: Waste Type(s): _____

____% Water: Waste Type(s): _____

____% Other (specify: _____): Waste Type(s): _____

TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Asbestos							
Construction & Demolition (C&D) Debris							
	Seneca Meadows Landfill		Seneca County	Seneca County		5181	5181
	Camillus Landfill		Onondaga Cou	Onondaga County (ex		8736	8736
	OCRRA WTE Facility		Onondaga Cou	Onondaga County (ex		9900	9900
	High Acres Landfill		Monroe County	Monroe County		636	636
Industrial Waste (Including Industrial Process Sludges)							

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TRANSFER OR DISPOSAL DESTINATION

TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	TOTAL YEAR (TONS)
Municipal Solid Waste (MSW) (Residential, Institutional & Commercial)							
	OCRRA WTE Facility		Onondaga Cou	Onondaga County (ex		19236	19236
Oil/Gas Drilling Waste							
Petroleum Contaminated Soil							
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (specify)							
Roofing	OCRRA WTE Facility		Onondaga Cou	Onondaga County (ex		4048	4048
Ragger	OCRRA WTE Facility		Onondaga Cou	Onondaga County (ex		5040	5040

TOTAL SENT (tons): 51178

If the waste type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other waste name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other waste name.

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SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS

Is your facility also a permitted or registered Recyclables Handling & Recovery Facility?

☐ Yes; Complete Section 5 for material recovered from the mixed solid waste stream. Complete a Recyclables Handling & Recovery Facility (RHRF) form for material received as source separated. The RHRF form is located at: http://www.dec.ny.gov/chemical/52706.html .

■ No; Complete Section 5 for material recovered from the mixed solid waste stream and for material received as source separated.

A. Service Area of Recyclable Material Received

Please identify where the recyclable materials are coming from. DO NOT REPORT IN CUBIC YARDS!

- If the materials ***WERE*** received from another solid waste management facility, please write in the name and address of the facility along with the appropriate state, county and planning unit/municipality.
- If the materials ***WERE NOT*** received from another solid waste management facility, please write in "***Direct Haul***" along with the appropriate state, county and planning unit/municipality where the recyclables were generated.

SERVICE AREA OF RECYCLABLE MATERIAL RECEIVED (where the material is coming from)					
MATERIAL	SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR "*Direct Haul*"	SERVICE AREA STATE OR COUNTRY	SERVICE AREA COUNTY OR PROVINCE	SERVICE AREA NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECEIVED
Commingled Containers (metal, glass, plastic)					
Commingled Paper (all grades)					
Single Stream (total)	Direct Haul	NY	Onondaga County	Onondaga County (excep	2203.83
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					
				TOTAL RECEIVED (tons):	2203.83

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

Please identify destination of recovered materials. Indicate the name of the facility, address, corresponding State/Country, County/Province, Destination Planning Unit/Municipality and the amount of material transferred. DO NOT REPORT IN CUBIC YARDS!

Specify transport method, list type of material(s) and percentages of total waste transported by each:

100 % Road: Material(s): Metals _____ _____% Rail: Material(s): _____

_____% Water: Material(s): _____ _____% Other (specify: _____): Material(s): _____

PAPER RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Paper (all grades)					
Corrugated Cardboard					
Junk Mail					
Magazines					
Newspaper					
Office Paper					
Paperboard / Boxboard					
Other Paper (specify)					

TOTAL PAPER RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

GLASS RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Container Glass					
Industrial Scrap Glass					
Other Glass (specify)					

TOTAL GLASS RECOVERED (tons): _____

METAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Aluminum Foil / Trays					
Bulk Metal (from MSW)	Edward Arnold Scrap, Corfu, NY	NY	Genesee County	GLOW Region Solid Was	1539
Bulk Metal (from CD debris)					
Enameled Appliances / White Goods					
Industrial Scrap Metal					
Tin & Aluminum Containers					
Other Metal (specify)					
Ragger	Buffalo Fuel Co	NY	Niagara County	Niagara County	60

TOTAL METAL RECOVERED (tons): 1599

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

PLASTIC RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Plastic (#1 - #7)					
PET (plastic #1)					
HDPE (plastic #2)					
Other Rigid Plastics (#3 - #7)					
Industrial Scrap Plastic					
Plastic Film & Bags					
Other Plastics (specify)					

TOTAL PLASTIC RECOVERED (tons):

MISCELLANEOUS MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Electronics	Sunking Rochester NY	NY	Monroe County	Monroe County	395 units
Textiles					
Other (specify)					

TOTAL MISCELLANEOUS MATERIAL RECOVERED (tons): 395 units

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 5 – PERMITTED TRANSFER FACILITY RECYCLABLE & RECOVERED MATERIALS (continued)

B. Material Recovered

MIXED MATERIAL RECOVERED

RECOVERED MIXED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Commingled Containers (metal, glass, plastic)					
Commingled Paper & Containers					
Single Stream (total)	Recycle America, Steel Blvd., Liverpool, NY	NY	Onondaga County		2203.83
Other (specify)					

TOTAL MIXED MATERIAL RECOVERED (tons): 2203.83

ORGANIC MATERIAL RECOVERED

RECOVERED MATERIAL	DESTINATION (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units	TONS RECOVERED (out of facility)
Brush, Branches, Trees, & Stumps					
Food Scraps					
Yard Waste (curbside)					
Other (specify)					

TOTAL ORGANIC MATERIAL RECOVERED (tons): _____

If the material type is not listed, use one of the "Other" lines and fill in the name of the material. If more "Other" lines are needed, cross out an unused type and fill in the other materials name. If still more "Other" lines are needed, attached another copy of this page, cross out an unused type, and fill in the other materials name.

SECTION 6 – UNAUTHORIZED SOLID WASTE

Has unauthorized solid waste been received at the facility during the reporting period?

■ Yes ☐ No If yes, give information below for each incident (attach additional sheets if necessary):

Date Received	Type Received	Date Disposed	Disposal Method & Location
5/5/2020	Incinerator Ash	5/19/2020	Landfill Seneca Meadows, Waterloo, NY

Radiation Monitoring

Does your facility use a fixed radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

Does your facility use a portable radiation monitor? ☐ Yes ■ No

Identify Manufacturer _____ and Model _____ of fixed unit.

If the radiation monitors have been triggered give information below for each incident:

Incident Number	Received		Hauler	Origin	Truck Number	Reading	Disposal Status	Removed	
	Date	Time						Date	Time

SECTION 7 - COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTS

Are there required cost estimates and financial assurance documents for closure?

■ Yes ☐ No If yes, attach additional sheets reflecting annual adjustments for inflation and any changes to the Closure Plan?

SECTION 8 – PROBLEMS

Were any problems encountered during the reporting period (e.g., specific occurrences which have led to changes in facility procedures)?

☐ Yes ■ No If yes, attach additional sheets identifying each problem and the methods for resolution of the problem.

SECTION 9 – CHANGES

Were there any changes from approved reports, plans, specifications, and permit conditions?

☐ Yes ■ No If yes, attach additional sheets identifying changes with a justification for each change.

SECTION 10 - PERMIT/CONSENT ORDER REPORTING REQUIREMENTS

Are there any additional permit/consent order reporting requirements not covered by the previous sections of this form?

■ Yes ☐ No If yes, attach additional sheets identifying the reporting requirements with their respective responses.

SECTION 11 - SIGNATURE AND DATE BY OWNER OR OPERATOR

Owner or Operator must sign, date and submit one completed form to the appropriate Regional Office (See attachment for Regional Office addresses, email addresses and Materials Management Contacts).

The Owner or Operator must also submit one copy by email, fax or mail to:

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Solid Waste Management
625 Broadway
Albany, New York 12233-7260
Fax 518-402-9041
Email address: SWMFannualreport@dec.ny.gov

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with a system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.

Signature

2/24/2021
Date

Dereth Glance
Name (Print or Type)

Executive Director
Title (Print or Type)

(315) 453-2866
Phone Number

100 Elwood Davis Road
Address

North Syracuse
City

13212
State and Zip

dglance@ocrra.org
Email (Print or Type)

ATTACHMENTS: [■] YES [ ] NO (Please check appropriate line)

REPRINTED (12/20)

Onondaga County Resource Recovery Agency
Ley Creek Transfer Station
Permit ID 7-3148-00048-00003
Closure Cost Estimate (Year 2020)

Item No.	Decsription	Quanitity	Unit	Cost (2020 dollars)
Removal of Waste & Oils				
1	Refuse Removal (Load, Transport & Dispose)	4,500	tons	$281,025
2	Diesel Fuel	8,000	gallons	$24,000
3	Oil Drums (virgin misc. lube)	110	gallons	$143
4	Used Oil Tank	110	gallons	$440
5	Used Oil in Equipment	110	gallons	$440
Cleaning				
6	Refuse Tipping Deck & Building	40,000	square feet	$20,000
7	Miscellanesous Facility & Grounds Cleaning	262,120	square feet	$13,106
Decontamination				
8	Refuse Tipping Floor & Building	40,000	square feet	$10,000
9	Decontamination & closure of registered tank	1	each	$5,000
				$354,154
OVERSIGHT & CONTINGENCY (10% of Subtotal)				$35,415
TOTAL				**$389,569**

APPENDIX F-1: Jamesville Compost Facility - 2019 Registered or Permitted Facility Annual Report for Mulch

(remainder of page left blank)

New York State Department of Environmental Conservation
Division of Materials Management
Albany, New York 12233-7253

2019

REGISTERED OR PERMITTED FACILITY ANNUAL REPORT

MULCH PROCESSING FACILITY

6 NYCRR Part 361-4

This annual report is for the year of operation from January 01, 2019 to December 31, 2019

Annual Report Form Due: No Later than March 1, 2020

This form is for mulch processing facilities under section 361-4 of the Part 360 series. Forms for all solid waste management facilities can be found at http://www.dec.ny.gov/chemical/52706.html. If you have any questions on this form, please e-mail organicrecycling@dec.ny.gov.

Failure to provide the required information requested is a violation of Environmental Conservation Law. Timely submission of a properly completed form to the Department's Regional Office that has jurisdiction over your facility and to the Department's Central Office is required to meet the Annual Report requirements of 6 NYCRR Part 360 series.

Attach additional sheets if space on the pages is insufficient or supplementary information is required or appropriate.

FACILITY NAME: OCRRA Jamesville Compost Facility

SW FACILITY ACTIVITY NUMBER(S) (Ex. 05MP0100): 34C08

COUNTY WHERE FACILITY IS LOCATED: Onondaga

DEC USE ONLY

Region: SWIMS:

MATRIX:

Date Reviewed:

Reviewed By:

Data Entered:

MULCH PROCESSING FACILITY ANNUAL REPORT

SECTION 1 – FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: OCRRA Jamesville Compost Facility			
FACILITY LOCATION ADDRESS: 4370 St. Rt. 91	**FACILITY CITY:** Jamesville	**STATE:** NY	**ZIP CODE:** 13078
FACILITY TOWN: Dewitt	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
NYSDEC REGION #: 7			
FACILITY CONTACT: Kevin Spillane	**CONTACT PHONE NUMBER:** 315-453-2866		
CONTACT EMAIL ADDRESS: kspillane@ocrra.org			
OWNER INFORMATION			
OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866		
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		
OPERATOR INFORMATION			
OPERATOR NAME: ☑ *Same as owner*			
PREFERENCES			
Preferred address to receive correspondence: ○ *Facility location address* ◉ *Owner address* ○ *Other (provide):*			
Preferred email address: ◉ *Facility Contact* ○ *Owner Contact* ○ *Other (provide):*			
Preferred individual to receive correspondence: ◉ *Facility Contact* ○ *Owner* ○ *Owner Contact* ○ *Other (provide):*			
Did you operate in 2019? ◉ **Yes; Complete this form.** ○ **No; Complete and submit Sections 1 and 8**. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, please notify the regional office of your intent. See attachment for Regional Office addresses and contacts.			

SECTION 2 – QUANTITY OF MATERIAL RECEIVED

Please report quantities received from January 01, 2019 to December 31, 2019

Inputs	Quantity	Unit* **(Circle one)**	Source(s)
Yard Trimmings (Leaves, small tree branches and limbs (<4 inches in diameter), etc. – Grass not allowed)	14945	Cubic Yards	Residential, Commercial and Municipal
Tree Debris (Stumps, trunks, branches >4 inches in diameter, etc.)		Choose Units	
Wood Debris (Unadulterated wood pallets, unadulterated wood, etc.)		Choose Units	
Other _____		Choose Units	
Other _____		Choose Units	

SECTION 3 – MULCH PRODUCTION

WHAT IS THE PROCESS DETENTION TIME? ***Note: Total time material is processed, not Including storage time***	max 90 days **days**
MULCH PRODUCED DURING THE YEAR:	10013 **cubic yards *or*** _____ **tons**
MULCH DISTRIBUTED DURING THE YEAR:	4077 **cubic yards *or*** _____ **tons**
QUANTITY CURRENTLY STOCKPILED: ***Note: Finished product stockpiled***	7976 **cubic yards *or*** _____ **tons**
AGE OF OLDEST PRODUCT ON SITE:	6-9 **months**

SECTION 4 – MULCH DISTRIBUTION

Quantity Distributed (cubic yards)	Use of Mulch (landscaping, residential, bagged, etc.)
3377	Bulk sales, commercial landscapers
700	Residential

SECTION 5 – UNAUTHORIZED WASTE

Has unauthorized solid waste been received at the mulch processing facility during the reporting period?

◯ Yes ◉ No

If yes, give information below for each incident (attach additional sheets if necessary):

SECTION 6 – PROBLEMS/COMPLAINTS

Describe any operational problems or neighbor complaints arising from the mulch processing operation and include any methods used to remedy the situations. This should include noise or odor complaints, marketing difficulties, major equipment failure, etc.

SECTION 7 – QUESTIONS

Please identify any questions or concerns that you would like the Department to answer or consider:

SECTION 8 - CERTIFICATION

The Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

NYS Department of Environmental Conservation
Bureau of Waste Reduction and Recycling – Annual Report
625 Broadway – 9th Floor
Albany, New York 12233-7253

Phone: 518-402-8706
Fax 518-402-9024
Email address: organicrecycling@dec.ny.gov

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with the system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.

Signature

2/21/2020
Date

Dereth Glance
Name (Print)

Executive Director
Title

dglance@ocrra.org
Email

100 Elwood Davis Road
Address

North Syracuse
City

NY 13212
State and Zip

(315) 453-2866
Phone Number

ATTACHMENTS: ◉ NO ○ YES (IF YES, LIST ATTACHMENTS)

- _____
- _____
- _____

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Waste Reduction and Recycling

MATERIAL MANAGEMENT PROGRAM CONTACTS

CENTRAL OFFICE
Bureau of Waste Reduction and Recycling
625 Broadway
Albany, NY 12233-7253
Phone: (518) 402-8706

For Submission of Organics Recycling Annual Reports only:
Fax: (518) 402-9024
Email: organicrecycling@dec.ny.gov

REGIONAL OFFICE ADDRESS & LEAD CONTACT PERSON

REGION 1 (Nassau, Suffolk)
Syed Rahman/David Gibb
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790
Phone: (631) 444-0375
SWMFannualreportR1@dec.ny.gov

REGION 2 (Bronx, Kings, New York, Queens, Richmond)
Joseph O'Connell
47-40 21st Street
Long Island City, NY 11101-5407
Phone: (718) 482-4896
SWMFannualreportR2@dec.ny.gov

REGION 3 (Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester)
James Lansing
21 South Putt Corners Road
New Paltz, NY 12561
Phone: (845) 256-3123
SWMFannualreportR3@dec.ny.gov

REGION 4 (Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady, Schoharie)
Victoria Schmitt
1130 North Westcott Road
Schenectady, NY 12306
Phone: (518) 357-2243
SWMFannualreportR4@dec.ny.gov

REGION 5 (Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren, Washington)
Jessie Sangster
1115 State Route 86, PO Box 296
Ray Brook, NY 12977
Phone: (518) 897-1266
SWMFannualreportR5@dec.ny.gov

REGION 6 (Herkimer, Jefferson, Lewis, Oneida, St. Lawrence)
Gary McCullouch
317 Washington Street
Watertown, NY 13601
Phone: (315) 785-2513
SWMFannualreportR6@dec.ny.gov

REGION 7 (Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga, Tompkins)
Thomas Annal
615 Erie Boulevard West
Syracuse, NY 13204
Phone: (315) 426-7419
SWMFannualreportR7@dec.ny.gov

REGION 8 (Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne, Yates)
Greg MacLean
6274 East Avon-Lima Road
Avon, NY 14414
Phone: (585) 226-5411
SWMFannualreportR8@dec.ny.gov

REGION 9 (Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Wyoming)
Peter Grasso
270 Michigan Avenue
Buffalo, NY 14203
Phone: (716) 851-7220
SWMFannualreportR9@dec.ny.gov

December 2019

APPENDIX F-2: Jamesville Compost Facility - 2019 Registered or Permitted Facility Annual Report for Composting

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New York State Department of Environmental Conservation
Division of Materials Management
Albany, New York 12233-7253

2019

REGISTERED OR PERMITTED FACILITY ANNUAL REPORT

COMPOSTING

(DO NOT USE THIS FORM FOR BIOSOLIDS COMPOSTING)

6 NYCRR Part 361-3.2

This annual report is for the year of operation from January 01, 2019 to December 31, 2019

Annual Report Form Due: No Later than March 1, 2020

This form may be used for all composting facilities under section 361-3.2 of the Part 360 series except for biosolids composting. Biosolids composting requires the submission of a different annual report form. Forms for all solid waste management facilities can be found at http://www.dec.ny.gov/chemical/52706.html. If you have any questions on this form, please e-mail organicrecycling@dec.ny.gov.

Failure to provide the required information requested is a violation of Environmental Conservation Law. Timely submission of a properly completed form to the Department's Regional Office that has jurisdiction over your facility and to the Department's Central Office is required to meet the Annual Report requirements of 6 NYCRR Part 360 series.

Attach additional sheets if space on the pages is insufficient or supplementary information is required or appropriate.

FACILITY NAME: OCRRA Jamesville Compost Facility

SW FACILITY ACTIVITY NUMBER(S): (Ex. 02P20099) 34C08

COUNTY WHERE FACILITY IS LOCATED: Onondaga

DEC USE ONLY

Region: SWIMS:

MATRIX:

Date Reviewed:

Reviewed By:

Data Entered:

COMPOST FACILITY ANNUAL REPORT

SECTION 1 – FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: OCRRA Jamesville Compost Facility			
FACILITY LOCATION ADDRESS: 4370 St. Rt. 91	FACILITY CITY: Jamesville	STATE: NY	ZIP CODE: 13078
FACILITY TOWN: Dewitt	FACILITY COUNTY: Onondaga	FACILITY PHONE NUMBER: 315-453-2866	
NYSDEC REGION #: 7			
FACILITY CONTACT: Kevin Spillane	CONTACT PHONE NUMBER: 315-453-2866		
CONTACT EMAIL ADDRESS: kspillane@ocrra.org			
OWNER INFORMATION			
OWNER NAME: OCRRA	OWNER PHONE NUMBER: 315-453-2866		
OWNER ADDRESS: 100 Elwood Davis Road	OWNER CITY: North Syracuse	STATE: NY	ZIP CODE: 13212
OWNER CONTACT: Dereth Glance	OWNER CONTACT EMAIL ADDRESS: dglance@ocrra.org		
OPERATOR INFORMATION			
OPERATOR NAME: ☑ *Same as owner*			
PREFERENCES			
Preferred address to receive correspondence: ○ *Facility location address* ◉ *Owner address* ○ *Other (provide):*			
Preferred email address: ◉ *Facility Contact* ○ *Owner Contact* ○ *Other (provide):*			
Preferred individual to receive correspondence: ◉ *Facility Contact* ○ *Owner* ○ *Owner Contact* ○ *Other (provide):*			

Did you operate in 2019? ◉ **Yes; Complete this form.**

○ **No; Complete and submit Sections 1, 12 and 13**. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, please notify the regional office of your intent. See attachment for Regional Office addresses and contacts.

SECTION 2 – QUANTITY OF MATERIAL RECEIVED

Please report quantities received from January 01, 2019 to December 31, 2019

	Inputs	Quantity	Unit	Source(s)
YARD WASTE	Leaves only		Choose Units	
	Grass Clippings		Choose Units	
	Mixture of Grass and Leaves	4598	Cubic Yards	mixed municipal, residentialand commercial, includes brush
	Brush (Small branches and limbs, <4 inch diameter)		Choose Units	
SSO	Source Separated Organics (Food scraps, soiled paper products, etc.)		Choose Units	
	Food Processing Waste (brewery grains, grape pomace, etc.)		Choose Units	
OTHER	Crop Residues (Corn stalks, etc.)		Choose Units	
	Manure (including bedding)		Choose Units	
	Sawdust/Shavings		Choose Units	
	Animal Carcasses (road-kill, animal mortalities)		Choose Units	
	Paper Mill Residuals		Choose Units	
	Digestate		Choose Units	
	Other: _____		Choose Units	
BULKING AGENT	Woodchips		Choose Units	
	Sawdust		Choose Units	
	Other: _____		Choose Units	

SECTION 3 – COMPOST PRODUCTION

WHAT IS THE PROCESS DETENTION TIME? *Note: Total time material is processed, not Including storage time*	min. 120 days **days**
COMPOST PRODUCED DURING THE YEAR:	4598 **cubic yards** ***or*** _____ **tons**
COMPOST DISTRIBUTED DURING THE YEAR:	4514 **cubic yards** ***or*** _____ **tons**
QUANTITY CURRENTLY STOCKPILED: *Note: Finished product stockpiled*	1,200 **cubic yards** ***or*** _____ **tons**
AGE OF OLDEST PRODUCT ON SITE:	6-9 **months**

SECTION 4 – COMPOST DISTRIBUTION

Quantity Distributed (cubic yards)	Use of Compost (landscaping, agriculture, highway, onsite, bagged, etc.)
3214	Bulk and Bag Sales, Commercial and Residential Projects
1200	Residential
100	Donations

If **PERMITTED SSO** composting facility, continue to Section #5
SSO – Source Separated Organics

ALL OTHER COMPOSTING FACILITIES, continue to Section #9

SECTION 5 – PATHOGEN AND VECTOR ATTRACTION REDUCTION

For permitted SSO composting facilities only. Check one method for each:

Pathogen Reduction 361-3.7(a)

- ◯ Windrow Composting
- ◯ Aerated Static Pile Composting
- ◯ In-vessel Composting
- ◯ Other (specify): _____

Vector Attraction Reduction 361-3.7(b)

- ◯ 38 % Volatile Solids Reduction
- ◯ SOUR
- ◯ Aerobic Process 14 days, ≥40C, ≥45 C avg.

Attach operating and monitoring data to show compliance with methods chosen. Temperature data records should indicate when a pile was created, pile was moved, additional material was added and/or pile was turned.

SECTION 6 – FINISHED COMPOST ANALYSIS

For permitted SSOW composting facilities only. Please attach sampling analyses and laboratory reports as required under Part 360 or your permit. Copies of original laboratory results must be attached. All results, except pH and Total Solids, must be on a dry weight basis. See 361-3.9 Table 6 for pollutant limits and Table 5 for annual product testing frequency 361-3.9 Table 5.

Summarize data in table below or attached document. Print additional pages as needed.

Analysis Date =====>					Max. Conc. (mg/kg)
Arsenic (mg/kg)					41
Cadmium (mg/kg)					10
Chromium (mg/kg)					1,000
Copper (mg/kg)					1,500
Lead (mg/kg)					300
Mercury (mg/kg)					10
Molybdenum (mg/kg)					40
Nickel (mg/kg)					200
Selenium (mg/kg)					100
Zinc (mg/kg)					2,500
TKN (mg/kg)					
Ammonia Nitrogen (mg/kg)					
Nitrate (mg/kg)					
Total Phosphorus (mg/kg)					
Total Potassium (mg/kg)					
pH (s.u.)					
Total Solids(%)					
Total Volatile Solids (%)					
Fecal Coliform (MPN/g)					<1,000 MPN/g
Salmonella (MPN/4g)					<3MPN/4g
Other_____					

SECTION 7 –SAMPLE MANAGEMENT PLAN

For permitted SSO composting facilities only. Describe the number, frequency and location of samples taken. Include a diagram showing all sampling locations.

SECTION 8 – ATTACHMENTS (IF REQUIRED)

Permitted SSO composting facilities, please attach:

- Temperature monitoring and detention time data.
- Sample analyses laboratory reports.
- Any additional reporting requirements.

Do you have a variance to the Part 360 permit requirements? ◯ Yes ◯ No

If yes, please describe:

SECTION 9 – UNAUTHORIZED WASTE

Has unauthorized solid waste been received at the composting facility during the reporting period?

◯ Yes ◉ No

If yes, give information below for each incident (attach additional sheets if necessary):

SECTION 10 – PROBLEMS/COMPLAINTS

Describe any operational problems or neighbor complaints arising from the composting operation and include any methods used to remedy the situations. This should include odor complaints, marketing difficulties, major equipment failure, etc.

SECTION 11 – QUESTIONS

Please identify any questions or concerns that you would like the Department to answer or consider:

SECTION 12 – FOOD DONATION & FOOD SCRAPS RECYCLING LAW

If you are registered or permitted to compost food scraps please complete the following. For all other operations that are interested in processing food scraps, please contact your DEC regional office to determine what is required.

In 2019, New York State passed the Food Donation & Food Scraps Recycling law. Effective January 1, 2022, large generators of food scraps (defined as generating an annual average of two tons per week or more) must donate excess food and recycle all remaining food scraps if they are within 25 miles of an organics recycler (composting facility, anaerobic digester, etc.). Examples of large generators include: large restaurants, grocery stores, hotels, colleges, etc. For more information visit: https://www.dec.ny.gov/chemical/114499.html

Contact Information

Under this legislation, DEC is responsible for providing a list of organics recyclers (compost facilities, anaerobic digesters, etc.) to large generators so they can determine available food scraps recycling opportunities in their area.

You will be included in this listing if you hold a permit or registration for the composting of source separated organics or food scraps. This will educate both large generators and haulers of food scraps that you are an available composter in their area.

Please provide the following information to include in the listing.

Name of Business: _____

Business Phone Number: _____

Business Email: _____

Business Website: _____

☑ I would like to opt out of DEC listing my facility as an available food scraps recycler for large generators as it relates to the Food Donation and Food Scraps Recycling law.

Assessing Your Food Scraps Recycling Capacity

DEC is responsible for assessing available food scraps recycling capacity across New York State. Information from your operation will help us do this. Please complete the following section to calculate the amount of excess food scraps your operation will have the capability to process in **2022.** Please stay consistent with units (wet tons or cubic yards).

A. Amount of foods scraps projected to be processed in **2020**: Ø Choose Unit

B. Amount of foods scraps projected to be processed in **2022**: Ø Choose Unit

* Note: You will not be required to process this quantity of material, these estimates will only be used to assist DEC in capacity planning across the state in preparation for the Food Donation and Food Scraps Recycling law effective January 1, 2022.

Questions?

DEC USE ONLY

Excess Capacity:

_____

SECTION 13 - CERTIFICATION

The Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

NYS Department of Environmental Conservation
Bureau of Waste Reduction and Recycling – Annual Report
625 Broadway – 9th Floor
Albany, New York 12233-7253

Phone: 518-402-8706
Fax 518-402-9024
Email address: organicrecycling@dec.ny.gov

I certify, under penalty of law, that the information that will be used to determine compliance with the requirements in Subpart 361-3 of 6 NYCRR Part 361 has been prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that false statement made herein are punishable pursuant to section 210.45 of the penal law.

Signature

2/25/2020
Date

Dereth Glance
Name (Print)

Executive Director
Title (Print)

dglance@ocrra.org
Email (Print)

100 Elwood Davis Road
Address

North Syracuse
City

NY 13212
State and Zip

(315) 453-2866
Phone Number

ATTACHMENTS: ◉NO ○YES (IF YES, LIST ATTACHMENTS)

- _____
- _____
- _____

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Waste Reduction and Recycling

MATERIAL MANAGEMENT PROGRAM CONTACTS

CENTRAL OFFICE
Bureau of Waste Reduction and Recycling
625 Broadway
Albany, NY 12233-7253
Phone: (518) 402-8706

For Submission of Organics Recycling Annual Reports only:
Fax: (518) 402-9024
Email: organicrecycling@dec.ny.gov

REGIONAL OFFICE ADDRESS & LEAD CONTACT PERSON

REGION 1 (Nassau, Suffolk)
Syed Rahman/David Gibb
SUNY @ Stony Brook
50 Circle Road
Stony Brook, NY 11790
Phone: (631) 444-0375
SWMFannualreportR1@dec.ny.gov

REGION 2 (Bronx, Kings, New York, Queens, Richmond)
Joseph O'Connell
47-40 21st Street
Long Island City, NY 11101-5407
Phone: (718) 482-4896
SWMFannualreportR2@dec.ny.gov

REGION 3 (Dutchess, Orange, Putnam, Rockland, Sullivan, Ulster, Westchester)
James Lansing
21 South Putt Corners Road
New Paltz, NY 12561
Phone: (845) 256-3123
SWMFannualreportR3@dec.ny.gov

REGION 4 (Albany, Columbia, Delaware, Greene, Montgomery, Otsego, Rensselaer, Schenectady, Schoharie)
Victoria Schmitt
1130 North Westcott Road
Schenectady, NY 12306
Phone: (518) 357-2243
SWMFannualreportR4@dec.ny.gov

REGION 5 (Clinton, Essex, Franklin, Fulton, Hamilton, Saratoga, Warren, Washington)
Jessie Sangster
1115 State Route 86, PO Box 296
Ray Brook, NY 12977
Phone: (518) 897-1266
SWMFannualreportR5@dec.ny.gov

REGION 6 (Herkimer, Jefferson, Lewis, Oneida, St. Lawrence)
Gary McCullouch
317 Washington Street
Watertown, NY 13601
Phone: (315) 785-2513
SWMFannualreportR6@dec.ny.gov

REGION 7 (Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga, Tompkins)
Thomas Annal
615 Erie Boulevard West
Syracuse, NY 13204
Phone: (315) 426-7419
SWMFannualreportR7@dec.ny.gov

REGION 8 (Chemung, Genesee, Livingston, Monroe, Ontario, Orleans, Schuyler, Seneca, Steuben, Wayne, Yates)
Greg MacLean
6274 East Avon-Lima Road
Avon, NY 14414
Phone: (585) 226-5411
SWMFannualreportR8@dec.ny.gov

REGION 9 (Allegany, Cattaraugus, Chautauqua, Erie, Niagara, Wyoming)
Peter Grasso
270 Michigan Avenue
Buffalo, NY 14203
Phone: (716) 851-7220
SWMFannualreportR9@dec.ny.gov

December 2019

APPENDIX F-3: Jamesville Compost Facility - 2020 Registered or Permitted Facility Annual Report for Mulch

(remainder of page left blank)

New York State Department of Environmental Conservation
Division of Materials Management
Albany, New York 12233-7253

2020

REGISTERED OR PERMITTED FACILITY ANNUAL REPORT

MULCH PROCESSING FACILITY

6 NYCRR Part 361-4

This annual report is for the year of operation from January 01, 2020 to December 31, 2020

Annual Report Form Due: No Later than March 1, 2021

This form is for mulch processing facilities under section 361-4 of the Part 360 series. Forms for all solid waste management facilities can be found at http://www.dec.ny.gov/chemical/52706.html. If you have any questions on this form, please e-mail organicrecycling@dec.ny.gov.

Failure to provide the required information requested is a violation of Environmental Conservation Law. Timely submission of a properly completed form to the Department's Regional Office that has jurisdiction over your facility and to the Department's Central Office is required to meet the Annual Report requirements of 6 NYCRR Part 360 series.

Attach additional sheets if space on the pages is insufficient or supplementary information is required or appropriate.

FACILITY NAME: OCRRA Jamesville Compost Facility

SW FACILITY ACTIVITY NUMBER(S) (Ex. 05MP0100): 34C08

COUNTY WHERE FACILITY IS LOCATED: Onondaga County

DEC USE ONLY

Region: SWIMS:

MATRIX:

Date Reviewed:

Reviewed By:

Data Entered:

MULCH PROCESSING FACILITY ANNUAL REPORT

SECTION 1 – FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: OCRRA Jamesville Compost Facility			
FACILITY LOCATION ADDRESS: 4370 St. Rt. 91	**FACILITY CITY:** Jamesville	**STATE:** NY	**ZIP CODE:** 13078
FACILITY TOWN: Dewitt	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
NYSDEC REGION #: 7			

FACILITY CONTACT: Kevin Spillane	**CONTACT PHONE NUMBER:** 315-453-2866
CONTACT EMAIL ADDRESS: kspillane@ocrra.org	

OWNER INFORMATION			
OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866		
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		

OPERATOR INFORMATION

OPERATOR NAME:
☑ *Same as owner*

PREFERENCES

Preferred address to receive correspondence: ○ *Facility location address* ◉ *Owner address* ○ *Other (provide):*

Preferred email address: ◉ *Facility Contact* ○ *Owner Contact* ○ *Other (provide):*

Preferred individual to receive correspondence: ◉ *Facility Contact* ○ *Owner* ○ *Owner Contact* ○ *Other (provide):*

Did you operate in 2020? ◉ **Yes; Complete this form.**

○ **No; Complete and submit Sections 1 and 8.** If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, please notify the regional office of your intent. See attachment for Regional Office addresses and contacts.

SECTION 2 – QUANTITY OF MATERIAL RECEIVED

Please report quantities received from January 01, 2020 to December 31, 2020

Inputs	Quantity	Unit	Source(s)
Yard Trimmings (Leaves, small tree branches and limbs (<4 inches in diameter), etc. – Grass not allowed)	10035	Cubic Yards	Residential, Commercial and Municipal
Tree Debris (Stumps, trunks, branches >4 inches in diameter, etc.)		Choose Units	
Wood Debris (Unadulterated wood pallets, unadulterated wood, etc.)		Choose Units	
Other _____		Choose Units	
Other _____		Choose Units	

SECTION 3 – MULCH PRODUCTION

WHAT IS THE PROCESS DETENTION TIME? ***Note: Total time material is processed, not Including storage time***	max 90 days	**days**
MULCH PRODUCED DURING THE YEAR:	6723	Cubic Yards
MULCH DISTRIBUTED DURING THE YEAR:	4353	Cubic Yards
QUANTITY CURRENTLY STOCKPILED: ***Note: Finished product stockpiled***	4411	Cubic Yards
AGE OF OLDEST PRODUCT ON SITE:	6	**months**

SECTION 4 – MULCH DISTRIBUTION

Quantity Distributed Cubic Yards	Use of Mulch (landscaping, residential, bagged, etc.)
3653	Bulk Sales
700	Residential Pass

SECTION 5 – UNAUTHORIZED WASTE

Has unauthorized solid waste been received at the mulch processing facility during the reporting period?

◯ Yes ◉ No

If yes, give information below for each incident (attach additional sheets if necessary):

SECTION 6 – PROBLEMS/COMPLAINTS

Describe any operational problems or neighbor complaints arising from the mulch processing operation and include any methods used to remedy the situations. This should include noise or odor complaints, marketing difficulties, major equipment failure, etc.

SECTION 7 – QUESTIONS

Please identify any questions or concerns that you would like the Department to answer or consider:

SECTION 8 - CERTIFICATION

The Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

NYS Department of Environmental Conservation
Bureau of Waste Reduction and Recycling – Annual Report
625 Broadway – 9th Floor
Albany, New York 12233-7253

Phone: 518-402-8706
Fax 518-402-9024
Email address: organicrecycling@dec.ny.gov

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with the system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.

Signature

2/24/2021
Date

Dereth Glance
Name (Print)

Executive Director
Title

dglance@ocrra.org
Email

100 Elwood Davis Road
Address

North Syracuse
City

NY 13212
State and Zip

(315) 453-2866
Phone Number

ATTACHMENTS: ◉ NO ○ YES (IF YES, LIST ATTACHMENTS)

- _____
- _____
- _____

APPENDIX F-4: Jamesville Compost Facility - 2020 Registered or Permitted Facility Annual Report for Composting

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New York State Department of Environmental Conservation
Division of Materials Management
Albany, New York 12233-7253

2020

REGISTERED OR PERMITTED FACILITY ANNUAL REPORT

COMPOSTING

(DO NOT USE THIS FORM FOR BIOSOLIDS COMPOSTING)

6 NYCRR Part 361-3.2

This annual report is for the year of operation from January 01, 2020 to December 31, 2020

Annual Report Form Due: No Later than March 1, 2021

This form may be used for all composting facilities under section 361-3.2 of the Part 360 series except for biosolids composting. Biosolids composting requires the submission of a different annual report form. Forms for all solid waste management facilities can be found at http://www.dec.ny.gov/chemical/52706.html. If you have any questions on this form, please e-mail organicrecycling@dec.ny.gov.

Failure to provide the required information requested is a violation of Environmental Conservation Law. Timely submission of a properly completed form to the Department's Regional Office that has jurisdiction over your facility and to the Department's Central Office is required to meet the Annual Report requirements of 6 NYCRR Part 360 series.

Attach additional sheets if space on the pages is insufficient or supplementary information is required or appropriate.

FACILITY NAME: OCRRA Jamesville Compost Facility

SW FACILITY ACTIVITY NUMBER(S): (Ex. 02P20099) 34C08

COUNTY WHERE FACILITY IS LOCATED: Onondaga County

DEC USE ONLY

Region: SWIMS:

MATRIX:

Date Reviewed:

Reviewed By:

Data Entered:

COMPOST FACILITY ANNUAL REPORT

SECTION 1 – FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: OCRRA Jamesville Compost Facility			
FACILITY LOCATION ADDRESS: 4370 State Route 91	**FACILITY CITY:** Jamesville	**STATE:** NY	**ZIP CODE:** 13078
FACILITY TOWN: Dewitt	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
NYSDEC REGION #: 7			

FACILITY CONTACT: Kevin Spillane	**CONTACT PHONE NUMBER:** 315-453-2866
CONTACT EMAIL ADDRESS: kspillane@ocrra.org	

OWNER INFORMATION			
OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866		
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		

OPERATOR INFORMATION

OPERATOR NAME:
☑ *Same as owner*

PREFERENCES

Preferred address to receive correspondence: ○ *Facility location address* ◉ *Owner address* ○ *Other (provide):*

Preferred email address: ◉ *Facility Contact* ○ *Owner Contact* ○ *Other (provide):*

Preferred individual to receive correspondence: ◉ *Facility Contact* ○ *Owner* ○ *Owner Contact* ○ *Other (provide):*

Did you operate in 2020? ◉ **Yes; Complete this form.**

○ **No; Complete and submit Sections 1, 12 and 13**. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, please notify the regional office of your intent. See attachment for Regional Office addresses and contacts.

SECTION 2 – QUANTITY OF MATERIAL RECEIVED

Please report quantities received from January 01, 2020 to December 31, 2020

	Inputs	Quantity	Unit	Source(s)
YARD WASTE	Leaves only		Choose Units	
	Grass Clippings		Choose Units	
	Mixture of Grass and Leaves	6862	Cubic Yards	Mix of Residential, Commercial and Municipal and includes brush
	Brush (Small branches and limbs, <4 inch diameter)		Choose Units	
SSO	Source Separated Organics (Food scraps, soiled paper products, etc.)		Choose Units	
	Food Processing Waste (brewery grains, grape pomace, etc.)		Choose Units	
OTHER	Crop Residues (Corn stalks, etc.)		Choose Units	
	Manure (including bedding)		Choose Units	
	Sawdust/Shavings		Choose Units	
	Animal Carcasses (road-kill, animal mortalities)		Choose Units	
	Paper Mill Residuals		Choose Units	
	Digestate		Choose Units	
	Other: _____		Cubic Yards	
BULKING AGENT	Woodchips		Choose Units	
	Sawdust		Choose Units	
	Other: _____		Cubic Yards	

SECTION 3 – COMPOST PRODUCTION

WHAT IS THE PROCESS DETENTION TIME? *Note: Total time material is processed, not Including storage time*	min 120 days	**days**
COMPOST PRODUCED DURING THE YEAR:	3568	Cubic Yards
COMPOST DISTRIBUTED DURING THE YEAR:	8265	Cubic Yards
QUANTITY CURRENTLY STOCKPILED: *Note: Finished product stockpiled*	5554	Cubic Yards
AGE OF OLDEST PRODUCT ON SITE:	6	**months**

SECTION 4 – COMPOST DISTRIBUTION

Quantity Distributed Cubic Yards	Use of Compost (landscaping, agriculture, highway, onsite, bagged, etc.)
6965	Bulk and Bag Sales, Commercial and Residential Projects
1200	Residential
100	Donations

If **PERMITTED SSO** composting facility, continue to Section #5
SSO – Source Separated Organics

ALL OTHER COMPOSTING FACILITIES, continue to Section #9

SECTION 5 – PATHOGEN AND VECTOR ATTRACTION REDUCTION

For permitted SSO composting facilities only. Check one method for each:

Pathogen Reduction 361-3.7(a)

- (●) Windrow Composting
- ( ) Aerated Static Pile Composting
- ( ) In-vessel Composting
- ( ) Other (specify): _____

Vector Attraction Reduction 361-3.7(b)

- ( ) 38 % Volatile Solids Reduction
- ( ) SOUR
- (●) Aerobic Process 14 days, ≥40C, ≥45 C avg.

IMPORTANT NOTE!

Attach operating and monitoring data to show compliance with methods chosen. Temperature data records should indicate when a pile was created, pile was moved, additional material was added and/or pile was turned.

SECTION 6 – FINISHED COMPOST ANALYSIS

For permitted SSOW composting facilities only. Please attach sampling analyses and laboratory reports as required under Part 360 or your permit. Copies of original laboratory results must be attached. All results, except pH and Total Solids, must be on a dry weight basis. See 361-3.9 Table 6 for pollutant limits and Table 5 for annual product testing frequency 361-3.9 Table 5.

Summarize data in table below or attached document. Print additional pages as needed.

Analysis Date =====>	1/24	8/3	10/21	1/15(sample 12/22/20	Max. Conc. (mg/kg)
Arsenic (mg/kg)	2.9	3.2	3.5	5.6	41
Cadmium (mg/kg)	<0.5	<.5	<.5	<.5	10
Chromium (mg/kg)					1,000
Copper (mg/kg)	30.5	36.8	39.7	28.2	1,500
Lead (mg/kg)	15	12.9	14.4	16.0	300
Mercury (mg/kg)	.080	.042	.181	.094	10
Molybdenum (mg/kg)	<1.6	<1.6	5.5	1.8	40
Nickel (mg/kg)	6.5	7.1	9.1	8.9	200
Selenium (mg/kg)	<2.6	<2.7	<2.6	<2.5	100
Zinc (mg/kg)	77.4	76.9	85.7	71.3	2,500
TKN (mg/kg)	15000	17000	12000	12000	
Ammonia Nitrogen (mg/kg)	6	63.5	109.4	79.7	
Nitrate (mg/kg)	15000	17000	11000	12000	
Total Phosphorus (mg/kg)	4700	5000	4900	3300	
Total Potassium (mg/kg)	6300	7700	6400	5500	
pH (s.u.)	7.7	8.1	8.4	7.9	
Total Solids(%)	44.5	49.43	50.4	51.13	
Total Volatile Solids (%)	57.01	64.71	39.70	42.68	
Fecal Coliform (MPN/g)	pass	pass	pass	pass	<1,000 MPN/g
Salmonella (MPN/4g)	pass	pass	pass	pass	<3MPN/4g
Other_____					

SECTION 7 –SAMPLE MANAGEMENT PLAN

For permitted SSO composting facilities only. Describe the number, frequency and location of samples taken.

Include a diagram showing all sampling locations.

Sampling is taken of all finished compost product four times per year as required. Selection of sampling locations and procedures follow all the guidelines in 2.01 Field Sampling of Compost Materials, 02.01-B Selection of Sampling Locations for Windrows and Piles of the Test Methods for the Examination of Compost and Composting (TMECC) Chapter 2 Sample Collection and Laboratory Preparation, jointly published by the USDA and USCC.

SECTION 8 – ATTACHMENTS (IF REQUIRED)

Permitted SSO composting facilities, please attach:

- Temperature monitoring and detention time data.
- Sample analyses laboratory reports.
- Any additional reporting requirements.

Do you have a variance to the Part 360 permit requirements? ◯ Yes ◉ No

If yes, please describe:

SECTION 9 – UNAUTHORIZED WASTE

Has unauthorized solid waste been received at the composting facility during the reporting period?

◯ Yes ◉ No

If yes, give information below for each incident (attach additional sheets if necessary):

SECTION 10 – PROBLEMS/COMPLAINTS

Describe any operational problems or neighbor complaints arising from the composting operation and include any methods used to remedy the situations. This should include odor complaints, marketing difficulties, major equipment failure, etc.

SECTION 11 – QUESTIONS

Please identify any questions or concerns that you would like the Department to answer or consider:

SECTION 12 – FOOD DONATION & FOOD SCRAPS RECYCLING LAW

If you are registered or permitted to compost food scraps please complete the following. For all other operations that are interested in processing food scraps, please contact your DEC regional office to determine what is required.

In 2019, New York State passed the Food Donation & Food Scraps Recycling law. Effective January 1, 2022, large generators of food scraps (defined as generating an annual average of two tons per week or more) must donate excess food and recycle all remaining food scraps if they are within 25 miles of an organics recycler (composting facility, anaerobic digester, etc.). Examples of large generators include: large restaurants, grocery stores, hotels, colleges, etc. For more information visit: https://www.dec.ny.gov/chemical/114499.html

Contact Information

Under this legislation, DEC is responsible for providing a list of organics recyclers (compost facilities, anaerobic digesters, etc.) to large generators so they can determine available food scraps recycling opportunities in their area.

You will be included in this listing if you hold a permit or registration for the composting of source separated organics or food scraps. This will educate both large generators and haulers of food scraps that you are an available composter in their area.

Please provide the following information to include in the listing.

Name of Business: _____

Business Phone Number: _____

Business Email: _____

Business Website: _____

☐ I would like to opt out of DEC listing my facility as an available food scraps recycler for large generators as it relates to the Food Donation and Food Scraps Recycling law.

Assessing Your Food Scraps Recycling Capacity

DEC is responsible for assessing available food scraps recycling capacity across New York State. Information from your operation will help us do this. Please complete the following section to calculate the amount of excess food scraps your operation will have the capability to process in **2022.** Please stay consistent with units (wet tons or cubic yards).

A. Amount of foods scraps projected to be processed in **2021**: _____ Choose Unit

B. Amount of foods scraps projected to be processed in **2022**: _____ Choose Unit

* Note: You will not be required to process this quantity of material, these estimates will only be used to assist DEC in capacity planning across the state in preparation for the Food Donation and Food Scraps Recycling law effective January 1, 2022.

Questions?

DEC USE ONLY
Excess Capacity:
_____

SECTION 13 - CERTIFICATION

The Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

NYS Department of Environmental Conservation
Bureau of Waste Reduction and Recycling – Annual Report
625 Broadway – 9th Floor
Albany, New York 12233-7253

Phone: 518-402-8706
Fax 518-402-9024
Email address: organicrecycling@dec.ny.gov

I certify, under penalty of law, that the information that will be used to determine compliance with the requirements in Subpart 361-3 of 6 NYCRR Part 361 has been prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that false statement made herein are punishable pursuant to section 210.45 of the penal law.

Signature

2/24/2021
Date

Dereth Glance
Name (Print)

Executive Director
Title (Print)

dglance@ocrra.org
Email (Print)

100 Elwood Davis Road
Address

North Syracuse
City

New York 13212
State and Zip

(315) 453-2866
Phone Number

ATTACHMENTS: ○NO ◉YES (IF YES, LIST ATTACHMENTS)

- Laboratory Testing Results
-

APPENDIX G-1: Amboy Compost Facility - 2019 Registered or Permitted Facility Annual Report for Composting

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New York State Department of Environmental Conservation
Division of Materials Management
Albany, New York 12233-7253

2019

REGISTERED OR PERMITTED FACILITY ANNUAL REPORT

COMPOSTING

(DO NOT USE THIS FORM FOR BIOSOLIDS COMPOSTING)

6 NYCRR Part 361-3.2

This annual report is for the year of operation from January 01, 2019 to December 31, 2019

Annual Report Form Due: No Later than March 1, 2020

This form may be used for all composting facilities under section 361-3.2 of the Part 360 series except for biosolids composting. Biosolids composting requires the submission of a different annual report form. Forms for all solid waste management facilities can be found at http://www.dec.ny.gov/chemical/52706.html. If you have any questions on this form, please e-mail organicrecycling@dec.ny.gov.

Failure to provide the required information requested is a violation of Environmental Conservation Law. Timely submission of a properly completed form to the Department's Regional Office that has jurisdiction over your facility and to the Department's Central Office is required to meet the Annual Report requirements of 6 NYCRR Part 360 series.

Attach additional sheets if space on the pages is insufficient or supplementary information is required or appropriate.

FACILITY NAME: OCRRA Amboy Compost Facility

SW FACILITY ACTIVITY NUMBER(S): (Ex. 02P20099) 34C09

COUNTY WHERE FACILITY IS LOCATED: Onondaga

DEC USE ONLY

Region: SWIMS:

MATRIX:

Date Reviewed:

Reviewed By:

Data Entered:

COMPOST FACILITY ANNUAL REPORT

SECTION 1 – FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: Amboy Compost Facility			
FACILITY LOCATION ADDRESS: 6296 Airport Road	**FACILITY CITY:** Syracuse	**STATE:** NY	**ZIP CODE:** 13209
FACILITY TOWN: Camillus	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
NYSDEC REGION #: 7			
FACILITY CONTACT: Kevin Spillane	**CONTACT PHONE NUMBER:** 315-453-2866		
CONTACT EMAIL ADDRESS: kspillane@ocrra.org			
OWNER INFORMATION			
OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866		
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		
OPERATOR INFORMATION			
OPERATOR NAME: ☑ *Same as owner*			
PREFERENCES			
Preferred address to receive correspondence: ○ *Facility location address* ◉ *Owner address* ○ *Other (provide):*			
Preferred email address: ◉ *Facility Contact* ○ *Owner Contact* ○ *Other (provide):*			
Preferred individual to receive correspondence: ◉ *Facility Contact* ○ *Owner* ○ *Owner Contact* ○ *Other (provide):*			

Did you operate in 2019? ◉ **Yes; Complete this form.**

○ **No; Complete and submit Sections 1, 12 and 13.** If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, please notify the regional office of your intent. See attachment for Regional Office addresses and contacts.

SECTION 2 – QUANTITY OF MATERIAL RECEIVED

Please report quantities received from January 01, 2019 to December 31, 2019

	Inputs	Quantity	Unit	Source(s)
YARD WASTE	Leaves only		Choose Units	
	Grass Clippings		Choose Units	
	Mixture of Grass and Leaves	6233	Cubic Yards	Mixed Residential, municipal, and commercial including brush
	Brush (Small branches and limbs, <4 inch diameter)		Choose Units	
SSO	Source Separated Organics (Food scraps, soiled paper products, etc.)	1557	Tons	local schools, university, drop off, local food stores
	Food Processing Waste (brewery grains, grape pomace, etc.)	1238	Tons	Wegmans and other processors
OTHER	Crop Residues (Corn stalks, etc.)		Choose Units	
	Manure (including bedding)	7866	Cubic Yards	State Fair,zoo, local farms
	Sawdust/Shavings		Choose Units	
	Animal Carcasses (road-kill, animal mortalities)		Choose Units	
	Paper Mill Residuals		Choose Units	
	Digestate		Choose Units	
	Other: Clean Wood, Stumps	560	Cubic Yards	
BULKING AGENT	Woodchips		Choose Units	
	Sawdust		Choose Units	
	Other: _____		Cubic Yards	

SECTION 3 – COMPOST PRODUCTION

WHAT IS THE PROCESS DETENTION TIME? *Note: Total time material is processed, not Including storage time*	min of 70-120 **days**
COMPOST PRODUCED DURING THE YEAR:	17454 **cubic yards** *or* _____ **tons**
COMPOST DISTRIBUTED DURING THE YEAR:	13668 **cubic yards** *or* _____ **tons**
QUANTITY CURRENTLY STOCKPILED: *Note: Finished product stockpiled*	2016 **cubic yards** *or* _____ **tons**
AGE OF OLDEST PRODUCT ON SITE:	6-9 **months**

SECTION 4 – COMPOST DISTRIBUTION

Quantity Distributed (cubic yards)	Use of Compost (landscaping, agriculture, highway, onsite, bagged, etc.)
11232	Bulk for Commercial and Residential Projects
732	Bag Sales
1200	Residential Pass
45	Donations
459	Transfer to Registered Facility for Sales

If **PERMITTED SSO** composting facility, continue to Section #5
SSO – Source Separated Organics

ALL OTHER COMPOSTING FACILITIES, continue to Section #9

SECTION 5 – PATHOGEN AND VECTOR ATTRACTION REDUCTION

For permitted SSO composting facilities only. Check one method for each:

Pathogen Reduction 361-3.7(a)

- ◯ Windrow Composting
- ◉ Aerated Static Pile Composting
- ◯ In-vessel Composting
- ◯ Other (specify): _____

Vector Attraction Reduction 361-3.7(b)

- ◯ 38 % Volatile Solids Reduction
- ◯ SOUR
- ◉ Aerobic Process 14 days, ≥40C, ≥45 C avg.

Attach operating and monitoring data to show compliance with methods chosen. Temperature data records should indicate when a pile was created, pile was moved, additional material was added and/or pile was turned.

SECTION 6 – FINISHED COMPOST ANALYSIS

For permitted SSOW composting facilities only. Please attach sampling analyses and laboratory reports as required under Part 360 or your permit. Copies of original laboratory results must be attached. All results, except pH and Total Solids, must be on a dry weight basis. See 361-3.9 Table 6 for pollutant limits and Table 5 for annual product testing frequency 361-3.9 Table 5.

Summarize data in table below or attached document. Print additional pages as needed.

Analysis Date =====>	4/19	8/9	10/30	1/24	Max. Conc. (mg/kg)
Arsenic (mg/kg)	2.2	2.2	1.6	2.9	41
Cadmium (mg/kg)	<.5	<.5	<.5	<.5	10
Chromium (mg/kg)					1,000
Copper (mg/kg)	20.9	27.1	23.8	26.6	1,500
Lead (mg/kg)	10.6	9.5	11.1	16.8	300
Mercury (mg/kg)	.047	.041	.027	.043	10
Molybdenum (mg/kg)	<1.6	<1.5	<1.6	<1.6	40
Nickel (mg/kg)	4.8	5.2	5.0	6.2	200
Selenium (mg/kg)	<2.7	<2.5	<2.7	<2.7	100
Zinc (mg/kg)	71	59.1	62.8	73.5	2,500
TKN (mg/kg)	19000	16000	14000	15000	
Ammonia Nitrogen (mg/kg)	90.4	363.1	331.0	95.1	
Nitrate (mg/kg)	19000	16000	14000	15000	
Total Phosphorus (mg/kg)	5000	5400	4800	5200	
Total Potassium (mg/kg)	8800	6400	6600	6300	
pH (s.u.)	7.88	6.1	5.5	7.1	
Total Solids(%)	58.6	59.1	58.7	49.8	
Total Volatile Solids (%)	61.01	69.72	68.14	53.48	
Fecal Coliform (MPN/g)					<1,000 MPN/g
Salmonella (MPN/4g)	pass	pass	pass	pass	<3MPN/4g
Other_____					

SECTION 7 –SAMPLE MANAGEMENT PLAN

For permitted SSO composting facilities only. Describe the number, frequency and location of samples taken.

Include a diagram showing all sampling locations.

Sampling is taken of all finished compost product on a quarterly basis as required. Selection of sampling locations and procedures follow all the guidelines in 2.01 Field Sampling of Compost Materials, 02.01-B Selection o Sampling Locations for Windrows and Piles of the Test Methods for the Examination of Compost and Composting (TMECC) Chapter 2 Sample Collection and Laboratory Preparation, jointly published by the USDA and USCC.

SECTION 8 – ATTACHMENTS (IF REQUIRED)

Permitted SSO composting facilities, please attach:

- Temperature monitoring and detention time data.
- Sample analyses laboratory reports.
- Any additional reporting requirements.

Do you have a variance to the Part 360 permit requirements? ◯ Yes ◉ No

If yes, please describe:

SECTION 9 – UNAUTHORIZED WASTE

Has unauthorized solid waste been received at the composting facility during the reporting period?

◯ Yes ◉ No

If yes, give information below for each incident (attach additional sheets if necessary):

SECTION 10 – PROBLEMS/COMPLAINTS

Describe any operational problems or neighbor complaints arising from the composting operation and include any methods used to remedy the situations. This should include odor complaints, marketing difficulties, major equipment failure, etc.

One odor complaint was recieved by the public on 8/16/19. An odor complaint form was filled out and response sent to he Regional DEC office.

SECTION 11 – QUESTIONS

Please identify any questions or concerns that you would like the Department to answer or consider:

SECTION 12 – FOOD DONATION & FOOD SCRAPS RECYCLING LAW

If you are registered or permitted to compost food scraps please complete the following. For all other operations that are interested in processing food scraps, please contact your DEC regional office to determine what is required.

In 2019, New York State passed the Food Donation & Food Scraps Recycling law. Effective January 1, 2022, large generators of food scraps (defined as generating an annual average of two tons per week or more) must donate excess food and recycle all remaining food scraps if they are within 25 miles of an organics recycler (composting facility, anaerobic digester, etc.). Examples of large generators include: large restaurants, grocery stores, hotels, colleges, etc. For more information visit: https://www.dec.ny.gov/chemical/114499.html

Contact Information

Under this legislation, DEC is responsible for providing a list of organics recyclers (compost facilities, anaerobic digesters, etc.) to large generators so they can determine available food scraps recycling opportunities in their area.

You will be included in this listing if you hold a permit or registration for the composting of source separated organics or food scraps. This will educate both large generators and haulers of food scraps that you are an available composter in their area.

Please provide the following information to include in the listing.

Name of Business: Onondaga County Resource Recovery Agency

Business Phone Number: 315-453-2866

Business Email: kspillane@ocrra.org

Business Website: www.ocrra.org

☐ I would like to opt out of DEC listing my facility as an available food scraps recycler for large generators as it relates to the Food Donation and Food Scraps Recycling law.

Assessing Your Food Scraps Recycling Capacity

DEC is responsible for assessing available food scraps recycling capacity across New York State. Information from your operation will help us do this. Please complete the following section to calculate the amount of excess food scraps your operation will have the capability to process in **2022.** Please stay consistent with units (wet tons or cubic yards).

A. Amount of foods scraps projected to be processed in **2020**: 3000 Tons

B. Amount of foods scraps projected to be processed in **2022**: 3500 Tons

* Note: You will not be required to process this quantity of material, these estimates will only be used to assist DEC in capacity planning across the state in preparation for the Food Donation and Food Scraps Recycling law effective January 1, 2022.

Questions?

DEC USE ONLY

Excess Capacity:

_____

SECTION 13 - CERTIFICATION

The Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

NYS Department of Environmental Conservation
Bureau of Waste Reduction and Recycling – Annual Report
625 Broadway – 9th Floor
Albany, New York 12233-7253

Phone: 518-402-8706
Fax 518-402-9024
Email address: organicrecycling@dec.ny.gov

I certify, under penalty of law, that the information that will be used to determine compliance with the requirements in Subpart 361-3 of 6 NYCRR Part 361 has been prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that false statement made herein are punishable pursuant to section 210.45 of the penal law.

Signature

2/20/2020
Date

Dereth Glance
Name (Print)

Executive Director
Title (Print)

dglance@ocrra.org
Email (Print)

100 Elwood Davis Road
Address

North Syracuse
City

New York 13212
State and Zip

(315) 453-2866
Phone Number

ATTACHMENTS: ○NO ◉YES (IF YES, LIST ATTACHMENTS)

- Test Results of All Samples
- Temperature Data
- _____

Appendix A
Sampling Procedures and Test Methods

Sampling Methods:
Sampling procedures to be used for purposes of the Seal of Testing Assurance program are as provided in 02.01 Field Sampling of Compost Materials, 02.01-B Selection of Sampling Locations for Windrows and Piles of The Test Methods for the Examination of Compost and Composting (TMECC), Chapter 2 Sample Collection and Laboratory Preparation, Jointly published by the USDA and USCC (2002 publishing as a part of the USDA National Resource Conservation Technical Bulletin Series). The sample collection section is available online at http://tmecc.org/tmecc/.

Test Methods:
Test Methods to be used for purposes of the Seal of Testing Assurance program are as provided in The Test Methods for the Examination of Compost and Composting (TMECC), Jointly published by the USDA and USCC (2002 publishing as a part of the USDA National Resource Conservation Technical Bulletin Series). A list of such methods is provided in the table below and online at http://tmecc.org/tmecc/ and in Appendix

Parameters List (with Test Method name):

Compost Parameters	Reported as	Test Method
pH		TMECC 04.11-A
Soluble salts	dS/m (mmhos/cm)	TMECC 04.10-A
Primary plant nutrients:	%, as-is (wet) & dry weight basis	
Nitrogen	Total N	TMECC 04.02-D
Phosphorus	P_2O_5	TMECC 04.03-A
Potassium	K_2O	TMECC 04.04-A
Calcium	Ca	TMECC 04.05-Ca
Magnesium	Mg	TMECC 04.05-Mg
Moisture content	%, wet weight basis	TMECC 03.09-A
Organic matter content	%, dry weight basis	TMECC 05.07-A
Particle size	Screen size passing through	TMECC 02.02-B
Stability (respirometry)	mg CO_2-C per g TS per day mg CO_2-C per g OM per day	TMECC 05.08-B
Maturity (Bioassay) Percent Emergence Relative Seedling Vigor	 % (average) % (average)	TMECC 05.05-A
Select Pathogens	(PASS/FAIL) Limits: Salmonella <3 MPN/4grams of TS, or Coliform Bacteria <1000 MPN/gram	TMECC 07.01 B/ Fecal Coliforms or 07.02 Salmonella
Trace Metals*	(PASS/FAIL) Limits: As 41ppm, Cd 39ppm, Cu 1500ppm, Pb 300ppm, Hg 17ppm, Ni 420ppm, Se 100ppm, Zn 2800ppm	TMECC 04.06

* Composts produced from manure, food residuals and yard trimmings may test for pathogens and trace metals at half the frequency required in section IV.A.2.a of the Program Rules. The frequency of such testing for composts produced from other feedstocks may be similarly reduced upon demonstration by the Participant to the Program Manager and Technical Review Committee that the source and character of the feedstock is consistent, and that test results for pathogens and trace metals have been consistently below applicable limits.

Test Methods: Selection of Sampling Locations for Windrows and Piles							Units: *NA*	
Test Method Applications								
Process Management							Product Attributes	
Step 1: Feedstock Recovery	*Step 2:* Feedstock Preparation	*Step 3:* Composting	*Step 4:* Odor Treatment	*Step 5:* Compost Curing	*Step 6:* Compost Screening and Refining	*Step 7:* Compost Storing and Packaging	*Step 8:* Standards	*Market Attributes*
		02.01-B	02.01-B	02.01-B	02.01-B	02.01-B	02.01-B	02.01-B

02.01-B SELECTION OF SAMPLING LOCATIONS FOR WINDROWS AND PILES

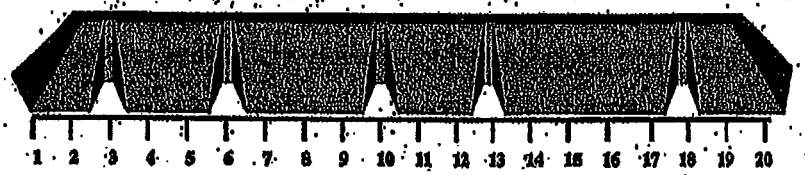

Fig 02.01-B1 Hypothetical sample collection pattern from a compost windrow.

NOTE 1B—In this example, a scale from 1-20 is superimposed on the long dimension of a compost windrow. Five distances (3, 6, 10, 13 and 16 m) are randomly selected to each side of the windrow, (e.g., numbers randomly pulled from a hat), to assign sample collection locations. Point-samples are collected from within three zones at each cutout.

NOTE 2B—The illustrated cut-outs are depicted on one side of the windrow; in a real operation, the cut-outs must be randomly assigned to each side of the windrow. Cone-shaped piles have a circular base. Measure around the base of a cone-shaped pile and randomly assign cutout positions along the pile's meridian, or circumference.

10. Apparatus for Method B

10.1 *Sampling Container*—five 16- to 20-L (4- to 5-gal), plastic (HDPP), glass.

10.1.1 *Organic Contaminant Tests*—For samples to be analyzed for the presence of organic contaminants, please refer to Table 02.01-6 Organic Contaminant Tests: Sampling containers and conditions for compost and source ingredient testing. Modify sample packaging steps presented in this section accordingly.

10.2 *Sampling Device*—silage auger, tilling spade, or other appropriate sampling device.

10.3 *Tractor Loader*—with loader, (e.g., Bobcat, etc.).

10.4 *Trowel*—high-density polypropylene (HDPP), for stirring and mixing composite sample.

10.5 *Pail*—16- to 20-L (4- to 5-gal), square pails. Use standard 5-gal plastic pails for shipping only when square pails are not available (e.g., square pails are available through Cleveland Bottle & Supply Co.; 850 East 77th Street; Cleveland, OH 44103; telephone: 216 881 3330; Fax: 216 881 7325; URL: http://www.clevelandbottle.com/squrpail.html).

11. Reagents and Materials for Method B

11.1 *Plastic Bags*—three 4-L (1 gal) durable bags with seal, (e.g., Ziploc® Freezer bags).

11.2 *Plastic Gloves.*

11.3 *Tarp*—clean plastic, canvas, or other type of mixing surface if feedstock is liquid sludge.

11.4 *Cold Packs*—chemical ice packs, or 4-L plastic bags (e.g., heavy duty Ziploc® freezer bags) filled with approximately 0.5 L of water and frozen flat. One ice pack per 4-L sample container of compost to be shipped, (e.g., three ice packs are recommended for three compost 4-L samples).

11.5 *Aluminum Foil*—lining for plastic shipping pail, and

11.6 *Packing Material*—newspaper or other appropriate bulking material to be used as packing or fill to minimize sample movement within the shipping container (square pail) during shipping.

11.7 *Adhesive Tape*—duct tape, 5-cm (2-in.) width.

12. Procedures for Method B

12.1 *Cut into Finished Compost*—Using tractor skid-loader, bobcat or shovel, or sample boring device, cut into the finished compost pile or windrow at five or more randomly selected positions. Collect samples from the full profile and breadth of the compost windrow or pile. Refer to Fig 02.01-B1.

12.2 *Collect Point-Samples*—Samples of equal volume are extracted from the compost pile at three depths or zones measured from the pile's uppermost surface. Collect no less than five point-samples from each of the three depths or zones illustrated in Fig 02.01-B2. The five point samples for each zone must be collected in a manner to accurately represent the horizontal cross-section of the windrow or pile. Use a sanitized sampling tool (a gloved hand, clean shovel or auger) when collecting samples and when transferring samples to the 5-gal sample collection pail.

Fig 02.01-B2 Five horizontally dispersed point-samples are collected from each of three depths or zones within each cutout.

NOTE 3B—(1) upper ⅓ of compost profile height; (2) middle ⅓ of compost profile height; and (3) lower ⅓ of compost profile height, where compost pile does not exceed the recommended overall height of 3 m. Create more than three sampling depths or zones within each cutout when the curing pile exceeds a height of 3 m, relative variability is high or the property of interest is found at very low concentrations, near the laboratory detection limit.

12.3 *Composite Point-Samples*—Place all 15 point samples from one cutout together into one sanitized plastic pail. Completely mix the point samples by stirring thoroughly with a sanitized wooden stick or lath, and by covering and shaking the pail to further mix the samples.

12.3.1 Repeat the blending process at least four times until all point samples are thoroughly blended to form one composite sample that accurately represents the compost for the cutout.

12.3.2 Proceed to the next compost sample cutout and repeat this process to collect one thoroughly blended composite sample from each of the five cutouts.

12.3.3 *Composite Sample*—Transfer the five composite samples from the sample collection pails onto a mixing tarp or other appropriately sanitized surface or container, such as into a large pail where all samples can be mixed, blended and then covered to minimize moisture loss. Thoroughly blend the five composite samples to form one large sample that represents the average condition of the entire batch or windrow in question.

12.3.3.1 Quarter the composite sample and thoroughly mix and quarter again. Continue to subdivide and split the sample into quarters and mix as described until sample size reaches approximately 12 L (3 gal).

12.4 *Stratified Sampling*—This sample collection strategy is used to evaluate for the presence of spatial variations or gradients in compost characteristics across and through a windrow or pile.

12.4.1 *Stratified Samples across Cutouts*—Use this sampling strategy to test for differences in compost characteristics between sample cutouts and along the longer dimension of a windrow. Do not composite materials from the five separate cutouts when monitoring for the presence of gradients along the longer dimension of a windrow. Pack and prepare five separate samples (i.e., five separate composite samples, one from each cutout) for shipment as described in step 12.5.

12.4.2 *Stratified Samples within Cutouts*—Use this sampling strategy to evaluate for the presence of spatial variations or gradients that occur with changes in pile depth or distance from the windrow core to its surface.

12.5 Prepare for Shipment and Storage:

12.5.1 Transfer the blended compost to three 4-L (1-gal) sample bags, (e.g., plastic Ziploc® *freezer* bags).

12.5.2 Line the shipment pail with aluminum foil or other reflective material to minimize sample heat-gain. Place the sample bags containing the compost sample into the plastic pail and interleave with ice packs for shipping (refer to Fig 02.01-B3).

12.5.3 Cover the pail with its lid. Seal and secure the lid with a packing tape. Send the sample pail by one-day express delivery service to your selected laboratory for analysis. Include a chain of custody information sheet with environmental regulatory samples (Refer to Method 02.01-B).

NOTE 3B—Maintain cool samples at 4°C (39.2°F) to diminish microbial and chemical activity prior to and during sample shipment.

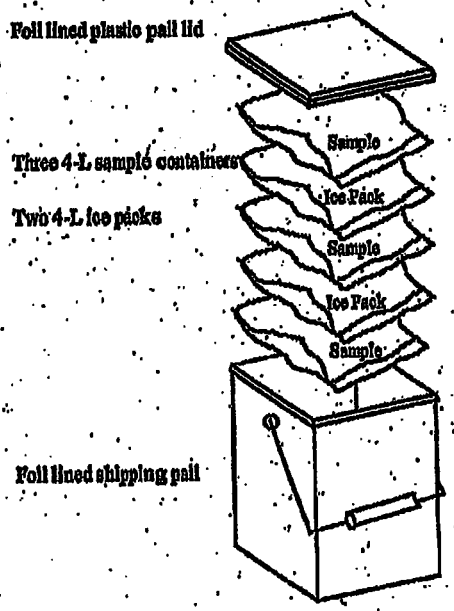

Fig 02.01-B3 Preparation for shipment.

LSL Life Science Laboratories, Inc.

Kevin Spillane
O.C.R.R.A.
100 Elwood Davis Road
North Syracuse, NY 13212

Phone: (315) 453-2866
FAX: (315) 453-2872
Authorization: PO# 0013967

Laboratory Analysis Report

For

O.C.R.R.A.

LSL Project ID: **1904277**

Receive Date/Time: 04/01/19 8:10

Life Science Laboratories, Inc.

LSL Central Lab
5854 Butternut Drive
East Syracuse, NY 13057
Tel. (315) 445-1900
Fax (315) 445-1104

LSL North Lab
131 St. Lawrence Avenue
Waddington, NY 13694
Tel. (315) 388-4476
Fax (315) 388-4061

LSL Finger Lakes Lab
16 N. Main St., PO Box 424
Wayland, NY 14572
Tel. (585) 728-3320
Fax (585) 728-2711

LSL Southern Tier Office
Cuba, NY
Tel. (585) 209-4032

LSL MidLakes Office
Canandaigua, NY
Tel. (585) 728-3320

This report was reviewed by: LaDonna Kibler, Quality Assurance *Date:* 4/9/19

A copy of this report was sent to:

Date Printed: 4/9/19

- - LABORATORY ANALYSIS REPORT - -

O.C.R.R.A. *North Syracuse, NY*

Sample ID: 1/2 Amboy **LSL Sample ID:** 1904277-001

Location:

Sampled: 04/01/19 7:00 **Sampled By:** KS

Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	mpn/4g Dry			4/1/19 13:00	DA
(1) SM 2540 G-97,-11 Total Solids						
Total Solids @ 103-105 C	56	%			4/2/19	MM2

Sample ID: 1/2 Jamesville **LSL Sample ID:** 1904277-002

Location:

Sampled: 04/01/19 6:45 **Sampled By:** KS

Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	mpn/4g Dry			4/1/19 13:00	DA
(1) SM 2540 G-97,-11 Total Solids						
Total Solids @ 103-105 C	40	%			4/2/19	MM2

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes*

Life Science Laboratories, Inc.

Sample Receipt Checklist ***LSL LIMS***

Project ID **1904277** ***Client ID:*** OCRRA

Shipment Number *1* ***SRC Completed By:*** RSD2 ***Date:*** 4/1/2019 11:00:58 AM

COC Date/Time	*Received By*	*Carrier*	*ShippingID*
4/1/2019 8:10:00 AM	esb1	Hand Delivered	

Shipping container/cooler in good condition?	Yes	*Sample containers intact?*	Yes
Custody seal intact on shipping container/cooler?	N/A	*Sufficient sample volume for indicated test?*	Yes
Custody seals intact on sample bottles?	N/A	*All samples received within holding time?*	Yes
Chain of Custody present?	Yes	*Container/Temp Blank temperature in compliance?*	Yes
COC signed when relinquished and received?	Yes	*Water - VOA vials have zero headspace?*	N/A
COC agrees with sample labels?	Yes	*Water - pH acceptable upon receipt?*	N/A
Samples in proper containers/bottles?	Yes	*Water - HNO3 added to unpreserved metal sample(s) to a pH of <2?*	N/A

Comments: Sample I.D's were provided via phone conversation with Kevin Spillane. RD 04/01/19

Corrective Action:

Reviewed By: _____

Life Science Laboratories, Inc.

LSL

5854 Butternut Drive
East Syracuse, NY 13057

Phone # (315) 445-1900 Telefax # (315) 445-1104

Chain of Custody Record

1904277

Client: OCRRA Phone # (315) 453-2560 ext 1213

Address: 100 Elwood Davis Rd
North Syracuse, NY

Authorization:

Contact Person:

LSL Project #: OCRRA 2274

Client's Site I.D.:

Client's Project I.D.:

(Lab Use Only) LSL Sample Number	* Client's Sample Identifications	Sample Date	Sample Time	Type grab	Type comp.	Matrix	Preserv. Added	Containers #	Containers size/type	Analyses	Free Cl (mg/L)	Pres. Check
001	1/2 Amboy	4/1/19	7:00 AM	✓						Salmonella		
002	1/2 Jamesville	4/1/19	6:45 AM	✓						Salmonella		
	* As per Kevin Spillane. RD 4/1/19											

SAMPLES MUST BE RECEIVED ON ICE

Please Fill Out Completely

SAMPLES MUST BE RECEIVED ON ICE

Notes and Hazard identifications:

14°C

Custody Transfers

		Date	Time
Sampled and Relinquished By: Print Name: Kevin Spillane	Signature:	4/1/19	7:00 AM
Received By:			
Relinquished By:	Received By:		
Relinquished By:	Received for Lab By:	4.1.19	0810

Shipment Method:

Samples Received Intact: Y N

LSL Life Science Laboratories, Inc.

Kevin Spillane
O.C.R.R.A.
100 Elwood Davis Road
North Syracuse, NY 13212

Phone: (315) 453-2866
FAX: (315) 453-2872
Authorization: PO# 0013967

Laboratory Analysis Report

For

O.C.R.R.A.

LSL Project ID: **1911639**

Receive Date/Time: 07/22/19 8:15

Life Science Laboratories, Inc.

LSL Central Lab
5854 Butternut Drive
East Syracuse, NY 13057
Tel. (315) 445-1900
Fax (315) 445-1104

LSL North Lab
131 St. Lawrence Avenue
Waddington, NY 13694
Tel. (315) 388-4476
Fax (315) 388-4061

LSL Finger Lakes Lab
16 N. Main St., PO Box 424
Wayland, NY 14572
Tel. (585) 728-3320
Fax (585) 728-2711

LSL Southern Tier Office
Cuba, NY
Tel. (585) 209-4032

LSL MidLakes Office
Canandaigua, NY
Tel. (585) 728-3320

LaDonna Kibler

LaDonna Kibler, Quality Assurance

This report was reviewed by: _____ *Date:* 8/8/19

A copy of this report was sent to:

Date Printed: 8/8/19

-- LABORATORY ANALYSIS REPORT --

O.C.R.R.A. *North Syracuse, NY*

Sample ID: Amboy 1/4" **LSL Sample ID:** 1911639-001
Location:
Sampled: 07/22/19 7:30 **Sampled By:** KS
Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			7/22/19 14:45	DA
The result of <3 MPN/4g Dry had two XLD Plates with presumptive positive growth. The client will resample.						
(1) SM 2540 B-2011 Total Solids						
Total Solids @ 103-105 C	55	%			7/25/19	CRB

Sample ID: Amboy 1/2" **LSL Sample ID:** 1911639-002
Location:
Sampled: 07/22/19 7:30 **Sampled By:** KS
Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			7/22/19 14:45	DA
(1) SM 2540 B-2011 Total Solids						
Total Solids @ 103-105 C	59	%			7/25/19	CRB

Sample ID: Jamesville 1/2" **LSL Sample ID:** 1911639-003
Location:
Sampled: 07/22/19 6:30 **Sampled By:** KS
Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			7/22/19 14:25	DA
(1) SM 2540 B-2011 Total Solids						
Total Solids @ 103-105 C	46	%			7/25/19	CRB

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes*

Life Science Laboratories, Inc.
5854 Butternut Drive
East Syracuse, NY 13057
Phone # (315) 445-1900 Telefax # (315) 445-1104

Chain of Custody Record

1911639

Client: OCRRA Phone # 315 453-2546
Address: 100 Elwood Davis Fax # ext 1213
Liverpool, NY
Authorization:

Contact Person:
LSL Project #: OCRRA 2274
Client's Site I.D.:
Client's Project I.D.:

(Lab Use Only) LSL Sample Number	Client's Sample Identifications	Sample Date	Sample Time	Type grab	Type comp.	Matrix	Preserv. Added	Containers #	Containers size/type	Analyses	Free Cl (mg/L)	Pres. Check
	Amboy 1/4"	7/22/19	6:30	✓		SHW	None	1	Bag	Summation		
	Amboy 1/2"	7/22/19	7:30	✓		↓	↓	1		"		
	Jamesville 1/2"	7/22/19	6:30	✓		↓	↓	1	↓	"		

SAMPLES MUST BE RECEIVED ON ICE — Please Fill Out Completely — SAMPLES MUST BE RECEIVED ON ICE

Notes and Hazard identifications:

Samples Received On Ice Packs

Custody Transfers	Date	Time
Sampled and Relinquished By: Print Name: Kevin Spillane Signature:	7/22	8:15
Received By:		
Relinquished By: Received By:		
Relinquished By: Received for Lab By:	7-22-19	08:15
Shipment Method: Samples Received Intact: Y N 40.0°C		

LSL Life Science Laboratories, Inc.

Kevin Spillane
O.C.R.R.A.
100 Elwood Davis Road
North Syracuse, NY 13212

Phone: (315) 453-2866
FAX: (315) 453-2872
Authorization: (001) 396-7

Laboratory Analysis Report

For

O.C.R.R.A.

LSL Project ID: **1917392**

Receive Date/Time: 10/14/19 8:33

Life Science Laboratories, Inc.

LSL Central Lab
5854 Butternut Drive
East Syracuse, NY 13057
Tel. (315) 445-1900
Fax (315) 445-1104

LSL North Lab
131 St. Lawrence Avenue
Waddington, NY 13694
Tel. (315) 388-4476
Fax (315) 388-4061

LSL Finger Lakes Lab
16 N. Main St., PO Box 424
Wayland, NY 14572
Tel. (585) 213-4090
Fax (585) 213-4192

LSL Southern Tier Office
Cuba, NY
Tel. (585) 209-4032

LSL MidLakes Office
Canandaigua, NY
Tel. (585) 728-3320

This report was reviewed by: *Date:* 10/29/19

David J. Prichard, Director of Tech. Services

A copy of this report was sent to:

Penn State AASL

Date Printed: 10/29/19

- - LABORATORY ANALYSIS REPORT - -

O.C.R.R.A. *North Syracuse, NY*

Sample ID: Jamesville 1/2" **LSL Sample ID:** 1917392-001
Location:
Sampled: 10/14/19 7:00 **Sampled By:** KS
Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			10/14/19 14:15	DA
(1) SM 2540 G-97,-11 Total Solids						
Total Solids @ 103-105 C	46	%			10/28/19	DA,ARJ

The NYS DOH ELAP does not offer certification for this method in this matrix.

Sample ID: Amboy 1/2" **LSL Sample ID:** 1917392-002
Location:
Sampled: 10/14/19 8:00 **Sampled By:** KS
Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			10/14/19 14:15	DA
(1) SM 2540 G-97,-11 Total Solids						
Total Solids @ 103-105 C	60	%			10/28/19	DA,ARJ

The NYS DOH ELAP does not offer certification for this method in this matrix.

Sample ID: Amboy 1/4" **LSL Sample ID:** 1917392-003
Location:
Sampled: 10/14/19 8:00 **Sampled By:** KS
Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			10/14/19 14:15	DA
(1) SM 2540 G-97,-11 Total Solids						
Total Solids @ 103-105 C	66	%			10/28/19	DA,ARJ

The NYS DOH ELAP does not offer certification for this method in this matrix.

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes*

Life Science Laboratories, Inc.
5854 Butternut Drive
East Syracuse, NY 13057
Phone # (315) 445-1900 Telefax # (315) 445-1104

Chain of Custody Record

1917392

Client: OCRRA
Phone # 315-453-2866 ext 1213
Address: 100 Elwood Davis North Syracuse
Fax #
Authorization:

Contact Person:

LSL Project #: OCRRA 2274

Client's Site I.D.:

Client's Project I.D.:

(Lab Use Only) LSL Sample Number	Client's Sample Identifications	Sample Date	Sample Time	Type grab	Type comp.	Matrix	Preserv. Added	Containers #	Containers size/type	Analyses	Free Cl (mg/L)	Pres. Check
001	Jamesville 1/2"	10/4/19	7:00 AM							Salmonella		
002	Amboy 1/2"	10/4/19	8:00 AM									
003	Amboy 1/4"	10/4/19	8:00 AM									

SAMPLES MUST BE RECEIVED ON ICE | Please Fill Out Completely | SAMPLES MUST BE RECEIVED ON ICE

Notes and Hazard identifications:

Custody Transfers		Date	Time
Sampled and Relinquished By: Print Name: Kevin Spilere	Signature:	10/4/19	8:30
	Received By:		
Relinquished By:	Received By: Bill Donaldson	10-4-19	8:30
Relinquished By:	Received for Lab By: Bill Donaldson		

Shipment Method: Samples Received Intact: Y N 30.0° on Ice Packs

LSL Life Science Laboratories, Inc.

Kevin Spillane
O.C.R.R.A.
100 Elwood Davis Road
North Syracuse, NY 13212

Phone: (315) 453-2866
FAX: (315) 453-2872
Authorization: SEE NOTES

Laboratory Analysis Report

For

O.C.R.R.A.

LSL Project ID: **2000299**

Receive Date/Time: 01/08/20 8:16

Life Science Laboratories, Inc.

LSL Central Lab
5854 Butternut Drive
East Syracuse, NY 13057
Tel. (315) 445-1900
Fax (315) 445-1104

LSL North Lab
131 St. Lawrence Avenue
Waddington, NY 13694
Tel. (315) 388-4476
Fax (315) 388-4061

LSL Finger Lakes Lab
16 N. Main St., PO Box 424
Wayland, NY 14572
Tel. (585) 213-4090
Fax (585) 213-4192

LSL Southern Tier Office
Cuba, NY
Tel. (585) 209-4032

LSL MidLakes Office
Canandaigua, NY
Tel. (585) 728-3320

This report was reviewed by: _____ *Date:* 1/21/2020

Dr. Joseph L. Jeraci, Lead Tech. Director

A copy of this report was sent to:

aaslab@psu.edu

Date Printed: 1/21/20

- - LABORATORY ANALYSIS REPORT - -

O.C.R.R.A. *North Syracuse, NY*

Sample ID: Jamesville 1/2" Compost **LSL Sample ID:** 2000299-001

Location:

Sampled: 01/08/20 6:30 **Sampled By:** KS

Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			1/8/20 13:00	DA/DA
(1) SM 2540 B-2011 Total Solids						
Total Solids @ 103-105 C	47	%			1/16/20	TER

The NYS DOH ELAP does not offer certification for this method in this matrix.

Sample ID: Amboy 1/2" Compost **LSL Sample ID:** 2000299-002

Location:

Sampled: 01/08/20 7:30 **Sampled By:** KS

Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			1/8/20 13:00	DA/DA
(1) SM 2540 B-2011 Total Solids						
Total Solids @ 103-105 C	46	%			1/16/20	TER

The NYS DOH ELAP does not offer certification for this method in this matrix.

Sample ID: Amboy 1/4" Compost **LSL Sample ID:** 2000299-003

Location:

Sampled: 01/08/20 7:30 **Sampled By:** KS

Sample Matrix: SHW Dry Wt, Compost

Analytical Method / Analyte	Result	Units	Prep Method	Prep Date	Analysis Date & Time	Analyst Initials
(1) EPA 1682(2014) Salmonella by MSRV						
Salmonella	<3	MPN/4g Dry			1/8/20 13:00	DA/DA
(1) SM 2540 B-2011 Total Solids						
Total Solids @ 103-105 C	56	%			1/16/20	TER

The NYS DOH ELAP does not offer certification for this method in this matrix.

Analysis performed at: *(1) LSL Central, (2) LSL North, (3) LSL Finger Lakes*

Life Science Laboratories, Inc.

Date Printed: 1/21/20

Life Science Laboratories, Inc.
5854 Butternut Drive
East Syracuse, NY 13057
Phone # (315) 445-1900 Telefax # (315) 445-1104

Chain of Custody Record

2000299

OCRRA 2274

Client: OCRRA Phone # 315-694-5009
Address: 100 Elwood Davis Fax #
North Syracuse

Contact Person: Kevin Spilke

LSL Project #:

Client's Site I.D.:

Authorization:

Client's Project I.D.:

(Lab Use Only) LSL Sample Number	Client's Sample Identifications	Sample Date	Sample Time	Type grab	Type comp.	Matrix	Preserv. Added	Containers #	Containers size/type	Analyses	Free Cl (mg/L)	Pres. Check
001	Jamesville 6 1/2" Comp	1/8/20	6:30	X						Sol Salmonella		
002	Amboy 1-2" Comp	1/8/20	7:30	X						Sol		
003	Amboy 1/4" Cap	1/8/20	7:3	X						Sol		

SAMPLES MUST BE RECEIVED ON ICE — Please Fill Out Completely — SAMPLES MUST BE RECEIVED ON ICE

Notes and Hazard Identifications:

Custody Transfers		Date	Time
Sampled and Relinquished By: Print Name: Kevin Spilke	Signature:	1/8/20	8:20
	Received By:		
Relinquished By:	Received By:		
Relinquished By:	Received for Lab By:	1-8-20	8:10

Samples Received On Ice

Shipment Method: Samples Received Intact: Y N

24°

PennState Extension

Agricultural Analytical Services Laboratory
The Pennsylvania State University
111 Ag Analytical Svcs Lab
University Park, PA 16802
(814) 863-0841 aaslab@psu.edu www.aasl.psu.edu

Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11411	Amboy 1/2" Screened Compost	04/19/2019			Static Pile-Forced aeration	

COMPOST ANALYSIS REPORT

Compost Test 3A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	7.9	—
Soluble Salts (1:5 w:w)	4.91 mmhos/cm	—
Solids	58.6 %	—
Moisture	41.4 %	—
Organic Matter	35.8 %	61.0 %
Total Nitrogen (N)	1.1 %	1.9 %
Organic Nitrogen[1]	1.1 %	1.9 %
Ammonium N (NH_4-N)	53.0 mg/kg *or* 0.0053 %	90.4 mg/kg *or* 0.0090 %
Carbon (C)	19.2 %	32.7 %
Carbon:Nitrogen (C:N) Ratio	17.00	17.00
Phosphorus (as P_2O_5)[2]	0.29 %	0.50 %
Potassium (as K_2O)[2]	0.52 %	0.88 %
Calcium (Ca)	2.37 %	4.04 %
Magnesium (Mg)	0.32 %	0.54 %
Particle size (< 9.5 mm)	93.75 %	—

[1] See comments on back of report .

[2] To convert phosphorus (as P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

Sampled 4/4/2019 @ 7:00 AM. Was not shipped overnight nor on ice. Rec'd 04/08/2019 1:50 PM

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most other applications. pH is not a measure of the total acidity or alkalinity and cannot be used to predict the effect of compost on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conductivity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmhos/cm). Compost soluble salt levels typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost. Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Moisutre

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH_4-N), and nitrate N (NO_3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although it may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_4-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 to 20 % per year. However, mineralization or break-down of organic N into available inorganic forms depends on the C: N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the compost sample provided. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize or tie-up N if applied to soil, while those with low C:N ratios (< 20) will mineralize or break-down organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.

Nitrogen, Phosphorus, Potassium Balance

When compost is applied on the basis of nitrogen (N), most composts will have an excess of phosphorus (P) and potassium (K) relative to crop demand. These mineral elements and salts can accumulate to above optimum levels with repeated application. Growers using compost should regularly soil test to monitor P, K and salt accumulation and should consider using other nutrient sources or nitrogen fixing legumes in their crop rotation especially when P and K levels are above optimum.

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11411	Amboy 1/2" Screened Compost	04/19/2019			Static Pile-Forced aeration	

COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	1.3 mg/kg	2.2 mg/kg	3050B + 6010
Cadmium (Cd)	< 0.3 mg/kg	< 0.5 mg/kg	3050B + 6010
Copper (Cu)	12.3 mg/kg	20.9 mg/kg	3050B + 6010
Lead (Pb)	6.2 mg/kg	10.6 mg/kg	3050B + 6010
Mercury (Hg)	0.028 mg/kg	0.047 mg/kg	7473
Molybdenum (Mo)	< 1.0 mg/kg	< 1.6 mg/kg	3050B + 6010
Nickel (Ni)	2.8 mg/kg	4.8 mg/kg	3050B + 6010
Selenium (Se)	< 1.6 mg/kg	< 2.7 mg/kg	3050B + 6010
Zinc (Zn)	41.6 mg/kg	71.0 mg/kg	3050B + 6010

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LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11411	Amboy 1/2" Screened Compost	04/19/2019			Static Pile-Forced aeration	

COMPOST BIOASSAY
Seedling Emergence and Relative Growth

TEST PARAMETERS	
Test Dates:	04/12/2019 to 04/19/2019
Seed Type:	Cucumber-Marketmore 76 Variety
Media Type: *(Control)*	Miracle Gro Moisture Control
Vermiculite:	NK Professional Grade

TEST RESULTS	
Emergence: (% of control)	96.67
Seedling Vigor: (%):	100.00

COMMENTS

INTERPRETATION

The bioassay test provides a screen for the presence of phytotoxins in compost based on seedling emergence and seedling vigor relative to a control. It provides an assessment of compost maturity although should not be used as a stand-alone indicator. The U.S. Compost Council Test Methods for the Examination of Composting and Compost provides the following Maturity Indicator Ratings based on this test.

	Maturity Indicator Rating[1]		
Test Parameter	Very Mature	Mature	Immature
Emergence %	> 90	80-90	< 80
Seedling Vigor %	> 95	80-95	< 80

[1]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

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LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11411	Amboy 1/2" Screened Compost	04/19/2019			Static Pile-Forced aeration	

RESPIROMETRY
Carbon Dioxide (CO_2) Evolution Rate

TEST RESULTS	
mg CO_2-C/g solids/day:	2.7
mg CO_2-C/g organic matter/day:	4.4

INTERPRETATION

Respirometry (CO_2 evolution) provides a measurement of the relative microbial activity in a compost and can therefore be used as an estimate of compost stability. The interpretive index below assumes optimal conditions for microbial activity are present including temperature, moisture and nutrients, and that toxic components that would inhibit microbial respiration are absent.

Result[1]	Stability Rating[2]	General Characteristics
< 1	Very stable	Well cured compost No continued decomposition No odors No potential for volatile fatty acid phytotoxicity
1-2	Stable	Moderately well cured compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minimal to no impact on soil carbon and nitrogen dynamics
2-5	Moderately unstable, curing compost	Curing compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minor impact on soil carbon & nitrogen dynamics
6-9	Unstable, raw compost	Active, uncured compost Minimal odor production Moderate to high potential for volatile fatty acid phytotoxicity Moderate potential for negative impact on soil carbon & nitrogen dynamics
10-11	Raw compost, raw organic products	Highly active, uncured compost Odor production likely High potential for volatile fatty acid phytotoxicity High potential for negative impact on soil carbon & soil nitrogen dynamics
>11	Raw feedstock, unstabilized material	Raw, extremely unstable material Odor production expected Probable volatile fatty acid phytotoxicity with most materials Negative impact on soil carbon & soil nitrogen dynamics expected

[1]Units in mg CO_2-C/g organic matter/day

[2]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2" Screened Compost

Lab ID: C11411

Report Date: 04/19/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***	***Test Results***
Plant Nutrients:	*%, weight basis*	*% wet weight basis*	*% dry weight basis*
Nitrogen	Total N	1.13	1.92
Phosphorus	P_2O_5	0.29	0.50
Potassium	K_2O	0.52	0.88
Calcium	Ca	2.37	4.04
Magnesium	Mg	0.32	0.54
Moisture Content	%, wet weight basis	41.36	
Organic Matter Content	%, dry weight basis	61.01	
pH	unitless	7.88	
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	4.91	
Particle Size	< 9.5 mm	93.75	
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	2.71 4.43	
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	96.67 100.00	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pathogen test not performed	
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3	

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sampled 4/4/2019 @ 7:00 AM. Was not shipped overnight nor on ice. Rec'd 04/08/2019 1:50 PM

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2" Screened Compost

Lab ID: C11411

Report Date: 04/19/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***
Plant Nutrients:		Not reported
Moisture Content	%, wet weight basis	41.36
Organic Matter Content	%, dry weight basis	61.01
pH	unitless	7.88
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	4.91
Particle Size	< 9.5 mm	93.75
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	2.71 4.43
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	96.67 100.00
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	Pathogen test not performed
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sampled 4/4/2019 @ 7:00 AM. Was not shipped overnight nor on ice. Rec'd 04/08/2019 1:50 PM

PennState Extension

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(814) 863-0841 aaslab@psu.edu www.aasl.psu.edu

Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11738	Amboy 1/2" Screened Compost	08/09/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

Compost Test 3A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	6.1	—
Soluble Salts (1:5 w:w)	7.64 mmhos/cm	—
Solids	59.1 %	—
Moisture	40.9 %	—
Organic Matter	41.2 %	69.7 %
Total Nitrogen (N)	0.9 %	1.6 %
Organic Nitrogen[1]	0.9 %	1.6 %
Ammonium N (NH_4-N)	214.6 mg/kg *or* 0.0215 %	363.1 mg/kg *or* 0.0363 %
Carbon (C)	21.2 %	35.8 %
Carbon:Nitrogen (C:N) Ratio	22.30	22.30
Phosphorus (as P_2O_5)[2]	0.32 %	0.54 %
Potassium (as K_2O)[2]	0.38 %	0.64 %
Calcium (Ca)	3.08 %	5.21 %
Magnesium (Mg)	0.33 %	0.57 %
Particle size (< 9.5 mm)	97.13 %	—

[1] See comments on back of report.

[2] To convert phosphorus (as P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

Sampled 7/22/2019 @ 7:30 AM. Rec'd 07/24/2019 @ 11:12 AM.

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most other applications. pH is not a measure of the total acidity or alkalinity and cannot be used to predict the effect of compost on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conductivity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmhos/cm). Compost soluble salt levels typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost. Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Moisutre

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH_4-N), and nitrate N (NO_3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although it may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_4-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 to 20 % per year. However, mineralization or break-down of organic N into available inorganic forms depends on the C: N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the compost sample provided. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize or tie-up N if applied to soil, while those with low C:N ratios (< 20) will mineralize or break-down organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.

Nitrogen, Phosphorus, Potassium Balance

When compost is applied on the basis of nitrogen (N), most composts will have an excess of phosphorus (P) and potassium (K) relative to crop demand. These mineral elements and salts can accumulate to above optimum levels with repeated application. Growers using compost should regularly soil test to monitor P, K and salt accumulation and should consider using other nutrient sources or nitrogen fixing legumes in their crop rotation especially when P and K levels are above optimum.

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LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11738	Amboy 1/2" Screened Compost	08/09/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	1.3 mg/kg	2.2 mg/kg	3050B + 6010
Cadmium (Cd)	< 0.3 mg/kg	< 0.5 mg/kg	3050B + 6010
Copper (Cu)	16.0 mg/kg	27.1 mg/kg	3050B + 6010
Lead (Pb)	5.6 mg/kg	9.5 mg/kg	3050B + 6010
Mercury (Hg)	0.024 mg/kg	0.041 mg/kg	7473
Molybdenum (Mo)	< 0.9 mg/kg	< 1.5 mg/kg	3050B + 6010
Nickel (Ni)	3.1 mg/kg	5.2 mg/kg	3050B + 6010
Selenium (Se)	< 1.5 mg/kg	< 2.5 mg/kg	3050B + 6010
Zinc (Zn)	34.9 mg/kg	59.1 mg/kg	3050B + 6010

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C11738	Amboy 1/2" Screened Compost	08/09/2019			Static Pile-Convection aeration	

COMPOST BIOASSAY
Seedling Emergence and Relative Growth

TEST PARAMETERS	
Test Dates:	07/26/2019 to 08/02/2019
Seed Type:	Cucumber-Marketmore 76 Variety
Media Type: *(Control)*	Miracle Gro Moisture Control
Vermiculite:	NK Professional Grade

TEST RESULTS	
Emergence: (% of control)	93.33
Seedling Vigor: (%):	100.00

COMMENTS

INTERPRETATION

The bioassay test provides a screen for the presence of phytotoxins in compost based on seedling emergence and seedling vigor relative to a control. It provides an assessment of compost maturity although should not be used as a stand-alone indicator. The U.S. Compost Council Test Methods for the Examination of Composting and Compost provides the following Maturity Indicator Ratings based on this test.

	Maturity Indicator Rating[1]		
Test Parameter	Very Mature	Mature	Immature
Emergence %	> 90	80-90	< 80
Seedling Vigor %	> 95	80-95	< 80

[1]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

PennState Extension

Agricultural Analytical Services Laboratory
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111 Ag Analytical Svcs Lab
University Park, PA 16802
(814) 863-0841 aaslab@psu.edu www.aasl.psu.edu

Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11738	Amboy 1/2" Screened Compost	08/09/2019			Static Pile-Convection aeration	

RESPIROMETRY
Carbon Dioxide (CO_2) Evolution Rate

TEST RESULTS	
mg CO_2-C/g solids/day:	4.7
mg CO_2-C/g organic matter/day:	7.5

INTERPRETATION

Respirometry (CO_2 evolution) provides a measurement of the relative microbial activity in a compost and can therefore be used as an estimate of compost stability. The interpretive index below assumes optimal conditions for microbial activity are present including temperature, moisture and nutrients, and that toxic components that would inhibit microbial respiration are absent.

Result[1]	Stability Rating[2]	General Characteristics
< 1	Very stable	Well cured compost No continued decomposition No odors No potential for volatile fatty acid phytotoxicity
1-2	Stable	Moderately well cured compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minimal to no impact on soil carbon and nitrogen dynamics
2-5	Moderately unstable, curing compost	Curing compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minor impact on soil carbon & nitrogen dynamics
6-9	Unstable, raw compost	Active, uncured compost Minimal odor production Moderate to high potential for volatile fatty acid phytotoxicity Moderate potential for negative impact on soil carbon & nitrogen dynamics
10-11	Raw compost, raw organic products	Highly active, uncured compost Odor production likely High potential for volatile fatty acid phytotoxicity High potential for negative impact on soil carbon & soil nitrogen dynamics
>11	Raw feedstock, unstabilized material	Raw, extremely unstable material Odor production expected Probable volatile fatty acid phytotoxicity with most materials Negative impact on soil carbon & soil nitrogen dynamics expected

[1]Units in mg CO_2-C/g organic matter/day

[2]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2" Screened Compost

Lab ID: C11738

Report Date: 08/09/2019

Compost Technical Data Sheet

Compost Parameters	*Reported as (units of measure)*	*Test Results*	*Test Results*
Plant Nutrients:	*%, weight basis*	*% wet weight basis*	*% dry weight basis*
Nitrogen	Total N	0.95	1.61
Phosphorus	P_2O_5	0.32	0.54
Potassium	K_2O	0.38	0.64
Calcium	Ca	3.08	5.21
Magnesium	Mg	0.33	0.57
Moisture Content	%, wet weight basis	40.90	
Organic Matter Content	%, dry weight basis	69.72	
pH	unitless	6.06	
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	7.64	
Particle Size	< 9.5 mm	97.13	
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	4.75 7.51	
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	 % of control %	 93.33 100.00	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4·g of dry solids	
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3	

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sampled 7/22/2019 @ 7:30 AM. Rec'd 07/24/2019 @ 11:12 AM.

US COMPOSTING COUNCIL

Seal of Testing Assurance

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100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2" Screened Compost

Lab ID: C11738

Report Date: 08/09/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as*** *(units of measure)*	***Test Results***
Plant Nutrients:		Not reported
Moisture Content	%, wet weight basis	40.90
Organic Matter Content	%, dry weight basis	69.72
pH	unitless	6.06
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	7.64
Particle Size	< 9.5 mm	97.13
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	4.75 7.51
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	93.33 100.00
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4 g of dry solids
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11737	Amboy 1/4" Screened Compost	08/09/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

Compost Test 3A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	5.0	—
Soluble Salts (1:5 w:w)	9.36 mmhos/cm	—
Solids	53.9 %	—
Moisture	46.1 %	—
Organic Matter	37.1 %	68.8 %
Total Nitrogen (N)	0.9 %	1.6 %
Organic Nitrogen[1]	0.8 %	1.5 %
Ammonium N (NH_4-N)	477.4 mg/kg *or* 0.0477 %	886.2 mg/kg *or* 0.0886 %
Carbon (C)	20.9 %	38.8 %
Carbon:Nitrogen (C:N) Ratio	24.40	24.40
Phosphorus (as P_2O_5)[2]	0.25 %	0.46 %
Potassium (as K_2O)[2]	0.33 %	0.60 %
Calcium (Ca)	2.09 %	3.88 %
Magnesium (Mg)	0.25 %	0.46 %
Particle size (< 9.5 mm)	99.83 %	—

[1] See comments on back of report .

[2] To convert phosphorus (as P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

Sampled 7/22/2019 @ 7:30 AM. Rec'd 07/24/2019 @ 11:12 AM.

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most other applications. pH is not a measure of the total acidity or alkalinity and cannot be used to predict the effect of compost on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conductivity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmhos/cm). Compost soluble salt levels typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost. Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Moisutre

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH_4-N), and nitrate N (NO_3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although it may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_4-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 to 20 % per year. However, mineralization or break-down of organic N into available inorganic forms depends on the C: N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the compost sample provided. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize or tie-up N if applied to soil, while those with low C:N ratios (< 20) will mineralize or break-down organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.

Nitrogen, Phosphorus, Potassium Balance

When compost is applied on the basis of nitrogen (N), most composts will have an excess of phosphorus (P) and potassium (K) relative to crop demand. These mineral elements and salts can accumulate to above optimum levels with repeated application. Growers using compost should regularly soil test to monitor P, K and salt accumulation and should consider using other nutrient sources or nitrogen fixing legumes in their crop rotation especially when P and K levels are above optimum.

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11737	Amboy 1/4" Screened Compost	08/09/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	1.1 mg/kg	2.0 mg/kg	3050B + 6010
Cadmium (Cd)	< 0.3 mg/kg	< 0.5 mg/kg	3050B + 6010
Copper (Cu)	11.4 mg/kg	21.2 mg/kg	3050B + 6010
Lead (Pb)	4.8 mg/kg	8.9 mg/kg	3050B + 6010
Mercury (Hg)	0.018 mg/kg	0.034 mg/kg	7473
Molybdenum (Mo)	< 0.8 mg/kg	< 1.5 mg/kg	3050B + 6010
Nickel (Ni)	2.4 mg/kg	4.4 mg/kg	3050B + 6010
Selenium (Se)	< 1.4 mg/kg	< 2.5 mg/kg	3050B + 6010
Zinc (Zn)	29.6 mg/kg	55.0 mg/kg	3050B + 6010

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C11737	Amboy 1/4" Screened Compost	08/09/2019			Static Pile-Convection aeration	

COMPOST BIOASSAY
Seedling Emergence and Relative Growth

TEST PARAMETERS	
Test Dates:	07/26/2019 to 08/02/2019
Seed Type:	Cucumber-Marketmore 76 Variety
Media Type: *(Control)*	Miracle Gro Moisture Control
Vermiculite:	NK Professional Grade

TEST RESULTS	
Emergence: (% of control)	0.00
Seedling Vigor: (%):	0.00

COMMENTS

INTERPRETATION

The bioassay test provides a screen for the presence of phytotoxins in compost based on seedling emergence and seedling vigor relative to a control. It provides an assessment of compost maturity although should not be used as a stand-alone indicator. The U.S. Compost Council Test Methods for the Examination of Composting and Compost provides the following Maturity Indicator Ratings based on this test.

	Maturity Indicator Rating[1]		
Test Parameter	Very Mature	Mature	Immature
Emergence %	> 90	80-90	< 80
Seedling Vigor %	> 95	80-95	< 80

[1]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

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LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11737	Amboy 1/4" Screened Compost	08/09/2019			Static Pile-Convection aeration	

RESPIROMETRY
Carbon Dioxide (CO_2) Evolution Rate

TEST RESULTS	
mg CO_2-C/g solids/day:	7.9
mg CO_2-C/g organic matter/day:	12.2

INTERPRETATION

Respirometry (CO_2 evolution) provides a measurement of the relative microbial activity in a compost and can therefore be used as an estimate of compost stability. The interpretive index below assumes optimal conditions for microbial activity are present including temperature, moisture and nutrients, and that toxic components that would inhibit microbial respiration are absent.

Result[1]	Stability Rating[2]	General Characteristics
< 1	Very stable	Well cured compost No continued decomposition No odors No potential for volatile fatty acid phytotoxicity
1-2	Stable	Moderately well cured compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minimal to no impact on soil carbon and nitrogen dynamics
2-5	Moderately unstable, curing compost	Curing compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minor impact on soil carbon & nitrogen dynamics
6-9	Unstable, raw compost	Active, uncured compost Minimal odor production Moderate to high potential for volatile fatty acid phytotoxicity Moderate potential for negative impact on soil carbon & nitrogen dynamics
10-11	Raw compost, raw organic products	Highly active, uncured compost Odor production likely High potential for volatile fatty acid phytotoxicity High potential for negative impact on soil carbon & soil nitrogen dynamics
>11	Raw feedstock, unstabilized material	Raw, extremely unstable material Odor production expected Probable volatile fatty acid phytotoxicity with most materials Negative impact on soil carbon & soil nitrogen dynamics expected

[1]Units in mg CO_2-C/g organic matter/day

[2]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/4" Screened Compost

Lab ID: C11737

Report Date: 08/09/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***	***Test Results***
Plant Nutrients:	*%, weight basis*	*% wet weight basis*	*% dry weight basis*
Nitrogen	Total N	0.86	1.59
Phosphorus	P_2O_5	0.25	0.46
Potassium	K_2O	0.33	0.60
Calcium	Ca	2.09	3.88
Magnesium	Mg	0.25	0.46
Moisture Content	%, wet weight basis	46.13	
Organic Matter Content	%, dry weight basis	68.80	
pH	unitless	5.03	
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	9.36	
Particle Size	< 9.5 mm	99.83	
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	7.92 12.17	
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	0.00 0.00	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4 g of dry solids	
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3	

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sampled 7/22/2019 @ 7:30 AM. Rec'd 07/24/2019 @ 11:12 AM.

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/4" Screened Compost

Lab ID: C11737

Report Date: 08/09/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***
Plant Nutrients:		Not reported
Moisture Content	%, wet weight basis	46.13
Organic Matter Content	%, dry weight basis	68.80
pH	unitless	5.03
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	9.36
Particle Size	< 9.5 mm	99.83
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	7.92 12.17
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	0.00 0.00
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4·g of dry solids
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11995	Amboy 1/4" Screened Compost	10/30/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

Compost Test 3A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	7.9	—
Soluble Salts (1:5 w:w)	4.05 mmhos/cm	—
Solids	55.8 %	—
Moisture	44.2 %	—
Organic Matter	31.7 %	56.8 %
Total Nitrogen (N)	1.1 %	1.9 %
Organic Nitrogen[1]	1.1 %	1.9 %
Ammonium N (NH_4-N)	28.4 mg/kg *or* 0.0028 %	50.8 mg/kg *or* 0.0051 %
Carbon (C)	18.0 %	32.3 %
Carbon:Nitrogen (C:N) Ratio	17.00	17.00
Phosphorus (as P_2O_5)[2]	0.35 %	0.63 %
Potassium (as K_2O)[2]	0.40 %	0.72 %
Calcium (Ca)	3.65 %	6.55 %
Magnesium (Mg)	0.40 %	0.72 %
Particle size (< 9.5 mm)	99.32 %	—

[1] See comments on back of report .

[2] To convert phosphorus (as P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

Sample collected 10/14/2019 at 8:00 AM. Received 10/16/2019 at 2:10 PM

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most other applications. pH is not a measure of the total acidity or alkalinity and cannot be used to predict the effect of compost on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conductivity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmhos/cm). Compost soluble salt levels typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost. Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Moisutre

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH_4-N), and nitrate N (NO_3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although it may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_4-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 to 20 % per year. However, mineralization or break-down of organic N into available inorganic forms depends on the C: N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the compost sample provided. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize or tie-up N if applied to soil, while those with low C:N ratios (< 20) will mineralize or break-down organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.

Nitrogen, Phosphorus, Potassium Balance

When compost is applied on the basis of nitrogen (N), most composts will have an excess of phosphorus (P) and potassium (K) relative to crop demand. These mineral elements and salts can accumulate to above optimum levels with repeated application. Growers using compost should regularly soil test to monitor P, K and salt accumulation and should consider using other nutrient sources or nitrogen fixing legumes in their crop rotation especially when P and K levels are above optimum.

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LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11995	Amboy 1/4" Screened Compost	10/30/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	1.1 mg/kg	1.9 mg/kg	3050B + 6010
Cadmium (Cd)	< 0.3 mg/kg	< 0.5 mg/kg	3050B + 6010
Copper (Cu)	16.9 mg/kg	30.3 mg/kg	3050B + 6010
Lead (Pb)	6.6 mg/kg	11.8 mg/kg	3050B + 6010
Mercury (Hg)	0.019 mg/kg	0.033 mg/kg	7473
Molybdenum (Mo)	< 0.9 mg/kg	< 1.5 mg/kg	3050B + 6010
Nickel (Ni)	3.4 mg/kg	6.1 mg/kg	3050B + 6010
Selenium (Se)	< 1.4 mg/kg	< 2.6 mg/kg	3050B + 6010
Zinc (Zn)	44.4 mg/kg	79.6 mg/kg	3050B + 6010

PennState Extension

Agricultural Analytical Services Laboratory
The Pennsylvania State University
111 Ag Analytical Svcs Lab
University Park, PA 16802
(814) 863-0841 aaslab@psu.edu www.aasl.psu.edu

Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11995	Amboy 1/4" Screened Compost	10/30/2019			Static Pile-Convection aeration	

COMPOST BIOASSAY
Seedling Emergence and Relative Growth

TEST PARAMETERS	
Test Dates:	10/18/2019 to 10/25/2019
Seed Type:	Cucumber-Marketmore 76 Variety
Media Type: *(Control)*	Miracle Gro Moisture Control
Vermiculite:	NK Professional Grade

TEST RESULTS	
Emergence: (% of control)	90.00
Seedling Vigor: (%):	100.00

COMMENTS

INTERPRETATION

The bioassay test provides a screen for the presence of phytotoxins in compost based on seedling emergence and seedling vigor relative to a control. It provides an assessment of compost maturity although should not be used as a stand-alone indicator. The U.S. Compost Council Test Methods for the Examination of Composting and Compost provides the following Maturity Indicator Ratings based on this test.

	Maturity Indicator Rating[1]		
Test Parameter	Very Mature	Mature	Immature
Emergence %	> 90	80-90	< 80
Seedling Vigor %	> 95	80-95	< 80

[1]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

PennState Extension

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11995	Amboy 1/4" Screened Compost	10/30/2019			Static Pile-Convection aeration	

RESPIROMETRY
Carbon Dioxide (CO_2) Evolution Rate

TEST RESULTS	
mg CO_2-C/g solids/day:	2.3
mg CO_2-C/g organic matter/day:	3.6

INTERPRETATION

Respirometry (CO_2 evolution) provides a measurement of the relative microbial activity in a compost and can therefore be used as an estimate of compost stability. The interpretive index below assumes optimal conditions for microbial activity are present including temperature, moisture and nutrients, and that toxic components that would inhibit microbial respiration are absent.

Result[1]	Stability Rating[2]	General Characteristics
< 1	Very stable	Well cured compost No continued decomposition No odors No potential for volatile fatty acid phytotoxicity
1-2	Stable	Moderately well cured compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minimal to no impact on soil carbon and nitrogen dynamics
2-5	Moderately unstable, curing compost	Curing compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minor impact on soil carbon & nitrogen dynamics
6-9	Unstable, raw compost	Active, uncured compost Minimal odor production Moderate to high potential for volatile fatty acid phytotoxicity Moderate potential for negative impact on soil carbon & nitrogen dynamics
10-11	Raw compost, raw organic products	Highly active, uncured compost Odor production likely High potential for volatile fatty acid phytotoxicity High potential for negative impact on soil carbon & soil nitrogen dynamics
>11	Raw feedstock, unstabilized material	Raw, extremely unstable material Odor production expected Probable volatile fatty acid phytotoxicity with most materials Negative impact on soil carbon & soil nitrogen dynamics expected

[1]Units in mg CO_2-C/g organic matter/day

[2]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/4" Screened Compost

Lab ID: C11995

Report Date: 10/30/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***	***Test Results***
Plant Nutrients:	*%, weight basis*	*% wet weight basis*	*% dry weight basis*
Nitrogen	Total N	1.06	1.90
Phosphorus	P_2O_5	0.35	0.63
Potassium	K_2O	0.40	0.72
Calcium	Ca	3.65	6.55
Magnesium	Mg	0.40	0.72
Moisture Content	%, wet weight basis	44.21	
Organic Matter Content	%, dry weight basis	56.77	
pH	unitless	7.87	
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	4.05	
Particle Size	< 9.5 mm	99.32	
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	2.26 3.64	
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	90.00 100.00	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4·g of dry solids	
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3	

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sample collected 10/14/2019 at 8:00 AM. Received 10/16/2019 at 2:10 PM

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/4" Screened Compost

Lab ID: C11995

Report Date: 10/30/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***
Plant Nutrients:		Not reported
Moisture Content	%, wet weight basis	44.21
Organic Matter Content	%, dry weight basis	56.77
pH	unitless	7.87
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	4.05
Particle Size	< 9.5 mm	99.32
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	2.26 3.64
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	90.00 100.00
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4·g of dry solids
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3

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Sample collected 10/14/2019 at 8:00 AM. Received 10/16/2019 at 2:10 PM

PennState Extension

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11996	Amboy 1/2" Screened Compost	10/30/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

Compost Test 3A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	5.5	—
Soluble Salts (1:5 w:w)	7.41 mmhos/cm	—
Solids	58.7 %	—
Moisture	41.3 %	—
Organic Matter	40.0 %	68.1 %
Total Nitrogen (N)	0.8 %	1.4 %
Organic Nitrogen[1]	0.8 %	1.3 %
Ammonium N (NH_4-N)	194.3 mg/kg *or* 0.0194 %	331.0 mg/kg *or* 0.0331 %
Carbon (C)	19.9 %	33.9 %
Carbon:Nitrogen (C:N) Ratio	24.80	24.80
Phosphorus (as P_2O_5)[2]	0.28 %	0.48 %
Potassium (as K_2O)[2]	0.39 %	0.66 %
Calcium (Ca)	2.70 %	4.60 %
Magnesium (Mg)	0.30 %	0.51 %
Particle size (< 9.5 mm)	96.73 %	—

[1] See comments on back of report .

[2] To convert phosphorus (as P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

Sample collected 10/14/2019 at 8:00 AM. Received 10/16/2019 at 2:10 PM

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most other applications. pH is not a measure of the total acidity or alkalinity and cannot be used to predict the effect of compost on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conductivity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmhos/cm). Compost soluble salt levels typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost. Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Moisutre

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH_4-N), and nitrate N (NO_3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although it may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_4-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 to 20 % per year. However, mineralization or break-down of organic N into available inorganic forms depends on the C: N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the compost sample provided. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize or tie-up N if applied to soil, while those with low C:N ratios (< 20) will mineralize or break-down organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.

Nitrogen, Phosphorus, Potassium Balance

When compost is applied on the basis of nitrogen (N), most composts will have an excess of phosphorus (P) and potassium (K) relative to crop demand. These mineral elements and salts can accumulate to above optimum levels with repeated application. Growers using compost should regularly soil test to monitor P, K and salt accumulation and should consider using other nutrient sources or nitrogen fixing legumes in their crop rotation especially when P and K levels are above optimum.

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11996	Amboy 1/2" Screened Compost	10/30/2019			Static Pile-Convection aeration	

COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	< 0.8 mg/kg	< 1.6 mg/kg	3050B + 6010
Cadmium (Cd)	< 0.3 mg/kg	< 0.5 mg/kg	3050B + 6010
Copper (Cu)	13.9 mg/kg	23.8 mg/kg	3050B + 6010
Lead (Pb)	6.5 mg/kg	11.1 mg/kg	3050B + 6010
Mercury (Hg)	0.016 mg/kg	0.027 mg/kg	7473
Molybdenum (Mo)	< 0.9 mg/kg	< 1.6 mg/kg	3050B + 6010
Nickel (Ni)	2.9 mg/kg	5.0 mg/kg	3050B + 6010
Selenium (Se)	< 1.6 mg/kg	< 2.7 mg/kg	3050B + 6010
Zinc (Zn)	36.9 mg/kg	62.8 mg/kg	3050B + 6010

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LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11996	Amboy 1/2" Screened Compost	10/30/2019			Static Pile-Convection aeration	

COMPOST BIOASSAY
Seedling Emergence and Relative Growth

TEST PARAMETERS	
Test Dates:	10/18/2019 to 10/25/2019
Seed Type:	Cucumber-Marketmore 76 Variety
Media Type: *(Control)*	Miracle Gro Moisture Control
Vermiculite:	NK Professional Grade

TEST RESULTS	
Emergence: (% of control)	80.00
Seedling Vigor: (%):	100.00

COMMENTS

INTERPRETATION

The bioassay test provides a screen for the presence of phytotoxins in compost based on seedling emergence and seedling vigor relative to a control. It provides an assessment of compost maturity although should not be used as a stand-alone indicator. The U.S. Compost Council Test Methods for the Examination of Composting and Compost provides the following Maturity Indicator Ratings based on this test.

	Maturity Indicator Rating[1]		
Test Parameter	Very Mature	Mature	Immature
Emergence %	> 90	80-90	< 80
Seedling Vigor %	> 95	80-95	< 80

[1]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

PennState Extension

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C11996	Amboy 1/2" Screened Compost	10/30/2019			Static Pile-Convection aeration	

RESPIROMETRY
Carbon Dioxide (CO_2) Evolution Rate

TEST RESULTS	
mg CO_2-C/g solids/day:	7.6
mg CO_2-C/g organic matter/day:	10.8

INTERPRETATION

Respirometry (CO_2 evolution) provides a measurement of the relative microbial activity in a compost and can therefore be used as an estimate of compost stability. The interpretive index below assumes optimal conditions for microbial activity are present including temperature, moisture and nutrients, and that toxic components that would inhibit microbial respiration are absent.

Result[1]	Stability Rating[2]	General Characteristics
< 1	Very stable	Well cured compost No continued decomposition No odors No potential for volatile fatty acid phytotoxicity
1-2	Stable	Moderately well cured compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minimal to no impact on soil carbon and nitrogen dynamics
2-5	Moderately unstable, curing compost	Curing compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minor impact on soil carbon & nitrogen dynamics
6-9	Unstable, raw compost	Active, uncured compost Minimal odor production Moderate to high potential for volatile fatty acid phytotoxicity Moderate potential for negative impact on soil carbon & nitrogen dynamics
10-11	Raw compost, raw organic products	Highly active, uncured compost Odor production likely High potential for volatile fatty acid phytotoxicity High potential for negative impact on soil carbon & soil nitrogen dynamics
>11	Raw feedstock, unstabilized material	Raw, extremely unstable material Odor production expected Probable volatile fatty acid phytotoxicity with most materials Negative impact on soil carbon & soil nitrogen dynamics expected

[1]Units in mg CO_2-C/g organic matter/day

[2]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2" Screened Compost

Lab ID: C11996

Report Date: 10/30/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***	***Test Results***
Plant Nutrients:	*%, weight basis*	*% wet weight basis*	*% dry weight basis*
Nitrogen	Total N	0.80	1.37
Phosphorus	P_2O_5	0.28	0.48
Potassium	K_2O	0.39	0.66
Calcium	Ca	2.70	4.60
Magnesium	Mg	0.30	0.51
Moisture Content	%, wet weight basis	41.31	
Organic Matter Content	%, dry weight basis	68.14	
pH	unitless	5.52	
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	7.41	
Particle Size	< 9.5 mm	96.73	
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	7.64 10.78	
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	 % of control %	 80.00 100.00	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4 g of dry solids	
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3	

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sample collected 10/14/2019 at 8:00 AM. Received 10/16/2019 at 2:10 PM

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2" Screened Compost

Lab ID: C11996

Report Date: 10/30/2019

Compost Technical Data Sheet

Compost Parameters	***Reported as*** *(units of measure)*	***Test Results***
Plant Nutrients:		Not reported
Moisture Content	%, wet weight basis	41.31
Organic Matter Content	%, dry weight basis	68.14
pH	unitless	5.52
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	7.41
Particle Size	< 9.5 mm	96.73
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	7.64 10.78
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	80.00 100.00
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4 g of dry solids
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3

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Sample collected 10/14/2019 at 8:00 AM. Received 10/16/2019 at 2:10 PM

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C12151	Amboy 1/2"	01/24/2020			Static Pile-Forced aeration	

COMPOST ANALYSIS REPORT

Compost Test 3A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	7.1	—
Soluble Salts (1:5 w:w)	5.17 mmhos/cm	—
Solids	49.8 %	—
Moisture	50.2 %	—
Organic Matter	26.6 %	53.5 %
Total Nitrogen (N)	0.7 %	1.5 %
Organic Nitrogen[1]	0.7 %	1.5 %
Ammonium N (NH_4-N)	47.3 mg/kg *or* 0.0047 %	95.1 mg/kg *or* 0.0095 %
Carbon (C)	15.6 %	31.3 %
Carbon:Nitrogen (C:N) Ratio	21.30	21.30
Phosphorus (as P_2O_5)[2]	0.26 %	0.52 %
Potassium (as K_2O)[2]	0.31 %	0.63 %
Calcium (Ca)	2.37 %	4.76 %
Magnesium (Mg)	0.32 %	0.64 %
Particle size (< 9.5 mm)	89.77 %	—

[1] See comments on back of report.

[2] To convert phosphorus (as P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

Sampled 1/8/2020 at 7:30 AM. Received at 1/13/2020 at 8:20 AM

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most other applications. pH is not a measure of the total acidity or alkalinity and cannot be used to predict the effect of compost on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conductivity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmhos/cm). Compost soluble salt levels typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost. Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Moisutre

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH_4-N), and nitrate N (NO_3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although it may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_4-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 to 20 % per year. However, mineralization or break-down of organic N into available inorganic forms depends on the C: N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the compost sample provided. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize or tie-up N if applied to soil, while those with low C:N ratios (< 20) will mineralize or break-down organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.

Nitrogen, Phosphorus, Potassium Balance

When compost is applied on the basis of nitrogen (N), most composts will have an excess of phosphorus (P) and potassium (K) relative to crop demand. These mineral elements and salts can accumulate to above optimum levels with repeated application. Growers using compost should regularly soil test to monitor P, K and salt accumulation and should consider using other nutrient sources or nitrogen fixing legumes in their crop rotation especially when P and K levels are above optimum.

PennState Extension

Agricultural Analytical Services Laboratory
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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C12151	Amboy 1/2"	01/24/2020			Static Pile-Forced aeration	

COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	1.4 mg/kg	2.9 mg/kg	3050B + 6010
Cadmium (Cd)	< 0.3 mg/kg	< 0.5 mg/kg	3050B + 6010
Copper (Cu)	13.2 mg/kg	26.6 mg/kg	3050B + 6010
Lead (Pb)	8.4 mg/kg	16.8 mg/kg	3050B + 6010
Mercury (Hg)	0.021 mg/kg	0.043 mg/kg	7473
Molybdenum (Mo)	< 0.8 mg/kg	< 1.6 mg/kg	3050B + 6010
Nickel (Ni)	3.1 mg/kg	6.2 mg/kg	3050B + 6010
Selenium (Se)	< 1.3 mg/kg	< 2.7 mg/kg	3050B + 6010
Zinc (Zn)	36.6 mg/kg	73.5 mg/kg	3050B + 6010

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LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C12151	Amboy 1/2"	01/24/2020			Static Pile-Forced aeration	

COMPOST BIOASSAY
Seedling Emergence and Relative Growth

TEST PARAMETERS	
Test Dates:	01/17/2020 to 01/24/2020
Seed Type:	Cucumber-Marketmore 76 Variety
Media Type: *(Control)*	Miracle Gro Moisture Control
Vermiculite:	NK Professional Grade

TEST RESULTS	
Emergence: (% of control)	100.00
Seedling Vigor: (%):	100.00

COMMENTS

INTERPRETATION

The bioassay test provides a screen for the presence of phytotoxins in compost based on seedling emergence and seedling vigor relative to a control. It provides an assessment of compost maturity although should not be used as a stand-alone indicator. The U.S. Compost Council Test Methods for the Examination of Composting and Compost provides the following Maturity Indicator Ratings based on this test.

	Maturity Indicator Rating[1]		
Test Parameter	Very Mature	Mature	Immature
Emergence %	> 90	80-90	< 80
Seedling Vigor %	> 95	80-95	< 80

[1]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

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Analysis Report For:	Copy To:
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LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C12151	Amboy 1/2"	01/24/2020			Static Pile-Forced aeration	

RESPIROMETRY

Carbon Dioxide (CO_2) Evolution Rate

TEST RESULTS	
mg CO_2-C/g solids/day:	4.8
mg CO_2-C/g organic matter/day:	8.1

INTERPRETATION

Respirometry (CO_2 evolution) provides a measurement of the relative microbial activity in a compost and can therefore be used as an estimate of compost stability. The interpretive index below assumes optimal conditions for microbial activity are present including temperature, moisture and nutrients, and that toxic components that would inhibit microbial respiration are absent.

Result[1]	Stability Rating[2]	General Characteristics
< 1	Very stable	Well cured compost No continued decomposition No odors No potential for volatile fatty acid phytotoxicity
1-2	Stable	Moderately well cured compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minimal to no impact on soil carbon and nitrogen dynamics
2-5	Moderately unstable, curing compost	Curing compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minor impact on soil carbon & nitrogen dynamics
6-9	Unstable, raw compost	Active, uncured compost Minimal odor production Moderate to high potential for volatile fatty acid phytotoxicity Moderate potential for negative impact on soil carbon & nitrogen dynamics
10-11	Raw compost, raw organic products	Highly active, uncured compost Odor production likely High potential for volatile fatty acid phytotoxicity High potential for negative impact on soil carbon & soil nitrogen dynamics
>11	Raw feedstock, unstabilized material	Raw, extremely unstable material Odor production expected Probable volatile fatty acid phytotoxicity with most materials Negative impact on soil carbon & soil nitrogen dynamics expected

[1]Units in mg CO_2-C/g organic matter/day

[2]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2"

Lab ID: C12151

Report Date: 01/24/2020

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***	***Test Results***
Plant Nutrients:	*%, weight basis*	*% wet weight basis*	*% dry weight basis*
Nitrogen	Total N	0.73	1.47
Phosphorus	P_2O_5	0.26	0.52
Potassium	K_2O	0.31	0.63
Calcium	Ca	2.37	4.76
Magnesium	Mg	0.32	0.64
Moisture Content	%, wet weight basis	50.25	
Organic Matter Content	%, dry weight basis	53.48	
pH	unitless	7.12	
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	5.17	
Particle Size	< 9.5 mm	89.77	
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	4.83 8.13	
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	 % of control %	 100.00 100.00	
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4·g of dry solids	
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3	

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sampled 1/8/2020 at 7:30 AM. Received at 1/13/2020 at 8:20 AM

US COMPOSTING COUNCIL

Seal of Testing Assurance

OCRRA
100 Elwood Davis Rd
North Syracuse NY 13212
Tel: 315-453-2866 x1213
Fax:

Product Name: Amboy 1/2"

Lab ID: C12151

Report Date: 01/24/2020

Compost Technical Data Sheet

Compost Parameters	***Reported as** (units of measure)*	***Test Results***
Plant Nutrients:		Not reported
Moisture Content	%, wet weight basis	50.25
Organic Matter Content	%, dry weight basis	53.48
pH	unitless	7.12
Soluble Salts *(electrical conductivity)*	dS/m (mmhos/cm)	5.17
Particle Size	< 9.5 mm	89.77
Stability Indicator *(respirometry)* CO_2 Evolution	mg CO_2-C/g TS/day, AND mg CO_2-C/g OM/day	4.83 8.13
Maturity Indicator *(bioassay)* Percent Emergence, AND Percent Seedling Vigor	% of control %	100.00 100.00
Select Pathogens	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.32(a)	PASS: Salmonella < 3 MPN per 4 g of dry solids
Trace Metals	PASS/FAIL: per US EPA Class A standard, 40 CFR § 503.13, Tables 1 and 3	PASS: As, Cd, Cu, Pb, Hg, Mo, Ni, Se, and Zn are less than limits specifed by US EPA Class A Standard 40 CFR § 503.13, Tables 1 and 3

Participants in the US Composting Council's Seal of Testing Assurance Program have shown the commitment to test their compost products on a prescribed basis and provide this data, along with compost end use instructions, as a means to better serve the needs of their compost customers.

Sampled 1/8/2020 at 7:30 AM. Received at 1/13/2020 at 8:20 AM

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C12150	Amboy 1/4"	01/24/2020			Static Pile-Forced aeration	

COMPOST ANALYSIS REPORT

Compost Test 3A

Analyte	Results (As is basis)	Results (Dry weight basis)
pH	7.8	—
Soluble Salts (1:5 w:w)	3.92 mmhos/cm	—
Solids	57.8 %	—
Moisture	42.2 %	—
Organic Matter	32.1 %	55.4 %
Total Nitrogen (N)	0.9 %	1.6 %
Organic Nitrogen[1]	0.9 %	1.6 %
Ammonium N (NH_4-N)	34.9 mg/kg *or* 0.0035 %	60.4 mg/kg *or* 0.0060 %
Carbon (C)	17.6 %	30.4 %
Carbon:Nitrogen (C:N) Ratio	18.60	18.60
Phosphorus (as P_2O_5)[2]	0.32 %	0.56 %
Potassium (as K_2O)[2]	0.40 %	0.69 %
Calcium (Ca)	3.47 %	6.00 %
Magnesium (Mg)	0.39 %	0.67 %
Particle size (< 9.5 mm)	99.67 %	—

[1] See comments on back of report .

[2] To convert phosphorus (as P_2O_5) into elemental phosphorus (P), divide by 2.29. To convert potassium (as K_2O) into elemental potassium (K), divide by 1.20.

Sampled 1/8/2020 at 7:30 AM. Received at 1/13/2020 at 8:20 AM

INTERPRETATION

pH

pH is a measure of active acidity in the feedstock or compost. The pH scale is 0 (acidic) to 14 (basic) with 7 being neutral. Most finished composts will have pH values in the range of 5.0 to 8.5. Ideal pH depends on compost use. A lower pH is preferred for certain ornamental plants while a neutral pH is suitable for most other applications. pH is not a measure of the total acidity or alkalinity and cannot be used to predict the effect of compost on soil pH.

Soluble Salts

Soluble salts are determined by measuring electrical conductivity (EC) in a 1:5 (compost:water, weight ratio) slurry. EC is related to the total soluble salts dissolved in the slurry and is measured in units of millimhos/cm (mmhos/cm). Compost soluble salt levels typically range from 1 to 10 mmhos/cm. High salinity may be toxic to plants. Ideal soluble salt levels will depend on the end use of the compost. Final compost blends with soil or container media/potting mixes should be tested for soluble salts.

% Solids, % Moisutre

The ideal moisture content for composting will depend on the water holding capacity of the materials being composted. In general, high organic matter materials have a higher water holding capacity and a higher ideal moisture content. A typical starting compost mix will have an ideal % solids content of 35-55 % (65-45 % moisture). Finished compost should have a % solids content of 50-60 % (50-40 % moisture).

% Organic Matter

There is no ideal organic matter level for feedstocks or finished compost. Organic matter content will decrease during composting. The organic matter content (dry weight basis) of typical feedstocks and starting mixes will be greater than 60 % while that of finished compost will be in the range of 30-70 %. An organic matter content (dry weight basis) of 50-60 % is desirable for most compost uses.

Nitrogen : Total, Organic, Ammonium, and Nitrate

Total nitrogen (N) includes all forms of nitrogen: organic N, ammonium N (NH_4-N), and nitrate N (NO_3-N). Total N will normally range from less than 1 % to around 5 % (dry weight basis) in most feedstocks and from 0.5 to 2.5 % (dry weight basis) in finished composts. NO_3-N (an optional test) is generally present in only low concentrations in immature composts, although it may increase as the compost matures. NH_4-N levels may be high during initial stages of the composting process, but decrease as maturity increases. Organic N is determined by subtracting the inorganic N forms, NH_4-N and NO_3-N, from total N. However, because NO_3-N levels are generally very low, total nitrogen minus NH_4-N provides a good estimate of organic N in most composts and is the value shown on the front of this report. In stable, finished composts, most of the N should be in the organic form. While NH_4-N and NO_3-N are immediately available to plants, organic N is only slowly available, approximately 10 to 20 % per year. However, mineralization or break-down of organic N into available inorganic forms depends on the C: N ratio (see below) as well as factors such as soil moisture and temperature.

Total Carbon

Total carbon (C) is a direct measurement of all organic and inorganic carbon in the compost sample. Unless the sample has a high pH (> 8.3) or is known to contain carbonates, essentially all carbon will be in the organic form. Compost organic matter typically contains around 54 % organic carbon by weight. The carbon content of individual feedstocks may vary from this ratio.

Carbon: Nitrogen Ratio

This is the ratio of total carbon (C) to total nitrogen (N) in the compost sample provided. C:N ratio may be used as an indicator of compost stability and N availability. Compost C:N ratio typically decreases during composting if the starting C:N ratio is > 25, but may increase if the starting C:N ratio is low (< 15) and N is lost during the composting process. Composts with high C:N ratios (> 30) will likely immobilize or tie-up N if applied to soil, while those with low C:N ratios (< 20) will mineralize or break-down organic N to inorganic (plant-available) N.

Phosphorus, Potassium

Phosphorus (P) and potassium (K) are plant macronutrients. Values reported are for total amounts given in the oxide forms (P_2O_5 and K_2O). These results provide an indication of the nutrient value of the compost sample. However, plant availability of total phosphorus and potassium in compost has not yet been established.

Nitrogen, Phosphorus, Potassium Balance

When compost is applied on the basis of nitrogen (N), most composts will have an excess of phosphorus (P) and potassium (K) relative to crop demand. These mineral elements and salts can accumulate to above optimum levels with repeated application. Growers using compost should regularly soil test to monitor P, K and salt accumulation and should consider using other nutrient sources or nitrogen fixing legumes in their crop rotation especially when P and K levels are above optimum.

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Analysis Report For:	Copy To:
Kevin Spillane OCRRA 100 Elwood Davis Rd North Syracuse NY 13212	

LAB ID:	SAMPLE ID:	REPORT DATE:	SAMPLE TYPE:	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C12150	Amboy 1/4"	01/24/2020			Static Pile-Forced aeration	

COMPOST ANALYSIS REPORT

EPA 503 Pollutants

Analyte	Results (As is Basis)	Results (Dry Weight Basis)	EPA SW 846 Method
Arsenic (As)	2.3 mg/kg	3.9 mg/kg	3050B + 6010
Cadmium (Cd)	< 0.3 mg/kg	< 0.5 mg/kg	3050B + 6010
Copper (Cu)	32.9 mg/kg	56.9 mg/kg	3050B + 6010
Lead (Pb)	10.7 mg/kg	18.6 mg/kg	3050B + 6010
Mercury (Hg)	0.031 mg/kg	0.053 mg/kg	7473
Molybdenum (Mo)	< 0.9 mg/kg	< 1.6 mg/kg	3050B + 6010
Nickel (Ni)	4.4 mg/kg	7.6 mg/kg	3050B + 6010
Selenium (Se)	< 1.6 mg/kg	< 2.7 mg/kg	3050B + 6010
Zinc (Zn)	57.6 mg/kg	99.6 mg/kg	3050B + 6010

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C12150	Amboy 1/4"	01/24/2020			Static Pile-Forced aeration	

COMPOST BIOASSAY
Seedling Emergence and Relative Growth

TEST PARAMETERS	
Test Dates:	01/17/2020 to 01/24/2020
Seed Type:	Cucumber-Marketmore 76 Variety
Media Type: *(Control)*	Miracle Gro Moisture Control
Vermiculite:	NK Professional Grade

TEST RESULTS	
Emergence: (% of control)	86.67
Seedling Vigor: (%):	100.00

COMMENTS

INTERPRETATION

The bioassay test provides a screen for the presence of phytotoxins in compost based on seedling emergence and seedling vigor relative to a control. It provides an assessment of compost maturity although should not be used as a stand-alone indicator. The U.S. Compost Council Test Methods for the Examination of Composting and Compost provides the following Maturity Indicator Ratings based on this test.

	Maturity Indicator Rating[1]		
Test Parameter	Very Mature	Mature	Immature
Emergence %	> 90	80-90	< 80
Seedling Vigor %	> 95	80-95	< 80

[1]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

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LAB ID	SAMPLE ID	REPORT DATE	SAMPLE TYPE	FEEDSTOCKS	COMPOSTING METHOD	COUNTY
C12150	Amboy 1/4"	01/24/2020			Static Pile-Forced aeration	

RESPIROMETRY
Carbon Dioxide (CO_2) Evolution Rate

TEST RESULTS	
mg CO_2-C/g solids/day:	3.3
mg CO_2-C/g organic matter/day:	5.8

INTERPRETATION

Respirometry (CO_2 evolution) provides a measurement of the relative microbial activity in a compost and can therefore be used as an estimate of compost stability. The interpretive index below assumes optimal conditions for microbial activity are present including temperature, moisture and nutrients, and that toxic components that would inhibit microbial respiration are absent.

Result[1]	Stability Rating[2]	General Characteristics
< 1	Very stable	Well cured compost No continued decomposition No odors No potential for volatile fatty acid phytotoxicity
1-2	Stable	Moderately well cured compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minimal to no impact on soil carbon and nitrogen dynamics
2-5	Moderately unstable, curing compost	Curing compost Odor production not likely Limited potential for volatile fatty acid phytotoxicity Minor impact on soil carbon & nitrogen dynamics
6-9	Unstable, raw compost	Active, uncured compost Minimal odor production Moderate to high potential for volatile fatty acid phytotoxicity Moderate potential for negative impact on soil carbon & nitrogen dynamics
10-11	Raw compost, raw organic products	Highly active, uncured compost Odor production likely High potential for volatile fatty acid phytotoxicity High potential for negative impact on soil carbon & soil nitrogen dynamics
>11	Raw feedstock, unstabilized material	Raw, extremely unstable material Odor production expected Probable volatile fatty acid phytotoxicity with most materials Negative impact on soil carbon & soil nitrogen dynamics expected

[1]Units in mg CO_2-C/g organic matter/day

[2]Test Methods for the Examination of Composting and Composts (revised July 15, 2015)

Bay 1

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	1/22/2019
End Date:	3/1/2019
Report Date:	3/1/2019
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 4

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Probe 1 Above	Probe 2 Temp.	Probe 2 Above	Probe 3 Temp.	Probe 3 Above	All Above
1	1/22/2019			39.4	No	34.2	No	39.7	No	No
2	1/23/2019			44.6	No	44.8	No	44.6	No	No
3	1/24/2019			45.7	No	45.7	No	45.7	No	No
4	1/25/2019			100.2	No	102.2	No	97.7	No	No
5	1/26/2019			107.2	No	108.1	No	105.4	No	No
6	1/27/2019			111.2	No	111.2	No	111.2	No	No
7	1/28/2019			113.7	No	113.2	No	113.7	No	No
8	1/29/2019			115.5	No	114.8	No	115.7	No	No
9	1/30/2019			116.6	No	116.2	No	118.4	No	No
10	1/31/2019			117.7	No	118.6	No	122.7	No	No
11	2/1/2019			118.6	No	120.7	No	124.3	No	No
12	2/2/2019			118.9	No	121.5	No	124.7	No	No
13	2/3/2019			119.3	No	121.6	No	124.5	No	No
14	2/4/2019			119.5	No	122	No	125.4	No	No
15	2/5/2019			120.2	No	122.9	No	126.9	No	No
16	2/6/2019			121.1	No	123.8	No	127	No	No
17	2/7/2019			121.6	No	124.3	No	127	No	No
18	2/8/2019			121.6	No	125.6	No	129.9	No	No
19	2/9/2019			121.6	No	127.6	No	131.5	Yes	No
20	2/10/2019			121.6	No	128.7	No	131.5	Yes	No
21	2/11/2019			121.6	No	129	No	130.8	No	No
22	2/12/2019			0	No	0	No	0	No	No
23	2/13/2019			0	No	0	No	0	No	No
24	2/14/2019			0	No	0	No	0	No	No
25	2/15/2019			122.4	No	128.7	No	131.5	Yes	No
26	2/16/2019			122.4	No	128.7	No	131.5	Yes	No
27	2/17/2019			122	No	128.5	No	130.8	No	No
28	2/18/2019			121.6	No	128.3	No	129.7	No	No
29	2/19/2019			123.6	No	129.2	No	128.7	No	No
30	2/20/2019			127.9	No	130.8	No	127.8	No	No
31	2/21/2019			131.5	Yes	132.4	Yes	127	No	No
32	2/22/2019			135	Yes	133.7	Yes	127.4	No	No
33	2/23/2019			137.8	Yes	135	Yes	127.9	No	No
34	2/24/2019			140	Yes	136.2	Yes	130.1	No	No
35	2/25/2019			141.4	Yes	137.8	Yes	136.8	Yes	Yes
36	2/26/2019			143.6	Yes	139.3	Yes	138.4	Yes	Yes
37	2/27/2019			145.6	Yes	140	Yes	139.3	Yes	Yes
38	2/28/2019			146.3	Yes	140.2	Yes	139.6	Yes	Yes
39	3/1/2019			50.7	No	32	No	32	No	No

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	3/5/2019
End Date:	4/12/2019
Report Date:	4/15/2019
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 14

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Probe 1 Above	Probe 2 Temp.	Probe 2 Above	Probe 3 Temp.	Probe 3 Above	All Above
1	3/5/2019			33.8	No	32	No	32	No	No
2	3/6/2019			32	No	32	No	32	No	No
3	3/7/2019			108.3	No	103.3	No	109.4	No	No
4	3/8/2019			107.4	No	106.5	No	112.6	No	No
5	3/9/2019			109.4	No	108.7	No	114.8	No	No
6	3/10/2019			112.8	No	112.8	No	116.2	No	No
7	3/11/2019			114.4	No	115.5	No	117.5	No	No
8	3/12/2019			118.9	No	121.6	No	121.8	No	No
9	3/13/2019			119.8	No	123.3	No	123.4	No	No
10	3/14/2019			120.2	No	123.8	No	123.8	No	No
11	3/15/2019			122.7	No	129	No	124.9	No	No
12	3/16/2019			124.7	No	133	Yes	127.6	No	No
13	3/17/2019			125.2	No	134.2	Yes	130.1	No	No
14	3/18/2019			125.4	No	135.5	Yes	132.1	Yes	No
15	3/19/2019			125.2	No	136.2	Yes	133	Yes	No
16	3/20/2019			124.9	No	138.2	Yes	133.9	Yes	No
17	3/21/2019			125.8	No	139.3	Yes	134.6	Yes	No
18	3/22/2019			126.1	No	140	Yes	135.7	Yes	No
19	3/23/2019			127	No	140.9	Yes	137.7	Yes	No
20	3/24/2019			128.1	No	143.2	Yes	139.8	Yes	No
21	3/25/2019			128.5	No	144.1	Yes	140.9	Yes	No
22	3/26/2019			128.8	No	145	Yes	132.6	Yes	No
23	3/27/2019			129.2	No	145.8	Yes	134.6	Yes	No
24	3/28/2019			132.8	Yes	147.9	Yes	136.6	Yes	Yes
25	3/29/2019			133.7	Yes	148.5	Yes	138.9	Yes	Yes
26	3/30/2019			134.8	Yes	149.5	Yes	140.9	Yes	Yes
27	3/31/2019			134.8	Yes	150.4	Yes	143.2	Yes	Yes
28	4/1/2019			135.5	Yes	150.8	Yes	145.4	Yes	Yes
29	4/2/2019			137.1	Yes	151.3	Yes	146.8	Yes	Yes
30	4/3/2019			138	Yes	151.5	Yes	148.6	Yes	Yes
31	4/4/2019			138.7	Yes	151.9	Yes	150.3	Yes	Yes
32	4/5/2019			140.5	Yes	152.1	Yes	151.9	Yes	Yes
33	4/6/2019			141.4	Yes	152.8	Yes	153.1	Yes	Yes
34	4/7/2019			142.9	Yes	152.8	Yes	154	Yes	Yes
35	4/8/2019			144	Yes	151.9	Yes	154.9	Yes	Yes
36	4/9/2019			144.3	Yes	152.4	Yes	155.8	Yes	Yes
37	4/10/2019			144.5	Yes	152.6	Yes	156	Yes	Yes
38	4/11/2019			47.3	No	47.8	No	47.7	No	No
39	4/12/2019			0	No	0	No	0	No	No

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	4/29/2019
End Date:	6/2/2019
Report Date:	6/3/2019
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperatur 24

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Above	Probe 2 Temp.	Above	Probe 3 Temp.	Above	All Above
1	4/29/2019			54.7	No	55	No	52.9	No	No
2	4/30/2019			55.9	No	55.8	No	54.7	No	No
3	5/1/2019			66.4	No	66.7	No	65.7	No	No
4	5/2/2019			59.9	No	59.9	No	59.9	No	No
5	5/3/2019			118.4	No	120.4	No	150.4	Yes	No
6	5/4/2019			120.4	No	123.6	No	153	Yes	No
7	5/5/2019			123.6	No	127.4	No	154.8	Yes	No
8	5/6/2019			126.3	No	131	Yes	155.8	Yes	No
9	5/7/2019			129	No	134.2	Yes	156.4	Yes	No
10	5/8/2019			132.1	Yes	136.9	Yes	156.4	Yes	Yes
11	5/9/2019			135.1	Yes	140.4	Yes	156	Yes	Yes
12	5/10/2019			137.5	Yes	143.6	Yes	154.8	Yes	Yes
13	5/11/2019			139.6	Yes	144.5	Yes	153.3	Yes	Yes
14	5/12/2019			143.8	Yes	145.4	Yes	154.6	Yes	Yes
15	5/13/2019			153.1	Yes	145.4	Yes	154.8	Yes	Yes
16	5/14/2019			154.9	Yes	145	Yes	154.4	Yes	Yes
17	5/15/2019			155.7	Yes	148.3	Yes	156	Yes	Yes
18	5/16/2019			156.2	Yes	151.2	Yes	157.8	Yes	Yes
19	5/17/2019			157.1	Yes	153	Yes	158.9	Yes	Yes
20	5/18/2019			158	Yes	154.4	Yes	160.7	Yes	Yes
21	5/19/2019			159.1	Yes	155.7	Yes	161.2	Yes	Yes
22	5/20/2019			159.4	Yes	155.5	Yes	162.5	Yes	Yes
23	5/21/2019			161.1	Yes	157.3	Yes	163	Yes	Yes
24	5/22/2019			160.9	Yes	157.6	Yes	163.6	Yes	Yes
25	5/23/2019			161.4	Yes	158	Yes	164.5	Yes	Yes
26	5/24/2019			162.5	Yes	159.1	Yes	165.2	Yes	Yes
27	5/25/2019			163.4	Yes	160	Yes	165.2	Yes	Yes
28	5/26/2019			163.4	Yes	159.8	Yes	166.3	Yes	Yes
29	5/27/2019			164.1	Yes	159.8	Yes	166.1	Yes	Yes
30	5/28/2019			163.9	Yes	160	Yes	167	Yes	Yes
31	5/29/2019			163.6	Yes	159.6	Yes	167.5	Yes	Yes
32	5/30/2019			163.8	Yes	160.2	Yes	167.5	Yes	Yes
33	5/31/2019			163.9	Yes	160	Yes	168.3	Yes	Yes
34	6/1/2019			89.1	No	83.1	No	83.7	No	No
35	6/2/2019			71.2	No	69.8	No	69.1	No	No

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	6/17/2019
End Date:	7/21/2019
Report Date:	7/22/2019
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 19

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Probe 1 Above	Probe 2 Temp.	Probe 2 Above	Probe 3 Temp.	Probe 3 Above	All Above
1	6/17/2019			91.4	No	89.2	No	85.3	No	No
2	6/18/2019			89.6	No	84	No	85.1	No	No
3	6/19/2019			135.5	Yes	118.6	No	117	No	No
4	6/20/2019			131.9	Yes	120.6	No	121.1	No	No
5	6/21/2019			127	No	121.8	No	124.2	No	No
6	6/22/2019			127	No	123.3	No	127.4	No	No
7	6/23/2019			128.5	No	125.6	No	132.4	Yes	No
8	6/24/2019			130.1	No	127.9	No	138.6	Yes	No
9	6/25/2019			131.9	Yes	131	Yes	143.8	Yes	Yes
10	6/26/2019			133.9	Yes	133.2	Yes	149.7	Yes	Yes
11	6/27/2019			136	Yes	135	Yes	155.5	Yes	Yes
12	6/28/2019			138	Yes	136.6	Yes	160.2	Yes	Yes
13	6/29/2019			140.7	Yes	138.2	Yes	164.7	Yes	Yes
14	6/30/2019			144.5	Yes	139.6	Yes	167.5	Yes	Yes
15	7/1/2019			147	Yes	141.1	Yes	167.9	Yes	Yes
16	7/2/2019			148.6	Yes	142.9	Yes	174.2	Yes	Yes
17	7/3/2019			149.9	Yes	144.3	Yes	175.6	Yes	Yes
18	7/4/2019			150.6	Yes	145.4	Yes	176.5	Yes	Yes
19	7/5/2019			152.2	Yes	148.6	Yes	179.8	Yes	Yes
20	7/6/2019			153.1	Yes	149.2	Yes	180.9	Yes	Yes
21	7/7/2019			154.6	Yes	149.5	Yes	180.7	Yes	Yes
22	7/8/2019			155.8	Yes	150.3	Yes	181.6	Yes	Yes
23	7/9/2019			156.7	Yes	151.3	Yes	182.8	Yes	Yes
24	7/10/2019			157.1	Yes	152.4	Yes	183.6	Yes	Yes
25	7/11/2019			157.8	Yes	154.9	Yes	184.1	Yes	Yes
26	7/12/2019			158.7	Yes	156.2	Yes	0	No	No
27	7/13/2019			159.1	Yes	157.1	Yes	185.2	Yes	Yes
28	7/14/2019			160.7	Yes	157.1	Yes	0	No	No
29	7/15/2019			160.7	Yes	156.7	Yes	0	No	No
30	7/16/2019			160.3	Yes	158.2	Yes	186.4	Yes	Yes
31	7/17/2019			160.3	Yes	158.4	Yes	0	No	No
32	7/18/2019			159.3	Yes	158	Yes	0	No	No
33	7/19/2019			159.8	Yes	156.4	Yes	0	No	No
34	7/20/2019			97.9	No	102.2	No	0	No	No
35	7/21/2019			95.7	No	98.8	No	0	No	No

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	8/4/2019
End Date:	9/8/2019
Report Date:	9/18/2019
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 31

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Probe 1 Above	Probe 2 Temp.	Probe 2 Above	Probe 3 Temp.	Probe 3 Above	All Above
1	8/4/2019			83.8	No	83.1	No	0	No	No
2	8/5/2019			93	No	90.7	No	85.1	No	No
3	8/6/2019			139.5	Yes	138	Yes	146.5	Yes	Yes
4	8/7/2019			138.6	Yes	137.7	Yes	166.1	Yes	Yes
5	8/8/2019			136.9	Yes	136.4	Yes	178.9	Yes	Yes
6	8/9/2019			136.4	Yes	135.7	Yes	185	Yes	Yes
7	8/10/2019			139.6	Yes	135.7	Yes	186.8	Yes	Yes
8	8/11/2019			153.1	Yes	136.4	Yes	187.3	Yes	Yes
9	8/12/2019			174.4	Yes	138.9	Yes	187.3	Yes	Yes
10	8/13/2019			185.9	Yes	146.3	Yes	187	Yes	Yes
11	8/14/2019			190.4	Yes	158	Yes	186.8	Yes	Yes
12	8/15/2019			191.8	Yes	171.9	Yes	186.4	Yes	Yes
13	8/16/2019			192.2	Yes	183.4	Yes	186.1	Yes	Yes
14	8/17/2019			192.2	Yes	189.5	Yes	185.5	Yes	Yes
15	8/18/2019			193.3	Yes	192.2	Yes	184.8	Yes	Yes
16	8/19/2019			193.5	Yes	193.8	Yes	184.1	Yes	Yes
17	8/20/2019			193.3	Yes	194	Yes	183.4	Yes	Yes
18	8/21/2019			193.1	Yes	194	Yes	182.5	Yes	Yes
19	8/22/2019			193.1	Yes	193.6	Yes	181.8	Yes	Yes
20	8/23/2019			193.1	Yes	193.3	Yes	180.9	Yes	Yes
21	8/24/2019			193.3	Yes	193.1	Yes	180.1	Yes	Yes
22	8/25/2019			193.3	Yes	192.9	Yes	179.2	Yes	Yes
23	8/26/2019			193.3	Yes	192.7	Yes	178	Yes	Yes
24	8/27/2019			193.3	Yes	192.4	Yes	176.7	Yes	Yes
25	8/28/2019			194.2	Yes	192.4	Yes	175.6	Yes	Yes
26	8/29/2019			193.8	Yes	191.8	Yes	174.9	Yes	Yes
27	8/30/2019			192.2	Yes	191.8	Yes	174.2	Yes	Yes
28	8/31/2019			192.6	Yes	191.8	Yes	173.7	Yes	Yes
29	9/1/2019			193.1	Yes	192	Yes	172.8	Yes	Yes
30	9/2/2019			193.1	Yes	192	Yes	172	Yes	Yes
31	9/3/2019			192.9	Yes	191.7	Yes	170.8	Yes	Yes
32	9/4/2019			192.7	Yes	191.7	Yes	170.2	Yes	Yes
33	9/5/2019			192.6	Yes	191.3	Yes	169.9	Yes	Yes
34	9/6/2019			75.7	No	79.3	No	88.7	No	No
35	9/7/2019			69.3	No	71.2	No	77	No	No
36	9/8/2019			69.8	No	72.1	No	80.2	No	No

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	9/10/2019
End Date:	10/13/2019
Report Date:	10/16/2019
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 22

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Above	Probe 2 Temp.	Above	Probe 3 Temp.	Above	All Above
1	9/10/2019			81.1	No	83.7	No	91.6	No	No
2	9/11/2019			82.2	No	84.4	No	87.6	No	No
3	9/12/2019			67.3	No	67.3	No	67.1	No	No
4	9/13/2019			72.7	No	75.9	No	83.3	No	No
5	9/14/2019			118.6	No	137.5	Yes	190.6	Yes	No
6	9/15/2019			120.6	No	151.9	Yes	191.8	Yes	No
7	9/16/2019			122.7	No	173.3	Yes	192.2	Yes	No
8	9/17/2019			124.3	No	182.7	Yes	192	Yes	No
9	9/18/2019			126.1	No	187	Yes	192	Yes	No
10	9/19/2019			127.9	No	190	Yes	191.8	Yes	No
11	9/20/2019			130.1	No	191.7	Yes	191.5	Yes	No
12	9/21/2019			132.1	Yes	192.6	Yes	190.9	Yes	Yes
13	9/22/2019			134.1	Yes	192.9	Yes	190.2	Yes	Yes
14	9/23/2019			135.5	Yes	193.1	Yes	189.3	Yes	Yes
15	9/24/2019			135.5	Yes	193.6	Yes	188.1	Yes	Yes
16	9/25/2019			136	Yes	194.9	Yes	187.3	Yes	Yes
17	9/26/2019			137.1	Yes	195.4	Yes	186.1	Yes	Yes
18	9/27/2019			138.2	Yes	195.8	Yes	184.6	Yes	Yes
19	9/28/2019			139.3	Yes	195.8	Yes	183.7	Yes	Yes
20	9/29/2019			139.6	Yes	196	Yes	182.5	Yes	Yes
21	9/30/2019			140.2	Yes	196	Yes	181.4	Yes	Yes
22	10/1/2019			141.1	Yes	195.8	Yes	180.1	Yes	Yes
23	10/2/2019			141.6	Yes	195.3	Yes	178.7	Yes	Yes
24	10/3/2019			141.6	Yes	195.3	Yes	177.1	Yes	Yes
25	10/4/2019			141.6	Yes	194.9	Yes	175.8	Yes	Yes
26	10/5/2019			141.4	Yes	194.9	Yes	174.4	Yes	Yes
27	10/6/2019			142.5	Yes	194.5	Yes	172.9	Yes	Yes
28	10/7/2019			142.7	Yes	193.6	Yes	171	Yes	Yes
29	10/8/2019			142	Yes	193.3	Yes	170.4	Yes	Yes
30	10/9/2019			141.8	Yes	185.5	Yes	171.7	Yes	Yes
31	10/10/2019			142	Yes	174.2	Yes	171.5	Yes	Yes
32	10/11/2019			142.3	Yes	162.1	Yes	175.3	Yes	Yes
33	10/12/2019			142.7	Yes	159.1	Yes	178.7	Yes	Yes
34	10/13/2019			66.4	No	66.4	No	66.4	No	No

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	10/18/2019
End Date:	11/22/2019
Report Date:	11/25/2019
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 23

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Probe 1 Above	Probe 2 Temp.	Probe 2 Above	Probe 3 Temp.	Probe 3 Above	All Above
1	10/18/2019			47.8	No	47.8	No	47.7	No	No
2	10/19/2019			124	No	116.4	No	100.9	No	No
3	10/20/2019			119.3	No	119.8	No	108.5	No	No
4	10/21/2019			116.8	No	120.4	No	117	No	No
5	10/22/2019			118.9	No	122.5	No	126.1	No	No
6	10/23/2019			142.3	Yes	124.5	No	134.8	Yes	No
7	10/24/2019			158.7	Yes	127.2	No	122.9	No	No
8	10/25/2019			0	No	0	No	0	No	No
9	10/26/2019			0	No	0	No	0	No	No
10	10/27/2019			0	No	0	No	0	No	No
11	10/28/2019			182.7	Yes	132.6	Yes	129.7	No	No
12	10/29/2019			183.4	Yes	135	Yes	134.2	Yes	Yes
13	10/30/2019			184.1	Yes	134.8	Yes	134.6	Yes	Yes
14	10/31/2019			186.3	Yes	137.8	Yes	136.9	Yes	Yes
15	11/1/2019			186.6	Yes	145.8	Yes	141.4	Yes	Yes
16	11/2/2019			187.7	Yes	144.7	Yes	141.3	Yes	Yes
17	11/3/2019			188.1	Yes	144.1	Yes	141.4	Yes	Yes
18	11/4/2019			188.2	Yes	153.5	Yes	151.2	Yes	Yes
19	11/5/2019			187.5	Yes	156	Yes	152.6	Yes	Yes
20	11/6/2019			182.5	Yes	162	Yes	152.2	Yes	Yes
21	11/7/2019			181.4	Yes	163.8	Yes	151.5	Yes	Yes
22	11/8/2019			180.7	Yes	166.5	Yes	149.7	Yes	Yes
23	11/9/2019			179.8	Yes	169.3	Yes	154.9	Yes	Yes
24	11/10/2019			179.2	Yes	169.9	Yes	156.4	Yes	Yes
25	11/11/2019			178.3	Yes	170.8	Yes	154.6	Yes	Yes
26	11/12/2019			177.4	Yes	171.9	Yes	151.9	Yes	Yes
27	11/13/2019			178.3	Yes	172.4	Yes	152.6	Yes	Yes
28	11/14/2019			180.3	Yes	172.8	Yes	156.7	Yes	Yes
29	11/15/2019			181	Yes	172.9	Yes	158	Yes	Yes
30	11/16/2019			181	Yes	173.3	Yes	155.5	Yes	Yes
31	11/17/2019			183.7	Yes	171	Yes	158	Yes	Yes
32	11/18/2019			185	Yes	171	Yes	155.5	Yes	Yes
33	11/19/2019			185.2	Yes	170.2	Yes	155.1	Yes	Yes
34	11/20/2019			185.5	Yes	169.7	Yes	155.3	Yes	Yes
35	11/21/2019			50	No	50	No	50	No	No
36	11/22/2019			52	No	52.2	No	52.2	No	No

CompostBatch Process Batch Report

Batch ID:	9
Start Date:	11/25/2019
End Date:	12/27/2019
Report Date:	1/2/2020
Location:	Bay 1 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 24

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 1 Temp.	Probe 1 Above	Probe 2 Temp.	Probe 2 Above	Probe 3 Temp.	Probe 3 Above	All Above
1	11/25/2019			48.6	No	49.1	No	48.6	No	No
2	11/26/2019			59.4	No	59.9	No	59	No	No
3	11/27/2019			108.1	No	121.1	No	116.2	No	No
4	11/28/2019			118.4	No	119.5	No	124.7	No	No
5	11/29/2019			124	No	122	No	150.8	Yes	No
6	11/30/2019			127.6	No	125.6	No	179.8	Yes	No
7	12/1/2019			128.3	No	128.5	No	188.1	Yes	No
8	12/2/2019			132.8	Yes	129.7	No	190.8	Yes	No
9	12/3/2019			133.3	Yes	131.4	Yes	191.7	Yes	Yes
10	12/4/2019			132.6	Yes	134.6	Yes	191.5	Yes	Yes
11	12/5/2019			133.3	Yes	138.9	Yes	191.3	Yes	Yes
12	12/6/2019			133.9	Yes	147.4	Yes	191.5	Yes	Yes
13	12/7/2019			134.8	Yes	154	Yes	192.2	Yes	Yes
14	12/8/2019			135.3	Yes	159.1	Yes	192.7	Yes	Yes
15	12/9/2019			136.8	Yes	162.9	Yes	192.6	Yes	Yes
16	12/10/2019			139.6	Yes	166.6	Yes	192.2	Yes	Yes
17	12/11/2019			141.8	Yes	171.1	Yes	193.1	Yes	Yes
18	12/12/2019			144.5	Yes	176	Yes	193.5	Yes	Yes
19	12/13/2019			145.8	Yes	180.1	Yes	193.6	Yes	Yes
20	12/14/2019			147.4	Yes	183.2	Yes	193.3	Yes	Yes
21	12/15/2019			149.5	Yes	185.7	Yes	192.7	Yes	Yes
22	12/16/2019			152.4	Yes	187.3	Yes	192.7	Yes	Yes
23	12/17/2019			153.5	Yes	188.2	Yes	192.4	Yes	Yes
24	12/18/2019			154.6	Yes	188.6	Yes	192	Yes	Yes
25	12/19/2019			157.3	Yes	189	Yes	192.2	Yes	Yes
26	12/20/2019			157.3	Yes	189.5	Yes	192.6	Yes	Yes
27	12/21/2019			159.3	Yes	189.5	Yes	192.7	Yes	Yes
28	12/22/2019			162.7	Yes	189.7	Yes	192.6	Yes	Yes
29	12/23/2019			164.8	Yes	189.5	Yes	192.2	Yes	Yes
30	12/24/2019			166.8	Yes	189.3	Yes	192.2	Yes	Yes
31	12/25/2019			170.2	Yes	189.1	Yes	192.7	Yes	Yes
32	12/26/2019			171.7	Yes	189.1	Yes	192.9	Yes	Yes
33	12/27/2019			54.1	No	54.7	No	54.5	No	No

Bay 2

CompostBatch Process Batch Report

Batch ID: 12
Start Date: 1/30/2019
End Date: 3/3/2019
Report Dat 3/4/2019
Location: Bay 2 Primary
Feedstock: FW & YW Mix
Descriptior Air 4 x 7.5
Required T 131

Actual Day: 15

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Above	Probe 5 Temp.	Above	Probe 6 Temp.	Above	All Above
1	1/30/2019			32	No	32	No	32	No	No
2	1/31/2019			32	No	32	No	32	No	No
3	2/1/2019			121.1	No	99.7	No	142.2	Yes	No
4	2/2/2019			120.6	No	101.3	No	156.2	Yes	No
5	2/3/2019			119.8	No	103.3	No	163.6	Yes	No
6	2/4/2019			122.4	No	105.8	No	168.1	Yes	No
7	2/5/2019			124.5	No	108.7	No	170.2	Yes	No
8	2/6/2019			124.7	No	111.2	No	173.3	Yes	No
9	2/7/2019			124.7	No	113.9	No	175.3	Yes	No
10	2/8/2019			123.6	No	116.6	No	177.4	Yes	No
11	2/9/2019			124.9	No	120.4	No	180	Yes	No
12	2/10/2019			124.9	No	124.2	No	181.9	Yes	No
13	2/11/2019			124.2	No	126.3	No	182.7	Yes	No
14	2/12/2019			0	No	0	No	0	No	No
15	2/13/2019			0	No	0	No	0	No	No
16	2/14/2019			0	No	0	No	0	No	No
17	2/15/2019			136.9	Yes	132.4	Yes	181	Yes	Yes
18	2/16/2019			137.5	Yes	135.1	Yes	180.7	Yes	Yes
19	2/17/2019			137.1	Yes	136.9	Yes	180.5	Yes	Yes
20	2/18/2019			136.4	Yes	137.5	Yes	181.9	Yes	Yes
21	2/19/2019			135.3	Yes	138.7	Yes	183.6	Yes	Yes
22	2/20/2019			134.6	Yes	144.1	Yes	183.9	Yes	Yes
23	2/21/2019			136.2	Yes	148.5	Yes	183.7	Yes	Yes
24	2/22/2019			136.6	Yes	152.8	Yes	183.7	Yes	Yes
25	2/23/2019			136.8	Yes	156.6	Yes	183.6	Yes	Yes
26	2/24/2019			144.5	Yes	159.6	Yes	183.2	Yes	Yes
27	2/25/2019			162.5	Yes	163	Yes	182.5	Yes	Yes
28	2/26/2019			162.5	Yes	166.8	Yes	182.1	Yes	Yes
29	2/27/2019			161.6	Yes	170.6	Yes	181.6	Yes	Yes
30	2/28/2019			170.1	Yes	173.8	Yes	181	Yes	Yes
31	3/1/2019			173.3	Yes	175.3	Yes	180.5	Yes	Yes
32	3/2/2019			43	No	44.2	No	43.9	No	No
33	3/3/2019			38.8	No	41	No	40.8	No	No

CompostBatch Process Batch Report

Batch ID: 12
Start Date: 3/16/2019
End Date: 4/22/2019
Report Dat 4/22/2019
Location: Bay 2 Primary
Feedstock: FW & YW Mix
Descriptior Air 4 x 7.5
Required T 131

Actual Day: 27

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Above	Probe 5 Temp.	Above	Probe 6 Temp.	Above	All Above
1	3/16/2019			42.3	No	43.3	No	42.1	No	No
2	3/17/2019			33.3	No	44.2	No	38.5	No	No
3	3/18/2019			98.8	No	127.6	No	120.2	No	No
4	3/19/2019			102.7	No	136	Yes	124.2	No	No
5	3/20/2019			111.2	No	144.7	Yes	127	No	No
6	3/21/2019			119.5	No	152.1	Yes	129.4	No	No
7	3/22/2019			124.3	No	158.4	Yes	131.5	Yes	No
8	3/23/2019			129.2	No	164.1	Yes	134.8	Yes	No
9	3/24/2019			133	Yes	168.8	Yes	137.8	Yes	Yes
10	3/25/2019			135.7	Yes	172.4	Yes	142.5	Yes	Yes
11	3/26/2019			138.6	Yes	175.1	Yes	145.6	Yes	Yes
12	3/27/2019			141.6	Yes	177.1	Yes	147.9	Yes	Yes
13	3/28/2019			146.3	Yes	178.3	Yes	150.3	Yes	Yes
14	3/29/2019			149.5	Yes	180.7	Yes	152.4	Yes	Yes
15	3/30/2019			153.1	Yes	182.8	Yes	154	Yes	Yes
16	3/31/2019			157.5	Yes	184.5	Yes	156	Yes	Yes
17	4/1/2019			160.2	Yes	186.4	Yes	157.8	Yes	Yes
18	4/2/2019			164.3	Yes	186.8	Yes	159.4	Yes	Yes
19	4/3/2019			167.4	Yes	187	Yes	161.8	Yes	Yes
20	4/4/2019			170.6	Yes	187.9	Yes	163.4	Yes	Yes
21	4/5/2019			173.3	Yes	189.3	Yes	165.4	Yes	Yes
22	4/6/2019			175.5	Yes	189.3	Yes	167.4	Yes	Yes
23	4/7/2019			177.3	Yes	189.7	Yes	169.2	Yes	Yes
24	4/8/2019			178.5	Yes	189.9	Yes	170.6	Yes	Yes
25	4/9/2019			179.8	Yes	189.1	Yes	171.7	Yes	Yes
26	4/10/2019			181.4	Yes	189.7	Yes	172.6	Yes	Yes
27	4/11/2019			182.5	Yes	189.5	Yes	173.5	Yes	Yes
28	4/12/2019			0	No	0	No	0	No	No
29	4/13/2019			184.8	Yes	188.8	Yes	175.6	Yes	Yes
30	4/14/2019			186.1	Yes	190	Yes	176.2	Yes	Yes
31	4/15/2019			188.2	Yes	190.4	Yes	176.5	Yes	Yes
32	4/16/2019			190.4	Yes	189.7	Yes	176.5	Yes	Yes
33	4/17/2019			191.1	Yes	190.2	Yes	176.5	Yes	Yes
34	4/18/2019			191.3	Yes	190.4	Yes	177.1	Yes	Yes
35	4/19/2019			190.9	Yes	189.9	Yes	177.1	Yes	Yes
36	4/20/2019			190.4	Yes	189.9	Yes	177.1	Yes	Yes
37	4/21/2019			58.1	No	57.6	No	57.2	No	No
38	4/22/2019			52.3	No	52	No	52	No	No

CompostBatch Process Batch Report

Batch ID: 12
Start Date: 5/11/2019
End Date: 6/15/2019
Report Dat 6/17/2019
Location: Bay 2 Primary
Feedstock: FW & YW Mix
Descriptior Air 4 x 7.5
Required T 131

Actual Day: 28

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Above	Probe 5 Temp.	Above	Probe 6 Temp.	Above	All Above
1	5/11/2019			68.2	No	68	No	66.2	No	No
2	5/12/2019			49.3	No	49.3	No	49.6	No	No
3	5/13/2019			116.1	No	117.9	No	135.5	Yes	No
4	5/14/2019			117.1	No	121.6	No	146.5	Yes	No
5	5/15/2019			122.4	No	125.8	No	155.5	Yes	No
6	5/16/2019			125.6	No	131.2	Yes	163	Yes	No
7	5/17/2019			129.6	No	136.4	Yes	168.8	Yes	No
8	5/18/2019			131.7	Yes	139.8	Yes	172.9	Yes	Yes
9	5/19/2019			133.5	Yes	142.3	Yes	175.6	Yes	Yes
10	5/20/2019			136.4	Yes	145	Yes	177.8	Yes	Yes
11	5/21/2019			135.5	Yes	147.4	Yes	178.5	Yes	Yes
12	5/22/2019			137.7	Yes	148.3	Yes	178.7	Yes	Yes
13	5/23/2019			139.3	Yes	149.2	Yes	179.8	Yes	Yes
14	5/24/2019			136.9	Yes	150.8	Yes	180.1	Yes	Yes
15	5/25/2019			137.5	Yes	150.6	Yes	179.8	Yes	Yes
16	5/26/2019			138.9	Yes	151.2	Yes	179.6	Yes	Yes
17	5/27/2019			146.3	Yes	151.5	Yes	179.4	Yes	Yes
18	5/28/2019			148.1	Yes	151.9	Yes	178.9	Yes	Yes
19	5/29/2019			144.5	Yes	151.7	Yes	178.7	Yes	Yes
20	5/30/2019			143.2	Yes	151.9	Yes	178.2	Yes	Yes
21	5/31/2019			143.4	Yes	153.1	Yes	177.8	Yes	Yes
22	6/1/2019			144.3	Yes	154	Yes	177.4	Yes	Yes
23	6/2/2019			144.5	Yes	154.4	Yes	176.9	Yes	Yes
24	6/3/2019			141.1	Yes	154.8	Yes	176.5	Yes	Yes
25	6/4/2019			141.3	Yes	154.9	Yes	175.6	Yes	Yes
26	6/5/2019			143.2	Yes	154.6	Yes	174.7	Yes	Yes
27	6/6/2019			145.8	Yes	154.4	Yes	174.7	Yes	Yes
28	6/7/2019			150.4	Yes	155.5	Yes	174.7	Yes	Yes
29	6/8/2019			149.9	Yes	155.8	Yes	174.7	Yes	Yes
30	6/9/2019			149.2	Yes	155.3	Yes	174.7	Yes	Yes
31	6/10/2019			151	Yes	154.8	Yes	174.9	Yes	Yes
32	6/11/2019			152.2	Yes	153.9	Yes	174.6	Yes	Yes
33	6/12/2019			153.7	Yes	156.4	Yes	173.5	Yes	Yes
34	6/13/2019			155.3	Yes	156.9	Yes	173.1	Yes	Yes
35	6/14/2019			155.8	Yes	156.6	Yes	173.1	Yes	Yes
36	6/15/2019			94.3	No	79.3	No	79.3	No	No

CompostBatch Process Batch Report

Batch ID:	12
Start Date:	6/23/2019
End Date:	7/26/2019
Report Date:	7/26/2019
Location:	Bay 2 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperatur	131

Actual Days Above Te 21

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Above	Probe 5 Temp.	Above	Probe 6 Temp.	Above	All Above
1	6/23/2019			95	No	80.6	No	80.2	No	No
2	6/24/2019			91.8	No	81.7	No	83.3	No	No
3	6/25/2019			124.7	No	124.5	No	119.5	No	No
4	6/26/2019			128.1	No	126.7	No	120.2	No	No
5	6/27/2019			133.2	Yes	129.2	No	121.8	No	No
6	6/28/2019			138.2	Yes	132.6	Yes	123.4	No	No
7	6/29/2019			143.4	Yes	137.7	Yes	124.9	No	No
8	6/30/2019			151.9	Yes	145	Yes	125.8	No	No
9	7/1/2019			156.9	Yes	149.2	Yes	125.8	No	No
10	7/2/2019			163.4	Yes	155.3	Yes	126.1	No	No
11	7/3/2019			174.7	Yes	157.6	Yes	127.8	No	No
12	7/4/2019			185.9	Yes	159.8	Yes	129.9	No	No
13	7/5/2019			189.7	Yes	160.5	Yes	132.4	Yes	Yes
14	7/6/2019			190.9	Yes	161.2	Yes	134.2	Yes	Yes
15	7/7/2019			191.5	Yes	158.9	Yes	135.3	Yes	Yes
16	7/8/2019			191.5	Yes	150.4	Yes	136	Yes	Yes
17	7/9/2019			191.5	Yes	154.4	Yes	137.5	Yes	Yes
18	7/10/2019			190.9	Yes	158.4	Yes	139.6	Yes	Yes
19	7/11/2019			190.6	Yes	166.8	Yes	142	Yes	Yes
20	7/12/2019			190	Yes	165.7	Yes	143.2	Yes	Yes
21	7/13/2019			189.5	Yes	167.9	Yes	144	Yes	Yes
22	7/14/2019			189.1	Yes	170.6	Yes	145.2	Yes	Yes
23	7/15/2019			188.8	Yes	172.9	Yes	145.9	Yes	Yes
24	7/16/2019			188.4	Yes	174.7	Yes	147.2	Yes	Yes
25	7/17/2019			187.9	Yes	176.2	Yes	148.3	Yes	Yes
26	7/18/2019			187.3	Yes	177.3	Yes	151.7	Yes	Yes
27	7/19/2019			187	Yes	178	Yes	153.1	Yes	Yes
28	7/20/2019			186.8	Yes	178.7	Yes	154.4	Yes	Yes
29	7/21/2019			186.6	Yes	179.4	Yes	154.6	Yes	Yes
30	7/22/2019			186.4	Yes	179.8	Yes	154.4	Yes	Yes
31	7/23/2019			186.3	Yes	180.3	Yes	153.5	Yes	Yes
32	7/24/2019			185.9	Yes	180.7	Yes	153.7	Yes	Yes
33	7/25/2019			185.4	Yes	180.7	Yes	153.5	Yes	Yes
34	7/26/2019			82.9	No	86.4	No	99.1	No	No

CompostBatch Process Batch Report

Batch ID:	12
Start Date:	8/13/2019
End Date:	9/14/2019
Report Date:	9/18/2019
Location:	Bay 2 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperatur	131

Actual Days Above Te	27

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Above	Probe 5 Temp.	Above	Probe 6 Temp.	Above	All Above
1	8/13/2019			87.4	No	88.9	No	88.2	No	No
2	8/14/2019			86.2	No	98.4	No	93.2	No	No
3	8/15/2019			128.8	No	130.3	No	138.4	Yes	No
4	8/16/2019			130.1	No	134.6	Yes	159.6	Yes	No
5	8/17/2019			131	Yes	135.5	Yes	178.7	Yes	Yes
6	8/18/2019			133.3	Yes	135.5	Yes	186.4	Yes	Yes
7	8/19/2019			139.6	Yes	137.3	Yes	192.4	Yes	Yes
8	8/20/2019			153.5	Yes	141.1	Yes	194.5	Yes	Yes
9	8/21/2019			175.6	Yes	144.1	Yes	195.1	Yes	Yes
10	8/22/2019			191.7	Yes	146.8	Yes	195.3	Yes	Yes
11	8/23/2019			195.4	Yes	149.9	Yes	195.4	Yes	Yes
12	8/24/2019			196.3	Yes	153.7	Yes	195.8	Yes	Yes
13	8/25/2019			196.7	Yes	159.1	Yes	195.8	Yes	Yes
14	8/26/2019			196.7	Yes	166.1	Yes	195.4	Yes	Yes
15	8/27/2019			196.7	Yes	174.7	Yes	194.9	Yes	Yes
16	8/28/2019			196.7	Yes	183.2	Yes	194.4	Yes	Yes
17	8/29/2019			196.9	Yes	187.9	Yes	194	Yes	Yes
18	8/30/2019			197.2	Yes	189.9	Yes	194.2	Yes	Yes
19	8/31/2019			197.8	Yes	192	Yes	194.2	Yes	Yes
20	9/1/2019			198	Yes	192.4	Yes	194.2	Yes	Yes
21	9/2/2019			197.8	Yes	192.6	Yes	193.6	Yes	Yes
22	9/3/2019			197.4	Yes	192.7	Yes	192.9	Yes	Yes
23	9/4/2019			197.1	Yes	193.1	Yes	192.6	Yes	Yes
24	9/5/2019			196.9	Yes	193.1	Yes	192.7	Yes	Yes
25	9/6/2019			196.9	Yes	192.7	Yes	192.6	Yes	Yes
26	9/7/2019			196.5	Yes	192.4	Yes	192.2	Yes	Yes
27	9/8/2019			196.3	Yes	192.6	Yes	192.2	Yes	Yes
28	9/9/2019			196.3	Yes	192.4	Yes	192.2	Yes	Yes
29	9/10/2019			196.5	Yes	192.2	Yes	192	Yes	Yes
30	9/11/2019			196	Yes	192.4	Yes	191.5	Yes	Yes
31	9/12/2019			195.8	Yes	192.4	Yes	191.5	Yes	Yes
32	9/13/2019			83.5	No	76.3	No	76.3	No	No
33	9/14/2019			80.8	No	78.1	No	78.4	No	No

CompostBatch Process Batch Report

Batch ID:	12
Start Date:	9/25/2019
End Date:	10/25/2019
Report Date:	10/28/2019
Location:	Bay 2 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperatur	131

Actual Days Above Te 21

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Probe 4 Above	Probe 5 Temp.	Probe 5 Above	Probe 6 Temp.	Probe 6 Above	All Above
1	9/25/2019			87.6	No	79	No	79.3	No	No
2	9/26/2019			70.3	No	70	No	70.3	No	No
3	9/27/2019			120.2	No	126.7	No	195.4	Yes	No
4	9/28/2019			122.7	No	131	Yes	195.8	Yes	No
5	9/29/2019			124.3	No	135.7	Yes	195.8	Yes	No
6	9/30/2019			126	No	140	Yes	196	Yes	No
7	10/1/2019			127.9	No	143.2	Yes	195.8	Yes	No
8	10/2/2019			129	No	144.7	Yes	196	Yes	No
9	10/3/2019			131.9	Yes	146.3	Yes	197.1	Yes	Yes
10	10/4/2019			131.9	Yes	146.8	Yes	197.8	Yes	Yes
11	10/5/2019			132.4	Yes	146.8	Yes	198.1	Yes	Yes
12	10/6/2019			137.3	Yes	146.8	Yes	198.1	Yes	Yes
13	10/7/2019			137.3	Yes	146.8	Yes	197.6	Yes	Yes
14	10/8/2019			136.6	Yes	146.5	Yes	197.4	Yes	Yes
15	10/9/2019			136.4	Yes	145.9	Yes	197.2	Yes	Yes
16	10/10/2019			137.7	Yes	148.3	Yes	196.9	Yes	Yes
17	10/11/2019			139.3	Yes	148.3	Yes	195.3	Yes	Yes
18	10/12/2019			141.1	Yes	146.3	Yes	194.9	Yes	Yes
19	10/13/2019			142.3	Yes	142.5	Yes	194.5	Yes	Yes
20	10/14/2019			143.1	Yes	139.6	Yes	196.2	Yes	Yes
21	10/15/2019			143.8	Yes	138.2	Yes	197.2	Yes	Yes
22	10/16/2019			149.4	Yes	137.8	Yes	197.2	Yes	Yes
23	10/17/2019			148.6	Yes	138.4	Yes	196.5	Yes	Yes
24	10/18/2019			147.2	Yes	138.4	Yes	196	Yes	Yes
25	10/19/2019			145.6	Yes	138.2	Yes	195.4	Yes	Yes
26	10/20/2019			146.3	Yes	137.7	Yes	195.3	Yes	Yes
27	10/21/2019			148.8	Yes	137.7	Yes	194.7	Yes	Yes
28	10/22/2019			153.3	Yes	138.2	Yes	194.4	Yes	Yes
29	10/23/2019			156.7	Yes	138.7	Yes	194	Yes	Yes
30	10/24/2019			64.6	No	65.8	No	65.3	No	No
31	10/25/2019			0	No	0	No	0	No	No

CompostBatch Process Batch Report

Batch ID:	12
Start Date:	10/30/2019
End Date:	12/3/2019
Report Date:	12/3/2019
Location:	Bay 2 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperatur	131

Actual Days Above Te	10

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Above	Probe 5 Temp.	Above	Probe 6 Temp.	Above	All Above
1	10/30/2019			63.5	No	63.9	No	63.7	No	No
2	10/31/2019			67.5	No	67.3	No	67.1	No	No
3	11/1/2019			126.5	No	119.7	No	135.9	Yes	No
4	11/2/2019			128.3	No	120.7	No	144.5	Yes	No
5	11/3/2019			128.3	No	121.5	No	151.3	Yes	No
6	11/4/2019			128.3	No	122.4	No	156.6	Yes	No
7	11/5/2019			130.1	No	124.5	No	160.2	Yes	No
8	11/6/2019			131.5	Yes	125.8	No	163.8	Yes	No
9	11/7/2019			132.3	Yes	125.8	No	167.2	Yes	No
10	11/8/2019			133	Yes	126.5	No	168.3	Yes	No
11	11/9/2019			133.3	Yes	127	No	109.2	No	No
12	11/10/2019			134.8	Yes	187	Yes	111.7	No	No
13	11/11/2019			135.5	Yes	110.5	No	112.5	No	No
14	11/12/2019			134.8	Yes	112.1	No	114.3	No	No
15	11/13/2019			134.8	Yes	114.3	No	116.2	No	No
16	11/14/2019			134.8	Yes	113.9	No	117.3	No	No
17	11/15/2019			126	No	112.6	No	118.2	No	No
18	11/16/2019			174.7	Yes	175.6	Yes	180.3	Yes	Yes
19	11/17/2019			176.9	Yes	183.7	Yes	179.4	Yes	Yes
20	11/18/2019			178.3	Yes	186.8	Yes	176.2	Yes	Yes
21	11/19/2019			179.4	Yes	187.7	Yes	173.1	Yes	Yes
22	11/20/2019			180.3	Yes	189	Yes	171	Yes	Yes
23	11/21/2019			180.7	Yes	189.5	Yes	131.9	Yes	Yes
24	11/22/2019			181	Yes	189.7	Yes	133.5	Yes	Yes
25	11/23/2019			181.2	Yes	190	Yes	135.1	Yes	Yes
26	11/24/2019			181	Yes	190	Yes	136.9	Yes	Yes
27	11/25/2019			181	Yes	190	Yes	139.3	Yes	Yes
28	11/26/2019			124.7	No	121.1	No	141.1	Yes	No
29	11/27/2019			125.6	No	122.9	No	142.9	Yes	No
30	11/28/2019			127	No	124.7	No	145.2	Yes	No
31	11/29/2019			128.5	No	126.3	No	147.2	Yes	No
32	11/30/2019			129.7	No	127.9	No	149	Yes	No
33	12/1/2019			130.6	No	128.8	No	151.3	Yes	No
34	12/2/2019			131.2	Yes	129.7	No	152.6	Yes	No
35	12/3/2019			34	No	36.1	No	33.4	No	No

CompostBatch Process Batch Report

Batch ID:	12
Start Date:	12/9/2019
End Date:	1/9/2020
Report Date:	1/9/2020
Location:	Bay 2 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperatur	131

Actual Days Above Te	18

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 4 Temp.	Above	Probe 5 Temp.	Above	Probe 6 Temp.	Above	All Above
1	12/9/2019			48	No	47.8	No	48.6	No	No
2	12/10/2019			106.7	No	92.3	No	128.5	No	No
3	12/11/2019			112.3	No	103.8	No	155.3	Yes	No
4	12/12/2019			116.2	No	109	No	166.5	Yes	No
5	12/13/2019			119.5	No	112.3	No	172	Yes	No
6	12/14/2019			121.3	No	117.3	No	176	Yes	No
7	12/15/2019			123.8	No	121.6	No	179.8	Yes	No
8	12/16/2019			124.3	No	124.3	No	182.1	Yes	No
9	12/17/2019			124.9	No	126.5	No	184.1	Yes	No
10	12/18/2019			126.9	No	128.3	No	188.8	Yes	No
11	12/19/2019			127.4	No	130.6	No	191.7	Yes	No
12	12/20/2019			127.9	No	131.9	Yes	193.6	Yes	No
13	12/21/2019			128.8	No	133.3	Yes	194.2	Yes	No
14	12/22/2019			133	Yes	134.4	Yes	194.2	Yes	Yes
15	12/23/2019			137.8	Yes	135.7	Yes	194	Yes	Yes
16	12/24/2019			143.4	Yes	136.9	Yes	193.6	Yes	Yes
17	12/25/2019			149.4	Yes	138.7	Yes	193.8	Yes	Yes
18	12/26/2019			155.3	Yes	140.4	Yes	194	Yes	Yes
19	12/27/2019			161.6	Yes	142.7	Yes	194	Yes	Yes
20	12/28/2019			167.5	Yes	144.7	Yes	194.4	Yes	Yes
21	12/29/2019			172.6	Yes	146.8	Yes	194.7	Yes	Yes
22	12/30/2019			177.3	Yes	148.8	Yes	194.7	Yes	Yes
23	12/31/2019			181.6	Yes	149.2	Yes	194.7	Yes	Yes
24	1/1/2020			185.2	Yes	150.1	Yes	194.5	Yes	Yes
25	1/2/2020			187	Yes	151.3	Yes	194.4	Yes	Yes
26	1/3/2020			188.1	Yes	151.9	Yes	194.2	Yes	Yes
27	1/4/2020			189	Yes	152.2	Yes	194	Yes	Yes
28	1/5/2020			190	Yes	153.1	Yes	194	Yes	Yes
29	1/6/2020			190.9	Yes	153.7	Yes	194.2	Yes	Yes
30	1/7/2020			191.3	Yes	155.1	Yes	194	Yes	Yes
31	1/8/2020			191.5	Yes	155.3	Yes	194	Yes	Yes
32	1/9/2020			32	No	32	No	34.5	No	No

Bay 3

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	1/2/2019
End Date:	2/5/2019
Report Date:	2/5/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Above	Probe 8 Temp.	Above	Probe 9 Temp.	Above	All Above
1	1/2/2019			35.2	No	34.3	No	34.5	No	No
2	1/3/2019			37.6	No	37.4	No	37.6	No	No
3	1/4/2019			88.7	No	156.7	Yes	177.6	Yes	No
4	1/5/2019			102.7	No	155.8	Yes	177.6	Yes	No
5	1/6/2019			109.2	No	155.3	Yes	177.4	Yes	No
6	1/7/2019			111.7	No	162.7	Yes	177.3	Yes	No
7	1/8/2019			113.4	No	169.9	Yes	176.5	Yes	No
8	1/9/2019			114.1	No	173.5	Yes	176.5	Yes	No
9	1/10/2019			114.6	No	175.1	Yes	176.2	Yes	No
10	1/11/2019			114.8	No	187.9	Yes	176.2	Yes	No
11	1/12/2019			110.3	No	187.9	Yes	176.2	Yes	No
12	1/13/2019			110.8	No	187.5	Yes	176.2	Yes	No
13	1/14/2019			110.8	No	187	Yes	175.6	Yes	No
14	1/15/2019			111	No	186.1	Yes	175.1	Yes	No
15	1/16/2019			110.8	No	185.2	Yes	174.9	Yes	No
16	1/17/2019			0	No	0	No	0	No	No
17	1/18/2019			111.4	No	182.5	Yes	175.3	Yes	No
18	1/19/2019			111.7	No	181.8	Yes	175.6	Yes	No
19	1/20/2019			112.3	No	180.5	Yes	175.6	Yes	No
20	1/21/2019			112.6	No	178.9	Yes	175.1	Yes	No
21	1/22/2019			113	No	177.3	Yes	174.4	Yes	No
22	1/23/2019			113	No	175.6	Yes	174.2	Yes	No
23	1/24/2019			113	No	174.2	Yes	173.8	Yes	No
24	1/25/2019			113.2	No	172.6	Yes	173.3	Yes	No
25	1/26/2019			113.2	No	171.3	Yes	172.4	Yes	No
26	1/27/2019			113.4	No	170.1	Yes	171.3	Yes	No
27	1/28/2019			113.4	No	169	Yes	170.2	Yes	No
28	1/29/2019			113.5	No	167.7	Yes	169.3	Yes	No
29	1/30/2019			113.9	No	166.8	Yes	168.4	Yes	No
30	1/31/2019			114.8	No	166.1	Yes	167.5	Yes	No
31	2/1/2019			115.2	No	165.6	Yes	166.6	Yes	No
32	2/2/2019			115.3	No	165.2	Yes	166.1	Yes	No
33	2/3/2019			115.9	No	164.8	Yes	165.2	Yes	No
34	2/4/2019			116.1	No	164.5	Yes	165	Yes	No
35	2/5/2019			53.4	No	52.9	No	52.9	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	2/18/2019
End Date:	3/26/2019
Report Date:	3/26/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131
Actual Days Above Temperature:	19

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Probe 7 Above	Probe 8 Temp.	Probe 8 Above	Probe 9 Temp.	Probe 9 Above	All Above
1	2/18/2019			32	No	32	No	32	No	No
2	2/19/2019			32	No	32	No	44.6	No	No
3	2/20/2019			34.7	No	35.4	No	36.5	No	No
4	2/21/2019			107.6	No	100.4	No	102.2	No	No
5	2/22/2019			113.5	No	109.6	No	105.1	No	No
6	2/23/2019			117.9	No	116.8	No	107.6	No	No
7	2/24/2019			121.6	No	120.9	No	111.4	No	No
8	2/25/2019			125.2	No	121.6	No	117.1	No	No
9	2/26/2019			127.2	No	122.7	No	117.7	No	No
10	2/27/2019			129	No	127.6	No	118.2	No	No
11	2/28/2019			131.5	Yes	131.9	Yes	120.9	No	No
12	3/1/2019			133.2	Yes	135.5	Yes	122.9	No	No
13	3/2/2019			134.1	Yes	138	Yes	123.4	No	No
14	3/3/2019			135.3	Yes	140.4	Yes	124	No	No
15	3/4/2019			136.9	Yes	142.7	Yes	124.7	No	No
16	3/5/2019			139.1	Yes	143.8	Yes	127	No	No
17	3/6/2019			140.9	Yes	143.8	Yes	130.1	No	No
18	3/7/2019			142.9	Yes	144.1	Yes	159.8	Yes	Yes
19	3/8/2019			144.5	Yes	145.6	Yes	162.7	Yes	Yes
20	3/9/2019			145.6	Yes	147	Yes	165.4	Yes	Yes
21	3/10/2019			147.2	Yes	147	Yes	168.4	Yes	Yes
22	3/11/2019			148.1	Yes	148.3	Yes	168.8	Yes	Yes
23	3/12/2019			149.2	Yes	150.3	Yes	170.6	Yes	Yes
24	3/13/2019			149.2	Yes	152.1	Yes	172.4	Yes	Yes
25	3/14/2019			149.9	Yes	153.5	Yes	173.5	Yes	Yes
26	3/15/2019			152.6	Yes	153.9	Yes	174.7	Yes	Yes
27	3/16/2019			153.5	Yes	153.5	Yes	175.5	Yes	Yes
28	3/17/2019			153.1	Yes	153.5	Yes	176.5	Yes	Yes
29	3/18/2019			151.9	Yes	154.6	Yes	177.4	Yes	Yes
30	3/19/2019			153.5	Yes	155.5	Yes	178.3	Yes	Yes
31	3/20/2019			154.6	Yes	156.4	Yes	179.2	Yes	Yes
32	3/21/2019			154.9	Yes	156.9	Yes	180	Yes	Yes
33	3/22/2019			157.3	Yes	158.4	Yes	180.1	Yes	Yes
34	3/23/2019			157.3	Yes	158.9	Yes	180.3	Yes	Yes
35	3/24/2019			156.2	Yes	159.3	Yes	180.7	Yes	Yes
36	3/25/2019			155.8	Yes	159.4	Yes	180.7	Yes	Yes
37	3/26/2019			32	No	32	No	32	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	4/8/2019
End Date:	5/14/2019
Report Date:	5/14/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 26

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Probe 7 Above	Probe 8 Temp.	Probe 8 Above	Probe 9 Temp.	Probe 9 Above	All Above
1	4/8/2019			68.7	No	69.1	No	67.6	No	No
2	4/9/2019			67.5	No	70.5	No	66.7	No	No
3	4/10/2019			113.9	No	104.9	No	135.9	Yes	No
4	4/11/2019			117	No	107.8	No	138.6	Yes	No
5	4/12/2019			0	No	0	No	0	No	No
6	4/13/2019			124.5	No	115	No	149.4	Yes	No
7	4/14/2019			127.9	No	118.2	No	154.4	Yes	No
8	4/15/2019			130.5	No	122	No	158.7	Yes	No
9	4/16/2019			132.8	Yes	125.2	No	162.3	Yes	No
10	4/17/2019			137.1	Yes	128.8	No	165.7	Yes	No
11	4/18/2019			140.9	Yes	132.6	Yes	168.6	Yes	Yes
12	4/19/2019			142.9	Yes	135.7	Yes	170.4	Yes	Yes
13	4/20/2019			146.5	Yes	138.4	Yes	171.7	Yes	Yes
14	4/21/2019			150.4	Yes	141.1	Yes	173.1	Yes	Yes
15	4/22/2019			152.2	Yes	143.2	Yes	174.2	Yes	Yes
16	4/23/2019			154	Yes	145	Yes	175.1	Yes	Yes
17	4/24/2019			154.4	Yes	146.5	Yes	175.6	Yes	Yes
18	4/25/2019			156.2	Yes	146.5	Yes	176.5	Yes	Yes
19	4/26/2019			158.2	Yes	147.2	Yes	177.8	Yes	Yes
20	4/27/2019			157.8	Yes	147.4	Yes	178	Yes	Yes
21	4/28/2019			156	Yes	147.6	Yes	178.9	Yes	Yes
22	4/29/2019			156.7	Yes	148.8	Yes	180.5	Yes	Yes
23	4/30/2019			157.6	Yes	150.3	Yes	181.8	Yes	Yes
24	5/1/2019			158.5	Yes	151.3	Yes	183.2	Yes	Yes
25	5/2/2019			158.5	Yes	152.1	Yes	183.9	Yes	Yes
26	5/3/2019			158.9	Yes	153.1	Yes	184.6	Yes	Yes
27	5/4/2019			160	Yes	153.7	Yes	185.5	Yes	Yes
28	5/5/2019			161.8	Yes	154	Yes	186.3	Yes	Yes
29	5/6/2019			162.7	Yes	154.4	Yes	187	Yes	Yes
30	5/7/2019			163	Yes	154.9	Yes	187.7	Yes	Yes
31	5/8/2019			163.4	Yes	154.9	Yes	188.6	Yes	Yes
32	5/9/2019			164.8	Yes	154.8	Yes	189.1	Yes	Yes
33	5/10/2019			165.2	Yes	153.5	Yes	189.5	Yes	Yes
34	5/11/2019			166.1	Yes	153.3	Yes	189.9	Yes	Yes
35	5/12/2019			166.8	Yes	154.2	Yes	190.4	Yes	Yes
36	5/13/2019			167.2	Yes	154	Yes	190.6	Yes	Yes
37	5/14/2019			43.7	No	43.5	No	43.5	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	5/29/2019
End Date:	7/11/2019
Report Date:	7/18/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 35

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Probe 7 Above	Probe 8 Temp.	Probe 8 Above	Probe 9 Temp.	Probe 9 Above	All Above
1	5/29/2019			65.8	No	65.7	No	66.9	No	No
2	5/30/2019			77.7	No	77.5	No	82	No	No
3	5/31/2019			122.5	No	115.3	No	116.2	No	No
4	6/1/2019			123.8	No	118.6	No	124	No	No
5	6/2/2019			126.1	No	121.1	No	132.1	Yes	No
6	6/3/2019			129.7	No	124.7	No	136.6	Yes	No
7	6/4/2019			131	Yes	128.8	No	139.1	Yes	No
8	6/5/2019			131.7	Yes	133.7	Yes	142	Yes	Yes
9	6/6/2019			131.5	Yes	139.3	Yes	145.9	Yes	Yes
10	6/7/2019			132.1	Yes	145.8	Yes	150.3	Yes	Yes
11	6/8/2019			133.5	Yes	152.2	Yes	154.2	Yes	Yes
12	6/9/2019			134.2	Yes	158.5	Yes	156.9	Yes	Yes
13	6/10/2019			134.8	Yes	164.8	Yes	159.6	Yes	Yes
14	6/11/2019			136.4	Yes	169.9	Yes	161.2	Yes	Yes
15	6/12/2019			136.6	Yes	173.8	Yes	162.7	Yes	Yes
16	6/13/2019			137.5	Yes	176.7	Yes	164.1	Yes	Yes
17	6/14/2019			138.6	Yes	178.9	Yes	166.1	Yes	Yes
18	6/15/2019			139.6	Yes	180.5	Yes	167.2	Yes	Yes
19	6/16/2019			0	No	0	No	0	No	No
20	6/17/2019			140	Yes	183.9	Yes	168.4	Yes	Yes
21	6/18/2019			140	Yes	185.2	Yes	169.5	Yes	Yes
22	6/19/2019			140.9	Yes	186.4	Yes	170.8	Yes	Yes
23	6/20/2019			141.4	Yes	187.5	Yes	172	Yes	Yes
24	6/21/2019			141.4	Yes	188.2	Yes	173.1	Yes	Yes
25	6/22/2019			141.8	Yes	189.1	Yes	174.6	Yes	Yes
26	6/23/2019			142.9	Yes	189.7	Yes	176.2	Yes	Yes
27	6/24/2019			143.8	Yes	190	Yes	177.6	Yes	Yes
28	6/25/2019			145.4	Yes	190.6	Yes	179.6	Yes	Yes
29	6/26/2019			146.7	Yes	190.8	Yes	180.9	Yes	Yes
30	6/27/2019			147.7	Yes	191.3	Yes	182.3	Yes	Yes
31	6/28/2019			149.2	Yes	191.7	Yes	183.7	Yes	Yes
32	6/29/2019			151	Yes	191.8	Yes	185.5	Yes	Yes
33	6/30/2019			153.3	Yes	192.2	Yes	187.2	Yes	Yes
34	7/1/2019			154.8	Yes	192.6	Yes	188.4	Yes	Yes
35	7/2/2019			156.2	Yes	192.7	Yes	189.7	Yes	Yes
36	7/3/2019			157.5	Yes	193.1	Yes	190.6	Yes	Yes
37	7/4/2019			158.9	Yes	193.6	Yes	191.3	Yes	Yes
38	7/5/2019			160.9	Yes	194	Yes	191.8	Yes	Yes
39	7/6/2019			162.1	Yes	194.5	Yes	192.2	Yes	Yes
40	7/7/2019			163.6	Yes	194.9	Yes	192.7	Yes	Yes
41	7/8/2019			165.2	Yes	195.3	Yes	192.9	Yes	Yes
42	7/9/2019			166.6	Yes	195.6	Yes	193.3	Yes	Yes
43	7/10/2019			167.2	Yes	195.8	Yes	193.3	Yes	Yes
44	7/11/2019			96.8	No	99	No	94.3	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	7/13/2019
End Date:	8/16/2019
Report Date:	8/19/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 25

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Probe 7 Above	Probe 8 Temp.	Probe 8 Above	Probe 9 Temp.	Probe 9 Above	All Above
1	7/13/2019			100.4	No	103.5	No	96.8	No	No
2	7/14/2019			92.1	No	95.2	No	89.8	No	No
3	7/15/2019			105.4	No	105.6	No	101.8	No	No
4	7/16/2019			135.1	Yes	127	No	121.1	No	No
5	7/17/2019			135.5	Yes	126.3	No	126.1	No	No
6	7/18/2019			135.3	Yes	127.6	No	133.2	Yes	No
7	7/19/2019			135	Yes	129.4	No	140.9	Yes	No
8	7/20/2019			135.1	Yes	132.1	Yes	148.8	Yes	Yes
9	7/21/2019			137.7	Yes	134.8	Yes	155.8	Yes	Yes
10	7/22/2019			139.1	Yes	137.5	Yes	162.7	Yes	Yes
11	7/23/2019			140	Yes	139.3	Yes	168.3	Yes	Yes
12	7/24/2019			140.9	Yes	142.3	Yes	173.1	Yes	Yes
13	7/25/2019			142.7	Yes	146.3	Yes	177.3	Yes	Yes
14	7/26/2019			143.1	Yes	148.3	Yes	178.9	Yes	Yes
15	7/27/2019			0	No	0	No	0	No	No
16	7/28/2019			0	No	0	No	0	No	No
17	7/29/2019			146.5	Yes	169	Yes	186.3	Yes	Yes
18	7/30/2019			147.2	Yes	175.3	Yes	187.3	Yes	Yes
19	7/31/2019			147.7	Yes	180.7	Yes	188.2	Yes	Yes
20	8/1/2019			148.3	Yes	185.2	Yes	188.8	Yes	Yes
21	8/2/2019			149.4	Yes	188.4	Yes	189.5	Yes	Yes
22	8/3/2019			150.4	Yes	190.6	Yes	189.9	Yes	Yes
23	8/4/2019			151.9	Yes	191.8	Yes	190	Yes	Yes
24	8/5/2019			152.4	Yes	192.7	Yes	190.4	Yes	Yes
25	8/6/2019			153	Yes	193.3	Yes	190.4	Yes	Yes
26	8/7/2019			153	Yes	193.6	Yes	190.4	Yes	Yes
27	8/8/2019			152.8	Yes	193.6	Yes	190.4	Yes	Yes
28	8/9/2019			153.9	Yes	193.8	Yes	190.4	Yes	Yes
29	8/10/2019			155.1	Yes	194	Yes	190.6	Yes	Yes
30	8/11/2019			155.8	Yes	194.5	Yes	190.9	Yes	Yes
31	8/12/2019			157.6	Yes	194.9	Yes	191.3	Yes	Yes
32	8/13/2019			160.7	Yes	194.9	Yes	191.3	Yes	Yes
33	8/14/2019			163.9	Yes	194.9	Yes	191.3	Yes	Yes
34	8/15/2019			165.4	Yes	195.1	Yes	191.3	Yes	Yes
35	8/16/2019			88	No	88.3	No	90	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	8/27/2019
End Date:	9/30/2019
Report Date:	10/16/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 30

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Probe 7 Above	Probe 8 Temp.	Probe 8 Above	Probe 9 Temp.	Probe 9 Above	All Above
1	8/27/2019			80.2	No	80.6	No	82.2	No	No
2	8/28/2019			73.2	No	72.9	No	73.6	No	No
3	8/29/2019			124.2	No	140.5	Yes	142.9	Yes	No
4	8/30/2019			131.5	Yes	140.5	Yes	149.5	Yes	Yes
5	8/31/2019			136.8	Yes	140	Yes	156.7	Yes	Yes
6	9/1/2019			141.6	Yes	139.3	Yes	163.9	Yes	Yes
7	9/2/2019			143.6	Yes	138.9	Yes	170.1	Yes	Yes
8	9/3/2019			144.7	Yes	138.7	Yes	175.1	Yes	Yes
9	9/4/2019			148.8	Yes	139.1	Yes	179.2	Yes	Yes
10	9/5/2019			151	Yes	141.8	Yes	182.8	Yes	Yes
11	9/6/2019			155.3	Yes	147	Yes	185.4	Yes	Yes
12	9/7/2019			156.2	Yes	153.7	Yes	187.3	Yes	Yes
13	9/8/2019			159.4	Yes	162	Yes	189	Yes	Yes
14	9/9/2019			163.2	Yes	171.3	Yes	190.4	Yes	Yes
15	9/10/2019			166.6	Yes	180.7	Yes	191.3	Yes	Yes
16	9/11/2019			169	Yes	188.8	Yes	191.8	Yes	Yes
17	9/12/2019			169	Yes	189.7	Yes	191.8	Yes	Yes
18	9/13/2019			173.7	Yes	196.9	Yes	193.1	Yes	Yes
19	9/14/2019			174	Yes	198.1	Yes	193.3	Yes	Yes
20	9/15/2019			173.7	Yes	198.5	Yes	193.5	Yes	Yes
21	9/16/2019			172.9	Yes	198.5	Yes	194	Yes	Yes
22	9/17/2019			172.6	Yes	198.5	Yes	194	Yes	Yes
23	9/18/2019			172.4	Yes	198.5	Yes	194	Yes	Yes
24	9/19/2019			172	Yes	198.5	Yes	194.2	Yes	Yes
25	9/20/2019			171.5	Yes	198.3	Yes	194.2	Yes	Yes
26	9/21/2019			171	Yes	198.1	Yes	194	Yes	Yes
27	9/22/2019			171.1	Yes	197.8	Yes	194	Yes	Yes
28	9/23/2019			171.1	Yes	197.6	Yes	193.6	Yes	Yes
29	9/24/2019			170.6	Yes	196.5	Yes	193.3	Yes	Yes
30	9/25/2019			172	Yes	196.3	Yes	193.3	Yes	Yes
31	9/26/2019			172.4	Yes	196.2	Yes	193.1	Yes	Yes
32	9/27/2019			172.6	Yes	196	Yes	192.9	Yes	Yes
33	9/28/2019			172.4	Yes	196	Yes	192.9	Yes	Yes
34	9/29/2019			0	No	0	No	86	No	No
35	9/30/2019			0	No	0	No	63.5	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	10/6/2019
End Date:	11/6/2019
Report Date:	11/8/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Probe 7 Above	Probe 8 Temp.	Probe 8 Above	Probe 9 Temp.	Probe 9 Above	All Above
1	10/6/2019			0	No	0	No	70.5	No	No
2	10/7/2019			0	No	0	No	65.5	No	No
3	10/8/2019			0	No	130.3	No	187.3	Yes	No
4	10/9/2019			0	No	132.1	Yes	190	Yes	No
5	10/10/2019			0	No	133.5	Yes	190.9	Yes	No
6	10/11/2019			0	No	137.3	Yes	191.3	Yes	No
7	10/12/2019			0	No	139.8	Yes	191.1	Yes	No
8	10/13/2019			0	No	140.5	Yes	190.8	Yes	No
9	10/14/2019			0	No	139.6	Yes	190.6	Yes	No
10	10/15/2019			0	No	139.1	Yes	191.3	Yes	No
11	10/16/2019			0	No	140.2	Yes	191.3	Yes	No
12	10/17/2019			0	No	143.6	Yes	190.4	Yes	No
13	10/18/2019			0	No	145.6	Yes	187.9	Yes	No
14	10/19/2019			0	No	147.4	Yes	186.6	Yes	No
15	10/20/2019			0	No	147.9	Yes	185.5	Yes	No
16	10/21/2019			0	No	150.4	Yes	184.1	Yes	No
17	10/22/2019			0	No	150.1	Yes	183.2	Yes	No
18	10/23/2019			0	No	150.8	Yes	182.5	Yes	No
19	10/24/2019			0	No	149	Yes	181.8	Yes	No
20	10/25/2019			0	No	0	No	0	No	No
21	10/26/2019			0	No	0	No	0	No	No
22	10/27/2019			0	No	0	No	0	No	No
23	10/28/2019			0	No	155.3	Yes	176.9	Yes	No
24	10/29/2019			82.4	No	155.1	Yes	176.5	Yes	No
25	10/30/2019			66.7	No	155.1	Yes	175.5	Yes	No
26	10/31/2019			67.1	No	160	Yes	174.7	Yes	No
27	11/1/2019			54.3	No	157.8	Yes	173.3	Yes	No
28	11/2/2019			61	No	157.3	Yes	171.1	Yes	No
29	11/3/2019			54	No	159.6	Yes	169	Yes	No
30	11/4/2019			55.9	No	160.9	Yes	167.2	Yes	No
31	11/5/2019			52.7	No	52.5	No	52.5	No	No
32	11/6/2019			47.3	No	46	No	45.9	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	11/7/2019
End Date:	12/11/2019
Report Date:	12/11/2019
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperatur	131

Actual Days Above Te	17

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Above	Probe 8 Temp.	Above	Probe 9 Temp.	Above	All Above
1	11/7/2019			49.6	No	48	No	47.8	No	No
2	11/8/2019			50.5	No	112.3	No	114.1	No	No
3	11/9/2019			56.3	No	114.1	No	120.4	No	No
4	11/10/2019			56.3	No	115.5	No	126.5	No	No
5	11/11/2019			44.1	No	117.1	No	133	Yes	No
6	11/12/2019			32.7	No	118.9	No	133	Yes	No
7	11/13/2019			55.6	No	120.2	No	129.2	No	No
8	11/14/2019			37.6	No	121.3	No	131.4	Yes	No
9	11/15/2019			50.5	No	121.8	No	139.8	Yes	No
10	11/16/2019			134.8	Yes	122.7	No	145.6	Yes	No
11	11/17/2019			138.4	Yes	123.6	No	150.1	Yes	No
12	11/18/2019			140.9	Yes	124.5	No	153.1	Yes	No
13	11/19/2019			142.3	Yes	124.7	No	154.9	Yes	No
14	11/20/2019			143.8	Yes	125.6	No	156.4	Yes	No
15	11/21/2019			145.8	Yes	127	No	158.2	Yes	No
16	11/22/2019			148.5	Yes	128.3	No	159.4	Yes	No
17	11/23/2019			150.4	Yes	130.3	No	158.2	Yes	No
18	11/24/2019			151.9	Yes	132.1	Yes	159.1	Yes	Yes
19	11/25/2019			153.7	Yes	134.1	Yes	160.7	Yes	Yes
20	11/26/2019			155.5	Yes	135.9	Yes	162.9	Yes	Yes
21	11/27/2019			158.4	Yes	137.8	Yes	164.5	Yes	Yes
22	11/28/2019			158.7	Yes	141.1	Yes	164.5	Yes	Yes
23	11/29/2019			157.6	Yes	144.5	Yes	161.4	Yes	Yes
24	11/30/2019			158.2	Yes	145.9	Yes	159.4	Yes	Yes
25	12/1/2019			163.8	Yes	146.3	Yes	159.3	Yes	Yes
26	12/2/2019			163.4	Yes	148.1	Yes	162.1	Yes	Yes
27	12/3/2019			158.5	Yes	148.3	Yes	164.8	Yes	Yes
28	12/4/2019			156.2	Yes	148.6	Yes	166.3	Yes	Yes
29	12/5/2019			156.6	Yes	149.2	Yes	166.6	Yes	Yes
30	12/6/2019			157.3	Yes	150.1	Yes	167.2	Yes	Yes
31	12/7/2019			157.3	Yes	151	Yes	168.3	Yes	Yes
32	12/8/2019			159.1	Yes	152.2	Yes	170.4	Yes	Yes
33	12/9/2019			161.2	Yes	153.3	Yes	172.9	Yes	Yes
34	12/10/2019			161.4	Yes	154	Yes	173.8	Yes	Yes
35	12/11/2019			32	No	32	No	32	No	No

CompostBatch Process Batch Report

Batch ID:	3
Start Date:	12/17/2019
End Date:	1/21/2020
Report Date:	1/23/2020
Location:	Bay 3 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperatur	131

Actual Days Above Te	0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 7 Temp.	Above	Probe 8 Temp.	Above	Probe 9 Temp.	Above	All Above
1	12/17/2019			32.2	No	32.2	No	32	No	No
2	12/18/2019			32.4	No	32	No	32	No	No
3	12/19/2019			109	No	103.6	No	104.9	No	No
4	12/20/2019			112.1	No	108.5	No	135.9	Yes	No
5	12/21/2019			113.7	No	111.2	No	160.9	Yes	No
6	12/22/2019			0	No	112.8	No	172.6	Yes	No
7	12/23/2019			0	No	115.9	No	177.8	Yes	No
8	12/24/2019			0	No	117.7	No	180.9	Yes	No
9	12/25/2019			0	No	118.8	No	186.4	Yes	No
10	12/26/2019			0	No	120.2	No	190.4	Yes	No
11	12/27/2019			0	No	128.5	No	191.1	Yes	No
12	12/28/2019			0	No	133.5	Yes	192	Yes	No
13	12/29/2019			0	No	141.1	Yes	192.4	Yes	No
14	12/30/2019			0	No	149	Yes	192.4	Yes	No
15	12/31/2019			0	No	151.7	Yes	191.8	Yes	No
16	1/1/2020			0	No	153.7	Yes	191.5	Yes	No
17	1/2/2020			0	No	153.5	Yes	191.3	Yes	No
18	1/3/2020			0	No	153.5	Yes	191.5	Yes	No
19	1/4/2020			0	No	154.9	Yes	191.5	Yes	No
20	1/5/2020			0	No	157.3	Yes	191.5	Yes	No
21	1/6/2020			0	No	159.1	Yes	191.3	Yes	No
22	1/7/2020			0	No	157.3	Yes	191.1	Yes	No
23	1/8/2020			0	No	161.2	Yes	191.1	Yes	No
24	1/9/2020			0	No	165.4	Yes	190.9	Yes	No
25	1/10/2020			0	No	167.9	Yes	190.6	Yes	No
26	1/11/2020			0	No	174.2	Yes	189.7	Yes	No
27	1/12/2020			0	No	179.8	Yes	188.2	Yes	No
28	1/13/2020			0	No	183.7	Yes	187.7	Yes	No
29	1/14/2020			0	No	186.8	Yes	186.3	Yes	No
30	1/15/2020			0	No	188.8	Yes	184.5	Yes	No
31	1/16/2020			0	No	190.2	Yes	182.5	Yes	No
32	1/17/2020			0	No	191.5	Yes	180.1	Yes	No
33	1/18/2020			0	No	192	Yes	177.4	Yes	No
34	1/19/2020			0	No	192	Yes	174	Yes	No
35	1/20/2020			0	No	192	Yes	170.6	Yes	No
36	1/21/2020			0	No	32	No	34.7	No	No

Bay 4

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	1/16/2019
End Date:	2/22/2019
Report Date:	2/22/2019
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperatur 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Above	Probe 11 Temp.	Above	Probe 12 Temp.	Above	All Above
1	1/16/2019			0	No	35.1	No	35.4	No	No
2	1/17/2019			0	No	0	No	0	No	No
3	1/18/2019			0	No	116.2	No	137.5	Yes	No
4	1/19/2019			0	No	119.1	No	136.6	Yes	No
5	1/20/2019			0	No	121.6	No	134.2	Yes	No
6	1/21/2019			0	No	124	No	134.8	Yes	No
7	1/22/2019			0	No	126.3	No	136	Yes	No
8	1/23/2019			0	No	128.5	No	137.3	Yes	No
9	1/24/2019			0	No	130.6	No	138.7	Yes	No
10	1/25/2019			0	No	132.8	Yes	140.7	Yes	No
11	1/26/2019			0	No	134.8	Yes	142.9	Yes	No
12	1/27/2019			0	No	137.1	Yes	145.4	Yes	No
13	1/28/2019			0	No	139.6	Yes	148.5	Yes	No
14	1/29/2019			0	No	143.6	Yes	151.3	Yes	No
15	1/30/2019			0	No	150.6	Yes	153.9	Yes	No
16	1/31/2019			0	No	162.5	Yes	156	Yes	No
17	2/1/2019			0	No	176.5	Yes	158	Yes	No
18	2/2/2019			0	No	185.2	Yes	159.8	Yes	No
19	2/3/2019			0	No	187.5	Yes	161.6	Yes	No
20	2/4/2019			0	No	187.9	Yes	163.2	Yes	No
21	2/5/2019			0	No	187.7	Yes	164.5	Yes	No
22	2/6/2019			0	No	187	Yes	165.9	Yes	No
23	2/7/2019			0	No	187.2	Yes	167.2	Yes	No
24	2/8/2019			0	No	188.1	Yes	168.1	Yes	No
25	2/9/2019			0	No	187.9	Yes	169.3	Yes	No
26	2/10/2019			0	No	187.9	Yes	170.2	Yes	No
27	2/11/2019			0	No	187.5	Yes	170.8	Yes	No
28	2/12/2019			0	No	0	No	0	No	No
29	2/13/2019			0	No	0	No	0	No	No
30	2/14/2019			0	No	0	No	0	No	No
31	2/15/2019			0	No	181.9	Yes	173.1	Yes	No
32	2/16/2019			0	No	181.8	Yes	173.1	Yes	No
33	2/17/2019			0	No	181.6	Yes	173.1	Yes	No
34	2/18/2019			0	No	184.6	Yes	173.1	Yes	No
35	2/19/2019			0	No	188.8	Yes	173.1	Yes	No
36	2/20/2019			0	No	191.5	Yes	173.1	Yes	No
37	2/21/2019			0	No	191.7	Yes	173.1	Yes	No
38	2/22/2019			0	No	34.7	No	34.3	No	No

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	2/25/2019
End Date:	3/31/2019
Report Date:	4/8/2019
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Probe 10 Above	Probe 11 Temp.	Probe 11 Above	Probe 12 Temp.	Probe 12 Above	All Above
1	2/25/2019			0	No	32.4	No	32.5	No	No
2	2/26/2019			0	No	32	No	32	No	No
3	2/27/2019			0	No	106.7	No	112.8	No	No
4	2/28/2019			0	No	108.7	No	116.1	No	No
5	3/1/2019			0	No	111	No	117.9	No	No
6	3/2/2019			0	No	113.2	No	118.8	No	No
7	3/3/2019			0	No	115.7	No	119.3	No	No
8	3/4/2019			0	No	119.3	No	119.8	No	No
9	3/5/2019			0	No	123.6	No	120.9	No	No
10	3/6/2019			0	No	128.5	No	122.5	No	No
11	3/7/2019			0	No	133.9	Yes	125.1	No	No
12	3/8/2019			0	No	139.6	Yes	127.9	No	No
13	3/9/2019			0	No	145.2	Yes	131.2	Yes	No
14	3/10/2019			0	No	150.1	Yes	133.9	Yes	No
15	3/11/2019			0	No	151.9	Yes	135.1	Yes	No
16	3/12/2019			0	No	159.4	Yes	140	Yes	No
17	3/13/2019			0	No	163.9	Yes	142.9	Yes	No
18	3/14/2019			0	No	166.8	Yes	144.7	Yes	No
19	3/15/2019			0	No	170.2	Yes	147.2	Yes	No
20	3/16/2019			0	No	172.4	Yes	149	Yes	No
21	3/17/2019			0	No	174.7	Yes	151.2	Yes	No
22	3/18/2019			0	No	177.1	Yes	153.3	Yes	No
23	3/19/2019			0	No	179.1	Yes	155.1	Yes	No
24	3/20/2019			0	No	180.5	Yes	156.7	Yes	No
25	3/21/2019			0	No	181.9	Yes	158.2	Yes	No
26	3/22/2019			0	No	183.2	Yes	159.6	Yes	No
27	3/23/2019			0	No	184.6	Yes	160.9	Yes	No
28	3/24/2019			0	No	185.7	Yes	162.1	Yes	No
29	3/25/2019			0	No	186.6	Yes	163.6	Yes	No
30	3/26/2019			0	No	187.3	Yes	164.7	Yes	No
31	3/27/2019			0	No	187.9	Yes	165.9	Yes	No
32	3/28/2019			0	No	188.1	Yes	167	Yes	No
33	3/29/2019			0	No	187.9	Yes	167.5	Yes	No
34	3/30/2019			0	No	67.6	No	68	No	No
35	3/31/2019			0	No	59.7	No	61.3	No	No

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	4/15/2019
End Date:	5/22/2019
Report Date:	5/22/2019
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Probe 10 Above	Probe 11 Temp.	Probe 11 Above	Probe 12 Temp.	Probe 12 Above	All Above
1	4/15/2019			0	No	55.8	No	55.6	No	No
2	4/16/2019			0	No	60.1	No	61.9	No	No
3	4/17/2019			0	No	142.3	Yes	135.5	Yes	No
4	4/18/2019			0	No	143.8	Yes	139.6	Yes	No
5	4/19/2019			0	No	150.4	Yes	141.1	Yes	No
6	4/20/2019			0	No	152.8	Yes	142.5	Yes	No
7	4/21/2019			0	No	153.1	Yes	143.8	Yes	No
8	4/22/2019			0	No	155.5	Yes	146.3	Yes	No
9	4/23/2019			0	No	156.7	Yes	149.5	Yes	No
10	4/24/2019			0	No	157.1	Yes	153.1	Yes	No
11	4/25/2019			0	No	158.4	Yes	156.6	Yes	No
12	4/26/2019			0	No	158.9	Yes	160.2	Yes	No
13	4/27/2019			0	No	159.3	Yes	164.1	Yes	No
14	4/28/2019			0	No	159.8	Yes	167.9	Yes	No
15	4/29/2019			0	No	161.8	Yes	172	Yes	No
16	4/30/2019			0	No	162.7	Yes	176	Yes	No
17	5/1/2019			0	No	163.6	Yes	179.4	Yes	No
18	5/2/2019			0	No	164.3	Yes	182.3	Yes	No
19	5/3/2019			0	No	164.1	Yes	184.6	Yes	No
20	5/4/2019			0	No	164.3	Yes	186.4	Yes	No
21	5/5/2019			0	No	164.3	Yes	187.7	Yes	No
22	5/6/2019			0	No	164.5	Yes	188.4	Yes	No
23	5/7/2019			0	No	164.5	Yes	189	Yes	No
24	5/8/2019			0	No	164.8	Yes	189.5	Yes	No
25	5/9/2019			0	No	166.3	Yes	189.7	Yes	No
26	5/10/2019			0	No	166.3	Yes	190	Yes	No
27	5/11/2019			0	No	165	Yes	190.2	Yes	No
28	5/12/2019			0	No	167.7	Yes	190.4	Yes	No
29	5/13/2019			0	No	167.9	Yes	190.6	Yes	No
30	5/14/2019			0	No	168.1	Yes	190.6	Yes	No
31	5/15/2019			0	No	168.1	Yes	190.6	Yes	No
32	5/16/2019			0	No	167.7	Yes	190.6	Yes	No
33	5/17/2019			0	No	169.3	Yes	190.6	Yes	No
34	5/18/2019			0	No	171.1	Yes	190.6	Yes	No
35	5/19/2019			0	No	172.8	Yes	190.6	Yes	No
36	5/20/2019			0	No	173.3	Yes	190.6	Yes	No
37	5/21/2019			0	No	72.1	No	70.7	No	No
38	5/22/2019			0	No	52.3	No	51.3	No	No

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	6/4/2019
End Date:	7/18/2019
Report Date:	7/18/2019
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Probe 10 Above	Probe 11 Temp.	Probe 11 Above	Probe 12 Temp.	Probe 12 Above	All Above
1	6/4/2019			0	No	84.2	No	79.3	No	No
2	6/5/2019			0	No	78.1	No	77.9	No	No
3	6/6/2019			0	No	131.5	Yes	118.9	No	No
4	6/7/2019			0	No	136.8	Yes	119.5	No	No
5	6/8/2019			0	No	142.9	Yes	119.8	No	No
6	6/9/2019			0	No	148.8	Yes	120.2	No	No
7	6/10/2019			0	No	154.6	Yes	120.6	No	No
8	6/11/2019			0	No	159.4	Yes	120.7	No	No
9	6/12/2019			0	No	162.5	Yes	121.1	No	No
10	6/13/2019			0	No	165	Yes	121.6	No	No
11	6/14/2019			0	No	167.2	Yes	122.5	No	No
12	6/15/2019			0	No	168.8	Yes	123.3	No	No
13	6/16/2019			0	No	0	No	0	No	No
14	6/17/2019			0	No	172.9	Yes	125.8	No	No
15	6/18/2019			0	No	176	Yes	126.9	No	No
16	6/19/2019			0	No	179.8	Yes	127.8	No	No
17	6/20/2019			76.3	No	183.4	Yes	126.9	No	No
18	6/21/2019			87.1	No	186.4	Yes	127.8	No	No
19	6/22/2019			89.2	No	188.4	Yes	128.8	No	No
20	6/23/2019			97.7	No	189.9	Yes	130.1	No	No
21	6/24/2019			93	No	191.1	Yes	131.2	Yes	No
22	6/25/2019			95	No	192.6	Yes	191.7	Yes	No
23	6/26/2019			106.3	No	193.1	Yes	192.2	Yes	No
24	6/27/2019			102.9	No	193.3	Yes	192.2	Yes	No
25	6/28/2019			113.9	No	193.5	Yes	192.4	Yes	No
26	6/29/2019			104.5	No	193.8	Yes	192.7	Yes	No
27	6/30/2019			85.6	No	194	Yes	193.1	Yes	No
28	7/1/2019			107.6	No	194.2	Yes	193.1	Yes	No
29	7/2/2019			98.4	No	194.2	Yes	193.3	Yes	No
30	7/3/2019			115.5	No	194.2	Yes	193.3	Yes	No
31	7/4/2019			116.4	No	194.4	Yes	193.3	Yes	No
32	7/5/2019			113	No	194.4	Yes	193.6	Yes	No
33	7/6/2019			103.3	No	194.5	Yes	193.6	Yes	No
34	7/7/2019			106.9	No	194.7	Yes	194	Yes	No
35	7/8/2019			106.9	No	195.1	Yes	194.5	Yes	No
36	7/9/2019			111.4	No	195.8	Yes	195.1	Yes	No
37	7/10/2019			109.2	No	196	Yes	195.8	Yes	No
38	7/11/2019			98.6	No	196.3	Yes	195.8	Yes	No
39	7/12/2019			81.1	No	196.2	Yes	178.2	Yes	No
40	7/13/2019			109	No	196.3	Yes	179.4	Yes	No
41	7/14/2019			103.1	No	196.7	Yes	180.5	Yes	No
42	7/15/2019			112.1	No	196.9	Yes	181.6	Yes	No
43	7/16/2019			116.1	No	196.9	Yes	181.9	Yes	No
44	7/17/2019			79.7	No	77.5	No	79.3	No	No
45	7/18/2019			97.2	No	91.2	No	107.6	No	No

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	7/23/2019
End Date:	8/31/2019
Report Date:	9/18/2019
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 25

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Probe 10 Above	Probe 11 Temp.	Probe 11 Above	Probe 12 Temp.	Probe 12 Above	All Above
1	7/23/2019			92.3	No	99.7	No	101.8	No	No
2	7/24/2019			94.8	No	103.8	No	105.8	No	No
3	7/25/2019			122.9	No	122	No	122.5	No	No
4	7/26/2019			124	No	123.1	No	122.9	No	No
5	7/27/2019			0	No	0	No	0	No	No
6	7/28/2019			0	No	0	No	0	No	No
7	7/29/2019			128.8	No	128.1	No	127.9	No	No
8	7/30/2019			129.2	No	128.5	No	129.7	No	No
9	7/31/2019			129.2	No	128.8	No	131.2	Yes	No
10	8/1/2019			129.4	No	129	No	132.8	Yes	No
11	8/2/2019			130.3	No	129.2	No	134.2	Yes	No
12	8/3/2019			131.9	Yes	129.9	No	136	Yes	No
13	8/4/2019			134.8	Yes	130.6	No	138	Yes	No
14	8/5/2019			137.8	Yes	131.7	Yes	139.8	Yes	Yes
15	8/6/2019			141.4	Yes	132.8	Yes	141.4	Yes	Yes
16	8/7/2019			142.2	Yes	134.2	Yes	142.7	Yes	Yes
17	8/8/2019			142.7	Yes	136.2	Yes	143.6	Yes	Yes
18	8/9/2019			145.4	Yes	138.7	Yes	144.9	Yes	Yes
19	8/10/2019			148.1	Yes	142.2	Yes	145.8	Yes	Yes
20	8/11/2019			148.3	Yes	147.2	Yes	146.5	Yes	Yes
21	8/12/2019			148.8	Yes	153	Yes	147.6	Yes	Yes
22	8/13/2019			150.1	Yes	158.5	Yes	148.8	Yes	Yes
23	8/14/2019			153.1	Yes	163.2	Yes	150.4	Yes	Yes
24	8/15/2019			157.1	Yes	167	Yes	152.2	Yes	Yes
25	8/16/2019			159.3	Yes	169.9	Yes	153.9	Yes	Yes
26	8/17/2019			161.4	Yes	171.7	Yes	154.9	Yes	Yes
27	8/18/2019			161.4	Yes	173.7	Yes	154.9	Yes	Yes
28	8/19/2019			160.7	Yes	176.2	Yes	154.8	Yes	Yes
29	8/20/2019			158.9	Yes	178.5	Yes	154.9	Yes	Yes
30	8/21/2019			159.1	Yes	180.5	Yes	155.8	Yes	Yes
31	8/22/2019			160.7	Yes	182.5	Yes	156.7	Yes	Yes
32	8/23/2019			163	Yes	184.8	Yes	157.6	Yes	Yes
33	8/24/2019			165	Yes	186.8	Yes	158.9	Yes	Yes
34	8/25/2019			166.8	Yes	188.6	Yes	160	Yes	Yes
35	8/26/2019			168.8	Yes	190.2	Yes	161.1	Yes	Yes
36	8/27/2019			169.9	Yes	191.8	Yes	162.5	Yes	Yes
37	8/28/2019			171	Yes	192.9	Yes	163.4	Yes	Yes
38	8/29/2019			171	Yes	193.3	Yes	163.6	Yes	Yes
39	8/30/2019			80.8	No	90.5	No	90.7	No	No
40	8/31/2019			75.4	No	88.3	No	87.1	No	No

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	9/8/2019
End Date:	10/6/2019
Report Date:	10/16/2019
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 22

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Probe 10 Above	Probe 11 Temp.	Probe 11 Above	Probe 12 Temp.	Probe 12 Above	All Above
1	9/8/2019			72.5	No	82.6	No	84	No	No
2	9/9/2019			126.5	No	122	No	122.2	No	No
3	9/10/2019			129	No	124.7	No	125.2	No	No
4	9/11/2019			133	Yes	126.7	No	128.8	No	No
5	9/12/2019			133.5	Yes	127	No	129.4	No	No
6	9/13/2019			139.3	Yes	133.7	Yes	136.6	Yes	Yes
7	9/14/2019			143.1	Yes	138.2	Yes	141.8	Yes	Yes
8	9/15/2019			145.4	Yes	140.2	Yes	145.6	Yes	Yes
9	9/16/2019			147	Yes	142.3	Yes	148.6	Yes	Yes
10	9/17/2019			149.5	Yes	144.5	Yes	151.3	Yes	Yes
11	9/18/2019			151.7	Yes	146.8	Yes	154.6	Yes	Yes
12	9/19/2019			153.3	Yes	148.6	Yes	157.5	Yes	Yes
13	9/20/2019			153.7	Yes	150.3	Yes	160.5	Yes	Yes
14	9/21/2019			153.9	Yes	151.2	Yes	162.9	Yes	Yes
15	9/22/2019			152.1	Yes	151.3	Yes	164.8	Yes	Yes
16	9/23/2019			151.3	Yes	151.7	Yes	166.5	Yes	Yes
17	9/24/2019			151.2	Yes	151.5	Yes	167.2	Yes	Yes
18	9/25/2019			149.5	Yes	150.3	Yes	167.7	Yes	Yes
19	9/26/2019			149.2	Yes	149.5	Yes	168.8	Yes	Yes
20	9/27/2019			149.2	Yes	149.5	Yes	169.7	Yes	Yes
21	9/28/2019			148.3	Yes	158.7	Yes	164.3	Yes	Yes
22	9/29/2019			148.3	Yes	161.2	Yes	165.4	Yes	Yes
23	9/30/2019			148.3	Yes	163.8	Yes	166.3	Yes	Yes
24	10/1/2019			148.5	Yes	166.8	Yes	166.8	Yes	Yes
25	10/2/2019			148.6	Yes	170.2	Yes	167	Yes	Yes
26	10/3/2019			148.5	Yes	173.7	Yes	167.9	Yes	Yes
27	10/4/2019			148.3	Yes	175.8	Yes	168.1	Yes	Yes
28	10/5/2019			83.8	No	81	No	83.5	No	No
29	10/6/2019			69.4	No	71.8	No	68.9	No	No

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	10/10/2019
End Date:	11/12/2019
Report Date:	11/12/2019
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 24

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Probe 10 Above	Probe 11 Temp.	Probe 11 Above	Probe 12 Temp.	Probe 12 Above	All Above
1	10/10/2019			87.1	No	86.9	No	87.8	No	No
2	10/11/2019			91.8	No	92.1	No	92.7	No	No
3	10/12/2019			118.4	No	127	No	116.8	No	No
4	10/13/2019			122	No	127.9	No	120.4	No	No
5	10/14/2019			124.7	No	131	Yes	124.3	No	No
6	10/15/2019			127	No	134.4	Yes	127.9	No	No
7	10/16/2019			131.2	Yes	138.7	Yes	132.6	Yes	Yes
8	10/17/2019			134.8	Yes	140.2	Yes	133.9	Yes	Yes
9	10/18/2019			137.5	Yes	141.1	Yes	134.6	Yes	Yes
10	10/19/2019			139.1	Yes	143.6	Yes	136	Yes	Yes
11	10/20/2019			140.5	Yes	146.3	Yes	137.8	Yes	Yes
12	10/21/2019			142.3	Yes	148.3	Yes	139.8	Yes	Yes
13	10/22/2019			146.5	Yes	150.4	Yes	142.2	Yes	Yes
14	10/23/2019			147.9	Yes	150.4	Yes	142.3	Yes	Yes
15	10/24/2019			149	Yes	151.9	Yes	143.4	Yes	Yes
16	10/25/2019			0	No	0	No	0	No	No
17	10/26/2019			0	No	0	No	0	No	No
18	10/27/2019			0	No	0	No	0	No	No
19	10/28/2019			157.3	Yes	154	Yes	140	Yes	Yes
20	10/29/2019			158	Yes	154.9	Yes	140.4	Yes	Yes
21	10/30/2019			158.2	Yes	155.3	Yes	140.2	Yes	Yes
22	10/31/2019			158.5	Yes	155.8	Yes	140.4	Yes	Yes
23	11/1/2019			160.9	Yes	155.8	Yes	140.2	Yes	Yes
24	11/2/2019			160.9	Yes	154	Yes	140.4	Yes	Yes
25	11/3/2019			161.4	Yes	154	Yes	140.2	Yes	Yes
26	11/4/2019			162.1	Yes	155.3	Yes	140.9	Yes	Yes
27	11/5/2019			162.7	Yes	155.5	Yes	141.3	Yes	Yes
28	11/6/2019			163.4	Yes	155.1	Yes	141.4	Yes	Yes
29	11/7/2019			163.4	Yes	154.9	Yes	141.4	Yes	Yes
30	11/8/2019			163.9	Yes	155.1	Yes	141.4	Yes	Yes
31	11/9/2019			165	Yes	156.4	Yes	142.3	Yes	Yes
32	11/10/2019			165.4	Yes	156.7	Yes	143.8	Yes	Yes
33	11/11/2019			165.4	Yes	156.2	Yes	144.5	Yes	Yes
34	11/12/2019			32	No	32	No	32	No	No

CompostBatch Process Batch Report

Batch ID:	4
Start Date:	11/13/2019
End Date:	1/2/2020
Report Date:	1/2/2020
Location:	Bay 4 Primary
Feedstock:	FW & YW Mix
Description	Air 4 x 7.5
Required Temperature (F):	131

Actual Days Above Temperature: 14

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 10 Temp.	Probe 10 Above	Probe 11 Temp.	Probe 11 Above	Probe 12 Temp.	Probe 12 Above	All Above
1	11/13/2019			32	No	32	No	32	No	No
2	11/14/2019			38.3	No	37.9	No	38.3	No	No
3	11/15/2019			42.6	No	42.8	No	43.2	No	No
4	11/16/2019			110.1	No	117.9	No	107.8	No	No
5	11/17/2019			108.1	No	120.9	No	112.1	No	No
6	11/18/2019			109.4	No	121.8	No	114.3	No	No
7	11/19/2019			110.3	No	122.4	No	116.2	No	No
8	11/20/2019			110.8	No	122.9	No	118	No	No
9	11/21/2019			111.2	No	123.1	No	119.8	No	No
10	11/22/2019			111.6	No	124	No	122.2	No	No
11	11/23/2019			113.2	No	125.2	No	124	No	No
12	11/24/2019			115	No	125.4	No	125.1	No	No
13	11/25/2019			116.6	No	125.4	No	126.1	No	No
14	11/26/2019			118.4	No	125.4	No	127.6	No	No
15	11/27/2019			120.2	No	125.8	No	129.4	No	No
16	11/28/2019			122.2	No	128.3	No	131.5	Yes	No
17	11/29/2019			124	No	129.7	No	132.8	Yes	No
18	11/30/2019			125.2	No	130.1	No	133.7	Yes	No
19	12/1/2019			127.2	No	131.2	Yes	135	Yes	No
20	12/2/2019			128.8	No	133.3	Yes	136	Yes	No
21	12/3/2019			129.6	No	133.9	Yes	136.6	Yes	No
22	12/4/2019			130.1	No	133.9	Yes	136.8	Yes	No
23	12/5/2019			130.8	No	134.1	Yes	137.5	Yes	No
24	12/6/2019			131.2	Yes	134.8	Yes	138.4	Yes	Yes
25	12/7/2019			131.4	Yes	135.1	Yes	138.7	Yes	Yes
26	12/8/2019			131.5	Yes	135.1	Yes	138.9	Yes	Yes
27	12/9/2019			132.1	Yes	136.4	Yes	139.3	Yes	Yes
28	12/10/2019			133	Yes	138.7	Yes	140.7	Yes	Yes
29	12/11/2019			133.7	Yes	141.1	Yes	143.4	Yes	Yes
30	12/12/2019			134.4	Yes	144.1	Yes	145	Yes	Yes
31	12/13/2019			135.7	Yes	145.9	Yes	145	Yes	Yes
32	12/14/2019			136	Yes	146.1	Yes	145	Yes	Yes
33	12/15/2019			136	Yes	147.2	Yes	146.5	Yes	Yes
34	12/16/2019			135.1	Yes	147.2	Yes	146.5	Yes	Yes
35	12/17/2019			133.9	Yes	145.6	Yes	145.9	Yes	Yes
36	12/18/2019			132.8	Yes	143.2	Yes	146.8	Yes	Yes
37	12/19/2019			131.5	Yes	144.5	Yes	147.4	Yes	Yes
38	12/20/2019			32	No	32	No	32	No	No

Bay 5

CompostBatch Process Batch Report

Batch ID:	6
Start Date:	1/18/2018
End Date	2/18/2018
Report Date	8/1/2019
Location:	Bay 5 Curing was Bay 1
Feedstock:	FW & YW mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperature: 25

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13 Temp.	Above	Probe 14 Temp.	Above	Probe 15 Temp.	Above	All Above
1	1/16/2019			36.9	No	37.4	No	36.7	No	No
2	1/17/2019			0	No	0	No	0	No	No
3	1/18/2019			34.7	No	35.2	No	34.3	No	No
4	1/19/2019			32	No	32	No	32	No	No
5	1/20/2019			32	No	32	No	32	No	No
6	1/21/2019			32	No	32	No	32	No	No
7	1/22/2019			32	No	32	No	32	No	No
8	1/23/2019			174.2	Yes	176.5	Yes	175.6	Yes	Yes
9	1/24/2019			176.9	Yes	176.9	Yes	176.2	Yes	Yes
10	1/25/2019			177.8	Yes	177.3	Yes	175.1	Yes	Yes
11	1/26/2019			177.8	Yes	178.2	Yes	172.4	Yes	Yes
12	1/27/2019			177.8	Yes	178.9	Yes	169.7	Yes	Yes
13	1/28/2019			177.4	Yes	178.9	Yes	167.9	Yes	Yes
14	1/29/2019			177.1	Yes	178.9	Yes	165.4	Yes	Yes
15	1/30/2019			176.9	Yes	178.7	Yes	163.4	Yes	Yes
16	1/31/2019			176.2	Yes	178.5	Yes	161.8	Yes	Yes
17	2/1/2019			175.6	Yes	178	Yes	160.5	Yes	Yes
18	2/2/2019			175.5	Yes	177.8	Yes	160.7	Yes	Yes
19	2/3/2019			175.1	Yes	177.1	Yes	162.1	Yes	Yes
20	2/4/2019			174.7	Yes	176.7	Yes	164.3	Yes	Yes
21	2/5/2019			174.4	Yes	176	Yes	166.1	Yes	Yes
22	2/6/2019			174	Yes	175.5	Yes	169.2	Yes	Yes
23	2/7/2019			173.5	Yes	174.9	Yes	169.9	Yes	Yes
24	2/8/2019			173.1	Yes	174.2	Yes	169.5	Yes	Yes
25	2/9/2019			172.4	Yes	173.5	Yes	167.9	Yes	Yes
26	2/10/2019			172	Yes	172.8	Yes	167.5	Yes	Yes
27	2/11/2019			171.7	Yes	172.2	Yes	166.1	Yes	Yes
28	2/12/2019			0	No	0	No	0	No	No
29	2/13/2019			0	No	0	No	0	No	No
30	2/14/2019			0	No	0	No	0	No	No
31	2/15/2019			169.3	Yes	170.2	Yes	179.1	Yes	Yes
32	2/16/2019			169.2	Yes	170.2	Yes	178.7	Yes	Yes
33	2/17/2019			168.3	Yes	169.9	Yes	177.1	Yes	Yes
34	2/18/2019			167.5	Yes	169.5	Yes	175.3	Yes	Yes
35	2/19/2019			167	Yes	169.2	Yes	168.4	Yes	Yes
36	2/20/2019			36.1	No	36.5	No	35.1	No	No

CompostBatch Process Batch Report

Batch ID:	6
Start Date:	2/27/2019
End Date:	4/3/2019
Report Date:	4/8/2019
Location:	Bay 5 Curing was Bay 1
Feedstock:	FW & YW mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 24

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13 Temp.	Probe 13 Above	Probe 14 Temp.	Probe 14 Above	Probe 15 Temp.	Probe 15 Above	All Above
1	2/27/2019			44.8	No	61.7	No	43.5	No	No
2	2/28/2019			32	No	32	No	32	No	No
3	3/1/2019			122	No	122.7	No	157.1	Yes	No
4	3/2/2019			122.4	No	125.2	No	164.7	Yes	No
5	3/3/2019			127.9	No	127.4	No	170.2	Yes	No
6	3/4/2019			135.5	Yes	129.2	No	172.4	Yes	No
7	3/5/2019			141.6	Yes	131.5	Yes	173.5	Yes	Yes
8	3/6/2019			145.4	Yes	134.8	Yes	175.3	Yes	Yes
9	3/7/2019			147.7	Yes	138.2	Yes	177.1	Yes	Yes
10	3/8/2019			149.4	Yes	141.3	Yes	178.3	Yes	Yes
11	3/9/2019			150.3	Yes	143.8	Yes	178.9	Yes	Yes
12	3/10/2019			152.1	Yes	146.5	Yes	178.9	Yes	Yes
13	3/11/2019			153	Yes	147.7	Yes	178.9	Yes	Yes
14	3/12/2019			154	Yes	152.8	Yes	177.6	Yes	Yes
15	3/13/2019			154.9	Yes	154.8	Yes	177.1	Yes	Yes
16	3/14/2019			155.3	Yes	156.2	Yes	175.6	Yes	Yes
17	3/15/2019			157.6	Yes	159.4	Yes	173.5	Yes	Yes
18	3/16/2019			158	Yes	162.7	Yes	172.6	Yes	Yes
19	3/17/2019			157.6	Yes	166.1	Yes	171.7	Yes	Yes
20	3/18/2019			157.6	Yes	168.4	Yes	170.1	Yes	Yes
21	3/19/2019			159.4	Yes	170.2	Yes	167.7	Yes	Yes
22	3/20/2019			160.7	Yes	172	Yes	165.6	Yes	Yes
23	3/21/2019			161.1	Yes	173.7	Yes	163.9	Yes	Yes
24	3/22/2019			161.2	Yes	175.3	Yes	162.7	Yes	Yes
25	3/23/2019			161.1	Yes	178.9	Yes	161.8	Yes	Yes
26	3/24/2019			160.5	Yes	181.2	Yes	160.7	Yes	Yes
27	3/25/2019			161.4	Yes	183.2	Yes	159.1	Yes	Yes
28	3/26/2019			162.3	Yes	185.2	Yes	157.3	Yes	Yes
29	3/27/2019			162.1	Yes	187	Yes	156.2	Yes	Yes
30	3/28/2019			162.3	Yes	187.7	Yes	155.7	Yes	Yes
31	3/29/2019			55.4	No	55.4	No	55.4	No	No
32	3/30/2019			67.3	No	66.9	No	67.1	No	No
33	3/31/2019			61.5	No	61	No	60.1	No	No
34	4/1/2019			39.2	No	38.3	No	37.9	No	No
35	4/2/2019			53.6	No	52.7	No	53.4	No	No
36	4/3/2019			59.9	No	55	No	55	No	No

CompostBatch Process Batch Report

Batch ID:	6
Start Date:	4/9/2019
End Date:	5/25/2019
Report Date:	5/28/2019
Location:	Bay 5 Curing was Bay 1
Feedstock:	FW & YW mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 42

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13 Temp.	Above	Probe 14 Temp.	Above	Probe 15 Temp.	Above	All Above
1	4/9/2019			69.6	No	67.5	No	67.3	No	No
2	4/10/2019			47.3	No	44.6	No	44.6	No	No
3	4/11/2019			155.8	Yes	139.6	Yes	163.4	Yes	Yes
4	4/12/2019			0	No	0	No	0	No	No
5	4/13/2019			150.4	Yes	169	Yes	172.6	Yes	Yes
6	4/14/2019			150.4	Yes	174.9	Yes	172.6	Yes	Yes
7	4/15/2019			151	Yes	178.3	Yes	172	Yes	Yes
8	4/16/2019			150.8	Yes	180.5	Yes	170.6	Yes	Yes
9	4/17/2019			150.1	Yes	181.9	Yes	169.7	Yes	Yes
10	4/18/2019			150.4	Yes	183.6	Yes	169.3	Yes	Yes
11	4/19/2019			150.8	Yes	184.8	Yes	169.2	Yes	Yes
12	4/20/2019			151.3	Yes	186.4	Yes	169	Yes	Yes
13	4/21/2019			152.1	Yes	188.1	Yes	168.6	Yes	Yes
14	4/22/2019			153.3	Yes	189.5	Yes	168.1	Yes	Yes
15	4/23/2019			154.8	Yes	190	Yes	167.2	Yes	Yes
16	4/24/2019			156	Yes	190.9	Yes	166.6	Yes	Yes
17	4/25/2019			156.9	Yes	190.9	Yes	166.1	Yes	Yes
18	4/26/2019			158	Yes	191.1	Yes	165.2	Yes	Yes
19	4/27/2019			160.5	Yes	191.5	Yes	163.8	Yes	Yes
20	4/28/2019			164.1	Yes	191.8	Yes	162.1	Yes	Yes
21	4/29/2019			167.9	Yes	192	Yes	160.7	Yes	Yes
22	4/30/2019			171.5	Yes	191.8	Yes	159.1	Yes	Yes
23	5/1/2019			174.7	Yes	191.8	Yes	157.6	Yes	Yes
24	5/2/2019			177.4	Yes	191.5	Yes	156.2	Yes	Yes
25	5/3/2019			179.6	Yes	191.3	Yes	156	Yes	Yes
26	5/4/2019			181.4	Yes	190.9	Yes	156.2	Yes	Yes
27	5/5/2019			182.8	Yes	190.6	Yes	156	Yes	Yes
28	5/6/2019			183.7	Yes	190	Yes	155.5	Yes	Yes
29	5/7/2019			184.6	Yes	189.9	Yes	154.8	Yes	Yes
30	5/8/2019			185.2	Yes	189.7	Yes	154.6	Yes	Yes
31	5/9/2019			185.5	Yes	189.5	Yes	154.4	Yes	Yes
32	5/10/2019			185.9	Yes	189	Yes	154.2	Yes	Yes
33	5/11/2019			186.4	Yes	188.4	Yes	154.4	Yes	Yes
34	5/12/2019			187	Yes	188.2	Yes	154.8	Yes	Yes
35	5/13/2019			187.3	Yes	187.9	Yes	154.8	Yes	Yes
36	5/14/2019			187.7	Yes	187.2	Yes	154.4	Yes	Yes
37	5/15/2019			187.7	Yes	186.8	Yes	153.7	Yes	Yes
38	5/16/2019			187.7	Yes	186.4	Yes	153.5	Yes	Yes
39	5/17/2019			187.9	Yes	186.4	Yes	154.2	Yes	Yes
40	5/18/2019			187.9	Yes	186.4	Yes	155.1	Yes	Yes
41	5/19/2019			187.9	Yes	186.3	Yes	155.5	Yes	Yes
42	5/20/2019			188.1	Yes	185.9	Yes	155.8	Yes	Yes
43	5/21/2019			190.4	Yes	185.5	Yes	156	Yes	Yes
44	5/22/2019			192	Yes	185.7	Yes	155.8	Yes	Yes
45	5/23/2019			192.2	Yes	185.7	Yes	155.5	Yes	Yes
46	5/24/2019			69.4	No	68.5	No	68.9	No	No
47	5/25/2019			86.7	No	85.6	No	86.2	No	No

CompostBatch Process Batch Report

Batch ID:	6
Start Date:	6/1/2019
End Date:	7/13/2019
Report Date:	7/18/2019
Location:	Bay 5 Curing was Bay 1
Feedstock:	FW & YW mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 35

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13 Temp.	Above	Probe 14 Temp.	Above	Probe 15 Temp.	Above	All Above
1	6/1/2019			93.7	No	84.2	No	90.9	No	No
2	6/2/2019			70.9	No	69.8	No	69.6	No	No
3	6/3/2019			67.3	No	65.8	No	65.7	No	No
4	6/4/2019			86.9	No	85.8	No	86.9	No	No
5	6/5/2019			77.7	No	76.3	No	77	No	No
6	6/6/2019			180.9	Yes	151.7	Yes	147.7	Yes	Yes
7	6/7/2019			190.2	Yes	158.2	Yes	148.6	Yes	Yes
8	6/8/2019			192.4	Yes	163.4	Yes	154.4	Yes	Yes
9	6/9/2019			196.5	Yes	167.9	Yes	162.3	Yes	Yes
10	6/10/2019			197.2	Yes	172.4	Yes	165.2	Yes	Yes
11	6/11/2019			196.3	Yes	176.9	Yes	164.8	Yes	Yes
12	6/12/2019			193.1	Yes	181	Yes	161.2	Yes	Yes
13	6/13/2019			193.3	Yes	185	Yes	157.3	Yes	Yes
14	6/14/2019			194	Yes	187.7	Yes	154	Yes	Yes
15	6/15/2019			194.9	Yes	189.1	Yes	152.4	Yes	Yes
16	6/16/2019			0	No	0	No	0	No	No
17	6/17/2019			194.7	Yes	190.8	Yes	156.6	Yes	Yes
18	6/18/2019			194.4	Yes	190.9	Yes	159.8	Yes	Yes
19	6/19/2019			193.6	Yes	191.5	Yes	161.6	Yes	Yes
20	6/20/2019			192.9	Yes	191.7	Yes	161.6	Yes	Yes
21	6/21/2019			190	Yes	191.7	Yes	160.9	Yes	Yes
22	6/22/2019			189	Yes	191.5	Yes	159.8	Yes	Yes
23	6/23/2019			191.8	Yes	191.8	Yes	158.2	Yes	Yes
24	6/24/2019			195.1	Yes	191.8	Yes	157.3	Yes	Yes
25	6/25/2019			195.4	Yes	192.2	Yes	155.8	Yes	Yes
26	6/26/2019			194	Yes	192.2	Yes	154.6	Yes	Yes
27	6/27/2019			194.5	Yes	192.4	Yes	155.5	Yes	Yes
28	6/28/2019			194.7	Yes	192.6	Yes	157.8	Yes	Yes
29	6/29/2019			194.5	Yes	192.6	Yes	158.9	Yes	Yes
30	6/30/2019			194.2	Yes	192.6	Yes	158.7	Yes	Yes
31	7/1/2019			193.8	Yes	192.7	Yes	158.2	Yes	Yes
32	7/2/2019			193.3	Yes	192.7	Yes	157.1	Yes	Yes
33	7/3/2019			192.6	Yes	192.6	Yes	156.4	Yes	Yes
34	7/4/2019			192.2	Yes	192.6	Yes	155.7	Yes	Yes
35	7/5/2019			192.2	Yes	192.6	Yes	154.9	Yes	Yes
36	7/6/2019			192.2	Yes	192.6	Yes	155.5	Yes	Yes
37	7/7/2019			192.2	Yes	192.7	Yes	155.5	Yes	Yes
38	7/8/2019			192.2	Yes	192.7	Yes	155.5	Yes	Yes
39	7/9/2019			192.2	Yes	193.1	Yes	155.1	Yes	Yes
40	7/10/2019			192.2	Yes	193.1	Yes	154.6	Yes	Yes
41	7/11/2019			191.8	Yes	192.9	Yes	153.5	Yes	Yes
42	7/12/2019			78.8	No	80.6	No	79.2	No	No
43	7/13/2019			93.7	No	107.1	No	103.1	No	No

CompostBatch Process Batch Report

Batch ID: 6
Start Date: 7/18/2019
End Date: 8/22/2019
Report Date: 8/22/2019
Location: Bay 5 Curing was Bay 1
Feedstock: FW & YW mix
Description Air 5 x 15
Required Temperature (F): 131

Actual Days Above Temperatur 31

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13 Temp.	Probe 13 Above	Probe 14 Temp.	Probe 14 Above	Probe 15 Temp.	Probe 15 Above	All Above
1	7/18/2019			89.6	No	108.9	No	107.2	No	No
2	7/19/2019			94.5	No	106.3	No	103.3	No	No
3	7/20/2019			167.5	Yes	153.9	Yes	135	Yes	Yes
4	7/21/2019			167.9	Yes	165.4	Yes	152.4	Yes	Yes
5	7/22/2019			172.6	Yes	170.6	Yes	169	Yes	Yes
6	7/23/2019			189.1	Yes	173.3	Yes	177.1	Yes	Yes
7	7/24/2019			192.7	Yes	174.7	Yes	181	Yes	Yes
8	7/25/2019			192.9	Yes	175.6	Yes	183.6	Yes	Yes
9	7/26/2019			192.7	Yes	176	Yes	184.1	Yes	Yes
10	7/27/2019			0	No	0	No	0	No	No
11	7/28/2019			0	No	0	No	0	No	No
12	7/29/2019			191.3	Yes	177.1	Yes	185.2	Yes	Yes
13	7/30/2019			190.9	Yes	177.3	Yes	185	Yes	Yes
14	7/31/2019			190.6	Yes	177.4	Yes	184.3	Yes	Yes
15	8/1/2019			190.2	Yes	178	Yes	183.4	Yes	Yes
16	8/2/2019			189.7	Yes	178.3	Yes	181.9	Yes	Yes
17	8/3/2019			189.1	Yes	178.7	Yes	180.3	Yes	Yes
18	8/4/2019			188.6	Yes	178.7	Yes	177.6	Yes	Yes
19	8/5/2019			187.7	Yes	178.3	Yes	174.4	Yes	Yes
20	8/6/2019			187.2	Yes	177.8	Yes	171.5	Yes	Yes
21	8/7/2019			186.8	Yes	177.4	Yes	169.5	Yes	Yes
22	8/8/2019			186.1	Yes	176.9	Yes	167.4	Yes	Yes
23	8/9/2019			185.2	Yes	176.2	Yes	169.3	Yes	Yes
24	8/10/2019			184.6	Yes	175.5	Yes	171.7	Yes	Yes
25	8/11/2019			184.3	Yes	174.7	Yes	172.2	Yes	Yes
26	8/12/2019			184.1	Yes	174.2	Yes	171.9	Yes	Yes
27	8/13/2019			183.4	Yes	173.3	Yes	171.5	Yes	Yes
28	8/14/2019			182.7	Yes	172.2	Yes	171.3	Yes	Yes
29	8/15/2019			182.3	Yes	171.1	Yes	171.3	Yes	Yes
30	8/16/2019			182.5	Yes	170.2	Yes	169.3	Yes	Yes
31	8/17/2019			182.3	Yes	169.7	Yes	165.4	Yes	Yes
32	8/18/2019			181.6	Yes	169.2	Yes	160	Yes	Yes
33	8/19/2019			180.7	Yes	168.4	Yes	157.6	Yes	Yes
34	8/20/2019			179.6	Yes	167.2	Yes	155.5	Yes	Yes
35	8/21/2019			179.2	Yes	166.3	Yes	154	Yes	Yes
36	8/22/2019			71.6	No	74.5	No	73.9	No	No

CompostBatch Process Batch Report

Batch ID:	6
Start Date:	9/7/2019
End Date:	10/9/2019
Report Date:	12/9/2019
Location:	Bay 5 Curing was Bay 1
Feedstock:	FW & YW mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 27

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13 Temp.	Above	Probe 14 Temp.	Above	Probe 15 Temp.	Above	All Above
1	9/7/2019			71.8	No	71.8	No	76.5	No	No
2	9/8/2019			72.7	No	72.1	No	81.1	No	No
3	9/9/2019			195.1	Yes	183.7	Yes	153.7	Yes	Yes
4	9/10/2019			195.8	Yes	189.1	Yes	150.4	Yes	Yes
5	9/11/2019			197.8	Yes	193.1	Yes	144.7	Yes	Yes
6	9/12/2019			197.8	Yes	193.3	Yes	144	Yes	Yes
7	9/13/2019			197.8	Yes	192.7	Yes	171.5	Yes	Yes
8	9/14/2019			197.2	Yes	191.8	Yes	173.7	Yes	Yes
9	9/15/2019			195.8	Yes	189.9	Yes	173.8	Yes	Yes
10	9/16/2019			195.1	Yes	187.3	Yes	173.1	Yes	Yes
11	9/17/2019			194	Yes	185.4	Yes	171.5	Yes	Yes
12	9/18/2019			193.5	Yes	181.4	Yes	169	Yes	Yes
13	9/19/2019			193.3	Yes	178	Yes	167.5	Yes	Yes
14	9/20/2019			193.1	Yes	175.1	Yes	166.6	Yes	Yes
15	9/21/2019			193.1	Yes	172.9	Yes	165.4	Yes	Yes
16	9/22/2019			192.7	Yes	171.5	Yes	163.6	Yes	Yes
17	9/23/2019			192.7	Yes	170.4	Yes	160.7	Yes	Yes
18	9/24/2019			191.5	Yes	169.3	Yes	156.7	Yes	Yes
19	9/25/2019			190.6	Yes	167.9	Yes	152.8	Yes	Yes
20	9/26/2019			190.4	Yes	167.2	Yes	151	Yes	Yes
21	9/27/2019			190	Yes	166.6	Yes	151.2	Yes	Yes
22	9/28/2019			189.7	Yes	166.1	Yes	152.8	Yes	Yes
23	9/29/2019			189.3	Yes	165.6	Yes	154.6	Yes	Yes
24	9/30/2019			188.2	Yes	164.5	Yes	155.8	Yes	Yes
25	10/1/2019			188.2	Yes	163.4	Yes	156.4	Yes	Yes
26	10/2/2019			188.1	Yes	163	Yes	156.4	Yes	Yes
27	10/3/2019			0	No	162.9	Yes	155.8	Yes	No
28	10/4/2019			0	No	162.9	Yes	154.9	Yes	No
29	10/5/2019			208.6	Yes	163	Yes	154	Yes	Yes
30	10/6/2019			185.9	Yes	163.2	Yes	153.1	Yes	Yes
31	10/7/2019			185.7	Yes	163.6	Yes	152.6	Yes	Yes
32	10/8/2019			85.1	No	81.5	No	66.4	No	No
33	10/9/2019			72.7	No	66	No	63.1	No	No

CompostBatch Process Batch Report

Batch ID:	6
Start Date:	10/17/2019
End Date:	11/19/2019
Report Date:	12/9/2019
Location:	Bay 5 Curing was Bay 1
Feedstock:	FW & YW mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 16

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13		Probe 14		Probe 15		All Above
				Temp.	Above	Temp.	Above	Temp.	Above	
1	10/17/2019			0	No	48.2	No	48.4	No	No
2	10/18/2019			0	No	48.2	No	47.5	No	No
3	10/19/2019			183.4	Yes	183.2	Yes	158.2	Yes	Yes
4	10/20/2019			184.3	Yes	184.1	Yes	157.8	Yes	Yes
5	10/21/2019			186.4	Yes	184.1	Yes	159.4	Yes	Yes
6	10/22/2019			188.6	Yes	183.4	Yes	161.8	Yes	Yes
7	10/23/2019			190.9	Yes	181.9	Yes	164.3	Yes	Yes
8	10/24/2019			192.6	Yes	179.8	Yes	167.2	Yes	Yes
9	10/25/2019			0	No	0	No	0	No	No
10	10/26/2019			0	No	0	No	0	No	No
11	10/27/2019			0	No	0	No	0	No	No
12	10/28/2019			192.7	Yes	169.7	Yes	176	Yes	Yes
13	10/29/2019			192.7	Yes	168.8	Yes	177.1	Yes	Yes
14	10/30/2019			192.7	Yes	166.6	Yes	177.8	Yes	Yes
15	10/31/2019			192.7	Yes	165.4	Yes	177.8	Yes	Yes
16	11/1/2019			0	No	163.9	Yes	172.6	Yes	No
17	11/2/2019			194	Yes	160.9	Yes	167.5	Yes	Yes
18	11/3/2019			0	No	158	Yes	163.9	Yes	No
19	11/4/2019			193.3	Yes	156.2	Yes	158.2	Yes	Yes
20	11/5/2019			192.4	Yes	156.2	Yes	153.5	Yes	Yes
21	11/6/2019			191.3	Yes	157.3	Yes	153.3	Yes	Yes
22	11/7/2019			0	No	158.5	Yes	157.3	Yes	No
23	11/8/2019			0	No	158.9	Yes	159.1	Yes	No
24	11/9/2019			98.8	No	158.4	Yes	159.1	Yes	No
25	11/10/2019			52.5	No	157.3	Yes	158.5	Yes	No
26	11/11/2019			0	No	156	Yes	157.1	Yes	No
27	11/12/2019			0	No	154.9	Yes	155.3	Yes	No
28	11/13/2019			0	No	153.7	Yes	153.9	Yes	No
29	11/14/2019			0	No	152.6	Yes	150.4	Yes	No
30	11/15/2019			0	No	151.9	Yes	145.9	Yes	No
31	11/16/2019			208.6	Yes	152.8	Yes	141.4	Yes	Yes
32	11/17/2019			185.2	Yes	152.8	Yes	137.1	Yes	Yes
33	11/18/2019			44.8	No	152.8	Yes	135.1	Yes	No
34	11/19/2019			42.6	No	44.4	No	43.9	No	No

CompostBatch Process Batch Report

Batch ID:	6
Start Date:	11/19/2019
End Date:	12/19/2019
Report Date:	12/20/2019
Location:	Bay 5 Curing was Bay 1
Feedstock:	FW & YW mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 14

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 13 Temp.	Probe 13 Above	Probe 14 Temp.	Probe 14 Above	Probe 15 Temp.	Probe 15 Above	All Above
1	11/19/2019			42.6	No	44.4	No	43.9	No	No
2	11/20/2019			183.2	Yes	43.5	No	43.7	No	No
3	11/21/2019			167.5	Yes	159.4	Yes	142.7	Yes	Yes
4	11/22/2019			167.7	Yes	168.6	Yes	144	Yes	Yes
5	11/23/2019			180.9	Yes	182.8	Yes	143.8	Yes	Yes
6	11/24/2019			184.3	Yes	186.3	Yes	140.2	Yes	Yes
7	11/25/2019			185.5	Yes	186.6	Yes	135.7	Yes	Yes
8	11/26/2019			187.2	Yes	186.4	Yes	137.3	Yes	Yes
9	11/27/2019			188.2	Yes	186.1	Yes	144.7	Yes	Yes
10	11/28/2019			0	No	185.2	Yes	149.5	Yes	No
11	11/29/2019			0	No	184.3	Yes	151.7	Yes	No
12	11/30/2019			0	No	183.2	Yes	151.7	Yes	No
13	12/1/2019			0	No	181.6	Yes	151	Yes	No
14	12/2/2019			0	No	179.8	Yes	149.4	Yes	No
15	12/3/2019			134.4	Yes	178.2	Yes	147.2	Yes	Yes
16	12/4/2019			51.1	No	177.1	Yes	145.8	Yes	No
17	12/5/2019			0	No	176.5	Yes	145.6	Yes	No
18	12/6/2019			142.3	Yes	176.7	Yes	145.2	Yes	Yes
19	12/7/2019			0	No	176.5	Yes	144.7	Yes	No
20	12/8/2019			178.3	Yes	175.8	Yes	144.5	Yes	Yes
21	12/9/2019			177.4	Yes	175.5	Yes	145.6	Yes	Yes
22	12/10/2019			177.1	Yes	175.8	Yes	146.3	Yes	Yes
23	12/11/2019			0	No	176.2	Yes	146.7	Yes	No
24	12/12/2019			0	No	176.4	Yes	146.5	Yes	No
25	12/13/2019			176.5	Yes	176.2	Yes	146.1	Yes	Yes
26	12/14/2019			175.6	Yes	175.3	Yes	145	Yes	Yes
27	12/15/2019			0	No	173.8	Yes	142.3	Yes	No
28	12/16/2019			0	No	172.6	Yes	138	Yes	No
29	12/17/2019			104.7	No	171.7	Yes	134.1	Yes	No
30	12/18/2019			0	No	170.2	Yes	131	Yes	No
31	12/19/2019			0	No	32	No	32	No	No

Bay 6

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	1/26/2019
End Date:	3/1/2019
Report Date:	3/1/2019
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131

Actual Days Above Te 27

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16 Temp.	Above	Probe 17 Temp.	Above	Probe 18 Temp.	Above	All Above
1	1/26/2019			32	No	32	No	35.6	No	No
2	1/27/2019			32.5	No	34.3	No	34.7	No	No
3	1/28/2019			197.6	Yes	187.3	Yes	169	Yes	Yes
4	1/29/2019			197.4	Yes	187	Yes	170.1	Yes	Yes
5	1/30/2019			197.2	Yes	182.8	Yes	172	Yes	Yes
6	1/31/2019			197.2	Yes	0	No	172.4	Yes	No
7	2/1/2019			196	Yes	183.7	Yes	173.3	Yes	Yes
8	2/2/2019			194	Yes	187.7	Yes	173.3	Yes	Yes
9	2/3/2019			191.3	Yes	188.6	Yes	172.6	Yes	Yes
10	2/4/2019			191.5	Yes	188.6	Yes	172.2	Yes	Yes
11	2/5/2019			192.7	Yes	188.2	Yes	171.3	Yes	Yes
12	2/6/2019			192.9	Yes	187.7	Yes	171.1	Yes	Yes
13	2/7/2019			192	Yes	186.8	Yes	170.8	Yes	Yes
14	2/8/2019			190.6	Yes	185.2	Yes	168.8	Yes	Yes
15	2/9/2019			188.8	Yes	183.2	Yes	166.6	Yes	Yes
16	2/10/2019			187.5	Yes	182.7	Yes	165.9	Yes	Yes
17	2/11/2019			185.4	Yes	183.9	Yes	166.1	Yes	Yes
18	2/12/2019			0	No	0	No	0	No	No
19	2/13/2019			0	No	0	No	0	No	No
20	2/14/2019			0	No	0	No	0	No	No
21	2/15/2019			198.5	Yes	188.6	Yes	174.7	Yes	Yes
22	2/16/2019			198.5	Yes	189.7	Yes	175.6	Yes	Yes
23	2/17/2019			198.1	Yes	190	Yes	175.6	Yes	Yes
24	2/18/2019			196.7	Yes	189.7	Yes	174.9	Yes	Yes
25	2/19/2019			193.3	Yes	187	Yes	172.6	Yes	Yes
26	2/20/2019			185.5	Yes	183.2	Yes	167.9	Yes	Yes
27	2/21/2019			178	Yes	179.1	Yes	161.2	Yes	Yes
28	2/22/2019			170.6	Yes	175.3	Yes	154.9	Yes	Yes
29	2/23/2019			163.6	Yes	200.1	Yes	150.3	Yes	Yes
30	2/24/2019			156.4	Yes	169.2	Yes	147.4	Yes	Yes
31	2/25/2019			149	Yes	166.5	Yes	151.9	Yes	Yes
32	2/26/2019			141.4	Yes	164.5	Yes	155.3	Yes	Yes
33	2/27/2019			136.2	Yes	180.9	Yes	156.2	Yes	Yes
34	2/28/2019			32	No	32	No	32	No	No
35	3/1/2019			32	No	36.9	No	32	No	No

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	3/2/2019
End Date:	4/8/2019
Report Date:	4/8/2019
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 31

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16 Temp.	Probe 16 Above	Probe 17 Temp.	Probe 17 Above	Probe 18 Temp.	Probe 18 Above	All Above
1	3/2/2019			37.6	No	38.3	No	40.5	No	No
2	3/3/2019			32.7	No	33.4	No	35.1	No	No
3	3/4/2019			32	No	32	No	32	No	No
4	3/5/2019			32	No	32	No	32	No	No
5	3/6/2019			32	No	32	No	32	No	No
6	3/7/2019			186.3	Yes	183.2	Yes	180.7	Yes	Yes
7	3/8/2019			187	Yes	184.5	Yes	181.8	Yes	Yes
8	3/9/2019			187.7	Yes	184.3	Yes	181.6	Yes	Yes
9	3/10/2019			187.5	Yes	183.4	Yes	181	Yes	Yes
10	3/11/2019			187	Yes	183.4	Yes	180.5	Yes	Yes
11	3/12/2019			185	Yes	186.3	Yes	179.8	Yes	Yes
12	3/13/2019			184.3	Yes	187.2	Yes	179.6	Yes	Yes
13	3/14/2019			182.7	Yes	187.5	Yes	178.7	Yes	Yes
14	3/15/2019			180.7	Yes	187.3	Yes	177.4	Yes	Yes
15	3/16/2019			180.3	Yes	187.2	Yes	176.9	Yes	Yes
16	3/17/2019			180	Yes	187.2	Yes	176.4	Yes	Yes
17	3/18/2019			180	Yes	186.8	Yes	175.1	Yes	Yes
18	3/19/2019			179.4	Yes	186.3	Yes	172	Yes	Yes
19	3/20/2019			178.5	Yes	186.1	Yes	168.3	Yes	Yes
20	3/21/2019			178.3	Yes	185.7	Yes	164.7	Yes	Yes
21	3/22/2019			178.5	Yes	185.2	Yes	161.6	Yes	Yes
22	3/23/2019			178.5	Yes	184.1	Yes	158.9	Yes	Yes
23	3/24/2019			178	Yes	182.3	Yes	156.6	Yes	Yes
24	3/25/2019			177.8	Yes	180.7	Yes	155.1	Yes	Yes
25	3/26/2019			177.4	Yes	178.7	Yes	154	Yes	Yes
26	3/27/2019			177.1	Yes	176.5	Yes	153.1	Yes	Yes
27	3/28/2019			176.9	Yes	174.7	Yes	151.9	Yes	Yes
28	3/29/2019			176.2	Yes	173.3	Yes	150.8	Yes	Yes
29	3/30/2019			175.6	Yes	171.7	Yes	149.9	Yes	Yes
30	3/31/2019			174.9	Yes	170.6	Yes	149.5	Yes	Yes
31	4/1/2019			174.2	Yes	169.5	Yes	151.2	Yes	Yes
32	4/2/2019			173.3	Yes	168.4	Yes	154.8	Yes	Yes
33	4/3/2019			172.2	Yes	167.2	Yes	157.3	Yes	Yes
34	4/4/2019			171.1	Yes	165.2	Yes	158.9	Yes	Yes
35	4/5/2019			169.9	Yes	163	Yes	159.8	Yes	Yes
36	4/6/2019			169.2	Yes	160.9	Yes	159.8	Yes	Yes
37	4/7/2019			73.6	No	69.1	No	68	No	No
38	4/8/2019			73	No	69.1	No	68.5	No	No

CompostBatch Process Batch Report

Batch ID: 7
Start Date: 4/18/2019
End Date: 5/26/2019
Report Date: 5/28/2019
Location: Bay 6 Curing was Bay 2
Feedstock: FW & YW Mix
Description Air 5 x 15
Required Temperatur 131

Actual Days Above Te 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16 Temp.	Probe 16 Above	Probe 17 Temp.	Probe 17 Above	Probe 18 Temp.	Probe 18 Above	All Above
1	4/18/2019			78.1	No	71.8	No	71.2	No	No
2	4/19/2019			77.9	No	76.3	No	76.1	No	No
3	4/20/2019			71.1	No	69.3	No	69.3	No	No
4	4/21/2019			57.6	No	55.6	No	56.3	No	No
5	4/22/2019			49.3	No	164.3	Yes	173.7	Yes	No
6	4/23/2019			0	No	163	Yes	177.8	Yes	No
7	4/24/2019			0	No	157.8	Yes	178.2	Yes	No
8	4/25/2019			0	No	151.5	Yes	178.2	Yes	No
9	4/26/2019			0	No	145.9	Yes	177.1	Yes	No
10	4/27/2019			0	No	141.1	Yes	175.8	Yes	No
11	4/28/2019			0	No	137.5	Yes	174.4	Yes	No
12	4/29/2019			0	No	135.5	Yes	173.7	Yes	No
13	4/30/2019			0	No	137.5	Yes	173.3	Yes	No
14	5/1/2019			0	No	143.1	Yes	173.5	Yes	No
15	5/2/2019			0	No	148.8	Yes	173.7	Yes	No
16	5/3/2019			0	No	153	Yes	173.8	Yes	No
17	5/4/2019			0	No	156.4	Yes	173.8	Yes	No
18	5/5/2019			0	No	158	Yes	173.8	Yes	No
19	5/6/2019			0	No	158.5	Yes	173.7	Yes	No
20	5/7/2019			0	No	158.5	Yes	173.7	Yes	No
21	5/8/2019			0	No	157.8	Yes	173.5	Yes	No
22	5/9/2019			0	No	156.6	Yes	172.9	Yes	No
23	5/10/2019			0	No	154.9	Yes	172.4	Yes	No
24	5/11/2019			0	No	153.5	Yes	171.1	Yes	No
25	5/12/2019			0	No	151.5	Yes	169.9	Yes	No
26	5/13/2019			0	No	149.5	Yes	168.4	Yes	No
27	5/14/2019			0	No	149	Yes	167	Yes	No
28	5/15/2019			0	No	149.2	Yes	165.7	Yes	No
29	5/16/2019			0	No	150.4	Yes	164.7	Yes	No
30	5/17/2019			0	No	152.6	Yes	163.6	Yes	No
31	5/18/2019			0	No	154.8	Yes	163	Yes	No
32	5/19/2019			0	No	156.4	Yes	162.5	Yes	No
33	5/20/2019			0	No	157.1	Yes	161.8	Yes	No
34	5/21/2019			0	No	157.3	Yes	161.1	Yes	No
35	5/22/2019			0	No	157.6	Yes	160.3	Yes	No
36	5/23/2019			0	No	157.6	Yes	159.8	Yes	No
37	5/24/2019			0	No	157.3	Yes	159.3	Yes	No
38	5/25/2019			0	No	78.1	No	82	No	No
39	5/26/2019			0	No	82.9	No	86.5	No	No

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	6/13/2019
End Date:	7/22/2019
Report Date:	7/22/2019
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131

Actual Days Above Te 0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16		Probe 17		Probe 18		All Above
				Temp.	Above	Temp.	Above	Temp.	Above	
1	6/13/2019			0	No	64.9	No	64.4	No	No
2	6/14/2019			0	No	69.4	No	70	No	No
3	6/15/2019			0	No	77.7	No	90	No	No
4	6/16/2019			0	No	0	No	0	No	No
5	6/17/2019			0	No	76.1	No	90.7	No	No
6	6/18/2019			0	No	81.7	No	92.3	No	No
7	6/19/2019			0	No	83.3	No	99.5	No	No
8	6/20/2019			175.3	Yes	189.7	Yes	0	No	No
9	6/21/2019			181	Yes	189.9	Yes	0	No	No
10	6/22/2019			184.1	Yes	189.7	Yes	0	No	No
11	6/23/2019			186.1	Yes	189.5	Yes	0	No	No
12	6/24/2019			187.7	Yes	188.8	Yes	0	No	No
13	6/25/2019			188.6	Yes	188.1	Yes	0	No	No
14	6/26/2019			189.3	Yes	187.3	Yes	0	No	No
15	6/27/2019			189.9	Yes	186.8	Yes	0	No	No
16	6/28/2019			190.4	Yes	186.1	Yes	0	No	No
17	6/29/2019			190.4	Yes	185.4	Yes	0	No	No
18	6/30/2019			190.4	Yes	184.1	Yes	0	No	No
19	7/1/2019			190	Yes	181.9	Yes	0	No	No
20	7/2/2019			189.7	Yes	180.5	Yes	0	No	No
21	7/3/2019			189	Yes	178.7	Yes	0	No	No
22	7/4/2019			188.6	Yes	176.7	Yes	0	No	No
23	7/5/2019			188.2	Yes	174.2	Yes	0	No	No
24	7/6/2019			187.7	Yes	215.2	Yes	0	No	No
25	7/7/2019			187.3	Yes	170.2	Yes	0	No	No
26	7/8/2019			187.2	Yes	168.4	Yes	0	No	No
27	7/9/2019			186.8	Yes	166.3	Yes	0	No	No
28	7/10/2019			186.1	Yes	163.9	Yes	0	No	No
29	7/11/2019			185.5	Yes	180.3	Yes	0	No	No
30	7/12/2019			184.8	Yes	0	No	0	No	No
31	7/13/2019			184.3	Yes	153.5	Yes	0	No	No
32	7/14/2019			183.9	Yes	150.1	Yes	0	No	No
33	7/15/2019			183.7	Yes	148.1	Yes	0	No	No
34	7/16/2019			183.4	Yes	146.7	Yes	0	No	No
35	7/17/2019			182.8	Yes	0	No	0	No	No
36	7/18/2019			181.9	Yes	143.6	Yes	0	No	No
37	7/19/2019			181.4	Yes	142.2	Yes	0	No	No
38	7/20/2019			180.9	Yes	105.6	No	0	No	No
39	7/21/2019			94.1	No	102.6	No	0	No	No

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	7/30/2019
End Date:	9/1/2019
Report Date:	9/18/2019
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131
Actual Days Above Te	16

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16 Temp.	Probe 16 Above	Probe 17 Temp.	Probe 17 Above	Probe 18 Temp.	Probe 18 Above	All Above
1	7/30/2019			92.1	No	105.6	No	0	No	No
2	7/31/2019			84.4	No	0	No	0	No	No
3	8/1/2019			187.3	Yes	174.9	Yes	167.9	Yes	Yes
4	8/2/2019			189.3	Yes	173.8	Yes	167	Yes	Yes
5	8/3/2019			189.5	Yes	170.8	Yes	163.2	Yes	Yes
6	8/4/2019			189.7	Yes	166.6	Yes	161.1	Yes	Yes
7	8/5/2019			189.7	Yes	163.8	Yes	160	Yes	Yes
8	8/6/2019			189.1	Yes	162.3	Yes	159.8	Yes	Yes
9	8/7/2019			188.8	Yes	0	No	158.7	Yes	No
10	8/8/2019			187.9	Yes	0	No	157.3	Yes	No
11	8/9/2019			187	Yes	152.1	Yes	155.5	Yes	Yes
12	8/10/2019			185.7	Yes	0	No	153.7	Yes	No
13	8/11/2019			184.3	Yes	152.1	Yes	153.1	Yes	Yes
14	8/12/2019			183.6	Yes	154.4	Yes	152.2	Yes	Yes
15	8/13/2019			182.5	Yes	153	Yes	150.8	Yes	Yes
16	8/14/2019			181	Yes	152.1	Yes	149.5	Yes	Yes
17	8/15/2019			179.8	Yes	151.9	Yes	149	Yes	Yes
18	8/16/2019			178.9	Yes	151.5	Yes	149	Yes	Yes
19	8/17/2019			178.2	Yes	0	No	148.8	Yes	No
20	8/18/2019			176	Yes	149.2	Yes	148.8	Yes	Yes
21	8/19/2019			174.2	Yes	148.3	Yes	149.9	Yes	Yes
22	8/20/2019			172.9	Yes	147.6	Yes	149.7	Yes	Yes
23	8/21/2019			172.6	Yes	0	No	149.4	Yes	No
24	8/22/2019			172.2	Yes	0	No	148.1	Yes	No
25	8/23/2019			171.7	Yes	0	No	146.7	Yes	No
26	8/24/2019			171.1	Yes	0	No	144.9	Yes	No
27	8/25/2019			170.6	Yes	0	No	143.4	Yes	No
28	8/26/2019			170.1	Yes	0	No	142	Yes	No
29	8/27/2019			169	Yes	0	No	140.5	Yes	No
30	8/28/2019			168.3	Yes	0	No	139.3	Yes	No
31	8/29/2019			167.7	Yes	0	No	139.3	Yes	No
32	8/30/2019			78.4	No	0	No	82.4	No	No
33	8/31/2019			74.8	No	0	No	78.1	No	No
34	9/1/2019			77.9	No	0	No	76.6	No	No

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	7/30/2019
End Date:	9/1/2019
Report Date:	9/18/2019
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131
Actual Days Above Te	16

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16 Temp.	Probe 16 Above	Probe 17 Temp.	Probe 17 Above	Probe 18 Temp.	Probe 18 Above	All Above
1	7/30/2019			92.1	No	105.6	No	0	No	No
2	7/31/2019			84.4	No	0	No	0	No	No
3	8/1/2019			187.3	Yes	174.9	Yes	167.9	Yes	Yes
4	8/2/2019			189.3	Yes	173.8	Yes	167	Yes	Yes
5	8/3/2019			189.5	Yes	170.8	Yes	163.2	Yes	Yes
6	8/4/2019			189.7	Yes	166.6	Yes	161.1	Yes	Yes
7	8/5/2019			189.7	Yes	163.8	Yes	160	Yes	Yes
8	8/6/2019			189.1	Yes	162.3	Yes	159.8	Yes	Yes
9	8/7/2019			188.8	Yes	0	No	158.7	Yes	No
10	8/8/2019			187.9	Yes	0	No	157.3	Yes	No
11	8/9/2019			187	Yes	152.1	Yes	155.5	Yes	Yes
12	8/10/2019			185.7	Yes	0	No	153.7	Yes	No
13	8/11/2019			184.3	Yes	152.1	Yes	153.1	Yes	Yes
14	8/12/2019			183.6	Yes	154.4	Yes	152.2	Yes	Yes
15	8/13/2019			182.5	Yes	153	Yes	150.8	Yes	Yes
16	8/14/2019			181	Yes	152.1	Yes	149.5	Yes	Yes
17	8/15/2019			179.8	Yes	151.9	Yes	149	Yes	Yes
18	8/16/2019			178.9	Yes	151.5	Yes	149	Yes	Yes
19	8/17/2019			178.2	Yes	0	No	148.8	Yes	No
20	8/18/2019			176	Yes	149.2	Yes	148.8	Yes	Yes
21	8/19/2019			174.2	Yes	148.3	Yes	149.9	Yes	Yes
22	8/20/2019			172.9	Yes	147.6	Yes	149.7	Yes	Yes
23	8/21/2019			172.6	Yes	0	No	149.4	Yes	No
24	8/22/2019			172.2	Yes	0	No	148.1	Yes	No
25	8/23/2019			171.7	Yes	0	No	146.7	Yes	No
26	8/24/2019			171.1	Yes	0	No	144.9	Yes	No
27	8/25/2019			170.6	Yes	0	No	143.4	Yes	No
28	8/26/2019			170.1	Yes	0	No	142	Yes	No
29	8/27/2019			169	Yes	0	No	140.5	Yes	No
30	8/28/2019			168.3	Yes	0	No	139.3	Yes	No
31	8/29/2019			167.7	Yes	0	No	139.3	Yes	No
32	8/30/2019			78.4	No	0	No	82.4	No	No
33	8/31/2019			74.8	No	0	No	78.1	No	No
34	9/1/2019			77.9	No	0	No	76.6	No	No

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	9/13/2019
End Date:	10/13/2019
Report Date:	10/28/2019
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131

Actual Days Above Te 8

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16		Probe 17		Probe 18		All Above
				Temp.	Above	Temp.	Above	Temp.	Above	
1	9/13/2019			74.3	No	0	No	75.2	No	No
2	9/14/2019			190.9	Yes	0	No	182.5	Yes	No
3	9/15/2019			193.8	Yes	0	No	181.9	Yes	No
4	9/16/2019			194.5	Yes	0	No	173.1	Yes	No
5	9/17/2019			194.5	Yes	0	No	164.8	Yes	No
6	9/18/2019			194.9	Yes	0	No	167	Yes	No
7	9/19/2019			195.4	Yes	0	No	175.8	Yes	No
8	9/20/2019			196	Yes	208.6	Yes	178.3	Yes	Yes
9	9/21/2019			195.8	Yes	189.1	Yes	178.3	Yes	Yes
10	9/22/2019			195.6	Yes	192.7	Yes	176.7	Yes	Yes
11	9/23/2019			194.9	Yes	146.5	Yes	174.4	Yes	Yes
12	9/24/2019			194.2	Yes	179.8	Yes	171.9	Yes	Yes
13	9/25/2019			193.3	Yes	0	No	169.2	Yes	No
14	9/26/2019			192.4	Yes	178.9	Yes	165.9	Yes	Yes
15	9/27/2019			191.8	Yes	0	No	161.6	Yes	No
16	9/28/2019			191.5	Yes	0	No	157.6	Yes	No
17	9/29/2019			191.1	Yes	0	No	153.5	Yes	No
18	9/30/2019			190.6	Yes	0	No	148.6	Yes	No
19	10/1/2019			189.7	Yes	170.8	Yes	144.1	Yes	Yes
20	10/2/2019			188.8	Yes	0	No	140.5	Yes	No
21	10/3/2019			187.9	Yes	0	No	138.6	Yes	No
22	10/4/2019			186.4	Yes	135.1	Yes	147.2	Yes	Yes
23	10/5/2019			185.4	Yes	0	No	149.9	Yes	No
24	10/6/2019			184.3	Yes	0	No	151.7	Yes	No
25	10/7/2019			183	Yes	0	No	151.7	Yes	No
26	10/8/2019			180.7	Yes	0	No	150.8	Yes	No
27	10/9/2019			178.7	Yes	0	No	148.8	Yes	No
28	10/10/2019			177.1	Yes	0	No	146.5	Yes	No
29	10/11/2019			175.1	Yes	0	No	144.5	Yes	No
30	10/12/2019			174.6	Yes	0	No	144.1	Yes	No
31	10/13/2019			79.2	No	0	No	79	No	No

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	10/28/2019
End Date:	12/3/2019
Report Date:	12/3/2019
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131

Actual Days Above Te	3

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16		Probe 17		Probe 18		All Above
				Temp.	Above	Temp.	Above	Temp.	Above	
1	10/28/2019			65.7	No	0	No	65.7	No	No
2	10/29/2019			172.4	Yes	0	No	161.8	Yes	No
3	10/30/2019			176.5	Yes	0	No	167	Yes	No
4	10/31/2019			177.8	Yes	0	No	171.9	Yes	No
5	11/1/2019			177.4	Yes	0	No	172	Yes	No
6	11/2/2019			178.5	Yes	0	No	171.5	Yes	No
7	11/3/2019			179.6	Yes	178.2	Yes	168.4	Yes	Yes
8	11/4/2019			180.7	Yes	0	No	165.2	Yes	No
9	11/5/2019			181.8	Yes	0	No	162.7	Yes	No
10	11/6/2019			182.5	Yes	0	No	160.3	Yes	No
11	11/7/2019			183	Yes	0	No	160	Yes	No
12	11/8/2019			183	Yes	0	No	159.6	Yes	No
13	11/9/2019			183.4	Yes	0	No	159.1	Yes	No
14	11/10/2019			184.1	Yes	0	No	158.2	Yes	No
15	11/11/2019			185	Yes	0	No	157.1	Yes	No
16	11/12/2019			185.5	Yes	0	No	156.2	Yes	No
17	11/13/2019			186.3	Yes	0	No	155.5	Yes	No
18	11/14/2019			187	Yes	0	No	154.4	Yes	No
19	11/15/2019			187.7	Yes	0	No	153.1	Yes	No
20	11/16/2019			188.2	Yes	152.8	Yes	151.3	Yes	Yes
21	11/17/2019			188.6	Yes	0	No	150.3	Yes	No
22	11/18/2019			188.6	Yes	142.3	Yes	150.8	Yes	Yes
23	11/19/2019			188.4	Yes	0	No	151	Yes	No
24	11/20/2019			188.4	Yes	0	No	151	Yes	No
25	11/21/2019			188.6	Yes	0	No	151	Yes	No
26	11/22/2019			0	No	0	No	150.8	Yes	No
27	11/23/2019			0	No	0	No	150.1	Yes	No
28	11/24/2019			0	No	0	No	149.5	Yes	No
29	11/25/2019			0	No	0	No	148.6	Yes	No
30	11/26/2019			0	No	0	No	148.1	Yes	No
31	11/27/2019			0	No	0	No	148.3	Yes	No
32	11/28/2019			0	No	0	No	40.6	No	No

CompostBatch Process Batch Report

Batch ID:	7
Start Date:	12/3/2019
End Date:	1/8/2020
Report Date:	1/8/2020
Location:	Bay 6 Curing was Bay 2
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131

Actual Days Above Te	0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 16 Temp.	Probe 16 Above	Probe 17 Temp.	Probe 17 Above	Probe 18 Temp.	Probe 18 Above	All Above
1	12/3/2019			0	No	0	No	34.7	No	No
2	12/4/2019			0	No	0	No	174.2	Yes	No
3	12/5/2019			0	No	0	No	187.5	Yes	No
4	12/6/2019			0	No	0	No	190.4	Yes	No
5	12/7/2019			0	No	0	No	191.8	Yes	No
6	12/8/2019			0	No	78.4	No	192	Yes	No
7	12/9/2019			0	No	174.4	Yes	191.5	Yes	No
8	12/10/2019			0	No	139.6	Yes	190.2	Yes	No
9	12/11/2019			0	No	0	No	189	Yes	No
10	12/12/2019			0	No	0	No	186.6	Yes	No
11	12/13/2019			0	No	0	No	182.8	Yes	No
12	12/14/2019			0	No	152.1	Yes	177.4	Yes	No
13	12/15/2019			0	No	0	No	169.9	Yes	No
14	12/16/2019			0	No	0	No	160.2	Yes	No
15	12/17/2019			0	No	0	No	153	Yes	No
16	12/18/2019			0	No	0	No	147.2	Yes	No
17	12/19/2019			0	No	0	No	142.7	Yes	No
18	12/20/2019			0	No	179.6	Yes	140.9	Yes	No
19	12/21/2019			0	No	0	No	141.8	Yes	No
20	12/22/2019			0	No	124.3	No	142.7	Yes	No
21	12/23/2019			0	No	54.9	No	142.9	Yes	No
22	12/24/2019			0	No	0	No	143.1	Yes	No
23	12/25/2019			0	No	0	No	143.2	Yes	No
24	12/26/2019			0	No	0	No	144	Yes	No
25	12/27/2019			0	No	0	No	146.7	Yes	No
26	12/28/2019			0	No	95.2	No	151.3	Yes	No
27	12/29/2019			0	No	0	No	154.8	Yes	No
28	12/30/2019			0	No	0	No	155.7	Yes	No
29	12/31/2019			0	No	0	No	156.2	Yes	No
30	1/1/2020			0	No	0	No	156.2	Yes	No
31	1/2/2020			0	No	0	No	155.7	Yes	No
32	1/3/2020			0	No	0	No	155.8	Yes	No
33	1/4/2020			0	No	0	No	157.3	Yes	No
34	1/5/2020			0	No	0	No	158.5	Yes	No
35	1/6/2020			0	No	0	No	159.1	Yes	No
36	1/7/2020			0	No	0	No	159.3	Yes	No
37	1/8/2020			0	No	0	No	33.8	No	No

Bay 7

CompostBatch Process Batch Report

Batch ID:	10
Start Date:	2/2/2019
End Date:	3/6/2019
Report Date:	3/6/2019
Location:	Bay 7 Curing was Bay 3
Feedstock:	FW 7 YW Mix
Description	
Required Temperatur	131
Actual Days Above Te	23

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 19 Temp.	Probe 19 Above	Probe 20 Temp.	Probe 20 Above	Probe 21 Temp.	Probe 21 Above	All Above
1	2/2/2019			34.2	No	38.5	No	41.9	No	No
2	2/3/2019			51.1	No	57.6	No	45.3	No	No
3	2/4/2019			62.8	No	73.8	No	59.2	No	No
4	2/5/2019			53.1	No	52.9	No	55.4	No	No
5	2/6/2019			34.9	No	34.5	No	58.3	No	No
6	2/7/2019			49.3	No	49.3	No	51.6	No	No
7	2/8/2019			187.9	Yes	182.1	Yes	177.1	Yes	Yes
8	2/9/2019			189.7	Yes	183.7	Yes	180.9	Yes	Yes
9	2/10/2019			190.6	Yes	184.3	Yes	182.1	Yes	Yes
10	2/11/2019			190.4	Yes	184.3	Yes	182.3	Yes	Yes
11	2/12/2019			0	No	0	No	0	No	No
12	2/13/2019			0	No	0	No	0	No	No
13	2/14/2019			0	No	0	No	0	No	No
14	2/15/2019			186.3	Yes	183.7	Yes	180.3	Yes	Yes
15	2/16/2019			185.9	Yes	184.5	Yes	180.1	Yes	Yes
16	2/17/2019			185.9	Yes	185.2	Yes	178.9	Yes	Yes
17	2/18/2019			186.1	Yes	185.9	Yes	177.1	Yes	Yes
18	2/19/2019			186.1	Yes	186.3	Yes	175.6	Yes	Yes
19	2/20/2019			186.1	Yes	186.6	Yes	174.2	Yes	Yes
20	2/21/2019			185.9	Yes	186.8	Yes	172.6	Yes	Yes
21	2/22/2019			185.2	Yes	187.2	Yes	171.7	Yes	Yes
22	2/23/2019			184.6	Yes	187.5	Yes	171.3	Yes	Yes
23	2/24/2019			183.4	Yes	187.5	Yes	170.8	Yes	Yes
24	2/25/2019			181.9	Yes	186.8	Yes	170.2	Yes	Yes
25	2/26/2019			180.7	Yes	186.8	Yes	169.9	Yes	Yes
26	2/27/2019			179.4	Yes	187	Yes	169.7	Yes	Yes
27	2/28/2019			177.8	Yes	187	Yes	169.2	Yes	Yes
28	3/1/2019			176	Yes	186.8	Yes	168.4	Yes	Yes
29	3/2/2019			174.4	Yes	186.3	Yes	167.9	Yes	Yes
30	3/3/2019			172.9	Yes	185.9	Yes	167.2	Yes	Yes
31	3/4/2019			172.2	Yes	185.7	Yes	166.3	Yes	Yes
32	3/5/2019			172	Yes	185.5	Yes	165.4	Yes	Yes
33	3/6/2019			32	No	32	No	32	No	No

CompostBatch Process Batch Report

Batch ID:	10
Start Date:	3/26/2019
End Date:	4/29/2019
Report Date:	5/2/2019
Location:	Bay 7 Curing was Bay 3
Feedstock:	FW 7 YW Mix
Description	
Required Temperatur	131

Actual Days Above Te	29

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 19 Temp.	Above	Probe 20 Temp.	Above	Probe 21 Temp.	Above	All Above
1	3/26/2019			51.4	No	42.1	No	41.2	No	No
2	3/27/2019			63.3	No	54.9	No	54.1	No	No
3	3/28/2019			68.9	No	62.8	No	62.8	No	No
4	3/29/2019			157.8	Yes	160.9	Yes	158.5	Yes	Yes
5	3/30/2019			171.7	Yes	172	Yes	171.9	Yes	Yes
6	3/31/2019			177.8	Yes	183.2	Yes	175.3	Yes	Yes
7	4/1/2019			181.9	Yes	190.9	Yes	175.6	Yes	Yes
8	4/2/2019			184.1	Yes	192.7	Yes	176.5	Yes	Yes
9	4/3/2019			185.9	Yes	192.9	Yes	177.4	Yes	Yes
10	4/4/2019			187.7	Yes	192.6	Yes	178	Yes	Yes
11	4/5/2019			188.6	Yes	192.2	Yes	178.7	Yes	Yes
12	4/6/2019			189.1	Yes	191.3	Yes	178.9	Yes	Yes
13	4/7/2019			189.5	Yes	190.6	Yes	178.9	Yes	Yes
14	4/8/2019			189.5	Yes	189.9	Yes	178.7	Yes	Yes
15	4/9/2019			189.5	Yes	189.1	Yes	178.5	Yes	Yes
16	4/10/2019			189.7	Yes	188.8	Yes	178.3	Yes	Yes
17	4/11/2019			190	Yes	189	Yes	178	Yes	Yes
18	4/12/2019			0	No	0	No	0	No	No
19	4/13/2019			190	Yes	188.8	Yes	176.9	Yes	Yes
20	4/14/2019			190	Yes	189.3	Yes	176.5	Yes	Yes
21	4/15/2019			190	Yes	189.5	Yes	175.6	Yes	Yes
22	4/16/2019			189.9	Yes	189.5	Yes	174.7	Yes	Yes
23	4/17/2019			190.4	Yes	189.7	Yes	173.7	Yes	Yes
24	4/18/2019			190.8	Yes	189.9	Yes	172.2	Yes	Yes
25	4/19/2019			190.6	Yes	189.7	Yes	170.6	Yes	Yes
26	4/20/2019			190.6	Yes	189.7	Yes	169.3	Yes	Yes
27	4/21/2019			190.9	Yes	190	Yes	168.1	Yes	Yes
28	4/22/2019			190.9	Yes	190.4	Yes	167.5	Yes	Yes
29	4/23/2019			190.9	Yes	190.6	Yes	167.5	Yes	Yes
30	4/24/2019			190.4	Yes	190.6	Yes	167.2	Yes	Yes
31	4/25/2019			189.7	Yes	190.6	Yes	166.1	Yes	Yes
32	4/26/2019			189.1	Yes	190.6	Yes	165.2	Yes	Yes
33	4/27/2019			188.2	Yes	190.2	Yes	164.3	Yes	Yes
34	4/28/2019			47.5	No	47.3	No	47.1	No	No
35	4/29/2019			56.7	No	68.9	No	53.6	No	No

CompostBatch Process Batch Report

Batch ID:	10
Start Date:	5/13/2019
End Date:	6/15/2019
Report Date:	6/18/2019
Location:	Bay 7 Curing was Bay 3
Feedstock:	FW 7 YW Mix
Description	
Required Temperatur	131
Actual Days Above Te	26

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 19 Temp.	Above	Probe 20 Temp.	Above	Probe 21 Temp.	Above	All Above
1	5/13/2019			50.4	No	50.4	No	0	No	No
2	5/14/2019			50.9	No	50.5	No	0	No	No
3	5/15/2019			74.8	No	77.7	No	70.5	No	No
4	5/16/2019			75.4	No	74.8	No	73.6	No	No
5	5/17/2019			79.9	No	82	No	81.5	No	No
6	5/18/2019			81.5	No	84.2	No	81.1	No	No
7	5/19/2019			101.3	No	100	No	100	No	No
8	5/20/2019			157.3	Yes	179.8	Yes	149.2	Yes	Yes
9	5/21/2019			159.1	Yes	183	Yes	145.9	Yes	Yes
10	5/22/2019			159.3	Yes	185.2	Yes	142.3	Yes	Yes
11	5/23/2019			160.3	Yes	185.9	Yes	145.8	Yes	Yes
12	5/24/2019			161.4	Yes	186.3	Yes	152.8	Yes	Yes
13	5/25/2019			158.7	Yes	186.6	Yes	156.7	Yes	Yes
14	5/26/2019			159.4	Yes	186.8	Yes	159.1	Yes	Yes
15	5/27/2019			160	Yes	186.8	Yes	160.9	Yes	Yes
16	5/28/2019			161.8	Yes	186.6	Yes	161.6	Yes	Yes
17	5/29/2019			161.8	Yes	186.1	Yes	161.4	Yes	Yes
18	5/30/2019			161.4	Yes	185.5	Yes	160.9	Yes	Yes
19	5/31/2019			162	Yes	185.2	Yes	160.7	Yes	Yes
20	6/1/2019			162.7	Yes	185	Yes	160.2	Yes	Yes
21	6/2/2019			163.6	Yes	184.6	Yes	160	Yes	Yes
22	6/3/2019			164.3	Yes	184.3	Yes	159.3	Yes	Yes
23	6/4/2019			165.4	Yes	183.9	Yes	158.5	Yes	Yes
24	6/5/2019			166.5	Yes	183.7	Yes	158	Yes	Yes
25	6/6/2019			167.5	Yes	183.6	Yes	156.7	Yes	Yes
26	6/7/2019			168.4	Yes	183	Yes	154.6	Yes	Yes
27	6/8/2019			169.7	Yes	182.5	Yes	153.7	Yes	Yes
28	6/9/2019			170.6	Yes	182.3	Yes	153.7	Yes	Yes
29	6/10/2019			171.3	Yes	181.9	Yes	153.7	Yes	Yes
30	6/11/2019			172	Yes	181.2	Yes	153.1	Yes	Yes
31	6/12/2019			172.9	Yes	179.8	Yes	152.1	Yes	Yes
32	6/13/2019			173.7	Yes	178.9	Yes	151.3	Yes	Yes
33	6/14/2019			173.8	Yes	177.4	Yes	150.8	Yes	Yes
34	6/15/2019			95.2	No	90.1	No	94.1	No	No

CompostBatch Process Batch Report

Batch ID:	10
Start Date:	7/10/2019
End Date:	8/11/2019
Report Date:	8/12/2019
Location:	Bay 7 Curing was Bay 3
Feedstock:	FW 7 YW Mix
Description	
Required Temperature (F):	131

Actual Days Above Temperatur 27

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 19 Temp.	Above	Probe 20 Temp.	Above	Probe 21 Temp.	Above	All Above
1	7/10/2019			105.1	No	95.4	No	98.6	No	No
2	7/11/2019			196.5	Yes	174.4	Yes	174.9	Yes	Yes
3	7/12/2019			198.5	Yes	188.2	Yes	182.8	Yes	Yes
4	7/13/2019			197.6	Yes	192.7	Yes	189.7	Yes	Yes
5	7/14/2019			196	Yes	192.7	Yes	193.1	Yes	Yes
6	7/15/2019			194.5	Yes	192.4	Yes	193.8	Yes	Yes
7	7/16/2019			193.1	Yes	191.8	Yes	194	Yes	Yes
8	7/17/2019			191.5	Yes	191.3	Yes	194	Yes	Yes
9	7/18/2019			189.1	Yes	190.6	Yes	193.1	Yes	Yes
10	7/19/2019			187.2	Yes	190	Yes	193.1	Yes	Yes
11	7/20/2019			185.2	Yes	190	Yes	192.9	Yes	Yes
12	7/21/2019			183.4	Yes	190	Yes	193.1	Yes	Yes
13	7/22/2019			180.9	Yes	190	Yes	193.1	Yes	Yes
14	7/23/2019			178	Yes	189.7	Yes	193.3	Yes	Yes
15	7/24/2019			175.3	Yes	189.3	Yes	194.2	Yes	Yes
16	7/25/2019			172.9	Yes	189.1	Yes	194.5	Yes	Yes
17	7/26/2019			171.5	Yes	189.1	Yes	195.1	Yes	Yes
18	7/27/2019			0	No	0	No	0	No	No
19	7/28/2019			0	No	0	No	0	No	No
20	7/29/2019			173.5	Yes	188.2	Yes	195.1	Yes	Yes
21	7/30/2019			176	Yes	188.2	Yes	195.1	Yes	Yes
22	7/31/2019			178.9	Yes	187.9	Yes	194.9	Yes	Yes
23	8/1/2019			182.5	Yes	187.5	Yes	194.2	Yes	Yes
24	8/2/2019			185.2	Yes	187	Yes	193.6	Yes	Yes
25	8/3/2019			186.6	Yes	186.4	Yes	192.4	Yes	Yes
26	8/4/2019			187	Yes	186.1	Yes	191.3	Yes	Yes
27	8/5/2019			187	Yes	185.4	Yes	189.7	Yes	Yes
28	8/6/2019			186.4	Yes	185	Yes	188.4	Yes	Yes
29	8/7/2019			185.9	Yes	184.3	Yes	187	Yes	Yes
30	8/8/2019			185.2	Yes	183.9	Yes	185.7	Yes	Yes
31	8/9/2019			184.1	Yes	183.4	Yes	79.9	No	No
32	8/10/2019			82.8	No	85.1	No	74.8	No	No
33	8/11/2019			93.2	No	95	No	80.2	No	No

CompostBatch Process Batch Report

Batch ID: 10
Start Date: 8/14/2019
End Date: 9/16/2019
Report Date: 9/18/2019
Location: Bay 7 Curing was Bay 3
Feedstock: FW 7 YW Mix
Description
Required Temperature (F): 131

Actual Days Above Temperatur 19

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 19 Temp.	Probe 19 Above	Probe 20 Temp.	Probe 20 Above	Probe 21 Temp.	Probe 21 Above	All Above
1	8/14/2019			102.4	No	106	No	91	No	No
2	8/15/2019			91.6	No	94.6	No	84.7	No	No
3	8/16/2019			170.8	Yes	181.4	Yes	182.3	Yes	Yes
4	8/17/2019			182.1	Yes	186.1	Yes	190.2	Yes	Yes
5	8/18/2019			191.1	Yes	190	Yes	189.5	Yes	Yes
6	8/19/2019			193.1	Yes	190.9	Yes	185	Yes	Yes
7	8/20/2019			193.3	Yes	191.8	Yes	180	Yes	Yes
8	8/21/2019			193.5	Yes	192.4	Yes	175.6	Yes	Yes
9	8/22/2019			193.3	Yes	192.9	Yes	172.4	Yes	Yes
10	8/23/2019			193.6	Yes	193.3	Yes	0	No	No
11	8/24/2019			194.2	Yes	193.6	Yes	0	No	No
12	8/25/2019			194.4	Yes	194	Yes	178.2	Yes	Yes
13	8/26/2019			194.5	Yes	194	Yes	176.5	Yes	Yes
14	8/27/2019			194.4	Yes	193.6	Yes	174	Yes	Yes
15	8/28/2019			194	Yes	193.5	Yes	172.4	Yes	Yes
16	8/29/2019			193.6	Yes	193.3	Yes	171.3	Yes	Yes
17	8/30/2019			193.6	Yes	193.3	Yes	169.7	Yes	Yes
18	8/31/2019			194	Yes	193.6	Yes	168.1	Yes	Yes
19	9/1/2019			194	Yes	194	Yes	166.1	Yes	Yes
20	9/2/2019			193.6	Yes	193.6	Yes	163.6	Yes	Yes
21	9/3/2019			192.2	Yes	193.3	Yes	161.6	Yes	Yes
22	9/4/2019			191.8	Yes	192.7	Yes	159.8	Yes	Yes
23	9/5/2019			191.8	Yes	192.7	Yes	157.8	Yes	Yes
24	9/6/2019			191.8	Yes	192.6	Yes	0	No	No
25	9/7/2019			191.5	Yes	192	Yes	0	No	No
26	9/8/2019			191.5	Yes	191.7	Yes	0	No	No
27	9/9/2019			191.7	Yes	191.5	Yes	0	No	No
28	9/10/2019			191.8	Yes	191.3	Yes	0	No	No
29	9/11/2019			191.8	Yes	190.4	Yes	0	No	No
30	9/12/2019			191.8	Yes	190	Yes	0	No	No
31	9/13/2019			191.8	Yes	189.5	Yes	0	No	No
32	9/14/2019			191.8	Yes	189.1	Yes	0	No	No
33	9/15/2019			82.8	No	83.3	No	0	No	No
34	9/16/2019			73.6	No	73.8	No	0	No	No

CompostBatch Process Batch Report

Batch ID:	10
Start Date:	10/2/2019
End Date:	10/31/2019
Report Date:	11/8/2019
Location:	Bay 7 Curing was Bay 3
Feedstock:	FW 7 YW Mix
Description	
Required Temperature (F):	131
Actual Days Above Temperatur	0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 19 Temp.	Above	Probe 20 Temp.	Above	Probe 21 Temp.	Above	All Above
1	10/2/2019			71.2	No	71.1	No	0	No	No
2	10/3/2019			192.4	Yes	193.8	Yes	0	No	No
3	10/4/2019			191.8	Yes	194.5	Yes	0	No	No
4	10/5/2019			189.7	Yes	194.5	Yes	0	No	No
5	10/6/2019			187.5	Yes	194	Yes	0	No	No
6	10/7/2019			186.1	Yes	193.3	Yes	0	No	No
7	10/8/2019			183.7	Yes	192	Yes	0	No	No
8	10/9/2019			182.5	Yes	190.9	Yes	0	No	No
9	10/10/2019			181.8	Yes	189.9	Yes	0	No	No
10	10/11/2019			181.4	Yes	188.4	Yes	0	No	No
11	10/12/2019			181	Yes	187.9	Yes	0	No	No
12	10/13/2019			180.1	Yes	187	Yes	0	No	No
13	10/14/2019			179.2	Yes	186.3	Yes	0	No	No
14	10/15/2019			178.7	Yes	185.4	Yes	0	No	No
15	10/16/2019			178.5	Yes	184.1	Yes	0	No	No
16	10/17/2019			178	Yes	181.4	Yes	0	No	No
17	10/18/2019			176.5	Yes	176.2	Yes	0	No	No
18	10/19/2019			174.7	Yes	172.9	Yes	0	No	No
19	10/20/2019			173.8	Yes	170.2	Yes	0	No	No
20	10/21/2019			173.1	Yes	167	Yes	0	No	No
21	10/22/2019			171.7	Yes	165	Yes	0	No	No
22	10/23/2019			169.9	Yes	165	Yes	0	No	No
23	10/24/2019			167.4	Yes	165.9	Yes	0	No	No
24	10/25/2019			0	No	0	No	0	No	No
25	10/26/2019			0	No	0	No	0	No	No
26	10/27/2019			0	No	0	No	0	No	No
27	10/28/2019			165	Yes	162.3	Yes	0	No	No
28	10/29/2019			164.8	Yes	162	Yes	0	No	No
29	10/30/2019			64.8	No	64.8	No	0	No	No
30	10/31/2019			67.5	No	67.6	No	0	No	No

CompostBatch Process Batch Report

Batch ID:	10
Start Date:	11/2/2019
End Date:	12/11/2019
Report Date:	12/11/2019
Location:	Bay 7 Curing was Bay 3
Feedstock:	FW 7 YW Mix
Description	
Required Temperatur	131
Actual Days Above Te	0

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 19 Temp.	Above	Probe 20 Temp.	Above	Probe 21 Temp.	Above	All Above
6	11/7/2019			48.4	No	48.6	No	0	No	No
7	11/8/2019			185.2	Yes	189	Yes	0	No	No
8	11/9/2019			185.5	Yes	189.5	Yes	0	No	No
9	11/10/2019			185.9	Yes	190.8	Yes	0	No	No
10	11/11/2019			187	Yes	191.5	Yes	0	No	No
11	11/12/2019			187.2	Yes	191.5	Yes	0	No	No
12	11/13/2019			187	Yes	191.1	Yes	0	No	No
13	11/14/2019			186.6	Yes	190.6	Yes	0	No	No
14	11/15/2019			186.1	Yes	190	Yes	0	No	No
15	11/16/2019			185.5	Yes	189.9	Yes	0	No	No
16	11/17/2019			185	Yes	189.5	Yes	0	No	No
17	11/18/2019			184.3	Yes	187.3	Yes	0	No	No
18	11/19/2019			183.7	Yes	185	Yes	0	No	No
19	11/20/2019			182.8	Yes	185	Yes	0	No	No
20	11/21/2019			183.2	Yes	184.1	Yes	0	No	No
21	11/22/2019			183.4	Yes	182.7	Yes	0	No	No
22	11/23/2019			182.8	Yes	179.2	Yes	0	No	No
23	11/24/2019			182.5	Yes	176.2	Yes	0	No	No
24	11/25/2019			181.6	Yes	173.5	Yes	0	No	No
25	11/26/2019			180.7	Yes	171.5	Yes	0	No	No
26	11/27/2019			179.8	Yes	170.1	Yes	0	No	No
27	11/28/2019			178.9	Yes	169	Yes	0	No	No
28	11/29/2019			177.8	Yes	168.1	Yes	0	No	No
29	11/30/2019			177.6	Yes	166.3	Yes	0	No	No
30	12/1/2019			177.1	Yes	163.6	Yes	0	No	No
31	12/2/2019			176.5	Yes	160.5	Yes	0	No	No
32	12/3/2019			175.1	Yes	157.3	Yes	0	No	No
33	12/4/2019			174.2	Yes	154.2	Yes	0	No	No
34	12/5/2019			173.7	Yes	152.2	Yes	0	No	No
35	12/6/2019			173.1	Yes	150.1	Yes	0	No	No
36	12/7/2019			172.6	Yes	148.6	Yes	0	No	No
37	12/8/2019			172	Yes	147.6	Yes	0	No	No
38	12/9/2019			171.9	Yes	146.5	Yes	0	No	No
39	12/10/2019			50.7	No	50.2	No	0	No	No
40	12/11/2019			32	No	37.2	No	0	No	No

Bay 8

CompostBatch Process Batch Report
Batch ID: 8
Start Date: 1/9/2019
End Date: 2/10/2019
Report Dat 2/21/2019
Location: Bay 8 Curing was Bay 4
Feedstock: FW & YW Mix
Descriptior Air 5 x 15
Required T 131

Actual Day: 28

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22		Probe 23		Probe 24		All Above
				Temp.	Above	Temp.	Above	Temp.	Above	
1	1/9/2019			40.3	No	40.3	No	40.3	No	No
2	1/10/2019			32	No	32	No	32	No	No
3	1/11/2019			140.9	Yes	143.4	Yes	157.6	Yes	Yes
4	1/12/2019			147.2	Yes	159.4	Yes	162.9	Yes	Yes
5	1/13/2019			152.2	Yes	172.6	Yes	165.4	Yes	Yes
6	1/14/2019			156.9	Yes	187	Yes	166.6	Yes	Yes
7	1/15/2019			162.1	Yes	190.2	Yes	168.6	Yes	Yes
8	1/16/2019			164.1	Yes	190.6	Yes	169.3	Yes	Yes
9	1/17/2019			0	No	0	No	0	No	No
10	1/18/2019			166.3	Yes	194	Yes	169.9	Yes	Yes
11	1/19/2019			165.7	Yes	195.4	Yes	169.5	Yes	Yes
12	1/20/2019			165.4	Yes	195.4	Yes	167.7	Yes	Yes
13	1/21/2019			166.1	Yes	195.4	Yes	165	Yes	Yes
14	1/22/2019			167.5	Yes	195.4	Yes	162.3	Yes	Yes
15	1/23/2019			169.3	Yes	194.9	Yes	159.8	Yes	Yes
16	1/24/2019			171.9	Yes	193.5	Yes	157.6	Yes	Yes
17	1/25/2019			174.4	Yes	191.7	Yes	154.9	Yes	Yes
18	1/26/2019			178.3	Yes	190	Yes	153.1	Yes	Yes
19	1/27/2019			182.8	Yes	187.3	Yes	151.9	Yes	Yes
20	1/28/2019			187	Yes	184.6	Yes	151.2	Yes	Yes
21	1/29/2019			189.3	Yes	181.9	Yes	150.6	Yes	Yes
22	1/30/2019			190.4	Yes	179.4	Yes	150.4	Yes	Yes
23	1/31/2019			192.4	Yes	176.9	Yes	150.8	Yes	Yes
24	2/1/2019			194.5	Yes	174.2	Yes	150.8	Yes	Yes
25	2/2/2019			195.1	Yes	172	Yes	150.6	Yes	Yes
26	2/3/2019			195.1	Yes	172	Yes	150.1	Yes	Yes
27	2/4/2019			194.2	Yes	172.4	Yes	149.5	Yes	Yes
28	2/5/2019			193.6	Yes	172.6	Yes	149.2	Yes	Yes
29	2/6/2019			194.9	Yes	172.6	Yes	148.8	Yes	Yes
30	2/7/2019			194.2	Yes	173.3	Yes	149.2	Yes	Yes
31	2/8/2019			194	Yes	173.5	Yes	149.5	Yes	Yes
32	2/9/2019			32	No	32	No	32	No	No
33	2/10/2019			32.2	No	32	No	32	No	No

CompostBatch Process Batch Report

Batch ID:	8
Start Date:	2/19/2019
End Date:	3/31/2019
Report Date:	4/8/2019
Location:	Bay 8 Curing was Bay 4
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperature (F):	131

Actual Days Above Temperatur 35

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22 Temp.	Above	Probe 23 Temp.	Above	Probe 24 Temp.	Above	All Above
1	2/19/2019			32	No	32	No	32	No	No
2	2/20/2019			36.5	No	34.7	No	35.6	No	No
3	2/21/2019			41.9	No	39.7	No	41.5	No	No
4	2/22/2019			163.9	Yes	168.8	Yes	177.8	Yes	Yes
5	2/23/2019			164.1	Yes	181.9	Yes	180.5	Yes	Yes
6	2/24/2019			166.8	Yes	183.9	Yes	180.5	Yes	Yes
7	2/25/2019			176	Yes	183.7	Yes	180.1	Yes	Yes
8	2/26/2019			180.1	Yes	184.6	Yes	180.1	Yes	Yes
9	2/27/2019			181.9	Yes	186.1	Yes	179.8	Yes	Yes
10	2/28/2019			183.9	Yes	186.6	Yes	178.3	Yes	Yes
11	3/1/2019			185.4	Yes	186.4	Yes	176.2	Yes	Yes
12	3/2/2019			186.4	Yes	185.5	Yes	174.4	Yes	Yes
13	3/3/2019			187	Yes	184.1	Yes	172.9	Yes	Yes
14	3/4/2019			187.7	Yes	182.5	Yes	171.5	Yes	Yes
15	3/5/2019			187.9	Yes	180.7	Yes	169.7	Yes	Yes
16	3/6/2019			189.1	Yes	179.1	Yes	167.5	Yes	Yes
17	3/7/2019			190.8	Yes	177.6	Yes	165.2	Yes	Yes
18	3/8/2019			192.4	Yes	176.5	Yes	163	Yes	Yes
19	3/9/2019			193.5	Yes	176	Yes	162	Yes	Yes
20	3/10/2019			193.5	Yes	176.5	Yes	162.7	Yes	Yes
21	3/11/2019			192.4	Yes	176.7	Yes	163.2	Yes	Yes
22	3/12/2019			189.5	Yes	176.5	Yes	165.2	Yes	Yes
23	3/13/2019			189	Yes	176.2	Yes	165.9	Yes	Yes
24	3/14/2019			187.5	Yes	174.4	Yes	166.3	Yes	Yes
25	3/15/2019			185.5	Yes	171.9	Yes	167.2	Yes	Yes
26	3/16/2019			184.8	Yes	170.6	Yes	167.5	Yes	Yes
27	3/17/2019			184.3	Yes	169.9	Yes	167.5	Yes	Yes
28	3/18/2019			184.6	Yes	170.2	Yes	167.2	Yes	Yes
29	3/19/2019			184.8	Yes	170.8	Yes	166.3	Yes	Yes
30	3/20/2019			185	Yes	170.6	Yes	165.2	Yes	Yes
31	3/21/2019			184.6	Yes	170.4	Yes	163.2	Yes	Yes
32	3/22/2019			184.3	Yes	169.5	Yes	161.6	Yes	Yes
33	3/23/2019			182.8	Yes	168.4	Yes	160.7	Yes	Yes
34	3/24/2019			181.9	Yes	167.5	Yes	160.7	Yes	Yes
35	3/25/2019			181.6	Yes	167.2	Yes	160.9	Yes	Yes
36	3/26/2019			181.2	Yes	167.2	Yes	160.9	Yes	Yes
37	3/27/2019			180.5	Yes	167.2	Yes	160.7	Yes	Yes
38	3/28/2019			179.6	Yes	167	Yes	160	Yes	Yes
39	3/29/2019			56.1	No	56.3	No	55.9	No	No
40	3/30/2019			66.4	No	66.4	No	66.4	No	No
41	3/31/2019			60.8	No	61.2	No	60.8	No	No

CompostBatch Process Batch Report

Batch ID:	8
Start Date:	3/31/2019
End Date:	5/3/2019
Report Date:	5/3/2019
Location:	Bay 8 Curing was Bay 4
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131

Actual Days Above Te 27

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22		Probe 23		Probe 24		All Above
				Temp.	Above	Temp.	Above	Temp.	Above	
1	3/31/2019			60.8	No	61.2	No	60.8	No	No
2	4/1/2019			37.4	No	37.4	No	39.6	No	No
3	4/2/2019			51.1	No	51.3	No	51.6	No	No
4	4/3/2019			52.7	No	53.2	No	53.6	No	No
5	4/4/2019			41.5	No	41.7	No	44.8	No	No
6	4/5/2019			176.9	Yes	177.1	Yes	161.8	Yes	Yes
7	4/6/2019			176.9	Yes	177.4	Yes	164.8	Yes	Yes
8	4/7/2019			174.2	Yes	179.2	Yes	168.8	Yes	Yes
9	4/8/2019			171.5	Yes	180.7	Yes	171.7	Yes	Yes
10	4/9/2019			169.3	Yes	181.4	Yes	173.1	Yes	Yes
11	4/10/2019			168.8	Yes	181.9	Yes	173.5	Yes	Yes
12	4/11/2019			170.1	Yes	181.9	Yes	173.5	Yes	Yes
13	4/12/2019			0	No	0	No	0	No	No
14	4/13/2019			175.6	Yes	181.4	Yes	173.8	Yes	Yes
15	4/14/2019			177.4	Yes	181	Yes	173.8	Yes	Yes
16	4/15/2019			179.2	Yes	180.7	Yes	173.8	Yes	Yes
17	4/16/2019			179.8	Yes	180	Yes	172.6	Yes	Yes
18	4/17/2019			180.1	Yes	179.2	Yes	171	Yes	Yes
19	4/18/2019			180.5	Yes	178	Yes	170.4	Yes	Yes
20	4/19/2019			180.7	Yes	176.5	Yes	170.4	Yes	Yes
21	4/20/2019			180.7	Yes	174.9	Yes	170.1	Yes	Yes
22	4/21/2019			180.5	Yes	172.9	Yes	168.8	Yes	Yes
23	4/22/2019			180.5	Yes	171.1	Yes	168.1	Yes	Yes
24	4/23/2019			180.1	Yes	170.2	Yes	167.2	Yes	Yes
25	4/24/2019			179.6	Yes	169.9	Yes	166.3	Yes	Yes
26	4/25/2019			178.9	Yes	169.9	Yes	165.2	Yes	Yes
27	4/26/2019			178	Yes	169.7	Yes	164.1	Yes	Yes
28	4/27/2019			177.1	Yes	169.2	Yes	163	Yes	Yes
29	4/28/2019			175.6	Yes	168.4	Yes	161.6	Yes	Yes
30	4/29/2019			174.2	Yes	167.4	Yes	160.7	Yes	Yes
31	4/30/2019			172.9	Yes	166.3	Yes	160	Yes	Yes
32	5/1/2019			171.7	Yes	165.2	Yes	159.1	Yes	Yes
33	5/2/2019			170.4	Yes	164.3	Yes	158.4	Yes	Yes
34	5/3/2019			58.8	No	60.4	No	58.6	No	No

CompostBatch Process Batch Report

Batch ID:	8
Start Date:	5/21/2019
End Date:	6/27/2019
Report Date:	7/18/2019
Location:	Bay 8 Curing was Bay 4
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperatur	131
Actual Days Above Te	25

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22 Temp.	Above	Probe 23 Temp.	Above	Probe 24 Temp.	Above	All Above
1	5/21/2019			67.3	No	70.9	No	64.8	No	No
2	5/22/2019			73.6	No	74.5	No	70.9	No	No
3	5/23/2019			81.5	No	84.6	No	78.4	No	No
4	5/24/2019			67.6	No	68.2	No	66.4	No	No
5	5/25/2019			79.2	No	83.8	No	76.8	No	No
6	5/26/2019			87.8	No	88.7	No	80.2	No	No
7	5/27/2019			85.6	No	90	No	78.1	No	No
8	5/28/2019			62.4	No	63.9	No	61.7	No	No
9	5/29/2019			64.6	No	65.3	No	63	No	No
10	5/30/2019			76.5	No	77.2	No	74.5	No	No
11	5/31/2019			165.7	Yes	161.2	Yes	173.5	Yes	Yes
12	6/1/2019			164.8	Yes	161.1	Yes	173.7	Yes	Yes
13	6/2/2019			158.9	Yes	160.9	Yes	173.5	Yes	Yes
14	6/3/2019			152.8	Yes	161.1	Yes	172.6	Yes	Yes
15	6/4/2019			146.8	Yes	160.9	Yes	171.7	Yes	Yes
16	6/5/2019			142.3	Yes	160.5	Yes	170.4	Yes	Yes
17	6/6/2019			139.3	Yes	159.8	Yes	168.8	Yes	Yes
18	6/7/2019			138.4	Yes	158.5	Yes	167	Yes	Yes
19	6/8/2019			142.3	Yes	157.5	Yes	165.9	Yes	Yes
20	6/9/2019			147.4	Yes	156	Yes	165.4	Yes	Yes
21	6/10/2019			152.2	Yes	154.4	Yes	164.8	Yes	Yes
22	6/11/2019			155.5	Yes	151.9	Yes	164.1	Yes	Yes
23	6/12/2019			156.2	Yes	149.5	Yes	163.4	Yes	Yes
24	6/13/2019			156.2	Yes	147.2	Yes	162.9	Yes	Yes
25	6/14/2019			155.8	Yes	145.2	Yes	161.8	Yes	Yes
26	6/15/2019			155.7	Yes	143.6	Yes	160.7	Yes	Yes
27	6/16/2019			0	No	0	No	0	No	No
28	6/17/2019			152.6	Yes	142	Yes	159.1	Yes	Yes
29	6/18/2019			151	Yes	141.8	Yes	158.7	Yes	Yes
30	6/19/2019			149	Yes	141.1	Yes	158.2	Yes	Yes
31	6/20/2019			147.4	Yes	140.5	Yes	157.6	Yes	Yes
32	6/21/2019			146.5	Yes	139.6	Yes	156.9	Yes	Yes
33	6/22/2019			145.9	Yes	139.1	Yes	156	Yes	Yes
34	6/23/2019			146.3	Yes	138.4	Yes	155.3	Yes	Yes
35	6/24/2019			146.8	Yes	137.8	Yes	154.6	Yes	Yes
36	6/25/2019			147	Yes	136.9	Yes	154.2	Yes	Yes
37	6/26/2019			99.3	No	109	No	106.5	No	No
38	6/27/2019			93.4	No	103.6	No	97.7	No	No

CompostBatch Process Batch Report

Batch ID: 8
Start Date: 7/18/2019
End Date: 8/22/2019
Report Date: 8/22/2019
Location: Bay 8 Curing was Bay 4
Feedstock: FW & YW Mix
Description Air 5 x 15
Required Temperatur 131

Actual Days Above Te 29

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22 Temp.	Above	Probe 23 Temp.	Above	Probe 24 Temp.	Above	All Above
1	7/18/2019			97.2	No	109.6	No	101.3	No	No
2	7/19/2019			97.7	No	104.7	No	103.1	No	No
3	7/20/2019			182.3	Yes	182.7	Yes	184.1	Yes	Yes
4	7/21/2019			178.9	Yes	188.2	Yes	186.8	Yes	Yes
5	7/22/2019			170.2	Yes	189.7	Yes	187.3	Yes	Yes
6	7/23/2019			161.4	Yes	190	Yes	187.3	Yes	Yes
7	7/24/2019			154.2	Yes	190.6	Yes	186.8	Yes	Yes
8	7/25/2019			148.6	Yes	191.5	Yes	185.7	Yes	Yes
9	7/26/2019			145.4	Yes	191.8	Yes	184.6	Yes	Yes
10	7/27/2019			0	No	0	No	0	No	No
11	7/28/2019			0	No	0	No	0	No	No
12	7/29/2019			150.6	Yes	192.7	Yes	182.5	Yes	Yes
13	7/30/2019			153.3	Yes	192.7	Yes	182.3	Yes	Yes
14	7/31/2019			155.8	Yes	192.6	Yes	181.9	Yes	Yes
15	8/1/2019			157.1	Yes	192.4	Yes	181.4	Yes	Yes
16	8/2/2019			157.1	Yes	191.7	Yes	180.5	Yes	Yes
17	8/3/2019			156.7	Yes	190.4	Yes	179.4	Yes	Yes
18	8/4/2019			154.9	Yes	188.6	Yes	178.3	Yes	Yes
19	8/5/2019			152.2	Yes	186.1	Yes	177.1	Yes	Yes
20	8/6/2019			149.4	Yes	183	Yes	176.2	Yes	Yes
21	8/7/2019			147.6	Yes	179.8	Yes	175.3	Yes	Yes
22	8/8/2019			147.2	Yes	176.9	Yes	174.2	Yes	Yes
23	8/9/2019			147.7	Yes	173.8	Yes	173.1	Yes	Yes
24	8/10/2019			149.5	Yes	171.5	Yes	171.9	Yes	Yes
25	8/11/2019			150.6	Yes	169.7	Yes	170.8	Yes	Yes
26	8/12/2019			150.6	Yes	169.3	Yes	169.9	Yes	Yes
27	8/13/2019			149.5	Yes	169	Yes	169.3	Yes	Yes
28	8/14/2019			147.7	Yes	167.9	Yes	168.4	Yes	Yes
29	8/15/2019			145.6	Yes	165.9	Yes	167.7	Yes	Yes
30	8/16/2019			144.9	Yes	163.9	Yes	167	Yes	Yes
31	8/17/2019			145	Yes	162.7	Yes	166.3	Yes	Yes
32	8/18/2019			144.5	Yes	161.2	Yes	165.4	Yes	Yes
33	8/19/2019			143.1	Yes	159.4	Yes	164.3	Yes	Yes
34	8/20/2019			86.9	No	87.4	No	91.6	No	No
35	8/21/2019			84.4	No	85.3	No	85.5	No	No
36	8/22/2019			74.5	No	74.8	No	74.8	No	No

CompostBatch Process Batch Report

Batch ID: 8
Start Date: 8/28/2019
End Date: 9/28/2019
Report Date: 10/28/2019
Location: Bay 8 Curing was Bay 4
Feedstock: FW & YW Mix
Description Air 5 x 15
Required Temperatur 131

Actual Days Above Te 30

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22 Temp.	Above	Probe 23 Temp.	Above	Probe 24 Temp.	Above	All Above
1	8/28/2019			73	No	74.1	No	74.8	No	No
2	8/29/2019			167	Yes	174.4	Yes	157.1	Yes	Yes
3	8/30/2019			196.3	Yes	182.7	Yes	178	Yes	Yes
4	8/31/2019			198	Yes	195.4	Yes	191.5	Yes	Yes
5	9/1/2019			198.1	Yes	196.3	Yes	191.8	Yes	Yes
6	9/2/2019			197.6	Yes	196.2	Yes	191.7	Yes	Yes
7	9/3/2019			196.7	Yes	195.8	Yes	191.5	Yes	Yes
8	9/4/2019			196.2	Yes	195.1	Yes	192	Yes	Yes
9	9/5/2019			196.2	Yes	194.9	Yes	192.7	Yes	Yes
10	9/6/2019			196.5	Yes	195.3	Yes	192.6	Yes	Yes
11	9/7/2019			196.7	Yes	195.3	Yes	191.8	Yes	Yes
12	9/8/2019			196.9	Yes	195.4	Yes	191.1	Yes	Yes
13	9/9/2019			197.2	Yes	196	Yes	190.4	Yes	Yes
14	9/10/2019			197.4	Yes	196.3	Yes	189.1	Yes	Yes
15	9/11/2019			196.9	Yes	196.2	Yes	187.7	Yes	Yes
16	9/12/2019			196.7	Yes	195.8	Yes	185.9	Yes	Yes
17	9/13/2019			196.7	Yes	196.3	Yes	183	Yes	Yes
18	9/14/2019			196.5	Yes	196.3	Yes	181.6	Yes	Yes
19	9/15/2019			196	Yes	196.3	Yes	178	Yes	Yes
20	9/16/2019			195.4	Yes	196.3	Yes	173.5	Yes	Yes
21	9/17/2019			194.9	Yes	195.8	Yes	170.6	Yes	Yes
22	9/18/2019			194.9	Yes	195.8	Yes	167.9	Yes	Yes
23	9/19/2019			194.4	Yes	195.8	Yes	166.1	Yes	Yes
24	9/20/2019			193.5	Yes	195.8	Yes	164.5	Yes	Yes
25	9/21/2019			192.2	Yes	195.4	Yes	163.6	Yes	Yes
26	9/22/2019			191.1	Yes	195.1	Yes	163.9	Yes	Yes
27	9/23/2019			190	Yes	194.7	Yes	164.1	Yes	Yes
28	9/24/2019			187.9	Yes	194.4	Yes	163.9	Yes	Yes
29	9/25/2019			185.7	Yes	194.5	Yes	162.7	Yes	Yes
30	9/26/2019			184.6	Yes	194.5	Yes	159.8	Yes	Yes
31	9/27/2019			183	Yes	194.9	Yes	156.4	Yes	Yes
32	9/28/2019			81.9	No	82.6	No	109.6	No	No

CompostBatch Process Batch Report

Batch ID:	8
Start Date:	10/6/2019
End Date:	11/10/2019
Report Date:	11/12/2019
Location:	Bay 8 Curing was Bay 4
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperature (F):	131
Actual Days Above Temperature:	29

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22		Probe 23		Probe 24		All Above
				Temp.	Above	Temp.	Above	Temp.	Above	
1	10/6/2019			67.6	No	67.8	No	69.1	No	No
2	10/7/2019			65.7	No	65.8	No	65.7	No	No
3	10/8/2019			141.4	Yes	176.9	Yes	184.6	Yes	Yes
4	10/9/2019			162.1	Yes	190.9	Yes	188.1	Yes	Yes
5	10/10/2019			185.5	Yes	193.3	Yes	188.4	Yes	Yes
6	10/11/2019			195.4	Yes	194	Yes	191.1	Yes	Yes
7	10/12/2019			195.6	Yes	194	Yes	193.1	Yes	Yes
8	10/13/2019			196	Yes	194.2	Yes	193.3	Yes	Yes
9	10/14/2019			196.9	Yes	194.5	Yes	193.3	Yes	Yes
10	10/15/2019			197.6	Yes	195.1	Yes	192.7	Yes	Yes
11	10/16/2019			197.6	Yes	195.3	Yes	191.8	Yes	Yes
12	10/17/2019			197.1	Yes	195.1	Yes	189.5	Yes	Yes
13	10/18/2019			197.1	Yes	195.1	Yes	185.9	Yes	Yes
14	10/19/2019			197.4	Yes	195.4	Yes	183.6	Yes	Yes
15	10/20/2019			197.4	Yes	195.4	Yes	181	Yes	Yes
16	10/21/2019			197.2	Yes	195.3	Yes	179.2	Yes	Yes
17	10/22/2019			197.2	Yes	195.1	Yes	178	Yes	Yes
18	10/23/2019			196.7	Yes	194.9	Yes	176.2	Yes	Yes
19	10/24/2019			196.3	Yes	194.9	Yes	173.8	Yes	Yes
20	10/25/2019			0	No	0	No	0	No	No
21	10/26/2019			0	No	0	No	0	No	No
22	10/27/2019			0	No	0	No	0	No	No
23	10/28/2019			195.8	Yes	194.5	Yes	162.1	Yes	Yes
24	10/29/2019			196	Yes	194.9	Yes	161.2	Yes	Yes
25	10/30/2019			196.2	Yes	194.9	Yes	158.2	Yes	Yes
26	10/31/2019			196.2	Yes	194.9	Yes	155.7	Yes	Yes
27	11/1/2019			195.4	Yes	194.7	Yes	153.1	Yes	Yes
28	11/2/2019			195.4	Yes	194.9	Yes	151	Yes	Yes
29	11/3/2019			194.9	Yes	194.7	Yes	149.2	Yes	Yes
30	11/4/2019			194.2	Yes	194.9	Yes	147.7	Yes	Yes
31	11/5/2019			193.6	Yes	194.7	Yes	146.7	Yes	Yes
32	11/6/2019			191.7	Yes	194.5	Yes	145.4	Yes	Yes
33	11/7/2019			190.9	Yes	194.9	Yes	145	Yes	Yes
34	11/8/2019			189	Yes	194.9	Yes	144.1	Yes	Yes
35	11/9/2019			40.3	No	39.6	No	38.8	No	No
36	11/10/2019			47.8	No	47.7	No	46.6	No	No

CompostBatch Process Batch Report

Batch ID:	8
Start Date:	11/11/2019
End Date:	12/17/2019
Report Date:	12/17/2019
Location:	Bay 8 Curing was Bay 4
Feedstock:	FW & YW Mix
Description	Air 5 x 15
Required Temperature (F):	131
Actual Days Above Temperature:	34

Probe Maximum Temperature Details

Day	Date	Turn	Water	Probe 22 Temp.	Probe 22 Above	Probe 23 Temp.	Probe 23 Above	Probe 24 Temp.	Probe 24 Above	All Above
1	11/11/2019			41.5	No	41.2	No	41.2	No	No
2	11/12/2019			32	No	32	No	32	No	No
3	11/13/2019			177.3	Yes	178.2	Yes	165.4	Yes	Yes
4	11/14/2019			186.8	Yes	182.5	Yes	177.6	Yes	Yes
5	11/15/2019			188.6	Yes	184.1	Yes	183.6	Yes	Yes
6	11/16/2019			188.8	Yes	184.3	Yes	186.8	Yes	Yes
7	11/17/2019			188.6	Yes	183.4	Yes	189.3	Yes	Yes
8	11/18/2019			187.9	Yes	182.7	Yes	189.7	Yes	Yes
9	11/19/2019			187.3	Yes	182.3	Yes	189.7	Yes	Yes
10	11/20/2019			186.8	Yes	181.6	Yes	189.5	Yes	Yes
11	11/21/2019			186.6	Yes	181.6	Yes	189.3	Yes	Yes
12	11/22/2019			186.1	Yes	181.4	Yes	188.8	Yes	Yes
13	11/23/2019			185.2	Yes	181.4	Yes	188.6	Yes	Yes
14	11/24/2019			184.3	Yes	180.7	Yes	187.9	Yes	Yes
15	11/25/2019			182.8	Yes	180.1	Yes	187	Yes	Yes
16	11/26/2019			181.9	Yes	180	Yes	186.4	Yes	Yes
17	11/27/2019			181.2	Yes	179.8	Yes	185.9	Yes	Yes
18	11/28/2019			180.1	Yes	179.8	Yes	185.4	Yes	Yes
19	11/29/2019			179.2	Yes	179.6	Yes	185	Yes	Yes
20	11/30/2019			178.5	Yes	179.1	Yes	184.3	Yes	Yes
21	12/1/2019			176.7	Yes	178.2	Yes	183	Yes	Yes
22	12/2/2019			174.2	Yes	177.1	Yes	180.9	Yes	Yes
23	12/3/2019			171.3	Yes	177.1	Yes	179.2	Yes	Yes
24	12/4/2019			168.4	Yes	176	Yes	177.4	Yes	Yes
25	12/5/2019			166.1	Yes	175.5	Yes	176	Yes	Yes
26	12/6/2019			164.5	Yes	175.3	Yes	175.1	Yes	Yes
27	12/7/2019			163.9	Yes	175.5	Yes	174.4	Yes	Yes
28	12/8/2019			163.9	Yes	175.3	Yes	173.8	Yes	Yes
29	12/9/2019			163.6	Yes	174.4	Yes	173.3	Yes	Yes
30	12/10/2019			163.4	Yes	174.6	Yes	172.6	Yes	Yes
31	12/11/2019			162.7	Yes	174.4	Yes	172	Yes	Yes
32	12/12/2019			162.5	Yes	174	Yes	171.9	Yes	Yes
33	12/13/2019			162.7	Yes	173.7	Yes	171.7	Yes	Yes
34	12/14/2019			162.7	Yes	173.3	Yes	171.7	Yes	Yes
35	12/15/2019			162.1	Yes	172.8	Yes	171.5	Yes	Yes
36	12/16/2019			160.9	Yes	172.2	Yes	171.1	Yes	Yes
37	12/17/2019			32	No	32	No	32	No	No

APPENDIX G-2: Amboy Compost Facility - 2020 Registered or Permitted Facility Annual Report for Composting

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New York State Department of Environmental Conservation
Division of Materials Management
Albany, New York 12233-7253

2020

REGISTERED OR PERMITTED FACILITY ANNUAL REPORT

COMPOSTING

(DO NOT USE THIS FORM FOR BIOSOLIDS COMPOSTING)

6 NYCRR Part 361-3.2

This annual report is for the year of operation from January 01, 2020 to December 31, 2020

Annual Report Form Due: No Later than March 1, 2021

This form may be used for all composting facilities under section 361-3.2 of the Part 360 series except for biosolids composting. Biosolids composting requires the submission of a different annual report form. Forms for all solid waste management facilities can be found at http://www.dec.ny.gov/chemical/52706.html. If you have any questions on this form, please e-mail organicrecycling@dec.ny.gov.

Failure to provide the required information requested is a violation of Environmental Conservation Law. Timely submission of a properly completed form to the Department's Regional Office that has jurisdiction over your facility and to the Department's Central Office is required to meet the Annual Report requirements of 6 NYCRR Part 360 series.

Attach additional sheets if space on the pages is insufficient or supplementary information is required or appropriate.

FACILITY NAME: OCRRA Amboy Compost Facility

SW FACILITY ACTIVITY NUMBER(S): (Ex. 02P20099) 34C09

COUNTY WHERE FACILITY IS LOCATED: Onondaga County

DEC USE ONLY

Region: SWIMS:

MATRIX:

Date Reviewed:

Reviewed By:

Data Entered:

COMPOST FACILITY ANNUAL REPORT

SECTION 1 – FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: OCRRA Amboy Compost Facility			
FACILITY LOCATION ADDRESS: 6296 Airport Road	**FACILITY CITY:** Syracuse	**STATE:** NY	**ZIP CODE:** 13209
FACILITY TOWN: Camillus	**FACILITY COUNTY:** Onondaga	**FACILITY PHONE NUMBER:** 315-453-2866	
NYSDEC REGION #: 7			
FACILITY CONTACT: Kevin Spillane	**CONTACT PHONE NUMBER:** 315-453-2866		
CONTACT EMAIL ADDRESS: kspillane@ocrra.org			
OWNER INFORMATION			
OWNER NAME: OCRRA	**OWNER PHONE NUMBER:** 315-453-2866		
OWNER ADDRESS: 100 Elwood Davis Road	**OWNER CITY:** North Syracuse	**STATE:** NY	**ZIP CODE:** 13212
OWNER CONTACT: Dereth Glance	**OWNER CONTACT EMAIL ADDRESS:** dglance@ocrra.org		
OPERATOR INFORMATION			
OPERATOR NAME: ☑ *Same as owner*			
PREFERENCES			
Preferred address to receive correspondence: ○ *Facility location address* ◉ *Owner address* ○ *Other (provide):*			
Preferred email address: ◉ *Facility Contact* ○ *Owner Contact* ○ *Other (provide):*			
Preferred individual to receive correspondence: ◉ *Facility Contact* ○ *Owner* ○ *Owner Contact* ○ *Other (provide):*			

Did you operate in 2020? ◉ **Yes; Complete this form.**

○ **No; Complete and submit Sections 1, 12 and 13**. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, please notify the regional office of your intent. See attachment for Regional Office addresses and contacts.

SECTION 2 – QUANTITY OF MATERIAL RECEIVED

Please report quantities received from January 01, 2020 to December 31, 2020

	Inputs	Quantity	Unit	Source(s)
YARD WASTE	Leaves only		Choose Units	
	Grass Clippings		Choose Units	
	Mixture of Grass and Leaves	2486	Cubic Yards	Mix of Residential, Commercial and Municipal
	Brush (Small branches and limbs, <4 inch diameter)	2119	Cubic Yards	Mix of Residential, Commercial and Municipal
SSO	Source Separated Organics (Food scraps, soiled paper products, etc.)	3342	Cubic Yards	Mix of schools, residential, and commercial
	Food Processing Waste (brewery grains, grape pomace, etc.)	1962	Cubic Yards	Commercial
OTHER	Crop Residues (Corn stalks, etc.)		Choose Units	
	Manure (including bedding)	1912	Cubic Yards	Mix of farms, state fairgrounds, and zoo
	Sawdust/Shavings		Choose Units	
	Animal Carcasses (road-kill, animal mortalities)		Choose Units	
	Paper Mill Residuals		Choose Units	
	Digestate		Choose Units	
	Other: Stumps, logs	264	Cubic Yards	DOT, Land Clearing
BULKING AGENT	Woodchips		Choose Units	
	Sawdust		Choose Units	
	Other: _____		Cubic Yards	

SECTION 3 – COMPOST PRODUCTION

WHAT IS THE PROCESS DETENTION TIME? *Note: Total time material is processed, not Including storage time*	min 70-120 days	**days**
COMPOST PRODUCED DURING THE YEAR:	4605	Cubic Yards
COMPOST DISTRIBUTED DURING THE YEAR:	7595	Cubic Yards
QUANTITY CURRENTLY STOCKPILED: *Note: Finished product stockpiled*	1606	Cubic Yards
AGE OF OLDEST PRODUCT ON SITE:	6	**months**

SECTION 4 – COMPOST DISTRIBUTION

Quantity Distributed Cubic Yards	Use of Compost (landscaping, agriculture, highway, onsite, bagged, etc.)
6175	Bulk and Bag Sales, Commercial and Residential Projects
420	Bag Sales Retail
300	Residential Pass System
100	Compost Donations to Community Groups
600	Residue to WTE Facility

If **PERMITTED SSO** composting facility, continue to Section #5
SSO – Source Separated Organics

ALL OTHER COMPOSTING FACILITIES, continue to Section #9

SECTION 5 – PATHOGEN AND VECTOR ATTRACTION REDUCTION

For permitted SSO composting facilities only. Check one method for each:

Pathogen Reduction 361-3.7(a)

- ○ Windrow Composting
- ◉ Aerated Static Pile Composting
- ○ In-vessel Composting
- ○ Other (specify): _____

Vector Attraction Reduction 361-3.7(b)

- ○ 38 % Volatile Solids Reduction
- ○ SOUR
- ◉ Aerobic Process 14 days, ≥40C, ≥45 C avg.

IMPORTANT NOTE!

Attach operating and monitoring data to show compliance with methods chosen. Temperature data records should indicate when a pile was created, pile was moved, additional material was added and/or pile was turned.

SECTION 6 – FINISHED COMPOST ANALYSIS

For permitted SSOW composting facilities only. Please attach sampling analyses and laboratory reports as required under Part 360 or your permit. Copies of original laboratory results must be attached. All results, except pH and Total Solids, must be on a dry weight basis. See 361-3.9 Table 6 for pollutant limits and Table 5 for annual product testing frequency 361-3.9 Table 5.

Summarize data in table below or attached document. Print additional pages as needed.

Analysis Date =====>	1/24	8/3	10/21	1/15 (sample 12/22/20	Max. Conc. (mg/kg)
Arsenic (mg/kg)	2.9	3	3.1	3.9	41
Cadmium (mg/kg)	<0.5	<.5	<.5	<.5	10
Chromium (mg/kg)					1,000
Copper (mg/kg)	26.6	29.3	33.3	32	1,500
Lead (mg/kg)	16.8	15.6	20.5	16.2	300
Mercury (mg/kg)	.043	.033	.054	.070	10
Molybdenum (mg/kg)	<1.6	1.6	2.8	<1.6	40
Nickel (mg/kg)	6.2	6.9	9.8	7.8	200
Selenium (mg/kg)	<2.7	<2.6	<2.6	<2.6	100
Zinc (mg/kg)	73.5	77.8	85.3	82	2,500
TKN (mg/kg)	15000	16000	16000	18000	
Ammonia Nitrogen (mg/kg)	95.1	28.3	122.3	176.3	
Nitrate (mg/kg)	15000	16000	16000	18000	
Total Phosphorus (mg/kg)	5200	5500	5400	5500	
Total Potassium (mg/kg)	6300	7600	7500	8700	
pH (s.u.)	7.1	8.2	8.1	8	
Total Solids(%)	49.7	47.6	53.6	48.4	
Total Volatile Solids (%)	53.48	50.05	52.76	51.43	
Fecal Coliform (MPN/g)	pass	pass	pass	pass	<1,000 MPN/g
Salmonella (MPN/4g)	pass	pass	pass	pass	<3MPN/4g
Other_____					

SECTION 7 –SAMPLE MANAGEMENT PLAN

For permitted SSO composting facilities only. Describe the number, frequency and location of samples taken.

Include a diagram showing all sampling locations.

Sampling is taken of all finished compost product four times per year as required. Selection of sampling locations and procedures follow all the guidelines in 2.01 Field Sampling of Compost Materials, 02.01-B Selection of Sampling Locations for Windrows and Piles of the Test Methods for the Examination of Compost and Composting (TMECC) Chapter 2 Sample Collection and Laboratory Preparation, jointly published by the USDA and USCC.

SECTION 8 – ATTACHMENTS (IF REQUIRED)

Permitted SSO composting facilities, please attach:

- Temperature monitoring and detention time data.
- Sample analyses laboratory reports.
- Any additional reporting requirements.

Do you have a variance to the Part 360 permit requirements? ◯ Yes ◉ No

If yes, please describe:

SECTION 9 – UNAUTHORIZED WASTE

Has unauthorized solid waste been received at the composting facility during the reporting period?

○ Yes ◉ No

If yes, give information below for each incident (attach additional sheets if necessary):

SECTION 10 – PROBLEMS/COMPLAINTS

Describe any operational problems or neighbor complaints arising from the composting operation and include any methods used to remedy the situations. This should include odor complaints, marketing difficulties, major equipment failure, etc.

The facility received two odor complaints on 1/23/20 and 816/20. Each of these complaints were investigated and reported to the NYSDEC as required. No new activities were noted at the time of the complaints and no new materials had been delivered or processed at the time of the compalints. No remedies or changes were required by NYSDEC.

SECTION 11 – QUESTIONS

Please identify any questions or concerns that you would like the Department to answer or consider:

SECTION 12 – FOOD DONATION & FOOD SCRAPS RECYCLING LAW

If you are registered or permitted to compost food scraps please complete the following. For all other operations that are interested in processing food scraps, please contact your DEC regional office to determine what is required.

In 2019, New York State passed the Food Donation & Food Scraps Recycling law. Effective January 1, 2022, large generators of food scraps (defined as generating an annual average of two tons per week or more) must donate excess food and recycle all remaining food scraps if they are within 25 miles of an organics recycler (composting facility, anaerobic digester, etc.). Examples of large generators include: large restaurants, grocery stores, hotels, colleges, etc. For more information visit: https://www.dec.ny.gov/chemical/114499.html

Contact Information

Under this legislation, DEC is responsible for providing a list of organics recyclers (compost facilities, anaerobic digesters, etc.) to large generators so they can determine available food scraps recycling opportunities in their area.

You will be included in this listing if you hold a permit or registration for the composting of source separated organics or food scraps. This will educate both large generators and haulers of food scraps that you are an available composter in their area.

Please provide the following information to include in the listing.

Name of Business: OCRRA Amboy Composting Facility

Business Phone Number: 315-453-2866

Business Email: kspillane@ocrra.org

Business Website: ocrra.org

☐ I would like to opt out of DEC listing my facility as an available food scraps recycler for large generators as it relates to the Food Donation and Food Scraps Recycling law.

Assessing Your Food Scraps Recycling Capacity

DEC is responsible for assessing available food scraps recycling capacity across New York State. Information from your operation will help us do this. Please complete the following section to calculate the amount of excess food scraps your operation will have the capability to process in **2022.** Please stay consistent with units (wet tons or cubic yards).

A. Amount of foods scraps projected to be processed in **2021**: 3000 Cubic Yards

B. Amount of foods scraps projected to be processed in **2022**: 3500 Cubic Yards

* Note: You will not be required to process this quantity of material, these estimates will only be used to assist DEC in capacity planning across the state in preparation for the Food Donation and Food Scraps Recycling law effective January 1, 2022.

Questions?

DEC USE ONLY
Excess Capacity:

SECTION 13 - CERTIFICATION

The Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

NYS Department of Environmental Conservation
Bureau of Waste Reduction and Recycling – Annual Report
625 Broadway – 9th Floor
Albany, New York 12233-7253

Phone: 518-402-8706
Fax 518-402-9024
Email address: organicrecycling@dec.ny.gov

I certify, under penalty of law, that the information that will be used to determine compliance with the requirements in Subpart 361-3 of 6 NYCRR Part 361 has been prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that false statement made herein are punishable pursuant to section 210.45 of the penal law.

Signature

2/24/2021
Date

Dereth Glance
Name (Print)

Executive Director
Title (Print)

dglance@ocrra.org
Email (Print)

100 Elwood Davis Road
Address

North Syracuse
City

New York 13212
State and Zip

(315) 453-2866
Phone Number

ATTACHMENTS: ○NO ◉YES (IF YES, LIST ATTACHMENTS)

- Temperature Data
- Laboratory Testing Results
-

APPENDIX H-1: Onondaga County Resource Recovery Facility - 2019 Annual/Quarterly Report for Active Waste-to-Energy Facility

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COVANTA
Powering Today. Protecting Tomorrow.

Covanta Onondaga, Limited Partnership
5801 Rock Cut Rd
Jamesville, NY 13078
Tel 315 498 4111
Fax 315 498 9892

February 20, 2020

Mr. Steven Perrigo
NYSDEC - Region 7
615 Erie Blvd. West
Syracuse, NY 13204-2400

RE: Onondaga County Resource Recovery Facility
Solid Waste Permit #7-3142-00028/00011
Annual and 4th Quarter Solid Waste Report for 2019 and
Annual Professional Engineers Inspection for 2019

Dear Mr. Perrigo:

Pursuant to the requirements of 6 NYCRR Part 360-3.4(f)(2) and the facility Solid Waste Management Permit, enclosed please find the Annual/Quarterly Solid Waste Report. Also enclosed is the Annual P.E. Inspection Report.

This report was prepared on a form provided by the department and modified to include the information required by the facility Solid Waste Management Permit.

In compliance with the NYSDEC letter dated September 19, 2019, with regard to Regulatory Flexibility; the Processed Waste for all of 2019 will exclude recycled metals. On page 5 of this report is the detail of the credit for recycling of scrap metal from the ash.

If you have any questions or comments, please contact me at (315)-498-4111.

Sincerely,

Paul S. Abt
Environmental Engineer
Covanta Onondaga, L.P.

w/attachment

cc: C. Albunio, OCRRA
Division of Materials Management, Bureau of Permitting and Planning, NYSDEC, Albany
Chief, Air Compliance Branch, Region II, USEPA, NY, NY

ANNUAL/QUARTERLY REPORT

A. **This Annual Municipal Waste Combustion Facility Report is for operation from January 1, 2019 to December 31, 2019 and**

B. **Quarterly Report for: October 1, 2019 to December 31, 2019**

SECTION 1 – OWNER / FACILITY INFORMATION

FACILITY INFORMATION

FACILITY NAME: **Onondaga County Resource Recovery Facility**			
FACILITY ADDRESS: **5801 Rock Cut Road**	FACILITY CITY: **Jamesville**	STATE: **NY**	ZIP CODE: **13078**
FACILITY TOWN: **Onondaga**	FACILITY COUNTY: **Onondaga**	FACILITY PHONE NUMBER: **(315) 498-4111**	
FACILITY NYS PLANNING UNIT: **Onondaga (Onondaga County Resource Recovery Agency)**	NYSDEC REGION #: **Region 7**		

360 PERMIT #: **7-3142-00028/00011**	DATE ISSUED: **8/8/2011**	DATE EXPIRES: **8/7/2021**	NYS DEC ACTIVITY CODE **34E01**

FACILITY CONTACT: **Stan Longo**	~~public~~ **X private**	CONTACT PHONE **(315) 498-4111**	CONTACT FAX: **(315) 498-9892**
CONTACT EMAIL ADDRESS: slongo@covanta.com			

OWNER INFORMATION

OWNER NAME: **Covanta Onondaga L.P.**	OWNER PHONE NUMBER: **(315) 498-4111**	OWNER FAX: **(315) 498-9892**	
OWNER ADDRESS: **5801 Rock Cut Road**	OWNER CITY: **Jamesville,**	STATE: **NY**	ZIP CODE: **13078**
OWNER CONTACT: Stan Longo	OWNER CONTACT EMAIL ADDRESS *slongo@covanta.com*		

OPERATOR INFORMATION

OPERATOR NAME: ***SAME AS OWNER***		~~public~~ **X private**

PREFERENCES

Preferred address to receive correspondence: **5801 Rock Cut Road, Jamesville, NY, 13078**
Preferred email address: *slongo@covanta.com*
Preferred individual: **Stan Longo**

Did you operate in 2019? **XX Yes; complete this form.**
~~No;~~

Complete and submit Sections 1 and 11. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, also complete the "Inactive Solid Waste Management Facility or Activity Notification Form" located at: http://www.dec.ny.gov/chemical/52706.html .

SECTION 2 - SOLID WASTE RECEIVED

Provide the tonnages of solid waste received. Report Recyclable Materials in Section 5. DO NOT REPORT IN CUBIC YARDS!

Specify the methods used to measure the quantities received and the percentages measured by each method

100% Scale Weight _____% Estimated _____% Truck Count _____% Other (Specify: _____)

Type of Solid Waste	January (tons)	February (tons)	March (tons)	April (tons)	May (tons)	June (tons)	July (tons)
Construction & Demolition Debris (mixed)	6202	5041	5378	6522	8740	6870	8110
Industrial Waste (Including Industrial Process Sludges)							
Mixed Municipal Solid Waste (Residential, Institutional & Commercial)	20052	17196	19162	21585	22925	20580	22107
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste							
Emergency Authorization Waste (Storm Debris)							
Other (Please specify) (1)	2407	1872	1842	2732	2208	2093	2975
Non-processible Bypassed	3	3	0	3	4	0	6
Total Tons Received	28,663	24,112	26,382	30,842	33,876	29,544	33,198
Total Tons Fed to Process (4)	27,820	24,404	27,404	30,450	32,905	31,644	32,041

See next page for table notes.

SECTION 2 - SOLID WASTE RECEIVED (CONTINUED)

Type of Solid Waste	Tip Fee ($/ton)	August (tons)	September (tons)	October (tons)	November (tons)	December (tons)	Total Year (tons)	Daily Avg. (tons) (3)
Construction & Demolition Debris (mixed)	(2)	6618	6610	8864	5956	7096	82,005	225
Industrial Waste (Including Industrial Process Sludges)	(2)							
Mixed Municipal Solid Waste (Residential, Institutional & Commercial)	(2)	21594	20650	22715	20612	21567	250,744	687
Sewage Treatment Plant Sludge	(2)							
Treated Regulated Medical Waste	(2)							
Emergency Authorization Waste (Storm Debris)	(2)							
Other (Please specify) (1)	(2)	3028	2600	2793	2451	2730	29,731	81
Non-processible Bypassed		6	0	0	0	5	29	0.1
Total Tons Received		31,245	29,860	34,372	29,019	31,397	362,509	993
Total Tons Fed to Process (4)		31,407	29,584	32,257	31,088	31,649	362,652	994

(1) Incoming waste is not segregated or classified, except for certain wastes which require special handling, these are termed Supplemental and Discrete wastes; see ***Section 11*** of this Report for more information. These wastes are identified in the OCRRF 360-SW Permit.

(2) Covanta Onondaga does not set the general tipping fees. The Onondaga County Resource Recovery Agency (OCRRA) sets fees with haulers. This is public information and is available from OCRRA upon request.

(3) Daily Average = Annual Total / (Number of annual operating days).

(4) In compliance with the NYSDEC letter dated September 19, 2019; Processed Waste will exclude recycled metals. Section 4 below has the detail of the credit for recycling of scrap metal from the ash.

SECTION 3- SERVICE AREA SOLID WASTE RECEIVED

Identify the facility's service area by indicating the type of solid waste received, the Solid Waste Management facility (SWMF) from which it was received (or Direct Haul), the corresponding State/Country, the County/Province, and the NYS Planning Unit and the amount received. **Refer to the list of NYS Planning Units that can be found at the end of this report.** Note: "Direct Haul" means waste hauled directly to your SWMF which did not go through another SWMF.

Specify transport method and percentages of total waste transported by each:

100% Road _____% Rail _____% Water _____% Other (specify: _____)

Explain which waste types and service areas below are included in these transport methods _____

SERVICE AREA					
TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR DIRECT HAUL	SERVICE AREA STATE OR COUNTRY	SERVICE AREA COUNTY OR PROVINCE	SERVICE AREA NYS PLANNING UNIT	TONS RECEIVED
Construction & Demolition Debris (mixed)					
	OCRRA-Ley Creek, 5158 Ley Creek Drive Liverpool, NY 13088	NY	Onondaga	Onondaga	82,005
Mixed Municipal Solid Waste (Residential, Institutional & Commercial)	OCRRA-Amboy, 6296 Airport Road Camillus, NY 13209	NY	Onondaga	Onondaga	1080
	OCRRA-Rock Cut Road, 5808 Rock Cut Road Jamesville, NY 13078	NY	Onondaga	Onondaga	36
	Direct Haul	NY	Onondaga	Onondaga	249,657
Treated Regulated Medical Waste (TRMW)*					
Other (specify)	Supplemental and Discrete wastes requiring special handling	NY	Onondaga	Onondaga	29,731
	Non-processable bypassed to OCRRA				(-29)
				TOTAL RECEIVED (tons):	362,480

Part 360 Permit Limit (tpy) **361,350 TPY processed**

Permit Limit based on Steaming rate (tpy) **NA**

* List generators that provide you Certificates of Treatment forms and quantities of TRMW from each: **NA**

SECTION 4 - Plant Performance Log

PLANT PERFORMANCE LOG SUMMARY

Annual 2019 Summary

	Waste Fed to process	Recycled Ferrous	Recycled Non-Ferr	**Waste Processed**
Qtr 1	79,627	2,662	307	**76,658**
Qtr 2	94,999	2,989	366	**91,644**
Qtr 3	93,032	3,174	397	**89,461**
Qtr 4	94,994	2,977	414	**91,603**
TOTAL	362,652	11,802	1,484	**349,366**

Disposal and Recycling Locations:
Rock Cut Road Transfer Station, Ley Creek Transfer Station,
Metalico Recycling, Covanta Fairless Hills,
High Acres Landfill, Seneca Meadows Landfill, Madison County Landfill

Processible Waste Bypassed	Tons	-0-
Untreatable Waste Bypassed	Tons	29
Incinerator #1 Operations	Hours	8088
Incinerator #2 Operations	Hours	8175
Incinerator #3 Operations	Hours	8005
Steam Generated	Klbs	2,415,809
Steam Sold	Klbs	0
Steam Consumed Turbine	Klbs	2,292,567
Turbine Operation	Hours	8,758
Power Generation	MWH	254,762
Power Sold	MWH	222,825
Power Purchased	MWH	6
Ash Residue	Tons	75,904
Volatile Matter in Ash [4]	%	4.3
Ferrous Metal Recovered & Sold	Tons	11,802
Non-Ferrous Metal Rec.& Sold	Tons	1,484
Water Consumption	Kgal	34,790

Facility's Size		Operations
Number of Units Installed	3 Units	Hours per day: 24
Nominal rated capacity of each Unit	330 TPD@ 6000 Btu/lb MSW	Days per week: 7 Days per year: 365

Hours of Maintenance Downtime	Unit #1	Unit #2	Unit #3	Total
Scheduled Maintenance	503.0	442.4	601.5	1546.9
Unscheduled Maintenance	167.9	142.3	128.8	439.0
Total	670.9	584.7	730.3	1985.9
Availability (%)	92.4	93.3	91.7	92.5

PLANT PERFORMANCE LOG SUMMARY

4th Quarter 2019 Summary

Processible Waste Bypassed	Tons	-0-
Untreatable Waste Bypassed	Hours	5
Incinerator #1 Operations	Hours	1,861
Incinerator #2 Operations	Hours	2,082
Incinerator #3 Operations	Hours	2,145
Steam Generated	Klbs	615,991
Steam Sold	Klbs	-na-
Steam Consumed Turbine	Hours	588,890
Turbine Operation	Klbs	2,209
Power Generation	MWH	66,263
Power Sold	MWH	57,992
Power Purchased	MWH	0
Ash Residue	Tons	19,502
Volatile Matter in Ash	%	4.3
Ferrous Metal Recovered & Sold	Tons	2,977
Non-Ferrous Metal Rec.& Sold	Tons	414
Water Consumption	Kgal	8,790

Hours of Maintenance Downtime	Unit #1	Unit #2	Unit #3	Total
Scheduled Maintenance	186.2	126.5	0.0	312.7
Unscheduled Maintenance	161.1	0.0	63.0	224.1
Total	347.3	126.5	63.0	536.8
Availability (%)	84.3	94.3	97.1	91.9

SECTION 5 - Transfer or Disposal Destination

Identify the transfer or disposal destination of waste removed by indicating the name of the transfer or disposal facility, the type of solid waste transferred, the corresponding State/Country, the County/Province, the NYS Planning Unit of the transfer or disposal destination facility, and the amount transferred or disposed or used as alternative daily cover (ADC) at each destination. This only includes waste sent off-site for disposal, not recovered for reuse or recycling. Exclude Metal Recovered and Recyclable Material amounts reported in Sections 3 and 4. **Refer to the list of NYS Planning Units that can be found at the end of this report.** DO NOT REPORT IN CUBIC YARDS!

Transport (specify percentages):

100% Road ___% Rail _____% Water _____% Other (specify: _____)

Explain which waste types and service areas below are included in these transport methods _____

DISPOSAL DESTINATION OR TRANSFER FOR DISPOSAL DESTINATION								
TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units)	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	AMOUNT USED AS AOC (TONS)	TOTAL YEAR (TONS)
Ash (MSW Energy Recovery)								
	High Acres Landfill	NY	Monroe County	Monroe County	-na-	59476	59476	59476
	Madison County Landfill	NY	Madison County	Madison County	-na-	10187	10187	10187
	Seneca Meadows Landfill	NY	Seneca County	Seneca County	-na-	6242	6242	6242
Bypass/ non-processible	OCRRA-Ley Creek, 5158 Ley Creek Drive Liverpool, NY 13088	NY	Onondaga	Onondaga	29	-na-	-na-	29
Emergency Auth (Storm Debris)								
							TOTAL (tons):	75,934

SECTION 6 – METAL RECOVERED

A. Quantity of Metal Recovered

Provide the tonnages of metal recovered for reuse or recycling. Identify the location or solid waste management facility to which the recovered metal was sent from your facility, by indicating the name of the facility, the type of metal recovered, the corresponding State/Country, the County/Province, the NYS Planning Unit, and the amount recovered. **Refer to the list of NYS Planning Units that can be found at the end of this report.** DO NOT REPORT IN CUBIC YARDS!

Transport (specify percentages):

100% Road _____% Rail _____% Water _____% Other (specify: _____)

Explain which waste types and service areas are in these transport methods_____

METAL RECOVERED FOR REUSE/RECYCLING					
METAL RECOVERED	SOLID WASTE MANAGEMENT FACILITY TO WHICH RECOVERED MATERIAL IS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units)	TONS RECOVERED (out of facility)
Ferrous Metal	Metalico Syracuse 6223 Thompson Rd, Syracuse, NY 13206	NY	Onondaga County	Onondaga County	(1) 35
	Metalico Buffalo Shredding and Recovery 3175 Lakeshore Road Blasdell, NY 14219-1407	NY	Erie County	NE-Southtowns Solid Waste Mng Board (NEST)	11,802
Non-Ferrous Metal	Fairless Covanta Metals Management 500 Middle Drive Morrisville, PA 19067	PA	Bucks County	na	1,484
Other Metal (specify)					
				TOTAL METAL RECOVERED (tons):	13,321

(1) This portion of the recycled metal is NOT from the incoming waste. It is from facility maintenance activities.

SECTION 7 - FIRE AND SAFETY INCIDENTS

Provide a summary of the time, date, and details of any incidents which required the implementation of the contingency plan.

This year there were no incidents that required the implementation of the Contingency Plan.

SECTION 8 - BUDGET

Provide an annual income and expense statement providing details on the major accounting items including tipping fee, and operating and maintenance costs.

Covanta reserves the right to keep financial information confidential. The Onondaga County Resource Recovery Agency (OCRRA) budget is public information and is available from OCRRA upon request or at http://OCRRA.ORG.

SECTION 9 - INSPECTIONS

Provide a copy of the annual facility inspection report conducted and stamped by a professional engineer licensed to practice in New York State.

The OCRRF Annual General Facility Inspection, pursuant to 6 NYCRR Part 360-3.3(h)(6) was conducted under the direction of a New York State-licensed engineer in December, 2019. The Summary Report is part of this submittal.

SECTION 10 - GOALS

Provide a narrative of the goals and objectives to be attained in the next future calendar year and any major repairs or renovations proposed.

The OCRRF will continue to maintain compliance with all applicable regulations and permit requirements.

The OCRRF has been in service since 1994. Several maintenance projects have been initiated over the past couple years. These projects have been discussed with Region 7 NYSDEC Solid Waste and Air Divisions. These projects are complete.

SECTION 11 - UNAUTHORIZED SOLID WASTE

Has unauthorized solid waste been received at the facility during the reporting period?

XX Yes __No If yes, give info below for each incident (attach additional sheets if necessary):

Date Received	Type Received	Date Disposed	Disposal Method & Location
See Below	Low level Rad only		

Radiation Monitoring

Does your facility use a fixed radiation monitor? XX Yes __ No

Fixed Monitors: RadComm (3 each) model: RC1000

Portable Monitor: S.E. International, Inc. model: Digilert200

Disposal Method & Location:

All of the following were **rejected to the OCRRA Rock Cut Road facility** for natural decay. The NYSDEC and NYSDOH are notified by email of the incident by Covanta. If required the Onondaga County Health Department (OCHD) is notified by OCRRA for possible investigation and detailed radiological analysis. After decay, all materials were processed through the OCRRF WTE facility.

	Received		Hauler	Origin	Truck/ Box Number	Fixed Mon. Reading (cps)
	Date	Time				
	01/22	1311	Bistrow Trucking	Residential	016-0015	80,000
	02/18	0835	Morgan Waste	Commercial	050-0024	7,500
	03/15	0645	Butler	Commercial	004-4569	25,528
	06/03	1430	Butler	Residential	004-4564	8,801
	07/31	0645	Butler	Commercial	004-4573	9,070
	10/18	1015	J. Alberici Sons	Resid/Comm	0319-0017/16949	12,000

SECTION 12 - COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTS

Are there required cost estimates and financial assurance documents for closure?

~~Yes~~ No If yes, attach additional sheets reflecting annual adjustments for inflation and any changes to the Closure Plan?

SECTION 13 - PROBLEMS

Were any problems encountered during the reporting period (e.g., specific occurrences which have led to changes in facility procedures)?

~~Yes~~ No If yes, attach additional sheets identifying each problem and the methods for resolution of the problem.

SECTION 14 - CHANGES

Were there any changes from approved reports, plans, specifications, and permit conditions?

Yes ~~No~~ See below.

Reporting of Processed Waste. The Enforcement Discretion letter is included as an Attachment to this report.

In compliance with the NYSDEC letter dated November 7, 2018, the Processed Waste will exclude recycled metals. Page 6 of this report are the details of the Enforcement Discretion credit for recycling of scrap metal from the ash.

SECTION 15 - PERMIT/CONSENT ORDER REPORTING REQUIREMENTS

Are there any additional permit reporting requirements not covered by the previous sections of this form?

Yes ~~No~~ See below.

Reporting of Supplemental and Discrete wastes received. Required by permit condition.

4th quarter Supplemental and Discrete Waste Received:	**7,974 tons**
Annual Supplemental and Discrete Waste Received:	**29,731 tons**

(These tons are included in the tonnage reported in Sections 1 & 2 of this report)

SECTION 16 - SIGNATURE AND DATE BY OWNER OR OPERATOR

Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Solid Waste Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Permitting and Planning
625 Broadway
Albany, New York 12233-7260
Fax 518-402-9041
Email address: swpermit@gw.dec.state.ny.us

I hereby affirm under penalty of perjury that information provided on this form and attached statements and exhibits was prepared by me or under my supervision and direction and is true to the best of my knowledge and belief, and that I have the authority to sign this report form pursuant to 6 NYCRR Part 360. I am aware that any false statement made herein is punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.

Signature	2/21/2020 Date
Stan Longo Name	Facility Manager Title
slongo@covanta.com Email Address	
5801 Rock Cut Road Address	Jamesville City
New York, 13078-9408 State and Zip	(315)-498-4111 Phone Number

ATTACHMENTS: **XX** YES ___ NO

- **Enforcement Discretion for Metal Recycling Concurrence Letter**
- **4th quarter ash Volatile analysis**
- **OCRRF Annual P.E. General Facility Inspection Summary**

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/100719/2200

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/07/19	Time Sampled	2200	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-1 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.37	< 3.10	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	12962	16944	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	129341	169073	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	72.0	94.1	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	14281	18668	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	77.9	102	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	1912	2499	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	4990	6523	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	46.5	60.7	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	3.62	4.74	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	49.6	64.8	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	326	426	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	759	992	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	1.48	1.93	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.817	1.07	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	4.57		%			SM2540G/E	10/22/19
Solids	76.5		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

33697 Covanta Onondaga TCLP Report 1-12 Compiled by

Certifications: NJ NELAP NC009, NY ELAP 11889, NC DW 37788 and NC DWQ DENR 604

el1

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/100819/1400

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/08/19	Time Sampled	1400	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-2 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.46	< 3.22	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	10503	13765	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	130488	171020	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	64.6	84.7	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	15448	20246	mg/Kg	100	0.001	EPA 3051/6020B	10/23/19
Nickel, Total	43.7	57.3	mg/Kg	250	0.001	EPA 3051/6020B	10/23/19
Copper, Total	789	1034	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	3608	4729	mg/Kg	250	0.001	EPA 3051/6020B	10/23/19
Arsenic, Total	47.3	62.0	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	4.27	5.59	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	60.2	78.9	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	393	515	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	624	818	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	2.15	2.82	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.415	0.544	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	4.33		%			SM2540G/E	10/22/19
Solids	76.3		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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Certifications: NJ NELAP NC009, NY ELAP 11889, NC DW 37788 and NC DWQ DENR 604

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/100819/2200

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/08/19	Time Sampled	2200	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-3 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.27	< 2.96	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	10615	13858	mg/Kg	500	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	110138	143783	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	58.0	75.7	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	19402	25329	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	54.0	70 5	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	10802	14102	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	7518	9815	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	45.223	59.0	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	6.012	7.85	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	54.588	71.3	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	269	351	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	21235	27722	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Mercury, Total	1.98	2.58	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.338	0.441	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	3.31		%			SM2540G/E	10/22/19
Solids	76.6		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/100919/0600

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/09/19	Time Sampled	0600	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-4 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.49	< 3.27	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	12785	16778	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	125334	164480	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	47.6	62.5	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	13351	17521	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	39.0	51.2	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	3404	4467	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	5482	7194	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	46.6	61.2	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	3.89	5.10	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	76.7	101	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	293	385	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	596	782	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	2.47	3.24	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	1.13	1.48	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	3.37		%			SM2540G/E	10/22/19
Solids	76.2		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/100919/1400

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/09/19	Time Sampled	1400	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-5 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.20	< 2.81	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	9548	12179	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	116423	148499	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	52.6	67.1	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	14023	17886	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	34.3	43.8	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	5714	7288	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	5215	6652	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	45.5	58.0	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	4.28	5.46	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	58.2	74.2	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	280	357	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	913	1165	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	2.32	2.96	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	< 0.200	< 0.255	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	3.92		%			SM2540G/E	10/22/19
Solids	78.4		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

33697 Covanta Onondaga TCLP Report 1-12 Compiled by

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/100919/2200

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/09/19	Time Sampled	2200	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-6 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.43	< 3.16	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	13264	17248	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	113886	148096	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	49.4	64.2	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	15609	20298	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	34.1	44.4	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	593	771	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	4882	6349	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	44.5	57.9	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	4.15	5.40	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	56.9	74.0	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	266	346	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	1607	2090	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	2.20	2.86	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.219	0.285	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	3.69		%			SM2540G/E	10/22/19
Solids	76.9		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

33697 Covanta Onondaga TCLP Report 1-12 Compiled by

Certifications: NJ NELAP NC009, NY ELAP 11889, NC DW 37788 and NC DWQ DENR 604

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/101019/0600

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/10/19	Time Sampled	0600	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-7 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.47	< 3.29	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	14558	19411	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	168486	224648	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Chromium, Total	74.6	99.5	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	21768	29024	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	49.3	65.7	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	873	1164	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	6142	8189	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	59.6	79.5	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	5.44	7.25	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	68.7	91.6	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	356	475	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	884	1179	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	3.75	5.00	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.601	0.801	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	3.75		%			SM2540G/E	10/22/19
Solids	75.0		%			SM2540G	10/18/19

Ken Smith, Laboratory Director

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/101019/1400

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/10/19	Time Sampled	1400	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-8 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.30	< 3.09	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	11130	14940	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Calcium, Total	126265	169483	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	55.0	73.8	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	16070	21570	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	42.9	57.6	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	613	823	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	5510	7396	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	51.0	68.5	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	4.45	5.97	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	62.8	84.2	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	398	534	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	841	1129	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	3.76	5.05	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.696	0.934	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	2.70		%			SM2540G/E	10/22/19
Solids	74.5		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/101019/2200

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/10/19	Time Sampled	2200	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-9 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.37	< 3.15	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	10212	13562	mg/Kg	1000	0.001	EPA 3051/6020B	10/17/19
Calcium, Total	128186	170234	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	73.5	97.6	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	17598	23371	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	35.7	47.4	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	546	725	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	5351	7106	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	71.7	95.2	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	4.50	5.98	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	71.0	94.3	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	302	401	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	814	1081	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	3.32	4.41	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	1.07	1.42	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	2.88		%			SM2540G/E	10/23/19
Solids	75.3		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/101119/0600

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/11/19	Time Sampled	0600	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-10
					Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.38	< 3.23	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	10672	14480	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	126499	171640	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Chromium, Total	71.7	97.3	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	16098	21843	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	91.0	123	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	1269	1722	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	7794	10575	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	44.6	60.6	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	6.01	8.15	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	77.1	105	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	348	472	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	1098	1490	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	3.43	4.65	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.221	0.300	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	3.07		%			SM2540G/E	10/23/19
Solids	73.7		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/101119/1400

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/11/19	Time Sampled	1400	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-11 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.46	< 3.19	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	83953	108747	mg/Kg	5000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	100262	129873	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	74.0	95.9	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	13529	17525	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Nickel, Total	58.0	75.1	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Copper, Total	920	1192	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	4003	5185	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	31.3	40.5	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	7.11	9.21	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	52.7	68.3	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	319	413	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	888	1150	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	2.26	2.93	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.742	0.961	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	2.88		%			SM2540G/E	10/22/19
Solids	77.2		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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FINAL REPORT OF TOTAL METAL ANALYSES
Element One, Inc. Project Number e33697

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

November 1, 2019
Client Project Name
Client Project Number

Sample ID: ONO/CA/101119/2200

Sample Matrix	Combined Ash	Sample Type	Composite	Date Received	10/16/19
Date Combined	10/11/19	Time Sampled	2200	Time Received	1120
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
				E1 Sample #	33697-12 Total

Parameter	Result As Received	Result Dry Basis	Unit	Dilution	DL	Method	Date
Beryllium, Total	< 2.36	< 3.07	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Aluminum, Total	14925	19408	mg/Kg	1000	0.001	EPA 3051/6020B	10/18/19
Calcium, Total	123672	160822	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Chromium, Total	51.0	66.3	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Iron, Total	17233	22410	mg/Kg	200	0.001	EPA 3051/6020B	10/23/19
Nickel, Total	42.9	55.8	mg/Kg	25	0.001	EPA 3051/6020B	10/23/19
Copper, Total	993	1291	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Zinc, Total	5303	6896	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Arsenic, Total	35.8	46.6	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Silver, Total	3.69	4.80	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Cadmium, Total	55.6	72.3	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Barium, Total	368	479	mg/Kg	25	0.001	EPA 3051/6020B	10/17/19
Lead, Total	749	974	mg/Kg	500	0.001	EPA 3051/6020B	10/17/19
Mercury, Total	2.40	3.12	mg/Kg	1	0.004	EPA 3051/7470A	10/18/19
Hexavalent Chromium, Total	0.320	0.416	mg/kg	10	0.010	EPA 3060A	11/01/19
Total Volatile Residue	7.97		%			SM2540G/E	10/23/19
Solids	76.9		%			SM2540G	10/16/19

Ken Smith, Laboratory Director

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ONONDAGA RESOURCE RECOVERY FACILITY

2019 ANNUAL FACILITY INSPECTION REPORT

By Kenneth E. Armellino, P.E. - #075733

February 19, 2020

Signed: Kenneth E. Armellino Date: 2/19/2020

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1 INTRODUCTION

The New York State Department of Environmental Conservation (NYSDEC), Division of Solid Waste, document 6 NYCRR Part 360 Solid Waste Management Facilities, Subpart 360-3, SOLID WASTE INCINERATORS OR REFUSE-DERIVED FUEL PROCESSING FACILITIES OR SOLID WASTE PYROLYSIS UNITS, paragraph 360-3.3(h)(6) states:

> At least annually, a general facility inspection must be undertaken to determine the operating condition of the safety, emergency, security, process, and control equipment. This annual inspection must be performed under the direction of an individual licensed to practice engineering in the State of New York. This individual must prepare a summary report of the inspection which must be submitted to the department's central office and the office of the department administering the region within which the facility is located, as part of the annual facility report (see section 360-3.4[f][3] of this Subpart).

This requirement is part of the Solid Waste Permit #7-3142-0028/00011 (exp. 8/7/2021) for the Onondaga County Resource Recovery Facility, located at 5801 Rock Cut Road, Jamesville, NY 13078, operated by Covanta Onondaga, Inc. This detailed report covers the operation and inspection for the year 2019. The inspection and report were carried out under the direction of Kenneth E. Armellino, a licensed Professional Engineer in the State of New York (# 075733) and Director, Environmental Science and Community Affairs for Covanta, Inc. located at 445 South St., Morristown, NJ 07960. The site inspection and conclusions are based on a review of compliance with company technical standards, as well as a final inspection and document review on December 23, 2019. The site inspection and review were accomplished by Environmental Specialist Paul Abt. Other information was provided by various other employees as necessary.

2 OBJECTIVE

The objective of this summary report is to document the annual general inspection to determine the operating condition of the specified plant equipment. This summary report is grouped into the following 4 sections:

1. Safety and emergency equipment.
2. Security equipment.
3. Process & control equipment, i.e. refuse boilers/stokers, air pollution control equipment, turbine and residue and auxiliary systems.
4. Preventive maintenance management system.

3 FINDINGS

The operating condition of the safety, emergency, security, process and control equipment at the Covanta Onondaga facility, as summarized in the following paragraphs, was found to be acceptable. The plant remains in the OSHA VPP safety program this year, symbolizing their continued commitment to worker safety.

3.1 Safety & Emergency Equipment

3.1.1 Fire Protection

All observed fire protection equipment (alarms, pumps, valves, extinguishers etc.) was found to be in proper alignment, in acceptable condition and undergoing quarterly and annual inspections and tests by certified contractors and insurance inspectors.

Fire hoses have been removed from cabinets and are kept in control room to improve reliability with local fire department's approval. Two bags with 5 hoses each are stowed in the DCS room adjacent to the Main Control Room.

Annual Fire pump testing was performed satisfactorily in 2019. The fire panel was in operation at the time of the inspection.

The emergency lighting inspection logs were reviewed. Emergency lighting at the facility appears to be adequate.

3.1.2 Safety Valves

All boiler steam safety valves were observed to be in acceptable condition and undergoing annual maintenance. Valve 'In Place' testing was conducted during 2019 and applicable certificates were reviewed. Balance of plant safety valves (e.g. air system and low-pressure steam) are also being adequately maintained.

3.1.3 Ammonia Detection

The ammonia storage tank leak detection system appeared to be in satisfactory condition. Facility operating procedures include a quarterly test of the detector system by activating the sensors. Calibration records and scheduling are kept in the facility Asset Life Management (ALM) software. Records of inspection and repair are being maintained.

3.1.4 Self-Contained Breathing Apparatus

Self-contained breathing apparatus devices are stored in the store room. Facility personnel inspect the devices on a monthly basis as part of a PM work order, information is filed in the SCBA Inspection log. The log is current through December 2019. The devices appear to be in excellent condition. With the removal of the anhydrous ammonia system SCBAs are no longer required. Final disposition is yet to be determined.

3.1.5 Personal Protective Equipment

Employees and visitors use hard hats, hearing and eye protection. Workers, as needed or required, were observed to use appropriate gloving, coveralls and breathing protection/respirators.

3.1.6 Eyewash & Shower Stations

All emergency eyewash and shower stations observed were in satisfactory condition. Facility personnel on a weekly basis inspect emergency eyewash/shower station integrity. Any deficiency is noted on the inspection form in the notes and comments section. The stations are flow tested as part of this activity with confirmation of control room alarms. Portable eyewash stations have water changed/treated every 6 months, as required.

3.1.7 Lightning Protection

The three-year inspection by an outside contractor in was done 2018. The last inspection report was reviewed and none of the findings were found to be critical. All findings have been addressed.

3.1.8 Radiation Detection

Radiation detection monitors are installed and operational on all truck scales; the two inbound scales and one outbound. The detectors were calibrated by the OEM in 2019. The detectors are currently set to alarm at 2 times background radiation level. A handheld radiation detector is stored at the facility in the Scale House. This device was calibrated in 2019.

3.2 Security Equipment

3.2.1 Fencing

The facility perimeter fencing was observed to be free from breaks and in acceptable condition.

3.2.2 Entrance Gates

The main and truck entrance gates are functional. The truck gate is manually closed during non-waste delivery hours. The main gate is manually closed when the administration building is unoccupied with automatic operation of the gate to let people out. Both gates are on surveillance monitors 24 hours a day in the control room.

3.3 Process & Control Equipment

3.3.1 Boiler/Stoker

During the inspection, all three boilers were in service, operating at full load set-point of 104,000 lb/hr steam flow. Comments in this report refer to the equipment operating at the time of the inspection. Comments on operating statistics are based on data for 2019.

3.3.1.1 Boiler/Stoker Performance

3.3.1.1.1 Boiler Heat Output/Losses

Based upon historical operating data, the three units can continuously generate steam at maximum continuous rating (103,942 lb/hr per boiler). Steam conditions approximate design. Review of economizer exit flue gas temperatures and boiler draft losses indicate a clean, efficient boiler.

3.3.1.1.2 Availability

Availabilities for 2019 for boilers 1, 2 and 3 were 92.9%, 93.5%, and 92.9% respectively. Facility overall availability of 93.1% was achieved.

3.3.1.1.3 Refuse Processing

The facility NYSDEC permitted throughput is 361,350 tons per year without regard to HHV. 11/7/18 NYSDEC issued a memo to allow for recycled metal to be subtracted from processed tonnage, the memo was renewed for 2019.

For 2019, 362,653 tons were fed into the boilers, with 11,837 tons of ferrous and 1,484 tons of non-ferrous metal recycled; the subsequent refuse processed is 349,366 tons. The facility did not bypass any acceptable waste. 29 tons of unacceptable waste were rejected back to OCRRA for disposal.

3.3.1.1.4 Energy Recovery

The plant generated 254,762 megawatt-hours of electricity, the annual energy recovery ratio is 702 KWh/actual ton of refuse fed for 2019.

3.3.1.2 Boiler/Stoker Critical Control Loops

The Bailey Distributed Control System (DCS) hardware was refurbished. This consists of replacing power supplies and input/output cards. The Operator Interface Station (OIS) hardware (PCs) and software was replaced by ABB over the past 2 years. The Martin Control PLCs were replaced during this same period.

Critical control functions of the boiler were reviewed, all parameters responded in accordance with expected changes.

Note that instrument inputs associated with critical control loops and essential operating data are calibrated semi-annually.

3.3.1.3 Boiler/Stoker Mechanical

3.3.1.3.1 Boiler Tube Failures

The tube failure events are typically associated with corrosion in the furnace. The plant is effectively managing furnace and boiler corrosion with the application of Inconel protective overlay and tube and tube shield replacement in conjunction with performing ultrasonic thickness test tube surveys.

3.3.1.3.2 Fans & Dampers

All induced draft (ID), forced draft/underfire (FD) and overfire (OF) combustion air fans were operating normally with no obvious noise or excessive vibration. At full load, ID fan/furnace pressure controller positions were positioned as expected and damper/actuator conditions appeared good. FD and OF fan pressure controller positions were also visually functional and in good order. Fan/motor vibration levels are monitored through a corporate vibration monitoring program which identifies, at an early time, potential mechanical deficiency items. Routine fan and damper maintenance is performed during all planned outage activities.

An extensive IR survey of all critical switchgear was accomplished in 2019, all findings have been addressed.

3.3.1.3.3 Boiler/Stoker Miscellaneous

1. Stoker hydraulic fluid reservoir levels were appropriate, with proper fluid temperature.
2. Feed rams and grate drives were observed to stroke evenly with minimal leakage.
3. Stoker to boiler seals were lagged over and appeared to be sound, with no evidence of leakage.
4. Lighting and labels remain excellent throughout the boiler building.
5. Plant housekeeping was satisfactory.
6. The facility has replaced the three air compressors with VFD compressors. These were required to provide the additional air for the new Aqueous Ammonia injection.

3.3.2 Turbine

No oil leaks were observed, vibration indications were all normal. Turbine availability was 100% for 2019. A rotator-out major inspection was accomplished 2018. No serious issues were discovered. The facility is scheduled to perform a Deaerator inspection in 2020.

3.3.3 Air Pollution Control (APC) Equipment

3.3.3.1 APC Operating Data & Stack Emissions

A review of CEMS data for 2019 shows that the air pollution control system appears to be performing very well. All emission events are tracked by the facility and appropriately reported to the regulatory agency.

Stack performance testing was reviewed and shows the facility to be in compliance. Review of monthly operating data for the year showed that scrubber and baghouse draft losses for the three units are being maintained at acceptable levels implying that the flue gas paths are being maintained in an acceptably clean condition.

Unit #1 and #3 had complete bag replacement in 2016 and scheduled for 2020. Unit #2 had complete bag replacement in 2017 and is scheduled for 2021.

3.3.3.2 APC Critical Control Loops

Critical control functions of the air pollution control system were reviewed. Lime slurry delivery rate as a function of SO2 and scrubber outlet temperature control are the critical control parameters. The facility operates with a minimum lime slurry setpoint, which acts as the primary determiner of slurry rate. The scrubber outlet temperature control was observed to be functional and stable.

3.3.3.3 APC Miscellaneous

Air pollution control system observations are as follows:

1. All SDA double dump valves, baghouse fly ash rotary valves & all screw conveyors were inspected and functioning.
2. All 3 SDA penthouses were inspected. A spare atomizer unit was observed to be ready for use in emergency. No leakage of slurry or water were observed during inspection.
3. Baghouse pulse pressures were in an appropriate range of ~95 psi.
4. Insulation was viewed and in excellent condition, with ductwork expansion joints neatly insulated with insulation jackets. Spray-ceramic insulation on the BH and SDA hoppers is fully intact.
5. The BH outlets duct headers and the duct sections supporting the outlet (stack) monitoring ports was replaced in 2018.

6. The lime slurry, dry carbon and aqueous ammonia systems are in good operational condition.
7. The chimney and stack liners were last inspected by International Chimney Corporation 2018, with no action items.

3.3.4 Residue & Fly-ash

A walk down of the residue and fly-ash systems was conducted and no significant deficiencies were found.

1. Fly-ash screw conveyors were operating and were adequately containing the ash.
2. The inclined conveyor gallery is in good condition and ash discharged and loaded into the residue trucks in the residue building is being performed without spillage or fugitive ash emissions.
3. Areas under the ash dischargers, scrubber and baghouse were in good condition. The Dust Mizer fly ash conditioner is regularly operated to the bypass belt.
4. The Ash building floor is in fair condition. The floor in the ash load out area is in good condition.
5. The non-ferrous eddy current system (ECS) installation was operating at the time of inspection. The system was operating properly. In 2018 the ECS was upgraded to enhance collection of non-ferrous fines.
6. The ferrous magnet was in continuous operation.

3.4 Preventative Maintenance

3.4.1 Preventative Maintenance System

The facility continues to increase their use of the maintenance management program to generate and track corrective work orders, and for preventive maintenance work orders. The recent PM activity was reviewed as part of the inspection. Work records are maintained in an Asset Life Management (ALM) software package.

3.4.2 Outage Schedules

The facility conducted semi-annual maintenance outages on each of the operating units in 2018 sufficient to maintain the equipment in good working condition. When unscheduled outages occur, the opportunity is taken to clean boiler tube surfaces and address any known issues.

3.4.3 Outage Tasks

Documentation of work performed during outages for all three units was reviewed and indicate that appropriate activities relative to boiler and air pollution control system maintenance are being performed. Regular baghouse maintenance includes bag inspection and necessary replacement, steel relining in target areas, and inlet/outlet duct repairs.

3.4.4 Forced Outage Work List

The preventative maintenance/work order system contains a category for the type of outage required, i.e. boiler or full plant. A list of items can be queried and printed quickly should an unexpected forced outage occur.

3.4.5 Bulk Chemical Storage Tanks

At the time of the inspection, the following registered tanks, containments, and ancillary equipment were visually inspected and found to be in acceptable condition:

- DW-T-002 Aqueous Ammonia
- FP-T-002 Diesel Fuel
- FP-T-003 Diesel Fuel
- FO-T-001 Diesel Fuel
- UO-T-001 Used Oil

The boiler feed water reverse osmosis (RO) water system is in good working order. The tanks associated with the old system; DW-T-007 and DW-T-008 were decommissioned in 2017, they are out-of-service in-place.

4 CONCLUSION

Based upon the above inspections and information, the safety, emergency, security, process and control equipment at the Onondaga County Resource Recovery Facility operated by Covanta Onondaga at 5801 Rock Cut Road, Jamesville, NY 13078 are considered to be in acceptable operating condition.

APPENDIX H-2: Onondaga County Resource Recovery Facility - 2020 Annual/Quarterly Report for Active Waste-to-Energy Facility

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COVANTA
Powering Today. Protecting Tomorrow.

Covanta Onondaga, Limited Partnership
5801 Rock Cut Rd
Jamesville, NY 13078
Tel 315 498 4111
Fax 315 498 9892

February 25, 2021

Mr. Steven Perrigo
NYSDEC - Region 7
615 Erie Blvd. West
Syracuse, NY 13204-2400

RE: Onondaga County Resource Recovery Facility
Solid Waste Permit #7-3142-00028/00011
Annual and 4th Quarter Solid Waste Report for 2020 and
Annual Professional Engineers Inspection for 2020

Dear Mr. Perrigo:

Pursuant to the requirements of 6 NYCRR Part 360.19(k)(3) and the facility Solid Waste Management Permit, enclosed please find the Annual/Quarterly Solid Waste Report. Also enclosed is the Annual P.E. Inspection Report.

This report was prepared on a form provided by the department and modified to include the information required by the facility Solid Waste Management Permit.

In compliance with the NYSDEC letter dated September 19, 2019, with regard to Regulatory Flexibility; the Processed Waste for all of 2020 will exclude recycled metals. Section 4, page 5 of this report has the detail of the credit for recycling of scrap metal from the ash.

If you have any questions or comments, please contact me at (315)-498-4111.

Sincerely,

Paul S. Abt
Environmental Engineer
Covanta Onondaga, L.P.

w/attachment

cc: C. Albunio, OCRRA
Division of Materials Management, Bureau of Permitting and Planning, NYSDEC, Albany
Chief, Air Compliance Branch, Region II, USEPA, NY, NY

ANNUAL/QUARTERLY REPORT

A. **This Annual Municipal Waste Combustion Facility Report is for operation from January 1, 2020 to December 31, 2020 and**

B. **Quarterly Report for: October 1, 2020 to December 31, 2020**

SECTION 1 – OWNER / FACILITY INFORMATION

FACILITY INFORMATION			
FACILITY NAME: **Onondaga County Resource Recovery Facility**			
FACILITY ADDRESS: **5801 Rock Cut Road**	FACILITY CITY: **Jamesville**	STATE: **NY**	ZIP CODE: **13078**
FACILITY TOWN: **Onondaga**	FACILITY COUNTY: **Onondaga**	FACILITY PHONE NUMBER: **(315) 498-4111**	
FACILITY NYS PLANNING UNIT: **Onondaga (Onondaga County Resource Recovery Agency)**	NYSDEC REGION #: **Region 7**		

360 PERMIT #:	DATE ISSUED:	DATE EXPIRES:	NYS DEC ACTIVITY CODE
7-3142-00028/00011	**8/8/2011**	**8/7/2021**	**34E01**

FACILITY CONTACT:		CONTACT PHONE	CONTACT FAX:
Stan Longo	~~public~~ **X private**	**(315) 498-4111**	**(315) 498-9892**
CONTACT EMAIL ADDRESS: slongo@covanta.com			

OWNER INFORMATION			
OWNER NAME: **Covanta Onondaga L.P.**	OWNER PHONE NUMBER: **(315) 498-4111**	OWNER FAX: **(315) 498-9892**	
OWNER ADDRESS: **5801 Rock Cut Road**	OWNER CITY: **Jamesville,**	STATE: **NY**	ZIP CODE: **13078**
OWNER CONTACT: Stan Longo	OWNER CONTACT EMAIL ADDRESS slongo@covanta.com		

OPERATOR INFORMATION		
OPERATOR NAME: ***SAME AS OWNER***		~~public~~ **X private**

PREFERENCES
Preferred address to receive correspondence: **5801 Rock Cut Road, Jamesville, NY, 13078**
Preferred email address: slongo@covanta.com
Preferred individual: **Stan Longo**
Did you operate in 2020? **XX Yes; complete this form.** ~~No;~~
Complete and submit Sections 1 and 11. If you no longer plan to operate and wish to relinquish your permit/registration associated with this solid waste management activity, also complete the "Inactive Solid Waste Management Facility or Activity Notification Form" located at: http://www.dec.ny.gov/chemical/52706.html .

SECTION 2 - SOLID WASTE RECEIVED

Provide the tonnages of solid waste received. Report Recyclable Materials in Section 5. DO NOT REPORT IN CUBIC YARDS!

Specify the methods used to measure the quantities received and the percentages measured by each method

100% Scale Weight _____% Estimated _____% Truck Count _____% Other (Specify: _____)

Type of Solid Waste	January (tons)	February (tons)	March (tons)	April (tons)	May (tons)	June (tons)	July (tons)
Construction & Demolition Debris (mixed)							
Industrial Waste (Including Industrial Process Sludges)							
Mixed Municipal Solid Waste (Residential, Institutional & Commercial) DIRECT HAUL	20,801	17,532	19,864	18,634	19,967	20,940	22,654
Sewage Treatment Plant Sludge							
Treated Regulated Medical Waste	15	8	9				
Emergency Authorization Waste (Storm Debris)							
Mixed OCRRA from Ley-Creek, RCR, Amboy Transfer Stations	6,767	6,996	7,475	6,901	7,079	4,883	8,414
Other (Please specify) (1)	2,376	2,197	2,687	2,448	1,895	1,923	3,130
Non-processible Bypassed	0	0	4	0	99	4	3
Total Tons Received	29,958	26,734	30,032	27,983	28,841	27,742	34,196
Total Tons **Fed to Process** (4)	28,887	27,121	30,794	27,239	28,263	28,068	32,986

See next page for table notes.

SECTION 2 - SOLID WASTE RECEIVED (CONTINUED)

Type of Solid Waste	Tip Fee ($/ton)	August (tons)	September (tons)	October (tons)	November (tons)	December (tons)	Total Year (tons)	Daily Avg. (tons) (3)
Construction & Demolition Debris (mixed)	(2)							
Industrial Waste (Including Industrial Process Sludges)	(2)							
Mixed Municipal Solid Waste (Residential, Institutional & Commercial) DIRECT HAUL	(2)	21,363	21,823	21,863	20,801	21,554	247,795	679
Sewage Treatment Plant Sludge	(2)							
Treated Regulated Medical Waste	(2)							
Emergency Authorization Waste (Storm Debris)	(2)							
Mixed OCRRA from Ley-Creek, RCR, Amboy Transfer Stations	(2)	6,631	6,300	6,193	5,071	5,218	77,928	214
Other (Please specify) (1)	(2)	2,890	2,580	2,838	2,948	2,788	30,731	84
Non-processible Bypassed		4	5	4	0	0	122	0
Total Tons Received		30,880	30,698	30,890	28,820	29,560	356,333	976
Total Tons **Fed to Process** (4)		33,037	28,605	30,352	30,873	30,499	356,723	977

(1) Incoming waste is not segregated or classified, except for certain wastes which require special handling, these are termed Supplemental and Discrete wastes; see ***Section 11*** of this Report for more information. These wastes are identified in the OCRRF 360-SW Permit.

(2) Covanta Onondaga does not set the general tipping fees. The Onondaga County Resource Recovery Agency (OCRRA) sets fees with haulers. This is public information and is available from OCRRA upon request.

(3) Daily Average = Annual Total / (Number of annual operating days).

(4) The **Fed to Process** in this Section-2 includes recycled metals. In compliance with the NYSDEC letter dated September 19, 2019; **Processed Waste** will exclude recycled metals. Section-4 below has the detail of the credit for recycling of scrap metal from the ash.

SECTION 3- SERVICE AREA SOLID WASTE RECEIVED

Identify the facility's service area by indicating the type of solid waste received, the Solid Waste Management facility (SWMF) from which it was received (or Direct Haul), the corresponding State/Country, the County/Province, and the NYS Planning Unit and the amount received. **Refer to the list of NYS Planning Units that can be found at the end of this report.** Note: "Direct Haul" means waste hauled directly to your SWMF which did not go through another SWMF.

Specify transport method and percentages of total waste transported by each:

100% Road _____% Rail _____% Water _____% Other (specify: _____)

Explain which waste types and service areas below are included in these transport methods _____

SERVICE AREA					
TYPE OF SOLID WASTE	**SOLID WASTE MANAGEMENT FACILITY FROM WHICH IT WAS RECEIVED (Name & Address) OR DIRECT HAUL**	**SERVICE AREA STATE OR COUNTRY**	**SERVICE AREA COUNTY OR PROVINCE**	**SERVICE AREA NYS PLANNING UNIT**	**TONS RECEIVED**
Construction & Demolition Debris (mixed)					
Mixed Municipal Solid Waste (Residential, Institutional & Commercial)	**OCRRA-Ley Creek, 5158 Ley Creek Drive Liverpool, NY 13088**	**NY**	**Onondaga**	**Onondaga**	38,224
	OCRRA-Amboy, 6296 Airport Road Camillus, NY 13209	**NY**	**Onondaga**	**Onondaga**	137
	OCRRA-Rock Cut Road, 5808 Rock Cut Road Jamesville, NY 13078	**NY**	**Onondaga**	**Onondaga**	39,567
	Direct Haul	**NY**	**Onondaga**	**Onondaga**	247,780
Treated Regulated Medical Waste (TRMW)*					
Other (specify)	**Supplemental and Discrete wastes requiring special handling**	**NY**	**Onondaga**	**Onondaga**	30,731
	Non-processable bypassed				(-122)
				TOTAL RECEIVED (tons):	**356,333**

Part 360 Permit Limit (tpy) **361,350 TPY processed**
Permit Limit based on Steaming rate (tpy) **NA**
* List generators that provide you Certificates of Treatment forms and quantities of TRMW from each: **NA**

SECTION 4 - Plant Performance Log

PLANT PERFORMANCE LOG SUMMARY

Annual 2020 Summary

	Waste Fed to process	Recycled Ferrous	Recycled Non-Ferr	**Waste Processed**
Qtr 1	86,802	2,802	325	**83,675**
Qtr 2	83,569	2,647	335	**80,587**
Qtr 3	94,628	3,059	323	**91,246**
Qtr 4	91,724	2,822	238	**88,664**
TOTAL	356,723	11,330	1,220	**344,172**

The ***Fed to Process*** includes metals. In compliance with the NYSDEC letter dated September 19, 2019; ***Processed Waste*** will exclude recycled metals. Above are the detail of the credit for recycling of scrap metal from the ash.

Disposal and Recycling Locations:
Rock Cut Road Transfer Station, Ley Creek Transfer Station,
Upstate Shredding, Metalico Recycling, Covanta Fairless Hills,
High Acres Landfill, Seneca Meadows Landfill, Madison County Landfill

Processible Waste Bypassed	Tons	-0-
Untreatable Waste Bypassed	Tons	122
Incinerator #1 Operations	Hours	7798
Incinerator #2 Operations	Hours	8050
Incinerator #3 Operations	Hours	7864
Steam Generated	Klbs	2,400,099
Steam Sold	Klbs	0
Steam Consumed Turbine	Klbs	2,316,467
Turbine Operation	Hours	8,715
Power Generation	MWH	255,961
Power Sold	MWH	224,229
Power Purchased	MWH	177
Ash Residue	Tons	78,662
Volatile Matter in Ash	%	3.1
Ferrous Metal Recovered & Sold	Tons	11,330
Non-Ferrous Metal Rec.& Sold	Tons	1,220
Water Consumption	Kgal	35,400

Facility's Size		Operations
Number of Units Installed	3 Units	Hours per day: 24 Days per week: 7 Days per year: 365
Nominal rated capacity of each Unit	330 TPD@ 6000 Btu/lb MSW	

Hours of Maintenance Downtime	Unit #1	Unit #2	Unit #3	Total
Scheduled Maintenance	707.6	491.4	524.1	1723.1
Unscheduled Maintenance	266.5	234.0	387.3	9.7.8
Total	994.1	725.4	911.4	2630.9
Availability (%)	88.7	91.7	86.6	90.0

SECTION 4 - Plant Performance Log (continued)

PLANT PERFORMANCE LOG SUMMARY

4th Quarter 2020 Summary

Processible Waste Bypassed	Tons	-0-
Untreatable Waste Bypassed	Hours	4
Incinerator #1 Operations	Hours	1979
Incinerator #2 Operations	Hours	2017
Incinerator #3 Operations	Hours	2149
Steam Generated	Klbs	621,791
Steam Sold	Klbs	-na-
Steam Consumed Turbine	Hours	605,711
Turbine Operation	Klbs	2,208
Power Generation	MWH	68,322
Power Sold	MWH	60,173
Power Purchased	MWH	3
Ash Residue	Tons	20,324
Volatile Matter in Ash	%	3.3
Ferrous Metal Recovered & Sold	Tons	2,822
Non-Ferrous Metal Rec.& Sold	Tons	238
Water Consumption	Kgal	9,290

Hours of Maintenance Downtime	Unit #1	Unit #2	Unit #3	Total
Scheduled Maintenance	96.4	138.1	0.0	234.5
Unscheduled Maintenance	133.3	53.7	59.8	246.8
Total	229.7	191.8	59.8	481.3
Availability (%)	89.6	91.3	97.3	92.7

SECTION 5 - Transfer or Disposal Destination

Identify the transfer or disposal destination of waste removed by indicating the name of the transfer or disposal facility, the type of solid waste transferred, the corresponding State/Country, the County/Province, the NYS Planning Unit of the transfer or disposal destination facility, and the amount transferred or disposed or used as alternative daily cover (ADC) at each destination. This only includes waste sent off-site for disposal, not recovered for reuse or recycling. Exclude Metal Recovered and Recyclable Material amounts reported in Sections 3 and 4. **Refer to the list of NYS Planning Units that can be found at the end of this report.** DO NOT REPORT IN CUBIC YARDS!

Transport (specify percentages):

100% Road ___% Rail _____% Water _____% Other (specify: _____)

Explain which waste types and service areas below are included in these transport methods _____

DISPOSAL DESTINATION OR TRANSFER FOR DISPOSAL DESTINATION								
TYPE OF SOLID WASTE	SOLID WASTE MANAGEMENT FACILITY TO WHICH IT WAS SENT (Name & Address)	DESTINATION STATE OR COUNTRY	DESTINATION COUNTY OR PROVINCE	DESTINATION NYS PLANNING UNIT (See Attached List of NYS Planning Units)	AMOUNT TO TRANSFER DESTINATION (TONS)	AMOUNT TO DISPOSAL DESTINATION (TONS)	AMOUNT USED AS AOC (TONS)	TOTAL YEAR (TONS)
Ash (MSW Energy Recovery)								
	High Acres Landfill	**NY**	**Monroe County**	**Monroe County**	-na-	59452	59452	**59,452**
	Madison County Landfill	**NY**	**Madison County**	**Madison County**	-na-	6992	6992	**6,992**
	Seneca Meadows Landfill	**NY**	**Seneca County**	**Seneca County**	-na-	8883	8883	**8,883**
Bypass/ non-processible	**OCRRA-Rock Cut Road**	**NY**	**Onondaga**	**Onondaga**	**23**	-na-	-na-	**23**
	High Acres Landfill	**NY**	**Monroe County**	**Monroe County**	**98**	-na-	-na-	**98**
Emergency Auth (Storm Debris)								
							TOTAL (tons):	**75,448**

Section 4 Residue shipped from OCRRF scales 78,662
Section 5 Residue received at individual landfill site scales 75,448

SECTION 6 – METAL RECOVERED

A. Quantity of Metal Recovered

Provide the tonnages of metal recovered for reuse or recycling. Identify the location or solid waste management facility to which the recovered metal was sent from your facility, by indicating the name of the facility, the type of metal recovered, the corresponding State/Country, the County/Province, the NYS Planning Unit, and the amount recovered. **Refer to the list of NYS Planning Units that can be found at the end of this report.** DO NOT REPORT IN CUBIC YARDS!

Transport (specify percentages):

100% Road _____% Rail _____% Water _____% Other (specify: _____)

Explain which waste types and service areas are in these transport methods_____

METAL RECOVERED FOR REUSE/RECYCLING					
METAL RECOVERED	**SOLID WASTE MANAGEMENT FACILITY TO WHICH RECOVERED MATERIAL IS SENT** (Name & Address)	**DESTINATION STATE OR COUNTRY**	**DESTINATION COUNTY OR PROVINCE**	**DESTINATION NYS PLANNING UNIT** (See Attached List of NYS Planning Units)	**TONS RECOVERED** (out of facility)
Ferrous Metal	**Metalico Syracuse 6223 Thompson Rd, Syracuse, NY 13206**	**NY**	**Onondaga County**	**Onondaga County**	(1) **121**
	Upstate Shredding 1 Recycle Dr Owego, NY 13827	**NY**	**Tioga County**	**Tioga County**	**11,330**
Non-Ferrous Metal	**Fairless Covanta Metals Management 500 Middle Drive Morrisville, PA 19067**	**PA**	**Bucks County, PA**	**na**	**1,220**
Other Metal (specify)					
				TOTAL METAL RECOVERED (tons):	**12,671**

(1) This portion of the recycled metal is NOT from the incoming waste. This is not used as credit for recycling of scrap metal. It is from facility maintenance activities.

SECTION 7 - FIRE AND SAFETY INCIDENTS

Provide a summary of the time, date, and details of any incidents which required the implementation of the contingency plan.

This year there were no incidents that required the implementation of the Contingency Plan.

SECTION 8 - BUDGET

Provide an annual income and expense statement providing details on the major accounting items including tipping fee, and operating and maintenance costs.

Covanta reserves the right to keep financial information confidential. The Onondaga County Resource Recovery Agency (OCRRA) budget is public information and is available from OCRRA upon request or at http://OCRRA.ORG.

SECTION 9 - INSPECTIONS

Provide a copy of the annual facility inspection report conducted and stamped by a professional engineer licensed to practice in New York State.

The OCRRF Annual General Facility Inspection (pursuant to retired and superseded 6 NYCRR Part 360-3.3(h)(6)) was conducted under the direction of a New York State-licensed engineer in December 2020. The Summary Report is part of this submittal.

SECTION 10 - GOALS

Provide a narrative of the goals and objectives to be attained in the next future calendar year and any major repairs or renovations proposed.

The OCRRF will continue to maintain compliance with all applicable regulations and permit requirements.

The OCRRF has been in service since 1994. Several maintenance projects have been initiated over the past couple years. These projects have been discussed with Region 7 NYSDEC Solid Waste and Air Divisions. These projects are complete.

SECTION 11 - UNAUTHORIZED SOLID WASTE

Has unauthorized solid waste been received at the facility during the reporting period?

XX Yes ___No If yes, give info below for each incident (attach additional sheets if necessary):

Date Received	Type Received	Date Disposed	Disposal Method & Location
See Below	**Low level Rad only**		

Radiation Monitoring

Does your facility use a fixed radiation monitor? **XX** Yes __ No

Fixed Monitors: RadComm (3 each) model: RC1000

Portable Monitor: Mazur Instruments model: PRM-7000

Disposal Method & Location:

All of the following were **rejected to the OCRRA Rock Cut Road facility** for natural decay. The NYSDEC and NYSDOH are notified by email of the incident by Covanta. If required the Onondaga County Health Department (OCHD) is notified by OCRRA for possible investigation and detailed radiological analysis. After decay, all materials were processed through the OCRRF WTE facility.

	Received		Hauler	Origin	Truck/ Box Number	Fixed Mon. Reading (cps)
	Date	Time				
	02/26/20	0605	Butler	Commercial	004-4584	12000
	09/23/20	1336	Superior Hauling	Residential	039-0020	15527

SECTION 12 - COST ESTIMATES AND FINANCIAL ASSURANCE DOCUMENTS

Are there required cost estimates and financial assurance documents for closure?
Yes ~~No~~ See below.
If yes, attach additional sheets reflecting annual adjustments for inflation and any changes to the Closure Plan?

2020 was the inaugural year for the OCRRF Financial Closure Plan. The Plan was submitted and determined to meet regulatory requirements by the NYSDEC. An extension request has been granted for producing the financial assurance mechanism, see attachment email dated November 13, 2020, from NYSDEC Steve Perrigo.

SECTION 13 - PROBLEMS

Were any problems encountered during the reporting period (e.g., specific occurrences which have led to changes in facility procedures)?
~~Yes~~ **No** If yes, attach additional sheets identifying each problem and the methods for resolution of the problem.

SECTION 14 - CHANGES

Were there any changes from approved reports, plans, specifications, and permit conditions?
Yes ~~No~~ See below.

1. **See Section 12 above.**
2. **In compliance with the NYSDEC Enforcement Discretion letter dated September 19, 2019, the Processed Waste will exclude recycled metals. Section 4, Page 5 of this report has the details of the credit for recycling of scrap metal from the ash residue.**

SECTION 15 - PERMIT/CONSENT ORDER REPORTING REQUIREMENTS

Are there any additional permit reporting requirements not covered by the previous sections of this form?
Yes ~~No~~ See below.

Reporting of Supplemental (Profiled) and Discrete wastes received. Required by permit condition.

4th quarter Supplemental and Discrete Waste Received:	**8,574 tons**
Annual Supplemental and Discrete Waste Received:	**30,731 tons**

(These tons are included in the tonnage reported in Sections 1 thru 5 of this report)

SECTION 16 - SIGNATURE AND DATE BY OWNER OR OPERATOR

Owner or Operator must sign, date and submit one completed form with an original signature to the appropriate Regional Office (See attachment for Regional Office addresses and Solid Waste Contacts.)

The Owner or Operator must also submit one copy by email, fax or mail to:

New York State Department of Environmental Conservation
Division of Materials Management
Bureau of Permitting and Planning
625 Broadway
Albany, New York 12233-7260
Fax 518-402-9041
Email address: SWMFannualreport@dec.ny.gov

I certify, under penalty of law, that the data and other information identified in this report have been prepared under my direction and supervision in compliance with a system designed to ensure that qualified personnel properly and accurately gather and evaluate this information. I am aware that any false statement I make in such report is punishable pursuant to section 71-2703(2) of the Environmental Conservation Law and section 210.45 of the Penal Law.

Signature

2/25/21
Date

Stan Longo
Name

Facility Manager
Title

slongo@covanta.com
Email Address

5801 Rock Cut Road
Address

Jamesville
City

New York, 13078-9408
State and Zip

(315)-498-4111
Phone Number

ATTACHMENTS: **XX** YES ___ NO

- **4th quarter ash Volatile analysis** (page 13)
- **Closure financial assurance mechanism extension** (page 14)
- **OCRRF Annual P.E. General Facility Inspection Summary**

Element One Inc.
6319-D Carolina Beach Rd.
Wilmington, NC 28412

Phone: 910 793-0128
Fax: 910 792-6853
e1lab@e1lab.com

elementOne

FINAL REPORT OF ANALYSES -% VOLATILES
Element One, Inc. Project Number e35815

Covanta Onondaga, Inc.
5801 Rock Cut Road
Jamesville, NY 13078

December 23, 2020
Client Project Name
Client Project Number

Sample Matrix	Combined Ash	Sample Type	8H Composite	Date Received	11/27/20
Date Combined	11/13-19/20	Time Sampled	0600-1400	Time Received	1200
Sampler	Paul Abt	Delivered by	UPS	Received by	LLB
Method	SM2540G/E	Date Analyzed	12/21/20		

Sample ID	ONO/CA/111320/sh2	ONO/CA/111420/sh1	ONO/CA/111420/sh2
E1 Sample #	35815-1	35815-2	35815-3
% Volatiles	3.55%	7.13%	3.06%

Sample ID	ONO/CA/111520/sh1	ONO/CA/111520/sh2	ONO/CA/111620/sh1
E1 Sample #	35815-4	35815-5	35815-6
% Volatiles	1.73%	1.75%	2.77%

Ken Smith, Laboratory Director

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Report compiled by

Certifications: NJ NELAP NC001223, NY ELAP 11881223, NC DW 37788 and NC DWQ DENR 604

Subject: FW: Closure Plans Submittal & Financial Assurance Request

From: Perrigo, Steve (DEC) <steve.perrigo@dec.ny.gov>
Sent: Friday, November 13, 2020 14:20
To: Cristina Albunio <calbunio@ocrra.org>
Cc: Abt,Paul <PAbt@covanta.com>; Parker, Reginald (DEC) <reginald.parker@dec.ny.gov>
Subject: RE: Closure Plans Submittal & Financial Assurance Request

*** Warning: External message - exercise caution.***

Hi Cristina,

Since there may have been some confusion with the Part 360 regulations regarding when the financial assurance mechanism was to be in place for your facilities and to be in alignment with your CPA annual audit, the deadline for the submittal of the financial assurance has been extended to May 1, 2021.

If you have any questions please contact me.

Regards,

Steve

Steven E. Perrigo, P.E.
Professional Engineer 1 (Environmental), Division of Materials Management

New York State Department of Environmental Conservation
615 Erie Boulevard West, Syracuse, NY 13204
P: (315) 426-7533 | F: (315) 426-7487 | steve.perrigo@dec.ny.gov
www.dec.ny.gov |

ONONDAGA RESOURCE RECOVERY FACILITY

2020 ANNUAL FACILITY INSPECTION REPORT

By Kenneth E. Armellino, P.E. - #075733

February 24, 2021

Signed: _____ Date: 2/24/2021

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1 INTRODUCTION

This facility operates under the authority of New York State Department of Environmental Conservation (NYSDEC), Division of Materials Management regulations, 6 NYCRR Part 360: Solid Waste Management Facilities General Requirements and Subpart 362-1 Combustion Facilities and Thermal Treatment Facilities.

Until the Solid Waste permit #7-3142-0028/00011 (exp. 8/7/2021) is renewed, this annual Professional Engineering Report requirement does apply. This was a requirement of the retire regulations Solid Waste Incinerators or Refuse-Derived Fuel Processing Facilities or Solid Waste Pyrolysis Units, paragraph 360-3.3(h)(6) which states:

> At least annually, a general facility inspection must be undertaken to determine the operating condition of the safety, emergency, security, process, and control equipment. This annual inspection must be performed under the direction of an individual licensed to practice engineering in the State of New York. This individual must prepare a summary report of the inspection which must be submitted to the department's central office and the office of the department administering the region within which the facility is located, as part of the annual facility report (see section 360-3.4[f][3] of this Subpart).

This requirement is for the Onondaga County Resource Recovery Facility, located at 5801 Rock Cut Road, Jamesville, NY 13078, operated by Covanta Onondaga, Inc. This detailed report covers the operation and inspection for the year 2020. The inspection and report were carried out under the direction of Kenneth E. Armellino, a licensed Professional Engineer in the State of New York (# 075733) and Director, Environmental Science and Community Affairs for Covanta, Inc. located at 445 South St., Morristown, NJ 07960. The site inspection and conclusions are based on a review of compliance with company technical standards, as well as a final inspection and document review on December 20, 2020. The site inspection and review were accomplished by Environmental Specialist Paul Abt. Other information was provided by various other employees as necessary.

2 OBJECTIVE

The objective of this summary report is to document the annual general inspection to determine the operating condition of the specified plant equipment. This summary report is grouped into the following 4 sections:

1. Safety and emergency equipment.
2. Security equipment.
3. Process and control equipment i.e. refuse boilers/stokers, air pollution control equipment, turbine and residue and auxiliary systems.
4. Preventive maintenance management system.

3 FINDINGS

The operating condition of the safety, emergency, security, process and control equipment at the Covanta Onondaga facility, as summarized in the following paragraphs, was found to be acceptable. The plant was recertified by OSHA for the fifteenth year in the VPP safety program, this demonstrates Covanta's continued commitment to worker safety.

3.1 Safety & Emergency Equipment

3.1.1 Fire Protection

All observed fire protection equipment (alarms, pumps, valves, extinguishers etc.) was found to be in proper alignment, in acceptable condition and undergoing quarterly and annual inspections and tests by certified contractors and insurance inspectors.

Fire hoses have been removed from cabinets and are kept in control room to improve reliability with local fire department's approval. Two bags with 5 hoses each are stowed in the DCS room adjacent to the Main Control Room.

Annual Fire pump testing was performed satisfactorily in 2020. The fire panel was in operation at the time of the inspection.

The emergency lighting inspection logs were reviewed. Emergency lighting at the facility appears to be adequate.

3.1.2 Safety Valves

All boiler steam safety valves were observed to be in acceptable condition and undergoing annual maintenance. Valve 'In Place' testing was conducted during 2020 boiler outages and applicable certificates were reviewed. Balance of plant safety valves (e.g. air system and low-pressure steam) are also being adequately maintained.

3.1.3 Ammonia Detection

The ammonia storage tank leak detection system appeared to be in satisfactory condition. Facility operating procedures include a quarterly test of the detector system by activating the sensors. Calibration records and scheduling are kept in the facility Asset Life Management (ALM) software. Records of inspection and repair are being maintained.

3.1.4 Self-Contained Breathing Apparatus

Self-contained breathing apparatus (SCBA) devices were required when the OCRRF facility used anhydrous Ammonia for NOx control. The Anhydrous usage was stopped in 2017, in favor of Aqueous Ammonia. The SCBAs are no longer required, they have been removed from the facility.

3.1.5 Personal Protective Equipment

Employees and visitors use hard hats, hearing and eye protection. Workers, as needed or required, were observed to use appropriate gloving, coveralls and breathing protection/respirators.

3.1.6 Eyewash & Shower Stations

All emergency eyewash and shower stations observed were in satisfactory condition. Facility personnel on a weekly basis inspect emergency eyewash/shower station integrity. Any deficiency is noted on the inspection form in the notes and comments section. The stations are flow tested as part of this activity with confirmation of control room alarms. Portable eyewash stations have water changed/treated every 6 months, as required.

3.1.7 Lightning Protection

The three-year inspection by an outside contractor in was done 2018 next is scheduled for 2021. The last inspection report was reviewed and none of the findings were found to be critical. All findings have been addressed.

3.1.8 Radiation Detection

Radiation detection monitors are installed and operational on all truck scales; the two inbound scales and one outbound. The detectors were calibrated by the OEM in October 2019. The detectors are currently set to alarm at 2 times background radiation level. A handheld radiation detector is stored at the facility in the Scale House.

Due to COVID travel restrictions the OEM (RadComm of Canada) could not calibrate the systems in 2020. The NYSDEC was informed of the issue. Weakly bump-checks with a radioactive source are done per regulation. Monthly the bump-check levels are recorded until a complete OEM calibration can be accomplished.

3.2 Security Equipment

3.2.1 Fencing

The facility perimeter fencing was observed to be free from breaks and in acceptable condition.

3.2.2 Entrance Gates

The main and truck entrance gates are functional. The truck gate is manually closed during non-waste delivery hours. The main gate is manually closed when the administration building is unoccupied with automatic operation of the gate to let people out. Both gates are on surveillance monitors 24 hours a day in the control room.

3.3 Process & Control Equipment

3.3.1 Boiler/Stoker

During the inspection, all three boilers were in service, operating at full load set-point of 104 klb/hr steam flow. Comments in this report refer to the equipment operating at the time of the inspection. Comments on operating statistics are based on data for 2020.

3.3.1.1 Boiler/Stoker Performance

3.3.1.1.1 Boiler Heat Output/Losses

Based upon historical operating data, the three units can continuously generate steam at maximum continuous rating (103,942 lb/hr per boiler). Steam conditions approximate design. Review of economizer exit flue gas temperatures and boiler draft losses indicate a clean, efficient boiler.

3.3.1.1.2 Availability

Availabilities for 2020 for boilers 1, 2 and 3 were 88.7%, 91.7%, and 89.6% respectively. Facility overall availability of 90.0% was achieved.

3.3.1.1.3 Refuse Processing

The facility NYSDEC permitted throughput is 361,350 tons per year without regard to HHV. 11/7/18 NYSDEC issued a memo to allow for recycled metal to be subtracted from processed tonnage, the memo was renewed for 2019.

For 2020, 356,723 tons were fed into the boilers, with 11,330 tons of ferrous and 1,220 tons of non-ferrous metal recycled; the subsequent refuse processed is 344,172 tons. The facility did not bypass any acceptable waste. 122 tons of unacceptable waste were rejected back to OCRRA for disposal.

3.3.1.1.4 Energy Recovery

The plant generated 255,961megawatt-hours of electricity, the annual energy recovery ratio is 718 KWh/actual ton of refuse fed for 2020.

3.3.1.2 Boiler/Stoker Critical Control Loops

The Bailey Distributed Control System (DCS) hardware was refurbished. This consists of replacing power supplies and input/output cards in 2019. The Operator Interface Station (OIS) hardware (PCs) and software was replaced in 2018. The Martin Control PLCs were replaced during this same period.

Critical control functions of the boiler were reviewed, all parameters responded in accordance with expected changes.

Note that instrument inputs associated with critical control loops and essential operating data are calibrated semi-annually.

3.3.1.3 Boiler/Stoker Mechanical

3.3.1.3.1 Boiler Tube Failures

The tube failure events are typically associated with corrosion in the furnace. The plant is effectively managing furnace and boiler corrosion with the application of Inconel protective overlay and tube and tube shield replacement in conjunction with performing ultrasonic thickness test tube surveys.

3.3.1.3.2 Fans & Dampers

All induced draft (ID), forced draft/underfire (FD) and overfire (OF) combustion air fans were operating normally with no obvious noise or excessive vibration. At full load, ID fan/furnace pressure controller positions were positioned as expected and damper/actuator conditions appeared good. FD and OF fan pressure controller positions were also visually functional and in good order. Fan/motor vibration levels are monitored through a corporate vibration monitoring program which identifies, at an early time, potential mechanical deficiency items. Routine fan and damper maintenance is performed during all planned outage activities.

An extensive IR survey of all critical switchgear was accomplished in 2020, all findings have been addressed.

3.3.1.3.3 Boiler/Stoker Miscellaneous

1. Stoker hydraulic fluid reservoir levels were appropriate, with proper fluid temperature.
2. Feed rams and grate drives were observed to stroke evenly with minimal leakage.
3. Stoker to boiler seals were lagged over and appeared to be sound, with no evidence of leakage.
4. Lighting and labels remain excellent throughout the boiler building.
5. Plant housekeeping was satisfactory.
6. The facility has replaced the three air compressors with VFD compressors. These were required to provide the additional air for the new Aqueous Ammonia injection.

3.3.2 Turbine

A 2-day cold-iron outage was accomplished in 2020. No serious issues were discovered. Lube oil and hydraulic oil systems were cleaned. Several drain lines were replaced.

No oil leaks were observed, vibration indications were all normal. Turbine availability was 99.2% for 2020. A rotator-out major inspection was accomplished 2018.

3.3.3 Air Pollution Control (APC) Equipment

3.3.3.1 APC Operating Data & Stack Emissions

A review of CEMS data for 2020 shows that the air pollution control system appears to be performing very well. All emission events are tracked by the facility and appropriately reported to the regulatory agency.

Stack performance testing was reviewed and shows the facility to be in compliance. Review of monthly operating data for the year showed that scrubber and baghouse draft losses for the three units are being maintained at acceptable levels implying that the flue gas paths are being maintained in an acceptably clean condition.

Unit #1 had a complete bag replacement 2016 and 2021 (January). Unit #3 had complete bag replacement 2016 and 2020. Unit #2 had complete bag replacement 2016 and scheduled for 2021 (March).

3.3.3.2 APC Critical Control Loops

Critical control functions of the air pollution control system were reviewed. Lime slurry delivery rate as a function of SO2 and scrubber outlet temperature control are the critical control parameters. The facility operates with a minimum lime slurry setpoint, which acts as the primary determiner of slurry rate. The scrubber outlet temperature control was observed to be functional and stable.

3.3.3.3 APC Miscellaneous

Air pollution control system observations are as follows:

1. All SDA double dump valves, baghouse fly ash rotary valves & all screw conveyors were inspected and functioning.
2. All 3 SDA penthouses were inspected. A spare atomizer unit was observed to be ready for use in emergency. No leakage of slurry or water were observed during inspection.
3. Baghouse pulse pressures were in an appropriate range of ~95 psi.
4. Insulation was viewed and in excellent condition, with ductwork expansion joints neatly insulated with insulation jackets. Spray-ceramic insulation on the BH and SDA hoppers is fully intact.
5. The BH outlets duct headers and the duct sections supporting the outlet (stack) monitoring ports was replaced in 2018.
6. The lime slurry, dry carbon and aqueous ammonia systems are in good operational condition.
7. The chimney and stack liners were last inspected by International Chimney Corporation 2018, with no action items.

3.3.4 Residue & Fly-ash

A walk down of the residue and fly-ash systems was conducted and no significant deficiencies were found.

1. Fly-ash screw conveyors were operating and were adequately containing the ash.

2. The inclined conveyor gallery is in good condition and ash discharged and loaded into the residue trucks in the residue building is being performed without spillage or fugitive ash emissions.
3. Areas under the ash dischargers, scrubber and baghouse were in good condition. The Dust Mizer fly ash conditioner is regularly operated to the bypass belt.
4. The Ash building floor is in fair condition. The floor in the ash load out area is in good condition.
5. The non-ferrous eddy current system (ECS) installation was operating at the time of inspection. The system was operating properly. In 2018 the ECS was upgraded to enhance collection of non-ferrous fines.
6. The ferrous magnet was in continuous operation.

3.4 Preventative Maintenance

3.4.1 Preventative Maintenance System

The facility continues to increase their use of the maintenance management program to generate and track corrective work orders, and for preventive maintenance work orders. The recent PM activity was reviewed as part of the inspection. Work records are maintained in an Asset Life Management (ALM) software package.

3.4.2 Outage Schedules

The facility conducted semi-annual maintenance outages on each of the operating units in 2020 sufficient to maintain the equipment in good working condition. When unscheduled outages occur, the opportunity is taken to clean boiler tube surfaces and address any known issues.

3.4.3 Outage Tasks

Documentation of work performed during outages for all three units was reviewed and indicate that appropriate activities relative to boiler and air pollution control system maintenance are being performed. Regular baghouse maintenance includes bag inspection and necessary replacement, steel relining in target areas, and inlet/outlet duct repairs.

3.4.4 Forced Outage Work List

The preventative maintenance/work order system contains a category for the type of outage required, i.e. boiler or full plant. A list of items can be queried and printed quickly should an unexpected forced outage occur.

3.4.5 Bulk Chemical Storage Tanks

At the time of the inspection, the following registered tanks, containments, and ancillary equipment were visually inspected and found to be in acceptable condition:

- DW-T-002 Aqueous Ammonia
- FP-T-002 Diesel Fuel
- FP-T-003 Diesel Fuel
- FO-T-001 Diesel Fuel
- UO-T-001 Used Oil

The boiler feed water reverse osmosis (RO) water system is in good working order. The tanks associated with the old system; DW-T-007 and DW-T-008 were decommissioned in 2017, they are out-of-service in-place.

4 CONCLUSION

Based upon the above inspections and information, the safety, emergency, security, process and control equipment at the Onondaga County Resource Recovery Facility operated by Covanta Onondaga at 5801 Rock Cut Road, Jamesville, NY 13078 are considered to be in acceptable operating condition.

APPENDIX I: Recycling 2020: Report and Recommendations (without appendices)

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RECYCLING 2020

Report and Recommendations

OCRRA.org

Onondaga County
Resource Recovery Agency

January 2020

Contents

Figures

Tables

Appendices

Executive Summary

The Onondaga County Resource Recovery Agency ("OCRRA," or "the Agency") is a public benefit corporation that implements the Onondaga County Comprehensive Solid Waste Management System for Onondaga County. OCRRA is not an arm of county government and relies primarily on Municipal Solid Waste (MSW) tipping fees and not taxes for funding.

In 2018, recycling as we knew it changed. For over a decade, the revenues from the sale of recycled commodities (fiber, plastics, metals) mostly offset the local cost of sorting and processing residentially-sourced commodities (e.g., newspaper, junk mail, cardboard boxes, and household plastic bottles, cans and jars). In Onondaga County, haulers collect and deliver residentially-sourced commodities to a local, private sector Material Recovery Facility (MRF) owned and operated by WM Recycle America, LLC. (WM/RA).

To date, OCRRA has ensured the delivery of residentially-sourced commodities to the MRF by providing a subsidy that results in a zero dollar tip fee to the haulers for loads delivered to the MRF. Prior to the 2018 implementation of China's National Sword Policy, a substantial portion of the MRF revenues from these curbside recycled commodities came from the export market, in particular China. As a result of China's policy, 50% of the export market was lost, sending revenue from recycled paper and plastic markets plummeting. This significantly reduced the sorting and processing costs at the local MRF that could be offset, thus increasing OCRRA's costs.

Even with skyrocketing cost increases, OCRRA remains committed to administering a robust, nationally recognized household recycling program in Onondaga County both for environmental reasons and to demonstrate efforts to achieve recycling levels as stipulated in OCRRA's New York State Department of Environmental Conservation (NYSDEC) Permit for the Waste-to-Energy (WTE) Facility.

Despite the plummeting values for the commodities collected at the curb, OCRRA has been able to hold MSW tipping fee rates steady by subsidizing the household recycling program in its 2020 budget with the support of agency cash reserves. This is a temporary, stop-gap measure and is not sustainable over the long term. OCRRA continues to carefully monitor domestic market development for curbside recyclables. Further exacerbating OCRRA's financial situation is the current extraordinarily low electricity sales revenue from the WTE Facility.

With such a drastic loss of recycling export markets, a slow recovery is expected. Experts anticipate low market commodity values and higher processing costs will be the reality for 36 months or more, as domestic capacity grows and markets adjust. OCRRA appointed an ad hoc Recycling 2020 Committee ("the Committee") to develop tactical and strategic plans to deal with the changed recycling markets. Improved material quality with less contamination will be the only way to compete in future recycling markets that will demand cleaner materials that meet stringent end-market specifications.

The Committee identified several actions and divided them into Immediate (IM), Short-Term (ST) and Long-Term (LT) options. Immediate (IM) and Short-Term (ST) actions are decisions OCRRA can make and Long-Term (LT) actions require local or state legislative action. Each of these are briefly reviewed below.

Immediate Actions influencing OCRRA's 2020 budget and 2020 MRF contract renewal:

IM 1: Maximum MRF Payment Action: Continue to subsidize residential recycling sorting and processing costs at the local private sector MRF from OCRRA MSW tip fees and / or cash reserves at maximum level of $2.5 million in 2020.

IM 2: Permit Variance Action: Seek permit variance approval by NYSDEC to authorize OCRRA to dispose of mixed paper bales when the market and freight price exceeds negative $35 / ton for three consecutive months.

Short-Term Tactical Actions Considered:

ST 1: Market Tip Fee Action: Discontinue subsidization of household recycling sorting and processing costs and require public and private sector trash haulers to directly pay the MRF operator a tip fee for recycled materials.

ST 2: Low / No Value Item Removal Action: Remove low value, high-cost items from the mandatory recycling list, such as glass, until such time that they meet the economic definition of viable recycling. A separate analysis for Alternative Glass Collection in Onondaga County was prepared for further Board review. See Appendix K.

ST 3: All Material Action: Seek Permit Variance Approval by NYSDEC to authorize OCRRA to direct Onondaga County Haulers to deliver Source Separated Recyclables to WTE Facility when cost impact reaches some pre-established threshold.

These immediate and short-term actions have either a negative impact on OCRRA's cash reserves or risk upsetting years of effort to establish an effective recycling program in Onondaga County.

Long-Term Strategic Actions Identified:

LT 1: Request direct municipal financial relief from either local or state government (NYDEC or NY Environmental Protection Fund) to cover the true costs of recycling. This might also include OCRRA obtaining NYS grant funds for equipment that could be leased to the MRF to reduce sorting and processing costs to ensure cleaner materials to meet end market specifications. Please see attached letter from the New York State Association of Counties to Governor Cuomo, found in Appendix M, urging the Governor to provide direct financial support to sustain local recycling during this market crisis.

LT 2: Add glass wine and liquor bottles to the New York State Returnable Container Act (Bottle Bill). Glass collected through the Bottle Bill deposit system is cleaner than glass processed at a MRF. Bottle Bill glass can readily be recycled into new bottles. Glass processed at the MRF has a negative value; eliminating it from the recycling stream will reduce costs. (ST 2).

LT 3: Advocate that NY State establish Extended Producer Responsibility (EPR) for product packaging and printed paper. Shifting material recovery responsibility to product producers relieves the cost burden to local municipalities, as well as taxpayers and OCRRA's rate

payers. Furthermore, such EPR measures are a market-based system that incentivizes manufacturers and brand owners to design for product recovery and recyclability upfront, while also stabilizing post-consumer market volatility.

LT 4: Work with local and state governments to support nearby domestic users of recycled commodities such as paper or plastics processing facilities. Such domestic recycling facilities support local jobs and create market demand for product packaging that was lost when China ceased its purchases.

LT 5: Evaluate development of Agency-owned MRF, possibly in alliance with other planning units.

Recycling 2020 Recommendations

Implementation of the following recommendations would involve public notification and consultation with the County Legislature, when applicable.

For 2020, the Committee recommended that OCRRA continue its immediate-term path of using reserve funds to mitigate the current recycling economics (IM 1), while also pursuing longer-term actions: seek increased state funding; expand the Bottle Bill; adopt EPR and build local recycling infrastructure (LT 1 – LT 4). Longer-term strategic actions deal directly with recycling economics and market conditions and have no identified negative impacts for municipal recycling programs.

Wine and liquor bottles, which comprise roughly 50% of blue bin glass by weight, become too contaminated during curbside collection and MRF sorting to be recycled economically. Glass processed at a MRF is not used to make new bottles, but is used instead as daily landfill cover, displacing soils. Managing this glass is a direct cost to OCRRA. Glass collected through the Bottle Bill remains clean enough to be turned into new glass bottles, indefinitely. Including wine and liquor bottles in the Bottle Bill is the best way to ensure they are recycled into new glass, while also improving the quality of paper and cardboard processed at the MRF.

OCRRA reviewed alternative methods of managing glass in Appendix K as part of a strategy to remove negative value materials from the recycling bin. OCRRA is actively pursuing expansion of the Bottle Bill (LT 2) and promotion of Extended Producer Responsibility (LT 3).

The Committee also endorsed seeking municipal financial support; see support letter to the New York State Legislature from the New York State Association of Counties in Appendix M, (LT 1) and development of nearby domestic market for commodities (LT 4), both of which are new initiatives.

The Committee further recommends continued monitoring of market conditions and its contract relationship with the local MRF. Should conditions degrade, OCRRA should begin active pursuit of short-term actions such as elimination of the curbside recycling subsidy to local public and private sector haulers (ST 1) or incineration of recycled materials (ST 3), which it could implement on a very short-term basis without the lead time and costs required to retrain the public on recycling rules.

1.0 INTRODUCTION

The Onondaga County Resource Recovery Agency ("OCRRA," or "the Agency") implements the Onondaga County Comprehensive Solid Waste Management System on behalf of County government. Every year, OCRRA's award-winning, integrated solid waste management system generates enough electricity to power more than 30,000 homes and recovers more than 10,000 tons of metal at the Waste-to-Energy Facility (WTE); the recycling program also recycles more than 180,000 tons of materials. Together this results in a combined avoidance of approximately 1 million tons of carbon dioxide equivalents annually (US EPA WARM model). The Agency's recycling program has been recognized for environmental excellence by the Solid Waste Association of North America (SWANA), the New York State Department of Environmental Conservation (NYSDEC), and the National Recycling Coalition (NRC), among others.

Since the Agency's recycling program inception, it has partnered with private sector Material Recovery Facilities (MRFs) to sort, bale, market and transport the residential curbside stream. To promote material recovery and stabilize the system during market lows, the Agency has offered municipal and private sector haulers a "zero dollar tip fee" at the Agency's contracted MRF for the residential recyclables. OCRRA, through a contract with the MRF, provides a subsidy to the MRF during material market lows, and receives a revenue share from the MRF during strong material market conditions. Over a 12-year period, from 2006 to 2017, as the market continually rose and fell for fiber, plastics and metal, this contract has been essentially cost / revenue neutral to OCRRA for the processing of more than 440,000 tons of material.

Like other communities across New York State and the country, OCRRA has been hard hit financially by China's National Sword policy of ceasing to accept a wide variety of recyclable materials for reprocessing and remanufacture, particularly mixed paper grades, which, by weight, comprise 55% of sorted recyclables (see Appendix G). Under the MRF contract, the Agency received $123,000 in revenue from all materials recovered in 2017. In the wake of China's exit from the market in 2018, material values plummeted. In 2018, OCRRA paid more than $667,000 to the MRF; in 2019, OCRRA paid $1.8 million to the MRF. In 2020, there is a projected $2.5 million cost to OCRRA for the MRF to sort approximately 38,000 tons of residential recyclables. The Agency does not subsidize commercially-generated recyclables.

Market prices, particularly for mixed paper, have significantly reduced the Average Blended Value (ABV) of curbside recycling commodities, such that the value no longer covers the cost of processing the recyclables. The ABV is received from the sale of processed residential recyclable commodities. The costs of processing and marketing materials is generally constant, is independent of market conditions, but increases over time due to inflation from rising labor costs and capital investments. The ABV is a useful number to track the performance of the recyclable commodity market. Figure 1 depicts, on an average basis across the United States, the sharp decline in the ABV from $125 / ton at the end of 2016 to below $40 in the summer of 2019. Figure 2, on a broad scale, displays the drastic material value decline from 2015 to 2019 depicted by each commodity.

To proactively address this severe market challenge, OCRRA Board Chair John Copanas appointed an Ad Hoc Committee of the Board, the 2020 Recycling Committee ("the Committee"), to identify and evaluate short-term tactical and long-term strategic options to best position OCRRA to sustain the community's award-winning recycling program and maintain OCRRA's financial stability.

Figure 1 – U.S. MRF Average Blended Value (ABV) Per Ton Processed. Provided by Recycle America / Waste Management.

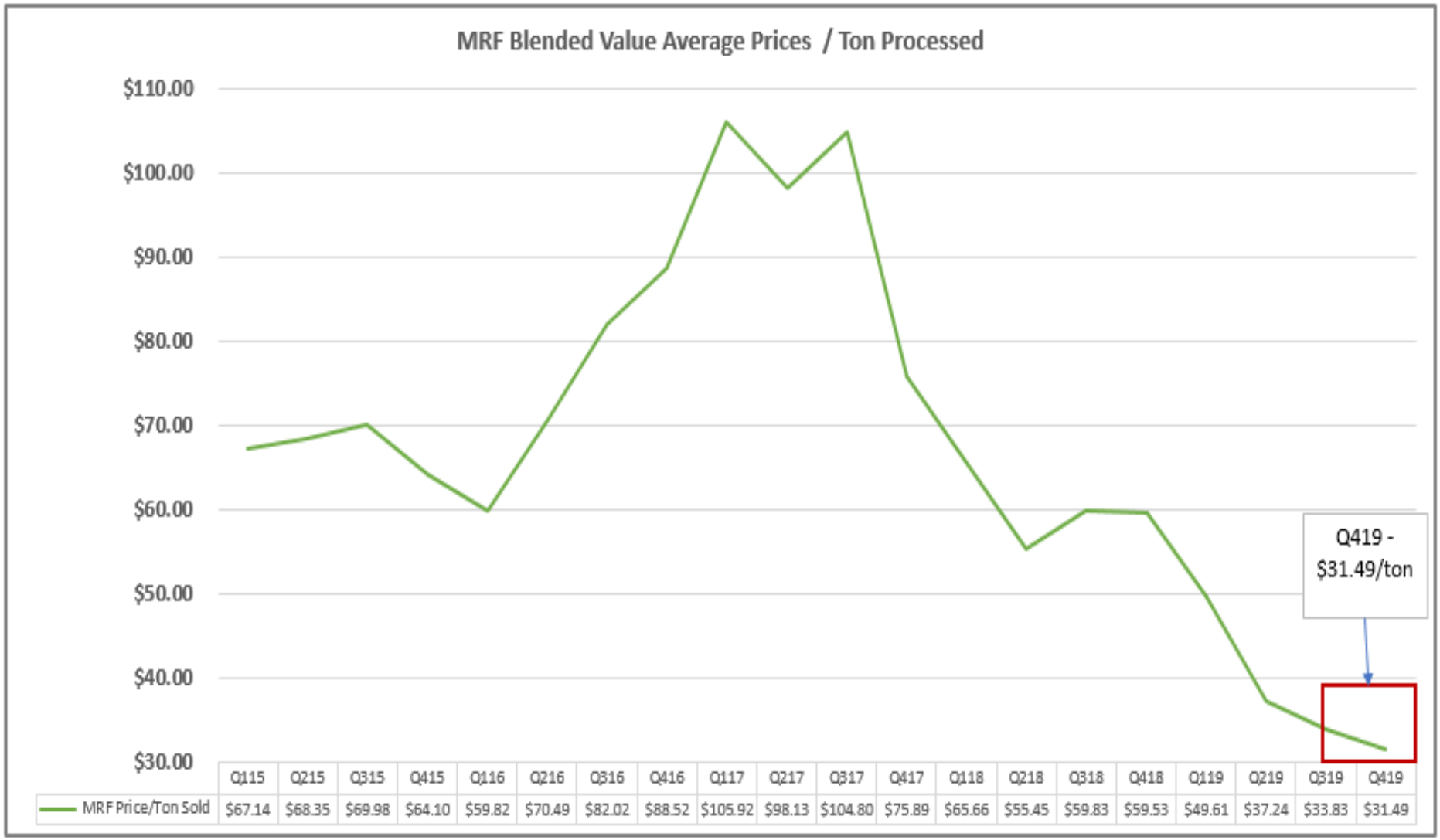
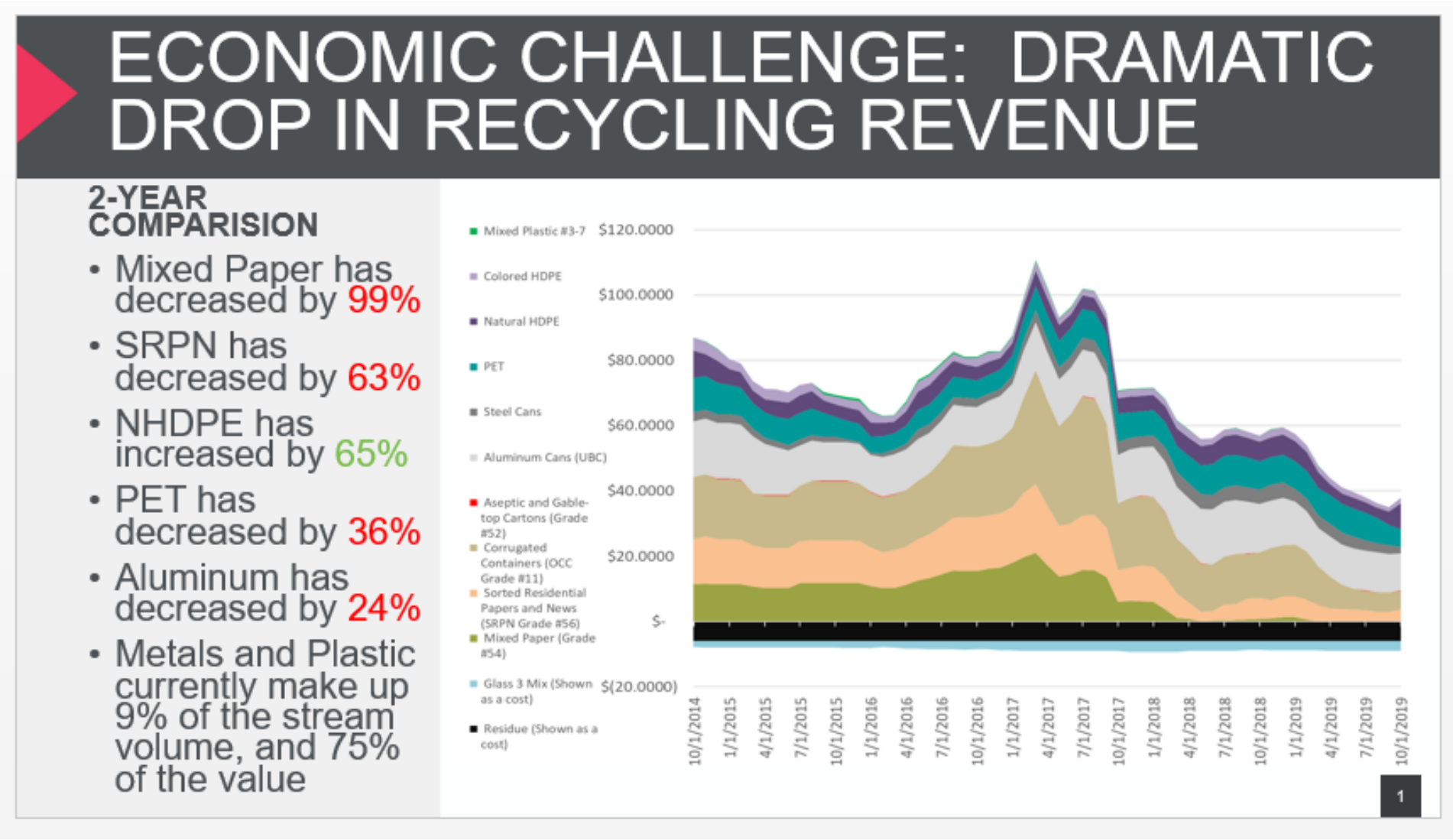


Figure 2 – Per Ton Recycling Revenue Trends by Commodity. Prepared by Resource Recycling Systems (RRS).



2.0 BACKGROUND

In 1989 the Onondaga County Legislature passed the first Source Separation (Recycling) Law which mandated recycling of certain materials by all waste generators. Minimum recycling goals are also a part of the NYSDEC permit for OCRRA's WTE Facility. Clarifying changes and additions were made to the Source Separation Law in 2011. The list of mandatory recyclables in the Law is as follows:

- Office Paper and Discarded Mail
- Newspapers and Magazines
- Corrugated Cardboard, Brown Paper Bags, Paperboard, Pizza Boxes
- Milk and Juice Cartons, Gable-Top Cartons, Aseptic Cartons
- Glass Food and Beverage Containers
- Metal Food and Beverage Containers
- Aluminum Foil
- Aerosol Cans
- #1 PET (Polyethylene terephthalate) and #2 HDPE (High Density Polyethylene) plastic bottles, jugs and jars
- #5 Plastics, such as plastic dairy tubs (polypropylene)
- Soft cover books

Approximately **38,000 tons** of curbside residential recyclables are generated annually in the OCRRA service area. For nearly 30 years, OCRRA has contracted with a MRF owned and operated by WM / RA to sort, bale and market the residential material. There is no such contract arrangement for commercial materials, which is primarily commercial cardboard and office paper. The contract has been structured such that OCRRA pays a fee to WM/RA to perform the sorting, baling, marketing and transport of the recycled materials and shares in revenues created by material sale (if any). Depending upon market conditions through the years, this contract has either cost or generated OCRRA revenue (see Table 1).

Through this contract, OCRRA enabled private sector and municipal haulers to deliver residential recyclables to WM / RA at a tip fee of $0, thus providing an incentive for recycling to meet the County Source Separation Law and NYSDEC WTE permit requirements.

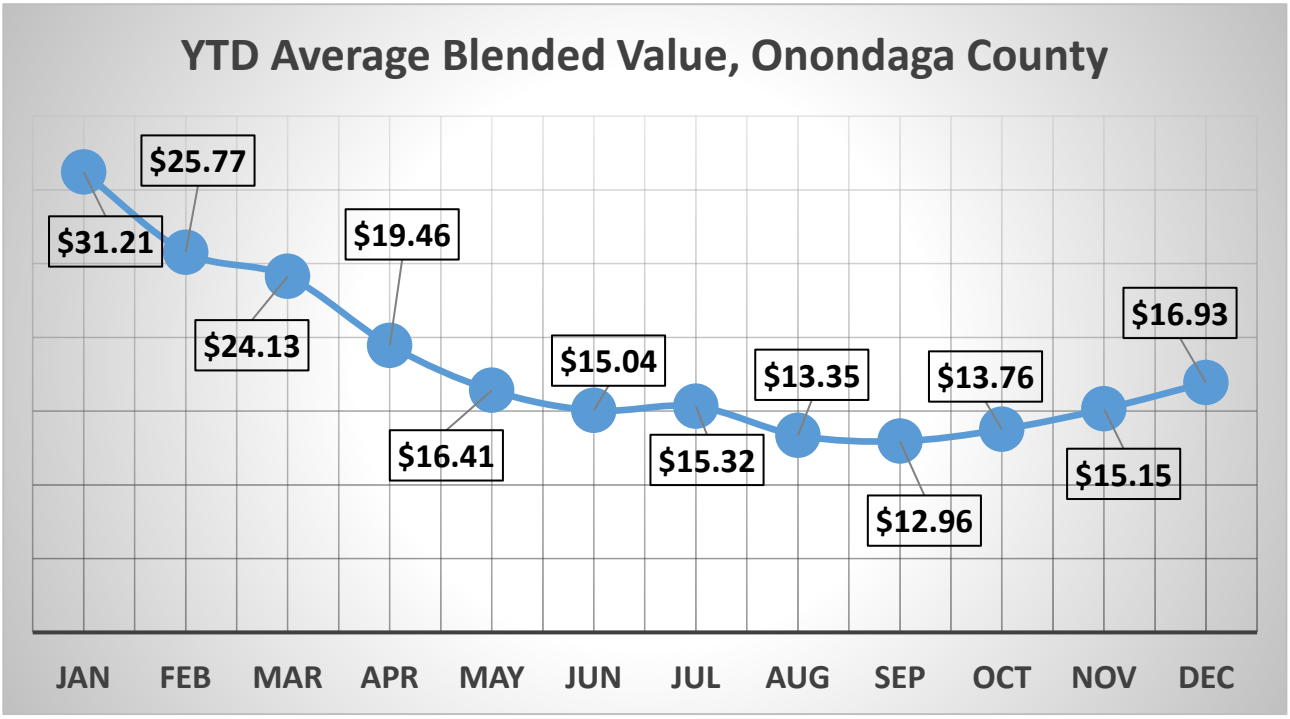
Table 1 – Total Payments to/from MRF, Historical

2006-2018 Total Payments to/from MRF

	Paid to MRF	Paid to OCRRA
2006	$62,504	
2007		$64,993
2008		$58,251
2009	$158,106	
2010		$37,256
2011		$78,251
2012	$36,006	
2013	$0	$0
2014		$2,943
2015	$73,727	
2016	$256,649	
2017		$123,374
OCRRA's 12-year net cost (2006-2017) = $187,800.		
2018	$667,920	
2019	$1,813,969	

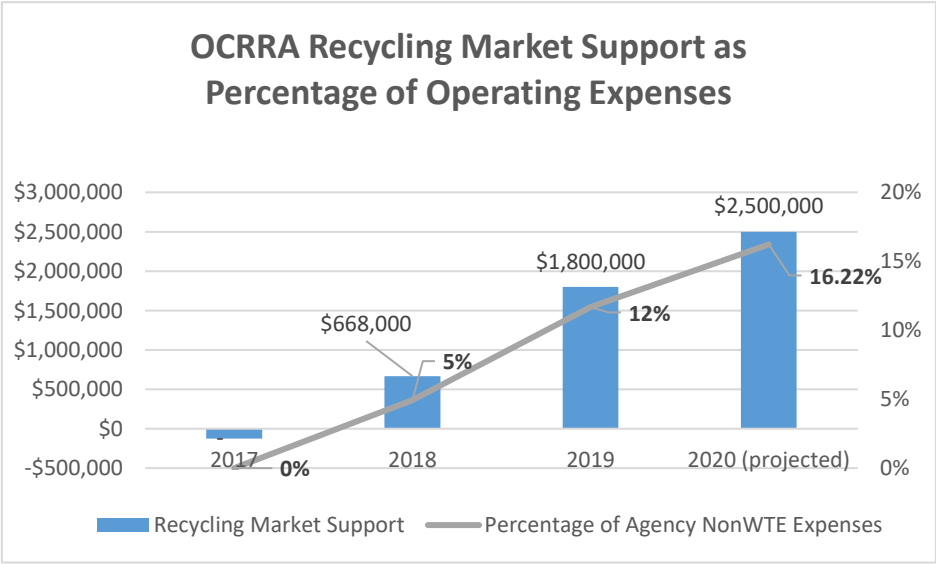
Figure 3 below indicates the decrease on a per ton basis of the average blended value of residential curbside recyclables as tracked during 2019. Such average blended per ton values are a weighted average based upon: 1) a predetermined percentage by weight of each commodity in curbside recycling, and 2) the market value for each commodity. Such average blended values are at record lows in the wake of China's National Sword policy, which is further discussed below.

Figure 3 – 2019 Declining Average Blended Value Per Ton of Blue Bin Commodities in Onondaga County



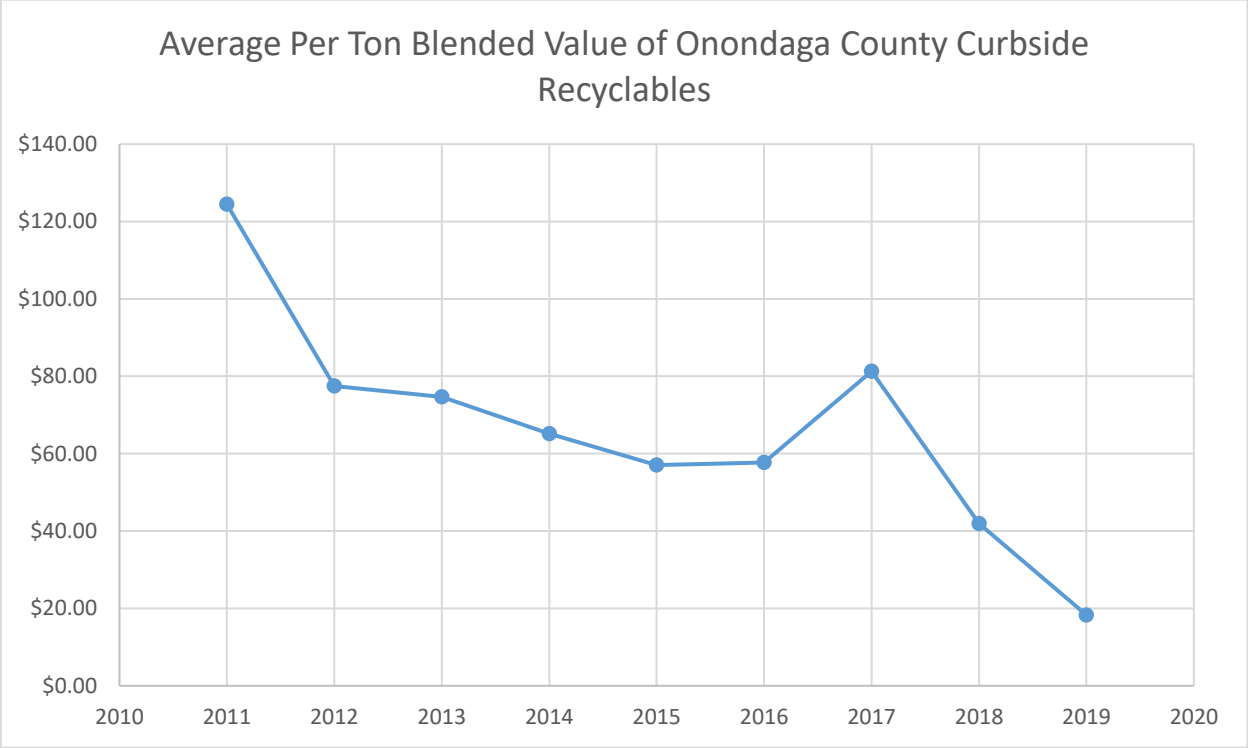
During the past decade, most of the demand for recycled material came from China. In 2018, China initiated their National Sword policy to drastically reduce material imports and put quality restrictions on imports of recycled material. As a result, the market prices for recycled material dropped precipitously. As noted in Table 1, payments to WM / RM went up to nearly $670K in 2018 and exceeded $1.8 million in 2019. In 2019, OCRRA had a contract with WM / RA in which the per-ton cost of sorting curbside recycling was not-to-exceed $49 / ton. The contractual per ton not-to-exceed cost increased to $65 / ton in 2020; which will result in MRF processing costs of $2.5 million paid by OCRRA to support curbside recycling. OCRRA's recycling costs now comprise 16.22% of the Agency expenses, excluding WTE fixed costs. These cost impacts are summarized in Figure 4 below.

Figure 4 – OCRRA Costs and Percentage of Total Agency Operating Budget for Recycling



The average blended per ton value of Onondaga County curbside residential recyclables on a multi-year basis is presented in Figure 5 below. The trend line indicates the generally declining value of these materials on an aggregated basis; mixed paper and corrugated cardboard are the major driver of the average blended value calculation, as they comprise more than 50% of curbside recyclables by weight.

Figure 5 – Multi-Year Average Blended Value Per Ton of Onondaga County Curbside Recycling



As indicated in the figures and tables above, and in the wake of global commodity price fluctuations, the value of the curbside recyclable materials has only occasionally covered OCRRA's costs to have these items sorted and processed at the local, private sector MRF.

3.0 PROCESS

The OCRRA Board by Resolution #2184 formed the Recycling 2020 Ad Hoc Committee to consider the uncertainty of future recycling costs and their impact on the OCRRA budget, as well as to develop recommended actions.

The OCRRA Recycling 2020 Ad Hoc Committee began meeting monthly in April 2019. Committee members were comprised of Lee Klosowski, Chair; Bob Andrews; Robert DeMore, Anthony Geiss; and Blair Page. Other Board Members also periodically attended Committee meetings.

During the meetings in April and May, the Committee was briefed on the history and background of recycling in Onondaga County, as well as the national and international trends affecting market prices for recycled materials.

In June, the Committee had a presentation from TOMRA on glass recycling. At the July meeting, committee member Blair Page presented his work on proposed goals and solutions. The Committee also discussed other goals and priorities which could be used to evaluate potential solutions or recommended actions. The Committee then set out to brainstorm potential actions or solutions to address recycling conditions and the impact on OCRRA's budget.

The August meeting focused on short-term tactical actions and those over which OCRRA had more individual control. The Strengths, Weaknesses, Opportunities and Threats (SWOT) were considered for each of the potential actions.

The Committee spent the fall deliberating on immediate actions, negotiating the MRF contract revisions and compiling this report.

4.0 IMMEDIATE AND SHORT-TERM TACTICAL OPTIONS

SWOT analysis on immediate and short-term options follows.

IM 1

MAXIMUM MRF PAYMENT ACTION OPTION (STATUS QUO):
First, the Agency must determine the maximum annual amount OCRRA is willing to spend for recycling payments to MRF. Historically, this amount was negotiated in terms of OCRRA-MRF Contract and through the Budget process. $18/ton in 2017; $49/ton in 2019; $65/ton in 2020.

S Strength	W Weakness	O Opportunity	T Threat
• Limits financial exposure to Agency while preserving the current arrangement that supports the existing system.	• Agency subsidizes a private company to sort curbside recycling, potentially directing capital away from the free market innovation by artificially fixing the price of sorting. The closer the Commercial Cost for Processing Recycling is to MSW Tip Fee, the more incentive Haulers have to abuse the system.	• Maintains the status quo.	• Alternative management of materials is needed for processing materials above the agreed upon amount: Does OCRRA guarantee a $0 tip fee for household recycling until market reaches a dollar threshold? Does OCRRA direct household recycling to WTE (with approved variance by NYSDEC) when recycling hits a certain cost threshold? Situation could occur that MRF is unable to market mixed paper and OCRRA pays to sort material that is landfilled or processed at WTE. NYSDEC and County Legislature would be advised accordingly.

IM 2

PERMIT VARIANCE OPTION :
Seek permit variance approval by NYSDEC to authorize OCRRA to dispose of mixed paper bales when the market and freight price exceeds negative $35 / ton for three consecutive months.

S Strength	W Weakness	O Opportunity	T Threat
• Allows OCRRA to cap financial exposure and enter into a year-long contract to maintain business as usual.	• Not consistent with OCRRA's vision to reduce waste and recycle to make our community a more sustainable and healthy place to live.	• Allows OCRRA to adjust to changing market requirements / material quality demands.	• Erodes public trust in OCRRA; diminishes our brand and integrity in the eyes of the community.

ST 1

MARKET TIP FEE ACTION OPTION:
Eliminate the OCRRA subsidy that supports the $0 tip fee at the MRF for household recyclables in the OCRRA-Hauler Contract; haulers pay MRF directly for material processing costs. OCRRA estimates an annual per household cost increase of $17 to residents, in addition to their existing recycling pick up / transport costs.

S Strength	W Weakness	O Opportunity	T Threat
• After almost three decades of subsiding recycling with a zero tip fee, perhaps now is the time to spur innovation while market costs are high. This would end OCRRA's financial exposure to volatile markets. OCRRA-WM/RA contract would not be renegotiated nor renewed.	• Exposes haulers and community to volatilities of the recycling commodity markets. Upends existing contract arrangements between haulers and their municipal and private sector customers.	• Allows free market to spur innovation without quasi-governmental interference.	• Potentially destabilize local WM/RA facility, threatening access to in-county curbside recycling sorting service. Backlash from haulers, member municipalities, political leaders. Without economic incentive to recycle, greater chance of recyclables being trashed or creating further financial strain on OCRRA's enforcement obligations. Derail OCRRA's efforts to achieve a minimum 40% recycling rate.

ST 2

LOW / NO VALUE ITEM REMOVAL OPTION:
Remove low-value, high-cost items from the mandatory recycling list, such as glass, until they meet the economic definition of viable recyclling. See Appendix K for a detailed analysis on glass collection alternatives.

S Strength	W Weakness	O Opportunity	T Threat
• May provide more immediate financial relief due to reducing glass processing and disposal costs. • Removal may help spur legislative action to expand the Bottle Bill to include wine and liquor bottles.	• Significant increase in public education investment will be required to re-educate the public. • Re-education will take many years to achieve.	• Less broken glass in the curbside stream means cleaner and more valubable cardboard and paper streams. • Capturing glass further upstream / not at the MRF will preserve the durability and longevity of curbside recycling by reducing wear and tear on MRF sorting equipment.	• Errode OCRRA's integrity and the public's faith in our organization. • Residents may or may not actually adpot the new practice.

ST 3

ALL MATERIAL ACTION OPTION:
Secure Permit Variance Approval by NYSDEC to authorize OCRRA to direct Onondaga County Haulers to deliver Source Separated Recyclables to the WTE Plant when cost impact reaches trigger threshold (i.e. average blended value; MRF gate rate; or other factor).

S Strength	W Weakness	O Opportunity	T Threat
• Can be immediately implemented if the Trigger Threshold is reached. Concept is explainable to the public. It is a short-term solution in response to a market driven reality that forces a temporary suspension of over supplying the already over-supplied secondary commodity market. No changes to public behavior needed, material will be redirected to a recycling facility when market values approach more acceptable values.	• Requires lead time, significant analysis, regulatory approval, public outreach and disclosure, determination of "cost impact" that is the acceptable TRIGGER THRESHOLD to burn (or bury) recyclables.	• Potential to maintain current public behavior and retain ability to reinforce current messages.	• Public backlash, potential to lose confidence and participation in recycling; dependent upon regulatory approval.

NYS Law 120—AA requires municipalities to require separation for recyclable materials for which economic markets for "alternate" uses exist. For this section "economic markets" is defined as:

"instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation, and sale of said material less the amount received from the sale of said material."

5.0 LONGER-TERM STRATEGIC OPTIONS

5.1 Legislative Solutions

- Implement expanded Bottle Bill to remove more glass (i.e., wine, liquor, and non-alcoholic glass beverage bottles) from curbside recycling.

- Provide a funding mechanism to support recycling costs.

- Support Extended Producer Responsibility (EPR) to shift material recovery and processing costs to manufacturers and improve upstream design. Develop a comprehensive, statewide stewardship policy approach that helps achieve a funded, robust, and harmonized curbside recycling system throughout NY State. (See State of Maine proposal, Appendix L).

- To promote material demand, establish post-consumer recycled-content legislation which requires that certain products be made with a certain amount of recycled material. Provide tax credits for state manufacturers that use NY State recovered recyclables.

Extended Producer Responsibility

Many states, including New York, have begun passing legislation requiring manufacturers to take responsibility for the end-of-life management of their unwanted products and product packaging, which relieves local municipalities of the responsibility of recovery and proper disposal / recycling, including the associated costs. There are over 110 such EPR laws in the US. NY State's EPR laws include the following:

- Rechargeable Batteries
- Electronics
- Mercury Thermostats
- Pharmaceuticals (passed in 2018; anticipated to go into effect in 2020)
- Paint; passed in 2019 session and signed by the Governor 12/19

Bottle redemption laws are also a form of EPR, which is also known as “Product Stewardship.” Currently, there are other EPR laws proposed in NY State for the following materials:

- **Primary Batteries**
  A04105 (Englebright):, same as S02610 (Metzger): – Referred to Environmental Conservation
- **Solar Panels**
  S00942 (O’Mara): – Referred to Environmental Conservation
- **Carpet**
  S02327 (Kavanagh): – Referred to Environmental Conservation

Under an EPR approach, material recovery is managed by product manufacturers. Program costs are paid through the purchase of the product, not through a taxing structure.

According to Scott Cassell, Chief Executive Officer of the Product Stewardship Institute, “The collapse of recycling markets following China's policy to restrict imports of recyclable materials has made it clear that communities are unfairly burdened by an inefficient and costly waste management system.”

In the wake of the devastating financial impact caused by China's National Sword campaign, several states, including Connecticut, Maine, Indiana, Washington and Vermont, are now evaluating an EPR approach for all packaging and printed paper.

LT 1-3	Legislative Solutions
S Strength	Policy solutions recognize the industry-wide nature of the issues and minimize local financial impact.
W Weakness	Implementation is long-term (may be several years) in nature and does not address the immediate budget impact to OCRRA. OCRRA can provide input, but ultimate outcomes and legislation may be different than what is sought.
O Opportunity	Strength in numbers. Other municipalities are in similar a situation. Establish a group or coalition of similarly situated entities (municipalities). Consider joint funding of professional lobbyist.
T Threat	Budget impacts to OCRRA until legislation can be passed. Legislatures may be reluctant to pass something that could be viewed as a new tax. Producer industry groups may push back against the additional costs resulting from additional responsibility.

5.2 Promote Local Recycling Markets

- OCRRA collaborates with state economic development, county, manufacturing, and business leaders to promote more resilience in local use of sorted recyclable commodities, such as paper, cardboard, metal and plastic etc. Low-grade mixed paper represents the biggest market challenge as it comprises more than 40% of the mass weight of curbside residential recyclables, plus there are limited domestic markets.

- Development of regional glass processing facility in collaboration with nearby planning units

- Alternative options for glass recovery

LT 4	Promote Local Recycling Markets
S Strength	Addresses the root cause of low market value for recycled material. Promotes sustainable economic development in the region. Reduces greenhouse gases resulting from long distance transport of materials.
W Weakness	Will take time to develop and does not address the immediate OCRRA budget impact. May be difficult for OCRRA to have meaningful control or impact on such development.
O Opportunity	Expand local / regional economy and jobs. Positive environmental impact by using recycled rather than virgin material.
T Threat	Size and value of market for recycled materials. Many uncertainties such as; impact of potential EPR legislation, movement toward reusable / returnable containers (e.g. LOOP reusable packaging). Technology changes.

5.3 Evaluate Development of Agency-Owned MRF

Recycling sorting technology is evolving quickly, and facilities require continual and forward-thinking investment to recover resources to live their best next life. In an extended recycling recession it is often difficult for quarterly-dividend driven private corporations to make the long-range investment in necessary public infrastructure for sustainability. OCRRA could buy out the existing MRF or build a new MRF, possibly in alliance with other local planning units.

The County Legislature and County Executive could enact legislation that flow controls curbside recyclables to a municipal-owned facility.

See also excerpt from Resource Recycling Solutions (RRS) report to OCRRA Board, dated January 29, 2019 (Appendix J).

LT 5	Develop Agency-Owned MRF
S Strength	Gives OCRRA more control over recycling processing costs. Public financing and grants should result in lower costs to build or buy such a facility.
W Weakness	Still have underlying problem: lack of market for recycled materials. OCRRA does not have expertise to operate a MRF. Must hire staff or operator; take on more debt and make capital investments in new equipment to efficiently sort materials for changing recycling markets.
O Opportunity	OCRRA could partner with other local entities to assist in funding or to obtain sufficient volumes to make and keep a facility viable. If markets improve, this could be a revenue source. The public would be in control of capital investment and achieving quality standards.
T Threat	Size and value of market for recycled materials. Many uncertainties such as: impact of potential EPR legislation, movement toward reusable / returnable containers (e.g. LOOP reusable packaging), technology changes.

6.0 RECOMMENDATIONS

The Committee discussed the immediate, short-term and long-term options outlined above. Implementation of the following recommendations would involve public notification and consultation with the County Legislature, when applicable.

IMMEDIATE

Cover residential curbside recycling expenses in 2020 by applying reserve funds and retroactive state grant reimbursements to cover the cost of sorting the residential materials, budgeted at $2.5 million.

SHORT-TERM

Continue to monitor recycling market conditions. If conditions persist or worsen, consider elimination of subsidization of the $0 MRF tip fee and / or pursue permit variance approval by NYSDEC to authorize OCRRA to direct Onondaga County Haulers to deliver Source Separated Recyclables to WTE when cost impact reaches a pre-established trigger threshold. Explore whether and how glass should be removed from the curbside stream before an expected statewide Bottle Bill.

LONG-TERM

Recovery of the market for recycled commodities is dependent on replacing the demand that previously came from China. Developing and supporting end market demand is essential to sustaining Onondaga County's excellent recycling practices. A supply chain approach is needed to ensure a modern and adaptable process is in place to maximize material recovery for recycling in local reliable markets. At this time, the Committee does not recommend OCRRA pursue or consider a municipally-owned MRF. The financial and technology risks do not warrant this step.

The Committee recommends OCRRA continue to vigorously support a number of policy solutions that NYS could adopt in the upcoming legislative session to advance recycling, including:

- During the sustained market depression, provide direct municipal financial relief to help cover residential material MRF sorting costs, estimated at nearly $60 million statewide (outside of NYC) in 2020. Please see letter to New York Governor Cuomo from the NY State Association of Counties (NYSAC), dated December 12, 2019, attached as Appendix M, advocating for direct financial support to municipalities for recycling market costs.

- Expand the NY State Bottle Bill to include wine and liquor bottles, as well as non-alcoholic glass beverage containers, which together comprise approximately 50% of the incoming glass stream at a MRF. Glass has negative value if it is collected via curbside containers, contaminates other materials due to breakage, and is abrasive to MRF sorting equipment. Municipalities outside of NYC currently pay an estimated $15 million annually to sort glass at a MRF and transport it to a landfill for use as Alternative Daily Landfill Cover. Expanding the Bottle Bill to include alcoholic and nonalcoholic glass beverage containers could result in the recycling of over 100,000 tons of clean glass annually and save OCRRA and other municipal waste and recycling management systems millions of dollars.

- Establish EPR for product packaging and printed paper, thereby shifting the end-of-life management of these materials to manufacturers and consumers, and relieving taxpayers and municipalities of the supply chain costs to recover and recycle these materials, as well as the related market volatility.

The Committee further recommends that OCRRA work with economic development agencies and recycled material users to increase demand for recycled commodities. For example, in addition to Onondaga County's abundant waterways, rail lines and highways, it is also home to a large paperboard manufacturer in Solvay that uses recovered cardboard and other fiber to make boxes.

Recent industry reports indicate that additional domestic processing capacity is starting to come on-line, and should help stabilize market pricing within the next 24 – 36 months. From the October 2019 edition of *Recycling Today:*

> "Signs of improvement are on the horizon. Domestic demand for recovered fiber could rebound in a couple of years as many companies have announced domestic mill projects in 2017, 2018 and 2019. One of those projects announced in 2017 is Conyers, Georgia-based Pratt Industries' construction of a new containerboard mill in Wapakoneta, Ohio. The mill is slated to open this month, and the company says it will consume about 400,000 tons of recovered fiber annually once it's fully operational.
>
> Pratt Industries President Shawn State explains, 'I don't think it's all doom and gloom,' he continues. 'There are some upgrades to paper machines in the U.S. occurring now. Some mills are doing conversions that will enable them to start running recovered fiber and / or run more recovered fiber than they have in the past. There are announcements of new mills starting up and idled mills being purchased. Capacity is going to come to the U.S.—that is going to affect the market and help drive commodity prices back up, but I think it's going to take a little bit of time.'"

From the January 8, 2020 edition of the industry trade publication *Waste Dive*:

> "As for all of the recent public noise – and financial strain – around recycling, Jim Thompson, Principal of research firm Waste Business Journal (WBJ), believes it is 'overshadowing to a certain extent how vibrant the industry has been.' According to WBJ's analysis, MRF and recycling operations account for around 7% of the (waste) industry's overall $76.4 billion activity."

7.0 CONCLUSION

The push toward greater material sustainability continues, even if recycled commodity markets are adrift after the dramatic loss of the export market. Municipal recycling programs are under significant financial stress. From 2017 to 2019, OCRRA's costs to support the processing and marketing of recyclables rose in an unprecedented fashion – a change of close to $2 million dollars.

Onondaga County residents recycle nearly 40,000 tons of curbside recyclables annually, and the investments that the County and State have made over the last three decades should not be squandered just because recycling markets need time to readjust. Assistance from NYS as well as legislation like an expanded Bottle Bill for wine and liquor, as well as EPR can go a long way to ease the financial burden and maximize the benefits of recycling. Alternatively, additional funding from either state or local governments to cover the costs of recycling would be extremely beneficial. In the absence of any governmental assistance, OCRRA needs to stand prepared to take immediate short-term action if the financial impact to the Agency worsens without sign of a turnaround.

Recycling conserves resources, preserves limited waste disposal capacity and recovers valuable commodities that can be used for new purposes, while building the local economy and sustaining jobs. Reducing the transportation costs and emissions by building more domestic demand for post-consumer content can help stabilize recycling. The other side of a crisis is always an opportunity; current depressed commodity markets highlight the critical need to develop and expand local markets that demand recovered materials.

While recycled commodities may be fetching a low price in the market, these raw materials have real value and can help underpin sustainable economic development in the region. Working collaboratively with leaders in the area of economic development, manufacturing, business, and state and local government, OCRRA can help promote more resilience with expanding the domestic use of sorted recyclable commodities including paper, cardboard, metal and plastic.

What's Ahead: Recycling 2021

As Albert Einstein observed, you cannot keep doing the same thing and expecting a different result. It is clear that the system needs to change and OCRRA or our municipal colleagues cannot do it alone. The recycling system needs to be modernized. It needs to have a more local, resilient end-market focused on high quality.

The future of recycling is dependent upon the producers of materials taking (or being assigned) responsibility for the products they put in the market place. They must ensure that materials can be recovered to produce a high-quality bale of material that meets the specification for reliable end users.

After 30 years, we know the public will do their part if they know what to do and the rules do not keep changing on them. The responsibility of recycling cannot be foisted solely on local municipalities and taxpayers, but rather shared with the companies that design, manufacture and market their products.

APPENDIX J: Waste Quantification & Classification Study

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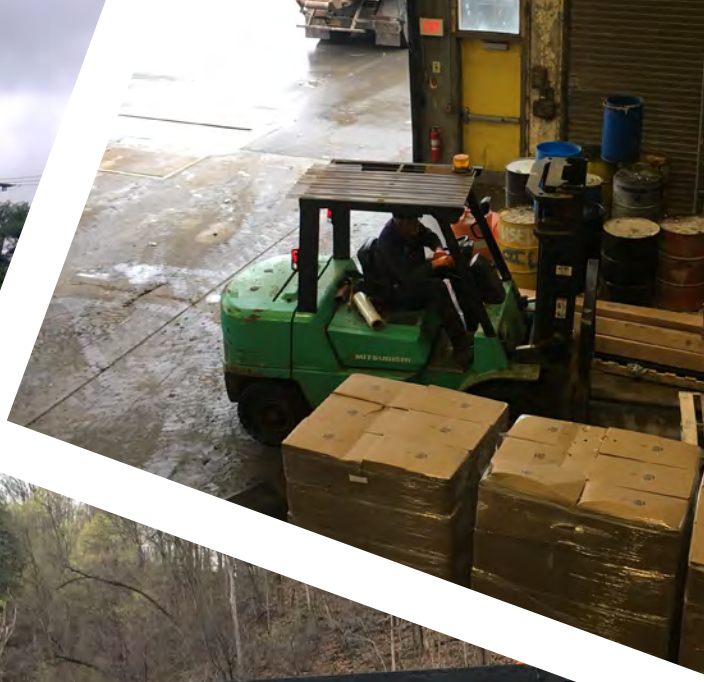

OCRRA®

Onondaga County Resource Recovery Agency

2019 Waste Characterization Study

April 30, 2020

Final Report

MSW CONSULTANTS

This report was delivered electronically. If it is necessary to print a hard copy, please use Recycled-content/FSC-certified paper and recycle when no longer needed.

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- Covanta Onondaga, Jamesville, NY
- Waste Management, Recycle America, Liverpool, NY
- Ley Creek Transfer Station, Liverpool, NY

This study would not have been successful without their ongoing cooperation.

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CHAPTER 1– INTRODUCTION

1.1 BACKGROUND

The Onondaga County Resource Recovery Agency (OCRRA) is a non-profit public benefit corporation that, since its inception in 1990, has managed the disposal of residential and commercial municipal solid waste (MSW), recyclables, and construction and demolition (C&D) debris for thirty-three (33) of the thirty-five (35) municipalities in Onondaga County. The Town and Village of Skaneateles are not included in the OCRRA service area.

OCRRA has a history of conducting waste composition studies dating back to 1987, with the most recent update completed in 2005 (2005 Study). There have been numerous changes since 2005 that have impacted the composition of the OCRRA System's waste stream. The shift from print media to digital media, and the ongoing conversion to lighter-weight packaging have impacted recycling programs not just in Onondaga County, but nationally. Since 2005, ongoing public education as well as advancement of recycling instruction in the school systems continues to shape public participation in diversion programs. Further, expansion of source-separated organics collection programs have begun to target previously disposed materials for composting.

OCRRA retained MSW Consultants to perform a comprehensive waste characterization study update. To complete the study, MSW Consultants utilized industry standard methodologies, including ASTM D 5231-92 (2016), "*Standard Test Method for Determination of the Composition of Unprocessed Municipal Solid Waste*" and the State of California's official characterization methodology.

The objectives of this study were to:

- Develop an accurate composition profile of the disposed waste stream generated by residential households and commercial businesses in the County. The study updated and expanded upon the results of the 2005 study, namely by
  - Increasing the number of MSW and recycling samples that were collected in 2005 and broadening the study scope to include visual surveys of C&D Debris.
  - Presenting residential recycling Capture Rates in addition to the Diversion/Recycling Rate.
- Obtain composition profile data for additional material streams that were not captured in the 2005 Study, including recycling from multi-family residential sources.
- Identify the extent to which materials that could be recycled within the County's recycling program are in fact being captured in the recycling program.
- Identify other constituents in the disposed waste stream that could be targeted in new recycling, organics, source reduction, or reuse programs.
- Measure and evaluate the degree and type of contamination found in the recycling stream to inform future public education efforts aimed at reducing contamination.

1.2 COMPARISON TO PREVIOUS STUDIES

From the outset, it was the intent of OCRRA that the 2019 Study be performed so that the results could be compared to the 2005 Study results. With the assistance of OCRRA, MSW Consultants crafted a Study Design that would make this comparison possible, while acknowledging that 14 years have elapsed since the 2005 Study, therefore introducing variables to make such comparisons more challenging due to the magnitude of changes to the waste stream over that time period.

Additionally, the 2019 Study was expanded from the 2005 Study. Similarities and differences (including new initiatives) are described below and addressed in greater detail in the body of the report.

1.2.1 SIMILARITIES BETWEEN STUDIES

- **Host Facilities**: Both the 2005 and 2019 Studies performed most of the sample collection and sorting at the following facilities:
  - Covanta-Onondaga Resource Recovery Facility (RRF); and
  - Rock Cut Road Transfer Station
  - Recycle America Materials Recovery Facility (MRF); in 2005, residential recycling samples were also collected and sorted at Syracuse Recycling and Recovery facility (formerly Naef Recycling), which has since ceased operations.

  Additional facilities particular to the 2005 and 2019 Studies are included in the summary of study differences.
- **Definitions of MSW Waste Sectors:** The 2005 and 2019 Studies retained two similar generator sectors for MSW: Residential and Institutional/Commercial/Industrial (referenced simply as "Commercial" in 2005).
- **Obtaining Samples from Inbound Trucks**: Both studies relied on systematic protocols to select a vehicle for sample collection and sorting. Both studies used some variation of "n^{th} truck" selection methodologies and random grab sample collection to obtain sample materials from the tipped load.

1.2.2 DIFFERENCES BETWEEN THE STUDIES

- **Additional Host Facilities**: The 2005 Study also performed the collection and sorting of dual stream recycling samples at the Syracuse Recycling and Recovery facility (formerly Naef Recycling) in East Syracuse. OCRRA switched exclusively to single-stream in 2011. Syracuse Recycling was destroyed by fire in 2013 and was never rebuilt. The 2019 Study included visual sample analysis of C&D loads; therefore, the Ley Creek Transfer Station was included as a host facility for this purpose in 2019.
- **Seasonality**: The 2005 Study was performed over a two-week period, with one week in September 2005 dedicated to characterizing MSW, and one week for recyclables in October of 2005. For the refuse and recyclables characterization, the 2019 Study was performed over two, two-week seasons in June and September of 2019. During each of these seasons, the first week focused upon the characterization of refuse, and the second on the characterization of recyclables. In addition, the 2019 Study included a visual characterization of C&D debris, which was also performed over two seasons during June and October 2019, each sampling period lasting for a total of three days.
- **Definitions of Generator Sectors**
  - **MSW**: While the 2005 and 2019 Studies had two generator sectors in common, namely residential refuse and commercial refuse (Institutional/Commercial/Industrial or "ICI," in 2019), the 2019 Study also added a Multi-Family refuse sector.
  - **Recycling**: The 2005 Study included a dual stream recycling sector as well as a single-stream sector (these sectors were not weighted by percentage in the results). The 2019 Study consisted of single-stream curbside residential and single stream multi-family residential sectors.
  - **C&D Debris**: The 2019 Study was expanded to include an evaluation and estimation of the quantity and nature of C&D Debris in the OCRRA System.
- **Acceptance Threshold for Sampling by Generator Sectors**: During the 2019 Study, a generator sector was assigned to vehicle loads if 80% or more of the material in that load was from a specific generator sector (Single family residential, ICI, and multi-family). If the truck did not contain at least 80 percent from one of the generator sectors, the load was deemed unacceptable. For the 2005 Study, a 60 percent threshold was used to determine the appropriate generator sector.
- **Sample Collection Targets**: In the 2005 Study, 90 samples were collected from three generator sectors, Single-Family Residential Refuse (26 samples), Commercial Refuse (22 samples), and

Residential Recycling (42 samples). In 2019, 338 samples of waste were proportionally allocated and collected across a wider array of generator sector types, including Single-Family Residential Refuse (40 samples), Multi-Family Residential Refuse (16 samples), ICI Refuse (44 samples), Single-Family Recycling (92 samples), Multi-Family Recycling (13 samples), and C&D Debris (133 samples).

- **Sample Weights**: In 2005, a volumetric standard of three cubic yards was used as a minimum sample collection size for refuse. As such, refuse sample weights ranged from 84 lbs to 579 lbs. In 2019, a 200-lb sample size minimum was established for refuse, with an upper limit of 250 lbs. Recycling samples collected during the 2019 Study ranged from 100 to 150 lbs.
- **Material Categories**: For the 2019 Study, the sorting of refuse and residential recyclables, and the visual survey of C&D Debris, utilized a list of material categories developed by OCRRA and MSW Consultants. The categories used for refuse and recyclables were in general conformance with those categories used in the 2005 study, with some additions and consolidation.
- **Determination of the Residential/ICI Split for OCRRA MSW**: The 2005 Study completed a one-month review of vehicle traffic flows at the Covanta-Onondaga facility, which was used only to determine the vehicle selection strategy (n^{th} truck) that would be implemented during the 2005 characterization study. These vehicle counts reportedly did not include a gate survey that identified vehicles by generator sector. By contrast, the 2019 Study included one week of gate surveys, which was performed by OCRRA to characterize inbound wastes by generator sector. The results of the gate survey were used in 2019 to conduct a weighted averaging analysis on the aggregate County-wide waste composition results included in Appendix A.

1.3 ORGANIZATION OF THIS REPORT

In addition to this Introduction, this report is divided into the following sections:

- **Chapter 2 - Methodology:** This section presents an overview of waste generation and disposal data available from disposal facility reports and has been supplemented with direct facility surveys. Also provided in this section is the sampling plan that was developed to guide the study process and to provide statistically defensible data. Additionally, this section summarizes the field data collection and analytical methods applied in the study.
- **Chapter 3 - Results**: This section presents results of the composition of disposed aggregate[1] OCRRA System waste as well as the separate compositions of residential, multi-family and ICI generator sectors. For recycling, detailed composition results are provided for the single-stream (residential) aggregate, as well as for single-family and multi-family generator sectors. Also included in this section are the composition results of the C&D Visual Survey. All results in this section are presented in both tabular and graphical format to highlight findings of interest. Finally, results between generator sectors are compared, along with results from the 2005 Study, as applicable, to indicate how the waste stream has changed or remained the same over time.
- **Chapter 4 Conclusions and Recommendations**: This section presents conclusions that can be drawn from the 2019 Study as well as recommendations for usage of the data and for future study.
- **Appendices**: Of particular importance is Appendix A that provides detailed composition tabular data. These tables are referenced extensively in the Results chapter of this report. Other supplemental data and analysis are contained in subsequent appendices.

[1] "Aggregate" refers to the combination of single family residential, multi-family residential, commercial and institutional municipal solid wastes taken as a whole.

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CHAPTER 2 – METHODOLOGY

2.1 MATERIAL STREAMS AND GENERATOR SECTORS

Within the OCRRA System, this study focused on the following material streams:

- Disposed Refuse,
- Single Stream Residential Recyclables, and
- Construction & Demolition (C&D) Debris.

Material streams were further categorized based on their Generator Sectors as defined below:

- The **Single-Family Residential** sector, which includes residential housing units with up to three dwelling units, was captured from waste collected in municipally-operated vehicles or from private (contracted) haulers, in which at least 80% or more of the waste was derived from single-family residential sources. Vehicles chosen for sample collection in the Single-Family Residential waste sector included side-loading and rear-loading packer trucks, which the driver verbally indicated that collected waste had come primarily from residential routes. (Refuse and recyclables were characterized from the Single-Family sector, but not C&D.)
- The **Multi-Family Residential** sector, which includes buildings with four or more dwelling units, was captured from waste brought to OCRRA permitted facilities by commercially or municipally operated vehicles, in which at least 80% or more of the waste was from multifamily residential sources. Specific to this study, multi-family waste was delivered to the sample collection site by designated vehicles, which collected from specialized routes around the county. Such trucks were identified in advance by all parties to ensure the that the truck would be properly identified and that multiple samples could be collected from the load. (Refuse and recyclables were characterized from the Multi-Family sector, but not C&D.)
- The **Institutional, Commercial, Industrial (ICI)** sector, which includes all non-residential establishments (such as businesses, institutions, and small industrial operations), was captured from waste brought to OCRRA permitted facilities by commercially operated vehicles, in which 80% or more of the waste was from institutional, commercial, or industrial sources. Vehicles chosen for sample collection in the ICI sector included roll-off compactor boxes and packer trucks, which the driver verbally indicated that collected waste had come primarily from routes serving ICI customers. (Only refuse was characterized from the ICI sector.)
- The **C&D** sector includes wastes generated primarily from the construction, demolition, and renovation of structures, and was treated as a separate generator sector entirely from the municipal solid waste originating from residential and ICI sources. C&D was identified during the study as loads that contained 80% or more of material generated from construction and demolition activities. C&D Debris also included "dry waste loads" which were primarily bulky waste loads managed as C&D loads. (Only disposed C&D debris was characterized.)
- **Unacceptable** – Loads that contained less than 80% of the targeted generator sector, and loads originating from outside Onondaga County, were not included in sample collection because of mixing of waste from multiple generator sectors. For example, transfer trailers were not included in this Study because they contain wastes mixed together from more than one generator sector.

2.2 WASTE GENERATION

2.2.1 OVERVIEW

OCRRA tracks the flow of all wastes handled by OCRRA annually. Interestingly, the quantity of materials managed by OCRRA has declined since the 2005 Study. Table 2-1 below provides a comparison of material quantities within the OCRRA Service Area for 2018 and 2005.

Table 2-1 Annual Material Quantities

Material Stream	2018 (tons)	2005 Study (tons)**
Refuse (MSW)	288,130	316,500
Residential Recyclables*	39,096	43,400
C&D Debris	54,832	63,000
Total Tonnage	382,058	422,900

*Residential and multi-family sources only
** Data from 2005

2.2.2 GATE SURVEY

During the week of October 14, 2019, OCRRA staff completed a scale house gate survey to establish a basis for the allocation of tons disposed within the OCRRA service area, between single-family residential, multi-family and ICI wastes so that the percent composition of each waste stream (determined by hand sorting) could be applied to total estimated tons by generator.

The gate surveys were completed at the Covanta-Onondaga RRF in Jamesville, New York. Surveys were only carried out on roll-offs and packer trucks carrying municipal solid waste (MSW). Loads containing bulky waste and C&D debris were excluded from gate surveys because hand sorting did not include loads carrying these materials, and therefore the MSW allocation was for single-family residential, multi-family and ICI waste only. Results of the gate survey are provided in Table 2-2.

Table 2-2 Gate Survey Results

Material Stream	Survey Tonnage	Percent of Total
Single-Family Refuse	2,089	45.2%
Multi-Family Refuse	321	7.0%
ICI Refuse	2,208	47.8%
Total Tonnage	4,618	100.0%

2.2.3 WASTE GENERATION SUMMARY

By applying the gate survey results to the MSW tonnage presented Table 2-1, a more detailed representation of annual tonnage by generator sector arises, as shown in Table 2-3 below. The quantities in this table are used for applying the results of the composition analysis in the Results section of the report.

Table 2-3 Waste Generation Summary

Material Stream	Gate Survey Percentage	2018 Tons
Single-Family Refuse	45.2%	130,350
Multi-Family Refuse	7.0%	20,025
ICI Refuse	47.8%	137,755
Single Stream Recyclables*	N/A	39,096
C&D Debris	N/A	54,832
Totals	100.0%	382,058

*residential and multi-family sources only

2.3 HOST FACILITIES AND SCHEDULE

2.3.1 FIELD DATA COLLECTION SCHEDULE

Table 2-4 summarizes the field data collection schedule for the 2019 Study. As shown, data were collected over two seasons, representative of late spring (June) and late summer (September). For comparison, the 2005 Study data collection was compiled during a single season in September-October 2005.

Table 2-4 Host Facilities and Field Data Collection Schedule

		Field Data Collection Dates	
Host Facility	Work Performed	Season 1	Season 2
Covanta Onondaga RRF	Refuse Sample Collection	June 10 - June 14	Sept. 9 - Sept. 13
Rock Cut Road Transfer Station	Refuse Manual Sorting		
Waste Management Recycle America MRF	Sample Collection & Manual Sorting of Single Stream Recyclables	June 17 - June 21	Sept. 16 - Sept. 20
Ley Creek Transfer Station	C&D Debris Visuals	June 19 - June 21	Oct. 22 - Oct. 24

2.3.2 SAMPLE COLLECTION TARGETS

The objective of the sampling plan for the waste characterization study is to obtain a representative distribution of samples from the targeted waste streams and generator sectors. As mentioned previously, two seasons of data collection were completed at different facilities as identified by OCRRA for the refuse, residential recycling, and C&D portions of the study. MSW Consultants utilized 2018 hauler weight data as reported by OCRRA to proportionally allocate samples across generator sectors.

Table 2-5 summarizes the number of samples planned for the study and also shows the actual number of samples obtained.

Table 2-5 Sample Collection Targets by Material Stream and Generator Sector

Material Stream	Generator Sector	Sample Type	Season 1		Season 2		Project Totals	
			Planned	Actual	Planned	Actual	Planned	Actual
Refuse	Residential	Manual	20	20	20	20	40	40
	Multi-family	Manual	8	8	8	8	16	16
	ICI	Manual	22	22	22	22	44	44
		Refuse Subtotal	*50*	*50*	*50*	*50*	*100*	*100*
Recycling	Residential	Manual	42	49	42	43	84	92
	Multi-family	Manual	8	4	8	9	16	13
		Recycling Subtotal	*50*	*53*	*50*	*52*	*100*	*105*
C&D Debris	C&D	Visual	60	71	60	62	120	133
		Grand Total	160	174	160	164	320	338

As shown in the table above, all targeted samples were obtained during the study, with the exception of several samples of multi-family waste. This was due to the difficulty in securing sufficient materials representing a dedicated collection route of multi-family facilities. In the professional opinion of MSW Consultants, a sufficient number of multi-family refuse samples were obtained to discern differences in material composition from these sectors.

2.3.3 MATERIAL CATEGORIES AND GROUPS

For the 2019 Study, sorting operations utilized a predetermined list of material categories for refuse, residential recyclables and C&D debris. The categories are in general conformance with those categories used in the 2005 study, with some additions and consolidation. The following changes from 2005 were incorporated into the 2019 Study:

- Compostable Paper was added as a new category. Items from the 2005 "Other Paper" category, such as paper towels, napkins and tissue paper, along with the Corrugated Waxed OCC category, were consolidated as Compostable Paper.
- Mixed Recyclable Paper was added as a new category, and included the (soft-bound) Books and Paperboard categories from 2005.
- #1 PET Bottles category was slightly altered in 2019 to include an added designation for Non-Beverage PET Bottles.
- #3, #4, #6 and #7 Rigid Plastic Containers was added as a new category, consolidating the LHDPE #3, LHDPE #4, LLDPE #4, PVC #3 and the other composite categories from 2005. 2019 also expanded #5 rigid plastics into two new categories: #5 Dairy Tubs and #5 Other Containers.
- #6 EPS (Styrofoam) was added as a new category in 2019.
- The Poly (film) category from 2005 was subdivided in 2019 into the following new categories: Retail Film Bags, Commercial/Consumer Film (product film wrap), and All Other Film.
- The Other Plastics category from 2005 was subdivided into new 2019 categories that included Flex Packaging and Pouches, Durable/Bulky/Rigid Plastics, and Remainder/Composite Plastics.
- The metals group was largely similar, although the Automobile Parts category from 2005 was consolidated into the Other Ferrous category in 2019, and Aluminum Cans (bottle bill and non-bottle bill) were separated into categories for Beverage NYS Deposit, Beverage Non-NYS Deposit, and Non-Beverage subgroups.
- In 2005, glass containers were separated by Bottle Bill and (if non-bottle bill) by color. These designations were changed in 2019 to include NYS Deposit beverage bottles and Non NYS Deposit

beverage bottles. Two beverage subgroups were also added: Wine Bottles and Spirits (Liquor) Bottles, along with an All Other Glass Food Containers & Jars category. Finally, the Flat Glass and Other Glass categories from 2005 were categorized in 2019 to include a Ceramic Containers & Clay Products category, and Remainder/Composite Glass.

- The Organics material group was mostly unchanged from the 2005 Study, although the 2019 Study added a Remainder/Composite Organics category.
- Treated/Painted/Stained Wood and Clean Wood were added in 2019, subdividing the Wood category from 2005. The Rubble category from 2005 was separated into various construction and demolition categories in the 2019 Study, including Drywall, Asphalt Roofing Materials, Asphalt Paving/Brick/Concrete & Rock, Carpet & Carpet Padding, and Remainder/Composite C&D.
- The Household Hazardous Waste and Other Hazardous categories from 2005 were consolidated into Household Hazardous Waste in 2019. The 2019 Study also added a Medically-Related Wastes category to the hazardous materials group.
- The Electronics material category from 2005 was separated into two categories (TVs/Monitors/CRTs, and All Other Electronics) in 2019. .
- Bulky Materials were added as a new category in 2019, and the Miscellaneous category from 2005 was changed in 2019 to Other Materials Not Elsewhere Classified.
- The Recycling portion of the 2019 Study added a Newspapers in Sleeves category, as well as categories for Tanglers (of MRF equipment) and Bagged Material.

In addition, one of the objectives of this study was to identify constituents that could be diverted from the refuse stream through locally available means. Accordingly, each material was assigned a "recoverability class" which are defined below.

1. **Targeted Paper**: All cardboard and paper as targeted in OCRRA's curbside collection program.
2. **Targeted Containers**: Metal, glass, plastic and aseptic containers and packaging as targeted in OCRRA's curbside collection program.
3. **Compostables**: Food wastes, compostable papers, and compostable plastics that would be suitable for collection or drop-off at a local composting facility.
4. **Green Waste**: Yard-related wastes, such as leaves, grass, prunings, trimmings, and stumps. Green waste is not accepted in the waste stream, but is accepted at local drop-off facilities.
5. **E-Waste Recycling:** Although OCRRA does not accept e-waste at any of its drop-off locations, residents and businesses are made aware of the state's "take-back" program, and are encouraged to seek opportunities to return e-waste to the manufacturer.
6. **Metal Recovery:** This diversion class includes metals not targeted by the curbside recycling program. Such ferrous and non-ferrous scrap metals are recovered through pre-disposal collection centers within the OCRRA system, or by post-disposal through the waste-to-energy (WTE) process.
7. **Household Hazardous Waste (HHW) Program:** While not actually recovered for recycling, HHW was included as a separate class because it is identified as material that OCRRA is seeking to remove from the disposed refuse stream through its pre-disposal collection locations.
8. **Recoverable by Third Party**: Some materials are accepted by an existing network of third-party recyclers and/or brokers located within the county or immediately surrounding locales. So, while materials in this class could be classified as recyclable, actual recycling of these materials is predicated on the generator (or waste processor) separating these materials from the disposed waste stream and transporting the materials to an existing private recycler. For the purposes of this study, plastic retail bags, and textiles, carpeting/carpet padding, and clean wood are included as third-party recoverable.

9. **Not Currently Recyclable in Existing Markets**: Materials for which there is no curbside collection outlet for recycling, composting collection, or other diversion from disposal. It should be noted that this number is likely overstated. This is because there are items within this class that possibly can be diverted, but are not generated frequently enough, and for which no sort category was included in this study (or previous studies).
10. **Dirt & Fines**: Materials which fell through the ½" screen at the sorting table. Dirt and fines generally consisted of organic material, broken glass, or other small items that were too small to sort into a material category bin. Such materials were quantified within the "Dirt/Fines" sorting category.

Table 2-6 below shows the breakdown of the material categories within their respective material groups. Detailed material category definitions for each of these categories are provided in Appendix B.

Table 2-6 2019 Material Categories for Municipal Solid Waste (with Recoverability Designation)

Paper	
Newspaper	1
Magazines & Catalogs	1
OCC and Kraft Paper	1
Compostable Paper	3
Aseptic & Gable Top Containers	1
Mixed Recyclable Paper	1
High Grade Office Paper	1
Other Non-Recyclable Paper	9
Plastic	
#1 PET Bottles (NYS Deposit)	2
#1 PET Bottles Beverage (Non NYS Deposit)	2
#1 PET Bottles Non-Beverage (Non NYS Deposit)	2
#1 PET Non-Bottle Containers	2
HDPE #2 Natural Bottles	2
HDPE #2 Colored Bottles	2
HDPE #2 Non-Bottle Containers	9
#3, #4, #6, and #7 Rigid Plastic Containers	9
#5 Dairy Tubs	2
#5 Other Containers	2
Expanded Polystyrene (EPS)	9
Retail Film Bags	8
Commercial/Consumer Film (product film wrap, newspaper sleeves, drycleaner bags)	9
All other Film	9
Flex Packaging and Pouches	9
Durable/Bulky Rigid Plastics	9
Remainder/Composite Plastics	9
Metals	
Steel Cans & Lids	2
Aerosol Cans	2
Other Ferrous Metals	6
Aluminum Beverage Cans (NYS Deposit)	2
Aluminum Beverage Cans (Non NYS Deposit)	2
Aluminum Non-Beverage Containers	2
Aluminum Foil & Trays	2
Other Non-Ferrous Metals	6
Glass	
Glass Bottles - NYS Deposit	2
All Other Glass Beverage - Non NYS Deposit	2
All Other Glass Food Containers & Jars	2
Wine Bottles	2
Spirit (Liquor) Bottles	2
Ceramic Containers & Clay Products	9
Remainder/Composite Glass	9
Organics	
Food Waste	3
Textiles & Leather	8
Rubber	9
Diapers & Sanitary Products	9
Yard Waste	4
Remainder/Composite Organics	9
Construction & Demolition Debris	
Treated/Painted/Stained Wood	9
Clean Wood	8
Drywall	9
Asphalt Roofing Materials	9
Asphalt Paving, Brick, Concrete, and Rock	9
Carpet & Carpet Padding	8
Remainder/Composite C & D	9
Household Hazardous Waste or HHW	
Household Hazardous Waste	7
Batteries - All Types	7
Medically-Related Wastes	7
Electronics	
TVs, Monitors, CRTs	5
All Other Electronics	5
Other Materials	
Dirt/Fines	10
Bulky Materials	9
Other Materials Not Elsewhere Classified	9

Recoverability classes were also developed for the different set of material categories that were used to characterize the C&D waste stream. C&D recoverability classes are shown in the list below.

1. **Broadly Recyclable**: C&D material constituents which can be recovered through commercial processing of mixed C&D loads throughout most markets.
2. **Recyclable in Select Markets**: C&D material constituents which can be recovered through commercial processing of mixed C&D loads in some areas.
3. **Boiler Fuel Feedstock**: C&D material (mostly wood) that can be used directly as a fuel, or converted to another form of fuel or energy product.
4. **Non-Recoverable:** C&D material for which there is no current infrastructure or market to divert from disposal.

Table 2-7 presents a list of material categories and respective recoverability designations that were used for the C&D composition analysis.

Table 2-7 2019 Material Categories C&D Debris (with Recoverability Designation)

Paper		Organics		Wood	
Uncoated OCC - Recyclable	4	Yard Waste	1	Pallets and Crates	3
Other Paper	4	Dirt/Sand	4	Untreated/Unpainted Wood	3
Plastics		**C&D Materials**		Treated/Painted/Stained Wood	3
HDPE Buckets	4	Rock/Gravel	1	Engineered Wood	3
Tyvek Building wrap	4	Concrete, Brick, Block	1	Wood Furniture	4
Film Plastic (ICI Film)	4	Asphalt	1	Other Wood	3
Plastic furniture	4	Gypsum Wallboard - Clean	2	**Other Materials**	
Durable plastic items	4	Gypsum Wallboard - Painted	4	E-Waste	4
Composite/Other Plastic	4	Roofing Shingles	2	Bulky Items (inc. mattresses)	4
Metal		Carpet	2	Mixed MSW	4
Ferrous Scrap	1	Carpet Padding	2		
Non-Ferrous Scrap	1	Ceramics/Porcelain Fixture	4		
Glass		HVAC Ducting	4		
All Glass Materials	4	Tires	4		
		Appliances	2		
		Remainder/Composite C&D	4		

2.4 SAMPLE COLLECTION METHODS

2.4.1 VEHICLE SELECTION

During the collection of samples for manual sorting, MSW Consultants' Field Supervisor followed a systematic selection procedure to identify residential and ICI waste, and residential recycling vehicles. To calculate vehicle sampling frequency for each waste sector, the Field Supervisor established a sampling interval at each facility. Sampling intervals were determined by dividing the total expected number of loads for each sector arriving at the facility on the scheduled day – based on questions asked of each facility in

the planning phase of the study - by the number of samples needed each day. The resulting number was the sampling frequency, which determined whether every third vehicle, every sixth vehicle, or every 20th vehicle was selected for sample collection. This strategy is commonly referenced as "selecting every n^{th} vehicle" within a waste sector and subsector. For the purposes of this study, the nth vehicle was typically "5", that is, every eligible 5^{th} vehicle was selected for sample collection. It should be noted that the nth vehicle on occasion may be altered to accommodate such field conditions as a lull in vehicle traffic. In such cases, the first eligible truck may be selected in order to keep the sort table busy.

Vehicles entering the host facility that meet the definition of the n^{th} vehicle were surveyed by the Field Supervisor. In order for a vehicle to be eligible for sample collection, the load must fit within the residential and ICI definitions. The Field Supervisor then collected data regarding the vehicle type, hauler, waste type, town or city of origin, and a net weight. The Field Supervisor was in direct communication with the scale house after selecting a vehicle for sample collection, and provided the appropriate identifying information (hauler name and truck number or license number) so that the scale house would be able to set aside documentation for the Field Supervisor to collect at the end of the day for all loads from which a sample was collected.

2.4.2 COLLECTING GRAB SAMPLES FROM TIPPED LOADS OF WASTE OR RECYCLABLES

Selected loads of waste or recycling were tipped in the designated area at each host facility. The manual sort area at the Rock Cut Road Transfer Station and Waste Management Recycle America MRF were both located within a safe area, under roof, with the tipping area designated nearby at both facilities. In the case of refuse, the tipping of targeted loads and subsequent sample collection was performed off-site at the nearby Covanta Onondaga facility.

From each selected load, one sample of waste was selected based on a systematic "grab" from the load, treating the tipped load as a clock face. For example, if the tipped pile is viewed from the top as a clock face with 12:00 being the part of the load closest to the front of the truck, the first sample was taken at the 12:00 position. Subsequent samples were then taken from 3 o'clock, 6 o'clock, and 9 o'clock. For the next four loads, the extraction point shifted to 1, 4, 7, and 10 o'clock, and so-on.

This concept of systematically rotating around subsequent loads is shown in Figure 2-1.

Figure 2-1 Systematic Sample Collection Guide for Tipped Loads

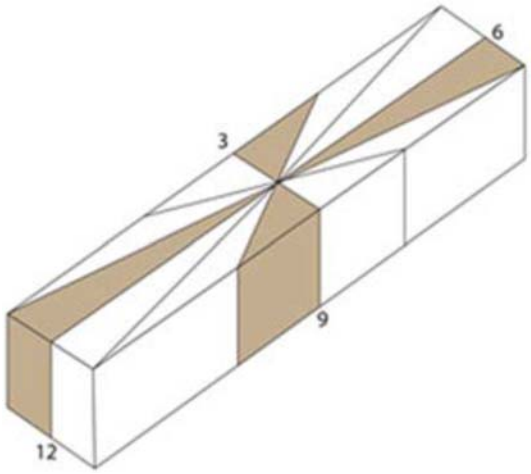


Figure 2-2 Photograph of a Tipped Load

From each sample extraction point, the loader operator was instructed to take a grab sample. From each grab, a sample weighing at least 200 pounds for refuse (100 pounds for recycling) was extracted from the pile and pre-weighed to verify that the minimum sample weight was achieved and to prevent sorting overly large samples, which would diminish sorting productivity. Bulky items and large quantities of homogeneous items may have been weighed and recorded at the tip floor, thereby eliminating the need to sort them at the sort table.

2.4.3 TRANSPORT OF REFUSE SAMPLES

During the refuse sample collection portion of this study, OCRRA staff transported each collected sample of waste from the Covanta Onondaga facility to the Rock Cut Transfer Station across the road where the samples were manually sorted. Samples were collected in containers provided by MSW Consultants and transported by OCRRA with the use of a stake-body truck to the sort location. During the recycling portion of field data collection, samples were collected in an area of the MRF in close proximity to where the sort crew was stationed, and did not require transport.

2.4.4 COLLECTION OF MULTI-FAMILY REFUSE AND RECYCLING SAMPLES

During the spring and fall 2019 field data collections, OCRRA, with the assistance of two private sector haulers, organized the collection of waste and recyclable samples from vehicles dedicated solely to collection from multi-family apartments. These vehicles were identified in advance such that the Field Supervisor, scale house, and loader operator could readily identify the truck upon arrival. Upon tipping its load, the Field Supervisor and loader operator collected the required number of random grab samples from the single load. This was accomplished by rotating the location of each grab sample around the clock face as previously described; although in this case, multiple multi-family samples were collected from a single load.

2.4.5 TIPPING FLOOR SAFETY DURING SAMPLE COLLECTION

MSW Consultants performed the sample collection for the manual sorting at Covanta Onondaga RRF and the Waste Management Recycle America MRF. The Field Supervisor was the only staff member that was permitted on the tipping floor. At all times tipping floor protocols were followed, some of which were standard procedure, some of which were designed for this Study.

A meeting was held on the first day of each refuse sorting season to emphasize the elements of tipping floor safety and to ensure that all parties understood the sample collection and safety procedures. Daily safety meetings were held each morning thereafter.

2.4.6 VEHICLE SELECTION – C&D DEBRIS

MSW Consultants performed the visual characterization of C&D loads at the Ley Creek Transfer Station in Liverpool, New York. Similar to the refuse and recyclables sample collection strategy, the n^{th} vehicle method was used, based on the estimated daily arrivals of C&D debris loads to the facility.

MSW Consultants deployed one professional staff person to coordinate with the scale house, tip area spotter, and inbound deliveries to select loads for surveying. A front-end loader operator provided assistance in spreading the loads from time to time so that the entirety of the loads could be observed. On most occasions, the driver of the targeted vehicle was instructed to spread the load out during the tipping process.

2.5 MANUAL SORTING

2.5.1 SORTING PROCEDURE

At the outset of each season, the Field Supervisor and/or Crew Chief conducted a detailed training session in the morning of the first day of the sort. The training covered all aspects of site safety and health guidelines, as well as the procedure of sorting and weighing samples. Guidance was provided throughout the manual sorting process to improve productivity. Training included:

- General facility overview;
- Learning and reviewing the material categories and definitions;
- Facility-specific health and safety requirements;
- Personal protective equipment (PPE) requirements;
- Waste handling techniques; and
- Productivity strategies and daily sorting quotas.

Figure 2-2 and Figure 2-3 present the typical layout of the sorting table and bins into which each material group was sorted. During this phase of field work, a well-organized sort area was crucial to efficient and accurate sorting. Generally, maintaining a consistent sort area improves safety by establishing boundaries for all workers to follow consistently.

Figure 2-3 Typical Manual Sorting Layout

Once the sample was acquired and placed on the sorting table, the material was sorted by hand into the predetermined material groups. Plastic 20-gallon bins with sealed bottoms were used to contain each material group. The sorting crew members typically specialize in categories of materials, such as papers, metal, or plastics.

During the sort, the Crew Chief monitored the homogeneity of material sorted into the component bins, identifying and re-sorting materials that may have been improperly classified. Open bins allow the Crew Chief to see the material at all times and verify the purity of each component as it is weighed, before recording the weight. The materials were sorted to particle sizes of 2 inches or less by hand, until no more than a small amount of homogeneous fine material ("mixed residue") remained. The layer of material ranging from 2-inch down to ½ inch was allocated to the appropriate categories based on the best judgment of the Crew Chief — most often a combination of Other Paper, Other Organics, or Food Waste. Note that the sorting method included the use of a customized, sturdy framed sorting table that includes a removable screen, which allows small particles of less than ¼" to pass through to a tray under the screen. These smallest particles were swept into the Dirt/Fines category as a final measure of sorting each sample.

2.5.2 DATA RECORDING

The weigh-out and data recording process is a critical aspect of the data gathering and recording procedure. The Crew Chief oversees all weighing and data recording of each sample. Once each sample has been sorted, and mixed fines allocated into an appropriate category, the weigh-out is performed. Each bin containing sorted materials from each sample is carried over to the scale. Sorting laborers assist with carrying and weighing the bins of sorted material, and the Crew Chief records all data. The Crew Chief uses a tablet computer to record the composition weights. The tablet allows for samples to be tallied in real time so that field data collection can immediately identify and rectify errors associated with light sample weights. Each sample is cross-referenced against the Field Supervisor's sample sheet to assure accurate tracking of the samples each day. The real-time data entry system offers several important advantages:

- The system contains built-in logic and error checking to prevent erroneous entries.

- The system sums sample weights in real time so the Crew Chief can confirm achievement of weight targets for each and every sample.
- At the end of the workday, the tablet is synchronized with the cloud via cellular signal, providing data security.

During both seasons of the study, each sample was entered into an electronic form. The Crew Chief also carried paper field forms as a back-up in case the tablet computer encountered unforeseen technical difficulties. Screen shots of the tablet data collection forms are included in Appendix C.

Throughout the manual sorting process, the crew was under close supervision of the Crew Chief. The Crew Chief ensured the sorting protocol was being followed along with the proper health and safety requirements. Lastly the Crew Chief closely evaluated each individual sample to ensure that the material categories were properly understood and used by the sorting crew.

2.5.3 SITE MAINTENANCE & CLEANUP

The Project Team were guests at each of the host facilities, and it was therefore critical to leave the work area clean and safe for subsequent operations. The sorting crew was responsible for keeping litter to a minimum. The Project Team also concluded each day of sorting operations with sufficient time to perform site clean-up. Clean-up included the following types of activities:

- Organized stacking and stowing of sorting supplies in a designated location;
- Removal of sorted wastes for proper disposal or processing (the host facility equipment operator helped with this);
- Sweeping and cleaning the sort area to prevent windblown litter and other situations that could attract vectors;
- Removal and disposal of day-use personal protective equipment and decontaminating personnel;
- Covering any unsorted samples with a secure tarp, to leave for sorting the next day; and
- Securing the work area and checking out with the Facility Manager each day.

2.6 VISUAL CHARACTERIZATION OF C&D DEBRIS

Visual surveying of C&D waste involves detailed volumetric measurements of the truck and load dimensions, followed by the systematic observation of the major material components in the tipped load. Results of the visual, volumetric estimates are then calibrated against the actual scale weight of the load.

MSW Consultants has developed an advanced tool for visual estimation of C&D and other bulky waste loads that has been refined and calibrated over multiple similar characterization studies. This process relies on a tablet computer to perform real-time density-to-weight calculations so that estimated composition and weight closely correlated to the actual weight of the load.

The visual estimation protocol used the following methodology:

- The dimensions of the incoming load were measured and recorded prior to tipping and (if possible) the percent fullness of the vehicle/container was estimated.
- The load was tipped. If it was a large load of non-homogeneous materials, the loader operator was asked to spread out the material so that it is possible to discern dense materials such as block, brick, and dirt that tend to sink to the bottom of the pile.
- A first pass was made around the load marking the major material groups that were present in the load—wood waste, organics, paper, etc. The percentage of the load made up of these major groups was estimated.

- A second pass was made around the load, noting the secondary material categories contained within each group – for example, within the Wood material group, secondary categories include wooden pallets, sawn lumber, OCC, etc. The percentage of the secondary material category within the primary material groups was then estimated.
- The app alerted the enumerator if there were any problems with the estimations, for example if the percentages did not sum to 100 percent.
- Finally, the app compared the volumetrically calculated weight of the load to the actual scale weight of the load. Possible sources of discrepancy could then be identified, and adjustments to volumetric estimates and/or density factors could be made to reduce the degree of difference. This last step is critical to the accuracy of the data.

2.7 DATA ANALYSIS

2.7.1 QA/QC PROCEDURES

The collection process followed a well-established set of quality assurance/quality control (QA/QC) strategies to ensure data accuracy and integrity. The QA/QC process involved the following procedures:

- Assigning a unique combination sample number, facility of origin, date and time to each sample, and transferring that information to tablet computer that was used to record material weights for the sample.
- Encoding the type of waste load into the sample number. For example, on a particular date, samples of ICI waste could be numbered ICI-1, ICI-2, etc.
- Using a vehicle selection form to track the numbers of each type of load obtained and sampled.
- Verifying that data forms were obtained for each day the data collection crew was in the field.
- Designing the data entry databases to prevent out-of-range values for vehicle and sample characteristics such as vehicle type, net weight, etc.
- Random checks of computer-entered data against the Field Supervisor's tally sheets, to verify that all numbers were being entered correctly, and to look for any systematic or random errors.

2.7.2 STATISTICAL ANALYSIS

At the conclusion of each field data collection season, all data was statistically analyzed to determine the estimated weight and estimated mean percent associated with each material group in the samples. For both refuse and recyclables, the analysis produced estimates of the weight and percentage associated with each material group. Consistent with industry standards, the mean composition as well as the confidence intervals were calculated at a 90 percent level of confidence, as described below.

The analysis normalized each sample by converting the sample data from weight to percentage. A statistical analysis was then performed to calculate the mean composition for each of the material groups. The sample mean was determined by (i) summing the weight of each material in each sample; (ii) summing the total weight of all samples, and (iii) dividing the first value by the second value to determine the percent-by-weight composition.

The standard deviation, as well as confidence intervals at a 90 percent level as specified in our proposal, are provided for each material category, as statistically appropriate, as well as major material groups (e.g., "paper", "plastic", etc.).

The following statistical measures were calculated to determine the overall composition of each waste generator sector:

- **Sample Mean**: The sample mean (i.e., the mean calculated based only on the sample data), or average, composition is considered the "most likely" fraction for each material group in the waste stream. The

sample mean is determined by (i) summing the weight of each material in each sample; (ii) summing the total weight of all samples, and (iii) dividing the first value by the second value to determine the percent-by-weight composition. Note that the sample mean, while a good estimate, is unlikely to be identical to the population mean value, (i.e., what the value would be if it were possible to have perfect information on the entire waste stream). The significance of the sample mean is enhanced by the standard deviation and confidence intervals as described below:

- **Standard Deviation**: The standard deviation measures how widely values within the data set are dispersed from the sample mean. A higher standard deviation denotes higher variation in the underlying samples for each material, while a lower standard deviation reflects lower variation among the individual samples. The standard deviation is stated in the same unit as the sample mean, which in this case is percent by weight.
- **Confidence Intervals**: When a sample of data is obtained, it is analyzed in an attempt to determine certain values that describe the entire population of data under analysis. For example, in a poll of likely voters, the intent of the poll is to determine the percentage of all voters who support a given candidate, not simply the percentage of voters in the poll who support that candidate. The percentage of voters who support a given candidate in the poll can easily vary from sample to sample; but the percentage of all voters who support that candidate is a fixed value. In our sample of incoming loads of waste, we are not primarily interested in the percentage composition of the sampled loads, but rather in trying to determine what the composition of the sampled loads tells us about the composition of all waste generated. A confidence interval is a statistical concept that attempts to indicate the likely range within which the true value lies. The confidence intervals reflect the upper and lower range within which the population mean can be expected to fall. Confidence intervals require the following:
  - The "level of confidence," or how sure one wants to be that the interval being constructed will actually encompass the population mean;
  - The sample mean, around which the confidence interval will be constructed;
  - The sample standard deviation, which is used as a measure of the variability of the population from which the sample was obtained; and
  - The number of sampling units that comprised the sample (i.e. sample size).

Consistent with industry standards, confidence intervals were calculated at a 90 percent level of confidence, meaning that we can be 90 percent sure that the mean falls within the upper and lower confidence intervals shown. (The converse is also true: that there is a 10 percent chance that the mean falls outside of the sample mean.) In general, as the number of samples increases, the width of the confidence intervals decreases, although the more variable the underlying waste stream composition, the less noticeable the improvement for adding incremental samples.

CHAPTER 3 – RESULTS

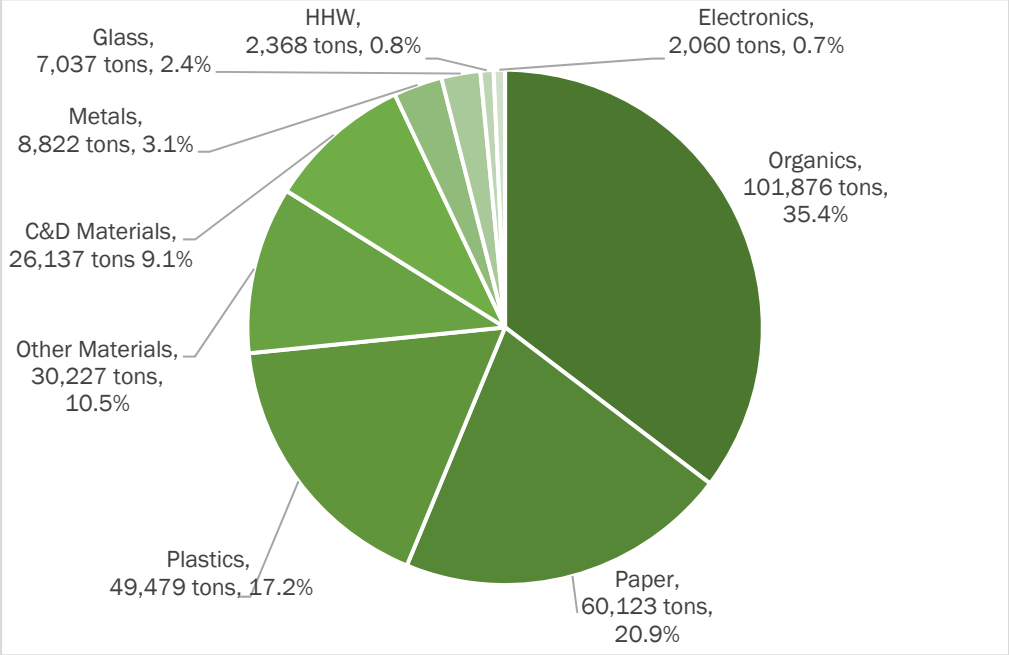
3.1 DISPOSED MSW COMPOSITION

This section provides detailed results of the composition of municipal solid wastes destined for disposal.

3.1.1 AGGREGATE MSW

In 2018, approximately 288,130 tons of MSW were disposed in the OCRRA System. Figure 3-1 provides a summary of the aggregate[1] MSW composition by major material group. As shown, organics comprise the largest fraction of the disposed MSW stream, followed by paper and plastics.

Figure 3-1 Aggregate Disposed Waste Composition



Note: Tonnages in this figure were derived by applying the 2019 composition results to reported 2018 quantities.

Figure 3-2 compares the composition of aggregate MSW from the 2019 and 2005 Studies, measured by percentage. Figure 3-3 shows the same comparison measured in tons. Note that the 2019 Study results reflect tonnages reported by OCRRA for 2018.

[1] "Aggregate" refers to the combination of single family residential, multi-family residential, commercial and institutional municipal solid wastes taken as a whole.

Figure 3-2 Comparison of Aggregate MSW Composition 2019 & 2005, Percentage Composition

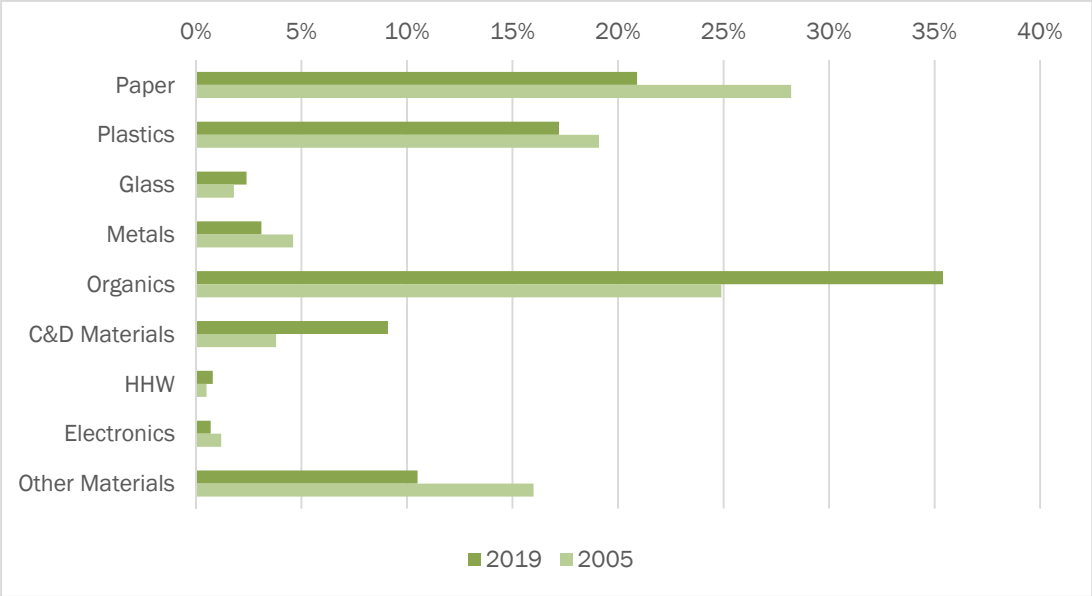
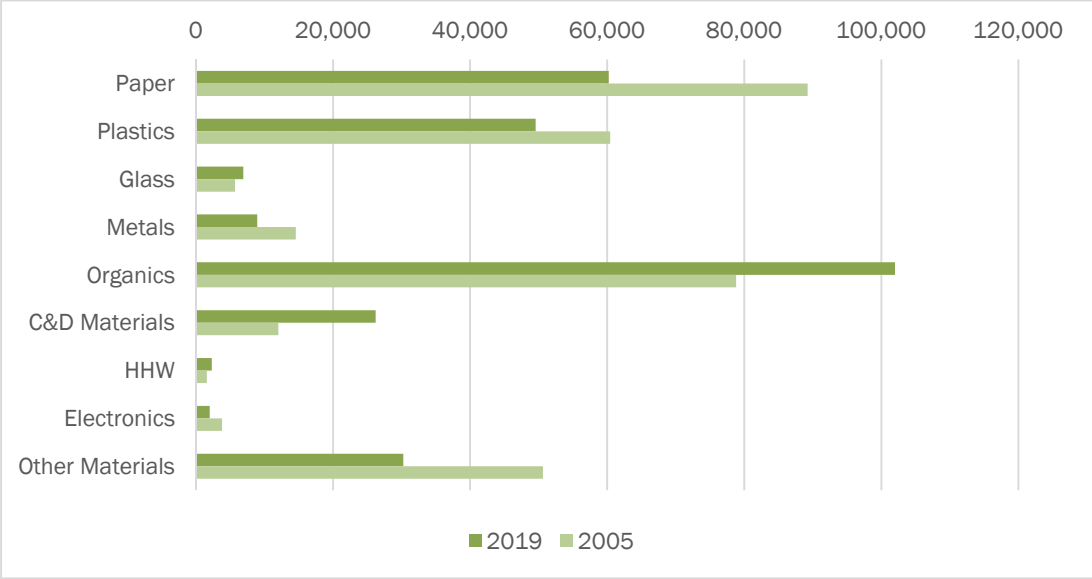


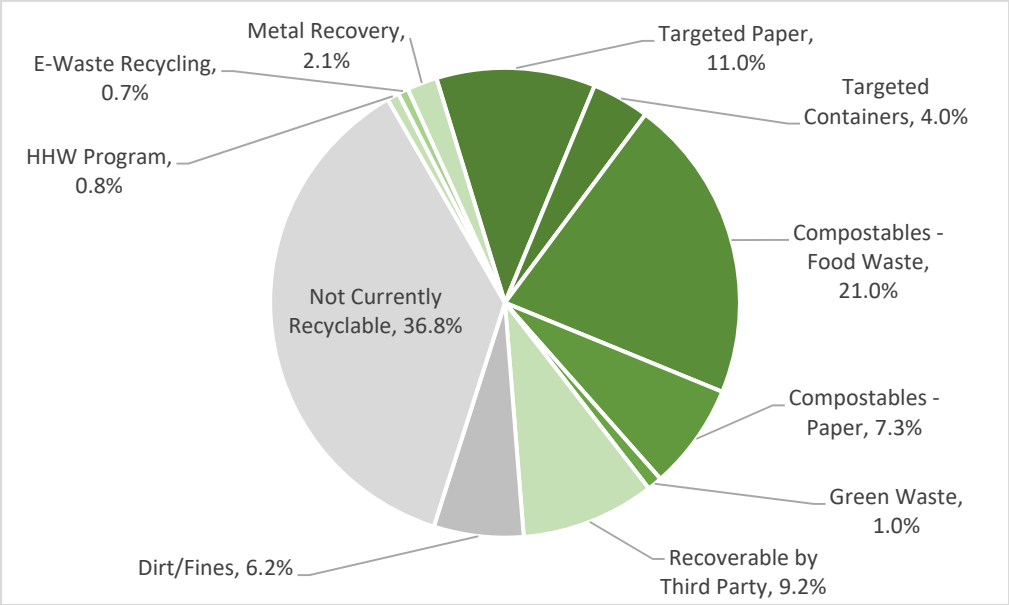
Figure 3-3 Comparison of Aggregate MSW 2019 and 2005, Estimated Tonnage



Note: Tonnages in this figure were derived by applying the 2019 composition results to reported 2018 quantities.

Figure 3-4 provides the recoverability of the aggregate disposed refuse stream as defined in Table 2-6. This graphic shows that about half of the materials being disposed could be diverted through existing recycling programs, composting programs, and third-party recovery programs. It should be noted that this graphic omits the impact of contamination (soiled or compromised recyclable material), and as a practical matter it is not possible for all of the divertible materials to actually be diverted due to human error, lack of participation, or the various challenges inherent in materials recovery processing.

Figure 3-4 Recoverability of Disposed Wastes



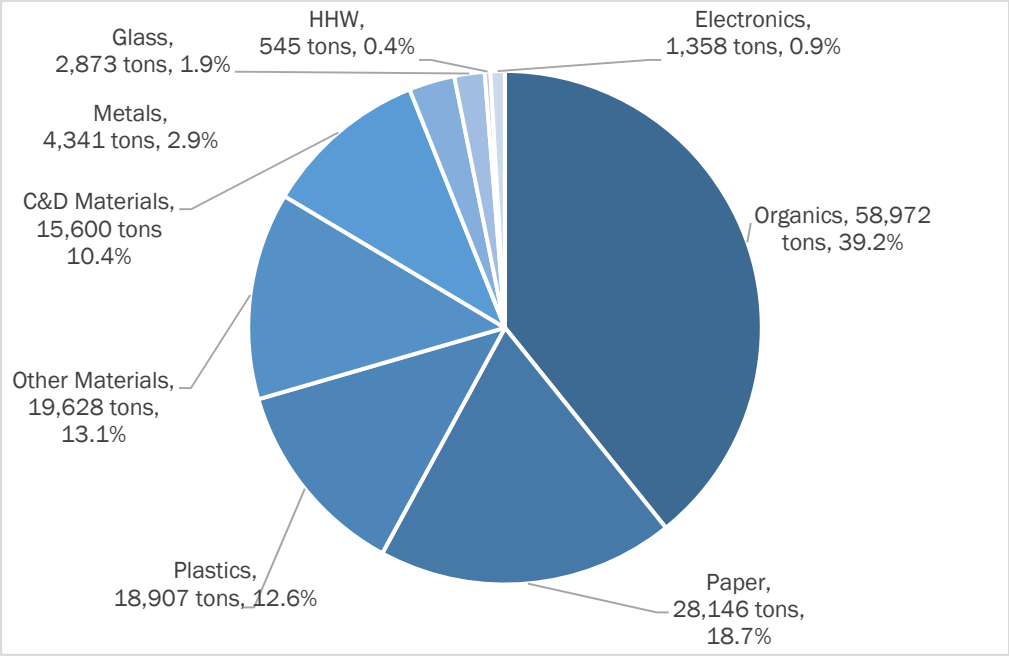
Please refer to detailed composition tables in Appendix A of this report for a complete statistical summary of material composition. The first of these tables, Table A-1, provides a detailed composition of the aggregate refuse stream, including the mean composition and confidence intervals calculated at a 90 percent level of confidence. The table provides adjusted percentages based upon a proportional allocation of the single family residential, multi-family residential, and ICI generator sectors. This table also allocates aggregate disposed refuse tonnage across the material categories.

3.1.2 RESIDENTIAL WASTE COMPOSITION

The residential portion of the MSW stream is comprised of single and multi-family generators. According to OCRRA gate survey data, approximately 87% of the residential waste stream within the OCRRA System is from single-family households; while the remaining 13% is from multi-family households. (These proportions were also used to disaggregate single stream recycling tonnages, discussed in the next section.)

There was an estimated 150,371 tons of residential refuse disposed in the OCRRA System in 2018 (the most recent year for which tonnage data are available at the time this report was completed). Figure 3-5 summarizes the composition of the residential refuse stream by major material group. Similar to the Aggregate MSW composition, organics and paper are the two most common material groups in residential waste. It should be noted that Figure 3-5 presents the waste composition by material group only and is not intended to identify recyclable materials. The recoverability of materials in this waste stream is provided elsewhere in this section, and the complete composition data for individual material categories is presented in Appendix A.

Figure 3-5 2019 Residential Waste Composition by Material Group and Estimated Tons



Note: Tonnages in this figure were derived by applying the 2019 composition results to reported 2018 quantities.

Figure 3-6 below compares the composition of single and multi-family wastes by material group. Generally, single family wastes contain comparable percentages as found in multi-family wastes.

Figure 3-6 Comparison of Single Family and Multi-family Waste Composition

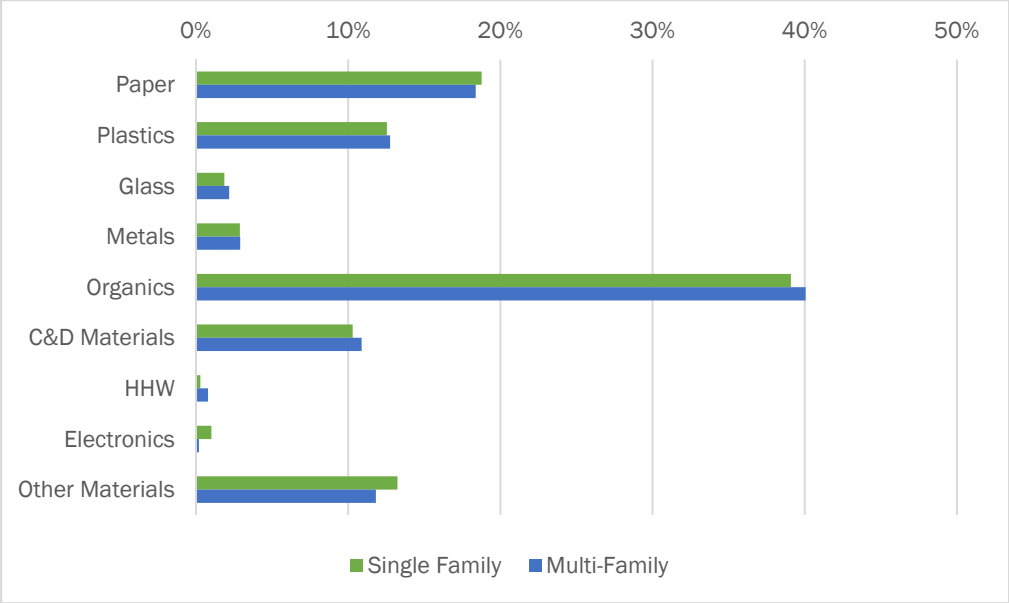


Figure 3-7 compares the composition of Residential wastes between 2019 and 2005. As shown, there has been a decrease in paper waste and plastics, and an increase in organic materials.

Figure 3-7 Comparison of Residential Waste 2019 and 2005, Percentage Composition

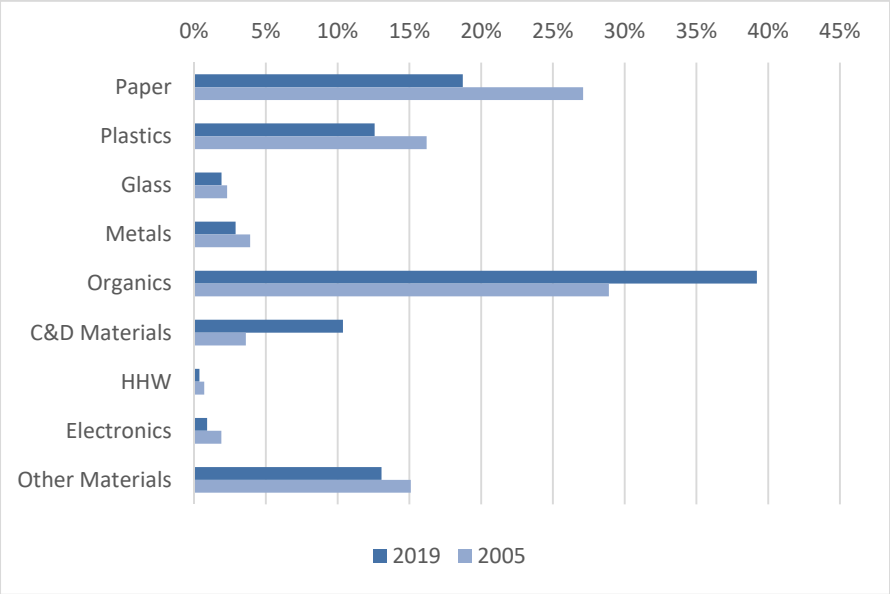
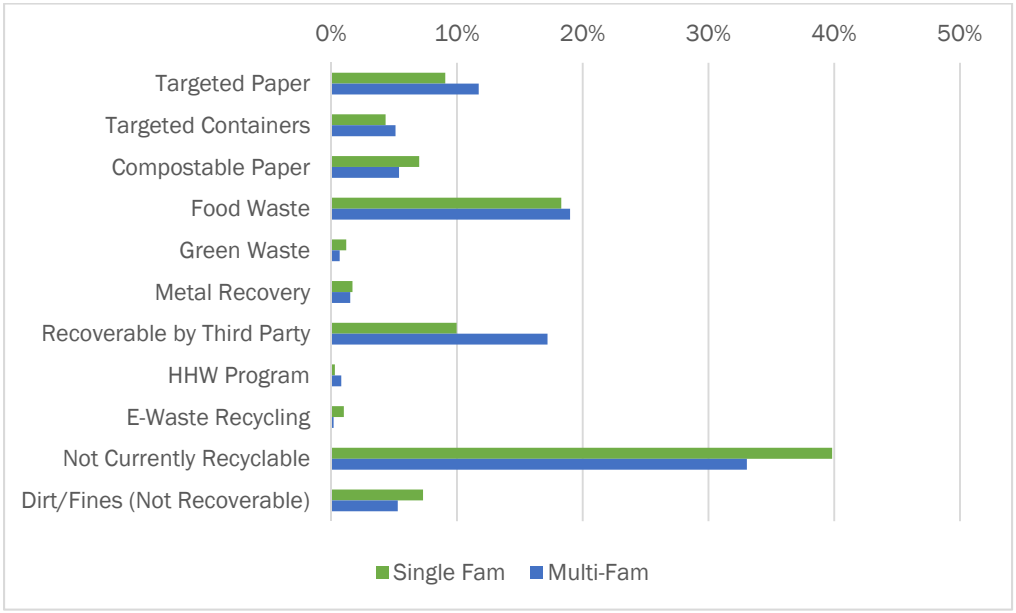


Figure 3-8 shows the recoverability of residential wastes. This graphic shows that slightly more targeted recyclable paper and containers are present in multi-family refuse. This finding correlates with the Capture Rate data (presented at the end of this Chapter), which shows that single family homes are doing a slightly better job of removing recyclables from the waste stream than multi-family residences. Both single and multi-family homes are disposing relatively low percentages of paper and containers materials targeted as acceptable curbside recyclables in the OCRRA system.

Figure 3-8 Recoverability of Single and Multi-Family Residential Wastes



Also note the figure above references "Recoverable by Third Party". As mentioned in Section 2.3.3, this includes plastic retail bags, textiles, carpeting/carpet padding, and clean wood. In Appendix A, Tables A-

2, A-3, and A-4 provide detailed compositions of the residential waste stream, with mean composition and confidence intervals of 90 percent. Disposed residential refuse tonnages are also included.

3.1.3 ICI WASTE COMPOSITION

There were an estimated 137,755 tons of ICI refuse disposed in the OCRRA System in 2018. Figure 3-9 shows the breakdown by major material group in the ICI waste stream. Although organics still made up the largest fraction, ICI waste contained more paper and plastics as compared to residential waste. It should be noted that Figure 3-9 presents the waste composition by material group only and is not intended to identify recyclable materials. The recoverability of materials in this waste stream is provided elsewhere in this section, and the complete composition data for individual material categories is presented in Appendix A.

Figure 3-9 2019 ICI Waste Composition

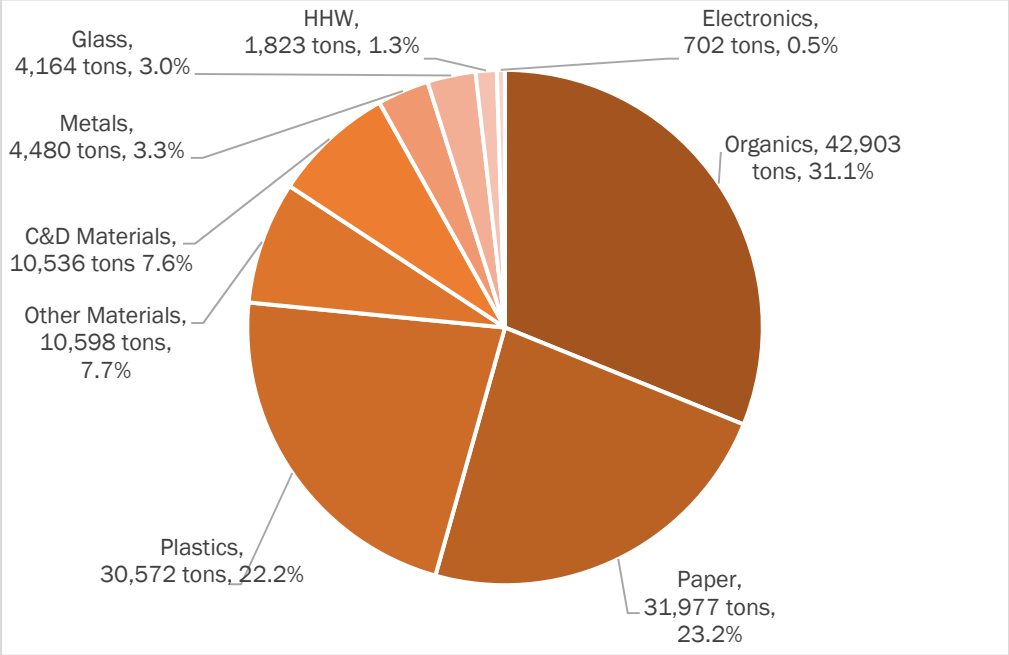


Figure 3-10 provides a comparison of ICI waste between the 2019 and 2005 Studies. The decrease in paper and increase in organics is again reflected.

Figure 3-10 Comparison of ICI Waste 2019 and 2005, Percentage Composition

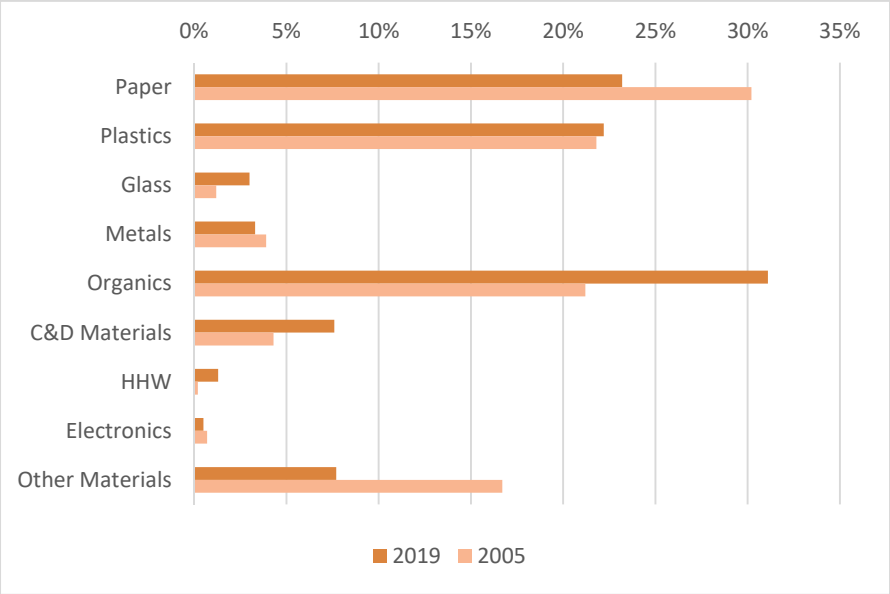
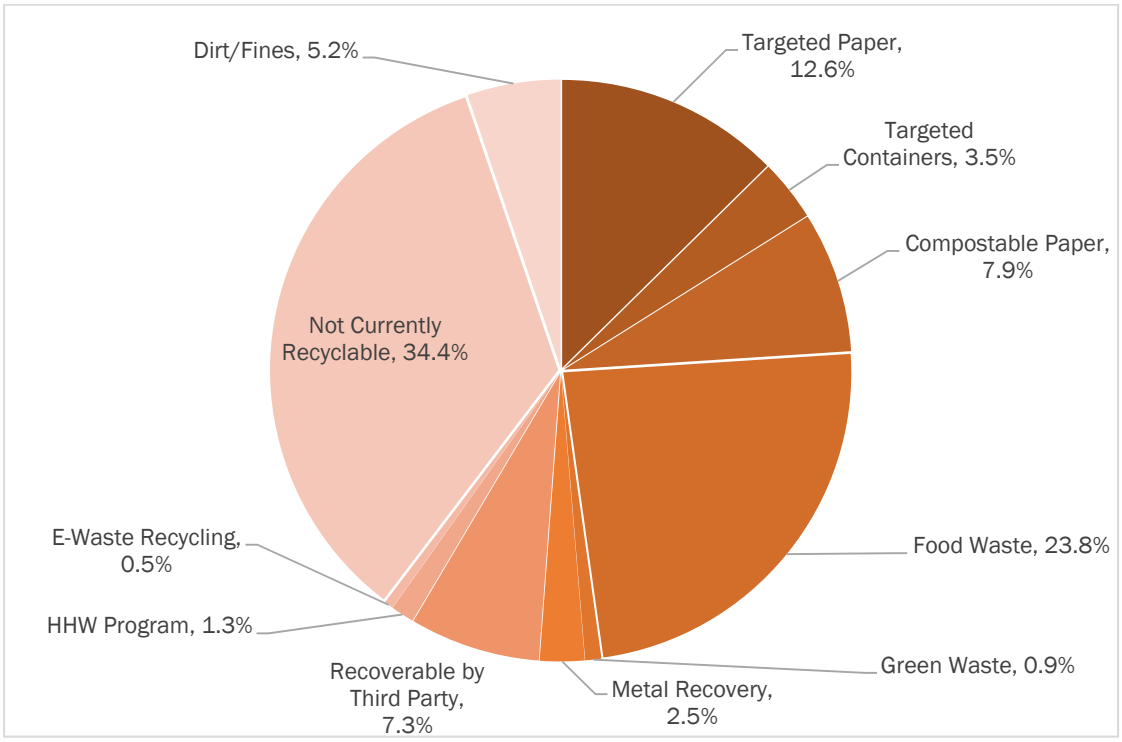


Figure 3-11 illustrates the recoverability of the ICI waste stream. As shown, about 50 percent of the stream could theoretically be diverted from disposal through composting or recycling measures.

Figure 3-11 Recoverability of Wastes in Existing ICI Waste Collection Program



Appendix Table A-5 provides the detailed composition of the ICI refuse stream, including the mean composition, confidence intervals, and allocated tonnages.

3.2 CONSTRUCTION AND DEMOLITION (C&D) DEBRIS

There were 54,832 tons of C&D debris disposed in the OCRRA System in 2018. Figure 3-12 presents the breakdown of C&D debris, using the same material groups as used for MSW. Not surprisingly, much of the composition is shown as material expected to be found in C&D waste, such as wood, concrete, roofing, gypsum board, etc.

Approximately one third of all C&D materials in the OCRRA System cannot be processed at the Waste to Energy Facility because of size, material type, or other limitations. Most of these materials pass through OCRRA's transfer station and are segregated, bulky materials. Metal items are removed and recycled. The materials that remain after this processing that cannot be sent to the Waste to Energy Facility are sent as "by-pass" waste to local landfills for final disposal. However, as can be seen in the next set of graphs, many of the materials that make up the C&D stream are potentially recoverable and alternative methods could be considered to further reduce the quantity of C&D materials that are ultimately disposed. Currently, OCRRA is recovering more than 3,000 tons of metal annually and diverting more than 5,000 tires for possible reuse and recovery. Most of the C&D recoverable materials include metal, cardboard, and wood by-products.

Figure 3-12 Composition of the C&D Waste Stream, Standard Categories

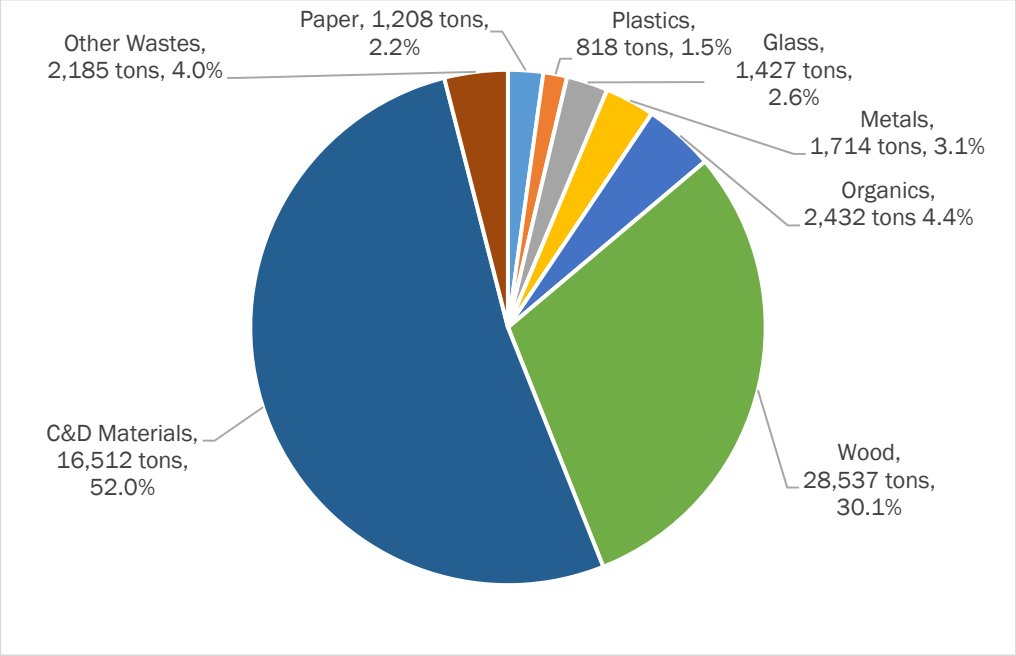
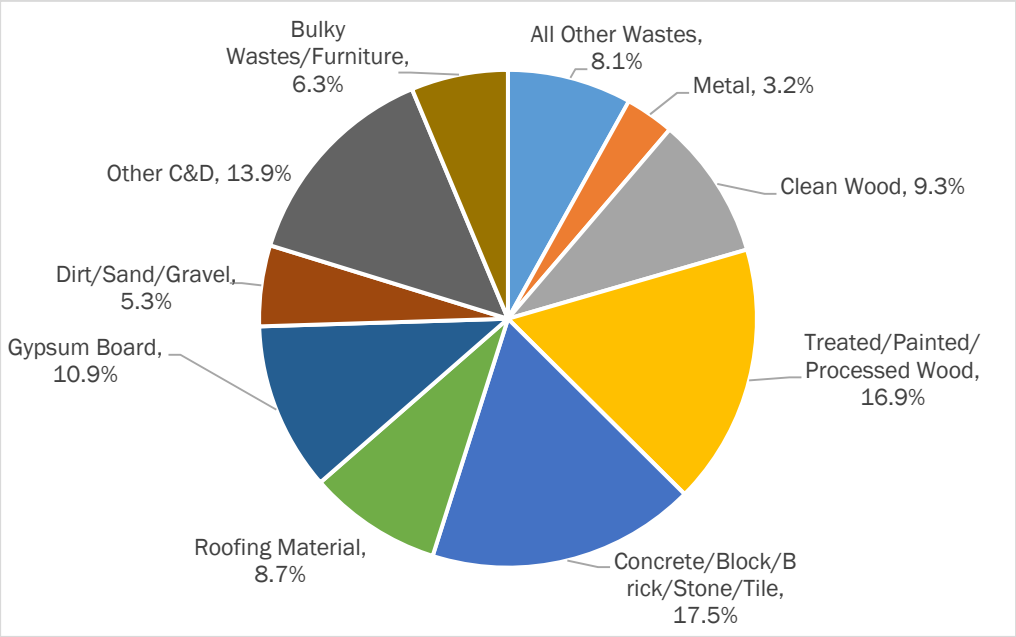


Figure 3-13 presents a more useful breakdown of C&D debris into appropriate material groups. This pie chart shows a broad mix of many constituents in C&D debris.

Figure 3-13 Composition of the C&D Waste Stream, Modified Categories

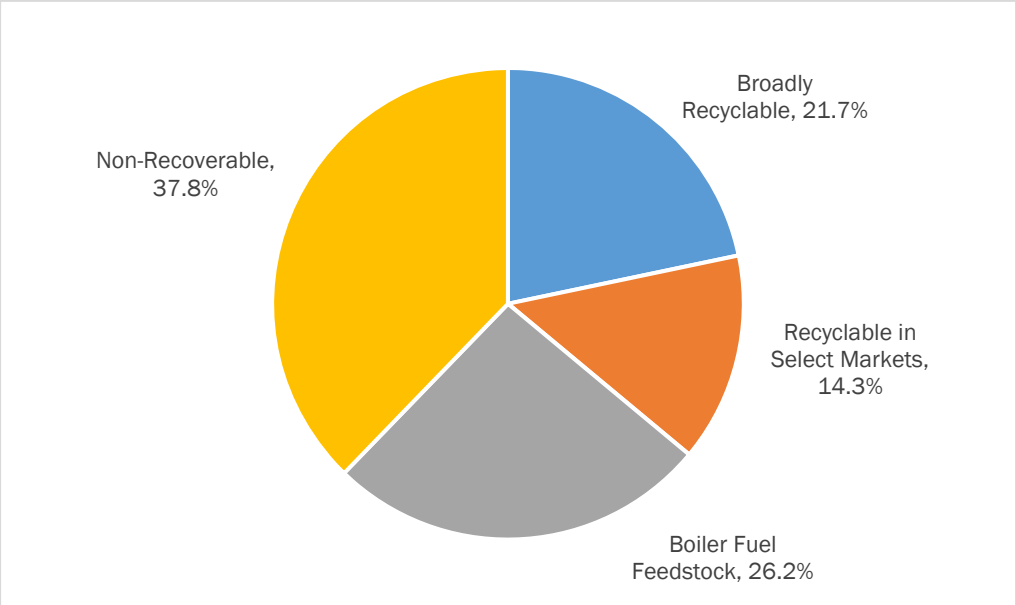


As a final analysis of this generator sector, Figure 3-14 presents the C&D data according to its recoverability as defined in Table 2-7. As suggested in the figure, almost two-thirds of the C&D materials produced within the OCRRA System would be recoverable if it were possible to source separate the materials or else process them through an industrial sorting facility.

For reference, recoverability definitions from Section 2.3.3 are provided below:

1. **Broadly Recyclable**: C&D material constituents which can be recovered through commercial processing of mixed C&D loads throughout most markets. These materials primarily are comprised of ferrous and non-ferrous metal scrap, yard waste, rock/gravel, concrete, brick, block, and asphalt.
2. **Recyclable in Select Markets**: C&D material constituents which can be recovered through commercial processing of mixed C&D loads in some areas. Such material may consist of clean gypsum wallboard, roofing shingles, carpeting and carpet padding, and appliances.
3. **Boiler Fuel Feedstock**: C&D material (wood pallets and crates, dimensional lumber, engineered wood, other wood products) that can be used directly as a fuel, or converted to another form of fuel or energy product.
4. **Non-Recoverable:** Material (from a C&D processing perspective) for which there is no current infrastructure or market to divert from disposal. Includes paper and plastic products, glass, dirt/sand, painted wallboard, ceramic fixtures, HVAC ducting, tires, combined/composite C&D materials, tires, E-Waste, bulky materials, and mixed MSW.

Figure 3-14 Recoverable C&D



Appendix Table A-6 provides the detailed composition of the C&D stream, including the mean composition, confidence intervals, and allocated tonnages.

3.3 RESIDENTIAL RECYCLABLES

In 2018, OCRRA reported 39,096 tons of residential recyclables.[2] In this report section, results are reported in aggregate (single and multi-family recyclables together), single family recyclables, and multi-family recyclables. As single and multi-family residential recycling are collected together in the OCRRA system, MSW Consultants applied the single family/multi-family proportions gathered during the refuse gate survey to calculate the weighted percentage means for each material category. Samples were collected from confirmed single-family residential routes; while multi-family samples were collected from dedicated routes arranged prior to field data collection.

It should be noted that the sample analysis excluded data received from one of the recycling haulers within the OCRRA system, as it could not be confirmed that the recyclables they collected were from exclusively residential sources.

3.3.1 INBOUND RECYCLABLES COMPOSITION

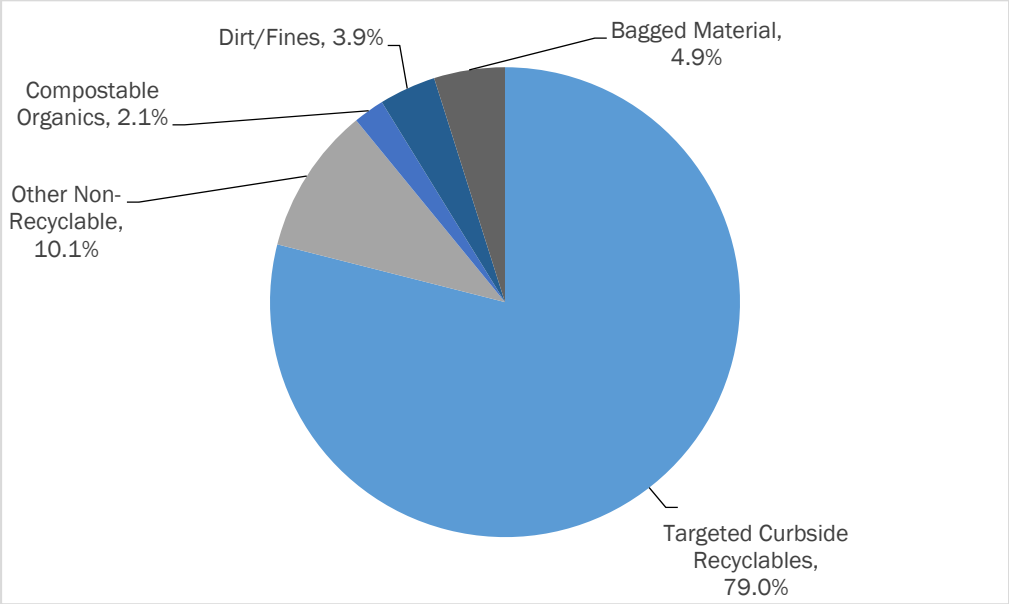
Figure 3-15 provides an unadjusted summary of residential recyclables (single and multi-family combined) encountered during the manual sort. As shown, roughly 79 percent of residential recyclables in the OCRRA System were properly deposited into recycling receptacles, with other, non-recyclable materials consisting of the following:

- **Bagged Materials**: materials in the recycling stream that have been collected in plastic bags. Such items, regardless of contents, are not accepted by the recycling processor. Our unadjusted results indicated that approximately 4.9% of curbside materials arriving at the MRF were composed of bagged materials.

[2] Reported in "2018 OCRRA Recycling Report" as submitted to NYSDEC

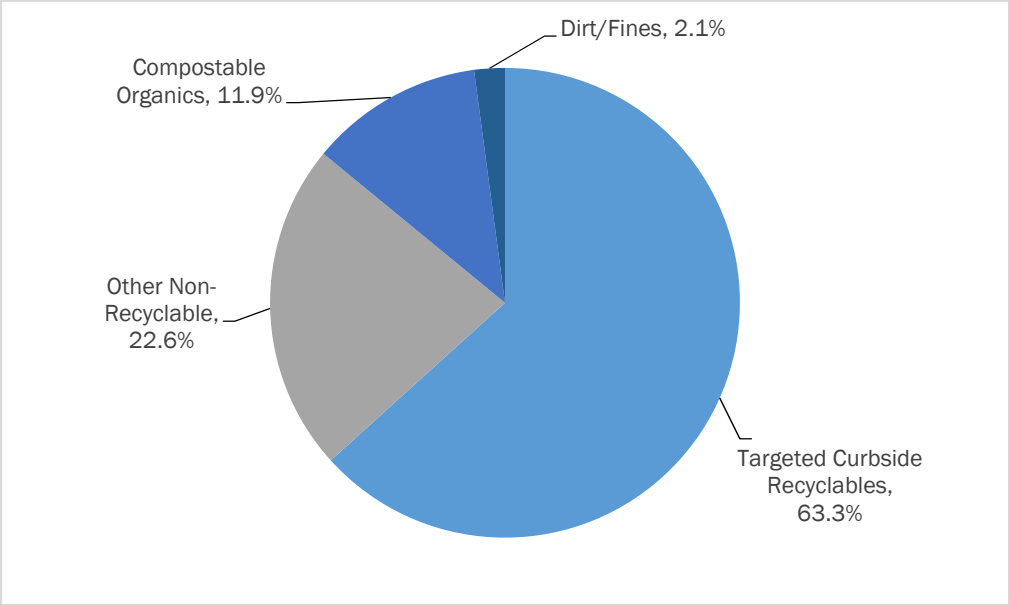
- **Compostable Organics**: compostable paper or food waste not accepted by the recycling processor.
- **Dirt/Fines**: Mix of particulate material that cannot be sorted into a specific category, and therefore is sorted into an aggregated "Dirt/Fines" category. This category includes some smaller particles that may have resulted from breakage during the collection and tipping process (i.e., contamination that was not the result of set-out behavior), as well as food waste residues and other small particles that were improperly placed in the recycling bin (contamination from improper set-outs).
- **Other Non-Recyclable Materials**: Other materials placed in recycling bins that are not accepted in the existing curbside collection program.

Figure 3-15 Residential Recycling Composition, Unadjusted



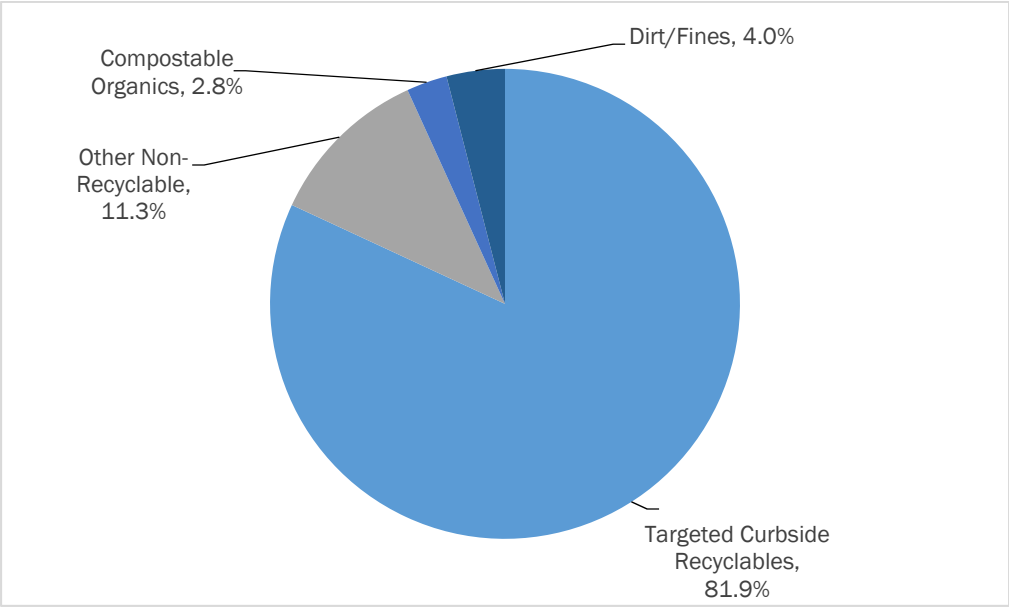
As explained in the Methodology section, bagged materials were initially sorted into a separate material category. Bagged materials were then stockpiled on-site according to disposition (single family bagged material or multi-family bagged material), and then sorted at the end of field data collection activities. Figure 3-16 provides a summary of aggregate bagged material. Not surprisingly the figure reflects a higher incidence of non-recyclable materials in the bags, which suggests that at least a fraction of the bagged materials contained trash rather than bagged recyclables.

Figure 3-16 Bagged Material Composition



As a final step, the bagged material was allocated back into the unadjusted recycling composition. The adjusted composition of inbound recycling is summarized in Figure 3-17. As a result of this adjustment, the incidence of recycled materials increased slightly compared to the unadjusted composition. Stated another way, there is a modest benefit in extracting recyclables from bagged wastes that arrive at the processing facility

Figure 3-17 Adjusted Residential Single Stream Recycling Composition



In Figure 3-18 below, a comparison of recyclables in single and multi-family samples is presented. This figure summarizes the higher recyclable content in single-family residential samples, and the higher rate of non-recyclable materials present in multi-family samples.

Figure 3-18 Comparison of Single Family and Multi-family Recycling Composition

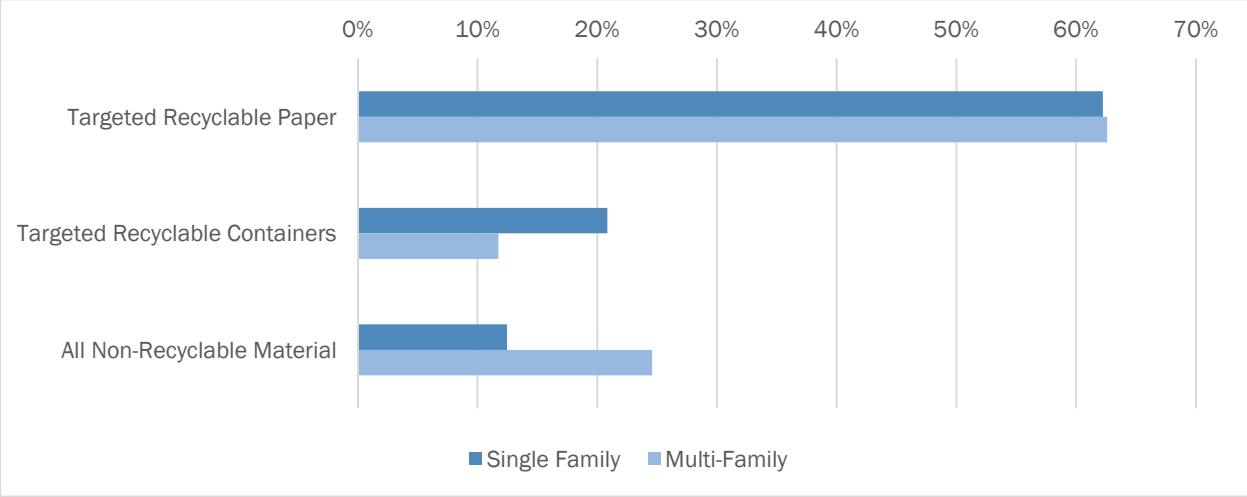


Table 3-1 identifies the overall most prevalent contaminants (i.e., items not accepted for recycling at the MRF) in the residential Recycling Stream, with comparisons to single and multi-family generator sectors. Note the significantly higher contaminants of Food Waste and Remainder/Composite Plastic in the Multi-Family recyclables.

Table 3-1 Most Prevalent Contaminants in Residential Recycling

Contaminant	Residential Percentage	Single Family Percentage	Multi-Family Percentage
Food Waste	1.8%	0.9%	6.7%
Remainder/Composite Glass	1.6%	1.7%	0.2%
Other Non-Recyclable Paper	1.4%	1.4%	1.0%
Remainder/Composite Plastic	1.4%	0.9%	3.6%
Compostable Paper	1.0%	0.7%	1.8%
All Other Film	0.8%	0.6%	1.2%
Other Ferrous Metals	0.6%	0.5%	0.9%
*Dirt & Fines**	*4.0%*	*4.4%*	*1.1%*
All Other Contaminants	*5.6%*	*3.1%*	*0.6%*
Totals	**18.1%**	**14.2%**	**17.2%**

* Table note: *Dirt & Fines* includes some smaller particles that may have resulted from breakage during the collection and tipping process (i.e., contamination that was not the result of set-out behavior), impacts from transport and processing, as well as food waste residues and other small particles that were improperly placed in the recycling bin (contamination from improper set-outs).

Figure 3-19 and 3-20 provide a comparison of Residential Recycling between the 2019 and 2005 Studies. As reflected in the refuse data, the most significant change was a decrease in paper from 74 percent in 2005 to 65 percent in 2019. This represents a decrease of about 5,800 tons annually, which is most likely due to reduction in daily newspaper publication from seven to three days per week.

Figure 3-19 Comparison of Residential Recycling 2019 and 2005, Percentage Composition

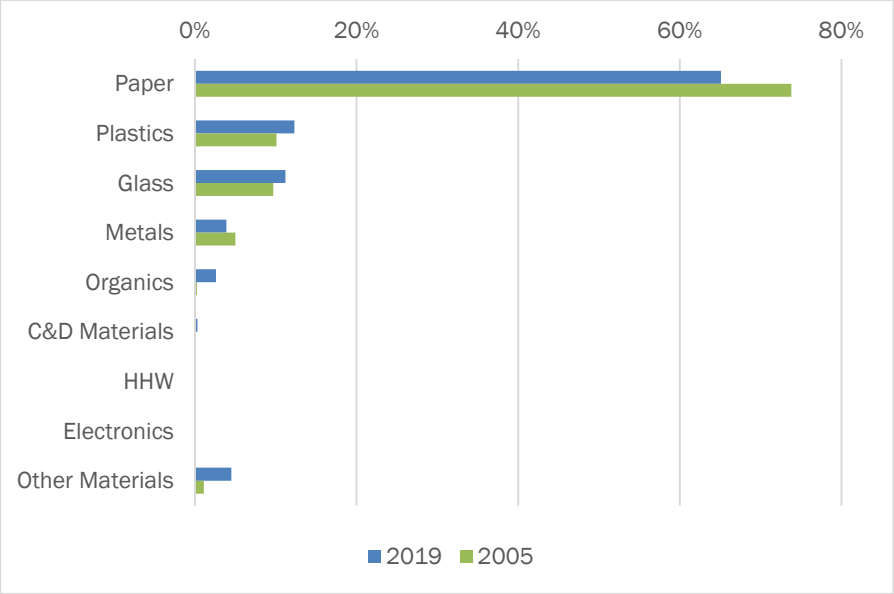
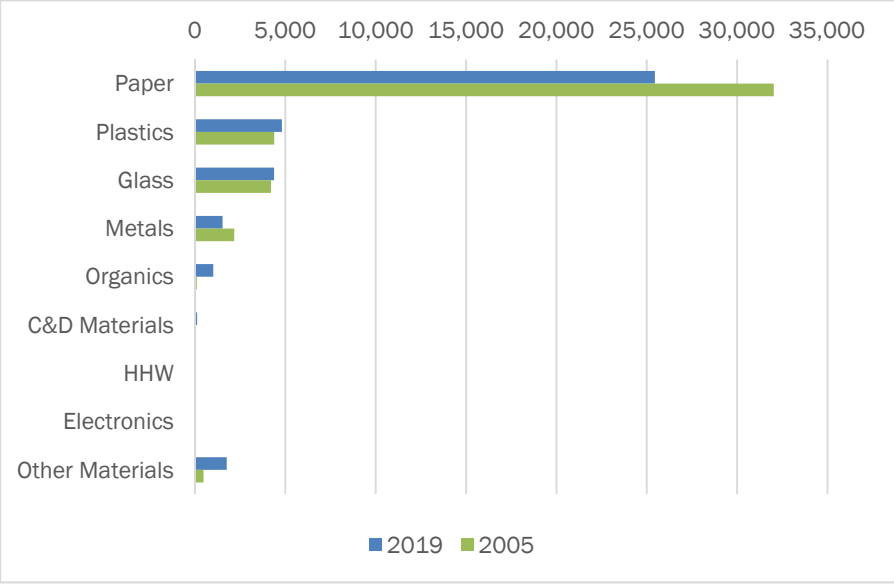


Figure 3-20 Comparison of Residential Recycling 2019 and 2005, Estimated Tonnage



In Appendix A of this report, Tables A-7, A-8, and A-9 provide detailed recycling composition results of Residential Recycling, Single Family Recycling, and Multi-Family Recycling. As these are the adjusted results, bagged materials have been allocated into the composition percentages.

3.3.2 BAGGED MATERIALS COMPOSITION

Figure 3-21 below presents a comparison, by general material category, of the composition of single and multi-family bagged materials. Significantly higher paper quantities were found in single family bagged materials, while multi-family bagged materials revealed significantly higher levels of organics.

Figure 3-21 Comparison of Curbside & Multi-Family Recycling Bagged Materials Composition

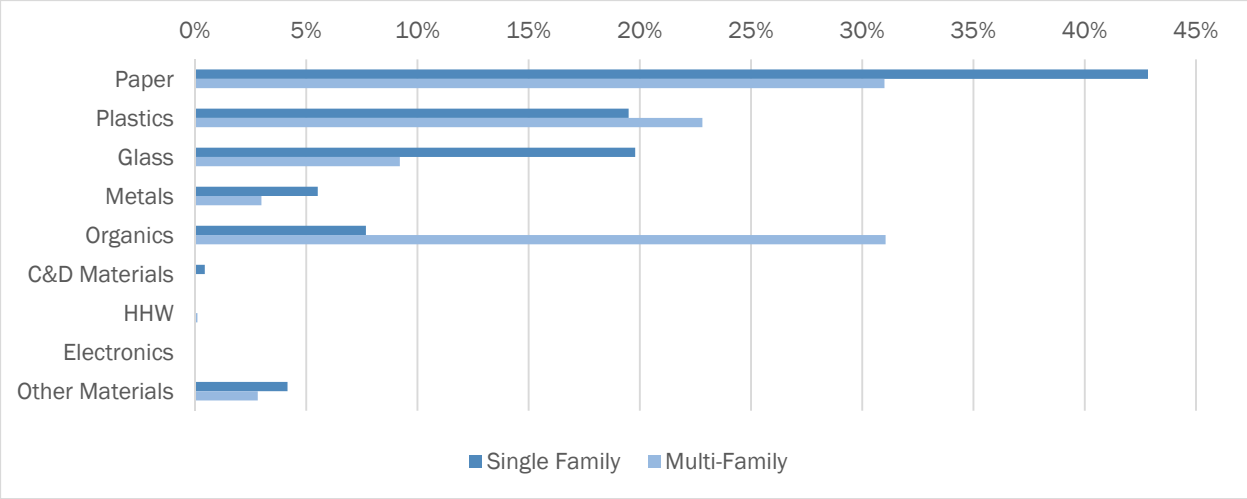
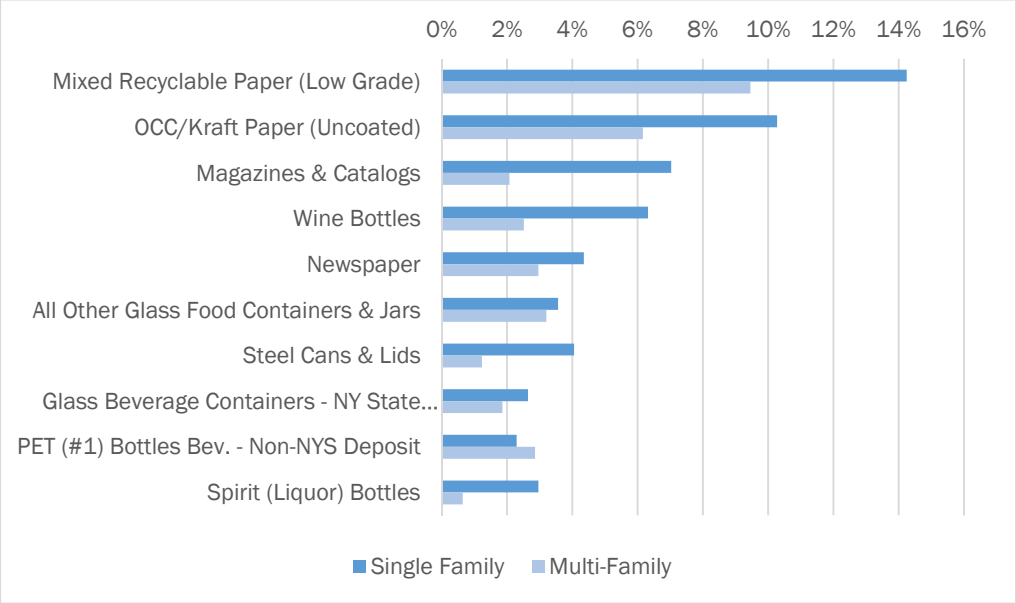


Figure 3-22 below presents a comparison of the top ten recyclable materials found in single and multi-family bagged materials. From this chart it can be seen that higher quantities of recyclables are present in single-family recycling than multi-family recycling. This could be due to a tendency among single-family residents to store recyclables in bags prior to placing them in collection carts and moving them to the curbside.

Figure 3-22 Top 10 Recyclable Materials in Bagged Materials - Comparison of Curbside and Multi-Family Results



Please refer to Table A-10 in Appendix A for a detailed composition table comparing single family and multi-family bagged materials.

Table 3-2 below presents the overall recycling rate from residential sources. This table provides the nominal recycling rate of 20.6% (amount of material diverted to the MRF), as well as the adjusted recycling rates of 16.9% and 17.7%, in which the tonnage of non-recyclable materials observed in the inbound residential recycling stream during the manual characterization were netted from the amount of material delivered to the MRF. Two rates were provided, one including Dirt & Fines and one excluding Dirt & Fines, since it is assumed a significant portion of this material results from the MRF process, and is not necessarily the result of improper set-out behavior (food waste residues and other small particles that were improperly placed in the recycling container).

Table 3-2 Residential Recycling Rates, 2018 Reporting

Stream	Tons	% of Total
Estimated Disposed Residential Refuse	150,370.7	79.4%
Residential Recyclables to MRF	39,096.0	20.6%
Total	**189,466.7**	**100.0%**
Residential Recyclables minus Non-Recyclables (including Dirt & Fines)	32,023.1	16.9%
Residential Recyclables minus Non-Recyclables (excluding Dirt & Fines)	33,592.6	17.7%

3.4 CAPTURE RATES

An important metric for recycling programs is the Capture Rate. The Capture Rate is defined as the percentage of a targeted recyclable material that is actually diverted in the recycling program. High capture rates indicate that the majority of available recyclables are being correctly recycled; conversely, low capture rates identify materials that are not being effectively recycled in the existing recycling program. Several organizations in the recycling industry, notably the Recycling Partnership (TRP), have been actively pushing for greater use of the capture rate to measure recycling program performance.

The capture rate for all residential recyclables was found to be 57.7 percent. While comparative capture rate data points are scarce, in the professional opinion of MSW Consultants a capture rate of 50 percent is roughly the average for curbside recycling programs. This suggests that Onondaga County's recycling program performance is above average compared to other communities nationally.

Figure 3-23 shows the capture rates for the materials targeted in the OCRRA recycling program. As shown, some constituents are captured at a high rate which suggests wide awareness of the recycling of those items. Other materials have lower capture rates, which suggests that recycling could increase within the current program parameters simply through wider participation in the program for all targeted materials. Low capture rates for certain beverage containers subject to the NY State Returnable Container Act (Bottle Bill) show positive impact of that separate material recovery system.

Figure 3-23 Capture Rate of Targeted Recyclables

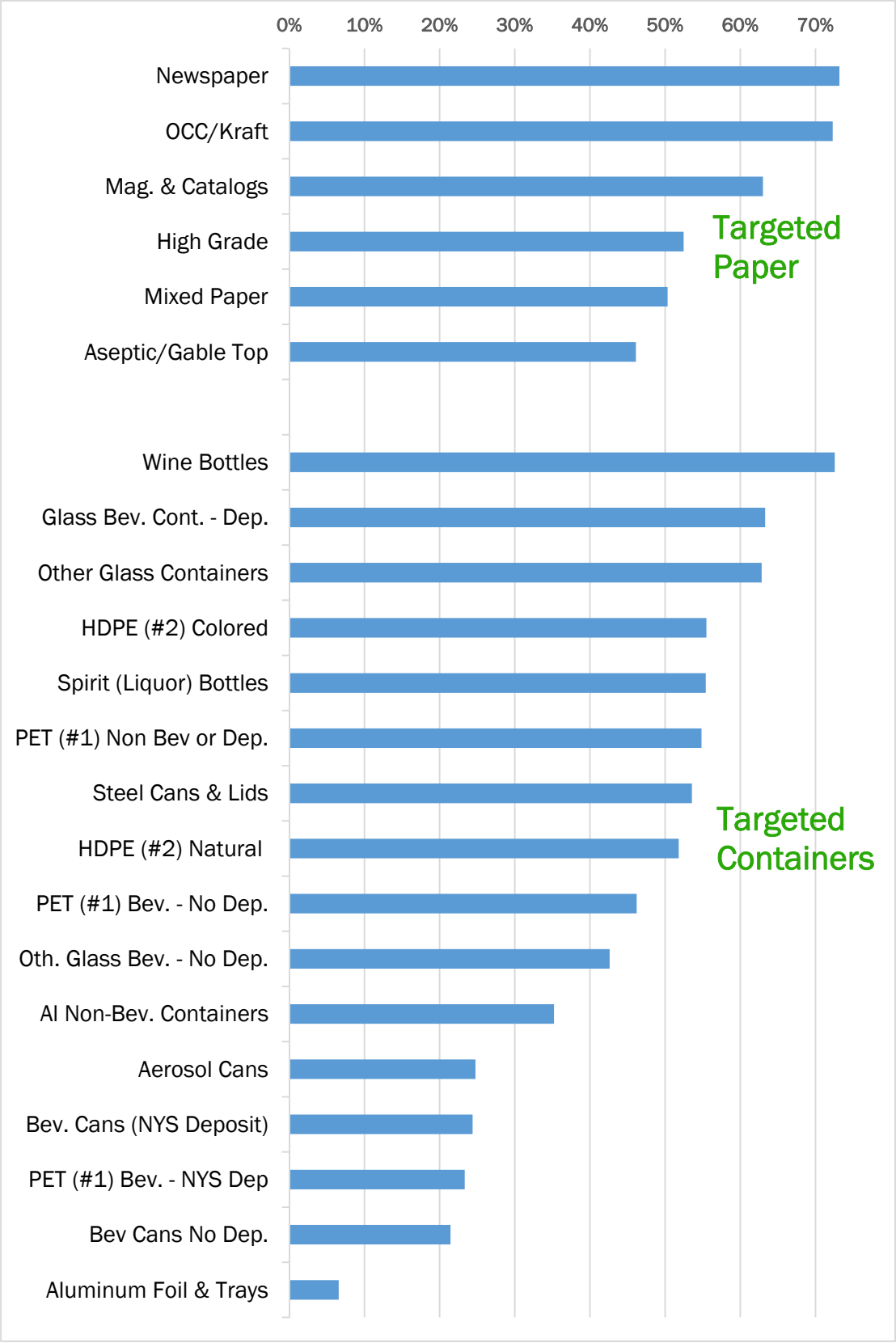


Table 3-3 provides capture rate data for combined residential recycling, as well as individually for the single and multi-family generator sectors.

Table 3-3 Recycled Material Capture Rates

	Residential Recycling Capture Rates		
Targeted Material	**Combined**	**Single Family**	**Multi-Family**
Paper			
Newspaper	73.8%	79.6%	54.9%
Magazines & Catalogs	64.1%	64.3%	62.0%
OCC/Kraft Paper	70.9%	70.5%	73.3%
Aseptic Boxes & Gable Top Cartons	46.3%	49.0%	30.1%
Mixed Recyclable Paper (Low Grade)	50.7%	52.5%	37.2%
Office Paper (High Grade)	49.2%	51.5%	12.4%
Containers			
PET (#1) Bottles Bev. - NY State Deposit	23.4%	22.9%	26.7%
PET (#1) Bottles Bev. - Non-NYS Deposit	47.0%	48.9%	29.6%
PET (#1) Bottles Non-Bev. - No Dep.	56.1%	60.7%	29.0%
HDPE (#2) Natural Bottles	52.1%	53.6%	40.0%
HDPE (#2) Colored Bottles	55.8%	56.7%	47.2%
#5 Dairy Tubs	30.0%	33.6%	13.9%
Steel Cans & Lids	54.3%	57.5%	26.4%
Aerosol Cans	24.0%	26.8%	10.5%
Al Bev. Cans (NYS Deposit)	23.9%	24.2%	22.5%
Al Bev. Cans (Non-NYS Deposit)	22.0%	21.6%	30.7%
Al Non-Beverage Containers	37.8%	37.1%	48.5%
Aluminum Foil & Trays	6.7%	7.1%	4.4%
Glass Bev. Cont. – Deposit	63.3%	65.0%	57.9%
All Other Glass Bev. Cont. - Non-Deposit	44.4%	45.2%	36.6%
All Other Glass Food Cont. & Jars	64.3%	67.1%	35.3%
Wine Bottles	73.9%	75.3%	50.1%
Spirit (Liquor) Bottles	57.4%	65.0%	23.3%

CHAPTER 4 – CONCLUSIONS & RECOMMENDATIONS

The 2019 Study significantly expanded the project scope compared to the 2005 and earlier studies. This was accomplished by increasing the number of samples collected from MSW and recycling sources that were collected in 2005, and broadening the study scope to include visual surveys of C&D Debris. The analysis of recycling composition included both unadjusted and adjusted recycling rates based on whether bagged materials were included or excluded, and detailed Capture Rates for targeted recyclables were provided in this update.

MSW Consultants offers the following conclusions and recommendations regarding OCRRA's 2019 Waste Composition Study.

4.1 CONCLUSIONS

- **Diversion Program Effectiveness:** Overall, the relatively low contamination rates and capture rates above 50 percent found in this study for the most prevalent materials in the recycling program suggest that OCRRA's recycling program is performing above the average U.S. curbside recycling program. Combined with metal recovery at the RRF and food waste composting at the Amboy Compost Site, OCRRA appears to be providing an effective diversion program to Syracuse areas residents and businesses.
- **Comparability to 2005 Study:** Despite the differences in data acquisition as described in the Methodology section of this report, a comparison between the two studies has revealed the following:
  - The most significant decrease in the refuse stream was in the paper material group, declining from almost 30 percent in the waste stream in 2005 to just over 20 percent in 2019. This is consistent with the findings of other recent waste composition studies in the nation, and coincides with the rise of digital media, which has led to a decline in the use of newspapers and office paper.
  - The prevalence of Food Waste in the aggregate waste stream increased significantly, from about 14.6 percent in 2005 to 21 percent in 2019.
  - In general, the presence of targeted recyclables in the waste stream decreased from 2005 to 2019 across the paper, plastics, and metals material groups, but increased slightly in the glass material group.
  - Levels of corrugated cardboard increased in the *residential recyclables* stream, from 11.1% in 2005 to almost 28% in 2019. This has been largely attributed to an increase in cardboard used in shipping and home delivery (the so-called "Amazon Prime effect").
- **Differences Between Generator Sectors:**
  - Generally, single and multi-family disposed wastes revealed a similar composition, but with slightly higher percentages of targeted recyclables in multi-family wastes.
  - As expected, ICI wastes differed most significantly from residential wastes in the higher percentages of OCC and food waste found in the ICI stream.
- **Opportunity for Increasing Diversion**: Generally, there is not a prevalence of targeted recyclables remaining in the waste stream; and capture rates are reasonably high for most materials. There may be some opportunity to capture additional OCC from the ICI stream, but increasing the capture of other commodities would be expected to provide only modest increases to diversion. Compostable organics, unsurprisingly, remain the most prevalent material type in the disposed waste stream that could potentially be diverted over time. OCRRA is well positioned to process and manage these materials given such existing resources as the Amboy food composting facility and the potential for additional progress through state programs such as the (pending) Food Recovery and Recycling Act. However, it was beyond the scope of this study to opine on the feasibility of increasing organics

diversion, and significant effort may be required to implement programs that significantly increase the diversion of food wastes and other compostable organics.

- **Composition of Residential Recyclables**: Overall, the study of OCRRA recyclables at the Waste Management Recycle America MRF revealed that approximately 82 percent of materials were characterized as targeted recyclable materials (paper or container), with approximately 14 percent characterized as non-recyclable (contamination), with an additional 4 percent attributed to dirt/fines likely from transport and processing impacts. The national average for recycling contamination is between 20 and 25 percent, which suggests that Onondaga County's recycling program is providing materials that are cleaner than average. The 2019 Study revealed some other significant findings:
  - Contamination rates were much higher among multi-family recycling samples (24 percent) than single family samples (12.5 percent).
  - Along with higher contamination rates, multi-family recycling samples had a higher prevalence of bagged materials than single-family samples (12.7 percent vs 3.7 percent). Characterization of these bagged materials revealed that residents are generally using bags to hold recyclable material (rather than discarding trash in the recyclables), but that multi-family households were more likely to place bags of actual trash (or else bags with high contamination) in the recycling stream.
- **Construction and Demolition Debris:** C&D debris was found to contain significant fractions of multiple materials, including Wood, Concrete/Brick/Block, Roofing Shingles, Wallboard; and smaller fractions of Paper, Plastic, Organics, and Glass. Of particular interest, C&D debris was assessed by its recoverability, revealing that almost two-thirds, or 62 percent, could potentially be recoverable. These materials consist of the following:
  - **Broadly Recyclable** materials such as scrap metal, yard waste and rock/gravel that are commonly recovered through commercial processing of C&D loads. Indeed, metal debris is currently recovered at the Ley Creek Transfer Station in Liverpool, NY.
  - Materials that are **Recyclable in Select Markets**, such as clean gypsum board, roofing shingles, appliances, carpeting and carpet padding that are recoverable in some areas by commercial processing of C&D loads;
  - **Boiler Fuel Feedstock**. C&D material (mostly wood) can be used directly as a fuel, or converted to another form of fuel or energy product.

4.2 RECOMMENDATIONS

- **Continue to Perform and/or Update Waste and Recycling Studies:** Such updates to information could be critical in informing upcoming wine/spirits legislation statewide, while also monitoring recycling successes or challenges, especially in light of ongoing efforts to remind residents to remove bagged materials from the recycling stream.
- **Consider Conducting Periodic Composition Studies at Waste Management Recycle America MRF**: Available industry data (beyond the results of this study) show that the mix of recyclable materials changes over time due to macroeconomic dynamics. This will continue to be felt as packaging shifts from heavier (glass, steel) to lighter (flexible films) materials; and as home delivery trends continue. Combined with fluctuations in secondary material prices, the mix and value of recyclables changes far more dramatically than the mix of refuse. Further, changes (especially increases) in contamination levels will directly impact recycling economics. For this reason, OCRRA should consider performing more routine composition monitoring of its single stream recyclables. Such composition data is critical to the management of processing contracts, as well as for financial planning for the Authority's recycling system.
- **Maintain Public Education and Focus on Minimizing Contamination**: Based on the system's current recycling performance, recycling education programs are evidently effective. Despite this

success, it will continue to be important to maintain this outreach, and to aggressively monitor, educate, and potentially enforce set-out requirements to minimize contamination in the recycling stream. An example of this is the pilot project where OCRRA staff placed tags on bagged materials at curbside as a friendly reminder to residents that recyclables should be loose, and not bagged, when placing them in the recycling containers.

- **Investigate Small Business OCC Diversion**: Relatively small fractions of most targeted recyclables were found to remain in the disposed waste stream. However, the ICI waste stream was found to contain 7.9 percent OCC, which is highly recyclable. Although it was beyond the scope of this study to investigate the basis for this finding, MSW Consultants hypothesizes that much of the OCC likely comes from small businesses that cannot justify onsite OCC recovery or even a separate container for OCC, either because they have not identified OCC recycling as an issue, do not want to incur the extra expense, or do not have space at their place of business to spot a separate OCC container. OCRRA may wish to investigate the generation and potential diversion of OCC from the small business sector in an attempt to incrementally divert OCC from the ICI stream.
- **Residential Curbside Source Separated Organics (SSO) Diversion**: OCRRA has an award-winning organics recovery processing operation at its Amboy Compost Site in Camillus. The operation focuses primarily on commercial and institutional food scraps, as well as food processing waste, and processes several thousand tons of such organics annually. This facility and program are already targeting the high-volume food waste generators of the region and converting these food scraps to compost. In other areas of the country (often with more aggressive state-level recycling and diversion regulations), capturing food scraps from the residential waste stream for composting, digestion, or other forms of energy recovery is the next logical, though highly challenging, step. While extensive groundwork would need to be laid for curbside SSO collection in Onondaga County, and despite the challenges such residential programs have faced elsewhere, such a program could have the potential to meaningfully reduce the disposal of food scraps and some compostable papers from the residential sector, as well as from other food-generating businesses such as smaller restaurants.

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APPENDIX A

DETAILED COMPOSITION RESULTS TABLES

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Table A-1 2019 Detailed MSW Composition

Material Category	Adjusted Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Adjusted Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**20.9%**	**1.7%**	**60,123**	**Electronics**	**0.7%**	**0.6%**	**2,060**
Newspaper	1.0%	0.5%	3,011	Televisions, Other Monitors, and CRTs	0.2%	0.2%	531
Magazines & Catalogs	0.5%	0.1%	1,359	All Other Electronics	0.5%	0.2%	1,529
OCC/Kraft Paper (Uncoated)	5.0%	0.8%	14,373	**Organics**	**35.4%**	**2.3%**	**101,876**
Compostable Paper	7.3%	0.8%	21,128	Food Waste	21.0%	2.2%	60,379
Aseptic Boxes & Gable Top Cartons	0.1%	0.0%	412	Textiles & Leather	5.2%	0.8%	14,953
Mixed Recyclable Paper (Low Grade)	3.6%	0.5%	10,265	Rubber Products	0.9%	0.2%	2,675
Office Paper (High Grade)	0.7%	0.2%	2,141	Disp. Diapers & Sanitary Prod.	3.3%	0.5%	9,617
Other Non-Recyclable Paper	2.6%	0.5%	7,435	Yard Waste	1.0%	0.4%	2,942
Plastics	**17.2%**	**2.2%**	**49,479**	Remainder/Composite Organics	3.9%	0.7%	11,311
PET (#1) Bottles Bev. - NY State Deposit	0.3%	0.1%	849	**Metals**	**3.1%**	**0.6%**	**8,822**
PET (#1) Bottles Bev. - Non-NYS Deposit	0.4%	0.1%	1,286	Steel Cans & Lids	0.4%	0.1%	1,078
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.1%	0.0%	385	Aerosol Cans	0.1%	0.0%	329
PET (#1) Non-bottle Containers	0.2%	0.0%	695	Other Ferrous Metals	1.6%	0.4%	4,617
HDPE (#2) Natural Bottles	0.3%	0.0%	738	Al Bev. Cans (NYS Deposit)	0.1%	0.0%	374
HDPE (#2) Colored Bottles	0.3%	0.0%	932	Al Bev. Cans (Non-NYS Deposit)	0.1%	0.0%	232
HDPE (#2) Non-Bottle Containers	0.4%	0.4%	1,169	Al Non-Beverage Containers	0.0%	0.0%	111
Rigid Plastic Cont. #3, #4, #6, and #7	0.5%	0.1%	1,455	Aluminum Foil & Trays	0.3%	0.1%	737
#5 Dairy Tubs	0.1%	0.0%	242	Other Non-Ferrous Metals	0.5%	0.1%	1,344
#5 Other Containers	0.7%	0.1%	1,928	**C&D Materials**	**9.1%**	**1.9%**	**26,137**
Expanded Polystyrene "Styrofoam"	0.8%	0.3%	2,361	Wood – Treated/Painted/Stained	2.4%	0.7%	6,923
Retail Film Bags	0.8%	0.1%	2,373	Wood – Untreated/Clean	1.6%	0.5%	4,680
Consumer/Commercial Film	2.6%	1.0%	7,396	Drywall/Gypsum Board	0.3%	0.2%	933
All Other Film	5.3%	0.6%	15,161	Asphalt Roofing	0.4%	0.3%	1,186
Flexible Packaging and Pouches	0.1%	0.0%	327	Asphalt Paving, Brick, Concrete, & Rock	0.6%	0.4%	1,606
Durable/Bulky Rigid Plastics	1.9%	0.6%	5,609	Carpet & Carpet Padding	1.6%	0.7%	4,537
Remainder/Composite Plastic	2.3%	0.5%	6,573	Remainder/Composite C&D	2.2%	0.6%	6,271
Glass	**2.4%**	**0.7%**	**7,037**	**HHW**	**0.8%**	**0.6%**	**2,368**
Glass Beverage Containers - NY State Deposit	0.2%	0.0%	448	Household Hazardous Waste or HHW	0.2%	0.1%	491
All Other Glass Bev. Cont. - Non Deposit	0.2%	0.0%	687	Batteries (All Types)	0.0%	0.0%	102
All Other Glass Food Containers & Jars	0.3%	0.1%	721	Medically-Related Waste	0.6%	0.3%	1,776
Wine Bottles	0.3%	0.1%	906	**Other Materials**	**10.5%**	**1.8%**	**30,227**
Spirit (Liquor) Bottles	0.3%	0.1%	921	Dirt & Fines	6.2%	0.7%	17,790
Ceramic Containers & Clay Pots	0.2%	0.1%	645	Bulky Materials	4.0%	1.2%	11,431
Remainder/Composite Glass	0.9%	0.4%	2,709	Other Mat'ls Not Elsewhere Classified	0.3%	0.1%	1,006
				Grand Total	**100%**		**288,130**
				No. of Samples	***100***		

Table A-2 2019 Detailed Residential Waste Composition

Material Category	Adjusted Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Adjusted Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**18.7%**	**2.1%**	**28,146**	**Electronics**	**0.9%**	**0.6%**	**1,358**
Newspaper	1.0%	0.7%	1,516	Televisions, Other Monitors, and CRTs	0.0%	0.0%	0
Magazines & Catalogs	0.7%	0.2%	1,006	All Other Electronics	0.9%	0.3%	1,358
OCC/Kraft Paper (Uncoated)	3.1%	0.7%	4,605	**Organics**	**39.2%**	**2.7%**	**58,972**
Compostable Paper	6.8%	0.9%	10,241	Food Waste	18.4%	2.3%	27,606
Aseptic Boxes & Gable Top Cartons	0.1%	0.0%	189	Textiles & Leather	7.3%	1.3%	11,033
Mixed Recyclable Paper (Low Grade)	4.0%	0.6%	5,947	Rubber Products	0.9%	0.3%	1,389
Office Paper (High Grade)	0.6%	0.2%	909	Disp. Diapers & Sanitary Prod.	5.1%	0.8%	7,610
Other Non-Recyclable Paper	2.5%	0.7%	3,733	Yard Waste	1.1%	0.5%	1,698
Plastics	**12.6%**	**0.9%**	**18,907**	Remainder/Composite Organics	6.4%	1.2%	9,636
PET (#1) Bottles Bev. - NY State Deposit	0.3%	0.1%	464	**Metals**	**2.9%**	**0.5%**	**4,341**
PET (#1) Bottles Bev. - Non-NYS Deposit	0.5%	0.1%	797	Steel Cans & Lids	0.5%	0.1%	780
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.2%	0.0%	256	Aerosol Cans	0.1%	0.0%	208
PET (#1) Non-bottle Containers	0.2%	0.0%	356	Other Ferrous Metals	1.2%	0.3%	1,731
HDPE (#2) Natural Bottles	0.3%	0.0%	400	Al Bev. Cans (NYS Deposit)	0.1%	0.0%	215
HDPE (#2) Colored Bottles	0.4%	0.1%	585	Al Bev. Cans (Non-NYS Deposit)	0.1%	0.0%	124
HDPE (#2) Non-Bottle Containers	0.0%	0.0%	34	Al Non-Beverage Containers	0.1%	0.0%	96
Rigid Plastic Cont. #3, #4, #6, and #7	0.6%	0.1%	870	Aluminum Foil & Trays	0.3%	0.1%	405
#5 Dairy Tubs	0.1%	0.0%	149	Other Non-Ferrous Metals	0.5%	0.2%	782
#5 Other Containers	0.8%	0.1%	1,183	**C&D Materials**	**10.4%**	**2.6%**	**15,600**
Expanded Polystyrene "Styrofoam"	0.6%	0.1%	977	Wood – Treated/Painted/Stained	3.4%	1.0%	5,076
Retail Film Bags	1.2%	0.2%	1,742	Wood – Untreated/Clean	0.7%	0.3%	1,016
Consumer/Commercial Film	0.2%	0.1%	235	Drywall/Gypsum Board	0.3%	0.1%	396
All Other Film	4.5%	0.5%	6,741	Asphalt Roofing	0.4%	0.4%	668
Flexible Packaging and Pouches	0.1%	0.0%	204	Asphalt Paving, Brick, Concrete, & Rock	0.8%	0.7%	1,223
Durable/Bulky Rigid Plastics	1.0%	0.4%	1,548	Carpet & Carpet Padding	1.8%	1.0%	2,649
Remainder/Composite Plastic	1.6%	0.2%	2,368	Remainder/Composite C&D	3.0%	0.9%	4,573
Glass	**1.9%**	**0.4%**	**2,873**	**HHW**	**0.4%**	**0.3%**	**545**
Glass Beverage Containers - NY State Deposit	0.1%	0.0%	168	Household Hazardous Waste or HHW	0.2%	0.2%	234
All Other Glass Bev. Cont. - Non Deposit	0.2%	0.1%	376	Batteries (All Types)	0.1%	0.0%	76
All Other Glass Food Containers & Jars	0.3%	0.1%	503	Medically-Related Waste	0.2%	0.1%	235
Wine Bottles	0.3%	0.1%	525	**Other Materials**	**13.1%**	**2.6%**	**19,628**
Spirit (Liquor) Bottles	0.3%	0.1%	411	Dirt & Fines	7.0%	1.0%	10,590
Ceramic Containers & Clay Pots	0.2%	0.1%	335	Bulky Materials	5.5%	1.9%	8,246
Remainder/Composite Glass	0.4%	0.1%	555	Other Mat'ls Not Elsewhere Classified	0.5%	0.2%	792
				Grand Total	**100%**		**150,371**
				No. of Samples	***56***		

Table A-3 2019 Detailed Single Family Waste Composition

Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**18.8%**	**2.5%**	**24,466**	**Electronics**	**1.0%**	**0.9%**	**1,320**
Newspaper	0.7%	0.2%	903	Televisions, Other Monitors, and CRTs	0.0%	0.0%	0
Magazines & Catalogs	0.7%	0.3%	912	All Other Electronics	1.0%	0.5%	1,320
OCC/Kraft Paper (Uncoated)	3.0%	0.9%	3,967	**Organics**	**39.1%**	**3.6%**	**50,953**
Compostable Paper	7.0%	1.2%	9,161	Food Waste	18.3%	2.8%	23,797
Aseptic Boxes & Gable Top Cartons	0.1%	0.1%	154	Textiles & Leather	6.8%	1.3%	8,915
Mixed Recyclable Paper (Low Grade)	3.9%	0.8%	5,071	Rubber Products	1.0%	0.4%	1,324
Office Paper (High Grade)	0.6%	0.3%	818	Disp. Diapers & Sanitary Prod.	4.9%	0.9%	6,412
Other Non-Recyclable Paper	2.7%	0.9%	3,481	Yard Waste	1.2%	0.6%	1,563
Plastics	**12.5%**	**1.1%**	**16,353**	Remainder/Composite Organics	6.9%	1.5%	8,942
PET (#1) Bottles Bev. - NY State Deposit	0.3%	0.1%	407	**Metals**	**2.9%**	**0.5%**	**3,758**
PET (#1) Bottles Bev. - Non-NYS Deposit	0.5%	0.2%	692	Steel Cans & Lids	0.5%	0.1%	648
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.2%	0.0%	196	Aerosol Cans	0.1%	0.0%	166
PET (#1) Non-bottle Containers	0.2%	0.0%	313	Other Ferrous Metals	1.2%	0.4%	1,548
HDPE (#2) Natural Bottles	0.3%	0.0%	343	Al Bev. Cans (NYS Deposit)	0.1%	0.0%	181
HDPE (#2) Colored Bottles	0.4%	0.1%	520	Al Bev. Cans (Non-NYS Deposit)	0.1%	0.1%	118
HDPE (#2) Non-Bottle Containers	0.0%	0.0%	25	Al Non-Beverage Containers	0.1%	0.0%	91
Rigid Plastic Cont. #3, #4, #6, and #7	0.5%	0.1%	706	Aluminum Foil & Trays	0.3%	0.1%	343
#5 Dairy Tubs	0.1%	0.0%	116	Other Non-Ferrous Metals	0.5%	0.2%	662
#5 Other Containers	0.8%	0.1%	1,048	**C&D Materials**	**10.3%**	**2.9%**	**13,421**
Expanded Polystyrene "Styrofoam"	0.7%	0.1%	850	Wood – Treated/Painted/Stained	3.5%	1.4%	4,562
Retail Film Bags	1.1%	0.2%	1,475	Wood – Untreated/Clean	0.7%	0.4%	949
Consumer/Commercial Film	0.2%	0.1%	231	Drywall/Gypsum Board	0.3%	0.2%	396
All Other Film	4.7%	0.7%	6,067	Asphalt Roofing	0.4%	0.5%	511
Flexible Packaging and Pouches	0.1%	0.0%	193	Asphalt Paving, Brick, Concrete, & Rock	0.7%	0.6%	922
Durable/Bulky Rigid Plastics	0.8%	0.3%	1,085	Carpet & Carpet Padding	1.3%	0.8%	1,659
Remainder/Composite Plastic	1.6%	0.3%	2,088	Remainder/Composite C&D	3.4%	1.3%	4,421
Glass	**1.9%**	**0.4%**	**2,436**	**HHW**	**0.3%**	**0.2%**	**385**
Glass Beverage Containers - NY State Deposit	0.1%	0.0%	122	Household Hazardous Waste or HHW	0.1%	0.1%	115
All Other Glass Bev. Cont. - Non Deposit	0.3%	0.1%	338	Batteries (All Types)	0.0%	0.0%	60
All Other Glass Food Containers & Jars	0.3%	0.1%	424	Medically-Related Waste	0.2%	0.1%	210
Wine Bottles	0.4%	0.2%	467	**Other Materials**	**13.2%**	**3.2%**	**17,263**
Spirit (Liquor) Bottles	0.2%	0.1%	276	Dirt & Fines	7.3%	1.4%	9,529
Ceramic Containers & Clay Pots	0.2%	0.1%	320	Bulky Materials	5.4%	2.4%	6,984
Remainder/Composite Glass	0.4%	0.1%	490	Other Mat'ls Not Elsewhere Classified	0.6%	0.2%	749
				Grand Total	**100%**		**130,356**
				No. of Samples	***40***		

Table A-4 2019 Detailed Multi-family Waste Composition

Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**18.4%**	**3.9%**	**3,680**	**Electronics**	**0.2%**	**0.2%**	**39**
Newspaper	3.1%	2.5%	613	Televisions, Other Monitors, and CRTs	0.0%	0.0%	0
Magazines & Catalogs	0.5%	0.1%	94	All Other Electronics	0.2%	0.1%	39
OCC/Kraft Paper (Uncoated)	3.2%	1.2%	638	**Organics**	**40.1%**	**3.5%**	**8,018**
Compostable Paper	5.4%	1.4%	1,079	Food Waste	19.0%	4.3%	3,809
Aseptic Boxes & Gable Top Cartons	0.2%	0.1%	36	Textiles & Leather	10.6%	3.1%	2,118
Mixed Recyclable Paper (Low Grade)	4.4%	1.1%	877	Rubber Products	0.3%	0.2%	65
Office Paper (High Grade)	0.5%	0.2%	92	Disp. Diapers & Sanitary Prod.	6.0%	1.8%	1,197
Other Non-Recyclable Paper	1.3%	0.3%	252	Yard Waste	0.7%	0.5%	135
Plastics	**12.8%**	**1.6%**	**2,553**	Remainder/Composite Organics	3.5%	1.3%	694
PET (#1) Bottles Bev. - NY State Deposit	0.3%	0.1%	57	**Metals**	**2.9%**	**1.0%**	**583**
PET (#1) Bottles Bev. - Non-NYS Deposit	0.5%	0.2%	105	Steel Cans & Lids	0.7%	0.2%	131
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.3%	0.1%	60	Aerosol Cans	0.2%	0.1%	42
PET (#1) Non-bottle Containers	0.2%	0.1%	43	Other Ferrous Metals	0.9%	0.7%	183
HDPE (#2) Natural Bottles	0.3%	0.1%	57	Al Bev. Cans (NYS Deposit)	0.2%	0.1%	34
HDPE (#2) Colored Bottles	0.3%	0.1%	65	Al Bev. Cans (Non-NYS Deposit)	0.0%	0.0%	6
HDPE (#2) Non-Bottle Containers	0.0%	0.0%	8	Al Non-Beverage Containers	0.0%	0.0%	5
Rigid Plastic Cont. #3, #4, #6, and #7	0.8%	0.3%	164	Aluminum Foil & Trays	0.3%	0.1%	62
#5 Dairy Tubs	0.2%	0.1%	33	Other Non-Ferrous Metals	0.6%	0.3%	120
#5 Other Containers	0.7%	0.2%	134	**C&D Materials**	**10.9%**	**5.7%**	**2,179**
Expanded Polystyrene "Styrofoam"	0.6%	0.2%	127	Wood – Treated/Painted/Stained	2.6%	1.3%	514
Retail Film Bags	1.3%	0.3%	268	Wood – Untreated/Clean	0.3%	0.3%	67
Consumer/Commercial Film	0.0%	0.0%	4	Drywall/Gypsum Board	0.0%	0.0%	0
All Other Film	3.4%	0.7%	674	Asphalt Roofing	0.8%	0.9%	156
Flexible Packaging and Pouches	0.1%	0.0%	11	Asphalt Paving, Brick, Concrete, & Rock	1.5%	1.7%	301
Durable/Bulky Rigid Plastics	2.3%	1.1%	464	Carpet & Carpet Padding	4.9%	2.7%	989
Remainder/Composite Plastic	1.4%	0.3%	280	Remainder/Composite C&D	0.8%	0.7%	152
Glass	**2.2%**	**0.8%**	**437**	**HHW**	**0.8%**	**0.8%**	**160**
Glass Beverage Containers - NY State Deposit	0.2%	0.1%	46	Household Hazardous Waste or HHW	0.6%	0.5%	119
All Other Glass Bev. Cont. - Non Deposit	0.2%	0.1%	38	Batteries (All Types)	0.1%	0.1%	16
All Other Glass Food Containers & Jars	0.4%	0.1%	79	Medically-Related Waste	0.1%	0.1%	25
Wine Bottles	0.3%	0.2%	58	**Other Materials**	**11.8%**	**4.1%**	**2,365**
Spirit (Liquor) Bottles	0.7%	0.3%	135	Dirt & Fines	5.3%	1.3%	1,060
Ceramic Containers & Clay Pots	0.1%	0.1%	15	Bulky Materials	6.3%	3.3%	1,262
Remainder/Composite Glass	0.3%	0.2%	66	Other Mat'ls Not Elsewhere Classified	0.2%	0.1%	43
				Grand Total	**100%**		**20,015**
				No. of Samples	***16***		

Table A-5 2019 Detailed ICI Waste Composition

Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**23.2%**	**2.5%**	**31,977**	**Electronics**	**0.5%**	**1.2%**	**702**
Newspaper	1.1%	0.5%	1,494	Televisions, Other Monitors, and CRTs	0.4%	0.4%	531
Magazines & Catalogs	0.3%	0.1%	353	All Other Electronics	0.1%	0.1%	171
OCC/Kraft Paper (Uncoated)	7.1%	1.5%	9,768	**Organics**	**31.1%**	**3.9%**	**42,903**
Compostable Paper	7.9%	1.5%	10,887	Food Waste	23.8%	4.1%	32,772
Aseptic Boxes & Gable Top Cartons	0.2%	0.1%	223	Textiles & Leather	2.8%	0.9%	3,919
Mixed Recyclable Paper (Low Grade)	3.1%	0.7%	4,318	Rubber Products	0.9%	0.3%	1,286
Office Paper (High Grade)	0.9%	0.5%	1,231	Disp. Diapers & Sanitary Prod.	1.5%	0.4%	2,007
Other Non-Recyclable Paper	2.7%	0.7%	3,701	Yard Waste	0.9%	0.5%	1,244
Plastics	**22.2%**	**4.5%**	**30,572**	Remainder/Composite Organics	1.2%	0.4%	1,675
PET (#1) Bottles Bev. - NY State Deposit	0.3%	0.1%	384	**Metals**	**3.3%**	**1.3%**	**4,481**
PET (#1) Bottles Bev. - Non-NYS Deposit	0.4%	0.1%	489	Steel Cans & Lids	0.2%	0.1%	299
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.1%	0.0%	130	Aerosol Cans	0.1%	0.0%	121
PET (#1) Non-bottle Containers	0.2%	0.1%	339	Other Ferrous Metals	2.1%	0.8%	2,886
HDPE (#2) Natural Bottles	0.2%	0.1%	339	Al Bev. Cans (NYS Deposit)	0.1%	0.0%	159
HDPE (#2) Colored Bottles	0.3%	0.1%	347	Al Bev. Cans (Non-NYS Deposit)	0.1%	0.1%	108
HDPE (#2) Non-Bottle Containers	0.8%	0.9%	1,135	Al Non-Beverage Containers	0.0%	0.0%	15
Rigid Plastic Cont. #3, #4, #6, and #7	0.4%	0.1%	585	Aluminum Foil & Trays	0.2%	0.1%	332
#5 Dairy Tubs	0.1%	0.0%	93	Other Non-Ferrous Metals	0.4%	0.3%	562
#5 Other Containers	0.5%	0.1%	745	**C&D Materials**	**7.6%**	**2.8%**	**10,536**
Expanded Polystyrene "Styrofoam"	1.0%	0.6%	1,384	Wood – Treated/Painted/Stained	1.3%	0.8%	1,847
Retail Film Bags	0.5%	0.1%	630	Wood – Untreated/Clean	2.7%	1.0%	3,663
Consumer/Commercial Film	5.2%	2.2%	7,161	Drywall/Gypsum Board	0.4%	0.4%	538
All Other Film	6.1%	1.1%	8,420	Asphalt Roofing	0.4%	0.4%	519
Flexible Packaging and Pouches	0.1%	0.1%	123	Asphalt Paving, Brick, Concrete, & Rock	0.3%	0.3%	383
Durable/Bulky Rigid Plastics	2.9%	1.2%	4,061	Carpet & Carpet Padding	1.4%	1.1%	1,888
Remainder/Composite Plastic	3.1%	1.2%	4,205	Remainder/Composite C&D	1.2%	0.7%	1,698
Glass	**3.0%**	**1.6%**	**4,164**	**HHW**	**1.3%**	**1.4%**	**1,823**
Glass Beverage Containers - NY State Deposit	0.2%	0.1%	281	Household Hazardous Waste or HHW	0.2%	0.1%	256
All Other Glass Bev. Cont. - Non Deposit	0.2%	0.1%	311	Batteries (All Types)	0.0%	0.0%	26
All Other Glass Food Containers & Jars	0.2%	0.1%	218	Medically-Related Waste	1.1%	0.7%	1,541
Wine Bottles	0.3%	0.2%	380	**Other Materials**	**7.7%**	**2.2%**	**10,598**
Spirit (Liquor) Bottles	0.4%	0.3%	510	Dirt & Fines	5.2%	1.0%	7,200
Ceramic Containers & Clay Pots	0.2%	0.1%	310	Bulky Materials	2.3%	1.3%	3,185
Remainder/Composite Glass	1.6%	1.0%	2,154	Other Mat'ls Not Elsewhere Classified	0.2%	0.1%	213
				Grand Total	**100%**		**137,755**
				No. of Samples	***44***		

Table A-6 C&D Waste Detailed Composition

Material Category	Est. Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Est. Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**2.2%**	**0.7%**	**1,208**	**Wood**	**30.1%**	**4.0%**	**16,512**
Uncoated OCC - Recyclable	1.6%	0.5%	893	Pallets and Crates	5.8%	1.8%	3,199
Other Paper	0.6%	0.5%	315	Untreated/Unpainted Wood	3.4%	1.1%	1,880
Plastics	**1.5%**	**0.5%**	**818**	Treated/Painted/Stained Wood	8.3%	2.2%	4,524
HDPE Buckets	0.0%	0.0%	19	Engineered Wood	8.4%	1.8%	4,609
Tyvek Building wrap	0.0%	0.0%	0	Wood Furniture	3.9%	2.0%	2,154
Film Plastic (commercial/industrial)	0.2%	0.1%	90	Other Wood	0.3%	0.3%	146
Plastic furniture	0.1%	0.0%	33	**C&D Materials**	**52.0%**	**10.9%**	**28,537**
Durable plastic items	0.7%	0.3%	391	Rock/Gravel	1.0%	1.5%	534
Composite/Other Plastic (flooring, knobs, etc.)	0.5%	0.3%	285	Concrete, Brick, Block	17.5%	8.2%	9,572
Glass	**2.6%**	**2.1%**	**1,427**	Asphalt	0.0%	0.0%	0
All Glass Materials	2.6%	2.1%	1,427	Gypsum Wallboard - Clean	3.7%	1.8%	2,030
Metals	**3.1%**	**2.4%**	**1,714**	Gypsum Wallboard - Painted	7.2%	2.3%	3,963
Ferrous Scrap	2.5%	2.3%	1,398	Roofing Shingles	8.7%	4.6%	4,764
Non-Ferrous Scrap	0.6%	0.3%	316	Carpet	1.7%	0.5%	939
Organics	**4.4%**	**3.9%**	**2,432**	Carpet Padding	0.2%	0.1%	98
Yard Waste	0.2%	0.1%	85	Ceramics/Porcelain Fixture	2.1%	1.6%	1,136
Dirt/Sand	4.3%	3.8%	2,347	HVAC Ducting	0.0%	0.0%	15
Other Wastes	**4.0%**	**1.2%**	**2,185**	Tires	0.0%	0.0%	4
E-Waste	0.1%	0.1%	54	Appliances	0.1%	0.0%	32
Bulky Items (inc. mattresses)	2.4%	1.1%	1,301	Remainder/Composite C&D	9.9%	3.0%	5,450
Mixed MSW	1.5%	0.3%	830				
				Grand Total	**100%**		**54,832**
				No. of Samples	***133***		

Table A-7 Detailed Aggregate Recycling Composition

Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**65.1%**	**2.3%**	**25,442**	**Electronics**	**0.1%**	**0.3%**	**55**
Newspaper	10.8%	1.3%	4,223	Televisions, Other Monitors, and CRTs	0.0%	0.0%	0
Newspapers in Sleeves	0.4%	0.2%	166	All Other Electronics	0.1%	0.1%	55
Magazines & Catalogs	4.7%	0.6%	1,843	**Organics**	**2.6%**	**0.4%**	**1,000**
OCC/Kraft Paper (Uncoated)	28.3%	3.0%	11,048	Food Waste	1.8%	0.3%	710
Compostable Paper	1.0%	0.1%	380	Textiles & Leather	0.3%	0.1%	116
Aseptic Boxes & Gable Top Cartons	0.4%	0.0%	171	Rubber Products	0.1%	0.0%	25
Mixed Recyclable Paper (Low Grade)	15.8%	1.4%	6,180	Disp. Diapers & Sanitary Prod.	0.1%	0.0%	45
Office Paper (High Grade)	2.3%	0.8%	880	Yard Waste	0.0%	0.0%	2
Other Non-Recyclable Paper	1.4%	0.2%	549	Remainder/Composite Organics	0.3%	0.0%	101
Plastics	**12.3%**	**1.0%**	**4,806**	**Metals**	**3.9%**	**0.4%**	**1,543**
PET (#1) Bottles Bev. - NY State Deposit	0.4%	0.0%	153	Steel Cans & Lids	2.4%	0.3%	955
PET (#1) Bottles Bev. - Non-NYS Deposit	1.9%	0.2%	731	Aerosol Cans	0.2%	0.0%	68
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.9%	0.1%	347	Other Ferrous Metals	0.6%	0.2%	218
PET (#1) Non-bottle Containers	0.8%	0.1%	324	Al Bev. Cans (NYS Deposit)	0.2%	0.0%	79
HDPE (#2) Natural Bottles	1.1%	0.1%	442	Al Bev. Cans (Non-NYS Deposit)	0.1%	0.0%	37
HDPE (#2) Colored Bottles	1.9%	0.2%	746	Al Non-Beverage Containers	0.1%	0.0%	57
HDPE (#2) Non-Bottle Containers	0.2%	0.1%	70	Aluminum Foil & Trays	0.1%	0.0%	32
Rigid Plastic Cont. #3, #4, #6, and #7	0.3%	0.1%	124	Other Non-Ferrous Metals	0.2%	0.1%	97
#5 Dairy Tubs	0.2%	0.0%	68	**C&D Materials**	**0.3%**	**0.2%**	**108**
#5 Other Containers	0.6%	0.1%	225	Wood – Treated/Painted/Stained	0.1%	0.1%	44
Expanded Polystyrene "Styrofoam"	0.1%	0.0%	56	Wood – Untreated/Clean	0.0%	0.0%	7
Retail Film Bags	0.2%	0.0%	90	Drywall/Gypsum Board	0.0%	0.0%	4
Consumer/Commercial Film	0.1%	0.0%	42	Asphalt Roofing	0.0%	0.0%	0
All Other Film	0.8%	0.1%	296	Asphalt Paving, Brick, Concrete, & Rock	0.0%	0.0%	2
Flexible Packaging and Pouches	0.0%	0.0%	4	Carpet & Carpet Padding	0.0%	0.0%	1
Durable/Bulky Rigid Plastics	1.4%	0.4%	547	Remainder/Composite C&D	0.1%	0.1%	50
Remainder/Composite Plastic	1.4%	0.3%	539	**HHW**	**0.0%**	**0.1%**	**17**
Glass	**11.2%**	**1.1%**	**4,369**	Household Hazardous Waste or HHW	0.0%	0.0%	10
Glass Beverage Containers - NY State Deposit	0.8%	0.1%	326	Batteries (All Types)	0.0%	0.0%	4
All Other Glass Bev. Cont. - Non Deposit	0.8%	0.1%	319	Medically-Related Waste	0.0%	0.0%	4
All Other Glass Food Containers & Jars	2.4%	0.3%	945	**Other Materials**	**4.5%**	**1.2%**	**1,757**
Wine Bottles	3.9%	0.5%	1,535	Dirt & Fines	4.0%	0.7%	1,569
Spirit (Liquor) Bottles	1.5%	0.2%	578	Bulky Materials	0.0%	0.0%	0
Ceramic Containers & Clay Pots	0.1%	0.0%	58	Other Mat'ls Not Elsewhere Classified	0.1%	0.0%	56
Remainder/Composite Glass	1.6%	0.3%	607	Tanglers	0.3%	0.1%	131
				Bagged Material	N/A	N/A	N/A
				Grand Total	**100%**		**39,096**
				No. of Samples	***94***		

Table A-8 Detailed Single-Family Recycling Composition

Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**65.0%**	**2.4%**	**22,039**	**Electronics**	**0.2%**	**0.3%**	**55**
Newspaper	10.3%	1.2%	3,480	Televisions, Other Monitors, and CRTs	0.0%	0.0%	0
Newspapers in Sleeves	0.5%	0.3%	166	All Other Electronics	0.2%	0.1%	55
Magazines & Catalogs	5.0%	0.7%	1,680	**Organics**	**1.6%**	**0.3%**	**527**
OCC/Kraft Paper (Uncoated)	27.5%	3.2%	9,308	Food Waste	1.1%	0.2%	364
Compostable Paper	0.8%	0.1%	284	Textiles & Leather	0.2%	0.1%	81
Aseptic Boxes & Gable Top Cartons	0.4%	0.1%	150	Rubber Products	0.1%	0.0%	24
Mixed Recyclable Paper (Low Grade)	16.6%	1.5%	5,615	Disp. Diapers & Sanitary Prod.	0.1%	0.0%	29
Office Paper (High Grade)	2.5%	1.0%	856	Yard Waste	0.0%	0.0%	2
Other Non-Recyclable Paper	1.5%	0.2%	499	Remainder/Composite Organics	0.1%	0.0%	27
Plastics	**11.9%**	**1.0%**	**4,019**	**Metals**	**4.1%**	**0.4%**	**1,406**
PET (#1) Bottles Bev. - NY State Deposit	0.4%	0.0%	124	Steel Cans & Lids	2.7%	0.3%	902
PET (#1) Bottles Bev. - Non-NYS Deposit	2.0%	0.2%	670	Aerosol Cans	0.2%	0.0%	62
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.9%	0.1%	319	Other Ferrous Metals	0.5%	0.2%	171
PET (#1) Non-bottle Containers	0.9%	0.1%	304	Al Bev. Cans (NYS Deposit)	0.2%	0.0%	66
HDPE (#2) Natural Bottles	1.2%	0.2%	399	Al Bev. Cans (Non-NYS Deposit)	0.1%	0.0%	32
HDPE (#2) Colored Bottles	2.0%	0.2%	684	Al Non-Beverage Containers	0.2%	0.0%	53
HDPE (#2) Non-Bottle Containers	0.2%	0.1%	62	Aluminum Foil & Trays	0.1%	0.0%	28
Rigid Plastic Cont. #3, #4, #6, and #7	0.3%	0.1%	104	Other Non-Ferrous Metals	0.3%	0.1%	92
#5 Dairy Tubs	0.2%	0.0%	62	**C&D Materials**	**0.2%**	**0.1%**	**74**
#5 Other Containers	0.6%	0.1%	198	Wood – Treated/Painted/Stained	0.1%	0.0%	20
Expanded Polystyrene "Styrofoam"	0.1%	0.0%	42	Wood – Untreated/Clean	0.0%	0.0%	7
Retail Film Bags	0.2%	0.0%	66	Drywall/Gypsum Board	0.0%	0.0%	4
Consumer/Commercial Film	0.1%	0.0%	28	Asphalt Roofing	0.0%	0.0%	0
All Other Film	0.7%	0.2%	232	Asphalt Paving, Brick, Concrete, & Rock	0.0%	0.0%	2
Flexible Packaging and Pouches	0.0%	0.0%	3	Carpet & Carpet Padding	0.0%	0.0%	1
Durable/Bulky Rigid Plastics	1.1%	0.3%	372	Remainder/Composite C&D	0.1%	0.1%	41
Remainder/Composite Plastic	1.0%	0.2%	351	**HHW**	**0.0%**	**0.1%**	**15**
Glass	**12.0%**	**1.2%**	**4,075**	Household Hazardous Waste or HHW	0.0%	0.0%	10
Glass Beverage Containers - NY State Deposit	0.7%	0.1%	252	Batteries (All Types)	0.0%	0.0%	3
All Other Glass Bev. Cont. - Non Deposit	0.9%	0.1%	293	Medically-Related Waste	0.0%	0.0%	3
All Other Glass Food Containers & Jars	2.6%	0.3%	882	**Other Materials**	**5.0%**	**1.2%**	**1,683**
Wine Bottles	4.3%	0.6%	1,462	Dirt & Fines	4.5%	0.8%	1,513
Spirit (Liquor) Bottles	1.6%	0.2%	534	Bulky Materials	0.0%	0.0%	0
Ceramic Containers & Clay Pots	0.2%	0.1%	57	Other Mat'ls Not Elsewhere Classified	0.1%	0.0%	43
Remainder/Composite Glass	1.8%	0.3%	594	Tanglers	0.4%	0.2%	126
				Bagged Material	N/A	N/A	N/A
				Grand Total	**100%**		**33,892**
				No. of Samples	***81***		

Table A-9 Detailed Multi-family Recycling Composition

Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons	Material Category	Mean Percent	Conf. Int (+/-)	Est. Annual Tons
Paper	**65.4%**	**6.3%**	**3,403**	**Electronics**	**0.0%**	**0.0%**	**0**
Newspaper	14.3%	6.3%	743	Televisions, Other Monitors, and CRTs	0.0%	0.0%	0
Newspapers in Sleeves	0.0%	0.0%	0	All Other Electronics	0.0%	0.0%	0
Magazines & Catalogs	3.1%	1.6%	163	**Organics**	**9.1%**	**2.4%**	**473**
OCC/Kraft Paper (Uncoated)	33.5%	8.6%	1,741	Food Waste	6.7%	1.9%	346
Compostable Paper	1.8%	0.4%	96	Textiles & Leather	0.7%	0.2%	35
Aseptic Boxes & Gable Top Cartons	0.4%	0.1%	21	Rubber Products	0.0%	0.0%	1
Mixed Recyclable Paper (Low Grade)	10.9%	2.9%	565	Disp. Diapers & Sanitary Prod.	0.3%	0.2%	16
Office Paper (High Grade)	0.5%	0.1%	24	Yard Waste	0.0%	0.0%	0
Other Non-Recyclable Paper	1.0%	0.3%	50	Remainder/Composite Organics	1.4%	0.1%	75
Plastics	**15.1%**	**4.0%**	**787**	**Metals**	**2.6%**	**0.9%**	**137**
PET (#1) Bottles Bev. - NY State Deposit	0.6%	0.1%	30	Steel Cans & Lids	1.0%	0.3%	54
PET (#1) Bottles Bev. - Non-NYS Deposit	1.2%	0.3%	62	Aerosol Cans	0.1%	0.1%	6
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	0.5%	0.2%	28	Other Ferrous Metals	0.9%	0.6%	47
PET (#1) Non-bottle Containers	0.4%	0.1%	20	Al Bev. Cans (NYS Deposit)	0.3%	0.1%	13
HDPE (#2) Natural Bottles	0.8%	0.3%	44	Al Bev. Cans (Non-NYS Deposit)	0.1%	0.0%	5
HDPE (#2) Colored Bottles	1.2%	0.3%	62	Al Non-Beverage Containers	0.1%	0.1%	5
HDPE (#2) Non-Bottle Containers	0.2%	0.1%	8	Aluminum Foil & Trays	0.1%	0.0%	4
Rigid Plastic Cont. #3, #4, #6, and #7	0.4%	0.1%	20	Other Non-Ferrous Metals	0.1%	0.0%	4
#5 Dairy Tubs	0.1%	0.1%	7	**C&D Materials**	**0.6%**	**1.0%**	**34**
#5 Other Containers	0.5%	0.1%	27	Wood – Treated/Painted/Stained	0.5%	0.5%	24
Expanded Polystyrene "Styrofoam"	0.3%	0.1%	14	Wood – Untreated/Clean	0.0%	0.0%	0
Retail Film Bags	0.5%	0.1%	24	Drywall/Gypsum Board	0.0%	0.0%	0
Consumer/Commercial Film	0.3%	0.2%	15	Asphalt Roofing	0.0%	0.0%	0
All Other Film	1.2%	0.2%	64	Asphalt Paving, Brick, Concrete, & Rock	0.0%	0.0%	0
Flexible Packaging and Pouches	0.0%	0.0%	1	Carpet & Carpet Padding	0.0%	0.0%	0
Durable/Bulky Rigid Plastics	3.4%	2.4%	176	Remainder/Composite C&D	0.2%	0.2%	9
Remainder/Composite Plastic	3.6%	2.4%	188	**HHW**	**0.0%**	**0.1%**	**2**
Glass	**5.6%**	**1.6%**	**294**	Household Hazardous Waste or HHW	0.0%	0.0%	0
Glass Beverage Containers - NY State Deposit	1.4%	0.6%	74	Batteries (All Types)	0.0%	0.0%	1
All Other Glass Bev. Cont. - Non Deposit	0.5%	0.2%	26	Medically-Related Waste	0.0%	0.0%	1
All Other Glass Food Containers & Jars	1.2%	0.3%	63	**Other Materials**	**1.4%**	**4.4%**	**75**
Wine Bottles	1.4%	0.5%	73	Dirt & Fines	1.1%	0.3%	56
Spirit (Liquor) Bottles	0.8%	0.4%	44	Bulky Materials	0.0%	0.0%	0
Ceramic Containers & Clay Pots	0.0%	0.0%	1	Other Mat'ls Not Elsewhere Classified	0.3%	0.2%	13
Remainder/Composite Glass	0.2%	0.1%	13	Tanglers	0.1%	0.1%	5
				Bagged Material	N/A	N/A	N/A
				Grand Total	**100%**		**5,204**
				No. of Samples	***13***		

Table A-10 2019 Detailed Composition Comparison of Curbside and Multi-Family Bagged Materials

Material Category	Single-family Bagged	Multi-family Bagged	Material Category	Single-family Bagged	Multi-family Bagged
Paper	**42.8%**	**31.0%**	**Electronics**	**0.0%**	**0.0%**
Newspaper	4.4%	3.0%	Televisions, Other Monitors, and CRTs	0.0%	0.0%
Newspapers in Sleeves	0.0%	0.0%	All Other Electronics	0.0%	0.0%
Magazines & Catalogs	7.0%	2.1%	**Organics**	**7.7%**	**31.1%**
OCC/Kraft Paper (Uncoated)	10.3%	6.2%	Food Waste	4.4%	18.2%
Compostable Paper	3.3%	6.4%	Textiles & Leather	1.2%	1.9%
Aseptic Boxes & Gable Top Cartons	0.6%	0.9%	Rubber Products	0.4%	0.1%
Mixed Recyclable Paper (Low Grade)	14.2%	9.5%	Disp. Diapers & Sanitary Prod.	1.6%	0.8%
Office Paper (High Grade)	1.2%	1.7%	Yard Waste	0.0%	0.0%
Other Non-Recyclable Paper	1.9%	1.3%	Remainder/Composite Organics	0.1%	10.0%
Plastics	**19.5%**	**22.8%**	**Metals**	**5.5%**	**3.0%**
PET (#1) Bottles Bev. - NY State Deposit	0.6%	1.4%	Steel Cans & Lids	4.1%	1.2%
PET (#1) Bottles Bev. - Non-NYS Deposit	2.3%	2.9%	Aerosol Cans	0.2%	0.2%
PET (#1) Bottles Non-Bev. - Non-NYS Deposit	2.1%	0.7%	Other Ferrous Metals	0.1%	0.3%
PET (#1) Non-bottle Containers	2.1%	0.3%	Al Bev. Cans (NYS Deposit)	0.8%	0.6%
HDPE (#2) Natural Bottles	1.2%	1.0%	Al Bev. Cans (Non-NYS Deposit)	0.0%	0.3%
HDPE (#2) Colored Bottles	1.9%	0.9%	Al Non-Beverage Containers	0.0%	0.0%
HDPE (#2) Non-Bottle Containers	0.0%	0.0%	Aluminum Foil & Trays	0.2%	0.2%
Rigid Plastic Cont. #3, #4, #6, and #7	0.5%	0.8%	Other Non-Ferrous Metals	0.0%	0.2%
#5 Dairy Tubs	0.4%	0.2%	**C&D Materials**	**0.4%**	**0.0%**
#5 Other Containers	1.2%	0.4%	Wood – Treated/Painted/Stained	0.3%	0.0%
Expanded Polystyrene "Styrofoam"	0.2%	0.7%	Wood – Untreated/Clean	0.1%	0.0%
Retail Film Bags	1.5%	1.3%	Drywall/Gypsum Board	0.0%	0.0%
Consumer/Commercial Film	0.2%	0.3%	Asphalt Roofing	0.0%	0.0%
All Other Film	2.8%	5.6%	Asphalt Paving, Brick, Concrete, & Rock	0.1%	0.0%
Flexible Packaging and Pouches	0.0%	0.1%	Carpet & Carpet Padding	0.0%	0.0%
Durable/Bulky Rigid Plastics	0.1%	0.0%	Remainder/Composite C&D	0.0%	0.0%
Remainder/Composite Plastic	2.6%	6.2%	**HHW**	**0.0%**	**0.1%**
Glass	**19.8%**	**9.2%**	Household Hazardous Waste or HHW	0.0%	0.0%
Glass Beverage Containers - NY State Deposit	2.6%	1.9%	Batteries (All Types)	0.0%	0.0%
All Other Glass Bev. Cont. - Non Deposit	1.8%	0.7%	Medically-Related Waste	0.0%	0.1%
All Other Glass Food Containers & Jars	3.6%	3.2%	**Other Materials**	**4.2%**	**2.8%**
Wine Bottles	6.3%	2.5%	Dirt & Fines	2.0%	2.3%
Spirit (Liquor) Bottles	3.0%	0.6%	Bulky Materials	0.0%	0.0%
Ceramic Containers & Clay Pots	0.5%	0.0%	Other Mat'ls Not Elsewhere Classified	0.2%	0.4%
Remainder/Composite Glass	2.0%	0.3%	Tanglers	1.9%	0.1%
			Bagged Material	N/A	N/A
			Grand Total	**100%**	**100%**
			No. of Samples	***6***	**2**

APPENDIX B

MATERIAL CATEGORY DEFINITIONS

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PAPER

1	NEWSPAPER: Paper used in newspapers and all items made from newsprint. Examples include newspapers and glossy inserts found in newspapers, and items such as free advertising guides, election guides, plain news packing paper, stapled college class schedules, and tax instruction booklets.
1R	NEWSPAPER IN SLEEVES (RECYCLING ONLY): Newspaper in plastic film sleeve
2	MAGAZINES & CATALOGS: Multi-page bound paper items (glued or stapled) made of glossy coated paper. This paper is usually slick, smooth to the touch, and reflects light. Examples include glossy magazines, catalogs, brochures, and pamphlets. Does not include newpaper inserts.
3	CORRUGATED CARDBOARD/KRAFT PAPER (UNCOATED): Corrugated boxes or paper bags made from Kraft paper. Wavy center layer sandwiched between two outer layers without wax coating on the inside or outside. Examples include cardboard shipping containers and moving boxes, computer packaging cartons, and sheets and pieces of boxes and cartons. Does not include chipboard. Examples of Kraft paper include paper grocery bags, un-soiled fast food bags, department store bags, and heavyweight sheets of Kraft packing paper. Relatively unsoiled pizza boxes acceptable.
4	COMPOSTABLE PAPER: Low-grade, biodegradable paper that cannot be recycled, as well as food contaminated paper. Examples include paper towels, napkins, paper plates, waxed papers and waxed cardboard, tissues, and unlined paper cups.
5	ASEPTIC BOXES & GABLE TOP CARTONS: Aseptic containers (multi-layered packaging that contains shelf-stable food products such as apple juice, soup, soy/rice milk, etc.) and "gable top" cartons (non-refrigerated items such as granola and crackers; refrigerated items such as milk, juice, egg substitutes, etc.). Rigid food and beverage cartons are usually paper-based, may be any shape, and may include a plastic pour spout as part of the carton.
6	MIXED RECYCLABLE PAPER (LOW GRADE): Recyclable paper other than the paper mentioned above. Examples include cereal boxes and other items made of chipboard or uncoated paperboard, junk mail, manila folders, manila envelopes, index cards, white envelopes, white window envelopes, notebook paper, carbonless forms, groundwood paper, softcover books, and deep-toned or fluorescent dyed paper.
7	OFFICE PAPER (HIGH GRADE): Paper that is free of ground wood fibers; usually sulfite or sulphate paper; includes office printing and writing papers such as white ledger, color ledger, envelopes, and computer printout paper, bond, rag, or stationary grade paper. This subtype does not include fluorescent-dyed paper or deep-tone dyed paper such a goldenrod colored paper.
8	OTHER NON-RECYCLABLE PAPER: Paper products made mostly of paper but combined with large amounts of other materials such as plastic, metal, glues, foil, and moisture. Examples include corrugated cardboard coated with plastic, cellulose insulation, blueprints, sepia, onion skin, foiled lined fast food wrappers, frozen juice containers, carbon paper, self-adhesive notes, hardcover books, and photographs.

PLASTIC

9	PET (#1) BOTTLES BEVERAGE - NY STATE DEPOSIT: Clear or colored PET Beverage bottles that also bear a NY State Deposit marking. The plastic resin number "1" is visible in the center of the triangular recycling symbol and may also bear the letters "PETE" or "PET". A PET container usually has a small dot left from the manufacturing process, not a seam. It does not turn white when bent.
10	PET (#1) BOTTLES BEVERAGE - NON-NYS DEPOSIT: Clear or colored PET Beverage Bottles that Do Not bear a NY State Deposit marking (may have other state deposit markings). The plastic resin number "1" is visible in the center of the. triangular recycling symbol and may also bear the letters "PETE" or "PET". A PET container usually has a small dot left from the manufacturing process, not a seam. It does not turn white when bent.
11	PET (#1) BOTTLES NON-BEVERAGE - NON-NYS DEPOSIT: Clear or colored PET Non-Beverage bottles that Do Not bear a NY State Deposit marking (may have other state deposit markings). The plastic resin number "1" is visible in the center of the. triangular recycling symbol and may also bear the letters "PETE" or "PET". A PET container usually has a small dot left from the manufacturing process, not a seam. It does not turn white when bent. This category only includes PET bottles that did not previously contain hazardous materials.
12	PET (#1) NON-BOTTLE CONTAINERS: Non-bottle containers such as PET jars, rectangular PET clamshell or tray containers used for produce; etc. The plastic resin number "1" is visible in the center of the triangular recycling symbol and may also bear the letters "PETE" or "PET". The color is usually transparent, green, or clear. This category only includes PET non-bottle containers that did not previously contain hazardous materials.

13	HDPE (#2) NATURAL BOTTLES : Natural colored HDPE bottles. This plastic is usually either cloudy white, allowing light to pass through it (natural). When marked for identification, it bears the number "2" in the triangular recycling symbol and may also bear the letters "HDPE. This category only includes HDPE bottles that did not previously contain hazardous materials.
14	HDPE (#2) COLORED BOTTLES: Colored HDPE bottles. In contrast with natural HDPE, the colored HDPE is usually a solid color and opaque. When marked for identification, it bears the number "2" in the triangular recycling symbol and may also bear the letters "HDPE. This category only includes HDPE bottles that did not previously contain hazardous materials.
15	HDPE (#2) NON-BOTTLE CONTAIENRS: Natural and colored HDPE jars and non-bottle containers. When marked for identification, it bears the number "2" in the triangular recycling symbol and may also bear the letters "HDPE. This category only includes HDPE containers that did not previously contain hazardous materials. Includes natural buckets, pails or paint cans made of HDPE and designed to hold 5 gallons or less of material.
16	RIGID PLASTIC CONTAINERS #3, #4, #6, AND #7 : Bottles, jars, containers, lids, and other packaging that are made of types of plastic other than PET (1), HDPE (2), or PP (5). Items may be made of vinyl, LDPE, PVC, PS, or other plastic. They may bear the number 3, 4, 6, or 7 in the triangular recycling symbol, or may bear no recycling symbol. Examples include clamshells, trays, tray lids, cups, bowls, plates, hardware and fastener packaging, detergent and cleaning products bottles, squeezable bottles, frozen food containers, microwave food trays,vitamin bottles, cookie trays found in cookie packages, small (less than 1 gallon) brittle (single-use) plant containers such as nursery pots and plant six-packs.
17	#5 DAIRY TUBS: Round or square-mouthed tubs specifically used for containing dairy products such as yogurt, cheese, butter spreads, and cream cheese. Typcially have wide mouths, tapered sides, and a slightly smaller base. When unused, may be found nested together in commercial loads.
18	#5 OTHER CONTAINERS: Other non-dairy containers bearing the #5 or PP resin symbol.
19	EXPANDED POLYSTYRENE "STYROFOAM": Food and Non-food packaging. Includes clamshell "Styrofoam" food containers, as well as cups, plates, and bowls. Includes finished products made of expanded polystyrene such as block Styrofoam padding and packing peanuts.
20	RETAIL FILM BAGS: Plastic retail bags used to contain merchandise to transport from the place of purchase, given out by the store with the purchase.
21	COMMERCIAL/CONSUMER FILM (CONSUMER PRODUCT FILM): Film plastic used to wrap merchandise to transport to the consumer. Includes dry-cleaning plastic bags, newspaper sleeves intended for one-time use, and non-bag commercial and industrial packaging film used for large-scale packaging or transport packaging. Examples include shrink-wrap, mattress bags, furniture wrap, and film bubble wrap.
22	ALL OTHER FILM: Plastic film or bags that are non-recyclable.Examples include garbage bags, and other types of plastic bags (sandwich bags, zip (recloseable) bags, produce bags, frozen vegetable bags), painting tarps, food wrappers such as candy-bar wrappers.
23	FLEXIBLE PACKAGING AND POUCHES: Plastic packaging and pouches made of thicker, multi-layer flexible material. May have a flat bottom so that package would stand up on its own, but not always. Material is thicker than potato chip bags and frozen vegetable bags. Includes plastic coffee bags like Starbucks and Peet's; Capri Sun pouches; baby food pouches – may have plastic screw top; soup pouches; salad dressing pouches; wine pouches; backpacking meals in pouches; soap refill pouches; laundry detergent pouches; and other similar items.
24	DURABLE/BULKY RIGID PLASTICS: Plastic items other than containers or film plastic, that are made to last for more than one use. These items may bear the numbers 1 through 7 in the triangular recycling symbol. Examples include crates, buckets (including 5-gallon buckets), baskets, totes, large plastic garbage cans, large tubs, large storage tubs/bins (usually with lids), flexible (non-brittle) and durable flower pots of 1 gallon size or larger, lawn furniture, large plastic toys, tool boxes, first aid boxes, and some sporting goods, CDs and their cases, plastic housewares such as durable (not single-use) dishes, cups, and cutlery.
25	REMAINDER/COMPOSITE PLASTIC: Plastic that cannot be put in any other type or subtype. Includes items made mostly of plastic but combined with other materials. Examples include auto parts made of plastic attached to metal, plastic drinking straws, produce trays, foam packing blocks (not including expanded polystyrene blocks), plastic strapping, handles and knobs, plastic lids, some kitchenware, toys, plastic string (as used for hay bales), and plastic rigid bubble/foil packaging (as for medications).

METAL

26 Steel or tin food or other containers.

27 Metal containers formerrly containing pressurized products for spray application. May include cans that formerly contained food products (non-stick spray or olive oil), or non-food items such as spray paints, hair sprays, etc. If significant product remains in the container (greater than the weight of the container), it shall instead be sorted in that product material category.

28 Any iron or steel that is magnetic or any stainless steel item. This type does not include tin/steel cans. Examples include structural steel beams, metal clothes hangers, metal pipes, stainless steel cookware, security bars, and scrap ferrous items. Also includes composite material that is mostly ferrous metal by weight.

29 Aluminum Beverage containers that bear a NY State Deposit marking (may have other state deposit markings).

30 Aluminum Beverage containers that DO NOT bear a NY State Deposit marking (may have other state deposit markings).

31 Container that is made mainly of aluminum that did not formerly contain a beverage. Examples include some pet food and meat (Spam) cans.

32 Aluminum foil or aluminum food trays. Does not include items significantly contaminated with food or other material.

33 Any metal item, other than aluminum cans, that is not stainless steel and that is not magnetic. These items may be made of aluminum, copper, brass, bronze, lead, zinc, or other metals. Examples include copper wire, shell casings, and brass pipe. Also includes composite material that is mostly non-ferrous metal by weight.

GLASS

34 GLASS BEVERAGE CONTAINERS - NY STATE DEPOSIT: Includes all NY State deposit glass beverage containers, regardless of color. Examples include beer and soft drink bottles.

35 ALL OTHER GLASS BEVERAGE CONTAINERS - NON NY STATE DEPOSIT: Includes all non-deposit glass beverage containers, regardless of color (may include deposit markings from other states). Examples include beer and soft drink bottles.

36 ALL OTHER GLASS FOOD CONTAINERS & JARS: All glass non-beverage containers, such as those for mayonnaise, jam jars, and other food and non-food products.

37 WINE BOTTLES: All glass wine bottles regardless of color.

38 SPIRIT (LIQUOR) BOTTLES: All glass hard liquor bottles (vodka, gin, rum, whiskey, liquors, etc.), regardless of color.

39 CERAMIC CONTAINERS & CLAY POTS: Not technically a glass product, but any non-C&D ceramics, porcelain, or clay pot type items.

40 REMAINDER/COMPOSITE GLASS : Glass that cannot be put in any other type. It includes items made mostly of glass but combined with other materials. Examples include Pyrex, Corningware, crystal and other glass tableware, mirrors, non-fluorescent light bulbs, auto windshields, laminated glass, or any curved glass. Uncoated plate glass - includes window and door glass, table-tops, and some auto glass (side windows).

ORGANICS

41 FOOD WASTE: Food wastes and scraps, including meat, bone, dairy, grains, rinds, teabags, coffee grounds with filters, etc. Excludes the weight of food containers, except when container weight is not appreciable compared to the food inside. Compostable peanuts, food packaging with food scraps, and small wooden produce crates are also included in this category.

42 TEXTILES & LEATHER: Includes clothing, fabrics, curtains, blankets, stuffed animals, and other cloth material. Also includes leather products including belts, leather handbags, purses, and wallets. This category includes footwear that is mostly cloth or leather. Does not include carpeting.

43 RUBBER PRODUCTS: Finished products and scrap materials made of natural and synthetic rubber, such as bathmats, inner tubes (not tires), rubber hoses, and foam rubber. Includes rubber gloves and footwear (if predominately rubber).

44 DISPOSABLE DIAPERS & SANITARY PRODUCTS: Adult and baby disposable diapers, and feminine hygiene products.

45 YARD WASTE: Plant material, including woody material, from any public or private landscapes. Examples include leaves, grass clippings, plants, brush and branch prunings and trimmings.

46 REMAINDER/COMPOSITE ORGANICS: Organic material that is not food or yard waste. Includes cork, popsicle sticks, hair, animal waste, cigarette butts, chopsticks, woven baskets, and small non-construction related wood products.

CONSTRUCTION & DEMOLITION WASTE

47 WOOD – TREATED/PAINTED/STAINED: Wood that contains an adhesive, paint, stain, fire retardant, pesticide or preservative. Does not include wood furniture.

48 WOOD – UNTREATED/CLEAN : Any wood which does not contain an adhesive, paint, stain, fire retardant, pesticide or preservative; includes such items as bulky wood waste or scraps from newly built wood products. Does not including land clearing debris or yard waste prunings and trimmings. The presences of nails or screws are acceptable.

49 DRYWALL/GYPSUM BOARD: Interior wall covering made of a sheet of gypsum sandwiched between paper layers. Examples include used or unused, broken or whole sheets of sheetrock, drywall, gypsum board, plasterboard, gypsum board, gyproc, and wallboard.

50 ASPHALT ROOFING: Composite shingles and other roofing material made with asphalt. Examples include asphalt shingles and attached roofing tar and tar paper.

51 ASPHALT PAVING, BRICK, CONCRETE, AND ROCK: Includes asphalt paving materials, set or unset, and all types of fire-clay bricks. Includes Portland cement mixtures (set or unset), with or without aggregate materials (gravel, etc.). Includes rock gravel larger than 2"in diameter.

52 CARPET & CARPET PADDING: Flooring applications consisting of various natural or synthetic fibers bonded to some type of backing material. Carpet padding may include plastic, foam, felt, or other material used under the carpet to provide insulation and padding.

53 REMAINDER/COMPOSITE CONSTRUCTION & DEMOLITION : Construction and demolition material that cannot be put in any other type or subtype. This type may include items from different types combined, which would be very hard to separate. Also includes fiberglass insulation, ceramic fixtures, and other miscellaneous C&D Materials not mentioned above.

HHW

54 HOUSEHOLD HAZARDOUS WASTE OR HHW: Hazardous household items containing paints, thinners, solvents, vehicle equipment fluids, cleaners, pesticides/herbicides and fertilizers. Includes fluorescent bulbs and CFLs, light ballasts, and mercury-containing devices.

55 BATTERIES (ALL TYPES): Dry batteries, rechargeable batteries and lead-acid batteries.

56 MEDICALLY-RELATED WASTE: Treated or untreated medical waste. Includes bandages, gauze, diabetic strips, syringes, needles, other sharps, and medical tubing. Includes similar items from veterinary usage, medical research, or industrial laboratories.

ELECTRONICS

57 TELEVISIONS, OTHER MONITORS, AND CRTS: Stand-alone display systems containing a CRT or any other type of display primarily intended to receive video programming via broadcast. Examples also include non-CRT units such as plasma and LCD monitors.

58 ALL OTHER ELECTRONICS: Includes personal computers, laptop computers, notebook computers, processors, keyboards, etc. Includes stereos, VCRs, DVD players, etc. This category does not include automated typewriters or typesetters.

OTHER

59 DIRT & FINES: Small mixed fragments 2" and smaller, and includes miscellaneous fines (paper, plastic, glass, etc.), sand, and dirt.

60 BULKY MATERIALS: Large, hard-to-handle items that are not defined separately. Examples include all sizes and types of furniture, mattresses, box springs, and base components.

61 OTHER MATERIALS NOT ELSEWHERE CLASSIFIED : Any other type of waste material not listed in any other sort category. Includes cosmetics, shampoos, lotions, etc.

62R TANGLERS (RECYCLING ONLY): Non-film bag materials that get entangled in MRF sorting equipment, such as hoses, coat hangers, electrical cords, rope, etc.

63R BAGGED MATERIAL (RECYCLING ONLY): Bagged materials present in recycling samples in which the contents cannot be readily identified as recyclables. The entire days's collection of bagged materials will be set aside on a daily basis and sorted as a separate recycling sample at the end of the day.

APPENDIX C

TABLET FIELD FORMS

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WasteInsight™

Onondaga County Waste Characterization Study

Back

Enter Sample Weights
Use this form to enter header information and sample weights by material categories for new samples. You may also update existing header and weight information for previously submitted samples.

Sample ID:
Add Samples

Sample Notes:
Enter any sample notes (separated with semi-colons) here...

Submit Sample

PRE-WEIGHT (lbs): 0.0

SORTED WEIGHT (lbs): 0.0

Facility:
select one

Generator:
select one

Stream:
Recycling

Origin:
Other (write-in):

Hauler:
Other (write-in):

Truck Type:
select one

Truck Number:

Load Weight (tons):

Ticket Number:

Pre-Weight Calculator:

1	Newspaper			0.00
1R	Newspapers in Sleeves			0.00
2	Magazines & Catalogs			0.00
3	OCC and Kraft Paper			0.00
4	Compostable Paper			0.00
5	Aseptic & Gable Top Containers			0.00
6	Mixed Recyclable Paper			0.00
7	High Grade Office Paper			0.00
8	Other Non-Recyclable Paper			0.00
9	#1 PET Bottles (NYS Deposit)			0.00
10	#1 PET Bottles Beverage (Non NYS Deposit)			0.00
11	#1 PET Bottles Non-Beverage (Non NYS Deposit)			0.00
12	#1 PET Non-Bottle Containers			0.00

WasteInsight™

Onondaga County C&D Visual Survey

Back

Enter Visual Estimates
Use this form to enter estimated percentages by material categories for new samples. You may also update existing percentages for previously submitted samples.

Sample ID:

Add Samples

Submit Sample

Sample Notes:

Enter any sample notes (separated with semi-colons) here...

Load Weight (tons):

Facility:

select one

Generator:

select one

Material:

select one

Hauler:

Other (write-in):

Truck Type:

select one

Truck Number:

Ticket Number:

Total Truck Volume (CY): 0.0

L (ft)	W (ft)	H (ft)	Area (CY)	(%)

Total Trailer Volume (CY): 0.0

L (ft)	W (ft)	H (ft)	Area (CY)	(%)

Sum of Groups (%):	--
Total Volume (CY):	0.0
Actual Weight (tons):	0.00
Actual Sum of Lbs.:	0
Sum of Estimated Lbs.:	0
Variance (%):	--

Paper (%)	Glass (%)	Organics (%)	C&D (%)
Plastic (%)	Metal (%)	Wood (%)	Other Wastes (%)

1	Uncoated OCC - Recyclable		0		0
2	Other Paper		0		0
3	HDPE Buckets		0		0
4	Tyvek Building wrap		0		0
5	Film Plastic (commercial/industrial)		0		0
6	Plastic furniture		0		0
7	Durable plastic items		0		0
8	Composite/Other Plastic (flooring, knobs, etc.)		0		0

OCRRA - Physical Sort Field Supervisor Daily Targeted Samples

Day _____ **Date** _____ **Location** _____

Sample Type	Generator Sector	Total Needed	Total Sampled
RES	Residential		
ICI	Commercial		
GEN	Multi-Family Generator		
	Total		

Supervisor Initials _____

			Generator %											
Sample #	**Gen Sector**	**Res**	**MF**	**ICI**	**Date**	**Time**	**Truck Type**	**Hauler**	**City/Town of Origin**	**Load Weight**	**Ticket Number**	**Truck #**	**Special Generator**

Notes _____

MSW CONSULTANTS

11875 High Tech Avenue
Suite 150, Orlando, FL 32817

800-679-9220 | mswconsultants.com

APPENDIX K-1: Quarterly Recycling Reports (2020 – Quarter 1)

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Quarterly Recycling Report

2020 – 1st Quarter

Onondaga County
Resource Recovery Agency

May 2020

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1.0 INTRODUCTION

This Quarterly Recycling Report has been prepared consistent with the requirements of Permit ID 7-3142-00028/00011 (Onondaga County Resource Recovery Facility [OCRRF], Solid Waste Management Permit) Section 6, Item C and Permit ID 7-3148-00048/00003 (Ley Creek Transfer Station, Solid Waste Management Permit) Section 22, Item C.

It should be noted that quarterly reporting related to recycling, as described in the above cited permits, was discontinued in 2001 per verbal direction from the New York State Department of Environmental Conversation (DEC). Quarterly reporting related to recycling has been re-established by Onondaga Resource Recovery Agency (OCRRA) beginning the first quarter of 2020. This reporting has been re-established to document significant changing trends in recycling.

This report presents data on OCRRA's residential blue bin curbside recycling program only. In 2019, this program collected 36,974 tons of materials from the blue bins of 180,000 households in OCRRA's service area having a population of approximately 457,000. Additional mandatory and voluntary recycling is generated by private commercial entities, as well as public and private institutions. These additional recycling sources are tracked and tabulated by OCRRA and reported to the DEC on an annual basis and can be found at *https://ocrra.org/about-us/information/reports-and-policies/*.

In addition to residential blue bin curbside recycling, OCRRA's comprehensive recycling program operates two composting sites; provides household hazardous waste (HHW) collection; provides battery collection; organizes various public recycling events (e.g., Earth Day Litter Cleanup, "Shred-o-Rama", mercury collection); and collaborates with partners to divert textiles and thin film plastics for recycling "outside the bin." The comprehensive recycling program is further reported on an annual basis as described above. The OCRRA residential blue bin curbside recycling system is comprised of:

- contracted arrangements with a private MRF operator to process and market recyclables;
- contracted agreements with public and private haulers to deliver recyclable materials for a $0 tip fee;
- distribution of blue bins for residential use; and
- sophisticated and widespread public education and outreach.

Of OCRRA's total recycling tonnage, the residential blue bin curbside recycling accounts for approximately 8% of 2019's total mandatory and voluntary recycling, or 25% of 2019's total mandatory/processible recycling tonnage, as reported in the *2019 Annual Report of Recyclables Recovered* (OCRRA, March 1, 2020).

OCRRA first documented recycling challenges within *Recycling 2020: Report and Recommendations* (OCRRA, January 2020). Consistent with the findings of that report, Sections 3 and 4 of this report, below, include data for curbside recyclable materials that substantiates the absence of an economic market. In light of the economics associated with OCRRA's residential blue bin curbside recycling program, it is not reasonable and technically feasible to continue recycling as we currently do.

2.0 MONTHLY RECYLABLES TONNAGE AND VALUE BY CATEGORY

Table 1, below, provides a monthly breakdown of the recyclables recovered in residential blue bin curbside recycling by material category, including relevant economic data for each category.

Table 1 – Monthly Recyclables by Category

Material Category	January 2020			February 2020			March 2020		
	Tonnage[1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage[1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage[1]	Market Value per ton[2]	Actual Value per ton[3]
OCC (cardboard)	409.6	$30	--	320.5	$35	--	416.9	$50	--
Mixed Paper	1,581.3	$0	<-$30	1,237.4	-$5	<-$44	1,609.1	-$5	<-$51
Aluminum Cans	1.1	$1,040	--	0.9	$1,040	--	1.2	$1,040	--
Steel Cans	72.2	$15	--	56.5	$15	--	73.5	$15	--
HDPE Natural (#2)	23.8	$1,270	--	18.6	$1,220	--	24.2	$800	--
HDPE Color (#2)	45.6	$320	--	35.7	$180	--	46.4	$180	--
PET (#1)	47.9	$220	--	37.5	$230	--	48.4	$230	--
Plastics 3-7	35.7	N/A	<-$3	27.9	N/A	<-$3	36.2	N/A	<-$3
Glass	530.6	N/A	<-$18	415.2	N/A	<-$25	539.9	N/A	<-$24
Non-Recyclables[4]	85.0	N/A	<-$173	66.5	N/A	<-$173	86.5	N/A	<-$173
Average Blended Value per Ton[5]	--	**$1.82**	**--**	--	**-$4.08**	**--**	--	**-$5.29**	**--**
Actual Cost per Ton[6]		**--**	**-$64.18**		**--**	**-$70.08**		**--**	**-$71.29**
Approximate Total Agency Costs	**2,833**	**$181,820**		**2,217**	**$155,370**		**2,882**	**$205,460**	

Notes:

1. Tonnage based on monthly incoming scale data and current composition percentage of each material category as agreed upon and calculated by OCRRA and the MRF Contractor as follows: OCC Cardboard 14.46%; Mixed Paper 55.82%; Aluminum Cans 0.04%; Steel Cans 2.55%; HDPE Natural #2 0.84%; HDPE Color #2 1.61%; PET #1 1.69%; Plastics 3-7 1.26%; Glass 18.73%; and Non-Recyclables 3.0%.
2. Market value based on various sources for the 1st issue/1st full week of the month one month prior to the date shown as follows:
   a. OCC Cardboard: Fastmarkets RISI Pulp & Paper Week (PPW) for the Buffalo Region, Domestic Price OCC #11
   b. Mixed Paper: PPW for the Buffalo Region, Domestic Price # 54 Mixed Paper
   c. Aluminum Cans: www.secondarymaterialspricing.com for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, delivered
   d. Steel Cans: SMP for Steel Cans, sorted, densified, delivered
   e. HDPE Natural #2: SMP for Natural HDPE, baled, picked up
   f. HDPE Color #2: SMP for Colored HDPE, baled, picked up
   g. PET #1: SMP for PET, baled, picked up
3. Actual value based on the average price paid or charged to the processing facility during the months of delivery, less any freight or other charges paid to third parties. These values were reported by the MRF Contractor.
4. Non-recyclables include those materials that require disposal and cannot be recycled. Actual value includes cost of transportation and disposal costs.
5. Average blended value is based on average blended value as determined on current composition percentage of each material category as described in Note 1. The composition percentages are applied to market values minus any factors assumed to account for significant costs associated with moving materials to market (i.e., a factor of -$25/ton for mixed paper and -$500/ton for aluminum cans).
6. Actual cost per ton includes the average blended value plus additional costs associated with marketing and processing materials (i.e., sorting, baling, marketing and transporting) of -$66/ton for 2020.

3.0 ECONOMIC DATA

Figures 1 through 8, below, provide the historical data for the market value for material categories. It should be noted that gaps in data are shown and that market values are based on industry standard information as cited in Table 1, Note 2 with the following exceptions:

- Beginning in 2020, the market value for mixed paper is based on a $25 per ton reduction to market prices per PPW for the Buffalo Region, Domestic Price # 54 Mixed Paper.*
- Beginning in 2020, the market value for aluminum cans is based on a $0.25 per pound ($500 per ton) reduction to market prices per *www.secondarymaterialspricing.com* for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, delivered.*
- Economic data for glass has not been prepared because glass always incurs a cost for disposal at local landfills to be used as Alternative Operating Cover (AOC).

Figure 1 - OCC Economic Data

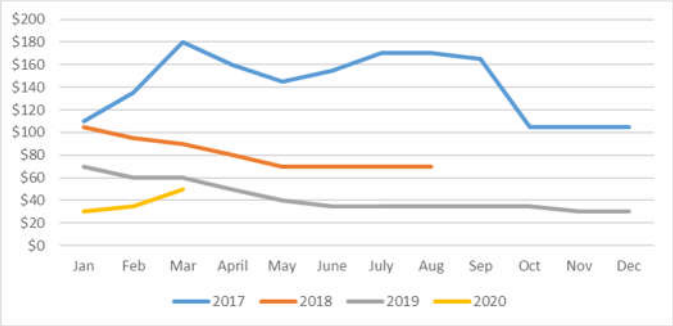


Figure 2 – Mixed Paper Economic Data

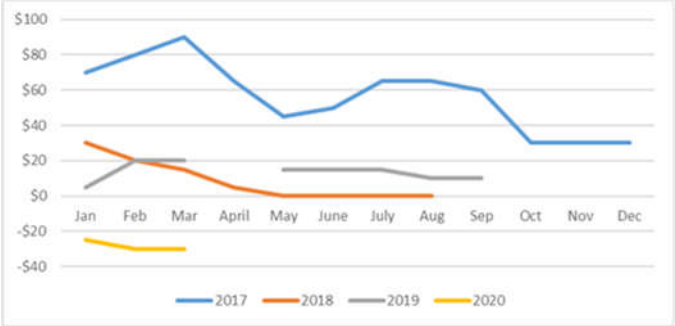


Figure 3 – Aluminum Cans Economic Data

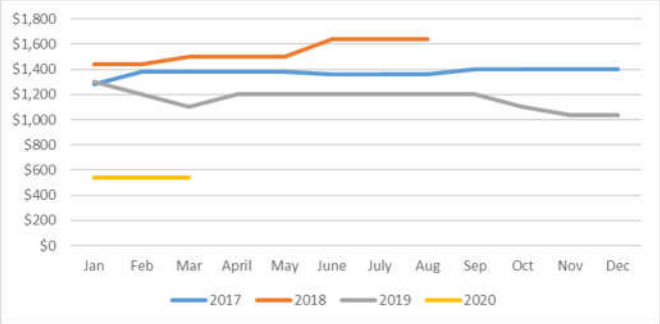
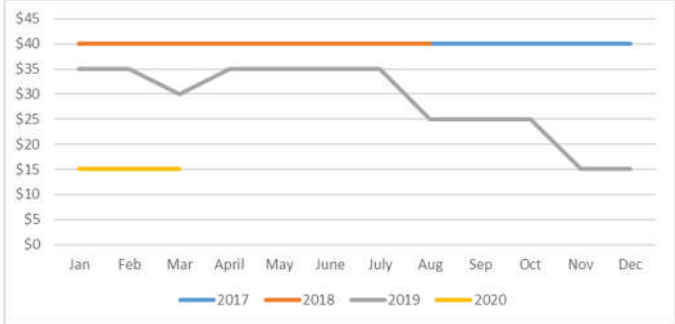


Figure 4 – Steel Cans Economic Data



* Added May 26, 2020

Figure 5 – HDPE Natural (#2) Economic Data*

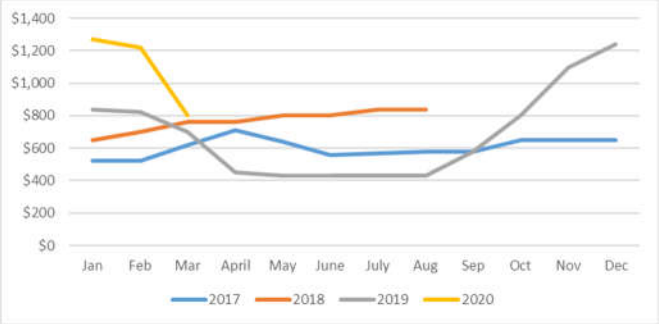


Figure 6 – HDPE Color (#2) Economic Data*

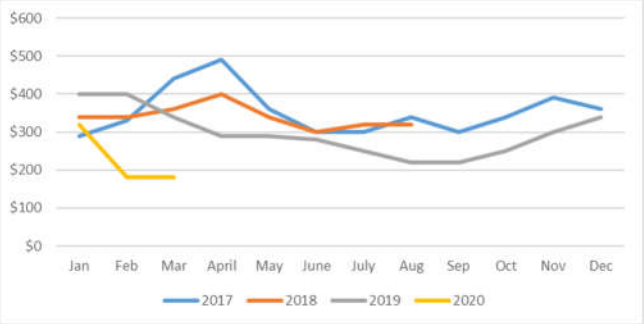


Figure 7 – PET (#1) Economic Data

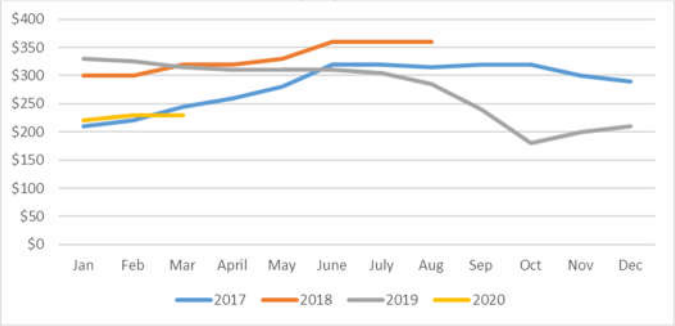
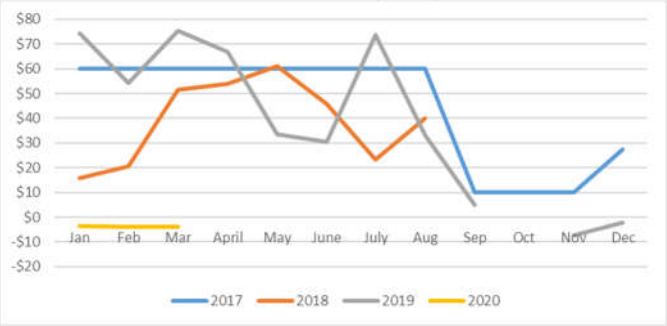


Figure 8 – Mixed Plastics (#3-7) Economic Data



Appendix A to this report demonstrates that there is no economic market for certain material categories of recyclables as defined in Municipal Law 120-aa. This Law states "For purposes of this section, the term "economic markets" refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material."

* Revised May 26, 2020

4.0 FACILITIES USED

OCRRA contracts with the only material recycling facility (MRF) in Onondaga County that is owned and operated by Waste Management-Recycle America (WM-RA). WM-RA is responsible for processing and marketing recyclable materials delivered by public and private haulers from the residential blue bin curbside recycling program. OCRRA financially supports sorting, baling, marketing and transporting materials collected by residential blue bin curbside recycling.

In 2018, China's National Sword Policy significantly impacted recycling markets. As shown in Table 2, WM-RA utilizes various markets for material categories.

Table 2 – MRF Markets[1]

Material Category	Market
OCC (cardboard)	Domestic (northeast)
Mixed Paper	Domestic (varies); Export to India, Indonesia & Vietnam
Aluminum Cans	Domestic (Georgia, Alabama & Kentucky)
Steel Cans	Domestic (varies)
HDPE Natural (#2)	Domestic (southeast)
HDPE Color (#2)	
PET (#1)	
Plastics 3-7	
Glass	Disposal as AOC at local landfills
Non-Recyclables	Disposal as fuel at OCRRF

Notes:

1. MRF markets per *New York Recycling List*, S. Stephens (MRF Manager) e-mail 3/30/2020

5.0 QUARTERLY RECYCLING CHALLENGES

Challenge #1 – International Transportation

During the first few weeks of January 2020, international transportation issues rendered approximately 150 tons of mixed paper bales useless. These bales of paper were generated by the WM-RA MRF and had no apparent outlet at the time. OCRRA coordinated with DEC to find an outlet for this material. It was determined that the paper's next best highest use was processing for energy at the OCRRF. However, less than 10% of this material has been processed at the OCRRF. The remainder of this material was able to be moved to a domestic market. It is anticipated that international markets and reliable global transportation may be unstable for a period given the impact to markets by the Chinese National Sword and COVID-19 global pandemic.

Challenge #2 – Market Discrepancies

There are significant differences between market values (as documented by industry standards) and actual sale prices. This is most significant for mixed paper where the difference between these values is over 90%. This one market category represents over 55% of the blue bins' composition (as measured by weight) and significantly impacts OCRRA's ability to financially support the residential blue bin curbside program.

Challenge #3 – COVID-19 Pandemic Impacts

As the first quarter ended, waste management facilities through the United States began to feel the impacts of less economic activity, and therefore less waste generation. Recycling programs for non-blue bin materials, such as composting, batteries, textiles, and household hazardous waste were limited or paused in response to New York State and Onondaga County Executive Orders during the month of March. The OCRRF Permit establishes a goal of recycling 40% of processible waste. Due to the impacts of COVID-19 compounding the already stressed recycling market, it is likely that OCRRA will not meet the OCRRF Permit's goal. Additionally, new contamination was identified in the recycling bin at the MRF including rubber gloves, facemasks and yard waste.

Challenge #4 – Declining Commodity Values

As seen in Figures 1 through 8, commodity values are generally declining without significant recovery for the foreseeable future. The costs to sort, bale, market and transport recyclables ($66/ton at the WM-RA MRF) is not economically sustainable given low market values of materials. Glass processed through the MRF has no sustainable re-use (other than use as AOC at local landfills) without further, more capital intensive, processing. As the costs of crude oil decrease, or runs negative, the value of plastics continues to erode. Mixed paper and cardboard markets continue to struggle without steady domestic outlets. April's actual value for mixed paper has been documented to be less than -$40/ton. Declining commodity values are not sustainable long term. The majority of the material accepted in the curbside recycling blue bin has a negative value and is causing a significant financial strain to maintain the curbside collection system as we know it to be today.

Challenge # 5 – Focus on Quality

The world of recycling abruptly changed in 2018 with the exit of China from the secondary materials export market. Enhanced quality is the only way to ensure reliable marketability in an oversupplied domestic system. The DEC recognized this reality with an enforcement discretion allowing increased residue to be disposed by MRF operators as an effort to enhance quality. The severe contraction of the economy in response to the necessary measures to control and contain the COVID-19 pandemic have further reduced demand for recycled commodities. Focusing on delivering targeted desirable high quality recovered material (such as cardboard and fiber to the local cardboard box manufacturer) is the most sustainable recycling solution. Commingled curbside recyclables easily contaminates reliable and abundant recoverable fiber supplies.

Challenge #6 – Better than the Bin

Capturing material upstream, at source separated locations, leads to successful high quality and reliable recycling in good and bad economic times. New York State's Returnable Container Act is incredibly successful in reducing litter and ensuring recycling of the glass, plastic and metal containers with a deposit. Glass is a known contaminant in a commingled recycling bin and is best captured for higher re-use through an expanded Returnable Container Act. OCRRA strongly supports the State's leadership in extending a deposit for wine and liquor bottles, which comprise over half of the glass material in a residential blue bin as reported in the *2019 Waste Characterization Study* (MSW Consultants, April 30, 2020). The Onondaga County Legislature as well as the Common Council of the City of Syracuse have enacted resolutions calling on New York State to expand the bottle bill to include wine and liquor bottles.

6.0 CONCLUSION

The key take-aways from OCRRA's *Quarterly Recycling Report: 2020 - 1st Quarter* include:

- COVID-19 has stressed an already stressed curbside recycling system which is financially unsustainable for the foreseeable future and requires changes.
- OCRRA will likely not meet the 40% recycling goal for 2020 primarily due to the significant loss of commercial cardboard in the system and the closure of textile recycling outlets like Rescue Mission and the Salvation Army in the wake of COVID-19.
- There is an excellent opportunity to reimagine the residential recycling system to ensure recovery of materials that can be reliably delivered to local markets.
- Extended Producer Responsibility is urgently needed to ensure materials are properly managed from production design to end of life, as municipalities cannot afford to cover the externalized costs of product manufactures any longer.

APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

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APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

Purpose: Provide an analysis of the economic market of curbside collection of glass, in accordance with General Municipal Law Sec. 120-AA(2), which states in part "For purposes of this section, the term "economic markets" refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material."

Variable definitions: Where A^t = proper collection with municipal solid waste, B^t = transportation with municipal solid waste, and C^t = disposal with municipal solid waste, A^c = cost of collection with residential recyclables curbside, B^c = transportation with residential recyclables curbside, C^c = cost to sell material (includes MRF processing), D^c = amount received from sale of materials (market price of recovered material, as reported by the MRF). The variables do not include any potential revenue generated from tipping fees.

Equation: The economic markets equation is expressed as: $A^t + B^t + C^t > A^c+B^c+C^c-D^c$; when this equation is true for a given material, then an economic market does not exist for said material.

1st Quarter Economic Markets for Glass:

A^t & A^c = For the purposes of this analysis, collection at curbside with municipal solid waste is assumed equal to collection with curbside recyclables. Therefore, A^t and A^c are assumed to be equal.

B^t & B^c = For the purposes of this analysis, transport with municipal solid waste to OCRRF is assumed equal to transport with curbside recyclables and transport to local MRF. Therefore, B^t and B^c are assumed to be equal.

C^t = OCRRA's cost of disposal at the OCRRF

C^c = MRF Contractor Processing Cost

D^c = Amount received from sale, or additional cost to sell, as reported by the MRF

Variable	January	February	March
C^t	-$81.40	-$81.33	-$81.18
C^c	-$66.00	-$66.00	-$66.00
D^c	-$18.36	-$25.45	-$24.63
Difference	-$2.96	-$10.12	-$9.45
Economic Market?	**No**	**No**	**No**

APPENDIX A-2: ECONOMIC ANALYSIS OF MIXED PAPER

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APPENDIX A-2: ECONOMIC ANALYSIS OF CURBSIDE MIXED PAPER

Purpose: Provide an analysis of the economic market of curbside collection of mixed paper, in accordance with General Municipal Law Sec. 120-AA(2), which states in part "For purposes of this section, the term "economic markets" refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material."

Variable definitions: Where A^t = proper collection with municipal solid waste, B^t = transportation with municipal solid waste, and C^t = disposal with municipal solid waste, A^c = cost of collection with residential recyclables curbside, B^c = transportation with residential recyclables curbside, C^c = cost to sell material (includes MRF processing), D^c = amount received from sale of materials (market price of recovered material, as reported by the MRF). The variables do not include any potential revenue generated from tipping fees.

Equation: The economic markets equation is expressed as: $A^t + B^t + C^t > A^c+B^c+C^c-D^c$; when this equation is true for a given material, then an economic market does not exist for said material.

1st Quarter Economic Markets for Mixed Paper:

A^t & A^c = For the purposes of this analysis, collection at curbside with municipal solid waste is assumed equal to collection with curbside recyclables. Therefore, A^t and A^c are assumed to be equal.

B^t & B^c = For the purposes of this analysis, transport with municipal solid waste to OCRRF is assumed equal to transport with curbside recyclables and transport to local MRF. Therefore, B^t and B^c are assumed to be equal.

C^t = OCRRA's cost of disposal at the OCRRF

C^c = MRF Contractor Processing Cost

D^c = Amount received from sale, or additional cost to sell, as reported by the MRF

Variable	January	February	March
C^t	-$56.57	-$56.20	-$55.29
C^c	-$66.00	-$66.00	-$66.00
D^c	-$30.84	-$44.69	-$51.80
Difference	-$40.27	-$54.49	-$62.51
Economic Market?	**No**	**No**	**No**

APPENDIX K-2: Quarterly Recycling Reports (2020 – Quarter 2&3)

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Quarterly Recycling Report

2020 – Quarters 2 & 3

Onondaga County
Resource Recovery Agency
November 2020

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1.0 INTRODUCTION

This Quarterly Recycling Report has been prepared consistent with the requirements of Permit ID 7-3142-00028/00011 (Onondaga County Resource Recovery Facility [OCRRF], Solid Waste Management Permit) Section 6, Item C and Permit ID 7-3148-00048/00003 (Ley Creek Transfer Station, Solid Waste Management Permit) Section 22, Item C.

It should be noted that quarterly reporting related to recycling, as described in the above cited permits, was discontinued in 2001 per verbal direction from the New York State Department of Environmental Conversation (DEC). Quarterly reporting related to recycling has been re-established by Onondaga Resource Recovery Agency (OCRRA) beginning the first quarter of 2020. This reporting has been re-established to document significant changing trends in recycling.

This report presents data on OCRRA's residential blue bin curbside recycling program only. In 2019, this program collected 36,974 tons of materials from the blue bins of 180,000 households in OCRRA's service area having a population of approximately 457,000. Additional mandatory and voluntary recycling is generated by private commercial entities, as well as public and private institutions. These additional recycling sources are tracked and tabulated by OCRRA and reported to the DEC on an annual basis and can be found here.

In addition to residential blue bin curbside recycling, OCRRA's comprehensive recycling program operates two composting sites; provides household hazardous waste (HHW) collection; provides battery collection; organizes various public recycling events (e.g., Earth Day Litter Cleanup, "Shred-o-Rama", mercury collection); and collaborates with partners to divert textiles and thin film plastics for recycling "outside the bin." The comprehensive recycling program is further reported on an annual basis as described above. The OCRRA residential blue bin curbside recycling system is comprised of:

- contracted arrangements with a private MRF operator to process and market recyclables;
- contracted agreements with public and private haulers to deliver recyclable materials for a $0 tip fee through the end of 2020;
- distribution of blue bins for residential use; and
- sophisticated and widespread public education and outreach.

Of OCRRA's total recycling tonnage, the residential blue bin curbside recycling accounts for approximately 8% of 2019's total mandatory and voluntary recycling, or 25% of 2019's total mandatory/processible recycling tonnage, as reported in the *2019 Annual Report of Recyclables Recovered* (OCRRA, March 1, 2020).

OCRRA first documented recycling challenges within *Recycling 2020: Report and Recommendations* (OCRRA, January 2020). Consistent with the findings of that report, Sections 3 and 4 of this report, below, include data for curbside recyclable materials that substantiates the absence of a robust economic market. In light of the economics associated with OCRRA's residential blue bin curbside recycling program, it may not be reasonable and technically feasible to continue recycling as we currently do.

2.0 MONTHLY RECYLABLES TONNAGE AND VALUE BY CATEGORY

Table 1 and 2, below, provides a monthly breakdown of the recyclables recovered in residential blue bin curbside recycling by material category, including relevant economic data for each category.

Table 1 – Monthly Recyclables by Category: 2nd Quarter

Material Category	April 2020			May 2020			June 2020		
	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage[1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage[1]	Market Value per ton[2]	Actual Value per ton[3]
OCC (cardboard)	431.24	$85	--	431.65	$120	--	435.97	$85	--
Mixed Paper	1,664.70	$0	--	1,666.31	$15	--	1,683.00	$15	--
Aluminum Cans	1.19	$840	--	1.19	$800	--	1.21	$800	--
Steel Cans	76.05	$15	--	76.12	$15	--	76.88	$15	--
HDPE Natural (#2)	25.05	$800	--	25.08	$800	--	25.33	$800	--
HDPE Color (#2)	48.01	$100	--	48.06	$80	--	48.54	$80	--
PET (#1)	50.40	$240	--	50.45	$200	--	50.95	$170	--
Plastics 3-7	37.58	N/A	<-$3	37.61	N/A	<-$3	37.99	N/A	<-$3
Glass	558.58	N/A	<-$25	559.12	N/A	<-$28	564.72	N/A	<-$30
Non-Recyclables[4]	89.47	N/A	<-$173	89.55	N/A	<-$173	90.45	N/A	<-$173
Average Blended Value per Ton[5]	--	**$1.29**	**--**	--	**$13.10**	**--**	--	**$7.14**	**--**
Actual Cost per Ton[6]		**--**	**-$64.71**		**--**	**-$52.90**		**--**	**-$58.86**
Approximate Total Tonnage & Agency Costs	**2,982**	**$192,970**		**2,985**	**$157,910**		**3,015**	**$177,460**	

Notes:

1. Tonnage based on monthly incoming scale data and current composition percentage of each material category as agreed upon and calculated by OCRRA and the MRF Contractor as follows: OCC Cardboard 14.46%; Mixed Paper 55.82%; Aluminum Cans 0.04%; Steel Cans 2.55%; HDPE Natural #2 0.84%; HDPE Color #2 1.61%; PET #1 1.69%; Plastics 3-7 1.26%; Glass 18.73%; and Non-Recyclables 3.0%.
2. Market value based on various sources for the 1st issue/1st full week of the month one month prior to the date shown as follows:
   a. OCC Cardboard: Fastmarkets RISI Pulp & Paper Week (PPW) for the Buffalo Region, Domestic Price OCC #11
   b. Mixed Paper: PPW for the Buffalo Region, Domestic Price # 54 Mixed Paper.
   c. Aluminum Cans: www.secondarymaterialspricing.com for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, delivered
   d. Steel Cans: SMP for Steel Cans, sorted, densified, delivered
   e. HDPE Natural #2: SMP for Natural HDPE, baled, picked up
   f. HDPE Color #2: SMP for Colored HDPE, baled, picked up
   g. PET #1: SMP for PET, baled, picked up
3. Actual value based on the average price paid or charged to the processing facility during the months of delivery, less any freight or other charges paid to third parties. These values were reported by the MRF Contractor. In most cases, the actual value per ton could not be provided by the MRF contractor. In OCRRA's Quarterly Recycling Report 2020 - 1st Quarter, the MRF Contractor did provide actual value per ton for mixed paper due to the large discrepancy between market and actual values.
4. Non-recyclables include those materials that require disposal and cannot be recycled. Actual value includes cost of transportation and disposal costs.
5. Average blended value is based on average blended value as determined on current composition percentage of each material category as described in Note 1. The composition percentages are applied to market values minus any factors assumed to account for significant costs associated with moving materials to market (i.e., a factor of -$25/ton for mixed paper and -$500/ton for aluminum cans).
6. Actual cost per ton includes the average blended value plus additional costs associated with marketing and processing materials (i.e., sorting, baling, marketing and transporting) of -$66/ton for 2020.

Table 2 – Monthly Recyclables by Category: 3rd Quarter

Material Category	July 2020			August 2020			September 2020		
	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]
OCC (cardboard)	439.47	$60	--	481.95	$60	--	505.72	$60	--
Mixed Paper	1,696.48	$15	--	1,378.37	$15	--	1,446.34	$20	--
Aluminum Cans	1.22	$800	--	1.38	$800	--	1.44	$980	--
Steel Cans	77.50	$15	--	55.63	$15	--	58.37	$15	--
HDPE Natural (#2)	25.53	$800	--	7.71	$950	--	8.09	$1,140	--
HDPE Color (#2)	48.93	$80	--	90.33	$80	--	94.79	$150	--
PET (#1)	51.36	$190	--	87.30	$180	--	91.61	$180	--
Plastics 3-7	38.29	N/A	<-$3	58.66	N/A	$25	61.55	N/A	$25
Glass	569.24	N/A	<-$29	440.09	N/A	<-$27	461.79	N/A	<-$33
Non-Recyclables[4]	91.18	N/A	<-$173	152.57	N/A	<-$173	160.09	N/A	<-$173
Average Blended Value per Ton[5]	--	**$4.01**	--	--	**$5.76**	--	--	**$10.24**	--
Actual Cost per Ton[6]		--	**-$61.99**		--	**-$60.24**		--	**-$55.76**
Approximate Total Tonnage &Agency Costs	**3,039.2**	**$188,144**		**2,753.99**	**$165,849**		**2,889.80**	**$161,317**	

Notes:

1. Tonnage based on monthly incoming scale data and current composition percentage of each material category as agreed upon and calculated by OCRRA and the MRF Contractor as follows: OCC Cardboard 14.46%; Mixed Paper 55.82%; Aluminum Cans 0.04%; Steel Cans 2.55%; HDPE Natural #2 0.84%; HDPE Color #2 1.61%; PET #1 1.69%; Plastics 3-7 1.26%; Glass 18.73%; and Non-Recyclables 3.0%.
2. Market value based on various sources for the 1st issue/1st full week of the month one month prior to the date shown as follows:
   a. OCC Cardboard: Fastmarkets RISI Pulp & Paper Week (PPW) for the Buffalo Region, Domestic Price OCC #11
   b. Mixed Paper: PPW for the Buffalo Region, Domestic Price # 54 Mixed Paper.
   c. Aluminum Cans: www.secondarymaterialspricing.com for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, delivered
   d. Steel Cans: SMP for Steel Cans, sorted, densified, delivered
   e. HDPE Natural #2: SMP for Natural HDPE, baled, picked up
   f. HDPE Color #2: SMP for Colored HDPE, baled, picked up
   g. PET #1: SMP for PET, baled, picked up
3. Actual value based on the average price paid or charged to the processing facility during the months of delivery, less any freight or other charges paid to third parties. These values were reported by the MRF Contractor. In most cases, the actual value per ton could not be provided by the MRF contractor. In OCRRA's Quarterly Recycling Report 2020 - 1st Quarter, the MRF Contractor did provide actual value per ton for mixed paper due to the large discrepancy between market and actual values.
4. Non-recyclables include those materials that require disposal and cannot be recycled. Actual value includes cost of transportation and disposal costs.
5. Average blended value is based on average blended value as determined on current composition percentage of each material category as described in Note 1. The composition percentages are applied to market values minus any factors assumed to account for significant costs associated with moving materials to market (i.e., a factor of -$25/ton for mixed paper and -$500/ton for aluminum cans).
6. Actual cost per ton includes the average blended value plus additional costs associated with marketing and processing materials (i.e., sorting, baling, marketing and transporting) of -$66/ton for 2020.

3.0 ECONOMIC DATA

Figures 1 through 8, below, provide the historical data for the market value for material categories. It should be noted that gaps in data are shown and that market values are based on industry standard information as cited in table 1, Note 2 with the following exceptions:

- Beginning in 2020, the market value for mixed paper is based on $25 per ton reduction to market prices per PPW for the Buffalo Region, Domestic Price #54 Mixed Paper.

- Beginning in 2020, the market value for aluminum cans is based on a $0.25 per pound ($500 per ton) reduction to market process per *www.secondarymaterialspricing.com* for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled and delivered.

- Economic data for glass has not been prepared because glass always incurs a cost for disposal at local landfills to be used as Alternative Operating Cover (AOC).

Figure 1 - OCC Economic Data

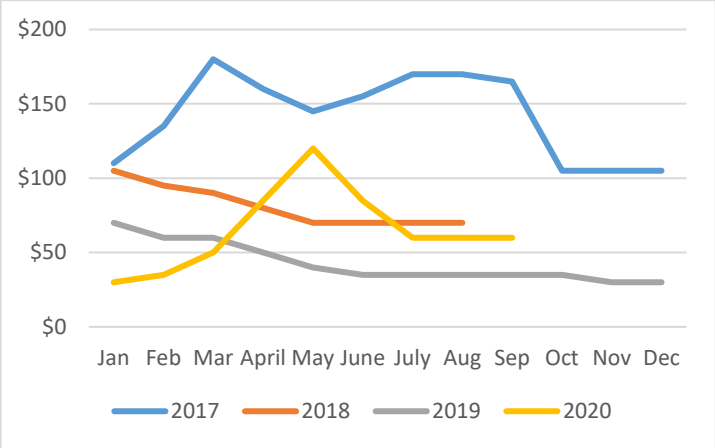


Figure 2 – Mixed Paper Economic Data

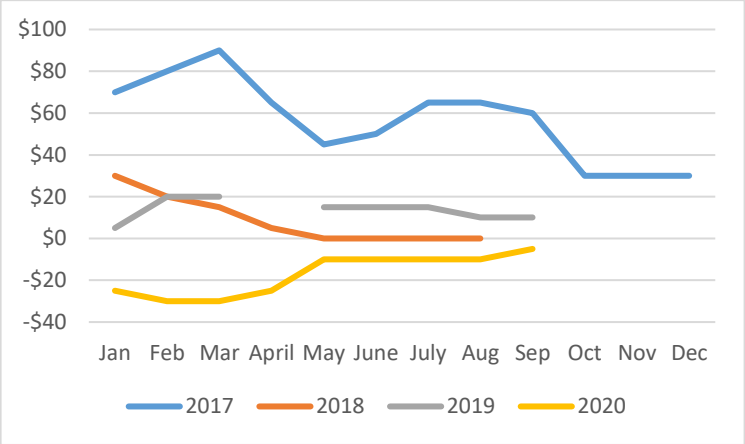


Figure 3 – Aluminum Cans Economic Data

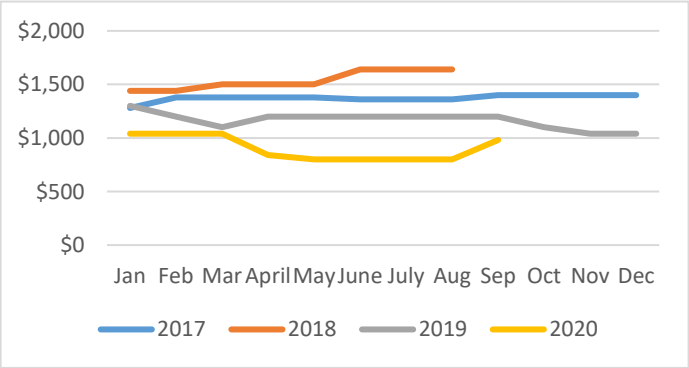


Figure 4 – Steel Cans Economic Data

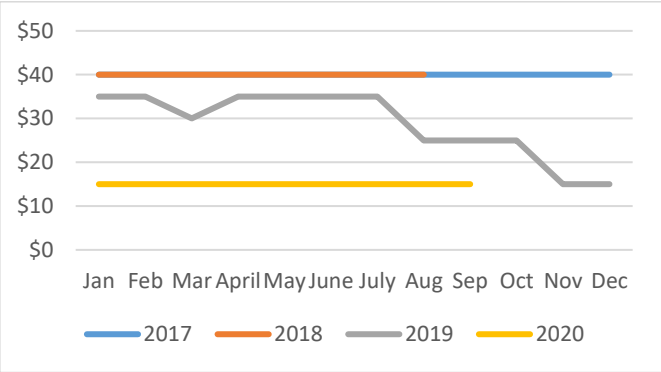


Figure 5 – HDPE Natural (#2) Economic Data

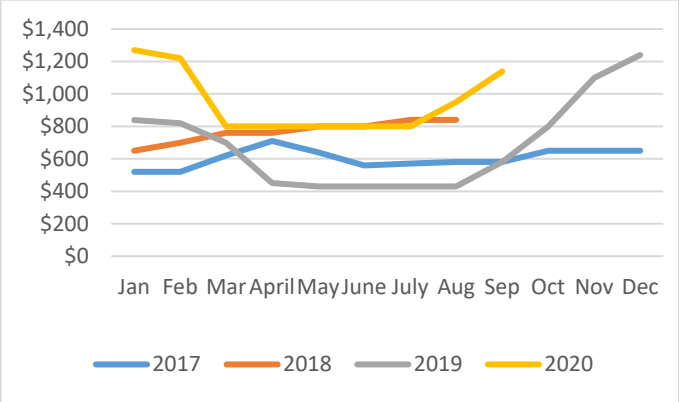


Figure 6 – HDPE Color (#2) Economic Data

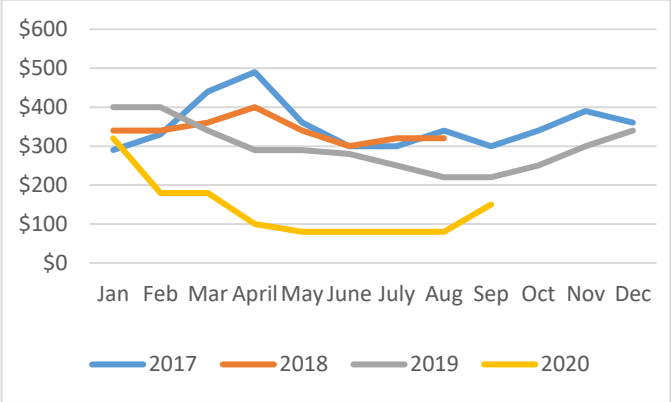


Figure 7 – PET (#1) Economic Data

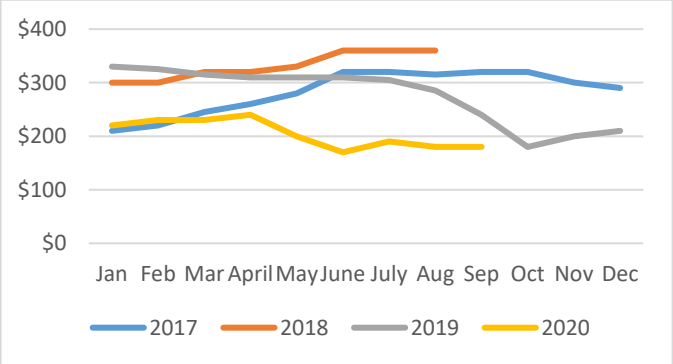
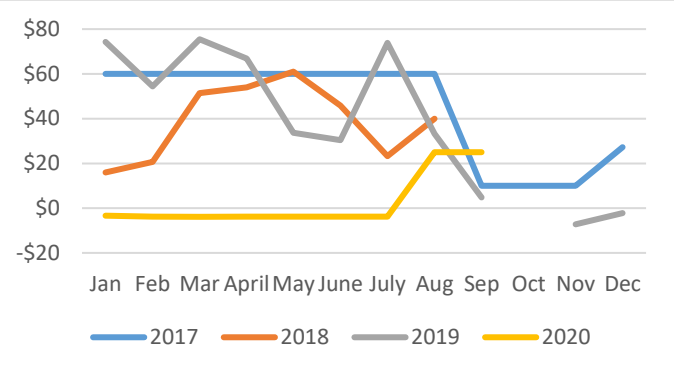


Figure 8 – Mixed Plastics (#3-7) Economic Data



Appendix A to this report demonstrates that there is no economic market for certain material categories of recyclables as defined in Municipal Law 120-aa. This Law states ”For purposes of this section, the term “economic markets” refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material.”

4.0 FACILITIES USED

OCRRA contracts with the only material recycling facility (MRF) in Onondaga County that is owned and operated by Waste Management-Recycle America (WM-RA). WM-RA is responsible for processing and marketing recyclable materials delivered by public and private haulers from the residential blue bin curbside recycling program. OCRRA financially supports sorting, baling, marketing and transporting materials collected by residential blue bin curbside recycling.

In 2018, China's National Sword Policy significantly impacted recycling markets. As shown in Table 3, WM-RA utilizes various markets for material categories.

Table 3 – MRF Markets[1]

Material Category	Market
OCC (cardboard)	Domestic (northeast)
Mixed Paper	Domestic (varies)
Aluminum Cans	Domestic (Georgia, Alabama & Kentucky)
Steel Cans	Domestic (varies)
HDPE Natural (#2)	Domestic (southeast)
HDPE Color (#2)	
PET (#1)	
Plastics 3-7	
Glass	Disposal as AOC at local landfills
Non-Recyclables	Disposal as fuel at OCRRF

Notes:
1. MRF markets per *New York Recycling List*, S. Stephens (MRF Manager) e-mail 8/11/2020

5.0 QUARTERLY RECYCLING CHALLENGES

Challenge #1 – COVID-19 Pandemic Impacts, continued

The COVID-19 economic shutdowns started to take their toll during the second quarter, which impacted material supply and demand, market prices, and revenue for businesses and haulers. During the second and third quarters, several outlets for recycled goods were closed or limited to the public, which affected their recycling operations, such as textile collectors like the Rescue Mission and Salvation Army, as well as HHW and electronic-waste collectors. These particular businesses, in combination with the cancellation of community collection events such as planned textile and paper shredding recycling events that were cancelled due to public safety concerns, resulted in less overall material entering the recycling stream. With many offices and schools not operating in the second quarter, the demand for printing and writing paper was drastically reduced, which negatively impacted paper mills. As offices, restaurants and schools stay closed in the third quarter, and companies make long term plans for employees to work at home, the amount of commercial material entering the waste stream will likely continue to decrease.

However, while there was a reduction in commercial recycling, a shift to focus on residential material during the second quarter led to some good news in the OCC market, with OCC prices on the rise, due to a dramatic increase in demand for coated recycled paperboard, combined with the e-commerce-driven demand for containerboard. Coated recycled paperboard is used in consumer packaging, food, beverage and other applications, all of which saw a substantial demand spike, as panic-buying took place across the U.S. during the second quarter.

A further consequence to recycling in both the second and the third quarters, as a result of COVID-19, was an increase in contamination, particularly large quantities of PPE, such as facemasks and gloves, ending up in the residential material.

Challenge # 2 – Focus on Quality

As reported in the prior Quarterly Recycling Report, the world of recycling abruptly changed in 2018 with the exit of China from the secondary materials export market. Enhanced quality is the only way to ensure reliable marketability in an oversupplied domestic system. The DEC recognized this reality with an enforcement discretion allowing increased residue to be disposed by MRF operators as an effort to enhance quality. The severe contraction of the economy in response to the necessary measures to control and contain the Covid-19 pandemic have further changed the demand for recycled commodities. Focusing on delivering targeted desirable high quality recovered material (such as cardboard and fiber to the local cardboard box manufacturer) is the most sustainable recycling solution. Commingled curbside recyclables has the potential to contaminate reliable and abundant recoverable fiber supplies.

Challenge # 3 – Better than the Bin

As reported in the prior Quarterly Recycling Report, capturing material upstream, at source separated locations, leads to successful high quality and reliable recycling in good and bad economic times. New York State's Returnable Container Act is incredibly successful in reducing litter and ensuring recycling

of the glass, plastic and metal containers with a deposit. Glass is a known contaminant in a commingled recycling bin and is best captured for higher re-use through an expanded Returnable Container Act. OCRRA strongly supports the State's leadership in extending a deposit for wine and liquor bottles, which comprise over half of the glass material in a residential blue bin as reported in the *2019 Waste Characterization Study* (MSW Consultants, April 30, 2020). The Onondaga County Legislature as well as the Common Council of the City of Syracuse, the Towns of Van Buren and Camillus, have all enacted resolutions calling on New York State to expand the bottle bill to include wine and liquor bottles.

Challenge # 4 - Compost Scarcity

OCRRA's compost is made from locally provided food and yard waste. In particular, the NYS Fair provides a significant amount of high-quality material, like animal bedding and other agricultural by-products. Additionally, OCRRA previously (before Covid-19 related closures) received food waste from local university dining halls and school cafeterias. Covid-19 shutdowns have put a temporary stop to almost all of this incoming material and as a result, OCRRA predicts a shorter supply of available compost in 2021.

6.0 CONCLUSION

The key take-aways from the second and third quarters remain consistent with the first quarter:

- Covid-19 has stressed an already stressed curbside recycling system which is financially unsustainable for the foreseeable future and requires changes.
- OCRRA will likely not meet the 40% recycling goal for 2020 primarily due to the significant loss of commercial cardboard in the system, the temporary closure of textile recycling outlets like Rescue Mission and the Salvation Army in the wake of Covid-19, and a significant loss of food and agricultural yard wastes that result from the closures of several restaurants and school cafeterias in OCRRA's service area, as well as the cancellation of the NYS Fair.
- There is an excellent opportunity to reimagine the residential recycling system to ensure recovery of materials that can be reliably delivered to local markets.
- Extended Producer Responsibility is urgently needed to ensure materials are properly managed from production design to end of life, as municipalities cannot afford to cover the externalized costs of product manufactures any longer.
- Cancelling some of the community recycling events that would normally have occurred during the second and third quarters in 2020, such as our community-wide textile collection and confidential document shredding events, was a difficult decision, but we are hopeful that we will be able to safely resume these activities in 2021. A positive step in that direction occurred during the third quarter when we held a mercury-device collection and recycling event in September 2020. The total amount of mercury that was collected from devices at this one event along equated to 134 grams, which is the equivalent of 33,500 CFL bulbs.

APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

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APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

Purpose: Provide an analysis of the economic market of curbside collection of glass, in accordance with General Municipal Law Sec. 120-AA(2), which states in part "For purposes of this section, the term "economic markets" refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material."

Variable definitions: Where A^t = proper collection with municipal solid waste, B^t = transportation with municipal solid waste, and C^t = disposal with municipal solid waste, A^c = cost of collection with residential recyclables curbside, B^c = transportation with residential recyclables curbside, C^c = cost to sell material (includes MRF processing), D^c = amount received from sale of materials (market price of recovered material, as reported by the MRF). The variables do not include any potential revenue generated from tipping fees.

Equation: The economic markets equation is expressed as: $A^t + B^t + C^t > A^c+B^c+C^c-D^c$; when this equation is true for a given material, then an economic market does not exist for said material.

2nd and 3rd Quarter Economic Markets for Glass:

A^t & A^c = For the purposes of this analysis, collection at curbside with municipal solid waste is assumed equal to collection with curbside recyclables. Therefore, A^t and A^c are assumed to be equal.

B^t & B^c = For the purposes of this analysis, transport with municipal solid waste to OCRRF is assumed equal to transport with curbside recyclables and transport to local MRF. Therefore, B^t and B^c are assumed to be equal.

C^t = OCRRA's cost of disposal at the OCRRF

C^c = MRF Contractor Processing Cost

D^c = Amount received from sale, or additional cost to sell, as reported by the MRF

Variable	April	May	June	July	August	September
C^t	-$80.68	-$80.37	-$80.29	-$80.53	-$80.18	-$81.38
C^c	-$66.00	-$66.00	-$66.00	-$66.00	-$66.00	-$66.00
D^c	-$25.02	-$28.28	-$30.36	-$29.60	-$27.99	-$33.91
Difference	-$10.34	-$13.91	-$16.07	-$15.07	-$13.81	-$18.53
Economic Market?	**No**	**No**	**No**	**No**	**No**	**No**

APPENDIX K-3: Quarterly Recycling Reports (2020 – Quarter 4)

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Quarterly Recycling Report

2020 – Quarter 4

Onondaga County
Resource Recovery Agency
March 2021

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1.0 INTRODUCTION

This Quarterly Recycling Report has been prepared consistent with the requirements of Permit ID 7-3142-00028/00011 (Onondaga County Resource Recovery Facility [OCRRF], Solid Waste Management Permit) Section 6, Item C and Permit ID 7-3148-00048/00003 (Ley Creek Transfer Station, Solid Waste Management Permit) Section 22, Item C.

It should be noted that quarterly reporting related to recycling, as described in the above cited permits, was discontinued in 2001 per verbal direction from the New York State Department of Environmental Conversation (DEC). Quarterly reporting related to recycling has been re-established by Onondaga Resource Recovery Agency (OCRRA) beginning the first quarter of 2020. This reporting has been re-established to document significant changing trends in recycling.

This report presents data on OCRRA's residential blue bin curbside recycling program only. In 2019, this program collected 36,974 tons of materials from the blue bins of 180,000 households in OCRRA's service area having a population of approximately 457,000. Additional mandatory and voluntary recycling is generated by private commercial entities, as well as public and private institutions. These additional recycling sources are tracked and tabulated by OCRRA and reported to the DEC on an annual basis and can be found here.

In addition to residential blue bin curbside recycling, OCRRA's comprehensive recycling program operates two composting sites; provides household hazardous waste (HHW) collection; provides battery collection; organizes various public recycling events (e.g., Earth Day Litter Cleanup, "Shred-o-Rama", mercury collection); and collaborates with partners to divert textiles and thin film plastics for recycling "outside the bin." The comprehensive recycling program is further reported on an annual basis as described above. The OCRRA residential blue bin curbside recycling system is comprised of:

- contracted arrangements with a private MRF operator to process and market recyclables;
- contracted agreements with public and private haulers to deliver recyclable materials for a $0 tip fee through the end of 2020;
- distribution of blue bins for residential use; and
- sophisticated and widespread public education and outreach.

Of OCRRA's total recycling tonnage, the residential blue bin curbside recycling accounts for approximately 8% of 2019's total mandatory and voluntary recycling, or 25% of 2019's total mandatory/processible recycling tonnage, as reported in the *2019 Annual Report of Recyclables Recovered* (OCRRA, March 1, 2020).

OCRRA first documented recycling challenges within *Recycling 2020: Report and Recommendations* (OCRRA, January 2020). Consistent with the findings of that report, this report includes data for curbside recyclable materials that substantiates the absence of a robust economic market. In light of the economics associated with OCRRA's residential blue bin curbside recycling program, it may not be reasonable and technically feasible to continue recycling as we currently do.

2.0 MONTHLY RECYLABLES TONNAGE AND VALUE BY CATEGORY

Table 1, below, provides a monthly breakdown of the recyclables recovered in residential blue bin curbside recycling by material category, including relevant economic data for each category.

Table 1 – Monthly Recyclables by Category: 4th Quarter

Material Category	October 2020			November 2020			December 2020		
	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]	Tonnage [1]	Market Value per ton[2]	Actual Value per ton[3]
OCC (cardboard)	428.02	$60	--	425.22	$60	--	491.59	$65	--
Mixed Paper	1,652.30	$25	--	1,641.48	$30	--	1,897.69	$35	--
Aluminum Cans	1.18	$980	--	1.18	$980	--	1.36	$1,020	--
Steel Cans	75.48	$15	--	74.99	$15	--	86.69	$15	--
HDPE Natural (#2)	24.86	$1,300	--	24.70	$1,340	--	28.56	$1,380	--
HDPE Color (#2)	47.66	$320	--	47.34	$380	--	54.73	$420	--
PET (#1)	50.02	$135	--	49.70	$140	--	57.45	$140	--
Plastics 3-7	37.30	N/A	$25	37.05	N/A	$25	42.84	N/A	$25
Glass	554.42	N/A	<-$23	550.79	N/A	<-$29	636.76	N/A	<-$32
Non-Recyclables[4]	88.80	N/A	<-$173	88.22	N/A	<-$173	101.99	N/A	<-$173
Average Blended Value per Ton[5]	--	**$18.26**	**--**	--	**$21.30**	**--**	--	**$25.23**	**--**
Actual Cost per Ton[6]		**--**	**-$47.74**		**--**	**-$44.70**		**--**	**-$40.77**
Approximate Total Agency Costs	**2,960**	**$141,310**		**2,941**	**$131,460**		**3,400**	**$138,620**	

Notes:

1. Tonnage based on monthly incoming scale data and current composition percentage of each material category as agreed upon and calculated by OCRRA and the MRF Contractor as follows: OCC Cardboard 14.46%; Mixed Paper 55.82%; Aluminum Cans 0.04%; Steel Cans 2.55%; HDPE Natural #2 0.84%; HDPE Color #2 1.61%; PET #1 1.69%; Plastics 3-7 1.26%; Glass 18.73%; and Non-Recyclables 3.0%.
2. Market value based on various sources for the 1st issue/1st full week of the month one month prior to the date shown as follows:
   a. OCC Cardboard: Fastmarkets RISI Pulp & Paper Week (PPW) for the Buffalo Region, Domestic Price OCC #11
   b. Mixed Paper: PPW for the Buffalo Region, Domestic Price # 54 Mixed Paper
   c. Aluminum Cans: www.secondarymaterialspricing.com for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled, delivered
   d. Steel Cans: SMP for Steel Cans, sorted, densified, delivered
   e. HDPE Natural #2: SMP for Natural HDPE, baled, picked up
   f. HDPE Color #2: SMP for Colored HDPE, baled, picked up
   g. PET #1: SMP for PET, baled, picked up
3. Actual value based on the average price paid or charged to the processing facility during the months of delivery, less any freight or other charges paid to third parties. These values were reported by the MRF Contractor. In most cases, the actual value per ton could not be provided by the MRF contractor. In OCRRA's Quarterly Recycling Report 2020 - 1st Quarter, the MRF Contractor did provide actual value per ton for mixed paper due to the large discrepancy between market and actual values.
4. Non-recyclables include those materials that require disposal and cannot be recycled. Actual value includes cost of transportation and disposal costs.
5. Average blended value is based on average blended value as determined on current composition percentage of each material category as described in Note 1. The composition percentages are applied to market values minus any factors assumed to account for significant costs associated with moving materials to market (i.e., a factor of -$25/ton for mixed paper and -$500/ton for aluminum cans).
6. Actual cost per ton includes the average blended value plus additional costs associated with marketing and processing materials (i.e., sorting, baling, marketing and transporting) of -$66/ton for 2020.

3.0 ECONOMIC DATA

Figures 1 through 8, below, provide the historical data for the market value for material categories. It should be noted that gaps in data are shown and that market values are based on industry standard information as cited in table 1, Note 2 with the following exceptions:

- Beginning in 2020, the market value for mixed paper is based on $25 per ton reduction to market prices per PPW for the Buffalo Region, Domestic Price #54 Mixed Paper.

- Beginning in 2020, the market value for aluminum cans is based on a $0.25 per pound ($500 per ton) reduction to market process per *www.secondarymaterialspricing.com* for the domestic New York (NE USA/MARITIMES, SMP) for Aluminum Cans, sorted, baled and delivered.

- Economic data for glass has not been prepared because glass always incurs a cost for disposal at local landfills to be used as Alternative Operating Cover (AOC).

Figure 1 - OCC Economic Data

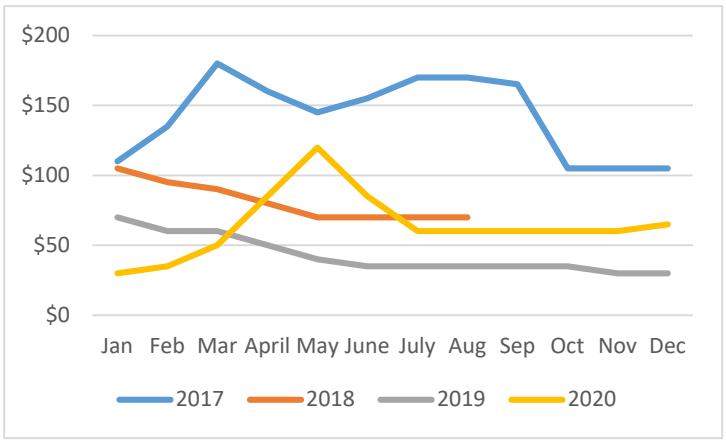


Figure 2 – Mixed Paper Economic Data

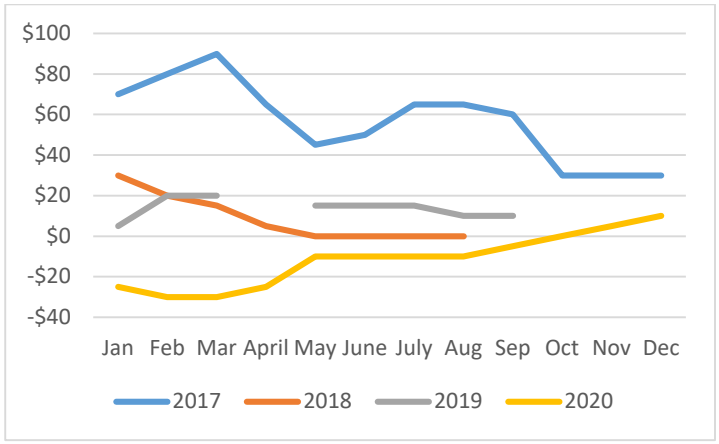


Figure 3 – Aluminum Cans Economic Data

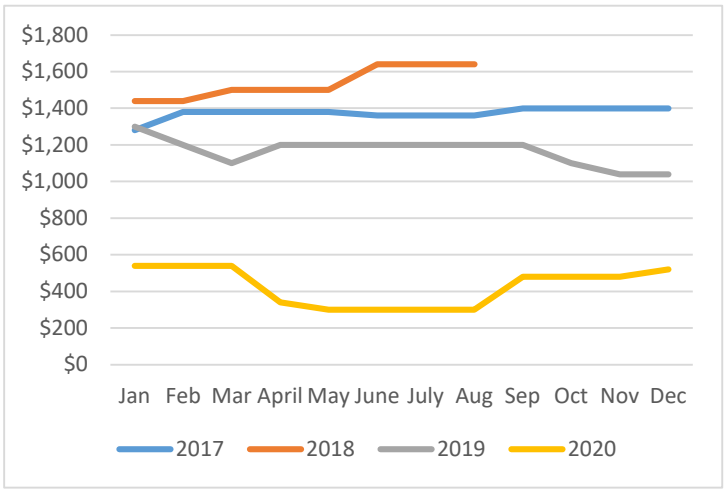


Figure 4 – Steel Cans Economic Data

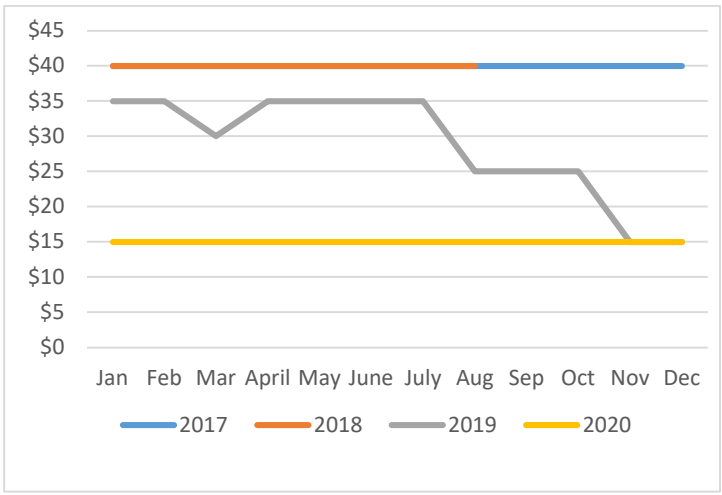


Figure 5 – HDPE Natural (#2) Economic Data

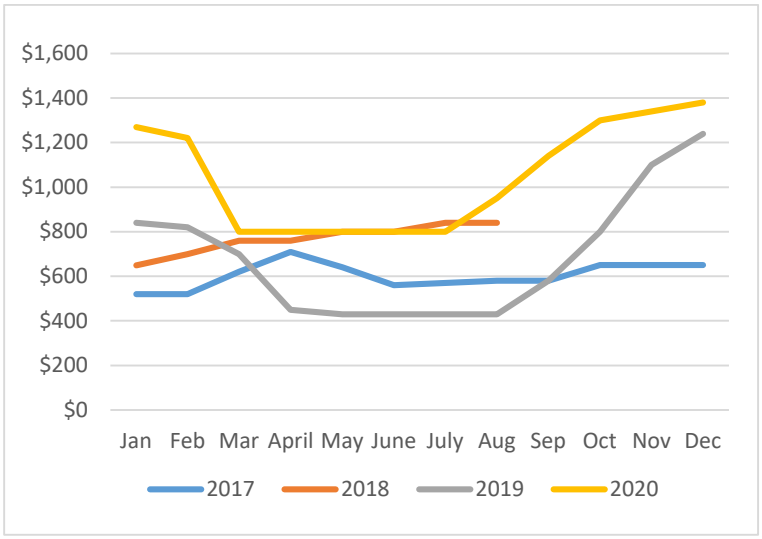


Figure 6 – HDPE Color (#2) Economic Data

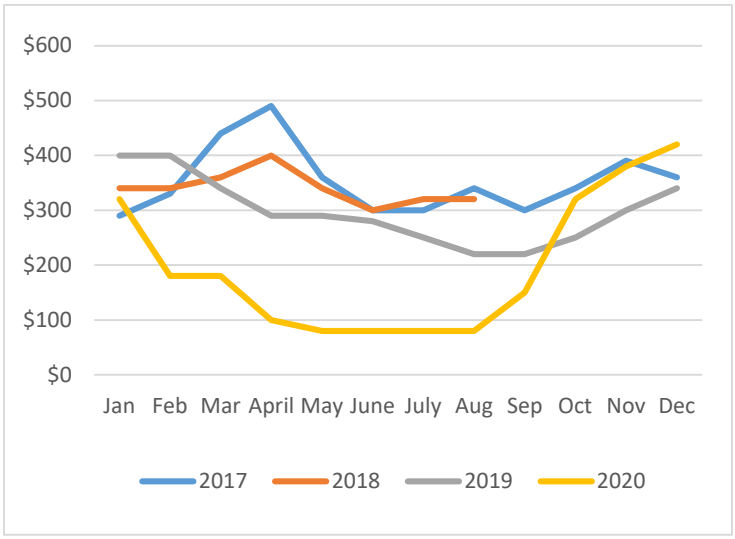


Figure 7 – PET (#1) Economic Data

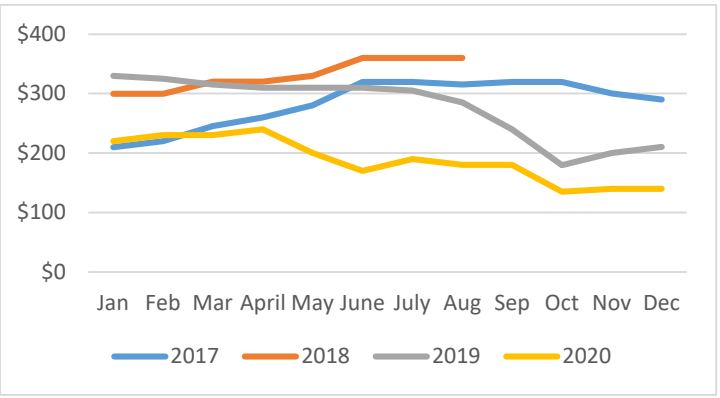
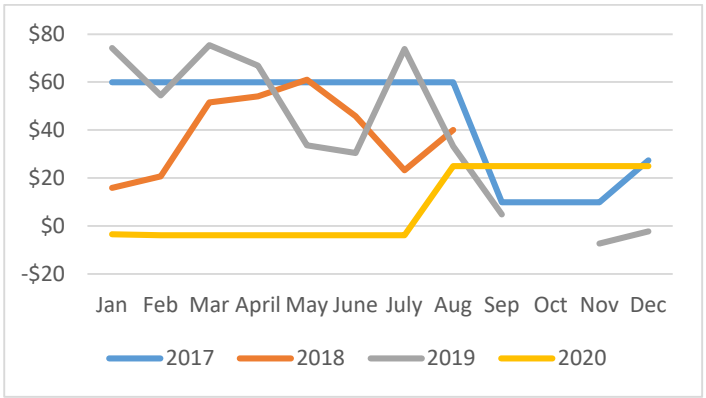


Figure 8 – Mixed Plastics (#3-7) Economic Data



Appendix A to this report demonstrates that there is no economic market for certain material categories of recyclables as defined in Municipal Law 120-aa. This Law states ”For purposes of this section, the term “economic markets” refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material.”

4.0 FACILITIES USED

OCRRA contracts with the only material recycling facility (MRF) in Onondaga County that is owned and operated by Waste Management-Recycle America (WM-RA). WM-RA is responsible for processing and marketing recyclable materials delivered by public and private haulers from the residential blue bin curbside recycling program. OCRRA financially supports sorting, baling, marketing and transporting materials collected by residential blue bin curbside recycling.

In 2018, China's National Sword Policy significantly impacted recycling markets. As shown in Table 3, WM-RA utilizes various markets for material categories.

Table 2 – MRF Markets[1]

Material Category	Market
OCC (cardboard)	Domestic (northeast)
Mixed Paper	Domestic (varies)
Aluminum Cans	Domestic (Georgia, Alabama & Kentucky)
Steel Cans	Domestic (varies)
HDPE Natural (#2)	Domestic (southeast)
HDPE Color (#2)	
PET (#1)	
Plastics 3-7	
Glass	Reuse as Alternative Operating Cover at local landfills
Non-Recyclables	Reuse as fuel at OCRRF

Notes:
1. MRF markets per *New York Recycling List*, S. Stephens (MRF Manager) e-mail 1/28/2021

5.0 QUARTERLY RECYCLING CHALLENGES

Challenge #1 – COVID-19 Pandemic Impacts, continued

As reported in the prior Quarterly Recycling Report, the COVID-19 economic shutdowns continue to take their toll during the fourth quarter, impacting material supply and demand; market prices; and revenue for businesses and haulers. Continuing through the fourth quarter, several outlets for recycled goods were closed or limited to the public, which affected their recycling operations, such as textile collectors like the Rescue Mission and Salvation Army, as well as HHW and electronic-waste collectors. These particular businesses, in combination with the cancellation of community collection events such as planned textile and paper shredding recycling events that were cancelled due to public safety concerns, resulted in less overall material entering the recycling stream. With many offices and schools not operating throughout 2020, the demand for printing and writing paper was drastically reduced, which negatively impacted paper mills. As offices, restaurants and schools stay closed in the fourth quarter, and companies make long term plans for employees to work at home, the amount of commercial material entering the waste stream will likely continue to decrease.

Challenge # 2 – Focus on Quality, continued

As reported in the prior Quarterly Recycling Report, the world of recycling abruptly changed in 2018 with the exit of China from the secondary materials export market. Enhanced quality is critical to ensuring reliable marketability in an oversupplied domestic system. The DEC recognized this reality with an enforcement discretion allowing increased residue to be disposed by MRF operators as an effort to enhance quality. The severe contraction of the economy in response to the necessary measures to control and contain the Covid-19 pandemic have further changed the demand for recycled commodities. Focusing on delivering targeted desirable high quality recovered material (such as cardboard and fiber to the local cardboard box manufacturer) is the most sustainable recycling solution. Commingled curbside recyclables has the potential to contaminate reliable and abundant recoverable fiber supplies. During the fourth quarter, OCRRA increased holiday recycling awareness through a combination of television media appearances, paid digital advertisements, influencer blog posts and public outreach via printed newsletter, email blast and social media posts. This holiday campaign was aimed at reducing contamination in the recycling stream (e.g., keeping metallic cards and gift wrap, textiles, film plastics, bagged recyclables and tanglers such as lights and extension cords out of the recycle bin).

Challenge #2 – Better than the Bin, continued

As reported in the prior Quarterly Recycling Reports, capturing material upstream, at source separated locations, leads to successful high quality and reliable recycling in good and bad economic times. New York State's Returnable Container Act is incredibly successful in reducing litter and ensuring recycling of the glass, plastic and metal containers with a deposit. Glass is a known contaminant in a commingled recycling bin and is best captured for higher re-use through an expanded Returnable Container Act. OCRRA strongly supports the State's leadership in extending a deposit for wine and liquor bottles, which comprise over half of the glass material in a residential blue bin as reported in the *2019 Waste Characterization Study* (MSW Consultants, April 30, 2020). The Onondaga County Legislature as well as the Common Council of the City of Syracuse, the Towns of Van Buren and Camillus, have all enacted resolutions calling on New York State to expand the bottle bill to include wine and liquor bottles.

OCRRA also strongly supports Extended Producer Responsibility (EPR) for packaging and printed paper (PPP). EPR legislation, if approved in New York State, will require brand owners and producers of printed paper to generate a consistent stream of high-profile public education on a variety of media platforms to educate consumers about recycling right. The result: increased recovery of recyclable material and reduced

contamination; British Columbia's EPR system is achieving recovery rates of over 75%.

Challenge # 4 - Compost Scarcity, continued

OCRRA's compost is made from locally provided food and yard waste. OCRRA previously (before Covid-19 related closures) received food waste from local university dining halls and school cafeterias. Covid-19 shutdowns have put a temporary stop to almost all of this incoming food waste material and as a result, OCRRA had to make a change in the composition of its compost, relying on a mix that is more heavily wood and yard waste. OCRRA still meets and exceeds all U.S. Composting Council standards for its compost materials, but with this change the Agency will have sufficient quantities of quality compost to meet the anticipated demands of commercial and residential users but do not have the ability to expand these markets until post pandemic food waste levels are restored and recovered.

6.0 CONCLUSION

The key take-away messages from the final quarter of the year:

- As 2020 came to a close commodity prices increased. OCC, mixed paper, aluminum, and natural HDPE values increased. The national average price for corrugated containers moved up 12% in December, and was higher at the end of 2020 compared to 2019. Mixed paper was up 14% to an average of $32 per ton, and the last time the price for mixed paper was that high was October 2017. That said, the blended commodity prices continue to fall short from offsetting the cost of sorting and processing curbside recyclables. OCRRA spent approximately $2,145,500 in 2020 to subsidize residential recycling. OCRRA adopted its 2021 budget in October which ended the $0.00 tip fee for recycling and will assess a $34/ton tip for residential recyclables tipped at the Agency's contracted MRF for 2021 and 2022.
- Beyond China's retreat in the global recycling market, the Covid-19 pandemic has had significant influence on the world of recycling. Key products made from recycled materials became even more critical this year, highlighting the importance of recycling as a key supply stream for manufacturing. Immediate investment in MRF technologies to reduce contamination and improve processing capability is critical.
- Extended Producer Responsibility, especially for packaging and printed paper, is urgently needed to ensure materials are properly managed from production design to end of life, as municipalities subsidizing externalized costs of product manufactures is no longer sustainable.

APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

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APPENDIX A-1: ECONOMIC ANALYSIS OF CURBSIDE GLASS

Purpose: Provide an analysis of the economic market of curbside collection of glass, in accordance with General Municipal Law Sec. 120-AA(2), which states in part "For purposes of this section, the term "economic markets" refers to instances in which the full avoided costs of proper collection, transportation and disposal of source separated materials are equal to or greater than the cost of collection, transportation and sale of said material less the amount received from the sale of said material."

Variable definitions: Where A^t = proper collection with municipal solid waste, B^t = transportation with municipal solid waste, and C^t = disposal with municipal solid waste, A^c = cost of collection with residential recyclables curbside, B^c = transportation with residential recyclables curbside, C^c = cost to sell material (includes MRF processing), D^c = amount received from sale of materials (market price of recovered material, as reported by the MRF). The variables do not include any potential revenue generated from tipping fees.

Equation: The economic markets equation is expressed as: $A^t + B^t + C^t > A^c+B^c+C^c-D^c$; when this equation is true for a given material, then an economic market does not exist for said material.

2nd and 3rd Quarter Economic Markets for Glass:

A^t & A^c = For the purposes of this analysis, collection at curbside with municipal solid waste is assumed equal to collection with curbside recyclables. Therefore, A^t and A^c are assumed to be equal.

B^t & B^c = For the purposes of this analysis, transport with municipal solid waste to OCRRF is assumed equal to transport with curbside recyclables and transport to local MRF. Therefore, B^t and B^c are assumed to be equal.

C^t = OCRRA's cost of disposal at the OCRRF

C^c = MRF Contractor Processing Cost

D^c = Amount received from sale, or additional cost to sell, as reported by the MRF

Variable	October	November	December
C^t	-$80.37	-$81.47	-$86.50
C^c	-$66.00	-$66.00	-$66.00
D^c	-$23.73	-$29.78	-$32.90
Difference	-$9.36	-$14.31	-$12.40
Economic Market?	**No**	**No**	**No**