

# **Material Separation Plan for the Diversion of Mercury**

**(MSP8) Extension  
January 1, 2026 – December 31, 2027**

**Wheelabrator Saugus Inc.  
Saugus, MA.**

**December 2025**

# **Material Separation Plan for the Diversion of Mercury (MSP8)**

## **Wheelabrator Saugus Inc. Saugus, MA**

### **Introduction**

In 1998, the Massachusetts Department of Environmental Protection promulgated regulations governing the emissions from Municipal Waste Combustors (MWCs) [310 CMR 7.08 (2)]. Section 7.08(2)(f)(7)(a) requires that owners or operators of MWCs prepare and submit a materials separation plan (MSP) for the diversion of mercury-bearing products from municipal solid waste. MSP1 was implemented on January 1, 2000 and completed on June 30, 2002. MSP2 was implemented on July 1, 2002 and completed on June 30, 2004, MSP3 was implemented on July 1, 2004 and was completed on December 31, 2006. MSP4 was implemented on January 1, 2007 and was completed on December 31, 2008. MSP4 was subsequently extended through calendar year 2009 and was completed on December 31, 2009. MSP5 was implemented on January 1, 2009 and was completed on December 31, 2012. MSP6 was implemented on January 1, 2013 and was completed on December 31, 2017. MSP7 was implemented on January 1, 2018 and was completed on December 31, 2022. MSP8 will be implemented on January 1, 2023 and will be completed on December 31, 2025.

### **Facility Description**

The Wheelabrator Saugus waste-to-energy facility consists of two, identical mass-burn, municipal waste combustion (MWC) units, each with a capacity to combust 750 tons of municipal solid waste per day. The facility is located at 100 Salem Turnpike, Saugus, MA.

### **Goal of the Plan**

The overall goal of this Material Separation Plan (MSP) for the Wheelabrator Saugus municipal waste combustion facility is to attempt to divert mercury-containing products from the municipal solid waste stream that potentially could be delivered to the Wheelabrator Saugus facility. To accomplish this goal, Wheelabrator Saugus will attempt to educate municipal officials, school officials, health care professionals, the general public and businesses regarding the need to divert mercury-containing products from the municipal solid waste (MSW) stream and to provide a source of information concerning proper disposal. Wheelabrator Saugus will also provide resources for those that wish to properly dispose of and recycle their mercury-containing products.

### **Plan Development Process**

The development of MSP8 was accomplished through a survey that was sent to each community contact participating in the Mercury Recovery Program. The survey outlined the success of the program since its inception, listing the types and quantities of mercury items collected and safely recycled. It also asked several questions regarding different aspects of the program, asking for their feedback, to attempt to ascertain if these components of the program have been successful and if they thought they should be continued. The survey also asked if the community contacts for the Mercury Recovery Program could think of anything to improve and help the program in the

future. The survey was open ended and resulted in numerous very helpful responses. The survey was followed up with numerous phone conversations.

## **Target Sectors**

The target sectors for this Plan are the general public, local Health, Public Works, Building Departments, plumbing, electrical and building contractors, and schools within the Wheelabrator Saugus service area.

## **Service Area**

The Wheelabrator Saugus facility serves fourteen communities (see Table 1). The service area consists of primarily North Shore communities. Geographically from Saugus, east to Rockport and southwest to Boston. From Boston, north to Medford and Woburn.

### **Communities participating in the WTI Saugus Mercury Recovery Program:**

Boston, Chelsea, Everett, Gloucester, Lynn, Marblehead, Medford, Newton, Norwood, Revere, Rockport, Saugus, Woburn

### **Expanded Participation in the WTI Mercury Recovery Program**

Any community contracted with Wheelabrator for trash disposal is automatically included in participation in the WTI Mercury Recovery Program. Currently thirty-nine communities are under contract directly with Wheelabrator Saugus. If a community is not under direct contract with Wheelabrator they can still participate in the WTI Mercury Recovery Program under the expanded program provisions. If a community is not directly contracted with Wheelabrator for trash disposal but rather a private trash hauler they can still participate in the program. If it is verified that this particular community's trash will be exclusively disposed of at a Wheelabrator facility for a minimum of two years then that community is eligible to participate in the WTI Mercury Recovery Program. There are no non-contract communities participating in the expanded program provisions at this time.

## **Description of Activities**

### **Outreach/Education**

- Goal**

The goal of the Outreach/Education portion of MSP7 is to educate the general public about the potential effects of mercury on human health and the environment. Also, its goal is to inform residents, municipal officials, health professionals, contractors and school officials about common mercury-containing products, proper handling of mercury containing devices and how to utilize the community-based collection program for the proper disposal of mercury and products containing mercury.

### **Regional Outreach**

- General Discussion**

Wheelabrator Saugus proposes to continue to work in conjunction with the other two Wheelabrator Waste to Energy facilities located in North Andover and Millbury, Massachusetts in devising and implementing a regional outreach/education program.

The three Wheelabrator MWCs subject to 7.08(2)(f) have service territories that range from the Atlantic Coast to Worcester and from New Hampshire to Rhode Island and Connecticut. All of these facilities also have a percentage of their waste coming from non-specific markets. Therefore, the Regional outreach/education program, in addition to targeted local programs, has the ability to reach the greatest numbers of people and businesses.

The Regional program will not target specific municipalities in Massachusetts, but will focus on development and delivery of generic messages to educate consumers and others who handle mercury products. These messages may include: identification of mercury-containing products, efforts to raise awareness of health risks of improper disposal of mercury products (thermometers, thermostats, fluorescent lighting, elemental mercury etc.) in the normal course of residential and commercial refuse collection, and providing consumers and others who handle mercury products with information concerning the proper method of recycling and/or disposal of such products.

The Regional program will use mass communication channels to reach the greatest number of Massachusetts's citizens, as well as smaller subsets of high-end users of mercury products, with specific action steps they can take to help ensure that mercury containing products are properly recycled and/or disposed.

## **Regional Outreach Programs**

- Radio Advertisements**

Radio is a targeted medium that provides cost-efficient mass communication and quickly builds frequency of message delivery. Radio added-value programs can provide an opportunity to interact with local communities. Some radio stations (talk radio) provide an excellent opportunity for on-air discussions regarding different aspects of the Mercury Recovery Program. These programs also allow for direct communication with residents, as individual listeners often will call into the program with specific questions.

Wheelabrator Saugus plans to implement radio advertisement buys in the spring, summer and fall months. Advertisements will be placed in both locally based smaller wattage radio stations and also in selected larger wattage radio stations. A broad variety of radio stations will be chosen to assure a broad spectrum of the population can hear the promotional advertisements. Two sixty second ads have been recorded. Both have a musical background; one has a catchy musical jingle with an overview of the Mercury Recovery Program. The second ad is more a narrated presentation and is divided into two thirty second parts. The first half is devoted to the residential and business aspect of the program, the second half is focused on contractors (plumbers, HVAC, electricians and building contractors that do renovations). Both radio ads identify mercury containing products, talk about the need to properly dispose of these products because of their impacts on human health and the environment and provide information regarding their local program, who to contact, and where they can properly and safely dispose of these products in their community.

**Budget Estimate:**

<b>2023</b>
<b>\$36,511</b>

## **Regional Outreach – Television Advertisement**

- **Television Advertisement for promotion of recycling of rechargeable batteries.**
- **General Discussion**

***Wheelabrator Saugus proposes to develop a television advertisement campaign focusing on the recycling of rechargeable batteries. We plan to target the advertisements to be shown in all the current communities serviced by Wheelabrator's Mercury Recovery Program.***

Actual design of the advertisement will be produced in conjunction with WIN Waste Innovations communications department and a professional advertising firm. The goal is to educate viewers as to the importance of properly recycling rechargeable batteries. They will be directed to MADEP website [recyclesmartma.org](http://recyclesmartma.org), Beyond the Bin for instructions as to where in their geographic area to recycle these batteries. It will also direct viewers to contact their local DPW or Health Department for more information.

**Funding for these television advertisements will be equally drawn from all three Wheelabrator plants.**

<b>Budget Estimate ;</b>	<b><u>2026</u></b>
<b>Estimated Saugus budget:</b>	<b>\$40,000.00</b>
<b>Total combined estimated budget:</b>	<b>\$120,000.00</b>

## **Local Outreach Programs**

- **Objectives**
  - The objectives of the Local Outreach Program are:
  - Inform the public (local residents) within the respective MWC facility's service area regarding the potential harm mercury poses to human health and the environment
  - Identify common products that contain mercury
  - Provide information about the local Mercury Recovery Program
  - Provide information on the proper methods for handling and disposing of mercury containing products

Local outreach activities will primarily include informational advertisements in local media, e.g., newspapers, regarding local mercury recycling programs such as thermometer exchange programs, mercury drop-off locations and times, Household Hazardous Waste Day collections etc., and production and distribution of other materials as needed for informing the public about mercury and the various MSP Programs.

The MSP Administrator has arranged with a news service to place ads in local newspapers. Therefore, a focused message on the proper handling and recycling of mercury containing products will reach most, if not all, local newspapers in the Wheelabrator Saugus Contract Communities. In some cases advertisements will be placed jointly for two or more communities in the same newspaper, such as Gloucester and Rockport.

<b>Budget Estimate:</b>	<b><u>2023</u></b>
• News ads, 60 @ \$340 ea.	\$20,400
• (10 Community Papers x 6 ads ea.)	
• HHW / Spec ads (6) @ \$340 ea.	<u>\$2,040</u>
	<b><u>\$22,440</u></b>

- **Educational Boards**

Large educational boards that communities use to promote their Mercury Recovery Programs have been distributed to each community. Replacement boards will be provided upon request. These boards are large, graphic, colorful educational presentations printed on a firm plastic board. These can be attached to walls or used in educational presentations. They have three distinct messages: environmental concerns, which products contain mercury, and where these products can be safely disposed / recycled in their community.

- **Educational Desktop Displays**

Educational desktop displays have been distributed to Boards of Health and DPW offices for display. They were also distributed to each community library. There are two different desktop displays; one (blue) depicts the regular community based collection program for the collection of thermostats, thermometers etc. The other (green) depicts the fluorescent lamp collection program. These stand-alone desktop displays can be displayed on desks, counters, tables etc.

## **Mercury Recovery Program**

- **Objectives**

Since the implementation of MSP1 each community has had their own locally based Mercury Recovery Program. The goal of the Mercury Recovery Program is to provide a centrally located and easily accessible site or sites in each community for the safe disposal of mercury and products containing mercury. Working closely with the Directors of Health, Boards of Health, Department of Public Works, Recycling Coordinators, Building Departments, other municipal officials and local residents' successful collection programs have been implemented in each community. The goal for MSP8 is to continue the development of these local collection programs in order to maximize the recovery of mercury and products containing mercury, thereby diverting these items from entering the municipal solid waste stream. The Mercury Recovery Program consists of several components as discussed below.

- **Community Based Collection Program**

In each participating Contract Community there is at least one, and often two or three collection sites. At each site there is a minimum of two five-gallon plastic collection pails, and a mercury spill kit. Once the pail is full of mercury containing devices, the local coordinator at that particular site, or the MSP administrator, calls the 800 telephone number prominently displayed on the front of the pail for a pickup. Complete Recycling Solutions Inc. is the service provider for the program and normally will pickup the full pail within two weeks. Upon picking up the full pail, an empty pail is left at the site.

<b>Budget Estimate:</b>	<b><u>2023</u></b>
	<b><u>\$4,000</u></b>

- **School Clean Sweeps**

The School Clean Sweeps Program was initiated in the first MSP and has been offered ever since. The school systems have all conducted Clean Sweeps and have removed most of the mercury containing devices. On occasion, schools that have conducted what they considered to be a thorough clean-out of mercury and mercury containing devices, have identified additional items containing mercury requiring an additional visit to that particular school system. The Clean Sweeps Program will continue to be offered to the school systems throughout MSP8, on a maintenance basis. The Clean Sweeps Program will identify mercury-containing devices and assist the schools in their proper disposal and provide replacement non-mercury products as needed.

The School Clean Sweep Program will replace on a one-to-one basis most common devices found in the science laboratories and nurses offices, i.e. lab thermometers, sphygmomanometers and barometers. Non-mercury replacements will be exchanged for these three mercury-containing items. If a school system determines that they would like a review or a full Clean Sweeps Program one will be provided.

A full School Clean Sweeps Program consists of an initial consultation, normally associated with a site visit. All of the schools in that particular school system are notified by an official of the school system regarding the impending program and provided with instructions regarding the identification of mercury and products containing mercury, collection and exchange of replacement products. Elemental mercury and devices containing mercury are identified and usually consolidated at the high school prior to the actual Clean Sweep. On a specific agreed upon date the service provider will go to the designated location at the high school and safely remove any collected elemental mercury and or products that contain mercury. Replacement products will be exchanged on a one to one basis at that time.

**Budget Estimate:** 2023  
\$500

- Bulk (Miscellaneous) Mercury Collection Program

The Bulk Mercury Collection Program was implemented in MSP2. When needed this program has been very beneficial. Large quantities of elemental mercury have been found in basements, garages, closets etc. The largest quantity of elemental mercury recovered was located in a wooden barrel in a resident's backyard. Elemental Mercury has been found in basements, garages, sheds and numerous businesses.

In all these instances the program manager first inspects the elemental mercury, identifies its location and what kind of container it is in. The service provider (CRS) is then contacted, given the specific information on estimated weight, type of container the mercury is in, and any other specific information needed for the safe removal of the mercury. The service provider will then go to that specific location to pick up the mercury.

The Bulk Mercury Collection Program will be continued in MSP8.

**Budget Estimate:** 2023  
\$500

- Thermometer Exchange Program

An important component of the overall program has been the Thermometer Exchange Program. Although the actual number of thermometers collected through this aspect of the

program has declined over the past several years, there continues to be a certain number of residents that exchange mercury fever thermometers each year. The local coordinators in the Boards of Health or Department of Public Works still consider this aspect of the program important as an advertising tool and promotion for the program.

This program will be continued throughout MSP8. Each community will maintain a supply of new digital fever thermometers to be given to residents in exchange for glass mercury fever thermometers that they bring in for safe disposal. Additional digital thermometers will be provided to each community on an as needed basis. A new supply of thermometers was purchased in 2022 which should last for the next few years.

**Budget Estimate:** 2023  
\$0

- **Thermostat Program – Mailing to Contractors**

Each year a direct mail campaign is conducted as a direct outreach to specific contractors who come in direct contact with installation and removal of thermostats. The primary focus of this outreach is directed towards plumbers, HVAC contractors, electricians and building contractors that do renovations.

The Mercury Recovery Act in Massachusetts now makes it illegal for any individual or business to improperly dispose of mercury or mercury containing devices. Contractors are the most likely to come in contact with a used thermostat when changing out old heating or cooling systems or just through energy saving efforts on the part of the homeowner.

As in past years, a postcard mailing will be conducted two times a year, in the spring, and late summer. The postcard is 6"x9", and is designed to have an immediate impact. The postcard specifically targets plumbing contractors, HVAC contractors, electricians and home improvement contractors with information regarding the passage of the Mercury Recovery Act. The postcard is mailed to the address of licensure for each contractor informing them where they can safely dispose of thermostats and other mercury containing devices.

**Budget Estimate:** 2023  
\$8,666

- **Thermostat Rebate Program for Plumbing Supply Businesses and Contractors**

The Thermostat Rebate Program for thermostats is still available to plumbing supply businesses in the Wheelabrator service area. In the past this program has been fairly successful in recovering thermostats from these businesses. The small financial incentive has proven to be effective in motivating contractors and supply businesses in properly disposing of these devices.

This program will continue to be available to local plumbing supply businesses for MSP8. The business will be reimbursed five dollars (\$5.00) for each mercury thermostat collected. In turn the business will be expected to reimburse each contractor three dollars (\$3.00) per mercury thermostat. Although the rebate program is still available, Wheelabrator has ceased its active promotion of the rebate program.

Although the rebate program is still available when requested, only one large plumbing supply business is still participating. All the other plumbing supply businesses, at

Wheelabrator's encouragement, have switched to the Thermostat Recycling Corporation (TRC) program.

In 2017 TRC and Wheelabrator entered into a partnership, with a joint memorandum of understanding, working together to encourage plumbing supply businesses and companies performing energy efficiency installation and weatherization to participate in the TRC program. Because of Wheelabrator's efforts they are credited with the number of thermostats collected through the TRC program in Wheelabrator's service areas.

<b>Budget Estimate (Rebate)</b>	<u><b>2023</b></u>
	<b>\$500</b>
• <b>Plumbing Supply Collection Costs:</b>	<b>\$500</b>

- **Boston Department of Public Works**

Resources are available for the City of Boston Department of Public Works to assist in programs for the collection of mercury and products containing mercury. Resources can be used for advertising for HHW programs and for direct assistance with collection programs, such as the purchase of Universal Waste Sheds.

<b>Budget Estimate</b>	<u><b>2023</b></u>
	<b>\$20,600</b>

- **Fluorescent Lamp Reimbursement Program**

The Fluorescent Lamp Reimbursement Program reimburses communities the full cost of recycling fluorescent lamps up to the amount listed in the Massachusetts Procurement Contract which at present is currently six cents per linear foot. This program has been very successful in encouraging communities to implement fluorescent lamp collection programs. Communities normally collect fluorescent lamps from municipal buildings and throughout the school system. Some communities also offer residents and small businesses the opportunity to recycle their fluorescent lamps. This program specifically excludes street lamps and ballasts. All lamps must be properly packaged. Additional charges by the service provider that result from the lamps not being properly packaged and ready for shipment will not be covered.

Several years ago local hardware stores were invited to participate in the program in partnership with their local community. These hardware stores are located in communities that do not otherwise have a convenient location for residents to properly dispose of their fluorescent lamps. These hardware stores provide a convenient drop-off location for residents interested in properly disposing of their fluorescent lamps. Fiber drums and or boxes are left at the participating hardware stores for the collection of four-foot fluorescent lamps and miscellaneous lamps such as u-tubes, circulars and compact fluorescents. Currently there is one hardware store participating in partnership with their local community in the WTI Saugus service area. When the drums and or boxes are full, the community's DPW will pick them up, leave replacements, and bring the lamps back and put into their inventory. These partnerships have been extremely successful resulting in thousands of fluorescent lamps, primarily compact fluorescents, being diverted from the municipal waste stream. The Fluorescent Lamp Reimbursement Program will continue in MSP8.

<b>Budget Estimate:</b>	<u><b>2023</b></u>
	<b>\$12,000</b>

- **Universal Waste Shed**

Wheelabrator has provided sturdy, attractive storage sheds for communities for the storage of Universal Waste. These sheds have primarily been used to store fluorescent lamps and mercury containing devices. They have proven to be essential in the success of local community programs.

From time-to-time new communities' contract with Wheelabrator and often require a shed in order to implement a collection program for fluorescent lamps. In some cases, larger communities have requested a second shed because they find one shed is just not enough to handle the volume of lamps collected. Often these additional sheds are placed at a different location in the community, such as at the school department. School departments are typically the largest generator of fluorescent in a community and often transport of the lamps from the schools to the central collection location (shed) is problematic.

One shed is budgeted each year for the possibility of a new community being contracted or an additional shed is needed in a particular community. The sheds are delivered and erected on an appropriate site selected by the community. Each shed has a sign identifying it as a Universal Waste Shed and lists the products considered as Universal Waste. Universal Waste Sheds will continue to be offered to communities in MSP8.

**Budget Estimate:** 2023  
\$0

### **Mercury Spill Allowance**

Since the beginning of the program there have been three small spills of mercury. In each case Wheelabrator responded quickly to the incident with resources for a quick clean up and complete resolution of the problem.

**Budget Estimate:** 2023  
\$1,000

### **Program Administration**

The Mercury Material Separation Program will be managed by the Wheelabrator Saugus facility. Wheelabrator Saugus has retained Mr. Patrick Scanlon of Scanlon Associates to conduct the general administration of the Plan. Mr. Scanlon will be responsible for ensuring the elements of the Plan are accomplished and for administering the budget. Mr. Scanlon will also coordinate with MA DEP to minimize duplication of efforts between this MSP and DEP's on-going efforts.

### **Budget Estimates**

The budget estimate contained in this plan is the budget for 2023 and is based on the previous year's budget vs expenditures. It is anticipated that the budget for last two years of MSP8 will be similar to the 2023 budget listed, with minor changes from year to year in different categories.

Local Outreach budget for 2023 is based on the three-year average cost estimates for radio and newspaper advertisements, for the year's 2011, 2012 and 2013.

Each year's budget is based on the plants previous years processed tonnage. On this basis alone there will be slight fluctuations.

At the beginning of each year a modification for the coming years estimated budget is submitted to the MADEP. This modified budget accurately reflects the amount of money available for the administration of the program for that specific calendar year. Also, dynamics of the implementation of the MSP may change during any given year and the modification may reflect an alteration or change in one or more operational aspects of the program.

## **Measurement and Evaluation**

Compliance with the Material Separation provisions requirements of 310 CMR 7.08 will be based upon the implementation of this Plan, e.g., implementation of a regional and local outreach program, offering a thermometer exchange program, etc. This MSP does not estimate the amount of mercury expected to be diverted or the participation rate (i.e., number of people who will be moved to action). Experience and time have prioritized activities that have the greatest likelihood of success. However, an accurate accounting of the amount of mercury diverted from trash, even in hindsight, is difficult, if not impossible. A person persuaded by this MSP's Outreach Programs to properly recycle mercury may take the product to a resource provided by a waste-to-energy facility or may use one of several other means that are not evaluated by the facility's MSP. A significant amount of the mercury diverted by the outreach efforts may be disposed or recycled in a non-MSP location or as part of other collection programs. Indeed, if the education efforts provided by this MSP are successful, consumers will hopefully purchase non-mercury-containing products as a substitute for mercury-containing items.

Complete Recycling Services (CRS), a hazardous waste service company has been hired by Wheelabrator to service the community collection sites, School Clean Sweeps and bulk mercury collection programs. All mercury containing devices collected by the Mercury Recovery Program will be identified and counted or weighed. Each pail that is collected by CRS will be emptied onto a sorting table, counted, and consolidated. The contents of each pail will be tabulated, and the results of this process will be provided to the MADEP as part of the Program's Annual Report.

**Table 1. Contract Communities - Wheelabrator Saugus Inc.**  
**Community Population:**

Boston	675,646
Chelsea	40,787
Everett	49,075
Gloucester	29,729
Lynn	101,253
Marblehead	20,441
Medford	59,659
Newton	88,923
Norwood	31,661
Revere	62,186
Rockport	6,992
Saugus	26,619
Woburn	<u>40,876</u>
<b>TOTAL</b>	<b>675,646</b>
	<b>558,201</b>

Source: U.S. Census, 2020

Number of Contract Communities Served - 13

Current budget based on 2022 budget vs expenditures plus the 2022 processed tonnage

Budget Estimate for 2024 and 2025 will change depending on total tonnage processed in each successive year. It is not expected to be a large deviation year to year.  
See attached Budget Estimate.

## WTI Saugus – MSP8 – 2023 Budget

<b><u>Admin Costs</u></b>	<b><u>2022</u></b>
<b>Fees &amp; Expenses</b>	32,000
<b>WTI Admin Cost</b>	3,500
<b>WTI Saugus Admin Cost</b>	5,000
<b>Insurance</b>	<u>3,000</u>
<b><i>Sub-Total</i></b>	<b><i>43,000</i></b>

### Local Outreach

• <b>Radio Advertisements</b>	36,511
• <b>News ads, 100 @ \$340 ea.</b>	20,400
• (10 Community Papers x 10 ads ea.)	‘
• <b>HHW / Spec ads (6) @ \$340 ea.</b>	2,040
• <b>Boston DPW (HHW ads)</b>	8,500
• <b>Thermostat Contractor Mailing</b>	<u>8,666</u>
• (2 mailings @ \$3,850 ea.)	
<b><i>Sub-Total</i></b>	<b><i>76,117</i></b>

### Collection Costs

<b>Community Collection Costs</b>	4,000
<b>School Clean Sweeps</b>	500
<b>Bulk Collections</b>	500
<b>WTI / TRC Thermostat Program</b>	0
<b>Plumbing Supply Collection Costs</b>	<u>500</u>
<b><i>Sub-Total</i></b>	<b><i>5,500</i></b>

### Programs

<b>Thermometer Exchange</b>	0
<b>Miscellaneous Printing</b>	1,500
<b>Fluor Lamp Reimbursement</b>	12,000
<b>Boston - Universal Waste Shed (1 Unit)</b>	12,100
<b>Thermostat Rebate (Plumb Supply)</b>	500
<b>Mercury Spill Allowance</b>	<u>1,000</u>
<b><i>Sub-Total</i></b>	<b><i>27,100</i></b>

<b><i>Contingency</i></b>	<b><i>50,000</i></b>
<b><i>TOTAL</i></b>	<b><i>\$201,717</i></b>

- 2022 processed tonnage – 403433 X .50 = \$201,717