Kootenai County
Solid Waste Department
2018 Waste Analysis Report

KOOTENAI COUNTY SOLID WASTE DEPARTMENT
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2018 Waste Stream Analysis for Kootenai County Solid Waste

Introduction

The annual report is an important historical record and planning tool. Utilizing historical data, the Solid Waste Department can address current obligations while looking to the demands of the future.

Detailed reports and information can be viewed at the Idaho Department of Environmental Quality (DEQ) office in Coeur d'Alene, Idaho or in the administration office of the Kootenai County Solid Waste Department.

In 2018, the Department experienced an increase in overall waste generation attributed to the growing local economy. In reviewing historic data, the increase appears to be directly related to increased construction throughout the area along with an increase in population.

The transfer facilities and rural sites managed 226,775 tons and served 710,668 customers – an increase of 5.3% or 35,813 customers in one year! The landfill managed a total of 175,249 tons - an increase of 5.8% or 9,705 tons in 2018.

The Department offers a variety of services and strives to implement best management practices in compliance with ever-changing regulatory requirements. We are committed to provide citizens with affordable and efficient waste disposal.

Summary

This section contains an overview of the solid waste system and some planning tools used to help meet the needs of Kootenai County residents relative to waste disposal.

The Department is an affordable asset to Kootenai County providing financial stability to the County's financial future. This enterprise-funded program is currently debt-free, managing assets appropriately, and maintaining fiscal responsibility for operations, development, equipment, expansion and future landfill closure and post-closure costs.

Kootenai County Solid Waste department consists of the following:

- Fighting Creek Farm Landfill – the active landfill open 6 days per week;
- Prairie Transfer Station – a full-service transfer station open 7 days per week;
- Ramsey Transfer Station – a full-service transfer station open 7 days per week;
- 12 Rural Residential Collection sites located throughout the County; and
- Granite & Ramsey landfills which are both closed for waste disposal.

Flexibility is the key to success in managing solid waste and it takes many talents and skills to keep the department running smoothly. There are a total of 62 full-time employees, with additional seasonal staff for the summer months.

The County owned and operated landfill is key to this goal and the Department is always researching alternative methods to maximize disposal space, alternative waste management methods, and disposal and management of leachate. In addition, material reuse or recycling is encouraged to reduce the amount of waste sent to the landfill.

Budget

The Department carefully plans activities to provide for the maximum benefit of available funding. As an enterprise fund, the solid waste program operates more like a business than the typical tax-based government entity and does not receive any support from tax dollars. Solid waste dollars are acquired through fees and kept in the solid waste fund, which is restricted for solid waste operations, activities, capital improvements, and construction.

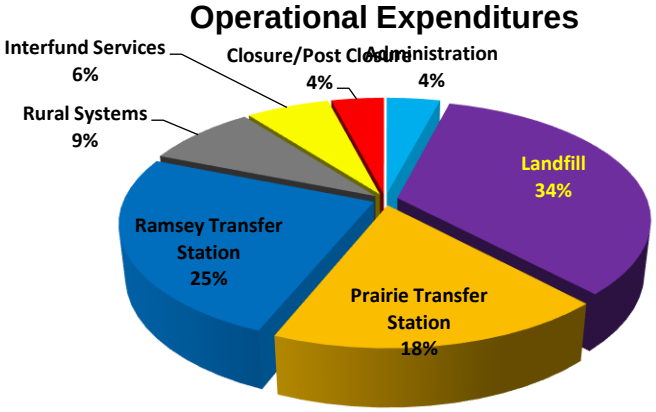
Idaho Code §39-7417 requires that financial assurance mechanisms are in place for landfill closure and post-closure expenditures. Kootenai County's policy is to set aside the calculated cost of the depletion of landfill airspace annually. The practice sets aside funds each year for future closure post-closure costs to close and maintain the closed landfill. This fairly allocates future costs to the current year's disposers and reduces the future need to come up with substantial funds for these required actions.

These funds are restricted and used for closure and post-closure expenses only. Each year the County Finance Director provides a letter to Idaho DEQ meeting this financial assurance requirement. As of September 30, 2018, a total of $8,527,000 has been set aside for closure/post-closure expenditures. See Appendix A-4 for additional information.

For detailed information about the financial records, view the Comprehensive Annual Report prepared by Kootenai County Auditor's office on the County's website at: www.kcgov.us/departments/auditor/financials/downloads.asp.

The Department maintains strategic, long-term financial plans and works to finance the required operation and expansion of services within the solid waste system. Expenditures are broken down into the following categories: Administration, Closure/Post Closure funding, Interfund Services (payment to the general fund for services provided by other departments), Landfill, Prairie Transfer Station, Ramsey Transfer Station, and Rural Systems. In 2018, the Department expenditures were $12,016,229.

All salaries necessary to support these activities are contained within the budget categories.



Fighting Creek Farm Landfill

Kootenai County owns and operates a fully permitted municipal solid waste landfill located approximately 16 miles south of Coeur d'Alene, Idaho. The Fighting Creek Farm Landfill includes over 500 acres of land, with approximately 115 acres permitted for active landfill. Recent estimations are that the currently constructed cells reach interim elevation by 2025. The additional cell developments and construction (E3/E4) will extend the landfill life to 2040, depending on waste growth.

The landfill was designed under 40 CFR 258, Federal Subtitle "D" regulations and complies with the Idaho Solid Waste Facilities Act, Idaho Code §39-7400. To meet these requirements, the landfill has been, and will continue to be, constructed with a fully developed liner, leachate collection system, and gas extraction system.

On October 25, 2016, the Department obtained a Tier 1, Title V Air Quality Permit and has continuously maintained compliance with this permit. Copies of the semi-annual and annual reports to the EPA are included with the electronic version of this report. (See Appendix A-2) In addition, DEQ completed an air quality inspection on October 25, 2018 with a result of operations in apparent compliance. (See Appendix A-1)

The landfill is the cornerstone of the solid waste system in Kootenai County. The facility is open 307 days per year providing service 6-days per week (Monday through Saturday). The facility is not open to the public as processing of most waste is completed through the two transfer stations. The removal of recyclable and reusable materials from the waste stream prior to landfilling is imperative to save landfill space.

The landfill received 175,249 tons of material in 2018 - an increase of 9,705 tons over last year. The waste going to the landfill has steadily increased each year since 2011. The 2015 Life Cycle Analysis used a growth factor of 3% for historic average growth. Although for the last several years the landfill has seen increases greater than 3%, the overall long-term growth has not exceeded this planning standard. These figures and calculations are currently being re-evaluated and an updated life cycle analysis will be complete in 2019.

Daily operations include placement/compaction of refuse and covering of these materials. Native clay soil is used for intermediate (or longer term) cover. Posi-Shell™ is applied as an approved ADC (alternative daily cover). ADCs conserve landfill space and generally allow for better landfill gas migration controls and gas recovery within the waste mass.

Placement of waste in Phase 2 of the East Cell of the landfill began on June 14, 2016. A total of 426,413 tons of material placed in this section of the landfill. Phase 1 of the East Cell of the landfill received waste from August 5, 2013 through June 23, 2016 with a total of 389,759 tons. The original landfill footprint that started fill placement in 1993 reached interim closure elevation in August 2013 with approximately 2,350,597 tons of material in place.

A life cycle analysis is a planning tool to help understand how well operators are doing in managing and disposing of waste within the landfill. Based on historical data, the overall long-

term growth rate of waste to the landfill is 4%. The Kootenai County Farm Landfill 2015 Life Cycle Update, prepared by the engineering firm of CH2M Hill, estimated the near term effective waste density for Cell E1 to be 1,050 pounds per cubic yard (lb/cy). Over the longer term (beyond 2026), the waste density is expected to increase to 1,500 lb/cy. The lower waste density is due to lower compacted material in the base of the two newer cells. The Department is continuing to work with engineering firms to update the landfill life cycle analysis in 2019.

Gas System

The landfill has a gas extraction system, which currently includes 174 landfill gas wells in the original landfill footprint, and 30 collection points in the East cell. This extensive gas well and trenching system collects landfill gas and conveys it to a collection point that feeds two operational ground flares and a landfill gas to energy facility. This system is regularly monitored and adjusted to ensure compliance. Required reporting for this system is included with the Tier 1, Title V semi-annual and annual reports (See Appendix A-2)

In 1994, installation of the first blower/flare took place and the gas system activated in 1995. Installation of a second enclosed flare took place in 2000. Kootenai County continues to implement landfill-gas control devices well ahead of state and federal requirements.

In March 2012, a landfill gas to energy project with Kootenai Electric Cooperative for the utilization of landfill gas to generate electricity became operational. Since then this facility has generated over 79 million kilowatt hours of electricity.

Leachate

Leachate is a liquid by-product that results from the compaction of saturated refuse and/or the migration of natural precipitation through garbage. Under current rules, all landfill leachate must be treated and disposed. Leachate is not characterized as hazardous material, but does contain soluble suspended material that comes from the waste.

Not allowing storm water to contact garbage is the best way to minimize leachate production. In 2018, the department completed construction that consisted of covering approximately 16 acres of landfill with a liner material to prevent leachate as much as possible. It is anticipated that approximately 6 of these acres of liner are temporary in nature. The remaining 10 acres of liner material may qualify as final cover for the landfill. The installation of this material has the potential of preventing millions of gallons of clean storm water from becoming leachate, thus reducing the quantity of leachate to manage on-site.

The landfill manages leachate in a variety of methods, with ultimate disposal handled one of three ways: recirculation, evaporation, or off-site delivery to a wastewater treatment facility. Due to heavy precipitation during the previous winter, the department hauled over 2.5 million gallons of leachate to the Hayden Area Regional treatment facility for processing. In addition, the department processed 6.6 million gallons through the on-site evaporation process, bringing the total gallons of processed leachate for the season to 9.1 million gallons. (See Appendix A-7)

The following represents the leachate processed and disposed utilizing the misting system over the last 5 seasons:

- July-September 2014 – 5 million gallons
- April-August 2015 – 5.7 million gallons
- April- September 2016 – 4.8 million gallons

- April-October 2017 – 5.5 million gallons
- April-October 2018 – 6.6 million gallons

Groundwater

The landfill operations permit requires a groundwater monitoring system. Nine (9) groundwater monitoring wells are sampled biannually on the property. The location of these monitoring wells are up gradient and down gradient from landfill operations. The positioning of these sampling points allows for comparative analysis to background conditions of natural groundwater. Results enable engineers to discern if any ground water degradation has occurred as a result of landfill operations.

As part of a community outreach program, two domestic wells are sampled during the semi-annual sampling events.

To date, no landfill related degradation of ground water, at the landfill or the two domestic well sites, have been found. (See Appendix A-6)

Surface Water Monitoring - MSGP

The EPA and Idaho DEQ have established rules for surface water monitoring at the Fighting Creek landfill. Over time, the Department has established an extensive surface water infrastructure to assure any surface water leaving the site is clean.

A series of sedimentation ponds situated throughout the property accept run-off from all the local drainage areas. These ponds function mainly to aid in removing suspended solids. The design of each pond is for a specific retainage period to adequately control sedimentation. Pond cleaning is done as necessary during the summer months, if silt has significantly reduced the holding capacity of water in the pond.

These ponds typically drain through large pre-designed vegetated drainages. This allows for natural filtration and aids in further cleaning the water. Within the drainage areas there also exists a series of rock “finishing dams” designed to slow down the run-off allowing more time for sediment to drop or filter out.

Enhanced wetland structures also help to remove solids and provide a robust microenvironment. These areas positively affect local wildlife. An abundance of ducks and geese migrate to these wetlands each year to nest.

The impact from efforts to maintain such clean water is also evident through sampling results. Typical data shows the surface water leaving this site to be consistently be of higher quality than the surrounding receiving drainages. (See Appendix A-8)

Landfill Future Development

The Department regularly reviews/updates its development strategy. Planning for future work, including site development for future material sources for landfill cover, perimeter road expansion/build out, corridor development, phases 3 and 4 landfill development, and south cell permitting/engineering is necessary and maintains our fiscal accountability.

The landfill property includes an area to the south and west of the original landfill footprint estimated to provide solid waste disposal needs for Kootenai County through 2070.

Closed Landfills

In addition to the landfill at Fighting Creek, the Department is responsible for two closed landfills.

The closed Ramsey landfill is located adjacent to the Ramsey transfer station in Coeur d'Alene, Idaho. The landfill portion of this complex stopped taking waste in 1993 upon the opening of the landfill at Fighting Creek. The Ramsey landfill utilizes an active gas extraction system combined within an impermeable cover. Landfill gas from this landfill is flared onsite. The older portion of this landfill (located on the west side of Ramsey Road) no longer produces measurable quantities of gas. See Appendix A-5 for additional Ramsey Gas System Reporting data.

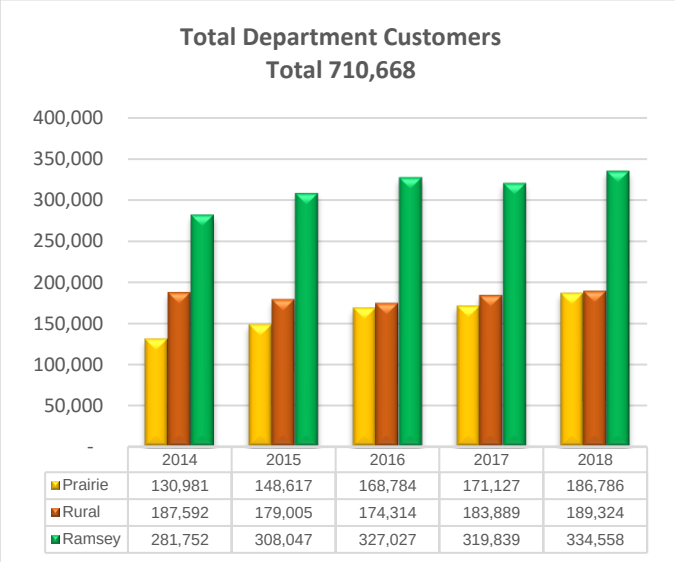
The closed Granite landfill is located on the northern border of Kootenai County. This facility was shared between Kootenai and Bonner County and stopped accepting waste in the 1980's. For many years, this location was far from dwellings. The sale of adjacent property and the establishment of rural residential development prompted the fencing of this property. A passive gas probe system was installed in 2008 to verify the absence of meaningful methane production at this location.

Complete landfill gas reports are available for review at the Idaho DEQ office in Coeur d'Alene or the administration office of the Solid Waste Department.

Customer Statistics – Transfer Stations

The Department is an affordable asset with a positive customer service reputation. The solid waste system in Kootenai County is owned by the citizens and exists solely for their use. A great deal of effort and funds are expended to provide safe and efficient service to citizens while working to deny access when out of county customers attempt to use the facilities.

In 2018, there was 710,668 customer site visits (customers), an increase of 5.3% or 35,813 from last year. These totals do not take into account the ten unattended rural sites in the County.



	2014	2015	2016	2017	2018
Prairie	130,981	148,617	168,784	171,127	186,786
Rural	187,592	179,005	174,314	183,889	189,324
Ramsey	281,752	308,047	327,027	319,839	334,558

Prairie customer site visits totaled 186,786 in 2018. These figures break down as follows:

- Increase of 15,659 or 9.1% increase.
- Average of 520 per day.

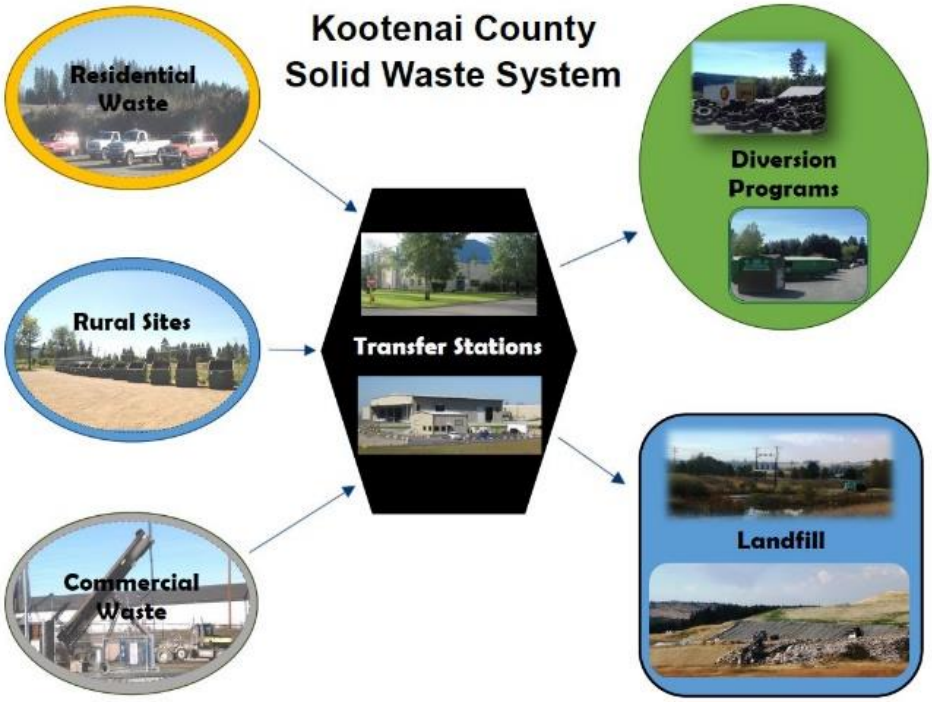
- Saturday was the busiest averaging 677 per day.
- Thursday was the least busy averaging 435 per day.
- Low of 177 customers on February 18, 2018.
- High of 1,059 customers on April 22, 2018.
- Trivia note: From 2009 through 2018, there have been 1,345,136 customer site visits to the Prairie site.

Ramsey customer site visits totaled 334,558 in 2018. These figures break down as follows:

- Increase of 14,719 or 4.6%.
- Average of 931 per day.
- Saturday was the busiest averaging 1,120 per day.
- Thursday was the least busy averaging 823 per day.
- Low of 193 customers on February 18, 2018.
- High of 1,774 on May 12, 2018 with 1,774.
- Trivia note: The Ramsey site serves 47% of the total customers.

Staffed rural sites at Athol and Chilco had 189,324 customers in 2018.

See Appendix B for additional charts relating to customer statistics.

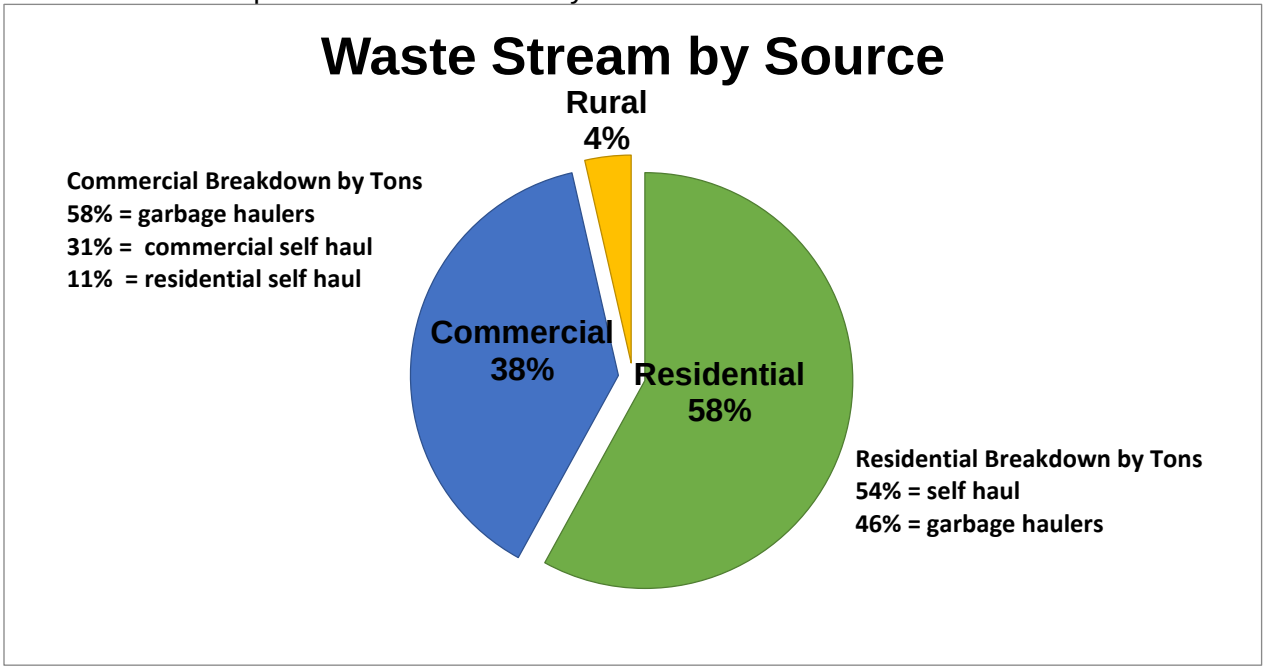


Waste Statistics

In 2018, the Department weighed in 205,557 tons through the two transfer stations. This represents an increase of 5.5% or 10,790 tons from last year for waste coming into the facilities. Material diverted from the waste stream reduces what goes into the landfill.

Waste shipped to the landfill in 2018 was 175,249 tons, which is up 5.8% or 9,705 tons from 2017. The landfill received 9,141 loaded trailers from the two transfer stations. The upturn to the economy with additional construction and new business opportunities around the County are more than likely the cause for this increase.

The chart below depicts the waste stream by source.



This shows that 58% of the waste into the transfer stations comes from residential user, 38% from commercial activity and 4% from the rural systems collection sites. An interesting footnote is that 54% of the residential waste comes from individual vehicles to the transfer stations.

Prairie Transfer Station

The Prairie site received 79,706 tons of material in 2018. This represents 40% of the waste processed in Kootenai County and an increase of 7,667 tons or 10.6% from last year. The measurement of the waste stream from Prairie is the weight of all materials weighed into the facility during the calendar year.

- Average daily tons received was 223 (which is up from 201 last year).
- Heaviest tonnage day was August 31, 2018 with 630 tons. (Note: The Prairie site processed all waste on that day due to pit repairs at the Ramsey site.)
- Lowest tonnage day was February 18, 2018 with 20.7 tons.
- Friday highest average daily tons increased to 286 from 265.
- Sunday lowest average daily tons increased to 117 from 105 tons.

After processing the waste for recyclables and removal of other materials, the Prairie site shipped 68,521 tons or 3,434 trailer loads of waste to the landfill. From 2009 through 2018, the Prairie site has processed 570,673 tons of material.

Ramsey Transfer Station

The Ramsey site received 125,852 tons of material in 2018. This represents 60% of the waste processed in Kootenai County. It is an increase of 3,124 tons or 2.5% from last year. The measurement of the waste stream from Ramsey is the weight of all materials entering into the facility during the calendar year.

- Average daily tons received was 352 (up from 342).
- Heaviest tonnage day was November 20, 2018 with 678 tons.
- Lowest tonnage day was February 4, 2018 with 35 tons.
- The high/low months were June (12,985) and January (6,377).
- Thursday remains the highest tonnage day of the week with Sunday remaining the lowest tonnage day.

After processing the waste for recyclables and removal of other materials, the Ramsey site shipped 99,795 tons or 5,707 trailer loads of waste to the landfill. From January 1992 through 2018, the Ramsey site has processed 3,457,992 tons of waste.

See Appendix C for additional charts regarding waste statistics.

Recycling

Kootenai County encourages waste diversion, reduction, reuse and recycling before material becomes part of the solid waste system, but does not mandate or control what is collected outside County operated sites.

A wide variety of reuse, reduction, and recycling programs are in place throughout the area operated by businesses or other entities independent of County programs. Material collected by the County and recycled include, single-stream material (cardboard, newspaper, plastics, and other segregated recyclables), textiles, automotive batteries, scrap metal, used oil, wood waste and other materials.

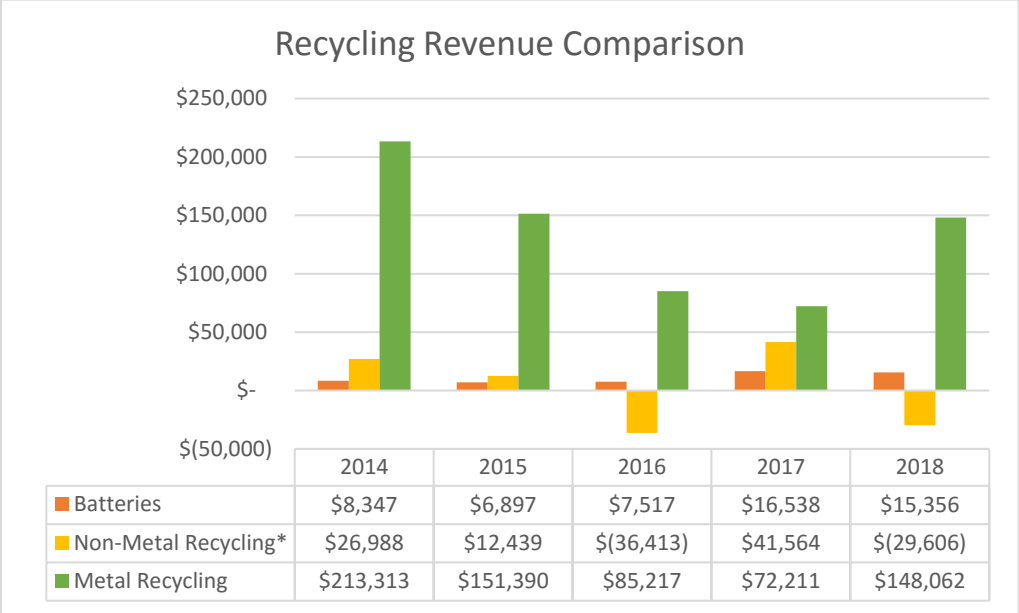
The Department offers recycling drop off stations at both transfer stations and some of the rural residential collection sites. These materials are modified dependent on current markets, challenges with marketing material, and problems with contamination of the recyclables.

There are significant issues facing recycling markets in the United States. The Department remains focused on providing as many opportunities to recycle as fiscally reasonable. Until there are significant changes made, recycling processing costs will continue. Working together with our recycling contractor, the Department has limited these costs, but the recycling markets are extremely volatile and unsteady, and will remain that way for several years.

Recycling can provide an effective means of reducing landfill space; however, it is not a free service. It takes funds to collect, sort, store, transport and manage these materials. If there is no end market for a particular material (i.e. plastics or glass) then these items may be removed from the offered recycling programs. Tough decisions to be made are based on one program or commodity subsidizing the cost of another program or commodity.

To help consumers understand the tough decisions made regarding recycling, we are providing revenue information regarding the three main components of the Department's recycling

programs: lead-acid batteries, metal recycling, and non-metal recycling. The non-metal recycling figure includes revenue for the product less the processing costs charged by the broker. Non-metal recycling consists of corrugated cardboard, mixed paper, mixed plastics, aluminum and tin cans.



	2014	2015	2016	2017	2018
Batteries	$8,347	$6,897	$7,517	$16,538	$15,356
Non-Metal Recycling*	$26,988	$12,439	$(36,413)	$41,564	$(29,606)
Metal Recycling	$213,313	$151,390	$85,217	$72,211	$148,062

In 2018, the metals market continued to subsidize the heavy costs of the recycling processing fees charged on other recycling items. Reports like these are very important to help make the decision on what products are viable to continue recycling.

The recycling programs managed by the Department diverted a total of 19,561 tons of material from the landfill in 2018. This represents an increase of 16% or 2,697 tons over last year. The majority of this increase was in the wood recycling program. See Appendix D for additional data regarding recycling.

Rural Residential Collection System

There are 12 rural residential collection sites spread throughout the County, of which the County owns the property for four. There are two staffed sites in the northern portion of the County and 10 collection sites on the east and west side of Coeur d'Alene lake and in the southern portion of the County. The challenge is to keep this waste stream confined to household waste from Kootenai County residents. Over the years, changes implemented include staffing sites and increasing public awareness for unacceptable material at these sites. Another challenge is to restrict out of county/out of state use and ensure they are used by the citizens who pay for the system.

Rural sites received 16,217 tons of waste in 2018. This is an increase of 5% or 759 tons from last year. Customers removed 394 tons of material by placing items into the recycling bins provided at these sites.

The two staffed northern sites are open the same hours and days as the transfer stations. These sites assisted 189,324 customers in 2018. This is an increase of 3,435 or 1.8% from the total

customers reported in 2017. These two sites processed 7,058 tons of waste, which is up 370 tons from last year.

Ten other collection sites make up the remaining portion of the rural collection system. Waste collected from these sites equaled 9,158 tons.

A new Rose Lake area site was constructed in 2018 and opened on August 8th. After completion of the new site, two long-standing sites were closed (Rose Lake Junction and Rose Lake).

The Department continues a search for property in the Wolf Lodge area to construct a collection site and consolidate the Wolf Lodge and Blue Creek sites into one site owned by the county.

The Department, along with the contracted hauling company, spends many hours of time and effort to maintain the rural residential collection sites. Several times a week staff remove improperly disposed items from these sites. The sites are intended for household waste only. Large bulky items (such as appliances, furniture, and mattresses), tires, household hazardous waste, and construction debris must be taken to a transfer station for proper disposal. The photos below show improper disposal that required clean up by department staff.

Household Hazardous Waste (HHW)

Both transfer stations operate year-round HHW collection facilities. The Ramsey site is open Wednesdays and Saturdays from 8:00 a.m. to 4:00 p.m. The Prairie site is open on Fridays and Saturdays at the same hours. These facilities accept up to ten (10) gallons from residential customers only. Commercial hazardous waste is not accepted at any County sites.

Most communities offer limited HHW collection (some only a few days per year). The Department offers these services over 200 days per year. Limiting days is necessary as trained and certified technicians are responsible for safe identification, acceptance, material handling, packaging, shipping, etc. to avoid spills, contaminations, injuries, or improper storage of materials.

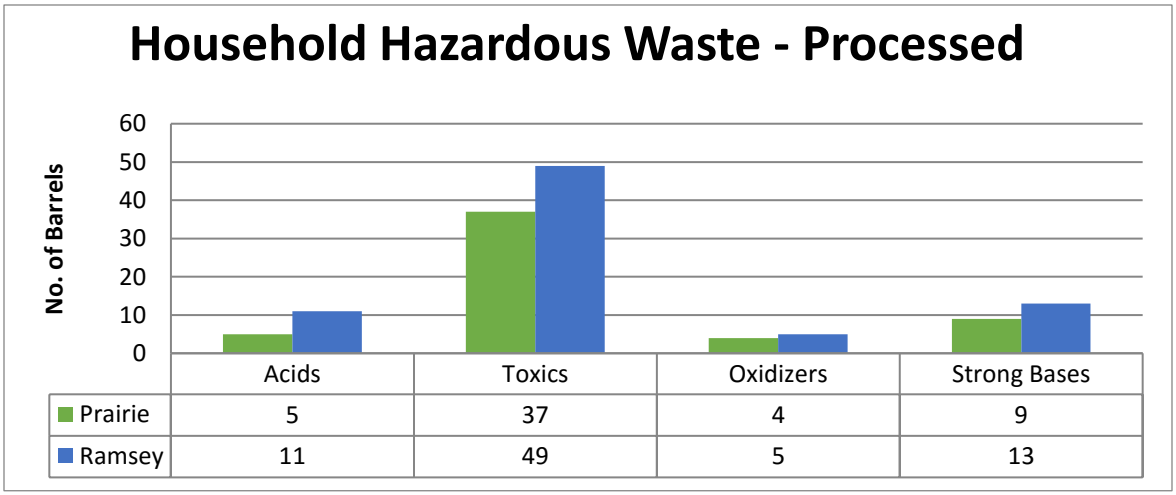
Only household hazardous waste is accepted. There are restrictions on types and volumes of materials set forth in the Panhandle Health District Critical Materials Regulation/Certification and the facility operating permit. Transfer stations are Tier II facilities which are permitted to accept municipal solid waste and no industrial or commercial hazardous waste.

Between May and September of 2018, the Ramsey site offered an additional day per week (Friday) for acceptance of HHW. It is anticipated that the additional day will continue to be offered during the summer months at the Ramsey site.

A total of 8,980 customers took advantage of the HHW services in 2018. The Prairie site had 2,750 customers and the Ramsey site saw 6,230 customers. The Ramsey Friday collection day brought in 662 customers, which is approximately 10% of the customers to use this site. Wednesday is the busy day at the Ramsey site with 45% of the total number coming in that day. Saturdays at Prairie are the big HHW day with 54% of the total number coming in that day.

Panhandle Health District completed the Critical Materials Compliance inspection and issued a certification for the Ramsey facility on October 15, 2018. This certification expires on October 14, 2020. See Appendix A-1 for additional details. Certification for the Prairie facility expires in May 2019.

The Department processed approximately 229 tons of special waste through the HHW program. The chart below shows the breakdown of these materials.



	Acids	Toxics	Oxidizers	Strong Bases
Prairie	5	37	4	9
Ramsey	11	49	5	13

Each transfer station offers a valuable exchange program each HHW collection day. This program addresses the growing awareness of the problems of household hazardous waste in the environment. By signing off on a release of liability form, customers may shop (free of charge) at the exchange cart for items such as pesticides, herbicides, paint and many other household products. Department staff try to ensure that the containers with product are labeled, but we cannot guarantee the product, thus the liability waiver.

For the most part, the breakdown of materials shipped out as HHW remained the same (33 barrels more in 2018). All paint possible is collected in the HHW programs at the transfer stations. Staff sorts and separates the paint collected and set aside latex paint for shipment to the landfill. Landfill staff mixes the latex paint with a Posi-shell© material and sprays it over the face of the landfill as daily cover. This unique approach provides the department with a cost-effective and environmentally safe alternative cover and reduces expenses for transportation of HHW disposal. This cover system also saves very valuable landfill air space.

A large time component in processing special waste each day is the decommissioning of refrigerated units (refrigerators, freezers, AC units) brought into the transfer station. The number of units processed by the staff was 4,801, which is 402 greater than in 2017. Within the last 5-years, the department has decommissioned over 20,568 units.

See Appendix E for additional data relating to HHW collection.

Index to Appendix "A"
DEQ Reporting Requirements

In May 2009, Idaho Department of Environmental Quality terminated the Conditional Use Permit and Consent Order for the Kootenai County Farm Landfill. DEQ requires that the following reports and documents are included in the department's annual report each year.

The following is a summary of the information provided to Idaho Department of Environmental Quality (DEQ) and Idaho Panhandle Health District (PHD) with this annual report.

A-1 Inspections and Reports:

a. On February 19, 2018 Panhandle Health District issued a letter of approval of the 2017 Operations Manual Update for the Fighting Creek Farm Landfill;
b. On October 15, 2018 Panhandle Health District completed an inspection and issued a critical materials compliance certificate;
c. On October 25, 2018 DEQ conducted an air quality inspection of Fighting Creek Farm Landfill. A copy of the confirmation report is included herein.
d. On March 9, 2017 the department submitted the 2017 Waste Stream Analysis Report to DEQ and Panhandle Health District. DEQ accepted and approved the 2017 report on February 7, 2019. A copy of the confirmation letter is included herein.

A-2 Tier 1 Operating Air Quality Permit: Copies of all Tier 1, Title V Air Quality Permit documents and reports have been provided and can be viewed at the Idaho DEQ office in Coeur d'Alene.

A-3 Closure and Post-Closure Plan: There were no changes or modifications to the Closure Plan in 2018.

A-4 Financial Assurance Plan (FAP): Updated information regarding monies spent and set aside to fund future closure and post-closure requirements per §39-7417 of Idaho Code has been included in the electronic version of this report. A copy of the letter from Kootenai County Finance Director, Deena Darrow, is included herein.

A-5 Landfill Gas Reporting: Fighting Creek gas system reports were included in the required reporting to the EPA, a copy of which is included in the electronic version of this report. The Ramsey gas system report is included in the electronic version of this annual report.

A-6 Ground Water Summary: The electronic reports and data from bi-annual ground water monitoring as described in the Ground Water Monitoring Plan is included in the electronic version of this report.

A-7 Leachate Report: A summary of the performance of the leachate treatment and disposal system during the preceding calendar year containing the same information as previously reported in the annual leachate report is included in the electronic version of this report.

A-8 Surface Water: The Department complied with the regulations of the EPA regarding MSGP and SWPPP. Copies of these reports have been provided, previously, to DEQ, but are included in the CD accompanying this report to DEQ.

A-9 Plans and Specifications: No construction completed in 2018 required approval of plans and specifications.

Appendix A-1: Inspections and Reports

Below are the inspections and/or reports completed during calendar year 2018:

a) On February 19, 2018 Panhandle Health District issued a letter of approval of the 2017 Operations Manual Update for the Fighting Creek Farm Landfill;
b) On October 15, 2018 Panhandle Health District completed an inspection and issued a critical materials compliance certificate;
c) On October 25, 2018 DEQ conducted an air quality inspection of Fighting Creek Farm Landfill. A copy of the confirmation report is included herein.
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Public Health
Prevent. Promote. Protect.
Panhandle Health District

Panhandle Health District

Healthy People in Healthy Communities

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February 19, 2018

Laureen Chaffin
Principal Planner
Kootenai County Solid Waste
3650 N. Ramsey Road
Coeur d' Alene, ID 83815
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Re: Kootenai County Farm Landfill Operations Manual 2017 Update Approval

Dear Ms. Chaffin:

The 2017 update to the operations manual for the Kootenai County Farm Municipal Solid Waste Landfill (MSWLF) has been reviewed by the Panhandle Health District (PHD). A MSWLF operations plan is required per 40 CFR 258 Subpart C, and Idaho Statute 39-7412. Idaho Statute 39-7419 also requires that MSWLF operations plans be recertified at intervals of no more than three (3) years. The updated operations plan was submitted to PHD on August 2, 2017.

The 2017 update to the Kootenai County Farm Landfill Operations Manual was reviewed and found to be in compliance with applicable requirements specified in 40 CFR 258 and the Idaho Solid Waste Facilities Act.

If you have any questions please contact me directly at (208) 415-5224.

Sincerely,

Erik Ketner
Environmental Health Section Manager

cc: Cathy Mayer, Solid Waste Director, Kootenai County cmayer@kcgov.us
J.P. Phillips, Operations Manager, Kootenai County jphillips@kcgov.us
Matt Plaisted, Engineering Manager, IDEQ, matthew.plaisted@deq.idaho.gov

REC'D FEB 26 2018

Public Health
Prevent. Promote. Protect.
Panhandle Health District

PANHANDLE HEALTH DISTRICT

Healthy People in Healthy Communities

8500 N. ATLAS ROAD
HAYDEN, IDAHO 83835
http://phd1.idaho.gov

October 15, 2018

DOUG GOODWIN
KOOTENAI COUNTY SOLID WASTE TRANSFER
3650 N. RAMSEY RD.
COEUR D' ALENE, ID 83815

RE: *required compliance certificate for current operations at KOOTENAI COUNTY SOLID WASTE TRANSFER*

Dear MR. GOODWIN,

Thank you for the time and effort spent on complying with Panhandle Health District's Critical Materials Regulation. The enclosed Critical Materials Compliance Certificate shows that your fixed facility has satisfied the Health District's requirements for storage, use and handling of "critical materials" over the Rathdrum Prairie Aquifer.

Please post your compliance certificate in a conspicuous place.

Please keep in mind that any of the following activities shall require a new application to Panhandle Health District to determine continued compliance with the regulation:

1. Establishing a new use that would qualify as a Fixed Facility.
2. Remodeling, operating changes, or expansion of the Fixed Facility which would modify the type or quantity of Critical Materials used.
3. Changes in the location or method of use, storage, manufacture or handling of Critical Materials at your Fixed Facility.
4. A change in ownership or addition of new Critical Materials meeting the quantity thresholds established by the Critical Materials Regulation at your Fixed Facility.

Thank you for your cooperation and participation in our Aquifer Protection Program.

Sincerely,

Emma Wooldridge
Environmental Health Specialist

Encl: CMCC

Appendix A.1.b

Panhandle Health District
CRITICAL MATERIALS COMPLIANCE CERTIFICATE

Issuance Date: 10/15/2018 — 10/14/2020 Expiration Date

Issued to: DOUG GOODWIN (Name) — KOOTENAI COUNTY SOLID WASTE TRANSFER (Business Name)

C-9215-000-002-A (Parcel Number) — 3650 N. RAMSEY RD. (Location)

This permit is non-transferable and is the property of the issuing agency and may be revoked for failure to maintain compliance with Section 41.1.400 of the Environmental Health Code.

KOOTENAI County

Health Authority – Emma Wooldridge (208) 415-5215

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

2110 Ironwood Parkway •COEUR D'ALENE, ID 83814-2648 • (208) 769-1422

C.L. "BUTCH" OTTER, GOVERNOR
JOHN H. TIPPETS, DIRECTOR

November 20, 2018

Certified Mail No. 7015 0640 0004 7137 0438

Jim Hagenbarth, Landfill Manager
Kootenai County Solid Waste
3650 N. Ramsey Rd.
Coeur d'Alene, ID 83815

Subject: Facility ID No. 055-00044,
Kootenai County Solid Waste Department, Coeur d'Alene
Fighting Creek Landfill - Air Quality Inspection

Dear Mr. Hagenbarth:

On October 25, 2018, the Department of Environmental Quality (DEQ) conducted an air quality inspection of Kootenai County Solid Waste Department (KCSWD) Fighting Creek landfill located near Coeur d'Alene, Idaho.

At the time of the inspection, the KCSWD Fighting Creek landfill was observed by DEQ personnel to be operating in apparent compliance with IDAPA 58.01.01.625 VISIBLE EMISSIONS and IDAPA 58.01.01.650 RULES FOR THE CONTROL OF FUGITIVE DUST, of the *Rules for the Control of Air Pollution in Idaho* (Rules), IDAPA 58.01.01.000, *et seq*.

During the inspection, KCSWD Fighting Creek Landfill's compliance status was also evaluated with regard to Tier I operating permit no. T1-2015.0038, issued October 25, 2016. The KCSWD Fighting Creek landfill was observed by DEQ personnel to be operating in apparent compliance with the requirements set forth in T1-2015.0038.

A copy of the inspection report is enclosed. Thank you for your cooperation and assistance during this inspection. If you have any questions concerning the inspection or the inspection report, please contact me at 208-666-4600.

Sincerely,

Almer Casile
Analyst

AC:skh TRIM

Enclosure

State of Idaho
Department of
Environmental Quality

2110 Ironwood Parkway ▪ Coeur d'Alene, ID 83814 ▪ (208) 769-1422

Brad Little, Governor
John H. Tippets, Director

February 7, 2019

Cathy Mayer
Kootenai County Solid Waste Department
3650 N. Ramsey Road
Coeur d'Alene, ID 83815
cmayer@kcgov.us

Subject: Kootenai County Solid Waste – 2017 Solid Waste Analysis

Dear Ms. Mayer:

The Department of Environmental Quality (DEQ) has reviewed the Kootenai County Solid Waste Department 2017 Solid Waste Analysis dated March 1, 2018. This report contains an overview of the Kootenai County Solid Waste facilities and operations. Included with the analysis are the 2017 Financial Assurance, and the Leachate Report. The groundwater monitoring report has not been reviewed at this time, but will be reviewed separately from this solid waste analysis.

DEQ finds the 2017 Solid Waste Analysis to be acceptable. Thank you for providing this report. If you should have any questions, please contact me at 208-666-4622.

Sincerely,

Matt Plaisted, P.E.
Engineering Manager
Matthew.Plaisted@deq.idaho.gov

c: Erik Ketner, eketner@phd1.idaho.gov
Gary Stevens, gary.stevens@deq.idaho.gov
Monja Metcalf, Monja.metcalf@deq.idaho.gov
Matthew Beeter, Matthew.Beeter@deq.idaho.gov
Laureen Chaffin, lchaffin@kcgov.us
File: TRIM Kootenai County Landfill (2011BAA47)

Appendix A-2: Tier 1 Operating Air Quality Permit

The Department has maintained compliance with the Tier 1, Title V Air Quality Permit. Copies of the semi-annual and annual reports to the EPA are included in the electronic version of this report.

Idaho DEQ approved a new Tier 1 Operating Permit effective October 25, 2016. The permit and reporting documents can be reviewed at the Idaho DEQ office in Coeur d'Alene, Idaho or at the administration office of the Solid Waste Department.

The AQ-C1 for the reporting period of July 1, 2017 to June 30, 2018 is included herein. The AQ-C4 for the reporting period of July 1, 2018 to December 31, 2018 is included herein.

Idaho Department of Environmental Quality
Air Quality Division
Stationary Source Program

TIER I ANNUAL COMPLIANCE CERTIFICATION

FORM AQ-C1

FACILITY INFORMATION

Facility/Permittee Name: Kootenai County Farm Landfill
Co-Permittee Name(s):
Facility Location: 22089 South Highway 95
AIRS Facility No.: EPA Plant ID: 110028125516 Idaho DEQ: 055-00044
Facility Contact: Cathy Mayer **Ph:** 208-446-1430 **Fax:** 208-446-1431

PERMIT AND COMPLIANCE INFORMATION

Tier I Operating Permit No.: T1-2015.0038 **Issuance Date:** October 25, 2016
Tier I Operating Permit No.: **Issuance Date:**
Compliance Reporting Period: From: July 1, 2017 To: June 30, 2018
Is This Intended To Be A Semiannual Report Also? ☒ Yes ☐ No
Deviations Reported This Period? ☒ Yes ☐ No

List of Attachments:

☒	Annual Compliance Certification Table (Form AQ-C2)	No. of Pages: 14
☒	Semiannual Deviation Summary Table (Form AQ-C3)	No. of Pages: 15
☒	Other:	No. of Pages:
	Flare Facility Ledger	No. of Pages: 6
	New Collector (Well/Trench) Ledger	No. of Pages: 2
	Farm Landfill Gas Collection Report	No. of Pages: 92
	Surface Emission Summary	No. of Pages: 3
		No. of Pages:

Certification of Truth, Accuracy, and Completeness (by Responsible Official)
I hereby certify that based on information and belief formed after reasonable inquiry, the statements and information contained in this and any attached and/or referenced document(s) are true, accurate, and complete in accordance with IDAPA 58.01.01.123-124.

Cathy Mayer — *Responsible Official Signature*
Director — *Responsible Official Title*
7/23/18 — *Date*

Cathy Mayer
Print or Type Responsible Official Name

Co-Permittee Responsible Official Signature
Co-Permittee Responsible Official Title
Date

Print or Type Co-Permittee Responsible Official Name

Idaho Department of Environmental Quality
Air Quality Division
Stationary Source Program

TIER I SEMIANNUAL REPORT

FORM AQ-C4

FACILITY INFORMATION

Facility/Permittee Name: Kootenai County Farm Landfill
Co-Permittee Name(s):
Facility Location: 22089 South Highway 95, Couer d'Alene, Idaho 83814
AIRS Facility No.: EPA Plant ID: 110028125516 Idaho DEQ: 055-00044
Facility Contact: Cathy Mayer **Ph:** 208-446-1430 **Fax:** 208-446-1431

PERMIT AND COMPLIANCE INFORMATION

Tier I Operating Permit No.: T1-2015.0038 Project 61569 **Issuance Date:** October 25, 2016
Tier I Operating Permit No.: **Issuance Date:**
Compliance Reporting Period: From: July 1, 2018 To: December 31, 2018
Deviations Reported This Period? ☒ Yes ☐ No

List of Attachments:

☒	Semiannual Monitoring Table (Form AQ-C5)	No. of Pages: 8
☒	Semiannual Deviation Summary Table (Form AQ-C3)	No. of Pages: 2
☒	Other: Surface Emission Summary - Sept & Dec 2018	No. of Pages: 2
	Flare Facillity Ledger	No. of Pages: 2
	Collector Well_Trench Ledger	No. of Pages: 1
	Farm Landfill Gas Collection Report	No. of Pages: 60
		No. of Pages:
		No. of Pages:

Certification of Truth, Accuracy, and Completeness (by Responsible Official)
I hereby certify that based on information and belief formed after reasonable inquiry, the statements and information contained in this and any attached and/or referenced document(s) are true, accurate, and complete in accordance with IDAPA 58.01.01.123-124.

Cathy Mayer — *Responsible Official Signature*
Director — *Responsible Official Title*
1/28/2019 — *Date*

Cathy Mayer
Print or Type Responsible Official Name

Co-Permittee Responsible Official Signature
Co-Permittee Responsible Official Title
Date

Print or Type Co-Permittee Responsible Official Name

Appendix A-3: Kootenai County Farm Landfill Closure and Post-Closure Plan

No changes were made to the Closure and Post-Closure Plan since 2010. The plans are available for inspection at the Idaho DEQ office in Coeur d'Alene and the administration office of the Kootenai County Solid Waste Department.

Appendix A-4: Financial Assurance for Closure and Post-Closure Activities

Enclosed is a letter of Financial Assurance from the Kootenai County Finance Director stating that Kootenai County meets the financial obligations of Closure and Post-Closure for the Fighting Creek Farm Landfill.

Kootenai County Auditor

Jim Brannon · Clerk

451 Government Way · P.O. Box 9000 · Coeur d'Alene, ID 83816-9000
Phone (208)446-1650 · Fax (208)446-1662
http://www.kcgov.us/departments/auditor · Email kcauditor@kcgov.us

January 31, 2019

Idaho Department of Environmental Quality
Attn: Matt Plaisted, Technical Engineer
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

RE: Kootenai County Farm Landfill - Closure and Post-Closure Funding

Dear Mr. Plaisted;

The financial liability associated with monitoring the closure and post-closure responsibilities, assumed by Kootenai County, is fully funded for the portion of the Kootenai County Farm Landfill (Fighting Creek) that has been depleted to date. The estimated liability at the end of our most recently completed fiscal year is defined and summarized on the attached schedule, which indicates an accrued obligation balance of $8,527,000.

Additionally, this information will be included in our (Audited) Comprehensive Annual Financial Report for Kootenai County, Idaho for the year ending September 30, 2018. The restricted cash balance for closure and post-closure will be displayed in the Business-type Activities column under the Assets section of the report and will support or exceed the total noted above.

Please contact me for further questions or additional assistance. I can be reached at the address above, or by phone at 446-1665.

Sincerely,

Dena Darrow
Finance Director

cc: Solid Waste
BOCC

Attachment

Kootenai County
Solid Waste Landfill - Closure & Postclosure Liability
Estimate for FY-2018

	CPI-U Rate (Size B/C)	Inflation Amount	Balance
Total estimated closure & post closure costs as updated by CH2M Hill 9-30-2010 engineering report			$13,100,400
Estimated Closure & Post Closure Costs Original Cell (all) + East Cell (phase 1 & 2)	**$13,100,400** a		
Total usable capacity, per engineering estimate (tons)	4,706,715 b		

Tons of capacity used per **calendar** year:		Payments to date, by fiscal yr	
1993	69,645		1.48%
1994	87,504		1.86%
1995	89,383		1.90%
1996	92,451	$ -	1.96%
1997	101,580	-	2.16%
1998	102,183	-	2.17%
1999	105,945	-	2.25%
2000	105,288	-	2.24%
2001	110,838	-	2.35%
2002	112,867	-	2.40%
2003	118,531	-	2.52%
2004	136,011	-	2.89%
2005	137,687	-	2.93%
2006	140,436	-	2.98%
2007	137,832	-	2.93%
2008	129,571	-	2.75%
2009	123,117	-	2.62%
2010	124,031	-	2.64%
2011	121,172	-	2.57%
2012	121,873	70,867	2.59%
2013	127,089	76,244	2.70%
2014	132,978	19,618 **	2.83%
2015	140,722		2.99%
2016	157,130 *		3.34%
2017	165,545		3.52%
2018	132,170		
Estimated capacity used as of Sept 30, 2018	3,123,579 c	$ 166,729 d	
Estimated percentage of landfill capacity (c / b)	66.4%		63.56%
	Net Closure Costs:	12,933,671	

Estimated calculation of liability at Sept 30,2018	
Calculated liability (a * c/b)	$ 8,693,989
Less payments to date (d)	(166,729)
Estimated liability at 9/30/2018	$ 8,527,260 e

	Liability	Expense	
Balance per general ledger (prior to Clsr/P.Clsr JE)	$ 8,045,000	$ -	
Csr/P. Clsr JE Adjustment	**482,000**	**482,000**	**JE 18-8691**
Ending balance (rounded)	**$ 8,527,000**	**$ 482,000**	

* Adjust for actual tons reported by Laureen Chaffin, SW Planning Coordinator, who accumulates information for the Solid Waste Analysis docum
**Fund 60 Obj Code 8280 - "Closure & post Closure costs"

		Original Cell	East Cell Phase 1 & 2	
Landfill Capacity per engineering report (volume in cubic yards) Ψ		3,241,000	3,877,000	**yd^3**
multiplied by Compaction Rate Ψ	**x**	1,469	1,200	**lbs / yd^3**
divided by	**/**	2,000	2,000	**lbs / ton**
Landfill Capacity in Tons		2,380,515	2,326,200	**(b)tons**
Tons utilized in the Current Fiscal Year		-	173,243	
Estimated Remaining Life - phase 1&2, 150,000 ton/yr avg		0.00	10.6	

Appendix A-5 Landfill Gas Reports for Ramsey and Fighting Creek Farm Landfills

The Fighting Creek Farm Landfill is required to report to the EPA twice a year under the Tier 1 annual compliance requirements. Copies of these reports are attached to the electronic version of this report.

The gas system at the old Ramsey Landfill does not fall under the same reporting requirements. The annual gas system report for Ramsey is attached to the electronic version of this report. An excerpt from the report shows below.

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

719 2ND AVENUE, SUITE 200 | SEATTLE, WA 98104 | P 206.394.3700

January 11, 2019
Parametrix No. 553-1660-042 (02/02)

Cathy Mayer, Director
Kootenai County Solid Waste Department
3650 N. Ramsey Road
Coeur d'Alene, ID 83815

Re: The Ramsey Road Landfill Gas Control Annual Report for 2018

Dear Cathy:

This letter is an annual summary of the landfill gas monitoring and landfill gas management activities performed at the Ramsey Road Landfill in 2018. It is specific only to the landfill gas control system. This letter can be forwarded to Division of Environmental Quality and Panhandle District Health Department to communicate gas information and evaluations.

The annual letter report includes the follow sections:

- Introduction
- Description of Facilities
- System Monitoring Results
- Conclusions
- Recommendations

Parametrix
ENGINEERING . PLANNING . ENVIRONMENTAL SCIENCES

719 2ND AVENUE, SUITE 200 | SEATTLE, WA 98104 | P 206.394.3700

January 11, 2019
Parametrix No. 553-1660-042 (02/02)

Cathy Mayer, Director
Kootenai County Solid Waste Department
3650 N. Ramsey Road
Coeur d'Alene, ID 83815

Re: The Ramsey Road Landfill Gas Control Annual Report for 2018

Dear Cathy:

This letter is an annual summary of the landfill gas monitoring and landfill gas management activities performed at the Ramsey Road Landfill in 2018. It is specific only to the landfill gas control system. This letter can be forwarded to Division of Environmental Quality and Panhandle District Health Department to communicate gas information and evaluations.

The annual letter report includes the follow sections:

- Introduction
- Description of Facilities
- System Monitoring Results
- Conclusions
- Recommendations

INTRODUCTION

The Ramsey Road Landfill is located at 3650 N. Ramsey Road, Coeur d'Alene, Idaho 83815. Ramsey Road divides the site into east and west areas. The landfill, which was a municipal solid waste landfill, is now closed. The landfill began accepting waste in 1963 and closed in 1993.

During the summers of 1992 and 1993, a gas control system was installed at the site in both the east and west areas. The gas control system consists of in-refuse wells, perimeter (native soil) wells, horizontal trenches, collection manifold and laterals, condensate traps, and a blower/flare station. Landfill settlement throughout the landfill made it difficult to locate and repair all the pipe failures, resulting in low methane and high oxygen concentrations. Consequently, in December 2002 and January 2003, the buried polyvinyl chloride (PVC) manifold and lateral piping was replaced with high-density polyethylene (HDPE) by the County. In May 2006, four additional shallow gas wells (ER-12 through ER-15) were installed by the County to increase landfill gas collection along the east side to help eliminate methane levels in GP-6 and 7, which are located just outside of the landfill footprint. A down-sized open flare was installed at the blower/flare facility (October 2007) to better handle the low landfill gas stream from landfill. Two additional gas probes (GP-6A and 7A) were installed June 2008 between the landfill and proposed development projects on the east side to monitor potential impacts to human health since there has been evidence of subsurface migration in the past.

The gas control system was started up in the summer of 1992, during landfill closure construction, to control landfill gas migration along the landfill perimeter and to protect the liner from pressure buildup from landfill gas. The control system has operated 24 hours a day in the east area. In the west area, the control system is closed because the area generates extremely low quantities of poor quality landfill gas. However, the west area gas probes are

monitored to ensure that landfill gas is not migrating beyond the property boundary and to confirm the lack of significant gas generation.

DESCRIPTION OF FACILITIES

The present gas control system has five main components:

- Horizontal gas trenches
- In-refuse and perimeter gas extraction wells
- Landfill gas manifold and laterals
- Condensate traps
- Blower/flare station

The gas control system also includes subsurface gas probes for monitoring gas concentrations in surrounding native soils. See Attachment A for the layout of the gas control system and gas probes at the Ramsey Road Landfill.

Horizontal Gas Trenches

County personnel installed the horizontal trenches concurrent with landfilling operations and before landfill closure. The trenches were placed in the waste cells at pre-determined elevations and spacing.

The trenches are constructed of 6-inch perforated, HDPE slotted pipe that is surrounded by a highly permeable drain rock and filter fabric. The trenches were installed about five feet below existing ground levels at the time of installation.

In-Refuse and Perimeter Gas Extraction Wells

These deep vertical wells were installed prior to landfill closure. The well borings are 26 inches in diameter and depths range from 21 to 71 feet. The wells were placed in and around the landfill at pre-determined spacing. The deep in-refuse wells (ER-1 through ER-11) are typically spaced 200 feet apart, whereas the perimeter (native soils) wells (EP-1 through EP-18) are typically spaced 180 feet apart.

The shallow in-refuse wells (ER-12 through ER-15) are spaced approximately 100 feet apart and from the edge of the landfill. These wells were placed in an excavation approximately 36 inches square to about 20 feet in depth.

The wells are constructed of 3-inch solid-wall and slotted wall PVC pipe. A high permeability filter material surrounds the slotted-wall pipe. A bentonite and silica sand seal were placed directly above the filter material.

Landfill Gas Manifold and Laterals

The gas manifold and laterals, which are constructed of HDPE, are buried in the drainage layer of the landfill cap above the geomembrane. The manifold is sloped to allow condensate to flow downward to low-point drains and into condensate traps. The manifold connects the wells and trenches to the blower/flare station. The manifold pipe material transitions from a buried/HDPE pipe to an aboveground/PVC pipe at the blower/flare station.

Condensate Traps

Condensate traps are located at the gas manifold low points. The condensate traps are p-traps that provide a liquid seal and allow condensate to drain from the manifold. The traps are surrounded by a highly permeable drain rock material. The traps are equipped with a riser that has a removable cap and a hand hole for access.

Blower/Flare Station

The permanent blower/flare station at the landfill induces a vacuum on the landfill and efficiently flares the collected gas. The blowers pull the gas through the control system and discharge it to the flare.

The blower/flare station consists of the two blowers, a condensate sump, and two flares. Each blower was designed to handle the anticipated maximum landfill gas flow rate for the landfill. The original open-type flare was designed to handle the maximum flow rate as well as a wide range of landfill gas flows and methane concentrations. However, given that landfill gas flows have decreased substantially since startup, and considering the age of the original flare, the County replaced the original flare with a downsized version of the open-type flare in October 2007. The new flare is equipped with a new ignitor and flame arrester.

The original flare remains operational and provides backup to the new downsized flare.

Gas Probes

Allowable levels of off-site gas migration from landfills are governed by state and federal regulations, which stipulate that combustible gas concentrations at property boundaries must be below 5 percent by volume (5% VOL). Vertical gas probes were installed around the entire perimeter of the east and west landfill areas. The gas probes were installed prior to the closure of the Ramsey Road Landfill, concurrent with the installation of the vertical gas extraction wells.

The probe borings are 8 inches in diameter; depths range from 48 to 98 feet. The probes were placed around the landfill at a pre-determined spacing to detect potential landfill gas migration. The wells are constructed of solid-wall and slotted wall PVC pipe. A high permeability filter material surrounds the slotted-wall pipe. A bentonite and concrete seal is placed directly above the filter material.

SYSTEM MONITORING

For the past year, landfill gas control monitoring of the Ramsey Road Landfill consisted of collecting data on the gas control system at the horizontal gas trenches, vertical gas wells, gas probes, and blower/flare station. Data collected from the gas control system were used to manipulate the system to achieve effective system performance. This allowed the system to capture landfill gas on-site and to prevent possible landfill gas migration from the site to surrounding native soils.

The gas control system was monitored at each individual trench/well connection and at the blower/flare station. The gas probes were typically monitored quarterly to ensure the effectiveness of the gas control system and to comply with state and federal regulations, which require quarterly monitoring of the landfill's property boundary. All locations except for the gas probes were monitored for the following parameters:

- Pressure/Vacuum
- Methane concentration
- Oxygen concentration
- Carbon Dioxide concentration
- Temperature
- Flow rate

The gas probes were monitored for the following parameters:

- Pressure/Vacuum
- Methane concentration
- Oxygen concentration

Also, for each monitoring event, the ambient conditions were recorded, such as barometric pressure, temperature, and weather conditions. All the data collected were input into a computer program that models landfill gas generation at the site and predicts the level of aerobic and anaerobic activity in the refuse. Data collected on the gas control system and from the gas probes are presented in the Appendix.

Attachment B presents 2018 flare performance results for the downsized flare, (i.e., it shows the actual Btu loading with respect to the maximum Btu load rating of the flare). The flare typically operated at 8.8% of the design capacity and as high as 10.8%. The design capacity of the flare is 4.1 MM Btu/hr, or 150 SCFM at 50% methane by volume and a low heat value of 910 Btu/SCF. Methane concentrations at the flare station have typically been maintained at about 20.9% by-volume.

Since flare startup, a continuous flame has ensured complete combustion of the landfill gas in a safe and efficient manner. Over the past year, the system experienced brief downtime as the result of power outages, system maintenance, and new flare installation.

CONCLUSIONS

Review of the weekly gas control data and conversations with County personnel indicate the system operation over the past year has greatly improved and is performing as designed and effectively controlling landfill gas generation within the landfill. Due to potential development east of the landfill, four additional extraction wells (ER-12 through ER-15) and two additional gas probes (GP-6A and 7A) were installed to monitor the situation, respectively. Results show typically little or no indication of landfill gas beyond the perimeter of property line.

Landfill gas control monitoring, and operations and maintenance have been performed according to the *Operation and Maintenance Manual Ramsey Road Landfill Gas Control Systems* (Parametrix 1993) and as intended in the design of the gas control system.

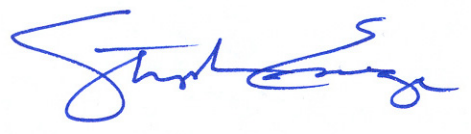
RECOMMENDATIONS

Based upon review and analysis of monitoring data and visual observations during the year, it appears that the system is effectively collecting and flaring landfill gas. In summary, we recommend the following activities for 2019 to ensure continued operation effectiveness:

1. At a minimum, monitor and adjust the gas control system on a monthly basis, and monitoring the gas probes on a monthly basis, including all probes for the east and west areas.
2. Continue all other operation and maintenance activities as instructed in the Operation and Maintenance Manual.
3. Maintain vacuum in trenches and wells adjacent to GP-6 and 7 in order to maintain no methane from those probes.

Please contact me at (206) 394-3687, if you have any questions concerning this annual report or 2017 system operations.

Sincerely,
PARAMETRIX, INC.



Stephen M. Emge
Project Manager
(WA P.E. No. 34389)

Attachments

Appendix A-6: Ground Water Summary

The bi-annual monitoring requirements for ground water were completed as required in 2018.

The following is an excerpt from the 2018 Ground Water Monitoring Report prepared for Kootenai County Farm Landfill by the Engineering Firm of Parametrix. The full reports are available for review at the Idaho DEQ office in Coeur d'Alene and the administration office of the Solid Waste Department.

Ground water quality results as stated in Sections 2.5 and 3.2 of the Summary Report were below primary state or federal groundwater quality criteria.

2.5 Summary and Conclusions

Groundwater quality results were below primary state or federal groundwater quality criteria, except for total lead in downgradient well M-17 in April 2018. Volatile organic compounds were not detected in any of the landfill wells.

Nitrate concentrations have increased in well M-9 over the past few years but remain well below the groundwater quality criteria. Nitrate concentrations in well M-17 were also above the UPL during both the April 2018 and October 2018 events. Since nitrate concentrations have also shown increases in East Cell upgradient well M-15, it is recommended that continued monitoring of nitrate without verification resampling be conducted at both wells M-9 and M-17.

The chloride concentrations in well M-16 were above the seasonally adjusted UPLs during both the April and October 2018 events. Chloride concentrations in this well showed an increasing trend during the background data collection period, but remain substantially below the secondary MCL. Therefore, it is recommended that continued monitoring of chloride without verification resampling be conducted at well M-16.

The nitrate and TOC concentrations were above the UPLs in M-16 during October 2018, and these results will be verified during April 2019.

Trends in ammonia concentrations are continuing to be monitored. Concentrations of other leachate indicator parameters in downgradient wells did not show evidence of landfill impacts.

3.2 Groundwater Quality Results

The analytical data for 2018 are summarized in Table A-5 (Appendix A). For the October 2018 monitoring event, the laboratory reports and chain-of-custody forms are provided in Appendix B, and field data are provided in Appendix C. The April 2018 laboratory and field data were presented in the semiannual groundwater monitoring report (Parametrix 2018b). A review of the laboratory data was conducted including a check of holding times, method blanks, and trip blanks. No data were qualified as a result of this review.

Time-series plots for parameters that were detected in the domestic wells during the last few years are presented in Appendix D-2. The plots also include data for original landfill upgradient and downgradient monitoring wells and the MCL, if applicable.

The data collected from the domestic wells indicate that the concentrations of iron and manganese in both the Brand and Shriner wells were above secondary state and federal drinking water criteria. These parameters have regularly exceeded water quality criteria in both wells during previous sampling events, which is a reflection of natural occurrence of these minerals in groundwater.

For the Brand well, the time-series plots show upward trends in some parameters (including conductivity, chloride, sulfate, iron, and manganese) in the last 10 years. These trends are likely unrelated to the landfill, since similar increases have not been observed in the landfill monitoring wells.

Appendix A-7: Kootenai County Farm Landfill Leachate Report

A copy of the report to Idaho DEQ outlining the volume of leachate processed in 2018 and the methods used is attached in the electronic version of this report.

KOOTENAI COUNTY
SOLID WASTE

February 1, 2019

Mr. Matt Plaisted, P.E.
%Division of Environmental Quality
2110 Ironwood Parkway
Coeur d'Alene, ID 83814

Re: 2017 Annual Leachate Report – Fighting Creek Farm Landfill

Dear Mr. Plaisted,

Attached you will find a spreadsheet that lays out how the Solid Waste Department managed leachate during the 2018 season. The Department processed a total of 9,154,650 gallons of leachate.

This year we utilized the misting system for the majority of the leachate. We hauled 2.53 million gallons of leachate to the Hayden Regional Wastewater facility for treatment.

Below is a breakdown of the methods and gallons used for processing leachate this year.

Misting	6,624,600 gallons
Hauled offsite	2,530,050 gallons
Total	9,154,650 gallons

We continue to consult with the engineering firm Parametrix for review of leachate results. Parametrix continues to look for any inconsistencies or trends appearing from the data collected at the landfill.

Please let me know if you have any questions or concerns about this information.

Sincerely,

John Phillips
Operations Manager

cc: Eric Ketner, PHD
Steve Emge, Parametrix

Appendix A-7

KOOTENAI COUNTY

SOLID WASTE

February 1, 2019

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Please let me know if you have any questions or concerns about this information.

Sincerely,

John Phillips
Operations Manager

cc: Eric Ketner, PHD
Steve Emge, Parametrix

3650 N Ramsey Road • Coeur d'Alene, Idaho 83815
Phone: 208-446-1430 • Fax: 208-446-1432 • Email: kcsw@kcgov.us

Kootenai County Solid Waste Department

2018 Annual Leachate Report

Week of	Pond 1 Gallons	Pond 2 Gallons	Pond 3 Gallons	Pond 4 Gallons	Misting Evaporation (Gallons)	Leachate Hauled Offsite (Gallons)
1-Nov-17	802,700		3,140,600	-	-	-
6-Nov-17	811,200		3,155,500	-	-	-
13-Nov-17	819,700		3,309,100	-	-	-
20-Nov-17	854,200		3,450,100	-	-	-
27-Nov-17	885,500		3,715,500	-	-	-
4-Dec-17	902,000		3,948,000	-	-	-
11-Dec-17	902,000		4,017,300	-	-	-
18-Dec-17	914,900		4,087,000	-	-	-
25-Dec-17	930,300	50,300	4,223,700	-	-	-
1-Jan-18	930,300	70,100	4,307,500	-	-	-
8-Jan-18	930,300	299,300	4,324,400	-	-	-
15-Jan-18	930,300	961,800	4,443,000	-	-	-
22-Jan-18	969,600	1,246,600	4,727,900	-	-	25,200
29-Jan-18	859,100	1,147,000	4,370,800	28,200	-	180,000
5-Feb-18	664,000	1,150,000	4,438,800	626,100	-	237,600
12-Feb-18	471,700	1,153,100	4,286,500	801,200	-	192,450
19-Feb-18	293,000	1,153,100	4,413,200	1,026,800	-	170,400
26-Feb-18	31,100	1,153,100	4,413,200	1,292,300	-	183,000
5-Mar-18	622,700	178,700	4,434,500	1,372,500	-	351,000
12-Mar-18	481,200	178,700	4,370,800	1,870,700	-	364,500
19-Mar-18	399,200		4,413,200	2,180,400	-	381,000
26-Mar-18	135,500		4,349,700	2,355,500	-	258,300
2-Apr-18			4,311,700	2,515,400	-	186,600
9-Apr-18	377,600	415,700	4,370,800	2,107,200	-	-
16-Apr-18	763,300	899,300	4,349,700	1,488,000	34,500	-
23-Apr-18	1,023,200	1,207,300	4,041,800	1,413,300	118,100	-
30-Apr-18	1,030,000	1,207,300	3,519,600	1,987,400	221,700	-
7-May-18	1,030,000	1,207,300	3,211,300	2,264,700	158,900	-
14-May-18	1,031,300	1,207,300	3,170,300	2,229,800	195,000	-
21-May-18	1,034,000	1,199,500	3,066,900	2,229,800	381,600	-
28-May-18	1,032,700	1,199,500	2,795,600	2,224,800	232,400	-
4-Jun-18	1,016,400	1,180,800	2,725,800	2,034,900	200,000	-
11-Jun-18	996,200	1,171,500	2,828,300	1,843,200	246,900	-
18-Jun-18	996,200	1,168,500	2,722,300	1,766,000	247,500	-
25-Jun-18	982,900	1,168,500	3,103,700	1,229,600	360,200	-
2-Jul-18	969,600	1,137,800	2,921,400	1,091,000	341,800	-
9-Jul-18	943,300	1,019,000	2,723,400	1,045,000	350,200	-
16-Jul-18	956,400	906,100	2,433,700	21,214,100	438,100	-
23-Jul-18	930,300	661,800	1,994,900	1,454,600	378,000	-
30-Jul-18	923,900	410,800	1,855,500	1,433,900	386,500	-
6-Aug-18	872,900	167,800	2,105,700	990,700	386,600	-
13-Aug-18	872,900		2,474,200	507,800	311,600	-
20-Aug-18	872,900		2,656,000	-	174,700	-
27-Aug-18	505,200		2,604,000	-	364,900	-
3-Sep-18	197,000		2,624,800	-	312,200	-
10-Sep-18	173,800		2,614,400	-	225,300	-
17-Sep-18	31,100		2,597,100	-	196,600	-
24-Sep-18	27,600		2,406,800	-	195,400	-
1-Oct-18	-		2,202,300	-	36,500	-
8-Oct-18	-		2,169,900	-	31,500	-
15-Oct-18	-		2,124,900	-	61,500	-
22-Oct-18	-		2,061,100	-	36,400	-
29-Oct-18	-		2,195,800	-	-	-
	Evaporated with Misting System (Gallons)					**6,624,600**
	Leachate Hauled Offsite					**2,530,050**
	Grand Total Gallons of Leachate Processed					**9,154,650**

Appendix A-8: Kootenai County Farm Landfill Surface Water Reporting

The Solid Waste Department complied with the regulations of the EPA regarding the MSGP and SWPPP. Copies of these reports were provided to Idaho DEQ at the time they were submitted. Courtesy copies of the submittals have been included on the CD provided to Idaho DEQ and Idaho Panhandle Health District.

DMR Copy of Record

Permit

Permit #:	IDR053195	Permittee:	KOOTENAI COUNTY SOLID WASTE	Facility:	KOOTENAI COUNTY FIGHTING CREEK FARM LANDFILL
Major:	No	Permittee Address:	22089 S. Hwy 95 Coeur D Alene, ID 83814	Facility Location:	22089 S. HWY 95 3650 N. RAMSEY ROAD COEUR D ALENE, ID 83814
Permitted Feature:	SW21 External Outfall	Discharge:	SW21-L1 All Landfill, Land Application Sites and Open Dumps		

Report Dates & Status

Monitoring Period:	From 10/01/18 to 12/31/18	DMR Due Date:	02/28/19	Status:	NetDMR Validated

Considerations for Form Completion

Principal Executive Officer

First Name:	Cathy	Title:	Director	Telephone:	208-446-1430
Last Name:	Mayer				

No Data Indicator (NODI)

Form NODI: --

Parameter Code	Parameter Name	Monitoring Location	Season #	Param. NODI		Quantity or Loading Qualifier 1	Value 1	Qualifier 2	Value 2	Units	Quality or Concentration Qualifier 1	Value 1	Qualifier 2	Value 2	Qualifier 3	Value 3	Units	# of Ex.	Frequency of Analysis	Sample Type
00530	Solids, total suspended	1 - Effluent Gross	0	--	Sample										=	5	19 - mg/L		01/90 - Quarterly	GR - GRAB
					Permit Req.										<=	100 MAXIMUM	19 - mg/L		01/90 - Quarterly	GR - GRAB
					Value NODI															

Submission Note

If a parameter row does not contain any values for the Sample nor Effluent Trading, then none of the following fields will be submitted for that row: Units, Number of Excursions, Frequency of Analysis, and Sample Type.

Edit Check Errors

No errors.

Comments

Attachments

No attachments.

Report Last Saved By

KOOTENAI COUNTY SOLID WASTE

User:	JHAGENBARTH
Name:	James Hagenbarth
E-Mail:	jhagenbarth@kcgov.us
Date/Time:	2019-01-22 11:07 (Time Zone: -08:00)

Report Last Signed By

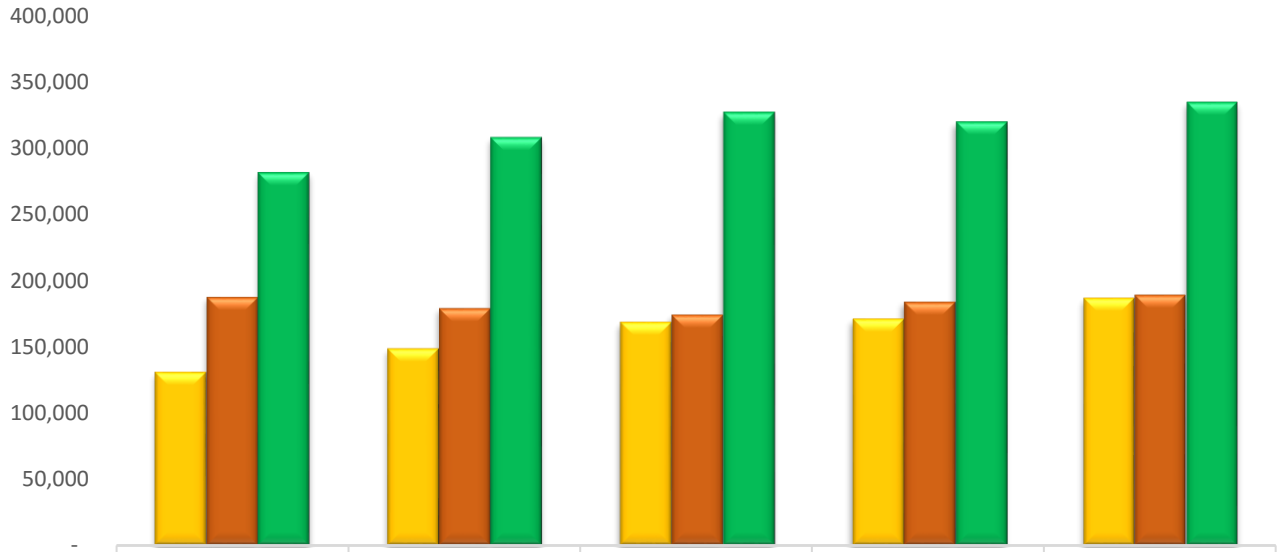
User:	JHAGENBARTH
Name:	James Hagenbarth
E-Mail:	jhagenbarth@kcgov.us
Date/Time:	2019-01-22 11:10 (Time Zone: -08:00)

Appendix A-9: Plans & Specifications

No construction projects or plans completed in 2018 required a submittal as part of current permits.

Appendix “B”
Customer Statistics

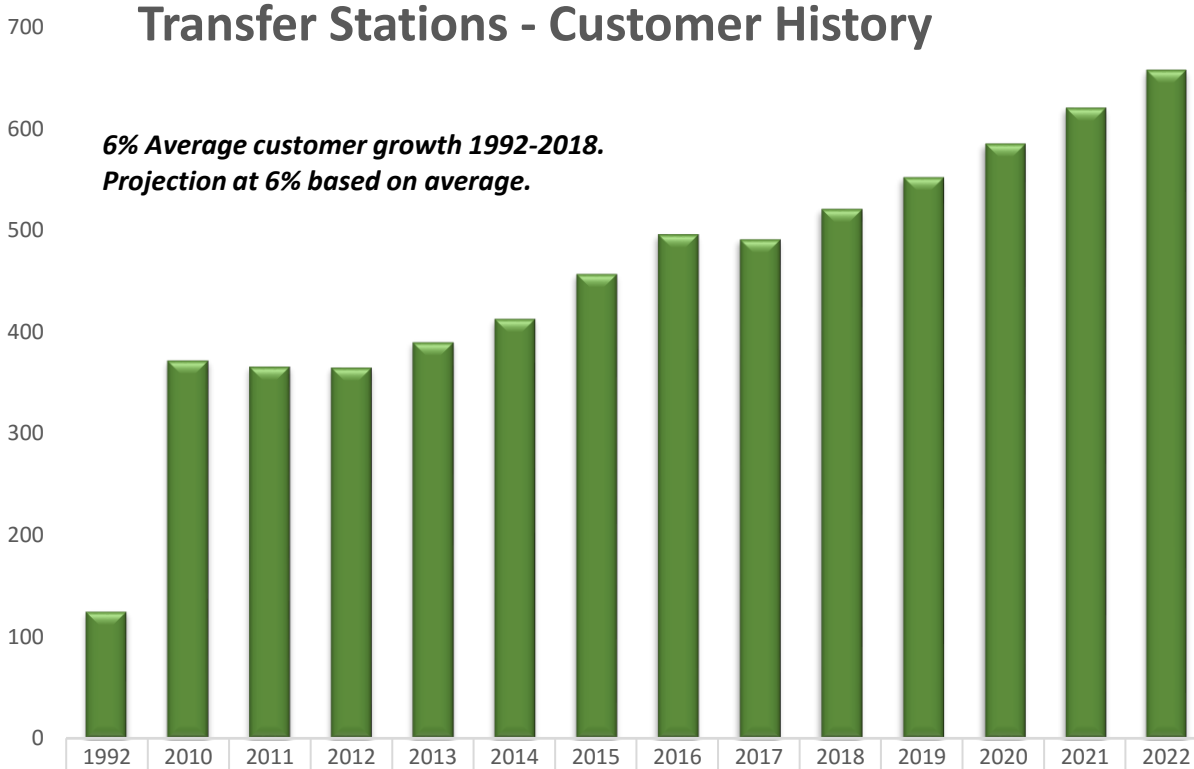
Total Department Customers
Total 710,668



	2014	2015	2016	2017	2018
Prairie	130,981	148,617	168,784	171,127	186,786
Rural	187,592	179,005	174,314	183,889	189,324
Ramsey	281,752	308,047	327,027	319,839	334,558

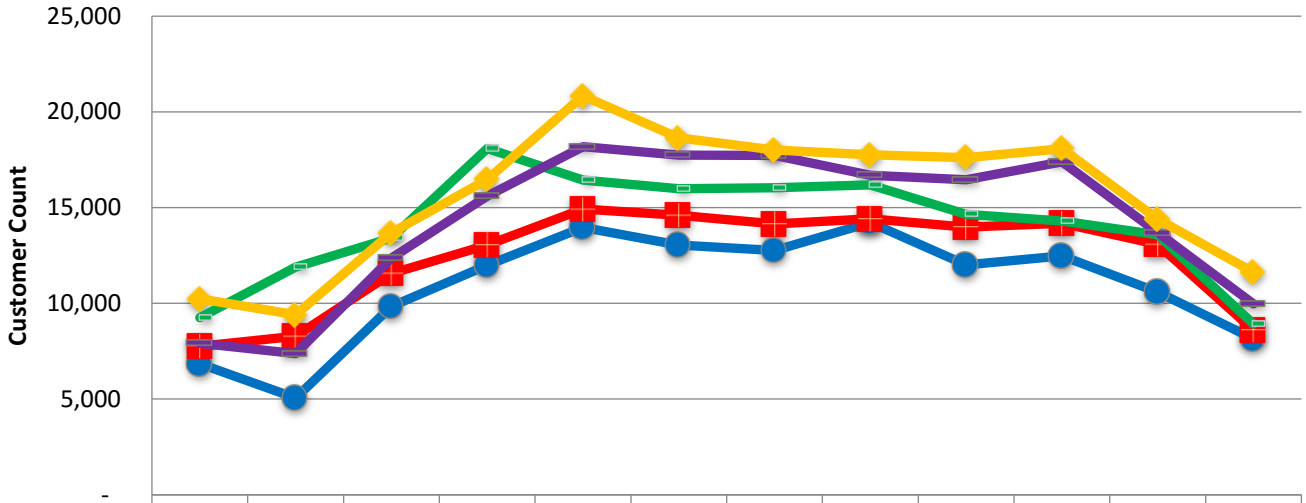
Transfer Stations - Customer History

6% Average customer growth 1992-2018.
Projection at 6% based on average.



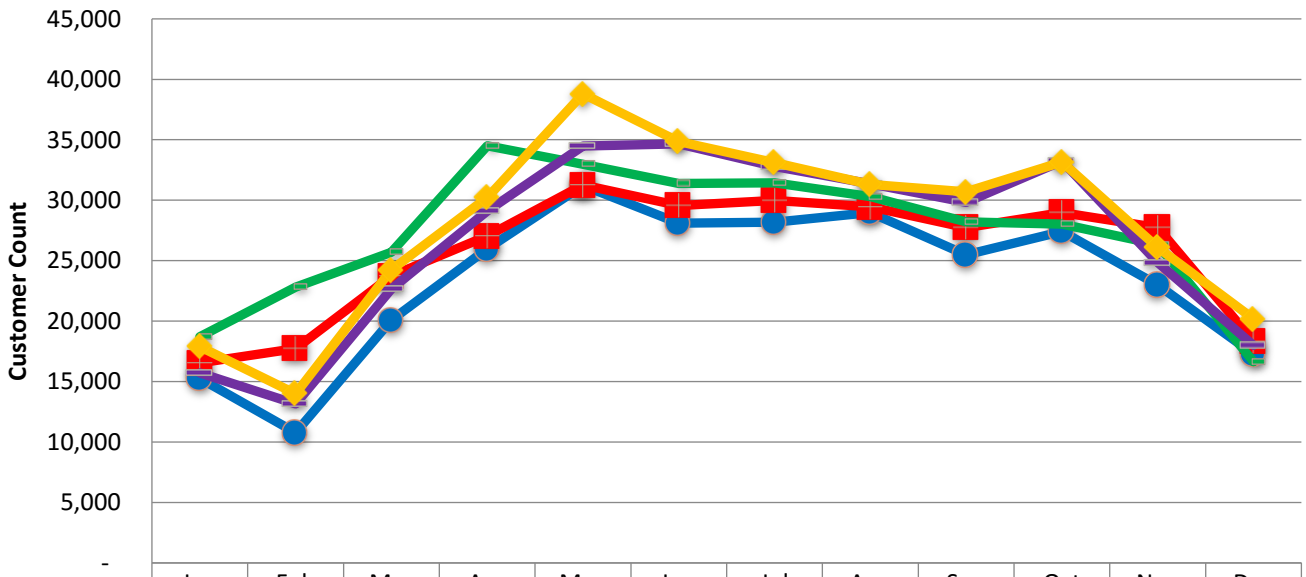
	1992	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Customers (K)	125	372	366	365	390	413	457	496	491	521	552	585	621	658

Prairie Customers By Month



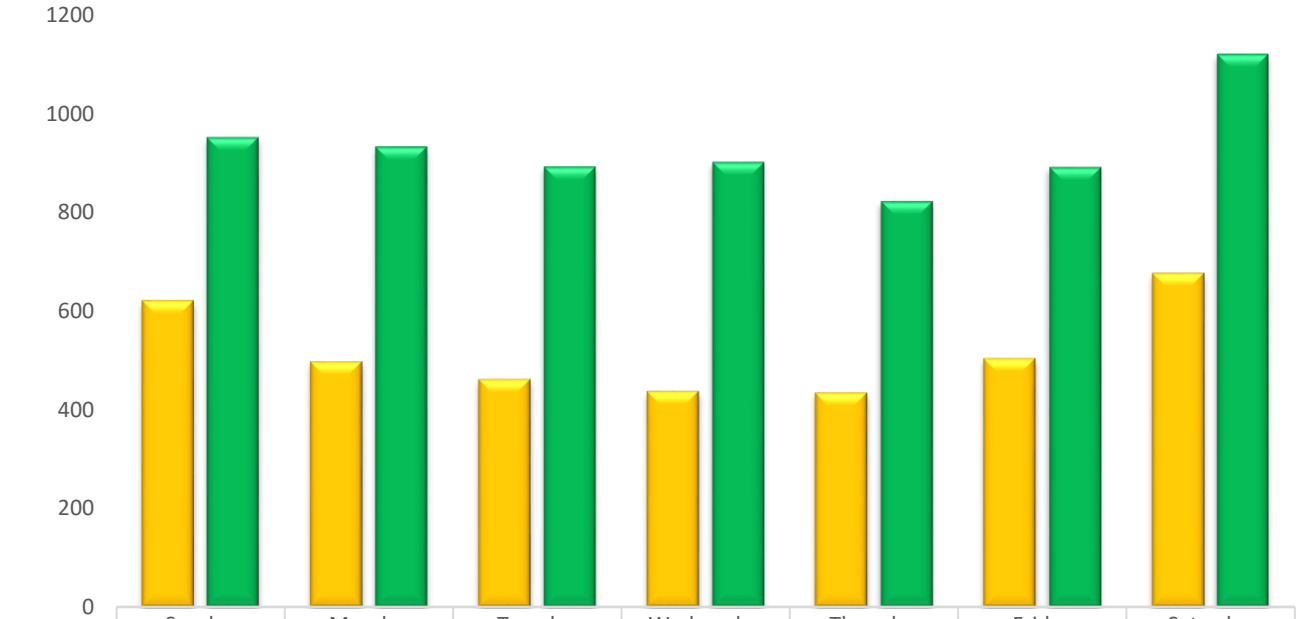
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	6,854	5,060	9,833	11,995	13,962	13,055	12,771	14,223	12,009	12,475	10,598	8,146
2015	7,760	8,280	11,554	13,053	14,927	14,608	14,156	14,420	13,987	14,189	13,075	8,608
2016	9,258	11,901	13,414	18,090	16,440	15,985	16,045	16,189	14,658	14,306	13,578	8,920
2017	7,918	7,377	12,358	15,599	18,184	17,743	17,723	16,694	16,454	17,397	13,707	9,973
2018	10,235	9,405	13,684	16,471	20,843	18,653	18,014	17,760	17,616	18,085	14,395	11,625

Ramsey Customers By Month



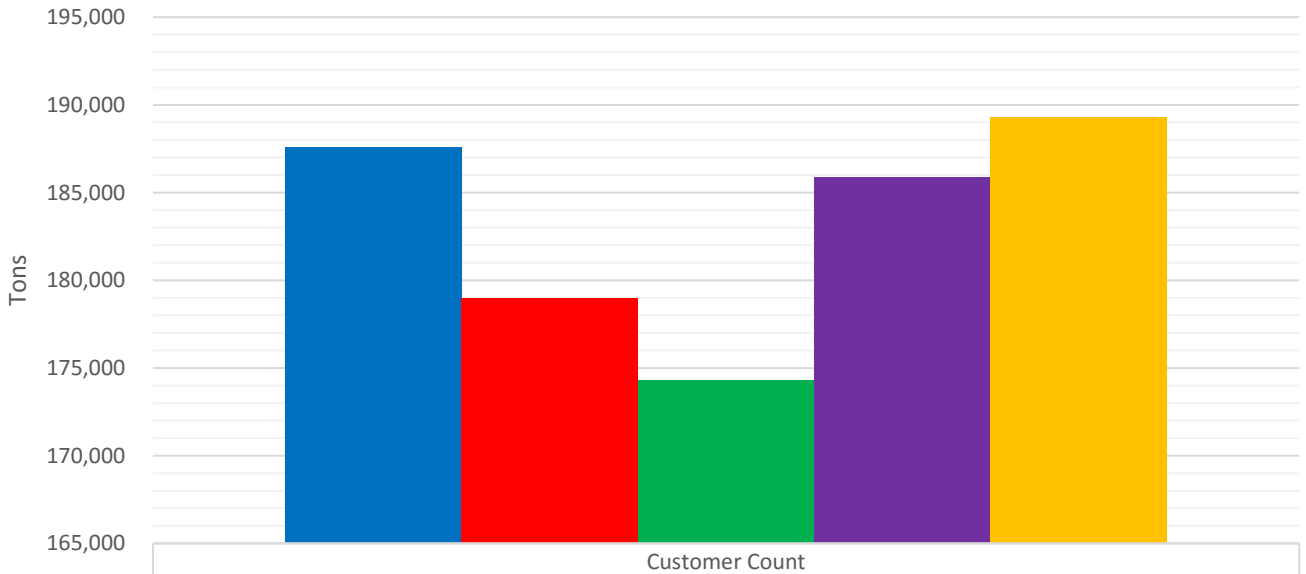
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	15,258	10,777	20,079	25,984	31,219	28,094	28,194	28,965	25,487	27,429	23,001	17,265
2015	16,546	17,716	23,737	27,051	31,262	29,548	29,971	29,455	27,736	28,971	27,726	18,328
2016	18,713	22,816	25,689	34,504	32,984	31,381	31,447	30,296	28,200	28,012	26,344	16,641
2017	15,708	13,153	22,652	29,114	34,493	34,662	32,787	31,370	29,827	33,242	24,851	17,980
2018	17,886	13,996	24,246	30,214	38,799	34,866	33,108	31,299	30,707	33,160	26,098	20,179

Transfer Station Average Daily Customers



	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Prairie	622	498	462	438	435	504	677
Ramsey	952	933	893	902	823	892	1120

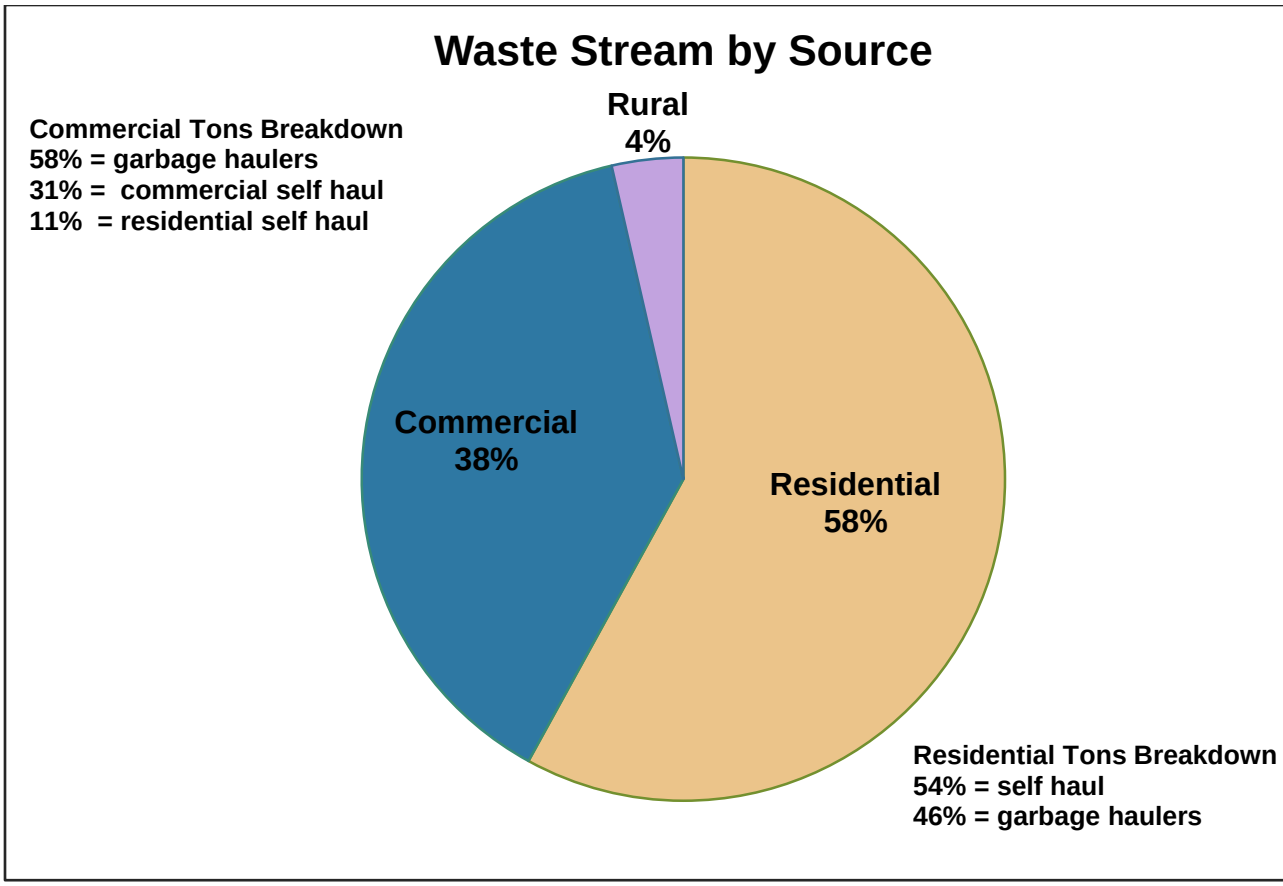
Rural Systems Cumulative Customers



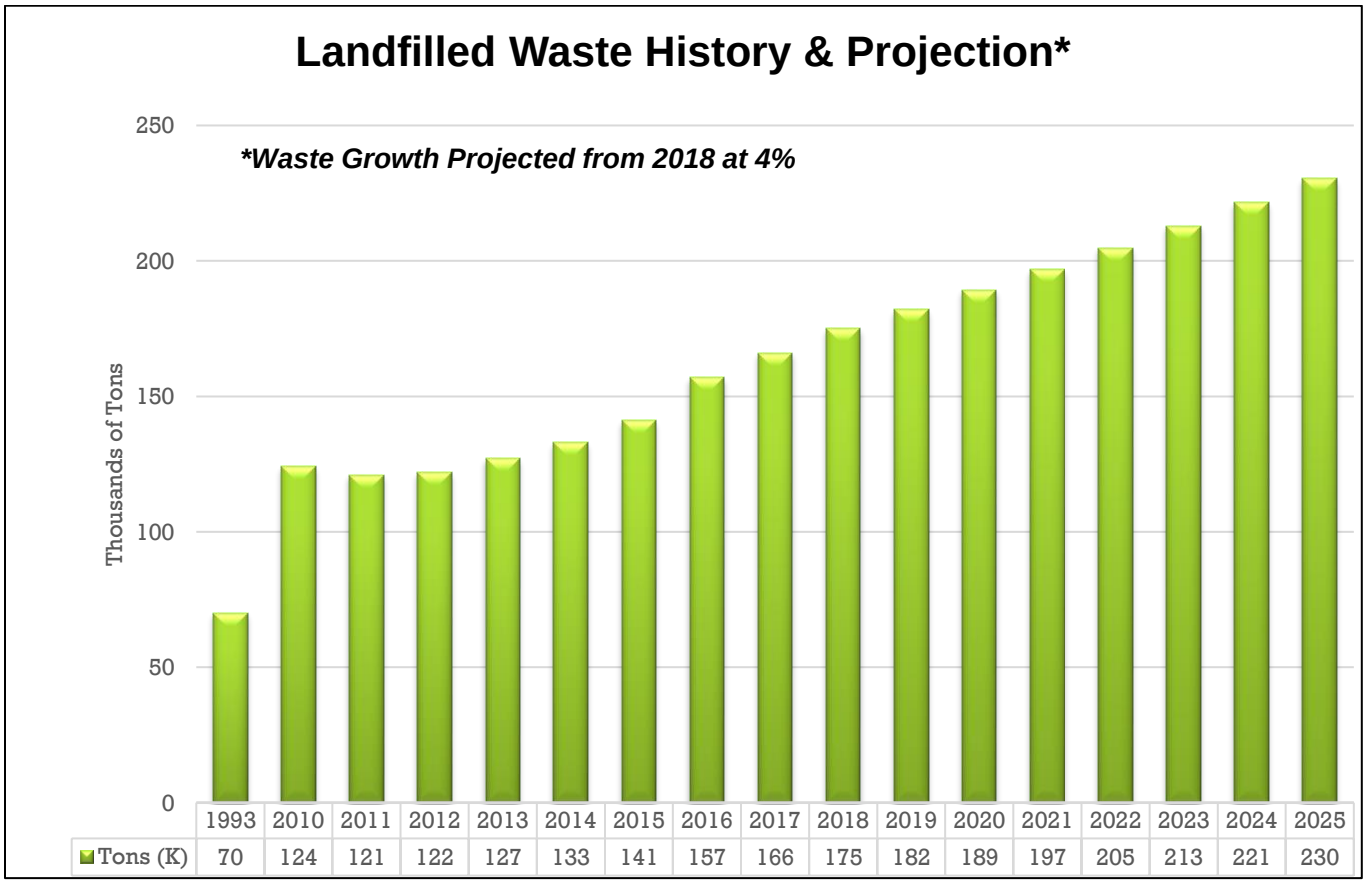
	Customer Count
2014	187,592
2015	179,005
2016	174,314
2017	185,889
2018	189,324

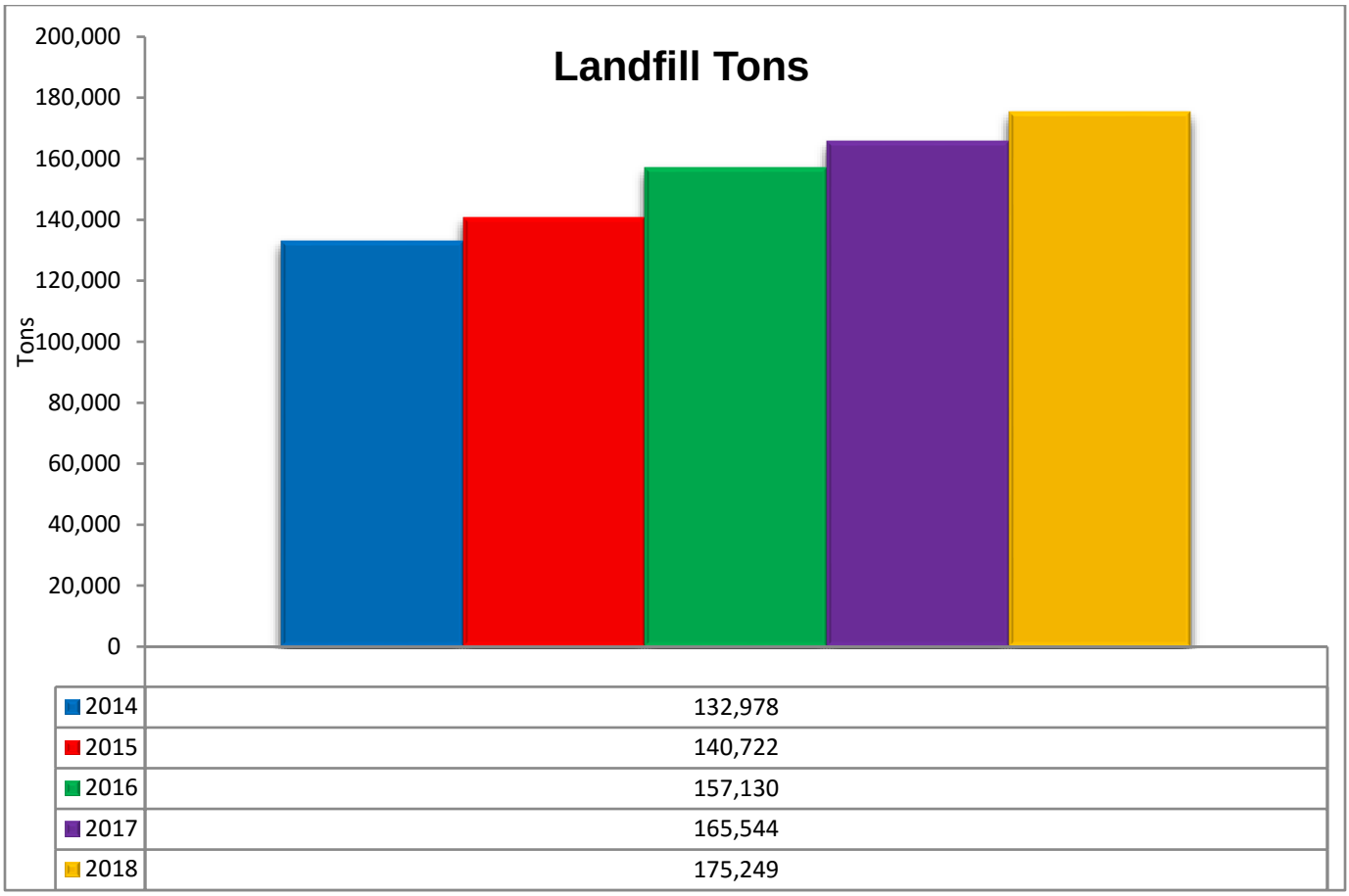
Appendix “C”
Waste Statistics

Waste Stream by Source

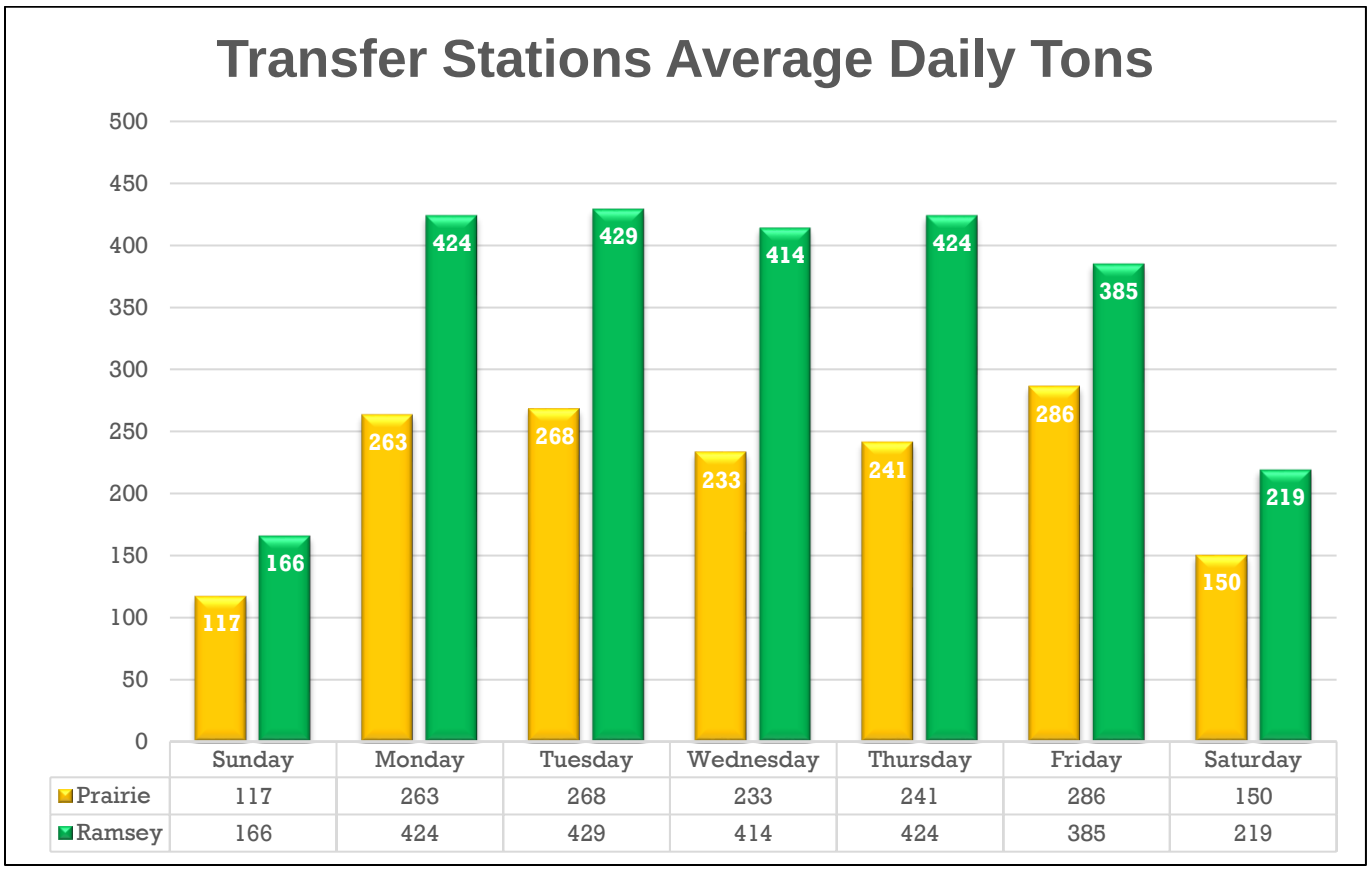


Landfilled Waste History & Projection*

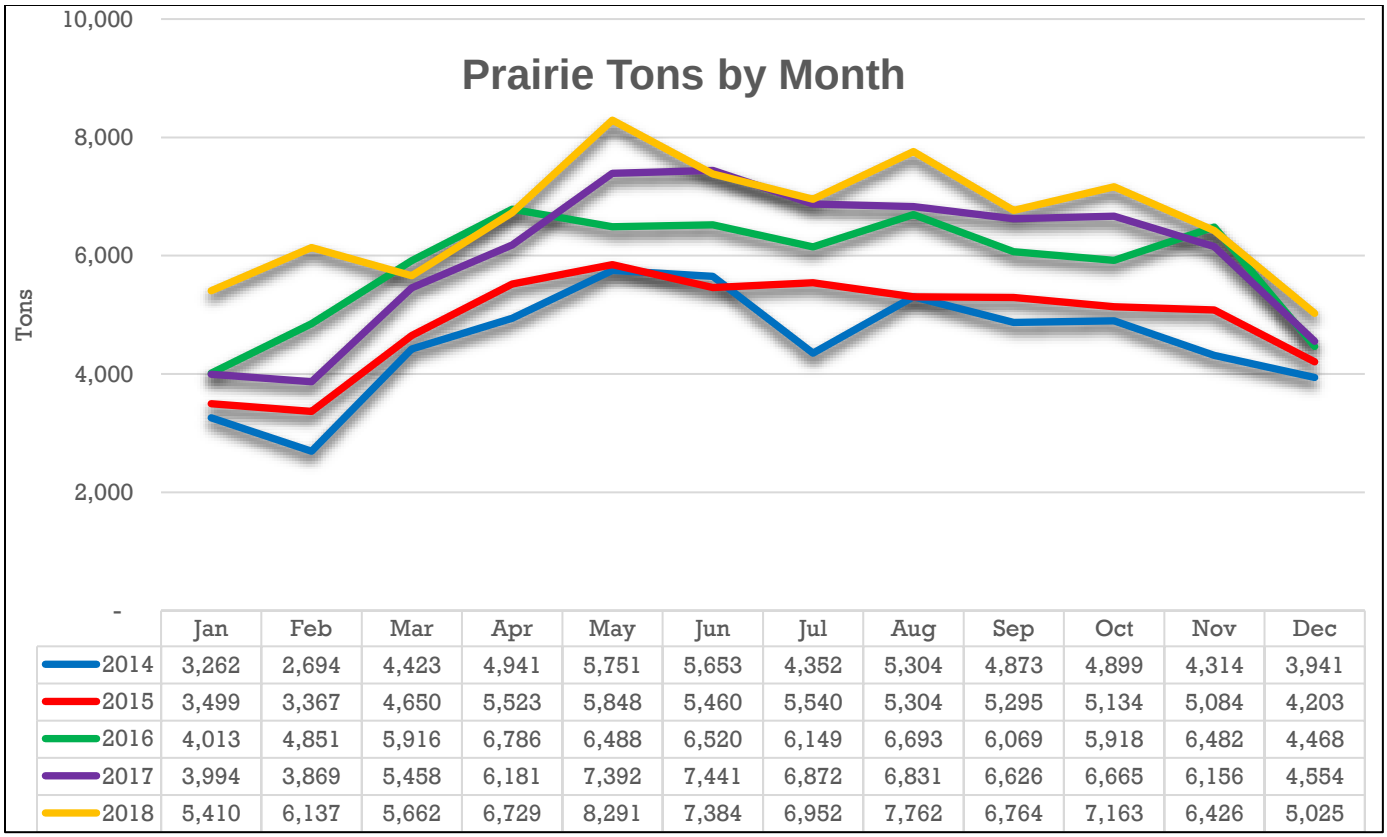




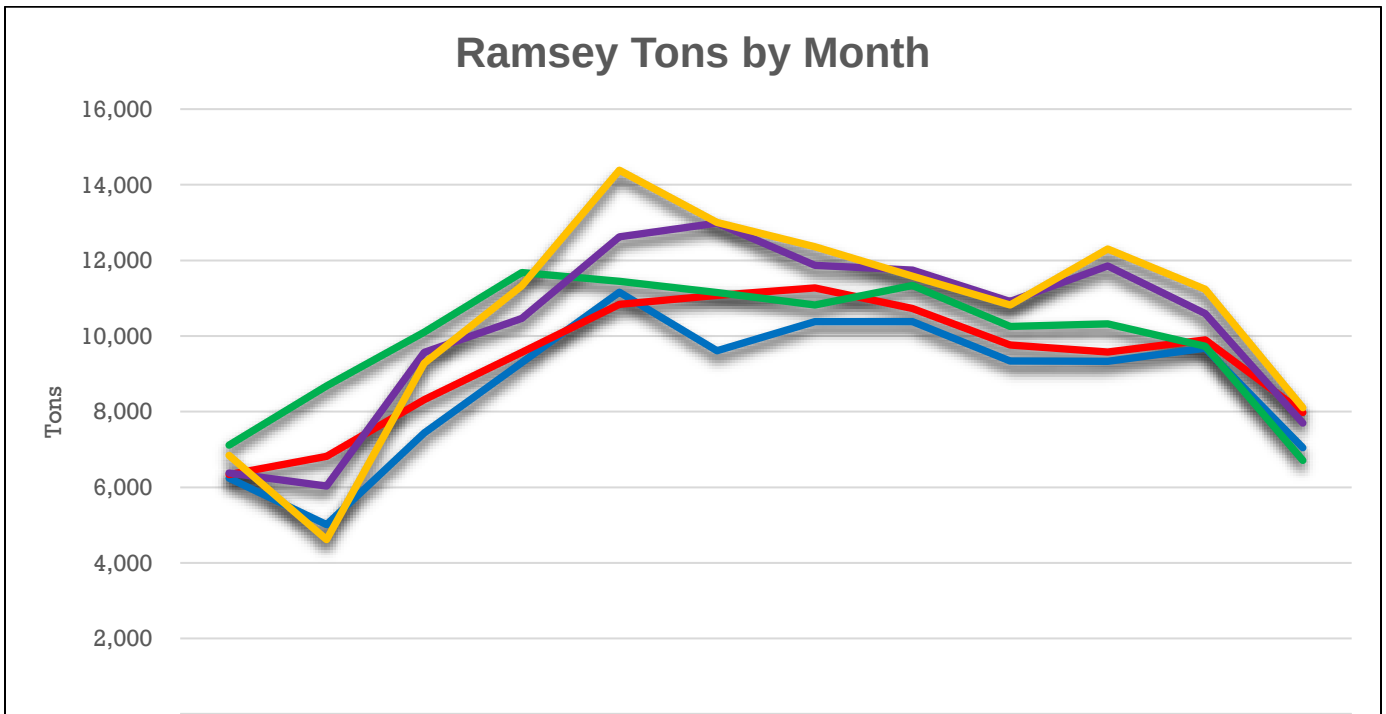
2014	132,978
2015	140,722
2016	157,130
2017	165,544
2018	175,249



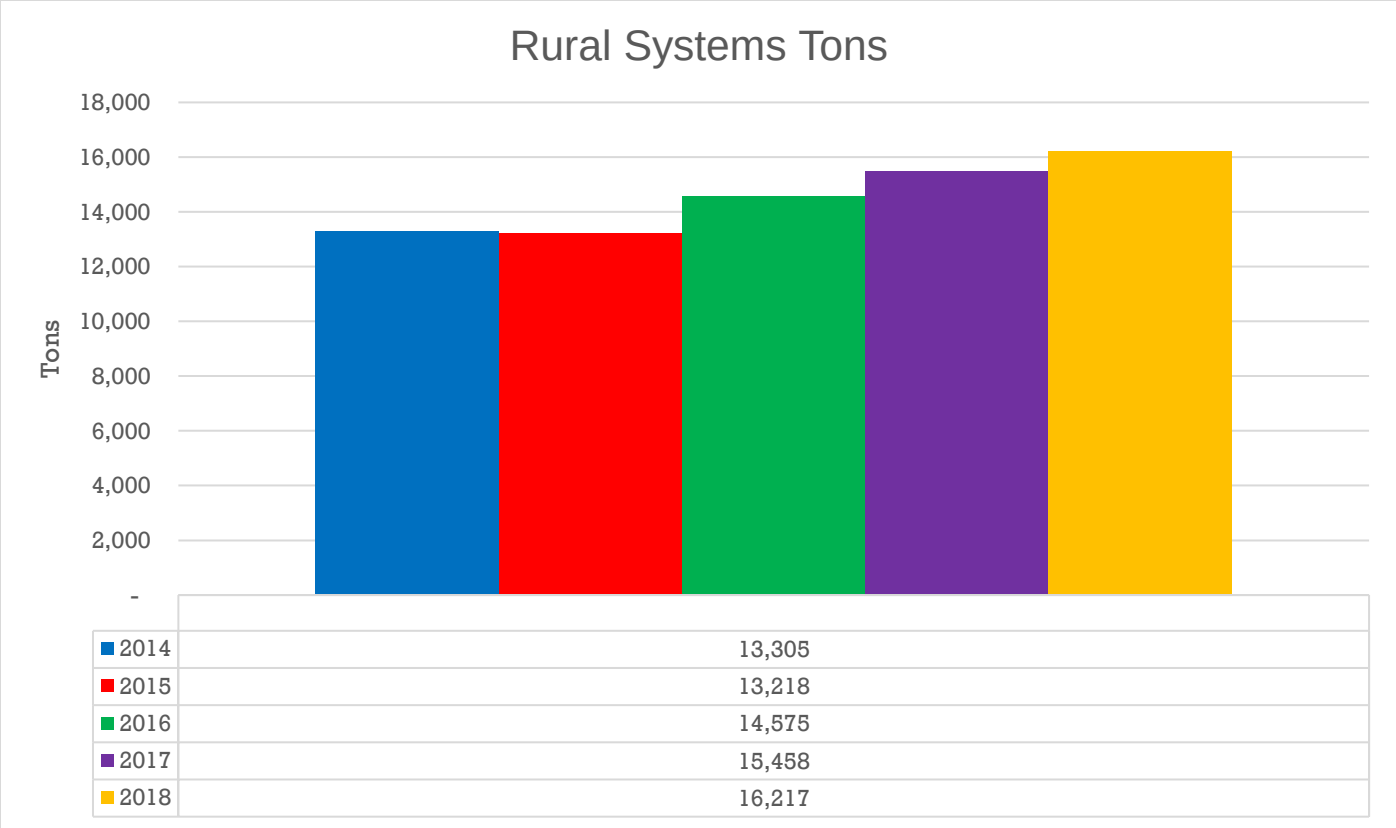
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Prairie	117	263	268	233	241	286	150
Ramsey	166	424	429	414	424	385	219



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	3,262	2,694	4,423	4,941	5,751	5,653	4,352	5,304	4,873	4,899	4,314	3,941
2015	3,499	3,367	4,650	5,523	5,848	5,460	5,540	5,304	5,295	5,134	5,084	4,203
2016	4,013	4,851	5,916	6,786	6,488	6,520	6,149	6,693	6,069	5,918	6,482	4,468
2017	3,994	3,869	5,458	6,181	7,392	7,441	6,872	6,831	6,626	6,665	6,156	4,554
2018	5,410	6,137	5,662	6,729	8,291	7,384	6,952	7,762	6,764	7,163	6,426	5,025



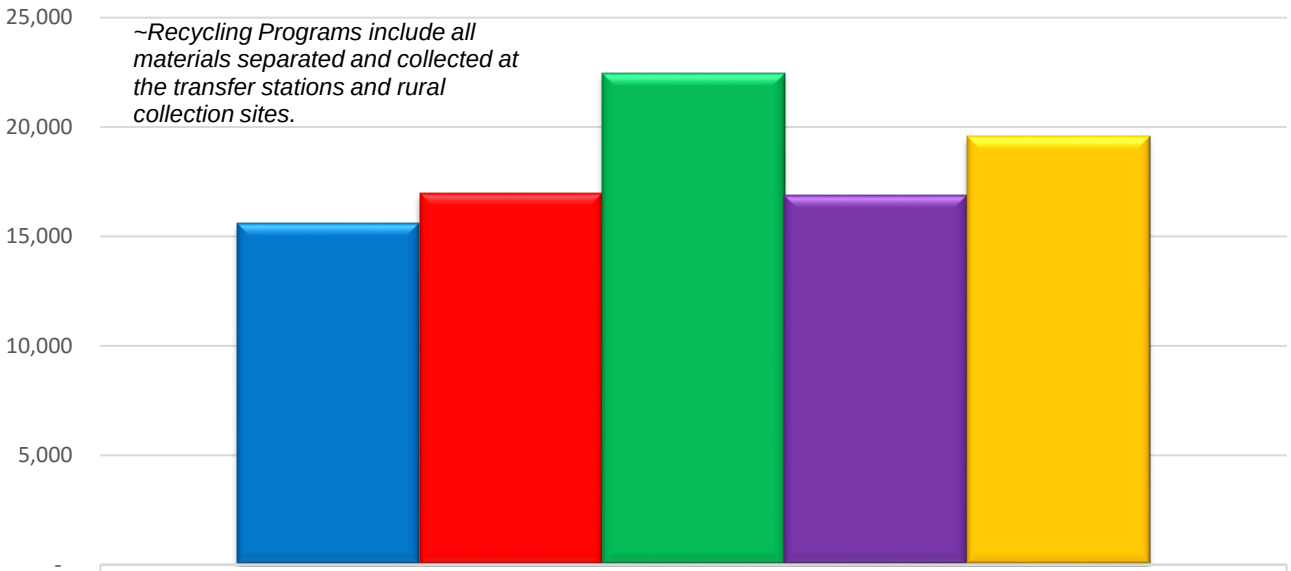
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2014	6,240	5,013	7,436	9,295	11,158	9,607	10,381	10,377	9,343	9,327	9,676	7,048
2015	6,336	6,815	8,315	9,566	10,838	11,076	11,272	10,726	9,763	9,574	9,899	7,980
2016	7,111	8,678	10,099	11,678	11,448	11,149	10,824	11,340	10,253	10,325	9,726	6,711
2017	6,378	6,032	9,565	10,469	12,624	12,985	11,868	11,746	10,917	11,855	10,588	7,699
2018	6,842	4,616	9,279	11,330	14,385	13,004	12,362	11,581	10,822	12,298	11,232	8,101



2014	13,305
2015	13,218
2016	14,575
2017	15,458
2018	16,217

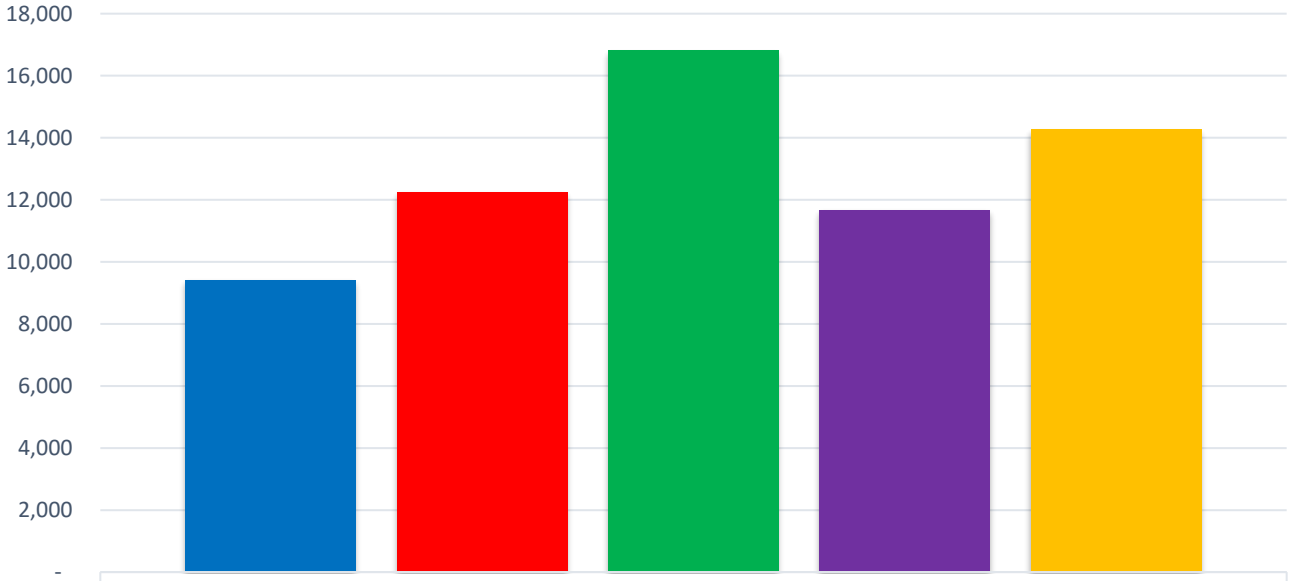
Appendix “D”
Recycling

Recycling Totals~



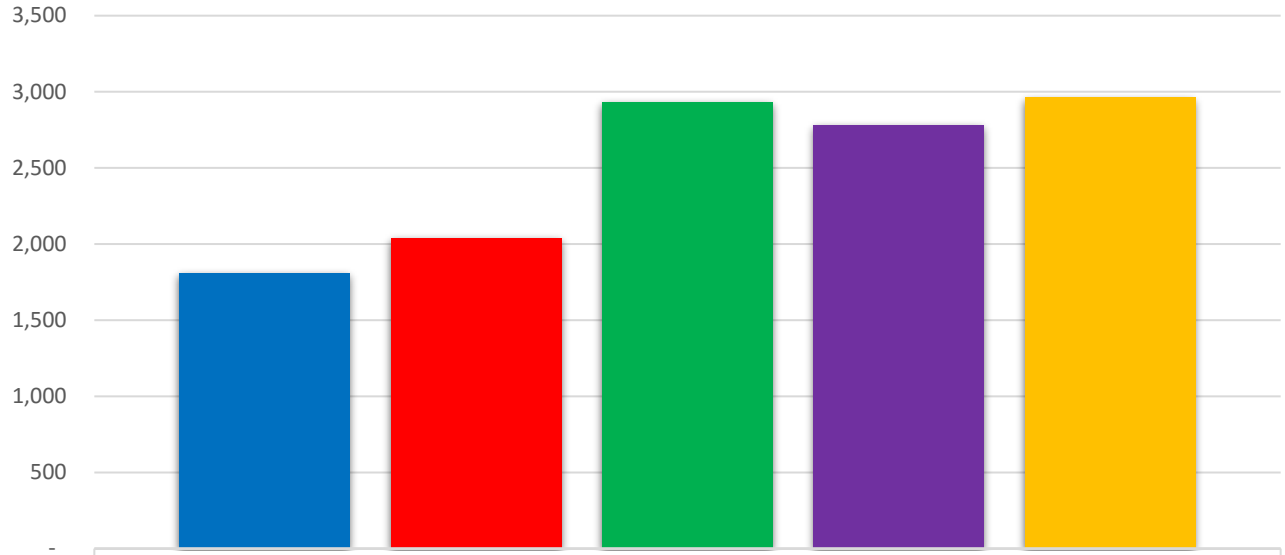
	Tons
2014	15,582
2015	16,966
2016	22,451
2017	16,864
2018	19,561

Wood Recycling



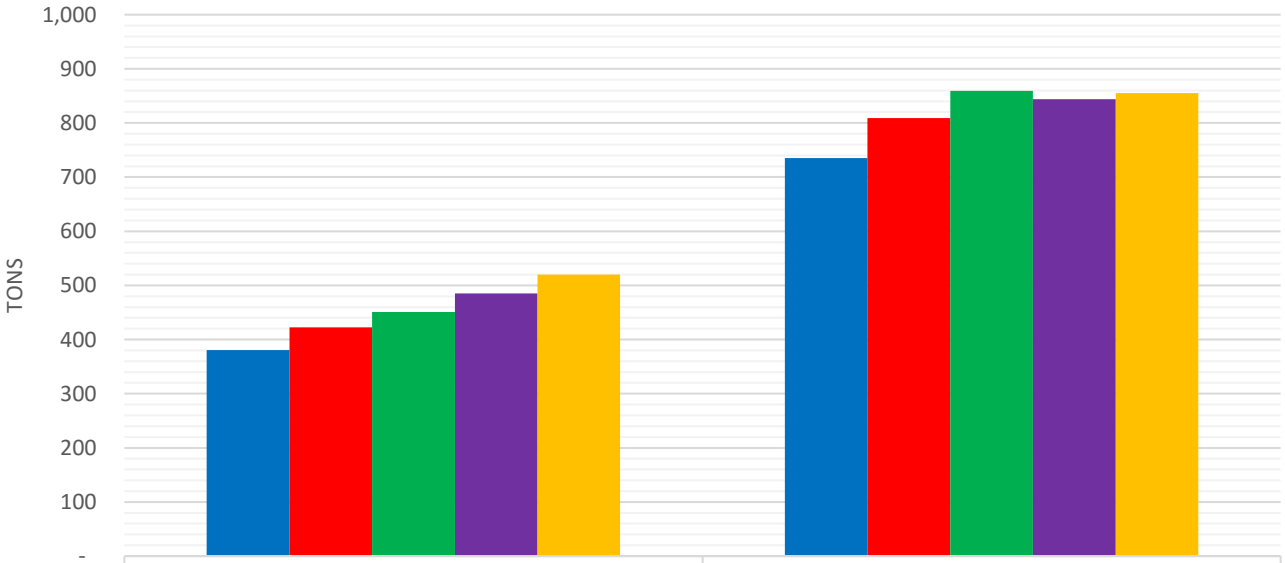
	Tons
2014	9,411
2015	12,251
2016	16,816
2017	11,673
2018	14,262

Metals Recycling



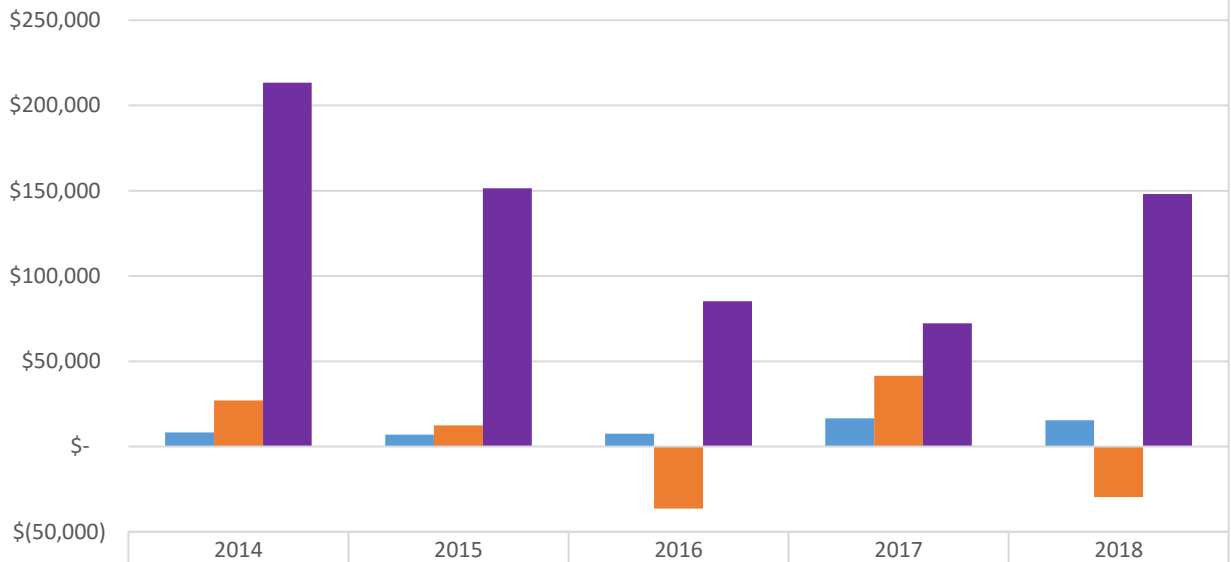
	Metals*
2014	1,810
2015	2,043
2016	2,933
2017	2,780
2018	2963

Tires & Cardboard Recycling



	Tires	Cardboard
2014	381	735
2015	423	809
2016	451	859
2017	485	844
2018	520	855

Recycling Revenue



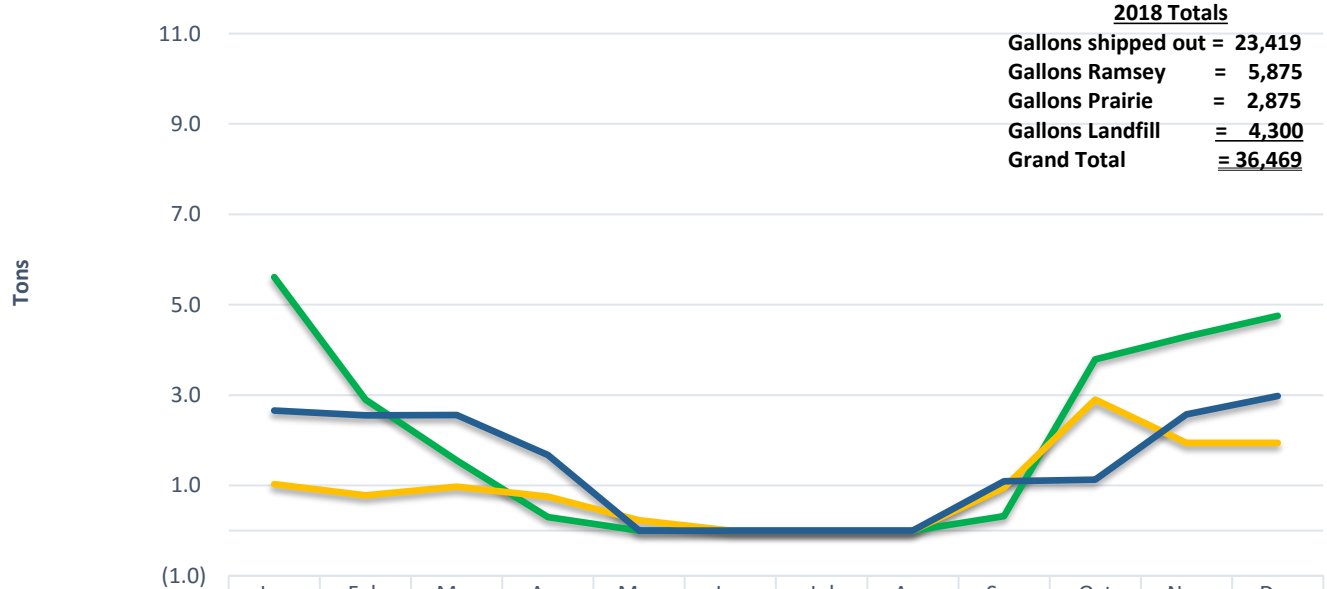
	2014	2015	2016	2017	2018
Batteries	$8,347	$6,897	$7,517	$16,538	$15,356
Non-Metal Recycling*	$26,988	$12,439	$(36,413)	$41,564	$(29,606)
Metal Recycling	$213,313	$151,390	$85,217	$72,211	$148,062

Used Oil - Reused for Heating

Conversion rate is 8 lbs per Gallon

2018 Totals

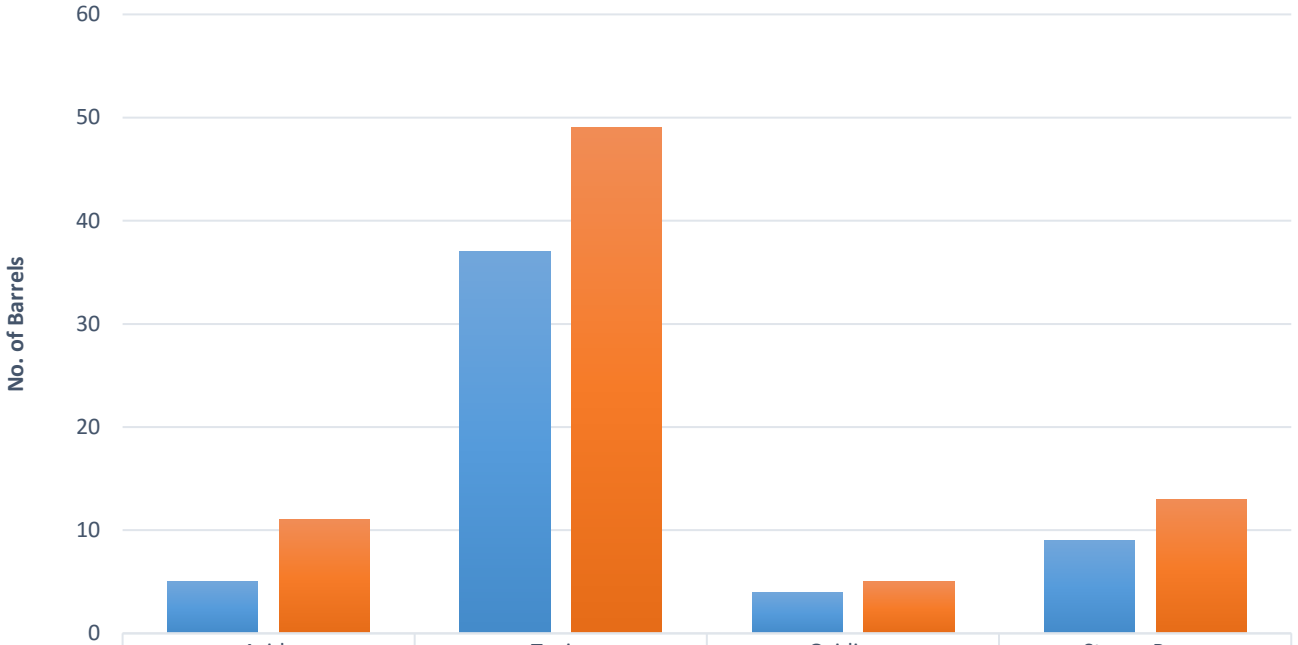
Gallons shipped out = 23,419
Gallons Ramsey = 5,875
Gallons Prairie = 2,875
Gallons Landfill = 4,300
Grand Total = 36,469



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ramsey	5.6	2.9	1.6	0.3	-	-	-	-	0.3	3.8	4.3	4.8
Prairie	1.0	0.8	1.0	0.8	0.2	-	-	-	1.0	2.9	1.9	1.9
Fighting Creek	2.7	2.6	2.6	1.7	-	-	-	-	1.1	1.1	2.6	3.0

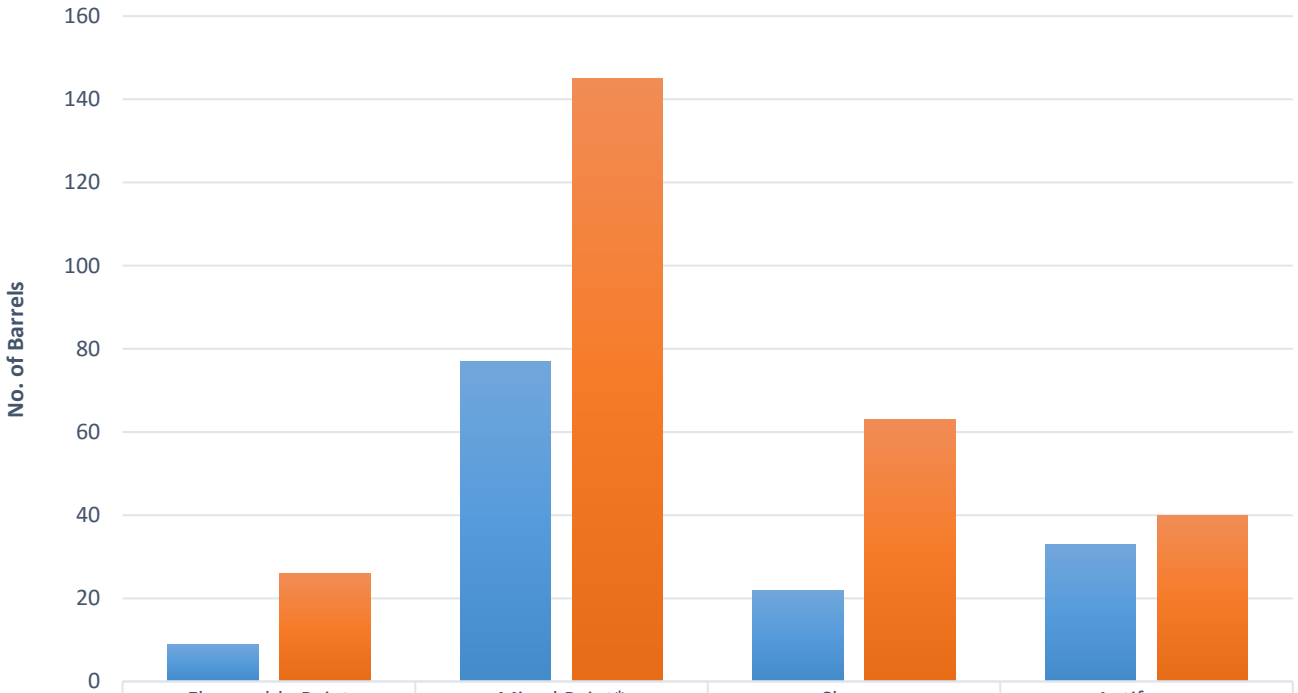
Appendix “E”
Household Hazardous Waste (HHW) Collection

HHW Processed - Acids, Toxics, Oxidizers and Bases

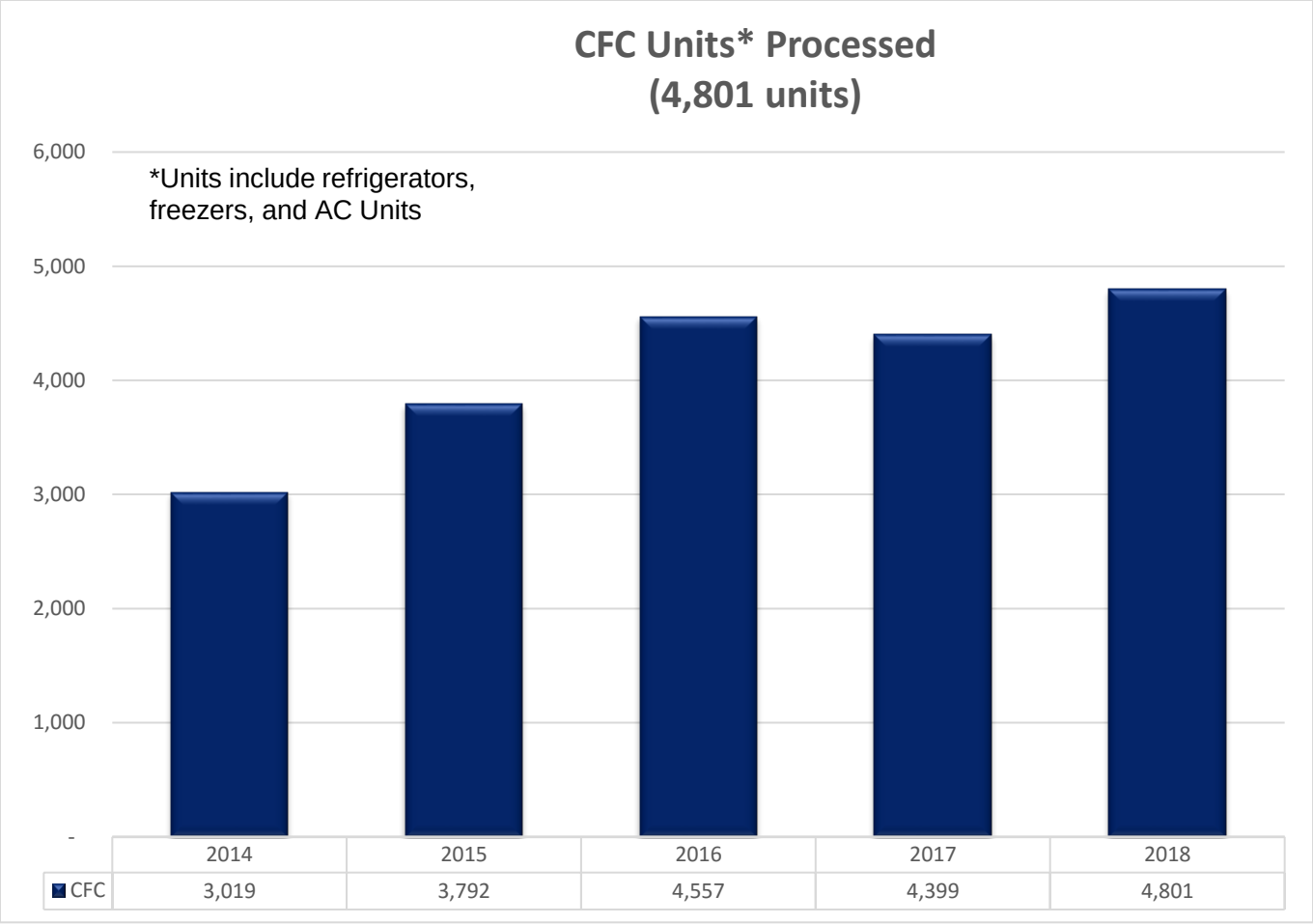


	Acids	Toxics	Oxidizers	Strong Bases
Prairie	5	37	4	9
Ramsey	11	49	5	13

HHW Processed - Paint, Sharps and Antifreeze



	Flammable Paint	Mixed Paint*	Sharps	Antifreeze
Prairie	9	77	22	33
Ramsey	26	145	63	40


CFC Units* Processed
(4,801 units)
*Units include refrigerators,
freezers, and AC Units
6,000
5,000
4,000
3,000
2,000
1,000
-
2014
2015
2016
2017
2018
CFC
3,019
3,792
4,557
4,399
4,801