ORGANIC WASTE CHARACTERIZATION PROJECT
UNALASKA/DUTCH HARBOR, ALASKA

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Prepared for
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Unalaska, Alaska

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ORGANIC WASTE CHARACTERIZATION PROJECT

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I. INTRODUCTION

The intent of the Organic Waste Characterization Project (project) is to identify, describe, and quantify the organic waste streams that are currently being generated in the Unalaska/Dutch Harbor, Alaska community. The project was undertaken to provide basic data to aid in the evaluation of Unalaska/Dutch Harbor, from both an economic and operational perspective, as a suitable site for an anaerobic digester-based facility. Others, considering their specific technologies and targeted applications, will perform the actual evaluation of the community as a suitable site.

This report provides a background discussion describing the community and its sources of organic wastes, as well as the process of anaerobic digestion. The project's methods and its sources of information are discussed, followed by a presentation of results. Discussions are then presented on the potential for utilization of digester by-products and of economic considerations useful in determining a digester operation's viability. The report closes with a brief summary.

Steigers Corporation of Englewood, Colorado performed the Organic Waste Characterization Project under contract to the City of Unalaska, Alaska. The City of Unalaska, in turn, was provided project funding through a grant from the Alaska Energy Authority and Alaska Industrial Development and Export Authority.

II. BACKGROUND

Unalaska/Dutch Harbor Community

The Unalaska/Dutch Harbor community consists of the City of Unalaska and the immediately adjacent areas of Dutch Harbor, Iliuliuk Bay, and Captains Bay. This community of about 4,000 permanent residents is located on portions of Unalaska and Amaknak Islands within the Fox Island group of southeast Alaska's Aleutian Chain. The community provides key support to the Bering Sea commercial fisheries as a supply and maintenance hub for the regional fishing fleets and lays claim to being the largest seafood port in North America, both in landed tonnage and in total market value. Unalaska's location also enables it to serve as a convenient trans-shipment port for the maritime trade routes between the west coast of North America and Pacific Rim nations.

The community's largest employers, which are also the community's largest generators of organic wastes, are the five major seafood processors. Each of the three largest, UniSea, Inc. (UniSea), Westward Seafoods, Inc. (Westward), and Alyeska Seafoods, Inc. (Alyeska), process a variety of fish and crab species into a number of seafood-based wholesale commodities and consumer products. The other two, Icicle Seafoods, Inc. (Icicle) and Royal Aleutian Seafoods, Inc. (Royal Aleutian), primarily process for the several crab fisheries in the region. Icicle's processing "facility" consists of one or more mobile processing vessels. All the others are more or less permanent fixtures in the community. Figure 1 illustrates the layout of the community and shows the locations of the major generators of organic wastes (five major seafood processors).

To serve the seafood processing industry, the community hosts a transient workforce of as much as 12,000 additional workers during peak processing periods.

Landfill

The City of Unalaska's Municipal Solid Waste Landfill (Landfill), the only means of solid waste disposal available to the community, operates under the State of Alaska Solid Waste Permit 9625-BA006 issued in 1997. The Landfill staff prepares monthly reports in electronic spreadsheet format that tally the total daily quantities of accepted waste, separated into a number of categories. The waste categories utilized by the Landfill for 1999 are listed below:

Categories January through June	**Categories July through December**
Organic	Organic
Cardboard	Cardboard
Metal	Metal
Plastic	Plastic
Nets	Nets
Fish Waste	Fish Waste
Tires	Tires
Wood	Wood
Miscellaneous	Miscellaneous
	Construction & Demolition

Wastewater Treatment Plant

The City of Unalaska's Wastewater Treatment Plant (WWTP) treats approximately 0.60 million gallons of municipal sewage per day. Raw influent undergoes a primary treatment process involving a rotary shear screen with 1-millimeter-diameter openings for solids removal (EPA 1996). The screened solids are collected in a chute, partially dewatered with a press, and hauled in reusable steel drums for disposal in the Landfill. The remaining water fraction is treated by high-energy ultraviolet radiation and is then discharged into Unalaska Bay under National Pollution Discharge Elimination System NPDES Permit AK-004345-1. According to WWTP staff, the screened solids are almost entirely organic in nature and are composed of a homogenous mixture of fecal matter, finely ground food (discharged into the sewer system by local grocers and cafeteria/galley operations), and cellulose. No further, more detailed, characterization or analyses of the solids were found to be available.

Seafood Processors

The Unalaska seafood processors evaluated for this study include, in order of largest to smallest production capacity, UniSea, Westward, Alyeska, Royal Aleutian, and Icicle. The three larger seafood processing facilities, UniSea, Westward, and Alyeska, operate meal plants that process wastes to produce fish meal, bone meal, fish oil, and other products. The major component of processing waste is water, which is discharged through the facilities' respective NPDES discharge outfalls. Fish waste solids from finfish is routed to on-site fish meal plants. About 5 percent of the raw product weight is eventually discharged via the facilities' NPDES permits in the form of suspended and/or dissolved proteins, which are too fine or otherwise not recoverable. The two smaller seafood processing facilities, Icicle and Royal Aleutian, do not have fish meal plants. These facilities primarily process crab, which has a higher recovery factor than most other processed seafood and, thus, yields proportionally lower quantities of waste. About 30 to 50 percent of the raw product weight is discharged under the facilities' respective NPDES Permits.

Anaerobic Digestion

Anaerobic digestion is a treatment process commonly applied to organic materials to reduce their bulk, lower the level of their chemical "food" energy, and produce useful and potentially valuable by-products. Anaerobic digestion, in broad terms, is a process in which the organic material, or "feedstock," is acted upon by a number of microbial species in an oxygen-free environment, hence the term "anaerobic." Bulk reduction occurs during the digestion process via the conversion of organic materials to solid stable residue. A common and valuable by-product of digestion is a medium Btu gas consisting primarily of methane and carbon dioxide and commonly referred to as "biogas." Appropriate feedstocks to an anaerobic digester may include food wastes, animal and plant wastes, sewage solids, and other similar materials. Careful, informed selection or "tailoring" of the suite of microbial species is often necessary to optimize the digestion process for a given mix of feedstocks and to promote the desired outcomes (by-products, rate of digestion, degree of digestion, etc.).

III. METHODOLOGY

This project utilized data that were primarily generated during the calendar year 1999. Calendar year 1999 data were readily available, relatively complete, and recent. While recognizing that the specific character and quantities of organic wastes generated in the community are subject to a variety of economic drivers, 1999 is considered to be adequately representative of what may be expected in coming years. The specific sources of data utilized for the project were routine reports prepared by the Landfill and the WWTP and annual reports to the Environmental Protection Agency (EPA) by the seafood processors in accordance with their respective NPDES permits. Further data were obtained through communication with City of Unalaska staff and the various waste generators.

Two methods were utilized in 1999 to categorize waste. From January through June 1999, the accepted waste was allocated by volume, and, from July through December 1999, it was allocated by weight. In order to facilitate a consistent presentation of the data, the volume-based data for the first half of the year were converted to weight-based data using average daily densities.

It is important to note that the Organic category in the Landfill monthly reports does not include all of the organic wastes disposed of in the Landfill. Although Fish Waste is essentially 100 percent organic, it is placed in a separate Fish Waste category rather than included in the Organic category. Screened solids from the WTTP are primarily organic but are accounted for in the Miscellaneous category rather than the Organic category.

The Organic category does not have a 100 percent organic content. For example, cafeteria/galley waste makes up about half of the Organic category by weight and contains about 65 percent organic material (primarily food wastes). Materials such as plastic can be present in cafeteria/galley waste. The other two major components of the Organic category are considered to be 100 percent organic. These are organic wastes of household origin and frozen food waste from Akutan Island.

Because of the complications associated with the original Organic category, the Organics were recalculated to include organic materials in other categories and to correct for the inorganic portions that had been included in the category. These modifications, as well as modifications to other categories, are described in the Results section.

Gathering of original data by means of laboratory analyses, directly observing and inspecting waste generating, handling, or receipt activities, and auditing or independently verifying data accuracy were beyond the scope of this project and were not performed.

IV. RESULTS

There are several potential sources of feedstock for an anaerobic digester that are currently present in the Unalaska/Dutch Harbor community. These sources include organic wastes disposed of in the Landfill and processing wastes from the local seafood processors. The organic wastes disposed in the Landfill are cafeteria/galley waste, household organics, frozen food waste originating on Akutan Island, fish waste from various local seafood-related facilities, and screened solids from the WWTP. The seafood processing wastes are wastes from the five local seafood processing facilities that are currently used in the production of meal or are discharged under NPDES Permits.

Landfill Waste Categories

A summary of the Landfill waste by category (as received) is provided in Table 1. The volumes for January through June 1999 were converted to weights in the table. Table 2 provides an adjusted summary of the Landfill waste by category that includes adjustments to the Organic category (added fish waste and WWTP solids to, and

subtracted inorganic portions from Organics). Other category adjustments were also made as described in the notes for the table. The end result is the reorganization of Landfill waste data into three categories: organic, cellulose (containing cardboard, paper, and wood), and "other." Figure 2 provides the quantities and illustrates the relative proportions of these three waste categories by month for 1999.

The organic wastes currently disposed of in the Landfill are presented in detail in Tables 1 and 2. A tally of total and organic waste on a monthly basis is given below. Note that the Adjusted Organic Waste provided below is not the original Organic category because adjustments were made as described above.

Month, 1999	**Landfill Waste (tons)**	**Adjusted Organic Waste (tons)**
January	684	317
February	766	336
March	841	369
April	840	131
May	809	308
June	583	244
July	695	181
August	819	253
September	1,071	217
October	769	262
November	591	153
December	439	107
Total	8,906	2,878

Copies of the Landfill monthly data sheets are provided in Appendix A. Two sheets are provided for each of the months January through June 1999 (one with volumes and one with weights). On a yearly basis, about 32 percent by weight of the Landfill waste is organic waste, 43 percent is cellulose, and 25 percent is "other" waste. However, organic wastes make up as much as 45 percent of the total waste during several months of the year. The largest contributors of organic waste are household and cafeteria/galley organics, which make up about 55 and 36 percent of the Organic category on a yearly basis, respectively. Frozen food waste shipped in from Akutan Island is delivered to the Landfill on approximately a quarterly basis and contributes about 1 percent to the Organic category on a yearly basis. Fish waste is about 5 percent of the Organic category. According to the Landfill monthly data sheet, fish waste is disposed of at the landfill several days a month in quantities of about 2 tons each day. WWTP solids are shipped to the Landfill several days per month. These solids make up about 2 to 3 percent of the Organic category on an annual basis.

The Cardboard and Wood categories make up the new Cellulose category described above. The Landfill's Cardboard category is actually a mixture of paper and cardboard.

During 1999, about 1,660 tons of cardboard and 540 tons of wood were disposed of at the Landfill. Hence, the Cellulose category contains about 75 percent paper and cardboard and about 25 percent wood. The Construction and Demolition (C&D) category, which was created in July for construction and demolition waste, also probably has some cardboard, paper, and wood content. However, because the specific composition of the C&D category is not known and it likely contains metal and other materials, the C&D category was combined into the Other category and the cellulose component of C&D was not considered as a viable feedstock in this project.

The largest components of the Other category (by weight) are plastic and metal. Plastic waste is disposed of at a rate of about 1,060 tons per year and metal at about 890 tons per year. Nets contribute about 770 tons per year, the non-organic fraction of the Miscellaneous category contributes about 210 tons per year, and tires are disposed at a rate of about 180 tons per year. According to the Landfill staff, the Miscellaneous category consists of small "mixed" loads. These loads could contain organics and/or cellulose materials. However, the composition of these loads is unknown, and, therefore, the organics and cellulose wastes accounted for in this category are considered negligible.

The rate structure for disposal of solid waste at the Landfill (Pages 19 through 21 of the City of Unalaska Schedule of Fees and Charges) is attached to this report as Appendix B.

Wastewater Treatment Plant Screened Solids

The volume of WWTP solids generated for disposal, by month for the period January 1998 through May 2000, was provided to the project by the WWTP. These data are provided in Appendix C. Utilizing information obtained by telephone interviews with WWTP and Landfill staff and by examination of detailed delivery records within the period, the volumes were converted to a weight-by-month basis. The density of the screened solids was determined to be about 8 pounds per gallon, slightly less than the density of water.

During 1999, a total of about 70 tons (about 4 to 8 tons each month) of screened solids were generated and disposed of in the Landfill. About 6 trips were made to the Landfill each month to deliver these solids. The weight of solids per month in 1999 is illustrated in Figure 3. Available data for 1998 and 2000 were comparable to the 1999 data. As described above, the WWTP screened solids are classified by the Landfill as part of the Miscellaneous category. The solids make up about 25 percent of the Miscellaneous category by weight.

Seafood Processing Wastes

According to personnel in the local seafood processing industry, relatively small quantities of fish waste are sent to the Landfill by seafood processors. Most of the approximately 150 tons per year of fish waste disposed of in the Landfill comes from small processing and storage operations or packaged fish meal that is damaged in handling or is otherwise unmarketable.

All five of the local seafood processors hold NPDES Permits for the discharge of seafood processing waste streams. Four of the five processors are required to submit annual reports summarizing operations in order to maintain compliance with permits. Although Westward does not have an annual reporting requirement in its NPDES Permit, equivalent operational production statistics were provided by the facility for use in this project.

As stated in the Background section, the three largest seafood processors have meal plants that utilize seafood processing wastes in the production of fish meal, bone meal, fish oil, and other products. However, some of the fish processing waste is discharged via the respective NPDES Permits. The two smaller seafood processing facilities, Icicle and Royal Aleutian, do not have meal plants. These facilities primarily process crab, which has a higher recovery factor than most other processed seafood and, thus, yields proportionally lower quantities of waste. Their liquid and solid processing wastes are discharged to local waters via under their respective NPDES Permits.

During 1999, approximately 319,600 tons of raw fish and raw crab were processed by the five facilities. Approximately 95,900 tons of final fish and crab products were produced, which resulted in about 223,700 tons of seafood processing wastes. About 19,500 tons of various types of meal were produced from the processing wastes. A summary of the materials processed and processing wastes on a monthly basis is provided below. Data for this summary were obtained from the facility annual reports and other facility data for 1999. 1998 data were used for Icicle.

Month, 1999	**Crab Processed (tons)**	**Crab Waste (tons)**	**Fish Processed (tons)**	**Fish Waste (tons)**
January	2,444	909	16,010	11,823
February	8,525	3,206	86,900	63,312
March	6,751	2,533	17,946	12,193
April	60 24	24	3,878	2,286
May	49	20	3,651	1,922
June	87	36	831	338
July	0	0	3,480	1,686
August	1,813	1,460	73,151	55,425
September	1,739	436	54,753	40,089
October	2,337	629	34,394	25,092
November	689	241	62	19
December	84	40	11	10
Total	24,577	9,534	295,068	214,195

The greater part of the seafood processing waste is generated during the months of February, August, September, and October. Lesser quantities are produced in January and March, and waste generation drops substantially in April, May, June, July, November, and December. Graphic depictions of crab and fish waste, by month, are provided in Figures 4 and 5, respectively.

V. UTILIZATION OF DIGESTER BY-PRODUCTS

Depending on the siting of a digester operation, direct utilization of the by-product biogas by industrial facilities is likely to be relatively straightforward. Each of the five seafood processors in the Unalaska/Dutch Harbor community has substantial thermal energy requirements for their facilities, usually being met in the form of low-pressure saturated steam. The greater part of the steam is produced from multiple, dedicated boilers operated in the respective facilities. The boilers are operated near-exclusively on No. 2 diesel, with some provisions for supplementary fueling with fish oil and waste (lubricating) oils. Additionally, steam is often utilized for heating administrative/maintenance, housing, and processing spaces. While the annual thermal requirements are highly variable, cycling with seasonal weather and processing schedules, some level of thermal energy is needed year-round, particularly in the larger processor facilities. The year-round thermal requirements and the scale of many of these boilers would likely be a better fit for digester operations than, say, smaller, more seasonally dependent units in a strictly space-heating mode of service.

Biogas may very likely be utilized directly, particularly in the larger boilers, as a supplementary fuel without the need to filter or otherwise purify it. A partial refit of dual-fuel jets on one or two of a facility's boilers would allow firing of the biogas yet not impair a boiler's capability to operate at full capacity on liquid fuels. A cursory assessment of the air quality permits indicates that many of the facilities would very likely be able to accommodate supplementary biogas fueling of boilers without triggering other than administrative revisions of their permits. Furthermore, no significant operating or maintenance issues would be created for the boiler owner/operator by doing so.

Most of the processors and other industrial and public facilities throughout the community also operate diesel-fueled reciprocating internal combustion engine-generators for electric generation. Ranging in capacity from 250 to 2,000-plus kW(net), many of these units may also accommodate full or supplementary firing with biogas. Generally more sensitive to purity of the fuel-gas than boilers and less readily modified to operate in a dual-fuel mode, the suitability of these engines for utilization of biogas would likely require more detailed individual assessment.

To the extent that biogas may directly displace diesel as a thermal fuel without operational or maintenance penalties, the economic benefits of doing so would be largely driven by the retrofit investment and the avoided cost of the displaced diesel fuel. Recognizing that petroleum prices are highly variable, an avoided cost of fuel may be

estimated, for the Unalaska/Dutch Harbor area, at 3.0 to 4.5 cents per gallon over the Puget Sound market index price plus applicable taxes. Taxes will vary as to the purchaser (publicly owned vs. private operators) and the application. Boiler fuel is taxed on a different basis than fuel intended for electric generation.

The disposition of digested solids may prove to be more problematic. Many of the more conventional methods of disposing of or marketing digested solids are not readily available to a digester operation in the Unalaska/Dutch Harbor community. There are no composting facilities and no significant agricultural industry in the region and a very limited residential market. Markets exist elsewhere (Anchorage, Puget Sound, Pacific Rim), but substantial transportation penalties would be incurred to reach those markets, particularly for a high-weight and -volume, low-value product. To the extent that the economics of a digester operation rely on avoided disposal expenses for the waste generators, use of the Landfill for disposal of digested solids would negate many of the benefits of a digester. Because there are no suitable solid-waste incineration operations in the region, this issue would require close examination.

VI. ECONOMICS

For waste streams currently being disposed of at the Landfill, transportation costs from the generator to a digester facility are assumed to be substantially equivalent to transportation costs to the Landfill and are, thus, economically neutral. Transportation costs for seafood processing wastes currently going to meal plants may reasonably be assumed to be equivalent to those charged by dumpster hauling contractors at approximately $11 per ton (based on interviews with processor personnel). In the event that a digester facility was co-located with a major waste generator, transportation expenses from that source would necessarily require adjustment.

Similarly, handling costs by a generator prior to delivery may also be considered to be reasonably equivalent whether the ultimate destination is the Landfill or a digester.

A discussion of the economics of the available organic wastes, by general category and origin, follows. The Adjusted Organic category in Table 2 at 2,878 tons of waste per year is broken out in the first four categories and the Cellulose and Seafood Processing waste categories are discussed separately. A table summarizing this discussion of economics is provided at the end of this section.

Cafeteria/Galley Waste

The 1,047 tons of cafeteria/galley waste, primarily discarded food, produced annually originates with the cafeteria/galley operations of the seafood processors. It is currently mixed with other non-food wastes and disposed of at the Landfill at a $67 per ton tipping fee (“Schedule B” of Appendix C). Availability of this waste stream would require segregation at the source and additional handling by the generator. Disposal costs are estimated at $70,000, exclusive of handling and transportation.

Household Organic Waste

The 1,579 tons of household organic waste produced annually originates as residential/light commercial trash. Currently, it falls under the monthly flat fee paid by customers as part of their monthly fee for utility services ("Schedule A" of Appendix C). It would likely be the most difficult waste stream to segregate and utilize. A meaningful estimate of its true disposal costs and, hence, the potential revenue associated with its utilization is not possible to develop within the scope of this project.

Wastewater Treatment Plant Screened Solids

The 70 tons of this WWTP solids produced annually are disposed of at the Landfill at $67 per ton ("Schedule B" of Appendix C). Annual disposal costs are estimated at $4,700, exclusive of handling and transportation.

Miscellaneous Organic Materials

This group includes the organic wastes classified in the remaining categories being received at the landfill. With a total of 182 tons generated in 1999 and a tipping fee of $67 per ton ("Schedule B" of Appendix C), disposal costs are estimated at $12,200. Of the 182 tons, 150 tons are Fish Waste, which incurs an additional $60 per load special handling fee ("Schedule D" of Appendix C), adding an additional cost of about $4,500 per year (assuming an average load of 2 tons). This yields an estimated annual disposal cost of $16,700, exclusive of handling and transportation.

Cellulose

About 2,199 tons of paper, cardboard, and wood are received annually at the landfill under the Cellulose category (Table 2). Cellulose is often included as a digester feedstock to optimize operation. The wastes in this category also are disposed of at the $67 per ton rate, yielding an annual disposal cost of $147,300, exclusive of handling, transportation, and any further processing that may be necessary.

Seafood Processing Waste/Fish Meal

The three largest processors in the Unalaska/Dutch Harbor community, UniSea, Alyeska, and Westward, all own and operate fish meal facilities to process the raw waste products of their seafood processing operations. Each of the three facilities produces a quality fish meal, bone meal (to a smaller degree), and fish oil, another marketable product of value. The plants are relatively recent additions, are well maintained and in good condition, and are sized appropriately to support their respective seafood processing operations. While the fish meal markets in which these plants sell are variable, the fish meal operations are generally characterized as economically "break-even" or even "marginally profitable" at times. The three largest processors regard their fish meal operations as crucial aspects of

their overall operation. Regulatory and physical realities dictate that the fish meal plant can and, on occasion, does directly impact the processors' ability to accept and process seafood.

The remaining two processors in Unalaska/Dutch Harbor, Icicle and Royal Aleutian, are primarily crab processors. The waste from crab processing generated by these two operations is discharged under their current operating permits. On the occasions that fish are processed by Icicle or Royal Aleutian, arrangements are generally made with one of the three larger processors to accept and process the resulting fish waste. In summary, the processors have little economic reason and no pressing regulatory motives to shift their dependence away from the current arrangement, particularly since the capital to construct the existing fish meal plants has already been expended. An alternative, however, may be available. Given that mismatches occur, at times, between the rate at which waste is produced and the rate that waste may be accommodated in the fish meal plant, the ability of the processor to accept and process seafood is adversely impacted. This situation of the waste stream disposal process becoming the overall bottleneck is obviously very undesirable from the processor's view because not only is throughput reduced, but quality of both the finished seafood and fish meal products is often degraded as well. Furthermore, seafood processing that occurs at other than during peak fishery seasons often does not produce sufficient volumes of waste to efficiently operate the fish meal plants. Since the waste must still be accommodated, the fish meal plants are started up and run for very short periods of time and for quantities of waste far below their design capacity. Operating the plants under these conditions imposes very poor economics and a relatively high maintenance burden.

In light of the circumstances discussed above, some of the processors who have fish meal plants have expressed cautious interest in an arrangement under which they might commit a base level of waste to a digester operation. This, for them, could address a number of the issues discussed above. It would, effectively, increase their fish meal plant capacity so that, under peak processing conditions, they would reduce their exposure to impacts on their operations from the limits of the fish meal plant. It would also provide them a viable option to not run their respective fish meal plants during off-peak processing periods. The digester operation also may benefit under such an arrangement in that the feedstock is produced steadily and is not subject to the huge swings typically seen in fish waste production. The value of such an arrangement with the processors is estimated at $15 to $25 per ton (f.o.b. waste generator) for the base waste volumes committed. It is assumed that the seafood processors would cover the transportation and handling costs.

A digester operation also has the potential to provide the processors with a short-term "safety valve" that could accept large volumes of waste in the event that a fish meal plant were to suffer a loss in capacity during a peak processing period. This capability would be dependent on the digester operation having suitable short-term "surge volume" storage capability. It would seem that the imposition of higher tipping fees would be reasonable for additional wastes beyond that of the committed base, received under contingency conditions.

The levels of base commitments of waste that would yield the maximum benefits to the parties from both economic and operational perspectives should be set in the course of negotiations and analysis. For the purposes of this report, the base quantity is pegged at 1,000 tons per month, year-round. Thus, potential annual revenue of about $240,000, would be available.

Summary

A summary of economics for the organic waste streams discussed above is provided in the following table. The transportation and handling costs are not included in this table because it is estimated that the cost to transport the waste to the landfill would be approximately equivalent to the cost to transport the waste to the digester.

Organic Waste Type	Waste Generation [tons/year]	Available Waste [tons/year]	Annual Disposal Cost
Cafeteria/Galley	1,047	1,047	$70,000
Household Organics	1,579	0	NA
WWTP Solids	70	70	$4,700
Miscellaneous Organics (including Fish Waste)	182	182	$16,700
Cellulose	2,199	2,199	$147,300
Seafood Processing	223,729	12,000	$240,000

VII. CLOSING

Steigers Corporation would like to express its appreciation for the cooperation and assistance of the staff of City of Unalaska's Department of Public Utilities, the Alaska Energy Authority, and the many other individuals in the agencies and the private sector who contributed to this project.

VII. REFERENCES

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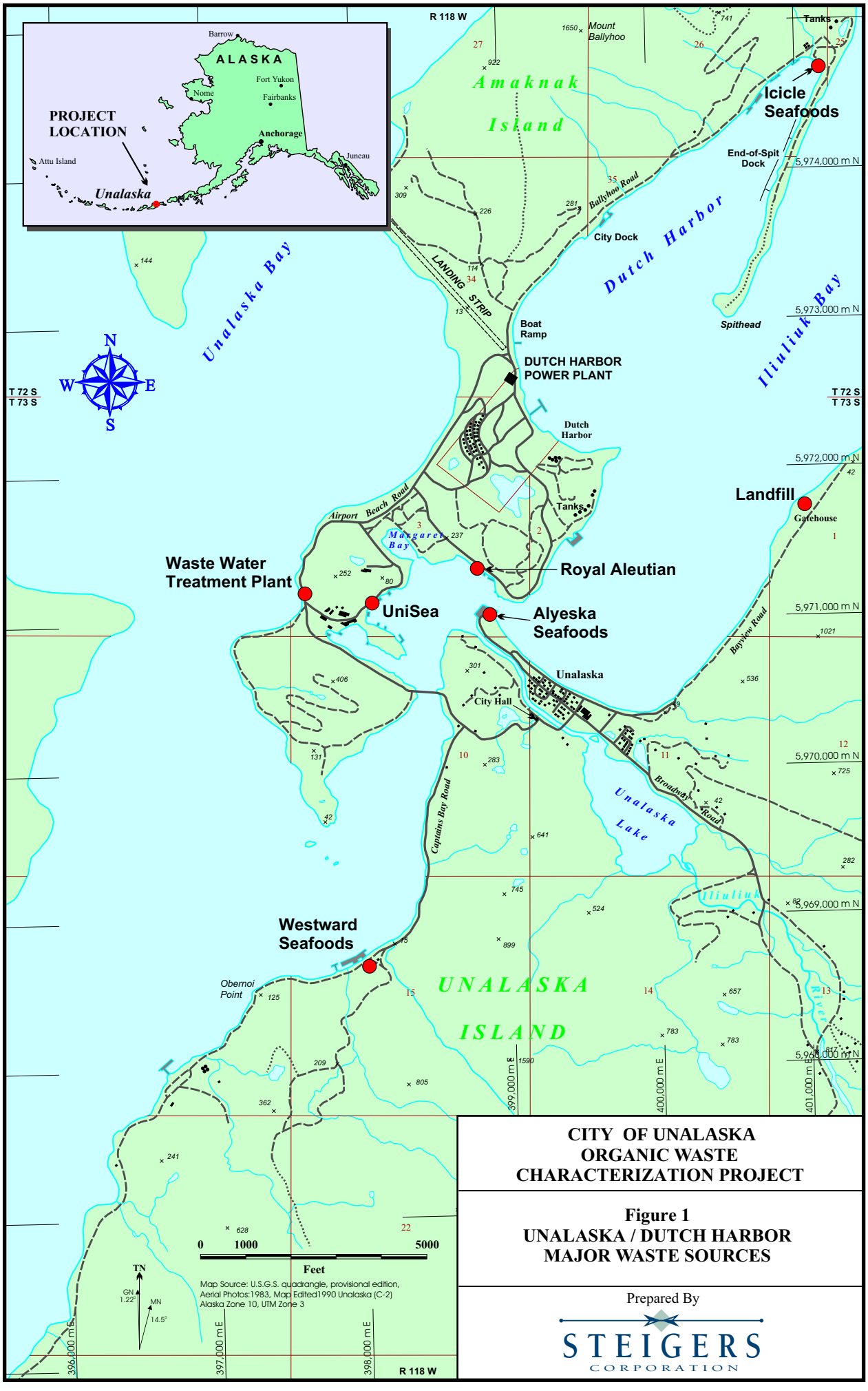

CITY OF UNALASKA
ORGANIC WASTE
CHARACTERIZATION PROJECT

Figure 1
UNALASKA / DUTCH HARBOR
MAJOR WASTE SOURCES

Prepared By

STEIGERS CORPORATION

Figure 2
Landfill Waste Summary, 1999
(Adjusted Categories)

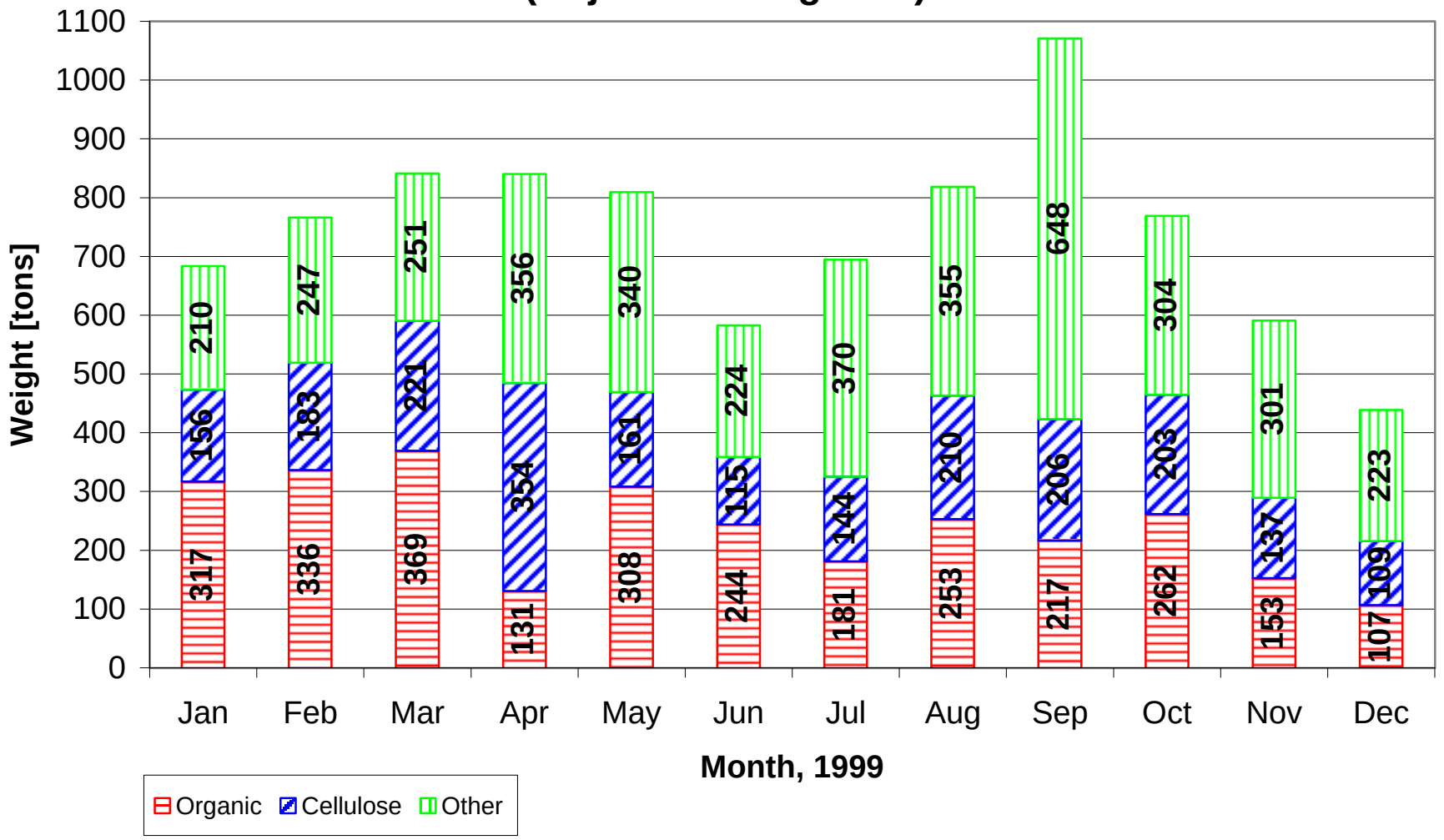

Figure 3
Summary of WWTP Screened Solids, 1999

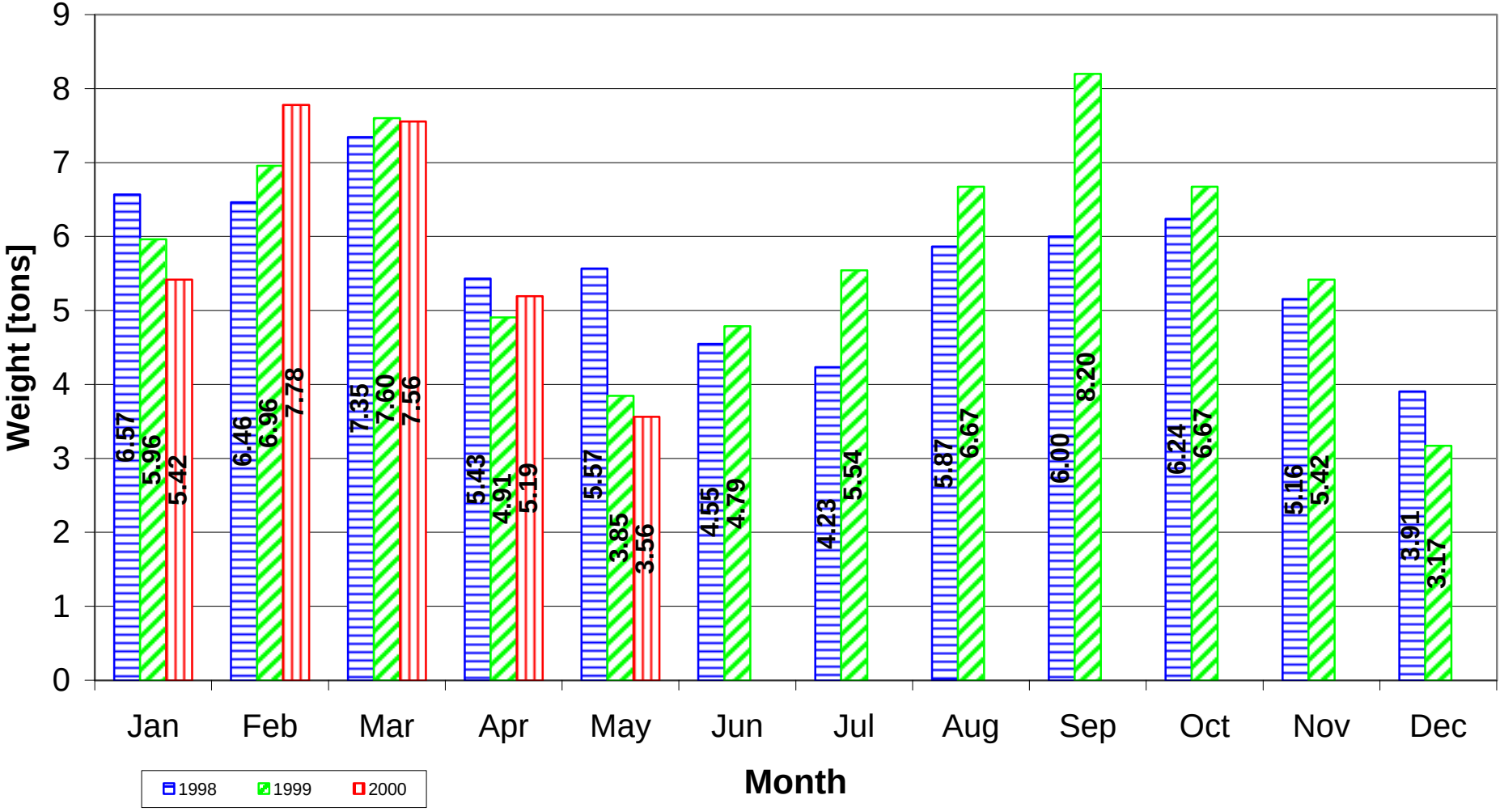

Figure 4
Summary of Crab Waste, 1999

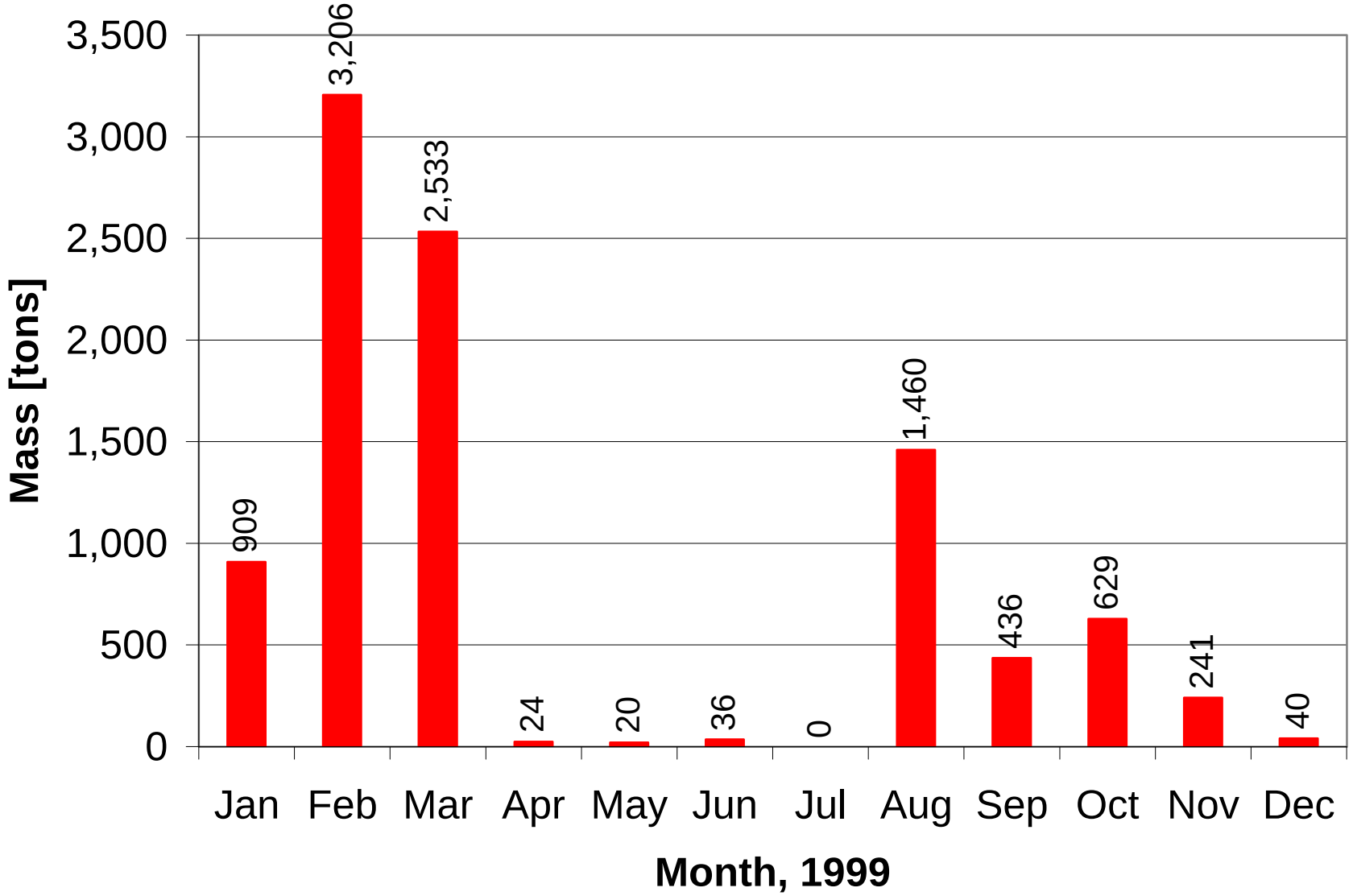

Figure 5
Summary of Fish Waste, 1999

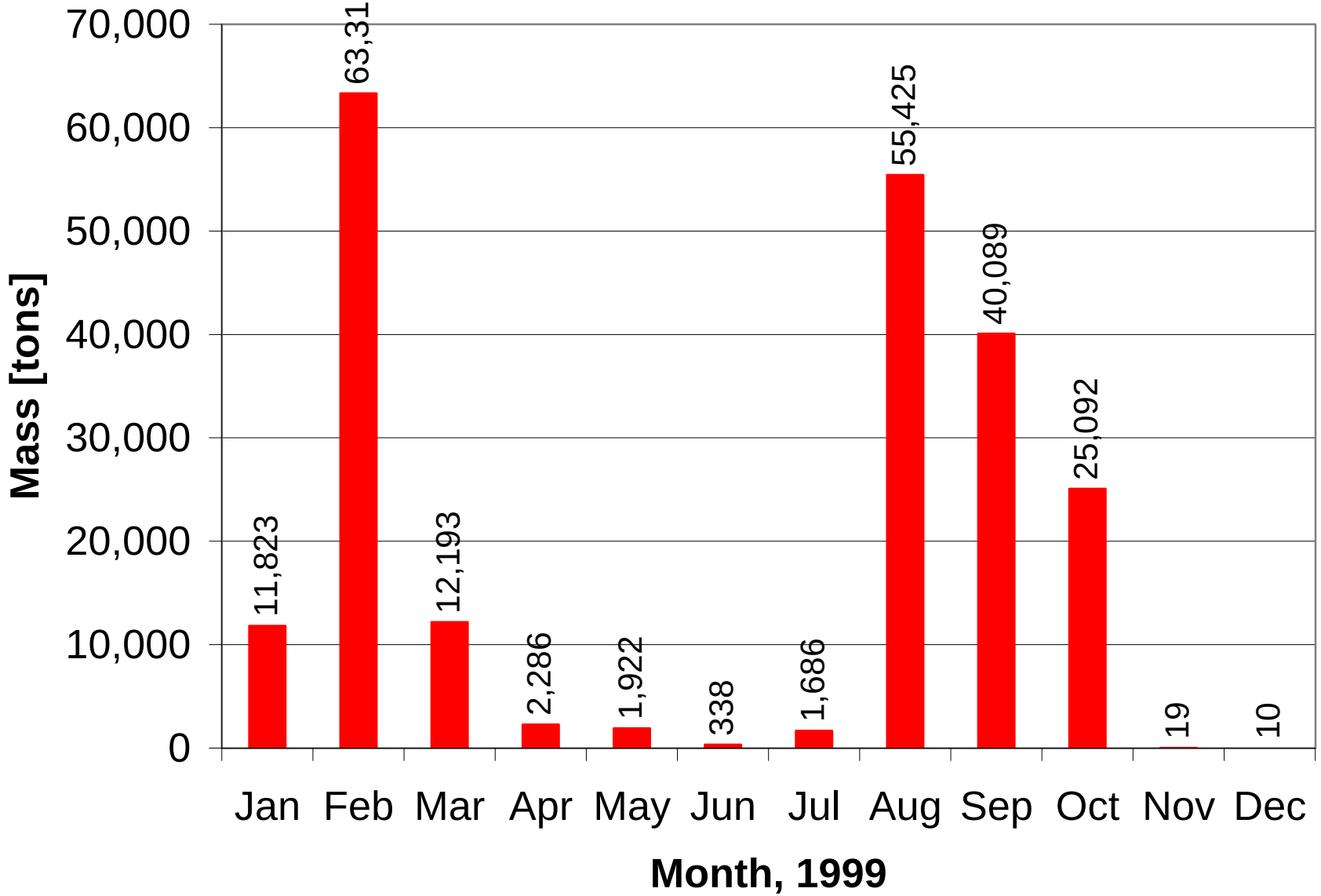

TABLE 1
SUMMARY OF LANDFILL WASTE BY CATEGORY "AS-RECEIVED," 1999

DATE 1999	ORGANIC (tons)	CRDBRD (tons)	METAL (tons)	PLASTIC (tons)	NETS (tons)	WOOD (tons)	TIRES (tons)	FISH W (tons)	C & D (tons)	MISC (tons)	TOTAL (tons)
Jan	374.80	121.59	29.08	78.06	21.93	34.62	3.29	1.96		18.37	684
Feb	386.61	157.09	14.40	129.09	17.07	25.86	3.45	10.40		22.00	766
Mar	427.17	178.47	17.59	126.29	13.11	42.49	5.24	9.28		21.68	841
Apr	144.87	274.11	42.98	186.87	33.98	79.52	5.24	6.56		66.32	840
May	350.84	91.43	85.38	88.09	70.81	69.41	20.07	14.97		18.21	809
Jun	278.24	74.48	79.41	64.74	17.03	40.52	0.00	9.53		18.70	583
Jul	207.87	85.11	122.38	61.32	105.45	58.82	9.44	4.04	20.43	19.77	695
Aug	269.1	154.67	159.75	73.78	22.38	55.5	11.85	24.22	28.54	18.72	819
Sep	225.13	153.81	116.49	72.8	282.61	52.605	85.58	22.93	34.41	24.7	1071
Oct	263.28	178.63	69.5	96.28	53.58	24.11	15.49	37.83	7.36	22.67	769
Nov	170.53	102.01	115.84	50.95	71.38	34.63	15.07	6.7	7.83	15.89	591
Dec	124.14	89.09	41.14	37.68	63.26	20.06	9.12	1.15	38.08	14.96	439
Totals	**3,223**	**1,660**	**894**	**1,066**	**773**	**538**	**184**	**150**	**137**	**282**	**8,906**

Note: Data for months January through June were converted from volume to weight using average daily densities. Data shown above are presented for original Landfill categories. Adjustments were made to the Organic category and are presented in other tables

TABLE 2
SUMMARY OF LANDFILL WASTE BY ADJUSTED CATEGORIES, 1999

DATE 1999	ORGANIC (ORIGINAL) (tons)	CELLULOSE (tons)	METAL, PLASTIC, NETS, TIRES, AND C&D (tons)	FISH WASTE (tons)	WWTP SOLIDS (tons)	MISC (WITHOUT WWTP SOLIDS) (tons)	TOTAL (tons)
Jan	374.80	156.21	132.36	1.96	5.96	12.41	684
Feb	386.61	182.95	164.00	10.40	6.96	15.04	766
Mar	427.17	220.96	162.24	9.28	7.60	14.08	841
Apr	144.87	353.62	269.06	6.56	4.91	61.41	840
May	350.84	160.85	264.35	14.97	3.85	14.37	809
Jun	278.24	115.00	161.18	9.53	4.79	13.91	583
Jul	207.87	143.93	319.02	4.04	5.54	14.23	695
Aug	269.10	210.17	296.30	24.22	6.67	12.05	819
Sep	225.13	206.42	591.89	22.93	8.20	16.50	1071
Oct	263.28	202.74	242.21	37.83	6.67	16.00	769
Nov	170.53	136.64	261.07	6.70	5.42	10.47	591
Dec	124.14	109.15	189.28	1.15	3.17	11.79	439
Total	**3,223**	**2,199**	**3,053**	**150**	**70**	**212**	**8,906**

Notes: The Organic category shown above is "as received." The Cardboard and Wood categories are combined into the new Cellulose category. Metal, Plastic, Nets, Tires, and C&D categories are combined. Fish Waste remains separate but is added to the Organic category below. WWTP Solids are removed from the Miscellaneous category, which is also adjusted accordingly. WWTP Solids are added to the Organic category below.

DATE 1999	ADJUSTED ORGANIC (tons)	CELLULOSE (tons)	"OTHER" (tons)	TOTAL (tons)
Jan	317.13	156.21	210.36	684
Feb	336.32	182.95	246.70	766
Mar	369.29	220.96	251.07	841
Apr	130.98	353.62	355.82	840
May	308.25	160.85	340.11	809
Jun	243.86	115.00	223.78	583
Jul	181.07	143.93	369.63	695
Aug	252.90	210.17	355.44	819
Sep	216.86	206.42	647.79	1071
Oct	261.71	202.74	304.28	769
Nov	152.80	136.64	301.39	591
Dec	106.74	109.15	222.79	439
Total	**2,878**	**2,199**	**3,829**	**8,906**

Notes: The Adjusted Organic category shown above includes Fish Waste and WWTP Solids. A portion of the "as received" Organics were removed because some inorganics had originally been included. These inorganics were added to the Other category. The Other category also includes Metal, Plastic, Nets, Tires, C&D, and Miscellaneous. The Cellulose category includes Cardboard and Wood.

Appendix A

Monthly Landfill Data Sheets, 1999

Monthly Breakdown Sheet
Jan. 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1										0	
2	69	27	2	0	22	0	0	0	0	120	16.34
3										0	
4	42	6	1	2	6	0	3	0	0	60	9.87
5	73	22	2	28	14	6	17	1	0	163	22.38
6	97	77	11	14	17	3	14	0	0	233	48.89
7	188	65	3	10	23	7	12	3	0	311	50.13
8	81	61	11	8	19	2	20	1	0	203	37.96
9	58	11	0	5	11	17	8	0	2	112	15.38
10										0	
11	146	33	3	3	20	11	10	0	0	226	44.25
12	140	37	2	8	27	7	10	6	0	237	22.83
13	181	30	11	8	28	12	17	0	0	287	43.65
14	86	14	2	5	12	7	2	0	0	128	14.92
15	208	38	7	8	33	10	19	4	0	327	38.83
16	98	28	0	5	20	10	15	0	0	176	17.53
17										0	
18										0	
19	264	53	13	14	43	23	33	0	0	443	60.51
20	198	35	5	19	36	16	8	0	0	317	48.38
21	80	30	1	17	15	3	12	0	0	158	20.16
22	42	17	0	0	7	0	0	5	0	71	12.45
23	8	53	17	1	55	3	10	0	0	147	21.36
24										0	
25	82	24	1	9	17	9	13	0	0	155	27.6
26	15	4	6	5	3	0	0	3	0	36	6.6
27	42	12	6	2	7	1	2	0	0	72	9.78
28	102	29	6	5	32	0	2	0	0	176	25.94
29	170	52	7	12	37	2	3	0	11	294	45.11
30	106	45	1	10	40	5	5	0	0	212	22.86
31										0	
Totals	2576	803	118	198	544	154	235	23	13	4664	683.71

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet - Corrected from Volume to Weight
Jan. 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1										0	
2	9.3955	3.677	0.27	0	2.9957	0	0	0	0	16.34	16.34
3										0	
4	6.909	0.987	0.16	0.329	0.987	0	0.4935	0	0	9.87	9.87
5	10.023	3.021	0.27	3.844	1.9222	0.8238	2.3341	0.1373	0	22.38	22.38
6	20.353	16.16	2.31	2.938	3.5671	0.6295	2.9376	0	0	48.89	48.89
7	30.304	10.48	0.48	1.612	3.7074	1.1283	1.9343	0.4836	0	50.13	50.13
8	15.147	11.41	2.06	1.496	3.5529	0.374	3.7399	0.187	0	37.96	37.96
9	7.9646	1.511	0	0.687	1.5105	2.3345	1.0986	0	0.2746	15.38	15.38
10										0	
11	28.586	6.461	0.59	0.587	3.9159	2.1538	1.958	0	0	44.25	44.25
12	13.486	3.564	0.19	0.771	2.6009	0.6743	0.9633	0.578	0	22.83	22.83
13	27.528	4.563	1.67	1.217	4.2585	1.8251	2.5855	0	0	43.65	43.65
14	10.024	1.632	0.23	0.583	1.3988	0.8159	0.2331	0	0	14.92	14.92
15	24.699	4.512	0.83	0.95	3.9186	1.1875	2.2562	0.475	0	38.83	38.83
16	9.761	2.789	0	0.498	1.992	0.996	1.494	0	0	17.53	17.53
17										0	
18										0	
19	36.06	7.239	1.78	1.912	5.8734	3.1416	4.5075	0	0	60.51	60.51
20	30.218	5.342	0.76	2.9	5.4943	2.4419	1.2209	0	0	48.38	48.38
21	10.208	3.828	0.13	2.169	1.9139	0.3828	1.5311	0	0	20.16	20.16
22	7.3648	2.981	0	0	1.2275	0	0	0.8768	0	12.45	12.45
23	1.1624	7.701	2.47	0.145	7.9918	0.4359	1.4531	0	0	21.36	21.36
24										0	
25	14.601	4.274	0.18	1.603	3.0271	1.6026	2.3148	0	0	27.6	27.6
26	2.75	0.733	1.1	0.917	0.55	0	0	0.55	0	6.6	6.6
27	5.705	1.63	0.82	0.272	0.9508	0.1358	0.2717	0	0	9.78	9.78
28	15.033	4.274	0.88	0.737	4.7164	0	0.2948	0	0	25.94	25.94
29	26.084	7.979	1.07	1.841	5.6771	0.3069	0.4603	0	1.6878	45.11	45.11
30	11.43	4.852	0.11	1.078	4.3132	0.5392	0.5392	0	0	22.86	22.86
31										0	
Totals	374.8	121.6	18.4	29.08	78.063	21.929	34.621	3.2876	1.9624	683.71	683.71

Monthly Breakdown Sheet
Feb. 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	12	2	0	2	1	0	0	0	0	17	11.25
2	102	42	0	0	37	2	3	0	4	190	18.49
3	154	62	0	3	37	8	5	0	0	269	33.97
4	114	34	3	2	33	2	7	0	0	195	26.36
5	132	46	2	3	40	5	8	4	8	248	24.1
6	64	80	20	5	67	3	5	0	0	244	27.28
7										0	
8	116	34	3	4	29	0	11	0	0	197	23.5
9	103	38	6	12	32	17	41	0	0	249	38.32
10	185	65	12	0	49	4	3	8	0	326	41.44
11	105	25	6	0	20	2	3	0	6	167	21.87
12	258	71	16	1	60	1	5	3	0	415	77.05
13	54	125	10	8	81	13	11	0	0	302	49.04
14										0	
15										0	
16	176	76	13	7	62	6	7	0	16	363	59.62
17	184	33	9	2	34	0	7	10	0	279	41.36
18	72	21	2	0	15	0	0	0	0	110	12.83
19	131	42	6	2	33	5	5	0	9	233	34.99
20	109	38	0	0	33	2	3	0	0	185	29.48
21										0	
22	170	50	18	20	35	16	21	0	16	346	63.31
23	84	28	3	1	24	0	5	0	10	155	23.94
24	64	22	4	4	15	4	4	0	0	117	26.73
25	51	42	3	4	34	12	5	0	0	151	15.98
26	142	21	2	1	22	2	9	0	0	199	29.86
27	18	70	6	4	84	9	4	0	0	195	35.2
28										0	
										0	
										0	
										0	
Totals	2600	1067	144	85	877	113	172	25	69	5152	765.97

Sundays - Landfill Closed Holidays - Landfill Closed

Monthly Breakdown Sheet - Corrected from Volume to Weight
Feb. 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	7.9412	1.324	0	1.324	0.6618	0	0	0	0	11.25	11.25
2	9.9262	4.087	0	0	3.6007	0.1946	0.2919	0	0.3893	18.49	18.49
3	19.448	7.83	0	0.379	4.6725	1.0103	0.6314	0	0	33.97	33.97
4	15.41	4.596	0.41	0.27	4.4609	0.2704	0.9463	0	0	26.36	26.36
5	12.827	4.47	0.19	0.292	3.8871	0.4859	0.7774	0.3887	0.7774	24.1	24.1
6	7.1554	8.944	2.24	0.559	7.4908	0.3354	0.559	0	0	27.28	27.28
7										0	
8	13.838	4.056	0.36	0.477	3.4594	0	1.3122	0	0	23.5	23.5
9	15.851	5.848	0.92	1.847	4.9247	2.6162	6.3097	0	0	38.32	38.32
10	23.517	8.263	1.53	0	6.2287	0.5085	0.3813	1.0169	0	41.44	41.44
11	13.751	3.274	0.79	0	2.6192	0.2619	0.3929	0	0.7857	21.87	21.87
12	47.901	13.18	2.97	0.186	11.14	0.1857	0.9283	0.557	0	77.05	77.05
13	8.7687	20.3	1.62	1.299	13.153	2.111	1.7862	0	0	49.04	49.04
14										0	
15										0	
16	28.907	12.48	2.14	1.15	10.183	0.9855	1.1497	0	2.6279	59.62	59.62
17	27.277	4.892	1.33	0.296	5.0403	0	1.0377	1.4824	0	41.36	41.36
18	8.3978	2.449	0.23	0	1.7495	0	0	0	0	12.83	12.83
19	19.672	6.307	0.9	0.3	4.9557	0.7509	0.7509	0	1.3515	34.99	34.99
20	17.369	6.055	0	0	5.2586	0.3187	0.4781	0	0	29.48	29.48
21										0	
22	31.106	9.149	3.29	3.66	6.4042	2.9276	3.8425	0	2.9276	63.31	63.31
23	12.974	4.325	0.46	0.154	3.7068	0	0.7723	0	1.5445	23.94	23.94
24	14.622	5.026	0.91	0.914	3.4269	0.9138	0.9138	0	0	26.73	26.73
25	5.3972	4.445	0.32	0.423	3.5981	1.2699	0.5291	0	0	15.98	15.98
26	21.307	3.151	0.3	0.15	3.3011	0.3001	1.3505	0	0	29.86	29.86
27	3.2492	12.64	1.08	0.722	15.163	1.6246	0.7221	0	0	35.2	35.2
28										0	
										0	
										0	
										0	
Totals	386.61	157.1	22	14.4	129.09	17.071	25.863	3.4451	10.404	765.97	765.97

Monthly Breakdown Sheet
Mar. 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	219	43	4	1	28	2	31	0	12	340	62.71
2	164	47	0	0	35	0	1	0	0	247	49.93
3	200	65	4	5	63	2	9	0	16	364	41.51
4	98	63	7	10	32	0	5	0	0	215	24.3
5	129	55	2	2	34	3	5	0	5	235	34.01
6	10	59	11	5	71	7	6	0	0	169	17.18
7										0	
8	179	37	7	15	37	0	5	10	0	290	48.48
9	138	45	0	14	31	6	7	10	0	251	56.96
10	101	36	8	3	18	0	21	8	0	195	26.4
11	0	0	2	1	1	0	2	0	0	6	1.01
12	69	25	5	8	20	7	75	0	0	209	30.38
13	168	75	4	6	54	3	5	0	0	315	50.37
14										0	
15	112	47	0	8	33	11	15	0	8	234	25.21
16	75	17	0	2	22	0	10	0	0	126	14.83
17	37	22	1	0	7	0	2	0	0	69	9.3
18	0	0	0	0	0	0	0	0	0	0	0
19	183	50	13	1	37	5	14	0	0	303	51.12
20	44	71	8	0	48	0	4	0	0	175	29.2
21										0	
22	35	10	0	0	5	0	0	0	0	50	8.96
23	30	11	11	0	8	1	2	0	0	63	9.63
24	152	29	1	4	28	7	6	1	3	231	50.74
25	0	0	0	0	0	0	0	0	0	0	0
26	52	29	9	1	15	3	4	0	6	119	23.37
27	103	49	7	6	17	10	11	0	0	203	41.08
28										0	
29	121	84	8	5	40	5	16	0	3	282	51.29
30	123	55	11	9	31	2	10	0	3	244	38.76
31	46	100	15	4	98	6	7	0	5	281	44.59
Totals	2588	1124	138	110	813	80	273	29	61	5216	841.32

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet - Corrected from Volume to Weight
Mar. 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	40.393	7.931	0.74	0.184	5.1644	0.3689	5.7177	0	2.2133	62.71	62.71
2	33.152	9.501	0	0	7.0751	0	0.2021	0	0	49.93	49.93
3	22.808	7.413	0.46	0.57	7.1844	0.2281	1.0263	0	1.8246	41.51	41.51
4	11.076	7.12	0.79	1.13	3.6167	0	0.5651	0	0	24.3	24.3
5	18.669	7.96	0.29	0.289	4.9206	0.4342	0.7236	0	0.7236	34.01	34.01
6	1.0166	5.998	1.12	0.508	7.2176	0.7116	0.6099	0	0	17.18	17.18
7										0	
8	29.924	6.185	1.17	2.508	6.1854	0	0.8359	1.6717	0	48.48	48.48
9	31.317	10.21	0	3.177	7.0349	1.3616	1.5885	2.2693	0	56.96	56.96
10	13.674	4.874	1.08	0.406	2.4369	0	2.8431	1.0831	0	26.4	26.4
11	0	0	0.34	0.168	0.1683	0	0.3367	0	0	1.01	1.01
12	10.03	3.634	0.73	1.163	2.9072	1.0175	10.902	0	0	30.38	30.38
13	26.864	11.99	0.64	0.959	8.6349	0.4797	0.7995	0	0	50.37	50.37
14										0	
15	12.066	5.064	0	0.862	3.5553	1.1851	1.616	0	0.8619	25.21	25.21
16	8.8274	2.001	0	0.235	2.5894	0	1.177	0	0	14.83	14.83
17	4.987	2.965	0.13	0	0.9435	0	0.2696	0	0	9.3	9.3
18										0	0
19	30.874	8.436	2.19	0.169	6.2424	0.8436	2.362	0	0	51.12	51.12
20	7.3417	11.85	1.33	0	8.0091	0	0.6674	0	0	29.2	29.2
21										0	
22	6.272	1.792	0	0	0.896	0	0	0	0	8.96	8.96
23	4.5857	1.681	1.68	0	1.2229	0.1529	0.3057	0	0	9.63	9.63
24	33.387	6.37	0.22	0.879	6.1503	1.5376	1.3179	0.2197	0.659	50.74	50.74
25										0	0
26	10.212	5.695	1.77	0.196	2.9458	0.5892	0.7855	0	1.1783	23.37	23.37
27	20.844	9.916	1.42	1.214	3.4402	2.0236	2.226	0	0	41.08	41.08
28										0	
29	22.007	15.28	1.46	0.909	7.2752	0.9094	2.9101	0	0.5456	51.29	51.29
30	19.539	8.737	1.75	1.43	4.9244	0.3177	1.5885	0	0.4766	38.76	38.76
31	7.2994	15.87	2.38	0.635	15.551	0.9521	1.1108	0	0.7934	44.59	44.59
Totals	427.17	178.5	21.7	17.59	126.29	13.113	42.487	5.2438	9.2763	841.32	841.32

Monthly Breakdown Sheet
April 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	37	73	11	0	83	6	15	1	0	226	42.97
2	24	89	12	9	65	8	17	0	0	224	37.46
3	17	58	4	4	38	3	7	3	0	134	21.54
4										0	
5	14	48	11	7	37	0	16	2	0	135	28.33
6	38	79	11	10	59	3	39	0	0	239	38.66
7	18	44	2	18	31	3	3	0	0	119	26.02
8	31	90	22	3	55	7	18	0	4	230	31.95
9	38	83	65	10	70	5	64	1	0	336	57.74
10	19	35	15	16	13	5	3	4	0	110	14.23
11										0	
12	45	34	9	2	23	5	10	2	0	130	34.76
13	63	78	16	13	45	7	17	1	3	243	44.82
14	50	93	17	13	57	12	7	0	0	249	37.49
15	32	48	15	11	36	3	34	1	0	180	28.62
16	17	17	5	17	17	10	15	0	1	99	31.03
17	57	41	7	6	23	7	1	1	0	143	35.29
18										0	
19	32	96	17	5	83	10	43	4	5	295	59.13
20	31	100	30	11	69	15	34	0	3	293	36.78
21	45	55	18	7	33	4	21	5	2	190	39.75
22	7	34	9	9	15	7	21	0	0	102	20.01
23	11	33	6	5	13	1	3	0	1	73	18.52
24	38	86	15	4	62	4	13	0	3	225	25.71
25										0	
26	21	60	15	11	40	53	10	2	1	213	29.59
27	35	36	20	4	26	1	4	0	2	128	22.02
28	21	49	12	5	26	2	10	0	2	127	21.88
29	22	62	20	15	35	5	13	0	2	174	23.74
30	26	59	5	18	20	11	10	1	8	158	32.39
31										0	
Totals	789	1580	389	233	1074	197	448	28	37	4775	840.43

Sundays - Landfill Closed Holidays - Landfill Closed

Monthly Breakdown Sheet - Corrected from Volume to Weight
April 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	7.0349	13.88	2.09	0	15.781	1.1408	2.852	0.1901	0	42.97	42.97
2	4.0136	14.88	2.01	1.505	10.87	1.3379	2.8429	0	0	37.46	37.46
3	2.7327	9.323	0.64	0.643	6.1084	0.4822	1.1252	0.4822	0	21.54	21.54
4										0	
5	2.9379	10.07	2.31	1.469	7.7645	0	3.3576	0.4197	0	28.33	28.33
6	6.1468	12.78	1.78	1.618	9.5437	0.4853	6.3085	0	0	38.66	38.66
7	3.9358	9.621	0.44	3.936	6.7783	0.656	0.656	0	0	26.02	26.02
8	4.3063	12.5	3.06	0.417	7.6402	0.9724	2.5004	0	0.5557	31.95	31.95
9	6.5301	14.26	11.2	1.718	12.029	0.8592	10.998	0.1718	0	57.74	57.74
10	2.4579	4.528	1.94	2.07	1.6817	0.6468	0.3881	0.5175	0	14.23	14.23
11										0	
12	12.032	9.091	2.41	0.535	6.1498	1.3369	2.6738	0.5348	0	34.76	34.76
13	11.62	14.39	2.95	2.398	8.3	1.2911	3.1356	0.1844	0.5533	44.82	44.82
14	7.5281	14	2.56	1.957	8.582	1.8067	1.0539	0	0	37.49	37.49
15	5.088	7.632	2.39	1.749	5.724	0.477	5.406	0.159	0	28.62	28.62
16	5.3284	5.328	1.57	5.328	5.3284	3.1343	4.7015	0	0.3134	31.03	31.03
17	14.067	10.12	1.73	1.481	5.676	1.7275	0.2468	0.2468	0	35.29	35.29
18										0	
19	6.4141	19.24	3.41	1.002	16.637	2.0044	8.6189	0.8018	1.0022	59.13	59.13
20	3.8914	12.55	3.77	1.381	8.6615	1.8829	4.268	0	0.3766	36.78	36.78
21	9.4145	11.51	3.77	1.464	6.9039	0.8368	4.3934	1.0461	0.4184	39.75	39.75
22	1.3732	6.67	1.77	1.766	2.9426	1.3732	4.1197	0	0	20.01	20.01
23	2.7907	8.372	1.52	1.268	3.2981	0.2537	0.7611	0	0.2537	18.52	18.52
24	4.3421	9.827	1.71	0.457	7.0845	0.4571	1.4855	0	0.3428	25.71	25.71
25										0	
26	2.9173	8.335	2.08	1.528	5.5568	7.3628	1.3892	0.2778	0.1389	29.59	29.59
27	6.0211	6.193	3.44	0.688	4.4728	0.172	0.6881	0	0.3441	22.02	22.02
28	3.618	8.442	2.07	0.861	4.4794	0.3446	1.7228	0	0.3446	21.88	21.88
29	3.0016	8.459	2.73	2.047	4.7753	0.6822	1.7737	0	0.2729	23.74	23.74
30	5.33	12.1	1.03	3.69	4.1	2.255	2.05	0.205	1.64	32.39	32.39
31										0	
Totals	144.87	274.1	66.3	42.98	186.87	33.979	79.517	5.237	6.5566	840.43	840.43

Monthly Breakdown Sheet
May 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	38	22	5	0	16	2	3	0	0	86	14.91
2										0	
3										0	
4	176	31	5	13	34	84	33	0	0	376	83.4
5	99	37	11	10	28	4	22	0	0	211	25.47
6	69	16	5	41	12	15	18	3	0	179	38.63
7	90	29	5	28	28	0	35	0	0	215	45.18
8	12	4	0	30	4	0	0	0	0	50	15.17
9										0	
10										0	
11	72	29	3	21	45	0	22	0	0	192	35.68
12	11	2	2	4	8	0	19	0	12	58	12.46
13	49	13	0	26	13	6	18	2	0	127	22.21
14	135	51	0	0	42	0	0	8	0	236	26.85
15	76	14	3	22	19	17	18	8	17	194	43.48
16										0	
17										0	
18	254	58	2	18	61	5	38	0	6	442	78.67
19	10	15	5	21	5	0	12	2	4	74	27.81
20	16	2	5	15	2	0	0	0	6	46	20.18
21	104	27	8	15	22	4	15	9	0	204	27.3
22	100	23	2	14	29	0	32	0	5	205	34.61
23										0	
24										0	
25	249	53	11	5	41	124	5	20	0	508	122.53
26	50	4	4	32	11	24	8	20	0	153	73.36
27	55	25	2	26	13	0	30	0	15	166	28.01
28	83	21	1	0	20	3	19	0	0	147	20.05
29	65	20	2	2	15	0	8	0	0	112	13.25
30										0	
31										0	
Totals	1813	496	81	343	468	288	355	72	65	3981	809.21

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet - Corrected from Volume to Weight
May 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	6.5881	3.814	0.87	0	2.774	0.3467	0.5201	0	0	14.91	14.91
2										0	
3										0	
4	39.038	6.876	1.11	2.884	7.5415	18.632	7.3197	0	0	83.4	83.4
5	11.95	4.466	1.33	1.207	3.3799	0.4828	2.6556	0	0	25.47	25.47
6	14.891	3.453	1.08	8.848	2.5897	3.2372	3.8846	0.6474	0	38.63	38.63
7	18.913	6.094	1.05	5.884	5.8839	0	7.3549	0	0	45.18	45.18
8	3.6408	1.214	0	9.102	1.2136	0	0	0	0	15.17	15.17
9										0	
10										0	
11	13.38	5.389	0.56	3.903	8.3625	0	4.0883	0	0	35.68	35.68
12	2.3631	0.43	0.43	0.859	1.7186	0	4.0817	0	2.5779	12.46	12.46
13	8.5692	2.273	0	4.547	2.2735	1.0493	3.1479	0.3498	0	22.21	22.21
14	15.359	5.802	0	0	4.7784	0	0	0.9102	0	26.85	26.85
15	17.033	3.138	0.67	4.931	4.2584	3.8101	4.0342	1.793	3.8101	43.48	43.48
16										0	
17										0	
18	45.209	10.32	0.36	3.204	10.857	0.8899	6.7635	0	1.0679	78.67	78.67
19	3.7581	5.637	1.88	7.892	1.8791	0	4.5097	0.7516	1.5032	27.81	27.81
20	7.0191	0.877	2.19	6.58	0.8774	0	0	0	2.6322	20.18	20.18
21	13.918	3.613	1.07	2.007	2.9441	0.5353	2.0074	1.2044	0	27.3	27.3
22	16.883	3.883	0.34	2.364	4.896	0	5.4025	0	0.8441	34.61	34.61
23										0	
24										0	
25	60.059	12.78	2.65	1.206	9.8892	29.909	1.206	4.824	0	122.53	122.53
26	23.974	1.918	1.92	15.34	5.2742	11.507	3.8358	9.5895	0	73.36	73.36
27	9.2804	4.218	0.34	4.387	2.1936	0	5.062	0	2.531	28.01	28.01
28	11.321	2.864	0.14	0	2.7279	0.4092	2.5915	0	0	20.05	20.05
29	7.6897	2.366	0.24	0.237	1.7746	0	0.9464	0	0	13.25	13.25
30										0	
31										0	
Totals	350.84	91.43	18.2	85.38	88.087	70.809	69.412	20.07	14.967	809.21	809.21

Monthly Breakdown Sheet
June 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	265	49	5	14	34	6	45	0	0	418	59.06
2	97	34	3	12	30	1	4	0	20	201	31.18
3	59	19	7	4	9	9	13	0	17	137	20.06
4	43	9	9	18	18	0	11	0	0	108	29.13
5	18	2	0	2	2	0	2	0	0	26	4.26
6										0	
7										0	
8	98	18	10	31	20	7	14	0	0	198	40.7
9	67	20	0	18	17	8	2	0	0	132	16.78
10	14	2	1	33	2	0	2	0	0	54	20.86
11	56	75	4	38	11	5	6	0	2	197	60.35
12	30	12	6	62	10	18	2	0	7	147	48.99
13										0	
14										0	
15	202	39	7	6	37	12	18	0	6	327	44.96
16	176	21	15	7	22	2	13	0	0	256	35.71
17	26	3	7	1	3	0	0	0	0	40	8.17
18	77	17	1	38	17	0	24	0	0	174	26.94
19	35	5	0	4	5	0	13	0	0	62	5.81
20										0	
21										0	
22	126	19	9	0	30	10	1	0	0	195	30.37
23	47	7	3	15	7	2	8	0	0	89	13.12
24	54	7	2	12	7	0	26	0	0	108	15.39
25	70	16	1	13	26	0	3	0	0	129	22.68
26	16	2	0	0	42	0	2	0	1	63	10.63
27										0	
28										0	
29	107	14	8	5	24	2	14	0	0	174	27.2
30	12	2	1	4	5	3	22	0	0	49	10.29
										0	
Totals	1695	392	99	337	378	85	245	0	53	3284	582.64

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet - Corrected from Volume to Weight
June 1999

Date	Organic	Crdbrd	Misc.	Metal	Plastic	Nets	Wood	Tires	Fish W	Totals	Tons
1	37.442	6.923	0.71	1.978	4.8039	0.8478	6.3581	0	0	59.06	59.06
2	15.047	5.274	0.47	1.861	4.6537	0.1551	0.6205	0	3.1025	31.18	31.18
3	8.639	2.782	1.02	0.586	1.3178	1.3178	1.9035	0	2.4892	20.06	20.06
4	11.598	2.428	2.43	4.855	4.855	0	2.9669	0	0	29.13	29.13
5	2.9492	0.328	0	0.328	0.3277	0	0.3277	0	0	4.26	4.26
6										0	
7										0	
8	20.144	3.7	2.06	6.372	4.1111	1.4389	2.8778	0	0	40.7	40.7
9	8.5171	2.542	0	2.288	2.1611	1.017	0.2542	0	0	16.78	16.78
10	5.4081	0.773	0.39	12.75	0.7726	0	0.7726	0	0	20.86	20.86
11	17.155	22.98	1.23	11.64	3.3698	1.5317	1.8381	0	0.6127	60.35	60.35
12	9.998	3.999	2	20.66	3.3327	5.9988	0.6665	0	2.3329	48.99	48.99
13										0	
14										0	
15	27.773	5.362	0.96	0.825	5.0872	1.6499	2.4749	0	0.825	44.96	44.96
16	24.551	2.929	2.09	0.976	3.0688	0.279	1.8134	0	0	35.71	35.71
17	5.3105	0.613	1.43	0.204	0.6128	0	0	0	0	8.17	8.17
18	11.922	2.632	0.15	5.883	2.6321	0	3.7159	0	0	26.94	26.94
19	3.2798	0.469	0	0.375	0.4685	0	1.2182	0	0	5.81	5.81
20										0	
21										0	
22	19.624	2.959	1.4	0	4.6723	1.5574	0.1557	0	0	30.37	30.37
23	6.9285	1.032	0.44	2.211	1.0319	0.2948	1.1793	0	0	13.12	13.12
24	7.695	0.998	0.29	1.71	0.9975	0	3.705	0	0	15.39	15.39
25	12.307	2.813	0.18	2.286	4.5712	0	0.5274	0	0	22.68	22.68
26	2.6997	0.337	0	0	7.0867	0	0.3375	0	0.1687	10.63	10.63
27										0	
28										0	
29	16.726	2.189	1.25	0.782	3.7517	0.3126	2.1885	0	0	27.2	27.2
30	2.52	0.42	0.21	0.84	1.05	0.63	4.62	0	0	10.29	10.29
										0	
Totals	278.24	74.48	18.7	79.41	64.736	17.031	40.522	0	9.5309	582.64	582.64

Monthly Breakdown Sheet
July 1999

Date	Organic	Crdbrd	Metal	Plastic	Nets	Wood	Tires	Fish W	C & D	Misc.	Tons	Bales
1	16.95	1.92	2.47	2.14	2.07	1.78	0.21	0.92	0.34	0.6	29.40	23
2	20.4	4.76	6.02	7.43	0.52	4.46	0.01	0.31	0.18	4.06	48.15	18
3	3.52	1.67	0.88	0.54	0.11	3.58	0	0	0.51	0.07	10.88	5
4											0	
5											0	
6	9.9	1.58	3.53	4.64	0.13	1.03	0.57	0.93	2.55	0.37	25.23	24
7	23.54	7.13	0.3	3.98	0.38	0.77	0	0	0.35	0.1	36.55	16
8	5.62	3.59	0.33	0.71	0.06	2.58	0	0	0.19	0.83	13.91	10
9	4.09	2	0.37	0.66	0	1.55	0	0	3.24	0.05	11.96	0
10	5.63	0.87	0	0.51	0	2.14	0	0	1.08	0	10.23	5
11											0	
12											0	
13	10.68	3.62	0.8	1.08	0.38	3.56	0.06	0.27	1.51	1.66	23.62	14
14	1.51	0.55	15.97	0.69	26.23	0	5.2	0	0.84	0	50.99	0
15	4.47	1.96	10.08	0.7	23.64	4.75	0	0.05	1.07	0.09	46.81	0
16	3.92	2.96	15.16	1.67	7.21	0.31	0.24	0	0.98	0.16	32.61	8
17	9.53	1.67	0.75	1.07	0.26	1.21	0	0.15	0	1.38	16.02	5
18											0	
19											0	
20	27	6.63	12.25	2.25	0.19	2.99	1.62	0.12	0.88	0.86	54.79	21
21	1.26	1.32	11.16	1.98	3.01	1.19	1.33	0	0	3.43	24.68	4
22	2.41	0.19	1.16	0.17	0.35	0.17	0	0.01	0.3	0.35	5.11	3
23	1.82	2.37	2.5	0.79	0.6	1.72	0	0.02	0	0.3	10.12	5
24	0.54	10.25	0	11.94	0	0.22	0	0	0.95	0.18	24.08	4
25											0	
26											0	
27	11.87	10.74	4.96	5.61	13.34	3.8	0.06	0.37	1.45	2.49	54.69	22
28	31.38	8.14	5.91	7.49	22.3	6.77	0	0.71	2.02	1.67	86.39	34
29	7.45	4.5	5.67	2.1	0.14	8.73	0	0.18	0.9	0.39	30.06	6
30	3.81	2.58	21.88	2.07	4.39	2.72	0	0	0.81	0.38	38.64	12
31	0.57	4.11	0.23	1.1	0.14	2.79	0.14	0	0.28	0.35	9.71	7
Totals	207.87	85.11	122.4	61.32	105.45	58.82	9.44	4.04	20.43	19.77	694.63	246

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet
Aug. 1999

Date	Organic	Crdbrd	Metal	Plastic	Nets	Wood	Tires	Fish W	C & D	Misc.	Tons	Bales	Loads
1											0.00		
2	3.04	5.13	4.22	6.23	0.48	4.19	0	0	0.45	0.06	23.80	13	10
3	32.72	9.95	0.87	6.1	1.64	2.21	0	0.26	0	0.99	54.74	27	16
4	7.21	6.94	10.07	1.36	1.29	2.1	0	0	0.4	1.3	30.67	14	15
5	3.95	1.53	5.15	0.72	0	0.32	0.75	0	0.76	0	13.18	5	8
6	29.62	7.38	2.74	2.77	1.62	5.61	0.36	0.28	0	1.1	51.48	16	16
7	0	0.08	1.39	0	0	0	0	0	0	1.01	2.48	0	6
8											0.00		
9	23.98	6.87	0.52	6.55	0.45	2.35	0	0	1.64	1.37	43.73	24	11
10	9.75	5.22	8.92	1.77	0.89	3.79	2.44	0	6.1	1.78	40.66	18	19
11	12.74	6.65	1.71	1.79	0.37	2.11	0	0	1.48	1.46	28.31	18	9
12	8.65	3.97	2	1.49	0	0.36	0	0	0	0.07	16.54	11	7
13	1.99	0.83	0.39	0.5	0	2.77	0	0	0.59	0.53	7.60	4	5
14	3.83	3.1	1	1.27	0	0	0	0	0	0.42	9.62	6	4
15											0.00		
16	26.17	7.15	0.55	2.21	0.25	1.03	0	0	0	0.21	37.57	11	9
17	7.18	11.91	14.33	6.35	1.66	1.29	0	0	0	1.19	43.91	22	20
18	1.66	3.28	33.54	1.93	0.42	2.88	3.55	2.71	1.28	0.65	51.90	7	24
19	1.64	3.55	34.04	5.02	1.13	3.84	0	0.37	9.6	0	59.19	11	18
20	9.31	9.3	0.21	4.24	0.72	1.44	0.8	1.94	0	0.56	28.52	13	10
21	0	0.09	2.77	0.05	0.89	0	0	0	1.41	0.06	5.27	0	7
22											0.00		
23	13.26	11.51	0.77	4.54	0.34	2.19	0	1.26	0.5	0.2	34.57	18	12
24	7.62	4.37	6.82	3.63	4.02	6.88	2.33	6.54	0.98	1.75	44.94	17	18
25	11.33	7.6	5.92	2.15	0	0.74	0	1.95	0	0.03	29.72	17	12
26	13.78	4.69	7.84	2.79	0	0.68	0	4.13	0	0.38	34.29	17	10
27	4.05	5.71	6.89	1.97	1.03	4.84	1.62	0	3.06	2.44	31.61	13	19
28	1.77	3	2.28	1.6	0.21	0.42	0	0	0	0.59	9.87	8	4
29											0.00		
30	21.03	9.97	0.06	3.3	2.47	0.81	0	3.86	0	0.57	42.07	20	8
31	12.82	14.89	4.75	3.45	2.5	2.65	0	0.92	0.29	0	42.27	18	15
Totals	269.1	154.67	159.8	73.78	22.38	55.5	11.85	24.22	28.54	18.72	818.51	348	312

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet
Sept. 1999

Date	Organic	Crdbrd	Metal	Plastic	Nets	Wood	Tires	Fish W	C & D	Misc.	Tons	Bales	Loads
1	13.24	9.59	0.34	4.14	0	1.1	0	1.36	0	0.4	30.17	22	9
2	12.48	9.55	3.66	4.03	6.64	3.2	0.55	0.12	0	0.37	40.60	20	14
3	6.15	4.13	7.6	1.54	0.51	2.18	0.21	0	0	1.41	23.73	9	14
4	6.66	5.6	0.85	2.65	0.99	1.72	0.49	0	0	1.2	20.16	18	10
5											0.00		
6											0.00		
7	8.76	10.27	4.64	3.08	0	0.65	0	3.37	0.26	1.32	32.35	20	18
8	9.59	2.98	10.97	1.23	0.11	0.51	0	0.45	0	0.14	25.98	5	11
9	1.08	0.51	0.72	0.11	0.39	0	0	3.01	0.09	0.24	6.15	0	7
10	3.14	3.17	3.92	1.07	6.25	2.66	0	0	0	0.68	20.89	10	14
11	5.97	2.02	0.48	1.93	0.43	11.31	0	0.54	0	0.55	23.23	10	9
12											0.00		
13	27.08	14.85	3.82	5.64	53.23	0.42	0	1.47	0	0.63	107.14	29	19
14	19.62	10.62	0	3.03	0.74	1.55	0	0.39	0	7.53	43.48	19	14
15	13.27	8.11	8.47	3.05	0.49	0.13	0	0.82	0	0.39	34.73	17	11
16	3.9	4.32	5.85	1.24	7.17	0.98	0	3.54	0	1.04	28.04	6	18
17	6.73	6.01	3.47	3.69	0	1.39	0	0.92	0	0.62	22.83	7	16
18	1.51	2.91	0.39	2.26	0	0.45	0	0	0	1.48	9.00	8	5
19											0.00		
20	11.25	9.02	0.36	2.31	7.03	0.98	0	0	0	0.53	31.48	17	10
21	7.64	3.61	1.59	1.77	0	0.49	0	0.1	0	0.05	15.25	5	7
22	6.17	7.57	2.47	2.98	3.45	0.87	40.65	0	17.17	0.21	81.54	14	18
23	1.38	2.03	8.5	0.95	36.51	5.93	43.68	3.15	15.82	1.7	119.65	7	35
24	7.31	4.64	4.54	5.53	94.15	2.26	0	0.41	0	1.66	120.50	13	27
25	1.18	1.18	5.7	1.64	0	0.84	0	0	0.27	0	10.81	3	9
26											0.00		
27	22.7	10.79	11.85	8.48	53.27	1.31	0	1.51	0.31	1.13	111.35	30	21
28	10.95	6.28	22.41	2.54	10.21	10.55	0	0	0	1.16	64.10	12	21
29	4.35	4.9	3.89	3.31	0	0.64	0	0.53	0.07	0.12	17.81	10	10
30	13.02	9.15	0	4.6	1.04	0.49	0	1.24	0.42	0.14	30.10	19	9
											0.00		
Totals	225.13	153.81	116.5	72.8	282.6	52.61	85.58	22.93	34.41	24.7	1071.07	330	356

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet
Oct. 1999

Date	Organic	Crdbrd	Metal	Plastic	Nets	Wood	Tires	Fish W	C & D	Misc.	Tons	Bales	Loads
1	4.07	4.66	0.71	3.28	0.53	2.42	0	0	0	3.13	18.80	13	10
2	6.74	11.04	1.08	6.78	1.35	1.87	0.17	0.92	0	1.35	31.30	23	7
3											0.00		
4	12.95	7.69	0.74	4.71	1.23	0	0	1.2	0.18	0.64	29.34	12	10
5	9.93	8.26	2.04	5.45	0.56	1.36	0	0.88	0.21	0.65	29.34	19	15
6	3.42	2.85	0.68	1.17	0.23	0.23	0	0	0.66	0.22	9.46	7	4
7	11.75	5.37	4.85	2.21	0.22	1.67	0.48	0	0	0.93	27.48	16	9
8	27.7	6.45	0	7.32	0	0	0.62	3.43	0	0.61	46.13	17	11
9	1.01	1.25	0	0.75	1.25	0.75	0	2.25	0.8	1	9.06	4	4
10											0.00		
11	15.7	5.28	0.26	1.91	3.16	0.62	1.66	0.3	0	0	28.89	10	8
12	1.12	0.46	4.16	0.25	0.16	2.49	0	1.17	0.45	2.63	12.89	3	12
13	27.11	15.44	4.08	6.09	2.56	1.11	2.3	2.11	0	0	60.80	29	15
14	16.79	11.07	3.82	4.43	4.23	0.14	0	1.61	2.02	0.57	44.68	25	18
15	9.18	5.51	3.6	2.93	2.63	4.7	0	2.35	0	2.18	33.08	13	15
16	0	0	0	0.03	1.72	0.2	0	0	0	0	1.95	0	2
17											0.00		
18	19.85	10.86	0.29	4.99	3.38	0.24	0	8.25	0	0.18	48.04	23	9
19	4.74	6.53	19.7	3.35	3.24	3.83	0	0.66	0	1.31	43.36	15	17
20	12.1	7.42	7.34	2.46	3.3	0.19	0	0	0	0.81	33.62	19	14
21	1.93	1.64	0	0.64	2.23	0.21	0	1.34	0	0	7.99	4	4
22	12.79	9.31	0	3.05	0.42	0.21	0	2.47	1.06	0.72	30.03	19	12
23	4.25	7.05	1.47	3.81	3.15	0.87	5.65	2.41	0	1.03	29.69	14	9
24											0.00		
25	29.08	9.24	0.52	3.82	6.11	0.29	0.84	5.02	1.89	0.81	57.62	19	17
26	4.02	3.08	1.93	0.93	0.11	0	0	0	0	0	10.07	7	4
27	5	2.92	0	1.4	0.71	0	0	1.46	0	1.27	12.76	7	3
28	8.83	24.53	5.59	12.79	3.29	0.71	0	0	0	0.73	56.47	20	24
29	11.66	9.65	1	11.04	7.43	0	3.77	0	0.09	1.55	46.19	20	14
30	1.56	1.07	5.64	0.69	0.38	0	0	0	0	0.35	9.69	4	5
31											0.00		
Totals	263.28	178.63	69.5	96.28	53.58	24.11	15.49	37.83	7.36	22.67	768.73	362	272

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet
Nov. 1999

Date	Organic	Crdbrd	Metal	Plastic	Nets	Wood	Tires	Fish W	C & D	Misc.	Tons	Bales	Loads
1											0.00		
2	8.35	5.32	0	2.79	0.3	5.35	0	2.13	3.51	0.75	28.50	14	12
3	12.19	5.45	1.47	2.68	1.29	0.77	0	0.25	0	1.46	25.56	12	9
4	31.44	6.71	1.83	3.11	0	7.45	0.56	0.09	1.24	0.18	52.61	13	18
5	18.05	11.52	1.43	6.19	0.44	0.65	0	1.8	0	0	40.08	22	14
6	9.58	6.82	1	1.49	0.26	0	0	0	0	0	19.15	13	5
7											0.00		
8											0.00		
9	18.9	12.07	8.94	4.98	1.3	3.67	0	0	0	1.08	50.94	29	15
10	6.55	5.13	2.37	1.52	14.11	0.35	0	0.45	0.77	0	31.25	11	11
11											0.00		
12	11.21	2.34	2.89	0.95	0.59	3.43	2.86	0	0.28	0.63	25.18	3	10
13	0	0	0	0	0	0	0	1.2	0	0.03	1.23	2	1
14											0.00		
15											0.00		
16	7.32	6.01	47.19	1.99	29.26	4.49	11.07	0	0	1.26	108.59	12	23
17	15.58	5.44	31.92	2.53	15.01	0.95	0	0	1.01	0.76	73.20	12	15
18	0	0	2.6	0	0	0	0	0	0.77	0.33	3.69	0	4
19	0.98	1.38	4.59	0.98	0	0	0	0	0	0.59	8.52	5	2
20	0	0	0.56	0.28	1.35	0.49	0	0	0	0	2.67	0	3
21											0.00		
22											0.00		
23	9.57	12.84	4.23	6.36	5.65	2.87	0.42	0.44	0	3.09	45.48	32	18
24	10.15	9.39	3.14	7.98	1.32	2.34	0.16	0.13	0.25	3.19	38.06	20	15
25											0.00		
26	3.01	3.55	1.39	2.88	0	1.08	0	0	0	1.28	13.19	8	7
27	1.44	2.55	0.19	1.26	0.5	0.31	0	0	0	0.59	6.83	7	4
28											0.00		
29											0.00		
30	6.21	5.49	0.1	2.98	0	0.43	0	0.21	0	0.67	16.08	12	3
											0.00		
Totals	170.53	102.01	115.8	50.95	71.38	34.63	15.07	6.7	7.83	15.89	590.81	227	189

Sundays - Landfill Closed

Holidays - Landfill Closed

Monthly Breakdown Sheet
Dec. 1999

Date	Organic	Crdbrd	Metal	Plastic	Nets	Wood	Tires	Fish W	C & D	Misc.	Tons	Bales	Loads
1	8.51	8.69	1.86	3.16	1.67	2.16	0	0	0	2.59	28.64	14	7
2	0	0.08	0	0.01	0	0	0	0	0	0	0.09	0	1
3	2.39	3.68	10.62	2.98	0	2.59	0.12	0	1.5	0.5	24.38	11	9
4	0	2.1	0	0.13	0	0.23	0	0	0	0.08	2.54	0	3
5											0.00		
6											0.00		
7	3.5	4.02	1.19	1.86	0.32	0.41	0	0.32	0	1.57	13.19	13	5
8	0	0	11.47	0	33.86	0	2.72	0	0	0	48.05	0	4
9	11.75	10.88	3.78	5.14	22.31	1.43	6.07	0.1	0	2.67	64.13	25	15
10	1.98	3.04	3.02	1.38	0.86	2.22	0	0.28	0	1.28	14.06	7	5
11	0	0	0	0	0	0	0	0	0	0	0.00	0	0
12											0.00		
13											0.00		
14	2.77	1.65	0.28	0.41	0	0.28	0	0	4.27	0.86	10.52	7	13
15	8.71	2.89	0.31	1.2	0	0.45	0	0	1.05	0	14.61	7	10
16	7.06	1.49	0	0.74	0	3	0	0	0	0.45	12.74	0	5
17	9.83	4.61	0	1.9	0	0	0	0	0	0	16.34	13	3
18	4.63	1.51	0	0.78	0	0	0	0	0	0.2	7.12	6	3
19											0.00		
20											0.00		
21	10.33	4.77	0	2.14	0.23	0.56	0.21	0	0	2.45	20.69	20	8
22	6.22	4.79	0	2.52	0	0.14	0	0	5.67	0.13	19.47	23	9
23	4.55	4.66	0	2.02	0.25	2.61	0	0	0.37	1.09	15.55	11	7
24	10.61	6.7	0	2.44	0.09	0.12	0	0	0	0	19.96	14	5
25											0.00		
26											0.00		
27											0.00		
28	11.04	6.93	2.59	2.02	0	1.58	0	0	9.69	0.2	34.05	16	16
29	5.08	3.4	5.39	1.46	3.25	0	0	0	0	0.3	18.88	10	9
30	3.8	6.16	0	1.42	0	0.62	0	0.45	15.53	0.59	28.57	11	5
31	11.38	7.04	0.63	3.97	0.42	1.66	0	0	0	0	25.10	17	9
Totals	124.14	89.09	41.14	37.68	63.26	20.06	9.12	1.15	38.08	14.96	438.68	225	151

Sundays - Landfill Closed

Holidays - Landfill Closed

Appendix B

Landfill Rate Structure

DEPARTMENT OF PUBLIC UTILITIES
SOLID WASTE
FEE SCHEDULE FOR SERVICES

SERVICE	FEE

SCHEDULE A
LANDFILL MAINTENANCE FEE

The monthly landfill maintenance fee applies to all utility customers and any other person who receives landfill services or deposits waste in the landfill. This fee is included on each customer's monthly utility bill. In the event a landfill customer does not receive a utility bill, this fee will be assessed at the landfill and billed on a monthly basis. Residential customers depositing their own household refuse will pay only the landfill maintenance fee.

Maintenance	9.30 per month

SCHEDULE B
TIPPING FEE/MINIMUM FEE

The tipping fee applies to all landfill customers other than residential customers depositing their own household refuse and applies to such customers in addition to the landfill maintenance fee in Schedule A above. Such customers will be charged the tipping fee or the minimum fee whichever is greater. If scales are operational at the landfill, the tipping fee will be based on the following rate per ton; otherwise, the rate per cubic yard will apply. Tipping and minimum fees will be assessed at the landfill by the operator on duty and billed on a monthly basis.

Tipping Fee	Minimum Fee
$67.00/Ton	$11.50
$10.00/cu. yd.	$11.50

SCHEDULE C
VEHICLE DISPOSAL FEE

Any person disposing of a vehicle at the landfill will be charged a vehicle disposal fee. Fluids, batteries and tires must be removed from the vehicle prior to disposal.

Passenger cars and light trucks:	50.00
Trucks greater than One Ton capacity:	75.00

DEPARTMENT OF PUBLIC UTILITIES
SOLID WASTE
FEE SCHEDULE FOR SERVICES

SERVICE	FEE

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SCHEDULE D
SPECIAL WASTE HANDLING FEES

The special waste handling fees apply to all landfill customers who deposit wastes in the landfill that require special handling to be accommodated. Such customers will be charged the special handling fee in addition to the landfill tipping fee in Schedule B above. Special wastes include trawl nets, fish waste, and appliances with refrigerant.

Trawl Nets	50.00
Fish Waste	60.00/ton or 9.00/cu. yd.
Appliance with refrigerant	20.00 each

**If scales are operational at the landfill, the fee will be based on the rate per ton, otherwise the rate per cubic yard will apply.

Special handling charges shall not be limited to the items specified above. Any person with other waste materials that require special handling to be accommodated at the landfill shall notify the Department of Public Utilities prior to disposal. Such wastes will be accepted at the discretion of the City, subject to an agreement between the customer and the Director of Public Utilities on charges that will reasonably compensate the City.

SCHEDULE E
SEPARATION FEES

Customers responsible for any mixed load arriving at the City's solid waste disposal facility that includes prohibited items or materials requiring separation shall be charged the labor charge out rate as stated in Schedule F, Section B, based upon the extra time required for handling by City personnel and equipment. This charge will be in addition to the landfill tipping fee in Schedule B above.

"Materials requiring separation" include: major items and appliances; pallets and large wood items; nets and line; fish waste; fish meal; preservative; galley/restaurant waste; tires; wire rope/cables; junk vehicles; and scrap metal. "Prohibited materials" include: creosote or creosote treated items; petroleum products; corrosive materials; toxic materials; liquids; and off-island waste.

SCHEDULE F
FEES AND SPECIAL CHARGES

A.	Billing Deposits	A deposit equal to two months estimated billing is required. Interest in the amount of 3 ½ % per annum will accrue on billing deposits, and will be paid to customer when deposit is refunded or applied to account.

DEPARTMENT OF PUBLIC UTILITIES
SOLID WASTE
FEE SCHEDULE FOR SERVICES

SERVICE		FEE
B. Labor Charge Out rates:		
Labor:	Straight Time	65.00 per hour
	Over Time	95.00 per hour
	Double Time	120.00 per hour
Materials:	Cost plus 15%	

Appendix C

Wastewater Treatment Plant Screened Solids Data, 1999

	Unalaska WWTP Screenings load		
	Total cu.ft.	Ave.s Per day	
Jan-98	219.5	7.1	
Feb-98	216.0	7.7	
Mar-98	245.5	7.9	
Apr-98	181.5	6.1	
May-98	186.0	6.0	
Jun-98	152.0	4.9	
Jul-98	141.5	4.6	
Aug-98	196.0	6.3	
Sep-98	200.5	6.7	
Oct-98	208.5	6.7	
Nov-98	172.3	5.7	
Dec-98	130.5	4.2	
Jan-99	199.3	6.2	
Feb-99	232.5	8.3	
Mar-99	254.0	8.2	
Apr-99	164.0	5.5	
May-99	128.5	4.1	
Jun-99	160.0	5.2	
Jul-99	185.2	6.0	
Aug-99	223.0	7.2	
Sep-99	274.0	9.1	
Oct-99	223.0	7.2	
Nov-99	181.0	6.0	
Dec-99	106.0	3.4	
Jan-00	181.0	5.8	
Feb-00	260.0	9.0	
Mar-00	252.5	8.1	
Apr-00	173.5	5.8	
May-00	119.0	3.8	
	5566.3	182.8	
	Total cu.ft. ^	Ave.s Per day ^	