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Canadian Battery Association
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2019 Annual Stewardship Report -British Columbia-

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Executive Summary

The manufacturers, distributors and recyclers of lead batteries in British Columbia have had another successful year recovering just over 100% of the lead batteries sold in the province - see 2019 Sales & Recovery Performance Measures on Page 3.

In total, there were over 23M kg of consumer and commercial lead batteries recovered and recycled at regulated smelters in Canada, USA and South Korea. Approximately 99% of the lead is recovered in the smelting process and sold for a variety of purposes including the manufacture of new lead batteries. The sulphuric acid and plastic battery casings are recovered by the battery breaker and the acid and plastic casings are recycled into new batteries or used in the manufacture of other products. The plastic separators within the battery cells are also recovered and used for energy recovery by the smelters.

Some of the highlights of other program initiatives that support the recovery of lead batteries are summarized below.

In 2019, the Cariboo Regional District completed 65 samples of 6039kg of residential and IC&I landfill waste and no lead batteries were found in the samples (Table 2). To date, the Canadian Battery Association has completed 390 samples of landfill waste and calculated an overall landfill diversion rate for lead batteries of 99.98%. The high landfill diversion rate corroborates the high recovery rate for lead batteries reported in 2019.

With respect to accessibility, there was an increase of 15 Return Collection Facilities (RCF) for a total of 253. The summary of RCF statistics for communities of different sizes is summarized below and Table 4 lists the RCFs by community. The RCF provides consumer accessibility to 99.3% of BC's population that lives in an incorporated community.

BC Communities Populations	Population	RCFs	RCF/Pop	Pop Served	Average Distance To RCF (km)
>30,000	3,396,554	110	28,925	3,396,554	2.0
<30,000 >4,000	735,644	90	7,780	720,058	2.8
<4,000 >1,000	119,539	36	2,295	100,172	17.8
<1,000	20,155	17	700	13,858	23.0
	4,261,106	253		4,217,877	

Finally, the Canadian Battery Association will continue to work with Local Government and First Nation Communities to identify rural and remote communities that require additional accessibility.

2019 Performance Measures for Lead Batteries: Sales & Recovery			
Program Metric	Target / Report	2019 Results	Follow-Up Action
Lead Battery* Sales	Report	Sales in BC: 23,284,103kg Next Non-Financial Audit in 2021	None
Lead Battery Recycled	Report	Recovered in BC: 23,690,522kg Next Non-Financial Audit in 2021	None
Lead Battery Recovery Rate	Target >90%	Recovery Rate: 101.7% Target Met Next Non-Financial Audit in 2021	Achieved Circular Economy for Lead Batteries
Recovery by Regional District	Report	See Table 1	Continue to work with Regional Districts to identify priority communities that would benefit from an RCF
Sales per Capita	Report	4.59 kg/person/yr ¹	Continue to Monitor and compare to other Provinces
Recovery per Capita	Report	4.67 kg/person/yr ¹	Continue to Monitor and compare to other Provinces
Diversion Rate	Report	99.98% - Based on combined data from all Waste Characterization Studies	Continue to conduct Waste Characterization Studies to identify priority communities and sectors.
		See Table 2	
2019 Performance Measures for Lead Batteries: Consumer Awareness			
Per Cent Awareness based on Standardized Surveys	Report	Awareness of Program: 79% Participation in Program: 61% Know How to Find More Info: 72% Know Location of RCFs: 69% Know How to Get RCF Info: 72% Perception of Convenience: 72% Trust in Program: 84% See Table 3	Continue to Measure Consumer Awareness in 2020 using MoE Approved Standardized Surveys

2019 Performance Measures for Lead Batteries: Accessibility			
Total Number of RCFs in the Province	Report	Total Number of RCFs: 253 See Table 4 for details	Continue to expand the number of RCFs especially and work with Provincial Government to harmonize the Hazardous Waste Regulation with the Recycling Regulation
Total Number of RCFs by Regional District	Report	See Table 5 for list of RCFs	Continue to work with Regional Districts & FNs to identify priority communities that would benefit from an RCF
Accessibility: Communities >30,000 Population	Target: <5km	Communities >30,000 Population <ul style="list-style-type: none"> • 28 – Number of Communities • 2.0km - Average km to RCF • 100% - Pop. Served to Target Target Met See Table 4 for details	
Accessibility: Communities <30,000 & >4,000 Population	Target: <10km	Communities <30,000 & >4,000 <ul style="list-style-type: none"> • 59 – Number of Communities • 2.8km - Average km to RCF • 97.9% - Pop. Served to Target Target Met See Table 4 for details	Establish RCFs for Peachland & Whistler that did not meet CBA Target.
Accessibility: Communities <4,000 Population	Report	Communities <4000 & >1,000 <ul style="list-style-type: none"> • 51 – Number of Communities • 17.8km - Average km to RCF • 83.8% - Pop. Served to 15km Communities <1,000 <ul style="list-style-type: none"> • 40 – Number of Communities • 23.0km - Average km to RCF • 68.9% - Pop. Served to 20km See Table 4 for details	Continue to expand the number of RCFs especially in small communities, remote locations and sensitive areas and work with Provincial Government to harmonize the Hazardous Waste Regulation with the Recycling Regulation
Percent of Population Served using CBA Accessibility Goals	Report	Communities >30,000: 100% Communities > 4,000: 97.9% Communities >1,000: 83.8% Communities <1,000: 68.9% Incorporated Communities: 99.3%	

2019 Program Performance Measures for Lead Batteries			
Use of Permitted Recycling Facilities	Target: 100%	100% LABs sent to Permitted Recycling Facilities. Target Met	Monitor and track progress year over year
Adherence to International Hazardous Waste Commitments	Target: 100%	100% Compliance to International Requirements. Target Met	Continue to Monitor and work with Transport Canada and Environment Canada and develop education and training programs for Transportation of Dangerous Goods and Hazardous Wastes
Value per Lead Batteries in BC	Report	Queen Charlotte City: \$5.00; Port Hardy: \$5.00 Fort Nelson: \$5.00 Langley: \$12.00	Monitor Prices for Auto Batteries in Small Communities
Pollution Prevention Hierarchy	Report	Lead: About 99% Recovery in Smelting Process Sulphuric Acid: Recovered by the Battery Breaker Process Plastic Battery Casings: Recovered by Battery Breaker Process Plastic Cell Separators: Considered not recyclable	The main use of recovered lead is the remanufacturing of new batteries Recovered battery acid used in fertilizer production, battery manufacturing or galvanizing plants Primarily pelletized and reused to make new battery casings Used for energy recovery in the smelting process

* Consumer lead batteries includes automotive, small sealed lead, AGM batterie and powersport batteries and Commercial lead batteries includes: golf cart, forklift, telco, energy storage and UPS batteries.

¹ Population estimate from StatsCan

<https://www150.statcan.gc.ca/t1/tb11/en/tv.action?pid=1710000901>

Table 1: 2019 Recovery of Lead Batteries by Regional District

Name	Population	kg
Alberni-Clayoquot	30,456	142,230
Bulkley-Nechako	45,536	212,653
Capital	392,046	1,830,855
Cariboo	63,364	295,910
Central Coast	3,215	15,014
Central Kootenay	60,803	283,950
Central Okanagan	199,103	929,811
Columbia-Shuswap	53,028	247,641
Comox Valley	66,166	308,995
Cowichan Valley RD	85,459	399,094
East Kootenay	58,154	271,579
Fraser Valley	303,701	1,418,284
Fraser-Fort George	90,121	420,865
Metro Vancouver	2,592,227	12,105,700
Kitimat-Stikine	36,270	169,381
Kootenay-Boundary	29,205	136,387
Mount Waddington	11,127	51,963
Nanaimo	160,942	751,599
North Coast	16,842	78,652
North Okanagan	86,451	403,726
Northern Rockies	5,879	27,455
Okanagan-Similkameen	87,161	407,042
Peace River	62,231	290,619
Powell River	20,014	93,465
Squamish-Lillooet	43,274	202,090
Strathcona	46,572	217,491
Sunshine Coast	29,390	137,251
Thompson-Nicola	138,423	646,435

Table 2: Summary of Lead Batteries Recovered in Landfill Studies

Year	Study	Source of Waste	Sample Size(kg)	Lead Batteries Recovered (kg)
2014	Sunshine Coast Regional District	Residential	1,911	0
2015	Metro Vancouver	IC&I	9,213	5.85 SSLA*
2016	Capital Regional District		7,476	0
2017	Peace River Regional District	Residential	1,451	0
		IC&I		1.07 SSLA
	Kitimat		4,260	0
2018	Columbia Shuswap RD	Transfer Stn	6,072	0.75 SSLA
	City of Squamish		2,073	0
2019	Cariboo Regional District	Residential	6,039	0
		IC&I		0
Totals			38,494	7.67 SSLA
Diversion Rate			99.98%	

*SSLA=Small Sealed Lead Acid

Table 3: Consumer Awareness Study Results for Lead Batteries

Consumer Awareness Questions Asked to Consumers	Response		
	2013	2016	2018
Awareness Program Exists to Take Care of Lead Batteries	73%	80%	79%
Participation in the Program	51%	62%	61%
Know Where to Get Information About Recycling and Safe Disposal of Lead Batteries	68%	80%	72%
Know Location to take Unwanted Lead Batteries	54%	72%	69%
Know Where to Get Information about Return Collection Facilities for Lead Batteries	65%	80%	72%
Perception Program for Lead Batteries is Convenient	75%	67%	72%
Trust Program will Safely Recycle / Dispose of Lead Batteries	84%	81%	84%

Table 4: Summary of Return Collection Facilities by Community

Communities >30,000	Community Population	# of RCFs	Pop/RCF Ratio	Population Serviced to 5km Target	Closest RCF (km)
Abbotsford	141,485	6	23,581	141,485	0.3
Burnaby	238,728	7	34,104	238,728	2.8
Campbell River	33,696	4	8,424	33,696	0.8
Chilliwack	90,390	3	30,130	90,390	2.0
Coquitlam	147,619	4	36,905	147,619	1.8
Delta	101,997	3	33,999	101,997	4.1
Kamloops	91,402	8	11,425	91,402	0.9
Kelowna	125,737	9	13,971	125,737	3.0
Langford	39,936	3	13,312	39,936	0.8
Maple Ridge	85,653	2	42,827	85,653	3.4
Mission	39,873	1	39,873	39,873	0.5
Nanaimo	93,351	6	15,559	93,351	2.2
New Westminster	73,771			73,771	2.3
North Cowichan	30,229	1	30,229	30,229	4.3
North Vancouver, City of	52,794	3	17,598	52,794	3.0
North Vancouver, District Mun.	86,602			86,602	3.5
Penticton	33,016	2	16,508	33,016	1.2
Port Coquitlam	61,187	1	61,187	61,187	1.2
Port Moody	34,193			34,193	3.7
Prince George	70,912	6	11,819	70,912	1.1
Richmond	213,392	7	30,485	213,392	0.3
Saanich	110,889	2	55,445	110,889	2.1
Surrey	543,940	13	41,842	543,940	3.6
Vancouver	653,046	8	81,631	653,046	2.0
Vernon	41,671	4	10,418	41,671	1.4
Victoria	85,192	4	21,298	85,192	0.4
West Kelowna	34,930	3	11,643	34,930	0.2
West Vancouver	40,923			40,923	3.7
Number of Communities: 28	3,396,554	110	28,925	3,396,554	2.0

Accessibility for Communities with a Population Between 4,000 and 30,000					
Community	Community Population	# of RCFs	Pop/RCF Ratio	Population Serviced to 10km Target	Closest RCF (km)
Armstrong	4,842	4	1,211	4,842	0.6
Castlegar	7,934	2	3,967	7,934	3.2
Central Saanich	15,895	1	15,895	15,895	1.2
Coldstream	10,938	2	5,469	10,938	3.6
Colwood	17,583	2	8,792	17,583	2.0
Comox	14,400			14,400	3.9
Courtenay	26,056	2	13,028	26,056	0.7
Cranbrook	20,452	2	10,226	20,452	1.5
Creston	4,661	1	4,661	4,661	0.8
Dawson Creek	12,115	2	6,058	12,115	1.2
Duncan	4,768	4	1,192	4,768	0.9
Esquimalt	16,830	2	8,415	16,830	0.7
Fernie	4,333	1	4,333	4,333	1.3
Fort St. John	22,618	3	7,539	22,618	0.6
Ganges	6,000	2	3,000	6,000	0.2
Gibsons	4,550	1	4,550	4,550	3.2
Grand Forks	4,029	1	4,029	4,029	4.5
Hope	5,796	1	5,796	5,796	0.9
Kent/Agassiz	6,220	1	6,220	6,220	0.3
Kimberley	7,050	1	7,050	7,050	5.1
Kimberly	4,513	1	4,513	4,513	5.1
Kitimat	7,664	1	7,664	7,664	4.0
Ladysmith	8,342	2	4,171	8,342	1.1
Lake Country	14,183	1	14,183	14,183	5.1
Langley	27,283	7	3,898	27,283	0.6
Langley, Township of	122,415	3	40,805	122,415	5.6
Merritt	7,607	2	3,804	7,607	0.9
Metchoy	4,792			4,792	5.7
Nelson	11,249	1	11,249	11,249	0.5
North Saanich	11,143	1	11,143	11,143	4.0
Oak Bay	17,368			17,368	2.6
Oliver	4,568	1	4,568	4,568	1.3
Osoyoos	4,800	1	4,800	4,800	3.9
Parksville	12,883	1	12,883	12,883	2.7
Peachland	4,959				11.9
Pitt Meadows	19,090			19,090	1.7
Port Alberni	16,236	2	8,118	16,236	0.5
Powell River	13,729	3	4,576	13,729	1.0
Prince Rupert	11,261	1	11,261	11,261	2.4
Qualicum Beach	8,687			8,687	7.3
Quesnel	9,026	2	4,513	9,026	0.7
Revelstoke	7,316	1	7,316	7,316	4.0

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Saanichton		1			1.0
Salmon Arm	18,128	2	9,064	18,128	1.9
Sechelt	9,490	2	4,745	9,490	0.3
Sidney	11,129	1	11,129	11,129	1.4
Smithers	5,462	2	2,731	5,462	0.0
Sooke	11,868	2	5,934	11,868	3.4
Spallumcheen	5,222			5,222	4.7
Sparwood	4,078	1	4,078	4,078	2.0
Squamish	19,067	2	9,534	19,067	1.8
Summerland	11,375	1	11,375	11,375	2.6
Terrace	10,659	4	2,665	10,659	0.7
Trail	7,376	1	7,376	7,376	6.2
Vanderhoof	4,526	1	4,526	4,526	0.4
View Royal	10,137	1	10,137	10,137	0.7
Whistler	10,627				25.5
White Rock	19,288	1	19,288	19,288	2.3
Williams Lake	11,028	2	5,514	11,028	2.2
Number of Communities: 59	735,644	89	7,812	713,838	2.8

Accessibility for Communities with a Population Between 1,000 and 4,000					
Community	Community Population	# of RCFs	Pop/RCF Ratio	Population Serviced to 15km Goal	Closest RCF (km)
100 Mile House	1,860	1	1,860	1,860	0.2
Anmore	2,322			2,322	4.9
Ashcroft	1,557			1,557	9.8
Barriere	1,751	1	1,751	1,751	0.2
Bella Coola	1,900				451
Bowen Island	3,580	1	3,580	3,580	1.5
Burns Lake	1,803	2	902	2,114	0.7
Chase	2,365	1	2,365	2,365	0.4
Chetwynd	2,877	1	2,877	2,676	0.3
Clearwater	2,368	1	2,368	2,368	0.5
Cobble Hill	1,775	1	1,775	1,775	0.7
Cumberland	3,562	1	3,562	3,562	1.5
Elkford	2,630				34.2
Enderby	2,816	2	1,408	2,906	0.3
Fort Nelson	3,902	1	3,902	3,902	1.4
Fort St. James	1,755	1	1,755	1,322	0.2
Fraser Lake	1,178	1	1,178	1,122	0.6
Fruitvale	2,098			2,098	6.4
Gold River	1,254	1	1,254	1,425	0.7
Golden	3,862	2	1,931	3,959	1.6
Harrison Hot Springs	1,407			1,407	7.3
Langford (Highlands)	2,394	1	2,394	2,175	6.4

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Houston	3,155	1	3,155	2,958	0.6
Hudson's Hope	1,022				41.2
Invermere	2,941	1	2,941	3,668	1.8
Kaslo	1,000				54.7
Keremeos	1,348				20.1
Lake Cowichan	3,169	1	3,169	3,169	2.7
Lantzville	3,408			3,408	2.7
Lillooet	2,403	1	2,403	2,367	1.8
Lions Bay	1,325				17.2
Logan Lake	2,099				35.8
Lumby	1,722	3	574	1,804	0.4
Mackenzie	3,492	1	3,492	3,827	0.5
Montrose	1,020			1,020	2.8
Nakusp	1,571	1	1,571	1,530	0.3
Northern Rockies Regional Mun.	5,834				
Pemberton	2,511	1	2,511	2,416	0.3
Pender Harbour	3,000				18.3
Port Hardy	3,731	1	3,731	3,731	4.1
Port McNeill	2,500	1	2,500	2,618	0.3
Princeton	2,782	1	2,782	2,782	0.2
Rossland	3,639			3,639	12.6
Salmo	1,165	1	1,165	1,060	5.6
Sicamous	2,468	1	2,468	2,950	3.0
Taylor	1,544			1,544	13.9
Telkwa	1,328			1,328	12.4
Tofino	2,190	1	2,190		20.3
Tumbler Ridge	2,853				75.0
Ucluelet	1,634	1	1,634	1,591	1.1
Warfield	1,669			1,669	9.2
Number of Communities: 51	119,539	36	2,295	98,765	17.8

Accessibility for Communities with a Population <1,000					
Community	Community Population	# of RCFs	Pop/RCF Ratio	Population Serviced to 20km Goal	Closest RCF (km)
Alert Bay	435			435	11.4
Belcarra	618			618	7.7
Boston Bar	800	1	800	800	3.7
Cache Creek	972	1	972	972	0.2
Canal Flats	744				42.6
Cherryville	930	1	930	930	1.9
Clinton	629	1	629	629	1.5
Elko	163	1	163	163	0.4
Falkland	600	1	600	600	1.8
Glenemma		1			0.9

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Granisle	307				61.4
Greenwood	688			688	12.0
Hazelton	257			257	6.1
Kitwanga	420	1	420	420	5.4
Lytton	240				38.9
Mabel Lake		1			10.9
Masset	859				109.0
McBride	576				80.1
Midway	667	1	667	667	1.8
New Denver	519				41.5
New Hazelton	642	1	642	642	0.9
Port Alice	785				29.4
Port Clements	366				68.5
Port Edward	474			474	13.4
Pouce Coupe	689			689	6.4
Radium Hot Springs	764			764	12.5
Sayward	311				63.0
Scotch Creek		1			2.7
Sechelt (Ind Gov.)	831			831	0.5
Silverton	199				45.2
Skimikin		1			4.0
Slocan	309				32.8
Stewart	423	1	423	423	1.0
Sun Peaks	457				30.5
Tahsis	295				46.5
Valemount	947	1	947	947	0.2
Queen Charlotte	943	1	943	943	0.7
Wells	231				60.0
Youbou	966	1	966	966	0.9
Zeballos	99				61.3
Number of Communities: 40	20,155	17	700	13,858	23.0

* Establishment of Return Collection Facilities in Sensitive Areas (e.g., Boat Marinas) is on hold until amendments to the Hazardous Waste Regulation (HWR). The amendments to the regulation will allow for the collection of lead batteries at temporary sites and then transported to an established Return Collection Facility in a larger community. Amendments to the HWR maybe completed by the end of 2020.