

11-1921

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Recommended Citation

Hawkins, Herbert B. (1921) "Treatment of Weight and Degradation Losses by Coal Dealers," *Journal of Accountancy*. Vol. 32: Iss. 5, Article 4.

Available at: <https://egrove.olemiss.edu/jofa/vol32/iss5/4>

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Treatment of Weight and Degradation Losses by Coal Dealers

By HERBERT B. HAWKINS

No single element in determining the cost of handling coal has caused more discussion among coal dealers and coal trade associations nor has been the topic of more articles written for the trade papers than the losses which accrue as a result of the "loss in weight" and the "loss by degradation." In most articles which have appeared in trade journals and in discussions developed in association meetings and conventions, the cost of degradation has been so entwined with the cost of the loss in weight that the distinction between the two has been completely lost. This is unfortunate, for the reason that any statement which purports to show these losses in a single amount and as a result of a single operation must not only fall distinctly short of displaying the facts, because of the radical difference in the nature of each of them, but also obscures an element, the importance of which most dealers have been prone to underestimate, principally for want of a practical method of accounting to determine it.

As used herein, degraded coal, or coal upon which the loss by degradation is computed, may be defined as coal of a smaller size obtained from coal of a larger size, as a result of screening. The average dealer is not particularly interested in knowing the cost of degradation or cost of loss in weight as applied to each size of coal purchased, but he is interested in knowing the cost of these elements as a result of all sizes of coal purchased.

Undoubtedly, it would be desirable to obtain the costs of these elements for every size of coal purchased, but only by the detailed weighing of each size and then by weighing in detail screenings obtained from each size could this be determined, so that it might prove impractical except under ideal conditions, for example, in a coal yard where one size was handled exclusively and where this detailed weighing of screenings could be eliminated.

Loss in weight is the difference between the total amount of all coal purchased and that which is not actually accounted for as sales or inventory, as for example:

	Tons
Inventory at beginning, all sizes.....	100
Add purchased during period, all sizes.....	1,000
	—
Total	1,100
Less inventory end of period, all sizes.....	200
	—
Balance to be accounted for as sales.....	900
Actual sales as per sales-book.....	850
	—
Loss in weight.....	50

Some writers have ventured the statement "that coal which blows away is part of the loss from degradation." This theory of course cannot be accepted, for if a dealer buys 100 tons of coal, sells 97 tons and has no coal remaining, he cannot have 3 tons of degraded coal nor any loss from degradation. In other words, his loss of 3 tons is not a loss by degradation even though he may have actually had 100 tons in his yard—it is a loss due to loss in weight.

In preparing the statement attached hereto, it will be noted that the loss due to the loss in weight is the difference between the total number of tons actually accounted for (irrespective of the sizes in which it was sold) and the number of tons which *should* have been accounted for as sales. The cost of this loss in weight is the number of tons shown to have been lost (line 6, column A), multiplied by the average unit cost per ton (line 11, divided by line 2) of all grades of coal purchased (egg, stove, nut, pea, miscellaneous sizes, columns C, D, E, F), it being assumed in this case that in order to determine the profit on all coal sold it matters not whether there was an overage in weight in one size or a shortage in weight in another. Although as stated under the heading of degradation it would, of course, be desirable if the actual loss from loss in weight with respect to each size could be obtained, still for practical purposes and particularly for purposes of this statement which is constructed to show these elements for all coal, irrespective of sizes, it is not necessary. After determining the amount of coal lost in weight and allocating it over the various sizes purchased, it will be noted that

Treatment of Weight and Degradation Losses

A. B. C. COAL COMPANY
 COAL SALES—RECONCILED WITH COAL TO BE ACCOUNTED FOR AFTER ALLOWING FOR DEGRADATION AND LOSS IN WEIGHT

	A	B	C	D	E	F	G	H	J
	TOTAL	EGG	STOVE	NUT	PEA	MISC.	TOTAL	DUST	from other sizes— PEA
1 Inv'y beginning of period..Tons	2,315	160	90	1,160	710	1,195	540	540	
2 Purchases	48,854.98	14,658.72	19,126.49	13,240.20	1,846.75	552.82		540	
3 Total to be accounted for ..	52,169.98	14,848.72	19,216.49	14,400.20	1,956.75	1,747.82	540	540	
4 Less inv'y end of period.. "	2,615	1,090	165	410	370	580	840	840	
5 Balance to be accounted for as sales	49,554.98	13,758.72	19,051.49	13,990.20	1,586.75	1,167.82	300	300	
6 Less loss in weight..... "	2,159.87	649.41	845.50	585.44	55.13	24.39			
7 Balance accounted for	47,395.11	13,109.31	18,205.99	13,404.76	1,531.62	1,143.43			
8 Transfers due to degradat'n "	1,848.60	387.86	569.34	316.26	75.14	75.14	1,348.60	710.59	\$ 685.01
9 Bal.—sales as per books.....	46,046.51	12,721.45	17,636.65	13,088.50	1,531.62	1,066.29	1,048.60	410.59	635.01

COST OF COAL SOLD (IN SIZES ACTUALLY DELIVERED)

10 Inventory beginning of period..\$	1,760.00	\$ 1,088.60	\$ 1,285.00	\$ 7,242.00	\$ 16,032.50	\$ 810.00	\$ 810.00	\$ 810.00	
11 Purchases	63,639.66	168,485.52	211,151.04	147,492.60	12,335.40	1,176.00	810.00	810.00	
12 Total to be accounted for.....	65,400.66	184,577.12	232,437.04	164,734.60	28,367.40	2,352.00	1,240.00	1,240.00	
13 Less inventory end of period..	29,423.00	11,663.00	11,815.00	4,510.00	3,663.00	7,772.00	430.00	430.00	
14 Balance should have been sold	546,169.66	148,580.52	210,374.64	155,863.60	16,914.40	15,436.50	430.00	430.00	
15 Less loss in weight..... "	28,724.42	7,007.13	9,334.32	6,322.60	545.79	314.38	430.00	430.00	
16 Balance	528,445.24	141,573.39	201,040.32	149,331.00	15,368.61	15,121.32	14,968.07	14,968.07	\$ 7,081.24
17 Transfer due to degradation.....	14,968.37	4,185.00	6,255.51	3,523.14	973.32	973.32	14,968.07	14,968.07	7,496.58
18 Cost of coal sold.....	507,476.87	137,388.39	194,784.81	145,817.86	15,368.61	14,146.60	14,588.07	14,588.07	7,081.24

A. B. C. COAL COMPANY
 INCOME AND PROFIT-AND-LOSS STATEMENT—1921

19 Sales as per books.....Tons	46,046.51	12,721.45	17,636.65	13,088.50	1,531.62	1,066.29	1,048.60	410.59	635.01
20 Sales as per books.....Tons	\$673,880.31	\$138,188.88	\$257,847.82	\$193,055.38	\$ 20,064.22	\$ 19,224.00	\$ 9,385.48	\$ 1,027.50	\$ 8,357.93
20U. Unit selling price per ton.....	14.63	14.40	14.62	14.75	13.10	17.98	8.95	2.50	18.10
21 Cost of coal sold (line 18).....	507,476.87	137,388.39	194,784.81	145,817.86	15,368.61	14,146.60	14,588.07	14,588.07	7,456.83
21U. Unit cost per ton.....	11.02	10.80	11.04	11.14	10.08	18.24	13.86	18.16	11.09
22 Loss by weight (line 15).....	28,724.42	7,007.13	9,334.32	6,322.60	545.79	314.38	430.00	430.00	478.51
22U. Unit cost per ton.....	.55	.52	.53	.50	.36	.29	.75	.75	.75
23 Yard and handling costs.....	34,534.91	9,541.02	13,227.51	9,816.40	1,148.74	801.24	786.45	307.94	75
23U. Unit cost per ton.....	.75	.75	.75	.75	.75	.75	.75	.75	.75
24 Delivery costs	64,465.16	17,810.04	24,691.32	18,323.91	2,144.38	1,495.61	1,188.04	294.83	893.21
24U. Unit cost per ton.....	1.40	1.40	1.40	1.40	1.40	1.40	1.13	.71	1.40
25 Administrative costs	19,800.01	5,470.20	7,583.74	5,698.04	658.69	459.34	450.90	176.55	274.35
25U. Unit cost per ton.....	.43	.43	.43	.43	.43	.43	.43	.43	.43
26 Financial costs	920.98	254.43	352.78	261.77	30.63	21.37	20.97	8.21	13.76
26U. Unit cost per ton.....	.02	.02	.02	.02	.02	.02	.02	.02	.02
27 Total	650,921.70	177,471.21	249,944.43	186,370.58	19,896.74	17,233.74	16,984.43	8,344.36	8,740.07
27U. Unit per ton.....	14.14	13.95	14.17	14.24	12.99	16.13	16.19	20.07	13.69
28 Profits and losses.....	22,458.61	5,717.67	7,913.39	6,674.80	167.49	1,985.26	7,599.00	7,216.86	382.14
28U. Unit per ton.....	.48	.45	.45	.51	.11	1.85	7.24	17.57	382.14
29 Less due to degradation " per a.....	382.14	109.22	161.41	112.86	240.02	167.52	7,216.86	7,216.86	7,216.86
30 Profits and losses " dust	7,599.00	1,998.82	2,764.35	2,051.15	240.02	176.67	7,599.00	7,599.00	7,599.00
31 Total loss due to degradation.....	1.16	.17	.17	.16	.16	.16	.16	.16	.16
31U. Unit per ton.....	14,859.61	3,614.63	4,997.63	4,511.29	72.53	1,808.59	1,808.59	1,808.59	1,808.59
32 Net profit32	.28	.28	.35	.05	1.69	.05	.05	.05
32U. Unit per ton.....									

there are yet other differences with respect to the various sizes of coal sold and the number of tons which should have been sold. In other words, the number of tons by which the regular sizes handled are in excess of the number of tons which were sold of those sizes equals the number of tons which were reduced to degraded coal, or smaller sizes. In order to determine the loss on this coal which has been degraded to smaller sizes, it is necessary to determine its cost, and this is determined by obtaining the average unit cost of all major sizes of coal purchased and multiplying this average unit cost by the number of tons of degraded coal.

The handling and yard costs, the delivery costs, administrative costs and financial costs, all of which are constructed from and supported by a detailed classification of expenses, are chargeable to every ton of coal sold (irrespective of the size in which it is sold) on a uniform tonnage basis and these handling and yard and other costs aforesaid, added to the cost of the coal (line 21), will give the total cost of the coal chargeable to income or sales and by deduction will, of course, determine the profits or losses.

It will be noted, therefore, that the loss from degradation includes not only the gross loss as represented by the difference between the selling price of the degraded coal and the actual cost of the coal prepared in the yard and ready for delivery, but it also includes all handling and yard, delivery and administrative costs which are chargeable to all sizes of coal. The loss from degradation therefore in addition to the loss due to the loss in weight, is an amount of which few dealers have ever had any idea, for the simple reason that in very few cases has it been computed correctly.

Experience has taught that although the average coal-man recognizes the fact that loss in weight and loss by degradation are factors which most surely affect his final profits, nevertheless he does not know specifically to what extent they reduce his earnings. Nearly every dealer can tell you approximately what are the delivery costs on a ton of coal or what are the yard and handling costs on a ton of coal; so it is obvious if a dealer takes into consideration one element of cost when estimating the price at which he will sell his coal, he must consider every cost, computed on a scientific basis. For the day of guess-work is past, and in every enterprise the dealer whose business is conducted on that

Treatment of Weight and Degradation Losses

basis must admit, if only to himself, that he is not giving his business a fair chance—that he would not expect to be treated himself in such haphazard fashion.

With retail coal yards in their operation and maintenance reduced to the position of quasi-public utilities, knowledge of detailed accurate costs and the resulting profits and losses of handling coal becomes a vital necessity. This was conclusively shown during the late war when coal dealers as a class were subjected to the rulings of the coal administrator. The lessons taught during this period have found a ready response in the minds of a great many members of the coal trade, but only in a few, very bright, isolated plants have the lessons taught at that time been developed to any high degree. The time is rapidly approaching, if it is not already here, when those who will not keep pace with developments in the operation of their business must give way to the keener, more far-sighted business man who will do so.