

DOCKET SECTION

BEFORE THE
POSTAL RATE COMMISSION
WASHINGTON, D.C. 20268-0001

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POSTAL RATE COMMISSION
OFFICE OF THE SECRETARY

POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97-1

**RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS CRUM
TO QUESTIONS POSED AT DECEMBER 4 HEARING
(December 12, 1997)**

The United States Postal Service hereby provides the response of witness Crum to hearings held on December 4, 1997, concerning the library reference material which had been incorporated into his testimony on October 1, 1997. The questions are paraphrased and are followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

Daniel J. Foucheaux, Jr.
Chief Counsel, Ratemaking



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December 12, 1997

RESPONSE OF WITNESS CRUM TO QUESTIONS POSED AT HEARING
(December 4, 1997)

At Tr. 17/8068, AMMA counsel requested that the Postal Service supply the formula used for calculating cubic volume for the 18 percent of the pieces where only length and girth was recorded in the segment of the parcel characteristics study estimating the density of parcels for use in the analysis described in Table 3 of USPS-T-28. At Tr. 17/8054-57 and 8067, AMMA counsel asked whether the mathematical maximum for a piece with a given length and girth occurs when that piece is cylindrical or "round."

RESPONSE:

The formula is as follows:

$$\text{Cubic Volume} = 0.148 * \text{Length} * \text{Girth}^2 / 16$$

For the example discussed in the transcript, the maximum theoretical volume of a piece with a length of 10 inches and a girth of 20 inches occurs when that piece is "round" or cylindrical, resulting in a volume of 318 cubic inches.

Applying the above formula, my analysis would assign a volume of 37 cubic inches to that piece. To determine the implications of the difference between the maximum theoretical volume and the volume derived from the formula, consider the following. For the 82 percent of parcels for which length and width and height were recorded, if the formula instead of the actual measurements had been applied, the estimated cubic volume of the pieces would have been underestimated 99.9 percent of the time.

Carrying this relationship through to the other 18 percent for which volume was estimated by the above formula suggests that the true average cubic volume of parcels is higher than the estimated average cubic volume used in my analysis. If it had been possible to use the true average cubic volume for the 18 percent, one would expect this

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to have resulted in a lower average density for parcels and a larger cost difference between flats and parcels in Standard Mail (A).

Based on the above, I fully stand by my belief that use of the simplifying formula to approximate cubic volume for the 18 percent of parcels for which only length and girth was recorded produces quite conservative results.

DECLARATION

I, Charles L. Crum, declare under penalty of perjury that the foregoing answers are true and correct, to the best of my knowledge, information, and belief.

Charles L. Crum

Dated: 12 DECEMBER 1997

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon all participants of record in this proceeding in accordance with section 12 of the Rules of Practice.

A handwritten signature in black ink, appearing to read "Scott L. Reiter", is written over a horizontal line.

Scott L. Reiter

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