

# DOCKET SECTION

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

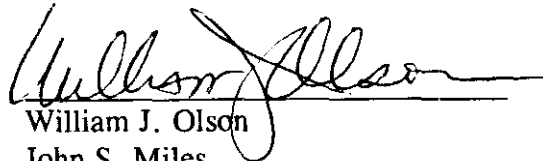
POSTAL RATE AND FEE CHANGES, 1997 )

Mar 12 11:00 AM '98  
Docket No. R97-1

RESPONSE OF NASHUA PHOTO INC., DISTRICT PHOTO INC.,  
MYSTIC COLOR LAB, AND SEATTLE FILMWORKS, INC.  
TO PRESIDING OFFICER'S INFORMATION REQUEST NO. 17  
(March 12, 1998)

Pursuant to sections 25 and 26 of the Postal Rate Commission rules of practice, Nashua Photo Inc., District Photo Inc., Mystic Color Lab, and Seattle FilmWorks, Inc. hereby provide the responses of witness John Haldi to Presiding Officer's Information Request No. 17, filed on March 9, 1998. Each interrogatory is stated verbatim and is followed by the response. Dr. Haldi is available to explain the basis of the answers on Monday through Wednesday of next week.

Respectfully submitted,

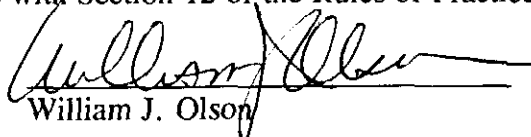


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## CERTIFICATE OF SERVICE

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.



William J. Olson

March 12, 1998

1. Refer to Tables A-1, A-2 and A -3 in witness Haldi's Testimony (NDMS-T-2), Appendix A (Tr. 20/10375-80). These tables present volume and revenue data in support of witness Haldi's proposal to increase the maximum weight of First-Class Mail from 11 to 13 ounces.

a. Please provide the formula(s) used and show all the calculations performed for the development of the following figures in Tables A-2 and A-3: (1) TYAR Priority Mail volumes in column 7; (2) migrating volumes to First Class in column 8; and (3) Priority Mail shares in column 9.

b. Referring to Priority Mail shares in column 9 of Table A-2, witness Haldi states in his Appendix A, page A-3: "Both shares were obtained by linear extrapolation of the percentage in column 7 of Table A-1 according the rate differential in column 3." (Tr. 20/10377). Please present numerically the "linear extrapolation" method used to develop the Priority Mail volume shares in Table A-2, column 9.

### Response

a. The first step was to estimate the share which will opt to use Priority Mail, which is shown in column 9 of Tables A-2 and A-3 (Tr. 20/10379-80). Following is a general explanation of the procedure used. The formulas that were used to estimate the market shares for Priority Mail, as shown in column 9 of in Tables A-2 and A-3, follow this explanation.

As can be seen from Table A-1, column 3 (Tr. 20/10378), the difference between the existing minimum rate for Priority Mail (\$3.00) and the maximum rate for an 11-ounce piece of First-Class Mail (\$2.62) is \$0.38. In 1996, this price difference gave rise to a 19.10 percent share for Priority Mail (Table A-1, column 7), with the remaining 80.90 percent share of 11-ounce pieces opting to use First-Class Mail. For price differences smaller than \$0.38, no recent market share data are available, hence for smaller price differences ranging from \$0.37 all the way down to zero, it is necessary to *extrapolate* in order to derive an estimate for market share of Priority Mail.

For price differences larger than \$0.38, it is possible to *interpolate* market share, using the most recent data available, as shown in Table A-1. To elaborate, a price difference of \$0.38 coincided with a 19.10 percent market share for Priority Mail, while a price difference of \$0.61 coincided with a market share of 11.15 percent.

For price differences in the range zero to \$0.38, the formula that was used to *extrapolate* the market share of Priority Mail is as follows:

$$(1) \quad PMS = X_{11} + (1 - X_{11})(AD_{11} - PD_i)/(AD_{11})$$

where

PMS = Priority Mail Share

$X_{11}$  = 1996 Priority Mail share at 11 ounces  
= 0.1910 (or 19.10 percent, Table A-1, column 7)

$AD_{11}$  = Actual difference between minimum rate for Priority Mail and the rate for an 11-ounce piece of First-Class Mail  
= \$3.00 - \$2.62  
= \$0.38

$PD_i$  = Proposed difference between minimum rate for Priority Mail and the rate for First-Class mail that weighs  $i$  ounces ( $i = 12, 13$ ) as shown in column 3 in Tables A-2 and A-3, where  $PD_i \leq$  \$0.38

Under the formula in equation (1) above, as the difference between the minimum rate proposed for Priority Mail and First-Class Mail approaches zero, the share of Priority Mail approaches 100 percent. At the limit, when the term  $PD_i$  equals zero, the share of Priority Mail equals 100 percent. Conversely, when the difference in the minimum rate proposed for

Priority Mail and First-Class Mail equals \$0.38, then the numerator in the fraction on the right-hand side of equation (1) will equal zero, and the Priority Mail share will equal 19.10 percent, the 1996 figure shown in Table A-1. The minimum rate for Priority Mail proposed by the Postal Service in this docket is \$3.20, as shown in Table A-2, column 1, while the minimum rate for Priority Mail proposed by NDMS is \$3.30, as shown in Table A-3, column 1. These different minimum rates for Priority Mail give rise to different proposed rate differences,  $PD_i$ . For further discussion, see the response to part b, *infra.* and Table 1.

For price differences in the range \$0.38 to \$0.61, the formula that was used to *interpolate* the market share of Priority Mail is as follows:

$$(2) \quad PMS = X_{11} - (X_{11} - X_{10})(PD_i - AD_{11})/(AD_{10} - AD_{11})$$

where

|           |   |   |
|-----------|---|---|
| PMS       | = | Priority Mail Share   |
| $X_{11}$  | = | 1996 Priority Mail share at 11 ounces   |
|           | = | 0.1910 (or 19.10 percent, Table A-1, column 7)  |
| $X_{10}$  | = | 1996 Priority Mail share at 10 ounces   |
|           | = | 0.1115 (or 11.15 percent, Table A-1, column 7)  |
| $AD_{11}$ | = | Actual difference between minimum rate for Priority Mail and the rate for an 11-ounce piece of First-Class Mail |
|           | = | \$3.00 - \$2.62   |
|           | = | \$0.38  |
| $AD_{10}$ | = | Actual difference between minimum rate for Priority Mail and the rate for a 10-ounce piece of First-Class Mail  |
|           | = | \$3.00 - \$2.39   |
|           | = | \$0.61  |

$PD_i$  = Proposed difference between minimum rate for Priority Mail and the rate for First-Class mail that weighs  $i$  ounces ( $i = 12, 13$ ) as shown in column 3 in Tables A-2 and A-3, where  $\$0.61 \geq PD_i \geq \$0.38$ .

Under the formula in equation (2) above, when the difference between the minimum rate proposed for Priority Mail and First-Class Mail is equal to \$0.38, the numerator in the fraction on the right-hand side of equation (2) will equal zero, and the share of Priority Mail will equal 19.10 percent. Conversely, when the difference in the minimum rate proposed for Priority Mail and First-Class Mail equals \$0.61, then the numerator in the fraction on the right-hand side of equation (2) will equal \$0.23 (the same value in the denominator), and the Priority Mail share will equal 11.15 percent, the 1996 Priority Mail market share of 10-ounce pieces, as shown in Table A-1. For further discussion concerning interpolation within this range, see the response to part b, *infra*, and Table 2.

Once the percentage shares of Priority Mail are estimated, computation of Priority Mail volume after change, shown in column 7 in Tables A-2 and A-3, is straightforward. The formula for this computation is shown in equation (3) below.

$$(3) \quad V_{ac} = (V_{bc}) (\text{Priority Mail Share})$$

where

$V_{ac}$  = TYAR volume after change (column 7)

$V_{bc}$  = TYAR volume before change (column 6)

The last step is to compute the share of First-Class Mail in column 8 of Tables A-2 and A-3. The formula is shown in equation (4) below.

$$(4) \quad \text{Migration to First-Class} = V_{bc} - V_{ac}$$

b. As explained in part a, *supra*, assuming that the minimum weight for First-Class is increased to 12 or 13 ounces, the estimated volume likely to remain in Priority Mail diminishes with increases in the difference between the minimum rate for Priority Mail and the First-Class rate.

For rate differences between zero and \$0.38 (below the level of the current differential), the diminution is linear, from 100 percent down to 19.10 percent. This linear *extrapolation* is shown in Table 1, attached to this response. In Table A-2, column 3, for example, the rate differences for 12 and 13 ounces are, respectively, \$0.34 and \$0.11. The market shares shown in column 9 are equal to the market shares for these amounts in Table 1, attached.

For rate differences between \$0.38 and \$0.61 (above the level of the current differential), the diminution is also linear, from 19.10 percent down to 11.15 percent. This linear *interpolation* is shown in Table 2, attached to this response. In Table A-3, column 3, for example, the rate differences for 12 and 13 ounces are, respectively, \$0.44 and \$0.21. The market share for 12-ounce pieces and the \$0.44 difference, shown in column 9, is equal to the market share shown opposite \$0.44 in Table 2, attached. The market share for 13-ounce pieces, with a \$0.21 rate difference, would be found in Table 1.

As a final note to clarify the portion of my testimony referenced in part b, the *extrapolation* and *interpolation* are linear *within the specified ranges*, but not over the entire range. This point could have been made clearer, perhaps. The objective was to use the available data, shown in Table A-1, to the maximum extent possible.

Table 1

Estimated Split Between Priority and First-Class Mail  
When the Rate Difference Between First-Class and the  
Minimum Rate for Priority Mail Does Not Exceed \$0.38

| Difference,<br>Minimum<br>Priority Mail<br>Rate less<br>First-Class<br>Rate (\$)<br>(1) | Priority<br>Mail<br>Share<br>(2) | First-<br>Class<br>Share<br>(3) |
|---|----------------------------------|---------------------------------|
| -----   | -----                            | -----                           |
| 0.00  | 100.00%                          | 0.00%                           |
| 0.01  | 97.87%                           | 2.13%                           |
| 0.02  | 95.74%                           | 4.26%                           |
| 0.03  | 93.61%                           | 6.39%                           |
| 0.04  | 91.48%                           | 8.52%                           |
| 0.05  | 89.35%                           | 10.65%                          |
| 0.06  | 87.23%                           | 12.77%                          |
| 0.07  | 85.10%                           | 14.90%                          |
| 0.08  | 82.97%                           | 17.03%                          |
| 0.09  | 80.84%                           | 19.16%                          |
| 0.10  | 78.71%                           | 21.29%                          |
| 0.11  | 76.58%                           | 23.42%                          |
| 0.12  | 74.45%                           | 25.55%                          |
| 0.13  | 72.32%                           | 27.68%                          |
| 0.14  | 70.19%                           | 29.81%                          |
| 0.15  | 68.06%                           | 31.94%                          |
| 0.16  | 65.94%                           | 34.06%                          |
| 0.17  | 63.81%                           | 36.19%                          |
| 0.18  | 61.68%                           | 38.32%                          |
| 0.19  | 59.55%                           | 40.45%                          |
| 0.20  | 57.42%                           | 42.58%                          |
| 0.21  | 55.29%                           | 44.71%                          |
| 0.22  | 53.16%                           | 46.84%                          |
| 0.23  | 51.03%                           | 48.97%                          |
| 0.24  | 48.90%                           | 51.10%                          |
| 0.25  | 46.77%                           | 53.23%                          |
| 0.26  | 44.65%                           | 55.35%                          |
| 0.27  | 42.52%                           | 57.48%                          |
| 0.28  | 40.39%                           | 59.61%                          |
| 0.29  | 38.26%                           | 61.74%                          |
| 0.30  | 36.13%                           | 63.87%                          |
| 0.31  | 34.00%                           | 66.00%                          |
| 0.32  | 31.87%                           | 68.13%                          |
| 0.33  | 29.74%                           | 70.26%                          |
| 0.34  | 27.61%                           | 72.39%                          |
| 0.35  | 25.48%                           | 74.52%                          |
| 0.36  | 23.36%                           | 76.64%                          |
| 0.37  | 21.23%                           | 78.77%                          |
| 0.38  | 19.10%                           | 80.90%                          |



Table 2

Estimated Split Between Priority and First-Class Mail  
When the Rate Difference Between First-Class and the  
Minimum Rate for Priority Mail is Between  
\$0.38 and \$0.61

| Difference,<br>Minimum<br>Priority Mail<br>Rate less<br>First-Class<br>Rate (\$)<br>(1) | Priority<br>Mail<br>Share<br>(2) | First-<br>Class<br>Share<br>(3) |
|---|----------------------------------|---------------------------------|
| -----   | -----                            | -----                           |
| 0.38  | 19.10%                           | 80.90%                          |
| 0.39  | 18.75%                           | 81.25%                          |
| 0.40  | 18.41%                           | 81.59%                          |
| 0.41  | 18.06%                           | 81.94%                          |
| 0.42  | 17.71%                           | 82.29%                          |
| 0.43  | 17.37%                           | 82.63%                          |
| 0.44  | 17.02%                           | 82.98%                          |
| 0.45  | 16.68%                           | 83.32%                          |
| 0.46  | 16.33%                           | 83.67%                          |
| 0.47  | 15.99%                           | 84.01%                          |
| 0.48  | 15.64%                           | 84.36%                          |
| 0.49  | 15.30%                           | 84.70%                          |
| 0.50  | 14.95%                           | 85.05%                          |
| 0.51  | 14.61%                           | 85.39%                          |
| 0.52  | 14.26%                           | 85.74%                          |
| 0.53  | 13.91%                           | 86.09%                          |
| 0.54  | 13.57%                           | 86.43%                          |
| 0.55  | 13.22%                           | 86.78%                          |
| 0.56  | 12.88%                           | 87.12%                          |
| 0.57  | 12.53%                           | 87.47%                          |
| 0.58  | 12.19%                           | 87.81%                          |
| 0.59  | 11.84%                           | 88.16%                          |
| 0.60  | 11.50%                           | 88.50%                          |
| 0.61  | 11.15%                           | 88.85%                          |

**DECLARATION**

I, John Haldi, declare under penalty of perjury that the foregoing answer is true and correct to the best of my knowledge, information and belief.

  
\_\_\_\_\_  
John Haldi

Dated: March 12, 1998