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

POSTAL RATE AND FEE CHANGES, 1997

Docket No. R97–1

RESPONSE OF UNITED STATES POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF THE NEWSPAPER ASSOCIATION OF AMERICA (NAA/USPS–T7—1–13)

The United States Postal Service hereby provides responses of witness Thress to the following interrogatories of the Newspaper Association of America: NAA/USPS–T7—1–13, filed on August 15, 1997.

Each interrogatory is stated verbatim and is followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorneys:

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NAA/USPS-T7-1. Please identify all of your professional assignments in which you have estimated own-price and cross-price elasticities of demand for the purpose of developing Ramsey prices. Please summarize the assignment, identify the nature of the business and the client, and identify any published or other publicly available papers that arose out of the assignment.

RESPONSE:

This is the first time in which price elasticities estimated by me and presented by me in testimony have been formally used for the purpose of developing Ramsey prices. I have, however, been actively participating in the development of Postal price elasticities since my arrival at RCF in 1992, and RCF, in conjunction with the Postal Service, has been exploring the development of Ramsey prices using our elasticities over this entire time period. Moreover, it is my understanding that our elasticities (i.e., those presented in Dr. Tolley's testimony) were used by Professor Sherman in his testimony in Docket R94-1 to derive Ramsey prices. Please see his testimony, OCA-T-400, in that docket. In fact, Postal Service witness Foster also testified about the Ramsey implications of the rates he was proposing using our elasticities. See R94-1, Tr.7/3432-42. Additional Ramsey analysis with our elasticities was presented by AMMA-MASAI witness Thomas Leonard, Tr.23/11109-55.

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NAA/USPS-T7-2. Please describe the corporate relationships between RCF Economic and Financial Consulting, Inc. cited at page 1 of your testimony and RCF, Inc. cited at page 1 of Professor Tolley's testimony.

RESPONSE:

The company, RCF Economic and Financial Consulting, Inc. cited at page 1 of my testimony and RCF, Inc., cited at page 1 of Professor Tolley's testimony are the same company.

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NAA/USPS-T7-3. Please refer to the purpose and scope of your direct testimony at page 2.

a. Please confirm that the purpose of your testimony is to provide demand equations, including demand elasticity estimates, to support the development of volume forecasts. If you cannot confirm this statement, please state the purpose of your testimony.

b. Is it also the purpose of your testimony to estimate own-price and cross-price elasticities of demand to support Dr. Bernstein's calculation of Ramsey prices for postal services?

c. In your opinion, are the own-price and cross-price elasticities that you estimated from historical data for the historical mail categories sufficiently accurate and comprehensive to be used to calculate Ramsey prices for the new subclasses of mail? Please explain your response fully.

RESPONSE:

a. Confirmed.

b. My testimony was not developed explicitly for the purpose of providing price elasticities to Mr. Bernstein. However, I was aware of Mr. Bernstein's intended use of my elasticities at the time at which I was preparing my testimony.

c. Yes. The purpose of estimating own-price and cross-price elasticities to be used in volume forecasting is to provide the best possible estimates of changes in the demand for Postal services that are the result of changes in Postal rates. The use of price elasticities in calculating Ramsey prices is to provide the best possible estimates of changes in the quantity of Postal services demanded as a result of changes in Postal rates. The purpose of the price elasticities in both cases, therefore, is to enable one to quantify changes in demand. Hence, since the use of price elasticities is the same in both cases, I would fully endorse the use of my own- and cross-price elasticities in developing Ramsey prices.

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NAA/USPS-T7-4. Please refer to your direct testimony at page 9, lines 21-4 and page 10, lines 1-3. Do you believe that it is also "necessary and prudent" for Dr. Bernstein to incorporate additional non-econometric information into his Ramsey pricing analysis? Please explain any negative response fully.

RESPONSE:

My discussion at page 9, line 21 through page 10, line 3 refers to the need for Professor Tolley to take account of factors which may not be reflected in my demand equations but which may, nevertheless, be expected to affect mail volume in the forecast period. This is meant to recognize the fact that volume forecasting is not a pure science, but that quality volume forecasting is also an art that should not be limited by a pure application of strict mathematical models.

The non-econometric information incorporated by Professor Tolley into his forecasts is incorporated into his before-rates volume forecast. The forecasted impact of the Postal Service's proposed rates, i.e., the difference between the before-rates and after-rates volume forecast, does not incorporate non-econometric information, but is instead calculated directly as a function of the price elasticities of demand, which are taken directly from my testimony. Since Mr. Bernstein uses Dr. Tolley's before-rates volume forecast as his basis for calculating Ramsey prices, Mr. Bernstein's work incorporates the non-econometric information used by Dr. Tolley.
(One could, perhaps, claim that the forecasted shift of mail from Standard ECR into the Standard Regular subclass employs "non-econometric information". For a discussion of this issue, please see my response to NAA/USPS-T7-7-8. Also, it should be pointed out that this shift would not be expected to occur under the Ramsey prices proposed by Mr. Bernstein in his testimony.)

I do not believe that it would be appropriate for Mr. Bernstein to introduce additional non-econometric information into his Ramsey pricing analysis. In particular, I would strongly caution against subjectively changing cross-price elasticities without re-estimating the econometric results given these new cross-price elasticities, as own-price elasticities of Postal services have been found to be quite sensitive to changes in cross-price elasticities with respect to other Postal services (compare, for example, the econometric results presented in my testimony with those cited in my answer to NAA/USPS-T7-7(c-d) below).

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NAA/USPS-T7-5. Please refer to your discussion of cross-volume effects at pages 23-6 of your direct testimony.

a. Is the "response rate" shown in equation II.5 at page 24 equal to the average number of first class letters sent in response to a standard bulk piece, the percentage of standard bulk mail pieces that receive any response (one or more), or something else? Please explain your response.

b. Please refer to Table II-2 at page 24. Do the figures in the table represent the number of responses generated, the response rate (as defined in the previous question), the elasticity as defined in Equation II.5, or something else? Please explain your response.

c. Please refer to page 24, lines 27-8 and page 25, lines 1-2.

   i. Please provide the source for the estimate of 2.5 pieces of mail per response.

   ii. Please explain what you mean by describing this estimate as "conservative."

d. Please explain why you relied on Household Diary Study data for 1987 and 1988 to develop response rates.

   i. Why didn't you use data from more recent Household Diary Studies?

   ii. Please explain whether you consider the 1987/1988 data relevant in 1997? If so, why?

RESPONSE:

a. The response rate in equation II.5 is equal to the average number of First-Class letters generated in response to a Standard bulk mail piece. Depending on what is meant in your question, this is not necessarily equivalent to the "average number of first class letters sent in response to a standard bulk piece," as a single "response" to an advertising piece may be followed up by a bill or a series of bills and payments if a product is ordered.

b. Despite what, in retrospect, appears to be a sub-optimal title, the figures in Table II-2 represent elasticities as defined in equation (II.5).

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c. i. The estimate of 2.5 pieces of mail per response was taken from Dr. Tolley's testimony in earlier rate cases (c.f., USPS-T-2, R94-1, page I-55, lines 13-16).

ii. I describe this estimate as "conservative" because it may well be the case that certain advertising mail may generate far more than 2½ pieces of First-Class Mail. As I note in my testimony (page 25, lines 2-6), it is quite simple to envision a case where a response to a piece of direct mail advertising may generate 3, 4, or even more pieces of mail.

For example, if the initial response to a piece of direct mail advertising is made by mail, and this piece of mail is followed up by a bill, followed by a bill-payment, then one piece of direct mail advertising would have been responsible for generating 3 pieces of First-Class Mail in this case. If the bill-payment were followed up by a receipt from the company, then this single piece of direct mail advertising would have been responsible for generating up to four pieces of First-Class Mail in this case. Finally, if a consumer were to respond to a piece of direct mail advertising from a credit card company, this single piece of direct mail advertising may well generate 24 or more pieces of First-Class Mail per year (12 monthly credit card bills together with 12 monthly bill-payments).

d. I decided to rely on 1987/1988 data as was done by Professor Tolley in R94-1, rather than using more recent Household Diary Study data due to concerns about under-estimating the response to direct mail advertising if more recent Household Diary Study data is used.

The rate at which consumers initially respond to direct mail advertising by mail has fallen considerably between 1987, when 29 percent of household-to-nonhousehold mail was in response to advertising, and 1995, when only 12 percent of household-to-nonhousehold mail was identified as being in response to advertising. (source: 1995 Household Diary Study, Table 4-48).

While this decline in responses by mail would have led to a decrease in the estimated elasticities presented in my testimony, it does not, in fact, reflect a true decline in response rates to direct mail advertising, but, instead, is indicative of a change in the means of initially responding to direct mail advertising, away from an initial response by mail toward an initial response by alternate sources (fueled in large part by the increased use of 800 numbers). This movement of the initial response away from the mail has not, however, led to a similar reduction in other mail generated by responses to advertising (e.g., bills, bill-payments, receipts), all of which are still predominantly sent through the mail.

The choice then was taken to be a choice between accurately estimating the volume impact of the initial response to direct mail advertising at the risk of under-stating the volume impact of subsequent mail-pieces generated by the direct mail advertising such as bills and bill-payments if one were to use recent Household Diary Study data, or over-stating the initial response to direct mail advertising but obtaining a

more reasonable estimate of the subsequent mail-pieces generated by direct mail advertising if one were to use the earlier Household Diary Study. It is my opinion that the benefits of more accurately estimating the follow-up pieces of mail outweigh the costs of possibly over-estimating the mail generated due to initial responses to direct mail advertising. Consequently, the older 1987/88 data was used as a more comprehensive measure of the overall response to direct mail advertising than more recent data which excludes non-mail initial responses to advertising.

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NAA/USPS-T7-6. Please refer to your discussion of the cross-price elasticities between First-Class letters and Standard bulk regular mail at pages 27-9 of your direct testimony.

a. Please describe in detail what types of mail are included in the mail described as "advertising-only component of first class letters" shown in Table II-3 at page 27. Does this include mailings that include a mixture of both bills or statements and advertising pieces? If not, why is such mail excluded from the cross-price elasticity calculations?

b. Please refer to page 28, lines 20-2. Please define the criteria used to determine that the cross-price elasticity of .0125 between carrier route Standard mail and First Class letters can be disregarded.

c. Is it your conclusion that excluding the .0125 cross price elasticity between carrier route Standard mail and First Class letters is appropriate when using these elasticities to calculate Ramsey prices? Please explain your response.

d. Please refer to page 26, lines 18-9.

   i. Please explain fully why you have used the same own-price elasticity (-0.500) for noncarrier-route and carrier-route advertising-only letter mail.

   ii. Why didn't you use the own-price elasticity of Standard ECR mail for carrier-route advertising-only letter mail and the own-price elasticity of Standard Regular for noncarrier-route advertising-only letter mail?

e. Please explain why you have used data from the 1991 Household Diary Study in Table II-3, rather than more recent data.

   i. Please confirm that according to the 1995 Household Diary Study, 3.1 percent of nonpresort letters were advertising only. (Table 4-36, page IV-95)

   ii. Please confirm that according to the 1995 Household Diary Study, 9.0 percent of 3/5-digit (and ZIP+4) presort letters were advertising only, compared to the 1991 figure of 7.9 percent.

   iii. Please confirm that according to the 1995 Household Diary Study,

19.7 percent of carrier-route presort letters were advertising only, compared to the 1991 figure of 13.6 percent.

iv. Please confirm that according to the 1995 Household Diary Study, 24.1 percent of carrier-route presort letters were advertising only, compared to the 1991 figure of 13.6 percent.

If you cannot confirm any of the above figures, please provide the correct figures.

f. Please explain why you used data from the 1993 RPW reports, rather than the most recent RPW data in Table II-3.

g. Please re-compute the cross-price elasticities calculated on page 28 of your direct testimony using the data from the 1995 Household Diary Study and the most recent RPW data.

RESPONSE:

a. The "advertising-only component of first class letters" refers to mail sent as First-Class letters whose sole purpose was advertising. The intention was to focus on that mail which could have alternately been sent as third-class, or Standard bulk, mail. Mailings which include a mixture of bills and statements as well as advertising pieces were not considered, because the effective price of the advertising portion of this mail is negligible, so that it did not seem likely that users of this type of mail would ever consider sending instead two pieces of mail, one First-Class mail-piece containing the bill and/or statement (which would likely cost as much as the combined First-Class mail-piece) and a second piece of third-class mail containing only the advertising, at a significant additional cost to the mailer.

b. The value of 0.0125 was excluded for two reasons. First, as noted on page 28, lines 20-22 of my testimony, this value is "virtually non-existent". This "criterion" is purely subjective. In addition to the subjectively small value of the estimated cross-price elasticity between First-Class letters and Standard ECR mail, however, classification reform has made it less likely that carrier-route mailers would consider First-Class letters to be a reasonable alternative to Standard ECR mail.

As a result of classification reform, First-Class Mail is only eligible for a carrier-route presort discount if it is prebarcoded and is sent to a carrier route for which the discount is offered. The carrier-route discount is only offered at approximately 1/3 of all Post Offices. As a result, the volume of First-Class letters which receive a carrier-route discount has fallen by more than 60 percent since classification reform. On the other hand, mailers may continue to receive carrier-route presort discounts for Standard mail

which is not prebarcoded and which is sent to any Post Office. Given this disparity in requirements, it therefore seems unlikely that a mailer paying Standard ECR rates would consider switching to First-Class letter rates which would not enable the mailer to benefit from worksharing to the extent to which the mailer is currently benefitting.

c. I believe that it would be appropriate to exclude the 0.0125 cross-price elasticity in calculating Ramsey prices for the same reasons discussed in my answer to part b. above.

d. The use of a single own-price elasticity for all advertising-only letter mail was made as a general simplification. It is important to understand that the own-price elasticity of Standard Regular mail presented in my testimony of -0.382 is dependent on the cross-price elasticity with respect to First-Class letters of 0.130. If one were to re-estimate the 0.130 figure using the own-price elasticity of -0.382, and then proceed to use the revised cross-price elasticity figure to re-calculate the own-price elasticity of Standard Regular mail, this would result in an own-price elasticity different from -0.382. Hence, at some point, one must simply take the own-price elasticity as given. I chose a value of -0.500 because that was the value used by Professor Tolley in his R94-1 testimony.

e. i. Confirmed. This is the same figure as I used in my testimony.

ii. Confirmed. Please note, however, that the advertising-only figure from the 1994 Household Diary Study was 6.0 percent, so that the average of these two figures is extremely close to the value of 7.9 percent which I used in my testimony.

iii. Confirmed.

iv. Confirmed.

In comparing the data cited above with the figures used in my testimony, it is apparent that, with the exception of carrier-route presort First-Class letters, which are ultimately excluded from my conclusions in my testimony (see my response to b. above), these data would have yielded comparable results to those I obtained. Consequently, I decided to use 1991 Household Diary Study to provide consistency with Professor Tolley's R94-1 testimony, which used 1991 Household Diary Study data.

f. I used 1993 RPW data to retain consistency with Professor Tolley's R94-1 testimony.

g. Re-computing the cross-price elasticities calculated on page 28 of my direct testimony using the data from the 1995 Household Diary Study and the most recent

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RPW data yields an estimated cross-price elasticity of Standard Regular mail with respect to First-Class letters of 0.123 and a cross-price elasticity of Standard ECR mail with respect to First-Class letters of 0.0173. These results are quite similar to the values of 0.130 and 0.0125 presented in my testimony, supporting my reliance upon these latter figures.

Attachment 1 accompanying this response presents the mathematical derivation of these figures.

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ATTACHMENT 1 ACCOMPANYING NAA/USPS-T7-6

The following is excerpted from my testimony, page 26, line 10 through page 28, line 19. The data used in my testimony is replaced, however, with data from the 1995 Household Diary Study and GFY 1996 RPW reports.

Calculation of Cross-Price Elasticity

According to the 1995 Household Diary Study, 6.7 percent of First-Class letters were classified as advertising-only. (1995 Household Diary Study, Table 4-33, p. IV-86). Thus, as a reasonable estimate, approximately 6.7 percent of First-Class letters would be expected to be substitutable with Standard bulk regular mail.

Making some assumptions, it is possible to use the Household Diary Study to estimate an expected cross-price elasticity between First-Class letters and Standard bulk regular mail. The following assumptions were used:

- The own-price elasticity of advertising-only letters is -0.500, approximately equal to the own-price elasticity of Standard bulk regular mail
- Advertising mail shifts between comparable presort categories: i.e., noncarrier-route presort letters substitute with Standard Regular mail and carrier-route presort letters substitute with Standard Enhanced Carrier Route mail
- The maximum reasonable shift of advertising mail is a shift of total postage costs

According to the 1995 Household Diary Study, 3.1 percent of nonpresort letters were advertising-only, 9.0 percent of 3/5-digit presort letters were advertising-only, and 19.7 percent of carrier-route presort letters were advertising-only (1995 Household Diary Study, Table 4-36, p. IV-95). This yields the following data:

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ADVERTISING-ONLY COMPONENT OF FIRST-CLASS LETTERS

	Volume (millions of pieces)	Revenue (millions of dollars)	Revenue per Piece
Nonpresort letters	1,678.674	657.018	$0.391391
3/5-digit presort	3,259.219	904.525	$0.277528
Noncarrier-route presort	4,937.893	1,561.543	$0.316237
Carrier-route presort	560.198	148.713	$0.265464
Total	10,435.984	3,271.799	$0.313511

Source: 1995 Household Diary Study and GFY 1996 RPW reports

STANDARD BULK REGULAR VOLUME AND REVENUE BY PRESORT CATEGORY

	Volume (millions of pieces)	Revenue (millions of dollars)	Revenue per Piece
Non-Carrier-Route Presort	30,150.508	6,323.599	$0.209734
Carrier-Route Presort	29,180.737	4,298.520	$0.147307
Total	59,331.244	10,622.119	$0.179031

Source: GFY 1996 RPW reports

Combining the data above, cross-price elasticities between mail categories of First-Class letters and Standard bulk regular can be generated as follows.

A one percent rise in the price of noncarrier-route presort letters leads to a loss of noncarrier-route letters revenue of

$$(4937.893)\cdot(0.005)\cdot(\$0.316237) = \$7.808$$

Assuming that this shifts entirely into non-carrier-route Standard bulk regular mail, this leads to an increase in non-carrier-route Standard bulk regular volume of

$$(\$7.808) / (\$0.209734) = 37.227$$

yielding a cross-price elasticity for non-carrier-route Standard bulk regular mail with

respect to noncarrier-route presort First-Class letters of

$$100 \cdot (37.227) / (30150.508) = 0.123$$

A one percent rise in the price of carrier-route presort letters leads to a loss of carrier-route presort letters revenue equal to

$$(560.198) \cdot (0.005) \cdot (\$0.265464) = \$0.744$$

Assuming that this revenue shifts entirely into carrier-route presort Standard bulk regular mail, this leads to an increase in carrier-route Standard bulk regular mail volume of

$$(\$0.744) / (\$0.147307) = 5.048$$

yielding a cross-price elasticity for carrier-route Standard bulk regular mail with respect to carrier-route presort First-Class letters of

$$100 \cdot (5.048) / (29180.737) = 0.0173$$

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NAA/USPS-T7-7. Please refer to your discussion of "How to Send Mail-Based Advertising" at pages 66-8 of your direct testimony.

a. Is it your testimony that the cross-price elasticity between Standard Regular mail and Standard ECR mail is zero, or is it your testimony that you have been unable to estimate a satisfactory cross-price elasticity? Please explain your response.

b. Please refer to page 67, lines 22-3 and page 68, lines 1-2. In your opinion, is it reasonable to ignore the positive cross-price elasticity for the purposes of calculating Ramsey prices? Please explain your response.

c. Please provide the regression output for the equations for Standard Regular and Standard ECR mail that include cross-price terms.

d. Please provide the regression output for an equation for Standard Regular mail in which the cross-price elasticity with Standard ECR mail is Slutsky-Schultz constrained to be consistent with the cross-price elasticity of .141 in the Standard ECR mail equation.

e. Please refer to page 67, lines 14-22. Has Standard ECR mail been uniformly less expensive than Standard Regular mail when user costs are included? Please explain your response.

f. Please refer to page 67, lines 14-16. If Standard ECR mail does not continue to be uniformly less expensive than Standard Regular mail, would you expect a larger cross-price elasticity between the two services? Please explain your response.

g. Please confirm that all mail entered as Standard ECR mail could be entered instead as Standard Regular mail. If you cannot confirm, please describe what ECR mail could not be entered as Standard Regular mail.

RESPONSE:

a. It is my testimony that, based on the evidence available to me, my best estimate of the cross-price elasticity between Standard Regular and Standard ECR mail is equal to zero historically.

b. Please see my response to part a. above.

c. The regression output for the demand equation for Standard Regular mail which

includes a cross-price with respect to Standard ECR mail is presented in Workpaper 3 accompanying my testimony at pages 284 - 288. The regression output for the demand equation for Standard ECR mail which includes a cross-price with respect to Standard Regular mail is presented in Workpaper 3 accompanying my testimony at pages 309 - 313.

d. Please see Attachment 1 accompanying this response.

e. Yes. User costs, as they are defined in my testimony refer to the cost to mailers of doing additional work in order to receive worksharing discounts, above and beyond the basic work required to send mail within a particular category of mail. In the case of Standard ECR mail, the basic category of mail requires mail to be carrier-route presorted. Hence, the cost of carrier-route presorting is not considered a user cost in my testimony as I define the term.

f. Yes. As I state on page 67 at lines 11 - 13, "the decision of an advertiser between using Regular and Enhanced Carrier Route mail would be based solely on which subclass of mail were less expensive for the advertiser's purposes." If, as proposed by the Postal Service, some Standard Regular rates were set below Standard ECR rates for some mail, I would expect the users of this particular type of mail to shift from the Standard ECR subclass into the Standard Regular subclass in response to this change in the relative prices of the two subclasses.

g. Confirmed.

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ATTACHMENT 1 ACCOMPANYING NAA/USPS-T7-7

Demand Equation for: Standard Regular
Sample Period : 1984Q1 TO 1997Q2

Non-Seasonal Variable Coefficients

	Coefficients	Std. Error	T-ratio
CON	-6.641205	1.543662	-4.302241
PCE	1.681499	0.493757	3.405518
GDIST	0.012000	0.000000	0.000000
RULE94	0.006713	0.000000	0.000000
CPM_NWS	0.789102	0.342623	2.303119
CPM_TV	0.150732	0.336369	0.448115
P_PRINTING	-0.175455	0.522581	-0.335747
WPIP1	-0.337601	0.220559	-1.530662
WPIP4	-0.263168	0.255002	-1.032021
P_PCE_COMP	-0.073748	0.020474	-3.602133
PX1_3U	0.028288	0.055754	0.507362
lag1	0.035514	0.018927	1.876338
lag2	0.039104	0.031950	1.223893
lag3	0.027095	0.032675	0.829211
lag4	-0.000000	0.000000	0.000000
PX3R_CR	0.020347	0.039740	0.512013
lag1	0.026231	0.013406	1.956580
lag2	0.028936	0.022760	1.271376
lag3	0.020074	0.023249	0.863455
lag4	0.000000	0.000000	0.000000
PX3R_NCRU	-0.252254	0.062887	-4.011257
lag1	-0.137985	0.037737	-3.656434
lag2	-0.044471	0.040522	-1.097454
lag3	-0.000466	0.036603	-0.012729
lag4	-0.000000	0.000000	0.000000

LONG RUN PRICE ELASTICITIES

	PX1_3U	PX3R_CR	PX3R_NCRU	Sum
current	0.028288	0.020347	-0.252254	
lag1	0.035514	0.026231	-0.137985	
lag2	0.039104	0.028936	-0.044471	
lag3	0.027095	0.020074	-0.000466	
lag4	-0.000000	0.000000	-0.000000	
Sum	0.130000	0.095589	-0.435176	-0.209587

Root-F Stat
2081452.709002
1434252.265015 -3.935228 -1.895264

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REGRESSION DIAGNOSTICS

Sum of Square Resids	0.019621
Mean Sq. Error	0.000633
Standard Error of Model	0.025158
Durbin-Watson	2.140211
R-Square	0.982430
Adj. R-Square	0.969960
Degrees of Freedom	31.
F-Statistic	78.788
Significance of F	0.000 %

ANNUAL MECHANICAL NET TRENDS

	Govt. Mail as a Class	Govt. Mail Distributed
5-year Net Trend	1.002258	0.999786
4-year Net Trend	1.004948	1.001657
3-year Net Trend	1.001320	0.999866
2-year Net Trend	1.003446	1.001262
1-year Net Trend	0.998786	0.994442

COEFFICIENTS USED IN MIXED ESTIMATION OF PERMANENT INCOME ELASTICITY

Point Estimate	Standard Error
0.629500	0.025863

CHOSEN K-SQUARE VALUES

PX1_3U	0.243472
PX3R_CR	0.486115
PX3R_NCRU	0.153138

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OLS Residuals

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.056197	-0.056274	0.137361	-0.409682
2	.	-0.019329	-0.023056	0.138675	-0.166259
3	.	-0.182759	-0.209645	0.140028	-1.497167
4	.	-0.216971	-0.252241	0.141421	-1.783616
5	.	-0.000584	-0.025170	0.142857	-0.176191
6	.	0.160398	0.125499	0.144338	0.869480
7	.	0.060546	-0.044133	0.145865	-0.302560
8	.	-0.138926	-0.252186	0.147442	-1.710406
9	.	-0.216337	-0.256934	0.149071	-1.723563

Current-Stage Residuals

AUTOCORRELATION STRUCTURE OF RESIDS

Lag		Auto-Correlation	Partial Auto-Correlation	Standard Error	T-stat on Partial
1	.	-0.071328	-0.071427	0.137361	-0.519996
2	.	0.035505	0.030649	0.138675	0.221015
3	.	-0.095559	-0.101282	0.140028	-0.723299
4	.	-0.162358	-0.187477	0.141421	-1.325663
5	.	-0.102652	-0.126368	0.142857	-0.884573
6	.	0.164244	0.191034	0.144338	1.323521
7	.	-0.100460	-0.170816	0.145865	-1.171057
8	.	-0.189264	-0.313589	0.147442	-2.126864
9	.	-0.080725	-0.111507	0.149071	-0.748013

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF NAA

Seasonal Coefficients

	Coefficients	Std. Error	T-ratio
SEPT	0.086998	0.149305	0.582684
OCT	0.846798	0.127034	6.665917
LF_DEC10	-0.391835	0.119352	-3.283030
DEC11_12	-0.391835	0.119352	-3.283030
DEC13_15	-0.391835	0.119352	-3.283030
DEC16_17	-0.391835	0.119352	-3.283030
DEC18_19	-0.391835	0.119352	-3.283030
DEC20_21	-0.391835	0.119352	-3.283030
DEC22_23	-0.391835	0.119352	-3.283030
DEC24	-0.391835	0.119352	-3.283030
HOLIDAY	1.319010	0.194997	6.764255
JAN_MW	0.044031	0.040420	1.089335
MARCH	0.044031	0.040420	1.089335
TAX	0.044031	0.040420	1.089335
APR16_MAY	0.044031	0.040420	1.089335
JUNE	0.044031	0.040420	1.089335

SEASONAL INDEX -- unadjusted

	Fall	Winter	Spring	Summer
1984	0.062976	0.110351	0.044031	0.029947
1985	0.095747	0.123462	0.044031	0.029442
1986	0.103229	0.116652	0.044031	0.029954
1987	0.110711	0.109842	0.044031	0.029454
1988	0.108516	0.103031	0.044031	0.028455
1989	0.104126	0.072894	0.044031	0.027955
1990	0.117543	0.092816	0.044031	0.027200
1991	0.136897	0.086005	0.044031	0.026694
1992	0.144379	0.079195	0.044031	0.026706
1993	0.149665	0.065574	0.044031	0.025997
1994	0.137794	0.048803	0.044031	0.025491
1995	0.145275	0.035437	0.044031	0.024986
1996	0.158693	0.055358	0.044031	0.023710
1997	0.185528	0.041738	0.044031	0.024228

A blank field is produced for data values of 0.00000

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF NAA

SEASONAL MULTIPLIERS -- normalized

	Fall	Winter	Spring	Summer
1985	1.075687	1.074264	0.982452	0.959911
1986	1.031596	1.047253	0.973896	0.960137
1987	1.039042	1.039832	0.973603	0.959656
1988	1.039152	1.035145	0.975838	0.961040
1989	1.037671	1.012914	0.984096	0.968547
1990	1.055903	1.025334	0.976514	0.960430
1991	1.066756	1.015439	0.973699	0.957106
1992	1.074660	1.008435	0.973591	0.956866
1993	1.080646	0.996604	0.975449	0.958072
1994	1.074552	0.986822	0.982124	0.964227
1995	1.084912	0.974983	0.983399	0.964990
1996	1.099332	0.986978	0.975862	0.956587
1997	1.116979	0.970334		

A blank field is produced for data values of 0.00000

RESPONSE OF POSTAL SERVICE WITNESS THRESS TO INTERROGATORIES OF NAA

REGRESSION RESIDUALS

	Fall	Winter	Spring	Summer
1984	0.006758	0.028783	-0.049767	0.024698
1985	-0.018692	0.001357	-0.005431	-0.010247
1986	0.002616	0.003985	0.000666	0.006471
1987	0.003276	-0.013418	0.028725	0.000101
1988	0.019382	-0.027350	-0.012699	-0.024892
1989	0.008522	-0.014366	-0.006926	-0.020041
1990	-0.003979	0.010388	0.051169	0.026719
1991	-0.009198	0.036723	-0.015441	-0.020118
1992	0.016997	0.004305	-0.003443	0.010575
1993	-0.030204	-0.022739	0.024869	0.018875
1994	-0.015533	-0.011566	-0.023092	-0.005195
1995	0.007126	0.030474	0.016515	-0.003921
1996	0.016715	-0.019404	-0.014621	-0.002945
1997	-0.003080	0.001521		

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

NAA/USPS-T7-8. Please refer to your calculations of the migration of ECR Basic Letters to Automation 5-Digit Letters at pages 224-226 of your direct testimony.

a. Please identify the data source and the numerical values used for developing the 33.28 percent and 31.33 percent figures shown at page 224, line 14.

b. Please provide a detailed explanation of the assumption at page 225, lines 3-7. Please explain why you believe this assumption is reasonable.

c. Please explain all reasons why an ECR letter cannot be automated. What prevents the mailer from barcoding an ECR letter.

d. Please confirm that the current ECR basic letter rate is 15.0 cents and the current ECR automation basic letter rate is 14.6 cents. If you cannot confirm these figures, please provide the correct rates.

e. Please confirm that the difference between the current ECR basic letter rate and the ECR automation basic letter rate is 0.4 cents per piece. If you cannot confirm this figure, please provide the correct figure.

f. Is it possible that a mailer of an ECR letter which could be automated may not have done so because the cost of applying the barcode exceeded the 0.4 cents rate discount? Please explain your response fully.

g. Please refer to page 226, lines 2-5. If your response to part (f) above is yes, are the shares of ECR letters that could potentially qualify for automation 5-digit rates understated? Please explain fully.

h. Please identify the data source and the numerical values used for developing the 17.187 percent and 14.927 percent figures shown at page 225, line 9.

i. Please compute the impact on your fixed weight price variable for Standard ECR mail that results solely from the rate change specified by Witness Moeller (USPS-T-36) at page 28, lines 5-13. Please provide your workpapers.

j. Please compute the impact on your fixed weight price variable for Standard Regular mail that results solely from the rate change specified by Witness Moeller (USPS-T-36) at page 28, line 5-13. Please provide your workpapers.

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

k. Please identify all reasons why you did not consider this shift to be a cross-price elasticity effect between Standard Regular and Standard ECR mail.

RESPONSE:

a. The figure 33.28 percent is calculated as 1 minus 66.72 percent. The 66.72 percent figure comes from the testimony of Sharon Daniel, USPS-T-29, Appendix I, page 38, line 10. The figure 31.33 percent is calculated as 1 minus 68.67 percent. The 68.67 percent figure comes from the testimony of Sharon Daniel, USPS-T-29, Appendix III, page 38, line 10.

b. Standard ECR mailers have several options with regard to the preparation of their mail. Mailers may have rate incentives to either prebarcode their mail or to walk-sequence their mail depending upon the density of their mailings. If mailers walk-sequence their mail, thereby qualifying for either the High Density or Saturation rate category, then the Postal Service offers no rate incentive for these mailers to prebarcode their mail. Hence, in analyzing the share of mail which is likely to be prebarcoded, it seems prudent to exclude High Density and Saturation mail from consideration. For the same reasons, it also seems prudent to exclude ECR nonletters from consideration at this point, since the Postal Service offers no prebarcode discounts for ECR nonletters.

The remaining mail -- "non-high-density, non-saturation, enhanced carrier route letters" -- may be prebarcoded and receive the Automation ECR letters discount, or it may not receive this discount. Mail of this type may not receive a prebarcode discount for one of two reasons: either because the mail is not prebarcoded, or because the mail is not eligible for the Automation ECR letters discount (because it is sent to a non-qualifying Post Office).

I have assumed, on page 225 at lines 3-7, that all ECR mail which is not prebarcoded will not be prebarcoded in the Test Year, regardless of the level of the ECR automation discount proposed by the Postal Service. This assumption is necessary because of a lack of historical data on the effect of changes in the Automation ECR letters discount on Automation ECR letters volume, since this discount has only existed since July 1, 1996. This assumption was considered to be reasonable in light of the fact that ECR mailers are generally quite sophisticated mailers, and would therefore be expected to be able to prebarcode their mail quite easily and inexpensively if they chose to do so. Hence, it seemed more reasonable to suppose that the reason why ECR mailers may choose not to prebarcode their mail would be due to either a general desire to not prebarcode or an inability to prebarcode as opposed to a simple discount-based decision based exclusively on the 0.4 cent discount offered by the Postal Service.

c. An ECR letter may not be automated if the address information is insufficient to enable the mailer to determine the appropriate delivery-point barcode (e.g., mail sent to an apartment building which lacks the apartment number), or if the mailer lacks the necessary equipment to spray on a delivery-point barcode.

d. Confirmed.

e. Confirmed.

f. This is possible, but, as explained in my answer to part b. above, I would consider this to be unlikely.

g. No. The relevant discount associated with barcoding for mail which could be sent as either Standard Regular Automation 5-digit letters or Standard ECR Basic letters is the difference in rates between Standard Regular Automation 5-digit letters (16.0 cents) and Standard ECR Basic letters (16.4 cents), or 0.4 cents, not the difference between ECR basic and ECR automation rates.

In the Postal Service's proposal, the proposed discount for Automation 5-digit letters (relative to ECR basic letters) is equivalent to the current Automation ECR letters discount. Hence, there are no mailers for whom the current Automation ECR letters discount would not induce them to prebarcode their mail, but for whom the proposed discount associated with Automation 5-digit letters would induce them to prebarcode their mail, as these discounts are equivalent.

h. The 17.187 percent figure is calculated on page 215 of my testimony at lines 1-5. The 14.927 percent figure is calculated on page 218 of my testimony at lines 30-34.

i-j. The after-rates volume forecasts presented by Dr. Tolley in his testimony (USPS-T-6) do not depend upon a single fixed-weight price index for Standard ECR mail nor a single fixed-weight price index for Standard Regular mail. Rather, Dr. Tolley calculates a separate fixed-weight price index for each category of mail which he forecasts.

Dr. Tolley takes account of the rate relationship referred to at USPS-T-36, page 28, lines 5-13, by forecasting separately the volume of Standard ECR Basic letters that will remain Standard ECR Basic letters after R97-1 and the volume of Standard ECR Basic letters that will shift into Standard Regular Automation 5-Digit letters after R97-1. These volumes are separated based on the after-rates share forecasts of these two categories developed at pages 224 - 226 of my testimony. In addition, he calculates separate after-rates fixed-weight price indices for these two categories of mail, to reflect that these categories of mail will face different rates after the implementation of R97-1 rates.

The before-rates fixed-weight price index for both of these types of mail are calculated using the Standard ECR Basic letters rates currently in effect and the

1997Q1 Standard ECR Basic letters billing determinants, and are equal to $0.138142 (see LR-H-171, file STDAR97.WK4). The after-rates fixed-weight price index for mail expected to remain as ECR Basic letters was calculated using the Standard ECR Basic letters rates proposed in witness Moeller's testimony and the 1997Q1 Standard ECR Basic letters billing determinants, and was equal to $0.151911 (see LR-H-172, file STDAR97A.WK4). The after-rates fixed-weight price index for mail expected to migrate into Standard Regular Automation 5-digit letters was calculated using the Standard Regular Automation 5-digit letters rates proposed by witness Moeller and the 1997Q1 Standard Regular Automation 5-digit letters billing determinants, and was calculated to be equal to $0.151552.

k. I would consider this shift to be a cross-price effect between Standard Regular and Standard ECR mail, and it is possible to use my testimony at pages 224 - 226 to calculate the implied cross-price elasticity between these two subclasses at the rates proposed by the Postal Service. This cross-price elasticity is, however, a function of the rates proposed by the Postal Service in this case, and would not be applicable to an alternative rate proposal where Standard ECR rates were priced uniformly below Standard Regular rates.

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

NAA/USPS-T7-9. Please provide confidence intervals at the 90 percent confidence level for all own-price and cross-price elasticities developed in your testimony and used by Mr. Bernstein in his Ramsey pricing analysis.

RESPONSE:

Confidence intervals have been calculated according to the following formula:

$$b = \beta \pm 1.645 \cdot se_{\beta}$$

where b reflects the confidence interval about β, where β is the elasticity presented in my testimony, and se_{β} is the standard error of this estimate. See, for example, Principles of Econometrics, by Henri Theil, 1971, pp. 93-95.

90% Confidence Intervals of Own- and Cross-Price Elasticities			
	Lower Bound	Point Estimate	Upper Bound
Single-Piece First-Class Letters			
Own-Price Elasticity	-0.374104	-0.189240	-0.004376
Cross-Price Elasticities			
Single-Piece Cards	-0.002939	0.005403	0.013745
Standard Regular	NA	0.019000	NA
Worksharing Discount	NA	-0.164441	NA
Workshared First-Class Letters			
Own-Price Elasticity	-0 571806	-0 289173	-0 006540
Cross-Price Elasticities			
Workshared Cards	-0.004268	0.005679	0.015626
Standard Regular		0.035000	
Worksharing Discount	0.086816	0.221618	0 356420
Stamped Cards			
Own-Price Elasticity	-1.150847	-0.168128	0.814591
Private First-Class Cards			
Own-Price Elasticity	-1.157685	-0.943717	-0 729749
Cross-Price Elasticities			
First-Class Letters	-0.036131	0.196545	0.429221
Periodical Regular Rate Mail			
Own-Price Elasticity	-0.229582	-0.143253	-0.056924
Periodical Within County Mail			
Own-Price Elasticity	-0.656614	-0.529948	-0 403282
Periodical Nonprofit Mail			
Own-Price Elasticity	-0.457362	-0.227916	0.001530

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

	Lower Bound	Point Estimate	Upper Bound
Periodical Classroom Mail			
Own-Price Elasticity	-1.619004	-1.178480	-0.737956
Standard Regular Mail			
Own-Price Elasticity	-0.554443	-0.381623	-0.208803
Cross-Price Elasticities			
First-Class Letters	NA	0 130000	NA
Standard ECR Mail			
Own-Price Elasticity	-0.869705	-0.597747	-0.325789
Standard Bulk Nonprofit Mail			
Own-Price Elasticity	-0.181325	-0.135814	-0 090303
Standard Parcel Post Mail			
Own-Price Elasticity	-1.246106	-0.964630	-0.683154
Cross-Price Elasticities			
Priority Mail	NA	0 446591	NA
Standard Bound Printed Matter			
Own-Price Elasticity	-0.517483	-0.335169	-0.152855
Standard Special Rate Mail			
Own-Price Elasticity	-0.571958	-0.362036	-0.152114
Standard Library Rate Mail			
Own-Price Elasticity	-0.734181	-0.634333	-0.534485
Standard Single-Piece Mail			
Own-Price Elasticity	-0.988422	-0 654259	-0.320096
Registered Mail			
Own-Price Elasticity	-0.761277	-0.413446	-0.065615
Insured Mail			
Own-Price Elasticity	-0.231765	-0.104733	0.022299
Certified Mail			
Own-Price Elasticity	-0 435643	-0.286960	-0 138277
COD Mail			
Own-Price Elasticity	-0.461235	-0.182013	0.097209
Money Orders			
Own-Price Elasticity	-0 518277	-0 391378	-0.264479

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

NAA/USPS-T7-10. Please refer to page 38, lines 30-31 and page 39, lines 3-4 of your direct testimony.

a. Do the "crossover dummy variable" and the "crossover dummy variable interacted with a time trend" represent a component of a cross-price elasticity? Please explain your response.

b. How should these variables be interpreted for the purpose of developing Ramsey prices?

RESPONSE:

a. The crossover variables in the private First-Class cards equation model substitution out of third-class bulk regular mail and into private First-Class cards as a result of a change in the relative rates of these two subclasses in R87-1. While this does represent a cross-price phenomenon, it would not be appropriate to term this a cross-price "elasticity" as this relationship is not a function of percentage changes in prices, but is, instead, a function exclusively of relative prices.

In other words, the only relevant relationship between First-Class cards and Standard Regular rates is which rates are lower, so that, for example, increasing First-Class cards rates which are already greater than Standard Regular rates would not be expected to lead to any substitution out of private First-Class cards and into Standard Regular rates.

b. Because the crossover variables are not a true cross-price elasticity, they are irrelevant to the calculation of Ramsey pricing. If, however, Ramsey pricing leads to a rate crossover similar to what was observed in R87-1, then it may be appropriate to incorporate the crossover variables into one's forecast of volumes under Ramsey prices.

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

NAA/USPS-T7-11. Please refer to page 66, lines 4-12.

a. Do the newspaper and magazine price variables used in the Standard mail demand equations include delivery costs?

b. If your answer is affirmative, is it correct to assume that the coefficients for these variables may incorporate cross-price elasticity effects between Standard and Periodical mail? Please explain your response.

RESPONSE:

a. The newspaper and magazine price variables used in the Standard mail demand equations are measures of the price of newspaper and magazine advertising per 1,000 consumers reached. Hence, they do not explicitly include delivery costs. The price of newspaper and magazine advertising may implicitly reflect delivery costs, however, in two ways. First, newspaper and magazine publishers may attempt to pass along increases in delivery costs in the advertising rates that they charge, in order to ameliorate the impact of these costs on subscription rates. In addition, to the extent that delivery costs are reflected in higher subscription rates, this may act to reduce circulation, thereby increasing the cost of reaching 1,000 consumers even if the monetary cost to advertisers is unchanged.

b. To the extent that magazine and newspapers are delivered by the Postal Service, there may be expected to be some cross-price relationship between Standard and Periodical mail reflected in the coefficients for these variables presented in my testimony, although I would expect this effect to be fairly small.

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

NAA/USPS-T7-12. Please refer to your discussion of the parcel post demand equation at page 90, lines 18-27 and page 91, lines 1-18.

a. Please explain why it is necessary to include all of the following variables: the price of parcel post, the price of UPS service, and a time trend "to reflect change in the relationship of UPS and parcel post prices."

b. Is it possible that the coefficient on this time trend may reflect own-price elasticity effects? Please explain your responses.

c. Please explain why the coefficient on the time trend is negative, while the percentage of parcel post volume for which UPS rates are greater appears to generally increase from 1970 to 1991 as shown in Table II-17 at page 89.

RESPONSE:

a. The time trend in the UPS equation is not included "to reflect change in the relationship of UPS and parcel post prices." This quote refers to the reason why the time trend was truncated in 1990Q1. The time trend reflects non-price induced substitution away from parcel post mail volume (primarily into UPS) throughout the 1970s and 1980s.

b. I do not believe that the time trend is reflecting any own-price effects. As I note in my response to part c. below, the time trend coefficient is negative over the period from 1971 through 1989, in spite of a general (albeit modest) increase in the attractiveness of parcel post rates relative to UPS rates. I consider this to be strong evidence that this time trend reflects non-price factors which caused parcel post volume to decline over this time period, independent of changes in parcel post volume attributable to changes in the price of parcel post mail.

In addition, neither extending the time trend throughout the sample period nor removing the time trend from the parcel post equation altogether lead to a significant change in the econometric estimate of the parcel post own-price elasticity.

c. The coefficient on the time trend is negative to reflect a significant decline in parcel post volume from 1971 through 1989. In light of the fact that the percentage of parcel post volume for which UPS rates are greater increased somewhat from 1970 to 1990, it would appear that this decline in parcel post volume was not the result of the relative prices of parcel post and UPS, but was, instead, due to non-price factors such as perceived quality of service.

RESPONSE OF POSTAL SERVICE WITNESS THRESS
TO INTERROGATORIES OF NAA

NAA/USPS-T7-13. Please refer to your discussion of the logistic market penetration variable beginning at page 149. Is it possible that the coefficient for this variable may reflect long-term own-price or cross-price elasticity effects that are not reflected in the four period lag structure used for most price variables in your equations? Please explain your response.

RESPONSE:

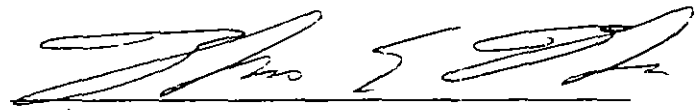
It is quite possible that the logistic market penetration variables used in my testimony may, in fact, be driven in part by price effects which contributed to the market penetration observed historically. I do not believe that it would be correct to characterize these price effects as "long-term" effects, however.

For example, while the substitution from special rate into bound printed matter volume modeled by the market penetration variables in these demand equations was driven in part by the fact that bound printed matter was priced below special rate mail, this shift was a unique phenomenon and could not be properly characterized as a constant price elasticity effect. Rather, this represented a crossover effect, similar to the case described in my response to NAA/USPS-T7-10. That is, allowing mailers to shift from special rate into the less expensive bound printed matter subclass led to a large shift of mail volume between these two subclasses. Pricing bound printed matter even less expensive relative to special rate mail, however, would not be expected to lead to a significant shift of volume between these two subclasses.

Given the current rules of the Postal Service (in terms of qualifying for bound printed matter versus special rate mail) and the current rate relationship of these two subclasses, the own-price elasticities cited in my testimony (of -0.335 for bound printed matter and -0.362 for special rate mail) are exhaustive in modeling volume changes due to changes in price.

DECLARATION

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



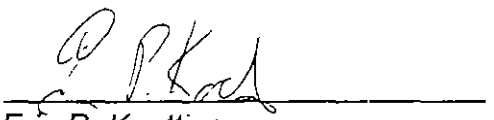
(Signed)

8/28/97

(Date)

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.



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