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BEFORE THE
POSTAL REGULATORY COMMISSION

MAIL PROCESSING NETWORK RATIONALIZATION SERVICE CHANGES, 2012	**)** **)** **)**	**Docket No. N2012-1**

RESPONSES OF NATIONAL ASSOCIATION OF LETTER CARRIERS, AFL-CIO WITNESS DR. MICHAEL A. CREW TO INTERROGATORIES OF THE UNITED STATES POSTAL SERVICE (USPS/NALC-T1-1 Through T1-19)

Pursuant to Rule 3001.26 of the Commission's Rules of Practice and Procedure, the National Association of Letter Carriers, AFL-CIO hereby files the responses of witness Dr. Michael A. Crew, NALC-T1, to the following interrogatories of the United States Postal Service, USPS/NALC-T1-1 through T1-19.

Each interrogatory is stated verbatim and followed by the response.

Respectfully submitted,

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USPS/NALC-T1-1

You assert in footnote 1, page 4 of your testimony, that "speed of delivery is an important attribute of product quality," later tying that assertion to First-Class Mail.

a. Please provide any research, scientific or technical literature, or other authoritative source on which you rely to support this statement.

b. If Network Rationalization achieves its goal of improving service performance and thereby makes the delivery of First-Class Mail more reliable, would that constitute an improvement in the quality of First-Class Mail service?

RESPONSE TO USPS/NALC-T1-1:

a. I thought that this was a matter upon which there was widespread agreement. So I did not rely on any particular literature or source to support this statement. I relied on my general knowledge and expertise as an economist who specializes in regulatory economics and the economics of postal services. However, at the risk of stating the obvious, there is significant literature in regulatory economics and sufficient experience in practice to support the notion that speed of delivery is an important attribute of product quality. Indeed, some of this literature is stated in my testimony and also in the testimony sponsored by the Postal Service, for example, Crew, Kleindorfer and Smith (1990), "Peak-Load Pricing in Postal Services," *Economic Journal*, September 1990 and Crew and Kleindorfer (1992),*The Economics of Postal Service*, Kluwer. As a further authoritative source I cite postal service practice that exists in many countries including the United States. Royal Mail has operated a two-tier pricing policy where First Class gets essentially next day delivery and Second Class is a day or two later. The price paid for First Class at 60 pence and 50 pence for Second Class reflects the fact the mailers value speed of delivery. They are willing to put their money where their mouths are and pay a 20% premium implying that speed is an important element of quality to them.

b. Speed and reliability are inexorably linked as attributes of quality. Higher reliability, *ceteris paribus*, would result in an improvement in quality. When an improvement in reliability is accompanied by a significant reduction in speed of delivery no such unambiguous statement about quality improvement can be made. In addition, I have no basis for agreeing that network rationalization would necessarily improve the reliability of First-Class Mail.

USPS/NALC-T1-2

On page 5 of your testimony, you assert "no one can know with certainty how much volume will be lost as a result of lower quality [First-Class Mail] service."

a. Assuming the network changes proposed by the Postal Service are implemented, can one measure "with certainty" how much First-Class Mail volume was caused by those changes? If so, how would one undertake that measurement and within what precision?
b. Please describe in quantitative terms the what you mean by "with certainty."
c. How can one project how much volume change would ensue prior to implementing the network changes proposed by the Postal Service?
d. Can market research project volume changes that would ensue from implementation of the network changes proposed by the Postal Service? Please explain your answer while addressing the range of uncertainty about any such projections.

RESPONSE TO USPS/NALC-T1-2:

a. One cannot measure with certainty how much First-Class Mail volume was affected by the implemented network changes, as opposed to by other possible causes.
b. By "with certainty," I meant p = 1 where p = probability. The values of p may be between 0 and 1 where 0 indicates that an event can never happen and 1 indicates that an event definitely will occur. *Ex ante* and *ex post* p will not typically be equal to 0 or 1. (I deal with only the *ex ante* case as the *ex post* case is not of interest where forecasts are an issue.)
c. Possible means of making projections would be by market research, properly conducted, by simulation, by reference to past experience, by reference to similar experience in other POs, and by econometric studies.
d. Market research, properly conducted, could be one tool for projecting volume change. The range of uncertainty associated with the market research would depend on the robustness of the market research's analytical foundations and statistical analysis.

USPS/NALC-T1-3

Your discussion on page 11 of the example in witness Elmore-Yalch's Figure 41 asserts that if her procedures were changed to eliminate what you claim constitutes a flaw, that example would report volume changes four times larger. Please consider the following example that uses Figure 41 but with different data:

Figure 41' (prime): Further Example of Calculating Volume Change

Estimated 2012 Volume Using First-Class Mail	Estimated 2012 Using First-Class Mail if Revised FCM Standards Had Been in Place	% of Increase / Decrease in Volume Solely Attributable to Change to FCM Standards	Probability of Change (0–100 scale)	Adjusted Volume of First-Class Mail if FCM Standards Changes are Implemented*
100,000	90,000	10%	25%	99,750

** (90,000 pieces of First-Class Mail After Change – 100,000 pieces of First-Class Mail Before Change) x (.5) x *.5) + 100,000 pieces of FCM Before Change = 97,500 pieces of First-Class Mail if changes to First-Class Mail if changes to service standards are implemented.*

a. If the flaw you claim exists were also removed from this example, what in your judgment would be the consequence in quantified terms?

b. In your view, how significant or substantial is this change?

RESPONSE TO USPS/NALC-T1-3:

a. Flaws I identify include use of the "probability of change" and "solely attributable" factors. These two factors as used in the hypothetical example provided in USPS/NALC-T1-3 result in a claimed reduction in the projected mail volume by 250 pieces (see far right column) which is considerably different from the 10,000 loss shown from the second column on the left. (I note that there appears to be a mismatch between the data in Figure 41 prime and the explanatory narrative underneath the data).
b. I do not believe a change of 250 pieces out of 100,000 in your hypothetical example would be significant or substantial.

USPS/NALC-T1-4

Did you analyze the quantitative results presented by witness Elmore-Yalch, the data from which the results were aggregated, or the process by which results were developed?

a. If not, why not?

b. If so, what specifically did you review? Please respond in terms that identify specific pages, figures and/or tables; and if you also reviewed any library reference(s), please also identify them together with specific files therein.

c. Did you develop any understanding of the proportion or count of respondents in the quantitative research who reported that the network proposals by the Postal Service would not trigger changes in their projected 2012 mail volumes versus those for whom the proposals would trigger volume changes?

i. If so, what is that understanding?

ii. If not, why did you not review her quantitative results?

RESPONSE TO USPS/NALC-T1-4:

I did not perform any analysis other than the analysis set forth in my testimony.

a. I believed and still believe that the analysis set forth in my testimony was sufficient to demonstrate the flaws in the quantitative results presented by witness Elmore-Yalch.
b. Not applicable.
c. No.

USPS/NALC-T1-5

On pages 8-9 of your testimony, you continue asserting the impropriety of using the Juster Scale to adjust for respondent tendency to overstate volume changes.

a. Are you aware that the Postal Service has cited various articles from the academic literature and examples from professional experience justifying use of the Juster Scale in this proceeding?

i. If so, which ones are you aware of?

ii. Which of those identified in response to subpart (i) did you examine either personally or through a research associate who reports to you? What is your evaluation of each and how do you reconcile them with your testimony?

iii. If not, why did you choose to forgo review any of the authoritative literature cited by the Postal Service and its witnesses? Is it customary in your field to avoid review of pertinent, authoritative literature cited by those whose views you oppose?

b. What, if any, authoritative sources can you cite in opposition to use of the Juster Scale to adjust for respondent tendency to overstate quantitative survey responses? Please identify each and provide your evaluation of how it applies to support your opinion in opposition to that of witness Elmore-Yalch.

RESPONSE TO USPS/NALC-T1-5:

I object to Interrogatory USPS/NALC-T1-5 to the extent it asserts that respondents have a tendency “to overstate volume changes” and “to overstate quantitative survey responses.” In its March 24, 2011 Advisory Opinion on the Elimination of Saturday Delivery, Docket N2010-1, at 112, the Postal Regulatory Commission unanimously rejected the notion that participants’ estimates of their volume responses were likely to be overstated. I also object to your characterization of the literature cited by USPS as “authoritative.” I further object to the second question in subsection (a) (iii) as improperly argumentative and not reasonably calculated to lead to the discovery of admissible evidence. Further, I did not refer to the “Juster Scale” anywhere in my testimony. However, I did refer to the problem of multiplying an expected value by a probability. Without waiver of these objections, I respond as follows:

a. No, I am not aware of any articles or examples cited by USPS that justify use of the Juster Scale in this proceeding. I do not believe use of the Juster Scale is justified in this proceeding.
   i. See response to (a) above.
   ii. See response to (a) above.
   iii. I did not believe it necessary to review any literature cited by USPS or its witnesses.

b. The most authoritative source that I am aware of in the context of these proceedings is the Postal Regulatory Commission itself, which in its March 24, 2011 Advisory Opinion on the Elimination of Saturday Delivery, Docket N2010-1, at 113, unanimously found that use of the "probability of change" factor in that case was "not appropriate." Since Docket N2010-1, like this proceeding, involves a proposed reduction in the quality of mail service, I believe the Commission's determination there is fully applicable to this proceeding and supports my opinion.

USPS/NALC-T1-6

On page 9 of your testimony you use a hypothetical coin-flipping example involving a request that individuals estimate how many times 100 tosses would show up heads, followed by a question about how likely each would estimate her response is accurate; positing a response to the first question of 50 times and a response to the second as 80 percent.

a. Please explain how your hypothetical has any bearing upon application of the Juster Scale, which corrects for respondents to overestimate quantitative estimates.

b. What quantitative estimate is involved that respondents overestimate? In your mind, is the estimate of 50 heads an over-estimate? Is the estimate of 80 percent likelihood an over-estimate?

c. What is the likelihood in your example that 100 coin flips would result in 50 heads?

d. What is the likelihood in your example that 40 heads would be the result?

e. Does your hypothetical exemplify, as you assert on pages 9-10, "that the concept of probability is [not] well understood by most survey respondents?"

RESPONSE TO USPS/NALC-T1-6:

I object to Interrogatory USPS/NALC-T1-6 to the extent it asserts that respondents "overestimate quantitative estimates." Without waiver of such objection, I respond as follows:

a. My hypothetical illustrates that it is inappropriate to adjust a respondent's best estimate with a probability factor.
b. The point of my hypothetical was not to demonstrate an overestimate. In my mind, I did not consider either 50 heads or 80 percent likelihood to be overestimates.
c. The probability of exactly 50 heads using a fair coin is 0.0796, about 8%.
d. 0.0108, about 1.1%
e. No, the purpose of my coin-flipping hypothetical was to illustrate that it is inappropriate to adjust a respondent's best estimate with a probability factor. I believe that the concept of probability is not well understood by most survey respondents, but my coin-flipping hypothetical was not intended as an example of that. However, in passing I note that the vast majority of survey respondents would likely have little or no familiarity with the binomial distribution.

USPS/NALC-T1-7

Upon what do you rely for your statement on pages 9-10, "I am not convinced that the concept of probability is well understood by most survey respondents."

a. Can you cite to any authoritative sources to support your view?

b. Is it your opinion that market research which asks a respondent for a probability or likelihood is inherently unreliable?

c. Do you understand that a survey which asks a respondent both who she would vote for and for the likelihood of her voting is:

i. not understood by the respondent?

ii. not capable of generating meaningful results?

d. Assuming the survey described in part (c) was undertaken, can you formulate an expectation of whether respondent reports of their likelihood to vote would inform projections of actual results based on who respondents report they would vote for? Please explain the logic behind your response.

e. Please explain your responses to the extent you have not already done so.

RESPONSE TO USPS/NALC-T1-7:

a. No, I have not researched this matter and so am not aware of any authoritative sources to support my view. That is not to say, however, that such sources do not exist. I do know that the risk associated with various hazards is imperfectly perceived by individuals. See Kleindorfer, Paul R., Howard C. Kunreuther and Paul H. Shoemaker, Decision Sciences: an Integrative Perspective, Cambridge University Press, 1993.
b. I am skeptical of this type of research, and especially of the research offered by the Postal Service to support its reduction in service standards.
c.
    i. I think a respondent would be capable of understanding such a survey. A voting survey of the kind the question has in mind is quite different from the survey provided by the Postal Service.
    ii. I do not understand what you mean by "meaningful" results. Most surveys of voting provide for margin of error by providing confidence intervals. In this form they are meaningful but I am not sure whether this was what was meant by "meaningful" in the context of this interrogatory.
d. No, I cannot formulate such an expectation
e. Not applicable.

USPS/NALC-T1-8

Please consider the following hypothetical: a survey examines whether some factor is likely to change respondents' future behavior. For most respondents, that factor will not change projected behavior, while among those for whom the factor will change behavior, some will change a little and some will change a lot. Please explain your understanding of the extent to which confidence intervals constructed (with varying levels of confidence) around the sum of respondents' responses on the key question will, or will not, contain zero within their ranges. Please articulate any inferences or assumptions upon which you rely in reaching your conclusions.

RESPONSE TO USPS/NALC-T1-8:

Confidence intervals will range on both sides of zero if the factor can change the respondents' future behavior in both a positive and negative manner. If the factor would only impact the respondents' behavior negatively, the confidence interval should be right-censored so that its upper bounds cannot be greater than zero.

USPS/NALC-T1-9

On pages 4-5, you assert that "With this approach the intent is clearly to find as small an impact as possible rather than an accurate estimate of the effect. Indeed, to be viable the case needs to support a low number."

a. Is it your understanding that the market research estimates of lost volume, revenue and contribution are as small as possible? Please explain.

b. How large would the market research results have to be to avoid your characterization of being "as small as possible"? Please explain how you arrive at your conclusion regarding the requisite size.

c. Please identify each and every reason why you think the market research was anything other than an objective and professional effort conducted to the highest standards.

d. Since the market research is fully documented, please identify each specific error you understand the market research team made in the design, fielding, conduct and data processing underlying this market research. Please cite to authoritative sources that teach or describe appropriate market research procedures and techniques to support each of your points.

e. Please describe how the market research should have been designed and conducted so as to avoid creating the problems you claim exist.

RESPONSE TO USPS/NALC-T1-9:

a. The quotation from my testimony is taken out of context. I did not say that the estimates provided were "as small as possible." What I meant to convey was that it was in USPS's interest to have a low estimated loss. *See* my testimony at pp.5-18.
b. My use of the phrase "as small as possible" did not refer to the size of the market research results. It referred to USPS's effort to minimize the projected impact on mail volume of its proposed service standard changes.
c. See my testimony at pp. 4-15.
d. See my testimony at pp. 4-15. For an authoritative source on the inappropriateness of the use of the "probability of change" factor in this context I cite to the Postal Regulatory Commission's March 24, 2011 Advisory Opinion on the Elimination of Saturday Delivery, in Docket N2010-1.
e. The market research should not have included application of the "probability of change" and "solely attributable" factors. Additional problems are that Witness Elmore-Yalch is assuming not only normality but also homogeneity and

independence within each segment. If the respondents are not homogenous then the larger companies would have a larger impact than the smaller companies on the standard errors and the confidence intervals. In addition, Witness Elmore-Yalch fails to account for the fact that the data are right-censored. She applied normality assumptions to data that are right-censored, *i.e.*, not normal. Even without these flaws, the market research would not have been sufficient to support projections regarding future mail volume loss, because the market research did not look at losses beyond 2012; did not consider factors such as eliminating Saturday delivery or closing post offices that might also impact mail volume; and was not supported by any econometric or other alternative analysis of how the proposed changes might negatively impact demand.

USPS/NALC-T1-10

On page 3 you state, "USPS's approach is based on the notion that USPS knows best."

a. What, if any, understanding do you have regarding who is responsible for managing the postal business in the United States?

b. Who, in your best understanding, has been managing the United States Postal Service over the last decade? Has there been any recent change?

c. Who do you think should be managing the United States Postal Service? Please explain your response.

d. To what extent do you believe your client, the NALC, should be given greater responsibility for running the United States Postal Service? Please explain your response.

e. To what extent do you believe the Postal Regulatory Commission is responsible for running the United States Postal Service? Do you think any such responsibility should be increased? Please explain why or why not.

f. Is it your understanding that economists, whether like you or not, should be given responsibility for running the United States Postal Service? Please explain your answer.

g. Have you any understanding whether postal management has the benefit of advice from economists? Please explain your understanding and its foundation, or lack thereof.

h. Who in your opinion "knows best"?

RESPONSE TO USPS/NALC-T1-10:

I object to USPS/NALC-T1-10 to the extent it calls for a legal opinion, to the extent it is improperly argumentative and to the extent it is not reasonably calculated to lead to the discovery of admissible evidence. I also object to the term "running" as vague; I

understand the term in this context to mean managing on a day-to-day basis. Without waiver of these objections, I respond as follows:

a. My understanding is that USPS is governed by the Board of Governors and managed on a day-to-day basis by the Postmaster General and the management staff of USPS.
b. My understanding is that over the past decade USPS has been governed by the Board of Governors and managed on a day-to-day basis by the Postmaster General and the management staff of USPS. That has not recently changed, as far as I am aware, although some modifications were made to the governance structure in the 2006 Postal Accountability and Enhancement Act.
c. Under the current governance structure I believe USPS should be governed by the Board of Governors and managed on a day-to-day basis by the Postmaster General and the management staff of USPS, subject to the regulation of the PRC.
d. I object to subsection (d) to the extent it asserts that NALC is my "client" and that NALC currently has a certain responsibility for "running" USPS. Without waiver of these objections, I have not currently formed an opinion as to what NALC's role, if any, should be regarding the "running" of USPS.
e. I believe the PRC's role is regulating, not running, USPS. I do not believe the PRC should have a role in running USPS. I do believe, however, that the scope of the PRC's regulatory authority should be increased. This case is a particular example of why and where the PRC's authority should be strengthened. I have argued in my testimony that this service standard cut amounts to a real price increase. However, the Opinion being sought is advisory. The PRC needs more teeth when it comes to enforcing price cap regulation. At a CRRI Workshop held in Washington, DC on April 6, 2012, I argued in a presentation with Dr. Richard R. Geddes, of Cornell University, that the PRC should be granted greater regulatory authority.
f. I believe that the individuals "running" USPS should do so in accord with sound economic principles, but I do not have a view as to how many management personnel should themselves be trained as professional economists.
g. My understanding is that USPS has the benefit of advice from economists. I am aware that USPS has economists on staff and also consults with economists.
h. I object to subsection (h) as vague, argumentative and not reasonably calculated to lead to the discovery of admissible evidence. However, without waiver of my objection I would state that it is ultimately the customer who knows best.

USPS/NALC-T1-11:

On page 4 of your testimony you apparently quote (without citation) witness Whiteman, followed immediately by the statement, "USPS is clearly concluding what it wants and hopes to be the case, namely, that the lowering of service standards will not be perceived by customers as a significant change."

a. Please provide a citation for the quotation.

b. What is your understanding, if any, of the foundation for the opinion of witness Whiteman that you quote? Please provide citations to anything that you understand witness Whiteman relies upon, or if you have not read his testimony please so state.

c. Upon what evidence do you rely to conclude that the Postal Service is "clearly" engaged in wishful thinking? Please explain what evidence you relied upon and the path of your reasoning that allowed you to eliminate uncertainty from your understanding.

d. What, if any, understanding do you have of who embodies the "many customers" to whom witness Whiteman refers in the language you quote?

e. Looking also to the sentence in your testimony that follows the one quoted in the main body of this question, is it your testimony that a change in service standards resulting in loss by the Postal Service of nearly 3 billion pieces of mail and $1.3 billion in revenue (USPS-T-12 at 22) constitutes "change [with] a minimal effect" (NALC-T-1 at 4, lines 16-17)?

i. If so, how large can volume or revenue losses be without exceeding your understanding of "minimal"?

ii. If not, what is your testimony?

RESPONSE TO USPS/NALC-T1-11:

a. The quotation is from p.4 of witness Whiteman's testimony, lines 12-16.
b. I believe that witness Whiteman based his opinion on the qualitative market research conducted by ORC International.
c. I did not testify that USPS is clearly engaged in "wishful thinking."
d. I have no understanding of what witness Whiteman meant other than that he was referring to many customers of USPS.
e. By use of the term "minimal" I am not referring to any absolute amount of change. I mean that USPS, through witness Whiteman's testimony, is trying to make it seem that the proposed degradation of service standards will have a relatively small impact on USPS's business.

USPS/NALC-T1-12:

When did you last study current principles in survey research design? Please identify the timeframe and any materials you consider authoritative that were involved.

a. Please explain your understanding of how the survey research (USPS-T-11) was designed with the specific "intent" of "find[ing] as small an impact as possible" (NALC-T-1 at 4, line 23).

b. What specific elements of the research design bespeak this intention, moreover to do it so well that they speak "clearly" ((NALC-T-1 at 4, line 23) to you? Please explain in terms that allow survey research professionals to share your clear understanding.

c. Does the survey research industry have a code of standards and ethics? If so, please provide a citation to them.

RESPONSE TO USPS/NALC-T1-12:

I have not studied principles of survey research design. However, my extensive training and experience as an economist make obvious to me the flaws in the USPS market research that I identify in my testimony.

a. My testimony sets forth how I believe the market research minimizes the estimated change in mail volume.
b. See my response to subsection (a) above. An example of a specific element is the improper use of the "probability of change" factor.
c. I would expect that the survey research industry has a code of standards and ethics but do not know for sure and, in any event, am not familiar with it.

USPS/NALC-T1-13:

You discuss on page 4 your conclusion that the survey research was deliberately designed to minimize estimates of volume, revenue and contribution change in response to the proposed service standards changes.

a. In your expert opinion, did the researchers do a particularly good job, or not, of fulfilling their clear intention? Please explain.

b. Could the research design have been modified so as to bring the revenue loss estimate down, perhaps below $1 billion? What steps do you think might have enabled better fulfillment of what you perceive as the goal?

RESPONSE TO USPS/NALC-T1-13:

a. I object to the term “particularly good job” in subsection (a) as vague. Without waiver of this objection, I respond that USPS did succeed in producing market research results that understate the likely impact of a degradation of current service standards.
b. I suppose the market research could have been designed to produce an even smaller revenue loss estimate, but I have not devoted time to studying how that might have been done. My testimony addresses the flaws in how the market research actually was done.

USPS/NALC-T1-14:

In footnote on page 1 of your testimony you make a statement of a type often heard from economists in Commission proceedings: "It is evident to me that if [First-Class Mail] becomes slower, *ceteris parabus*, its quality has declined."

a. Is the quotation accurate?

b. Do you agree this statement is of a type that economists sometimes make?

c. Do you agree that the footnote in which the statement appears reflects your disagreement with witness Whiteman about the significance to First-Class Mail users of delivery speediness?

d. Please define speediness of delivery as you use it, distinguishing mailers from recipients.

e. Did you review transcripts of the qualitative market research to determine whether any participants shared your opinion about the significance of speed of delivery for First-Class Mail?

i. If so, please provide examples of statements (with citations) of what you found, whether couched in the language of economists or otherwise.

ii. If not, did you review the transcripts for any purpose?

iii. If you did not look at the transcripts for any purpose, do you rely upon any evidence beyond your own opinion regarding the significance of speed for delivery of First-Class Mail? If so, please explain and provide that evidence.

RESPONSE TO USPS/NALC-T1-14:

I object to USPS/NALC-T1-14 to the extent it asserts that my quoted testimony is "a statement of a type often heard from economists in Commission proceedings." Without

waiver of such objection, I respond as follows:

a. My statement is accurate but your quotation of my statement is not: your quotation misspells the word *paribus*.
b. I object to subsection (b) as vague. Without waiver of such objection, I agree that economists make statements using the term *ceteris paribus*.
c. Yes.
d. By “speed of delivery” I meant the amount of time that elapses between the time the mailer sends the piece of mail and the time the recipient receives it.
e. No, I did not review the transcripts. I relied for my opinion on my expertise as an economist with decades of experience studying USPS and postal operators in other countries. In addition, please review my response to USPS/NALC-T1-1.

USPS/NALC-T1-15:

On pages 5-6 you discuss witness Whiteman's testimony regarding the timing of when the volume loss estimated in the market research will occur.

a. Please confirm witness Whiteman testifies that the survey research was intended to measure change caused by network rationalization in the first post-implementation year, but that he expects some volume changes will lag beyond that year.

b. Do you agree with witness Whiteman? Please explain your response.

c. Do you have any understanding of how mail volume processed by the United States Postal Service is trending over the last few years? If so, please state your understanding.

c. Is the current long term volume trend likely to continue into the next few years? Please explain your response.

d. Thanks to what causes do you think (as you state on page 6) that "The estimated mail volume drop in 2012 would likely be just the beginning"?

i. Upon what evidence do you base your opinion?

ii. Is it your understanding that the Postal Service expects volume to increase after implementation of network rationalization? If so, please point to where you understand the Postal Service has made known this expectation.

e. Do you understand that the Postal Service expects volume loss caused by network rationalization will bounce back in the second year after implementation? Please explain your reasoning and provide the bases for your opinion.

f. Please confirm that you expect network rationalization will cause additional volume losses beyond what the Postal Service projects and beyond what has already been addressed in this interrogatory. Please i) explain your position; ii) provide

citations to all authoritative sources upon which you rely (beyond your own opinion) to support your position; iii) explain how such additional volume losses can be traced causally to network rationalization alone; and iv) how large those network rationalization caused changes will be.

RESPONSE TO USPS/NALC-T1-15:

a. I object to subsection (a) as not reasonably calculated to lead to the discovery of admissible evidence. Witness Whiteman's testimony is what it is.
b. I object to subsection (b) as vague in its failure to specify what I am being asked to agree with. Without waiver of such objection, I state that I agree that volume loss from the proposed service standard changes will not be limited to the first year after the changes are implemented.
c. I object to subsection (c) as not reasonably calculated to lead to the discovery of admissible evidence. Past mail volume is a matter within the knowledge of USPS and a matter of public record.
c. Yes, I think the pressure from electronic competition will continue. I also think that the proposed changes to service standards will likely put even further downward pressure on mail volume.
d. The cause would be the degradation of service standards, among other cost-cutting measures by USPS.

    i. I base my opinion that the degradation of service standards would cause accelerating mail volume loss on my expertise as a regulatory economist who has spent decades studying USPS and other postal operators. I also note that witness Whiteman acknowledges that "the estimated change may take effect over a much longer period of time." USPS-T12, at 8.
    ii. No.

e. No.
f. I do not believe that network rationalization will cause volume loss. I believe degrading service standards, like any other increase in the real price of mail, will cause volume loss.

USPS/NALC-T1-16:

Please confirm that on page 10 you state, “The respondent was not asked to consider any causes for a possible change in mail volume other than the proposed [First-Class Mail] service standards.”

a. Please confirm that the quantitative survey research design was intended to focus on volume changes induced only by the changes in service standards and the network rationalization that enables.

b. Please confirm your understanding that failure to do as you describe, quoted in the main body of this question, led to the “phase 2” research sponsored by witnesses Elmore-Yalch (USPS-T-11) and Whiteman (USPS-T-12).

c. Please explain your understanding of the purpose for which the Postal Service filed its Request in this docket.

RESPONSE TO USPS/NALC-T1-16:

I object to the first question in USPS/NALC-T1-16, asking me to confirm what my written testimony says, as not reasonably calculated to lead to the discovery of admissible evidence.

a. I do not understand the phrase in subsection (a) that states “and the network rationalization that enables.” I confirm that the ORC quantitative market research was intended to measure mail volume change caused by proposed changes to service standards.
b. I cannot confirm what led to the “phase 2” research.
c. I understand that USPS filed its Request in this case to obtain an advisory opinion from the Postal Regulatory Commission.

USPS/NALC-T1-17:

In the second major section of your testimony beginning on page 3 you criticize use by the market research team of what you characterize as ‘probability of change’ and ‘solely attributable’ factors.

a. For how many respondents did the ‘probability of change’ factor actually impact reported mail volume responses?

b. For how many respondents did the ‘’solely attributable’ factor actually impact reported mail volume responses?

c. For how many respondents did both the ‘probability of change’ and ‘solely attributable‘ factors actually impact reported mail volume responses?

d. What was the impact of these two factors upon the final volume change estimates?

e. Please cite to any authoritative sources that confirm your opinion about appropriate use of the ‘probability of change’ and ‘solely attributable’ factors.

RESPONSE TO USPS/NALC-T1-17:

a. I do not know.
b. I do not know.
c. I do not know.
d. I do not know. I understand that NALC submitted interrogatories asking for this information, which witness Elmore-Yalch did not provide. *See* Response of Witness Elmore-Yalch to NALC/USPS-T11-1 and NALC/USPS-T11-2.
e. As to the “probability of change” factor, see the Commission’s March 24, 2011 Advisory Opinion on Elimination of Saturday Delivery in Docket N2010-1, at 112-13. That authoritative source, however, does not address the “solely attributable” factor since USPS’s quantitative market research in Docket N2010-1 did not use such an additional factor.

USPS/NALC-T1-18:

On pages 11-12 you criticize the information available regarding confidence intervals.

a. Please confirm that confidence intervals are provided for all customer segments.

b. In your Technical Appendix you cite to: http://health.utah.gov/opha/IBIShelp/ConfInts.pdf. Who is the author of this document, what is this individual's background, and for what purpose was this document written?

c. On page 2 of this document from a Utah website, the author states that transforming the standard error to a 95 percent confidence is simple as, fortunately, the sampling distribution of the mean is normal. Please explain what distribution other than normal witness Elmore-Yalch should have used, providing one or more citations to authoritative sources that support your opinion.

d. Please explain how you would calculate a confidence interval for the final change estimates in light of the market research design utilized.

e. Please confirm that most survey research respondents reported no change in their projected post-implementation mail volumes. If you are unable to confirm, please explain why.

f. Please confirm that when most respondents report a zero change, the likelihood that zero will be within ranges defined by particular confidence intervals (howsoever calculated) goes up. How, in your opinion and given the research design utilized, could this problem have been avoided? Please provide citations to appropriate authoritative sources for your recommendation(s).

RESPONSE TO USPS/NALC-T1-18:

a. In response to NALC's interrogatories, USPS did provide confidence intervals for customer segments. It failed, however, to provide a confidence interval for the most important quantity, namely, its estimate of total mail volume loss. *See* Response of Witness Elmore-Yalch to NALC/USPS-T12-13.
b. See page 10 of the document, which appears to provide the names of individuals who co-authored the document. I have no information on the background of these individuals other than the information provided on page 10. The article appears to be a document sponsored by the Utah Department of Health, for the purpose of providing a succinct explanation of confidence intervals.
c. Witness Elmore-Yalch should have recognized that the distribution is right-censored. She should have realized that there were problems when the confidence intervals were including a positive change in volume. I object to subsection (c) to the extent it asks me to perform research so as to provide an authoritative source to support my conclusion.
d. I object to this interrogatory on the grounds that it is vague and that I do not have the resources or the data to compute the confidence interval for the "the final change estimates ." (In fact, it would appear that USPS does not have the data either in that it did not provide an answer to a NALC interrogatory which requested the confidence interval for the total volume change.) Without waiver of this objection, I state that I would compute a confidence interval that was right censored.
e. I do not know whether most survey research respondents reported no change.
f. No, I cannot confirm the statement in the first sentence of subsection (f). I object to the second sentence as vague to the extent it refers to "this problem" without indicating what the problem is. I further object to the second sentence because, as I have explained, the research design utilized was flawed. I have no response to the third sentence as I have no recommendations to make in response to subsection (f).

USPS/NALC-T1-19:

You recommend use of an econometric study to project demand (NALC-T-1 at 13-14) as you have in previous circumstances; and, of course, you are known professionally as one of multiple authors in work that utilized an econometric approach.

a. Is an econometric study always the right or best way to study a question about future customer behavior? Please explain your response.

b. Are there particular circumstances in which an econometric study would face epistemological (or other) challenge? What factors add special difficulty to use of econometric techniques?

c. If data available to study a particular question embody a natural experiment, or if a true experiment can be undertaken with both test and control groups, does use of an econometric approach become more or less useful, or more or less practical?

d. What other modeling or testing approaches are considered in your professional work? Please compare their respective strengths and weaknesses with those of econometrics so as to illustrate better or weaker approaches to particular types of problems and when respective approaches are more or less likely to be productive.

e. You cite an article in the footnote on page 14 that you suggest is a recent example of combining survey results with econometric studies of demand. It appears that the analysis in this article concerns long-run trends and forecasting using historical data. How is that type of analysis applicable to the context of this docket?

i. In this article the survey data consists of an ongoing panel study not a cross-sectional study. Is this type of panel data, or a reasonable analog, available for use of postal services in the United States?

ii. What are the advantages of using panel data compared with cross-sectional data?

iii. This article suggests that over time customers have adjusted to changes in price or levels of service by shifting between Royal Mail services rather than simply abandoning the service entirely. Why then do you suggest that customers in the United States would behave differently?

RESPONSE TO USPS/NALC-T1-19:

I object to the statement: "You recommend use of an econometric study to project demand …." I did not make such a recommendation. Rather, I lamented USPS's employing only a market research survey, when other approaches were available for purposes of comparison and validation.

a. It is not always necessarily the right or best way but it is often a very useful tool. It is one of a menu of techniques that can be employed, all of which have plusses and minuses.
b. I object to subsection (b) as vague. Without waiver of such objection, I state that what "factors add special difficulty to use of econometric techniques" depends on the techniques being used, the data available and the questions addressed.
c. I object to subsection (c) as vague. Without waiver of such objection, I state that a true experiment might be superior to a natural experiment but economics does not lend itself well to true experiments, unlike physics, for example.
d. I object to subsection (d) as vague. Without waiver of this objection, I state that my professional work is primarily based on the application of microeconomic theory, such as to the problems of the postal sector. There is no basis for making the comparison which the second sentence of subsection (d) appears to be requesting.
e. The analysis in the article illustrates the use of econometric analysis by a leading postal operator, namely, Royal Mail. The article addresses, *inter alia*, the impact of service quality and of internet competition, two factors of considerable importance to the problems currently facing USPS.

    i. I do not know whether this type of panel data is available to USPS.
    ii. The combination of cross section and time series makes available more data than cross section alone.
    iii. The paper examines the growth of direct mail and states that price elasticity of direct mail is higher than that of traditional (transaction) mail. This point is probably more important than the notion "that over time customers have adjusted to changes in price or levels of service by shifting between Royal Mail services rather than simply abandoning the service entirely." However, I do not disagree that in the US customers are likely to substitute Standard for First Class, when the real price of First Class Mail has increased. The real price increase will reduce the volume of First Class Mail. Some of this will be lost entirely but some will be diverted to Standard, as the cross elasticity is positive.