U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

MAR 30 2017

Mark B. Hawk
Packaging Management Council Coordinator
49 Palisades Parkway
Oak Ridge, TN 37830

Reference No. 16-0143

Dear Mr. Hawk:

This letter is in response to your August 29, 2016, letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to DOT Specification 7A Type A (Type A) packagings. Specifically, you ask about changes made to information requirements for Type A package documentation.

We have paraphrased and answered your questions as follows:

Q1. You ask if an offeror may satisfy the requirements of § 173.415(a)(1)(i) by documenting a "good faith effort" to obtain missing elements of Type A packagings that were in existence prior to the changes made under the HM-250 final rule (July 11, 2014; 79 FR 40589) if they prove to be unobtainable.

A1. The answer is no. No provisions in the HMR state that a "good faith effort" may serve as a substitute for compliance with HMR requirements.

Q2. You ask if an offeror may use other (non-testing) methods in accordance with § 173.461 to satisfy the missing elements of § 173.415(a)(1)(i) for existing Type A packagings that had been subjected to the physical tests of § 173.465.

A2. The answer is yes. For demonstration of compliance, the HMR permit the use of non-testing methods in § 173.461.

Q3. You ask if it was PHMSA's intent in HM-250 to require retroactive retesting of Type A packagings that had already successfully passed testing under § 173.415(a)(1)(i).

A3. The answer is no. The intent of HM-250 was to clarify the type of information required to be maintained as part of the Type A packaging documentation. The rulemaking does not impose retroactive package testing requirements to obtain missing data elements for Type A packagings already in existence.

Q4. You ask if PHMSA would limit the scope of § 173.415(a)(1)(i) to packagings constructed and tested after January 1, 2017, or for advice on the best way to achieve relief from paragraph (a)(1)(i) when one or more elements therein are found to be unobtainable for existing previously tested Type A packagings.

A4. The new detailed documentation requirements apply to packagings manufactured and offered after July 13, 2015.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

Dirk Der Kinderen
Chief, Standards Development Branch
Standards and Rulemaking Division

Cassey
§ 173.415
Packaging General
16-0143

August 29, 2016

Standards and Rulemaking Division
Pipeline and Hazardous Materials Safety Administration (PHMSA)
U.S. Department of Transportation (DOT)
East Building
1200 New Jersey Avenue, SE
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Subject: Docket No. PHMSA–2009–0063 (HM–250)[1]

To Whom It May Concern:

The subject docket introduced a change to 49 CFR § 173.415 "to include more detailed language describing the kinds of information expected to be included as part of the Type A package documentation" (40596). Upon review, the test documentation information of § 173.415(a)(1)(i) has been deemed problematic enough to warrant asking the following questions:

Q1. When an offeror has made a good faith effort to retroactively obtain the test documentation information in the new § 173.415(a)(1)(i) for existing previously-tested DOT Specification 7A Type A packagings, and found one or more elements to be unobtainable, may the offeror satisfy the regulation by documenting a good faith effort to obtain the unobtainable elements and certifying that no such record exists for those particular unobtainable elements? This logic would be similar to the allowance granted to motor carriers under § 391.23 when they find themselves unable to obtain driving records or safety performance history information after making a good faith effort.

Q2. May the offeror use other (non-testing) methods under § 173.461 to satisfy the missing elements of the new § 173.415(a)(1)(i) for existing Type A packagings that had actually been subjected to the physical tests of § 173.465 prior to HM-250? Please keep in mind that, in some cases, offerors lack the expertise to demonstrate compliance through non-testing means such as engineering evaluations and do not possess a manufacturer's certification that contains all the new elements of § 173.415(a)(1)(i).

Q3. Was it PHMSA's intent to require *retroactive retesting* of Type A packagings—that had already successfully passed testing under § 173.465 prior to publication of HM-250—in order to satisfy the missing elements of the new § 173.415(a)(1)(i)? If so, then why did the HM-250 preamble not discuss the issue of retesting in the context of § 173.415(a)(1)(i) or provide any associated cost analysis?

Q4. Would PHMSA (1) limit the scope of § 173.415(a)(1)(i) to packagings constructed and tested *after* January 1, 2017, or (2) advise on the best pathway to achieve relief from (a)(1)(i) when one or more of the elements therein are found to be retroactively unobtainable for existing previously-tested Type A packagings?

[1] *Federal Register*, 79 FR 40590, July 11, 2014 (also 76 FR 50332, August 12, 2011).

The attached white paper contains a detailed analysis of the facts and considerations that led to the above questions.

Please provide your advice. Thank you.

Respectfully,

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May 25, 2016

Analysis of 49 CFR § 173.415 as Amended by Docket HM-250

A White Paper

Packaging Management Council

Docket No. PHMSA–2009–0063 (HM–250) introduced a change to 49 CFR § 173.415 "to include more detailed language describing the kinds of information expected to be included as part of the Type A package documentation" (40596). Upon review, it was discovered that it will be difficult or even impossible in some cases to comply with these new rules.

It is conceded that it shouldn't be too difficult to bolster § 173.415(a) documentation to include a description of the packaging showing materials of construction, dimensions, weight, closure and closure materials (including gaskets, tape, etc.) of each item of the containment system, shielding and packing materials used in normal transportation. Those elements should be reasonably accessible to, and recordable by, each offeror of a Specification 7A package. There may be some minor challenges here, but the new documentation elements in this region of the new regulations are straightforward (i.e., improve and standardize the description of the packaging configuration which is being shipped). Other than the time needed to "review and upgrade documentation" (40596), the retroactive effect of this portion of the new requirements is of relatively low consequence.

The problem, however, is in § 173.415(a)(1)(i) where (for packagings tested under § 173.465) the testing documentation will be required to include the following elements:

- Date
- Place of test
- Signature of testers
- A detailed description of each test performed
- Equipment used
- Damage to each item of the containment system resulting from the tests

The retroactive effect of *this* portion of the new requirements—which, as written, appears to make no distinction between packagings tested *before* or *after* HM-250—will have a significant adverse effect upon shipper/offerors to the extent that it will be difficult or even impossible in some cases to comply with these new rules *for existing previously-tested packagings* (in the absence of retesting or shifting to a non-testing method to demonstrate compliance under § 173.461).

Below are some examples whereby it would be partially or completely impossible to retroactively comply with § 173.415(a)(1)(i) for packagings tested prior to HM-250 under § 173.465.

- The *date* and/or *place* was never recorded by the manufacturer who tested the packaging.
- The signature of the tester was not recorded and is impossible to obtain because the tester has retired, passed away, or otherwise become unreachable. We know of at least one case where this situation currently exists for a packaging still in active use.
- No additional descriptive detail of each test performed is available. This could also be true for additional details of containment system damage resulting from historical tests of still-in-use packagings.
- Equipment and personnel may have long since been replaced with different equipment and new personnel (who have no record or memory of the original equipment used to perform a particular test, since they never used it). This situation also currently exists.
- The manufacturer has gone out of business and no longer exists. This situation also currently exists.

- The manufacturer has terminated its business relationship with the shipper/offeror. This situation also currently exists.

These examples, although not exhaustive of all possibilities, demonstrate the partial or complete impossibility of acquiring this new information, which would logically need to have been collected at the *time of actual testing*, not retroactively. For the shipper/offer community, the probability of retroactively acquiring this information generally goes down in proportion to how long ago the testing was conducted, which can be significant in some cases (e.g., decades).

On page 40608 of the final rule, under *Extension of package documentation retention requirement and clarification of information required to be maintained*, it states "new clarification on types of information required to be retained for certain packages used to ship radioactive materials is provided in this final rule. PHMSA expects modest positive environmental gains due to a projected increase in appropriately tested and constructed packages" [underlining added for emphasis].

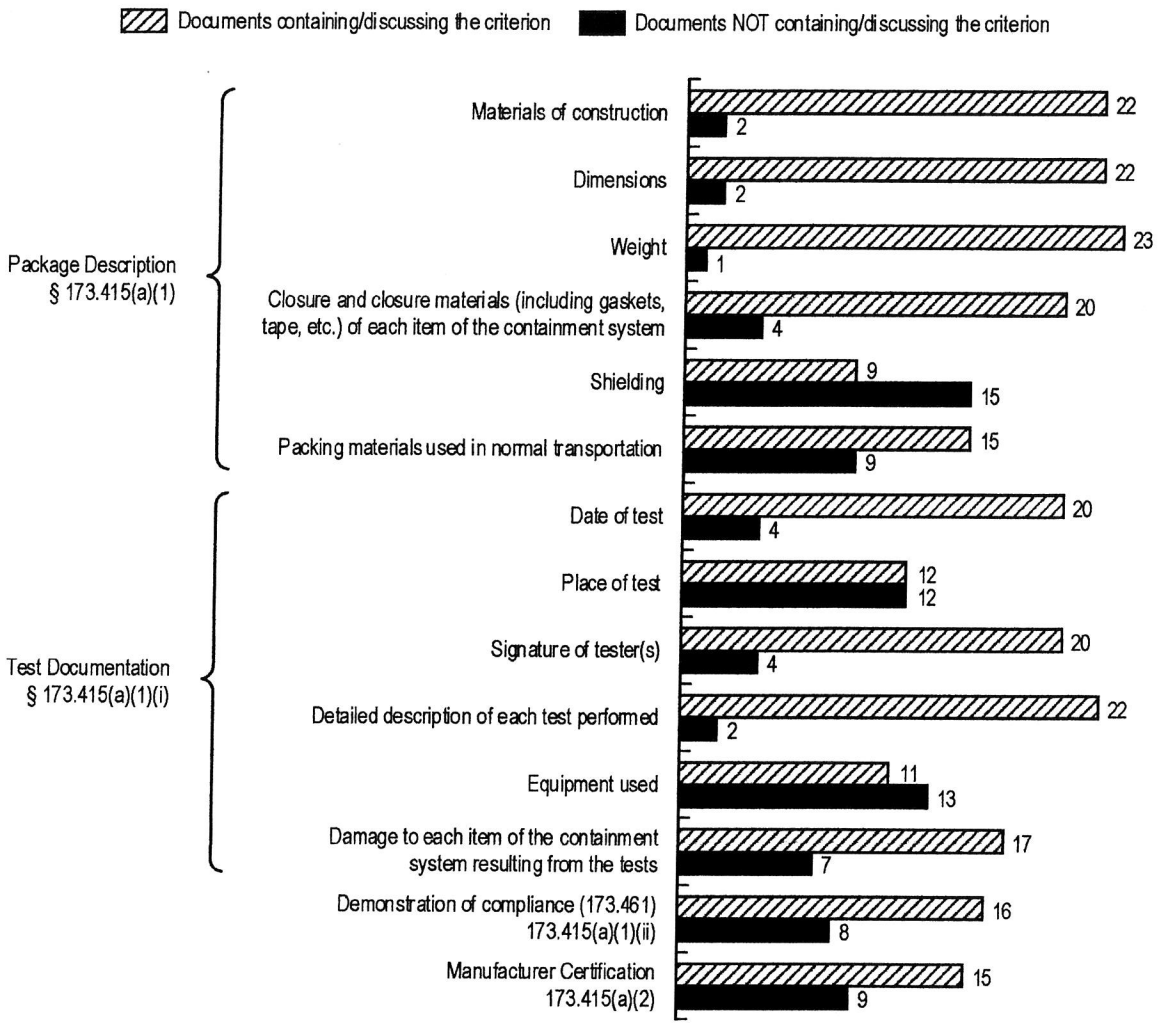
The phrase "projected increase in appropriately tested and constructed packages" is a noteworthy forward-looking claim of benefits that would obviously be yielded *proactively*—for packagings constructed and tested *after* the inception of HM-250[2]—not *retroactively* for packagings constructed and tested *prior* to HM-250. The proof is in the fact that the relatively simple act of "reviewing and upgrading documentation" (40596) would have zero effect on the appropriateness with which *existing packagings* were constructed or tested prior to HM-250.

Based on the above concerns, a survey of various member organizations within the Department of Energy (DOE) sponsored Packaging Management Council (PMC) was administered to evaluate the effects of the revised § 173.415(a) documentation requirements on their operations.

Figure 1 below depicts the responses—by § 173.415(a) criterion—for 24 existing previously-tested Type A packaging designs in use by the respondents.

[2] After (or in anticipation of) the effective date of the revised § 173.415(a) (i.e., January 1, 2017).

Figure 1 – Survey Responses by Criterion



Before proceeding further, there are a few caveats to acknowledge regarding Figure 1:

- Although there were 15 reported instances (the highest apparent number for missing data) where discussions of shielding were found to be absent from the package description, it appeared shielding was not relevant to the package design in at least 13 of those instances (in terms of the presence of any distinct shielding components). So although the data appears *negatively* skewed toward missing data, it is probably more accurate to view the majority of the absent data as implicitly reflecting the non-applicability of shielding.
- The "demonstration of compliance" (§ 173.461) criterion shows eight cases of apparently missing data. It is believed that some respondents may have interpreted this criterion—at least for the purpose of the survey—to denote solely methods of demonstrating compliance *in lieu of physical testing*. So although the data appears to be more *negatively* skewed toward missing data than it should be, evidence suggested that physical testing was conducted on every Type A packaging for which the respondents provided feedback.

- The "manufacturer certification" [§ 173.415(a)(2)] criterion shows 15 instances where respondents said they possess a manufacturer's certification. This suggests that the offeror could rely on this documentation as described in the new § 173.415(a)(2); however, it appears such manufacturer certifications and/or associated manufacturer documents would have to be verified by the offeror as containing the elements of § 173.415(a)(1)[3] before they could be relied upon to satisfy § 173.415(a) documentation requirements. Given that this survey did not analyze to that depth, it is worth considering the possibility that the manufacturer's documentation may contain package description and/or test documentation gaps similar to those seen during this survey. If so, then this criterion in Figure 1 would be *positively* skewed toward the presence of data that isn't fully there.
- Given their level of specificity, the remaining criteria in Figure 1 can be taken at face value, with the understanding that whereas it is relatively easy to obtain missing *package description* elements [§ 173.415(a)(1)], it will be difficult in some cases—and impossible in some cases (as indicated in the bullet list on pages 1 and 2)—to obtain missing *test documentation* elements [§ 173.415(a)(1)(i)]. It is for this reason that Figure 1 is organized to enable clear differentiation between these two prominent groupings, the latter of which is the primary focus of this white paper.

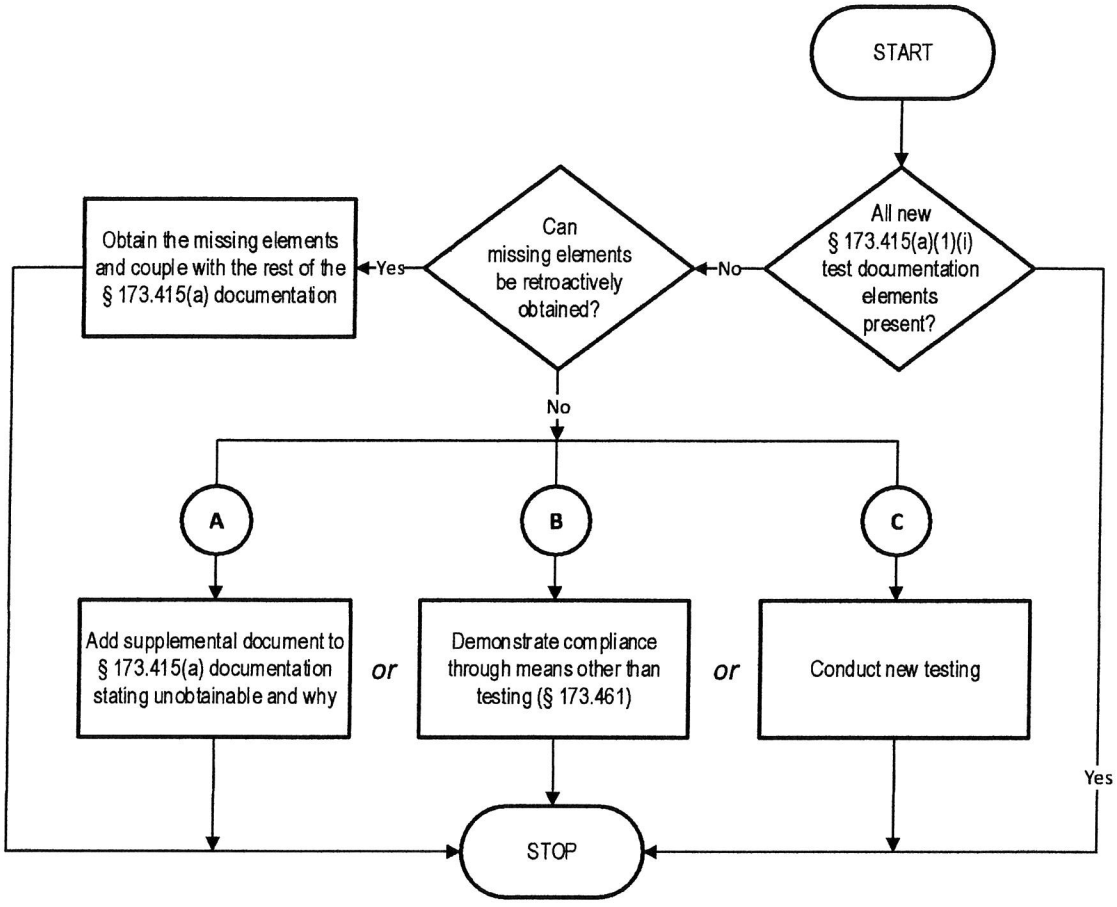
The data summarized in Figure 1 clearly confirms that gaps exist in both the package description and test documentation elements of Type A package documentation.

- **Package Description**: Out of 144 total data points (6 package description criteria × 24 package designs), 111 (77%) responses were "yes" (information present) and 33 (23%) were "no" (information *not* present). As mentioned previously, these data are not generally anticipated to be difficult to obtain, and therefore are considered to have a relatively low retroactive burden on offerors of DOT Specification 7A Type A packagings.
- **Test Documentation**: Responses to this topic also generated 144 data points, of which 102 (71%) were "yes" and 42 (29%) were "no". This is of course the area of highest concern, because of the aforementioned difficulties in retroactively obtaining this information.

So what is an offeror to do? Figure 2 below offers a hypothetical process, from an offeror perspective, to explore potential options upon which the questions in this paper's cover letter are based.

[3] § 173.415(a)(2), as revised in HM-250, states "If the offeror has obtained the packaging from another person who meets the definition of 'packaging manufacturer' in §178.350(c) of this subchapter, a certification from the packaging manufacturer that the package meets all the requirements of §178.350 for the radioactive contents presented for transport and a copy of documents maintained by the packaging manufacturer that meet the requirements of paragraph (a)(1) of this section" [underlining added for emphasis].

Figure 2 – Hypothetical Logic Flow for Evaluating Type A Test Documentation for Existing Previously-Tested (Pre-HM-250) Packagings



Option C is viewed as a worst-case scenario, because it would presumably be the most costly. Survey respondents were able to provide replacement cost data for about 42 percent (10 out of 24) of their Type A package designs. Although admittedly incomplete, these data points at least provide a glimpse of the financial impacts that might arise from the provision of test samples for destructive testing. Table 1 and 2 below provide the list of known package replacement costs and some descriptive statistics associated with them. This data might be useful to perform various extrapolations regarding the entire population of 24 Type A packagings identified by the respondents.

It is noted, however, that neither retesting nor associated costs were discussed in the HM-250 preamble in the context of § 173.415(a)(1)(i). Ideally, this would mean PHMSA did *not* intend for offerors of existing previously-tested Type A packaging to have to retest them in order to establish compliance with the amended § 173.415(a). Non-ideally, this would mean there was a failure to account for retesting and associated costs in the preamble for the rulemaking.

Table 1 – Reported Type A Packaging Replacement Costs (per packaging)
$500
$7,500
$10,000
$13,500
$20,000
$45,000
$50,000
$54,000
$55,000
$58,800

Table 2 – Selected Descriptive Statistics	
Mean	$31,430
Median	$32,500
Mode	N/A
Standard Deviation	$23,055
Range	$58,300
Minimum	$500
Maximum	$58,800
Sum	$314,300
Count	10

Option B appears as a sort of middle-of-the-road scenario, because it is somewhat unclear if it would be considered acceptable to use "other [non-testing] methods" under § 173.461 to satisfy the missing elements of the revised § 173.415(a)(1)(i) for an existing Type A packaging that had actually been subjected to the physical tests of § 173.465. Even if so, it must be recognized that not every organization possesses the expertise necessary to demonstrate compliance through non-testing methods such as engineering evaluations, etc.

Option A appears to be the best-case scenario to deal with retroactive effects that are unresolvable [i.e., § 173.415(a)(1)(i) test documentation elements that are unobtainable as described in the bullet list on pages 1 and 2].

The HM-250 preamble alludes that the time to "review and upgrade documentation" (40596) is all that is needed to acquire the new elements of 415(a)(1) and (a)(1)(i). The analysis in this white paper shows that this assumption will not always be true—at least with respect to the test documentation elements of § 173.415(a)(1)(i)—for existing previously-tested Type A packagings.