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## Technical Project Lead (TPL) Review: SE0000357

<b>SE0000357: Class A Menthol Silver 100's Soft Pack</b>	
Package Type	Soft Pack
Package Quantity	20 cigarettes
Length	99 mm
Diameter	7.8 mm
Filter Ventilation	54%
Characterizing Flavor	Menthol
<b>Common Attributes of SE Reports</b>	
Applicant	Liggett Group LLC
Report Type	Provisional
Product Category	Cigarette
Product Sub-Category	Combusted Filtered
<b>Recommendation</b>	
Issue a Not Substantially Equivalent (NSE) order.	

**Technical Project Lead (TPL):**

Digitally signed by Matthew R. Holman -S  
Date: 2016.09.29 12:53:45 -04'00'

Matthew R. Holman, Ph.D.  
Director  
Division of Product Science

**Signatory Decision:**

- Concur with TPL recommendation and basis of recommendation
- Concur with TPL recommendation with additional comments (see separate memo)
- Do not concur with TPL recommendation (see separate memo)

Digitally signed by David Ashley -S  
Date: 2016.09.29 17:26:13 -04'00'

David L. Ashley, Ph.D.  
RADM (Ret.), U.S. Public Health Service  
Director  
Office of Science

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## 1. BACKGROUND

### 1.1. PREDICATE TOBACCO PRODUCT

The applicant submitted the following predicate tobacco product:

Product Name	Liggett Select Ultra Lights 100's Soft Pack
Package Type	Soft Pack
Package Quantity	20 cigarettes
Length	99 mm
Diameter	7.8 mm
Filter Ventilation	58%
Characterizing Flavor	None

The predicate tobacco product is a combusted, filtered cigarette manufactured by the applicant.

### 1.2. REGULATORY ACTIVITY RELATED TO THIS REVIEW

On March 18, 2011, the applicant submitted the SE Report for the new tobacco product. On July 6, 2011, FDA received an amendment (SE0003683) indicating that the applicant is transitioning the packaging from "soft pack" to "box." However, the applicant did not withdraw the new tobacco product in the soft pack, so review continued with this SE Report<sup>1</sup>. On October 11, 2011, FDA completed Jurisdiction Review for the SE Report and issued an Acknowledgement letter to the applicant. A Public Health Impact (PHI) Review was completed on September 18, 2012, and the SE Report was assigned to PHI Tier 2. On December 31, 2012, FDA conducted its first completeness review on the SE Report which was found to be administratively incomplete. On December 31, 2012, FDA issued an Advice/Information Request (A) letter to request a health information summary or statement, a side-by-side comparison of the new and predicate tobacco products, a statement of compliance with requirements of section 907 of the FD&C Act, an environmental assessment and the date the new tobacco product was first commercially marketed in the United States. On January 25, 2013, FDA received the applicant's response (SE0006635) to the December 31, 2012 Advice/Information Request letter. A second completeness review was conducted on June 27, 2013, and the SE Report was still found to be administratively incomplete. On April 10, 2015, FDA issued a Notification letter to the applicant, indicating that substantive scientific review was expected to begin on May 26, 2015. FDA did not receive any amendment in response to the April 10, 2015 Notification letter. On July 20, 2015, FDA issued a Preliminary Finding letter to the applicant because the new and predicate tobacco products were not uniquely identified, and the

<sup>1</sup> It should be noted that FDA assigned (b)(4) as a new SE Report for tobacco product with box packaging.

date the new tobacco product was first introduced or delivered for introduction into interstate commerce for commercial distribution in the United States after February 15, 2007 was not provided by the applicant. On August 18, 2015, FDA received an amendment (SE0012274) in response to the July 20, 2015 Preliminary Finding letter. Predicate Eligibility status was established on September 23, 2015. On December 8, 2015, FDA received an amendment (SE0012710) from the applicant to request a categorical exclusion from the environmental assessment requirement for its provisional and regular SE Reports, including this SE Report.

Product Name	SE Report	Amendments
Class A Menthol Silver 100's Soft Pack	SE0000357	(b)(4) SE0006635 SE0012274 SE0012710

### 1.3. SCOPE OF REVIEW

This review captures all regulatory, compliance, and scientific reviews completed for this SE Report.

## 2. REGULATORY REVIEW

Administrative completeness reviews were completed by Tamu Monroe on December 31, 2012, and by Aden Asefa on June 27, 2013.

The final completeness review concludes that the SE Report is *not* administratively complete because the following information is not included in the SE Report:

1. New tobacco product was not fully identified.
2. Predicate tobacco product was not fully identified.

On July 20, 2015, Office of Science (OS) conducted an administrative review, and the SE Report was found to be administratively incomplete as the new and predicate tobacco products were not uniquely identified per office policy at that time. In addition, following OS policy that time, OS identified the date that the new tobacco product was first introduced or delivered for introduction into interstate commerce for commercial distribution in the United States after February 15, 2007, was not provided by the applicant. On July 20, 2015, FDA issued a Preliminary Finding letter to the applicant to communicate the deficiencies identified in the administrative review. The applicant's response to the Preliminary Finding letter was received on August 18, 2015 (SE0012274). The predicate tobacco product was found to be predicate eligible on September 23, 2015.



FDA will not request any additional information at this time to address the unresolved issues identified during the second completeness review for the reasons discussed below:

- The new tobacco product was not fully identified in the original submission. The applicant provided this information in the response to the Preliminary Finding letter dated July 20, 2015.
- The predicate tobacco product was not fully identified in the original submission. The applicant provided this information as a response to the Preliminary Finding letter dated July 20, 2015.

All of the deficiencies identified in the second completeness review are resolved at this time. Therefore, the SE Report is administratively complete.

### **3. COMPLIANCE REVIEW**

The Office of Compliance and Enforcement (OCE) completed a review to determine whether the applicant established that the predicate tobacco product is a grandfathered product (i.e., was commercially marketed as of February 15, 2007). The OCE review dated September 23, 2015, concludes that the evidence submitted by the applicant is adequate to demonstrate that the predicate tobacco product is grandfathered and, therefore, is an eligible predicate tobacco product.

Because the new tobacco product is not substantially equivalent to the predicate tobacco product, OCE did not complete a review to determine whether the new tobacco product is in compliance with the Federal Food, Drug, and Cosmetic Act (FD&C Act), as required by section 910(a)(2)(A)(i)(II) of the FD&C Act.

### **4. SCIENTIFIC REVIEW**

Scientific reviews were completed by the Office of Science (OS) for the following disciplines:

#### **4.1. CHEMISTRY**

A chemistry review was completed by Jianping Gong on November 19, 2015.

The chemistry review concludes that the new tobacco product has different characteristics related to product chemistry compared to the predicate tobacco product and that the SE Report does not contain sufficient detail to determine that the differences with respect to chemistry do not cause the new tobacco

product to raise different questions of public health. The review identifies the following deficiencies<sup>2</sup> that have *not* been adequately resolved:

1. All of your SE Reports list significant differences in tobacco blends of the new products compared to corresponding predicate products. For example, you report (b) (4), and (b)(4) and reconstituted tobacco in the new products compared to the corresponding predicate products. Tobacco blend changes have been shown to affect HPHC quantities. It has been reported that the mainstream smoke of (b)(4) reconstituted tobacco tends to contain much higher levels of TSNAs than the smoke of (b) (4) (b) (4), whereas that of (b) (4) tends to contain higher levels of (b)(4) than other types of tobacco. Therefore, these differences in tobacco blend may potentially affect the smoke chemistry. Provide evidence and a scientific rationale as to why these differences do not cause the new products to raise different questions of public health. Minimally, submit HPHC quantities for the following: total TSNAs, NNN, NNK and B[a]P (as a surrogate for PAHs) in smoke under both the ISO and Canadian Intense smoking regimens.
2. All of your SE Reports indicate that the variability for tobacco quantities is uniformly (b) (4) percent and that the variability for the quantities of ingredients other than tobacco is uniformly (b) (4) percent. You have not specified whether the reported variabilities are experimental or theoretical, or whether the variabilities represent ranges, standard deviations or standard errors. Specify what types of variability are represented for tobacco and ingredients other than tobacco and provide an explanation as to why the variabilities are identical.
3. All of your SE Reports provide information about tobacco and ingredients added to tobacco in the predicate and new products. However, your SE Reports do not include ingredients in all components of the predicate and new products (e.g., cigarette paper, filter, plug wrap, tipping paper, adhesives, and additives under “Materials” of Exhibit A). Without this information, we cannot determine whether the predicate and new products are substantially equivalent. Additionally, the information provided for tobacco and ingredients does not include sufficient detail to fully identify the composition of the predicate and new products. We need any other information you may have that uniquely identifies the tobacco used in the predicate and new products. This is the information that you rely on to ensure that the tobacco used in the new and predicate products is identical for both products. For example, if you use a tobacco grading system, it would be helpful to know the tobacco grade (along with an

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<sup>2</sup> The chemistry review evaluated numerous SE Reports submitted by the applicant at the same time as SE0000357, so the deficiencies in the chemistry review (and this section of the TPL review) cite SE Reports in addition to SE0000357.



explanation of the grading system) for each type of tobacco used in the new and predicate products. Similarly, for other ingredients, it would be helpful to know the grade of each ingredient. In addition, you do not identify the tobacco(s) or other ingredients found in the reconstituted tobacco. It is important to know what ingredients, specifically, are included in the reconstituted tobacco in order to ensure that the tobacco blend differences do not cause the new products to raise different questions of public health. Provide information on ingredient composition for reconstituted tobacco. Provide a detailed list including:

- Ingredients for all components (e.g., cigarette paper, filter, plug wrap, tipping paper, adhesives, and additives under “Materials” of Exhibit A)
- Ingredients for reconstituted tobacco
- Information to uniquely identify all tobacco (e.g., tobacco grading system)
- Information to uniquely identify all ingredients (e.g., CAS #, grade/purity)

4. All of your SE Reports indicate differences in cigarette paper between the new and corresponding predicate products. (b)(4)

(b)(4) SE0000357, (b)(4) state that the new products include FSC cigarette paper containing (b)(4) (b)(4) as compared the predicate products which include FSC paper containing (b)(4) (b)(4). Additionally, (b)(4), state that the new products include FSC cigarette paper containing (b)(4) (b)(4) as compared the predicate products which include Non-FSC paper containing (b)(4). These different types of paper and banding materials may produce different types and quantities of ingredients when they are burned. The burning of (b)(4) in the (b)(4) of the new products may result in increased levels of several HPHCs including acetaldehyde, benzene, and formaldehyde. Provide quantities for acetaldehyde, benzene, and formaldehyde in all new and corresponding predicate products. If the levels of these HPHCs differ between the new and corresponding predicate products, explain why the formation of these compounds does not cause the new products to raise different questions of public health.

5. All of your SE Reports list some ingredient quantities as percentages by weight. For example, the amount of (b)(4) in cigarette paper is expressed as (b)(4) and (b)(4). In order for FDA to fully understand the composition of the new and predicate products and make a determination of substantial equivalence, provide all of the ingredient quantities as mass per unit of use (e.g., mg/cigarette). This information



must be supplemented by submitting the total mass of a unit of use. Either resubmit the ingredient quantities in the correct units of quantity or provide information clearly specifying how we can convert the quantities in percentage to the appropriate units of quantity.

6. All of your SE Reports include data comparing the quantities of HPHCs in the predicate and new products. However, your SE Reports lack information necessary to fully evaluate the data. Provide the following information about HPHC testing so that we can fully evaluate the differences in HPHC quantities in the predicate and new products:
  - a. Quantitative methods used
  - b. Testing laboratory or laboratories
  - c. Length of time between date(s) of manufacture and date(s) of testing
  - d. National/international standards used and any deviation(s) from those standards
  - e. Storage conditions prior to initiating testing

In addition, provide full test data (including test protocols, any deviations from test protocols, quantitative acceptance (pass/fail) criteria, and complete data sets) for all testing performed.

7. All of your SE Reports include TNCO values of the new and predicate products. However, you provide no mean values and relatively wide ranges. The ranges for tar, nicotine, and carbon monoxide are identical for the new and predicate products. Provide mean values and variance (rather than ranges) for TNCO measurements under both ISO and Canadian Intense smoking regimens. Clarify why the ranges are identical for the new and corresponding predicate products, including clarification about whether the values are measured values and/or estimated/calculated values.
8. SE0000357 states that the tipping paper <sup>(b)(4)</sup> has changed from <sup>(b) (4)</sup> <sup>(b) (4)</sup> in the predicate product to <sup>(b) (4)</sup> in the new product. However, the chemical composition for these <sup>(b) (4)</sup> is not provided. Provide the ingredient information for the tipping paper, including the inks used. If the ingredients are different between the new and predicate product, provide scientific evidence and rationale as to why the differences would not cause the new product to raise different questions of public health.
9. SE0000357 reports the addition of more than <sup>(b)(4)</sup> of menthol to the inner foil of the cigarette packet of the new product. In order to fully identify the predicate and new products, additional information about the packaging is needed. If the packaging materials are identical for both

products, provide detailed material information, including a detailed ingredients list, for the wrap, foil and cardboard packaging of the new products. If any differences exist in any components or ingredients of the packaging (e.g., film, foil, tear tape, blanks, inks, board, adhesives), provide a side-by-side comparison of the packaging to identify each difference.

Therefore, the review concludes that there was inadequate information from a chemistry perspective to determine that the differences in product characteristics between the new and predicate tobacco products do not cause the new tobacco product to raise different questions of public health.

It should be noted that the chemistry review discusses the presence of menthol in the new tobacco product and absence of menthol in the predicate tobacco product. The chemistry review does not reach a conclusion about the presence of menthol. Rather, it defers to the addiction review to evaluate this difference in characteristic.

## 4.2. ENGINEERING

An engineering review was completed by Aarthi Arab on November 23, 2015.

The engineering review concludes that the new tobacco product has different characteristics related to engineering compared to the predicate tobacco product and that the SE Report does not contain sufficient detail to determine that the differences with respect to engineering do not cause the new tobacco product to raise different questions of public health. The review identifies the following deficiencies<sup>3</sup> that have *not* been adequately resolved:

1. All of your SE Reports provide information on some of the design parameters for the predicate and new products. However, your SE Reports do not include all of the design parameters necessary to fully characterize the predicate and new products. In order to adequately characterize the products, it is necessary to compare key design parameters. Provide the **target specification and upper and lower range limits** for *all* of the following cigarette design parameters for each predicate and new product:
  - a. Tipping paper length (mm);
  - b. Cigarette paper base paper basis weight (g/m<sup>2</sup>);
  - c. Cigarette paper band porosity (CU) (except for the predicate products in <sup>(b)(4)</sup> );

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<sup>3</sup> The engineering review evaluated numerous SE Reports submitted by the applicant at the same time as SE0000357, so the deficiencies in the engineering review (and this section of the TPL review) cite SE Reports in addition to SE0000357.

- d. Cigarette paper band width (mm) (except for the predicate products in <sup>(b)(4)</sup> );
- e. Cigarette paper band space (mm) (except for the predicate products in <sup>(b)(4)</sup> ); and
- f. Filter efficiency (%) [If no filter efficiency data is available for the products, include information sufficient to show that the cigarette filter is unchanged (e.g., denier per filament, total denier, and filter density)].

Provide target specifications only for the following design parameter:

- g. Cigarette paper base paper porosity (CU).

For each of the above parameters, provide the necessary data on a per unit of product basis (e.g., tipping paper length should be reported in mm per cigarette). If a design parameter is not applicable (e.g., band porosity if the cigarette paper does not contain bands), state as such and provide a scientific rationale.

If a difference exists between the new and corresponding predicate products, provide a rationale for each difference in the target specification and range limits with evidence and a scientific discussion for why the difference does not cause the new product to raise different questions of public health.

Note that filter density, denier per filament, and total denier are necessary because filter efficiency (%) was not provided. As an alternate to submitting the information described above for filter density, denier per filament, and total denier, you may provide target specification and upper and lower range limits for filter efficiency.

- 2. All of your SE Reports include design parameter specifications but none include data confirming that specifications are met. Provide the **test data (i.e., measured values of design parameters), including test protocols, quantitative acceptance criteria, data sets, and a summary of the results** for *all* of the following cigarette design parameters for each predicate and new product:

- a. Puff count;
- b. Cigarette draw resistance (mm H<sub>2</sub>O);
- c. Tobacco filler mass (mg);
- d. Tobacco oven volatiles (OV) (%);
- e. Filter ventilation (%);
- f. Cigarette paper base paper basis weight (g/m<sup>2</sup>);
- g. Cigarette paper base paper porosity (CU);
- h. Cigarette paper band porosity (CU);



- i. Filter efficiency (%) [If no filter efficiency data is available for the products, include information sufficient to show that the cigarette filter is unchanged (e.g., denier per filament, total denier, and filter density)]; and
- j. Filter pressure drop (mm H<sub>2</sub>O).

For each of the above parameters, provide the necessary data on a per unit of product basis (e.g., filter pressure drop should be reported in mm per cigarette). If a design parameter is not applicable (e.g., band porosity if the cigarette paper does not contain bands), state as such and provide a scientific rationale.

Certificates of analysis from the material supplier may satisfy this deficiency. If you choose to address this deficiency by providing certificates of analysis for any of the parameters listed above, the certificates of analysis must include target specification; quantitative acceptance criteria; parameter units; test data average value; and either the standard deviation of the test data or the minimum and maximum values of the test data. The certificate of analysis must be a complete, unaltered certificate of analysis from the material supplier.

Additionally, for the design parameters listed above that were tested according to national or international standards, identify the standards and state what deviations, if any, from the standards occurred.

If you choose to provide filter efficiency in place of filter density, denier per filament, and total denier, provide test data as described above for filter efficiency.

3. All of your SE Reports indicate that the new products have multiple plug wrap paper materials and the predicate products have multiple cigarette base paper materials. In accordance with section 910(a)(1)(B) of the Federal Food, Drug, and Cosmetic Act (FD&C Act), each product modification, including use of an alternate material, constitutes a new tobacco product. Each identified new and predicate product must consist of a single combination of cigarette base paper and plug wrap paper materials. Identify the following:
  - a. Every unique material combination in the predicate products that were on the market as of February 15, 2007
  - b. Every unique material combination in the new tobacco products that were on the market between February 15, 2007 and March 22, 2011. Each specific combination of materials will be considered a single new tobacco product and evaluated individually in accordance with Section 910(a)(2)(B) of the FD&C Act.

For each identified new and predicate product, based on each combination of cigarette base paper and plug wrap paper materials, provide data generated from testing of design parameters and HPHCs. If a difference exists between each new and predicate product, provide justification for the difference and a scientific rationale for why the difference does not cause the new product to raise different questions of public health.

4. All of your SE Reports indicate that the pressure drop in both the overall cigarette and filter are almost exactly the same. It is unclear how these values can be the same when the pressure drop of the tobacco rod generally causes the overall pressure drop to be greater than the filter pressure drop alone. Additionally, you have stated that any changes in pressure drop “merely reflects a correction in the pressure drop target to reflect the actual pressure drop, as measured during routine quality control monitoring.” This statement implies that you are changing the target specification to fit changing test data, which then makes it difficult to accurately characterize the product. However, you have stated that the target specification and manufacturing process are not changing. Clarify both the overall cigarette and filter pressure drop and provide scientific rationale and evidence for any differences that may cause the new product to raise different questions of public health; provide a rationale to demonstrate that shifting the target specification for cigarette draw resistance does not create a difference in product characteristics; and provide a revised procedure to ensure future target specifications will not be altered based on changing test data.
5. All of your SE Reports except <sup>(b)(4)</sup> indicate that the filter ventilation decreased in the new products relative to the corresponding predicate products. You have stated that the decrease in filter ventilation is to keep tar values consistent. However, you have provided large ranges of TNCO values that may result in large differences in TNCO yields between the new and predicate products. Furthermore, a decrease in filter ventilation decreases the dilution of inhaled smoke and is likely to cause an increase in smoke constituent yields. Provide a scientific rationale and evidence as to why the difference in filter ventilation is not likely to cause the new product to raise different questions of public health.

Therefore, the review concludes that there was inadequate information from an engineering perspective to determine that the differences in product characteristics between the new and predicate tobacco products do not cause the new tobacco product to raise different questions of public health.

### **4.3. ADDICTION**

An addiction review was completed by Lynn Hull on December 14, 2015.

The addiction review concludes that the new tobacco product has different characteristics related to addiction compared to the predicate tobacco product and that the SE Report does not contain sufficient detail to determine that the differences with respect to addiction do not cause the new tobacco product to raise different questions of public health. The review identifies the following deficiencies that have *not* been adequately resolved:

1. Your SE Report includes information on the menthol content of the new product. The new product is mentholated while the predicate product is not. You claim that the addition of menthol does not raise different questions of public health. However, the addition of menthol may impact the flavor and sensory effects of the new product and affect use behavior. Mentholated tobacco products may impact initiation behaviors and progression to regular tobacco use by increasing palatability and abuse liability, increasing levels/severity of dependence, and reducing the likelihood of cessation. The addition of menthol to the new product raises different questions of public health.

Therefore, the review concludes that the differences in product characteristics between the new and predicate tobacco products cause the new tobacco product to raise different questions of public health.

### **5. ENVIRONMENTAL DECISION**

A finding of no significant impact (FONSI) was signed by RADM David L. Ashley on November 19, 2013. The FONSI was supported by an environmental assessment prepared by FDA on November 14, 2013.

### **6. CONCLUSION AND RECOMMENDATION**

The following is the key difference in characteristics between the new and predicate tobacco products:

- Addition of menthol as a characterizing flavor

The new tobacco product does not meet the statutory requirements for a determination of substantial equivalence. It is possible that the applicant could resolve the deficiencies identified in the chemistry and engineering reviews. In other words, these reviews conclude that there was inadequate information to determine that the differences in characteristics between the new and predicate tobacco products do not cause the new tobacco product to raise different questions of public health. However, the addiction review concludes that the addition of menthol as a



characterizing flavor in the new tobacco product causes it to raise different questions of public health because menthol may impact consumer perception and use. I agree with the conclusion of the addiction review that the addition of menthol causes the new tobacco product to raise different questions of public health.

The predicate tobacco product meets statutory requirements because it is a grandfathered product (i.e., was commercially marketed in the United States as of February 15, 2007).

FDA examined the environmental effects of finding the new tobacco product not substantially equivalent and made a finding of no significant impact.

An NSE order letter should be issued for the new tobacco product in SE0000357, as identified on the cover page of this review. The NSE order letter should cite the following key deficiency:

1. Your SE Report indicates that menthol is added as a characterizing flavor to the new tobacco product, whereas the predicate tobacco product does not contain a characterizing flavor. The addition of menthol as a characterizing flavor is likely associated with increased smoking initiation (e.g., increasing palatability), increased level/severity of dependence (e.g., increasing abuse liability), and/or decreased likelihood of cessation for the new tobacco product compared to the predicate tobacco product. Therefore, the addition of menthol causes the new tobacco product to raise different questions of public health.

In addition to this deficiency demonstrating that the new tobacco product is not substantially equivalent to the predicate tobacco product, the NSE order letter should list the following deficiencies that prevent a determination of substantial equivalence:

2. Your SE Report lists significant differences in tobacco blends of the new tobacco product compared to predicate tobacco products. For example, you report (b) (4), and (b) (4) reconstituted tobacco in the new tobacco product compared to the predicate tobacco product. Tobacco blend changes have been shown to affect HPHC quantities. It has been reported that the mainstream smoke of (b) (4) and reconstituted tobacco tends to contain much higher levels of TSNAs than the smoke of (b) (4), whereas that of (b) (4) tends to contain higher levels of benzo[a]pyrene (B[a]P) than other types of tobacco. Therefore, the differences in tobacco blend may potentially affect the smoke chemistry. Your SE Report lacks scientific evidence and rationale as to why the blend differences do not cause the new tobacco product to raise different questions of public health. Such evidence may include HPHC yields (e.g., NNN, NNK, and B[a]P) under both the ISO and Canadian Intense smoking regimens.

3. Your SE Report indicates that the variability for tobacco quantities is uniformly (b) (4) percent and that the variability for the quantities of ingredients other than tobacco is uniformly (b) (4) percent. You have not specified whether the reported variabilities are experimental or theoretical, or whether the variabilities represent ranges, standard deviations or standard errors.
4. Your SE Report provides information about tobacco and ingredients added to tobacco in the predicate and new tobacco products. However, your SE Report does not include ingredients in all components of the predicate and new tobacco products (e.g., cigarette paper, filter, plug wrap, tipping paper, adhesives, and additives under “Materials” of Exhibit A). Without this information, we cannot determine whether the predicate and new tobacco products are substantially equivalent. Additionally, the information provided for tobacco and ingredients does not include sufficient detail to fully identify the composition of the predicate and new tobacco products. We need any other information you may have that uniquely identifies the tobacco used in the predicate and new tobacco products. This is the information that you rely on to ensure that the tobacco used in the new and predicate tobacco products is identical for both products. For example, if you use a tobacco grading system, it would be helpful to know the tobacco grade (along with an explanation of the grading system) for each type of tobacco used in the new and predicate products. Similarly, for other ingredients, it would be helpful to know the grade of each ingredient. In addition, you do not identify the tobacco(s) or other ingredients found in the reconstituted tobacco. It is important to know what ingredients, specifically, are included in the reconstituted tobacco in order to ensure that the tobacco blend differences do not cause the new products to raise different questions of public health. Ingredient information needed to fully characterize the predicate and new tobacco products includes the following:
  - a. Ingredients for all components (e.g., cigarette paper, filter, plug wrap, tipping paper, adhesives, and additives under “Materials” of Exhibit A)
  - b. Ingredients for reconstituted tobacco
  - c. Information to uniquely identify all tobacco (e.g., tobacco grading system)
  - d. Information to uniquely identify all ingredients (e.g., CAS #, grade/purity)
5. Your SE Report indicates that the new tobacco product includes FSC cigarette paper containing (b) (4) as compared the predicate tobacco product, which includes FSC paper containing (b) (4). These different types of paper and banding materials may produce different types and quantities of ingredients when they are burned. The burning of (b) (4) (b) (4) of the new tobacco product may



result in increased levels of several HPHCs including acetaldehyde, benzene, and formaldehyde. Your SE Report lacks scientific evidence and rationale for why the difference in cigarette paper does not cause the new tobacco product to raise different questions of public health.

6. Your SE Report lists some ingredient quantities as percentages by weight. For example, the amount of (b) (4) in cigarette paper is expressed as (b) (4). In order for FDA to fully and clearly characterize the new and predicate tobacco products, all of the ingredient quantities are needed on a mass per unit of use basis (i.e., mg/cigarette).
7. Your SE Report includes data comparing HPHC quantities in the predicate and new tobacco products. However, your SE Report lacks the following information necessary to fully evaluate the data:
  - a. Quantitative methods used
  - b. Testing laboratory or laboratories
  - c. Length of time between date(s) of manufacture and date(s) of testing
  - d. National/international standards used and any deviation(s) from those standards
  - e. Storage conditions prior to initiating testing

In addition, your SE Report does not provide full test data (including test protocols, any deviations from test protocols, quantitative acceptance (pass/fail) criteria, and complete data sets) for all testing performed.

8. Your SE Report includes TNCO yields from the new and predicate tobacco products. However, your SE Report does not provide mean values and, instead, includes relatively wide ranges of yields for each HPHC. The ranges for TNCO yields are identical for the new and predicate tobacco products. Mean values and variance (rather than ranges) are needed for TNCO yields under both ISO and Canadian Intense smoking regimens. Also, clarification is needed for why the ranges are identical for the new and predicate products, including clarification about whether the values are measured values and/or estimated/calculated values.
9. Your SE Report states that the tipping paper (b)(4) has changed from (b) (4) (b) (4) in the predicate tobacco product to (b) (4) in the new tobacco product. However, the chemical composition for these (b) (4) is not provided. If the ink ingredients are different between the new and predicate tobacco products, scientific evidence and rationale would be needed as to why the differences would not cause the new tobacco product to raise different questions of public health.



10. Your SE Report notes the addition of more than (b) (4) of menthol to the inner foil of the cigarette packet of the new tobacco product. In order to fully characterize the predicate and new tobacco products, additional information about the packaging is needed. Such information includes a detailed ingredients list for the wrap, foil and cardboard packaging of the new and predicate tobacco products.
11. Your SE Report provides information on some of the design parameters for the new and predicate tobacco products. However, your SE Report does not include **target specification and upper and lower range limits** for *all* of the following design parameters necessary to fully characterize the new and predicate tobacco products:
- a. Tipping paper length (mm)
  - b. Cigarette paper base paper basis weight ( $\text{g/m}^2$ )
  - c. Cigarette paper band porosity (CU)
  - d. Cigarette paper band width (mm)
  - e. Cigarette paper band space (mm)
  - f. Filter efficiency (%) [If no filter efficiency data is available for the products, include information sufficient to show that the cigarette filter is unchanged (e.g., denier per filament, total denier, and filter density)]

In addition, your SE Report does not include the **target specifications** for the following design parameter for the new and predicate tobacco products:

- g. Cigarette paper base paper porosity (CU)

If differences exist between the new and predicate tobacco products, scientific evidence and rationale would be needed to demonstrate that the differences do not cause the new tobacco product to raise different questions of public health.

12. Your SE Report includes design parameter specifications but none include data confirming that specifications are met. **Test data (i.e., measured values of design parameters), including test protocols, quantitative acceptance criteria, data sets, and a summary of the results** is needed for *all* of the following design parameters for the new and predicate tobacco products:
- a. Puff count
  - b. Cigarette draw resistance ( $\text{mm H}_2\text{O}$ )
  - c. Tobacco filler mass (mg)
  - d. Tobacco oven volatiles (OV) (%)
  - e. Filter ventilation (%)
  - f. Cigarette paper base paper basis weight ( $\text{g/m}^2$ )
  - g. Cigarette paper base paper porosity (CU)

- h. Cigarette paper band porosity (CU)
- i. Filter efficiency (%) [If no filter efficiency data is available for the products, include information sufficient to show that the cigarette filter is unchanged (e.g., denier per filament, total denier, and filter density)]
- j. Filter pressure drop (mm H<sub>2</sub>O)

13. Your SE Report indicates that the new tobacco product has multiple plug wrap paper materials and the predicate tobacco product has multiple cigarette base paper materials. In accordance with section 910(a)(1)(B) of the FD&C Act, each product modification, including use of an alternate material, constitutes a new tobacco product. Each identified new and predicate tobacco product must consist of a single combination of cigarette base paper and plug wrap paper materials. However, your SE Report does not identify the following:

- a. Every unique material combination in the predicate tobacco products that was on the market as of February 15, 2007
- b. Every unique material combination in the new tobacco product that was on the market between February 15, 2007 and March 22, 2011. Each specific combination of materials will be considered a single new tobacco product and evaluated individually in accordance with Section 910(a)(2)(B) of the FD&C Act.

For each identified new and predicate tobacco product, based on each combination of cigarette base paper and plug wrap paper materials, data generated from testing of design parameters and HPHCs is needed.

14. Your SE Report indicates that the pressure drop in both the overall cigarette and filter are almost exactly the same. It is unclear how these values can be the same when the pressure drop of the tobacco rod generally causes the overall pressure drop to be greater than the filter pressure drop alone. Additionally, your SE Report states that any changes in pressure drop “merely reflects a correction in the pressure drop target to reflect the actual pressure drop, as measured during routine quality control monitoring.” This statement implies that you are changing the target specification to fit changing test data, which then makes it difficult to accurately characterize the product. However, your SE Report states that the target specification and manufacturing process are not changing. Therefore, clarification of the overall cigarette and filter pressure drop is needed along with scientific rationale and evidence for any differences that may cause the new tobacco product to raise different questions of public health. In addition, a rationale is needed to demonstrate that shifting the target specification for cigarette draw resistance does not create a difference in product characteristics. Lastly, a revised procedure to ensure future target specifications will not be altered based on changing test data is needed.

15. Your SE Report indicates that the filter ventilation decreased in the new tobacco product relative to the predicate tobacco product. Your SE Report states that the decrease in filter ventilation is to keep tar values consistent. However, your SE Report provides large ranges of TNCO values that may result in large differences in TNCO yields between the new and predicate tobacco products. Furthermore, a decrease in filter ventilation decreases the dilution of inhaled smoke and is likely to cause an increase in smoke constituent yields. Therefore, a scientific rationale and evidence is needed to demonstrate that the difference in filter ventilation does not cause the new tobacco product to raise different questions of public health.