AIR WORLDWIDE

April 20, 2015

Dr. Lorilee Medders, Chair
Florida Commission on Hurricane Loss Projection Methodology
c/o Donna Sirmons
Florida State Board of Administration
1801 Hermitage Boulevard, Suite 100
Tallahassee, Florida 32308

Re: Submission of the AIR Atlantic Tropical Cyclone Model V15.0.0 as Implemented in Touchstone® V2.1.0

Dear Dr. Medders:

AIR has discovered three minor issues with its implementation of demand surge factors in the AIR Atlantic Tropical Cyclone Model V15.0.0 in Touchstone V2.1.0, submitted to the Commission on November 1, 2014. None of the issues has a direct impact to loss costs or PMLs in Florida, but there is an indirect impact through the demand surge factors applied.

This letter is submitted to the Commission in compliance with Acceptability Process Section VI.F. The remainder of this email provides a description of the differences we discovered, their impact on Florida loss costs and PMLs, the Type of difference, the required forms, and a description of AIR's plan for addressing the differences.

Discovery of the Difference
The issue with demand surge factors was discovered in the process of preparing for our next release of Touchstone in June 2015. After AIR submitted Model V15.0.0 Implemented in Touchstone 2.1.0 last fall, we began working on this next release of Touchstone 3.0. It was our intention, as we did in 2013, to submit this next release to the Commission under Section VI.G. in June in order to find the AIR Atlantic Tropical Cyclone Model V15.0.0 as Implemented in Touchstone 3.0.0 as functionally equivalent to Model V15.0.0 as Implemented in Touchstone 2.1.0.

With any interim software release, we make enhancements that will improve the models outside of Florida and usability of the software. We have therefore included several enhancements to Touchstone 3.0, listed below.

1. Reflection of USGS corrections to its NED file for select ZIPs –AIR regularly reviews the updates made to the National Elevation Database (NED) and incorporates changes that are deemed material into its flood model. In the case of Touchstone 3.0, we have incorporated USGS corrections for ZIP Codes in Virginia.
2. Introduction of Disaggregation – In other countries where detailed exposure information is often unavailable and users enter aggregated exposure data, Touchstone currently allows users to

disaggregate such exposures before running their analysis. This greatly improves the accuracy of the analysis results. This feature was not available in the U.S. in Touchstone 2.1.0, however we have made it available in Touchstone 3.0.0. This enhancement will not impact Florida rate filings because it is not an acceptable analysis option (see page 203 of AIR's current submission). Furthermore, it is expected that insurers have detailed exposure information for their Florida portfolios.

3. Automatic application of Average Properties based on geoMatchLevel – In Touchstone 1.0 AIR introduced an enhancement to recognize the geocode match level of each exposure in the portfolio and to turn on Average Properties when the risks are geocoded to the ZIP Centroid level or less (i.e. City Centroid, CRESTA, etc.). This behavior was initiated by the user by selecting the analysis option Average Property = Automatic. We received feedback that clients prefer the software to apply this logic automatically without the user having to select an analysis option. In Touchstone 3.0 we are introducing the enhancement that Average Properties will be applied automatically based on the geocode match level of each risk in the portfolio. Since the Average Properties analysis option is used in Florida rate filings currently depending on the user needs (see page 202 of AIR's current submission), there is no impact to Florida loss costs or PMLs.

4. Performance optimization – We introduced a change in the workflow for storm surge losses; in Touchstone 2.1 the elevation value for a location was calculated as a part of the import process, but in Touchstone 3.0 it is calculated during the analysis. This enhancement does not impact Florida loss costs or PMLs.

Description of Differences and Potential Impacts

As mentioned, the difference discovered only affects the demand surge factors assigned for selected events in Touchstone 2.1. Please note that the implemented demand surge curve has not been revised as a part of this update. There are three contributors to the difference, each discussed below. These contributors were discovered during the Touchstone 3.0 implementation and testing process through QA and our own internal change management process. It will be important for the Commission to understand the following workflow for the assignment of demand surge factors during a model update process:

The source of the difference in demand surge factors comes from the following three items. Specifically, these three items were not present in the left-most step when the process to calculate demand surge factors was initiated. In total, the issue with the demand surge factors causes the Florida average annual loss to decrease by 0.001%.

1. 50k Catalog Surge Intensity. There was an issue with the storm surge hazard files provided by the research department for about 150 events of the roughly 104,270 events in the 50,000 year catalog. The

issue stems from not including the potential for levee failure in these New Orleans events, with the result that surge footprints are underestimated. The issue became apparent when looking at changes in Louisiana losses. While the issue only relates to surge footprints (it does not impact the wind fields) and events that strike New Orleans, surge loss do contribute to the ground up losses used to determine demand surge. Thus, wind-only losses anywhere along the affected storm tracks can be impacted when demand surge is considered. Since the forms in the submission include the impact of demand surge, we see the total Florida losses from these 150 events (out of 104,270 events in the 50,000 year catalog) increase by a small amount (generally 1-5%).

2. Mobile Home Aging Factor for Storm Surge Vulnerability Functions. AIR changed its mobile home damage functions as a part of its model update submitted to the Commission last fall. There are no issues with this update. However, one aspect of the update – the mobile home aging factor update for storm surge vulnerability – was not present in the version of the model used to generate the demand surge factors. The issue was discovered in conjunction with investigations into the catalog surge intensity issue. The inclusion of the aging factor update in generating industry losses for demand surge factors causes Florida losses to increase or decrease by very small amounts (generally between +/- 0.00% to 0.75%).

3. The enhancement mentioned above relating to the USGS correction of Virginia ZIPs in its NED file has been made between Touchstone 2.1.0 and 3.0.0. Though it does not directly impact Florida loss costs and PMLs, it is also true that the industry losses (and resulting demand surge factors) for events passing through these locations in VA are impacted. This inclusion of the NED enhancement in generating industry losses for demand surge factors causes Florida losses to increase or decrease by very small amounts (generally between +/- 0.00% to 0.75%).

Determination of the Type of Difference and Required Forms
AIR has determined that the difference in the assignment of demand surge factors results in a **Type II Difference** as defined on page 58 of the ROA. Specifically, there are differences in one or more loss cost for a 5-digit ZIP Code of less than or equal to 1%, or there are differences past the rounded 3rd significant digit in the PMLs at one or more return period. To support this determination, AIR has included the Type Test calculation in the spreadsheets accompanying this letter. These spreadsheets contain the required Forms A-1, A-4B, A-8 and S-5.

AIR's Plan for Model Revisions
AIR discovered these two issues (items 1 and 2 in the list in section *Description of Differences and Potential Impacts* above) in March and has spent the intervening weeks to understand and address them. The enhancements mention in section *Discovery of the Difference* were made between November 2014 and March 2015. The Atlantic Tropical Cyclone Model V15.0.0 as Implemented in Touchstone V2.1.0 was submitted to the Commission but has not yet been released to clients. Since both the model and software are impacted with the differences addressed in this letter, our versioning rules dictate that we update both the model and software

versions. The model version will be changed from V15.0.0 to V15.0.1. The software version will be changed from Touchstone V2.1.0 to Touchstone V3.0.0.

Thank you for your consideration of these matters. AIR looks forward to discussing next steps and answering any of the Commission's and Professional Team's questions.

Best regards,

Brandie J Andrews, CCM
Assistant Vice President

Enclosure