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July 16, 2021

Floyd Yager, Chair  
Florida Commission on Hurricane Loss Projection Methodology  
c/o Donna Sirmons  
Florida State Board of Administration  
1801 Hermitage Boulevard, Suite 100  
Tallahassee, FL 32308

Re: Notification of Interim Model Updates.

Dear Mr. Yager:

We would like to submit for the Commission's consideration an updated model platform version for North Atlantic Hurricane Models 21.0 (Build 2050) now available on RiskModeler version 2.10.1.

In accordance with the Process for Determining the Acceptability of a Computer Simulation Model, Section VI.H, (**Interim Model Updates after a Model has been found Acceptable by the Commission**) in the November 1, 2019 Report of Activities, we have prepared the following forms for the Commission's review. These are provided for the currently accepted model platform, the proposed updated/revised version of the model platform and the comparison between the two versions demonstrating no change.

- Form A-1 (Zero Deductible Personal Residential Loss Costs by ZIP Code)
- Form A-4 (Output Ranges, 2017 FHCF Exposure Data)
- Form A-8 (Probable Maximum Loss for Florida)
- Form S-5 (Average Annual Statewide Loss Costs – Historical versus Modeled)
- Form V-2 (Hurricane Mitigation Measures and Secondary Characteristics, Range of Changes in Damage)

In addition, revised Appendices E and F are also enclosed, which show North Atlantic Hurricane Models 21.0 (Build 2050) (indicating the revised version) on relevant screens and reports.

The forms have been provided for both the current platform and the revised version of the platform. A percentage change comparison demonstrates that there is no change in output between the two versions.

#### **Nature of the Software Updates/Revisions**

RMS has made the following changes to the RiskModeler 2.10.1 platform:

- Climate Change Analyses – The first RMS Climate Change Models are available in Risk Modeler.
  - In this version of Risk Modeler, RMS is releasing our first Climate Change Models, which are available for the RMS North Atlantic Hurricane Models, RMS Europe Windstorm, and the RMS Europe Inland Flood HD

Models. The RMS Climate Change Models provide a set of probabilistic views of risk after considering how different forward looking climate change forecasts described under a range of representative concentration pathways (RCPs) affect risk at multiple years in the future up to the year 2100. The Climate Change Models are implemented as alternative sets of event rates. This functionality does not apply to the certified hurricane model results as the Florida Model only uses the long-term view of hurricane landfalling frequency to calculate losses.

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- Reinsurance Financial Perspectives – Net Loss Post Cat, Reinsurance Gross Loss, and Reinsurance Net Loss financial perspectives are supported by High Definition (HD) analyses
  - High Definition models are temporal-based simulations rather than the event-based simulations used in the Detail Loss Model (DLM) approach. The certified hurricane model is a DLM based methodology. Thus, the introduction of new financial perspectives in the HD framework are not applicable to the certified hurricane model.
- Location User-Defined Attributes – Populate user-defined fields for locations to define additional attributes
  - Four user-defined fields are available for creating locations in Risk Modeler. All four fields allow free form entry. When these fields are populated with data, they can be used to define filters for creating portfolios. These fields are used for organization purposes only and do not link to any primary or secondary attributes in the Florida specific hurricane model.
- Two Known Issues have been fixed:
  - a. RM-17124: In some situations, grouping fails when you combine North Atlantic Hurricane results with U.S. Inland Flood HD results. This is a software bug that was contained in the U.S. Flood model, has been resolved, and does not affect analysis results of the certified hurricane model.
  - b. RM- 17079: Running the same HD analysis multiple times can have different completion times. Software optimizations were implemented to remove these inconsistent completion times. This issue is only relevant to HD model frameworks, and does not affect the certified hurricane model.
  - c. The numbers applied to a known issue are assigned by our bug tracking software system. That system tracks internal tasks, bug reports, and feature development. Many of the incident numbers are open/closed during internal development without any need for external communication, and thus there may be gaps in the numbering of known issues.

### **The Effect to the Underlying Acceptable Model**

Logic within the platform has been revised as described in the items above. No logic within the model itself has been changed.

### **The Effect on the Model Results**

The forms in the submission (as demonstrated), as well as extensive internal testing, show no difference in Florida model results for the RiskModeler platform. We have not seen any changes or problems, heard of any related to these issues, and do not expect changes in results any time in the future under realistic conditions.

Thank you for your consideration.

Sincerely,

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