**Louisiana Department of Insurance**

**CATASTROPHE MODEL INTERROGATORIES**

**Supplement to Bulletin No. 2013-04**

**June 10, 2013**

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**PART A**

**(to be completed by the insurance company)**

**Instructions: Part A , the section labeled Insurer Certification and the section labeled General Information, should be completed by the insurer and must accompany the rate filing that contains rates based, in whole or in part, on any type of catastrophe modeling.**

**Part A, section Hurricane Modeling Information only needs to be completed and submitted with a rate filing that contains rates based, in whole or in part, on a hurricane computer model. Part A includes exposure distribution information that should be provided to the LDI in an Excel spreadsheet.**

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**Instructions: Type or print except where signature is requested.**

I, , hereby certify that I am the

**(PRINT PERSON’S NAME)**

of doing business

**(PERSON’S TITLE) (INSURANCE COMPANY OR GROUP)**

in the State of Louisiana and that I am authorized to make this certificate to the Louisiana Department of Insurance (LDI).

I hereby certify that responses to the LDI’s Catastrophe Model Interrogatories, Part A subsection General Information and, if applicable, Part A subsection Hurricane Modeling Information are true and correct to the best of my knowledge.

This is the day of ,

**(NUMBER) (MONTH) (YEAR)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(SIGNATURE)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(INSURANCE COMPANY OR GROUP)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(ADDRESS)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(CITY, STATE, ZIP CODE)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(TELEPHONE)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(EMAIL)**

**Instructions: This section should be completed by the insurer and must accompany a rate filing that contains rates based, in whole or in part, on any type of catastrophe modeling.**

**“Qualifications” include, but are not limited to, designations in relevant professional groups, designations in relevant areas of study, model certifications and experience in relevant employment/areas of responsibility.**

1. Filing reference for which modeled output is used:

Insurance Company or Group:

Line and/or Sub-Line:

Filing Reference Number:

2. Provide a contact in your company responsible for verifying the exposure data.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Qualifications: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Telephone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Describe the process used to verify the model input (exposure data) including specific checks performed and validation or reference information used in the process.

3. Provide a contact in your company responsible for verifying the model output.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Qualifications: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Telephone: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Email: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

< 3. continued>

Describe the process used to verify the model output including specific checks performed and validation or reference information used in the process.

4. In this rate filing, for which peril(s) is model output used to establish or support Louisiana insurance rates? (Check all that apply; note that more specific detail regarding the use of hurricane models will be covered in the remainder of Part A.)

□ Hurricane □ Hail

□ Tropical Storm □ Flood

□ Tornado □ Terrorism

□ Severe Convective Storm □ Severe Winter Storm

□ Other Wind □ Other (specify):

□ Earthquake □ Other (specify):

□ Fire Following Earthquake □ Other (specify):

**Instructions: This section should be completed by the insurer and must accompany a rate filing that contains rates based, in whole or in part, on hurricane modeling. This section is specific to a hurricane model.**

**If more than one hurricane model’s output was used to support the filed rates, this section should be completed for each model, i.e., each combination of question 1 response.**

**All data distributions requested should be derived from the actual data used as input to the model. To the extent reasonable and particularly for the exposure profile (question 8), an Excel spreadsheet should be provided that contains requested information.**

**Definitions: Primary Amount of Insurance (AOI) is defined as the coverage A amount for homeowner policy types, coverage C amount for renter or condominium owner policy types, and aggregate property structure limits (across all structures listed on the policy’s declarations page or listed on a schedule attached to the policy) for commercial policy types.**

1. Whose model did you use in this filing? (Check one)

□ AIR □ EQE

□ RMS □ Other (specify):

Model Name:

Release Reference:

2. Who ran the model? (Check one)

□ Company (Internally Run) □ Reinsurer

□ Modeler □ Consultant

□ Broker □ Other (specify):

3. Provide the following regarding input and output data for the model:

a. What is the source of exposure data used as input to the model? (Check all that apply)

□ Data is specific to the company making the rate filing

□ Data is NOT specific to the company making the rate filing but is specific to the company’s group

□ Other (specify):

If more than one box above is checked, explain why:

b. What type of exposure data was used as input to the model and as of what date was that data evaluated? (Check one)

□ In-Force: as of \_\_\_\_/\_\_\_\_/\_\_\_\_

**MM DD YY**

□ Policy Year: for the Period \_\_\_\_/\_\_\_\_/\_\_\_\_ through \_\_\_\_/\_\_\_\_/\_\_\_\_

**MM DD YY MM DD YY**

Enter relevant comments here:

c. At what geographic level of detail was the exposure input data? Provide a percentage distribution based on the primary amount of insurance (AOI), not policy counts:

Structure’s Actual Latitude/Longitude \_\_\_\_\_\_\_\_%

Structure’s Street Address \_\_\_\_\_\_\_\_%

Structure’s Zip Code \_\_\_\_\_\_\_\_%

Structure’s Parish \_\_\_\_\_\_\_\_%

Other (specify): \_\_\_\_\_\_\_\_%

TOTAL (within rounding) 100%

< 3.c. continued >

If the Structure’s “street address” or “zip code” was used, did the company verify that these were for the physical location of the property and not a remote billing address?

□ Yes, street address and zip code were verified to be the physical location of the property

□ No, street address and zip code were NOT verified to be the physical location of the property

□ Not known

□ Other (specify):

d. Were loss adjustment expense (LAE) adjustments applied by the filer to modeled output? (Also, refer to 4.d in this section.)

□ Yes, LAE adjustments were made to exposure input data where

the annualized percent used for LAE was: \_\_\_\_\_\_\_%

□ Yes, LAE adjustments were made to model output data where

the annualized percent used for LAE was: \_\_\_\_\_\_\_%

□ No, LAE adjustments were NOT made to input or output data.

e. Were trend adjustments applied by the filer to modeled input or output? (Check all that apply)

□ Yes, trend adjustments were made to model input exposure where

* the input data was trended to the date of: \_\_\_\_/\_\_\_\_/\_\_\_\_ and

**MM DD YY**

* the annualized percent used for trend was: \_\_\_\_\_\_\_%

□ Yes, trend adjustments were made to model output losses where

* the output loss was trended to the date of: \_\_\_\_/\_\_\_\_/\_\_\_\_ and

**MM DD YY**

* the annualized percent used for trend was: \_\_\_\_\_\_\_%

□ No trend adjustments were made to input or output data.

f. Attach relevant printed output produced by the model, e.g., reports with AAL and PML.

g. Were any other adjustments or factors applied to exposure input or actual modeled output not identified above? □ Yes □ No

If “Yes,” provide relevant comments on adjustments here:

h. Does model output include estimates for additional living expense? □ Yes □ No

If “Yes,” how is additional living expense exposure and loss estimated?

4. Indicate the settings that were used for model runs. (Check one for each item)

1. View / Frequency Rate / Sea Surface Temperature (SST):

□ Long-Term

□ Medium-Term

□ Near-Term

□ Other-Term (specify):

1. Catalog Size: □ 10K □ 50K □ 100K

□ Other (specify):

□ Not applicable to this model

1. Modeled Output: □ Expected Value (Average Annual Loss)

□ Expected Value Plus Risk Load (Describe):

1. Loss Adjustment Expenses (LAE): □ Applied by the model to model output

(also, refer to 3.d in this section) Specify LAE as a percent of loss: %

□ NOT applied by the model to model output

1. Demand Surge (also known as Loss Amplification): □ On

□ Off

□ Not Available

1. Storm Surge: □ On but it is not known at what potential/percentage

□ On At Full Potential (100%)

□ On but at less than 100% of Full Potential (state percent: %)

□ Off

□ Other (Describe):

1. Relevant comments or description of other custom options or non-standard settings used:

1. Provide a copy of the model analysis options/settings report that generated the model output to which this interrogatory applies. This report is a listing of all available user-controlled model options and how each option was set when the model was run, e.g., Demand Surge was either “on” or “off.” If run by a third party, this report may be available from the third party. Note that this report may not be available for every model or model version.

□ Attached

□ Not attached and not available

□ Available but not attached

□ Do not know if such a report is available

5. a. For this filing, which of the following were accomplished using the referenced hurricane model (see questions 1 and 2 above; check all that apply)?

□ Generated ground-up (net of policy deductible) losses for Louisiana

□ Generated ground-up (net of policy deductible) losses for territories within Louisiana

□ Generated reinsurance recoveries for Louisiana

□ Generated reinsurance recoveries for territories within Louisiana

b. What allocation method was used to allocate reinsurance costs from a multi-state basis to a Louisiana-specific basis and/or territories within Louisiana (check one):

□ Used ground-up losses

□ Used reinsurance recoveries

□ Allocation from a multi-state basis was not applicable in this filing

□ Another allocation method was used (Describe):

c. Relevant comments regarding responses to 10.a and b. above:

6. Is this model the only model used to support the proposed hurricane rates in the company’s rate filing?

□ Yes □ No

If “No”, provide a detailed explanation, including formulas, regarding how the two (or more) models were combined to support the proposed rates.

7. Property Valuation Method: For 7.a. through 7.c., provide a profile of your property valuation method using a percentage distribution (based on AOI, not policy counts). Each row must sum to 100% within rounding.

Property Valuation Method

Replacement Actual Assumed

Insured Property Cost Value Cash Value No Value Total

1. Building \_\_\_ % \_\_\_ % \_\_\_ % 100%
2. Appurtenant structure \_\_\_ % \_\_\_ % \_\_\_ % 100%
3. Contents of structure \_\_\_ % \_\_\_ % \_\_\_ % 100%

d. If used, provide a description of the methodology used to estimate replacement costs:

If applicable, provide a description of the methodology used to estimate actual cash value:

8. Input Coding Methods: For each of the following exposure attributes (8.a. through 8.o.) that could be used as input to the hurricane model, provide the input coding method using a percentage distribution based on AOI, not policy counts. Each row must sum to 100% within rounding.

Input Field’s Coding Method

Value Unknown

Company (Company Data Value Unknown

Company Assumptions Available but (No Company

Exposure Field Data Used Used Not Used) Data) Total

1. Construction \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
2. Occupancy \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
3. Year structure built \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
4. Number of stories \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
5. Age of roof covering \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
6. Roof shape \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
7. Roof covering \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%

< 8. Continued >

1. Secondary water resistance \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
2. Roof cladding attachment \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
3. Roof anchorage \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
4. Window protection \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
5. Tie downs (Manufactured Housing) \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
6. Foundation to wall restraint \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
7. Built to IBHS requirements \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%
8. Built to LSUCC requirements \_\_\_ % \_\_\_ % \_\_\_ % \_\_\_ % 100%

**Definitions:**

Company Data Used – Company collects specific data on this attribute and used this data, without modification, to populate the exposure file.

Company Assumptions Used – Company either does not collect specific data on this attribute but determined a value for the attribute by other means or the company modified the actual company data collected to determine a specific value for the attribute; the company used this data to populate the exposure file.

Value Unknown (Company Data Available but Not Used) – Company collects specific data on this attribute during the policy underwriting/rating/issuance process but the company does not populate the exposure file with that data; i.e., the exposure file is populated with a null or “unknown” value for this attribute.

Value Unknown (No Company Data) – Company does not collect data on this attribute; i.e., the exposure file is populated with a null or “unknown” value for this attribute.

IBHS – Institute for Business and Home Safety

LSUCC - Louisiana State Uniform Construction Code

If the column labeled “Company Assumptions Used” was marked for any of the exposure attributes above (8.a. through 8.o.), provide a description of the assumptions that were made to populate the exposure file with known values:

< 8. Continued >

If the column labeled “Value Unknown (Company Data Available but Not Used)” was marked for any of the exposure attributes above (8.a. through 8.o.), provide an explanation why null or “unknown” values were used in the exposure file when company data was available for the exposure attribute:

9. Exposure Profile: The following exposure distributions (9.a. through 9.r.) should be provided to the LDI in an Excel spreadsheet format where each distribution is a separate worksheet and labeled appropriately, e.g., “Geographic Location by Parish.” This profile should be derived from the actual data used as input to the hurricane model producing output used as support in this rate filing.

Note that 9.a. requests a percentage distribution based policy counts while 9.b. through 9.r. requests percentage distributions based on AOI.

1. For the following table, **provide a policy count percentage distribution** for each AOI category by policy type.

Policy Count Distribution

Homeowners/ Renter/ Commercial

AOI Category Dwelling Condo Owner Policy Types

$0K < AOI <= $25K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$25K < AOI <= $50K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$50K < AOI <= $75K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$75K < AOI <= $100K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$100K < AOI <= $150K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$150K < AOI <= $200K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$200K < AOI <= $250K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$250K < AOI <= $300K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$300K < AOI <= $400K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$400K < AOI <= $500K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$500K < AOI <= $750K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$750K < AOI <= $1,000K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$1,000K < AOI <= 2,500K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$2,500K < AOI <= 5,000K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$5,000K < AOI <= 10,000K \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

$10,000K < AOI <= Unlimited \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

Unknown \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

TOTAL (within rounding) \_\_\_\_\_\_% \_\_\_\_\_\_% \_\_\_\_\_\_%

< 9.a. continued >

Also, provide the actual dollar value for each of the following AOI categories by policy type.

Homeowners/ Renter/ Commercial

AOI Category Dwelling Condo Owner Policy Types

Average AOI in Exposure Data Set: $ $ $

Lowest AOI in Exposure Data Set: $ $ $

Highest AOI in Exposure Data Set: $ $ $

1. Geographic Location by Parish[[1]](#footnote-1)

For the following parishes (coastal and non-coastal), **provide the aggregated dollars of the AOI** used as input to the model. Table 9.b. categorizes AOI by parish for policy types homeowner/dwelling, renter condominium and commercial. If parish data is not readily available, a distribution by zip code is acceptable (just substitute zip code for parish in the table below).

Definitions: Coastal For the purpose of completing the parish distribution below, “coastal” has the traditional industry definition for Louisiana and approximates each portion of the ten parishes lying south of the Intracoastal Waterway or outside the protective levee system. A more precise description of the “Coastal” areas for the ten Louisiana coastal parishes follows:

* **Cameron** - That portion of Cameron Parish lying west of Calcasieu Lake, and south of the northern boundary of Sabine Migratory Waterfowl Refuge and the portion east of Calcasieu Lake south of Sweet Lake Canal and Intracoastal Waterway.
* **Iberia** - That portion of Iberia parish lying south of Intracoastal Waterway.
* **Jefferson** - That portion of Jefferson Parish lying south of Intracoastal Waterway, Algiers canal not Harvey Canal.
* **Lafourche** - That portion of Lafourche parish lying south of Intracoastal Waterway, which includes communities of Larose, Cutoff, Clovelly Farms, Galliano, Golden Meadow & Leeville.
* **Orleans** - That portion of Orleans Parish lying outside of the Protective Levee System.
* **Plaquemines** - That portion of Plaquemines parish lying outside the Protective Levee System of Belle Chasse, Ollie, Scarsdale, Braithwaite and Belair Drainage Districts, which includes the communities of Ironton, Myrtle Grove, Diamon, Happy Jack, Potash, Port Sulphur, Homeplace, Narin, Empire, Buras, Triumph, Boothville, Venice, Pilottown, Ostrica, Bohemia, Pointe a La Hache, Davant, Phoenix and Carlisle.
* **St. Bernard** - That portion of St. Bernard parish lying outside the Protective Levee System which includes communities of Reggio, Delacroix, Alluvial, Yscloskey, Shell Beach and Hopedale.
* **St. Mary** - That portion of St. Mary Parish lying south of the Intracoastal Waterway.
* **Terrebonne** - That portion of Terrebonne Parish lying south of Intracoastal Waterway, except areas within city limits of Houma which includes communities of Ashland, Boudreaux, Chauvin, Cocodrie, Crozier, Dulac, Lapeyrouse, Montegut, Mulberry, Point Barre, Sunrise and Theriot.
* **Vermilion** - That portion of Vermilion parish lying south of the Intracoastal Waterway.

Non-Coastal: For the purposes of completing the parish distribution below, the ten “non-coastal” parishes are defined as each part of the parish which is not “coastal.”

|  |  |  |  |
| --- | --- | --- | --- |
| **Distribution of AOI by Parish** | | | |
| **Parish** | **Homeowner/ Dwelling Owner** | **Renter/ Condominium Owner** | **Commercial Policy Types** |
| Acadia | $ | $ | $ |
| Allen | $ | $ | $ |
| Ascension | $ | $ | $ |
| Assumption | $ | $ | $ |
| Avoyelles | $ | $ | $ |
| Beauregard | $ | $ | $ |
| Bienville | $ | $ | $ |
| Bossier | $ | $ | $ |
| Caddo | $ | $ | $ |
| Calcasieu | $ | $ | $ |
| Caldwell | $ | $ | $ |
| Cameron (Non-Coastal) | $ | $ | $ |
| Catahoula | $ | $ | $ |
| Claiborne | $ | $ | $ |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Distribution of AOI by Parish** | | | | |
| **Parish** | **Homeowner/ Dwelling Owner** | **Renter/ Condominium Owner** | **Commercial Policy Types** | |
| Concordia | $ | $ | $ | |
| De Soto | $ | $ | $ | |
| East Baton Rouge | $ | $ | $ | |
| East Carroll | $ | $ | $ | |
| East Feliciana | $ | $ | $ | |
| Evangeline | $ | $ | $ | |
| Franklin | $ | $ | $ | |
| Grant | $ | $ | $ | |
| Iberia (Non-Coastal) | $ | $ | $ | |
| Iberville | $ | $ | $ | |
| Jackson | $ | $ | $ | |
| Jefferson (Non-Coastal) | $ | $ | $ | |
| Jefferson Davis | $ | $ | $ | |
| Lafayette | $ | $ | $ | |
| Lafourche (Non-Coastal) | $ | $ | $ | |
| La Salle | $ | $ | $ | |
| Lincoln | $ | $ | $ | |
| Livingston | $ | $ | $ | |
| Madison | $ | $ | $ | |
| Morehouse | $ | $ | $ | |
| Natchitoches | $ | $ | $ | |
| Orleans (Non-Coastal) | $ | $ | $ | |
| Ouachita | $ | $ | $ | |
| Plaquemines (Non-Coastal) | $ | $ | $ | |
| Pointe Coupee | $ | $ | $ | |
| Rapides | $ | $ | $ | |
| Red River | $ | $ | $ | |
| Richland | $ | $ | $ |
| Sabine | $ | $ | $ |
| St. Bernard (Non-Coastal) | $ | $ | $ |
| St. Charles | $ | $ | $ |
| St. Helena | $ | $ | $ |
| St. James | $ | $ | $ |
| St. John The Baptist | $ | $ | $ |
| St. Landry | $ | $ | $ |
| St. Martin | $ | $ | $ |
| St. Mary (Non-Coastal) | $ | $ | $ |
| St. Tammany | $ | $ | $ |
| Tangipahoa | $ | $ | $ |
| Tensas | $ | $ | $ |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Distribution of AOI by Parish** | | | | |
| **Parish** | **Homeowner/ Dwelling Owner** | **Renter/ Condominium Owner** | **Commercial Policy Types** | |
| Terrebonne (Non-Coastal) | $ | $ | $ |
| Union | $ | $ | $ |
| Vermilion (Non-Coastal) | $ | $ | $ |
| Vernon | $ | $ | $ |
| Washington | $ | $ | $ |
| Webster | $ | $ | $ |
| West Baton Rouge | $ | $ | $ |
| West Carroll | $ | $ | $ |
| West Feliciana | $ | $ | $ |
| Winn | $ | $ | $ |
| **Cameron (Coastal)** | $ | $ | $ |
| **Iberia (Coastal)** | $ | $ | $ |
| **Jefferson (Coastal)** | $ | $ | $ |
| **Lafourche (Coastal)** | $ | $ | $ |
| **Orleans (Coastal)** |  |  |  |
| **Plaquemines (Coastal)** | $ | $ | $ |
| **St. Bernard (Coastal)** | $ | $ | $ |
| **St. Mary (Coastal)** | $ | $ | $ |
| **Terrebonne (Coastal)** | $ | $ | $ |
| **Vermilion (Coastal)** | $ | $ | $ |
| PARISH UNKNOWN | $ | $ | $ |
| **TOTALS** | $ | $ | $ |

For each of the following exposure attributes (9.c. through 9.r.), profile the data used as input to the hurricane model by using a percentage distribution (based on AOI, not policy counts) for the listed attributes. If you use additional/other categories, list them as needed.

1. Identify Ex-Wind policies in your input data:

Policies with combined wind and other peril coverage %

Policies with wind-only coverage %

Policies with other peril coverage but excluding wind %

Total (within rounding) 100%

1. Policy Deductible:

For each of the all peril deductible and special hurricane/named storm/wind and hail deductible combinations in **Matrix 9.d.**, provide a percentage distribution based on AOI (not policy counts) used as input to the model. If you use deductible categories not listed, add them as needed.

< 9.d. continued >

If the all peril deductible and the special hurricane/named storm/wind and hail deductible are the same, slot the all peril deductible in the appropriate category but categorize the special hurricane/named storm/wind and hail deductible as “None (0).” If there are other coverage/peril specific deductibles on the policy, for example a $100 all peril deductible is paired with a higher $250 theft deductible, ignore the specific coverage/peril deductible (in this case the theft deductible) and use the broader all peril deductible to categorize the exposure in the matrix column labeled “Policy All Peril Deductible”. If there are multiple wind-specific deductibles impacting wind loss, for example a $2,500 wind and hail deductible with a 5% hurricane deductible, use the higher of the policy’s wind-specific deductibles to categorize the exposure in the matrix columns under the label “Policy Hurricane/Named Storm/Wind & Hail Deductible.”

The matrix total should sum to 100% within rounding.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Matrix 9.d.** | **Special Policy Hurricane / Named Storm / Wind & Hail Deductible** | | | | | | | | | | | | | | | | | | | | | | |
| **Policy All Peril Deductible**  **🠋** | **None ($0)** | **$250** | **$500** | **$1,000** | **$1,500** | **$2,000** | **$2,500** | **$3,000** | **$4,000** | **$5,000** | **$10,000** | **1%** | **2%** | **3%** | **4%** | **5%** | **10%** | **15%** | **Other 1 (specify)** | **Other 2 (specify)** | **Other 3 (specify)** | **Unknown** | **Row Totals** |
| **None ($0)** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$100** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$250** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$500** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$1,000** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$2,000** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$2,500** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$5,000** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **$10,000** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **½%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **1%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **2%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **3%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **4%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **5%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **10%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **15%** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **Other 1 (specify)** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **Other 2 (specify)** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **Other 3 (specify)** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **Unknown** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % |
| **Column Totals** | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | % | **100%** |

1. Construction:

Wood frame %

Wood frame with masonry veneer %

Unreinforced masonry %

Reinforced masonry %

Masonry (unspecified) %

Concrete %

Steel %

Light metal %

Mobile Home (unknown tie-down) %

Mobile Home (with tie-down) %

Mobile Home (no tie-down) %

Other 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

1. Occupancy (all subtotals and total within rounding):
2. Owner occupied structure:

Single-family dwelling %

Multi-family dwelling %

Condominium %

Mobile Home %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Subtotal for 9.f.1) %

1. Non-owner occupied structure:

Single-family dwelling %

Multi-family dwelling %

Condominium %

Mobile Home %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Subtotal for 9.f.2) %

1. Renter (no structure, contents only):

Single-family dwelling %

Multi-family dwelling %

Condominium %

Mobile Home %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Subtotal for 9.f.3) %

1. Commercial structure:

Business %

Farm %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Subtotal for 9.f.4) %

1. Other occupancy categories (but not unknown):

Single-family dwelling %

Multi-family dwelling %

Condominium %

Mobile Home %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Subtotal for 9.f.5) %

1. Occupancy Unknown:

Single-family dwelling %

Multi-family dwelling %

Condominium %

Mobile Home %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Subtotal for 9.f.6) %

Total 9.f.1)–9.f.6) within rounding 100 %

1. Year structure built:

<= 1900 %

1901 %

1902 %

1903 %

1904 %

**.**

**.**

**.**

2009 %

2010 %

2011 %

2012 %

2013 %

2014 %

2015 %

**.**

**.**

**.**

Unknown %

Total (within rounding) 100%

1. Number of stories:

1 %

2 %

3 %

4 to 7 %

8 to 14 %

15+ %

Unknown %

Total (within rounding) 100%

1. Age of Roof Covering:

0 to 5 years %

6 to 10 years %

11 to 15 years %

16 to 20 years %

More than 20 years %

Unknown %

Total (within rounding) 100%

1. Roof shape:

Unbraced gable %

Braced gable %

Total hip (entire roof structure) %

Partial hip (at least 50% hip roof) %

Mansard %

Gambrel %

Flat %

Shed %

Complex %

Other 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

1. Roof covering type:

Normal asphalt shingles %

Wind resistance rated shingles\* %

Concrete or clay tiles (not rated) %

Wind resistance rated

concrete or clay tiles %

Wood shingles %

Built-up roof %

Single-ply membrane %

Slate %

Concrete %

Metal panels or sheathing %

Other 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

NOTES: \* Passed either ASTM D3161 or ASTM D7158

1. Secondary water resistance:

None %

Self-adhering strips on top of roof deck %

Spray foam on underside of roof deck %

Continuous sheets on top of roof deck %

Other 1:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

1. Roof cladding attachment:

6d nails w/ unknown nailing schedule %

6d nails @ high wind nailing schedule

(typically 4” panel edges, 6” interior) %

8d nails w/ unknown nailing schedule

8d nails @ high wind nailing schedule

(typically 4” panel edges, 6” interior) %

10d nails w/ unknown nailing schedule %

10d nails @ high wind nailing schedule

(typically 4” panel edges, 6” interior) %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

1. Roof anchorage (roof to wall connection):

None (gravity/friction) %

Toe nailing %

Adhesive epoxy %

Anchor bolts %

Clips (not wind resistance rated) %

Single wraps (not wind resistance rated) %

Double wraps (not wind resistance rated) %

Wind rated hurricane ties/straps %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

1. Window protection:

None %

Temporary shutters (plywood or OSB) %

Non-engineered shutter %

Wind resistance rated shutter\* %

Impact resistant glass\* %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

\* Passed one of the following cyclic loading and windborne debris impact tests: (ASTM E 1886 and ASTM E 1996) or (Miami-Dade TAS 201 and TAS 203).

1. Foundation to wall restraint:

None (Gravity/Friction) %

Nails/Screws %

Straps or ties (not wind resistance rated) %

Anchor bolts (not wind resistance rated) %

Restraints consistent with LSUCC %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Total (within rounding) 100%

1. Built to IBHS fortified requirements or state building code:

None %

Hurricane fortified bronze %

Hurricane fortified silver %

Hurricane fortified gold %

Fortified for safer living hurricane %

Louisiana state uniform construction code %

Other 1: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 2: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Other 3: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ %

Unknown %

Total (within rounding) 100%

1. Tie-downs (note: mobile homes are also known as “manufactured structures”):

NOT a manufactured structure %

Manufactured structure with tie-downs %

Manufactured structure without tie-downs %

Unknown %

Total (within rounding) 100%

**PART B**

**(to be completed by the modeling company)**

**Instructions: Part B applies only to a model estimating hurricane loss. Part B should be completed by the modeler and must already be on file with the LDI or accompany a rate filing that contains rates based, in whole or in part, on hurricane computer modeling.**

**When preparing any of the loss analyses requested in Part B, unless stated otherwise, the results should be calculated as baseline loss estimates in which analysis settings are “Off” or in a standard setting, including Demand Surge (i.e., Loss Amplification) set to “Off,” Storm Surge set to “Off,”, uses 50K or Standard Catalog Size, Loss Adjustment Expense set to “Off,”, and uses Long-Term Frequency Rates.**

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**Instructions: Type or print except where signature is requested. This certification only attests to Catastrophe Model Interrogatories, Part B responses.**

I, , hereby certify that I am the

**(PRINT NAME)**

of and that I am authorized

**(PRINT TITLE) (PRINT MODEL COMPANY)**

to make this certificate. I hereby certify to the Louisiana Department of Insurance (LDI) that my responses to the LDI’s Catastrophe Model Interrogatories, Part B, are true and correct to the best of my knowledge.

The model for which this certificate applies is identified as:

Name of Model: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Model Release Reference: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date of Model Release or Last Revised: \_\_\_\_/\_\_\_\_\_/\_\_\_\_\_\_

**MM DD YY**

Stochastic Catalog Reference: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**(e.g.: Catalog Size, Near Term or Long Term, etc.)**

This is the day of ,

**(NUMBER) (MONTH) (YEAR)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(SIGNATURE)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(ADDRESS)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(CITY, STATE, ZIP CODE)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(EMAIL)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(TELEPHONE)**

**Instructions: Type or print except where signature is requested. This certification only attests to Catastrophe Model Interrogatories, Part B responses.**

I, , hereby certify that I am the

**(PRINT NAME)**

of and that I am responsible

**(PRINT TITLE) (PRINT MODEL COMPANY)**

for verifying the reasonability and reliability of the model loss estimates for use in the state of Louisiana. I have reviewed and verified the model output and hereby certify that the model loss estimates are appropriate for use in the state of Louisiana. The process I used to verify the model output is described below.

This is the \_\_\_\_\_\_\_ day of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_.

**(NUMBER) (MONTH) (YEAR)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(SIGNATURE)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(ADDRESS)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(CITY, STATE, ZIP CODE)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(EMAIL)**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**(TELEPHONE)**

Describe how the reasonability of model output was verified. Include specific checks that were performed and validation data sources used in the analysis.

**Instructions: When preparing the loss analyses requested in Part B, unless stated otherwise the results should be calculated as baseline loss estimates in which analysis settings are “Off” or in a standard setting, including Demand Surge (i.e., Loss Amplification) set to “Off,” Storm Surge set to “Off,”, uses 50K or Standard Catalog Size, Loss Adjustment Expense set to “Off,”, and uses Long-Term Frequency Rates. If available, provide a copy of the model analysis options/settings report used to generate the model output.**

1. List the names of up to three key technical staff and indicate which component they worked on. For model update submissions, list up to three key technical staff that participated in the update. Use the format of **Exhibit A** and **Exhibit B**. If the modeler does not provide contact information for all key technical contributors, provide at least one overall contributor (per component) for this purpose.

2. A model is a commercial software application. As such, please respond to the following:

a. □ Yes □ No Has a “requirements document” been written for this model?

b. □ Yes □ No Has a “specification document” been written for this model?

c. □ Yes □ No Has a “user’s guide” been published to aid clients in using or running

d. □ Yes □ No Has a “test specification” been written for this model?

e. □ Yes □ No Has the model’s software code been tested?

f. □ Yes □ No Have revisions or corrections to the model’s software code been made since the model was first made available to your clients?

If “Yes,” continue with i. through v. below.

1. Explain the process by which model revisions or corrections are identified, reported, and coded.

1. Explain how revised releases of the model are released to clients.

1. Explain how a client would recognize which model release produced specific model output.

1. Explain how a client would know the exact model settings used to produce specific model output.

1. Provide the historical release and revision summary for the model since its first release to clients. Use the report format of **Exhibit C**.

g. In what year was the model first used in ratemaking? (approximately)

**(YEAR)**

h. □ Yes □ No Has the model been reviewed by any other state insurance department?

If “Yes,” list the states and the reviewer.

STATE REVIEWER YEAR REVIEWED

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_

3. □ Yes □ No Has the current model version been independently peer reviewed by experts not involved in the development of or any update to the model? If so, attach documentation for the two most recent peer reviews relevant to the current model version and complete **Exhibit D** for all peer reviews.

□ Yes □ No Are there any unresolved or outstanding issues resulting from these reviews? Please explain each.

4. The following interrogatories explore whether the model is capable of addressing and adjusting loss estimates for specific insurance considerations. A “Yes” response does not mean that a specific model run actually adjusted for the item but does mean that the model could have, if given data coded for the item, adjusted for the item.

If the model release to which these interrogatories apply (the “current model” release) is a revision to the last model release previously filed with the LDI (the “last model” release), indicate if the current model includes changes attributable to the listed consideration by putting a “Yes” in the “Changed Since Last Submission?” box next to the consideration.

|  |  |  |  |
| --- | --- | --- | --- |
| Yes | No | Changed Since Last Submission? | Is the current version of the hurricane model capable of adjusting estimated hurricane loss due to or in consideration of … |
|  |  |  | The stated policy amount of insurance for the structure? |
|  |  |  | The structure’s contents? |
|  |  |  | Appurtenant structure loss? |
|  |  |  | Additional living expense loss? |
|  |  |  | Business interruption loss? |
|  |  |  | All peril policy deductibles? |
|  |  |  | Differences in construction materials, e.g., frame vs. masonry vs. other types? |
|  |  |  | Manufactured home construction (e.g., mobile home)? |
|  |  |  | Separate wind, hurricane or named storm deductibles? |
|  |  |  | The effect on expected loss due to existing or proposed reinsurance contracts? |
|  |  |  | Coverage differences for various homeowner policy forms, e.g., HO-1 vs. HO-3? |
|  |  |  | Coverage differences for various dwelling fire/EC forms, e.g., DW-1 vs. DW-3? |
|  |  |  | Condominium policy form? |
|  |  |  | Renter policy form? |
|  |  |  | Mobile home/manufactured home policy forms? |
|  |  |  | Business owner’s policy forms? |
|  |  |  | Farm owner’s policy forms? |
|  |  |  | Other commercial property policy forms? |
|  |  |  | Flood loss covered by the National Flood Insurance Program? |
|  |  |  | Flood loss not covered by the National Flood Insurance Program? |
|  |  |  | Personal inland marine policy forms, floaters, endorsements, or schedules? |
|  |  |  | Commercial inland marine policy forms, floaters, endorsements, or schedules? |
|  |  |  | Boat policy forms? |
|  |  |  | Personal automobile policy forms? |
|  |  |  | Commercial automobile policy forms? |
|  |  |  | Multi-story structures? |
|  |  |  | Loss attributable to underinsured structures? |
|  |  |  | Loss attributable to over-insured structures? |
|  |  |  | Loss attributable to public structures? |
|  |  |  | Non-property loss, e.g., liability, life, health, workers' compensation? |

< 4. continued >

|  |  |  |  |
| --- | --- | --- | --- |
| Yes | No | Changed Since Last Submission? | Is the current version of the hurricane model capable of adjusting estimated hurricane loss due to or in consideration of … |
|  |  |  | Loss attributable to industry pools, e.g. FAIR Plan or Coastal Plan? If these losses can be calculated and allocated to a third party client’s estimated loss, e.g., as an assessment, explain how it is included: |
|  |  |  | The impact of any loss mitigation measures? If “Yes,” list specific mitigation measures the current model can take into account that impacts estimated loss, e.g., hurricane shutters or mobile home tie downs: |
|  |  |  | A structure built to IBHS standards? |
|  |  |  | A structure built to Louisiana Uniform Construction Code (LSUCC) standards? |
|  |  |  | Demand Surge (or Loss Amplification), i.e., an increase in construction costs due to temporary increased demand for limited construction resources? If “Yes,” explain how Demand Surge is included: |
|  |  |  | Risk, e.g., a load added to estimated loss based on loss variance calculations or the need to attract risk capital? If “Yes,” explain how this is included: |
|  |  |  | Cash value policy provisions? If “Yes,” please explain how this is handled : |
|  |  |  | Replacement cost policy provisions? If “Yes,” please explain how this is handled : |
|  |  |  | Is the client's actual exposure profile always used in the determination of modeled loss costs? If “No,” explain the alternate source of exposure underlying modeled output: |

< 4. continued >

|  |  |  |  |
| --- | --- | --- | --- |
| Yes | No | Changed Since Last Submission? | Is the current version of the hurricane model capable of adjusting estimated hurricane loss due to or in consideration of … |
|  |  |  | Does the model project exposure data to a future policy period? If “Yes,” to what period was data projected? \_\_\_\_/\_\_\_\_/\_\_\_\_ (MM/DD/YY). And, if “Yes,” explain how this projection is made: |
|  |  |  | Does the model project loss or expense data to a future policy period? If “Yes,” to what period was data projected? \_\_\_/\_\_\_/\_\_\_ (MM/DD/YY) And if “Yes,” explain how this projection is made: |
|  |  |  | Can model output include provisions for loss adjustment expense? If “Yes,” select from the following:  All LAE ALAE only ULAE only  Explain how any LAE is included in the modeled output: |

5. Identify the current Zip Code database used by the model including the effective (official United States Postal Service) date.

(Zip Code Database Name) (Effective Date)

6. □ Yes □ No Are Zip Code centroids population-weighted?

* 1. If “Yes,” describe the process used to calculate the population-weighted centroids.

* 1. If “Yes,” describe the process used to validate the centroid information.

7. Provide an overview of model operation including each component of the model used to estimate loss costs in the state of Louisiana. For an initial model submission the overview should include a description of the methodology for each model component. During model updates this overview should clearly indicate which components and methodologies remain unchanged, and explicitly define which components and methodologies have been modified.

8. List and describe the variables and assumptions that support each model component. List data sources for these variables. For model updates, identify every component and variable that has been modified in a way that will result in a change to statewide zero deductible loss costs. For components and/or variables that have been modified, give specific descriptions of the change to the methodology and the data supporting the change. Use **Exhibit E**.

**Instructions: For reference in this section, coordinates used to define the state of Louisiana are provided as a note in Exhibit G.**

1. a. List the historical storms making landfall in the state of Louisiana you used in estimating hurricane losses in Louisiana. Use the format of **Exhibit F**.

1. List source(s) for each parameter for the historical storms in **Exhibit F**. If this is an update, highlight any new storms or storm parameters that have changed since the last submission.

2. Provide annual frequencies for historical storms affecting Louisiana and modeled storms in the format of **Exhibit G**. Assign Saffir-Simpson category based on wind speed.

3. For the following storm parameters, as they relate to Louisiana landfalls, provide summary data for stochastic storm parameter values. If a specified parameter is not applicable to your model, explain and/or provide summary data for an appropriate surrogate parameter. Graphs of the data will be helpful.

a. Table of central pressures, (or pressure differences). Use the format of **Exhibit H**.

□ Yes □ No Does the model contain a minimum central pressure for a Louisiana landfall?

If “Yes,” what is the minimum central pressure? \_\_\_\_\_\_\_\_mb

□ Yes □ No Does the model contain a maximum central pressure for a Louisiana landfall?

If “Yes,” what is the maximum central pressure? \_\_\_\_\_\_\_\_mb

b. Table of radius of maximum winds. Use the format of **Exhibit I**.

i. □ Yes □ No Does the model contain a minimum radius of maximum winds for a Louisiana landfall?

If “Yes,” what is the minimum radius of maximum winds? \_\_\_\_\_\_\_\_miles

ii. □ Yes □ No Does the model contain a maximum radius of maximum winds for a Louisiana landfall?

If “Yes,” what is the maximum radius of maximum winds? \_\_\_\_\_\_\_\_miles

c. Table of forward speeds. Use the format of **Exhibit J**.

i. □ Yes □ No Does the model contain a minimum forward speed for a Louisiana landfall?

If “Yes,” what is the minimum forward speed? \_\_\_\_\_\_\_\_mph

ii. □ Yes □ No Does the model contain a maximum forward speed for a Louisiana landfall?

If “Yes,” what is the maximum forward speed? \_\_\_\_\_\_\_\_mph

d. Table of max wind speeds over land. Use the format of **Exhibit K**.

□ Yes □ No Does the model contain a max WS over land for a Louisiana landfall?

If “Yes,” what is the max WS over land? \_\_\_\_\_\_\_\_mph

e. Provide an example of the model decay rates over constant average land roughness based on the following parameters: forward speed – 14 mph; Rmax – 25 statute mi; max wind speed at LF – 140 mph. If model decay rates are determined stochastically, complete the exhibit for the mean, 10th, and 90th percentiles. Use the format of **Exhibit L**.

4. □ Yes □ No Are gust factors used in the model? If “Yes,” describe how and cite relevant sources.

5. □ Yes □ No Are terrain factors used in the model? If “Yes,” describe how and cite relevant sources.

6. a. For the stochastic storm set provide on CD-ROM a completed **Exhibit M** containing the 100 year 1-minute sustained wind speed by zip code for modeled open terrain and modeled actual terrain. Provide color maps of the wind speeds reported in **Exhibit M** using the following bins and colors (slight variation in colors is acceptable):

|  |  |
| --- | --- |
| **Modeled 100 Year 1-Minute Sustained Wind Speed** | |
|  | <50 mph |
|  | 51 to 65 mph |
|  | 66 to 80 mph |
|  | 81 to 95 mph |
|  | 96 to 110 mph |
|  | 111 to 125 mph |
|  | 126 to 140 mph |
|  | >140 mph |

b. Identify the maximum wind speed plotted on each map and plot the location.

Note: Modeled “actual” terrain is the surface roughness utilized in the vendor model. Modeled “open” terrain corresponds to utilizing a constant roughness value of 0.03 meters at all locations.

**Instructions: This section investigates the vulnerability component including the modeled impact due to mitigation measures.**

1. a. ZIP code wind speeds have been provided for a hypothetical track in the file LDI\_Track\_2013.xlsx. Assume the wind speeds provided are one-minute sustained 10-meter wind speeds that apply to the population centroid for each ZIP code.  Do not make any corrections or adjustments to the wind speeds provided to account for surface roughness.  Model the representative structure types identified in the LDI\_Exp\_2013.xlsx file against these wind speeds and complete the table in **Exhibit N**. Provide the ground-up loss estimates for building coverage only; do not include contents, appurtenant structures, or time element coverages.

b. If it is necessary to adjust the averaging time of the wind speeds provided, please describe the process used to adjust the wind speeds. Include a representative calculation that documents the adjustments made.

2. a. Describe how mitigation is implemented in the model. List the mitigation factors relevant for Louisiana properties. Identify sources that were used to set the mitigation factors and show data that supports the factors.

b. Describe how the combination of multiple mitigation factors is calculated, and how any potential over- or under-estimation is addressed.

c. Provide a completed **Exhibit O, Table 1** (Impact of Mitigation Features) using the full stochastic event set. The impact of each individual mitigation feature shall be calculated in isolation and recorded as a percent change in ground-up expected loss from the reference structure. Assume the reference structure is located at the latitude and longitude coordinates provided in **Exhibit O, Table 2**. Calculate the percent change for a structure certified as an IBHS Fortified for Safer Living home, for each year built bin represented in the model, and for the three mitigation factors that yield the greatest reduction in loss in the model.

For the final row in **Exhibit O, Table 1**, labeled “Mitigation Measures in Combination That Produce Largest Reduction,” report the maximum possible mitigation impact for an individual property; assume the property has been fully mitigated with all available individual mitigation features.

< 2.c. continued >

In **Exhibit O, Table 1**, the percent change shall be calculated for building coverage only on a ground-up basis.

Use the reference structures defined in the table below:

|  |  |
| --- | --- |
| Reference Frame Structure | Reference Masonry Structure |
| Occupancy: Single Family Home | Occupancy: Single Family Home |
| Building Replacement Value: $200,000 | Building Replacement Value: $200,000 |
| One Story | One Story |
| Unbraced Gable End Roof | Unbraced Gable End Roof |
| Standard Shingles | Standard Shingles |
| 1/2" Plywood Deck | 1/2" Plywood Deck |
| 6d Nails, Deck to Roof Members | 6d Nails, Deck to Roof Members |
| Toe Nail Truss to Wall Anchor | Toe Nail Truss to Wall Anchor |
| 5/8" diameter anchors at 48" Centers for Wall/Floor/Foundation Corrections | No Vertical Wall Reinforcing |
| No Storm Shutters | No Storm Shutters |
| Standard Exterior Windows | Standard Exterior Windows |
| Standard Exterior Doors | Standard Exterior Doors |
| Standard Skylights | Standard Skylights |
| Constructed in 1980 | Constructed in 1980 |

**Instructions: This section investigates the setting of model formulas, parameters, and analysis.**

1. a. □ Yes □ No Does the model produce a confidence interval for loss costs that includes parameter and process risk?

b. □ Yes □ No Is the output visible to the user?

i. If “Yes,” explain how this interval is calculated.

ii. If “Yes,” what is the 95% confidence interval for the Louisiana statewide AAL, based on a homeowners wood frame zero deductible loss using the provided LDI\_Exp\_2013.xlsx exposure database?

2. a. Are model formulas, parameters, and analysis settings the same for all clients or can these be altered depending on client need?

□ Constant (the same for all clients)

□ Can be Altered

1. If formulas, parameters, or analysis settings can be altered, show the impact to Louisiana’s statewide homeowners, wood frame and zero deductible loss according to **Exhibit P** using the provided LDI\_Exp\_2013.xlsx exposure database. In completing **Exhibit P** the change in loss should be computed to baseline loss estimates in which analysis settings are “Off” or in a standard setting, including Demand Surge (i.e., Loss Amplification) Off, Storm Surge Off, 10K or Standard Catalog Size, Loss Adjustment Expense Off, and Long-Term Frequency Rates.
2. Explain and show the AAL, 5%, 2%, and 1% exceedance probability loss estimates for any other settings that can be changed not in the list provided in **Exhibit P**.

1. How does the model record if the settings are “on” or “off”?

3. a. Using the standard Louisiana Department of Insurance exposure set provided in the file LDI\_Exp\_2013.xlsx, calculate modeled loss costs per $1000 of exposure for the homeowners frame, homeowners masonry, renters frame, renters masonry, condominium frame, condominium masonry, mobile home, and commercial residential using the format of **Exhibit Q.1** through **Exhibit Q.8** respectively.

For homeowners, mobile home and commercial residential risks, the loss cost per $1,000 is calculated based on the Coverage A limit. For renters and condominium owners risks the loss cost per $1,000 is calculated based on the Coverage C limit.

b. Provide maps of the homeowners frame, homeowners masonry, and mobile home $0 deductible structure loss costs per $1,000 of exposure (see a. above) by ZIP code using the following bins and colors (slight variation in colors is acceptable):



4. The Louisiana Department of Insurance has identified a standard historical event set in **Exhibit R** for storms making landfall from 1900 to 2012 in Louisiana. Provide modeled property loss estimates for the hurricanes listed in **Exhibit R** using the LDI standard exposures provided in the file LDI\_Exp\_2013.xlsx. For each hurricane listed in **Report R**, report gross losses for all coverages combined on **Exhibit S** and **Exhibit T.** Report in hardcopy and on CD-ROM. Assume a 2% deductible applies for each risk.

< 4. continued >

If you find that there are historical storms making a Louisiana landfall not listed in **Exhibit R**, provide information about them here (but do not include them in your estimates for **Exhibit S** and **Exhibit T**):

5. Provide modeled Louisiana gross return period loss statistics using the format of **Exhibit U, Table 1**. Use the standard LDI exposure data provided in the file LDI\_Exp\_2013.xlsx and assume a 2% deductible applies for each risk to calculate gross losses. For **Exhibit U, Table 2**, quantify the impact of the listed deductible scenarios on the statewide average annual loss estimate by calculating loss elimination ratios. Use the standard LDI exposure data provided in the file LDI\_Exp\_2013.xlsx and assume each risk has the listed deductible for each scenario.

Note: Provide losses only for exposures in Louisiana only, regardless of landfall.

**Instructions: This section addresses the reason a revised model release took place, i.e., why the model software changed in some manner. This section should be completed even if the revisions are viewed as trivial.**

1. Identify which model components have been changed since the previous submission and quantify the impact of the change by component on the standard Louisiana Department of Insurance exposure set LDI\_Exp\_2013.xlsx. Use **Exhibit V** to display the differences between the previously filed (in Louisiana) model version’s and this current model version’s average annual loss costs, for the HO frame, zero deductible exposure.

2. Provide color-coded maps by Parish reflecting the percentage difference in average annual homeowners frame, zero deductible, parish loss costs for each model component change, using the following bins and colors (slight variation in colors is acceptable):

|  |  |
| --- | --- |
| **Percentage Difference in Average Annual Parish Loss Costs** | |
|  | -40% or less |
|  | -20% to > -40% |
|  | -10% to > -20% |
|  | 0% to > -10% |
|  | +10% to > 0% |
|  | +20% to > +10% |
|  | +40% to > +20% |
|  | +100% to > +40% |
|  | greater than +100% |

3. Provide a description of each change that affects the personal or commercial residential loss costs or probable maximum loss estimates, including:

* 1. Provide the rationale for each change. Use the model components of **Exhibit V** as reference in your comments:

1. Zip Codes: □ Changed □ Did NOT change

1. Hazard Module: □ Changed □ Did NOT change

1. Vulnerability Module: □ Changed □ Did NOT change

1. Financial Module: □ Changed □ Did NOT change

* 1. Comment on the data that supports each change, including quantification of the amount of data that specifically applies to the state of Louisiana. Use the model components of **Exhibit V** as reference in your comments:

1. Zip Codes:

1. Hazard Module:

1. Vulnerability Module:

1. Financial Module:

* 1. Quantify the amount of data specific to each change that was utilized in the previous submission, and the amount of “new” data that became available and was used to support changes in this model update. Use the model components of **Exhibit V** as reference in your comments:

1. Zip Codes:

1. Hazard Module:

1. Vulnerability Module:

1. Financial Module:

* 1. With respect to data used to develop, validate or support this current model version, describe how data used to develop, validate or support the previous model version (i.e., the last model version filed with the LDI) and new data were incorporated/combined to develop, validate or support this current model version. Use the model components of **Exhibit V** as reference in your comments:

1. Zip Codes:

1. Hazard Module:

1. Vulnerability Module:

1. Financial Module:

**Instructions: This section measures the sensitivity of modeled results due to differences in terrain roughness.**

Provide the impact of terrain factors on grid location expected loss. Provide ground-up expected loss estimates for both modeled open terrain and modeled actual terrain for the Homeowners Wood Frame structure type provided in the standard LDI\_Exp\_Grid\_2013.xlsx exposure file.  Report the expected loss estimates for building coverage only, and record the result on CD-ROM using the format of **Exhibit W**.

Note: Modeled “actual” terrain is the surface roughness utilized in the vendor model. Modeled “open” terrain corresponds to utilizing a constant roughness value of 0.03 meters at all locations.

**EXHIBITS**

**(Exhibits referenced in PART B)**

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**Profile of Key Technical Staff and Specific Contributions to Model Development**

**(Duplicate as needed; provide no more than three key staff contributors for each component.)**

NAME:

TITLE:

YEARS EXPERIENCE WITH CATASTROPHE MODEL DEVELOPMENT:

CURRENT RELEASE REFERENCE:

EDUCATION:

SPECIFIC COMPONENT(S) WORKED ON:

 □ Hazard □ Vulnerability □ Financial □ SW Development □ Other (specify)

SPECIFIC CONTRIBUTION:

SIGNATURE: DATE:

Contact Information for Key Technical Staff Making Contributions to Each Component:

(Provide information on no more than three key staff contributors per component.)

Hazard Component

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Title | Email | Phone Number |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Vulnerability Component

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Title | Email | Phone Number |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Financial Component

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Title | Email | Phone Number |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Software Development Component

|  |  |  |  |
| --- | --- | --- | --- |
| Name | Title | Email | Phone Number |
|  |  |  |  |
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**Historical Release and Revision Summary**

|  |  |  |
| --- | --- | --- |
| **DATE** | **RELEASE REFERENCE** | **BRIEF DESCRIPTION** |
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Profile of Independent Experts and Peer Reviews

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name and Qualifications of Peer Reviewer | Year and Release Reference | Component(s) Reviewed | How Many Hours Were Spent By the Peer Reviewer: | |
| On Site | Total |
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Data Sources and Assumptions Underlying the

Model Variables

|  |  |  |
| --- | --- | --- |
| Model Variable | Component | Description of (Changes in) Assumptions and Supporting Data Sources |
|  |  |  |
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Landfall Parameters for Historical Storm Used in Model Development

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Historical Storm Description | | Parameters at Landfall | | | | | Sources  (Separately Identify Source for Each Parameter) |
| Name | Date  (mm/dd/yyyy) | Coordinates (Decimal Degrees) | Central  Pressure (mb) | Max Sustained 1-Min Wind Speed Over Land (mph) | Rmax (miles) | Forward Speed (mph) |
|  |  |  |  |  |  |  |  |
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Comparison of Modeled Annual Frequencies to

Historical Frequencies by Region

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Saffir-Simpson Classification** | | | | | | | | | | **Total** |
|
| **5** | | **4** | | **3** | | **2** | | **1** | |
| **Modeled Frequency** | **Historical Frequency** | **Modeled Frequency** | **Historical Frequency** | **Modeled Frequency** | **Historical Frequency** | **Modeled Frequency** | **Historical Frequency** | **Modeled Frequency** | **Historical Frequency** |
| **100 miles west of Louisiana** |  |  |  |  |  |  |  |  |  |  |  |
| **Western Louisiana** |  |  |  |  |  |  |  |  |  |  |  |
| **Eastern Louisiana** |  |  |  |  |  |  |  |  |  |  |  |
| **Total Louisiana** |  |  |  |  |  |  |  |  |  |  |  |
| **100 miles east of Louisiana** |  |  |  |  |  |  |  |  |  |  |  |
| **TOTAL** |  |  |  |  |  |  |  |  |  |  |  |

NOTES: • Use four decimals for displayed probabilities, e.g., .0219.

• Western Louisiana is defined as Cameron, Vermillion, Iberia, and St. Mary Parishes. Eastern Louisiana is defined as Terrebonne, Lafourche, Jefferson, Plaquemines, St. Bernard, and St. Tammany Parishes.

• For the purposes of this analysis, the regions are defined by the following bounding coordinates (all coordinates are displayed in decimal form):

100 miles west of Louisiana: (28.963; -95.274), (29.688; -93.837)

Western Louisiana: (29.688; -93.837), (29.586; -91.216)

Eastern Louisiana: (29.586; -91.216), (30.186; -89.527)

Total Louisiana: (29.688; -93.837), (30.186; -89.527)

100 miles east of Louisiana: (30.186; -89.527), (30.228; -87.856)

**Central Pressures at Louisiana Landfall**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Central Pressure | Counts | | Annual Frequency | |
| Historical | Modeled | Historical | Modeled |
| 000 – 890 mb |  |  |  |  |
| 891 – 900 mb |  |  |  |  |
| 901 – 910 mb |  |  |  |  |
| 911 – 920 mb |  |  |  |  |
| 921 – 930 mb |  |  |  |  |
| 931 – 940 mb |  |  |  |  |
| 941 – 950 mb |  |  |  |  |
| 951 – 960 mb |  |  |  |  |
| 961 – 970 mb |  |  |  |  |
| 971 – 980 mb |  |  |  |  |
| 981+ mb |  |  |  |  |
| **TOTAL** |  |  |  |  |

**Radius of Maximum Winds at Louisiana Landfall**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Radius | Counts | | Annual Frequency | |
| Historical | Modeled | Historical | Modeled |
| 0 – 10 Miles |  |  |  |  |
| 11 – 20 Miles |  |  |  |  |
| 21 – 30 Miles |  |  |  |  |
| 31 – 40 Miles |  |  |  |  |
| 41 – 50 Miles |  |  |  |  |
| 51 – 60 Miles |  |  |  |  |
| 61 – 70 Miles |  |  |  |  |
| 71+ Miles |  |  |  |  |
| TOTAL |  |  |  |  |

**Forward Speed at Louisiana Landfall**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Speed | Counts | | Annual Frequency | |
| Historical | Modeled | Historical | Modeled |
| 0 – 5 mph |  |  |  |  |
| 5.1 – 7.5 mph |  |  |  |  |
| 7.6 – 10.0 mph |  |  |  |  |
| 10.1 – 12.5 mph |  |  |  |  |
| 12.6 – 15.0 mph |  |  |  |  |
| 15.1 – 17.5 mph |  |  |  |  |
| 17.6 – 20.0 mph |  |  |  |  |
| 20.1 – 25.0 mph |  |  |  |  |
| 25.1 – 30.0 mph |  |  |  |  |
| 30.1+ mph |  |  |  |  |
| TOTAL |  |  |  |  |

**Max Wind Speed at Louisiana Landfall**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Max Wind Speed Over Land | Counts | | Annual Frequency | |
| Historical | Modeled | Historical | Modeled |
| 71 – 80 mph |  |  |  |  |
| 81 – 90 mph |  |  |  |  |
| 91 – 100 mph |  |  |  |  |
| 101 – 110 mph |  |  |  |  |
| 111 – 120 mph |  |  |  |  |
| 121 – 130 mph |  |  |  |  |
| 131 – 140 mph |  |  |  |  |
| 141 – 150 mph |  |  |  |  |
| 151 – 160 mph |  |  |  |  |
| 161 – 170 mph |  |  |  |  |
| 171+ mph |  |  |  |  |
| **TOTAL** |  |  |  |  |

**Decay Rate Over Constant Average Land Roughness**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Elapsed Time | Mean Decay Rate | | 10th Percentile Decay Rate | | 90th Percentile Decay Rate | |
| Maximum Wind Speed (MPH) | Percent of Wind Speed at Landfall | Maximum Wind Speed (MPH) | Percent of Wind Speed at Landfall | Maximum Wind Speed (MPH) | Percent of Wind Speed at Landfall |
| Landfall |  |  |  |  |  |  |
| 2 Hours |  |  |  |  |  |  |
| 4 Hours |  |  |  |  |  |  |
| 6 Hours |  |  |  |  |  |  |
| 8 Hours |  |  |  |  |  |  |
| 10 Hours |  |  |  |  |  |  |
| 12 Hours |  |  |  |  |  |  |
| 14 Hours |  |  |  |  |  |  |
| 16 Hours |  |  |  |  |  |  |
| 18 Hours |  |  |  |  |  |  |
| 20 Hours |  |  |  |  |  |  |
| 22 Hours |  |  |  |  |  |  |
| 24 Hours |  |  |  |  |  |  |
| 26 Hours |  |  |  |  |  |  |
| 28 Hours |  |  |  |  |  |  |
| 30 Hours |  |  |  |  |  |  |
| 32 Hours |  |  |  |  |  |  |
| 34 Hours |  |  |  |  |  |  |
| 36 Hours |  |  |  |  |  |  |
| 38 Hours |  |  |  |  |  |  |
| 40 Hours |  |  |  |  |  |  |
| 42 Hours |  |  |  |  |  |  |
| 44 Hours |  |  |  |  |  |  |
| 46 Hours |  |  |  |  |  |  |
| 48 Hours |  |  |  |  |  |  |

Wind Speed Output at the ZIP Centroid for Both Open Terrain and Modeled Actual Terrain

|  |  |  |
| --- | --- | --- |
| Zip Code | 100 Year Return Period Winds From Stochastic Model | |
| Modeled Open Terrain | Modeled Actual Terrain |
|  |  |  |
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NOTES: Report all wind speeds as the peak 1-min, 10-meter sustained wind speed.

Modeled “actual” terrain is the surface roughness utilized in the vendor model.

Modeled “open” terrain corresponds to utilizing a constant roughness value of 0.03 meters at all locations.

**Mean Damage Ratios for Hypothetical Storm**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Wind speed (mph) | Estimated Ground-Up Damage / Subject Exposure | | | |
| Single Family Home – Wood Frame | Single Family Home – Masonry | Mobile Home | Commercial Residential – Masonry |
| 41 – 50 |  |  |  |  |
| 51 – 60 |  |  |  |  |
| 61 – 70 |  |  |  |  |
| 71 – 80 |  |  |  |  |
| 81 – 90 |  |  |  |  |
| 91 – 100 |  |  |  |  |
| 101 – 110 |  |  |  |  |
| 111 – 120 |  |  |  |  |
| 121 – 130 |  |  |  |  |
| 131 – 140 |  |  |  |  |
| 141 – 150 |  |  |  |  |
| 151 – 160 |  |  |  |  |
| 161 – 170 |  |  |  |  |

**Impact of Mitigation Features**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Percent Change in Ground-Up Expected Loss** | | | | | | | | | |
| Location A | | Location B | | Location C | | Location D | | Location E | |
|
| SFH Wood Frame | SFH Masonry | SFH Wood Frame | SFH Masonry | SFH Wood Frame | SFH Masonry | SFH Wood Frame | SFH Masonry | SFH Wood Frame | SFH Masonry |
|  | Reference Structure |  |  |  |  |  |  |  |  |  |  |
| Identify the Three Mitigation Modifiers that Have the Most Impact in Louisiana |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| Year of Construction (Indicate each year-built bin available in the model for LA) |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |
| IBHS | Fortified for Safer Living Home |  |  |  |  |  |  |  |  |  |  |
| Mitigation Measures in Combination That Produce Largest Reduction | Mitigated Structure |  |  |  |  |  |  |  |  |  |  |

**Reference Structure Location**

|  |  |  |
| --- | --- | --- |
|  | Latitude | Longitude |
| Location A | 29.54 | -92.31 |
| Location B | 29.55 | -92.31 |
| Location C | 29.68 | -92.31 |
| Location D | 30.30 | -92.31 |
| Location E | 31.05 | -92.31 |

**Impact of Adjusting Model Settings**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Can Model Setting Be Altered? | Attribute | Settings | Statewide Zero Deductible Loss | | | |
| AAL | Exceedance Probability | | |
| 5% | 2% | 1% |
|  | Demand Surge (i.e., Loss Amplification) | ON |  |  |  |  |
| OFF |  |  |  |  |
|  | Storm Surge | ON |  |  |  |  |
| OFF |  |  |  |  |
|  | Catalog Size | 10K |  |  |  |  |
| 50K |  |  |  |  |
| 100K |  |  |  |  |
| Other:\_\_\_\_\_\_\_\_ |  |  |  |  |
|  | Loss Adjustment Expenses | ON |  |  |  |  |
| OFF |  |  |  |  |
|  | Freq Rates | NEAR TERM |  |  |  |  |
| MEDIUM TERM |  |  |  |  |
| LONG TERM |  |  |  |  |
|  |  | Other:\_\_\_\_\_\_\_\_ |  |  |  |  |

**Homeowners Frame Modeled Loss Costs**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana Weighted Total** |  |  |  |  |  |  |  |  |  |

**Homeowners Masonry Modeled Loss Costs**

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| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana**  **Weighted Total** |  |  |  |  |  |  |  |  |  |

**Renters Frame Modeled Loss Costs**

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| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana Weighted Total** |  |  |  |  |  |  |  |  |  |

**Renters Masonry Modeled Loss Costs**

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| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana Weighted Total** |  |  |  |  |  |  |  |  |  |

**Condominium Frame Modeled Loss Costs**

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| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana Weighted Total** |  |  |  |  |  |  |  |  |  |

**Condominium Masonry Modeled Loss Costs**

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| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana Weighted Total** |  |  |  |  |  |  |  |  |  |

**Mobile Home Modeled Loss Costs**

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| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana Weighted Total** |  |  |  |  |  |  |  |  |  |

**Commercial Residential Modeled Loss Costs**

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| **ZIP** | **$0 Deductible Structure** | **$0 Deductible Contents** | **$0 Deductible Time** | **$500 Deductible Total** | **$1000 Deductible Total** | **$2500 Deductible Total** | **1% Deductible Total** | **2% Deductible Total** | **5% Deductible Total** |
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| **Parish Weighted Average** |  |  |  |  |  |  |  |  |  |
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| **Louisiana Weighted Total** |  |  |  |  |  |  |  |  |  |

**Historical Hurricanes 1900-2012**

**Instructions: Below is a listing of a standard historical event set for storms making landfall from 1900 to 2012 in Louisiana. Provide modeled property loss estimates for the hurricanes listed using the LDI standard exposure data provided in the file LDI\_Exp\_2013.xlsx. For each hurricane listed, report gross losses for all coverages combined on Exhibit S and Exhibit T. Report in hardcopy and on CD-ROM. Assume a 2% deductible applies for each risk.**

|  |  |
| --- | --- |
| Year | Name |
| 1901 | NoName4 |
| 1909 | NoName8 |
| 1915 | NoName5 |
| 1920 | NoName2 |
| 1923 | NoName3 |
| 1926 | NoName3 |
| 1934 | NoName2 |
| 1938 | NoName2 |
| 1947 | NoName4 |
| 1948 | NoName5 |
| 1957 | Audrey |
| 1964 | Hilda |
| 1965 | Betsy |
| 1971 | Edith |
| 1974 | Carmen |
| 1979 | Bob |
| 1985 | Danny |
| 1985 | Juan |
| 1988 | Florence |
| 1992 | Andrew |
| 2002 | Lili |
| 2005 | Cindy |
| 2005 | Katrina |
| 2005 | Rita |
| 2008 | Gustav |
| 2012 | Isaac |

Historical Event Losses by Zip Code

For each event Report the Gross Losses (all coverages combined) in the following format:

|  |  |  |  |
| --- | --- | --- | --- |
| **Zip Code** | **Personal Residential\*** | **Commercial** | **Total** |
|  |  |  |  |
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| **Louisiana Total** |  |  |  |

NOTES: \* “Personal Residential” is defined as Homeowners, Condominium, Renter, and Mobile Home risks.

“Commercial” is defined as all risks other than personal residential.

Historical Event Losses by Event

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Historical Event** | **HO** | **Condo** | **Renter** | **Mobile Home** | **Commercial** | **Total** |
|  |  |  |  |  |  |  |  |
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**Louisiana Probable Maximum Loss and Statistics**

**(Estimates based on the LDI standard database exposures)**

**Table 1**

**(Assume a 2% hurricane deductible for each exposure)**

|  |  |  |
| --- | --- | --- |
| Return Time (Years) | Louisiana Estimated Loss | |
| Annual Aggregate | Annual Occurrence |
| Top Event |  |  |
| 10,000 |  |  |
| 5,000 |  |  |
| 1,000 |  |  |
| 500 |  |  |
| 250 |  |  |
| 100 |  |  |
| 50 |  |  |
| 20 |  |  |
| 5 |  |  |
| **Mean** |  |  |
| **Median** |  |  |

**Table 2**

**(Assume the hurricane deductible listed)**

|  |  |
| --- | --- |
| **Hurricane Deductible** | **Estimated Mean Loss Elimination Ratio** |
| NONE | **0** |
| $250 |  |
| $500 |  |
| $1,000 |  |
| 1% Coverage A |  |
| 2% Coverage A |  |
| 5% Coverage A |  |

Impact of Model Update By Component

Instructions: Identify which model components have been changed since the previous submission. Quantify the impact of the change by component on the standard LDI exposure set LDI\_Exp\_2013.xlsx. Provide loss costs in the table below for HO frame, no hurricane deductible.

Previous Model Version (filed with the LDI):

Current Model Version (filed with the LDI):

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Updated?  (Check box if “Yes”) | Model Component | Model Version | Percent Difference in Average Annual Zero Deductible HO Frame Loss Cost | | |
| Statewide Loss Cost or Percent Difference | Parish with Largest Increase | Parish with Largest Decrease |
| □ | Zip Codes | Previous Model | $ | Parish:  Percentage Increase: % | Parish:  Percentage Decrease: % |
| Current Model | $ |
| Percent Difference | % |
| □ | Hazard Module | Previous Model | $ | Parish:  Percentage Increase: % | Parish:  Percentage Decrease: % |
| Current Model | $ |
| Percent Difference | % |
| □ | Vulnerability Module | Previous Model | $ | Parish:  Percentage Increase: % | Parish:  Percentage Decrease: % |
| Current Model | $ |
| Percent Difference | % |
| □ | Financial Module | Previous Model | $ | Parish:  Percentage Increase: % | Parish:  Percentage Decrease: % |
| Current Model | $ |
| Percent Difference | % |
| □ | Cumulative Impact | Previous Model | $ | Parish:  Percentage Increase: % | Parish:  Percentage Decrease: % |
| Current Model | $ |
| Percent Difference | % |

Impact of Terrain Factors on Grid Location Expected Loss

|  |  |  |
| --- | --- | --- |
| Grid Point | Expected Loss | |
| Modeled Open Terrain | Modeled Actual Terrain |
|  |  |  |
|  |  |  |
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Notes: Modeled “actual” terrain is the surface roughness utilized in the vendor model.

Modeled “open” terrain corresponds to utilizing a constant roughness value of 0.03 meters at all locations.

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**APPENDIX A**

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Data requested on all exhibits may be provided in hard copy but **must** also be provided in electronic format as defined in this Appendix (unless noted).

Data should be provided on a CD-ROM or DVD-ROM. The requested file format is Excel spreadsheet file format as defined in the following pages. The LDI requests that Excel 2010 or later be used to report interrogatory data electronically though Excel 2007 is an acceptable version; versions of Excel earlier than 2007 are not acceptable.

Data for each exhibit should be labeled as follows:

|  |  |  |
| --- | --- | --- |
| **INTERROGATORY  EXHIBIT** | **MS EXCEL FILE NAME** | **MS EXCEL WORKSHEET** |
| N/A | LDI\_INT\_2013.xlsx | Transmittal Form |
| A | (e.g. LDI\_INT\_2013.xlsx) | Ex\_A |
| B | (e.g. LDI\_INT\_2013.xlsx) | Ex\_B |
| C | (e.g. LDI\_INT\_2013.xlsx) | Ex\_C |
| D | (e.g. LDI\_INT\_2013.xlsx) | Ex\_D |
| E | (e.g. LDI\_INT\_2013.xlsx) | Ex\_E |
| F | (e.g. LDI\_INT\_2013.xlsx) | Ex\_F |
| G | (e.g. LDI\_INT\_2013.xlsx) | Ex\_G |
| H | (e.g. LDI\_INT\_2013.xlsx) | Ex\_H |
| I | (e.g. LDI\_INT\_2013.xlsx) | Ex\_I |
| J | (e.g. LDI\_INT\_2013.xlsx) | Ex\_J |
| K | (e.g. LDI\_INT\_2013.xlsx) | Ex\_K |
| L | (e.g. LDI\_INT\_2013.xlsx) | Ex\_L |
| M | (e.g. LDI\_INT\_2013.xlsx) | Ex\_M |
| N | (e.g. LDI\_INT\_2013.xlsx) | Ex\_N |
| O | (e.g. LDI\_INT\_2013.xlsx) | Ex\_O |
| P | (e.g. LDI\_INT\_2013.xlsx) | Ex\_P |
| Q.1 though Q.8 | (e.g. LDI\_INT\_2013.xlsx) | Ex\_Q.1 through Ex\_Q.8 |
| R | (e.g. LDI\_INT\_2013.xlsx) | Ex\_R |
| S | (e.g. LDI\_INT\_2013.xlsx) | Ex\_S |
| T | (e.g. LDI\_INT\_2013.xlsx) | Ex\_T |
| U | (e.g. LDI\_INT\_2013.xlsx) | Ex\_U |
| V | (e.g. LDI\_INT\_2013.xlsx) | Ex\_V |
| W | (e.g. LDI\_INT\_2013.xlsx) | Ex\_W |

**Transmittal Form**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Model Company | Character |
| Name of Model | Character |
| Release Reference | Character |
| Stochastic Catalog Ref | Character |
| Date (Month, Day, Year) | MM/DD/YYYY |

**Exhibit A**

|  |
| --- |
| Provide hardcopy only; not required in Excel format/file. |

**Exhibit B**

|  |
| --- |
| Provide hardcopy only; not required in Excel format/file. |

**Exhibit C**

|  |
| --- |
| Provide hardcopy only; not required in Excel format/file. |

**Exhibit D**

|  |
| --- |
| Provide hardcopy only; not required in Excel format/file. |

**Exhibit E**

|  |
| --- |
| Provide hardcopy only; not required in Excel format/file. |

**Exhibit F**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Name | Character |
| Date | MM/DD/YYYY |
| Coordinates | Character |
| Central Pressure | Numeric |
| Max Sustained 1-Min Wind Speed Over Land | Numeric |
| Rmax | Numeric |
| Forward Speed | Numeric |
| Sources | Character |

**Exhibit G**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Modeled Frequency | Numeric |
| Historical Frequency | Numeric |
| Total | Numeric |

**Exhibit H**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Historical | Numeric |
| Modeled | Numeric |

**Exhibit I**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Historical | Numeric |
| Modeled | Numeric |

**Exhibit J**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Historical | Numeric |
| Modeled | Numeric |

**Exhibit K**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Historical | Numeric |
| Modeled | Numeric |

**Exhibit L**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Maximum Wind Speed (MPH) | Numeric |
| Percent of Wind Speed at LF | Numeric |

**Exhibit M**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Zip Code | Numeric |
| Modeled Open Terrain | Numeric |
| Modeled Actual Terrain | Numeric |

**Exhibit N**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Single Family Home - Wood Frame | Numeric |
| Single Family Home - Masonry | Numeric |
| Mobile Home | Numeric |
| Commercial Residential - Masonry | Numeric |

**Exhibit O, Table 1**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| SFH Wood Frame | Numeric |
| SFH Masonry | Numeric |

**Exhibit O, Table 2**

|  |
| --- |
| This table is for reference only |

**Exhibit P**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Can Be Altered? | Check |
| AAL | Numeric |
| 5% | Numeric |
| 2% | Numeric |
| 1% | Numeric |

**Exhibit Q.1 through Q.8**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| ZIP | Numeric |
| $0 Deductible Structure | Numeric |
| $0 Deductible Contents | Numeric |
| $0 Deductible Time | Numeric |
| $500 Deductible Total | Numeric |
| $1000 Deductible Total | Numeric |
| $2500 Deductible Total | Numeric |
| 1% Deductible Total | Numeric |
| 2% Deductible Total | Numeric |
| 5% Deductible Total | Numeric |

**Exhibit R**

|  |
| --- |
| Provide hardcopy only; not required in Excel format/file. |

**Exhibit S**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Zip Code | Numeric |
| Personal Residential | Numeric |
| Commercial | Numeric |
| Total | Numeric |

**Exhibit T**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Year | Numeric |
| Historical Event | Character |
| HO | Numeric |
| Condo | Numeric |
| Renter | Numeric |
| Mobile Home | Numeric |
| Commercial | Numeric |
| Total | Numeric |

**Exhibit U, Table 1**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Annual Aggregate | Numeric |
| Annual Occurrence | Numeric |

**Exhibit U, Table 2**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Estimated Mean Loss Elimination Ratio | Numeric |

**Exhibit V**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Statewide Impact | Numeric |
| Parish w/ Largest Increase (Name & Pct) | Character, Numeric |
| Parish w/ Largest Decrease (Name & Pct) | Character, Numeric |

\*For Exhibit V, hardcopy alone will suffice though Excel format is also acceptable.

**Exhibit W**

|  |  |
| --- | --- |
| **Description** | **Data Type** |
| Grid Point | Numeric |
| Modeled Open Terrain | Numeric |
| Modeled Actual Terrain | Numeric |

1. In Louisiana, “parish” is equivalent to the “county” designation used in most other states. [↑](#footnote-ref-1)