Interagency Flood Risk Management (InFRM)

Watershed Hydrology Assessment for the Nueces River Basin

Appendix G:
Peer Review Comments and Responses

March 2025

INTERAGENCY FLOOD RISK MANAGEMENT

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1 Peer Review Comments and Responses

The peer review comments documented in this appendix were based on the peer review of the October 2024 version of the draft report for the InFRM Watershed Hydrology Assessment (WHA) of the Nueces River Basin. Representatives from the following entities were invited to participate as peer reviewers of this study: the Nueces River Authority, the Texas Water Development Board (TWDB), the City of Corpus Christi, the Bureau of Reclamation (BoR), the InFRM federal agencies, and the InFRM Academic Council.

The InFRM Academic Council is comprised of a select group of professors from local universities with unique skillsets and regional expertise in water resources and hydrology. Their involvement provides an independent and unbiased review of the InFRM team's methods and results. The primary InFRM Academic Council reviewers for the Nueces Watershed Hydrology Assessment included Dr. Nick Fang from the University of Texas at Arlington and Dr. Phillip Bedient from Rice University in Houston, Texas.

The reviewers' significant comments and the InFRM team's responses are recorded in the following sections of this appendix. The peer review comments have been organized according to the section of the report that they pertained to. These comments have been addressed in the final version of the report, as indicated in the comment responses. Minor editorial comments were also addressed but are not documented in this appendix.

1.1 EXECUTIVE SUMMARY AND STUDY BACKGROUND

No comments were received that related to this section of the report.

1.2 NUECES RIVER BASIN DESCRIPTION

1. Comment: It would be better to use a newer survey if available (for Choke Canyon Reservoir).

   Response: Concur. The team used the latest survey available from Texas Water Development Board, surveyed in 2012.

2. Comment: "However, during winter months, the influence of high-pressure system moving from the northwest causes the wind to shift from the north and northwest." Needs more explanation.

   Response: Concur. The following information has been added to Section 2.2 of the report:

   "During the winter months, the prevailing winds typically shift direction and originate from a high-pressure system in the northwest."

3. Comment: It would be better to place this table (2.1) after section 2.3 and then start explaining each of them in sections 2.3.1 to 2.3.4

   Response: Concur. This also maintains consistency with previous WHAs.

4. <u>Comment</u>: These paragraph(s) (Section 2.5) emphasizes Atlas 15, so it would be better to provide some more in-depth information about it.

   <u>Response</u>: Concur. A link will be added at the end of the paragraph so the user can find the current status of Atlas 15.

5. <u>Comment</u>: In Section 2.5, the discussion of future climate, it would be really beneficial to provide a graphic visualization to show this increasing trend in temperature for the readers.

   <u>Response</u>: Concur. Figure 2.2 of the increasing temperature trends has been added.

1.3 METHODOLOGY

6. <u>Comment</u>: Methodology section mentions 'updating the land use data'. 2016 NLCD is not an update

   <u>Response</u>: Concur. 2016 was the latest available at the beginning of this study (2019). The reference to updating the land use has been removed.

1.4 DATA SOURCES

7. <u>Comment</u>: Under section 4.2 Digital Elevation Model (DEM), It would better to mention the resolution of the LiDAR

   <u>Response</u>: Concur. The report has been updated to reference 1-meter LiDAR.

8. <u>Comment</u>: Under section 4.5 Soil Data, mention where to find the associated methodology for this in the document.

   <u>Response</u>: Concur. A reference to where the reader can find more information has been added.

9. <u>Comment</u>: Under section 4.6.1 Radar Data for observed Storms, please mention the timezone used after processing.

   <u>Response</u>: Concur. The processed precipitation data was in its native GMT timezone, but a time shift to CST was applied within HEC-HMS. This information has been added to the final report.

10. <u>Comment</u>: Under section 4.8, it is noted that HMS modeling included 2 reservoirs in detail due to their sizable flood storage and noticeable influence downstream. This is inconsistent with the description of these two reservoirs as being used for “water supply and recreation” with no mention of being used for flood control. Assuming these reservoirs have some nominal flood storage capacity, this should be specifically noted as such given the lack of any mention of them being used for flood control.

Response: Concur. The introductory paragraph for section 4.8 has been revised to clarify that while flood control is not an authorized purpose of these reservoirs, they still have a noticeable effect on downstream peak discharges due to their large storage capacities.

11. Comment: Figure 4.1: Low quality conflicting coloration, hard to read the names. No legend, No scale bar, No North Arrow. Maybe label the # of the gage and DEM as the baseline map.

Figure shows the 2 large reservoirs “actually modeled” in HMS but also shows over 30 other reservoir locations that are “accounted for” in the HMS modeling by adjusting unit hydrograph parameters and loss rates to represent these smaller reservoirs. This distinction should be reflected

Response: Concur. Map has been updated in the main report and in Appendix B.

1.5 STATISTICAL HYDROLOGY

12. Comment: Figure 5.1 shows 24 gage locations for those used in the Statistical Analysis, but the text and Table 5.1 list 25 gage locations being used.

Response: Upon further inspection of the table, it is actually 24 gage locations, but one gage has two different analyses listed (Frio River at Tilden). The table’s title has been updated to read "Summary of the Twenty Five *Analyses* for U.S....".

13. Comment: Figure 5.3, why is the highest peak flow value shown at a frequency of less than 0.5% (200-yr) for a period of record covering about 120 years?

Response: The Hirsch-Stedinger plotting position was used to plot the peak flow values in PeakFQ v 7.2. With a record length of 122 years, 78 of which were above the low outlier threshold, and with the peak ranking 1 above the perception threshold, the plotting position was calculated as 0.4%. Hirsch-Stedinger are the recommended plotting positions of Bulletin 17C. The following information will be added to the report in section 5.1 and to Appendix A.

Input data are plotted on a probability scale along with the computed frequency curve and confidence limits using plotting positions. Plotting positions do not have any influence on the computed frequency distribution but are an important tool in assessing the fitted frequency distribution. The Hirsch-Stedinger plotting position was used in this analysis, which is the recommended method in Bulletin 17C because of its correct interpretation of historical information conveyed by historical flood data, the recognition of the limited precision of the exceedance probability estimates for historical floods, and noted the relative imprecision of estimators (Hirsch and Stedinger, 1984; England and others, 2018).

14. Comment: On Figure 5.5, why is the highest peak flow value shown at a frequency of less than 1% (100-yr) for a period of record covering about 88 years?

Response: The Hirsch-Stedinger plotting position was used to plot the peak flow values in PeakFQ v 7.2. With a record length of 89 years (including historical), 55 of which were above the low outlier threshold, and with the peak ranking 1 above the perception threshold, the plotting position was calculated as 0.9%. Hirsch-Stedinger are the recommended plotting positions of Bulletin 17C. The following information will be added to the report in section 5.1 and to Appendix A.

Input data are plotted on a probability scale along with the computed frequency curve and confidence limits using plotting positions. Plotting positions do not have any influence on the computed frequency distribution but are an important tool in assessing the fitted frequency distribution. The Hirsch-Stedinger plotting position was used in this analysis, which is the recommended method in Bulletin 17C because of its correct interpretation of historical information conveyed by historical flood data, the recognition of the limited precision of the exceedance probability estimates for historical floods, and noted the relative imprecision of estimators (Hirsch and Stedinger, 1984; England and others, 2018).

15. Comment: On Table 5.2, there should be an explanation in a footnote as to why the upper 95% CI values are so extreme for some of the gages, especially Lagarto Creek near George West.

Response: Concur. Added a footnote to table 5.2 and added the following explanation of the wide confidence limits to the Lagarto Creek analysis section of Appendix A.

"The wide confidence intervals for the Lagarto Creek near George West streamgage may be attributed to the large variance in observed peak streamflows at the streamgage. It also highlights the difficulty in providing reliable flood frequency estimates for lower exceedance probabilities when over one-fifth of the observed record are zero-flow years."

16. Comment: In the third paragraph of section 5.3, can you explain more about what logarithmic-derived offsets are and why they are being used?

Response: Concur. This language is confusing. It is just referring to using a log transformation of the peak discharges, which is standard practice in Bulletin 17C. The offsets are referring to the change in the statistical estimates over time due to the expanding time window being analyzed. The third paragraph of Section 5.3 has been updated to make this clearer.

17. Comment: In Section 5.2, where statistically significant trends are identified using the Kendall Tau test, can the trend be reported (cfs/year)? Bulletin 17C recommends using a Theil Trendline. This suggestion may make more sense in Appendix A rather than the Main Report.

Response: Concur, the Theil trendline could be used to quantify the magnitude of the trend in cfs and provide additional information on changes to the flood frequency estimate over time, especially into the future. However, for the current analysis simply identifying whether or not a trend existed was the primary purpose to determine whether the flood frequency analysis represented current conditions at the site.

Future WHA work may explore predicted future changes to flood frequency estimates, and a Theil Trendline may be employed to quantify this trend to aid in future projections.

18. Comment: On page 45 of Chapter 5 under the Frio River at Tilden alternate analysis, the report states, "The MOVE.1 method was chosen over MOVE.3 method (Vogel and Stedinger, 1985) because the MOVE.1 method only produces estimates from data sampled during the concurrent period of record. That is, with the MOVE.1 method the missing period of record will only be calculated when data are available from all streamgages. Furthermore, the MOVE.1 method provided higher streamflow estimates, which in turn should provide more conservative return interval estimates."

I don't think this explanation is quite accurate. MOVE.3 is a better estimator because it incorporates the entire period of record from the long-record site in calculating the statistics used to develop the estimator. In contrast, MOVE.1 only uses the statics of the overlapping period of record to develop the estimator. In the end, both methods allow for record extension when we only have records from the long-record site. Otherwise…how could this be record extension if we need records from "all streamgages"? I suggest revising as follows:

"Two Maintenance of Variance for Record Extension (MOVE) techniques were considered for extending records. Ultimately, the MOVE.1 method was chosen over MOVE.3 method (Vogel and Stedinger, 1985), because the MOVE.1 method provided higher streamflow estimates, which in turn should provide more conservative return interval estimates. While both techniques can estimate records when the short-record site is missing data, the MOVE.1 method produces estimators from data sampled only during the concurrent period of record, while the MOVE.3 method uses the entire periods of record from both sites to produce estimators."

Response: Concur, this was confusing as written, thank you for highlighting this issue. The claim was never made that MOVE.1 was the better estimator, merely that it was chosen in this situation because 1) it produced higher, more conservative estimates, and 2) more importantly in this situation, the MOVE.1 method produces estimators from the data sampled only during the concurrent period of record. This is important for this analysis due to the lack of available nearby streamgages with which to draw information from. Only two index streamgages were utilized, and we wanted to avoid the situation where the MOVE methodology was basing an estimate off of only one streamgage, hence the choice of MOVE.1. I agree with most of your suggested revisions but have modified to better explain this reasoning. See updated text below.

"Two Maintenance of Variance for Record Extension (MOVE) techniques were considered for extending records. Ultimately, the MOVE.1 method was chosen over MOVE.3 method (Vogel and Stedinger, 1985) for two reasons. First, the MOVE.1 method provided higher streamflow estimates, which in turn should provide more conservative return interval estimates. Second, while both techniques can estimate records when the short-record site is missing data, the MOVE.1 method produces estimators from data sampled only during the concurrent period of record, while the MOVE.3 method uses the entire periods of record from both sites to produce estimators. In this analysis, only two index streamgages were used due to the lack of appropriate index streamgages nearby, and MOVE.1 was chosen to avoid using estimators from only one index streamgage."

1.6 HEC-HMS MODEL DEVELOPMENT & UNIFORM RAIN

19. Comment: Figure 6.1, No legend, no scale, no north arrow, and text is hard to read

    Response: Concur. Figure has been updated in the main report and in Appendix B.

20. Comment: Figure 6.2 doesn't show the new reaches added after breaking out additional subbasins

    Response: Concur. Most reaches aren't necessarily being added, just broken out into smaller pieces. Updated end of paragraph to read:

    For the additional river reaches, the new detailed Modified Puls routing data was used to replace the existing Muskingum routing data.

21. Comment: Label Figure 6.3 the name of the reaches mentioned in the proceeding paragraph.

    Response: Concur. Figure 6.3 has been updated in the main report and in Appendix B.

22. Comment: In Locations shown on figure 6.5 and the potential impact can be discussed for over 400 dams

    Response: Figure 6.5 has been updated to show the 400 dams mentioned.

23. Comment: In Section 6.3.2, please explain how the dams were accounted for and also what was used to validate that?

    Response: The other dams were accounted for through adjustments to the subbasin initial losses, peaking coefficients and routing data, and they were validated through calibration of those parameters at the downstream gages. More information can also be found in sections 6.4 and 6.5.

24. Comment: In Section 6.4.1, is this storm (Oct 1996) significant enough to be used as a calibration storm?

    Response: Yes, it was significant only for a few gages in the headwaters of the basin, as shown in Figure 6.6.

25. Comment: In Section 6.4.2, is the rainfall for all events taken from Stage III?

    Response: This has been corrected to Stage IV.

26. Comment: In Section 6.4.2, Is it really that feasible to use constant loss rate as a calibration parameter? Constant loss rate mainly depends on soil classification, which rarely changes.

    Response: Textbooks suggest that constant losses are generally fixed based on soil type. However, USACE's forecasting experience has shown that this is not true for the majority of watersheds in Texas.

The relative wetness or dryness of the watershed significantly affects the rate at which water can infiltrate the ground.

27. Comment: In Section 6.4.2, Shouldn't volume be of more priority than peak timing?

    Response: When estimating peak discharges on rivers, peak timing is more important because it affects the relative timing of the tributaries and how they are added together. When estimating inflow to a reservoir, volume is more important.

28. Comment: In Table 6.4, on what grounds were the constant loss rates changed?

    Response: Based of the observed volume of flow at the downstream gage.

29. Comment: In Section 6.4.2, please add a figure of illustration if possible, for ungaged Turkey Creek watershed above Asherton.

    Response: A figure of the Turkey Creek watershed is included in Chapter 10 and Appendix F. A reference to Appendix F is included at the end of this paragraph.

30. Comment: Please elaborate for the audience on what is meant by the uniform rainfall method.

    Response: The following additional explanation has been added to the report:

    These uniform reductions are in contrast with the elliptical storms in Chapter 7, which have spatially varied reductions according to the distance from the storm center.

1.7 ELLITPICAL FREQUENCY STORMS IN HEC-HMS

31. Comment: Table 7.1 – 7.3 DAR Factors have same values.

    Response: Concur. These tables have been updated with the correct values.

32. Comment: In Figure 7.11a, the heat maps in this section don't appear to take angle of storm into consideration.

    Response: The angle of the storm is adjusted during each iteration of the optimization. The first paragraph of section 7.6.2 describes orientation (or storm angle) as one of the variables that was optimized.

    The heat map just gives a spatial summary of the optimization results, with red representing storm centers with higher flow results, and green areas representing storm locations with lower flow results.

1.8 RIVERWARE ANALYSIS

33. Comment: Based on your formula for smoothed inflow: your inflows are always less than or equal to recorded inflows. (This may have introduced a negative bias to the system, acknowledge in report)

    Response: Our smoothing formula zeroes out negatives, so depending on the month there is a possible minimal positive bias. An acknowledgement has been added in 8.3.1.

34. Comment: Figure 8.39 shows Simulated peak flows compared to observed USGS peak flow is listed as 107,000 cfs in 1967 when the actual USGS value for that year is 141,000 cfs, as shown in Table 2.1 and as confirmed on the USGS website. Also, it should be noted that using the period 1943 forward for this simulation approach excludes 4 of the next highest peak flow rates since they occurred prior to 1943 (including one in 1942).

    Response: The lower simulated peaks prior to 1982 are due to the effects of the two upstream reservoirs. Unfortunately, data limitations only allowed the simulation to extend back to 1943, so there is not enough data to include the earlier events.

35. Comment: Table 8.3, Choke Canyon Purpose - The authorized purposes of Choke Canyon Reservoir are M&I water supply, recreation, and fish and wildlife. The reservoir does not have an authorized flood control purpose.

    Response: Concur. Revised purpose not to include flood control. Added fish and wildlife.

36. Comment: Table 8.4, Page 13. Choke Canyon Reservoir - Pool Elevation and Max Allowable release - Choke Canyon Reservoir Purpose does not include flood control. It does have downstream release requirement of 16 cfs.

    Response: Concur. Added low flow requirements of 16cfs to Table 8.4.

37. Comment: Section 8.6.1 Choke Canyon Model Performance, Page 15.- The simulated pool for Choke Canyon reservoir showed satisfactory results against observe pool. The comparison is for the period post initial dam impoundment (i.e., 1987) through 2019 (Figure 8.5). To match observed pool, top of pool was set above conservation (221.0ft-NGVD), and the flood control pool was set at 222.5ft-NGVD. Choke Canyon Reservoir does not have an authorized flood control purpose.

    Response: Concur. The following lines were added under section 8.6.1.

    Although the project has no authorized flood control purposes, a flood control policy that is consistent with the SWD-USACE operation criteria was added to the RiverWare model to mimic observed conditions. The written flood control policy trigger releases based on pool elevations; the assumed pool *elevation would be referred to as the flood control pool (222.5ft-NGVD). This flood control pool provides a buffer zone between conservation and surcharge.*

38. Comment: Table 8.5, Page 17. Some situational releases did occur under 220.5 in previous flood events, but releases are not required below elevation 220.5.

    Response: Concur: It should be noted that the values in Table 8.5. Page 17, are the maximum releases needed during major flood events. The following note was added below the table for clarifications:
    Note: Some situational releases did occur under 220.5 in previous flood events, but releases are not required below elevation 220.5.
    Releases in this table were adjusted from the original plan to improve simulation.

39. Comment: Table 8.2 does not have any gages on the main stem Nueces (above Three River) or the Atascosa. Are daily inflows for those tributaries also modeled? If so, what gages are being used? Please add to Table 8.2. If they are not, I think they should be added.

    Response: Concur. Added the following gages to Table 8.2 in the report: Atasoca Rv at Whitsett, Tex. and Nueces Rv nr Tilden, Tex. Flows of these 2 gages were used to estimate flows at the dam and lumped in then added to the model indirectly.

40. Comment: I see for the Frio into Choke Canyon you are using the summation of the San Miguel (8206700) and Frio (8206600) and then using MOVE.1 to extend the record back to 1942. While MOVE.1 is a totally fine method for extending the record, there is actually an older, discontinued gage under Choke Canyon Reservoir that I think will be more representative of both daily flows and peaks. Consider replacing your inflow timeseries with data from Frio River at Calliham, TX, USGS 08207000. This is an excellent and very useful dataset for 1924 to 1981. Add to Table 8.2

    Response: Concur. Gage is added to Table 8.2.

    Riverware Inflow Calculation to Lake Choke Canyon: USGS 08207000 Frio Rv at Caliham (01 Oct 1942 - 23 Mar 1982) + combined inflow from USGS 08206700 San Miguel Rv nr Tilden and USGS 08206600 Frio Rv nr Tilden for (24 Mar 1981 - 30 Sep 2019).

    However, data will not be extended to 1924. POR will be through 1942 since most gages around the basin go back to 1942. Extending data back to 1924 would artificially extend a big number of gage sites that would impact results. New RiverWare run will made to account for Calliham gage. Report results and figures are updated accordingly.

41. Comment: For the mean daily to peak regressions, I would suggest using MOVE.1. For Choke Canyon, I would not use the outlet works data for developing this regression, as the flows are highly regulated. I would probably use the Calliham gage, for its long record of peaks and daily flows that are nearly at the site of the dam.

Response: Clarification: Outlet work discharge peaks were only used to validate how well the model performed and not to develop discharge peaks. Discharge frequency analysis will be based on model simulations.

1.9 RESERVOIR ANALYSES

42. Comment: In Section 9.3, it states that hurricanes and tropical storms are capable of producing more than 12 inches of rain in an hour, whereas Atlas 14 1-hour 1,000-year event in south Texas is about 6.5 inches. What is the source of the 12 inches in one hour?

    Response: Concur. This statement was removed.

1.10 2-DIMENSIONAL HEC-RAS ANALYSIS OF THE TURKEY CREEK WATERSHED

43. Comment: A comparison of 2D model results should be made to a hydrologically similar watershed having gage data to verify the reasonableness of the 2D results and the selected n values used.

    Response: Concur that would be beneficial, however, adjacent and similar basins with gage data are limited. The n-values were consistent with the n-values used in the 2D routing model for the Asherton gage, which was calibrated.

44. Comment: In Section 10.3.4, Table 10.2 shows a value of 0.56 for Developed, Medium Intensity, which appears to be a typo as all other values in the table are less than 0.1, which are extremely low for overland n-values for use in a RAS 2D model when simulating overland flow versus floodplain conveyance flow.

    Response: Concur. Updated to 0.065 in the main report and Appendix F. You are correct that ideally, in a detailed 2D model, one could delineate which areas of the watershed are subject to overland (sheet) flow and which are subject to channelized/floodplain flow and then assign higher n-values to overland (sheet) flow areas versus the floodplain areas. However, for the purposes of this 2D analysis, the InFRM team did some sensitivity testing and determined that the channel and floodplain n-values were the most important factor in determining subbasin lag times, routing times and attenuation, which are the variables that this 2D analysis was trying to estimate. This is because the overland (sheet) flow length is much shorter (a few hundred feet) compared to the channelized flow length (several miles). Therefore, for the sake of simplicity, floodplain n-values were assigned to the entire region.

45. Comment: In Section 10.4.1, please explain further on the excess rain-on-mesh.

Response: Concur. Section 10.4.1 has been expanded to include more explanation on excess rain-on-mesh with the following:

For the transform parameter analysis, a 2D excess rain-on-mesh method was used to simulate the rainfall runoff process. The excess precipitation, which is precipitation minus the losses, was extracted from the HEC-HMS model for the 1% AEP (100-year) storm. This excess precipitation time series was then applied to the 2D HEC-RAS model as a precipitation boundary condition in the unsteady flow file. The HEC-RAS 2D diffusion wave model was then run with the excess precipitation. The resulting flow hydrograph at the downstream end of each 2D subbasin was then extracted and compared to the HEC-HMS results for the corresponding subbasins. The lag times and peaking coefficients in HEC-HMS were then adjusted to match flow hydrograph from the 2D HEC-RAS results at the subbasin outlets.

46. Comment: In Figure 10.9, Please fix the ambiguous naming, say HEC-RAS 2D simulation only as this is not observed.

Response: Concur. Current label is being used as a pseudo observed flow, but it would be better to just label it "HEC-RAS 2D". Legend has been updated in the main report and Appendix for all similar figures.

1.11 COMPARISON OF FREQUENCY FLOW ESTIMATES

47. Comment: In Table 11.1, this is another example of a location where the statistical estimates of the 1% AEP event still have not stabilized, even after almost 100 years of record. The confidence bounds are well captured the elliptical storm results.

Response: Concur.

48. Comment: Figure 11.22- Add regulated flow of record? Something from 2002-2004 high releases from Choke Canyon, I'm guessing?

Response: Concur. Updated the labeling on the Figure.

49. Comment: Figure 11.23- Add regulated flow of record?

Response: Concur. Updated the labeling on the Figure.

50. Comment: Figure 11.25b- Do we know what caused the change in 2002? Was it just the floods, or was there a regulator/operational change as well?

Response: Concur. The large change in the statistical estimates was caused by the large floods from 2002 to 2008 being added to the record. No changes in operations were implemented at that time.

51. Comment: It would be helpful to add the floods of record to each plot. Especially when it is discussed in the text. For example, for Figure 11.1 adding the 1935 flood where it plots in frequency space (magnitude and AEP) would help the reader understand your discussion about its influence on the statistical curve.

Response: The flood of record is shown on the plots in Chapter 11 as a dotted horizontal line. This is meant to indicate a range of possible AEPs for the flood of record rather than showing a single AEP. In order to really classify the AEP of a single flood event, we would need to analyze the depths, durations and locations of the rainfall for each storm relative to the gage in question. Doing this for every gage location is beyond the scope of this study.

1.12 FREQUENCY FLOW RECOMMENDATIONS

52. Comment: Section explains that HMS model results, rather than statistical analyses, were used to select the recommended frequency flow values in Table 12.1. However, concerns arise that the HMS model calibration and results should have been validated against statistical analyses where feasible. Significant discrepancies between the two results raise questions about the HMS model's reliability, especially given its use of unit hydrograph methodology rather than a physics-based 2D rain-on-grid approach that considers basin topography.

Response: Concur. Comparisons were made between statistical and HEC-HMS results wherever available, as shown in Chapter 11. Where large differences in estimates were noted, additional investigations were performed to understand the reasons for the differences. In some cases, this led to adjustments in the final HEC-HMS model parameters (that still fell within the range of the calibrated parameters).

In other cases, it was determined that the statistical results were likely over or underestimating the rare frequencies. This type of discussion is included for each gage in Chapter 11. 2D rain-on-grid is a useful approach, but it is too time intensive to be used for the entire basin of a large watershed like the Nueces. Therefore, the 2D analysis was limited to the portion of the basin where it was most needed.

1.13 CONCLUSIONS

53. Comment: Under Chapter 13 (Draft), paragraphs 4 and 5 are too short. It would be better to combine them with the preceding and following paragraphs.

Response: Concur. The 4^{th} and 5^{th} paragraphs have been merged in the main report.

1.14 REFERENCES

No comments were received that related to this section of the report.