B17 C Public Review Comments
Public Review Period: February 22, 2016 - April 22, 2016

Responses

Comment #	Report Section	Subsection	Page #	Line #	Comment	Response	Edits Made to Bulletin 17C
1	General Comments on Entire Document	n/a	n/a	n/a	This document does not address the extrapolation of frequency estimates beyond the available data set. Estimating the 0.5% exceedance probability from a data set affected by a changing climate is not wise. The confidence bounds can exceed the the magnitude of the estimate. Strong warnings about extrapolation of beyond the data is a must. Bulletin 17B made these warnings and the situation is more critical now that climate change is a given.	We have added a new Section "Frequency Curve Extrapolation" to address this comment.	Yes
2	General Comments on Entire Document	n/a	n/a	n/a	ASFPM Mapping & Egineering Standards Committee solicited comments on the draft Bulletin 17C from its membership and below is an annotated summary of comments received: • It was suggested that Bulletin 17C have a section on "Limitations of Frequency Curve Extrapolation." This proposed section would caution users and provide clear guidance to users of Bulletin 17C on limitations and applicability in determining less recurrent annual chance events. The 0.2% (or 500 year) event was specifically mentioned because of its reference in the new the Federal Flood Risk Management Standard (FFRMS). • There were multiple references in the draft that suggested a minimum of 10 years of data is needed to do frequency analysis of annual series. What is the basis for this guidance? Was there a sensitivity analysis conducted that suggested the 10 year of annual maximum series data is sufficient for a peak frequency analysis? • It was acknowledged that PeakFQ and HECSSP have been modified to reflect the method outlined in Bulletin 17C, it was requested that examples be provided that clearly demonstrate the incremental steps in the statistical process. • Similarly, there were requests for examples in computing regional skew and it was suggested that current regional skew studies be published and maintained by the USGS. • While this updates addressed some needs outlined in Bulletin 17B, we concur with Bulletin 17C that there is a significant need for further development of technical guidance for: ungaged sites, regulated flow frequency, and urbanization and watershed change. These three topic areas have far reaching impact to now and into the future. We encourage the Hydrologic Frequency Analysis Work Group (HFAWG) to begin work on addressing these deficiencies in the current guidance.	We sincerely thank ASFPM Mapping & Egineering Standards Committee for obtainin comments from ASFPM. • As noted in the Response to Comment 1, a new section was added to Bulletin 17C on "Frequency Curve Extrapolation." The section provides guidance to users of Bulletin 17C on applicability in determining less recurrent annual chance events. • Added discussion and clarification on a minimum record length of 10 years of data. The basis for this length was Bulletin 17B and current practice (USGS and others). This length is approriate with a good estimate of regional skew. Record extension (MOVE, Appendix 7) or weighting of independent estimates (Appendix 8) is also recommended for short records. No sensitivity analysis was conducted to set the10-year minimum record length because regional skew estimates, record extension, and weighting of independent estimates address the potential issues with short records. Given the fact that recent regional skew studies (by USGS) indicate an informative regional skew is worth about 40 years of at-site data, it is appropriate to use 10 years of data for frequency analysis in combination with such regional skew estimates. • Additional material has been added to the appendix examples for clarification and illustrate some of the computation steps, particularly the PILF estimation. On the examples, full input and output from each software package is provided on the Bullletin 17C website for reproducibility and understanding. Showing incremental steps is not helpful or informative because EMA works in a comprehensive, iterative procedure to obtain final moments and confidence intervals (see Appendix 6). Computations require software and are not amenable to being done by hand or in a spreadsheet. Software, user manuals, and supplementary materials are provided to further address this comment. • The current Bulletin 17C website http://www.acwi.gov/hydrology/Frequency/b17c/index.html under supplementary materials has a comprehensive list of current regional skew studies that are published by the USGS. Examples for computing regional skews may be found within those USGS reports. The website is being revised so that a link to these studies is available from the main page. • We thank you for the encouragement. HFAWG will begin working on guidance for ungaged sites.	Yes
3	Applicability of These Guidelines	n/a			In addition to the comments, there were questions on the impact of these update on past work. • Are there plans to re-evaluate the Regional Regression equations developed for most states, as these Regional Regression equations were based on their correlation to Bulletin 17B flood frequency estimates? • Are there plans to re-test data of various gages to see if another distribution instead of Log Pearson III could better fit streamflow data? As an example, Purdue University recently completed a study on several stream gages in Indiana and concluded that the L-moments method had a better fit to data than Log Pearson III.	On updating past work, responses are as follows. • USGS Regional Regression equations developed for most states are updated approximately every 10 years, depending on funding, resources, and user needs. Recently completed and ongoing studies by USGS (2012-present) use the Bulletin 17C methods (EMA/MGBT with LP-III and Bayesian GLS). Future studies will also use Bulletin 17C techniques. • Based on work performed and cited within Bulletin 17C (page 22 of draft for Peer Review), there are no plans to see if another distribution instead of Log Pearson III would be a better fit to streamflow data. The LP-III was retained to ensure consistency with past studies performed since the adoption of Bulletin 15 (1968) and for diverse areas across the United States. The LP-III has performed well in practice across the US for over 40 years. The HFAWG testing report (on the Bulletin 17C webpage) with 82 diverse sites across the US confirms that the LP-III performs well. Stedinger and Griffis (2008) "Flood Frequency Analysis in the United States: Time to Update" ASCE JHE also addresss the LP-III and parameter estimation issues.	No
4	General Comments on Entire Document	n/a	n/a	n/a	Reviewers submitted the following typographical error in the text. 1. P6, ln 6: replace ">" with "≤" 2. P18, ln 70: remove "be" from "be be" 3. P20, ln 51: replace "though" with "through" 4. P23, ln 59: replace "paleflood" with "paleoflood" 5. P30, ln 68: replace "potentially" with "potential" 6. In Appendix 5, there are typos in Equations (5.2) and (5.3). The lower limits of the sums read j = i + 1 and should read j = k + 1.	Errors corrected as noted	Yes

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5	General Comments on Entire Document	n/a	n/a	n/a	On behalf of the Association of State Floodplain Managers, we commend the USGS for facilitating the efforts of the Hydrologic Frequency Analysis Work Group (HFAWG), under the Subcommittee on Hydrology (SOH), of the Advisory Committee on Water Information (ACWI) to update Bulletin 17B. This is an important document for water resource planning and flood risk identification and we look forward to Bulletin 17C being finalized. Respectfully Submitted, David B. Knipe, P.E., CFM Co-Chair ASFPM Mapping & Engineering Standards Committee Leslie Durham, P.E. Co-Chair ASFPM Mapping & Engineering Standards Committee Siavash Biek, PE, CFM, D.WRE Facilitator of the ASFPM Technical POD	The HFAWG writing team thanks ASFPM for their review comments and appreciates this closing remark.	No
6	Introduction	General	2	3	USACE St. Paul District Beyond just regulation and unusual events, a caveat should be added saying that these procedures do not cover watershed where flood flows are appreciably altered by land use changes or hydrologic non-stationarity driven by changes in climate (either anthropogenic climate change or long- term climatic trends). This is addressed later in the guidance, but should be added upfront.	Caveat added as noted.	Yes
7	Introduction	General	2	1	USACE St. Paul District Without augmenting the record with data from a nearby long-term station, a period of ten years of record seems insufficient for carrying out flood flow frequency analysis. Thirty (or more) of record seems like a more reasonable minimum record length.	Added informative regional skew and record extension with MOVE.	Yes
8	Estimating Regional Skew	n/a	29	88	USACE St. Paul District It is recommended that the USGS be contacted to determine the availability of regional skew estimates that have been prepared using current methods. -What pathforward is recommended if regional skew values have not been recently computed for a watershed in question? Can the user still default to existing regional skew studies or would it be better to just input a regional skew equal to zero, as the guidance seems to imply? Generally, studies requiring flow frequency analysis do not include the schedule/ financial resources to execute a regional skew study. -Regional skew studies are generally focused on tributary sites. What guidance is available for determining a regional skew for sites along the mainstem of a major river? -Should the USGS be considered the gatekeeper of regional skew values? -Is there a more specific link than http://acwi.gov/hydrology/Frequency/ that would allow a user to access regional skew information?	We agree that the USGS be contacted to determine the availability of regional skew estimates that have been prepared using current methods, as noted in the document in lines 83-89 (page 29) and lines 1-4 (page 30). We have modified the text to reflect the fact that USGS has completed numerous studies throughout the US, additional studies are ongoing, and references are provided on the Bulletin 17C webpage. We have revised Appendix B accordingly to note this as well. -If regional skew values have not been recently computed, it is recommended to contact the USGS. They anticipate completing studies for the remainder of the US within the next 3 to 4 years. -Guidance for determining a regional skew for sites along the mainstem of a major river is currently lacking, as most major rivers are heavily regulated. In lieu of national guidance, approaches can generally follow those used by USACE and collaborators for the Upper Mississippi River tributaries and the Delaware River. -The USGS can be considered the gatekeeper of regional skew values, as they are conducting most of the studies for peak-flow and volume frequency. -A more specific link to access regional skew information is being placed on the Bulletin 17C web page.	Yes
9	Appendix 2 – Data Sources	Data Sources	57	11	USACE St. Paul District I am surprised that the USGS website where you can find annual instantaneous peak flow data and daily data isn't highlighted in this section. Links are provided to USBR and USACE, but not to the USGS resources. For example: USGS National Water Information System: Web Interface – USGS Surface-Water Data for the Nation http://waterdata.usgs.gov/nwis/sw. Data packages are not listed as indicated in the text.	USGS Websites added as suggested. These websites were in a previous draft, but removed due to some concerns about longevity of web pages. Web links have been added as suggested. The USGS NWIS R Data package (Hirsch and DeCicco) is listed by reference.	Yes
10	Appendix 2 – Data Sources	Data Sources	60	33	USACE St. Paul District The paragraph on precipitation and climate information should be broken down into two paragraphs- one that highlights potential inputs to precipitation-runoff models and one that highlights climate data that reflects downscaled climate information from General Circulation Models (GCMs) for climate change assessment studies. You may want to consider adding a more direct link to the climate change data and a description of what kinds of datasets are available (precipitation data and flow data) and the associated data limitations.	Paragraph modified as suggested, with general links to several agencies. Direct links to specific downscaled information is not provided. HFAWG did not evaluate downscaled products and Bulletin 17C makes no specific recommendation on modeled data sets. Instead, the user is pointed to USGS Circular 1331 (Brekke et al, 2009).	Yes
11	Appendix 4 – Threshold-Exceedance Plotting Positions	Threshold-Exceedance Plotting Positions	70	1	USACE St. Paul District Table 4.1 does not list the Median plotting position which has an "a" value of 0.3. Is there a reason for excluding the median plotting position? Guidance should be added related to which plotting position should be used for a given application.	Median plotting position added. Text revised with notes on applicability and guidance to use the threshold-exceedance formula when there is historical/paleoflood information. Bulletin 17C does not make a strong recommendation for the plotting position parameter value. We have modified Appendix 4 to use the Weibull as a default option; table and text are modified to describe applicability in broad terms.	Yes

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12	Appendix 3 – Initial Data Analysis	Statistical Tests	64	20	USACE St. Paul District The USACE Climate Change Community of Practice is planning on publishing an Engineering Technical Letter (ETL) which provides USACE with initial guidance for detection of abrupt and slowly varying changes (non-stationarities) in annual maximum discharge records before this summer. This guidance recommends applying the following change point detection models to test for change points in annual maximum flow datasets: the Lombard model (1987), the Pettitt test (1979), the Bayesian change point model (bcp), the change point model (cpm), and the energy-based divisive method (ecp). This guidance also recommends applying the Mann-Kendall test and the Spearman test to identify monotonic patterns within homogenous subsets. Both the changepoint tests and the monotonic trend tests have been packaged into a web-accessible tool to support change-point detection analyses. More detail related to the recommended statistical tests and their required input parameters are included in the user guide which accompanies the web application developed in support of this ETL. The user manual is available at the following URL: http://corpsclimate.us/). It may be worth providing this as a resource within Bulletin17C. Dr. Kate White, USACE is championing this ETL and the corresponding web tool.	We appreciate the information about ongoing USACE activities. As stated earlier in thie Appendix, Bulletin 17C recommends the Mann-Kendall test for trends. Bulletin 17C does not provide a specific recommendation for tests to detect a shift or changepoint, but does provide alternatives, including the Pettitt and Lombard's Change model on line 20. We have clarified the language and added resource references. As noted at the end of this paragraph, further information is provided on the HFAWG Bulletin 17C webpage.	Yes
13	Determination of the Flood Flow Frequency Curve	Parameter Estimation: Simple Case	24	55	USACE St. Paul District Bulletin 17C states that if the regional skew and the station skew differ by more than 0.5 the watershed characteristics should be examined. What should the analyst be looking for? What does a significant difference in station skew versus regional skew imply? The user would benefit from an expanded discussion.	This specific recommendation was from Bulletin 17B, and is retained in Bulletin 17C. This question was addressed in the Bulletin 17B FAQ at http://acwi.gov/hydrology/Frequency/B17bFAQ.html#skew We have expanded the discussion to reflect the imformation contained within the FAQ.	Yes
14	Data Assumptions and Specific Concerns	Flow Measurement Error	19	55	USACE St. Paul District Other sources of error associated with large discharges include undocumented and unmetered break-out flows from the main river channel and ice effects on hydraulics.	We appreciate the comment. Channel breakout flows and ice effects can be considered as classical problems in flow measurement, and contribute to measurement uncertainties. We have added these issues and a reference within this section to address the comment.	Yes
15	Data Assumptions and Specific Concerns	Watershed Changes	22	34	USACE St. Paul District Often regulated flow data cannot be adequately described by an analytical distribution such as Normal or LPIII. Please identify the need for graphical frequency analysis to account for regulation. This description should note that for graphical analysis the Weibull plotting position should be adopted since it is an unbiased estimator.	Bulletin 17C makes no recommendations on the approach for regulated flood frequency. We address this comment by adding graphical frequency analysis under the "Regulated Flood Frequency" section.	Yes
16	Data Assumptions and Specific Concerns	Watershed Changes	21	90	USACE Saint Paul District Agriculture Drainage (ditching and drain tiles) can also change flow conditions.	Paragraph modified as suggested.	Yes
17	Determination of the Flood Flow Frequency Curve	Record Extension with Nearby Sites	28	11	USACE St. Paul District 10 years is a very short record even as a minimum flow record for analysis.	10 years is appropriate with an informative regional skew. Paragraph modified to clarify. Record extension with MOVE is recommended for short records, and is the subject of this paragraph. Weighting of Independent Estimates is also useful and recommended with short records. That section has also been modified to clarify this point.	Yes
18	Data Assumptions and Specific Concerns	Climate Variability and Change	22	48	USACE St. Paul District Perhaps, a suggested path-forward that could be applied to account for climate variability and change is to carry out a change point analysis. A change point analysis can be used to identify whether or not the period of record needs to be adjusted to focus on the portion of the flow record produced by a recent climate regime, or a period deemed stationary. The length of the flow record adopted for analysis could be adjusted accordingly to test the sensitivity related to focusing on a more homogenous portion of the record.	The suggestion is appreciated. As noted in the paragraph cited (page 22), HFAWG did not evaluate methods to account for climate variability and change. A change point analysis and its use to determine the most representative stationary period or recent flow record/representative climate regime is in need of further study and testing before a suggested path forward is made. See also response to Comment 12, where we have revised Appendix 3 to provide options on change point analysis.	No
19	Appendix 4 – Threshold-Exceedance Plotting Positions	Threshold-Exceedance Plotting Positions	70	1	USACE St. Paul District Add discussion about the pluses and minuses, as well as applicability of the different plotting positions.	See response to Comment # 11. Bulletin 17C does not make a strong recommendation for the plotting position parameter value. We have modified Appendix 4 to use the Weibull as a default option; table and text are modified to describe applicability in broad terms.	Yes
20	Appendix 7 – Record Extension with Nearby Sites	Record Extension with Nearby Sites	89	7	USACE St. Paul District Call out what abbreviations mean the first time they are used in the Appendix (for example OLS - Ordinary Least Squares regression).	Clarifications made.	Yes
21	Applicability of These Guidelines	n/a			I am concerned with the lack of reproducibility of the results. Potentially two different users of the software may come up with two different answers that are different but just as valid.	We are unsure what the comment refers to specifically - and assume they refer to software that implements the recommended procedures and its output. Several software packages have been developed and tested (USGS peakfSA, USGS PeakFQ 7.1, and USACE HEC-SSP 2.1), with recommendations to use PeakFQ or HEC-SSP. Examples (Appendix 9) are provided with sufficient documentation to ensure that results are reproducible. Given a single input data set, two users will obtain the same answer. Different answers by users may be possible with different interpretations of the data and inputs. The Appendix 9 Examples section is modified to reflect this fact, and to provide some additional documentation of results. Software manuals are referenced that describe specific output from each package.	Yes

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22	Flood Flow Frequency Information	Risk Accumulates	5	5	22% chance of….should be 22% probability of ….	Percent chance is retained; it is defined in the glossary as a probability multiplied by 100. The terms are synonyms. See also Holmes, R.R. (2010) USGS General Information Product 106. http://water.usgs.gov/edu/100yearflood-basic.html	No
23	Flood Flow Frequency Information	Risk Accumulates	5	6	40% chance of….should be 40% probability of ….	Percent chance is retained; it is defined in the glossary as a probability multiplied by 100. The terms are synonyms. See also Holmes, R.R. (2010) USGS General Information Product 106. http://water.usgs.gov/edu/100yearflood-basic.html	No
24	Flood Flow Frequency Information	Risk Accumulates	5	8	63% chance of….should be 63% probability of ….	Percent chance is retained; it is defined in the glossary as a probability multiplied by 100. The terms are synonyms. See also Holmes, R.R. (2010) USGS General Information Product 106. http://water.usgs.gov/edu/100yearflood-basic.html	No
25	Introduction	Background	2	12	log Pearson also appears in text as log-Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
26	Introduction	Purpose and Scope	4	2	log-Pearson also appears in text as log Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
27	Flood Flow Frequency Information	Regional Information and Nearby Sites	18	8	such as mean basin	Correction made.	Yes
28	Flood Flow Frequency Information	Flood Estimates from Precipitation	18	67	of the estimate	Correction made.	Yes
29	Determination of the Flood Flow Frequency Curve	Flood Distribution	23	34	log-Pearson also appears in text as log Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
30	Determination of the Flood Flow Frequency Curve	Flood Distribution	23	55	log-Pearson also appears in text as log Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
31	Software and Examples		32	27	log-Pearson also appears in text as log Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
32	Appendix 8 - Weighting of Independent Estimates	Weighting Method	102	17	verify the result of 1560 ft3/s	Corrected to 1600 ft3/s	Yes
33	Appendix 9 - Examples		105	5	Log-Pearson also appears in text as log Pearson,log-Pearson, & Log-Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
34	Appendix 9 - Examples	Figure 9.2 caption	110		log Pearson also appears in text as log-Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
35	Appendix 9 - Examples	Figure 9.3 caption	111		log Pearson also appears in text as log-Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
36	Appendix 9 - Examples	Figure 9.5 caption	116		log Pearson also appears in text as log-Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
37	Appendix 9 - Examples	Figure 9.7 caption	119		log Pearson also appears in text as log-Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
38	Appendix 9 - Examples	Figure 9.11 caption	134		log Pearson also appears in text as log-Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
39	Appendix 9 - Examples	Historical and PILF Example - Santa Cruz River near Lochiel, AZ	135	16	from 1927-1948.	Correction made.	Yes
40	Appendix 9 - Examples	Historical and PILF Example - Santa Cruz River near Lochiel, AZ	139	7	1927 1948 12000 infinity historical information	Correction made.	Yes
41	Appendix 9 - Examples	Figure 9.13 caption	139		log Pearson also appears in text as log-Pearson,Log-Pearson, & Log Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes
42	Glossary		149		Log-Pearson also appears in text as log Pearson,log-Pearson, & Log-Pearson	Corrected throughout to log-Pearson Type III. Log-Pearson is used at the beginning of a sentence.	Yes

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43	General Comments on Entire Document	n/a	n/a	.	Proposed Bulletin 17C should have a specific section on "Limitations on Frequency Curve Extrapolation." (Suggest language is provided.) This section is intended to caution users of Bulletin 17C in light of Presidential Executive Order 13690 (issued Jan. 30, 2015) and the new the Federal Flood Risk Management Standard (FFRMS). When implementing FFRMS, Federal agencies are given the flexibility to select one of three approaches for establishing the flood elevation and hazard area they use in siting, design, and construction. One option is the elecation of the 500-year, or 0.2%-annual-chance flood. **SEE SUPPORTING MATERIAL IN PDF LABELED "Comment 43 Supplemental Materials"**	We sincerely appreciate the feedback and suggestions. We have added a new Section titled "Frequency Curve Extrapolation" to address this comment and concerns.	Yes
44	Appendix 7 – Record Extension with Nearby Sites				Equation 7.2 should be corrected see equation (6) Matalas & Jacobs 1964. Equation 7.11 should be corrected see equation (4) Vogel & Stedinger 1985. Equations 7.16, 17, 18 should be corrected see equations (A-21, 22, 23) Matalas & Jacobs 1964. Note in Matalas & Jacobs these equations are also given as (42, 43, and 44) but (42) is missing a term. You have gone with the equations out of Vogel & Stedinger 1985 but they won't satisfy Equation 7.15 because Vogel & Stedinger removed 1/(n1-3) from the equations. See page 717 and equation (10) in Vogel & Stedinger 1985. As a further check, Bulletin 17B has these equations correctly in Appendix 7. In reference to the previous version of 17C with the more detailed Appendix 7; Ditto the above for Equations 7.2, 7.11, 7.16, 7.17, 7.18 and the error in 7.15 was caught between versions. On page 94, Equation 7.24 should be corrected see equation (35) Matalas & Jacobs 1964. Insert alpha squared and theta = 1 for noise term. (3rd term in brackets.) I have attached my Example spreadsheet which is fully vetted now. In my personal opinion, having the full example in 17C is much more useful to the applied engineer (tables and all). In reference to Matalas & Jacobs 1964, values of rho calculated for n1 = 20 are incorrect in Table 2 (17B has the correct values). **SEE SUPPORTING MATERIAL IN XLSX LABELED "Comment 44 Supplemental Materials"**	We appreciate and thank you for the level of detail and effort on these comments, and the supporting material example. Equations 7.2 and 7.11 have been corrected as noted. The equations 7.16-7.18 are in fact correct, as equn (10 from Vogel and Stedinger (1985) contains the 1/(n1-3) factor. We have added equations to estimate the equivalent years of record. We have added some steps for record extension to guide users in practice implement the technique. In reference to previous drafts of 17C, we do not need to address these comments, as they refer to former versions of this appendix that had errors (since corrected), and utilized MOVE.4 instead of MOVE.3. We have used these comments to help improve the current draft.	Yes
45	General Comments on Entire Document				Management Issues for SOH -- a comment from Jerry Coffey circulated in 2013 A: Technical There are four serious technical issues that have not yet been addressed 1) EMA Sensitivity - low flows 2) EMA Sensitivity - high flows 3) Invalid comparisons 4) Capping MGB censoring to reduce the censoring of good data B. Management Issues 1) Lack of Independent Review 2) The "All or Nothing" mentality 3) Assuming what you can't prove **SEE SUPPORTING MATERIAL IN PDF LABELED "Comment 45 Supplemental Materials"**	The HFAWG testing report that is on the Bulletin 17C web site at http://acwi.gov/hydrology/Frequency/b17c/index.html addresses many of the issues in Comment #45, **SEE SPECIFIC RESPONSES IN PDF LABELED "Response-to-Comment-45.pdf".**	No
46	General Comments on Entire Document				EMA False Flag -- a 2012 critique (circulated to HFAWG) of EM claims by Cohn, Lane and Baier **SEE SUPPORTING MATERIAL IN PDF LABELED "Comment 46 Supplemental Materials"**	Comment # 46 mostly discusses the Dempster, Laird and Rubin 1977 paper on the EM algorithm that is related to EMA technique used in Bulletin 17C. Thiis 1977 paper was simply cited as background material in the 1997 Cohn et al. EMA journal paper published in Water Resources Research. The only Coffey comment related to Bulletin 17C is the implication that MGB test censors too many data points. This issue is addressed in other comments.	No
47	General Comments on Entire Document				The Multiple Grubbs Beck (MGB) test is an inappropriate procedure designed to repair some of the shortcomings of the EMA procedure advocated in the report released for public comment. OMB Circular A-119 prohibits agencies from developing a unique standard for use in agency programs when there is a consensus standard for the same purpose. In this case the absurd performance of the MGB test (which will be documented in this comment) is a testament to the wisdom of the policy adopted in A-119. **SEE SUPPORTING MATERIAL IN PDF LABELED "Comment 47 Supplemental Materials"**	The MGB test represents an improvement in the science for detecting low floods in a flood frequency analysis. The new MGB test extends or generalizes the standard Grubbs-Beck test used in Bulletin 17B and other documents. **SEE SPECIFIC RESPONSES IN PDF LABELED "Response-to-Comment-47.pdf"**.	No
48	General Comments on Entire Document				Stationarity Issues -- Comments on the draft report on Bulletin 17C -- originally circulated by Dr. Jerry L. Coffey on May 22, 2015 **SEE SUPPORTING MATERIAL IN PDF LABELED "Comment 48 Supplemental Materials"**	The stationarity assumptions in Bulletin 17B and Bulletin 17C are the same. Both approaches assume that the historic (or paleflood) and systematic data reflect the same land use and climatic conditions (i.e., assume stationarity). See Bulletin 17C "Data Assumptions and Specific Concerns" Section and Appendix 3. **SEE SPECIFIC RESPONSES IN PDF LABELED "Response-to-Comment-48.pdf"**	No
49	General Comments on Entire Document				Minority Report on EMA Recommendations -- July 2013 **SEE SUPPORTING MATERIAL IN PDF LABELED "Comment 49 Supplemental Materials"**	The HFAWG voted during the June 12-13, 2013 meeting to accept recommended changes to Bulletin 17B that included the EMA/MGB procedure. These recommended changes were to be forwarded to the Subcommittee on Hydrology for their approval. Jerry Coffey was the lone dissenting vote and he prepared a Minority Report in July 2013. This Minority Report was submitted as Comment #49. **SEE SPECIFIC RESPONSES IN PDF LABELED "Response-to-Comment-49.pdf"**.	No

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50	Appendix 9-Examples	Paleofood Record Example - American River at Fair Oaks, CA			I do not offer any analyses or suggestions on the statistical work or methods here, but I do want to offer a strong caution about the Work Group's decision to use the conclusions of the 2002 U.S. Bureau of Reclamation (USBR or Reclamation) paleoflood assessments on the America River in Bulletin 17C. Indeed, I ask the Subcommittee on Hydrology of the Advisory Committee on Water Information to choose another paleoflood-record example for Appendix 9. **SEE SUPPORTING MATERIAL IN PDF LABELED "Comment 50 Supplemental Materials"**	All the examples in Appendix 9 were chosen to illustrate various aspects of the recommended procedures. As noted on page 105 (lines 14-15), these examples are chosen to illustrate the main concepts, and are not meant to be all-inclusive. This example, as well as all the other examples in Appendix 9, is presented to illustrate certain aspects: multiple thresholds, long paleoflood records, many observations with interval data, and large floods outside the gage and historical record. We choose to retain this example for this purpose. The introductory section is modified to further reflect that these examples are just that - and are not intended to be used for decisionmaking at specific locations by various agencies. Users of the Guidelines are cautioned that the examples are for illustrative purposes only. In particular to the American River, the Reclamation Flood Hazard report was subject to external peer review as noted in the acknowledgments of that report, including Dr. P. Kyle House (USGS), Prof. Upmanu Lall (Columbia), and field investigations/discussions with Prof. Jeffrey Mount (UC Davis), among many others.	Yes