

**SUMMARY OF THE MEETING OF THE  
ADVISORY COMMITTEE ON WATER INFORMATION'S (ACWI)  
SUBCOMMITTEE ON HYDROLOGY (SOH)  
12:30 p.m. – 3:45 pm, Eastern Standard Time  
Thursday October 22, 2015**

**1. Welcome**

At precisely 12:30 SOH Chairman, Victor Hom, called the meeting to order. He provided a brief orientation to the facility and thanked all who were present and attending via the phone.

Vic provided a brief overview of the Advisory Committee for Water Information (ACWI) and SOH. The purpose of the SOH is to help to improve the sharing of water information. The SOH meets on a quarterly basis. Its workgroups meet more frequently.

ACWI has 10 workgroups: (1) Groundwater, (2) SOH, (3) Sediment, (4) Spatial Water Data, (5) Water Resources Adaptation to Climate Change, (6) NAWQA Liaison, (7) Monitoring Methods Control Board (Water Quality), (8) Water Quality Methods Board (labs), (9) Sustainable Water Resources Roundtable, and (10) Monitoring Challenges.

The SOH has 4 active workgroup (WGs): Hydrologic Frequency Analysis Workgroup (HFAWG), Extreme Storms Estimation Workgroup (ESEWG), Hydrologic Modeling Workgroup (HMWG), and the Satellite Telemetry Interagency Working Group (STIWG).

**2. Roll-Call**

Vic led the roll call and announced that the committee quorum was present. Ten SOH members and guests attended the meeting in person and 27 attended it by phone. (See attendance matrix as attachment 1 below.)

**3. Review and Approval of Agenda**

Vic asked the group if there were objections to the agenda. Hearing none, he announced that the agenda had been adopted.

**4. Feature Presentation**

Vic introduced the feature topic as the Probabilistic Flood Hazard Assessment (PFHA) Program and Research Development. Vic introduced Mr. Curtis Jawdy who provided an overview of TVA's use of PFHA and Dr. Joseph Kanney who provided a brief overview of Nuclear Regulatory Commission's Research Program on PFHA.

Curtis Jawdy is with the Tennessee Valley Authority and he is a member of the SOH Extreme Storm Events Workgroup (ESEWG). His presentation was entitled, "TVA's Flood Hydrology Strategy and Potential for Federal Collaboration." Goals of the new TVA PFHA program include: Improving collaboration between the hydrology, dam safety and nuclear staff in an integrated team environment; Performing an integrated PMF study with the latest tools in order to put an upper bound on flood hazard. Performing a hydrologic hazard study to provide the best possible hydrologic loading

probabilities so that good risk management decisions can be made with the new risk informed decision making (RIDM) program.

The Storm Precipitation Analysis System (SPAS) was used to describe all storms. SPAS has been used to analyze over 500 storm centers across all types of terrain, among highly varied meteorological settings and some occurring over 100-years ago.

Over 500 storms have been analyzed and 80 PMP studies have been completed. According to Curtis since PMP studies draw from wide transposition domains and storm databases, much of the storm analysis needed nationally is complete

Extreme Storm Event Work Group (ESEWG) might take the lead by: and examining the state of practice, and studies. Limiting the potential re-work and undue hardship that would be caused by a major change from the next-generation PMP studies that have been approved by several regulatory agencies.

collecting completed PMP studies  
publishing a standard methodology for performing PMP

Building on this, further work could: Lay the groundwork for future consolidation of the database and results coming from studies using the approved methodology. These tools would be especially useful for smaller actors that cannot invest in a full blown hydrologic hazard study. Set a plan for maintaining the database into the future.

Hydrologic Frequency Analysis Working Group (HFAWG) might take the lead by: collecting and examining the state of practice in rainfall-frequency studies for rare storms, promoting and sponsoring studies to improve understanding of the temporal, spatial and probabilistic behavior of the most extreme storms observed for various storm types, presenting recommendations for methodologies for performing regional precipitation-frequency studies with an emphasis on characterizing extreme events, and helping publicize the new methodologies and coordinating funding.

Next **Joe Kanney** spoke about the NRC PFHA research program. The NRC program will Support development of risk-informed licensing and oversight guidance and tools for assessing flooding hazards and consequences and Support both NRO's new reactor licensing and NRR's oversight of operating reactors.

The NRC program will Develop PFHA framework for range of flooding scenarios and range of AEPs; Assess reliability of flood protection, mitigation, and plant response to flooding events and apply improved modeling techniques for processes and mechanisms associated with flooding and leverage available flood hazard information, and assess potential impacts of dynamic and nonstationary processes on flood hazard assessments and flood protection.

## 5. Review of the July 2015 Meeting Summary

Vic introduced Robert to report on the July meeting summary and asked members to communicate any needed corrections to Robert.

## 6. Announcements

- *FERC, NRCS, USGS, and NWS provided business reports. These are summarized here. Full report attached as Attachment 2).*

NWS –Vic Hom

- National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) National Water Center's Hydrometeorological Design Studies Center (HDSC) has been charged to update the precipitation frequency estimates for various parts of the United States and affiliated territories. Recently, the HDSC published NOAA Atlas 14 Volume 10 for Northeastern States on September 30<sup>th</sup> (<http://hdsc.nws.noaa.gov/hdsc/pfds>.)
- NOAA Central Library routinely sponsors Brown Bag Seminars of various topics of interest to the NOAA Community and Partners. Archives of the seminars are available via the following link: <http://www.lib.noaa.gov/about/news/archivebrownbags.html>.
- In December 2015, NOAA and NCAR Scientists will have a poster at the fall AGU meeting to illustrate the Hydrologic Modeling at the National Water Center.

FERC –Sam Lin

- In August, FERC participated in a core team meeting to review conceptual plans for remediation of two dams in North Carolina. One dam cannot pass the Probable Maximum Flood (PMF) and the incremental rise of flood waters downstream on activation of a fuse plug could present a hazard to life and property.
- In August, FERC participated in a meeting at Utah State University, Utah Water Research Laboratory, in Logan, Utah, regarding a dam's hydraulic safety in Brainerd, Minnesota.
- In October, FERC participated in the fourth and final review meeting of the Virginia State PMP Study in Richmond, Virginia. The Virginia Department of Conservation and Recreation (DCR) Dam Safety and Flood Management Division has retained Applied Weather Associates (AWA) to perform the study.
- In October, FERC participated in a Board of Consultants (BOC) meeting and conduct a construction inspection of the spillway expansion work at a dam in Indiana.

USGS –Robert Mason

- **Flood report published** -The U.S. Geological Survey (USGS) compiled and published data documenting last month's record setting floods in South Carolina. The USGS report is posted at <http://pubs.usgs.gov/of/2015/1201/ofr20151201.pdf>.
- **USGS Water programs reorganized** - Beginning in 2016, the USGS is aligning its budget structure to the Water Science Strategy by consolidating its existing seven programs into four major program areas. The first, Groundwater and Streamflow Information Program, focuses on Observing and Delivering. The other three programs, National Water Quality Program; Water Availability and Use Science Program; and Water Resources Research Act all focus on Understanding, Predicting and Delivering.

NRCS –Claudia Hoeft

- **October 1-4, 2015 Storms in South Carolina:** NRCS is finalizing report on the performance of the NRCS-assisted floodwater retarding dams during the South Carolina Floods. There are 97 NRCS-assisted floodwater retarding dams covering 27 watershed projects located in northern and western South Carolina, well away from the coastal areas.
- **Post-fire Erosion and Flooding Potential:** NRCS is working on a GIS-based analysis to determine which areas affected by wildfires in the West are eligible for recovery assistance through NRCS programs.

## 7. Review of Action Items from Prior Meetings

Victor Hom

- **Confirmation of TVA to SOH membership:** *At the last meeting Vic requested that members send him an email expressing member votes on admitting TVA as a SOH member. He reported that the vote was over whelming positive and that TVA was conformed as the newest member of the SOH.*
- **Selection on new vice-chair:** *Vic reported that Siamak Esfandiary has been selected as vice-chair by the vote of the members. Siamak will become committee chair October 2017. Siamak spoke about his priorities including chartering a ne "risk" workgroup. Several members supported the idea.*
- **Elevation of Vice-Chair Robert Mason to Chair:** *Vic introduced Robert Mason as the new chair of the SOH. Robert will assume duties at the close of the meeting.*
- *Tom Nicholson offered a motion expressing the SOH's appreciation to Vic Hom for his tireless efforts on behalf of the SOH and his extraordinary leadership during which the SOH made significant progress on work to develop a new document on flood-frequency analysis and development of methods to estimate extreme storm events. The motion was seconded by Chandra. Robert moved that the motion be accepted by acclamation; Chandra second the motion, and it passed.*

## 8. News from the SOH Workgroups

- **HMWG** –Claudia Hoeft provided the report
  - Jerry Webb, former chair, is retiring and Claudia will assume chair of the workgroup.
  - HMWG is taking a short breather following the spring SedHYD conference in Reno.
  - There has been some discussion of about the value of resuming publication of the SOH newsletter. If SOH would like, HMWG could develop a newsletter. Material would include:
    - Chair person's commentary
    - Articles from members
    - Business reports from agencies
  - Claudia agreed to consider the idea and develop a more complete proposal for consideration by the SOH.
- **STIWG** - LySanias Broyles provided the report
  - LySanias Broyles, USACE, is the new STIWG Chair
  - The workgroup has been busy. Among its activities have been changes to the webpage
  - The workgroup has formed to two subcommittees –one open DCS preservations; now have two venders
  - The workgroup developed and published a white paper regarding the sell-off of the radio spectrum.
  - Question -Is DOMSAT going away? Yes, it will be replaced by LRIT which already carries space weather, and WLS, and is free; USACE plans to end support for DOMSAT.
  - A full written report is provided as attachment 4

- [ESEWG](#) -Tom Nicholson provided the report
  - *Take-away from Colorado and New Mexico Regional Extreme Precipitation Study*
  - *Marian Baker is new vice chair*
  - *Had a presentation Mark McCory –regional studies in AZ and NM*
  - *Tom will work with Marion Baker to provide 3 or 4 slides for ACWI meeting*
  - *The complete ESEWG report is provided as Attachment 5.*
  
- [HFAWG](#) –Will Thomas provided the report
  - The Hydrologic Frequency Analysis Work Group (HFAWG) has made significant progress in drafting Bulletin 17C, **Guidelines For Determining Flood Flow Frequency**, over the last few months.
  - A document was preparing primarily by USGS that responds to several questions from the July 23, 2015 SOH meeting and provides a proposed Communication Plan for Bulletin 17C. The Communication Plan was sent to all SOH members by the Chair of SOH on October 21.
  - Included in the Communication Plan, there is a brief description of a HFAWG web site where Bulletin 17C will be posted for public comment. The web site will provide a summary of the motivation and process that led to the development of Bulletin 17C, the final draft version of the report, Attachment material, and a link to a GoogleForm so that public reviewers can provide comments on the draft document.
  - The next steps are for SOH to approve the draft Bulletin 17C and Communication Plan so that we can move forward with the public comment period.
  - There was considerable discussion of the proposed B17C communications plan. In the end, Vic requested that SOH members provide comments to Robert.
  - The complete HFAWG report is provided as Attachment 6.

9. **Review Actions and Plans for next SOH meetings**

- *Action item 1 -Minutes*
  - *All SOH members please send corrections regarding the minutes to Robert*
- *Action item 2 –SOH B17C Communications plan*
  - *All SOH members please send comments on “B17C communications plan” to Robert. (The plan is include as attachment 6.)*
- *Action item 3 –Proposal for Streamflow Information Collaborative Working Group*
  - *Robert to circulate draft charter for a Streamflow Information Collaborative Working Group. The group will serve as a consortium to provide development of a more robust streamgange network, provide advice to the agencies, particularly the USGS, about priorities for streamgaging, data collection, and data (The draft charter is included as Attachment 7.)*
- *Next Meeting on Thursday: Normally would be help on January 21, 2016, but key members have conflict. Proposed meeting date shifted to January 28, 2016.*

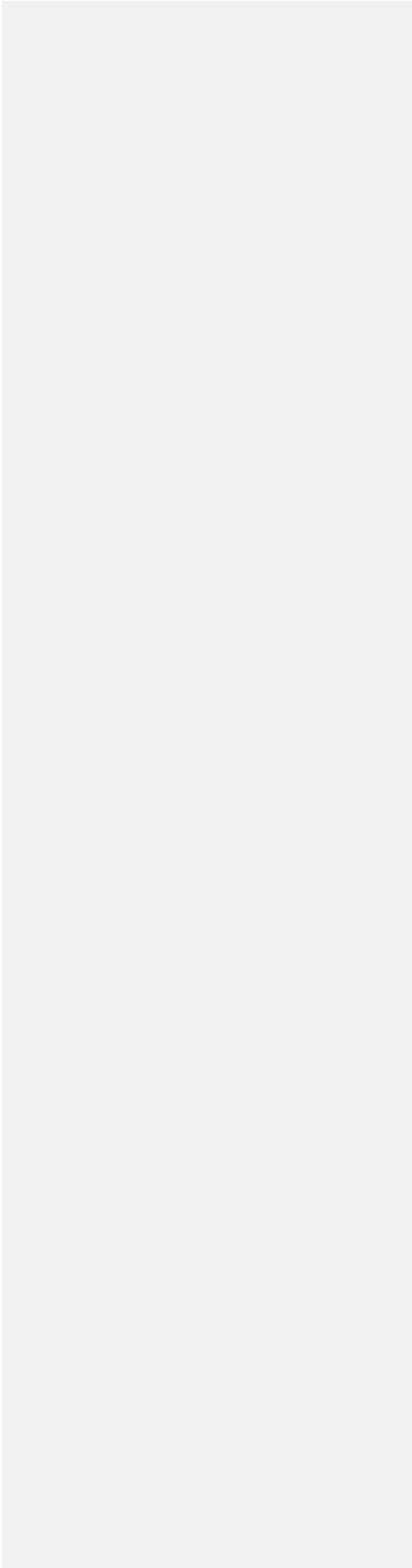
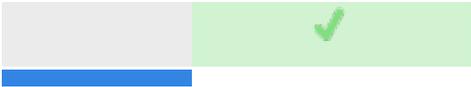
10. **Meeting Adjourned**

**Attachment 1 –SOH October 22, 2015 meeting attendance**

	Attending in person	Attending via conference call
Victor Hom	✓	
David Goodrich		✓
Sam Lin		✓
Will Thomas		✓
David Wells	✓	
Arndt Gossel	✓	
Curt Jawdy	✓	
Kevin Griebenow		✓
Brian Beucler		✓
Robert Mason	✓	
Ted Engman	✓	
Dongsoo Kim		✓
Chandra Pathak	✓	
Ben Pratt		✓
Ed Beadenkopf		✓
Siamak Esfandiary	✓	
David Sutley		✓
Bill Merkel	✓	

Claudia Hoeft		✓
Brian Beucler		✓
Tom Nicholson	✓	
Chandra Pathak	✓	
Katie Laro		✓
David Raff		✓
Alyssa Hendricks		✓
Jack Felbinger		✓
Jerry Coffey		✓
Ed Tomlinson		✓
Melissa Collord		✓
Martin Becker		✓
LySanias Broyles		✓
Angela Duren, USACE, Portland		✓
Marian Baker		✓
Doug Hultstrand		✓
Gregory Karlovits		✓
John England, USACE		✓
Sharon.Jasim-hanif		✓

Ian Ferguson



## Attachment 2 –SOH member business reports

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### SOH Member Business Reports (October 2015)

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#### NWS

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National Oceanic and Atmospheric Administration's (NOAA) National Weather Service (NWS) National Water Center's Hydrometeorological Design Studies Center (HDSC) has been charged to update the precipitation frequency estimates for various parts of the United States and affiliated territories. Recently, the HDSC published NOAA Atlas 14 Volume 10 for Northeastern States on September 30<sup>th</sup>. This information is now available on the HDSC Precipitation Frequency Data Server (PFDS) at <http://hdsc.nws.noaa.gov/hdsc/pfds>. HDSC Quarterly Progress Report for July to September 2015 is available at: [http://www.nws.noaa.gov/oh/hdsc/current-projects/progress/201510\\_HDSC\\_PR.pdf](http://www.nws.noaa.gov/oh/hdsc/current-projects/progress/201510_HDSC_PR.pdf).

NOAA Central Library routinely sponsors Brown Bag Seminars of various topics of interest to the NOAA Community and Partners. Archives of the seminars are available via the following link: <http://www.lib.noaa.gov/about/news/archivebrownbags.html>. Recent archived seminars, which were held in the past 6 months and could be of interest to SOH members, include:

- [California Drought Service Assessment](#)
- [An Improved Multi-Scale Modeling Framework for WRF over Complex Terrain](#)
- [Communicating uncertainty about Climate Change](#)
- [The Atlantic Hurricane Database Reanalysis Project](#)

In December 2015, NOAA and NCAR Scientists will have a poster at the fall AGU meeting to illustrate the Hydrologic Modeling at the National Water Center: An Operational Implementation of the WRF-Hydro Model to support National Weather Service Hydrology. For more info about the AGU Fall Meeting, please visit <https://agu.confex.com/agu/fm15/meetingapp.cgi/Home/0>

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#### FERC

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In August, FERC participated in a core team meeting to review conceptual plans for remediation of two dams in North Carolina. One dam cannot pass the Probable Maximum Flood (PMF) and the incremental rise of flood waters downstream on activation of a fuse plug could present a hazard to life and property. Another dam can pass the PMF, but fuse plug activation would cause unacceptable downstream flooding.

In August, FERC participated in a meeting at Utah State University, Utah Water Research Laboratory, in Logan, Utah, regarding a dam's hydraulic safety in Brainerd, Minnesota. The purpose of the meeting was to observe and evaluate the hydraulic impacts to the physical model of the Spillway, which was built to evaluate options for designing and constructing a new reinforced concrete apron downstream of the spillway.

In October, FERC participated in the fourth and final review meeting of the Virginia State PMP Study in Richmond, Virginia. The Virginia Department of Conservation and Recreation (DCR) Dam Safety and Flood Management Division has retained Applied Weather Associates (AWA) to perform the study. The final product will be a tool available to licensees for the estimation of a basin-averaged PMP value for watersheds in Virginia.

In October, FERC participated in a Board of Consultants (BOC) meeting and conduct a construction inspection of the spillway expansion work at a dam in Indiana. The work involves modifying the existing

gravity overflow spillway to lower its crest and install five vertical lift gates across the spillway to increase the spillway capacity to safely pass the Inflow Design Flood (IDF).

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### USGS

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**Flood report published** -The U.S. Geological Survey (USGS) compiled and published data documenting last month's record setting floods in South Carolina. The USGS report is posted at <http://pubs.usgs.gov/of/2015/1201/ofr20151201.pdf>.

USGS streamgages recorded peaks of record at 17 locations, and 15 other locations had peaks that ranked in the top 5 for the period of record. During the October 2015 flood event, U.S. Geological Survey personnel made about 140 streamflow measurements at 86 locations to verify, update, or extend existing rating curves, which are used to compute streamflow from monitored river stage.

In the Pee Dee River Basin, a new period of record peak occurred on October 6, 2015, for station 02136000, Black River at Kingstree, with a stage of 22.65 ft and corresponding streamflow of 83,700 cubic feet per second (ft<sup>3</sup>/s) (fig. 10). This was the largest peak in 87 years; the previous maximum peak occurred on June 14, 1973. Annual maximum peak stage data contained in reports of the National Weather Service indicate the October 2015 peak is the largest since 1893.

**USGS Water programs reorganized** -The USGS Water Science Strategy (URL: <http://pubs.usgs.gov/of/2012/1066/of2012-1066.pdf>) identifies water science goals and objectives that serve the Nation and address the water challenges for the future. The Strategy outlines areas where hydrologic science can make substantial contributions to the Nation and identifies opportunities for the USGS to better use its hydrologic science capabilities to address to ensure healthy watersheds and sustainable, secure water supplies, and to minimize impacts of water-related hazards. In doing so, the Strategy is intended to inform long-term approaches to USGS program planning, technology investment, partnership development, and workforce and human capital strategies. The choice of strategic water science priority actions, goals and objectives is based on the guiding principles to *observe, understand, predict* and *deliver* water information that allows society to meet the water challenges of the Nation, current and future.

Beginning in 2016, the USGS is aligning its budget structure to the Water Science Strategy by consolidating its existing seven programs into four major program areas. The first, Groundwater and Streamflow Information Program, focuses on Observing and Delivering. The other three programs, National Water Quality Program; Water Availability and Use Science Program; and Water Resources Research Act all focus on Understanding, Predicting and Delivering.

The Groundwater and Streamflow Information Program (GWSIP) will encompass the USGS objectives to provide long-term, national networks for observation of the vital components of the hydrologic cycle and including activities previously associated with the National Streamflow Information Program (NSIP) such as the USGS streamgaging network, flood monitoring and flood inundation science, as well as those previously comprising the National Groundwater Monitoring Network.

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### NRCS

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**October 1-4, 2015 Storms in South Carolina:**

NRCS is finalizing report on the performance of the NRCS-assisted floodwater retarding dams during the South Carolina Floods. There are 97 NRCS-assisted floodwater retarding dams covering 27 watershed

projects located in northern and western South Carolina, well away from the coastal areas. NRCS field personnel reported flows through several auxiliary spillways, but no damages to the spillways was reported. An assessment of the benefits provided by these structures is underway. NRCS is also working with other Federal, State, and local agencies and landowners to assess damaged area across the state to determine which might be eligible for recovery assistance through NRCS programs.

**Post-fire Erosion and Flooding Potential:**

NRCS is working on a GIS-based analysis to determine which areas affected by wildfires in the West are eligible for recovery assistance through NRCS programs. This analysis overlays fire perimeter maps with 10-digit HUCs and land ownership (private vs public) data layers to determine those areas where NRCS assistance might be requested (NRCS works on private lands). We are hoping in future to also use this tool to estimate the cost of post-fire recovery efforts in order to prioritize treatment areas and anticipate the amount of funding that might be requested for restoration activities.

**Attachment 3 -Satellite Telemetry Interagency Working Group (STIWG) Report for the Subcommittee on Hydrology Meeting, submitted by LySanias Broyles, USACE, STIWG Chair**

October 22, 2015

Since the last STIWG meeting in April (College Park, MD) the group has been engaged with a couple fundamental issues. Two new subcommittees with specific objectives were formed during the 2015 meeting: "Open DCS Standardization" and "DCS Reliance and Preservation". As their names reflect their purpose, the latter has recently finalized an official response to the auction of radio spectrum and the proliferation of Advanced Wireless Devices and their use of terrestrial radio infrastructure in and around the GOES spectrum allocation. The auction of radio spectrum and proposed implementation of coordination zones threaten the viability of the GOES downlinks used to receive forwarded transmissions from thousands of remote sensing data collection platforms (DCP) providing millions of hydro-meteorological observations each day. The protection of the 1675 – 1695 MHz spectrum is imperative to the continued collection and processing of hydro-meteorological data for the protection of life, property and critical infrastructure. This data is also used by agencies to run models, provide operational decision support, perform analysis, provide alerts/notification/dissemination and support emergency management. The "STIWG Perspective on DCS Reliance and Preservation" addresses these concerns in the context of policy, multi-agency utilization, study results and accounts of frequency sharing impacts during real-world implementation and will be available on the STIWG website.

The "Open DCS Standardization" subcommittee is tasked with establishing a standard to guarantee a level of compatibility between Open DCS software variants used to collect, decode and archive data received from remote DCP's. As multiple Open DCS software options are now available and diverging market driven development paths is expected it is imperative for the STIWG to work with Open DCS developers to foster a conducive environment for the development of a STIWG Gold Standard that will allow agencies to deploy Open DCS without concern for compatibility and allow an appropriate degree of data exchange and retain intercommunication across versions and platforms. This Gold Standard will also provide developers with a common codebase to develop enhancements as future needs require. The Standardization group met with Dan Farrell of Sutron Corporation 14-OCT-2015 and has a scheduled teleconference with Mike Maloney of Cove Software; both leading Open DCS developers. The Standardization group is cautiously optimistic a practical solution is imminent that will engender continued stability, innovation and confidence in Open DCS.

## **Attachment 4 -**

### **Report of the Extreme Storm Events Work Group to the SOH at the October 2015 Meeting**

**by Tom Nicholson, Chair and Marian Baker, Vice-Chair**

The Extreme Storm Events Work Group (ESEWG) met on Thursday, July 30, 2015 via teleconference to discuss the Colorado and New Mexico Regional Extreme Precipitation Study plans. The speakers were Bill McCormick, Chief, Dam Safety Branch, Water Resources Division, State of Colorado; and Mark Perry, Dam Safety Engineer, State of Colorado. The Colorado Dam Safety Program is a leader in the dam safety community, and have developed numerous guidelines and manuals to help dam owners and engineers, in Colorado, and across the nation, in conducting dam safety assessments. They recently released a comprehensive dam Project Review Guide used to aid dam designers. The meeting was transmitted via Webex to over 40 participants throughout the U.S.

The meeting focused on **“Plans for a Colorado and New Mexico Regional Extreme Precipitation Study”** (for a copy of the presentation please contact the ESEWG vice-chair, Marian Baker, USACE). Much of the presentation had earlier been provided to the Interagency Committee on Dam Safety (ICODS) at their April 8, 2015 meeting at FERC. Mark Perry who is a member of the ESEWG/SOH, provided input to the presentation based upon the State responses to the PMP questionnaire and ESEWG workshop proceedings on precipitation needs.

The presentation provided an overview of the history of PMP efforts in Colorado and New Mexico including recent efforts by others. The four principle sources of PMP estimates in CO and NM are NOAA's: (1) Hydrometeorological Report (HMR) 49 issued in 1977; (2) HMR 51/52 issued in 1982; (3) HMR 55 issued in 1984; and (4) HMR 55A issued in 1988. An important USGS Water-Resources Investigations Report 87-4117 by Jarrett and Costa in 1988 (<http://pubs.usgs.gov/wri/1987/4117/report.pdf>) provided information on evaluation of the flood hydrology in the Colorado Front Range using precipitation, streamflow and paleoflood data for the Big Thompson River Basin. A very important issue for these PMP studies is "Precipitation, streamflow, and geomorphic evidence indicates that there is a distinct decrease in floods above the 7,5000 feet (elevation) in the foothills of northern Colorado.... Therefore, the concept of storm transposition from lower elevations to higher elevations is suspect and is not supported by meteorologic, hydrologic, and paleoflood data." From 1992 - 2005 there have been over 20 site-specific PMP studies throughout the U.S.

Their presentation discussed the U.S. Bureau of Reclamation (USBR) PMP review in 2011 which stated that "PMP methods as applied to HMR are static and outdated." The USBR review discussed improvements through incorporation of radar data in PMP catalogs; scientific study of extreme rainfall;

studies of extreme rainfall probabilities; and numerical weather prediction models. Their presentation highlighted the USBR review observations that "Most of the research has yet to be assimilated into operational estimates of PMP" and "Key improvements to existing PMP methods and data utilized should be based on: numerical modeling, inclusion of uncertainty, finer spatial discretization, incorporation of local climate effects. Use of climatic variability/change information, and probabilistic estimates."

Particularly significant was Bill McCormick's acknowledgement of the ESEWG workshop results. He summarized the 21 States' responses to the ESEWG questionnaire as:

- "PMP updating was very important;
- products must consider State staff workloads and facilitate ease of use;
- need technical and politically defensible products to public and private dam owners and legislators;
- national products are good for industry and help make regulator actions more defensible: and
- importance is urgent, some States are already moving ahead with statewide products."

He mentioned that there are numerous PMP studies developed or under development by the States and their consultants. The Statewide PMP efforts are: Colorado in January 2007; Nebraska in December 2008; New Mexico in March 2009; Ohio in February 2013; Wyoming in December 2014; and Virginia and Texas are in progress. Colorado's recent activities focus on validation of the PMP study results, and convening of a statewide PMP workshop held in August 2014.

The Colorado and New Mexico Regional Study is co-funded by CO and NM at \$1.5 million. The study has three tasks: (1) update PMP storms and procedures by a consultant; (2) regional precipitation frequency analysis by a consultant; and (3) a data-mining model and other numerical modeling by NOAA/ESRL.

The Colorado Dam Safety Branch recommends that ESEWG assist the States on establishing guidelines for PMP studies and by providing the following actions:

- ✓ Nominate candidates for representation on the Project Review Boards such as representatives from the original HMR developers, i.e., NOAA, U.S. Army Corps of Engineers and USBR;
- ✓ Assist with most efficient means of developing contracts agreements between State and Federal agencies
- ✓ Engage in debate and discussion toward consensus and outlining those "suitable" means and methods that might be used as a basis for a playbook or standard
- ✓ Visualize this project as a stepping stone toward achieving ESEWG goals
- ✓ Build upon the results of this project toward designation of responsibilities for national leadership of extreme precipitation estimating tools and science.

The speakers, Bill McCormick, Chief, Dam Safety Branch, State of Colorado; and Mark Perry, Dam Safety Engineer, State of Colorado expressed interest in receiving technical feedback from the ESEWG on their presentation and recommendations. Copies of the presentation are available from the ESEWG vice-

chair, Marian Baker, U.S. Army Corps of Engineers – Kansas City District at [Marian.E.Baker@usace.army.mil](mailto:Marian.E.Baker@usace.army.mil) and telephone 1-816-389-3222.

Also during the last six months, the ESEWG writing team continued their efforts in drafting a proposal for “Extreme Rainfall Product Needs.” A detailed draft outline, and partially completed chapters have been developed. The proposal evolved from the May 15, 2014 **Workshop to Define Needed Extreme Precipitation Products**. The Workshop Synthesis Report has been completed and will be provided to the ESEWG members for the final review before transmitting it to the SOH.

Curtis Jawdy, Tennessee Valley Authority (TVA), and Joseph Kanney, U.S. NRC who are ESEWG members, will brief the SOH on the TVA and U.S. NRC research programs on Probabilistic Flood Hazard Assessments involving PMP studies at the October 22, 2015 SOH Meeting.

**Attachment 5 -Hydrologic Frequency Analysis Work Group (HFAWG) Report for the Subcommittee on Hydrology Meeting on October 22, 2015 Submitted by Will Thomas, HFAWG Chair**

The Hydrologic Frequency Analysis Work Group (HFAWG) has made significant progress in drafting Bulletin 17C, *Guidelines For Determining Flood Flow Frequency*, over the last few months. The progress is as follows:

- The first draft of Bulletin 17C was provided to HFAWG members for review on April 20, 2015.
- The report will be published as an USGS Techniques and Methods manual and the April 20, 2015 draft was also provided to three colleague reviewers (one in USGS and two outside USGS).
- A HFAWG meeting was held on May 7, 2015 to discuss the first draft of the report and get input and comments from all HFAWG members.
- Comments received at the May 7 meeting and thereafter were used to complete a revised draft dated June 18, 2015 that was provided to the Subcommittee on Hydrology (SOH) for review on June 24, 2015.
- The June 18, 2015 draft was discussed in detail at the July 23, 2015 SOH meeting and both verbal and written comments were received on the second draft at the July 23 meeting and thereafter.
- The authors of Bulletin 17C are preparing a third draft in response to comments from the USGS reviewers and SOH members.
- The plan is to have a third draft of Bulletin 17C completed by the end of October 2015 that will be suitable for public comment.

Several questions were raised at the July 23, 2015 SOH meeting concerning publication of Bulletin 17C as an USGS report, if the USGS peer-review process meets the requirements of the Data Quality Act and the role of the SOH and USGS in the development and public review of the final report. A document was preparing primarily by USGS that responds to several questions from the July 23, 2015 SOH meeting and provides a proposed Communication Plan for Bulletin 17C. The Communication Plan was sent to all SOH members by the Chair of SOH on October 21 and will be discussed at the October 22, 2015 meeting.

Included in the Communication Plan, there is a brief description of a HFAWG web site where Bulletin 17C will be posted for public comment. The web site will provide a summary of the motivation and process that led to the development of Bulletin 17C, the final draft version of the report, Attachment material and a link so that public reviewers can provide comments on the draft document.

The next steps are for SOH to approve the draft Bulletin 17C and Communication Plan so that we can move forward with the public comment period.

Will Thomas  
Chair of the HFAWG  
Michael Baker International  
October 21, 2015



**Attachment 6 –Proposed SOH B17C report communications plan**

**Subcommittee on Hydrology**

**Proposed Communication Plan for Bulletin 17C**

**October 19, 2015**

This document provides a broad outline of the Subcommittee on Hydrology (SOH) plans to manage opportunities for public comment on the draft Bulletin 17C (B17C). It was developed as a result of discussions of the SOH during its quarterly meeting on July 23, 2015. The plan is consistent with discussions and agreements reached by the SOH during its meeting on July 14, 2014 as enumerated under “Action item 2” of the meeting summary (URL: [http://acwi.gov/hydrology/minutes/SOH-20140724-meeting-minutes\\_final.pdf](http://acwi.gov/hydrology/minutes/SOH-20140724-meeting-minutes_final.pdf)).

The draft communication plan is tailored to the format and content of the USGS communication plans for “influential science”. A USGS communication plan has also been drafted for B17C. Indeed, except for the material regarding the public comment opportunity, the SOH plan and the USGS plan are the same.

During the July 23, 2015 SOH meeting several issues and questions arose concerning the selection of the USGS as the publication agent for B17C, use of the USGS “Techniques and Methods” reports series for distribution of the document, and the role of the SOH and the USGS in the development and dissemination of the final report. Those questions were not generally addressed during the limited time available for the committee at that meeting. The following responses to some of the questions posed at the meeting are provided for resolving them and supplying background useful to consideration of the communication plan that follows.

1. Can and should the SOH provide recommendations to the Federal agencies?

The Advisory Committee for Water Information (ACWI) adopted the SOH and established it as a subcommittee under ACWI for the purpose of obtaining expert advice and council under written terms of reference (TOR) that clearly addresses this question:

The purpose of the Subcommittee is to analyze relevant issues and facts and to draft proposed position papers or recommendations for improving the availability and reliability of surface-water quantity information. The Subcommittee forwards the draft papers and recommendations to the ACWI for deliberation and approval as advice to the Federal Government (<http://acwi.gov/hydrology/hydrotref.html>).

2. Why is the HFAWG recommending that B17C be published as a USGS report?

HFAWG proposes to publish B17C as a USGS report in order to provide an easily recognized citation for the report and to ensure continued availability of the report. The recommendation is based on the

difficulty experienced by many in obtaining and citing B17B and is intended to heighten the visibility and standing of the new B17C.

The proposed USGS report series, Techniques and Methods (T&M), is ideally suited for the topic. This series and its predecessor, the Techniques of Water Resources Investigations Reports, are a long existing USGS report series that are commonly used as authoritative reference for water-data collection in other agencies and other governmental organizations at the State, tribal, and local levels, and commonly, international organizations such as the World Metrological Organization and the International Standards Organization. Using the T&M series provides has a well recognized and highly regarded citation. In addition, the report can then easily be located and retrieved via the Interet through the USGS publications warehouse (URL: <http://pubs.er.usgs.gov/>).

3. Why does the current draft recognize individual authorship?

The USGS has a longstanding policy of recognizing individual authorship of virtually all of its reports and other information products. Such recognition promotes responsible scientific inquiry and report development and facilitates communication and exchange of competing ideas with the broader scientific community. Authorship also rewards individuals for the extra effort entailed in report writing. If the document is to be published as a USGS report, at least one author must be identified.

4. Will B17C be a USGS or SOH document?

If published as a USGS report, B17C will be a USGS document and subject to USGS peer-review requirements, editorial guidance and language preferences –most identified in the USGS “Suggestions to Authors (URL: <http://www.nwrc.usgs.gov/techrpt/sta01.pdf>). That said, the SOH and its members are full partners in framing the technical content of the document and no technical changes will be made to the SOH-endorsed version without the consistent of the SOH.

5. Will the USGS also approve the SOH draft?

Yes, the USGS will approve the SOH draft before it can be released as a USGS report. In general, that approval may involve some minor editorial revisions for clarify or style. If more substantive changes are needed they will be discussed with the SOH before the changes are made.

6. Does the USGS have a peer-review process that meets the requirements of the Data Quality Act and Office of Management and Budget (OMB) guidance?

YES!

The Data Quality Act directs OMB to issue government-wide guidelines that "provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies". The law also required other agencies to develop their guidelines based on OMB guidance. OMB guidance to the agencies is posted at URL:

<https://www.whitehouse.gov/sites/default/files/omb/memoranda/fy2005/m05-03.pdf>.

Based on the OMB guidance the USGS developed its own guidelines. They are broadly described in the USGS "Survey Manual" (URL: <http://www.usgs.gov/usgs-manual/500/502-3.html> and <http://www.usgs.gov/usgs-manual/500/502-4.html>). Specifics are posted on the web (URL: [http://www.usgs.gov/info\\_qual/](http://www.usgs.gov/info_qual/)).

In general, USGS requirements for publication of "influential science" products requires that the USGS authors identify peer reviewers, publically address the comments of the peer reviewers, and explain the process and timelines for both through a USGS "communications plan". The plan identifies the proposed product, explains its purpose, scope, and significance, the plan for selection of peer reviewers, and how the reviewers comments will be addressed. The plan also identifies opportunities for public input. The plan and a follow-on response document must be posted on the "Quality of Information –USGS peer review agenda" website (URL: [http://www.usgs.gov/peer\\_review/](http://www.usgs.gov/peer_review/)).

The USGS communication plan and the SOH plan are exactly the same except for the material contained in the SOH plan that addresses the public comment period; the SOH plan provides additional detail not needed in the USGS plan.

## Proposed SOH B17C Communications Plan

**Date:** 10/18/2015

**Report Title:** Guidelines for Determining Flood-Flow Frequency.

**Subject and Purpose:** The report, which is an update of a previously published (1982) Interagency Committee on Water Data report, provides recommended guidance for determinations, by Federal agencies, of flood-flow frequencies. Such determinations play an important role in the definition of design and building requirements for various Federal projects such as interstate highway bridges, flood-control levees, and dams, and for many Federal program and regulatory activities, including Federal Emergency Management Agency floodplain delineations.

The report includes reference to extensive research and methods development activities of the USGS, other Federal agencies such as the Bureau of Reclamation and the U.S. Army Corps of Engineers, and many researchers in academia. In particular, the report references USGS software needed for the flood-frequency determinations (<http://water.usgs.gov/software/PeakFQ/usgs>) and National Water Information System peak-flow datasets (<http://nwis.waterdata.usgs.gov/usa/nwis/peak>).

The report was prepared and is being published on behalf of the Subcommittee on Hydrology (SOH), Advisory Committee for Water Information (ACWI), a registered Federal advisory committee and will be released as a USGS Techniques and Methods publication series information product so as to facilitate future reference and maintenance.

**Impact of Dissemination:** This product is considered to be Influential Scientific Information due to its expected broad utilization for delineation of floodplains and impact on water- and transportation-infrastructure design and construction throughout the Nation.

**Timing of USGS Peer Review:** June–August 2015. Deferrals are not anticipated at this time.

**Comment [TW1]:** Should it be more clear that this is the USGS review period? Yes, I made a change to heading that should make this clear. - RRM

**Expected Number of Reviewers:** Three peer reviewers.

**Requisite Expertise:** Expertise and national standing in statistical- and flood-hydrology and flood-frequency analysis.

**Opportunity for Public Comment:** A 45-day public comment period after USGS peer review has been completed will be announced by the USGS Water Information Coordination Program (Wendy Norton, Chief) through the Federal Register (<https://www.federalregister.gov>) and managed through the ACWI/SOH website (URL: <http://acwi.gov/hydrology/Frequency/b17c/index.html>.)

The website will include the following links:

-  Overview of Bulletin 17C
-  Draft Report
-  Attachment Materials
-  Software
-  Solicitation for Review and Comment
-  Frequently Asked Questions (FAQ's)

The “Overview of Bulletin 17C” will provide a summary of the motivation and process leading to the charge to the Hydrologic Frequency Analysis Workgroup (HFAWG) and its development of the draft report.

The "Draft Report" will contain the latest version of the draft B17C in a downloadable format. The draft report is not expected to be revised during the comment period, but if needed changes are discovered and made, a "version control" header and table will be provided alerting users to specific changes, their page numbers and location, and the reason for the change. No change will be made unless authorized by the SOH.

**Comment [TW2]:** Do you mean that reviewers through the public comment will not be able to revise the report? We expect that changes will be made as a result of the public comment period but those changes will be made the writing committee and the SOH. Should this be clarified? See related comment below.  
**Actually, all that I meant was that we would leave the document alone while we are taking public comment unless we discover something that confuses everyone. (It happens.) After the public comment, the authors will revise the document as we think needed. -RRM**

The "Attachment Materials" will contain the latest versions of the 9 Attachments to the document. As needed changes are discovered and made, a "version control" header and table will be provided alerting users to specific changes, their page numbers and location, and the reason for the change. No change will be made unless authorized by the HFAWG.

The "Software" webpage will link to the USGS PeakFQ webpage (URL: <http://water.usgs.gov/software/PeakFQ/>).

The webpage entitled "Solicitation for Review and Comment" will contain a link to a webform that will provide opportunities for a potential commenter to input his comments in text form or to upload a marked-up pdf copy of B17C or other documents with their comments. The text or uploaded documents will be tracked by a date and a sequential identification number.

**Comment [TW3]:** Do we really want public commenters editing Bulletin 17C? I think we just want them to provide comments on the pdf document just like the USGS reviewers did. I'll drop the 'doc' piece. -RRM

At the close of the comment period the HFAWG writing committee will develop responses to all comments with either specific text or boilerplate text referring to a general response. The response document, likely a spreadsheet or table, will be circulated to the SOH and, upon their approval, posted to the SOH webpage.

The public comment period will be coordinated by Chair of the SOH and the authors will be required to respond specifically or summarily to all public comments.

**Comment [TW4]:** The responses to comments will be posted on the SOH webpage but not sent to all commenters. Correct?  
**That is correct. Right now, I don't anticipate even recording email addresses or names. -RRM**

## **Attachment 7 -Streamflow Information Collaborative Working Group Charter**

October 5, 2015

### ***ESTABLISHMENT***

This Charter establishes a collaborative working group (hereafter “Collaborative”) for the USGS Groundwater and Streamflow Information Program (GWSIP) under the Advisory Committee on Water Information (ACWI) Subcommittee on Hydrology. The Collaborative is charged with helping to coordinate national streamflow information network goals and priorities with related activities of other government agencies, non-governmental organizations, and the general public.

### ***PURPOSE, SCOPE AND OBJECTIVES***

The purpose of the Collaborative is to support national streamflow information network goals and priorities and to assist with leveraging existing resources and capabilities to meet streamflow information needs across the U.S. Specific objectives of the Collaborative include:

- Coordinate national streamflow information network priorities and stakeholder needs.
- Identify areas for coordination, innovation, technical transfer, training, and leveraging of resources (including foundational datasets, data management systems, and scientific tools).
- Create cohesive messaging about the value, uses, economic benefits, and critical gaps in our Nation’s streamflow information network.
- Develop effective mechanisms to “get the word out” (telling “our” story” (web portal, social media)).
- Increase engagement with the public, volunteers, meteorological network, other organizations and government agencies to increase stakeholder interest and knowledge of streamflow information.

This Collaborative will work in alignment with the Subcommittee on Hydrology. Recommendations and products from the Collaborative will be presented to the Subcommittee for input.

### ***COUNCIL STRUCTURE & PROCESS***

**Composition and Tenure** – The Collaborative will consist of representatives from Federal, State, and local government agencies, non-governmental organizations, academia, and private

sector. The Chair will be the USGS GWSIP Coordinator. Representatives will serve a term of no longer than 2 years. Any representative who is absent for more than 4 meetings in a row may be asked to leave the Collaborative.

**Timing** – A face-to-face meeting will be held once a year to align with the annual Subcommittee on Hydrology and ACWI meeting. Regularly scheduled monthly meetings will be held by teleconference.

**Process of Governance and Decision Making** - The Collaborative will provide input on streamflow network issues and priorities, funding, outreach, and collaborative initiatives that could benefit from coordination across the organizations.

**Authority** – Collaborative recommendations and input will be shared with the Subcommittee on Hydrology and the USGS GWSIP.

**Resources** – Some funding support will be made for individuals participating in the Collaborative annual face-to-face meeting, if available.

**Products and Communications** - A Google Drive site will be established by the Collaborative Chair to create, share, and store information developed and used by the Collaborative. A record will be made of all conference calls and meetings including agenda, action items, progress on activities, and documentation of decisions on advice and recommendations. After review and approval by the Collaborative these documents will be posted on Google Drive, and final documents (along with meeting minutes) will be posted on the ACWI website.

The Chair will brief the Subcommittee on Hydrology on the recommendations, activities and products of the Collaborative annually or more often, as appropriate.