

UPPER BRUSHY CREEK WATER CONTROL AND IMPROVEMENT DISTRICT

2015 ANNUAL REPORT



**Prepared by Ruth Haberman
May 24, 2016**



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(January 2015 to December 2015)**

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The mission of the Upper Brushy Creek Water Control and Improvement District is to *“maintain and improve flood control structures and take appropriate measures to protect public safety as well as economic infrastructure of the District, in consultation and cooperation with other governmental entities. The District will actively foster a regional perspective and will encourage cooperation among governmental entities. We will accomplish these tasks utilizing cost-effective methods, minimizing the impact to the environment, considering the community values of our stakeholders, and conducting our business with openness, honesty and integrity.”* (Amended 12/2010)

The District Board of Directors and staff take this mission very seriously and actively worked to further it throughout 2015. The District has been implementing an aggressive maintenance program to ensure that all of the dams are well maintained, keeping an aesthetic appeal and meeting all State requirements.

The District is finalizing its Dam Modernization Program to upgrade the twenty-one dams that are currently classified as High Hazard to meet State regulatory requirements, lacking only two dams (Dams #7 and #8) to complete the original plan. Construction of the Dam #7 Modernization Project is scheduled to begin in June 2016. Final design of the Dam #8 Modernization Project should be completed by Spring 2017, with construction expected to be completed by Spring 2018. The remaining two dams, Dams #10A and #10B were reclassified from Low Hazard to High Hazard by TCEQ in February 2016, are under consideration for reclassification by Natural Resources Conservation Service (NRCS). Grant applications have been submitted to NRCS for Dam Assessment Funding for Dams #10A and #10B, the first step in the modernization process.

As a direct result of the Memorial Weekend 2015 flooding, Dam #22 experienced a significant surface slide which required emergency stabilization efforts. The District worked closely with Williamson County to protect the safety of the public downstream of the dam. The District has received a grant through FEMA to help offset the cost of the emergency stabilization. The District also submitted a grant application to NRCS for Dam Assessment Funding for the needed permanent repair of Dam #22, and has engaged an engineer to evaluate the current condition of the dam.

The District hired a Project Engineer in August 2015 to manage the design and construction of the remaining Modernization Projects and the new Capital Improvement Projects.

The Upper Brushy Creek Watershed Study and Flood Protection Plan (FPP) was completed in 2014 with the financial and technical assistance of the Texas Water Development Board (TWDB). In 2015 the FPP was leveraged with the Federal Emergency Management Agency (FEMA) to develop more accurate floodplain maps and models for the entire watershed. The FEMA funded Risk Map Flood Study has been completed and submitted to FEMA for completion of the final product: new regulatory maps for the watershed. The project was overseen by TWDB, FEMA’s Cooperating Technical Partner (CTP); managed by the District; with technical participation from a Technical Advisory Committee comprised of members from all of the communities within the District boundary. All of the participating communities received all of the data, models, and reports that were developed by the FPP and Risk Map Flood Study for use as the “best available data” for development planning purposes.

In addition to the Risk Map Flood Study, additional benefits of the FPP include the development of regional Flood Mitigation Projects that were identified as potential solutions to flooding issues within the watershed. One such project was adopted by the City of Round Rock and is now part of an Interlocal



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Agreement between the City and the District. The Lake Creek Flood Mitigation Project is a combination of two new dams that are currently being designed to solve Round Rock's worst flooding problems, with financial and technical participation from the District, the City of Round Rock, and other sources. Dam #102 will be fully funded by the District, and the District has committed to cost participation with the City of Round Rock for Dam #101. Both dams will become the responsibility of the District, with regulatory oversight by TCEQ once construction is complete. Field and environmental investigations are underway for these two projects.

The District partnered with the U.S. Geological Survey (USGS) to install and maintain rain and level gages at twenty-two of the District's dams as well as five stream gages strategically located within the Upper Brushy Creek watershed. These gages provide real time data to District staff, local emergency responders, and the general public, allowing for all parties to make informed decisions related to weather conditions. The District developed a Flood Monitoring System web interface that displays the data in a user-friendly format, compatible with mobile devices. That system was first launched in May 2015, just before the Memorial Weekend floods and was used and praised by the Williamson County Office of Emergency Management, National Weather Service, and many other regional and local government entities and residents.

The District has regulatory obligations associated with the classification of the dams. All High Hazard dams in the state of Texas are required to be inspected every five years, and require a TCEQ approved Emergency Action Plan (EAP). The District had individual EAPs for each of the twenty-one High Hazard dams that were originally approved by TCEQ in 2014, and were updated and approved in February 2015. In order to improve the efficiency and usability of the plans, the District consolidated the EAPs into one District-Wide EAP, which was submitted to TCEQ in December 2015. The District hired a consulting firm to perform comprehensive inspections of seven dams. Reports were developed meeting TCEQ requirements, thus relieving TCEQ of the responsibility of performing those inspections. The seven reports were submitted to TCEQ in December 2015, along with the District's plan of action to address all recommended corrective actions and maintenance/monitoring actions.

The District reviews plans for all development that occurs within and adjacent to District structure and inundation easements to ensure that the proposed development will not interfere with the dams' functionality and structural integrity. The District works closely with NRCS and TCEQ, the two regulating entities for the dams as well as the other jurisdictional entities to ensure that all regulatory requirements and public safety are considered. In 2015 the District reviewed development permit applications and/or oversaw construction activity in close proximity to eight District dams.

A comprehensive list of District activities that have taken place this past year is provided on the following pages.



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OPERATION AND MAINTENANCE

DAMS

- Contracted with Moir Watershed Services, LLC to perform routine dam maintenance and debris removal at the District's dams.
- Contracted with ADK Environmental, Inc. to perform herbicide and pesticide application at the District's dams in an environmentally conscious manner.
- Contracted with Performance Plus, Inc. to maintain the drain valves on principal spillway risers at the District's dams, and keep them in good repair.
- Routine dam maintenance has been performed at all of the District dams this past year. A list of maintenance activities that were performed in 2015 are listed in **Attachment A**.

FLOOD MONITORING SYSTEM

- Contracted with Halff Assoc. to develop a new FMS web interface.
- Contracted with URS to enhance FMS database functionality.

POLICIES

- Amended the District Policy on Activity within District Easements.
- Amended the District Employee Leave Policy.
- Adopted a Policy Regarding Purported Agreements with the District Prior to January 1, 2001.
- Adopted a Policy for Appointing Future Directors.
- Updated the Financial Investment Policy.

ENGINEERING

GENERAL ENGINEERING

- Contracted with URS Corporation (URS) to provide emergency support during flood events.
- Contracted with Halff Associates, Inc. (Halff) to develop a searchable database containing all pertinent features of all of the District's dams, issues needing maintenance, features needing monitoring, and observations during inspections. This database will be used to develop short and long range operations and maintenance plans.
- Contracted with Halff to perform a survey at most of the District's dams in an effort to update the USGS gage readings to match elevations on the ground.
- The District has On-Call contracts with FNI, Halff, and URS to provide miscellaneous engineering services as an extension of District staff.

DESIGN

- The final design, performed by Freese & Nichols, Inc. (FNI) for the Modernization of Dam #7 is nearly complete, including coordination with property owners, regulating entities, and other stakeholders.
- The design for the Modernization of Dam #8 is being performed by URS, including coordination with property owners, regulating entities, and other stakeholders.
- Field and Environmental Investigation for Dam #102 is being performed by URS.



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INTERLOCAL AGREEMENTS

- Entered into an Interlocal agreement with Williamson County to share the cost of replacing a section of the Brushy Creek Regional Trail along the upstream face of Dam #7, to be accomplished as a part of the Dam #7 Modernization project.
- Entered into an Interlocal Agreement with Williamson County regarding reimbursement for Emergency Stabilization performed by Williamson County to Upper Brushy Creek WCID Dam #22.
- Entered into an Interlocal Agreement with the City of Round Rock to share the cost of modifying the Dam #11 Principal Spillway to accommodate public projects within the contributing watershed.

STUDY

- A Watershed Study and Flood Protection Planning (FPP) Project was completed in 2014, with partial funding from the Texas Water Development Board, to identify existing flood hazards within the District and to develop a list of potential regional projects to mitigate those hazards. Hydrologic and hydraulic models developed during the watershed study have been provided to participating communities (Austin, Cedar Park, Leander, Hutto, Round Rock, and Williamson County). The FPP models were leveraged with FEMA to develop new, more accurate regulatory floodplain maps for the entire watershed. The FEMA funded Risk Map Flood Study was completed and submitted to FEMA in December 2015.

DEVELOPMENT REVIEW

- Amended Policy on Activity within District Easements.
- Development permit review and construction oversight in District easements included Scottsdale Crossing Phase 3 at Dam #3; Edgewater Condominiums Phases 1 and 2 at Dam #4; Thermasol/Altman Business Park at Dam #11; Sam Bass Covered Storage at Dam #13A; Paloma Lake Improvements at Dam #15; and Avery North Phase I at Dam #16.
- Entered into an agreement with Avery Ranch: Development by Continental Homes of Texas – dba D.R. Horton to allow the use of the reservoir at Dam #7 as detention. This new agreement replaced an older agreement executed in 2000. Fees were paid to the District as per the 2000 (and 2015) agreement, and modifications were made to the Dam #7 Modernization Project design to accommodate developed runoff conditions.

REGULATORY COMPLIANCE

EMERGENCY ACTION PLANS

- Contracted with URS for Emergency Support and EAP updates. A District-wide EAP was submitted to TCEQ as a revision to the twenty-one EAPS approved in February 2015.
- The EAP was activated in May 2015 as a response to the surface slide discovered at Dam #22. The following entities were contacted as a result of the activation: District Board of Directors, TCEQ, NRCS, Williamson County Office of Emergency Management, Williamson County Sheriff's Office, Texas Department of Emergency Management, Hutto Police Department, Williamson County Road and Bridge.



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INSPECTIONS

- Contracted with Halff to perform seven dam inspections, at Dams #2, #5, #8, #15, #16, #17, and #19 in accordance with TCEQ Dam Safety requirements. Final reports were submitted to TCEQ in December 2015 along with the District's plan of action to address all recommended corrective actions and maintenance/monitoring actions.

FINANCES

AUDIT

- FY 2015 Audit completed by Maxwell, Locke & Ritter was rated satisfactory in January 2016.

BUDGET

- FY 2015 Budget Amendment #1 approved in January 2015
- FY 2015 Budget Amendment #2 approved in May 2015
- FY 2015 Budget Amendment #3 approved in August 2015
- FY 2016 Budget approved in August 2015.

GRANTS

- Contracted with TWDB for the development of a Hazard Mitigation Plans (HMAP) to be partially funded through a FEMA Pre-Disaster Mitigation grant.
- Resubmitted a grant application to NRCS for Dam Assessment Funding for Dams #10A and #10B.
- Submitted a grant application to NRCS for Dam Assessment Funding for Dam #22.

TAXES

- The District adopted the FY 2015 Property Tax Rate of \$0.02 per \$100 valuation in August 2015.

COMMUNICATION

MEETINGS/PRESENTATIONS/TRAINING

- Participated in the following:
 - EOC Operations and Planning for All Hazards, sponsored by Department of Homeland Security, FEMA.
 - Texas Association of Watershed Sponsors 2015 Spring Meeting
 - 10th Annual EWRI Austin Chapter Workshop, Municipal Water Infrastructure Council Symposium: Adaptive Management.
 - 7th Annual National Hydrologic Warning Council Workshop
 - Association of State Dam Safety Officials Webinar: Understanding and Managing Plant and Animal Intrusions in Embankment Dams and Levees.
- Presentations made to the following:
 - Public Meeting regarding Dam #7 Modernization – Brushy Creek Regional Trail
 - City of Cedar Park City Council
 - City of Hutto
 - Texas Association of Watershed Sponsors



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BOARD AND STAFF

ELECTION

- Board President Larry Quick resigned from the Board of Directors in April 2015. The Board interviewed four candidates in June 2015 and appointed Robert Adams to fill the vacant position, and selected Robert Jackson as an alternate. In July 2015 Scott Ahlstrom resigned from the Board of Directors, and the Board appointed their alternate selection, Robert Jackson to fill his position. The Board reconfigured their officer positions:
 - President – Jeff Sawyer
 - Vice-President – Gregor Forbes
 - Secretary/Treasurer – Miguel Villarreal
 - Director – Robert Adams
 - Director – Robert Jackson

STAFF

- The Board hired Chris Tschirhart, PE, MBA, PMP, CFM as Project Engineer to manage design and construction projects for the District.
- The Board promoted Lisa Moravitz from Administrative Assistant to District Secretary.

RAIN EVENTS

The watershed experienced higher than average rainfall in 2015. For example, Dam #8 received 51.94” of rainfall, while the average annual rainfall for the Austin area is 33” according to the National Weather Service. Fairly significant rain fell in January, March, May, June, July, October, and November, with the most severe flood events around Memorial Day and Halloween. A composite graph showing cumulative precipitation across the watershed, and hydrographs from the USGS gages at various dams are included as **Attachment B**.

ATTACHMENT A

UPPER BRUSHY CREEK WCID 2015 Dam Maintenance Log

Dam	Material	Front/Back Slope Surface	Mowing	String Trimming	Spray for weeds	Brush Removal	Fire Ant Treatment	Valve Operated	Valve Repaired	Debris Removal
1	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Dec		Dec	Jan		
2	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Dec	Sept	Dec	Jan		Sept
3	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Dec		Dec	Jan		Dec
4	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Dec	Sept	Dec	Jan	Oct	
5	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Dec		Dec	Jan		
6	Earthen w/concrete parapet wall	Grass/Rock	Apr, Aug	Apr, Aug	Dec	Sept	Dec	Jan	Oct	
7	Earthen	Rock/Grass	Apr, Aug	Apr, Aug	Dec	Sept	Dec	Jan		Sept
8	Earthen	Grass/Grass	Apr, Dec		Dec		Dec	Jan	Oct	Dec
9	Earthen	Grass/Grass	Apr, Sept		Dec	Sept	Dec	Jan		Dec
10A	Earthen	Rock/Rock	Sept		Sept, Dec	Dec	Dec	Jan		
10B	Earthen	Rock/Rock	Sept		Sept, Dec	Dec	Dec	Jan		
11	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Dec	Sept, Dec	Dec	Jan		Sept, Dec
12	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug		Dec	Sept	Dec	Jan		
13A	Earthen w/concrete parapet wall	Rock/Grass	Apr, Aug	Apr, Aug	Dec	Sept, Dec	Dec	Jan		Dec
14	Earthen w/concrete parapet wall	Grass/Grass	Sept	Sept	Dec	Sept	Dec	Jan		Sept
15	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Dec	Sept	Dec	Jan		Sept
16	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr	Dec	Sept	Dec	Jan		Sept
17	Earthen w/concrete parapet wall	Grass/Grass	Feb, Apr, Aug	Feb, Apr, Aug	Dec	Feb, Sept, Dec	Dec	Jan		Dec
18	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Feb, Sept	Dec	Sept	Dec	Jan	Oct	Sept
19	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Feb, Apr, Sept	Apr, Dec	Feb, Sept	Dec	Jan		Sept
20	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Apr, Dec	Sept	Dec	Jan	Oct	Sept
21	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Apr, Dec	Aug	Dec	Jan	Oct	Dec
22	Earthen w/concrete parapet wall	Grass/Grass	Apr, Aug	Apr, Aug	Apr, Dec	Aug	Dec	Jan		Sept

ATTACHMENT B



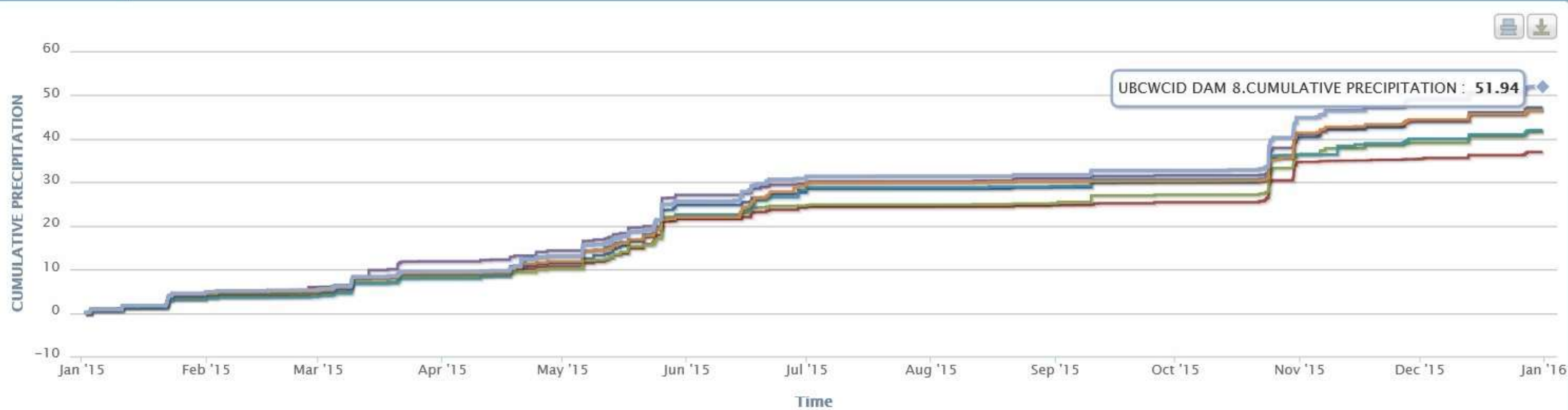
Stations and Sensors

Discharge Elevation **Cumulative Precipitation** Gage Height

- UBCWCID DAM 1 UBCWCID DAM 2 UBCWCID DAM 3 UBCWCID DAM 4 UBCWCID DAM 5
- UBCWCID DAM 6 UBCWCID DAM 7 UBCWCID DAM 8 UBCWCID DAM 9 UBCWCID DAM 10A
- UBCWCID DAM 11 UBCWCID DAM 12 UBCWCID DAM 13A UBCWCID DAM 14 UBCWCID DAM 15
- UBCWCID DAM 16 UBCWCID DAM 17 UBCWCID DAM 18 UBCWCID DAM 19 UBCWCID DAM 20
- UBCWCID DAM 21 UBCWCID DAM 22

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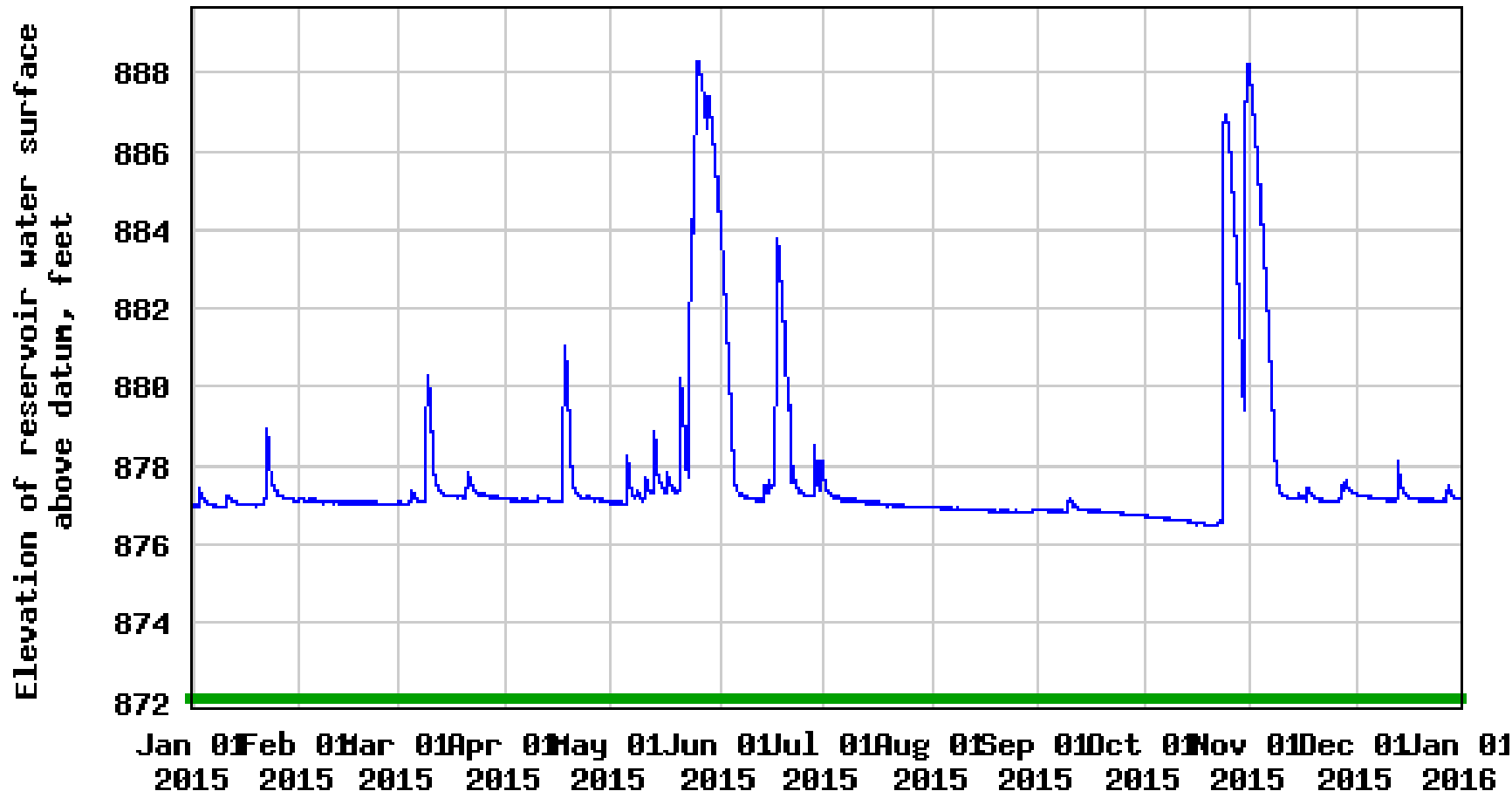
Generate Graph



— UBCWCID DAM 14.CUMULATIVE PRECIPITATION — UBCWCID DAM 16.CUMULATIVE PRECIPITATION — UBCWCID DAM 20.CUMULATIVE PRECIPITATION — UBCWCID DAM 22.CUMULATIVE PRECIPITATION
— UBCWCID DAM 3.CUMULATIVE PRECIPITATION — UBCWCID DAM 6.CUMULATIVE PRECIPITATION — UBCWCID DAM 8.CUMULATIVE PRECIPITATION



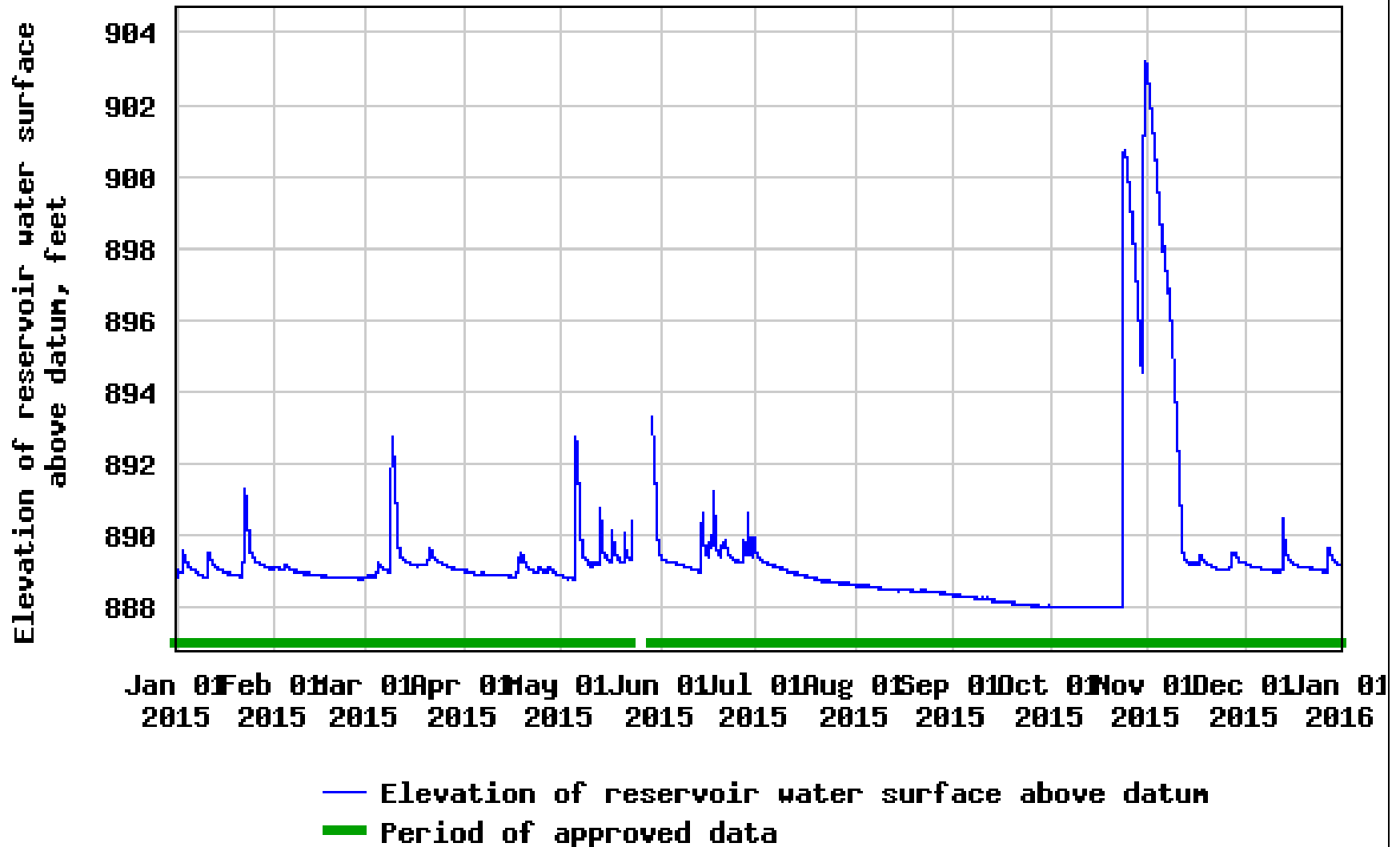
USGS 303318097482000 UBCWCID Dam 3 nr Leander, TX



— Elevation of reservoir water surface above datum
— Period of approved data

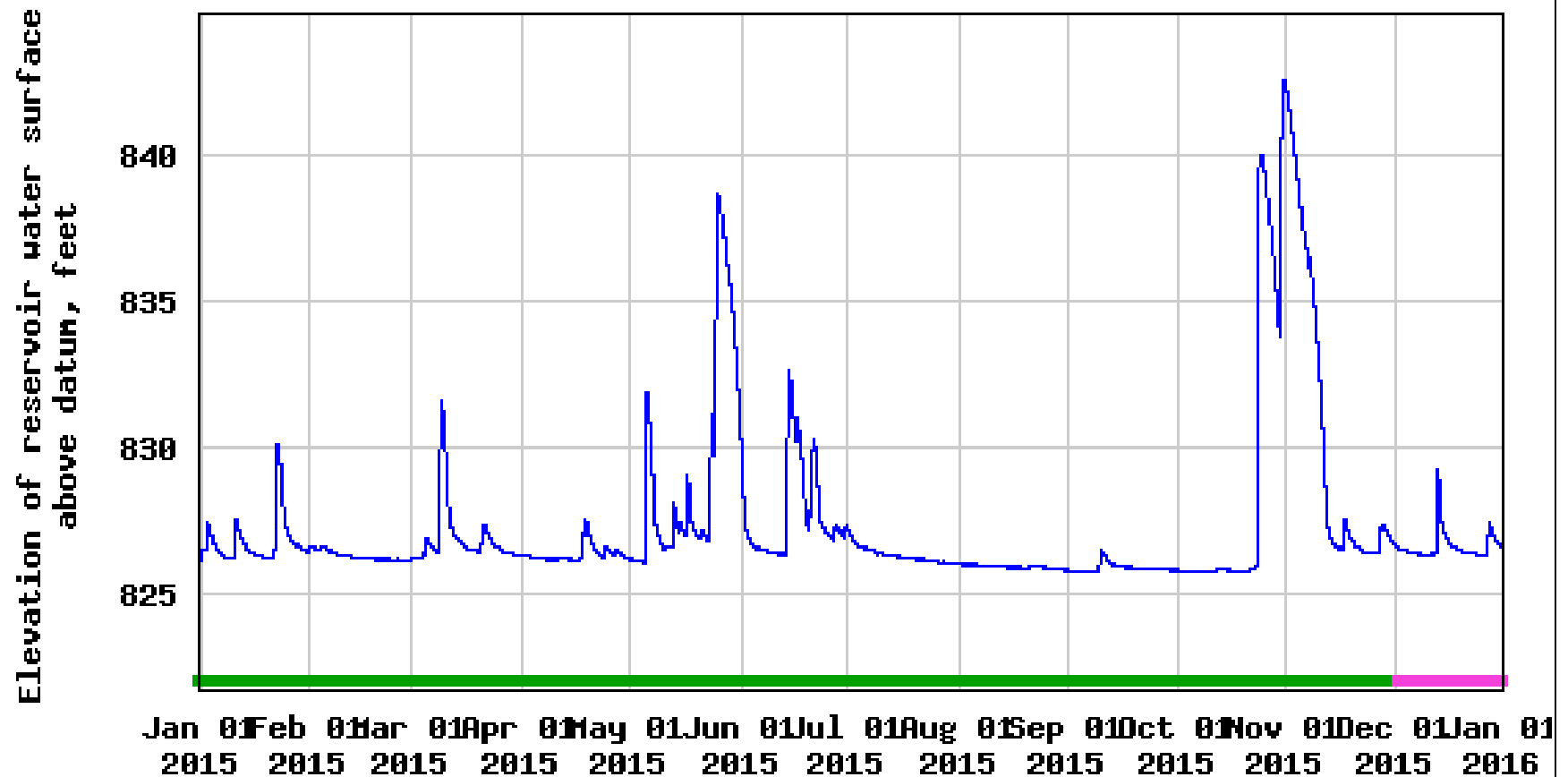


USGS 302914097483500 UBCWCID Dam 6 nr Cedar Park, TX





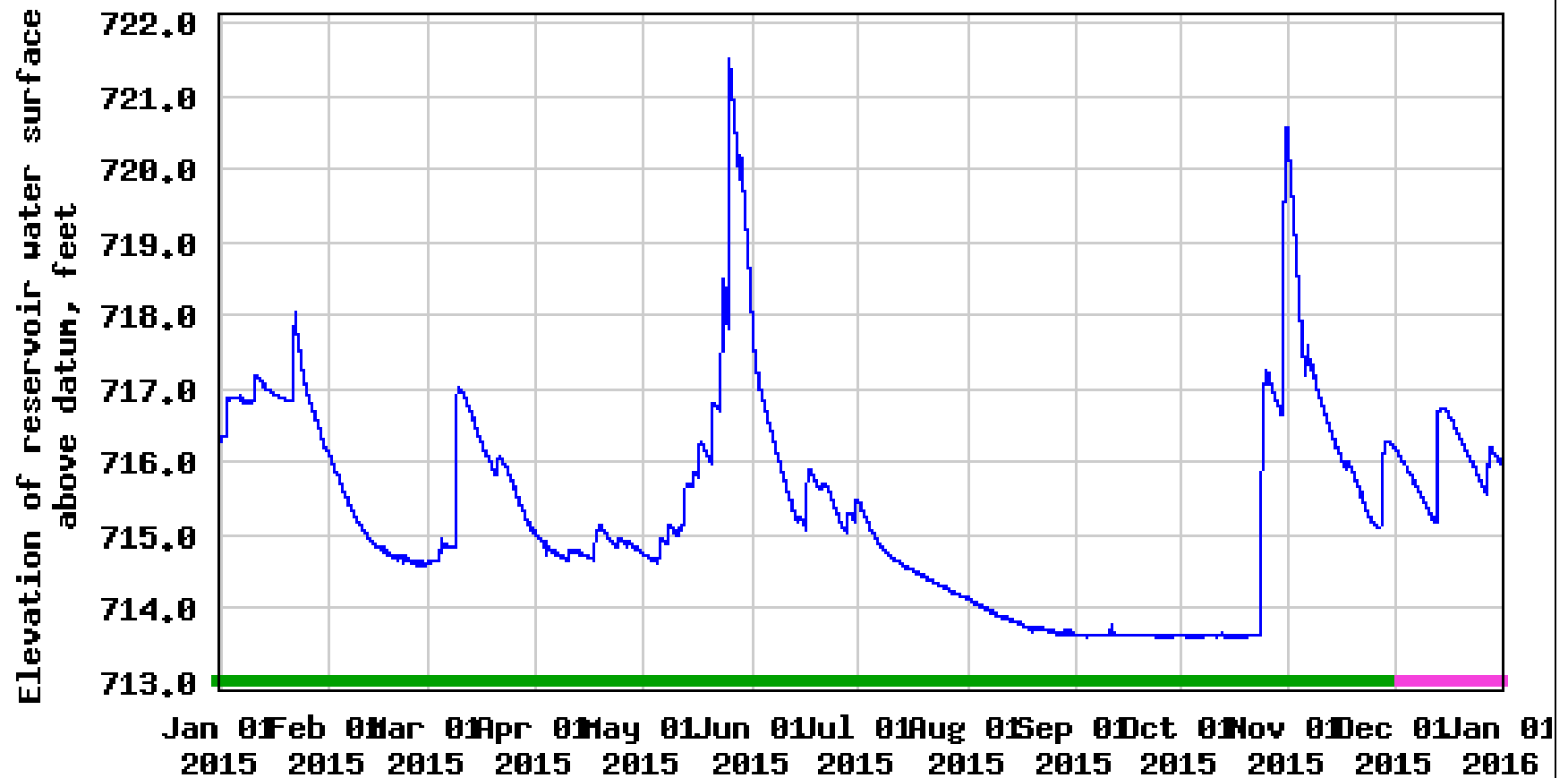
USGS 302814097444799 UBCWCID Dam 8 nr Jollyville, TX



- Elevation of reservoir water surface above datum
- Period of approved data
- Period of provisional data



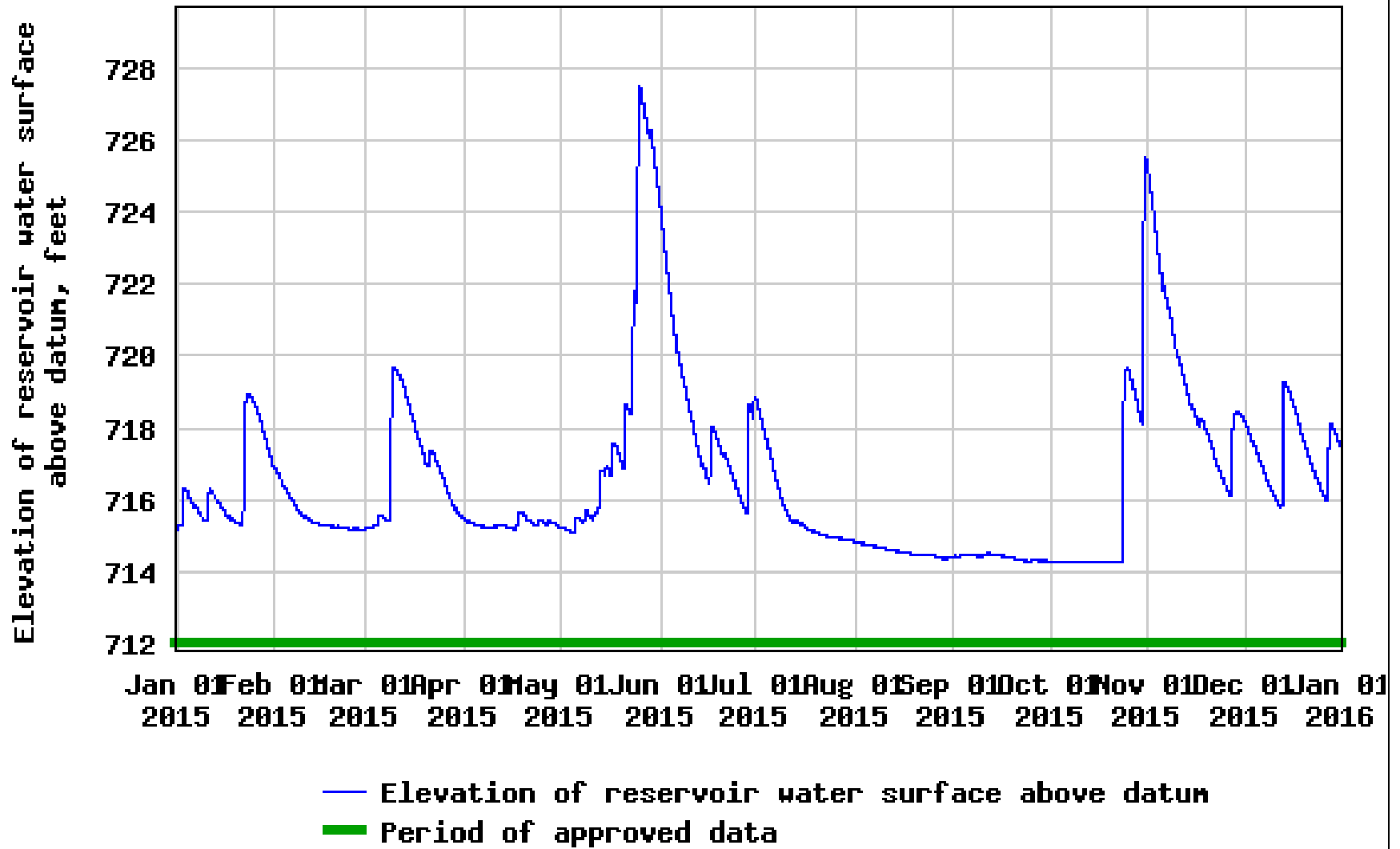
USGS 303231097394800 UBCWCID Dam 14 nr Round Rock, TX



- Elevation of reservoir water surface above datum
- Period of approved data
- Period of provisional data

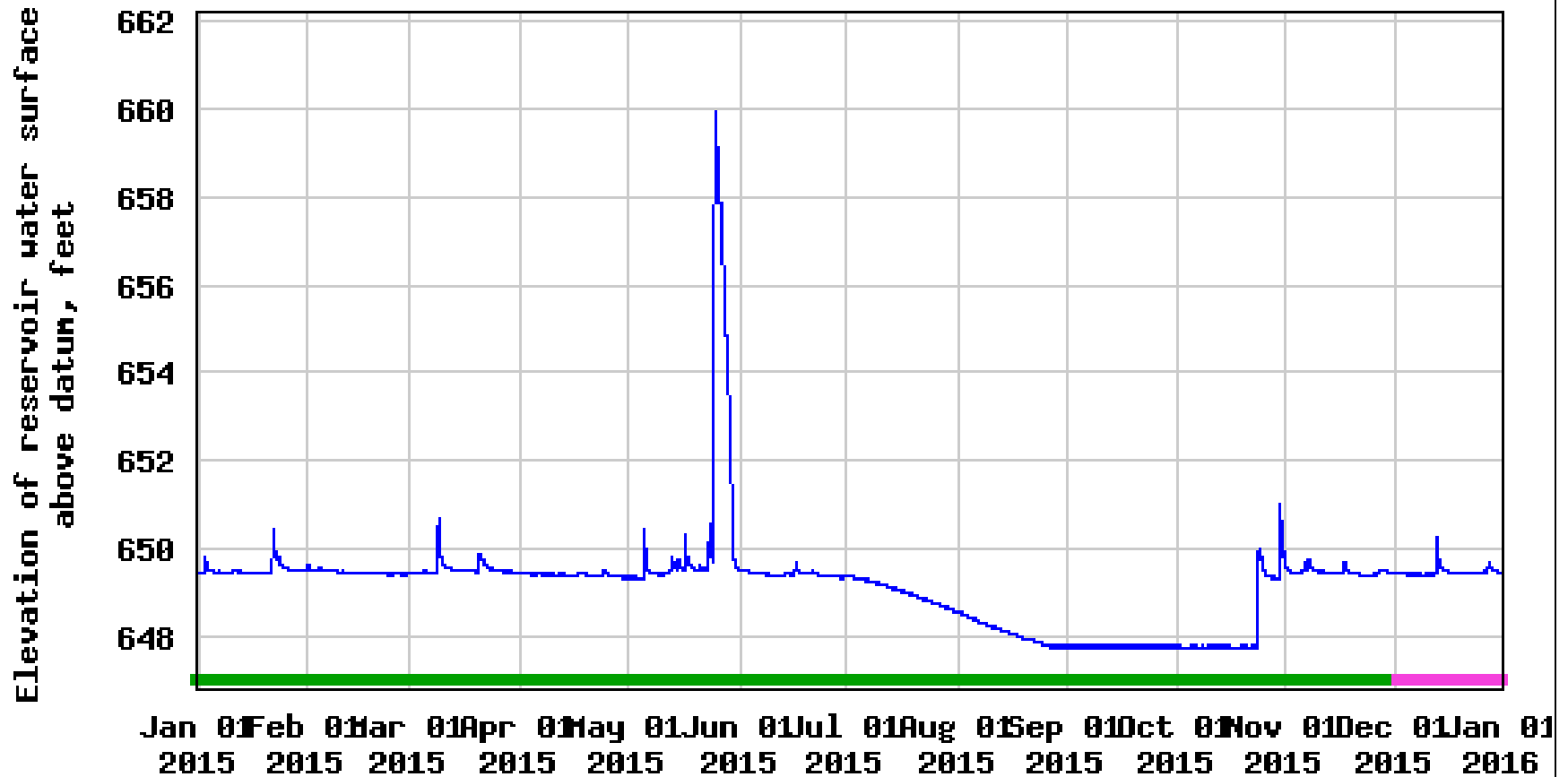


USGS 303401097374700 UBCWCID Dam 16 nr Round Rock, TX





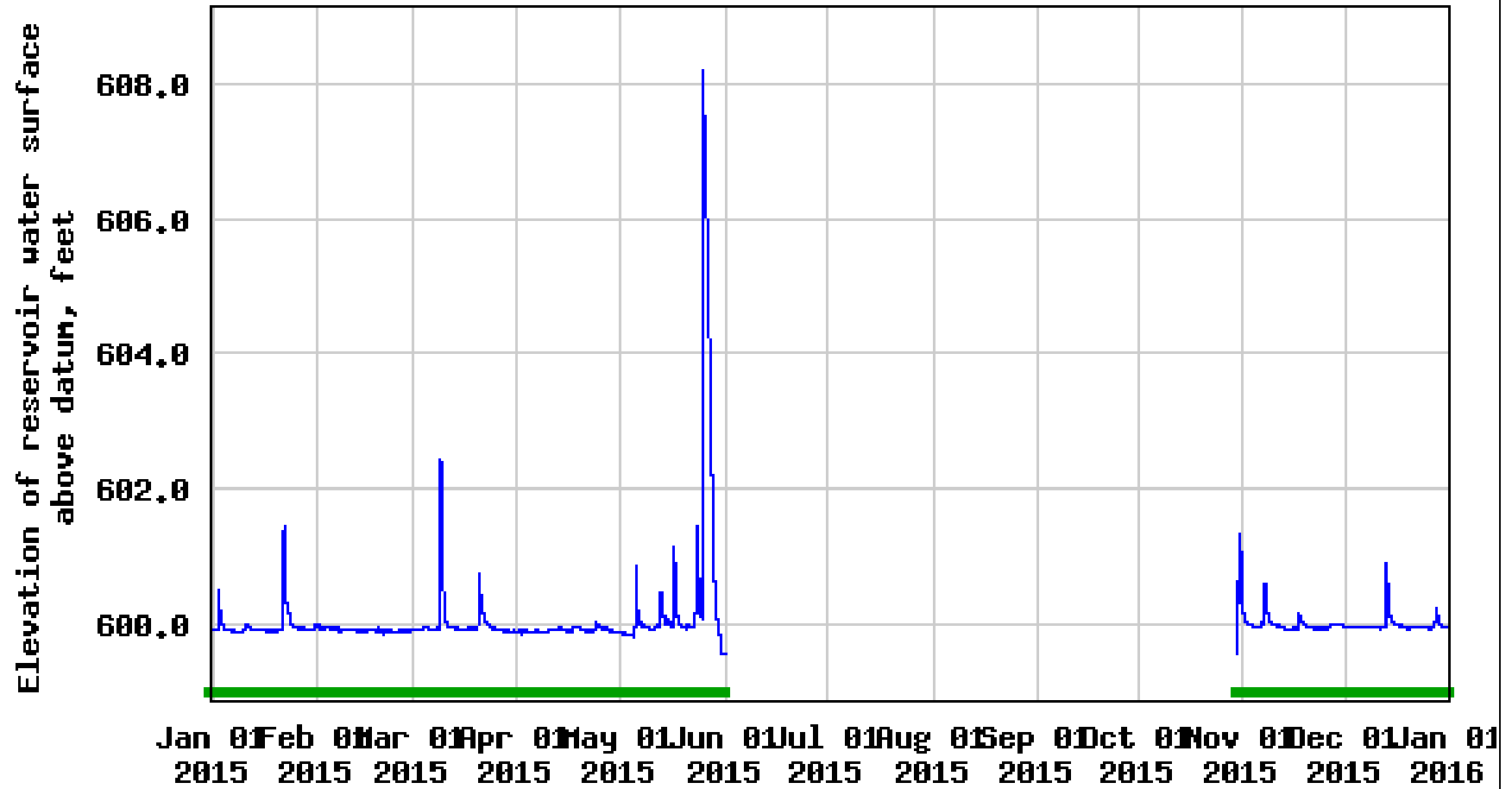
USGS 303056097341300 UBCWCID Dam 20 nr Hutto, TX



- Elevation of reservoir water surface above datum
- Period of approved data
- Period of provisional data



USGS 302926097322400 UBCWCID Dam 22 nr Hutto, TX



- Elevation of reservoir water surface above datum
- Period of approved data