

Written Testimony of Michael A. Hamman P.E.

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H.R. 7792 – Water Data Act and H.R. 7793 – Rio Grande Water Security Act

US House Subcommittee on Water, Oceans and Wildlife

Mr. Chairman and Committee Members;

My name is Michael A. Hamman and I am the New Mexico State Engineer. I was appointed by Governor Michelle Lujan Grisham to this Cabinet position on February 7, 2022 and confirmed by the Senate on February 11, 2022. I also serve as the the Chairman of the New Mexico Drought Task Force that advises the Governor on state-wide drought conditions and the Water Trust Board that approves funding for water and related infrastructure projects across the state. I previously served as the Chief Executive Officer of the Middle Rio Grande Conservancy District that provides flood protection, drainage, and irrigation delivery services to a four-county region in central New Mexico and as the Area Manager for the Albuquerque Area of for the US Bureau of Reclamation that operates and manages ten federal projects within the upper Rio Grande/Pecos basin region in Colorado, New Mexico and Texas. I am a registered Professional Engineer in New Mexico and have been so since 1990.

During my 40 years of public service within the southwestern United States, I have not seen the degree of the persistence and severity of drought that is occurring across New Mexico and the greater Southwest during the previous 15 years. There is a growing understanding that this is more than the cyclical droughts that have been observed since the late 1800s as well as work performed in paleo hydrology (tree ring analyses) by multiple studies including the most recent work by the University of Arizona that illustrates cyclical severe droughts on a decadal scale in the southwest during the last 1,000 years. Current 20th century water management policies and infrastructure were designed around a relatively abundant water supply with data starting in the late 1800s and the early 1900s with the most recent period of the 1980s and 1990s showing one of the most abundant periods of water supplies in the known history of the

southwest. That knowledge is within the collective psyche of water managers with experience of very good snowpack years followed by below average years in a pattern that has allowed for, perhaps, a false sense of security that our current reservoir system will “recover” with a shift in hydrology as has occurred in the past. The growing awareness that increasing temperatures tied to global CO2 emissions is testing the adaptability of the current policies and water supply systems in the southwest while introducing a higher degree of variability and shifts from snowpack spring runoff toward higher intensity summer thunderstorm events that our current infrastructure is not particularly suited to capitalize upon. The National Weather Service is predicting a strong likelihood of a triple-dip La Niña which would make a third year in a row of this pattern that is both unprecedented and indicative of continuing drought. That awareness is awakening federal, state and local governments to the fact that the environment is changing at a higher rate than our 20th century system can logically adapt to without substantial changes to status quo operations and water use.

In New Mexico, we have unprecedented conditions of extreme to exceptional drought with over 90% of the state in these categories under the National Drought Monitor and this development has created severe wildfire conditions generating the most burned acreage in New Mexico’s history, 700,000 acres and growing as two large fires are only 50% contained. President Biden visited New Mexico this past Saturday declaring full federal assistance for wildfire response and preparation for debris and ash flows that are inevitable once monsoon rains begin in these critical watersheds this summer and beyond. With the degree of damages observed, many of these watersheds may never be the same highly functioning water reservoirs they were further exacerbating future water supply conditions. New Mexico has minimal reservoir carryover storage and this year’s spring runoff is over three weeks earlier than “normal” with river flow less than one third of levels normally seen this time of year. The recent pattern has created consecutive years of under delivery as required by the Rio Grande Compact and the state is approaching a formal violation. There is current SCOTUS litigation under TX v. NM/CO in the original 141 case where

Texas is alleging that New Mexico has underdelivered below its upper basin delivery point of Elephant Butte Dam as well. This litigation is currently in mediation seeking a settlement acceptable to the parties that includes the United States. There is growing potential of endangered species litigation as the ability to meet the requirements of the 2006 Middle Rio Grande biological opinion is being stressed by hydrologic conditions not anticipated by the action agencies and the US Fish and Wildlife Service. The State of New Mexico took the unprecedented step this legislative session to create a \$30.3M fund to address drought mitigation in an effort to help leverage federal resources for this purpose as well as assist impacted water user sectors throughout the state. This provides funding for voluntary farm fallowing to help relieve some stress, both agricultural and environmental, resulting from persistent drought.

What we cannot measure, we cannot manage effectively and what we cannot manage, we cannot proactively plan for and adapt to rapidly changing conditions. I commend Representative Stansbury and the bills co-sponsors for recognition of these facts and observations and both H.R. 7792 and 7793 are important steps toward helping to standardize the collection, use and access to critical water data needed to address the 21st century water demands of the West and the entire country as well as providing resources and direction to assist states, tribes and communities within the Rio Grande basin with the growing crises of water shortages and severe environmental impacts. Current water data systems are focused on mission specific purposes within agencies and there are on-going efforts within Departments to better integrate and support water data collection, use and sharing but these efforts fall short of the need that this bill provides so that governmental agencies at all levels of government, including tribes and other traditional communities, do not have to hire and maintain technical staff and systems just to access and interrupt water and related databases that should be readily available as a national service supporting sound and proactive water management for quantity and quality across the nation. An example of how data sets can be misinterpreted was discussed in a recent GAO report on freshwater availability concerns where the USGS reports a relatively constant level of annual freshwater withdrawals since 1980 indicating

that the country is adequately addressing its water concerns. But a deeper dive into state water manager provided data tells a different story, particularly in the southwest, where aquifers are being stressed and reservoir supplies are edging in a downward trend to sustain the same levels of withdrawals. The Colorado River system of reservoirs created the buffers needed for westward expansion for irrigation, M&I and hydropower where the standard annual use of 11 million acre-feet was sustained. As we speak, the lower three basin states must determine how to reduce its annual uses by 2 million acre-feet by 2023 with further reductions as conditions degrade threatening hydropower production from Glen Canyon Dam. In that same report, major shifts in land use and water demands for the energy production sector could change the water supply picture incrementally and dramatically pointing toward a need for better integration of local, state and federal data in order to provide for better planning and use of available resources.

H.R. 7792 mirrors a similar effort also spearheaded by Representative Stansbury when she served in the New Mexico Legislature resulting in the Water Data Act that guides a paradigm shift in how New Mexico's agencies prioritize, manage, and share data. Both the Governor and the Legislature have made a strong commitment to implementing the Act in order to modernize and integrate water data collection, storage, access and use through a federated data model much as the proposed legislation for the nation would accomplish if enacted into law and is before this subcommittee today. New Mexico is assuming a leadership role in its efforts at the state level and it has received the attention of the US Geological Survey that is looking to implement a similar data model approach. H.R. 7792 would assist USGS and many other natural resources agencies to collaborate and integrate into the FAIR system of Findable, Accessible, Interoperable and Reusable for federal agencies, states, tribes, local governments and the public. I urge that the effort now being pursued in New Mexico be further studied as research for potential implementation for a national strategy as this effort has been underway since 2019 by accessing the website <https://newmexicowaterdata.org/resources/>.

One of the largest benefits of the proposed Water Data Act is the ability to capitalize upon efforts like what New Mexico is undertaking as well as many efforts across the country to build upon that body of work through grant programs and the Water Data Council with input from the Advisory Committee on Water Information that would assist federal departments named in the bill to achieve the identified goals in a collaborative and transparent manner. Advancing sound water planning and management across our nation on a foundation of reliable, standardized and accessible water data is a laudable and achievable mission that many are already working towards so integrating those efforts under this Act will provide benefits for generations to come.

Title I of H.R. 7793 would direct the development of a Rio Grande Basin study that would incorporate some previous and on-going planning efforts for subbasins of the 1,200-mile-long river system. The state of Colorado has several studies and a plan for the San Luis Valley portion at the top of the Rio Grande where both the San Juan and Sangre de Cristo mountain ranges provide substantial snowmelt runoff and sustaining baseflows that is governed by the Rio Grande Compact between the states of Colorado, New Mexico and Texas for the upper Rio Grande terminating at Fort Quitman Texas. The US Bureau of Reclamation is conducting an Upper Rio Grande Basin Study in partnership with the Middle Rio Grande Conservancy District and the Office of the State Engineer to develop a suite of recommendations for adaptation strategies to meet growing demands in the face of a declining surface water resource based upon recent modeling projections associated with increasing temperatures moving the region into higher aridity over time. The study area is from the Colorado border to Elephant Butte Dam that contains 250 river miles and the largest population center in New Mexico, fourteen Rio Grande Pueblos, numerous Acequia communities and approximately 100,000 acres of irrigated agriculture.

The formation of the Federal Working Group with the directive to work closely with the three basin states, tribes and a number of local governments will assist in coordinating and integrating a multitude of studies and plans being conducted in an effort to use the best available data and science to review 20th century laws, policies and infrastructure to effectuate the needs of the human and physical environment in the face of the rapidly changing climate conditions. I have worked for the past two decades with both a federal, tribal, state and local hat on to push existing laws and policies as far as possible to optimize the available water supplies to meet growing diversion demands, environmental and recreational needs, tribal water rights claims and settlements, and specified compact and biological opinion requirements. I have come to the conclusion that current authorities for federal project envisioned and implemented during times of more abundant water supplies as well as project specific authorizations need to be thoroughly investigated and reviewed in light of 21st century needs and the shifting hydrologic conditions. The highest possible degree of operational flexibility will be absolutely required as we look toward the challenges in the coming decades. Many changes that have been made during my career have an incrementalism approach where we come up against a problem to solve and we work to address it through tweaks to legislation and other actions. An example of this is the recent changes to operational authority for the Corps of Engineers for a flood control facility, Abiquiu Dam and Reservoir, on the Rio Chama about 30 miles north of the confluence with the Rio Grande. Under WRDA 2020, the Corps was granted the authority to store Rio Grande inflows under an existing previous change to allow for trans-basin storage providing flexibility to store native flows while El Vado Dam is being rehabilitated by the US Bureau of Reclamation. This legislation will also allow for continued use of Abiquiu for native storage after permanent contracts are negotiated. This helps provide additional flexibility on a major tributary of the Rio Grande but also illustrates that a full review of all facilities, including additional Corps flood control dams, must be part of the equation going forward. The Rio Grande Basin study would investigate these

possibilities and provide recommendations to Congress on ways systemic changes could address the challenges before us.

Title II of the Act would provide amendments to PL 111-11 for extending the period to 2032 and funding options to help fulfill a commitment made by Congress to address long-standing infrastructure and water conservation improvements needed on Rio Grande Pueblo lands in order for their traditional, cultural and economic needs be met utilizing their senior water rights, many of whom have settled their rights but many more are in the midst of litigation and the settlement process. Agricultural water conservation and operational efficiency on tribal lands, as well as on all farmlands in the west, will be critical in an effort to maintain production, provide food security to the region in the face of supply chain issues and other global/regional disorder, and preserving fresh water through conservation practices. It is clear that based upon a recent study completed by the US Bureau Reclamation that tribes and Pueblos have not received an adequate share of available resources for improving agricultural and water management performance that has occurred much more frequently on non-tribal lands so providing these amendments will allow for this commitment to move forward at the discretion of future appropriations for this purpose.

In closing, I fully support these two bills and wholeheartedly agree that their passage will assist New Mexico, the arid West and the nation as we address impacts to its water resources resulting from the uncertain but demonstrable impacts of observed and modeled temperature increase resulting from global CO2 emissions. What we can measure we can manage, and what we can manage will provide for planned adaptation to growing water resource quantity and quality challenges.