NEVADA DROUGHT FORUM

Nevada Drought Forum: *Recommendations Report*

Presented to ***Governor Brian Sandoval*** *• December 2015*

Ruby Mountain Range

Nevada Drought Forum Members

Leo Drozdoff, P.E. (Chairman)
Director, Nevada Department of Conservation and Natural Resources

John Entsminger (Vice Chairman)
General Manager, Southern Nevada Water Authority

Jim Barbee
Director, Nevada Department of Agriculture

Jason King, P.E.
State Engineer, Nevada Division of Water Resources

Dr. Douglas Boyle
Nevada State Climatologist, University of Nevada, Reno

Dr. Mark Walker
Dean, University of Nevada Cooperative Extension

Dr. Justin Huntington
Associate Research Professor, Desert Research Institute

Caleb Cage
Chief, Nevada Division of Emergency Management

The Nevada Drought Forum would like to express its sincere gratitude to the many stakeholders who helped the Forum to better understand the issues, challenges and opportunities related to drought response in Nevada.

Brian Sandoval, Governor

Wheeler Peak

Executive Summary

The Nevada Drought Forum (Forum) was formed by Governor Brian Sandoval in April 2015 through Executive Order 2015-03 to address water resource challenges related to severe and sustained drought conditions that have affected much of the state. The Forum was directed to facilitate a statewide dialogue among interested stakeholders and identify best practices for drought policy, preparedness and management.

As part of its responsibilities, the Forum prepared a Summary of Current and Future Actions, received a monthly Statewide Situation Report, participated in the 2015 Governor's Drought Summit, reviewed and considered the Western Governor's Association (WGA) Drought Forum Final Report, and met with stakeholders throughout the state to better understand issues and challenges, as well as to identify opportunities to enhance Nevada's drought response efforts.

The Forum met six times from June through November 2015. Meetings were broadcast to multiple locations throughout the state to provide transparency and encourage public involvement. As part of its meeting process, the Forum invited representatives from various stakeholder groups to share information on drought impacts, mitigation efforts and current or anticipated obstacles to doing business during drought. Additionally, Forum members participated individually in the Governor's Drought Summit, which further explored stakeholder drought response efforts, water conservation efforts, conservation barriers, and opportunities to improve conditions and/or Nevada drought resiliency moving forward. These efforts are detailed more fully herein, with supporting information available in the appendices and online at **drought.nv.gov**.

Together, these discussions provided a strong foundation for deliberations by the Forum. As the Forum worked to develop recommendations, members agreed that meaningful investments in time, coordination and funding in the following key areas could improve Nevada's overall drought response and long-term resilience:

- Water Conservation
- Nevada Water Law
- Monitoring and Research Data
- Financial and Technical Assistance
- Supply Augmentation and Long-Range Planning
- Information Sharing and Outreach
- Drought Declarations/Emergency Actions

As described within the balance of this report, the Forum recommended specific actions that allow for consideration of next steps. The Forum believes that the Governor's leadership in addressing water conservation and drought for the long-term benefit of the state and its residents, together with further consideration and possible implementation of some or all of these recommendations, will provide a substantial and meaningful step toward managing statewide drought impacts and maintaining sustainable water supplies.


Denio
McDermitt
Black Rock Desert
Santa Rosa Range
Humboldt R.
Independence Mts
Winnemucca
Wells
Elko
Battle Mountain
80
Ruby Mts
Pyramid Lake
Trinity Range
Lovelock
GREAT
Stillwater Range
Shoshone Mts
Carson Sink
80
Reno
Sparks
Fallon
Austin
Eureka
Virginia City
Carson City
Toiyabe Range
Monitor Range
Egan Range
Schell Creek Range
Ruth
Ely
Lake Tahoe
Yerington
Gardnerville
Wheeler Pk
13063
Walker Lake
Mt Grant
11239
Round Mountain
Hot Creek Range
Grant Range
Hawthorne
BASIN
Tonopah
Pioche
Boundary Pk
13140
Panaca
Caliente
Pahute Mesa
Beatty
Mesquite
15
Indian Springs
Sheep Range
Lake Mead
Charleston Pk
11918
North Las Vegas
Las Vegas
Henderson
Boulder City
Colorado River
Lake Mohave
Laughlin

Truckee River

Introduction

Nevada is known for its rich and diverse landscape; it is also known for its harsh climate and hydrological extremes. The state is characterized as semi-arid to arid, with precipitation varying widely across its more than 500-mile stretch from northern to southern boundary. Temperatures can reach -40° F in some parts of the state and exceed 120° F in others. With nine inches of average precipitation annually, Nevada is the driest state in the nation.

Droughts and floods are common in the state—a place where water users have long coped with the dramatic changes that can occur from year to year. Despite its hardiness in responding to difficult water resource challenges, current conditions have tested Nevada's drought resiliency and are requiring unprecedented levels of action.

Four years of extremely dry conditions and below average snowpack in northern Nevada's mountain ranges have resulted in significant impacts to the Humboldt, Carson, Walker and Truckee river systems, as well as associated surface and groundwater water supplies. In the southern portion of the state, a 15-year drought in the Colorado River Basin has caused Lake Mead to drop by more than 130 feet. The reservoir is at its lowest point since it began filling during the 1930s, and further water level decline is expected. Central portions of the state have also experienced drier conditions. This has resulted in reduced recharge to groundwater basins, as well as inflow reductions to springs, seeps and streams that support healthy rangeland conditions and provide habitat for Nevada wildlife.


Little Truckee River

Nevada Drought Forum

To address the state's evolving water supply and demand challenges brought upon by severe drought, Governor Brian Sandoval established the Nevada Drought Forum (Forum) in April 2015 by Executive Order 2015-03 (Appendix A). The Forum was created to facilitate a statewide dialogue among interested stakeholders and to help identify best practices for drought policy, preparedness and management.

As part of its responsibilities, the Forum prepared a Summary of Current and Future Actions, which describes the current and planned activities of local, state and federal entities (Appendix B). The Forum also received a monthly Statewide Situation Report (Appendix C); participated in the September 2015 Governor's Drought Summit (Appendix D); reviewed and considered the Western Governors' Association (WGA) Drought Forum Final Report (Appendix E); invited stakeholders throughout the state to participate in Forum meetings (Appendix F) and received communications through the Drought Forum website (Appendix G).

These efforts helped establish a better understanding of how drought-related issues are affecting water users, industry and the environment, and informed the development of recommendations as presented in the latter portion of this document. The following provides a brief overview of the Drought Forum and key efforts since its formation.

DROUGHT FORUM REPRESENTATION

As established in the Governor's Executive Order, the Nevada Drought Forum is comprised of the following members:

- The Director of the Nevada Department of Conservation and Natural Resources
- The Director of the Nevada Department of Agriculture
- The State Engineer of the Nevada Division of Water Resources
- The Chief of the Nevada Division of Emergency Management
- The Nevada State Climatologist
- The Dean of the University of Nevada Cooperative Extension
- A representative of the Desert Research Institute
- A representative of the Southern Nevada Water Authority

SUMMARY OF CURRENT AND PLANNED ACTIONS:

In May 2015, the Forum issued a questionnaire to local, state and federal stakeholders. Respondents were asked to provide information on: water supply sources (groundwater, surface water, other); area of service (size, number of customers served, location); drought impacts on operations, resource availability and/or planning activities; actions taken, underway or planned; and, topics/issues for possible future discussion by the Forum.

The questionnaire was issued to more than 235 water users throughout Nevada, including municipal, state and federal agencies as well as private and other water users. Respondent information was summarized and posted to the Nevada Drought Forum website, **drought.nv.gov**, in August 2015.

The following describes reported impacts as well as current and planned drought response measures by user type.

Local Agencies:

Local agencies reported drought impacts that range in nature from no impact to significant impact. Several respondents noted higher customer water use due to drought conditions, as well as declining ground and/or surface water levels. For some, declining water levels do not have an immediate impact, but have the potential for impact if conditions persist. Others indicated that declining water levels have significantly affected water supply availability, facilities and operations.

Drought response measures vary by agency to include one or more of the following: water conservation plans, education/outreach, landscape development codes, irrigation audits, water budgets, watering restrictions, water waste prohibitions/enforcement, leak detection/repair, metered use/rates, incentive/rebate programs, industry partnerships, facility modifications/new facilities, new supply acquisition/development and other actions.

Other Water Purveyors:

Other water purveyors, including irrigation districts and private water companies, reported financial impacts due to decreased water use and declining groundwater levels.

Current and planned drought response measures varied to include one or more of the following: water conservation plans, outreach, landscape development codes, watering restrictions, water waste restrictions, cooling system restrictions, leak detection/repair, rebate programs, facility modifications and vegetative management.

State Agencies:

State agencies reported impacts that include water supply disruptions and facility failures due to reduced precipitation and/or inflow to surface and groundwater systems; impacts/potential future impacts on wildlife and environmental resources, recreation (boating), game (hunting and fishing) and park visitation; increased potential for wildfire; and drought-related impacts to finances/operations.

Current and planned drought response measures vary by agency to include one or more of the following: new/improved storage, stabilization of water levels, securing new resources/facilities, outreach, increased irrigation/watering restrictions, plumbing/infrastructure improvements, monitoring and mitigation, and drought-related assistance.

Governor Sandoval announces formation of Drought Forum and discusses Nevada's changing landscape in the face of persistent drought conditions.

Federal Agencies:

Federal agencies reported drought impacts to wildlife, recreation, cultural resources, success and magnitude of restoration efforts, minerals, rangeland/livestock forage (including impacts to grazing allotments), loss of agricultural production, livestock herd reductions and tree health. Potential impacts reported include health and resiliency of timber stands due to insects/disease, as well as fire hazards.

Current and planned response measures vary by agency to include one or more of the following: education/outreach, monitoring/mitigation, financial assistance, conservation compliance and other efforts.

The Summary of Current and Planned Actions is provided in Appendix B. Individual response forms submitted by agency/respondent are available at **drought.nv.gov**.

STATEWIDE SITUATION REPORT:

Between March and June 2015, the Nevada State Emergency Operations Center issued a monthly Statewide Drought Emergency Situation Report (Appendix C). Each report included a copy of the month's current U.S. Drought Monitor, which contained a listing of severity designations by county; information on emergency disaster programs; water level data; wildfire information; and other drought-related information and resources.

DROUGHT FORUM MEETINGS:

The Nevada Drought Forum held a total of six meetings between June and November 2015. Meetings were open to public and noticed in accordance with Open Meeting Law. Meetings were also broadcast to multiple locations throughout the state to provide transparency and encourage public involvement in the Forum's discussion and deliberations.

As part of its July 17, 2015 meeting, the Forum invited sector representatives from gaming, hospitality, mining, development, energy, commercial, industrial, tourism, recreation and general business to share information on drought impacts to operations, drought mitigation efforts, and current or anticipated obstacles to doing business because of drought conditions. The Forum continued this discussion at its August 19, 2015 meeting as it considered information from agricultural producers, tribal nations, non-governmental organizations, and public and private water providers/water authorities.

Meeting agendas and minutes, including a summary from presenters at the July and August Forum meetings, are included in Appendix F. Letters, comments and other meeting materials are available by meeting date at **drought.nv.gov**.

GOVERNORS DROUGHT SUMMIT:

Forum members attended and individually participated in the Governor's Drought Summit, September 21 – 23, 2015, at the Nevada State Legislative Building in Carson City. The Summit was opened by Governor Sandoval and included facilitated discussions involving more than 50 presenters, many of whom are national and state experts. The Summit also featured an evening at the Governor's Mansion that further advanced the valuable cross-sector discussions and idea sharing that occurred throughout the three days of meetings.

The Summit's panel discussions included such topics as defining and predicting drought; water history, law and past/current users; Nevada challenges; conservation success stories, which included participation by the media; water conservation communications/messaging; and a case study on regional water partnerships and solutions.

Participants were asked to share information on drought impacts, water conservation efforts, conservation barriers, and opportunities to improve conditions and/or Nevada drought resiliency moving forward. Members of the public were encouraged to submit questions and comments. Video recordings of the Summit are available at **drought.nv.gov**. The Summit program, together with comment cards submitted by attendees, is provided in Appendix D.

WESTERN GOVERNORS' ASSOCIATION DROUGHT FORUM FINAL REPORT:

Forum members received and reviewed the Western Governors' Association (WGA) Drought Forum final report released in June 2015, an initiative of 2015 WGA Chairman, Governor Sandoval. The WGA Drought Forum was created under Governor Sandoval's leadership to provide a framework for states, industries and communities to share best practices and policy options for drought response. Key themes identified for future exploration of the WGA Drought Forum include data and analysis; produced, reuse and brackish water; forest health and soil stewardship; water conservation and efficiency; infrastructure and investment; working within institutional frameworks to manage drought; and communication and collaboration.

The Forum discussed the report during its deliberations and agreed that most of the topics identified in the report generally correspond with many of the Forum's recommendations, as well as Nevada's challenges and opportunities. The WGA Report is provided in Appendix E.

Lake Mead

Drought Forum Recommendations

The Forum listened to and considered numerous perspectives as part of its meeting process. Strong and sometimes conflicting views were presented on how to address the state's water resource challenges. Within this continuum, the Forum agreed there existed both opportunity and common ground—places where investments in time, coordination and funding could vastly improve Nevada's overall drought response and resilience.

The recommendations provided herein detail actions that the Forum believes can be taken now to bring about necessary and meaningful change. Governor Sandoval's leadership in addressing drought for the benefit of the state and its residents, along with further consideration and implementation of the Forum's recommendations, provide substantial and significant steps to help secure Nevada's water future.

1 WATER CONSERVATION

Water conservation is an important tool to help water users manage demands and extend the use of available resources. In many cases, conservation can help to ease the impact of water supply shortages during drought and reduce needs for additional water supplies.

In 1991, the state enacted laws requiring municipal, industrial and domestic water suppliers to adopt water conservation plans based on the climate and living conditions of their service area. For public water systems, NRS 540.121 through 540.151 was added to specify content requirements of the plans and the process and timeframes to be followed. NRS 704.662 through 704.6624 was also added to establish conservation plan requirements for those utilities regulated by the Public Utilities Commission of Nevada.

The Forum reviewed existing statutes and agreed that additional provisions could be enacted to increase water efficiency, while still recognizing regional differences in climate and other factors. The Forum recommended changes to water conservation plan requirements that include new provisions for watering restrictions, metering, conservation water rate structures and water efficiency standards for new development. The Forum agreed that technical support should be provided to help water suppliers develop meaningful and actionable plans (see also "Financial and Technical Assistance"), and compliance with submission requirements should be enforced.

The Forum also discussed the need for additional water conservation actions among agricultural water users by encouraging agricultural producers to continue to pursue water saving technology and/or best management practices. The Forum also agreed that metering all water uses in the state would be an appropriate next step. This action could significantly enhance overall water use efficiency among all water users and allow for better accounting of the state's limited water resources.

Nevada's appropriative rights system was another key conversation topic among the Forum and agricultural producers. Many producers discussed perceived risks associated with conservation, including potential loss of unused water saved as part of conservation efforts. Nevada water law is based on a "use it or lose it" doctrine (see also, "Nevada Water Law"), which requires users to demonstrate a beneficial use of water and restricts users from speculating in water rights or holding on to water rights that they do not intend to place for beneficial use in a timely manner. The Forum agreed that these provisions should be reviewed to promote conservation efforts among agricultural users and help resolve potential conflicts.

The Forum also discussed and recommended implementation of a policy directive addressing water efficiency within the power industry, and recommended strategies to improve conservation efforts within homeowner associations.

RECOMMENDATIONS

- Amend the current statute that requires all water purveyors to submit a water conservation plan to the Division of Water Resources. Amendments would add the following additional areas that purveyors must require as part of their plan, unless the requirement is deemed unnecessary by the State Engineer:
  - Meters on all connections
  - Water efficiency standards for new development
  - Tiered rate structures to promote water conservation
  - Time-of-day and day-of-week watering restrictions
- Ensure compliance with water conservation plan submittal requirements by amending the water conservation plans statute to provide enforcement capability for the State Engineer after attempts to achieve submittal compliance, including technical assistance, are unsuccessful.
- Clarify and strengthen the law to allow the State Engineer to require the installation of water meters for all water uses in the state, including domestic wells, unless such installation is deemed unnecessary by the State Engineer.

- Review potential changes and clarifications to the "use it or lose it" provisions in Nevada water law to increase opportunities and incentives for water conservation during drought and non-drought conditions.
- Encourage development and use of water saving technology and/or best management practices by agricultural and livestock producers (including, but not limited to, crop covering, drip irrigation, variable rate irrigation, center pivot irrigation, laser leveling and crop selection).
- Issue a state policy directive that requires all newly developed thermoelectric power plant projects, or all additions to existing thermoelectric facilities, to utilize dry cooling or other similar water efficient technology.
- Request local political subdivisions to explore implementation of water conservation measures where Home Owner Association Covenants, Conditions and Restrictions (CC&Rs) are to the contrary.

2 NEVADA WATER LAW

Nevada's first water law was passed in 1866 and has been amended many times since. The Office of the State Engineer was created in 1903 to protect existing water rights and to improve methods for utilizing the state's limited water resources. The State Engineer is responsible for administering and enforcing Nevada water law, which includes the appropriation of surface and groundwater in the state, and the adjudication of pre-statutory vested rights, dam safety and other duties.

Nevada water law is considered one of the most comprehensive water laws in the western United States. It is based on two basic principles: prior appropriation and beneficial use. Prior appropriation—also known as "first in time, first in right"—allows for the orderly use of the state's water resources by granting priority to senior water rights in times of shortage. This concept helps to ensure senior water users are protected, even as new uses for water are allocated.

The Forum's meetings and the Drought Summit generated significant discussion regarding Nevada water law, particularly in regard to the management of over appropriated basins; pumping impacts to senior groundwater right holders by junior pumpers; the relationship between groundwater pumping and surface water flows; adaptive management through monitoring, management and mitigation ("3M Plans"); and the nexus between Nevada's "use it or lose it" doctrine and water conservation needs (see also "Water Conservation"). Other conversations centered on place of use; management of supplemental water rights; terms of use for temporary rights; and the need for greater flexibility to manage resources during times of drought to help minimize impacts.

Forum members and participants generally agreed that current drought conditions have intensified the conversation, particularly in light of declining stream and groundwater levels, as well as dwindling storage reserves. These issues have the potential to create and/or exacerbate conflict, particularly in over-appropriated basins. The time it takes to resolve conflicts through the courts is also a concern, especially since many fundamental water management principles are not clearly defined in statutes. The Drought Forum agreed that these issues need to be addressed, with an incremental approach to guard against unintended consequences.

To help ease drought-related impacts, the Forum recommended changes to Nevada water law that clarify and strengthen the State Engineer's authority related to water management tools such as 3M Plans, Critical Management Areas and Groundwater Management Plans. Members also agreed that in times of curtailment (when water supplies are reduced or restricted), access to water for indoor use by domestic well users should be preserved.

The Forum also discussed the topic of rainwater collection and use for domestic or wildlife needs. NRS 533.030 does not specifically address the permissibility of rainwater capture and use, but does limit the diversion and use of water in the state to those entities that have a granted water right. The Forum agreed that changes to law could be implemented to allow for the use of small-scale precipitation capture devices without significant

East Fork Carson River

impacts to state resources, although limitations must be defined to restrict the magnitude of these activities.

RECOMMENDATIONS

- Continue refinement of Nevada water law to strengthen the State Engineer's ability to address Critical Management Areas and provide flexibility in the development of Groundwater Management Plans for over-appropriated basins.
- Clarify Nevada water law related to the State Engineer's inherent authority to provide for adaptive water management through implementation of 3M Plans.
- Clearly define fundamental water management principles in statute.
- Seek an addition to Nevada water law that clarifies that, in times of curtailment, only outdoor use by domestic well users may be prohibited.
- Explore changing water law to allow for the use of small scale precipitation capture devices in areas where capture increases the water supply and does not conflict with existing rights.

3 MONITORING AND RESEARCH DATA

Produced by the National Drought Mitigation Center, the U.S. Drought Monitor provides summary information on the location and intensity of drought conditions occurring across the United States and Puerto Rico. The map is updated weekly by combining data and local expert input. The Drought Monitor is produced by a rotating group from the U.S. Department of Agriculture, the National Oceanic and Atmospheric Administration, and the National Drought Mitigation Center, incorporating the review from a group of 250 climatologists, extension agents and others across the nation.

Within Nevada, the Drought Monitor is used by state and federal agencies to establish policy and management tools and to assist local planning agencies and other water users with real-time information on hydrological conditions. While the Drought Monitor is a useful tool for reporting current hydrological conditions, participants at the Forum meetings and the Summit agreed that additional information and analysis is needed to improve decision-making efforts related to livestock grazing, as well as land and environmental resource management.

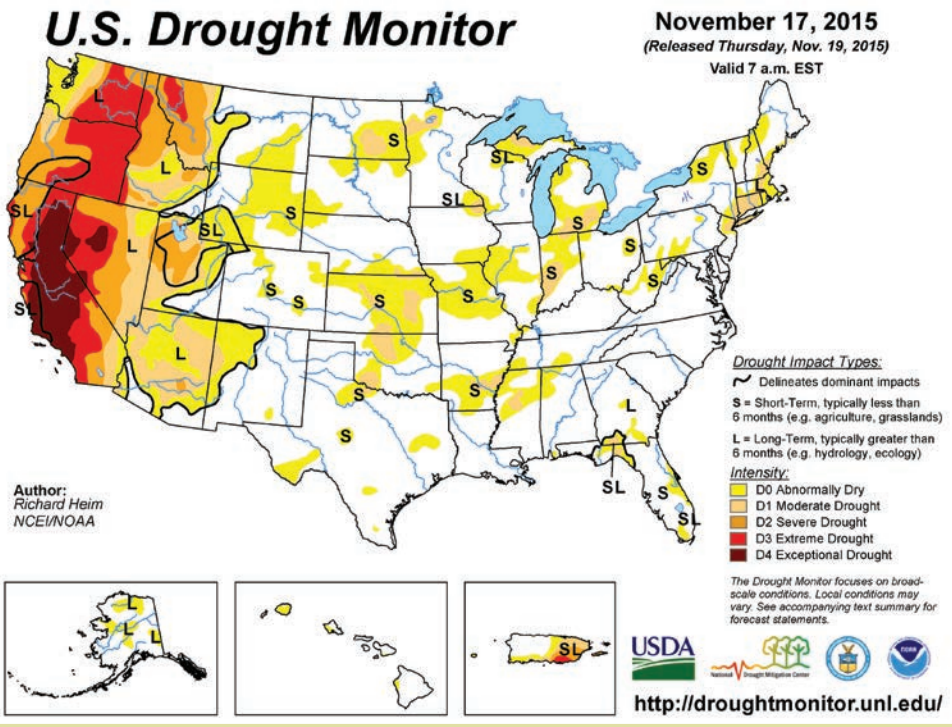
The Forum agreed that narrowing information gaps through additional data collection and monitoring could significantly improve coordination between various stakeholder groups throughout the state and allow for the development of more flexible resource management strategies. As such, the Forum recommended the formation of a working group to set monitoring and research goals, and to assess monitoring recommendations. The work group's efforts will complement and enhance the applicability, value and effectiveness of the U.S. Drought Monitor through the development of

new tools to increase the accuracy and accessibility of data, and improve drought forecasting through technology. The Forum agreed these coordinated efforts may help to defray expenses on mutually beneficial projects, make better use of limited staffing resources, reduce duplication of efforts and enhance interagency/stakeholder coordination and cooperation.

The Forum recognized that enhanced forecasting and monitoring tools may also be of value to other western states that are experiencing significant drought conditions. To this end, members recommended that the U.S. Drought Monitor be expanded to include multiple indicators, including state impact reporting. They also supported the addition of another Drought Monitor author in the western states and other drought-related research.

RECOMMENDATIONS

- Direct the formation of a working group of climate professionals and other relevant disciplines to set goals and assess recommendations for drought monitoring, including information gaps/site needs, prioritization of efforts, implementation strategies, and cost identification/funding strategies. This working group is encouraged to:
  - Develop a statewide monitoring network that utilizes diverse information sources to strengthen Nevada information sharing and monitoring coordination as well as centralized availability of real-time data.
  - Partner among network organizations to increase and enhance the accuracy of data, in part, by establishing standards for data collection and reporting.
  - Work with other organizations (such as NIDIS—National Integrated Drought Information System) and/or explore implementation of new technologies to improve drought monitoring, drought early warning systems and forecasts.
- Work with other western Governors to request an additional U.S. Drought Monitor author to represent western states and encourage expansion of the U.S. Drought Monitor to include multiple indicators (vegetative and hydrologic drought), including state impact reporting.
- Support development of research data related to the impacts of drought, including state tourism's offer to include questions related to drought and visitation as part of its scheduled research efforts.



As of November 17, 2015, much of Nevada is categorized to be in "moderate" to "exceptional" drought (D1 – D4).

4 FINANCIAL AND TECHNICAL ASSISTANCE

Incentive and retrofit programs have had much success in certain parts of the state, and could serve as a model for other users. However, such programs often require significant levels of funding, a limiting factor that many stakeholders face. As such, the Forum recommended that state agencies identify high-priority funding programs (including incentive programs) and associated resource needs.

The Forum also agreed that additional staffing resources will likely be needed to implement recommendations for monitoring and enforcement, as well as to provide technical assistance to water users/suppliers. Likewise, members discussed the importance of individual water users to investigate independent funding options for drought relief and conservation efficiency, including existing grants, state revolving loan funds and/or other federal emergency assistance programs.

RECOMMENDATIONS

- Direct appropriate state agencies to investigate and develop budget proposals that improve Nevada's drought response and resiliency, including possible incentive and/or rebate programs.
- Establish adequate bond funding for the state's Water Grants Program, under the purview of the Board for Financing Water Projects, for necessary capital improvements to aged water infrastructure above and beyond what a community can demonstrably afford.
- Enhance state water resources staffing capacity to support increased metering, monitoring/inventories and enforcement, as well as technical assistance in areas such as water conservation planning.
- Direct appropriate state agencies to identify and prioritize the resources needed to implement those recommendations of the Drought Forum selected by the Governor.

5 SUPPLY AUGMENTATION AND LONG-RANGE PLANNING

In addition to exploring ways to reduce water use and improve overall efficiency, the Forum also considered opportunities to augment existing water supplies and improve drought response efforts through long-range planning.

The Forum agreed that the recharge and recovery of drought affected water supplies—including river, storage and groundwater systems—is an important priority to improve Nevada's resilience to future drought events and recommended exploring ways to enhance system recovery. While these efforts are unlikely to provide near-term drought relief due to time and financial constraints that would need to be addressed, the Forum agreed that additional steps should be taken to identify strategies that can be implemented to improve recovery of impacted systems, as well as enhance the state's long-term resiliency.

Likewise, the Forum recommended that local governments work with water purveyors to develop long-range water plans that consider both water supply and demand projections. Such planning efforts are a valuable tool in anticipating future water resource needs, as well as identify needed management strategies for use during both drought and non-drought conditions.

The Forum also agreed that the reuse of treated waste water is a valuable resource that should be explored to augment existing water supplies. As such, the Forum recommended support for the state's Water Reuse Steering Committee in exploring possible changes to reuse regulations, particularly in cases where implementation of reuse extends available water supplies. Likewise, the Forum also supported the continued monitoring of technology and other advancements that could potentially increase water supplies and/or reduce evaporative losses.

RECOMMENDATIONS

- Ask appropriate staff to explore the feasibility of additional management measures that can help to expedite the recharge and recovery of impacted river, storage and groundwater systems.

- Without affecting the inherent authority of the Nevada State Engineer, support and encourage the development of local and regional water plans that include long-term supply and demand projections in order to ensure a sustainable water supply.
- Support the work of the state's Water Reuse Steering Committee in exploring possible changes to water reuse regulations in cases where reuse extends supplies.
- Direct continued monitoring of advances, efficacy and cost efficiencies related to desalination of brackish water, cloud seeding and evaporative controls.

6 INFORMATION SHARING AND OUTREACH

The Forum discussed the availability and use of information in decision-making processes, particularly as it relates to drought response (see also "Monitoring and Research Data"). Members agreed that additional outreach tools are needed and recommended ways to better inform the public and other decision-makers of current conditions, policy intent and other drought-related issues. Implementation of these recommendations is designed to provide for more flexibility and predictability in responding to Nevada's water supply challenges, and to ensure a more consistent understanding among interested parties.

The Forum also agreed that communication with the public and other stakeholders should occur on an ongoing basis, regardless of the state's drought status. To support this effort, the Forum recommended staff resources to support current and ongoing coordination, information sharing and outreach needs.

RECOMMENDATIONS

- Work with federal partners on what climate information/data will trigger federal management actions, with the goal of enhancing predictability for asset managers and the development of a more flexible response in evolving drought conditions.
- Identify high-level messages on drought conditions and responses that can be delivered statewide to ensure consistency of messaging to all Nevada water users by state agencies, water purveyors and other stakeholders.
- Maintain a focus on water conservation messaging in Nevada even in non-drought conditions.
- Explore opportunities for judicial education on water law, such as the New Mexico Water Judges Seminar.
- Establish dedicated state staff to handle public information coordination statewide, including outreach to elected and appointed officials, as well as education programs, web site maintenance and enhancement, and assistance with information on best practices and technology transfers.

7 DROUGHT DECLARATIONS/ EMERGENCY ACTIONS

The State Drought Response Plan, updated in April 2012, was developed to define and address drought in Nevada, and to help mitigate associated impacts. The plan established a framework of actions based on three stages of drought: Drought Watch (stage 1), Drought Alert (stage 2) and Drought Emergency (stage 3). A Drought Response Committee was also formed to monitor drought conditions, collect data associated with drought, oversee intergovernmental coordination, disseminate information, report to the Governor, and work with the State Emergency Operation Center on drought response.

Subsequent to this action, the U.S. Department of Agriculture issued a final ruling that updated its disaster regulation process for drought-affected areas. The rule includes provisions for automatic disaster designations in the case of severe drought. It also removes the requirement for a State Governor to request a Secretarial disaster designation before a designation can be made. According to the rule, a drought disaster will be declared for any county that: 1) has a drought intensity value of at least D2 (Severe Drought) as reported in the U.S. Drought Monitor for eight consecutive weeks; or 2) has a drought intensity

value of D3 (Extreme Drought) or higher at any time in the growing season of the affected crops.

The Forum agreed that objective Nevada criteria are needed to define drought stages. Further, members agreed that the state's current Drought Response Plan should be updated to include definitions and other relevant drought response mitigation efforts resulting from the Forum's work. The Forum also recommended that the Committee review existing laws concerning water emergencies to ensure consistency.

As part of this discussion, the Forum recognized the diversity of the state's climate, water supply sources and users' overall ability to respond to drought. Members cautioned against implementing measures on a statewide basis unless conditions warranted such action and noted that emergency measures enacted should serve to preserve access to supplies. Users/suppliers that have made appropriate reductions or implemented other tools to ensure sufficient resources are available should not be penalized.

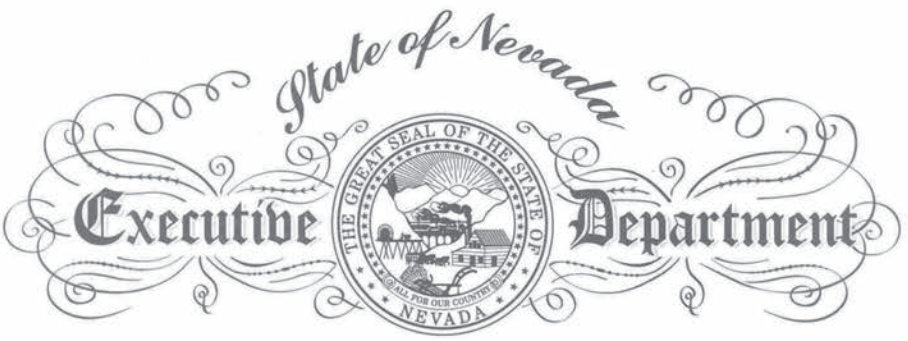
RECOMMENDATIONS

- Currently, the State Drought Response Committee consists of the State Climatologist, State Engineer and the Chief of Nevada's Division of Emergency Management. The Forum recommends expanding this committee to include representatives from TMWA, SNWA and the Nevada Department of Agriculture and directing the newly expanded State Drought Response Committee to develop broad-based, objective Nevada criteria specifically for a Governor's Drought Declaration in lieu of a declaration based solely on a U.S. Department of Agriculture determination.
- Require the Committee to further refine and define the Nevada criteria for Drought Warnings and Drought Alerts, and to clarify in the Drought Response Plan the distinctions between Drought Alerts, Drought Warnings and a Governor Drought Declaration, and a proclamation of water emergency as outlined in NRS 416.050.
- Require the Committee to update the current Drought Response Plan in light of information gathered through the Drought Forum and Governor's Drought Summit.
- Direct the Committee to explore the steps necessary for response measures such as a State Engineer's temporary suspension of forfeiture provisions or imposition of shared curtailment, as well as temporary suspension by state Environmental Protection of non-public health water quality standards.
- Direct the Committee to also review, from a water perspective, NRS Chapter 416 *Emergencies Concerning Water or Energy*, to align the chapter with the Drought Response Plan, including possible amendment of NRS 416.060 to add the term "statutes" to "rescind any regulation or order" in narrowly defined water emergencies.
- The Committee shall invite experts and make recommendations to the Governor for adding additional members as needed.


Pyramid Lake

Washoe Lake

Appendix A



Executive Order 2015-03

ORDER ESTABLISHING THE NEVADA DROUGHT FORUM

WHEREAS, the State of Nevada is entering its fourth year of drought and a majority of Nevada counties have been designated by the Secretary of the United States Department of Agriculture as primary or contiguous natural disaster areas due to extreme or exceptional drought conditions; and

WHEREAS, throughout the last four years, many locations in Nevada have received approximately 65% or less of the normal annual precipitation, resulting in a cumulative precipitation deficit of over one year's worth of precipitation; and

WHEREAS, the United States Climate Prediction Center has forecast in its United States Seasonal Drought Outlook that drought conditions in Nevada will intensify over the coming months; and

WHEREAS, as Chairman of the Western Governors' Association (WGA), I created the Western Governors' Drought Forum in order to foster a regional dialogue where states and industry can identify and share case studies and best practices for drought policy, preparedness and management; and

WHEREAS, I will release the Western Governors' Drought Forum Final Report that will identify key findings and next steps at the WGA Round Table in late June, 2015; and

WHEREAS, the Nevada Department of Conservation and Natural Resources, Division of Water Resources; the Nevada Department of Public Safety, Division of Emergency Management; and the Office of the Nevada State Climatologist are active members of the State of Nevada Drought Response Committee and have been continuously monitoring drought conditions throughout the State; and

WHEREAS, since the summer of 2014, the State Engineer of the Nevada Division of Water Resources has conducted a public outreach program to provide water-related information to the public and to listen to public concerns, with drought the topic most actively discussed; and

WHEREAS, the State Engineer has the authority to make rules, regulations and orders in groundwater basins where he determines additional management is necessary for the essential welfare of the area involved; and

WHEREAS, the Chief of the Division of Emergency Management has the authority to coordinate activities of all emergency management organizations in the State and to support State and local agencies in developing comprehensive plans to address drought; and

WHEREAS, I have activated the State Emergency Operations Center to maintain situational awareness on the impacts of drought across the State; and

WHEREAS, the State has collaborated with the Desert Research Institute and the Nevada Climate Office to maintain a website that provides information about current drought conditions, and specific drought recovery resources; and

WHEREAS, all Nevadans can play a role in addressing this critical issue through conservation; and

WHEREAS, Article V, Section 1 of the Nevada Constitution provides: "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, by the authority vested in me as Governor by the Constitution and the laws of the State of Nevada, it is hereby ordered as follows:

1. The Nevada Drought Forum is hereby established to:

    a. Build on the activities of the existing Nevada Drought Response Committee;
    b. Evaluate key findings and next steps identified in the Western Governors' Drought Forum Final Report as they relate to Nevada;
    c. Meet with relevant stakeholders including, but not limited to, agricultural producers, municipal water suppliers, the industrial sector, recreation interests, Tribal Nations, and members of the general public; and
    d. Determine, with input from stakeholders and the public, the elements of a final report to the Governor.

2. The Nevada Drought Forum shall be comprised of the following appointees:

    a. The Director of the Nevada Department of Conservation and Natural Resources;
    b. The Director of the Nevada Department of Agriculture;
    c. The State Engineer of the Nevada Division of Water Resources;
    d. The Chief of the Nevada Division of Emergency Management;
    e. The Nevada State Climatologist;
    f. The Dean of the University of Nevada Cooperative Extension;
    g. A representative of the Desert Research Institute;
    h. A representative of the Southern Nevada Water Authority; and
    i. Any other members whom the Governor deems necessary.

3. The Nevada Department of Administration, Division of Buildings and Grounds shall conduct a water audit of all State facilities and common areas to identify leaks or excessive water usage, and to evaluate all possible conservation efforts including replacement of old fixtures that consume excessive water.

4. All State agencies shall endeavor to implement practicable water conservation strategies in and around State facilities.

5. All local governments and private citizens are urged to conserve water and to conduct water audits in consultation with local water authorities.

6. All State agencies with responsibilities associated to drought and drought conditions shall provide a summary of current actions and related authorities to the Nevada Drought Forum by May 15, 2015.

7. Municipal water providers and agencies of the federal government are requested to provide a summary of current and planned actions related to the drought and drought conditions to the Nevada Drought Forum by May 15, 2015.

8. The Nevada Drought Forum shall prepare a Nevada Summary of Current Actions of local, State and federal entities by June 15, 2015.

9. The Nevada Drought Forum shall receive the WGA Drought Forum Final Report when it is released.

10. The Nevada Drought Forum shall, by July 1, 2015, provide interested stakeholders the work of the WGA Drought Forum, the Nevada Summary of Current Actions, an outline of possible topics and objectives for stakeholder discussions, and issue an additional call for specific information.

11. By the end of August 2015, interested stakeholders may provide to the Nevada Drought Forum a summary of current actions and challenges relevant to the final WGA drought recommendations, together with any other specific information sought by the Nevada Drought Forum.

12. The Nevada Drought Forum shall convene a multi-day stakeholder Drought Summit in September 2015.

13. The Nevada Drought Forum shall prepare and deliver a written report to the Governor on or before November 1, 2015.

14. The Nevada Drought Forum shall prepare a bi-weekly statewide drought summary with current drought impacts and key information for the public until such time that the summary is no longer warranted.

15. Any State agency or entity, including the Nevada Center of Excellence for Innovations and Solutions in Water Resources, through the Governor's Office of Economic Development, may be called upon by the Nevada Drought Forum to provide assistance.

16. The Nevada Department of Public Safety, Division of Emergency Management, shall provide administrative support for the Nevada Drought Forum.

17. Activities of the Nevada Drought Forum shall be subject to the requirements of the Nevada Open Meeting Law pursuant to NRS Chapter 241.

18. All records documenting activities of the Nevada Drought Forum shall be retained and transferred to the Nevada State Library, Archives and Public Records for retention in accordance with State policy.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City, this 8th day of April, in the year two thousand fifteen.

Governor of the State of Nevada

By the Governor:

Barbara K. Cegavske
Secretary of State

Deputy Secretary of State

Appendix B

NEVADA DROUGHT FORUM

SUMMARY OF CURRENT AND PLANNED ACTIONS

August 2015

INTRODUCTION:

By Executive Order 2015-03 issued May 8, 2015, Governor Brian Sandoval established the Nevada Drought Forum (Forum) to assess the drought in Nevada, identify best conservation practices and policy needs, and to make recommendations regarding next steps. The Forum is intended to facilitate a local dialogue among interested stakeholders, and to help identify best practices for drought policy, preparedness and management.

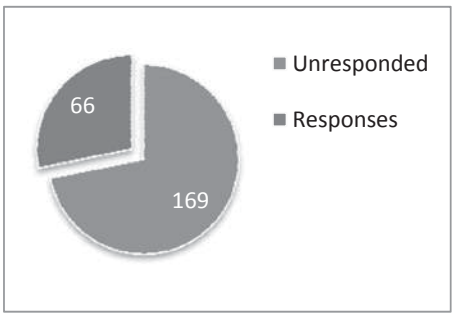
Participation on the Drought Forum includes the following representatives:

- Director of the Nevada Department of Conservation and Natural Resources
- Director of the Nevada Department of Agriculture
- The State Engineer of the Nevada Division of Water Resources
- The Chief of the Nevada Division of Emergency Management
- The Nevada State Climatologist
- The Dean of the University of Nevada Cooperative Extension
- A representative of the Desert Research Institute
- A representative of the Southern Nevada Water Authority
- Other members deemed necessary by invitation of the Governor

Among other things, the Forum is responsible to prepare a *Summary of Current and Planned Actions* based on information from local, state and federal entities. In May 2015, the Forum issued a questionnaire requesting information from these stakeholders. Respondents were asked to provide information on: water supply sources (groundwater, surface water, other); area of service (size, number of customers served, location); drought impacts on operations, resource availability and/or planning activities; actions taken, underway or planned; and, topics/issues for possible future discussion by the Forum. The following is a summary of respondent information. Individual responses by agency are provided in their entirety on the Forum website.

QUESTIONNAIRE OVERVIEW

The questionnaire was issued to more than 235 municipal agencies, state agencies, federal government agencies and other water users throughout the state. Of those, approximately 28 percent or 66 entities responded. While state agencies with responsibilities associated with drought and drought conditions were required to respond, other entities were requested to voluntarily submit information.



While some respondents offered a detailed listing of current and planned actions, others referred to having a water conservation plan, with no specific conservation/drought response measures identified. Likewise, several questionnaires were returned without information on drought impacts or expected impacts to available water supplies. Due to limitations on the type and consistency of information received, this *Summary of Current and Planned Actions* is unlikely to capture the entirety of drought impacts throughout the state of Nevada, nor fully depict water management and conservation efforts being taken by responding agencies.

The following summary is based solely on information provided by respondents and is sorted by agency type (Municipal Agencies, Other Water Purveyors, State Agencies, and Federal Agencies). Informational responses under "Action Taken or Underway" and "Action Planned" were extracted and grouped into like activities by agency type to better compare efforts within each category. A brief description of the type of activities being taken as described by respondents is also included under each major heading (below).

Action Taken or Underway is represented in the tables below by the letter "C" and *Action Planned* is represented by the letter "P."

MUNICIPAL AGENCIES

Fourteen Municipal water agencies responded to the information request. These include Carson City Public Works, City of Elko, City of Ely, Douglas County, Eureka County, Incline Village General Improvement District (GID), Kingston Town Water Utility, Lyon County Water Utilities Department, Pershing County Water Conservation District, Southern Nevada Water Authority, Stagecoach GID, Topaz Ranch Estates GID, Truckee Meadows Water Authority, and Virgin Valley Water District.

Water Supply Sources:

Eight agencies are served by groundwater, two are served by surface water and four are served by a combination of groundwater and surface water.

Drought Response Summary - Municipal

Agency Name	Education/Outreach	Landscape Codes	Irrigation Audits	Water Budgets	Watering Restrictions	Waste Investigation	Leak Repair / Detection	Metered Use/Rates	Incentives/Rebates	Industry Partnerships	Facility Modifications	New Supply Acquisition	Other
Carson City Public Works					C	C					C		C
City of Elko					C	C/P							
City of Ely					C								
Douglas County	C												C/P
Eureka County	C				C/P		C	C	C				
Incline Village GID	C	C	C				C	C					
Kingston Town Water Utility	C						C	C					
Lyon County Utilities Department	C				C								
Pershing County Water Conservation Dist.													
Southern Nevada Water Authority	C	C		C	C	C	C	C	C	C	C/P	C/P	C/P
Stagecoach GID	C					C	C	C					
Topaz Ranch Estates GID					C								
Truckee Meadows Water Authority	C	P	C		C	C	C	C		C	P	C	C
Virgin Valley Water District								C					

Drought Impacts:

Reported impacts range in nature from no impact to significant impact. Several respondents noted higher customer water use due to drought conditions, as well as lowering ground and/or surface water levels. For some, lowering water levels do not have an immediate impact, but have the potential for impact if conditions persist.

Other respondents indicated that lowering water levels have had significant impacts on water supply availability, facilities and operations. Additionally, one respondent reported significant financial impacts related to drought conditions.

Current and Planned Conservation/Drought Response Actions:

Water Conservation Plan:
Six respondents indicated that they have a water conservation plan and/or a drought/emergency plan in place. In some instances, plans are tied to surface or groundwater levels; response actions are implemented if/when water levels decline.

Education/Outreach:
Eight respondents indicated implementation of community/customer outreach and/or formal education programs to promote conservation and drought awareness. Specific activities by agency range significantly across the category to include one or more of the following: direct print (for example, bill inserts, monthly newsletters and advertisements), web/social media outreach, radio/television media, billboards, workshops, table/event participation, homeowners association (HOA) outreach, government agency engagement, restaurant/business engagement, residential workshops/classes, industry workshops/certifications, tours, lectures and conferences, and forms of youth engagement (for example, youth advisory committees and direct outreach with local schools).

Landscape Codes:
Two respondents indicated implementation of development codes that limit water waste (runoff) and restrict the amount of ornamental turf grass in residential and/or commercial properties. One respondent indicated landscape restrictions would be considered if future conditions warrant.

Irrigation Audits:
Two respondents indicated they are offering water/irrigation audits to customers to increase water use efficiency.

Water Budgets:
One respondent indicated implementation of golf course water budgets. These budgets are based on irrigated acreage and include surcharges for overuse.

Watering Restrictions:
Eight respondents indicated some form of watering restriction is in effect. These include one or more of the following: time-of-day restrictions and/or assigned day-of-week restrictions. Some agency restrictions are enforced with warnings for violation and/or penalties, while others are based on voluntary compliance.

One respondent indicated that future actions may include implementation of more aggressive watering restrictions if future conditions warrant.

Water Waste:

Five respondents indicated that water waste prohibitions are in effect. Enforcement measures vary from voluntary compliance/customer education to termination of service. Definitions of water waste also vary, but generally include watering outside an assigned day; watering outside prescribed watering hours; allowing water to run off property; and/or using water for building, vehicle or equipment washing when prohibited.

One respondent indicated implementation of water waste enforcement (citations/termination of service) would be considered if future conditions warrant.

Leak Detection/Repair:

Six respondents indicated active leak detection/repair programs. In some instances, this includes proactive leak surveys. Two respondents also reported that they are alerting customers via bill inserts/email of potential leaks when continuous water use is observed (based on meter readings).

Metered Use/Rates:

Seven respondents indicated use of water meters/metered rates within their service areas. Rate structures vary from single-tiered rates to multi-tiered rates that have increasing fees with higher use.

Incentive/Rebate Programs:

One respondent reported implementation of a water efficient landscapes program that offers financial incentives for customers who remove and replace turf with water efficient plants and trees. The same respondent is also offering rebates for the purchase of water smart irrigation controllers (including rain sensors), pool covers and water efficient technologies, as well as coupons for use at water efficient car washes.

A second respondent referred to implementation of a water efficiency rebate program.

Industry Partnerships:

One respondent indicated partnerships with various industry/businesses groups (development community, landscape community, restaurant industry, school district). The respondent also developed an annual conference to focus on conservation innovations/urban water efficiency, drawing industry professionals.

Another respondent reported partnerships with Nevada Landscape Association and University of Nevada Cooperative Extension to provide information on how residents and businesses can use less water than usual and still preserve their landscaping.

Facility Modifications/New Facilities:

Two respondents indicated facility modifications have been conducted, are planned and/or are underway. One respondent reported completing significant modifications to water intake and pumping facilities to provide access to better water quality and to lower treatment costs. Other major efforts include modifications to pumping stations and intakes, and construction of a new major intake and pumping facilities to preserve water supply access should water levels continue to decline.

Another respondent reported planned development of aquifer storage and recovery wells to allow for recharge of treated surface water into the groundwater aquifer. Other major projects include development of distribution pipeline and booster pump stations, groundwater production wells, water treatment facilities and improvements to enhance storage capabilities.

New Supply Acquisition/Development:
Two respondents indicated that new supply acquisition and/or development of permitted rights is underway to respond to drought conditions and augment existing supplies. Efforts include acquiring new supplies and/or banking water for future use.

Other Actions:
One respondent described interstate and international efforts that have been completed, are underway or are planned to secure additional water supplies, as well as participation in efforts to help stabilize/delay shortage declarations for their primary water supply source. Efforts include development of facilities to capture lost water within the lower Colorado River system, financial participation in demonstration projects in exchange for water resources, coordination with Colorado River states to implement shortage guidelines, participation in water supply and demand studies to better understand future supply imbalances, participation in bi-national processes to manage shared water supplies, and participation in pilot conservation programs designed to help reduce the impact and magnitude of Lake Mead water level declines.

Three respondents are implementing a voluntary 10 percent water use reduction.

OTHER WATER PURVEYORS

A total of 32 Other Water Purveyors provided response as part of the information request. These include: Apex Generating Station, Apex Landfill – Republic Services, Big 5 Mobile Home Park, Blue Diamond, Bonnie Springs – Old Nevada, Camp Lady of the Snows, Cold Creek Homeowners Association C/O Camco, Desert Mirage Homeowners Association, Eastland Heights Water Association, Equestrian Estates Co-Op Water Association, Gaye Haven Intermediate Care Facility, Georgia Pacific Gypsum, Gerlach GID, Harris Springs Ranch, Hillcrest Manor Water Users Association, Laker Plaza, McGill Ruth Consolidated Sewer and Water GID, Rainbow Gardens Water Users, Rancho Co-Op Water Company, Rancho Vista 4,Roark Estates Water Association, Sky Ranch Water Service, Spirit Mountain Utility, Spring Creek Utilities Co., Spring Mountain Motor Sports Ranch, Sunrise Mountain Trailer Park, Torrey Pines/Tina Lane Water Association, Tropicana Resort and Casino, Trout Canyon Land and Water Users Association, Utilities Inc. of Nevada, Utilities Inc. of Central Nevada, and Van's Trailer Oasis.

Water Supply Sources:

Thirty respondents are served by groundwater and two are served by surface water.

Drought Response Summary (Other Water Purveyors)

Agency Name	Marketing/Outreach	Landscape Codes	Watering Restrictions	Waste Investigation	Cooling Restrictions	Washing Restrictions	Leak Detection/repair	Incentives/Rebates	Facility Modifications	Other
Apex Generating Station	C						C			
Apex Landfill - Republic Services	C						C			
Big 5 Mobile Home Park	C						C			
Blue Diamond	C						C			
Bonnie Springs, Old Nevada							C			
Camp Lady of the Snows	C						C			
Cold Creek Homeowners Association C/O Camco	C						C			
Desert Mirage Homeowners Association	C						C			
Eastland Heights Water Association	C						C			
Equestrian Estates Co-Op Water Association	C						C			
Gaye Haven Intermediate Care Facility	C						C			
Georgia Pacific Gypsum	C						C			
Gerlach General Improvement District	C									
Harris Springs Ranch	C						C			
Hillcrest Manor Water Users Association	C						C			
Laker Plaza	C						C			
McGill Ruth Consolidated Sewer & Water GID			C							
Rainbow Gardens Water Users	C						C			
Rancho Co-Op Water Company	C						C			
Rancho Vista 4	C						C			
Roark Estates Water Association	C						C			
Sky Ranch Water Service		P	P	P	P	P				
Spirit Mountain Utility	C						C			
Spring Creek Utilities Co.		P	P	C/P	P	P		C	P	
Spring Mountain Motor Sports Ranch							C			
Sunrise Mountain Trailer Park	C						C			
Torrey Pines/Tina Lane Water Association	C						C			
Tropicana Resort and Casino							C			
Trout Canyon Land & Water Users Association	C						C			
Utilities Inc. of Nevada		P	P	P	P	P		C		
Utilities, Inc. of Central Nevada		P	P	P	P	P		C		C
Van's Trailer Oasis	C						C			

Drought Impacts:

One respondent reported supply/facility impacts to a groundwater well that has significantly reduced capacity due to groundwater level declines. Another respondent indicated financial impacts due to decreased water use. There were no other reported impacts from respondents.

Current and Planned Conservation/Drought Response Actions:

Water Conservation Plan:
Thirty-one respondents indicated they have a water conservation plan or drought plan in place.

Outreach:
Twenty-three respondents indicated implementation of outreach to make homeowners/customers aware of conservation options and/or to promote drought awareness. In most instances, efforts included posting fliers in the community and/or direct outreach via email.

Landscape Codes:
Five respondents indicated possible future implementation of development codes, including restrictions that limit the amount of ornamental turf grass in residential and/or commercial properties, as well as restrictions on the planting of cool season grasses. These actions would be considered for implementation if future water supply conditions warrant.

Watering Restrictions:
Five respondents indicated possible future implementation of watering restrictions, including time-of-day and assigned day-of-week restrictions. These actions would be considered for implementation if future water supply conditions warrant. One respondent reported current curtailment efforts in part of their service area that is being implemented through "off-day watering;" another respondent indicated that time-of-day restrictions are currently in effect for summer months.

Water Waste Restrictions:
Five respondents indicated possible future implementation of water waste investigations/notifications. These actions would be considered for implementation if future water supply conditions warrant.

Washing Restrictions:
Five respondents indicated possible future implementation of restrictions for the washing of paved surfaces, buildings and equipment. These uses would be prohibited unless water is discharged to a sanitary sewer or is contained on site. The same respondents also indicated possible future implementation of vehicle washing restrictions, including frequency of washing and requirements for use of a positive shut-off nozzle. These actions would be considered for implementation if future water supply conditions warrant.

Cooling System Restrictions:
Five respondents indicated possible future implementation of restrictions for the use of cooling systems for human comfort, including seasonal use limitations and restricted hours of operation. These actions would be considered for implementation if future water supply conditions warrant.

Leak Detection/Repair:
Twenty-six respondents indicated heightened awareness of possible leaks and processes to address leaks and other system issues.

Rebate Programs:
Three respondents reported current implementation of rebate programs for the installation of high-efficiency toilets and washers.

Facility Modifications:
One respondent reported future plans to re-drill a well that has experienced significantly capacity reductions due to water level declines.

Other:
One respondent reported vegetative management efforts, including the removal of salt cedar trees.

STATE AGENCIES

A total of 12 State Agencies with responsibilities associated with drought and drought conditions provided information in accordance with the Executive Order. These include the Colorado River Commission of Nevada, Nevada Department of Agriculture, Public Works – Building and Grounds Section, Nevada Department of Wildlife, Nevada State Parks, Nevada Division of Environmental Protection, Nevada Division of Emergency Management, Nevada Division of Forestry, Nevada Division of State Lands, Nevada Division of Water Resources, Nevada Division of Minerals and the Public Utilities Commission of Nevada.

Drought Response Summary (State Agencies)

Agency Name	New/Improved Storage	Stabilize Water Levels	New Secure Resources/Facilities	Outreach	Reduced Irrigation/Restrictions	Plumbing/Infrastructure Improvement	Monitoring/Mitigation	Assistance
The Colorado River Commission of Nevada	C	C	C	C			C	
Nevada Department of Agriculture				C/P				
Public Works - Building & Grounds Section	C/P				C/P	C	C	
Nevada Department of Wildlife		C/P		C/P			C	C
Nevada State Parks			C		C/P	C	C	
Nevada Department of Environmental Protection			P	C			C	C/P
Nevada Division of Emergency Management				C			C	C/P
Nevada Division of Forestry				C	C	P	C	
Nevada Division of State Lands							C	C
Nevada Division of Water Resources		C		C/P	C	C/P	C	C
Nevada Division of Minerals					P	P		
Public Utilities Commission of Nevada					C			

Drought Impacts:

Impacts of drought varied significantly by agency from no impact to significant impact. The types of impacts reported included by agency include one or more of the following: water supply disruptions and facility failures due to reduced precipitation and/or inflow to surface and groundwater systems and/or impacts/potential future impacts on wildlife and environmental resources, recreation (boating), game (hunting and fishing) and park visitation.

Increased potential for wildfire as well as drought-related impacts to finances/operations was also noted.

Current and Planned Conservation/Drought Response Actions:

New/Improved Storage:
Two respondents indicated that storage projects have been implemented or are underway. One respondent noted the implementation of interstate/international water banking efforts (off-stream storage and Intentionally Created Surplus). Another respondent reported improvements to catchment facilities to improve the diversion of flows/runoff.

Stabilize Water Levels:
Three respondents described efforts to stabilize water levels for groundwater and/or surface water resources. Efforts were implemented to prolong shortage declarations of Colorado River resources; maintain minimum pool agreements and minimize drought impacts to reservoir fisheries/water supplies; and, respond to groundwater level declines in basins significantly impacted by current drought conditions.

Secure New Resources/Facilities:
One agency reported efforts to secure new resources, including the implementation of off-stream storage/water banking agreements (also noted above) as well as the implementation of Intentionally Created Surplus as allowed under the 2007 Interim Guidelines. Other respondents indicated efforts were underway to develop storage/catchment facilities (also noted above) and prepare for replacement groundwater wells that had failed due to drought conditions. A statewide working group to discuss ways to increase reuse of treated wastewater was also noted.

Outreach:
Seven respondents indicated some level of current and/or planned outreach to promote conservation, drought awareness, and/or to help share information about drought-related impacts (for example, increased fire risk, groundwater level declines, boater safety, urban wildlife issues, etc.). Outreach activities by agency range in nature and include one or more of the following: public workshops, social media outreach, special briefings, special event attendance, radio/television media and direct customer outreach.

One respondent also noted participation in development of the State Drought Response Plan, the Drought Emergency Incident Action Plan and the State Drought Strategic Plan, as well as activation of the State's Emergency Operations Center.

Reduced Irrigation/Watering Restrictions:
Six respondents indicated the implementation or planned implementation of water reductions associated with landscape management practices. Efforts by agency vary and include one or more of the following: limiting the number of days/week that landscapes are irrigated, reducing total duration of landscape irrigation, and/or limiting the development of new landscaped areas.

One respondent reported issuing curtailment orders in two groundwater basins, limiting the amount of groundwater that can be pumped using supplemental groundwater rights for irrigation by 50 percent. Orders were also issued to shut down new appropriations of groundwater (excluding domestic wells) in basins that are fully appropriated and experiencing steep water level declines.

Plumbing/Infrastructure Improvements:
A number of respondents indicated efforts and/or plans to retrofit facilities with water efficient plumbing fixtures, including water closets, urinals, showers, toilets and/or faucets. Other efforts include actions/plans to replace open ditch irrigation facilities with PVC piping, update irrigation facilities to drip emitters, and investigate the implementation of water reuse.

Monitoring and Mitigation:
Nine respondents indicated monitoring and mitigation efforts are underway in response to drought conditions. Specific activities vary by entity, but generally include monitoring one or more of the following: surface and groundwater levels, wildlife water developments, water usage/pumping, fire risks, natural resources populations (plants and animals), fish and game populations and urban wildlife issues (encroachment of wildlife on urban areas).

A significant number of mitigation efforts were reported and are described in detail by agency response in the Appendix. In summary, efforts include one or more of the following: requirements for use of totalizing meters on some wells to help monitor usage in the Humboldt River drainage areas; curtailment orders for groundwater pumping; new designations in various groundwater basins; emergency water hauls for wildlife; prioritization of new wildlife water development; removal of non-native/invasive plants/animals; new/revised boater safety patrols; development of new infrastructure; changes to fish hatchery operations; project holds for new development (Landscape Master Plan for Stewart Complex); fire safety preparations; and, changes to recreational schedules and/or sport fishing operations.

Assistance:
Five respondents indicated work efforts to provide drought-related assistance. In summary, these include one or more of the following: expedited reviews of applications for relocation of buoys, swim floats and swim lines; assistance to remove water thirsty trees, remove debris, and improve irrigation efficiency; and expedited process for temporary applications for transfer of water and requests by drillers to deepen or re-drill wells that have dried up.

Additionally, one respondent is providing support to water purveyors to help update facilities under the Nevada Department of Environmental Protection's Drinking Water State Revolving Fund program. Another is working with the United States Department of Agriculture to provide information on federal drought recovery loans.

FEDERAL AGENCIES

A total six (6) federal agencies provided response as part of the information request. These include the Bureau of Land Management, USDA Nevada Farm Service Agency, Fallon Naval Air Station, U.S. Air Force (Nellis), USDA Forest Service – Humbolt-Toiyabe National Forest and USDA Natural Resources Conservation Service.

Drought Response Summary (Federal Agencies)

Agency Name	Education/Outreach	Monitoring/Mitigation	Financial Assistance	Conservation Compliance	Other
Bureau of Land Management	C	C			C
USDA NV Farm Service Agency	C		C/P		
Fallon Naval Air Station	C			C	
U.S. Air Force				C	
USDA Forest Service, Humboldt-Toiyabe National Forest		C		C	C
USDA Natural Resources Conservation Service	C		C/P		

Drought Impacts:

Drought effects varied by agency and include impacts to one or more of the following: range, wildlife, recreation, cultural resources, success and magnitude of restoration efforts, minerals, reduced livestock forage (including impacts to grazing allotments and Animal Unit Months/AUMs), loss of agricultural production, livestock herd reductions, and tree health. Several respondents also noted increased interest/participation in financial assistance programs offered to mitigate drought impacts.

Potential effects reported include health and resiliency of timber stands due to insect/disease, as well as increased fire hazards. One agency noted that the latter could result in more frequent/larger wildfires with fewer water sources available for fire suppression. Other potential effects include impacts to recreation (fishing, boating, camping and campground day use).

Current and Planned Conservation/Drought Response Actions:

Education/Outreach:
Four respondents indicated participation in or implementation of outreach efforts to provide information/updates and share information on drought assistance programs. Actions varied by agency and include one or more of the following: participation in stakeholder meetings, drought forums, workshops and other similar forums. Other outreach efforts include newsletters, press releases, and water use information sharing.

Monitoring and Mitigation
Two respondents reported monitoring and mitigation efforts. Agency efforts vary and include one or more of the following: development/implementation of environmental assessment tools (including triggers for response actions), changes to grazing permit terms (quantity of livestock, timing and duration of use), water hauling, bans on prescribed burns, potential restrictions on fires on public lands (for example, campfires), increased wildfire preparedness, and monitoring and management of forest health (tree removal, thinning, etc.).

Financial Assistance:
Two respondents reported implementation of financial assistance programs that provide funding for one or more of the following: livestock water transport, stream restoration, well deepening, grazing losses and soil erosion. Specific assistance programs cited in agency responses include: Livestock Forage Program; Emergency Conservation Program; Emergency Livestock Assistance Program; and, Emergency Loan process. Respondents have requested additional funding to provide assistance to agricultural producers.

Conservation Compliance:
Three respondents reported conservation compliance efforts in accordance with the President's Executive order 13693 issued March 2015.[1] Specific measures being implemented by agency include one or more of the following: landscape conversions, reduced landscape irrigation, installation of low-flow fixtures (current and planned), vehicle washing restrictions, and plans to implement reuse. Planned efforts also include increased water metering and development of projects that reduce the irrigation demands.

Other:
One respondent reported the development of resources tools (memos, handbook, etc.) to help ensure consistency within the agency in regards to development/implementation of management actions, as well as drought training and tours for agency representatives. A review of drought policies and implementation strategies across the state was also conducted. Another respondent reported foregoing permitted water rights due to access issues. The water rights were allowed to be utilized by other users.

Summary of Topics and Issues for Possible Future Discussion

The survey included an open ended question asking respondents what types of topics/issues they would like the Nevada Drought Forum to address. The following topics/issues were identified as areas of interest for possible future discussion.

Conservation:
- Tiered rate issues.
- Enforcement of water conservation plan violations, when implemented.
- Regional differences in water supply sources and use patterns, and current conservation practices.
- Conservation methods for water being used or tested in Nevada by beneficial use.
- Incentives to reduce water use and waste.

[1] As part of Executive Order 13693 issued March 2015, federal agencies are required to improve water use efficiency and management. This includes: (i) reducing agency potable water consumption intensity measured in gallons per gross square foot by 36 percent by fiscal year 2025 through reductions of 2 percent annually through fiscal year 2025 relative to a baseline of the agency's water consumption in fiscal year 2007; (ii) installing water meters and collecting and utilizing building and facility water balance data to improve water conservation and management; (iii) reducing agency industrial, landscaping, and agricultural (ILA) water consumption measured in gallons by 2 percent annually through fiscal year 2025 relative to a baseline of the agency's ILA water consumption in fiscal year 2010; and (iv) installing appropriate green infrastructure features on federally owned property to help with storm water and wastewater management.

Development:

- Vegetation planted on streets, medians and highways regardless of drought concerns (Reno and Carson City).

- How is the State going to plan for water availability for future growth, particularly in areas that are already at capacity and reductions in water use is needed, or where BLM has identified potential future land disposals/sales?

Agriculture:

- Examples of successes and failures related to agricultural water uses during drought (changes in irrigation practices, water saving silica chips, other soil additives, watering at night, use of lysimeters).

- How can the Drought Forum help grazing permittees with displacement of livestock?

Facilities:

- Consideration to expanding existing or establishing additional new water storage facilitates to help offset the effects of drought conditions while providing additional storage for flood control.

Communication / Coordination:

- Coordination and communication to ensure we all work together constructively and efficiency.

- Information sharing amongst Nevada agencies on successes, threats, issues and lessons learned in drought planning

- Increased coordination on drought planning between northern and southern Nevada.

- Include a plan for state agencies, water providers and communities to work together to educate all Nevadans that the wise use of water begins in each home and business.

- Education is critical to get communities to work together towards water conservation particularly during periods of drought. Water conservation needs to be a part of community culture and pride in the driest state in the nation. Joint education is a must.

Data/Technology:

- Discussion of new innovative technologies, science and other developments to aid Nevada in drought management.

- Need for well monitoring. The data from well monitoring is necessary to understand consumption and protect the groundwater supply. Every point of consumption should be metered, whether domestic well or central water service. Everyone should be aware of the consumption they use.

- The data from all wells is needed to have an effective Groundwater Management Plan. Particularly, understanding actual domestic well use is critical as there is no existing data.

Environment, Wildlife and Recreation:

- How will the State manage game species that rely on guzzlers?

- How will the State manage water resources to reduce impacts to listed species, particularly water-dependent species?

- How will the State continue to manage high revenue producing activities such as tourism, mining and hunting?

- How can the Drought Forum help the BLM with displacement of recreationists?
- How can the Drought Forum help the BLM improve restoration efforts during drought conditions?
- How can the Drought Forum help with the management of sage grouse and associated habitats throughout the State?

Other:

- Potential law or policy changes that promote best management practices in protecting our water resources.
- A revolving fund water resource development loan program funded by the state, for ditch companies, canal companies and other groups to find loan funding to complete works of improvement such as line or pipe canals, automation, improve water storage and monitoring of infrastructure.
- Utilities who charge for water are not always the voice which is the most heeded; in some areas residents are cognizant that decreased consumption can mean increased rates for the utility to meet their revenue requirements.
- I would like to see some Federal Agencies listed on the Nevada Drought Forum. This is not to over shadow any efforts by the State of Nevada simply because of federal financial resources available to help with drought disaster assistance. Rather this is to form a stronger relationship of partners assembled by the Governor's Office to better distribute assistance to all Nevada farmers, ranchers, and rural communities in times of drought crises.
- Groundwater over appropriation is a critical concern, especially for smaller farmers. Groundwater management districts may provide a valuable forum for conservation and innovation.
- Mine dewatering.
- The effects of diminishing water table.
- Public impacts to waterway navigation and public safety.
- Long-term reliability and sustainability of southern Nevada’s water resources.
- How will we determine when the drought is over and recovery has begun? As an agency, BLM has been discussing hydrologic vs vegetative drought and when management activities can return to pre-drought conditions without impacting land health and vegetation conditions.
- Basin overappropriation of groundwater.

Appendix C

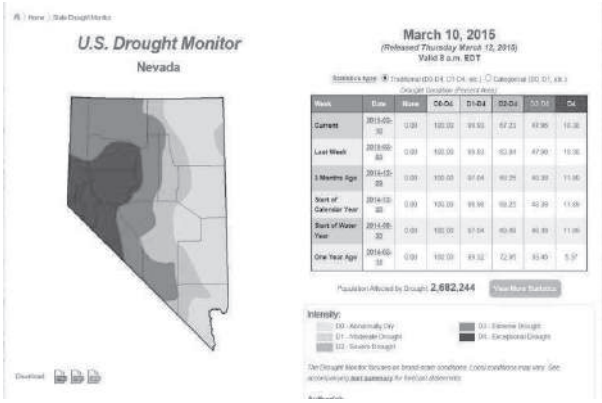
Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148

Situation Report #1
March, 2015

Current Situation

Drought Declaration

- Currently all 17 counties are under a Drought Emergency Declaration as designated by U.S. Department of Agriculture.
- Carson D4 Exceptional Drought
- Churchill D4 Exceptional Drought
- Clark D2 Severe Drought
- Douglas D4 Exceptional Drought
- Elko D2 Severe Drought
- Esmeralda D4 Exceptional Drought
- Eureka D3 Extreme Drought
- Humboldt D3 Extreme Drought
- Lander D4 Exceptional Drought
- Lincoln D2 Severe Drought
- Lyon D4 Exceptional Drought
- Mineral D4 Exceptional Drought
- Nye D3 Extreme Drought
- Pershing D4 Exceptional Drought
- Storey D4 Exceptional Drought
- Washoe D4 Exceptional Drought
- White Pine D2 Severe Drought



County Resource Requests

- No requests have been submitted to the SEOC at this time.

Wildfires

- The Western Great Basin Coordination Center reports no new wildfires in the past week.

Federal Partner Messaging

USDA press releases
http://www.usda.gov/wps/portal/usda/usdahome?navid=LATEST_RELEASES
USDA disaster and drought assistance
http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_ASSISTANCE
FSA disaster assistance program (links to information, e-mail list
http://www.fsa.usda.gov/FSA/webapp?area=home&subject=diap&topi

Drought Impact on Agriculture

Drought prompts disaster declaration
http://www.nevadaappeal.com/news/9778388-113/drought-counties-east-fire
NDWR water level data http://water.nv.gov/data/waterlevel/
USGS water level, stream flow, etc. data
http://waterdata.usgs.gov/nv/nwis
Desert Research Institute Drought Dashboard
http://www.gbdash.dri.edu/

Drought Impact on Habitat

BLM Planning and Sage Grouse
http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/elko_field_office/information/communications_forum/02_29_12.Par.65994.File.dat/Planning%20and%20Sage%20Grouse.pdf

Drought Impact on Municipal Water Systems

- No impact currently reported

Other Information

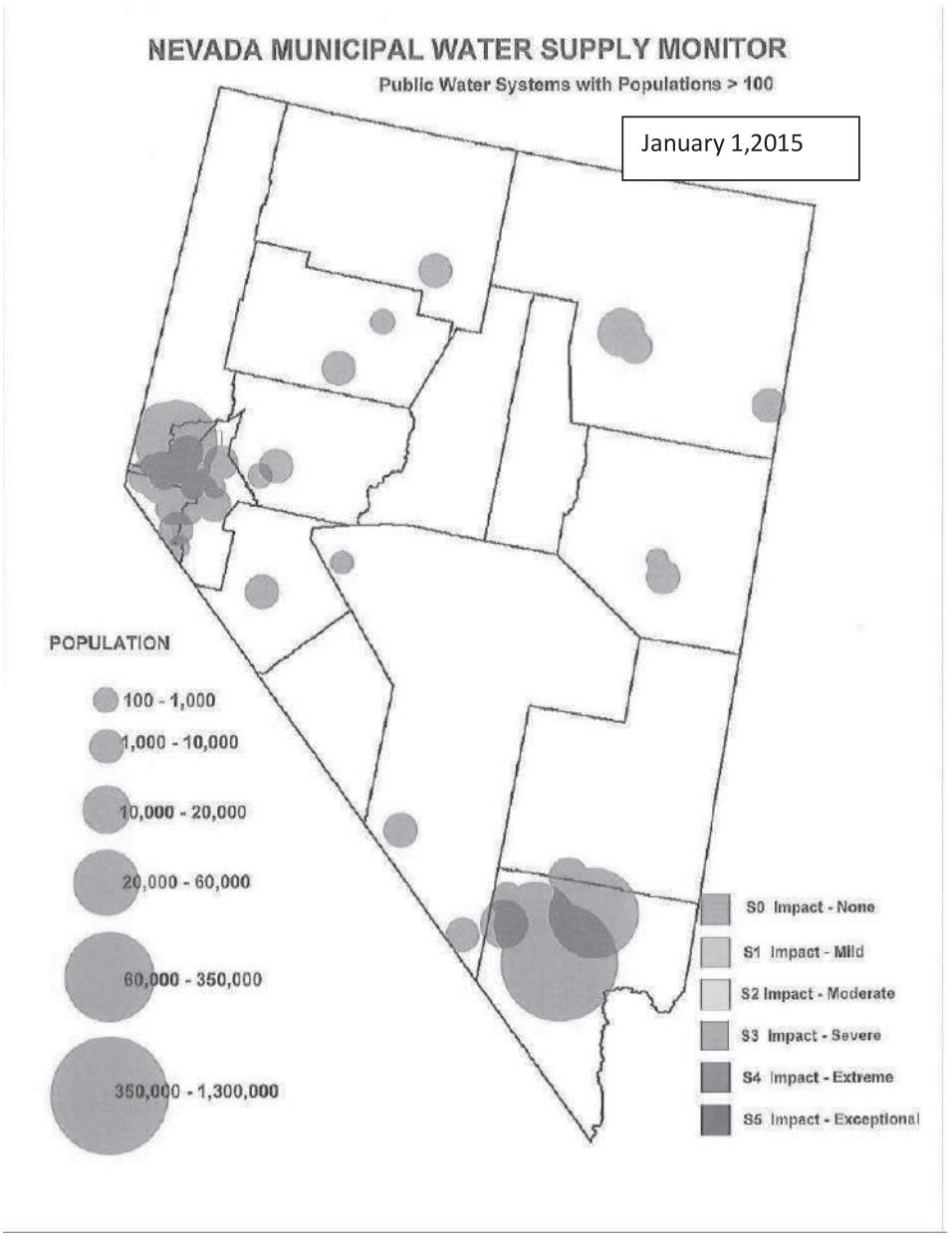
Emergency Disaster Programs Administered by the Farm Service Agency

TYPE OF LOSS SUFFERED →	CROP LOSS	LIVESTOCK LOSS	DAMAGED FARM PROPERTY
	For production losses, both quantity and quality, for most agricultural crops including grains, oilseeds, forage, grazing, cotton, nursery, aquaculture, floriculture, honey, maple sap, seed crops, Christmas trees and more.	For death and feed losses for livestock, farm raised fish, honeybee colonies and hives.	For physical losses to crops, livestock, real estate, real estate improvements, machinery and equipment. Farmland damage including debris removal, repairing of fence and conservation structures, and providing water to livestock.
What FSA disaster programs are available?	1. **NAP - Noninsured Crop Disaster Assistance Program** to cover production losses for crops when federal crop insurance is not available. 2. **SURE - Supplemental Revenue Assistance Payments Program** for crop losses in counties declared a disaster by the Secretary of Agriculture. 3. **TAP - Tree Assistance Program** for tree losses.	4. **ELAP - Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program** for livestock death not covered by LIP, for grazing losses not covered by LFP; for farm-raised fish and honeybee death and feed losses. 5. **LFP - Livestock Forage Disaster Program** for grazing losses. 6. **LIP - Livestock Indemnity Program** for livestock deaths. 7. **CRP - Emergency Haying and Grazing of Conservation Reserve Program** acreage may be authorized to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.	8. **ECP - Emergency Conservation Program** to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures.
	9. **EM - Emergency Loans** provides loans to restore or replace essential property damaged in the disaster, finance production losses to crops and livestock; fund essential family living and farm operating expenses, or refinance certain debts. 10. **DSA - Disaster Set-Aside** for producers who have direct loans with FSA and are unable to make the scheduled installment due, to move one full year's payment to the end of the loan.		
Must coverage be obtained before the disaster strikes?	You must purchase federal crop insurance or NAP coverage before the disaster strikes to be eligible for SURE, TAP, ELAP, and LFP. Exceptions to this requirement are made for limited resource, socially disadvantaged and beginning farmers or ranchers. You do not need to purchase federal crop insurance or NAP coverage prior to applying for ECP, EM, DSA, or emergency haying and grazing.		
How do I know if I am eligible for assistance?	**Locate your local FSA Service Center at: http://offices.USDA.gov** **Visit FSA's disaster web page at: http://disaster.fsa.usda.gov**		

For losses due to natural disasters such as drought, floods, hurricanes, blizzards, wild fires, disease.

USDA FSA FARM SERVICE AGENCY

Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148



Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148

Situation Report #2
April, 2015

Current Situation

Drought Declaration

- Currently all 17 counties are under a Drought Emergency Declaration as designated by U.S. Department of Agriculture.
- Carson D4 Exceptional Drought
- Churchill D4 Exceptional Drought
- Clark D2 Severe Drought
- Douglas D4 Exceptional Drought
- Elko D2 Severe Drought
- Esmeralda D4 Exceptional Drought
- Eureka D3 Extreme Drought
- Humboldt D3 Extreme Drought
- Lander D4 Exceptional Drought
- Lincoln D2 Severe Drought
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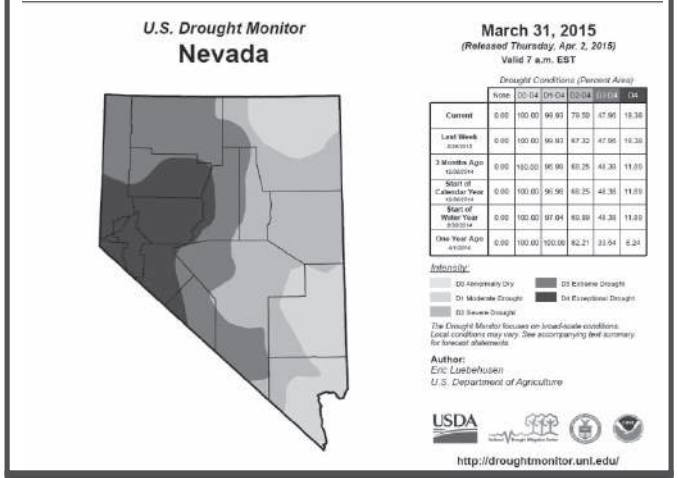
- Nye D3 Extreme Drought
- Pershing D4 Exceptional Drought
- Storey D4 Exceptional Drought
- Washoe D4 Exceptional Drought
- White Pine D2 Severe Drought



County Resource Requests

- No requests have been submitted to the SEOC at this time.

Wildfires

- The Western Great Basin Coordination Center reports no new wildfires in the past week.

Federal Partner Messaging

USDA press releases
http://www.usda.gov/wps/portal/usda/usdahome?navid=LATEST_RELEASES

USDA disaster and drought assistance
http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_ASSISTANCE

FSA disaster assistance program (links to information, e-mail list
http://www.fsa.usda.gov/FSA/webapp?area=home&subject=diap&topi

Drought Impact on Agriculture

Drought prompts disaster declaration
http://www.agweb.com/article/drought-prompts-disaster-declaration-for-most-of-nevada-NAA-associated-press/

NDWR water level data http://water.nv.gov/data/waterlevel/

USGS water level, stream flow, etc. data
http://waterdata.usgs.gov/nv/nwis

Desert Research Institute Drought Dashboard
http://www.gbdash.dri.edu/

Drought Impact on Habitat

BLM Planning and Sage Grouse
http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/elko_field_office/information/communications_forum/02_29_12.Par.65994.File.dat/Planning%20and%20Sage%20Grouse.pdf

Drought Impact on Municipal Water Systems

- 15 domestic wells in Churchill County reported impacted

Other Information

Emergency Disaster Programs Administered by the Farm Service Agency

TYPE OF LOSS SUFFERED →	CROP LOSS	LIVESTOCK LOSS	DAMAGED FARM PROPERTY
	For production losses, both quantity and quality, for most agricultural crops including grains, oilseeds, forage, grazing, cotton, nursery, aquaculture, floriculture, honey, maple sap, seed crops, Christmas trees and more.	For death and feed losses for livestock, farm raised fish, honeybee colonies and hives.	For physical losses to crops, livestock, real estate, real estate improvements, machinery and equipment. Farmland damage including debris removal, repairing of fence and conservation structures, and providing water to livestock.
What FSA disaster programs are available?	1. **NAP - Noninsured Crop Disaster Assistance Program** to cover production losses for crops when federal crop insurance is not available. 2. **SURE - Supplemental Revenue Assistance Payments Program** for crop losses in counties declared a disaster by the Secretary of Agriculture. 3. **TAP - Tree Assistance Program** for tree losses.	4. **ELAP - Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program** for livestock death not covered by LIP, for grazing losses not covered by LFP; for farm-raised fish and honeybee death and feed losses. 5. **LFP - Livestock Forage Disaster Program** for grazing losses. 6. **LIP - Livestock Indemnity Program** for livestock deaths. 7. **CRP - Emergency Haying and Grazing of Conservation Reserve Program** acreage may be authorized to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.	8. **ECP - Emergency Conservation Program** to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures.
	9. **EM - Emergency Loans** provides loans to restore or replace essential property damaged in the disaster, finance production losses to crops and livestock; fund essential family living and farm operating expenses, or refinance certain debts. 10. **DSA - Disaster Set-Aside** for producers who have direct loans with FSA and are unable to make the scheduled installment due, to move one full year's payment to the end of the loan.		
Must coverage be obtained before the disaster strikes?	You must purchase federal crop insurance or NAP coverage before the disaster strikes to be eligible for SURE, TAP, ELAP, and LFP. Exceptions to this requirement are made for limited resource, socially disadvantaged and beginning farmers or ranchers. You do not need to purchase federal crop insurance or NAP coverage prior to applying for ECP, EM, DSA, or emergency haying and grazing.		
How do I know if I am eligible for assistance?	**Locate your local FSA Service Center at: http://offices.USDA.gov** **Visit FSA's disaster web page at: http://disaster.fsa.usda.gov**		

For losses due to natural disasters such as drought, floods, hurricanes, blizzards, wild fires, disease.

USDA FSA FARM SERVICE AGENCY

USDA
United States Department of Agriculture

Farm Service Agency
1400 Independence Ave, SW
Washington, DC 20250
www.fsa.usda.gov

News Release

Latawnya Dia
202-690-7962
Latawnya.Dia@wdc.usda.gov
Release 0012.15

USDA Designates 11 Counties and Carson City in Nevada as Primary Natural Disaster Areas With Assistance to Producers in Surrounding States

WASHINGTON, Feb. 4, 2015 - The U.S. Department of Agriculture (USDA) has designated 11 counties and Carson City in Nevada as primary natural disaster areas due to damages and losses caused by a recent drought. Those counties are:

Churchill	Humboldt	Nye
Clark	Lander	Pershing
Douglas	Lyon	Washoe
Esmeralda	Mineral	

"Our hearts go out to those Nevada farmers and ranchers affected by recent natural disasters," said Agriculture Secretary Tom Vilsack. "President Obama and I are committed to ensuring that agriculture remains a bright spot in our nation's economy by sustaining the successes of America's farmers, ranchers, and rural communities through these difficult times. We're also telling Nevada producers that USDA stands with you and your communities when severe weather and natural disasters threaten to disrupt your livelihood."

Farmers and ranchers in Elko, Eureka, Lincoln, Storey and White Pine counties in **Nevada** also qualify for natural disaster assistance because their counties are contiguous.

Farmers and ranchers in the following counties in **Arizona, California, Idaho** and **Oregon** also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Arizona
Mohave

California

Alpine	El Dorado	Inyo	Lassen
Modoc	Nevada	Mono	Placer
San Bernardino	Sierra		

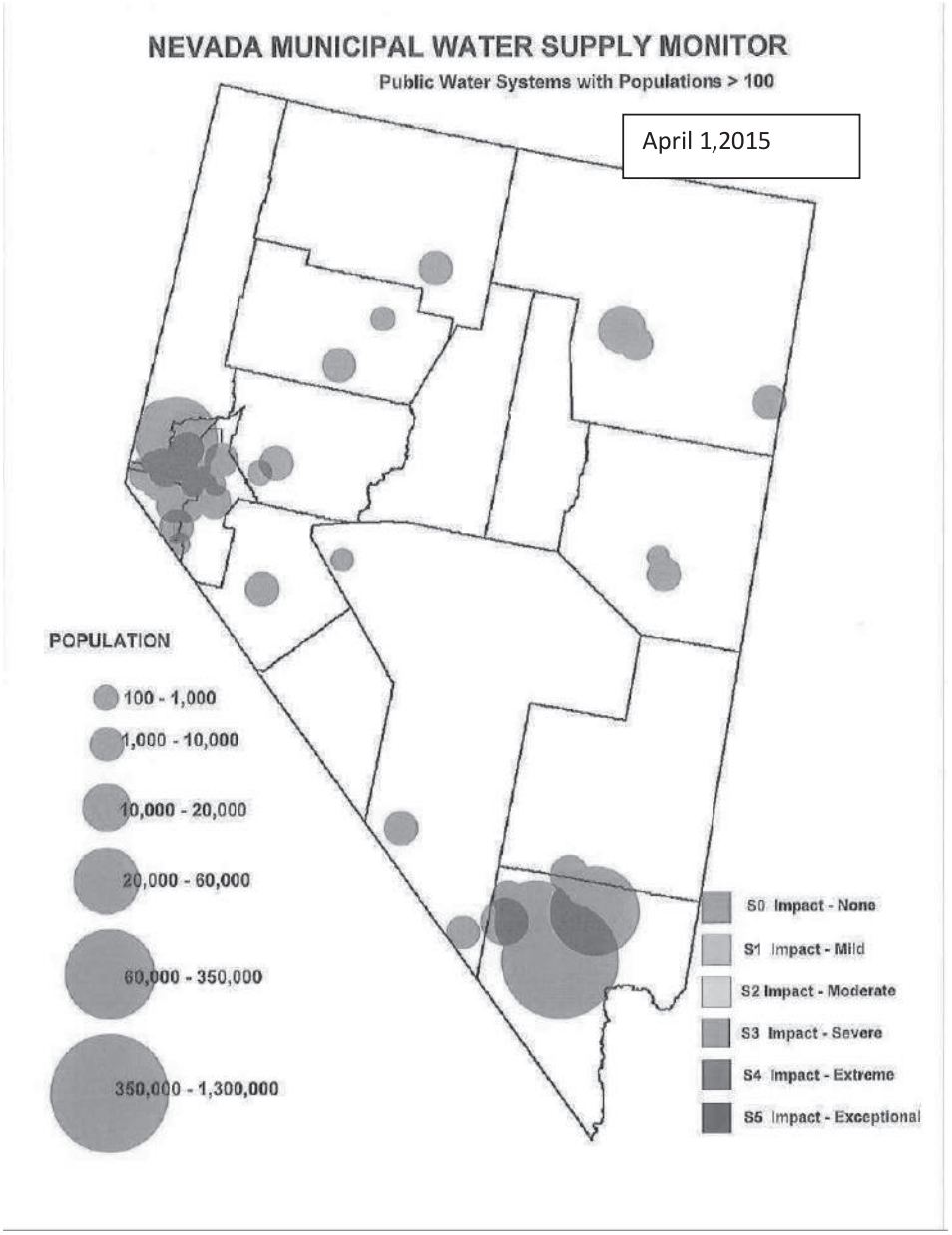
Idaho
Owyhee

Oregon
Harney, Lake and Malheur

All counties listed above were designated natural disaster areas on Feb. 4, 2015, making all qualified farm operators in the designated areas eligible for low interest emergency (EM) loans from USDA's Farm Service Agency (FSA), provided eligibility requirements are met. Farmers in eligible counties have eight months from the date of the declaration to apply for loans to help cover part of their actual losses. FSA will consider each loan application on its own merits, taking into account the extent of losses, security available and repayment ability. FSA has a variety of programs, in addition to the EM loan program, to help eligible farmers recover from adversity.

Additional programs available to assist farmers and ranchers include the Emergency Conservation Program, The Livestock Forage Disaster Program, the Livestock Indemnity Program, the Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program, and the Tree Assistance Program. Interested farmers may contact their local USDA Service Centers for further information on eligibility requirements and application procedures for these and other programs. Additional information is also available online at http://disaster.fsa.usda.gov.

FSA news releases are available on FSA's website at http://www.fsa.usda.gov via the "Newsroom" link.


NEVADA MUNICIPAL WATER SUPPLY MONITOR
Public Water Systems with Populations > 100
April 1,2015
POPULATION
100 - 1,000
1,000 - 10,000
10,000 - 20,000
20,000 - 60,000
60,000 - 350,000
350,000 - 1,300,000
S0 Impact - None
S1 Impact - Mild
S2 Impact - Moderate
S3 Impact - Severe
S4 Impact - Extreme
S5 Impact - Exceptional

March 2015

Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148

Emergency Loan Program

Overview
USDA's Farm Service Agency (FSA) provides emergency loans to help producers recover from production and physical losses due to drought, flooding, other natural disasters or quarantine.

Loan Uses
Emergency loan funds may be used to:
- Restore or replace essential property;
- Pay all or part of production costs associated with the disaster year;
- Pay essential family living expenses;
- Reorganize the farming operation and;
- Refinance certain debts.

Eligibility
Emergency loans may be made to farmers and ranchers who:
- Own or operate land located in a county declared by the President or designated by the Secretary of Agriculture as a primary disaster area or quarantine area. All counties contiguous to the declared, designated, or quarantined primary counties also are eligible for emergency loans. A disaster designation by the FSA administrator authorizes emergency loan assistance for physical losses only in the designated and contiguous counties;
- Are established family farm operators and have sufficient farming or ranching experience;
- Are citizens or permanent residents of the United States;
- Have suffered at least a 30 percent loss in crop production or a physical loss to livestock, livestock products, real estate or chattel property;
- Have an acceptable credit history;
- Are unable to receive credit from commercial sources;
- Can provide collateral to secure the loan and;
- Have repayment ability.

Loan Requirements
FSA loan requirements are different from those of other lenders. Some of the more significant differences are the following:
- Borrowers must keep acceptable farm records;
- Borrowers must operate in accordance with a farm plan they develop and agree to with local FSA staff and;
- Borrowers may be required to participate in a financial management training program and obtain crop insurance.

Collateral is Required
All emergency loans must be fully collateralized. The specific type of collateral may vary depending on the loan purpose, repayment ability and the individual circumstances of the applicant. If applicants cannot provide adequate collateral, their repayment ability may be considered as collateral to secure the loan. A first lien is required on property or products acquired, produced or refinanced with loan funds.

Loan Limit
Producers can borrow up to 100 percent of actual production or physical losses to a maximum amount of $500,000.

Loan Terms
Loans for crop, livestock and non-real estate losses are normally repaid within one to seven years, depending on the loan purpose, repayment ability and collateral available as loan security. In special circumstances, terms of up to 20 years may be authorized. Loans for physical losses to real estate are normally repaid within 30 years. In certain circumstances, repayment may be made over a maximum of 40 years.

Current Interest Rate
To find the current emergency loan interest rate, visit www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=fir.

Application Deadline
Applications for emergency loans must be received within eight months of the county's disaster or quarantine designation date.

For More Information
For more information on FSA disaster assistance, visit http://disaster.fsa.usda.gov/. For more information on FSA farm loans, visit www.fsa.usda.gov/farmloans. Further information about this and other FSA programs is available from local FSA offices or on the FSA website at www.fsa.usda.gov. To find your local FSA office, visit http://offices.usda.gov.

Nevada State Farm Service Agency

1365 Corporate Blvd.
Reno, Nevada 89502
775.857.8500

www.fsa.usda.gov/nv

State Committee:
Karen Wesner, Chair
Jim Christison
Vince Garcia
Marcia Litsinger
David Perazzo

State Executive Director:
Clint Koble
775.857.8500 x 128

Farm Program/Loan Chief:
Janice Kolvet
775.857.8500 x 120

District Director:
Gus Wegren
775.857.8500 x 143

Farm Loan Manager:
Micki Wines
775.738.6445 x 105

Please contact your local FSA Office for questions specific to your operation or county.

Elko FSA Office:
775.738.6445

Ely FSA Office:
775.289.4990

Fallon FSA Office:
775.423.5124

Lovelock FSA Office:
775.273.2922

Winnemucca FSA Office:
775.623.5025

Yerington FSA Office:
775.463.2855

Emergency Assistance for Livestock, Honeybee, and Farm-Raised Fish Program (ELAP)

The Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP) provides emergency assistance to eligible livestock, honeybee, and farm-raised fish producers who have losses due to disease, adverse weather or other conditions, such as blizzards and wildfires, not covered by other agricultural disaster assistance programs.

Eligible livestock losses include grazing losses not covered under the Livestock Forage Disaster Program (LFP), loss of purchased feed and/or mechanically harvested feed due to an eligible adverse weather event, additional cost of transporting water because of an eligible drought and additional cost associated with gathering livestock to treat for cattle tick fever.

Eligible honeybee losses include loss of purchased feed due to an eligible adverse weather event, cost of additional feed purchased above normal quantities due to an eligible adverse weather condition, colony losses in excess of normal mortality due to an eligible weather event or loss condition, including CCD, and hive losses due to eligible adverse weather.

Eligible farm-raised fish losses include death losses in excess of normal mortality and/or loss of purchased feed due to an eligible adverse weather event.

Producers who suffer eligible livestock, honeybee, or farm-raised fish losses from October 1, 2014 to September 30, 2015 must file:

- A notice of loss the earlier of 30 calendar days of when the loss is apparent or by November 1, 2015
- An application for payment by November 1, 2015

The Farm Bill caps ELAP disaster funding at $20 million per federal fiscal year.

The following ELAP Fact Sheets (by topic) are available online:

- ELAP for Farm-Raised Fish Fact Sheet
- ELAP for Livestock Fact Sheet
- ELAP for Honeybees Fact Sheet

To view these and other FSA program fact sheets, visit the FSA fact sheet web page at www.fsa.usda.gov/factsheets.

LIVESTOCK INDEMNITY PROGRAM (LIP)

The Livestock Indemnity Program (LIP) provides assistance to eligible producers for livestock death losses in excess of normal mortality due to adverse weather and attacks by animals

reintroduced into the wild by the federal government or protected by federal law. LIP compensates livestock owners and contract growers for livestock death losses in excess of normal mortality due to adverse weather, including losses due to hurricanes, floods, blizzards, wildfires, extreme heat or extreme cold.

For 2015, eligible losses must occur on or after Jan. 1, 2015, and before December 31, 2015. A notice of loss must be filed with FSA within 30 days of when the loss of livestock is apparent. Participants must provide the following supporting documentation to their local FSA office no later than 30 calendar days after the end of the calendar year for which benefits are requested:

- Proof of death documentation
- Copy of growers contracts
- Proof of normal mortality documentation

USDA has established normal mortality rates for each type and weight range of eligible livestock, i.e. Adult Beef Cow = 1.5% and Non-Adult Beef Cattle (less than 400 pounds) = 3%. These established percentages reflect losses that are considered expected or typical under "normal" conditions. Producers who suffer livestock losses in 2015 must file both of the following:

- A notice of loss the earlier of 30 calendar days of when the loss was apparent or by January 30, 2016
- An application for payment by January 30, 2016.

Additional Information about LIP is available at your local FSA office or online at: www.fsa.usda.gov.

USDA Provides One-Time Extension of Deadline to Update Base Acres or Yield History for ARC/PLC Programs

Farmers Now Have Until March 31 to Update Yields and Reallocate Base Acres; Deadline for Choosing Between ARC and PLC also Remains March 31

Agriculture Secretary Tom Vilsack announced today that a one-time extension will be provided to producers for the new safety-net programs established by the 2014 Farm Bill, known as Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC). The final day to update yield history or reallocate base acres has been extended one additional month, from Feb. 27, 2015 until March 31, 2015. The final day for farm owners and producers to choose ARC or PLC coverage also remains March 31, 2015.

If no changes are made to yield history or base acres by March 31, 2015, the farm's current yield and base will be used. A program choice of ARC or PLC coverage also must be made by March 31, 2015, or there will be no 2014 payments for the farm and the farm will default to PLC coverage through the 2018 crop year.

Nationwide, more than 2.9 million educational postcards, in English and Spanish, have been sent to producers, and over 4,100 training sessions have been conducted on the new safety-net programs. The online tools, available at www.fsa.usda.gov/arc-plc, allow producers to explore projections on

how ARC or PLC coverage will affect their operation under possible future scenarios.

Covered commodities include barley, canola, large and small chickpeas, corn, crambe, flaxseed, grain sorghum, lentils, mustard seed, oats, peanuts, dry peas, rapeseed, long grain rice, medium grain rice (which includes short grain rice), safflower seed, sesame, soybeans, sunflower seed and wheat. Upland cotton is no longer a covered commodity.

To learn more, farmers can contact their local Farm Service Agency county office. To find your local office visit http://offices.usda.gov.

USDA Announces New Support for Beginning Farmers and Ranchers

Department Implementing New Farm Bill Programs, Unveiling New Centralized Online Resource to Support Next Generation of Farmers

USDA has announced the implementation of new Farm Bill measures and other policy changes to improve the financial security of new and beginning farmers and ranchers. USDA also unveiled www.USDA.gov/newfarmers, a new website that will provide a centralized, one-stop resource where beginning farmers and ranchers can explore the variety of USDA initiatives designed to help them succeed.

USDA's www.usda.gov/newfarmers has in depth information for new farmers and ranchers, including: how to increase access to land and capital; build new market opportunities; participate in conservation opportunities; select and use the right risk management tools; and access USDA education, and technical support programs. These issues have been identified as top priorities by new farmers. The website will also feature instructive case studies about beginning farmers who have successfully utilized USDA resources to start or expand their business operations.

Today's policy announcements in support of beginning farmers and ranchers include:

. Waiving service fees for new and beginning farmers or ranchers to enroll in the Non-Insured Crop Disaster Assistance Program (NAP) for the 2014 crop year. NAP provides risk management tools to farmers who grow crops for which there is no crop insurance product. Under this waiver, announced via an official notice to Farm Service Agency offices, farmers and ranchers whom already enrolled in NAP for the 2014 crop year and certified to being a beginning farmer or social disadvantaged farmer are eligible for a service fee refund.

. Eliminating payment reductions under the Conservation Reserve Program (CRP) for new and beginning farmers which will allow routine, prescribed, and emergency grazing outside the primary nesting season on enrolled land consistent with approved conservation plans. Previously, farmers and ranchers grazing on CRP land were subject to a reduction in CRP payments of up to 25 percent. Waiving these reductions for new and beginning farmers will provide extra financial support during times of emergency like drought and other natural disasters.

. Increasing payment rates to beginning farmers and ranchers under Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP). Under this provision, beginning farmers can claim up 90 percent of losses for lost livestock, such as bees, under ELAP. This is a fifty percent increase over previously available payment amounts to new and beginning farmers.

In the near future, USDA will also announce additional crop insurance program changes for beginning farmers and ranchers – including discounted premiums, waiver of administrative fees, and other benefits.

Additional information about USDA actions in support of beginning farmers and ranchers is

available here.

LIVESTOCK FORAGE DISASTER PROGRAM (LFP)

Producers in Nevada are eligible to apply for 2015 Livestock Forage Disaster Program (LFP) benefits on grazing losses.

LFP provides compensation to eligible livestock producers who suffer grazing losses for covered livestock due to drought on privately owned or cash leased land or fire on federally managed land.

County committees can only accept LFP applications after notification is received by the National Office of qualifying drought or if a federal agency prohibits producers from grazing normal permitted livestock on federally managed lands due to qualifying fire.

For 2015 and subsequent years, eligible livestock producers must complete a CCC-853 and the required supporting documentation no later than 30 calendar days after the end of the calendar year in which the grazing losses occurred. Losses must occur in the calendar year the application is being filed.

Additional Information about LFP, including eligible livestock and fire criteria, is available at your local FSA office or online at: www.fsa.usda.gov.

USDA Reminds Nevada Producers of March 16 Sales Closing Date for Noninsurable Crops

Farm Service Agency (FSA) urges producers who want to purchase coverage through the Noninsured Crop Disaster Assistance Program (NAP) to do so before the sales closing date of March 16, 2015.

NAP provides financial assistance to producers of noninsurable crops when low yields/grazing loss, loss of inventory or prevented planting occur due to natural disasters including drought, freeze, hail, excessive moisture, excessive wind or hurricanes.

In order to meet eligibility requirements for NAP, crops must be noninsurable, commercially-produced agricultural commodity crops for which the catastrophic risk protection level of crop insurance is not available.

The Agricultural Act of 2014 (the 2014 Farm Bill) allows producers to choose higher levels of NAP coverage. Previously, the program offered coverage at 55 percent of the average market price for crop losses that exceed 50 percent of expected production. Producers can now choose higher levels of coverage, up to 65 percent of their expected production at 100 percent of the average market price. It is important to note that the higher coverage is not available on grazing crops.

The following crops in Nevada have a NAP application closing date of March 16, 2015: Corn, Watermelon, Millet.

Eligible producers must file the application and pay a service fee by the March 16 deadline. Producers also pay a fixed premium for higher coverage. Beginning, limited resource and underserved producers may request a waiver of the service fee and a 50 percent premium reduction when the application for coverage is filed.

Loans for Targeted Underserved Producers

FSA has a number of loan programs available to assist applicants to begin or continue in agriculture production. Loans are available for operating type loans and/or purchase or improve farms or ranches.

While all qualified producers are eligible to apply for these loan programs, the FSA has provided priority funding for members of targeted underserved groups.

A targeted underserved applicant is one of a group whose members have been subjected to racial, ethnic or gender prejudice because of his or her identity as members of the group without regard to his or her individual qualities.

For purposes of this program, targeted underserved groups are women, African Americans, American Indians, Alaskan Natives, Hispanics, Asian Americans and Pacific Islanders.

FSA loans are only available to applicants who meet all the eligibility requirements and are unable to obtain the needed credit elsewhere.

Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148

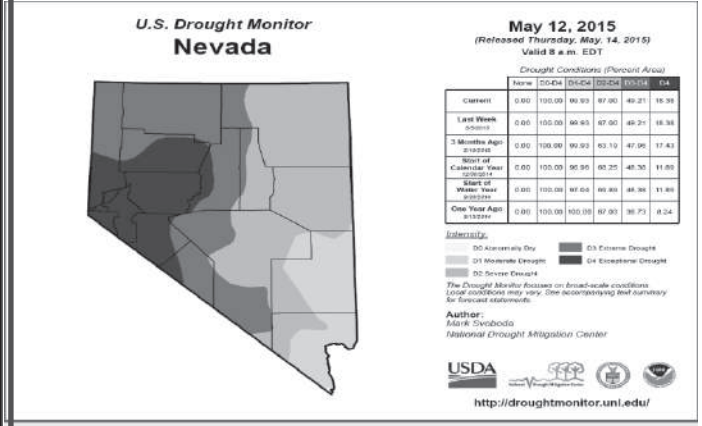
Situation Report #3
May 2015

Drought Declaration

- Currently all 17 counties are under a Drought Emergency Declaration as designated by U.S. Department of Agriculture.

• Carson	D4	Exceptional Drought
• Churchill	D4	Exceptional Drought
• Clark	D2	Severe Drought
• Douglas	D4	Exceptional Drought
• Elko	D2	Severe Drought
• Esmeralda	D4	Exceptional Drought
• Eureka	D3	Extreme Drought
• Humboldt	D3	Extreme Drought
• Lander	D4	Exceptional Drought
• Lincoln	D2	Severe Drought
• Lyon	D4	Exceptional Drought
• Mineral	D4	Exceptional Drought
• Nye	D3	Extreme Drought
• Pershing	D4	Exceptional Drought
• Storey	D4	Exceptional Drought
• Washoe	D4	Exceptional Drought
• White Pine	D2	Severe Drought

For more information on Nevada drought go to: http://drought.nv.gov



County Resource Requests

- No requests have been submitted to the SEOC at this time.

Wildfires

- The Western Great Basin Coordination Center reports no new wildfires in the past week.

USDA press releases
http://www.usda.gov/wps/portal/usda/usdahome?navid=LATEST_RELEASES
USDA disaster and drought assistance
http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_ASSISTANCE
FSA disaster assistance program (links to information, e-mail list
http://www.fsa.usda.gov/FSA/webapp?area=home&subject=diap&topi

Drought Impact on Agriculture

Drought prompts disaster declaration
http://www.agweb.com/article/drought-prompts-disaster-declaration-for-most-of-nevada-NAA-associated-press/
NDWR water level data http://water.nv.gov/data/waterlevel/
USGS water level, stream flow, etc. data
http://waterdata.usgs.gov/nv/nwis
Desert Research Institute Drought Dashboard
http://www.gbdash.dri.edu/

Drought Impact on Habitat

BLM Planning and Sage Grouse
http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/elko_field_office/information/communications_forum/02_29_12.Par.65994.File.dat/Planning%20and%20Sage%20Grouse.pdf
Successful Conservation Planning Keeps Sage Grouse Off of Endangered Species List
http://www.doi.gov/news/pressreleases/successful-conservation-partnership-keeps-bi-state-sage-grouse-off-endangered-species-list.cfm

Drought Impact on Municipal Water Systems

- 15 domestic wells in Churchill County reported impacted

Other Information

Emergency Disaster Programs Administered by the Farm Service Agency

TYPE OF LOSS SUFFERED →	CROP LOSS	LIVESTOCK LOSS	DAMAGED FARM PROPERTY
	For production losses, both quantity and quality, for most agricultural crops including grains, oilseeds, forage, grazing, cotton, nursery, aquaculture, floriculture, honey, maple sap, seed crops, Christmas trees and more.	For death and feed losses for livestock, farm raised fish, honeybee colonies and hives.	For physical losses to crops, livestock, real estate, real estate improvements, machinery and equipment. Farmland damage including debris removal, repairing of fence and conservation structures, and providing water to livestock.
What FSA disaster programs are available?	1. **NAP - Noninsured Crop Disaster Assistance Program** to cover production losses for crops when federal crop insurance is not available. 2. **SURE - Supplemental Revenue Assistance Payments Program** for crop losses in counties declared a disaster by the Secretary of Agriculture. 3. **TAP - Tree Assistance Program** for tree losses.	4. **ELAP - Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program** for livestock death not covered by LIP, for grazing losses not covered by LFP; for farm-raised fish and honeybee death and feed losses. 5. **LFP - Livestock Forage Disaster Program** for grazing losses. 6. **LIP - Livestock Indemnity Program** for livestock deaths. 7. **CRP - Emergency Haying and Grazing of Conservation Reserve Program** acreage may be authorized to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.	8. **ECP - Emergency Conservation Program** to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures.
	9. **EM - Emergency Loans** provides loans to restore or replace essential property damaged in the disaster, finance production losses to crops and livestock; fund essential family living and farm operating expenses, or refinance certain debts. 10. **DSA - Disaster Set-Aside** for producers who have direct loans with FSA and are unable to make the scheduled installment due, to move one full year's payment to the end of the loan.		
Must coverage be obtained before the disaster strikes?	You must purchase federal crop insurance or NAP coverage before the disaster strikes to be eligible for SURE, TAP, ELAP, and LFP. Exceptions to this requirement are made for limited resource, socially disadvantaged and beginning farmers or ranchers. You do not need to purchase federal crop insurance or NAP coverage prior to applying for ECP, EM, DSA, or emergency haying and grazing.		
How do I know if I am eligible for assistance?	**Locate your local FSA Service Center at: http://offices.USDA.gov** **Visit FSA's disaster web page at: http://disaster.fsa.usda.gov**		

For losses due to natural disasters such as drought, floods, hurricanes, blizzards, wild fires, disease.

USDA FSA FARM SERVICE AGENCY

USDA
United States Department of Agriculture

Farm Service Agency
1400 Independence Ave, SW
Washington, DC 20250
www.fsa.usda.gov

News Release

Latawnya Dia
202-690-7962
Latawnya.Dia@wdc.usda.gov
Release 0012.15

USDA Designates 11 Counties and Carson City in Nevada as Primary Natural Disaster Areas With Assistance to Producers in Surrounding States

WASHINGTON, Feb. 4, 2015 - The U.S. Department of Agriculture (USDA) has designated 11 counties and Carson City in Nevada as primary natural disaster areas due to damages and losses caused by a recent drought. Those counties are:

Churchill	Humboldt	Nye
Clark	Lander	Pershing
Douglas	Lyon	Washoe
Esmeralda	Mineral	

"Our hearts go out to those Nevada farmers and ranchers affected by recent natural disasters," said Agriculture Secretary Tom Vilsack. "President Obama and I are committed to ensuring that agriculture remains a bright spot in our nation's economy by sustaining the successes of America's farmers, ranchers, and rural communities through these difficult times. We're also telling Nevada producers that USDA stands with you and your communities when severe weather and natural disasters threaten to disrupt your livelihood."

Farmers and ranchers in Elko, Eureka, Lincoln, Storey and White Pine counties in **Nevada** also qualify for natural disaster assistance because their counties are contiguous.

Farmers and ranchers in the following counties in **Arizona, California, Idaho** and **Oregon** also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Arizona
Mohave

California

Alpine	El Dorado	Inyo	Lassen
Modoc	Nevada	Mono	Placer
San Bernardino	Sierra		

Idaho
Owyhee

Oregon
Harney, Lake and Malheur

All counties listed above were designated natural disaster areas on Feb. 4, 2015, making all qualified farm operators in the designated areas eligible for low interest emergency (EM) loans from USDA's Farm Service Agency (FSA), provided eligibility requirements are met. Farmers in eligible counties have eight months from the date of the declaration to apply for loans to help cover part of their actual losses. FSA will consider each loan application on its own merits, taking into account the extent of losses, security available and repayment ability. FSA has a variety of programs, in addition to the EM loan program, to help eligible farmers recover from adversity.

Additional programs available to assist farmers and ranchers include the Emergency Conservation Program, The Livestock Forage Disaster Program, the Livestock Indemnity Program, the Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program, and the Tree Assistance Program. Interested farmers may contact their local USDA Service Centers for further information on eligibility requirements and application procedures for these and other programs. Additional information is also available online at http://disaster.fsa.usda.gov.

FSA news releases are available on FSA's website at http://www.fsa.usda.gov via the "Newsroom" link.

State of Nevada

Executive Department

Executive Order 2015-03

ORDER ESTABLISHING THE NEVADA DROUGHT FORUM

WHEREAS, the State of Nevada is entering its fourth year of drought and a majority of Nevada counties have been designated by the Secretary of the United States Department of Agriculture as primary or contiguous natural disaster areas due to extreme or exceptional drought conditions; and

WHEREAS, throughout the last four years, many locations in Nevada have received approximately 65% or less of the normal annual precipitation, resulting in a cumulative precipitation deficit of over one year's worth of precipitation; and

WHEREAS, the United States Climate Prediction Center has forecast in its United States Seasonal Drought Outlook that drought conditions in Nevada will intensify over the coming months; and

WHEREAS, as Chairman of the Western Governors' Association (WGA), I created the Western Governors' Drought Forum in order to foster a regional dialogue where states and industry can identify and share case studies and best practices for drought policy, preparedness and management; and

WHEREAS, I will release the Western Governors' Drought Forum Final Report that will identify key findings and next steps at the WGA Round Table in late June, 2015; and

WHEREAS, the Nevada Department of Conservation and Natural Resources, Division of Water Resources; the Nevada Department of Public Safety, Division of Emergency Management; and the Office of the Nevada State Climatologist are active members of the State of Nevada Drought Response Committee and have been continuously monitoring drought conditions throughout the State; and

WHEREAS, since the summer of 2014, the State Engineer of the Nevada Division of Water Resources has conducted a public outreach program to provide water-related information to the public and to listen to public concerns, with drought the topic most actively discussed; and

WHEREAS, the State Engineer has the authority to make rules, regulations and orders in groundwater basins where he determines additional management is necessary for the essential welfare of the area involved; and

WHEREAS, the Chief of the Division of Emergency Management has the authority to coordinate activities of all emergency management organizations in the State and to support State and local agencies in developing comprehensive plans to address drought; and

WHEREAS, I have activated the State Emergency Operations Center to maintain situational awareness on the impacts of drought across the State; and

WHEREAS, the State has collaborated with the Desert Research Institute and the Nevada Climate Office to maintain a website that provides information about current drought conditions, and specific drought recovery resources; and

WHEREAS, all Nevadans can play a role in addressing this critical issue through conservation; and

WHEREAS, Article V, Section 1 of the Nevada Constitution provides: "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, by the authority vested in me as Governor by the Constitution and the laws of the State of Nevada, it is hereby ordered as follows:

1. The Nevada Drought Forum is hereby established to:
   a. Build on the activities of the existing Nevada Drought Response Committee;
   b. Evaluate key findings and next steps identified in the Western Governors' Drought Forum Final Report as they relate to Nevada;
   c. Meet with relevant stakeholders including, but not limited to, agricultural producers, municipal water suppliers, the industrial sector, recreation interests, Tribal Nations, and members of the general public; and
   d. Determine, with input from stakeholders and the public, the elements of a final report to the Governor.

2. The Nevada Drought Forum shall be comprised of the following appointees:
   a. The Director of the Nevada Department of Conservation and Natural Resources;
   b. The Director of the Nevada Department of Agriculture;
   c. The State Engineer of the Nevada Division of Water Resources;
   d. The Chief of the Nevada Division of Emergency Management;
   e. The Nevada State Climatologist;
   f. The Dean of the University of Nevada Cooperative Extension;
   g. A representative of the Desert Research Institute;
   h. A representative of the Southern Nevada Water Authority; and
   i. Any other members whom the Governor deems necessary.

3. The Nevada Department of Administration, Division of Buildings and Grounds shall conduct a water audit of all State facilities and common areas to identify leaks or excessive water usage, and to evaluate all possible conservation efforts including replacement of old fixtures that consume excessive water.

4. All State agencies shall endeavor to implement practicable water conservation strategies in and around State facilities.

5. All local governments and private citizens are urged to conserve water and to conduct water audits in consultation with local water authorities.

6. All State agencies with responsibilities associated to drought and drought conditions shall provide a summary of current actions and related authorities to the Nevada Drought Forum by May 15, 2015.

7. Municipal water providers and agencies of the federal government are requested to provide a summary of current and planned actions related to the drought and drought conditions to the Nevada Drought Forum by May 15, 2015.

8. The Nevada Drought Forum shall prepare a Nevada Summary of Current Actions of local, State and federal entities by June 15, 2015.

9. The Nevada Drought Forum shall receive the WGA Drought Forum Final Report when it is released.

10. The Nevada Drought Forum shall, by July 1, 2015, provide interested stakeholders the work of the WGA Drought Forum, the Nevada Summary of Current Actions, an outline of possible topics and objectives for stakeholder discussions, and issue an additional call for specific information.

11. By the end of August 2015, interested stakeholders may provide to the Nevada Drought Forum a summary of current actions and challenges relevant to the final WGA drought recommendations, together with any other specific information sought by the Nevada Drought Forum.

12. The Nevada Drought Forum shall convene a multi-day stakeholder Drought Summit in September 2015.
13. The Nevada Drought Forum shall prepare and deliver a written report to the Governor on or before November 1, 2015.
14. The Nevada Drought Forum shall prepare a bi-weekly statewide drought summary with current drought impacts and key information for the public until such time that the summary is no longer warranted.
15. Any State agency or entity, including the Nevada Center of Excellence for Innovations and Solutions in Water Resources, through the Governor's Office of Economic Development, may be called upon by the Nevada Drought Forum to provide assistance.
16. The Nevada Department of Public Safety, Division of Emergency Management, shall provide administrative support for the Nevada Drought Forum.
17. Activities of the Nevada Drought Forum shall be subject to the requirements of the Nevada Open Meeting Law pursuant to NRS Chapter 241.
18. All records documenting activities of the Nevada Drought Forum shall be retained and transferred to the Nevada State Library, Archives and Public Records for retention in accordance with State policy.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City, this 8th day of April, in the year two thousand fifteen.

Governor of the State of Nevada

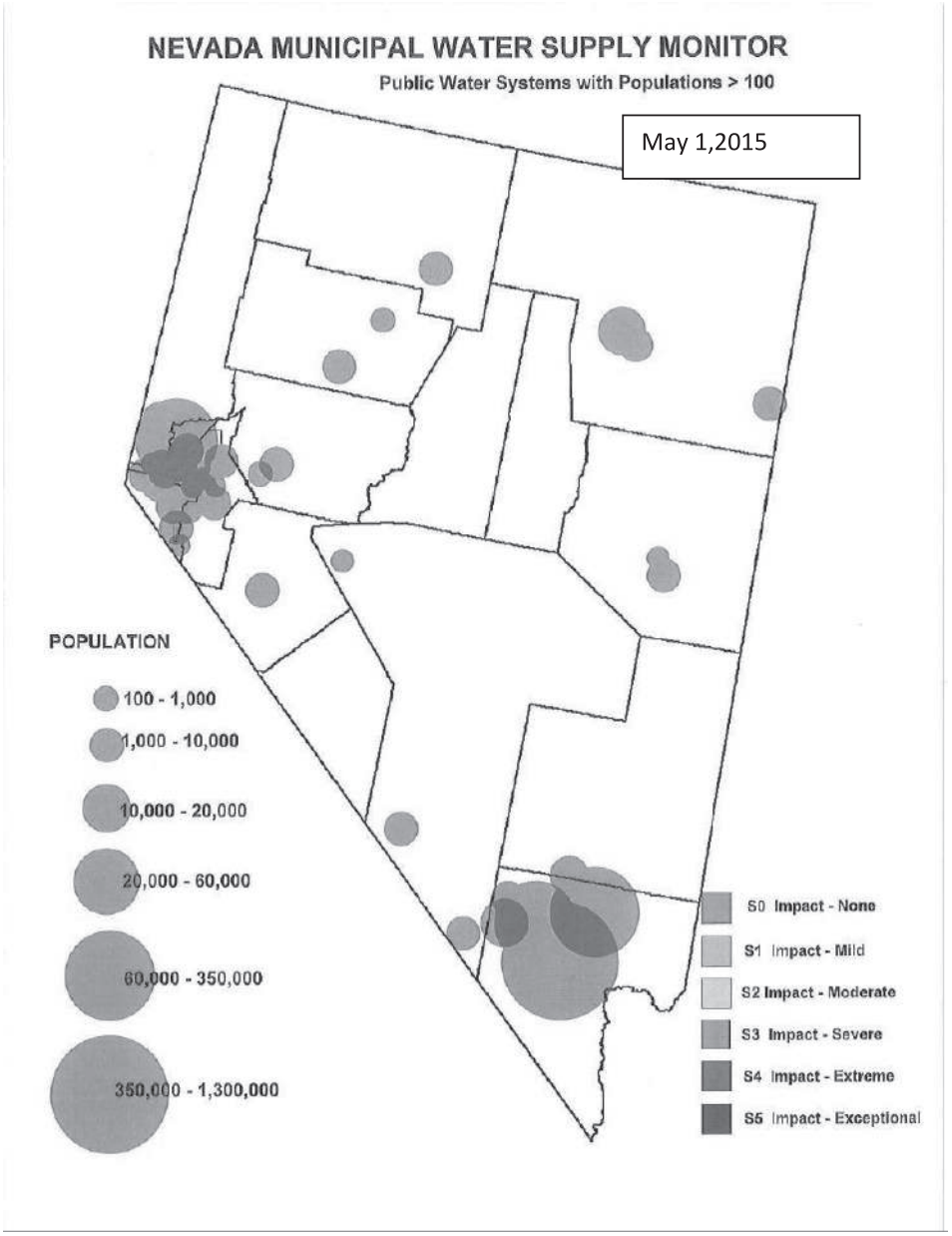
By the Governor:

Barbara K. Cegavske
Secretary of State

Deputy Secretary of State

3

Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148



Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148

March 2015

Emergency Loan Program

Overview

USDA's Farm Service Agency (FSA) provides emergency loans to help producers recover from production and physical losses due to drought, flooding, other natural disasters or quarantine.

Loan Uses

Emergency loan funds may be used to:

- Restore or replace essential property;
- Pay all or part of production costs associated with the disaster year;
- Pay essential family living expenses;
- Reorganize the farming operation and;
- Refinance certain debts.

Eligibility

Emergency loans may be made to farmers and ranchers who:

- Own or operate land located in a county declared by the President or designated by the Secretary of Agriculture as a primary disaster area or quarantine area. All counties contiguous to the declared, designated, or quarantined primary counties also are eligible for emergency loans. A disaster designation by the FSA administrator authorizes emergency loan assistance for physical losses only in the designated and contiguous counties;
- Are established family farm operators and have sufficient farming or ranching experience;
- Are citizens or permanent residents of the United States;
- Have suffered at least a 30 percent loss in crop production or a physical loss to livestock, livestock products, real estate or chattel property;
- Have an acceptable credit history;
- Are unable to receive credit from commercial sources;
- Can provide collateral to secure the loan and;
- Have repayment ability.

Loan Requirements

FSA loan requirements are different from those of other lenders. Some of the more significant differences are the following:

- Borrowers must keep acceptable farm records;
- Borrowers must operate in accordance with a farm plan they develop and agree to with local FSA staff and;
- Borrowers may be required to participate in a financial management training program and obtain crop insurance.

Collateral is Required
All emergency loans must be fully collateralized. The specific type of collateral may vary depending on the loan purpose, repayment ability and the individual circumstances of the applicant. If applicants cannot provide adequate collateral, their repayment ability may be considered as collateral to secure the loan. A first lien is required on property or products acquired, produced or refinanced with loan funds.

Loan Limit
Producers can borrow up to 100 percent of actual production or physical losses to a maximum amount of $500,000.

Loan Terms
Loans for crop, livestock and non-real estate losses are normally repaid within one to seven years, depending on the loan purpose, repayment ability and collateral available as loan security. In special circumstances, terms of up to 20 years may be authorized. Loans for physical losses to real estate are normally repaid within 30 years. In certain circumstances, repayment may be made over a maximum of 40 years.

Current Interest Rate
To find the current emergency loan interest rate, visit www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=fir.

Application Deadline
Applications for emergency loans must be received within eight months of the county's disaster or quarantine designation date.

For More Information
For more information on FSA disaster assistance, visit http://disaster.fsa.usda.gov/. For more information on FSA farm loans, visit www.fsa.usda.gov/farmloans. Further information about this and other FSA programs is available from local FSA offices or on the FSA website at www.fsa.usda.gov. To find your local FSA office, visit http://offices.usda.gov.

Nevada State Farm Service Agency

1365 Corporate Blvd.
Reno, Nevada 89502
775.857.8500

www.fsa.usda.gov/nv

State Committee:
Karen Wesner, Chair
Jim Christison
Vince Garcia
Marcia Litsinger
David Perazzo

State Executive Director:
Clint Koble
775.857.8500 x 128

Farm Program/Loan Chief:
Janice Kolvet
775.857.8500 x 120

District Director:
Gus Wegren
775.857.8500 x 143

Farm Loan Manager:
Micki Wines
775.738.6445 x 105

Please contact your local FSA Office for questions specific to your operation or county.

Elko FSA Office:
775.738.6445

Ely FSA Office:
775.289.4990

Fallon FSA Office:
775.423.5124

Lovelock FSA Office:
775.273.2922

Winnemucca FSA Office:
775.623.5025

Yerington FSA Office:
775.463.2855

Emergency Assistance for Livestock, Honeybee, and Farm-Raised Fish Program (ELAP)

The Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP) provides emergency assistance to eligible livestock, honeybee, and farm-raised fish producers who have losses due to disease, adverse weather or other conditions, such as blizzards and wildfires, not covered by other agricultural disaster assistance programs.

Eligible livestock losses include grazing losses not covered under the Livestock Forage Disaster Program (LFP), loss of purchased feed and/or mechanically harvested feed due to an eligible adverse weather event, additional cost of transporting water because of an eligible drought and additional cost associated with gathering livestock to treat for cattle tick fever.

Eligible honeybee losses include loss of purchased feed due to an eligible adverse weather event, cost of additional feed purchased above normal quantities due to an eligible adverse weather condition, colony losses in excess of normal mortality due to an eligible weather event or loss condition, including CCD, and hive losses due to eligible adverse weather.

Eligible farm-raised fish losses include death losses in excess of normal mortality and/or loss of purchased feed due to an eligible adverse weather event.

Producers who suffer eligible livestock, honeybee, or farm-raised fish losses from October 1, 2014 to September 30, 2015 must file:

- A notice of loss the earlier of 30 calendar days of when the loss is apparent or by November 1, 2015
- An application for payment by November 1, 2015

The Farm Bill caps ELAP disaster funding at $20 million per federal fiscal year.

The following ELAP Fact Sheets (by topic) are available online:

- ELAP for Farm-Raised Fish Fact Sheet
- ELAP for Livestock Fact Sheet
- ELAP for Honeybees Fact Sheet

To view these and other FSA program fact sheets, visit the FSA fact sheet web page at www.fsa.usda.gov/factsheets.

LIVESTOCK INDEMNITY PROGRAM (LIP)

The Livestock Indemnity Program (LIP) provides assistance to eligible producers for livestock death losses in excess of normal mortality due to adverse weather and attacks by animals

reintroduced into the wild by the federal government or protected by federal law. LIP compensates livestock owners and contract growers for livestock death losses in excess of normal mortality due to adverse weather, including losses due to hurricanes, floods, blizzards, wildfires, extreme heat or extreme cold.

For 2015, eligible losses must occur on or after Jan. 1, 2015, and before December 31, 2015. A notice of loss must be filed with FSA within 30 days of when the loss of livestock is apparent. Participants must provide the following supporting documentation to their local FSA office no later than 30 calendar days after the end of the calendar year for which benefits are requested:

- Proof of death documentation
- Copy of growers contracts
- Proof of normal mortality documentation

USDA has established normal mortality rates for each type and weight range of eligible livestock, i.e. Adult Beef Cow = 1.5% and Non-Adult Beef Cattle (less than 400 pounds) = 3%. These established percentages reflect losses that are considered expected or typical under "normal" conditions. Producers who suffer livestock losses in 2015 must file both of the following:

- A notice of loss the earlier of 30 calendar days of when the loss was apparent or by January 30, 2016
- An application for payment by January 30, 2016.

Additional Information about LIP is available at your local FSA office or online at: www.fsa.usda.gov.

USDA Provides One-Time Extension of Deadline to Update Base Acres or Yield History for ARC/PLC Programs

Farmers Now Have Until March 31 to Update Yields and Reallocate Base Acres; Deadline for Choosing Between ARC and PLC also Remains March 31

Agriculture Secretary Tom Vilsack announced today that a one-time extension will be provided to producers for the new safety-net programs established by the 2014 Farm Bill, known as Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC). The final day to update yield history or reallocate base acres has been extended one additional month, from Feb. 27, 2015 until March 31, 2015. The final day for farm owners and producers to choose ARC or PLC coverage also remains March 31, 2015.

If no changes are made to yield history or base acres by March 31, 2015, the farm's current yield and base will be used. A program choice of ARC or PLC coverage also must be made by March 31, 2015, or there will be no 2014 payments for the farm and the farm will default to PLC coverage through the 2018 crop year.

Nationwide, more than 2.9 million educational postcards, in English and Spanish, have been sent to producers, and over 4,100 training sessions have been conducted on the new safety-net programs. The online tools, available at www.fsa.usda.gov/arc-plc, allow producers to explore projections on

how ARC or PLC coverage will affect their operation under possible future scenarios.

Covered commodities include barley, canola, large and small chickpeas, corn, crambe, flaxseed, grain sorghum, lentils, mustard seed, oats, peanuts, dry peas, rapeseed, long grain rice, medium grain rice (which includes short grain rice), safflower seed, sesame, soybeans, sunflower seed and wheat. Upland cotton is no longer a covered commodity.

To learn more, farmers can contact their local Farm Service Agency county office. To find your local office visit http://offices.usda.gov.

USDA Announces New Support for Beginning Farmers and Ranchers

Department Implementing New Farm Bill Programs, Unveiling New Centralized Online Resource to Support Next Generation of Farmers

USDA has announced the implementation of new Farm Bill measures and other policy changes to improve the financial security of new and beginning farmers and ranchers. USDA also unveiled www.USDA.gov/newfarmers, a new website that will provide a centralized, one-stop resource where beginning farmers and ranchers can explore the variety of USDA initiatives designed to help them succeed.

USDA's www.usda.gov/newfarmers has in depth information for new farmers and ranchers, including: how to increase access to land and capital; build new market opportunities; participate in conservation opportunities; select and use the right risk management tools; and access USDA education, and technical support programs. These issues have been identified as top priorities by new farmers. The website will also feature instructive case studies about beginning farmers who have successfully utilized USDA resources to start or expand their business operations.

Today's policy announcements in support of beginning farmers and ranchers include:

. Waiving service fees for new and beginning farmers or ranchers to enroll in the Non-Insured Crop Disaster Assistance Program (NAP) for the 2014 crop year. NAP provides risk management tools to farmers who grow crops for which there is no crop insurance product. Under this waiver, announced via an official notice to Farm Service Agency offices, farmers and ranchers whom already enrolled in NAP for the 2014 crop year and certified to being a beginning farmer or social disadvantaged farmer are eligible for a service fee refund.

. Eliminating payment reductions under the Conservation Reserve Program (CRP) for new and beginning farmers which will allow routine, prescribed, and emergency grazing outside the primary nesting season on enrolled land consistent with approved conservation plans. Previously, farmers and ranchers grazing on CRP land were subject to a reduction in CRP payments of up to 25 percent. Waiving these reductions for new and beginning farmers will provide extra financial support during times of emergency like drought and other natural disasters.

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In the near future, USDA will also announce additional crop insurance program changes for beginning farmers and ranchers – including discounted premiums, waiver of administrative fees, and other benefits.

Additional information about USDA actions in support of beginning farmers and ranchers is

available here.

LIVESTOCK FORAGE DISASTER PROGRAM (LFP)

Producers in Nevada are eligible to apply for 2015 Livestock Forage Disaster Program (LFP) benefits on grazing losses.

LFP provides compensation to eligible livestock producers who suffer grazing losses for covered livestock due to drought on privately owned or cash leased land or fire on federally managed land.

County committees can only accept LFP applications after notification is received by the National Office of qualifying drought or if a federal agency prohibits producers from grazing normal permitted livestock on federally managed lands due to qualifying fire.

For 2015 and subsequent years, eligible livestock producers must complete a CCC-853 and the required supporting documentation no later than 30 calendar days after the end of the calendar year in which the grazing losses occurred. Losses must occur in the calendar year the application is being filed.

Additional Information about LFP, including eligible livestock and fire criteria, is available at your local FSA office or online at: www.fsa.usda.gov.

USDA Reminds Nevada Producers of March 16 Sales Closing Date for Noninsurable Crops

Farm Service Agency (FSA) urges producers who want to purchase coverage through the Noninsured Crop Disaster Assistance Program (NAP) to do so before the sales closing date of March 16, 2015.

NAP provides financial assistance to producers of noninsurable crops when low yields/grazing loss, loss of inventory or prevented planting occur due to natural disasters including drought, freeze, hail, excessive moisture, excessive wind or hurricanes.

In order to meet eligibility requirements for NAP, crops must be noninsurable, commercially-produced agricultural commodity crops for which the catastrophic risk protection level of crop insurance is not available.

The Agricultural Act of 2014 (the 2014 Farm Bill) allows producers to choose higher levels of NAP coverage. Previously, the program offered coverage at 55 percent of the average market price for crop losses that exceed 50 percent of expected production. Producers can now choose higher levels of coverage, up to 65 percent of their expected production at 100 percent of the average market price. It is important to note that the higher coverage is not available on grazing crops.

The following crops in Nevada have a NAP application closing date of March 16, 2015: Corn, Watermelon, Millet.

Eligible producers must file the application and pay a service fee by the March 16 deadline. Producers also pay a fixed premium for higher coverage. Beginning, limited resource and underserved producers may request a waiver of the service fee and a 50 percent premium reduction when the application for coverage is filed.

Loans for Targeted Underserved Producers

FSA has a number of loan programs available to assist applicants to begin or continue in agriculture production. Loans are available for operating type loans and/or purchase or improve farms or ranches.

While all qualified producers are eligible to apply for these loan programs, the FSA has provided priority funding for members of targeted underserved groups.

A targeted underserved applicant is one of a group whose members have been subjected to racial, ethnic or gender prejudice because of his or her identity as members of the group without regard to his or her individual qualities.

For purposes of this program, targeted underserved groups are women, African Americans, American Indians, Alaskan Natives, Hispanics, Asian Americans and Pacific Islanders.

FSA loans are only available to applicants who meet all the eligibility requirements and are unable to obtain the needed credit elsewhere.

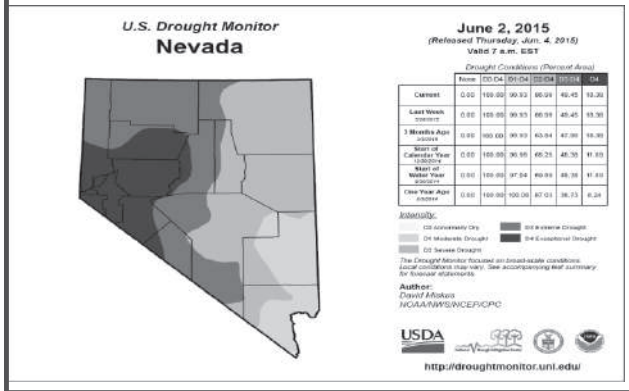
Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148

Situation Report #4
June 2015

Drought Declaration

- Currently all 17 counties are under a Drought Emergency Declaration as designated by U.S. Department of Agriculture.
- Carson D4 Exceptional Drought
- Churchill D4 Exceptional Drought
- Clark D2 Severe Drought
- Douglas D4 Exceptional Drought
- Elko D2 Extreme Drought
- Esmeralda D4 Exceptional Drought
- Eureka D3 Extreme Drought
- Humboldt D3 Extreme Drought
- Lander D4 Exceptional Drought
- Lincoln D2 Severe Drought
- Lyon D4 Exceptional Drought
- Mineral D4 Exceptional Drought
- Nye D3 Extreme Drought
- Pershing D4 Exceptional Drought
- Storey D4 Exceptional Drought
- Washoe D4 Exceptional Drought
- White Pine D2 Severe Drought

For more information on Nevada drought go to: http://drought.nv.gov



County Resource Requests

- No requests have been submitted to the SEOC at this time.

Wildfires

- The Western Great Basin Coordination Center reports no new wildfires in the past week that grew beyond initial attack.

USDA press releases
http://www.usda.gov/wps/portal/usda/usdahome?navid=LATEST_RELEASES
USDA disaster and drought assistance
http://www.usda.gov/wps/portal/usda/usdahome?navid=DISASTER_ASSISTANCE
FSA disaster assistance program (links to information, e-mail list
http://www.fsa.usda.gov/FSA/webapp?area=home&subject=diap&topi

Drought Impact on Agriculture

Drought prompts disaster declaration
http://www.agweb.com/article/drought-prompts-disaster-declaration-for-most-of-nevada-NAA-associated-press/
NDWR water level data http://water.nv.gov/data/waterlevel/
USGS water level, stream flow, etc. data
http://waterdata.usgs.gov/nv/nwis
Desert Research Institute Drought Dashboard
http://www.gbdash.dri.edu/

Drought Impact on Habitat

BLM Planning and Sage Grouse
http://www.blm.gov/pgdata/etc/medialib/blm/nv/field_offices/elko_field_office/information/communications_forum/02_29_12.Par.65994.File.dat/Planning%20and%20Sage%20Grouse.pdf
Successful Conservation Planning Keeps Sage Grouse Off of Endangered Species List
http://www.doi.gov/news/pressreleases/successful-conservation-partnership-keeps-bi-state-sage-grouse-off-endangered-species-list.cfm

Drought Impact on Municipal Water Systems

- None reported for the month

Other Information

Emergency Disaster Programs Administered by the Farm Service Agency

TYPE OF LOSS SUFFERED →	CROP LOSS	LIVESTOCK LOSS	DAMAGED FARM PROPERTY
	For production losses, both quantity and quality, for most agricultural crops including grains, oilseeds, forage, grazing, cotton, nursery, aquaculture, floriculture, honey, maple sap, seed crops, Christmas trees and more.	For death and feed losses for livestock, farm raised fish, honeybee colonies and hives.	For physical losses to crops, livestock, real estate, real estate improvements, machinery and equipment. Farmland damage including debris removal, repairing of fence and conservation structures, and providing water to livestock.
What FSA disaster programs are available?	1. **NAP - Noninsured Crop Disaster Assistance Program** to cover production losses for crops when federal crop insurance is not available. 2. **SURE - Supplemental Revenue Assistance Payments Program** for crop losses in counties declared a disaster by the Secretary of Agriculture. 3. **TAP - Tree Assistance Program** for tree losses.	4. **ELAP - Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program** for livestock death not covered by LIP, for grazing losses not covered by LFP; for farm-raised fish and honeybee death and feed losses. 5. **LFP - Livestock Forage Disaster Program** for grazing losses. 6. **LIP - Livestock Indemnity Program** for livestock deaths. 7. **CRP - Emergency Haying and Grazing of Conservation Reserve Program** acreage may be authorized to provide relief to livestock producers in areas affected by a severe drought or similar natural disaster.	8. **ECP - Emergency Conservation Program** to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservation measures.
	9. **EM - Emergency Loans** provides loans to restore or replace essential property damaged in the disaster, finance production losses to crops and livestock; fund essential family living and farm operating expenses, or refinance certain debts. 10. **DSA - Disaster Set-Aside** for producers who have direct loans with FSA and are unable to make the scheduled installment due, to move one full year's payment to the end of the loan.		
Must coverage be obtained before the disaster strikes?	You must purchase federal crop insurance or NAP coverage before the disaster strikes to be eligible for SURE, TAP, ELAP, and LFP. Exceptions to this requirement are made for limited resource, socially disadvantaged and beginning farmers or ranchers. You do not need to purchase federal crop insurance or NAP coverage prior to applying for ECP, EM, DSA, or emergency haying and grazing.		
How do I know if I am eligible for assistance?	**Locate your local FSA Service Center at: http://offices.USDA.gov** **Visit FSA's disaster web page at: http://disaster.fsa.usda.gov**		

For losses due to natural disasters such as drought, floods, hurricanes, blizzards, wild fires, disease.

USDA FSA FARM SERVICE AGENCY

USDA United States Department of Agriculture

Farm Service Agency
1400 Independence Ave, SW
Washington, DC 20250
www.fsa.usda.gov

News Release

Latawnya Dia
202-690-7962
Latawnya.Dia@wdc.usda.gov
Release 0012.15

USDA Designates 11 Counties and Carson City in Nevada as Primary Natural Disaster Areas With Assistance to Producers in Surrounding States

WASHINGTON, Feb. 4, 2015 - The U.S. Department of Agriculture (USDA) has designated 11 counties and Carson City in Nevada as primary natural disaster areas due to damages and losses caused by a recent drought. Those counties are:

Churchill	Humboldt	Nye
Clark	Lander	Pershing
Douglas	Lyon	Washoe
Esmeralda	Mineral	

"Our hearts go out to those Nevada farmers and ranchers affected by recent natural disasters," said Agriculture Secretary Tom Vilsack. "President Obama and I are committed to ensuring that agriculture remains a bright spot in our nation's economy by sustaining the successes of America's farmers, ranchers, and rural communities through these difficult times. We're also telling Nevada producers that USDA stands with you and your communities when severe weather and natural disasters threaten to disrupt your livelihood."

Farmers and ranchers in Elko, Eureka, Lincoln, Storey and White Pine counties in **Nevada** also qualify for natural disaster assistance because their counties are contiguous.

Farmers and ranchers in the following counties in **Arizona, California, Idaho** and **Oregon** also qualify for natural disaster assistance because their counties are contiguous. Those counties are:

Arizona
Mohave

California

Alpine	El Dorado	Inyo	Lassen
Modoc	Nevada	Mono	Placer
San Bernardino	Sierra		

Idaho
Owyhee

Oregon
Harney, Lake and Malheur

All counties listed above were designated natural disaster areas on Feb. 4, 2015, making all qualified farm operators in the designated areas eligible for low interest emergency (EM) loans from USDA's Farm Service Agency (FSA), provided eligibility requirements are met. Farmers in eligible counties have eight months from the date of the declaration to apply for loans to help cover part of their actual losses. FSA will consider each loan application on its own merits, taking into account the extent of losses, security available and repayment ability. FSA has a variety of programs, in addition to the EM loan program, to help eligible farmers recover from adversity.

Additional programs available to assist farmers and ranchers include the Emergency Conservation Program, The Livestock Forage Disaster Program, the Livestock Indemnity Program, the Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Program, and the Tree Assistance Program. Interested farmers may contact their local USDA Service Centers for further information on eligibility requirements and application procedures for these and other programs. Additional information is also available online at http://disaster.fsa.usda.gov.

FSA news releases are available on FSA's website at http://www.fsa.usda.gov via the "Newsroom" link.

State of Nevada

Executive Department

Executive Order 2015-03

ORDER ESTABLISHING THE NEVADA DROUGHT FORUM

WHEREAS, the State of Nevada is entering its fourth year of drought and a majority of Nevada counties have been designated by the Secretary of the United States Department of Agriculture as primary or contiguous natural disaster areas due to extreme or exceptional drought conditions; and

WHEREAS, throughout the last four years, many locations in Nevada have received approximately 65% or less of the normal annual precipitation, resulting in a cumulative precipitation deficit of over one year's worth of precipitation; and

WHEREAS, the United States Climate Prediction Center has forecast in its United States Seasonal Drought Outlook that drought conditions in Nevada will intensify over the coming months; and

WHEREAS, as Chairman of the Western Governors' Association (WGA), I created the Western Governors' Drought Forum in order to foster a regional dialogue where states and industry can identify and share case studies and best practices for drought policy, preparedness and management; and

WHEREAS, I will release the Western Governors' Drought Forum Final Report that will identify key findings and next steps at the WGA Round Table in late June, 2015; and

WHEREAS, the Nevada Department of Conservation and Natural Resources, Division of Water Resources; the Nevada Department of Public Safety, Division of Emergency Management; and the Office of the Nevada State Climatologist are active members of the State of Nevada Drought Response Committee and have been continuously monitoring drought conditions throughout the State; and

WHEREAS, since the summer of 2014, the State Engineer of the Nevada Division of Water Resources has conducted a public outreach program to provide water-related information to the public and to listen to public concerns, with drought the topic most actively discussed; and

WHEREAS, the State Engineer has the authority to make rules, regulations and orders in groundwater basins where he determines additional management is necessary for the essential welfare of the area involved; and

WHEREAS, the Chief of the Division of Emergency Management has the authority to coordinate activities of all emergency management organizations in the State and to support State and local agencies in developing comprehensive plans to address drought; and

WHEREAS, I have activated the State Emergency Operations Center to maintain situational awareness on the impacts of drought across the State; and

WHEREAS, the State has collaborated with the Desert Research Institute and the Nevada Climate Office to maintain a website that provides information about current drought conditions, and specific drought recovery resources; and

WHEREAS, all Nevadans can play a role in addressing this critical issue through conservation; and

WHEREAS, Article V, Section 1 of the Nevada Constitution provides: "The supreme executive power of this State, shall be vested in a Chief Magistrate who shall be Governor of the State of Nevada."

NOW, THEREFORE, by the authority vested in me as Governor by the Constitution and the laws of the State of Nevada, it is hereby ordered as follows:

1. The Nevada Drought Forum is hereby established to:
   a. Build on the activities of the existing Nevada Drought Response Committee;
   b. Evaluate key findings and next steps identified in the Western Governors' Drought Forum Final Report as they relate to Nevada;
   c. Meet with relevant stakeholders including, but not limited to, agricultural producers, municipal water suppliers, the industrial sector, recreation interests, Tribal Nations, and members of the general public; and
   d. Determine, with input from stakeholders and the public, the elements of a final report to the Governor.

2. The Nevada Drought Forum shall be comprised of the following appointees:
   a. The Director of the Nevada Department of Conservation and Natural Resources;
   b. The Director of the Nevada Department of Agriculture;
   c. The State Engineer of the Nevada Division of Water Resources;
   d. The Chief of the Nevada Division of Emergency Management;
   e. The Nevada State Climatologist;
   f. The Dean of the University of Nevada Cooperative Extension;
   g. A representative of the Desert Research Institute;
   h. A representative of the Southern Nevada Water Authority; and
   i. Any other members whom the Governor deems necessary.

3. The Nevada Department of Administration, Division of Buildings and Grounds shall conduct a water audit of all State facilities and common areas to identify leaks or excessive water usage, and to evaluate all possible conservation efforts including replacement of old fixtures that consume excessive water.

4. All State agencies shall endeavor to implement practicable water conservation strategies in and around State facilities.

5. All local governments and private citizens are urged to conserve water and to conduct water audits in consultation with local water authorities.

6. All State agencies with responsibilities associated to drought and drought conditions shall provide a summary of current actions and related authorities to the Nevada Drought Forum by May 15, 2015.

7. Municipal water providers and agencies of the federal government are requested to provide a summary of current and planned actions related to the drought and drought conditions to the Nevada Drought Forum by May 15, 2015.

8. The Nevada Drought Forum shall prepare a Nevada Summary of Current Actions of local, State and federal entities by June 15, 2015.

9. The Nevada Drought Forum shall receive the WGA Drought Forum Final Report when it is released.

10. The Nevada Drought Forum shall, by July 1, 2015, provide interested stakeholders the work of the WGA Drought Forum, the Nevada Summary of Current Actions, an outline of possible topics and objectives for stakeholder discussions, and issue an additional call for specific information.

11. By the end of August 2015, interested stakeholders may provide to the Nevada Drought Forum a summary of current actions and challenges relevant to the final WGA drought recommendations, together with any other specific information sought by the Nevada Drought Forum.

12. The Nevada Drought Forum shall convene a multi-day stakeholder Drought Summit in September 2015.
13. The Nevada Drought Forum shall prepare and deliver a written report to the Governor on or before November 1, 2015.
14. The Nevada Drought Forum shall prepare a bi-weekly statewide drought summary with current drought impacts and key information for the public until such time that the summary is no longer warranted.
15. Any State agency or entity, including the Nevada Center of Excellence for Innovations and Solutions in Water Resources, through the Governor's Office of Economic Development, may be called upon by the Nevada Drought Forum to provide assistance.
16. The Nevada Department of Public Safety, Division of Emergency Management, shall provide administrative support for the Nevada Drought Forum.
17. Activities of the Nevada Drought Forum shall be subject to the requirements of the Nevada Open Meeting Law pursuant to NRS Chapter 241.
18. All records documenting activities of the Nevada Drought Forum shall be retained and transferred to the Nevada State Library, Archives and Public Records for retention in accordance with State policy.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Great Seal of the State of Nevada to be affixed at the State Capitol in Carson City, this 8th day of April, in the year two thousand fifteen.

Governor of the State of Nevada

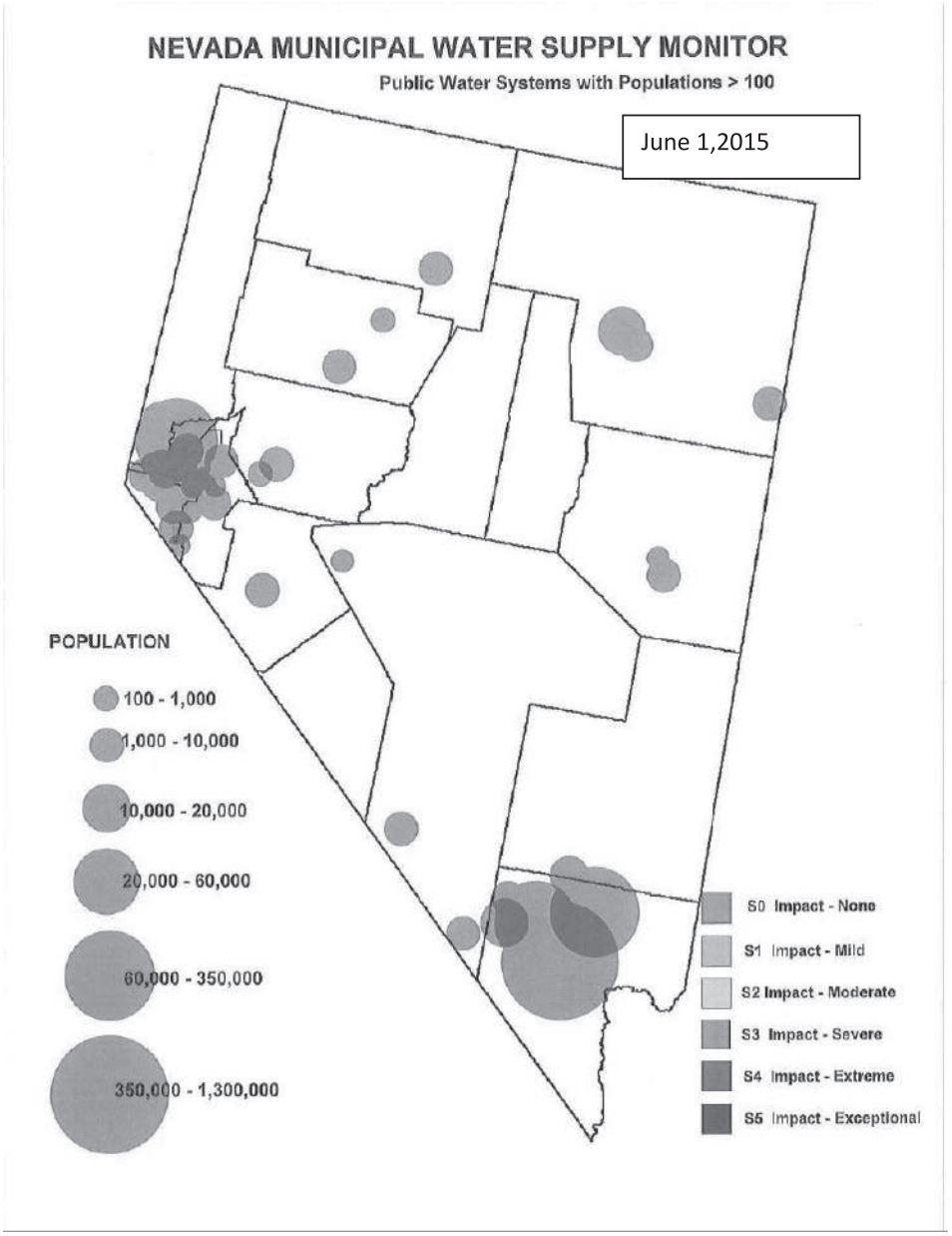
By the Governor:

Barbara K. Cegavske
Secretary of State

Deputy Secretary of State

3

Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148



Nevada State Emergency Operations Center
Statewide Drought Emergency
Mission # 01162014-148

March 2015

Emergency Loan Program

Overview

USDA's Farm Service Agency (FSA) provides emergency loans to help producers recover from production and physical losses due to drought, flooding, other natural disasters or quarantine.

Loan Uses

Emergency loan funds may be used to:

- Restore or replace essential property;
- Pay all or part of production costs associated with the disaster year;
- Pay essential family living expenses;
- Reorganize the farming operation and;
- Refinance certain debts.

Eligibility

Emergency loans may be made to farmers and ranchers who:

- Own or operate land located in a county declared by the President or designated by the Secretary of Agriculture as a primary disaster area or quarantine area. All counties contiguous to the declared, designated, or quarantined primary counties also are eligible for emergency loans. A disaster designation by the FSA administrator authorizes emergency loan assistance for physical losses only in the designated and contiguous counties;
- Are established family farm operators and have sufficient farming or ranching experience;
- Are citizens or permanent residents of the United States;
- Have suffered at least a 30 percent loss in crop production or a physical loss to livestock, livestock products, real estate or chattel property;
- Have an acceptable credit history;
- Are unable to receive credit from commercial sources;
- Can provide collateral to secure the loan and;
- Have repayment ability.

Loan Requirements

FSA loan requirements are different from those of other lenders. Some of the more significant differences are the following:

- Borrowers must keep acceptable farm records;
- Borrowers must operate in accordance with a farm plan they develop and agree to with local FSA staff and;
- Borrowers may be required to participate in a financial management training program and obtain crop insurance.

Collateral is Required
All emergency loans must be fully collateralized. The specific type of collateral may vary depending on the loan purpose, repayment ability and the individual circumstances of the applicant. If applicants cannot provide adequate collateral, their repayment ability may be considered as collateral to secure the loan. A first lien is required on property or products acquired, produced or refinanced with loan funds.

Loan Limit
Producers can borrow up to 100 percent of actual production or physical losses to a maximum amount of $500,000.

Loan Terms
Loans for crop, livestock and non-real estate losses are normally repaid within one to seven years, depending on the loan purpose, repayment ability and collateral available as loan security. In special circumstances, terms of up to 20 years may be authorized. Loans for physical losses to real estate are normally repaid within 30 years. In certain circumstances, repayment may be made over a maximum of 40 years.

Current Interest Rate
To find the current emergency loan interest rate, visit www.fsa.usda.gov/FSA/webapp?area=home&subject=fmlp&topic=fir.

Application Deadline
Applications for emergency loans must be received within eight months of the county's disaster or quarantine designation date.

For More Information
For more information on FSA disaster assistance, visit http://disaster.fsa.usda.gov/. For more information on FSA farm loans, visit www.fsa.usda.gov/farmloans. Further information about this and other FSA programs is available from local FSA offices or on the FSA website at www.fsa.usda.gov. To find your local FSA office, visit http://offices.usda.gov.

Nevada State Farm Service Agency

1365 Corporate Blvd.
Reno, Nevada 89502
775.857.8500

www.fsa.usda.gov/nv

State Committee:
Karen Wesner, Chair
Jim Christison
Vince Garcia
Marcia Litsinger
David Perazzo

State Executive Director:
Clint Koble
775.857.8500 x 128

Farm Program/Loan Chief:
Janice Kolvet
775.857.8500 x 120

District Director:
Gus Wegren
775.857.8500 x 143

Farm Loan Manager:
Micki Wines
775.738.6445 x 105

Please contact your local FSA Office for questions specific to your operation or county.

Elko FSA Office:
775.738.6445

Ely FSA Office:
775.289.4990

Fallon FSA Office:
775.423.5124

Lovelock FSA Office:
775.273.2922

Winnemucca FSA Office:
775.623.5025

Yerington FSA Office:
775.463.2855

Emergency Assistance for Livestock, Honeybee, and Farm-Raised Fish Program (ELAP)

The Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP) provides emergency assistance to eligible livestock, honeybee, and farm-raised fish producers who have losses due to disease, adverse weather or other conditions, such as blizzards and wildfires, not covered by other agricultural disaster assistance programs.

Eligible livestock losses include grazing losses not covered under the Livestock Forage Disaster Program (LFP), loss of purchased feed and/or mechanically harvested feed due to an eligible adverse weather event, additional cost of transporting water because of an eligible drought and additional cost associated with gathering livestock to treat for cattle tick fever.

Eligible honeybee losses include loss of purchased feed due to an eligible adverse weather event, cost of additional feed purchased above normal quantities due to an eligible adverse weather condition, colony losses in excess of normal mortality due to an eligible weather event or loss condition, including CCD, and hive losses due to eligible adverse weather.

Eligible farm-raised fish losses include death losses in excess of normal mortality and/or loss of purchased feed due to an eligible adverse weather event.

Producers who suffer eligible livestock, honeybee, or farm-raised fish losses from October 1, 2014 to September 30, 2015 must file:

- A notice of loss the earlier of 30 calendar days of when the loss is apparent or by November 1, 2015
- An application for payment by November 1, 2015

The Farm Bill caps ELAP disaster funding at $20 million per federal fiscal year.

The following ELAP Fact Sheets (by topic) are available online:

- ELAP for Farm-Raised Fish Fact Sheet
- ELAP for Livestock Fact Sheet
- ELAP for Honeybees Fact Sheet

To view these and other FSA program fact sheets, visit the FSA fact sheet web page at www.fsa.usda.gov/factsheets.

LIVESTOCK INDEMNITY PROGRAM (LIP)

The Livestock Indemnity Program (LIP) provides assistance to eligible producers for livestock death losses in excess of normal mortality due to adverse weather and attacks by animals

reintroduced into the wild by the federal government or protected by federal law. LIP compensates livestock owners and contract growers for livestock death losses in excess of normal mortality due to adverse weather, including losses due to hurricanes, floods, blizzards, wildfires, extreme heat or extreme cold.

For 2015, eligible losses must occur on or after Jan. 1, 2015, and before December 31, 2015. A notice of loss must be filed with FSA within 30 days of when the loss of livestock is apparent. Participants must provide the following supporting documentation to their local FSA office no later than 30 calendar days after the end of the calendar year for which benefits are requested:

- Proof of death documentation
- Copy of growers contracts
- Proof of normal mortality documentation

USDA has established normal mortality rates for each type and weight range of eligible livestock, i.e. Adult Beef Cow = 1.5% and Non-Adult Beef Cattle (less than 400 pounds) = 3%. These established percentages reflect losses that are considered expected or typical under "normal" conditions. Producers who suffer livestock losses in 2015 must file both of the following:

- A notice of loss the earlier of 30 calendar days of when the loss was apparent or by January 30, 2016
- An application for payment by January 30, 2016.

Additional Information about LIP is available at your local FSA office or online at: www.fsa.usda.gov.

USDA Provides One-Time Extension of Deadline to Update Base Acres or Yield History for ARC/PLC Programs

Farmers Now Have Until March 31 to Update Yields and Reallocate Base Acres; Deadline for Choosing Between ARC and PLC also Remains March 31

Agriculture Secretary Tom Vilsack announced today that a one-time extension will be provided to producers for the new safety-net programs established by the 2014 Farm Bill, known as Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC). The final day to update yield history or reallocate base acres has been extended one additional month, from Feb. 27, 2015 until March 31, 2015. The final day for farm owners and producers to choose ARC or PLC coverage also remains March 31, 2015.

If no changes are made to yield history or base acres by March 31, 2015, the farm's current yield and base will be used. A program choice of ARC or PLC coverage also must be made by March 31, 2015, or there will be no 2014 payments for the farm and the farm will default to PLC coverage through the 2018 crop year.

Nationwide, more than 2.9 million educational postcards, in English and Spanish, have been sent to producers, and over 4,100 training sessions have been conducted on the new safety-net programs. The online tools, available at www.fsa.usda.gov/arc-plc, allow producers to explore projections on

how ARC or PLC coverage will affect their operation under possible future scenarios.

Covered commodities include barley, canola, large and small chickpeas, corn, crambe, flaxseed, grain sorghum, lentils, mustard seed, oats, peanuts, dry peas, rapeseed, long grain rice, medium grain rice (which includes short grain rice), safflower seed, sesame, soybeans, sunflower seed and wheat. Upland cotton is no longer a covered commodity.

To learn more, farmers can contact their local Farm Service Agency county office. To find your local office visit http://offices.usda.gov.

USDA Announces New Support for Beginning Farmers and Ranchers

Department Implementing New Farm Bill Programs, Unveiling New Centralized Online Resource to Support Next Generation of Farmers

USDA has announced the implementation of new Farm Bill measures and other policy changes to improve the financial security of new and beginning farmers and ranchers. USDA also unveiled www.USDA.gov/newfarmers, a new website that will provide a centralized, one-stop resource where beginning farmers and ranchers can explore the variety of USDA initiatives designed to help them succeed.

USDA's www.usda.gov/newfarmers has in depth information for new farmers and ranchers, including: how to increase access to land and capital; build new market opportunities; participate in conservation opportunities; select and use the right risk management tools; and access USDA education, and technical support programs. These issues have been identified as top priorities by new farmers. The website will also feature instructive case studies about beginning farmers who have successfully utilized USDA resources to start or expand their business operations.

Today's policy announcements in support of beginning farmers and ranchers include:

. Waiving service fees for new and beginning farmers or ranchers to enroll in the Non-Insured Crop Disaster Assistance Program (NAP) for the 2014 crop year. NAP provides risk management tools to farmers who grow crops for which there is no crop insurance product. Under this waiver, announced via an official notice to Farm Service Agency offices, farmers and ranchers whom already enrolled in NAP for the 2014 crop year and certified to being a beginning farmer or social disadvantaged farmer are eligible for a service fee refund.

. Eliminating payment reductions under the Conservation Reserve Program (CRP) for new and beginning farmers which will allow routine, prescribed, and emergency grazing outside the primary nesting season on enrolled land consistent with approved conservation plans. Previously, farmers and ranchers grazing on CRP land were subject to a reduction in CRP payments of up to 25 percent. Waiving these reductions for new and beginning farmers will provide extra financial support during times of emergency like drought and other natural disasters.

. Increasing payment rates to beginning farmers and ranchers under Emergency Assistance for Livestock, Honeybees and Farm-Raised Fish Program (ELAP). Under this provision, beginning farmers can claim up 90 percent of losses for lost livestock, such as bees, under ELAP. This is a fifty percent increase over previously available payment amounts to new and beginning farmers.

In the near future, USDA will also announce additional crop insurance program changes for beginning farmers and ranchers – including discounted premiums, waiver of administrative fees, and other benefits.

Additional information about USDA actions in support of beginning farmers and ranchers is

available here.

LIVESTOCK FORAGE DISASTER PROGRAM (LFP)

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NAP provides financial assistance to producers of noninsurable crops when low yields/grazing loss, loss of inventory or prevented planting occur due to natural disasters including drought, freeze, hail, excessive moisture, excessive wind or hurricanes.

In order to meet eligibility requirements for NAP, crops must be noninsurable, commercially-produced agricultural commodity crops for which the catastrophic risk protection level of crop insurance is not available.

The Agricultural Act of 2014 (the 2014 Farm Bill) allows producers to choose higher levels of NAP coverage. Previously, the program offered coverage at 55 percent of the average market price for crop losses that exceed 50 percent of expected production. Producers can now choose higher levels of coverage, up to 65 percent of their expected production at 100 percent of the average market price. It is important to note that the higher coverage is not available on grazing crops.

The following crops in Nevada have a NAP application closing date of March 16, 2015: Corn, Watermelon, Millet.

Eligible producers must file the application and pay a service fee by the March 16 deadline. Producers also pay a fixed premium for higher coverage. Beginning, limited resource and underserved producers may request a waiver of the service fee and a 50 percent premium reduction when the application for coverage is filed.

Loans for Targeted Underserved Producers

FSA has a number of loan programs available to assist applicants to begin or continue in agriculture production. Loans are available for operating type loans and/or purchase or improve farms or ranches.

While all qualified producers are eligible to apply for these loan programs, the FSA has provided priority funding for members of targeted underserved groups.

A targeted underserved applicant is one of a group whose members have been subjected to racial, ethnic or gender prejudice because of his or her identity as members of the group without regard to his or her individual qualities.

For purposes of this program, targeted underserved groups are women, African Americans, American Indians, Alaskan Natives, Hispanics, Asian Americans and Pacific Islanders.

FSA loans are only available to applicants who meet all the eligibility requirements and are unable to obtain the needed credit elsewhere.

Appendix D

SUMMIT PROGRAM

GOVERNOR'S DROUGHT SUMMIT

September 21-23, 2015
Carson City, NV

Governor's Drought Summit 2015

Lake Tahoe

The Governor's Drought Summit is made possible thanks to the generous support of our sponsors:

BARRICK

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Nevada Department of Conservation & Natural Resources

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DEPARTMENT OF PUBLIC SAFETY NDEM NEVADA DIVISION OF EMERGENCY MANAGEMENT

Nevada Water Resources Association

NVEnergy

WELCOME TO THE
GOVERNOR'S DROUGHT SUMMIT

Presenting

a wide range of drought perspectives across
multiple sectors of the economy

Discussing

our state's water history and law,
the water challenges we face and our
successful conservation measures

Identifying

the needs and next steps in Nevada's water future

MONDAY, SEPTEMBER 21

8:30 – 9:30 REGISTRATION

9:30 – 9:45 WELCOME

Governor Brian Sandoval

Leo Drozdoff, P.E. – Director, Nevada Department of Conservation and Natural Resources

Lewis Michaelson – President, Katz and Associates (Facilitator)

9:45 – 11:30 DEFINING AND PREDICTING DROUGHT

Dr. Roger S. Pulwarty – Director, National Oceanic and Atmospheric Administration (NOAA) U.S. National Integrated Drought Information System

Dr. Doug Boyle, Nevada State Climatologist

Dr. Justin Huntington, Associate Research Professor, Desert Research Institute

11:30 – 1:00 Lunch (On Own)

Governor Brian Sandoval cordially invites all Drought Summit participants to a special reception at the Governor's Mansion, located at 606 N. Mountain St. in Carson City, this evening from 5:30-7:00 pm.

Lake Mead

MONDAY, SEPTEMBER 21

1:00 – 2:15 WATER HISTORY, LAW AND PAST/CURRENT USERS

Jason King, P.E. – Nevada State Engineer, Division of Water Resources

Chad Blanchard – U.S. Federal Water Master

Ed James, P.E. – General Manager, Carson Water Subconservancy District

Colby Pellegrino – Colorado River Programs Manager, Southern Nevada Water Authority

2:15 – 2:45 Break

2:45 – 3:30 NEVADA CHALLENGES – THE COST OF DROUGHT

Leo Drozdoff, P.E. – Director, Nevada Department of Conservation and Natural Resources

Steve Hill – Director, Governor's Office of Economic Development

Claudia Vecchio – Director, Department of Tourism and Cultural Affairs

Tony Wasley – Director, Department of Wildlife

3:30 – 5:00 SHOWCASES: CONSERVATION SUCCESS STORIES IN NEVADA

Duane Coombs – Ranch Manager, Smith Family Ranch

Chris Brophy – Vice President Corporate Sustainability, MGM Resorts International

Marilyn Teague – Director of Environmental, Permitting and Safety Group, Sempra U.S. Gas and Power

Josh Vittori – President, Nevada Bighorns

Stephen Ascuaga – Corporate Director of Business Development, Peppermill Inc.

5:30 – 7:00 HOSTED DROUGHT SUMMIT RECEPTION – GOVERNOR'S MANSION

TUESDAY, SEPTEMBER 22

8:15 – 8:30 WELCOME, DAY 2 OVERVIEW

Lewis Michaelson – President, Katz and Associates (Facilitator)

8:30 – 10:00 DROUGHT IN NEVADA – MUNICIPAL AND PUBLIC PROVIDERS

John Entsminger – General Manager, Southern Nevada Water Authority

Mark Foree – General Manager, Truckee Meadows Water Authority

Wendy Barnett – President, Utilities, Inc.

Bruce Scott – Chairman, Board for Financing Water Projects

10:00 – 10:30 Break

10:30 – Noon DROUGHT IN NEVADA – RESORTS AND RECREATION

Virginia Valentine – President, Nevada Resort Association

Andrew Strain – Vice President of Planning and Government Affairs, Vail Resorts, Heavenly Mountain Resort

Jeremy Drew – Resource Specialist, Resource Concepts, Inc.

Jeremy Adkins – Director of Course Maintenance, Angel Park Golf Club

Noon – 1:30 Lunch (On Own)

Truckee River

Valley of Fire

1:30 – 3:00 DROUGHT IN NEVADA – INDUSTRY AND DEVELOPMENT

Dr. Dana Bennett – President, Nevada Mining Association

Larry Simon- Senior Architecture and Landscape Manager, Pardee Homes

Eric Brady – President, Brady Linen Services

Kurtis Hyde – Vice President of Landscape Maintenance, Par 3 Landscape & Maintenance

3:00 – 3:30 Break

3:30 – 5:00 DROUGHT IN NEVADA – AGRICULTURE

Lynn Hettrick – Deputy Director, Nevada Department of Agriculture

Davey Stix – President Elect, Nevada Cattlemen's Association

David Peri – President and Chief Executive Officer, Peri & Sons Farms

Sam Routson – Chief Administrative Officer, Winnemucca Farms

James Moyl – Diamond Valley Alfalfa

WEDNESDAY, SEPTEMBER 23

8:00 – 8:15 WELCOME, DAY 3 OVERVIEW

Lewis Michaelson – President, Katz and Associates (Facilitator)

8:15 – 9:00 DROUGHT IN NEVADA – TRIBAL PERSPECTIVE

Vinton Hawley – Chairman, Pyramid Lake Paiute Tribe

Wes Williams, Jr., Esq. – Walker Lake Paiute Tribe

Gerry Emm – Deputy Superintendent, Bureau of Indian Affairs, Western Nevada Agency

9:00 – 10:30 DROUGHT IN NEVADA – CONSERVATION AND THE ENVIRONMENT

Teddy Ryerson – Nevada State Director, The Nature Conservancy

Kyle Davis – Policy Director, Protect NV

Susan Lynn – Coordinator, Great Basin Water Network

Kacey KC – Program Manager, Nevada Sagebrush Ecosystem Council

Jake Tibbitts – President, Nevada Association of Conservation Districts

Mark Biddlecomb – Director of Operations, Western Region, Ducks Unlimited

10:30 – 11:00 Break

11:00 – Noon CASE STUDY: A REGIONAL WATER PARTNERSHIP AND SOLUTIONS

Greg Walch – General Counsel, Southern Nevada Water Authority

Bill Hasencamp – Manager of Colorado River Resources, Metropolitan Water District of Southern California

Chuck Cullom – Colorado River Program Manager, Central Arizona Project

Las Vegas Wash

WEDNESDAY, SEPTEMBER 23

Noon – 1:30 Lunch (On Own)

1:30 – 2:45 DROUGHT IN NEVADA – THE FEDERAL AGENCY PERSPECTIVE

Amy Lueders – State Director, Bureau of Land Management
Bill Dunkelberger – Forest Supervisor, Humboldt-Toiyabe National Forest
Dan Bunk – River Operations Manager, Bureau of Reclamation, Lower Colorado River Region
Ray Dotson – State Conservationist, Natural Resources Conservation Service
Clint Koble – State Executive Director, USDA Farm Service Agency

2:45 – 3:30 WATER CONSERVATION – COMMUNICATING THE MESSAGE

Randy Snow – Chief Strategic Officer and Partner, R&R Partners
Andy Gebhardt – Conservation Manager, Truckee Meadows Water Authority
Mike Alger – Meteorologist, KTVN-TV Reno

3:30 – 4:15 FACILITATOR PRESENTATION – RECAP AND RECOMMENDATIONS

Lewis Michaelson – President, Katz and Associates (Facilitator)

4:15 – 4:30 SUMMIT CLOSING AND NEXT STEPS

Mummy Mountain

Governor's Drought Summit 2015

Name: Abby Johnson
(Optional)

Organization: Great Basin Water Network
(Optional)

Comments/Questions:
In considering solutions, ideas, and approaches we hope that the interests of Eastern Nevada, including the target area of the Las Vegas Water Grab, are taken into consideration. There was little focus on that part of the state but it is essential that all parts of the state be able to not just survive but thrive on their own terms, with local control.

Governor's Drought Summit 2015

Name:
(Optional)
Comment

Organization:
(Optional)

Comments/Questions: In order to eliminate the threat of SNWA grabbing water from NE Nevada we need a state law that denies the transfer of water from one watershed to another. (groundwater)

Governor's DroughtSummit 2015

Name: Don Jardine
(Optional)

Organization: Alpine County
(Optional)

Comments/Questions: Is there any effect (positive or negative) do to Cloud Seeding Operations upon the West and/or East side of Sierra Nevada

Governor's DroughtSummit 2015

Name: C. Mahannah
(Optional)

Organization:
(Optional)

Comments/Questions: Question for SAM/Winn Farms: If the State Engineer were to curtail all junior GW rights in favor of senior SW rights, how are you prepared to deal with this? Is mitigating GW 'capture' of SW part of the plan either w/ wet water or compensation?

Governor's DroughtSummit 2015

Name: _____ (Optional)

Organization: _____ (Optional)

To Sam

Comments/Questions: _____

Since Winemuccan Farms uses 100% groundwater, how does drought impact its water supply? + therefore production?

Governor's DroughtSummit 2015

Name: _____ (Optional)

Organization: _____ (Optional)

Comments/Questions: It is probably impossible but if it is, I would love to explain why abandoning "use it or lose it water" forcing the other dimension of the system would be a disaster for many!

Mike Young

Governor's DroughtSummit 2015

Name: Pat Kynett
(Optional)

Organization:
(Optional)

For all participants.

Comments/Questions: Of all the presenting industries, clearly Agriculture is suffering the most. Is it getting the attention it needs from the State to help now and in the future? How can the public help?

Governor's DroughtSummit 2015

Name: Jason King
(Optional)

Organization: DWR
(Optional)

Comments/Questions:
* How do the farmers feel about metering all uses?
* What can be done @ the state or local govt level to support a transition to high value/lower water consumptive crops?
* How do farmers feel about mitigating conflicts with adjacent water users rights? E.g. drilling of new wells, deepening of wells, water trucks etc?

Governor's Drought Summit 2015

Name: Mike Buschelman

(Optional) mike@mbuschelman.com

Organization:

(Optional)

Comments/Questions: As a senior priority water right owner, would you lease your water to public utilities during drought periods &/or until ground water resources / surface water resources recover?

If not - why not?

★ Please see question on back

Would you be willing to "give up" a portion of your water right duty (25%±) in exchange for more flexibility - such as expanding your irrigated acreage with the remaining 75%± ?

If not - Why not ?

Governor's DroughtSummit 2015

Name:_____
(Optional)

Organization:_____
(Optional)

Comments/Questions:_____

What is the GPCD of the Ag ~~in~~ industry?

What is the economic impact of the ag industry on the state of Nevada?

Governor's DroughtSummit 2015

Name: DAVID BARRETT
(Optional)

Organization:_____
(Optional)

Comments/Questions:_____

HOW CAN NEVADA ENCOURAGE ALTERNATE AGRICULTURAL METHODS SUCH AS GREENHOUSE CULTIVATION?

SUCH TECHNIQUES CAN ENCOURAGE HIGHER YIELDS ~~AND~~ LESS WATER USAGE.

Governor's DroughtSummit 2015

Name: _____ (Optional)

Organization: _____ (Optional)

To Stix

Comments/Questions: When do you need to know ~~NF~~ about drought restrictions to buy or sell cattle? February?

What would you like the BLM to do w/ respect to declaring drought?

Is it pratical to truck water?

AG Question

Governor's DroughtSummit 2015

Name: _____ (Optional)

Organization: _____ (Optional)

QUESTION FOR "Drought in Nevada – Agriculture"

Comments/Questions: (1) MOST ALL THE SPEAKERS ARE DISCUSSING CHANGES TO THE "PRIOR TIME PRIOR RIGHT DOCTRINE." IT IS INTERESTING TO NOTE THAT ALL OF THEM ARE JUNIOR WATER RIGHT HOLDERS. WOULD THEIR OPINION CHANGE IF THEY WERE THE SENIOR WATER HOLDER AND THE JUNIOR WATER RIGHT HOLDERS WERE TRYING TO CHANGE THEIR STATUS LEGISLATIVELY?

(2) Do you believe that a senior water right holder should not be regulated to the benefit of a junior water right?

Governor's Drought Summit 2015

Name: _____
(Optional)

Organization: _____
(Optional)

Comments/Questions: _____

What can agriculture do to reduce its use of the state's water?

This will be good for last speaker

Governor's Drought Summit 2015

Name: Mark Walker
(Optional)

Organization: Dean/Director - University of Nevada Coop. Extension
(Optional)

Comments/Questions: ① Are there opportunities for the landscaping industry to adopt & promote a "water efficient landscaper" credential, ~~[illegible]~~ that could make a company more competitive, particularly during times of water shortage?
② Is there good support & guidance for low-water use landscaping practices that works in the two major urban populations in Nevada?
③ Is anyone in Nevada conducting research about irrigation practices and plant materials that might improve landscaping water efficiency?

Governor's Drought Summit – 2015

Name: Ray Bacon

Organization : NV Manufacturers Assn

Comments/ Questions: How much does artificial snow slow the flow water into the storage areas?

Governor's DroughtSummit 2015

Name: _____ **(Optional)**

Organization: _____ **(Optional)**

Comments/Questions: How many open homes and/or homes for sale in Las Vegas. How many homes have the Banks taken back.

Governor's DroughtSummit 2015

Name: Wendy Barrett (Optional)

Organization: UI (Optional)

Comments/Questions: Arizona Snowbowl uses reclaim for snowmaking.

Governor's DroughtSummit 2015

Name: Pat Lynch (Optional)

Organization: (Optional)

Comments/Questions: Re Arizona Trails - can 'cloud seeding' help to make clouds dump snow - OR is Trails Pipeline only helpful for cooling rain - OR is that just unsuccessful?

Governor's DroughtSummit 2015

Name: _____ (Optional)

Organization: _____ (Optional)

Comments/Questions: Montreux Golf Course
~~Montreux~~ in Reno has refused to use effluent water for its course. Management claimed this would not be good for the course's "Special" grass.

How ~~to~~ could that attitude be changed?

Is that a valid consideration

Governor's DroughtSummit 2015

Name: (Louise Uttinger)

Organization: (staff; PUCN)

(Optional)

MARK Foree (Like Water conservation measures)

Comments/Questions: Much of what TMWA does is educational - Can we solve two problems by:

1.) Requiring (for schools) the Nevada History curriculum to include drought information and Water conservation measures AND

2.) Establishing met/meterological stations at rural schools (science dept?), thereby both educating the local community and adding to Nevada's 20 some met stations, providing critical local data?

Governor's DroughtSummit 2015

Name: Mike Buschelman

(Optional) mike@mbuschelman.com

Organization:

(Optional)

Comments/Questions: Does your utility drought plan include leasing senior priority irrigation rights in an effort to secure water for customers in the event the utility junior priority rights are not served?

If not - why not?

Governor's DroughtSummit 2015

Name: Mike Young

(Optional)

Organization:

(Optional)

We were told yesterday that a return to a wetter period may not occur.

Comments/Questions:

What plans are in place to deal with the ~~possibility~~ possibility that the next 5 years could be significantly worse than the 1930s drought. Could supply for essential household and industrial purposes still be guaranteed? Yes / No?

- Las Vegas
- Truckee
- Reno
-

Governor's DroughtSummit 2015

Name: Mike Buschelman

(Optional) Mike@mbuschelman.com

Organization:

(Optional)

Comments/Questions: What benefit can each sector (Farming, Recreation, Industry, Gaming) see through efficiencies or conservation?

How will NRCS need to be changed to allow each sector receive the benefit of conserving water?

Governor's DroughtSummit 2015

Name: Pat Lynch

(Optional)

Organization:

(Optional)

Comments/Questions: What is being done to directly "enroll" educate and engage the public in making changes & advocating politically for needed changes

Governor's DroughtSummit 2015

Name: Jerry Katzer
(Optional)

Organization: Retired / USGS / LVVWD
(Optional)

Comments/Questions: Nevada is well known for mining minerals that will never be replaced. I suggest forming numerous ground-water pumping Districts and pump from select basins for distribution to areas of need. Examples of mining ground-water for the obvious economic reasons are in Las Vegas Valley and Diamond Valley. If we are in a drought that may last decades or longer I'm sure we can overcome all the problems.

Comment

Governor's DroughtSummit 2015

Name: DAVID BERGER - DIRECTOR (ACTING)
(Optional)

Organization: NEVADA WATER SCIENCE CENTER USGS
(Optional)

Comments/~~Questions~~: OBSERVATION

DR. BOYLE RECOGNIZED, IN HIS PRESENTATION, (ISSUE #1), THE LACK OF HYDROLOGIC OBSERVATIONS THROUGH OUT NEVADA. THE NEVADA WATER SCIENCE CENTER (USGS) LOCATED IN CARSON CITY PROVIDES STATEWIDE HYDROLOGIC DATA, FROM LONGTERM GROUND-WATER LEVELS AND STREAMFLOW DATA TO HIGH ALTITUDE PRECIPITATION DATA. THE NWSC ALSO COLLECTS SOIL MOISTURE AT SELECTED SITES. FUNDING TENDS TO BE THE LIMITING FACTOR IN PROVIDING ADDITIONAL HYDROLOGIC OBSERVATIONS. FOR TO CONTINUE THIS CONVERSATION BE CONTACT DAVID BERGER @ dberger@usgs.gov 775 887-7658

Comment

Governor's DroughtSummit 2015

Name: RAY BACON
(Optional)

Organization: NV Mfgrs Assn
(Optional)

Comments/Questions: Doug Boyle talked about the need to keep funding the limited government monitoring stations. Why can't we establish some monitor stations that can and are operated by farmers and other water users to gathers basic data from more station and reported electronically to provide better, broader for a fraction of the cost? Having the effected people gather the data increases problem ownership.

Governor's DroughtSummit 2015

Name:
(Optional)

Organization: Markleeville Water Co.
(Optional)

Comments/Questions: To satisfy Nevada's future needs is there any activity to change acre foot usage by water right users upstream from Nevada under the Alpine Decree

Governor's DroughtSummit 2015

Name: Pat Heyser
(Optional)

Organization: Dedicated To You.
(Optional)

Comments/Questions: Should using the supplies help keep ~~bears~~ bears up + away from communities

Governor's DroughtSummit 2015

Name: Mike Young
(Optional)

Organization:
(Optional)

Comments/Questions: Question for Steve Hill

What is the relationship between water rights and State Domestic Policy?

If the State moved to a ~~less~~ smarter unbundled water right system, what would be the economy?

Governor's DroughtSummit 2015

Name:
(Optional)

Organization:
(Optional)

Comments/Questions: For Gov King

Do you foresee shutting down any domestic wells?

If so, where

Governor's DroughtSummit 2015

Name: Mike Baaschelman
(Optional) mike@mbaschelman.com

Organization:
(Optional)

Comments/Questions: Topic:
Prior Appropriation Doctrine (1st in time 1st in right)
NDWR proposes to define a non-preferred use = supplemental irrigation in Mason & Smith Valleys and establish a curtailment of a specific manner of use for 40k.
? 110 years of NRS provides for 1st in time = 1st in right.
Do we need a legislative change to current NRS to allow a "set aside" of prior appropriation to allow preferred uses to be applied to existing approved water rights?
[illegible] to define Preferred vs non-Preferred use

Governor's DroughtSummit 2015

Name: CHRIS MAHANNAH

(Optional)

Organization: CHURCHILL / PERSHING CO.

(Optional)

Comments/Questions: SINCE WE CAN'T SEEM TO PREDICT WEATHER BEYOND ~7 DAYS, IT SEEMS LIKE ONE OF THE KEYS TO DROUGHT IS WATER MANAGEMENT. SURFACE WATER IS AFFECTED FIRST BY DROUGHT WHILE JR. GW RIGHTS CONTINUE TO PUMP & IRRIGATE WHICH CAN AFFECT SW FLOWS & IMPACTS ARE CUMULATIVE & DELAYED. IN MOST INSTANCES, GIVEN (WATER RESOURCES) DWR HAS MOSTLY ADMIN. GW & SW SEPERATELY IN THE PAST, HOW URGENT DO YOU FEEL THIS ISSUE IS WITH REGARDS TO REDUCED FLOWS IN THE TRUCKEE, CARSON, HUMBOLDT & WALKER RIVERS?

Governor's DroughtSummit 2015

Name: DAVID BARRETT III

(Optional) 775-720-3714

Organization: DEDICATED TO YOU

(Optional)

Comments/Questions: ~~ADD WATER~~

WHAT ARE THE LAWS PERTAINING TO WATER CAPTURE AND STORAGE OF PRECIPITATION?

i.e. rain barrels

Governor's DroughtSummit 2015

Name: _____
(Optional)

Organization: _____
(Optional)

Comments/Questions: Why aren't the state constructing more meteorological / met stations?

Who typically constructs monitoring stations?

Why haven't / aren't more stations being built? What do they cost and who monitors them?

comment commendation

Governor's DroughtSummit 2015

Name: William Campbell
(Optional)

Organization: Inter-Tribal Council of Nevada
(Optional)

Comments/Questions: There are 27 federally recognized Tribes spread throughout Nevada. It's an agency would provide funding for equipment and training for Tribes would be willing to accept and maintain remote weather stations. Of course the funding would need to sustain a Tribal person to monitor and report the data generated by the weather station.

Governor's Drought Summit 2015

Name: L. Lawton
(Optional)

Organization: Legacy Trails Realty Pahrump
(Optional)

Comments/Questions: Water reducer - Ladies restroom's in Legislature Bldg - sinks & toilet's need water reducer's ..

Domestic wells - shut-off O.S, not tree's ... Tree's clean oxygen.

Hunting done by "draw" - Boating s/b done by "draw".

No lawn's - no where - there will be water storage for wildfires

Restaurant "water" glasses s/b served small size - refill if need ...

Governor's Drought Summit 2015

Name: Mark Walker
(Optional)

Organization: UNR Coop Ext.
(Optional)

Comments/Questions:
- What is the best way to communicate relatively complex topics accurately & understandably to the general, urban public (example; the blob w/ El Nino)?
- Given the rapid turnover of news stories & topics that catch and release public attention, what is the best way to keep drought planning going?
- Did you notice that public response conservation efforts in urban areas to last fraction when it rained in Northern NV this summer?

Governor's DroughtSummit 2015

Name: Mark Walker
(Optional)

Organization: UNR Extension
(Optional)

Comments/Questions: Does northern NV have the equivalent of the program managed by SNWA that trains contractors in Water Smart landscaping techniques & ~~publishes~~ maintains a list / or a website?

Governor's DroughtSummit 2015

Name:
(Optional)

Organization:
(Optional)

Comments/Questions: CAN you show the little old lady Commercial in Northern Nevada?

Governor's Drought Summit – 2015

Name: Ray Bacon

Organization : NV Manufacturers Assn

Comments/ Questions: THE SMITH CREEK RANCH GUY'S COMMENT ON SLOWING THE FLOW AND DROPPING THE SEDIMENT BY FILLING THEIR POND LATER IN THE SEASON. STORING WATER HIGHER AND FLOWING IT DOWN SLOWER - MAKES SENSE. SHOULD WE BE REMOVING BEAVER DAMS?

Governor's Drought Summit 2015

Name: _____ **(Optional)**

Organization: _____ **(Optional)**

Comments/Questions: re payout actual losses due to drought – over 54 mil paid out.
Q – monetary reserves?
Q – ongoing funding – long term??
Q – What is the average wait time for a farmer with a claim – drought disaster?

Governor's DroughtSummit 2015

Name: Pat Lynch
(Optional)

Organization:
(Optional)

Comments/Questions: Are there any 'pipelines' built or contemplated, that could move water from one place to another (on the surface). i.e. from the Mountains to the Basins, or from the ocean to NV etc.

Governor's DroughtSummit 2015

Name: Kim Kelly
(Optional)

Organization: Farr West Engineering
(Optional)

Comments/Questions:
What is keeping us from continuing to thin our forests? We all know the benefits: increased tree health, increased wildlife habitat, increased capture of precipitation; etc. What are the Negatives keeping us from taking this action?

Governor's Drought Summit 2015

Name: _____ (Optional)

Organization: _____ (Optional)

For Jake

Comments/Questions:

Taking into account water used for agriculture and other industries in eureka County, what is Eureka County's GPCD?

Governor's Drought Summit 2015

Name: Michael Johnson (Optional)

Organization: Churchill County (Optional)

1/ Comments/Questions: Is there a way to monitor private residence water usage when they are on a ~~we~~ private well? Only water systems have a way to monitor water usage and can charge for more water usage.

2- How do we work with California on desalination projects? Real measures which can happen?

Governor's DroughtSummit 2015

Name: Kevin Brown
(Optional)

Organization: Virgin Valley Water District
(Optional)

Comments/Questions: If rates are raised to conserve more water, rates will have to be continued to be raised as conservation occurs for water utilities to meet fixed costs (debt, power, manpower, motorpools, infrastructure improvements). At what point will rate increases be too much for low income / fixed income citizens?

Governor's DroughtSummit 2015

Name: PAT LYNCH
(Optional)

Organization:
(Optional)

Comments/Questions: No one has talked about the growth of population and the resulting demand on water. Who is taking population growth into consideration in its Data & Plans for future?

Governor's Drought Summit 2015

Name: _____ (Optional)

Organization: _____ (Optional)

Comments/Questions:

What specific recommendations do the environmental groups have to reduce agricultural water consumption?

Governor's Drought Summit 2015

Name: _____
(Optional)

Organization: _____
(Optional)

Comments/Questions: WATER Demand Exceeds Supply, Climate Change is here to stay, Drought problems are WORLD Wide, WATER is OVER Appropriated. WORLD Population projected to INCREASE to over 9 Billion People by 2100 - Currently we are at 7.3 Billion.

WHEN will Population INCREASE and Educational MEASURES to Stabilize Population be discussed? WATER is essential to life and the quality of life future generations will enjoy - When Will

the Root problem - too MANY people making increased demands on limited resources be addressed?

This panel has MADE Good Points.

Governor's Drought Summit – 2015

Name: Ray Bacon

Organization : NV Manufacturers Assn

Comments/ Questions: Do the USFS Sno-Tel sights pass their weather data to the State Climatologist? If not what it take to get that to happen?

Governor's Drought Summit – 2015

Name: Ray Bacon

Organization : NV Manufacturers Assn

Comments/ Questions: Do the Federal Agencies routinely and automatically share data with State Agencies and private sector neighboring properties?

Governor's Drought Summit – 2015

Name: Ray Bacon

Organization : NV Manufacturers Assn

Comments/ Questions: BILL GATE FUNDED A PROJECT TO CREATE A LOW COST LOW WATER, LOW MAINTENANCE TOILET. WHAT HAPPEN TO IT? I HAVE HEARD THE HAVE A VIABLE PRODUCT BUT CAN'T BE USED IN THE US BECAUSE OF OUR BLDG CODE? CAN WE CHANGE THAT? WHERE COULD AND SHOULD THEY BE USED. HOW MUCH WATER COULD BE SAVED

Governor's Drought Summit – 2015

Name: Ray Bacon

Organization : NV Manufacturers Assn

Comments/ Questions: HOW MUCH WATER IS CONSUMED IN POWER GENERATION OPERATIONS IN THIS STATE? HOW MANY ACRE FT GO TO OTHER USES WITH THE REID GARDNER PLANT CLOSURE? WHERE DOES IT GO?

Far too many Wild ~~Fowl~~ Fowl
Too many Horses, too many Elk,
too many wild Sheep, too much
PJ trees, unmanged forests,
this - creates waste, disease and
wildfires. Is this managing
the Multiple use way? Or
Is this Mis-Mangement of
conservation by a top down
approch.

→ What is the % of
water evaporation linked to
the warmer climate change?
on the Colorado & Lake
Meade?

Appendix E

SPECIAL REPORT

JUNE 2015

Western Governors' Drought Forum

Chairman's Initiative of Nevada Gov. Brian Sandoval

WESTERN GOVERNORS' ASSOCIATION

westgov.org/drought-forum

GOV. BRIAN SANDOVAL
WGA Chairman

Dear Friends of the West,

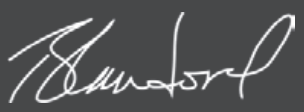
During my year as chairman of the Western Governors' Association, I have led a regional discussion on a pervasive issue that impacts all of the western states: drought. Through the Western Governors' Drought Forum, we have created a framework for states, industry and communities to share best practices and policy options for drought response.

Most western states depend on just a few months of snowfall in the mountains to supply water for people, businesses and wildlife over the course of a full year. Consequently, it is crucial to share strategies on drought response before, during and after drought occurs.

Our Drought Forum discussions have shown that westerners are experts at innovating in response to water supply variability. They have also shown the importance of communicating across sectors and state lines to best respond to drought. Western states will continue to thrive, even with the threat of drought, so long as we work together and make the most of the water we have.

This report is not the culmination of the Drought Forum; rather, it is designed as a guide to more detailed information available online. It also identifies policy issues which WGA will further explore in the coming years.

I invite you to continue the dialogue sparked by the Drought Forum with your own communities and colleagues. Western Governors will use the Drought Forum online resource library to inform our efforts and discussions about drought over the coming years. It is certainly a conversation that I plan to continue and expand within Nevada.



JIM OGSBURY
WGA Executive Director

When Governor Brian Sandoval told me he wanted to focus on drought during his time as Chairman of the Western Governors' Association (WGA), I could not have been more enthusiastic.

Drought is an issue that fits squarely within the mission of WGA. While the topic is not unique to the West, for the past several years the map of drought conditions in the U.S. has seemed like a target with a bulls-eye on the western states. Given that much of the region is naturally arid, the consequences of western drought are especially acute. There is room for real innovation in drought management and response. Drought is bipartisan. And WGA has been a leader on drought policy for well over a decade.

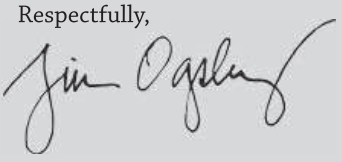
That leadership significantly expanded under Gov. Sandoval's direction. Over the past year, the governors received input from a broad cross-section of experts, including such diverse voices as electricity providers, dairy farmers, state engineers, mining experts, environmental advocates, federal partners and water providers for the largest cities in the West. WGA went to five western states in five months to hold in-depth conversations about drought, only to turn around and hold five additional webinar discussions. We learned a great deal during that time. One takeaway: despite the region's long experience with water scarcity issues, there is still room for innovation in drought management and a need for ongoing dialogue.

I am proud of what we have accomplished so far with the Drought Forum, but our work is not done. The Drought Forum online resource library on WGA's website will remain active and updated with new content in the years to come. We intend to keep the library stocked with valuable information for the governors as they continue to work through the complexities of drought.

If you have not yet done so, please send your best practices and case studies to help us build this resource. The Drought Forum is an ongoing discussion and we want to be sure your perspective is included.

Thank you to those who contributed to and supported the Drought Forum over the past year. We hope to partner with you again as we continue to work on this issue in the years to come.

Respectfully,



EXECUTIVE SUMMARY

Recent drought throughout the West has affected economies and communities in ways both visible and hidden. Fallowed fields, bare streambeds and near-empty reservoirs provide stark reminders of drought's effects, but they do not tell the full story. Drought has also resulted in lost tourism revenues, increased fire risk, decreased quality of wildlife habitat, unemployment and livestock losses.

Through the Western Governors' Drought Forum, WGA has collected best practices, case studies and the insights of western leaders on drought response and management. These resources are collected in the Drought Forum online resource library, which is accessible at westgov.org/drought-forum.

This report is designed as a roadmap for the online resource library, pointing to specific drought management strategies and information available on the web. The report is arranged around seven key themes that have emerged from the Drought Forum thus far, including:

Data and Analysis – Data on snowpack, streamflow and soil moisture is essential to understanding drought and its evolution. Though a great deal of information already exists, water managers could benefit from enhanced drought data collection and real-time analysis at a higher resolution.

Produced, Reused and Brackish Water – Technologies exist to use produced, reused, recycled and brackish water—industrial, municipal and groundwater sources traditionally considered to be marginal or wastewater. Adoption of these technologies has been limited by inadequate data, regulatory obstacles, financial barriers, public attitudes and logistical uncertainties.

Forest Health and Soil Stewardship – Better land management practices for forests and farmland may help improve water availability and soil moisture retention. Employing these management strategies can help water resource managers and farmers make the most efficient use of the water they have.

Water Conservation and Efficiency – Public awareness of drought has drawn increased attention to water conservation strategies for municipal, industrial and agricultural purposes. Cities and farmers are implementing water-saving technologies and reducing water use to mitigate the effects of drought.

Infrastructure and Investment – Infrastructure to store and convey water is crucial to drought management, but

Western Governors' Drought Forum

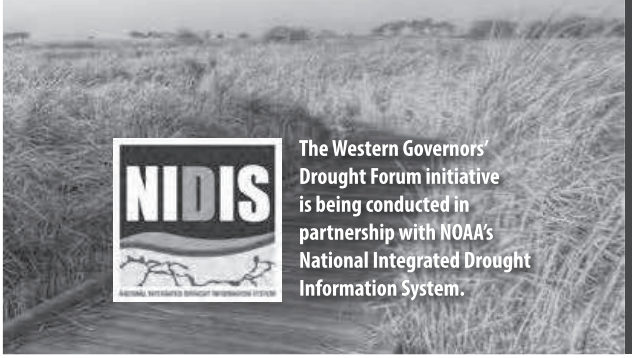
maintenance and expansion of that infrastructure is often difficult to fund. Westerners are looking for ways to make the most of existing infrastructure, while seeking creative solutions to develop new infrastructure with limited resources.

Working within Institutional Frameworks to Manage Drought – Legal and regulatory frameworks can sometimes limit the ability of state, local and federal agencies to respond quickly to drought conditions, but many are working to create innovative, flexible policy solutions within existing legal structures.

Communication and Collaboration – Communication among states, federal agencies, water providers, agricultural users and citizens is a crucial component of effective drought response. Open dialogue and information-sharing helps water users understand the challenges drought poses for other stakeholders, facilitating the opportunity for a unified response to drought.

This report and the accompanying online resource library will be foundational tools for governors as they weigh drought management strategies in the future. They will provide governors and water managers with robust resources to draw from to meet current drought challenges, as well as a medium for thought-provoking discussions to help policymakers plan for future periods of water scarcity.

WGA will continue the Drought Forum discussion in the coming years, updating the online resource library with new content. WGA will also maintain the framework for sharing drought best practices with ongoing webinars and meetings related to the key themes of this report.



The Western Governors' Drought Forum initiative is being conducted in partnership with NOAA's National Integrated Drought Information System.

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KEY THEMES

Nevada Gov. Brian Sandoval announced the creation of the Western Governors' Drought Forum on the boat ramp of the Lahontan Reservoir in northern Nevada, which suffered from exceptionally low water levels in 2014 due to drought.

WGA Chairman's Initiative

The First Year of the Western Governors' Drought Forum

The backdrop to Gov. Brian Sandoval's announcement of the Western Governors' Drought Forum illustrated the challenge posed by drought: Nevada's Lahontan Reservoir, where low water levels caused by drought had forced the closing of all boat launches and a 75 percent decrease in visitation in 2014 as compared to the previous year.

"The impact of drought in the West is clear to everyone here," Gov. Sandoval said at the September 2014 rollout event. "But it extends far beyond Lahontan Reservoir. California is experiencing 'exceptional drought.' And 'extreme drought' conditions continue in much of Nevada, Arizona, New Mexico, Colorado, Kansas, Oklahoma and Texas."[1]

That regional impact spurred Gov. Sandoval to make the Drought Forum his cornerstone initiative as the Western Governors' Association Chairman. Gov. Sandoval set a goal to provide a framework for sharing best management practices on drought for state and industry leaders across the West.

Oklahoma Governor Mary Fallin, right, offered a keynote at a workshop in her state about managing drought in the energy sector. Michael Teague, the state's Secretary of Energy and Environment, also spoke.

The initial year of the Drought Forum was a multifaceted effort to build that framework through in-person workshops, a webinar series and an online resource library. In addition, WGA solicited case studies and best practices, highlighting innovations in drought response from across the region.

Workshops in Oklahoma, Arizona, California, Nevada and New Mexico examined the effects of drought on specific economic sectors by gathering leading thinkers from industry, non-profits, academia, and state, local and federal government. Through these sessions, WGA identified the management challenges drought poses, as well as strategies and policy options for effective drought response.

The Governors played a significant role, in part by hosting and participating in workshops. **Oklahoma Gov. Mary Fallin** spoke in Norman, noting that the state had suffered $2 billion in losses from the drought of 2011-2012. The Governor cited her signing of the Oklahoma Water for 2060 Act, which establishes a goal for the state to use no more fresh water in 2060 than it did in 2012.[2]

Gov. Sandoval highlighted the bipartisan nature of the Drought Forum by speaking alongside **California Gov. Jerry Brown** at the Sacramento workshop. "I think the drought will test our imagination and our science, our technology and our political capacity to collaborate," Gov. Brown said.

The workshops also helped WGA discern themes for closer attention in a free five-part webinar series that broadened the Drought Forum audience by attracting a total of more than 1,200 registrants. The webinars are now available in the online resource library.

Drought Forum Meetings and Webinars

WORKSHOPS

Managing Drought in the Energy Sector
Hosted by Gov. Mary Fallin (OK)

Drought Impacts and Solutions in the Manufacturing, Mining and Industrial Sectors
Hosted by then-Gov. Jan Brewer (AZ)

Drought Impacts and Solutions in the Agricultural Sector
Hosted by Gov. Edmund G. Brown (CA)

Drought Impacts and Solutions in Water Supply
Hosted by Gov. Brian Sandoval (NV)

Drought Impacts and Solutions for Recreation and Tourism
Hosted by Gov. Susana Martinez (NM)

WEBINARS

Once Marginal, Now Crucial: The Growing Demand for Re-used, Produced, and Brackish Water

Community Outreach and Consumer Technology for Municipal Water Use

Tip of the Spear: The Horizon for Drought Data and Technology

Managing Forest Health for Water Resources

One Size Doesn't Fit All: Why Variation in Hydrology and Legal Structures means that Drought Looks Different across the West

California Gov. Jerry Brown offered opening remarks at the Drought Forum workshop n agriculture he hosted at his office in the California state capitol building.

Reflections of Drought in the West

Drought in the western states is often depicted through stark images: fallowed fields, exposed riverbeds, near-empty reservoirs and the broad "bathtub ring" at Lake Mead behind Hoover Dam. But drought is present in other, less obvious ways as well: elevated water temperatures in streams and rivers, for instance, and waning soil moisture levels not visible to the naked eye.

Conversations about western drought have traditionally focused on agriculture. In some western states, agriculture accounts for more than 90 percent of consumptive water use.[3] Over a quarter of all farm acres in the West are irrigated, and the value of irrigated crops is markedly higher than dryland crops.[4] So when water supplies are limited and farmers receive less water than their usual allocation, agricultural producers have to adjust how they do business. In some cases, the short-term response means letting some fields go fallow in favor of higher-value crops or selling more livestock than in an average year in order to moderate costs for the animals' feed. In other cases, western farmers have found ways to use water more efficiently, as is illustrated in detail in the *Water Conservation and Efficiency* section of this report.

For urban water users, the sting of drought in past decades has been softened by water storage and water providers who have proactively planned to ensure reliable supplies. The severity of the multiyear drought in California removed that cushion for some, such as citizens of Outingdale, California, where water curtailments in May 2015 forced the local water provider to truck in water for residents, limiting customers to just 50 gallons of water per person each day.[5] Even for cities and states that are nowhere near such dire straits, public awareness of drought has dramatically increased due to reporting from media outlets and public outreach campaigns from water providers and states, such as Oregon's #ORdrought social media campaign.[6]

The South Lake Dam in California's Sierra Nevadas shows signs of drought conditions affecting many states in the west.

Drought impacts wildlife habitat and the environment as well. Elk, mountain lions and bears have been sighted outside of their traditional habitat, at lower elevations and closer to population centers, in search of water and food during drought conditions.[7] Aquatic habitat can diminish with low flows and the water that remains in the stream is often warmer, leading to poor conditions for some fish

California Gov. Edmund G. Brown Jr., center, and Department of Water Services Director Mark Cowin, right, watched as Frank Gehrke, chief of the California Cooperative Snow Surveys Program, discussed snow survey results on April 1, 2015, at an elevation of 6,800 feet in the Sierra. It was the first recorded early-April measurement that found no snow at the Phillips Station, an indication of the drought's severity. Courtesy of California Department of Water Resources

species. Low streamflow and reduced precipitation also bodes poorly for some native vegetation.

Drought creates dry conditions that can lead to devastating wildfires. Dry vegetation as a result of low precipitation, low soil moisture and high temperatures creates conditions for particularly hot fires that spread quickly and are difficult to control.[8] This may be further exacerbated by standing dead trees killed by pine bark beetles infestations.[9]

Wildfire can have significant impacts on air quality and can, in some cases, affect a state's ability to comply with Clean Air Act (CAA) standards. Soot and ash contribute to particulate matter (PM) pollution, as does dust and exposed dirt released by low soil moisture levels.[10] This PM can affect human health in a variety of ways, from airway irritation and coughing, to aggravated asthma conditions, to decreased heart and lung function. Wildfire also increases ground-level ozone, as fire releases nitrogen oxides and volatile organic compounds.[11] These factors contribute to the regulatory challenge for states to meet federal National Ambient Air Quality criteria pollutant standards (commonly referred to as NAAQS) required by the CAA.

Low water levels in reservoirs can lead to reduced capacity for hydroelectric power generation, a source of more than a fifth of the power generated in the Mountain and Pacific West.[12] Hydropower generators have a minimum "power pool" threshold needed to reliably generate electricity.

Drought is a contributing factor to dust storms such as this 2013 storm in southeastern Colorado. Courtesy of Jane Stulp, Stulp Farms

Drought's role in air quality

Drought can mean a decline in air quality, most commonly due to dust caused by low soil moisture or particulate matter released by wildfires. Despite vast improvements in land management practices since the devastating Dust Bowl of the 1930s, dust from dry soil remains difficult to prevent during drought conditions. The result can be enormous dust storms like those experienced in southeastern Colorado in 2013 and captured in this photo by Jane Stulp of Lamar, Colorado. Learn more about how drought impacts air quality in the Drought Forum Science Brief, *How Drought Affects Air Quality*. Find that and more in the Drought Forum online resource library at westgov.org/drought-forum.

When reservoirs fall below that level, electricity generation costs increase. Prior to California's devastating multiyear drought, 14 percent of the state's power came from hydroelectric generation. The drought decreased that figure to 6 percent in 2014.[13]

Drought affects other parts of the energy sector, as well. Oil and natural gas extraction requires water. Coal mining operations use water to both remove coal from underground seams and to cool the machinery required to transport and process the product. All thermoelectric power generation requires water for cooling processes. Renewable energy generation requires water as well: utility-scale solar power generation requires water for both electricity generation and for cooling.

For recreation destinations, winter and summer alike, drought can have consequences for visitation and public perception. Water shortages during Colorado's intense drought of 2002 resulted in an estimated $1.7 billion decrease in recreation revenue.[14] Drought impacts river recreation, in particular; rafting, fishing, kayaking, and other water-related activities help drive an estimated $25.6 billion of economic activity in the Colorado River Basin, and reliable flows are essential for these activities.[15] Ski resorts use proactive public messaging and advanced snowmaking technology to ensure that visitors know their slopes are open, even if precipitation has been below-average.

Key Themes

Data and Analysis

"There is an adequate amount of technology available to accurately monitor and manage water usage and drought, but much of this technology is stuck at a very high level of decision making and is not trickling down to the state or local level."

– Jay Famiglietti, Senior Water Scientist, NASA Jet Propulsion Laboratory, California Institute of Technology

Water managers measure drought through multiple factors, including mountain snowpack, soil moisture, streamflow, temperature and precipitation, reservoir levels and reported impacts. These measurements and reports enable water managers and users to piece together a picture of drought conditions.

Drought scientists pull this information together in a user-friendly map called the U.S. Drought Monitor that shows drought severity across the nation. Each week, collaborators affiliated with the National Oceanic and Atmospheric Administration (NOAA), the U.S. Department of Agriculture, and the National Drought Mitigation Center at the University of Nebraska-Lincoln analyze the latest information on water and other variables to generate this map, depicting four levels of drought severity. Additional information about the creation of the U.S. Drought Monitor is available in a Drought Forum Science Brief in the online resource library.

Additional resources for understanding and predicting drought are available at drought.gov, the online home of the National Integrated Drought Information System (NIDIS). NIDIS is a federal interagency program managed by NOAA that was authorized by Congress in 2006, and reauthorized in 2014, with support from WGA. The program is designed to provide decision-makers with the best available information and tools to prepare for drought, assess its potential impacts and mitigate its consequences.

Western Governors' Drought Forum participants expressed a desire for continued (and, in some cases, increased) drought data, collection and analysis. In an informal survey of Drought Forum participants and partners, WGA found that the U.S. Drought Monitor, the National Resources Conservation Service's (NRCS) snow survey, and the National Weather Center outlooks for temperature, precipitation and drought were the products most frequently used to track drought by state, local and federal government employees, business professionals, water managers and others in the West.[16] Groundwater data, predictive climate models for drought and analytical tools that allow users to compare multiple datasets over time were all cited by respondents as ongoing needs.

Detailed data on water use—including residential, agricultural and industrial uses—help states and water providers manage their resources. The common refrain, "if you can't measure it, you can't manage it" was used

Mapping Drought with the U.S. Drought Monitor

The U.S. Drought Monitor is a weekly map detailing the intensity of drought conditions across the nation.

Eleven climatologists from partner organizations take turns as the lead author of the Drought Monitor, synthesizing the data across timescales and geographic locations. Several states and federal agencies rely on the Drought Monitor to help determine if drought declarations are needed on a state or local basis.

Learn more about how the Drought Monitor is created in the Drought Forum Science Brief, *Creating the U.S. Drought Monitor*. Find that and more in the Drought Forum online resource library at westgov.org/drought-forum.

by Drought Forum participants to describe the need for water use data for both surface water diversions and groundwater pumping. Water managers require this data to confidently develop demand projections, whether or not drought conditions prevail. For water utilities, this information can inform strategies to implement conservation programs and adjust rate structures. For states, water use data provides a better sense of diversions, consumption and return flow of water, which is used by some states to facilitate water transfers and deliveries.

Several participants also emphasized the value of soil moisture monitoring—an important tool that helps scientists determine the severity of drought conditions.

"The way that data are produced and recorded at the local level is irreplaceable. Satellite monitoring and model-based estimates are important but a full portfolio of observations is needed," Roger Pulwarty, Director of NIDIS said. "In the West, the sparseness of data on important drought metrics like *in situ* soil moisture measurements needs to be addressed."

Soil moisture information currently collected by federal, state and local entities will soon be assimilated through the National Soil Moisture Network, a collaborative effort of NIDIS, NRCS and the US Geological Survey. Though presently in a pilot stage, the program is designed to one day provide real-time soil moisture data through an online network.[17] Additionally, the National Aeronautics and Space Administration (NASA) is producing global soil moisture maps with its new Soil Moisture Active Passive observatory which launched in January 2015.[18]

Drought Forum participants also cited a need to increase the integration of water data resources to help better interpret water conditions. "Data stove-pipes exist because different agencies collect information for varying purposes—water quality and quantity data, for example, are often collected by different agencies with different objectives," said Jeri Sullivan Graham, Brackish Water Work Group Coordinator for the New Mexico Energy, Minerals and Natural Resources Department. "Combining and interpreting these data thus becomes challenging."

Existing water data sources are often available online, but state and local water managers may be unaware of the availability or location of these resources. "An overwhelming amount of data already exists regarding drought," said John Andrew, Assistant Deputy Director of the California Department of Water Resources. "The issue lies in making it accessible to those who need it, when they need it."

Tip of the Spear:
Webinar on the Horizon for Drought Data and Technology

Historic data on snow and water levels provide a frame of reference for current monitoring of drought conditions. WGA convened a webinar discussion on the ways that basic data is being used in conjunction with the latest modeling and satellite technology to inform drought management decisions. Find that webinar and more in the Drought Forum online resource library at westgov.org/drought-forum.

Improvements in predictive capability and measures of reliability for drought forecasting are also needed. Ongoing research to better understand the relationship between snowpack, rainfall, groundwater recharge, soil moisture and temperature could potentially improve predictions of water availability. Though scientists can forecast weather up to 10 days in advance, predictive capability for drought conditions a few months out is primarily a condition of El Niño Southern Oscillation (ENSO) climatic events. More work is needed to fully understand how ENSO-neutral periods relate to drought. In addition, research on climatic variability at both the decadal scale (for example, the Pacific Decadal Oscillation) and the seasonal scale would help scientists to better understand the dynamics of drought development.

The Western States Water Council — an organization of high-level state water managers from 17 continental western states and Alaska — is developing a platform called the Water Data Exchange (WaDE). This online tool will allow users to access state data on water allocation, supply, and demand through a single web portal. Once launched in December 2015, WaDE will help water planners across the West better understand water resources by providing them with a state-driven framework and state-managed data. This functionality will provide an additional mechanism for future Drought Forum discussions regarding water resource data.

Produced, Reused and Brackish Water

In response to limited and variable water availability, industry leaders are testing new technologies to harness water supplies once considered marginal. For sources such as re-used, recycled, produced and brackish water, technologies are emerging to use these sources, but implementation is not always simple. Treating these sources can be expensive and may require special environmental considerations. In some instances, regulatory uncertainty and lengthy permitting requirements can limit adoption.

"Produced water, flow back water, in the energy discipline have historically been viewed as a waste—a nuisance—something to be managed," Ken Knox of Noble Energy said on the Drought Forum webinar, *The Growing Demand for Re-Used and Brackish Water*.[19] "But the disposal, the treatment, the recycling of those wastewaters is now at the forefront of development of energy throughout the United States, North America, and frankly, the world."

Produced water, when treated, has the potential to be reused for irrigation, stock watering, dust control or energy production onsite. But some energy representatives say that such opportunities are limited by the time it takes to obtain permits as well as regulatory complexity and uncertainty at varying levels of government.

Water treatment technologies exist for processing produced water on-site at the wellhead, according to Ed Steele of the General Electric Global Research Center. It is, however, very expensive to treat to recharge standards. Difficulties can arise with storing the water immediately after treatment. "Recharging aquifers with treated water would eliminate inefficiencies resulting from evaporative losses," said Steele. "However, this concept faces considerable regulatory and legal liability challenges."

Some business leaders and electricity providers are looking to "fit-to-use" water for their operations. Fit-to-use water is treated to the point that it can be used for certain industrial processes. For example, power provider NV Energy uses treated wastewater from hotels and casinos in the small town of Primm, Nevada, along with an advanced dry cooling system, to cool a 500-megawatt generating station. While a typical water-cooled 500-megawatt plant may use up to 2,500 acre feet per year, a dry-cooled plant like the one in Primm uses roughly 200 acre feet per year.[20]

Brackish water is a semi-saline source that can be treated for potable use by reverse osmosis. The process can be costly due to the energy used in processing and the costs of disposing the waste products that result from treatment. This high financial barrier can be a deterrent for municipalities, which have traditionally provided water to customers at relatively low prices.

Some water providers and state water managers are pursuing seawater desalination, which poses similar challenges as brackish water desalination in addition to its own unique challenges. Ocean water desalination plants can more easily dispose of brine waste resulting from the desalination process by discharging into the sea, but these plants tend to attract opposition because of the potential threat they may pose to marine life and habitats near the water intake and brine release sites. In addition, it is costly to treat and pump water uphill from the shoreline to residences at a higher elevation.[21] Information about the Carlsbad desalination project under construction in San Diego is available on the Drought Forum webinar: *One Size Doesn't Fit All: Why Variation in Hydrology and Legal Structures means that Drought Looks Different across the West.*

A handful of western water providers are mixing recycled wastewater with traditionally-sourced water for human consumption, venturing closer to "potable reuse"—a practice colloquially known as "toilet-to-tap." The towns of Big Spring, Texas, and Cloudcroft, New Mexico, have both implemented technology to treat wastewater forpotable use after mixing with surface water supplies.[22]

Once Marginal, Now Crucial: *Webinar on the Growing Demand for Re-used, Produced, and Brackish Water*

WGA delved into the growing interest in reused, brackish, and produced water with a webinar available in the Drought Forum online resource library. Listen to the discussion of how state and industry leaders are using sources once considered useless as an alternative means of water supply in the Drought Forum online resource library at westgov.org/drought-forum.

Despite its limited adoption in the West, many Drought Forum attendees mentioned it as a partial solution to drought. For other communities, negative public perceptions about treated wastewater—what participants called the "yuck factor"—remains a deterrent regardless of the water's quality.

Many communities that have not opted for direct potable reuse are reusing water for other purposes. Scottsdale, Arizona, for example, uses reclaimed water for irrigation purposes for 23 golf courses served by its water treatment plant. Remaining treated water is used to recharge the groundwater aquifer.[23]

Forest Health and Soil Stewardship

"The forests are not as healthy as they used to be. In the last decade, over two million acres have burned. We need to protect our watersheds so they act like a sponge, not a parking lot."

– Charlie Ester III, Manager, Water Resource Operations, Salt River Project, Arizona

Land management practices may mitigate drought conditions by increasing runoff into stream systems and retaining moisture in the soil. Some water managers are taking an active role in forest management to improve water availability. The Salt River Project (SRP) in Phoenix, Arizona, has partnered with the National Forest Foundation to create the Northern Arizona Forest Fund. Through that program, SRP is thinning forests, using prescribed burns, and restoring riparian habitat to invest in the health of watersheds.

A recent analysis of forest management techniques indicated that runoff in thinned forests could be up to 20 percent higher than in un-thinned forests.[24] Unmanaged forests are thirstier, says study author Marcos Robles and his colleagues, because forests today are two to 44 times denser than they were prior to settlement by non-Tribal populations.[25] While the initial findings are promising, implementing thinning at a larger scale is cost-prohibitive when only the water runoff effects are considered. "The increases in water yields, in and of themselves, are probably not enough to warrant the level of investment that would be required to reach the scale that's needed to see those runoff benefits," Robles said. However, the investment merits consideration, "when you package it with the reduced fire risk and erosion and sedimentation and the cost of cleanup."

Managing Forest Health for Water Resources:
Webinar on the Connections Between Forestry and Water Availability

WGA convened water and forest management leaders from the U.S. Forest Service, the City of Santa Fe, N.M., and The Nature Conservancy on a webinar to discuss proactive forest management methods that reduce wildfire risk and add security to municipal water portfolios. Find that webinar and more in the Drought Forum online resource library at westgov.org/drought-forum.

Some farmers are looking to make the most efficient use of their water resources by improving soil health. Soils with high organic matter are better at retaining water. Daniel Fullmer of the National Young Farmers Coalition remarked upon the dramatic difference in water retention between soils with 1.5 percent and 2.5 percent organic matter. The best farmers are able to achieve 11 percent organic matter, according to Fullmer – twice the levels of undisturbed forests.[26]

The use of these water-conscious forest- and soil-management practices have significant implications not only for water supply, but also for other key resource management priorities in the West. Healthy, robust forests are more resistant to insect and disease predation as well as wildfires. Well-managed soil is more nutrient-dense and aerated, which is conducive to plant growth. Therefore, implementing land management practices can promote drought-resilient landscapes and mitigate the cascading effects of drought on ecosystems.

Water Conservation and Efficiency

Drought Forum participants—industry leaders and state water managers alike—talked about making the most efficient use of available water. Water re-use, technologies to reduce consumption, and increasing flexibility in transferring water all play a role in western water management in the face of drought.

Some industry leaders who participated in the Drought Forum noted an increased attention to water planning

in business decisions, even if that factor might have been considered minor prior to recent droughts. Nate Hines has observed this trend in his irrigation design business, Hines Inc. "We have developers coming to us saying water is our number one or number two cost right now—how can you help us make this work?" Hines said. "The increasing costs of water and drought are driving behavioral changes and retrofitting efforts."

Land developers are thus considering water-saving equipment, efficient irrigation and drought-resistant landscaping when designing a new facility, rather than waiting until the end of development for this analysis. For example, Hines cited the example of a 4,000-acre development in Texas that had been planned to use water-intensive bluegrass; ultimately, native prairie grasses were chosen due to the water saving benefits.

Water-conscious consumers are encouraging the food and beverage industry to use less water, giving rise to "water footprint" monitoring. Businesses are increasingly rethinking their operations, down to the geometric design of the steeping and malting containers for brewing beer, for example.[27]

Some municipal water providers—including those in

Cities Help Water Users See Just How Thirsty they Are

Cities are investing in technologies to help water users understand their own water consumption. Park City, Utah, uses an advanced metering infrastructure (AMI) capable of tracking water usage in real time. This has helped the Park City Water Department identify and deliver over 150 leak alerts to residents, 70 percent of which were addressed within 10 days of the notification.

The City of Roseville, California, includes charts on water users' billing statements that compare household water use to neighbors and similar water users. This strategy employs competition and behavioral psychology to conserve water. The statements also include customized suggestions for how to use water more efficiently.

Other technologies allow users to view their water consumption using smart phone apps. Learn more about this topic by visiting the Drought Forum online resource library at westgov.org/drought-forum.

Some farmers use drip irrigation to apply water efficiently, close to the plant root zone. Agricultural water conservation achieved by drip irrigation helps farmers save water, but implementation of drip should account for local hydrological conditions.

Las Vegas and Los Angeles—are encouraging residents to reduce water use by offering rebates for turf removal in favor of less-thirsty landscaping. Utilities are also showing customers how much water they use in comparison to their neighbors through easy-to-interpret graphical information on bills and smart phone apps.

Western farmers are finding ways to use water more efficiently. Some farmers have increased their water efficiency by laser-leveling fields, lining canals, or implementing drip irrigation. In the Oklahoma Panhandle, farmers have adjusted irrigation methods, reduced tillage and switched to less consumptive crops. These agricultural producers have reduced water use for crop irrigation by 60 percent over the past 10 years while retaining the same amount of irrigated cropland and increasing the market value of agricultural products sold. A case study of the Panhandle Regional Water Plan is featured on the Drought Forum online resource library.

Agricultural irrigation often affects other parts of the water system. For areas with high permeability and interchange between surface water and groundwater, return flows from agricultural water use make their way to local streams and underground aquifers. When water used in irrigation is reduced—or becomes more precisely delivered to plant root zones through the use of drip irrigation—it can sometimes result in less water for downstream users or instream flows. Several Drought Forum participants said that while measures to increase agricultural efficiency are quite useful in some areas, return flows and groundwater recharge should be taken into account where appropriate.

Increased urban water efficiency also helps western cities become more drought resilient and meet a significant portion of water demands for expanding populations. For example, Denver Water has invested in rebates to replace toilets with more efficient models and has led an outreach campaign to encourage customers to conserve water in household use and landscaping. As a result of these and other efforts, Denver Water's December 2014 demand was nearly the same as in December 1973, even though its customer base expanded by over 350,000 users in that period.[28]

Infrastructure and Investment

Water infrastructure development and maintenance is crucial to water management, especially during drought. Deputy Secretary of Interior Michael Connor emphasized this point during his participation in the Drought Forum. "The Bureau of Reclamation (USBR) was originally intended to support states and develop water infrastructure. Today, the mission isn't to reclaim the West as much as it is to sustain the West," Connor said. "The West is still extremely fragile and sensitive to water scarcity; how we operate and manage reservoirs is crucial to dealing with drought."

Federal programs such as the USBR's WaterSmart program and the Environmental Protection Agency's state revolving funds support repairs and modernization of existing infrastructure. In some instances, however, federal and state investment capacity is limited, so local governments shoulder more of infrastructure costs than they have in the past. Public-private partnerships and long-term local bonds can offer alternative funding mechanisms for local governments.

Drought conditions have put a spotlight on water infrastructure needs that already existed, in many cases. "So much of our water conveyance infrastructure is extremely outdated," said Ron Thompson, General Manager of the Washington County Water Conservancy District in Utah. "At the state level there is good work being done in planning, but at the local level, they lack the resources to adequately update and replace infrastructure. Policy and regulations are barring water managers from dealing with this issue."

Cities facing impending water shortages may require large capital investments to provide water security for their citizens. Southern Nevada Water Authority (SNWA), the water provider for the Las Vegas metro area, will soon complete a third intake for drawing water from Lake Mead in the event that the water level drops below the two existing water intakes in the reservoir. The three-mile long project required an $817 million investment, seven years of construction and a custom-built tunnel-boring machine.[29] SNWA also plans to build a low lake level pumping station that will be used if Lake Mead falls below the water level required for existing pumping facilities.[30]

Working within Institutional Frameworks to Manage Drought

For western state water managers, the frequency and severity of recent droughts have demanded a closer look at the ways water is currently managed. For example, California, Idaho and other states have streamlined frameworks for temporary transfers of water rights that allow more flexibility to move water relatively quickly.

Some Drought Forum attendees expressed the belief that states need to increase flexibility in water transfers to better address drought conditions, especially for transfers from agricultural use to instream flows for environmental purposes. Others expressed a desire for states to make permanent transfers of water easier. WGA produced a detailed report in 2012, *Water Transfers in the West*, which provides information on policy options for states to streamline the facilitation of water transfers and improve outcomes for all stakeholders.

Groundwater management poses additional challenges and opportunities for states in periods of drought. Groundwater basins can be managed to allow sustainable groundwater use with replenishment programs like ones managed by the Central Arizona Project throughout central and southern Arizona. During prolonged, severe droughts, however, drawing on a groundwater "savings account" may have its limitations as well. Nevada State Engineer Jason King recognized the stresses caused by pumping supplemental groundwater as a backup supply when surface water is unavailable. The state's lead water manager said he may need to start considering curtailment of those rights in order to maintain the health of the aquifer.

Drought Forum participants also acknowledged the difficulties posed when water conservation measures allow water users to fully "consume" the water in a water right, decreasing return flows to the water system. Some called for water managers to consider policies that would encourage conserved water to be stored or left in-stream rather than put to new uses; others argued that the use of the conserved water is a necessary incentive for water saving strategies.

Communication and Collaboration

"Early communication about an impending water shortage – and the resulting groundwater pumping curtailments – allows stakeholders to transfer water usage to higher value crops, minimizing economic impacts of drought on agricultural producers."

– Jason King, State Engineer, State of Nevada

Water systems—including infrastructure, hydrogeology and ecological networks—are dynamic and interconnected. Water management choices by one user or community can have consequences for others downstream, or in other economic and environmental sectors.

Pat Mulroy, Senior Fellow at the Brookings Institute and former General Manager of the Southern Nevada Water Authority, described a need for those who rely on water from the Colorado River to think of themselves as "citizens of a basin."

"The years of competition and litigation over water need to come to an end," Mulroy said. "Water resource management has to be strategic, built upon partnership and rational thought."

Throughout the Drought Forum discussions, participants commented on the connections between water users and emphasized the need for collaboration and communication. A frequent theme was the importance of communications among state engineers and farmers, utilities and ratepayers, and federal, state and local agencies with overlapping jurisdictions.

For instance, the California Department of Water Resources worked closely with federal managers at the USBR to operate their respective water infrastructure systems in concert during drought conditions in 2014. The continuous communication and collaboration allowed them to minimize regulatory roadblocks impeding the transfer of water to where it was needed most.

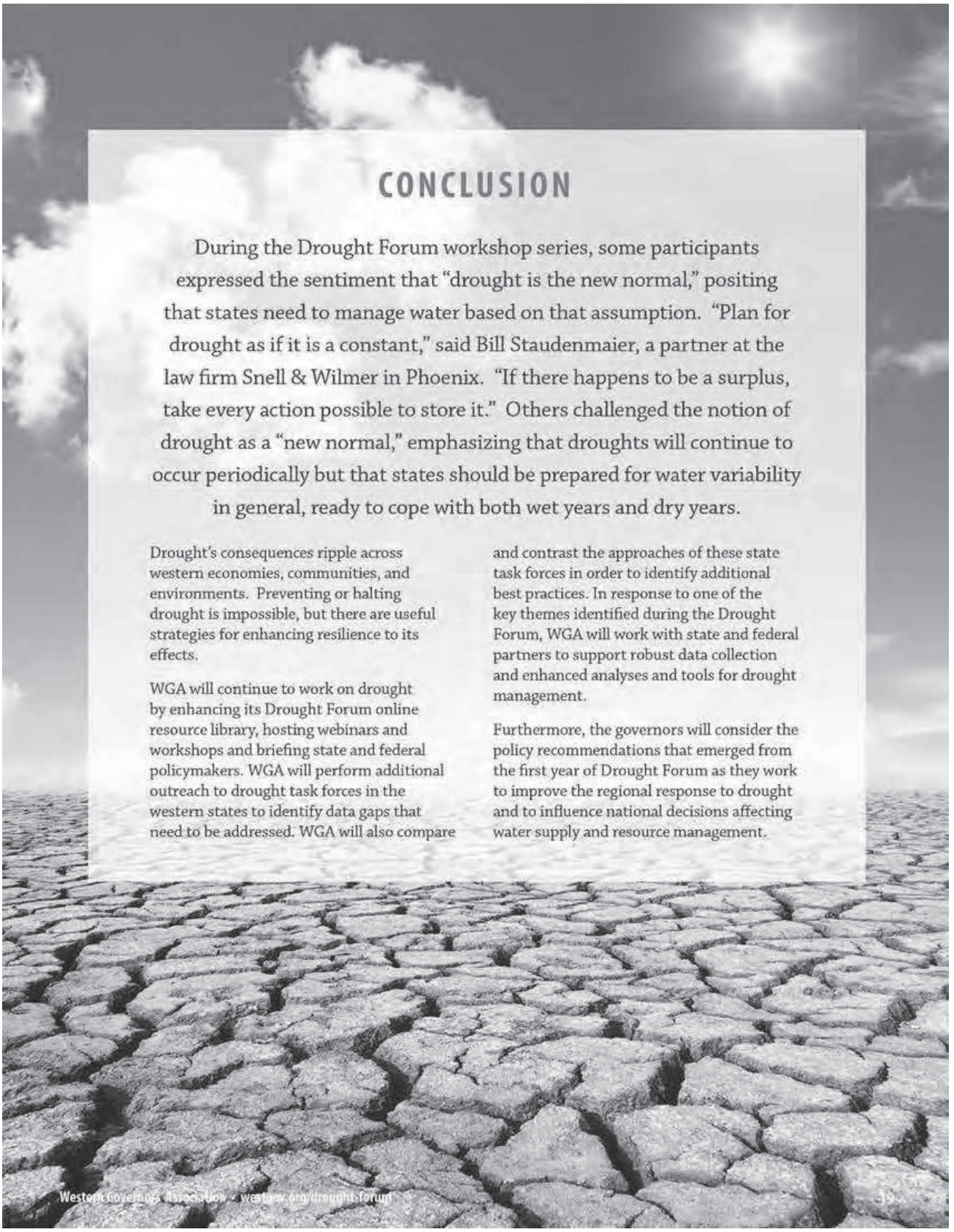
Communication among states' officials, federal agencies, water providers and citizens is another crucial component of drought response. Nevada state officials focused on the need to increase citizen awareness of drought conditions and conservation opportunities. "Citizen awareness is critical to the success of any drought or conservation measure," said Cassandra Joseph, Senior Deputy Attorney General for Government and Natural Resources in Nevada. "It is difficult to achieve, but it is absolutely imperative that the general public understands the importance of water resource management."

Water providers have traditionally communicated with residential customers about water use through monthly bills, but some utilities are now providing water information through an online interface using websites and smart phone apps that allow users to monitor their own water use more frequently. The Drought Forum online resource library includes a case study and a webinar entitled *Community Outreach and Consumer Technology for Municipal Water Use* with additional information.

Outreach to recreational water users such as rafters and kayakers regarding water releases from reservoirs helps to maintain tourism and quality of life during drought. "When reservoir operators and recreational interests share data and coordinate their needs, we can manage against the threat of low flows on our rafting and angling attractions, and sustain our local tourism and recreation economies through a drought," Nathan Fey, Colorado River Program Director for American Whitewater, said.

Cross-Agency Collaboration in Addressing Record Drought in California

The drought in California led state and federal agencies to craft a unified plan in 2014 to balance the competing water needs in the state. Principals from six agencies communicated on a daily basis, forming a collaborative drought operations team able to address issues in real time. The partners took steps to streamline water transfers and schedule water deliveries in ways that helped conserve fish habitat. Watch a video in which state and federal partners describe the collaborative plan at the Drought Forum online resource library at westgov.org/drought-forum.



CONCLUSION

During the Drought Forum workshop series, some participants expressed the sentiment that "drought is the new normal," positing that states need to manage water based on that assumption. "Plan for drought as if it is a constant," said Bill Staudenmaier, a partner at the law firm Snell & Wilmer in Phoenix. "If there happens to be a surplus, take every action possible to store it." Others challenged the notion of drought as a "new normal," emphasizing that droughts will continue to occur periodically but that states should be prepared for water variability in general, ready to cope with both wet years and dry years.

Drought's consequences ripple across western economies, communities, and environments. Preventing or halting drought is impossible, but there are useful strategies for enhancing resilience to its effects.

WGA will continue to work on drought by enhancing its Drought Forum online resource library, hosting webinars and workshops and briefing state and federal policymakers. WGA will perform additional outreach to drought task forces in the western states to identify data gaps that need to be addressed. WGA will also compare and contrast the approaches of these state task forces in order to identify additional best practices. In response to one of the key themes identified during the Drought Forum, WGA will work with state and federal partners to support robust data collection and enhanced analyses and tools for drought management.

Furthermore, the governors will consider the policy recommendations that emerged from the first year of Drought Forum as they work to improve the regional response to drought and to influence national decisions affecting water supply and resource management.

Western Governors'

A central goal of the Western Governors' Drought Forum is to create an online library that includes an ever-growing collection of resources to guide future planning and decision-making about drought in the West.

Visit the Drought Forum website: **westgov.org/drought-forum**

MEETINGS

Workshops hosted by Western Governors in Oklahoma, Arizona, California, Nevada and New Mexico gathered experts from government and industry to discuss drought's impact in various sectors – agriculture, water supply, recreation and tourism, energy, mining – and share policy solutions, case studies and best practices.

On the web:

Meeting summaries, photos, agendas, lists of attendees.

WEBINARS

The Drought Forum Webinar Series provides in-depth discussions with experts on topics that arose during the Drought Forum's regional workshops. Topics include the growing demand for re-used water, new drought data and technology, why drought looks different across the West, and how forest health is related to municipal water resource security.

On the web:

Watch the webinars.

Drought Forum

Western Governors' Association

SCIENCE BRIEFS

We've created a series of science briefs that dive deeper into how drought resources are developed and how drought impacts the daily lives of westerners. The briefs examine topics such as the work that goes into developing the weekly Drought Monitor to how drought impacts air quality.

On the web:

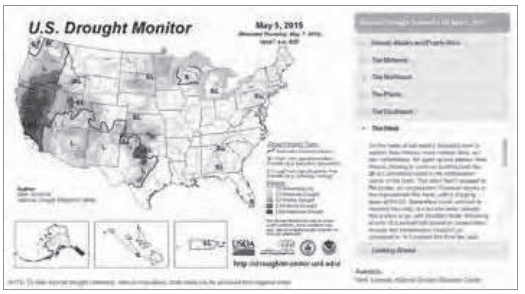
Read, download science briefs.

DATA & RESOURCES

The seasonal drought measurement and forecast "equation" includes temperature, precipitation and soil moisture. While the equation seems straightforward, these terms are dependent on a number of interrelated elements that vary across spatial and temporal scales. The impact each of these elements has on drought conditions – and predictions – varies given the time of year and the region in question.

On the web:

Find tools that help gauge drought's impact on the West.



CASE STUDIES

California and federal agencies are collaborating to allocate scarce water supplies while balancing the needs of water users and protecting against devastating financial loss. The San Antonio Water System employs customer outreach that has resulted in a voluntary reduction of 40 percent in *per capita* consumption. WaterSmart software yields an average reduction in water use of 5 percent within a year of its use.

On the web:

Watch videos of Case Study presentations.

The Western Governors' Drought Forum initiative is being conducted in partnership with NOAA's National Integrated Drought Information System

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END NOTES

[1] Since the September 2014 rollout event, a wet spring has ameliorated or eliminated drought conditions in parts of the Southern Great Plains and Rocky Mountain region. Despite this much needed moisture for parts of the interior West, severe drought has made its up way up the Pacific Coast; both Oregon and Washington are currently under gubernatorial drought declarations.

[2] Remarks of Gov. Mary Fallin, Oklahoma, on September 18, 2014. Also available from the following source: Wertz, Joe. "The Cost of Oklahoma's Drought: $2 Billion in Two Years." State Impact, A Reporting Project of National Public Radio. Dec. 4, 2012.

[3] "Irrigation & Water Use." U.S. Department of Agriculture Economic Research Service. June 7, 2013.

[4] Schaible, Glenn, and Marcel Aillery. "Western Irrigated Agriculture: Production Value, Water Use, Costs, and Technology Vary by Farm Size." U.S. Department of Agriculture Economic Research Service. Sept. 2, 2013.

[5] Marquis, Dave. "Foothill community of Outingdale in Stage 4 water emergency." ABC News 10. May 1, 2015.

[6] "Governor Brown Declares Drought Emergencies in 8 Counties." Newsroom of Gov. Kate Brown, Oregon. May 22, 2015.

[7] "CDFW Reminds the Public that Wild Animals Do Not Need Handouts." California Department of Fish and Wildlife. July 14, 2014.

[8] Williams, A. P., C. D. Allen, C. I. Millar, T. W. Swetnam, J. Michaelsen, C. J. Still, and S. W. Leavitt. "Forest Responses to Increasing Aridity and Warmth in the Southwestern United States." Proceedings of the National Academy of Sciences 107.50 (2010): 21289-1294.

[9] The impact of bark beetles on wildfire conditions across the West is variable and dependent on other conditions like soil moisture and temperature, but some studies suggest that it still is a factor in determining wildfire risk. For reference please see: Hicke, Jeffrey A., Morris C. Johnson, Jane L. Hayes, and Haiganoush K. Preisler. "Effects of Bark Beetle-caused Tree Mortality on Wildfire." Forest Ecology and Management 271 (2012): 81-90. Wertz, Joe. "The Cost of Oklahoma's Drought: $2 Billion in Two Years." State Impact, A Reporting Project of National Public Radio. Dec. 4, 2012.

[10] Wegesser TC, Pinkerton KE, Last JA. California Wildfires of 2008: Coarse and Fine Particulate Matter Toxicity. Environmental Health Perspectives. 2009;117(6):893-897. doi:10.1289/ehp.0800166.

[11] U.S. EPA. "Integrated Science Assessment of Ozone and Related Photochemical Oxidants" (Final Report). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/076F, 2013.

[12] "Hydropower in the West." National Hydropower Association. Statistics valid for 2013. http://www.hydro.org/why-hydro/available/hydro-in-the-states/west/

[13] Bender, Sylvia, Deputy Director of the California Energy Commission—Energy Assessments Division. Personal correspondence, April 24, 2015.

[14] Estimate includes $200 million in losses to outfitters and $800 thousand in lost revenue from fishing licenses. Hayes, M.J., M.D. Svoboda, C.L. Knutson and D.A. Wilhite (2004). Estimating the economic impacts of drought. 14th Conf. Appl. Climatol.

[15] Southwick Associates, prepared for Protect the Flows. "Economic Contributions of Outdoor Recreation on the Colorado River & Its Tributaries." May 3, 2012.

[16] Western Governors' Drought Forum survey. Administered May 6, 2015 – May 20, 2015. Total of 25 respondents. Results on file with WGA.

[17] Maloney, Wayne. "Want to Know about Soil Moisture on your Farm? Soon, There May be an App for That." US Department of Agriculture. March 2, 2015.

[18] "NASA Launches Groundbreaking Soil Moisture Mapper." National Aeronautics and Space Administration – Jet Propulsion Laboratory. January 31, 2015.

[19] In energy production, "produced" water is an industrial wastewater that is released to the surface during energy extraction. "Flow back" water is that which is injected during hydraulic fracturing, then returns to the surface.

[20] Geraghty, Kevin, Vice President, Energy Supply, NV Energy. Personal correspondence, June 4, 2015.

[21] Elimelech, M., and W. A. Phillip. "The Future of Seawater Desalination: Energy, Technology, and the Environment." Science 333.6043 (2011): 712–17.

[22] Wythe, Kathy. "Reclaiming a Valuable, Clean Resource: Texas Cities Increasingly Embracing Potable Reuse." Texas Water Resources Institute. Summer 2013

[23] "Reclaimed Water: A Valuable Supply." Scottsdale Water Resources Division. http://www.scottsdaleaz.gov/Water/Water_Supply_Planning/Sustainable_Supply/Reclaimed_Water

[24] Robles MD, Marshall RM, O'Donnell F, Smith EB, Haney JA, Gori DF (2014) Effects of Climate Variability and Accelerated Forest Thinning on Watershed-Scale Runoff in Southwestern USA Ponderosa Pine Forests. PLoS ONE 9(10): e111092. doi:10.1371/journal.pone.0111092

[25] Scientists have long debated the role forests play in water availability, often within the context of afforestation and deforestation. While the scientific community has not come to consensus about the relationship between forestry practices and water runoff, several Drought Forum participants expressed interest in this developing field of research—especially because of the benefits forest management has for wildfire risk reduction and ecological health. For more information about the scientific debate, see: Ellison, David; Martyn N. Futter; and Kevin Bishop. "On the forest cover–water yield debate: from demand- to supply-side thinking." Global Change Biology (2012) 18, 806–820.

[26] "Resilient: Soil, water and the new stewards of the American West." Video. National Young Farmers Coalition. http://www.youngfarmers.org/video/

[27] This and other water-saving strategies are discussed in the best practices section of the Drought Forum online resource library.

[28] Finley, Bruce. "Denver Water Use Dips to 40-year Low in 2014." The Denver Post. Feb. 10, 2015.

[29] Brean, Henry. "After seven years of digging, Vegas reaches its last straw." Las Vegas Review Journal. December 9, 2014.

[30] "Low Lake Level Pumping Station." Southern Nevada Water Authority. http://www.snwa.com/about/regional_pumping_low.html

Western Governors' Association

1600 Broadway • Suite 1700
Denver, CO 80202
303.623.9378

www.westgov.org

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For More Information

westgov.org/drought-forum

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Appendix F

NOTICE OF PUBLIC MEETING
of the
NEVADA DROUGHT FORUM

THURSDAY, JUNE 11, 2015 – 9:00 AM

The Nevada Drought Forum will conduct a public meeting on **THURSDAY**, **JUNE 11, 2015**, beginning at **9 a.m.** at the Nevada State Capitol, 101 North Carson Street, Guinn Room - 2nd Floor, Carson City, NV, and video conferenced to Grant Sawyer State Office Building, 555 East Washington Ave, Suite 5100, Las Vegas, NV. The public is invited to attend at either location.

NOTICE

(1) Items may be taken out of order; (2) Two or more items may be combined; (3) Items may be removed from the agenda or delayed at any time; (4) Public comment may be limited to three minutes per person at the discretion of the Chair; comments will not be restricted based on viewpoint; (5) Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Please call (775) 684-5670 in advance so that arrangements for attendance may be made.

AGENDA

Action may be taken only on those items denoted "For possible action."

1. Call to Order & Roll Call – *For possible action*

2. Public Comment - Discussion
   Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comments may be limited to 3 minutes per person at the discretion of the Forum. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

3. Election of Chair & Vice Chair – *For possible action*

4. Review & Consideration of Approval of Agenda – *For possible action*

5. Drought Forum Member Introductions – Discussion
   Members of the Forum will provide brief professional introductions and provide information regarding the organization(s) that they represent.

6. Current Drought Status & Forecast – *For possible action*
   Dr. Douglas Boyle, Nevada State Climatologist, will provide an update on the most recent drought statistics and forecast; John Entsminger, General Manager of the Southern Nevada Water Authority and the Las Vegas Valley Water District will provide an update on drought information related to the Colorado River Basin, Lake Mead and Southern Nevada. Jason King, State Engineer of the Nevada Division of Water Resources will provide information related to the most current groundwater, surface water and other drought related statistics across Nevada.

7. Review of Executive Order 2015-03 – *For possible action*
   The Forum will review the mandates, requests and responsibilities set forth in Governor Sandoval's Executive Order 2015-03, "Order Establishing the Nevada Drought Forum." The Forum may take action to assign Forum members or staff with responsibility for deliverables identified in the Executive Order.

8. Overview of Nevada Drought Summit – *For possible action*
   The Forum will discuss the format, objectives, potential topics of discussion, next steps and other possible matters related to planning and carrying out the Nevada Drought Summit that will take place in September 2015.

9. Overview of Interim Sector Meetings – *For possible action*
   The Forum will discuss and possibly schedule sector-specific meetings of the Drought Forum that are intended to be held in advance of the September 2015 Nevada Drought Summit.

10. Review of Action Items, Future Meetings & Agenda Items – *For possible action*
    The Forum will review items discussed, as well as items acted upon during this meeting, and determine which of those they wish to direct staff to do further work on, as well as which items the Forum wishes to act on that may not have been acted upon during earlier discussion. The Forum may also schedule future meetings at this time.

11. Public Comment - Discussion
    Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

12. Adjournment – *For action*

This notice and agenda has been posted on or before 9 a.m. on the third working day before the meeting at the following locations:

(1) Nevada State Capitol, 101 North Carson Street, Carson City, Nevada
(2) Legislative Building, 401 South Carson Street, Carson City, Nevada
(3) Grant Sawyer Building, 2501 Washington Street, Las Vegas, Nevada
(4) Department of Conservation & Natural Resources, 901 S. Stewart Street, Carson City, Nevada
(5) Department of Agriculture, 405 South 21st Street, Sparks, Nevada
(6) Department of Wildlife, 1100 Valley Road, Reno, Nevada

Notice of this meeting was also posted on the Nevada Drought Forum website at http://drought.nv.gov.

Please contact Cory Hunt at 101 North Carson Street, Carson City, Nevada 89701, email drought@drought.nv.gov, or phone 775-684-5670 to obtain support material for the agenda. Materials will also be posted at http://drought.nv.gov.

Summary Minutes of the

Nevada Drought Forum

Meeting of June 11, 2015 9:00 AM

Nevada State Capital, Guinn Room
101 North Carson Street
Carson City, NV

Video Conference
Grant Sawyer Building
555 East Washington Ave., Suite 5100
Las Vegas, NV

Members Present:
Leo Drozdoff, Chairman
John Entsminger, Vice Chair
Dr. Doug Boyle
Justin Huntington
Jason King
Mark Walker
Bill Elliot, in place of James Wright
Lynn Hettrick, in place of Jim Barbee

Members Absent:

SEC Staff Present:
Jerry Snyder, Deputy Attorney General
Misti Gower, Administrative Support

BEGIN SUMMARY MINUTES

1) Call to order and Roll Call: (Discussion) Mr. Drozdoff called the meeting to order at 9:04 a.m.

2) Public Comments: (Discussion) Mr. Drozdoff asked for public comment, hearing none, he asked the Forum members to introduce themselves.

A full account of the introductions was captured in the audio recording, available on the Forum's website.

3) Election of Chair & Vice: (Action Item) Mr. Drozdoff asked for discussion on the election.

Jason King, State Engineer of the Nevada Division of Water Resources, moved to nominate Mr. Drozdoff as Chairman. Mr. Drozdoff asked if anyone else was interested in the position, hearing none, he accepted the nomination. Mr. Hettrick seconded the motion and it passed unanimously.

Mr. King moved to nominate Mr. Entsminger Vice Chairman. Mr. Entsminger accepted the nomination. Mr. Walker seconded the motion and it passed unanimously.

4) Approval of Agenda: (Action Item) Chairman Drozdoff requested comments from the members on the agenda. Hearing none, he asked for a motion.

Motion: Mr. Hettrick moved to approve the agenda. Vice Chair Entsminger seconded the motion and it passed unanimously.

5) Drought Forum Member Introductions: (Discussion) Having already made introductions, Chairman Drozdoff asked if there was anything that anyone wanted to add. Hearing none, he moved on to agenda Item 6.

6) Current Drought Status and Forecast: (Discussion) Dr. Douglas Boyles, Nevada State Climatologist, provided a handout (Attachment 1) explaining the drought conditions across the State. Mr. Boyles stated that all of the State is in drought conditions with 49 percent in extreme drought conditions. Last year had the warmest state average temperatures in recorded history. The warm conditions exasperate the drought. There is an 80 percent chance El Nino will last through the winter of 2015. If this condition continues it will increase the chance for precipitation in Nevada.

Mr. John Entsminger, General Manager of Southern Nevada Water Authority, then provided an update on the Colorado River and Southern Nevada. The Colorado River is the lifeline of the Southwest, providing water to seven different states, Mexico and Baja. This region has to be prepared for the river to produce less water when so much of the economy is based on receiving the water. Nevada has been in drought for four years but the Colorado River has been in drought for 15 years. This has driven down Lake Meads levels by 130 feet. Lake Mead is now three feet away from the first ever shortage declaration by the Secretary of Interior. The Colorado River provides 90 percent of the water for 75 percent of Nevada's population.

Southern Nevada started adopting water conservation early and has reduced the area's water consumption by 40 percent. The net water use off the Colorado River has dropped 33 percent over the last 13 years, even as the population has increased by 25 percent. This has been accomplished by reducing outdoor water use. The Water Smart Landscape Program is the reason for this success.

Because of the dropping water level in Lake Mead construction of a new pumping station was started in 2006. The new intake is located in the river channel allowing water to be pumped from the bottom on the lake. The intake should be operational by the late fall of this year.

Mr. King provided an update on current conditions of groundwater and surface water levels across the State.

Full accounts of the presentations were captured in the audio recording, available on the Forum's website.

7) Review of Executive Order 2015-03: (Action Item) Chairman Drozdoff stated there has been a lot of interest in the Drought Forum throughout the State. Many people have contacted the Governor's Office with a desire to be involved. Chairman Drozdoff felt inter-sector meetings throughout the State as one way to reach the different agency and people.

Mr. Mark Walker, Dean of the University of Nevada Cooperative Extension, stated they held several drought workshops. The workshops informed the public but also allowed for people to share their thoughts about the drought. Mr. Walker felt this information could be beneficial to the Forum in understanding what the public and agriculture's concerns are.

Vice Chair Entsminger felt that going out and having inter-sector meetings was the best way to get the information the Forum needs to prepare for the summit in September 2015.

Chairman Drozdoff asked for an update from the Division of Buildings and Grounds on their conservation efforts.

Mr. Gus Nunez, Administrator of the Public Works Division, introduced Tom Federici, Deputy Administrator (Buildings and Grounds) to present the update. Mr. Federici stated that to fulfill the goals of the Drought Forum, they started with an inventory of Building and Grounds properties throughout the State. In regards to landscaping, Buildings and Grounds has always worked at finding the most efficient type of watering

schedule. The inventory also consists of all the plumbing fixtures and what can be done to lower water consumption.

Bill Elliot, Lead Planner at the Division of Emergency Management, talked about his division role in preparing for the report the Forum is responsible in preparing. Mr. Elliot stated that in the yearly risk assessment the agency performs for communities, drought is the number two concern, only second to earthquakes. Because of this, Emergency Management is working with state and federal agencies to evaluate the impact on the communities. These agencies were sent a request to help gather the communities current and planned actions relating to the drought. Emergency Management also does a monthly drought situation report. Currently, their main job is to assess, make sure people are prepared and then be prepared to respond.

Chairman Drozdoff asked about the information being gathered from municipal water providers and governmental agencies. Mr. Elliot stated some of the water providers have yet to reply but they have compiled a good representation for the report. Chairman Drozdoff informed the members that Emergency Management has compiled a draft in regards to current actions of local, state and federal entities. The Executive Order calls for a summary to be complete by June 15, 2015, but perhaps that can be extended until July's meeting.

Motion: Lynn Hettrick moved to extend the June 15, 2015, deadline to July's Forum meeting. John Entsminger seconded the motion and it passed unanimously.

Forum members shared drought activities within their agency as well as other information. A full account of this agenda item was captured in an audio recording, available on the Forum's website.

Chairman Drozdoff asked if there was any public comment. Ms. Judy Gillmore, Water Conservation Coordinator with Utilities, Inc. addressed the Forum members. Ms. Gillmore stated that they had submitted comments to Emergency Management and hoped to be considered as part of the drought solution and conservation effort.

8) Overview of Nevada Drought Summit: (Action Item) Chairman Drozdoff felt they would be covering agenda items eight and nine together but would try to stay true to the agenda, announcing September 21-23, 2015, as the date for the Nevada Drought Summit. Chairman Drozdoff discussed what the Summit would be, such as hearing from the available sectors. There would be a lot of ideas that would feed into the Summit in advance so that the Summit would be an opportunity to have some focused discussion on drought and its effects on various industries. Chairman Drozdoff asked if there was any interest in putting a draft agenda together for the Summit by using information that has already been gathered and information from the sector meetings. Mr. Walker, Bill Elliot, Justin Huntington and John Entsminger were all willing to be part of a subcommittee to draft an agenda. Because of concerns regarding open meeting law, Chairman Drozdoff decided to talk with the interested parties separately.

Motion: Vice Chair Mr. Entsminger moved to delegate to the Chairman the assignment of coming up with a draft Summit agenda for the July meeting. Mr. King seconded the motion and it passed unanimously.

A full account of this agenda item was captured in an audio recording, available on the Forum's website.

9) Overview of Interim Sector Meetings: (Action Item) Chairman Drozdoff suggested the Forum have sector meetings in both Carson City and Las Vegas to meet with entities such as agriculture, municipal water users, tourism and mining.

After much discussion the Forum agreed to have a sector meeting in Las Vegas on July 14, 2015, with the location to be determined. Another sector meeting will be held on August 18, 2015, in the Carson City Reno area at a location that will allow video conferencing to rural Nevada.

Motion: Vice Chair Mr. Entsminger moved to delegate to the Chairman the responsibility of setting the agenda for the July and August meetings. Mr. Huntington seconded the motion and it passed unanimously.

The Forum members discussed different ways to get the information to the interested parties. Questioning the Nevada Drought Forum website and if it was available for individuals to sign up to receive notices. Forum members also agreed to send out electronic notices to from their individual departments.

Mr. Cory Hunt, Senior Analyst at Governor Sandoval's Office, came forward to address the Forum regarding the website. Mr. Hunt stated that website is DroughtNV.gov and at this time you can leave comments but they would be creating a link so that people could sign up for notifications, suggesting the Forum members direct people to go there. The dates for the Summit and sector meeting will be listed on the website and a press release will be released. Also the hashtag is NVDrough for anyone interested in using it.

A full account of this agenda item was captured in an audio recording, available on the Forum's website.

10) Review of Action Items, Future Meetings and Agenda Items: (Discussion) Chairman Drozdoff stated they had covered this item in the previous agenda item, asking for any further discussion on agenda item 10.

Mr. Entsminger asked about meeting after the August meeting to finalize the Summit agenda. It was decided to block out August 26, 2015, in the morning as a tentative meeting time.

There was further discussion on what needs to be addressed at the sector meeting and how to help implement a plan. The full account of this agenda item was captured in an audio recording, available on the Forum's website.

11) Public Comment: (Discussion) Chairman Drozdoff asked if there was anyone from the public that would like to speak.

Mr. Clint Koble, State Director for Farm Services Agency, came forward to address the Forum. Mr. Koble stated that he has worked with Emergency Management and supported the Drought Forum. He also was wondering what the Forums target audience was and if it is farming he could help them with contacts. Also one of the things the Forum should consider is what information will people get from these meetings that they haven't already learned at other drought meetings. If the drought continues into 2016, what can the people expect from the government and what kind of assistance. He would also encourage the Forum to have sector meeting similar to how the Governor's Office had their agriculture meetings. The format created a lot of interaction between the panel and the attending public.

12) Adjournment: (Discussion) Mr. Entsminger made a motion to adjourn, Mr. Hettrick seconded and the meeting was adjourned at 11:37am.

NOTICE OF PUBLIC MEETING
of the
NEVADA DROUGHT FORUM

FRIDAY, JULY 17, 2015 – 8:30 AM

The Nevada Drought Forum will conduct a public meeting on FRIDAY, JULY 17, 2015, beginning at 8:30 a.m. at the Grant Sawyer State Office Building, 555 East Washington Avenue, Room 4412, Las Vegas, Nevada and will video conference to the Nevada Legislative Building, 401 South Carson Street, Room 3137, Carson City, Nevada, and to Great Basin College, High Tech Center, 1500 College Parkway, Room 121, Elko, Nevada. The public is invited to attend at all locations.

The meeting is also available for viewing on the Internet at: https://www.leg.state.nv.us/App/Calendar/A/

NOTICE

(1) Items may be taken out of order; (2) Two or more items may be combined; (3) Items may be removed from the agenda or delayed at any time; (4) Public comment may be limited to three minutes per person at the discretion of the Chair; comments will not be restricted based on viewpoint; (5) Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Please call (775) 684-5670 in advance so that arrangements for attendance may be made.

AGENDA

Action may be taken only on those items denoted "For possible action."

1. Call to Order & Roll Call – *For possible action*

2. Public Comment

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comments may be limited to 3 minutes per person at the discretion of the Forum. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

3. Review and Consideration of Approval of Agenda – *For possible action*

4. Review and Consideration of Approval of Minutes – *For possible action*

A. Approval of minutes from the meeting held June 11, 2015.

5. Overview of Nevada Drought Summit and Need for Interim Sector Meetings - *Discussion*

The Forum will discuss the format of the September 2015 Drought Summit and the need, purpose and format of Interim Sector Meetings.

6. Update on Summary of Current Actions and Western Governors' Association (WGA) Drought Forum Final Report – *Discussion and possible action*

The Forum will receive an update on the *Summary of Current Actions* and discuss the recent release of the WGA Drought Forum Final Report.

7. Presentations from Sector Representatives on Drought-Related Impacts to Business or Operations - *Discussion*

The Forum will hear from invited sector representatives about how drought has or has not impacted operations and activities, drought mitigation efforts and current or anticipated obstacles to doing business because of drought impacts.

PRESENTING SECTORS ARE:

Gaming and Hospitality
Mining
Development
Energy
Commercial and Industrial
Tourism and Recreation
General Business

8. Review of Discussion, Future Meetings and Agenda Items – *For possible action*

The Forum will review items discussed and identify possible topics for consideration at the Drought Summit, as well as items acted upon during this meeting, and determine which of those they wish to direct staff to do further work on, as well as which items the Forum wishes to act on that may not have been acted upon during earlier discussion. The Forum may also schedule future meetings at this time.

9. Public Comment - *Discussion*

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comments may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

10. Adjournment – *For action*

This notice and agenda has been posted on or before 9 a.m. on the third working day before the meeting at the following locations:

(1) Nevada State Capitol, 101 North Carson Street, Carson City, Nevada
(2) Legislative Building, 401 South Carson Street, Carson City, Nevada
(3) Grant Sawyer Building, 2501 Washington Street, Las Vegas, Nevada
(4) Department of Conservation & Natural Resources, 901 S. Stewart Street, Carson City, Nevada
(5) Department of Agriculture, 405 South 21st Street, Sparks, Nevada
(6) Department of Wildlife, 1100 Valley Road, Reno, Nevada

Notice of this meeting has been included on the Nevada Public Notices website at http://notice.nv.gov/

Notice of this meeting was also posted on the Nevada Drought Forum website at http://drought.nv.gov. Please contact Andrea Sanchez-Turner at 775-684-2705 (direct) or asanchez@dcnr.nv.gov, or email drought@drought.nv.gov to obtain support material for the agenda. Any materials will also be posted at http://drought.nv.gov.

We are also pleased to make reasonable accommodations for individuals with disabilities who wish to attend the meeting. If special accommodations or assistance at the meeting are requested, please notify Andrea Sanchez-Turner in writing at 901 S. Stewart Street, Suite 1003, Carson City, Nevada, 89701, or by email at asanchez@dcnr.nv.gov, no later than two (2) working days prior to the scheduled meeting.

Summary of Minutes of the

Nevada Drought Forum

Meeting of July 17, 2015, 8:30 AM

Grant Sawyer Building
555 East Washington Ave., Suite 5100
Las Vegas, NV

Video Conference:

Nevada State Capital, Guinn Room
101 North Carson Street
Carson City, NV

Members Present:

Leo Drozdoff, Chair

John Entsminger, Vice Chair

Dr. Doug Boyle

Dr. Mark Hausner in place of Justin Huntington

Jason King

Mark Walker

Bill Elliot, in place of Caleb S. Cage

Lynn Hettrick, in place of Jim Barbee

Members Absent:

Justin Huntington

Jim Barbee

Caleb S. Cage

SEC Staff Present:

Bryan Stockton, Deputy Attorney General

Andrea Sanchez-Turner, Administrative Support

BEGIN SUMMARY MINUTES

1) Call to order and Roll Call: Chair Drozdoff called the meeting to order at 8:34 a.m. Andrea Sanchez-Turner conducted the roll call.

2) Public Comments: (Discussion) Mr. Drozdoff asked for public comment noting that written testimony did not need to be read into the record, but could be submitted to the Forum for review.

Las Vegas Public Comment

Rick Spilsbury spoke about the backgrounds of those appointed as members of the Forum, noting there is no representation from local residents, no one from the Central Nevada Water Authority, or the Great Basin Water Network. The lack of representation from rural Nevada is concerning.

Howard Watts, III, Great Basin Water Network, concurred with Mr. Spilsbury's comments on the representation of Forum Members. He noted that no one from the Nevada Department of Wildlife is represented for a perspective of the wildlife that will be affected by the drought. Mr. Watts suggested the next meeting include invitations to non-profit organizations.

Carson City Public Comment

Abby Johnson, President, Great Basin Water Network, noted the lack of representation from all parts of the state on the Forum and the SNWA does not represent all the water authorities in the state. Ms. Johnson stated the previous meeting was not well announced and therefore her organization did not attend. She also suggested the intention of the Forum should be to involve the public and be fully transparent in all its deliberations and actions.

Chair Drozdoff appreciated the issues raised in public comments and announced there will be a Drought Forum meeting in August in which water providers, agriculture, and Non-Governmental Organizations (NGOs) will play an active role.

A full account of public comments were captured in the audio recording, available on the Forum's website.

3) Review and Consideration of Approval of Agenda (Action Item) Vice-Chair Entsminger moved to approve the agenda; second by Member King; motion passed unanimously. ***ACTION**

4) Review and Consideration of Approval of Minutes (Action Item) Vice-Chair Entsminger moved to approve the minutes from the June 11, Drought Forum meeting; seconded by Bill Elliott, attending on behalf of Caleb S. Cage; motion passed unanimously. ***ACTION**

5) Overview of Nevada Drought Summit and Need for Interim Sector Meetings (Discussion) Chair Drozdoff announced the dates for the Drought Summit as September 21 through September 23, in Carson City, NV and that arrangements will be made for remote viewing. The Forum will take information they have compiled from Forum meetings, the Drought Summit and their partners and create a report for submission to the Governor. Chair Drozdoff noted the next Drought Forum meeting is scheduled for August 19, in Sparks, Nevada, however there will be satellite locations around the state for those wanting to participate or attend.

6) Update on Summary of Current Actions and Western Governors' Association (WGA) Drought Forum Final Report (Discussion and Possible Action) Chair Drozdoff provided an update on the WGA Drought Forum and a brief overview of the WGA Drought Forum Special Report, which can be found on the Drought Forum's website (drought.nv.gov). Chair Drozdoff pointed out key elements from the Report, elements that the Drought Forum will also consider, include data and analysis; produced, reused, and brackish water; forest health and soil stewardship; water conservation and efficiency; and infrastructure and investment. Chair Drozdoff noted members of the WGA will be in attendance at the Drought Summit.

Vice-Chair Entsminger noted Governor Sandoval, by Executive Order, requested municipalities, state agencies, and federal agencies to provide a summary of actions, in conservation and response to the drought, that have been enacted to date. The summary of current actions is nearly complete and should be available on the Drought Forum website and mailing list in advance of the August Forum Meeting. Chair Drozdoff noted the summary is not complete, however, the raw data that has been submitted is currently on the website.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (www.drought.nv.gov).

7) Presentation from Sector Representatives on Drought-Related Impacts to Business or Operations (Discussion)

<u>Gaming and Hospitality</u>

Las Vegas:

Erin McMullen, Nevada Resort Association, provided background on her organization and membership and information on how the drought is affecting her industry.

Gaming is one of the State's smallest water users. Seven percent of southern Nevada's water resources is used by casinos, and of that seven percent only three percent is used consumptively. The drought has made the industry rethink how they use water. She provided some examples of the changes.

The biggest obstacles for the industry is public perception, guest preferences (luxury is why visitors visit Las Vegas) and, by ordinance, there is a requirement to have spas, pools, and golf courses to be considered a resort hotel.

There was discussion and questions concerning Ms. McMullen's comments. Member King acknowledged the installation of low-flow features creates a culture of conservation. Ms. McMullen noted these have become part of the planning when doing new construction. Vice-Chair Entsminger stated indoor

conservation is important and that Clark County uses eleven percent of water statewide and therefore the industry actually uses three percent of that eleven percent. Ms. McMullen stated the drought does impact tourism, which is often not considered. Chair Drozdoff asked about barriers for the industry. Ms. McMullen noted ordinances are one. She will conduct a survey with her members to see what the individual properties consider obstacles. Ms. McMullen also noted education is one tool that can assist with the public perception issue. Chair Drozdoff asked Ms. McMullen to ask her membership two questions: are there barriers and what can the Drought Forum do the assist.

Chris Brophy, MGM Resorts International, provided an overview of what MGM Resorts has done to be leaders in conservation and in particular water. The Corporate Sustainability Division is responsible for managing the environmental impacts of the company. They have 15 properties in Las Vegas and 52,000 employees. The company is focused on the fact there is a water shortage. Water is an important part of the economy and a critical resource to the company moving forward within the valley. The company tries to take a holistic approach to the management of water. It is not only about a response to the drought but instilling a culture of sustainability and water conservation within the community and its employee base. MGM created My Green Advantage Program to assist with education on conservation. This program is electronically-based and contains a list of actions to be more sustainable. Their employees have listed over one million actions they have taken for conservation. This translates into 81 million gallons of water conserved from the employees' personal lives. This is an example of how to engage people into being water smart.

There was discussion concerning Mr. Brophy's comments with Chair Drozdoff noting MGM Resorts received an award from the EPA. Mr. Brophy stated MGM Resorts received a food recycling award from the EPA in 2013. The company diverted over 25,000 tons of food waste through their recycling programs.

Mining

Las Vegas:

Dana Bennett, Nevada Mining Association, provided background on the mining industry in Nevada. Ms. Bennett stated according to the State Engineers Office, in 2013 Nevada's mines accounted for approximately 15 percent of the groundwater pumped in the state. A vast majority of this water is not consumptive. It is pumped from one location and then returned to the same basin at another location, or sometimes substituted for other water rights. She introduced the mining panel and provided a brief background on each speaker.

Ms. Bennett noted Nevada mines are affected by the drought on several levels. A lack of water can put pressure on the permitting process. The drought also affects wildlife. Nevada's open ranges are home to many different species that have a tendency to come to mine sites in search of water which can be a safety concern for the both the mine operator and the animals themselves. Minimizing mining's effect on wildlife is important and the drought is complicating the issue. Mining is in the business of resource management and they have a tendency to be drought ready before droughts occur. Ms. Bennett could not identify specific regulatory obstacles for water conservation concerning the mining industry.

Allen Biaggi, Nevada Mining Association, provided a brief overview of Nevada mining industry, its use of water and the long-term stewardship of the resource. Modern mining in Nevada has endured many droughts. The conservation and reuse of water is standard operating procedure for the mining industry. Mining operations in Nevada rely exclusively on groundwater, utilizing subsurface water. Mr. Biaggi provided a description of the process of extracting groundwater and how it is used in mining operations. The State Engineer created a regulatory framework dealing with mine dewatering, water rights and monitoring the use of water. Mr. Biaggi briefly gave an explanation of the options available through this regulatory framework. To comply with these regulations mining operations in the State have put into place extensive networks of monitoring wells, flow meters, etc. to track every gallon of water. A vast majority of water removed for dewatering is placed back into the ground from where it came. While the subsurface conditions and water needs of each mine varies, major mines in Nevada have on the average returned more than 85 percent of the pumped water back into the subsurface to surface waters or substituted for other rights. If there are impacts to other users, mines work with the water rights owners to mitigate the impacts to make the other water rights owners whole. The Nevada mining industry recognizes the need to address pit lake evaporation and is working on possible management strategies for this issue. There are stringent state and federal requirements are in place to restore and reclaim the disturbed areas to productive post-mining land use.

Timothy Dyhr, Nevada Copper Corporation, noted his organization is developing the Pumpkin Hollow project near Yerington, Nevada. Mr. Dyhr provided an overview of the mining operation. Mason Valley is the largest agricultural producing area in Nevada with a gross annual agricultural product well over $100 million. It also has a long history of copper mining. These two industries have been the economic lifeblood of the valley for over 75 years. Both industries are dependent on the availability of water. Nevada Copper started in 2006. Their focus has been squarely on the efficient use and protection of groundwater, including the source of water, the efficient management of the water, and protecting water quality. The Valley gets a majority of their water from snow melt from the Sierra Nevada Mountains. For the last four years this source has been severely affected by the drought, affecting all the users in the basin. He provided background on the water at Pumpkin Hollow. The mine will perform extensive monitoring throughout its life. Nevada Copper Corporation has sought ways to conserve water through reduced water consumption and better recycling methods. The most significant way they have reduced their water consumption is through technologically advanced water extraction, in which they have been able to reduce their water demand by 65 percent. Nevada Copper is also exploring other ways to use the surplus water from dewatering, wanting to reuse water more than once. The obstacle to overcome is in the policies and regulatory framework, which need to be flexible and adaptive. By flexible it needs to recognize that specific standards may not allow for types of creative management solutions to improve water use both outputs and inputs and to deal with drought years. By adaptive it needs to be able to address the changes in annual weather and climate and be able to find ways to enhance and/or capture water during wet years and make adjustments during dry years. The biggest challenge is to develop a comprehensive water strategy with the buy-in of all stakeholders in the Walker River Basin and to seek a common solution both to water management and drought response.

Chair Drozdoff asked if the topics of water conservation and best practices show up in Nevada Association Committee discussions. Ms. Bennett noted the Nevada Mining Association sets up

committees to look at specific issues. They have an environmental committee where water is typically part of the conversation. From that committee, the Association formed a water working group. Mr. Biaggi noted the Association also has a closure working group that reviews how to close mines. Proper water management and water balance are critical components of that.

Paul Pettit, Newmont Mining Corporation (Newmont), provided an overview of Newmont's operations and how they manage water. In regards to dewatering, Newmont has adhered to the four principles developed by the State Engineer's Office. He provided examples of water balance at some of their sites. Newmont recognizes water is critical to their operations. They have developed an internal global water strategy, which has five main pillars. First, is to secure water supplies for operations by understanding the watersheds in which they operate. Second, mitigate environmental and social impacts associated with water use and enhance water use opportunities. Third, manage water as a valued asset and comply with all commitments and account for the full cost of water. Fourth, collaborate and engage with external stakeholders on water policy and management in the watersheds in which they operate. Fifth, collaborate and engage with internal stakeholders on water stewardship. Mr. Pettit provided a brief description of their monitoring plans and water recycling. He discussed the use of bonding agents for dust control to minimize the use of water. He also discussed stream and riparian restoration.

Melissa Barbanell, JD, Barrick Gold Corporation (Barrick), provided an overview of Barrick and its engagement on working on water issues. Barrick has broadened its focus from water conservation to a water stewardship approach. They have put together a cross-function team from across the world to develop a corporate water strategy to ensure that each of its sites and projects is appropriately managing its water risks. They are engaging all relevant stakeholders and potential partners.

Dr. George Fennemore, Barrick, spoke on the field application of the practices described by Ms. Barbanell. Dr. Fennemore noted for several reasons, including environmental, social and economic responsibility, site water management is optimized and impacts to water resources are minimized through planning, monitoring, investments and technology, system maintenance, reuse, recycling and collaboration with neighboring water users. Aside from storm-water which is diverted around the operations, the water managed and used by the Cortez mining operation consists exclusively of groundwater. Dr. Fennemore provided background on the use of water and the recharging of water at the Cortez mine, as well as, the monitoring of the use of water. The Cortez mine operates successfully within the State Engineer's framework.

There were questions and discussion about the comments from the mining industry. Ms. Barbanell noted Barrick has been engaged in energy conservation efforts. Approximately five years ago, Barrick created a climate and energy standard and program for the company and each year they track the energy efficiency activities at mine sites across the company. Dr. Fennemore noted one aspect of the business is recharge and artificial recharge of aquifers. He also noted there are a number of practices and experiences in the mining industry that may be beneficial to other water users, including the control of dust.

Member King noted the current relationship between mining and the State Engineer's Office is productive and successful. He stated that as things progress in the future he hopes the open, honest dialogue and partnership will continue.

Ms. Bennett noted the mining industry does provide a lot of data to a number of entities and all of the information is made public. There are issues with how data is presented, sometimes comparing apples with oranges. The industry believes the data collected should be collected in a consistent format and common units, in a manner that allows for sufficient data analysis and comparisons. She noted dewatering is a tool for economically viable mining and there is a policy process in place and has been in place for decades that has effectively managed and regulated that tool. It is important the State Engineer have flexibility with the policy. The industry would like to be a part of the conversation when, and if, there is discussion on re-visiting current water policies.

Chair Drozdoff stated he is aware there are scheduled speakers who may be unable to make their time slot for the meeting, however, they may submit written testimony to the Forum.

Development

Las Vegas:

Nat Hodgson, Southern Nevada Homebuilders Association, noted he will also be speaking on the behalf of the Northern Nevada Homebuilders Association. Mr. Hodgson stated single family residents comprise 45 percent of metered water use and landscape irrigation constitutes a majority of household use. He provided a brief history of water and homebuilding in Nevada. He stated the population has doubled and they use the same, if not less, water then they did in 2002. There was a 90 day transition to having no more turf in front yards. There are 800,000 households in Nevada. They are only building approximately 7,000 new homes a year. Association members are building using the Water Smart Program or are utilizing Water Smart features. Members are also looking at new technologies, including using weather sensing devices that will shut off the irrigation/watering system when it rains.

Mr. Hodgson spoke about northern Nevada stating the Truckee Meadows Water Authority asked for voluntary cutbacks of a minimum of ten percent usage from the previous year and most local citizens, including new home buyers, are recognizing there is an issue and they need to be proactive. Northern Nevada Homebuilders Association is working with the health department and the regional water authority to reduce the turf requirements. The Association is embracing this issue and working to save any resources they can. Their biggest challenge lies with current requirements in place mandating a certain amount of turf in new home communities.

Tom Warden, Howard Hughes Corporation, noted the Corporation is building the largest master plan that is in development in Nevada. There are 100,000 current residents and they expect to double that number. He provided a brief overview of the community. They outlawed lawns in front yards before the implementation of the Water Smart homes. They use drought tolerant plants, and desert landscape. As

direct result of the drought, they are looking at re-vegetation. In 1996 they began their first re-vegetation project. They had a success rate of approximately 50 percent. He provided a brief description of the process used for re-vegetation. There is no water use after the first six months of establishing the plants in their new location and it creates nice landscape. Of all the amenities that are provided, the number one is trail systems, therefore, they are building more of these and less parks. He provided a brief description of downtown Summerlin and the sustainable plans for the surrounding area. Mr. Warden noted many people ask about water and the future, including analysts from Wall Street.

After listening to Mr. Warden, Chair Drozdoff noted there should be discussion on homeowners' associations and the concept of new homes and older homes where homeowners' associations have been around for a long time with old requirements.

There was discussion and comments with Mr. Warden noting that education and getting the word out are essential parts of conservation. Incentive programs are also important and successful.

Mr. Hodgson noted water efficiency and energy efficiency go hand and hand and developers are doing the layout of their communities with this in mind. Developers are also designing water delivery systems to get water to the faucets quickly to save water. He also noted there is no return flow credits on outside usage and this is where the majority of water is used. He encouraged starting with an incentive program and getting it place before moving on to something else.

Mr. Warden noted homeowners' associations will be supportive when they know the cost of water in common areas can be saved.

Lynn Hettrick, attending on behalf of Member Barbee, commented conserving 40 percent of the water, while allowing 20 percent more growth and the use of more water, is not helpful. Perhaps allowing only 10 percent of the growth, there would be more water conserved. The thought may be that the state is enabling itself to continue to have a problem by saving water and what is the goal, should the state continue to grow forever and make this problem compound forever. He noted Douglas County has growth controls and that growth is a wonderful thing, however, perception must be addressed.

Mark Hausner, attending on behalf of Member Huntington, asked about best practices developed during the construction phase of development. Mr. Hodgson noted there is an eight percent or less growth pattern. The industry is looking at the southern Nevada Green Energy Program and re-energizing water saving features that go above and beyond what is already regulated.

Chair Drozdoff stated Forum members may have additional questions at a later time and asked if Mr. Warden and Mr. Hodgson would be willing to address those questions. They replied they would be able accommodate later questions.

Member King asked about consideration of solar panels in new construction. Mr. Warden noted they work with homebuilders that provide homebuyers with that opportunity. It is part of planning process. Homeowners' associations sometimes get in the way of progress when it comes to sustainability issues. These are organizations compiled of residents and at times there is a resistance to change. Mr. Hodgson noted that over 75 percent of his members offer solar as an option. They highly encourage it.

Member Entsminger asked how the business community deals with Wall Street concerning the water issue. Mr. Warden noted he deals with this on a regular basis with analysts and others in the industry. It is an education and communication process. Mr. Hodgson noted when most of his builders go to get capital the number one issue is water. If they cannot show a business plan that includes what they are doing to conserve water they don't get the capital.

Rick Van Diepen, US Green Building Council (USGBC) Nevada Chapter, noted the USGBC is a state-wide, non-profit, non- partisan organization that promotes energy conservation and green building options including the LEED certification system. Mr. Van Diepen has seen a cultural change in the commercial design arena with conservation and making a case for green building. He noted the average building premium for a LEED certified building is between .5 percent and less than 2 percent. That falls well within the margin of error of a cost estimate. He noted California has a progressive gray water legislation, which may not be useful in Nevada, because it is consumptive use and does not get the return flow credits. On average LEED certified buildings reduce 25 percent of water use at a bare minimum. The water conservation credit through the LEED program is achievable within existing budgets and buildings. LEED buildings also incorporate outdoor use including desert and drought adaptive landscapes and efficient irrigation systems in which they achieve approximately 50 percent reduction in water use. There is also a LEED rating system for homes, however, it is not developer-friendly, but there are great elements that promote Energy Star and Water Smart aspects in homes. In 2010, USGBC worked on a pro bono basis to design two prototype homes for Habitat for Humanity. Those homes are in Henderson and LEED Platinum-Certified and Water Smart certified homes. Habitat for Humanity is an affordable home builder. Those homes were not only the most efficient but they were the cheapest homes build by Habitat for Humanity on a per square foot basis. It shows that even on residential homes LEED can fit within a budget. The USGBC is at the disposal of the Governor for assistance.

Chair Drozdoff noted there are a lot of questions on existing facilities and retrofit. He asked if the USGBC has an opinion concerning this. Mr. Van Diepen noted the USGBC is solidly behind retrofitting for water conservation and energy efficiency in both residential and commercial sectors. Chair Drozdoff asked if there is value looking within the walls of a home/building for conservation. Mr. Van Diepen noted there is. Technology is helpful in this and it makes sense to focus on the inside of a structure. He noted conservation on the inside of a house/building should not be discounted because it is so affordable, stating green cleaning is a good source of achieving credits.

Energy

Las Vegas:

Starla Lacy, NV Energy, noted NV Energy supplies a little over 90 percent of the customers in Nevada. NV Energy is in the process of transition due to SB 123, which has NV Energy switching from coal fire generation into cleaner forms including renewable energy. Currently, they are at 75 percent natural gas. NV Energy has two power plants that use gray or reclaimed water and another that returns groundwater usage to a local marsh. There is one plant that uses surface-water and has reduced water usage by retiring old units while providing more output because of the construction of a new air-cool combined cycle plant in 2008. NV Energy uses less water today to make twice as many megawatts as they did in 2005. Ms. Lacy mentioned Hoover Dam, which is a power-generating facility, rated at over 2000 megawatts. They are currently de-rated and potentially could be de-rated further as the levels of the lake go down. NV Energy gets approximately ten percent of Hoover Dam's output. During the hottest day of the year so far, June 30, the State was just under 7600 megawatts in demand and Hoover Dam represented about 3 percent of that supply. As they move more toward renewables NV Energy has several hundred megawatts in the queue. One issue NV Energy has is they have seen some surface right holders put claims on groundwater in certain areas of the State. This has not impacted them yet, however, they are aware of the issue.

Member Boyle noted temperatures are warmer than average and asked if this will this impact NV Energy's demand. Ms. Lacy noted Northern Nevada is considered a winter-peak, meaning there is typically more demand during the wintertime, because more people turn on their furnaces, however, they are seeing that change. NV Energy does attempt to predict the demand and that includes the weather. They have a weather person on staff.

Terry Page, Enel Green Power North America, noted his organization operates large-scale renewable energy generation facilities. They have been impacted by the higher temperatures. Over the last four years, there has been a two to five degree increase in the average ambient air temperature. They air-cool their facilities. The drought from a water perspective has not impacted them, however, they have seen degradation in the output on the hottest days of the summer. They cool the fluid that is run through the geo-thermal plants to the ambient air temperature, and if the ambient air temperature is higher than the average, they lose the ability to increase the vapor pressure through the turbine.

There was discussion about the energy industry and how they are the leaders in the industry especially when it comes to air-cooling their facilities.

Carson City:

Josh Nordquist, Ormat Nevada (Ormat), noted his organization operates 210 megawatts of geothermal energy projects in Nevada. They hope to develop future energy projects in Nevada. He provided background on his company. In every thermal plant, whether renewable or fossil fuels, there is always a

need for cooling. It is an unavoidable requirement defined by laws of thermodynamics. Traditionally cooling is done with evaporative cooling or water. There is a lot of technology today, however, the cooling is still done by water. A majority of the geothermal plants in Nevada are air-cooled and consume no water. In addition, all the projects in the state incorporate groundwater monitoring plans under the oversight of the Bureau of Land Management (BLM) and Nevada Division of Environmental Protection (NDEP) that ensure groundwater reservoirs are not impacted against the production and reinjection of geothermal fluids. Mr. Nordquist noted geothermal power is a major contributor to Nevada's clean energy portfolio, while saving water for other uses. Geothermal could replace natural gas generation within the State. Mr. Nordquist recommends considering geothermal to do more.

Chair Drozdoff asked if there are any roadblocks from a water perspective that precludes Ormat from doing more. Mr. Nordquist noted air-cooled and water cooled plants are more efficient and Ormat tried to use reclaimed water in a cooling effort however using groundwater is not an acceptable source in the future.

Lunch 12:20 p.m. to 1:18 p.m.

Commercial and Industrial

Las Vegas:

Terry Satchwell, Brady Linen Service, provided a background on his company. They service a little more than half of the hotel rooms in Las Vegas. There has been a movement, because of economics, to look at conservation of all kinds. They are looking at changing machines that use more water to a new process known as a tunnel washer. The tunnel washer only utilizes from 3/10 to 4/10 of a gallon per pound of laundry. Implementing tunnel washers is capital intensive so they thought about using an incentive program where they may get hotel owners to remove old washers or to outsource the work. There are approximately 150,000 hotel rooms in Las Vegas, approximately 50 percent are outsourced to tunnel washers which leaves approximately 50 percent that are not. This leaves a possible savings of over 844 million gallons of water a year if they could convince the hotel owners to outsource. Mr. Satchwell suggested if there were an accreditation given for use of this technology, or best practices, it would be an additional incentive for hotel owners to take advantage of outsourcing. The biggest issue is capital and the rate of return.

Member King asked if Mr. Satchwell's company was at capacity with the tunnel washers. Mr. Satchwell noted they have amble capacity. They could take on, depending on the plant, another 200,000 to 300,000 pounds a day. Member King asked if Mr. Satchwell had reached out to hotels with older technology to outsource to Brady Linen Service. Mr. Satchwell noted Brady Linen Service does have capacity but some hotel owners are looking for a different incentive. They don't meter their water use just for those washing machines, it gets metered for the entire building, therefore, making an economic argument is not beneficial because it is not metered separately.

Chair Drozdoff asked what the next steps would be. Mr. Satchwell noted that in new development there could be an incentive if the plans include technology that uses eight to ten times more water there could be an excise tax that would start some conversation to inspire a thought to explore alternatives. In the case of the conversion process, there is capacity for many in the industry and an investment tax credit, like with Energy Star, could help facilitate the message.

Scott Horner, Western Car Wash Association and the Herbst Family, noted the Western Car Wash Association covers twelve states. The drought has not affected the car wash industry. The message they are trying to get out is to use a professional car wash service. By using a professional car wash service 85 to 90 percent of the water used is returned to the City. It is treated and returned to Lake Mead as opposed to washing in the driveway, or in a parking lot, where 100 percent of the water is lost and also includes having tainted water in the storm-drains that do not get treated and then go back to Lake Mead. Car wash owners are putting together charity programs instead which discourage charity car washes at convenience stores, parking lots., etc. The car washes have been selling their car washes at 50 percent face value and letting non-profits sell them at face value so they are still saving water. Chemistry for car washes is a lot better, hyper-concentrates are coming out that use less water, there are also less phosphates going into the sewer system. Since the chemistry is getting better a lot of car washes are using less high pressure water. The computer systems available can control when the water comes on and off down to the inch. They see their major water loss through the use of facets and toilets.

Member King asked how much water is used to wash a car. Mr. Horner noted depending on the location it could be from 50 to 70 gallons of water. Member King also asked how many cars in a year are washed in Las Vegas. Mr. Horner noted it varies by location with some doing over 100,000 cars a year and some doing 30,000 cars a year. Member Boyle asked if this was consumption use or if the water was reused. Mr. Horner noted that some is reused and some operators are using reverse osmosis machines. When making spot-free water you make a gallon of good water and there is a gallon of reject water. Operators are running the reject water in their wheel blaster tank or other operation. Vice-Chair Entsminger noted there is still 85 to 90 percent of the water going into the sanitary sewer and the operator is receiving return flow credits. Mr. Horner noted that was correct and believes it is a 10 or 15 percent loss of water as far as carry off or evaporation. Member Walker asked how car wash operators deal with grease and oil, Mr. Horner noted they go through sand/oil separators and are removed by a company that disposes of them properly.

Carson City:

Ray Bacon, Nevada Manufacturers Association, noted the concrete sector is one of the biggest users of water. He stated one of the biggest issues, mostly in southern Nevada, is food production. Where water becomes a component of food products or in the processing of food products there is a fairly extensive reuse of water as much as possible. Mr. Bacon provided an overview of the food industry in Nevada. In most cases, the food industry with the exception of the water that goes into the product, are conservative in water uses.

Mr. Bacon noted the Governor's Office of Economic Development has all incentives based upon the number of jobs. The reality is there are a number of companies that cannot qualify for most of the incentive programs currently in place because they are spending a lot of money on capital equipment. These expenditures are increasing productivity and reducing water. There needs to be discussion to take a look at expanding the incentive programs to get water to be factor. Those will make companies more competitive and more likely to stay in Nevada.

There are some extruder operations in Nevada, and most extruders go through a lot of water from the stand point of just cooling. However, a vast amount of the water is recycled back through so they need to do some level of cooling.

Mr. Bacon noted energy and water are connected and related. In some cases with a little bit of assistance as far as doing a better job with cooling towers, less cooling towers, or with other ways to absorb the heat, such as waste heat generation.

Storm-water runoff is another issue that needs to be addressed. If you can control the rate of the runoff through residential areas you reduce the damage.

Chair Drozdoff noted Mr. Bacon represents a diverse industry and asked if there is desire in the industry to use other sources of water (e.g. reclaimed water, gray water, etc.), however, because of regulations they cannot. Mr. Bacon noted there have been multiple discussions on doing this, especially when the plastics industry was stronger. When using water for cooling, it does not need to be tap water. It does need to have a fairly low mineral content. He provided other examples of the use of water that does not need to be high quality. He noted the problem is transportation and how to get the water to the factories. There has never been a concept of having a separate gray water line system installed even in industrial parks and without that system the installation costs would make it prohibitive unless you can do storage tanks on site. Mr. Bacon noted most of the companies do a reasonable job on internal gray water use with the exception of the sewer line connections. The problem is a lack of infrastructure and the ability to get second source water to the companies at reasonable cost.

Heidi Kratsch, Nevada Landscape Association and University of Nevada Cooperative Extension, noted over 2/3 of household water is used on landscapes. The Association is interested in water conservation, however, they do believe that keeping landscapes alive and maintaining property values should be a priority for policymakers. The Association is alarmed by the number of property owners taking the drastic step of removing their entire lawns and replacing it with rock and decomposed granite instead of plant materials. While removing small parts of the lawn and replacing with drought tolerant plants can be a great way to save water, and lowering water consumption, removing the entire lawn harms the landscape plants and harms the trees in the landscape. In particular the trees are the most valuable part of the landscape. The Association is seeing a great number of trees declining and even dying in the area. Trees provide shade, keep homes cool, help with soil-erosion, and help increase property values. Appropriately planned and irrigated lawns can provide an evaporative cooling effect on the landscape,

which reduces landscape water consumption. Most people over-water their lawns, which is a problem. Appropriately managed lawns can be a helpful addition to water efficient landscapes. Thoughtless lawn removal does not result in long-term water conservation. It does not teach people how to conserve water and it increases energy consumption from summer air conditioning systems.

Ms. Kratsch noted the industry believes education is the key to meaningful and long-term reduction in outdoor water use. The Association partnered with the Truckee Meadows Water Authority and the University of Nevada Reno (UNR) to create a plan to educate the public on how to reduce landscape water use. The Association also offers continuing education to members and a certified landscaper training program where they are taught best management practices.

One obstacle is inefficient landscape irrigation, which is the biggest landscape water waster. Old systems are only 35 percent effective and repairs or replacement costs can easily derail conservation efforts. The Association proposes instead of offering rebates for lawn removal we offer rebates for people to go in and redesign their irrigation systems. Also, there are new technologies and new irrigation systems for helping property owners to water more efficiently. Technologies are expensive, rebates could also be offered to homeowners who choose to purchase these systems and use them in their landscape plans. We can save water and we can save landscapes.

Member Walker asked if there was a clear-focused message getting out to people to help them make better decisions on landscaping. Ms. Kratsch noted people do what is short-term, quickest, easiest and cheapest. Education is a primary mission.

Las Vegas:

Pete Luna, Southern Nevada Landscape Association, noted the drought has affected the industry over the last ten years. It has changed the way they design, the way they water and the way they maintain. Without irrigation, landscape would not exist. There will always need to be some form of irrigation for landscape. The Southern Nevada Water Authority was proactive 10 years ago in education on the need to conserve water. They worked together to develop codes. The Water Smart Program is important. This education opportunity is positive and important. Mr. Luna noted that in southern Nevada the focus has been on non-functional grass. Education is everything, programs are important, e.g. controller rebates and nozzle replacements, and has made a big difference in convincing end users to conserve water.

<u>Tourism and Recreation</u>

Chair Drozdoff read into the record written testimony (available on the Nevada Drought Forum website: drought.nv.gov) submitted by **Jeremy Drew, Nevada Wildlife Commission.**

Robert Williams, Sierra Nevada Golf Course Superintendent Association of America, noted the Association understands the magnitude of the current drought and encourages their members and area

golf facilities to work in conjunction with local water districts, policymakers and other communities on water conservation efforts. Their efforts can be reviewed on the website at: www.gcsaa.org. They also have the Environmental Institute for Golf (EIFG). They continue to make efforts to conserve through sound ergonomic practices, turf grass reduction, efficient and targeted irrigation, turf grass research and reliance on reclaimed water. Additionally, superintendents are highly trained and skilled in irrigation and receive continuing education. Golf courses are a source of tax revenue and employment and are an important recreation outlet for community members of all ages. The Association has implemented the Grass Roots Ambassador program, with a goal to match each member of the Golf Course Superintendent Association of America (GCSAA) with a member of Congress to build strong working relationships. The program will establish a network of committed volunteers to serve as the go to people for law-makers and their staff on golf course issues. The Association stretches into California so they are also working with California issues. They have implemented a conservation taskforce which works proactively with water agencies and municipalities to address restrictions, develop conservation plans and assist in building long-term water policies that are effective for the golf industry, water agencies and communities. In Reno, Carson City, and Northern Nevada there are many private and public golf courses that utilize reclaimed water. One obstacle is getting the reclaimed water to the golf courses.

Grant Becwar, Southern Nevada Golf Course Superintendent Association, noted that southern Nevada golf courses were put under a water budget back in 2003, at 6.3 acre feet per acre per year, which was down from 6.5 the previous year. The turf grasses golf courses are growing and watering based off evapotranspiration (ET). They clearly use their fair share of the water, however, they are mostly on reclaimed water in southern Nevada. Organizations such as the Professional Golfers' Association (PGA) of America and the United States Golf Association (USGA) have adapted firm maintenance practices and initiatives which to educate the public that brown is the new green. This is helping the industry. Sothern Nevada golf courses have long been an industry example of using reclaimed water to irrigate. Southern Nevada golf courses have removed over 900 acres of turf. The reduction in turf has saved over 2 billion gallons of water. Golf courses account for only two percent of water usage for the state. All golf courses have several full-time irrigation technicians to maintain the efficiency of the irrigation systems. They are consistently updating sprinkler heads and nozzles to ensure the system is operating as efficiently as possible. Water is the largest expense for golf courses in the region. A small increase in price could be devastating to some properties.

Mr. Williams noted the industry works greatly on trying to determine how much water is in the soil-profile to ensure they are feeding the plants what they need, but not causing runoff. They have done grass research for grass more tolerant to drought.

Vice-Chair Entsminger stated the day before the Southern Nevada Water Authority Board increased the incentive to $2 per square foot for turf removal. Member King asked if the State of California was doing anything differently during the drought. Mr. Williams noted there are reservoirs that will hold a greater amount of water available to farmers as well as golf courses. California may have learned too late, but it is something for Nevada to think about when preparing for the next drought. Mr. Williams noted some chapters have a scholarship and research opportunity where research will be conducted on more resilient turf grass and better wetting agents. Member Walker asked what replaced the removed turf. Mr. Becwar

noted they replaced the turf following the guidelines from SNWA, which are the same guidelines you are required to follow as a resident.

Chair Drozdoff noted the golf industry has been using reclaimed water for decades an acknowledged that many of the requirements were written decades ago. Are there any things in those requirements that make it difficult for the industry to do more. Mr. Williams noted the major issue is getting the water to the golf courses and to the areas where it is needed. He also noted the quality needed for the water to be classified as reclaimed water is also an issue. If the quality is raised it is a water source the industry would love to use.

Chair Drozdoff asked Mr. Becwar if the industry is confined by economic issues from doing more and are there any examples. Mr. Becwar noted industry research on the products that ultimately cost them less money than it costs them to buy someone's water, is helping people, it is saving the golf industry money and it is saving the state water. Mr. Williams noted in northern Nevada a number of the golf courses are dependent on snow melt. Snow pack levels are going down and the golf courses may not have enough water for the summer season. An obstacle is not having another water source other than reclaimed water.

Bruce Nelson, Las Vegas Boat Harbor/Lake Mead Marina, noted he is a member of a family business that has been at Lake Mead since 1957. He provided an overview of the company and their presence at Lake Mead. Water is extremely important to the industry. They literally need water to stay afloat. The marina industry in southern Nevada can directly correlate drought to economic disparity. For each foot of water lost in Lake Mead, the marina and all ancillary businesses can see a dip in revenue. Overall they are down 4.3 percent this year over last year for on-the-water related activities. The last time Lake Mead was almost at capacity was in 2000. This was 10 feet below full pond. At this time, the boat harbor was at 100 percent capacity. Today the Lake is 150 feet below pond and the boat harbor is at 72 percent capacity. The drought has forced them to face expensive relocations of marina operations. Their relocations are two different types of relocations: large-scale and operational-scale. They have moved two marinas over 60 miles to find deeper water and this is considered a large-scale relocation. Without these moves, they would cease to exist along with millions of dollars of economic impact. The moves were done once in 2002, and they moved the second marina in 2008. Each move is tough on business operations, costs millions of dollars and has no value besides maintaining business operations. The operational-scale moves include small 80-foot approximate moves that happen on average of six times per year and are necessary given the lake fluctuations. This industry is not a heavy water user. They are simply dependent on water for recreation. They work on communication of facts about recreation teaching to discredit the myths. In 2014 they won Water Hero Award with SNWA for water saving strategies at their marina locations. They teach water conservation to their employees and third party vendors as well as using desert landscaping.

Vice-Chair Entsminger asked if communication to the industry has improved. Mr. Nelson noted, with the Bureau of Reclamation taking point, there are monthly water meetings and email updates. They have done a great job about trying to project what is happening, unfortunately this is a difficult task. Vice-chair

Entsminger also asked if water quality issues, such as algae blooms, affect the industry. Mr. Nelson noted the blue-green algae issue that happened earlier this year definitely affected them.

Carson City:

Andrew Strain, Heavenly Mountain Resort (Heavenly), noted the resort is located in both California and Nevada, however, most of the resort is in the State of Nevada. The lack of snowfall has negatively affected their ability to earn revenue. Other resorts in the Tahoe community do not have the same snow making capabilities that Heavenly has and they rely a great deal on snow making capabilities to help offset the lack of natural snowfall. Other resorts have closed because of this and this gives the public perception that all of Tahoe has closed. Heavenly suffers as a result of this. Snowmaking is a huge part of what they do. This is a weather-dependent industry. This year was particularly challenging because of high temperatures and lack of snow. They have taken steps on a couple of different scales to address the drought. They have diversified geographically, opening resorts across the United States. They have also begun to offer incentives for season pass purchasers so they can visit other resorts in other regions if there is no snow in Tahoe. On the regional level, they have taken advantage of the available communication tools to let people know the current conditions at the resort and developed non-skiing activities. It is important they ensure they have secured water supplies for snowmaking. Obstacles for them would be more of the same weather pattern and access to capital dollars in order to improve and modernize. They struggle with the public misperception that snowmaking wastes water.

There was discussion about how the resort maintains and creates new ski runs and the regulations in place to protect the environment, including water quality.

<u>General Business</u>

Justin Harrison, Las Vegas Metro Chamber of Commerce (The Chamber), noted prolonged drought conditions in southern Nevada have had dramatic effects on every facet of the community. Water is just as intrinsic to sustaining business as it is to sustaining life, especially in a destination city like Las Vegas. People who hear about a water shortage can be discouraged from visiting or moving to the area putting local businesses under stress. Likewise water shortage could discourage businesses from coming or expanding in the area. Businesses and residents have had to reevaluate how they use water. Businesses have had to learn how to do more with less and how to get the maximum use out of every drop of water available. The Chamber is the largest business organization in the State. The Chamber was involved in the Integrated Resources Planning Advisory (IRPA) Committee which included local stakeholders meeting to address issues with the drought. The Chamber was supportive of several recommendations. Businesses across the valley have been involved in their own conservation efforts, including water conservation, turf removal, Water Smart landscape projects and taking on water efficient technology projects. Businesses have conserved nearly 149 million gallons of water. The biggest obstacle they face is cost, especially for small to medium sized businesses.

Member Walker asked if Mr. Harrison had any information on business that have not moved here because of the drought conditions. Mr. Harrison did not have the numbers, but would provide them later if needed.

Chair Drozdoff asked if Mr. Harrison was aware of any projects or programs in other states that may help defray costs for this industry. Mr. Harrison said he was not aware of it, but he would do some research on it. Chair Drozdoff noted this would be helpful.

A full account of the presentations and discussions of all the sectors are captured in the audio recording, available on the Forum's website.

8) Review of Discussion, Future Meetings and Agenda Items (Discussion and Possible Action) Chair Drozdoff noted at the last Nevada Drought Forum meeting they had asked people to hold a second date in August for a meeting. This meeting date is no longer needed. The next Nevada Drought Forum meeting is on August 19, in Sparks, Nevada. It will be the only meeting in August. It will be similar to today's meeting with speakers from municipal water, agriculture, and NGOs.

He also reiterated the Summit dates of September 21 through 23 and asked people to block out September 28 for a follow-up meeting after the Summit to strategize what will go into the report. If Forum Members are unable to make that date, they should inform Andrea Sanchez-Turner, Department of Conservation and Natural Resources, as soon as possible.

There was discussion on the process and content of the meeting. Member King appreciated the information provided and provided some specific points from different sectors that he found interesting, including solar power opportunities.

Chair Drozdoff noted there may not have been enough time to address all the questions from Forum Members, however, there can be follow-up between now and the Summit.

Vice-Chair Entsminger noted he is excited about what is being done statewide by the different industries. He was not sure if they drilled into what the Governor expects to see in the report, including some of the barriers and next steps. He was not sure about the meeting schedule and if there should be more meetings scheduled.

Chair Drozdoff noted the Forum needs to decide what things they would like more information on and send a more-focused letter asking specific questions. He also wants take a look at Homeowners' Associations and existing development.

Member Walker noted he heard a lot of positive examples on what is being done on water conservation and would like to see some of the things held up as an example and generalized and used elsewhere.

Member Boyle noted he did not hear impacts from the sectors presenting today. It is interesting the level these industries have mitigated their impacts. They have to pay for the water and water is expensive, therefore, naturally they are trying to lower their costs. For other industries such as ranching, farming and wildlife this cost is not the same. They use a tremendous amount of water compared to the industries who spoke today.

Chair Drozdoff noted staff will work to get minutes out so Forum Members could prepare for the next meeting.

Mr. Hettrick noted ranching and farming use surface water and that water is gone. The conservation method used was they are not getting any water. It is difficult to conserve when you do not get any. They are pumping if they have groundwater rights and they have a right to pump. Perhaps this will need to be addressed in terms of everyone's water rights statewide. Over the years water has been over-appropriated. This was an attempt to utilize a resource that is critical to everyone. It needs to be reviewed.

A full account of the discussion is captured in the audio recording, available on the Forum's website.

9) Public Comment: (Discussion) Chair Drozdoff asked if there was anyone from the public that would like to speak.

Carson City:

Mr. Bacon noted what is being looked at is more effective use of water and one thing missing is the utilization of composting. There is still compostable material going into our landfills. There are incentives to put things in the landfill rather than putting it in compost. By composting you can start to slow floodwater operations and you can utilize the use of water on golf courses much better. There is a need to review building codes and make changes. Solar needs to be reviewed and implemented, which would offset water consumption.

Susan Lynn, Great Basin Water Network, noted her comments are related to process and procedure. There was not notice of the first meeting. They are glad to know they are on the mailing list to receive information. There is concern that there are no rural members on the Forum. This is troubling because it leads to how the meetings are conducted. She encourages the Forum to be more open on who comments. The drought is affecting the State universally. The State Engineer has been out to reduce water use in a number of the basins. It needs to be clarified where water comes from and how much there is. We have over-allocated water in many basins based upon heavy precipitation and old climates.

Chair Drozdoff noted members of the Great Basin Water Network and others will be invited to the next meeting.

Las Vegas:

John Cobourn, University of Nevada Cooperative Extension, noted there has been a lot of success stories shared today. He noted he is concerned about next year and what happens if this drought continues. Our reserves have dwindled. He asked if the Forum would consider recommending a contingency plan with triggers. There were a number of examples of triggers shared during the presentations. The measures need to become stricter each year. He provided examples of possible triggers.

Rick Spilsbury noted that nowhere is it mentioned in a drought report that southern Nevada could desalinate water for California in exchange for more water for the Colorado River. This concept has won an MIT Award. In the report it is says desalination receives opposition because of the possible threats it may pose to marine life and habitats near the facilities. He provided background on the Carlsbad desalination plant in San Diego. Biggest benefit to desalination is a lower financial risk. Southern Nevada has the opportunity to pioneer a new way of thinking about water that could change the entire outlook for the west, which means southern Nevada does not have to go this alone. Other Colorado states could pitch in for a desalination plant for a proportional amount of the extra water from the Colorado River. Nevada may even be able to get some federal compensation for the groundwater contaminated during nuclear testing and be able to use that money to make more fresh water for the Southwest. Mr. Salisbury also noted perhaps the state should put PV Solar arrays out on Lake Mead to provide shade over the Lake, which should reduce evaporative losses. Perhaps there is technology available to help reclaim the evaporated water from the Lake.

Chair Drozdoff noted the report Mr. Spilsbury referred to is not from the Drought Forum, it is a report that was put together by the Western Governors' Association. The Forum will use the information in the report, however, they will produce a different report.

Darrell Lacy, Nye County Water District, noted he appreciated the discussion about best practices. One challenge is state water laws do not always encourage new ideas. Some aspects of the water laws encourage people to pump and not necessarily to reduce usage. Nye County has a lot of discussion on power plants. Many plants that were considering coming to Nevada had no interest in dry cooling unless they were forced to. There are at least a couple that were not built, not because of lack of water, but because they had options to purchase water rights for wet cooling. They were not interested in dry cooling, because it costs more and they lose efficiency. As long as it is cheaper to buy water rights then do wet cooling they will. Two states have put regulations in place that prohibit anything but dry cooling moving forward. They are New Mexico and Arizona. We need to look at mining and golf courses in regards to conservation and use best practices to see how water can be cleaned and put back into the basin. There are available technologies that we know how to use, however, the cost is too much.

Al Balloqui, Vertex International, noted he has been in Nevada just over 20 years. Lake Mead was overflowing . His background includes several businesses and economic development. He has some small tracks of property in Nevada. He provided background on these lands. Currently, the system that Nevada resources work under is good, but under trying times, it is time to re-evaluate. The current policy is if you don't use it you lose it. If you are in beneficial use you need to proof up your water every four years.

During these trying times, he would suggest having a moratorium on that. If you don't have to use it, you should not have to worry about losing it. He believes a lot of Nevadans would be willing to forfeit and not lose the use of their water rights so the basins fill back up. Go to the Legislature and tell them to instate a moratorium to postpone farming if they can.

Chair Drozdoff noted the Forum will give these ideas strong consideration as process goes on.

A full account of the discussion is captured in the audio recording, available on the Forum's website: drought.nv.gov.

12) Adjournment: (Discussion)

Meeting adjourned by acclamation at 4: 09 p.m.

NOTICE OF PUBLIC MEETING
of the
NEVADA DROUGHT FORUM

WEDNESDAY, AUGUST 19, 2015 – 9 AM

The Nevada Drought Forum will conduct a public meeting on WEDNESDAY, AUGUST 19, 2015, beginning at 9:00 a.m. at the Nevada Department of Agriculture, Main Office, 405 South 21st Street, Sparks, Nevada, and will video conference to the Nevada Department of Agriculture offices at 2300 McLeod, Las Vegas, Nevada, and at 4780 E. Idaho Street, Elko, Nevada. The meeting will also be accessible via videoconference to Cooperative Extension Offices in the following locations: Battle Mountain, Caliente, Elko, Ely, Eureka, Fallon, Gardnerville, Hawthorne, Logandale, Lovelock, Pahrump, Winnemucca and Yerington. The address for each of these locations is available at the bottom of this agenda. The public is invited to attend at all locations.

NOTICE

(1) Items may be taken out of order; (2) Two or more items may be combined; (3) Items may be removed from the agenda or delayed at any time; (4) Public comment may be limited to three minutes per person at the discretion of the Chair; comment will not be restricted based on viewpoint; (5) Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Please call (775) 684-5670 in advance so that arrangements for attendance may be made.

AGENDA

Action may be taken only on those items denoted "For possible action."

1. Call to Order & Roll Call – *For possible action*

2. Public Comment

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

3. Review and Consideration of Approval of Agenda – *For possible action*

4. Review and Consideration of Approval of Minutes – *For possible action*

A. Approval of minutes from the meeting held July 17, 2015.

5. Overview of Nevada Drought Summit and Need for Interim Sector Meetings - *Discussion*

The Forum will receive an update on the September 2015 Nevada Drought Summit, discuss the need, purpose and format of interim Forum Meetings and the *Summary of Current Actions*.

6. Update on State Government Water Audit – *Discussion and possible action*

The Forum will receive an update from the Department of Administration's State Public Works Division/Buildings and Grounds regarding the water audit of all State facilities and common areas.

7. Climate Forecast Update – *Discussion and possible action*

The Forum will receive an update from Dr. Doug Boyle, Nevada State Climatologist, on current and forecasted conditions related to the drought.

8. Presentations from Representatives on Drought-Related Impacts - *Discussion*

The Forum will hear from invited representatives about how drought has or has not impacted operations and/or activities, drought mitigation efforts and current or anticipated obstacles due to drought conditions.

PRESENTING AT THE MEETING ARE:

Agriculture	Tribal Nations
Non-Governmental Organizations	Public and Private Water/Water Authorities

9. Presentation on Drought-Related Topic - *Discussion*

The Forum will hear from Dr. Michael Young on the topic of water markets.

10. Review of Discussion, Future Meetings and Agenda Items – *For possible action*

The Forum will review items discussed, as well as items acted upon during this meeting, and determine which of those they wish to direct staff to do further work on, as well as which items the Forum wishes to act on that may not have been acted upon during earlier discussion.

11. Public Comment - *Discussion*

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

12. Adjournment – *For action*

This notice and agenda has been posted on or before 9 a.m. on the third working day before the meeting at the following locations:

(1) Nevada State Capitol, 101 North Carson Street, Carson City, Nevada
(2) Legislative Building, 401 South Carson Street, Carson City, Nevada
(3) Grant Sawyer Building, 555 E. Washington Street, Las Vegas, Nevada
(4) Department of Conservation & Natural Resources, 901 S. Stewart Street, Carson City, Nevada
(5) Department of Agriculture, 405 South 21st Street, Sparks, Nevada
(6) Department of Wildlife, 1100 Valley Road, Reno, Nevada

Notice of this meeting has been included on the Nevada Public Notices website at http://notice.nv.gov/

Notice of this meeting was also posted on the Nevada Drought Forum website at http://drought.nv.gov. Please contact Andrea Sanchez-Turner at 775-684-2705 (direct) or asanchez@dcnr.nv.gov to obtain support material for the agenda. Any materials will also be posted at http://drought.nv.gov.

We are also pleased to make reasonable accommodations for individuals with disabilities who wish to attend the meeting. If special accommodations or assistance at the meeting are requested, please notify Andrea Sanchez-Turner in writing at 901 S. Stewart Street, Suite 1003, Carson City, Nevada, 89701, or by email at asanchez@dcnr.nv.gov, no later than two (2) working days prior to the scheduled meeting.

University of Nevada Cooperative Extension – Lander County
835 N. 2nd Street
Battle Mountain, NV

University of Nevada Cooperative Extension – Lincoln County
360 Lincoln Street
Caliente, NV

Great Basin College
1500 College Parkway
High Tech Center Bldg Room 123
Elko, NV

Great Basin College – Ely Campus
2115 Bobcat Drive
Room 114
Ely, NV

University of Nevada Cooperative Extension – Eureka County
701 S. Main Street
Eureka, NV

University of Nevada Cooperative Extension – Churchill County
111 Sheckler Road
Fallon, NV

University of Nevada Cooperative Extension – Douglas County
1329 Waterloo Lane
Classroom
Gardnerville, NV

University of Nevada Cooperative Extension – Mineral County
205 South A Street
Hawthorne, NV

University of Nevada Cooperative Extension – Clark County
1897 N. Moapa Valley Blvd
Building A
Logandale, NV

University of Nevada Cooperative Extension – Pershing County
810 Sixth Street
Lovelock, NV

University of Nevada Cooperative Extension – Nye County
1651 E. Calvada Blvd
Pahrump, NV

University of Nevada Cooperative Extension – Humboldt County
1085 Fairgrounds Road
Classroom
Winnemucca, NV

University of Nevada Cooperative Extension – Lyon County
504 South Main Street
Yerington, NV

Summary of Minutes of the

Nevada Drought Forum

Meeting of August 19, 2015, 9:00 AM

Nevada Department of Agriculture
405 South 21st Street
Sparks, NV

Video Conference:

Nevada Department of Agriculture
2300McLeod
Las Vegas, NV

Other Video Locations (Attachment #1)

Members Present:

Leo Drozdoff, P.E., Chair

John Entsminger, Vice Chair

Dr. Doug Boyle

Dr. Justin Huntington

Jason King, P.E.

Dr. Mark Walker

Jim Barbee

Bill Elliot, in place of Caleb S. Cage

Members Absent:

Caleb S. Cage

Forum Staff Present:

Micheline Fairbank, Deputy Attorney General

Andrea Sanchez-Turner, Administrative Support

BEGIN SUMMARY MINUTES

1) Call to order and Roll Call

Chair Drozdoff called the meeting to order at 8:34 a.m., reviewed the meeting process and contacted the remote locations to clarify if people were would like to make public comments. Andrea Sanchez-Turner conducted the roll call.

2) Public Comments: (Discussion)

Mr. Drozdoff asked for public comment noting submitted written testimony did not need to be read into the record, but could be submitted to the Forum for review.

Sparks Public Comment

Joe Bower spoke about Homeowner's Associations (HOAs) and regulations some have that do not allow the homeowner to remove their front lawns. He noted his HOA does allow homeowners to remove their lawns. He stated there are only two options for the parkway strip located in the front of homes due to a sentence in the Planned Unit Development (PUD). Mr. Bower spoke about the process to amendment this sentence to include additional options. He urged the Forum to survey HOAs within the City and to encourage HOAs to remove turf from the common areas and install zero-scape.

Councilwoman Naomi Duerr, City of Reno, read a letter from the City of Reno to the Forum (Attachment #2). The City of Reno asked to participate in the Governor's Nevada Drought Summit.

As a former state water planner in Nevada, Councilwoman Duerr spoke about the Nevada State Water Plan, which addresses a wide variety of water issues, including conservation. She noted some of the recommendations from the Water Plan, including credit for conservation which could provide an incentive for agriculture and ranching. Councilwoman Duerr suggested the Forum revisit the Nevada State Water Plan and consider the recommendations within it.

Jake Tibbitts, Eureka County, provided recommendations for the Forum's consideration and spoke about the difference between hydrologic and vegetative drought and the misuse and reliance on the US Drought Monitor (USDM) in justifying grazing restrictions. He also noted there are many areas not experiencing vegetative drought and this issue is not taken into consideration when discussion drought. The totality of Mr. Tibbitts' comments to the Forum are attached (Attachment #3).

Ely Public Comment

Rick Spilsbury spoke about solar array operations on Lake Mead. He spoke about converting the evaporating water from Lake Mead into energy by using solar arrays.

Member King asked Mr. Spilsbury if he was aware of any location where solar arrays are currently being used. Mr. Spilsbury noted he was not aware of any place at this moment, but he will check on it.

Lovelock Public Comment

Bennie Hodges, Pershing County Water Conservation District, noted the Humboldt River Drainage Basin is going through one of the worst droughts on record. Groundwater basin are over appropriated for almost all of the groundwater basins and the Humboldt River Basin. Surface water users are not getting the water they are entitled to. It is not only affecting the water users in the Lovelock Valley but all the users in the Humboldt River Basin. The totality of Mr. Hodges' comments to the Forum are attached (Attachment #4).

Carl Clinger spoke about the drought affecting areas and people differently. Pershing County has had a zero water irrigation allotment for at least two years and only ten percent the year before. Pershing County is probably the worst area in the entire State affected by drought.

Mr. Hodges noted they do not have any underground water for irrigation. One hundred percent of water irrigation and crop production comes from surface water. The economy of Lovelock and the Lovelock Valley has been affected by 60 percent or greater due to the lack of water.

Yerington Public Comment

Jim Shaw, Federal Water Master, noted that if Forum members had any question for those in attendance at that location, they were available.

Sparks Public Comment

Floyd Rathbun, F.I.M. Corporation, spoke about the effects of drought throughout the State. He provided background on the F.I.M. Corporation and their operations. He spoke about ways to improve efficiencies. He spoke about Nevada Water Laws being well-written and the concern that changes made to the water laws as a reaction to the drought will become a retroactive form of change to the water rights of ranches. The totality of Mr. Rathbun's comments to the Forum are attached (Attachment #5).

Sam Hanson, Ely City Council, spoke about the polar icecaps melting and noted that Nevada needs to go where the water is, not where the water isn't. Water is in the oceans. He spoke about desalination and how other countries have relied on it for their water usage. He also spoke about economic diversity and pipeline construction to Baja California to increase the amount of water available for Clark County.

A full account of public comments were captured in the audio recording, available on the Forum's website (*www.drought.nv.gov*).

3) Review and Consideration of Approval of Agenda (Action Item)

Member King moved to approve the agenda; second by Vice-Chair Entsminger; motion passed unanimously. ***ACTION**

4) Review and Consideration of Approval of Minutes (Action Item)

Vice-Chair Entsminger moved to approve the minutes from the July 17, Drought Forum meeting; seconded by Member Huntington; motion passed unanimously. ***ACTION**

5) Overview of Nevada Drought Summit and Need for Interim Sector Meetings (Discussion)

Chair Drozdoff noted the Nevada Drought Summit is set for September 21, 22, and 23 at the Nevada Legislature in Carson City. The information received from the Nevada Drought Forum Sector meetings will be used to formulate some discussion at the Nevada Drought Summit. There is a Forum meeting scheduled after the Drought Summit and a report will be done by November 2015.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

6) Update on State Government Water Audit (Discussion and Possible Action)

Tom Federici, Nevada Buildings and Grounds, noted the state facilities water audit was required to be completed by June 15th in accordance with Section 3 of the Nevada Drought Forum Executive Order. The audit was completed and delivered to the Nevada Department of Administration on May 15, 2015. Mr. Federici reviewed the results of the water audit, changes Buildings and Grounds have made to conserve water, and how they oversee the Marlette Lake water system, which provides water to Carson City and Storey County.

Member King asked if Buildings and Grounds measures their water use in gallons per year, and if so, how much water they serve. Mr. Federici noted they currently do not measure their water usage but they can make gross estimates. Member King noted there cannot be management on what is not measured. Mr. Federici noted Buildings and Groundings is hoping to provide a number for comparison and an update to Forum in the future.

Member Walker asked about remodeling bathrooms with water efficient fixtures and if there is an assessment of practical benefits on this. Mr. Federici noted Buildings and Grounds is using the guidelines from the LEED Program.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

7) Climate Forecast Update (Discussion and Possible Action)

Member Boyle spoke about the current drought status based upon the U.S. Drought Monitor. Approximately 16 percent of the state is currently classified at a D4, Exceptional Drought Conditions. Twenty-two percent of the state is classified at D3, Extreme Drought. There are reports of a lot of "greening up" of the rangeland throughout the State in the northern part of the state. In general, it has been a wetter summer than expected. However over the water year, October 1 to the present, most of the state is either at or just below normal. As you move into the mountains, the numbers are approximately 70

percent of normal. Low temperatures have been much higher than anticipated. Last year was the warmest year on record. The outlook that was released a month ago indicated a probability of wetter than normal conditions for the month of August, September, and October. Member Boyle spoke about El Nino and its relationship to the "Blob" (a warm pool of water that developed over the Pacific Northwest), how strong it is anticipated to be, and how long it will last.

Member King asked which two years had an El Nino as strong as this year. Member Boyle answered the years were 1997 to 1998 and 1982 to 1983.

Chair Drozdoff asked if Member Boyle felt the Forum meetings are beneficial to him. Member Boyle noted he hopes to get more information from the community on how drought is affecting them and have access to real time information on the conditions of rangeland. The information received from the meetings and the community will be submitted to the U.S. Drought Monitor and more importantly will be used to improve the products from U.S. Drought Monitor.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

8) Presentations from Representatives on Drought-Related Impacts (Discussion and Possible Action)

<u>Agriculture</u>

Sparks

David Stix, Jr., State Board of Agriculture, provided background on himself. He spoke about the relationship between cattlemen and federal agencies that manage the ranges. The Bureau of Land Management (BLM) is having a problem managing public lands based upon the changes of the environment. Grazing permits are not being adjusted accordingly by the BLM. He spoke about the relationship of groundwater and surface water. In several incidences the Board of Agriculture and other agencies have sent requests to address this issue to the State Legislature. There has been no response. The situation as it stands today has put the state in a tough position. Seventy Five percent of water supply in the City of Fernley is relied on the Truckee Canal. He noted that changes in the law through the state legislature is a possible answer, however, changing the law could result in additional court battles. There needs to be trust in the current water laws. The Nevada State Engineer should look into the future of the Nevada's water supply.

Member Huntington asked about the timeline for the BLM to make a decision concerning grazing and if there is flexibility to put additional head of cattle out for grazing during drought. Mr. Stix noted it has become so heavy and weighted in bureaucracy, there is not the flexibility to make decisions during the

grazing season. Decisions are being based upon things that are ever-changing (e.g. the climate). They need to reevaluate their processes.

Member Walker asked if Mr. Stix felt the awareness of a relationship between groundwater and surface water was a challenge for local governments. Mr. Stix noted he was involved in the initiation of a study that showed this relationship. Cities must get control and find out where their water is coming from.

Dr. Bill Payne, College of Agriculture and Nevada Agricultural Experiment Station, spoke about how his organizations deal with drought, how they deal with topics that are related to drought, what they are doing now, and what they will be doing. He noted for capture and storage they have a number of hydrologists and soil scientists that are conducting, teaching, researching and doing outreach. In terms of efficient use, they have biochemists and molecular biologists working on drought and temperature stress tolerance for plants grown in aerated lands. They have worked on staff and have a range program that involves at least three faculty members. They work on invasive species, management of cheat grass, PJ encroachment and riparian zone functioning. He reviewed the positions he hopes to fill in the future and what their focus will be. He stated some of the major themes of drought and climate change have been brought, but other things are also affected by drought, including: insects, disease, wildlife, weeds such as invasive species, and animal nutrition and fertility.

Vice-chair Entsminger asked if Dr. Payne had experience working with higher saline water in agriculture. Dr. Payne spoke about his international experience concerning desalinization. At Texas A&M there was money allocated to a desalination program. He has seen it on smaller scales in India with solar power for a household. Vice-chair Entsminger noted he was asking about the use of higher concentration of saline within the water. Dr. Payne noted he has one hydrologist who is looking into this in terms of the Colorado River. It is more of a modeling approach. He has seen it in Tunisia where they manage it by using different reservoirs.

Member Walker spoke about the relationship of federal land management agencies and their mandates with research institutions within the state. He asked if research is being included in the decision-making process for the federal agencies. Dr. Payne noted this is an important issue and to a certain extent it is not being included. When he reviews federal documents to an alarming extent university research is ignored. It is something he is attempting to address with federal agencies.

Elko

Ron Torrel, Nevada Cattlemen's Association and Nevada Woolgrowers' Association, provided background on himself and his organizations. He spoke about the severity of the drought and the problems along the Humboldt corridor. He endorsed the comments made by Jake Tibbitts about the U.S. Drought Monitor. The last couple of years have been some of the best grass years they have experienced, yet they are considered to be in a severe drought. The results of the drought will test the uniqueness and complexity of Nevada's water law. The Forum should identify specific statutes that can be amended and

clarified and the Governor should consider these recommendations and draft a bill for the 2017 Legislative Session. The totality of Mr. Torrel's comments to the Forum are attached (Attachment #6).

Sparks

Darrell Pursel, Nevada Farm Bureau Federation, provided some background on his organization and himself. The total economic impact of Nevada's agriculture cluster is $5.3 billion. The industry is one of the largest and most valuable in Nevada. He spoke about the impact of drought, including ranchers having to sell some of their herds, and buying or leasing more pastureland and grazing allotments. The totality of Mr. Pursel's comments to the Forum are attached (Attachment #7).

Chair Drozdoff asked if there are things Mr. Pursel is aware of that could be done but that are not currently being done. Mr. Pursel noted Water Resources monitors wells once a year, sometimes twice a year, in a normal water years there is flood water running in the river until the end of July and there is unlimited resources for water. Wells do not have to be pumped in the summer and yet there are farmers that are pumping wells to irrigate certain crops and they should not be. This is not the way supplemental wells should not be used. This issue needs to be addressed.

Member King noted the State Engineer's Office usually has two teams of three people per week monitoring water usage. Member King asked what the drop dead date for a farmer to sign up for crop insurance is. Mr. Pursel noted he believed before October 1. The problem with crop insurance is the federal government is not clear on what they are doing. They make range programs and the costs are much higher than the return, making it too expensive. The federal government has so many loopholes that it is not beneficial.

Member King noted the agriculture sector is the number one consumers of water in the State of Nevada. He asked if there are things out there not being done either by the farmers, or the Forum, that need to be changed. He spoke about silicon chips for soil and watering. Mr. Pursel noted the silicon only lasts within the soil for a month or two. The cost was prohibitive and this is an issue with most technology. He suggested rewarding for conservation; however, the Forum should keep in mind for small operations this much tougher because of the cost associated with it.

Rick Lattin, Lattin Farms, provided some background on his family farm. Mr. Lattin stated the number one thing people can do to help local farmers is to buy from them. He noted the drought has affected loss of income, created an inability to plan for the future, and increased costs. Education and the future is important, encouraging young people interested in farming. Most of Nevada farmers know they live in a low water state, they have been responding, planning and implementing. On the Lattin Farm, they converted to drip irrigation. If you want to use less water, one of the options is to convert to crops that have more value per acre foot of water used. Farmers need to look to new technology and research and adapt to new methods of activity and products. There is a need for research, educational and agricultural organizations to educate farmers on what products and technology actually work. Lattin Farms also does intensive cover cropping. Obstacles include the drought itself, the costs of conversion and the political

drought. Over the years the political drought has become more important, we need to ask ourselves do we want to keep the farming industry and then the public must be convinced that use of water for agriculture is a valid use.

Member King asked why more farmers are not converting to high value crops that use less water. Mr. Lattin noted farmers have traditionally grown commodity crops. They are rarely involved in the marketing and other aspects of farming. If they convert to high value crops they need business permits, they will need to hire people, and put together a workers' comp system and insurance. There is a fear of taking a step into that business. The farmers would also have to become a salesman and a marketer too. Chair Drozdoff asked clarification on who required the farmers to do this. Mr. Lattin noted this is typical of specialty crops. It becomes a marketing business. It puts you in a business mode rather than a farming mode.

Member Boyle asked why Lattin Farms has not converted more of their crops to high value crops. Mr. Lattin noted he would have to hire more people and work harder. He gets 75 percent of his income from 10 percent of his property.

Vice-chair Entsminger asked when Lattin Farms converted to a drip irrigation system. Mr. Lattin noted it started in 1992 to alleviate the waste of water. The water they use for their drip system is the water that has already been purchased and run across an alfalfa field and picked up and reused in the drip system.

Member Huntington asked how this drought differs from the early 1990s drought. Mr. Lattin noted this drought is more consistent and persistent. It has hurt Lattin Farms' crop rotations. Member Huntington asked if Mr. Lattin felt there were increased water demands. Mr. Lattin noted the farm is located in Fallon and Fallon has the most litigated water in the country. The farm does use less water than 50 years ago.

Sam Routson, Winnemucca Farms, reviewed a presentation provided to the Forum, which is available on the Forum website (*www.drought.nv.gov*). Mr. Rouston provided a background on Winnemucca Farms. One of the impacts of the drought is that Winnemucca Farms had to diversify in a number of ways, including moving a number of product productions out of state. Winnemucca Farms has changed their cropping pattern, moving from an emphasis of potatoes to an emphasis of peas. Potatoes take 35 inches of water. A crop of peas take approximately 18 to19 inches of water and Winnemucca Farms is able to develop contracts that have the same return. Winnemucca Farms also takes advantage of the best technology available. This is expensive for farmers. He reviewed some of the things that Winnemucca Farms has done to conserve water.

Member Walker asked how long it took Winnemucca Farms to identify options. Mr. Routson noted Winnemucca Farms is constantly evaluating their options and because they are a part of a wide network of sister companies they are exposed to different types of technology. They investigate this technology and determine their applicability for Nevada.

Matt McKinney, Bently Ranch, noted the Bently Ranch has propagated and developed a lot of different sources of water. Surface water is their main water source. They have their own private reservoir. They do have a few wells. They try to conserve every resource they have and utilize it to the best of their ability. They are diversifying for example developing more grains for bourbons. Water rights is the most important part of Mr. McKinney's job. It is more important to the operation than the real estate they own. One of the things they are seeing as an agricultural operation in an urban setting is they are under a microscope. There are strong opinions about what they are doing. He noted that when a homeowner calls and says ranches are over pumping, the response should be that he is not. He would like to see others under the microscope more, for example residential houses on five or ten acres of land. He did note the Division of Water Resources has been a little slow to come with some decisions. They asked to move a well earlier in the year, they still have not received a decision and now it is too late. Their watershed is a federal watershed. They deal both with a Federal Water Master and the State of Nevada. He asked if and when El Nino occurs, if there has been discussion concerning direct injection back into the groundwater system. He wondered if it is possibly to turn the wells around and fill the aquifer back up, especially in the Walker River Basin.

Member Huntington spoke about recharging and how infrastructure is one of the challenges to this. Flood irrigation is one of the most economical and feasible ways to recharge. What is the practicality of doing something like this. Mr. McKinney noted his thought is to do direct injection.

Joe Sicking, State Conservation Commission, provided some background on himself and the State Conservation Commission. As a result of the drought traditional users have to conserve and use less. He noted most agricultural users have done everything they can to continue their operations and remain economically viable. He spoke about the things being done by farmers. He also spoke about the need to review Nevada's "Use it, or Lose it" law. The totality of Mr. Sickings' comments to the Forum are attached (Attachment #8).

Chair Drozdoff noted that the Forum will take a look at the "Use it, or Lose it" section of the water laws. Mr. Sicking stated the Forum needed to get the word out concerning this issue because people are considering leaving their water running to use what they have.

Member Walker asked if technologies for water, crop management and soils are within reach of individuals to take advantage of easily. Mr. Sicking noted that a lot of it is not. The smaller organizations cannot justify spending the money for technology.

Lunch 12:19 p.m. to 12:57 p.m.

Non-governmental Organizations

Sparks

Michael Cameron, The Nature Conservancy (TNC), spoke about the background of The Nature Conservancy. Nevada ranks 11th in the nation in terms of overall biodiversity and is ranked 5th in the nation in terms of the number of species extinctions. More than 70 percent of Nevada's plant and animal species depend on wet areas at some part of the year. The wet areas once represented three percent of the land area in Nevada. It is now down to one percent. Water for animal and plant species is important not only for their sake, but also for the state's cultural, economic and recreational vitality. Nevada's wildlife heritage is at risk for great loss. He provided specifics from the Nevada Wildlife Action Plan.

TNC has addressed drought through land protection and habitat restoration and works to make important natural areas more drought tolerant. They are protecting and conserving floodplains, wetlands, springs and critical watersheds throughout the state. They are implementing ecosystem restoration projects and have increased the resilience of natural systems to withstand the pressures of drought.

Mr. Cameron noted there needs to be more investment in science in terms of monitoring, managing and mitigating. There needs to be more of an understanding of what the standards are for determining the adverse effects for water dependent ecosystems. There needs to be a model on the impact of groundwater pumping on water dependent ecosystems to understand the groundwater, surface water relationship. There also needs to be monitoring to detect when an ecosystem is approaching the point of no return with better information about how water depend ecosystems are responding to the available water. There should be developments of new financing methods to maintain and restore the drought resilience of the forests, floodplains, meadows, wetlands, etc. When faced with the need to make investments to explore green and natural infrastructure solutions, before the use of concrete and harder infrastructure, there should be support.

Member King asked if TNC has a position on desalination. Mr. Cameron noted TNC tends to be technology neutral overall. They try to be holistic in terms of understanding tradeoffs in terms of the environmental impacts with alternative technologic approaches.

Chair Drozdoff noted that Bob Fulkerson, Progressive Leadership Alliance of Nevada, submitted his comments in writing before the Forum meeting and they are available on the Forum's website (*www.drought.nv.gov*).

Abby Johnson, Great Basin Water Network, provided a background on her organization. She spoke about the process and noted for it to be successful it is important for the public and stakeholders to understand what the final work products will be, how they will be developed and by whom, and how they will be implemented after the Summit. The natural environment is struggling to stay in balance due to the

face of declining precipitation and rising water use. Drought should not be used as an excuse to sacrifice one part of the state for another. We are one Nevada and must find solutions for all parts of the state, including rural areas. It should be clear there is no new water to be developed into the west. Major water exportations like the Las Vegas Water Grab are not viable solutions. They depend on exploitation of the target area by depleting its water supply. The totality of Ms. Johnson's comments to the Forum are attached (Attachment #9).

Chair Drozdoff noted the reason for the sector meetings is to identify issues that come up that need to be addressed and explored more at the Nevada Drought Summit, which will feed into the final report to the Governor.

Ms. Johnson stated her concern about what regular people will be able to do and how they will be involved in the Summit especially if people are willing take time off work and drive eight hours for a three day Summit. Chair Drozdoff noted they would work very hard to establish what each of the three days will include so that people can make informed decisions on attending.

Las Vegas

Jennifer Pitt, Environmental Defense Fund, provided a background on her organization. She noted she will speak about the Colorado River Basin. She stated well more than half of the population of Nevada drinks Colorado River Water. In the Colorado River Basin drought has taken a significant toll for the past 15 years. Nature is last in line for water rights, because in most cases our legal systems do not commit adequate water to preserve river flows. At stake, is not only nature as we know it in the Colorado River Basin where 70 percent of all wildlife depends on rivers for some part of their lifecycle, but also a 26 billion dollar river-based recreation economy, which is responsible for more than a quarter of a million jobs. The delta in the Colorado River Basin has been most impacted by the drought. The delta wetlands and riverside forests are a rare strip of green in the Sonoran Desert and a critical food source and shelter for more than 380 species of birds that migrate there, through there, or live there permanently, including both endangered species and hundreds and thousands of water fowl that stop there every year. While water that is stored in the Colorado's Reservoirs began to disappear in the year 2000 as yet there haven't been any water shortages imposed on Nevada or other lower-based water users, however, impacts to the environment were immediate. Since 2000, with little exception, no water has flowed down the Colorado River into its Delta. In the last 15 years there has been a perilous loss of wetlands, river-side forests, and backwaters in the delta and the decline in the birds that rely on them. In the upper Colorado River Basin there are numerous rivers that dry up below water diversions and drought has increased their number.

In the Colorado River Delta to address drought and more broadly the issue of declining water supply as water use has increased over the last century the Environmental Defense Fund has partnered with other conservation organizations to dedicate a water supply to support river health. They have gone about this in a variety of ways. Ms. Pitt provided an example. Restoration is going to take water and stewardship efforts over time. Independently, conservation NGOs in 2008 established a private non-profit water trust in Mexico that acquired from willing sellers shares of Mexico's Colorado River water for the purpose of irrigating restored habitat.

On the Colorado River as in much of the west, there is 19th Century law, with 20th Century infrastructure, and 21st Century water needs. Clearly infrastructure improvements are needed and many were documented in a report called Moving Forward that was prepared by reclamation in partnership with states, water users, and stakeholders in the Colorado River Basin, Among its findings are: there are significant opportunities to improve agriculture water use efficiency, productivity and increased water transfers: that technologies and practices leading to water conservation have already saved substantial Colorado River Water; and existing utility plans will conserve and reuse more than a million acre feet annually by 2030. In fact, the report notes that in a number of metro areas using Colorado River water, growth has decoupled from water use. Over recent decades, utilities are serving larger populations while reducing the total volume of water use. Water efficiency is not rocket science and there are plenty of known and demonstrated technologies and practices that can conserve water uses. The challenges we face are not the technologies. They are legal and economic. Ms. Pitt suggested that Nevada with the federal government, sister states and major water users in the Colorado River Basin continue and accelerate its modernization. Another major challenge to water use efficiency is figuring out who will pay. It stands to reason that the locations where the biggest opportunities remain to improve the efficiency of water use are places where the water is not yet scarce. In these locations, there is not an incentive for water rate owners to invest in efficiency. In the upper Colorado River Basin system conservation projects are likely to improve river health as we modernize laws and agreements to increase water use efficiencies we should be looking for ways to align water management with river management.

Member King asked if the Environmental Defense Fund had a position on desalinization. Ms. Pitt noted they do not have a position and she believes it is an unlikely the solution to the Colorado River Basin's gap between supply and demand, however, in places it can be helpful.

Chair Drozdoff noted because of ambiguity in water laws there is litigation and as result there becomes legal precedent, however, the legal precedent could become problematic and may create even less flexibility to deal with many of the things Ms. Pitt spoke about. Ms. Pitt noted she does not have a lot of experience with litigation. The things she deals with spans the U.S.-Mexico border and this does not happen. They had to work on ways to bring people to the table to work on a collaborative solution. There has not been a lot of litigation in the Basin in the 15 years she has been working on these issues. Litigation can be destabilizing and progress can come slowly. The risk with taking too much time is you lose things along the way. Some of the first losses will be in the environmental arena where there is no legal protections.

Tribal Interests

Ely

Delaine Spilsbury, Ely Shoshone Tribe, spoke about the history of her tribe. There was no winter last year. The tree kill has been substantial. Recently, the regional crop of pine nuts, which has been the tribe's staple in the past failed for three years in a row, which would have been devastating to the tribe's ancestors. Without a significant runoff, the SNWA groundwater development project seems less and less feasible. They have noticed some disappearance of migrant bird species, indicating possible localized

extinctions. The overpopulation of wild horses has led to even more impacts. The drought has substantially affected the tribe. Had the tribe continued to be exclusively hunters and gatherers they themselves would be extinct. Population growth has its consequences and in the desert the consequences of unrestrained growth is that eventually there is not enough to go around. There is not enough water to go around now. The Drought Forum should recommend limits to population growth in Nevada. The totality of Ms. Spilsbury's comments to the Forum are attached (Attachment #10).

Sparks

Wes Williams, Jr., Walker River Paiute Tribe, noted there are three primary issues the tribe faces related to drought. These are ranchers dealing with grazing, farmers dealing with irrigation, and people that use the water to fish in Walker Lake. The tribe's grazing has diminished significantly. This has been reduced by 25 percent. Ranchers face the same issues off reservation land. The tribe's irrigation is at the bottom of the Walker River system. Walker River surface water is governed by federal decree and the tribe has the senior water right on the river. If there is no water, there is no water flowing downriver. The irrigation season has been reduced. Mr. Williams believes part of this is because of upstream pumping. This is one issue that there could possibly be action on. In meetings in the past, the state was not sure how to reconcile the federal decree rights with groundwater rights and all the other existing water rights. There needs to be better administration, better monitoring and better enforcement. If there is a problem, there needs to be significant punishment.

The reservation was placed at the mouth of river, because the tribe relied upon the trout in the lake and the river to sustain themselves. This is a part of their history and their legacy. There has been no trout for the last five years. There has been decades of overuse and not having significant amounts of water to get to Walker Lake. Currently, there is a congressional program to purchase water rights upstream from willing sellers. Water rights holders can make their own decision on if they want to sell their water rights. The hope is that they can restore Walker Lake.

Vinton Hawley, Pyramid Lake Paiute Tribe, noted his tribe is the bottom user of the Truckee River water system. The tribe's main concerns are the overall ecosystems. The tribe has concerns over the lake level and the continuous recession of lake levels because once the lake gets to a certain level it will be considered a dead lake. They have a large ecosystem and so they try and take advantage of any conservatory efforts they can and look at sustainability for the future. It is difficult because there are certain users in the water system who take advantage of situations and receive minor punishments. Ultimately, all water users suffer the consequences of these actions. The tribe meets on an annual basis with US Fish and Wildlife Service to determine whether or not the tribe can have a successful spawning season. They look at ways to conserve and look at population and growth. Everything that is brought to the table concerning drought should be considered.

Member King asked if Mr. Hawley knew how much the lake has declined over the last four years. Mr. Hawley stated he did not know the exact number, but it has been significant. It is close to six feet, possibly more.

Member Walker asked if there had been increases in solidity at both lakes. The answer was yes. Mr. Williams noted this affects the fish.

Donna Marie Noel, Pyramid Lake Paiute Tribe, stated a major issue with drought is not only water quantity, but water quality. As there is less water in the system with population growth upstream they are not only seeing the effects of the river with low flows, but also poor water quality, which also leads to loading in the lake as the evaporation goes down. Looking forward over the next five years with growth in the Reno/Sparks area, water quality is a serious concern for the tribe. The issue is where is the waste going to go and if the drought continues additional water in the river may not be great if it is not clean water.

Bill Elliott, attending on behalf of Caleb S. Cage, asked if during the drought period had they seen groundwater issues and how resilient is it if this drought continues. Mr. Hawley noted the potential for flood has been witnessed quite often. Although this is a desert there is always a possibly for flash floods. There is always a possibility of extreme runoff that is going to bring lake levels up. Mr. Elliott asked about the municipal bonds with the wells and if they are resilient. Mr. Hawley noted they are.

Public and Private Water

Sparks

Kevin Brown, Virgin Valley Water District, provided a background on the area Virgin Valley Water District is located. Virgin Valley Water District has water rights and groundwater rights in the Muddy Creek Aquifer. They also have water rights on the Virgin River and water rights in the springs on the Virgin Mountains. They share the aquifer with southeast Utah and northwest Arizona. They have 8,200 metered accounts, 8,000 residential accounts and 200 commercial accounts. Their water rights on the Virgin River are released to the golf courses for irrigation at this time until sometime in the future when they will need to call on them for culinary water needs. Mr. Brown provided a description of their system. He spoke about recent mitigation measures they have taken including implementing a rate increase over the last six months. As a result of the rate increase, many customers have started to conserve and the District has seen significant reductions in the amount of water usage. Last year they, did away with an unmetered secondary irrigation system that was wasting water. Things they are doing that are longer term are: a rain gauge monitoring system and monitoring the Virgin River's flow. They have not seen a tremendous amount of reductions in the flow. They also have a groundwater monitoring program for their wells for aquifer recovery. They have not seen many reductions in the numbers in their aquifer. They are embarking on a ten-year study of their springs on the Virgin Mountains to determine flow rates. The water system has a good unaccounted for water loss monitoring program. They do not have a real issue with the drought. They have a good handle on what their water resources are right now.

Chair Drozdoff noted it is important to know the Forum is trying not to get in the way or to duplicate things that are already being done at the local levels and thinks the Virgin Valley Water District should be commended for being proactive in a number of areas.

Member King noted many of the recommendations from the State Water Plan are being implemented at the local level.

Vice-chair Entsminger asked what percentage of the Virgin Valley Water District's water is unaccounted for. Mr. Brown noted on an annual average they have approximately nine percent unaccounted for. Vice-chair Entsminger asked if the rate increase was implemented primarily as a conservation tool. Mr. Brown noted it was not, the primary reason was financial. They had infrastructure needs.

Mr. Brown also noted the City of Mesquite, on the wastewater treatment side, has a 100 percent reuse of water for golf courses, parks, etc. The wastewater is not sent to the Virgin River it is sent to and being reused within the City.

Darren L. Schulz, Carson City Public Works Department, provided a brief background on Carson City and his department. Seventy-five percent of their water is groundwater and twenty-five percent is surface water. At the beginning of 2015, in an effort towards conservation they asked for a ten percent voluntary reduction in water use across the board. It is still early in the season to determine the success, but it has started and now people are aware of the idea of conservation. They estimate they will be in the range of seven to nine percent reduction. Golf courses are watered with affluent water. Their affluent numbers are also down. They are in the middle of a five year rate increase that started two and a half years ago. The rate increase was not put into effect for conservation. It was to handle their aging infrastructure and depreciation that had not been addressed recently. They have noticed a reduction in water as a result of the rate increase. Their issues as far as water quality goes is arsenic and uranium. They monitor this closely. They have not seen anything over the past few years that concerns them.

Member Walker asked if there were any examples of rate increases specifically designed to educate and achieve levels and targets of reduction and conservation. If so, have they been successful. Also, what happens when there is no need to conserve anymore in terms of the income stream for the utilities. Mr. Brown noted he is not familiar with rate increases designed specifically for reduction and conservation. Mr. Schulz noted their rate consultant stated there are cases in which this occurs, but he was not sure about the details. Vice-chair Entsminger stated it is common practice at the major municipal level, not necessarily to do a rate increase solely for the purpose of conservation, but in setting rates to include conservation within the overall rate design.

Member King pointed out in working with Carson City the State Engineer's Office allows Carson City to actually pump more of their groundwater rights in times of drought with the caveat that the ten year running average does not exceed the amount of water they have in permitted rights. The State Engineer's Office has also done that in the Truckee Meadows. Member Huntington asked if this is the reason Carson City converted to using more groundwater than surface water. Mr. Schulz noted the reason is surface water is not available.

Scott Fleckenstein, Lyon County Utilities, provided an overview of the utility. They have approximately 6,000 connections, 8 groundwater wells. They have one large producing well. It is an infiltration well run off surface water rights. They can run the well from the first part of April until August or September. The last two years they have decided not to use that well. This was an operational decision they made as an organization. Lyon County did not feel it would be cost-effective to get the well started up and only be able to run it for a short period of time. Lyon County has 26 monitoring wells throughout the valley. They monitor the static water level on these wells on a bi-weekly basis. They do their production wells on a monthly basis (the static draw down levels). Lyon County shares data with USGS and the Division of Water Resources. This year they hired two seasonal employees called Water Watchers. The Water Watchers help customers with conservation and ensure they are watering on the correct days and provide public education. Lyon County has asked their customers to cut back by ten percent. From January to July of this year compared to last year they have cut back 15 percent.

Vice-chair Entsminger asked what they were in gallons per day. Mr. Fleckenstein noted they are at approximately 4 million gallons per day this time of year.

Las Vegas

Wendy Barnett, Utilities, Inc., provided background on her organization. The key is the community and how they work collaboratively with the community for water conservation efforts particularly in a period of drought. They are having to re-drill wells, rehab wells, redistribute pumping in some of their systems and sometimes in the same basin there is no significant changes in the water levels. As a private utility, the organization is required to spend their capital and put the investment to beneficial use to the community before they can ask to recover the monies. The biggest impact from the drought is loss of revenue. Water conservation results in the less use of water and as a result revenue suffers. Water conservation also runs the risk of not putting your water rights to beneficial use. They have a robust water conservation plan, which includes well monitoring, education, and use of reclaimed water. They have created drought plans aligning and in support of the state drought plan. They were approved by the Public Utilities Commission to have financial penalties for waste of water during times of drought. System management is a big part of conservation. As a private utility if their unaccounted water is too excessive the Public Utilities Commission can say that they are not going to allow them to recover some of those costs. It is not simple to fix the problems of unaccounted water. In their system management plan they put together solid standards and specifications that at least meet the minimum requirements of code. They use technology, GIS data, metering, etc. to help control the water-loss and have information on how water is used. They provide rebates for high efficiency toilets and washing machines. They have a rebate for the removal of salt cedars, which is a noxious weed. Conservation rates (tiered rates) is the most effective conservation tool they use. They are creating an education park focused on water conservation. There needs to be a mechanism allowing private utilities to stay viable and have the money available to maintain the level of service and improve things like unaccounted for water. That mechanism is called decoupling.

Sparks

Bruce Scott, Board for Financing Water Projects, provided background on his organization. The State Revolving Fund has been the primary source of revenue for loans and in some cases forgiveness loans for water systems. Water utilities within Nevada are always planning for drought. They have seen projects that are deepening wells and trying to improve sources. The drought has given water systems an opportunity to look at consolidation or interconnections. The resources for interconnections is available through the State Revolving Fund so there is an impact to rates, however, it is somewhat limited and spread out over time. The Board of Financing Water Projects requirements include metering. They include water conservation and other elements to help make the limited resource go further. One of the problems they see in small water systems is resources, not just financial, but technical resources. Nevada Rural Water has been a great tool for many small companies. A lot of the larger systems are good about providing technological assistance on request to some of the smaller systems. Non-potable water is also a resource. In many ways this can help offset some of the needs for water. Eighty-six percent of the projects on the 2015 drinking water state revolving fund priority list are for communities with a population of less than 20,000. Fifty-one percent of the projects are for communities that serve less than 1,000 people. Mr. Scott felt the leadership from the highest level of the state needs to be focused on a water resource initiative that is closer to what they have seen recently on the education initiative. There needs to be some tools, some clarifications, and coordination. The ideal place for this to start is with the Forum, and with the Governor's Office taking a strong lead in providing a plan. The drought is not just a shortage of water. The drought affects soils, it affects fire, and it affects grazing. There needs to be education for the judiciary. Many judges do not understand resources. They do not understand water, water administration, water history, or water distribution. Mr. Scott would like to see this considered as part of the recommendations made to the Governor.

Chair Drozdoff stated his concern that a lot of issues are going to court. There is concern in dealing with people who inherently do not understand the issues. Mr. Scott feels that a large portion of many of the cases that seem to go to court in part are related to a lack of policy guidelines, legislative direction, legislative intent and the statutes themselves. It is essential to get clarification of the state's policies and the state's guidelines and the legislative intent with regard to water and resources in general. A strong initiative from the Governor's Office is important.

Member King asked if Mr. Scott had given any thought to what educating the judicial branch would look like. Mr. Scott noted he was not sure how to do it, or who should do. Perhaps putting together a group of knowledgeable individuals that could be available, or ask the judges themselves what they feel they need education on. The Engineer's Office is in the middle of lawsuits and they are the resource for water knowledge. This creates an immediate conflict of interest.

<u>Water Authorities</u>

Sparks

Mike Baughman, Humboldt River Basin Water Authority (HRBWA), provided background about his organization. For the past 20 years, HRBWA member counties have continued to meet quarterly to address surface and groundwater quantity and quality issues of common concern. He spoke about the

characteristics of the Humboldt River Basin. He noted the drought is in its fourth year. About three years ago the Governor's Office declared the drought and the Division of Emergency Management was tasked with helping to put together a drought management plan. After some work by the taskforce, a recommendation was made to the Governor to produce a drought management plan. Nothing really came of it. He reviewed drought impacts, including reduced flows and economic and fiscal impacts. He spoke about drought recovery and drought management. They have seen conflicts arise between agriculture users. This is the first time this is starting to crop up. Mr. Baughman noted it will take two to three years of above-average flows to get back to where they need to be in the Humboldt River Basin. They would like to see the state take a leadership role in designing, implementing and institutionalizing a comprehensive and cost-effective cloud seeding program. The HRBWA believes there needs to be more done to curtail groundwater pumping in select areas to facilitate the recovery of the over-pumped basins. The state should take a leadership role in helping to design and construct additional storage capacity. The totality of Mr. Baughman's comments to the Forum are attached (Attachment #11).

Chair Drozdoff asked if Mr. Baughman's organization support more storage. Mr. Baughman noted they do support it. Mr. Drozdoff asked if there was support to do conservation and put water away for future use even in the wet years. Mr. Baughman noted there are years in the Humboldt River Basin when there is so much water going through the system they are releasing everything they can to keep from washing out irrigation structures. He noted this has been a discussion and they are open to the idea. Mr. Baughman stated three things the HRBWA would like to see in the Forum Plan: what specific actions are needed, who is responsible for taking the lead within implementing the actions, and estimates of cost and funding sources.

Steve Bradhurst, Central Nevada Regional Water Authority, provided background about his agency. The drought is a huge issue, however, down the road the big issue is water supply. The traditional sources of groundwater and surface water are limited. Drought, Climate Change and population increase, affect the water supply. Clean water will not always be there as expected. Mr. Bradhurst spoke about AB 301 (2013) and AB 198 (2015) which called for a study to be done to look at alternative sources of water for communities. He noted the Committee on Public Lands and the Central Nevada Regional Water Authority met with Utah, Arizona, and California to see what they were doing in terms of addressing their water supply. The totality of Mr. Bradhurst's comments to the Forum are attached (Attachment #12).

Mr. Bradhurst's recommendation is the summit includes a section to discuss state water supplies.

John Erwin, Truckee Meadows Water Authority, reviewed a presentation, available on the Nevada Drought Forum's website (*www.drought.nv.gov*). He noted a need to culturally adjust to the concept that it is always dry in Nevada. The uniqueness of the Truckee River system is it is different and it does have its challenges at the same time as it has its opportunities. He provided background on the water system. Last year has been the driest year on record. The river system is deals with endangered species, two different states, and two sovereign nations. The Authority has spent a lot of time educating and a lot of personnel have been out in the field responding to calls with sprinkler systems, irrigation leaks, etc. As result, there is a significant change in water use by their customers. They have changes in operations

which has created an opportunity for recharge in the county systems. Customer response has been phenomenal. They have been working on affluent treatment and affluent reuse.

Member Walker noted there will be 50,000 new jobs in the Truckee Meadows area and how that affects the Authority's planning. Mr. Erwin provided a history on the planning they did concerning both groundwater and surface water and the building of more storage. He noted economics will drive the future. The Authority can accommodate growth because they planned for it.

Member Walker asked about groundwater reservoir considering this is a big pumping year and if it is more expensive to pump the water and treat it and if there are declines in the resource. Mr. Erwin noted operating costs have increased because of the increased pumping. This year the Authority will see draw-downs from 15 to 40 feet with almost complete, or at least half, recovery. It is a resilient system.

John Entsminger, Southern Nevada Water Authority, provided background on his organization. In the Nevada, Clark County uses about 11 percent of the water supply. They have a robust, young system. They pump 900 million gallons of water a day with less than 5 percent unaccounted for. The year 2002, was the driest year in reported history of the Colorado River, and 2012 and 2013 were driest back to back years in reported history. The state has been in drought for a decade and a half. The Authority has seen Lake Mead decline 130 feet from the year 2000. It is at 39 percent full today. This affects water quality not just quantity. Temperature is the biggest concern the Authority has. They have had to install aeration systems in all of their regional reservoirs. There are three major things: conservation, water banking, and new infrastructure. On conservation they have reduced their per capita water usage by 43 percent in the last 15 years. Las Vegas tells the story that population growth and economic growth does not correlate one to one with water usage. They have seen the decrease in water usage as their population has grown by 25 percent. They decreased the percentage of water use by cutting down on outdoor use. Vice-chair Entsminger spoke about water banking. The Authority has instituted a number of programs, including banking with other states and Mexico. They have 1.5 million acre feet of water banked within Nevada and around the region. At their current rate of use, this is equivalent to 7 years of full water supply for the Authority. Mr. Entsminger also spoke about infrastructure. The Authority has 90 percent of their supply in one place. There needs to be assurances that you can access that water. They have instituted construction of a third intake into Lake Mead. It should be operational in approximately eight weeks. They also need pumps, therefore they are building a new pumping station.

A full account of the presentations and discussions of all the sectors are captured in the audio recording, available on the Forum's website (www.drought.nv.gov).

9) Presentation on Drought-Related Topic (Discussion and Possible Action)

Dr. Michael Young reviewed a presentation on water markets, available on the Nevada Drought Forum's website (*www.drought.nv.gov*). Nevada has the potential to become a leader in water management by learning from the Australian experience with water markets. It is important to improve water rights and to improve the systems that manage water rights. He provided history and background on how Australia

changed their water rights process. They created water accounts similar to back accounts. He spoke about unbundling water rights and seasonal allocations. It is simple and transparent. They went from a beneficial use concept, which they found was deepening the drought, and allowed people to save water for future use. They use management plans rather than courts to resolve water issues. He suggests this option should be offered in the Diamond Valley and in the Humboldt River Basin as a trial for approximately five years. Dr. Young mentioned there will be a report available in approximately four weeks.

Member King noted that the concept is intriguing and there is a basin in the Diamond Valley that is over-appropriated. If this concept can work there, it would be considered a viable concept. Dr. Young did go out and get funding for this project. There is a lot of promise in it. It is another tool that Nevada should consider. The measurement, monitoring and reporting of *all* water use is important to make this work. The State Engineer's Office has always been an advocate for this.

Member Huntington asked about any drawbacks from the system. Dr. Young noted one of the biggest drawbacks is that the discussion on water trading can create community fear that may cause a loss of wealth. The research shows the reverse has in fact been the case. The second drawback is concerns in the early stages that people wanted to include in putting water back into the environment and a lack of trust in the shares registers and banking systems. It is important to know that when someone wants a bigger part of a share there needs to be someone willing to take a smaller share, and also there needs to be trust in the accounting system.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

10) Review of Discussion, Future Meetings and Agenda Items (Discussion and Possible Action)

Chair Drozdoff stated he did not have anything to add to this agenda item. Other Forum Members also did not have anything to add.

11) Public Comment: (Discussion)

Sparks

William Campbell, Intertribal Council, provided a brief background on the Intertribal Council and noted the disappointment in having no Native American representation on the Forum.

Councilwoman Duerr stated a lot of good ideas were brought forward during the meeting and spoke about the hydrologic cycle and the hydro illogical cycle, which is when there is focus on whatever is in front of us. She would like to recommend and support the suggestions made by Bruce Scott earlier in the meeting. She suggested the Drought Summit provide a specific role for people that may not be identified with a

particular group but still have a lot to say, including Native American representation. She suggested reviewing the "use it, or lose it" water law and possibly use a credit water system. She spoke about resources and data collection.

Chair Drozdoff thanked Department of Agriculture Director Jim Barbee and his staff for assisting with the meeting and getting the remote locations involved.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

12) Adjournment:

Meeting adjourned by acclamation at 4: 48 p.m.

University of Nevada Cooperative Extension – Lander County
835 N. 2nd Street
Battle Mountain, NV

University of Nevada Cooperative Extension – Lincoln County
360 Lincoln Street
Caliente, NV

Great Basin College
1500 College Parkway
High Tech Center Bldg Room 123
Elko, NV

Great Basin College – Ely Campus
2115 Bobcat Drive
Room 114
Ely, NV

University of Nevada Cooperative Extension – Eureka County
701 S. Main Street
Eureka, NV

University of Nevada Cooperative Extension – Churchill County
111 Sheckler Road
Fallon, NV

University of Nevada Cooperative Extension – Douglas County
1329 Waterloo Lane
Classroom
Gardnerville, NV

University of Nevada Cooperative Extension – Mineral County
205 South A Street
Hawthorne, NV

University of Nevada Cooperative Extension – Clark County
1897 N. Moapa Valley Blvd
Building A
Logandale, NV

University of Nevada Cooperative Extension – Pershing County
810 Sixth Street
Lovelock, NV

University of Nevada Cooperative Extension – Nye County
1651 E. Calvada Blvd
Pahrump, NV

University of Nevada Cooperative Extension – Humboldt County
1085 Fairgrounds Road
Classroom
Winnemucca, NV

University of Nevada Cooperative Extension – Lyon County
504 South Main Street
Yerington, NV

Andrew K. Clinger
City Manager

August 18, 2015

Director Leo Drozdoff
Nevada Department of Conservation & Natural Resources
1 S. Stewart St., Ste. 1003
Carson City, NV 89701

RE: City of Reno Formal Participation in the Nevada Drought Forum

Director Drozdoff,

Please find this letter as a formal request from the Reno City Council that Nevada cities, such as the City of Reno, have a formal place at the table as part of the Nevada Drought Forum. This request comes from a unanimous vote of the Reno City Council taken at the August 12, 2015 City Council meeting.

As you are likely aware, cities have a significant role in water conservation and drought management. At the local level, we create policy initiatives and enforcement focused on saving water, both at publicly-owned facilities and on private property through our regulatory role. This list includes development approvals, building and plumbing codes, landscape and tree ordinances, declaring local drought conditions, and the like. We also have an important role in educating the public and publicizing drought and water conservation efforts.

In order to both share information with and learn best practices from fellow municipalities, and other agencies and interests, we would like to see formal participation from these entities at future Nevada Drought Forum meetings.

The City of Reno is taking a leadership role in our region regarding water conservation both in response to the existing drought conditions and to effectively create sustainability as we are faced with unprecedented growth in the next five years. By creating a formal place at the table for Nevada's cities, there would be better representation and engagement from our municipalities on this important issue requiring collaboration. We look forward to hearing from you regarding this request.

Respectfully,

Andrew Clinger
City Manager

P.O. Box 1900, Reno, NV 89505 * (775) 334-2400 * (775) 334-2097 Fax
Reno.gov

Eureka County Concerned About Misuse of Drought to Reduce Livestock Grazing

Prepared by Jake Tibbitts, Eureka County Natural Resources Manager

Eureka County continues to be concerned about unjustified and arbitrary closures of livestock grazing in certain areas under the excuse of drought. BLM has developed Drought Management EAs in each district and a statewide Nevada Drought Handbook. More and more allotments are receiving livestock grazing closures because of drought. However, there are different types of drought and we contend that many of our rangelands are not experiencing vegetative drought effects due to timely rainfall events.

There is a general misuse of and reliance on the US Drought Monitor (USDM) in justifying grazing restrictions. Borrowing from definitions from the Society for Range Management, the various BLM Drought Management EAs define drought as:

- A prolonged chronic shortage of water, as compared to the norm, often associated with high temperatures and winds during spring, summer, and fall.
- A period without precipitation during which the soil water content is reduced to such an extent that plants suffer from lack of water.

An area can be in drought because of lack of snow and streamflow but well-timed precipitation events often result in normal to above normal vegetation conditions. Simply put, the rangeland forage in many areas across the state is normal to above normal due to spring and summer rains and the second definition of drought (vegetation conditions) is not occurring. We have seen specific examples of ranchers being forced into so-called "voluntary" grazing reductions or Full Force and Effect decisions based on the area being in drought while the rangeland conditions on the ground do not support that conclusion.

In regards to forage availability and rangeland condition, timing of precipitation is much more important that total precipitation. Studies from University of Idaho concluded that precipitation in only two months, May and June, explained 72% of forage species annual variability and including April explained nearly all of the variation (Rimbey et al., 1992). This means that overall, the area may be in drought based simply on annual precipitation, but good storms at the right time of the year can provide ample and even excess forage. This year, we have had rainfall at the right times, in most of the right places, to grow normal to above normal vegetation even while springs and streams are dry.

The USDM has the disclaimer that the "Drought Monitor focuses on broad-scale conditions. Local conditions may vary." The technical reference for the USDM highlights that water supply indicators such as snowpack, streamflow, groundwater levels, and reservoir levels have heavy weightings in determining severity of drought (see http://droughtmonitor.unl.edu/AboutUs/ClassificationScheme.aspx). We are not disputing that we are in a drought that matches the first definition of drought above. But the drought we are suffering from is an overall lack of moisture, primarily snow, to recharge our springs, streams, and groundwater supplies. Again, it is imperative to consider that forage and rangeland health is primarily driven by late spring and early summer rain events, not snow.

A metric that has not been actively used when taking broad scale assessments of forage availability and rangeland condition is the Vegetation Drought Response Index (VegDRI) (http://vegdri.unl.edu/Home.aspx. In fact, the Drought EAs state that the USDM will be used alone only to identify areas of water shortage. Yet, the EAs also state that the USDM **and** the Vegetation Drought Response Index (VegDRI) would be consulted **in tandem** to be the first step in "determine drought afflicted areas and vegetation condition as it pertains to drought stress" (p. 4). We contend that BLM is often purposefully choosing to overlook the VegDRI as the first step in determining where to focus site-specific monitoring because the vegetation conditions exhibited according to VegDRI do not highlight severe or extreme drought as does the USDM. As previously mentioned, the USDM is primarily for making broad scale assessments on water supply and determining federal drought assistance. Any vegetation information going into the USDM is also "outweighed" by the other water specific indicators. According to the VegDRI references, "VegDRI maps are produced every two weeks and provide regional to sub-county scale information about drought's effects on vegetation....The VegDRI calculations

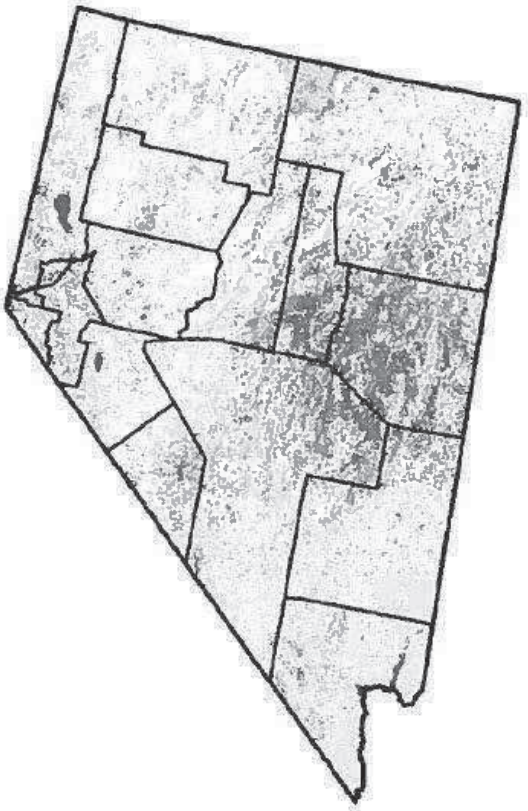
integrate satellite-based observations of vegetation conditions, climate data, and other biophysical information such as land cover/land use type, soil characteristics, and ecological setting. The VegDRI maps that are produced deliver continuous geographic coverage over large areas, and have inherently finer spatial detail (1-km2 resolution) than other commonly available drought indicators such as the U.S. Drought Monitor."

The figures below show most recent VegDRI and USDM maps. For much of Nevada, the large bulk of areas are "Near Normal" to "Pre-Drought" with some areas some areas being "Unusually Moist" and others starting to exhibit "Moderate Drought" with very few exhibiting "Severe Drought." Interestingly, the VegDRI almost depicts an inversion of the USDM of the same general date – the areas showing the worst drought conditions through USDM are actually also exhibiting the least vegetation drought. VegDRI depicts a very different drought picture when compared to the USDM (again, primarily based on water supplies because hydrologic drought can and does occur independent of vegetative drought. Also, the comparison of VegDRI maps from a year ago shows that vegetation conditions are in much better shape and in some cases many have recovered by multiple drought classes. And last year's VegDRI in September 2014 also showed marked vegetation improvement from 2013. Yet, in our experience, most of the drought grazing restrictions imposed by the BLM have coming these past two years even with these rangeland vegetation improvements and recovery for two years in a row. These same differences between VegDRI and USDM have existed in all of the respective index maps we compared throughout the 2014 growing season up to today.

Vegetation Drought Response Index

August 10, 2015

Complete: Nevada



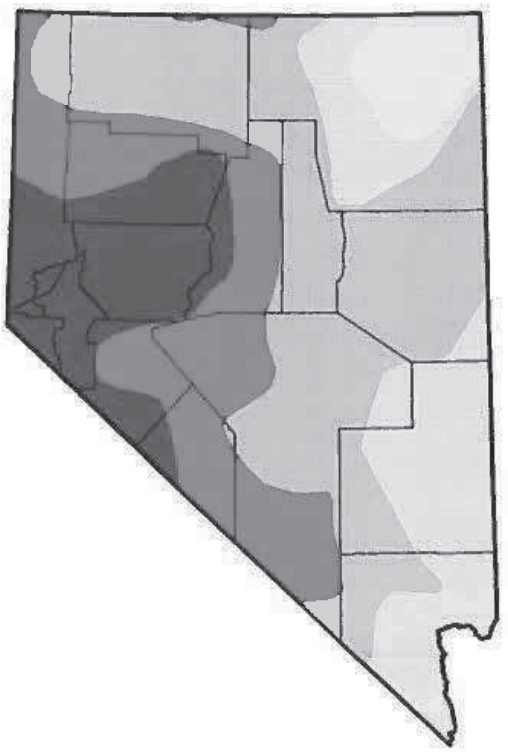
Vegetation Condition

- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-Drought
- Near Normal
- Unusually Moist
- Very Moist
- Extremely Moist
- Out of Season
- Water

USGS

RMA

U.S. Drought Monitor
Nevada



August 11, 2015
(Released Thursday, Aug. 13, 2015)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	0.00	100.00	94.78	76.08	37.52	15.93
Last Week 8/4/2015	0.00	100.00	94.78	76.08	39.66	11.68
3 Months Ago 5/12/2015	0.00	100.00	99.93	87.00	49.21	18.38
Start of Calendar Year 12/30/2014	0.00	100.00	96.98	68.25	48.38	11.89
Start of Water Year 9/30/2014	0.00	100.00	97.04	69.69	48.38	11.89
One Year Ago 8/12/2014	0.00	100.00	100.00	86.92	55.21	11.89

Intensity:

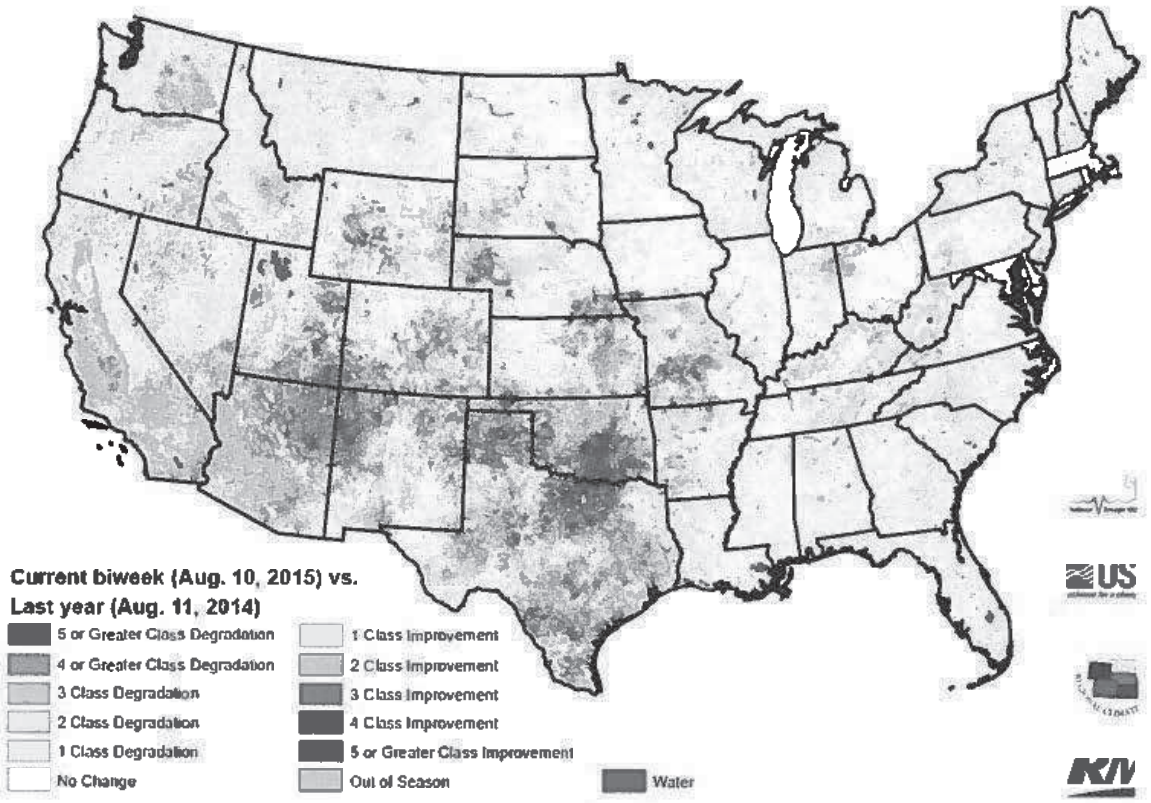
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

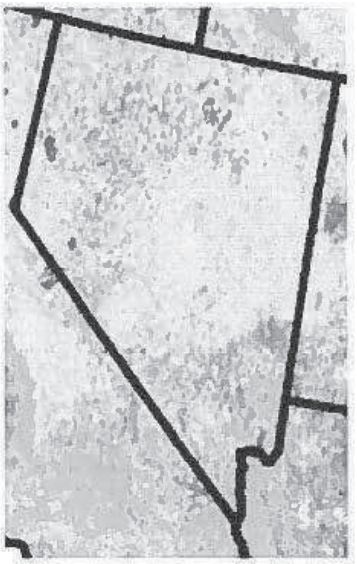
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brian Fuchs
National Drought Mitigation Center

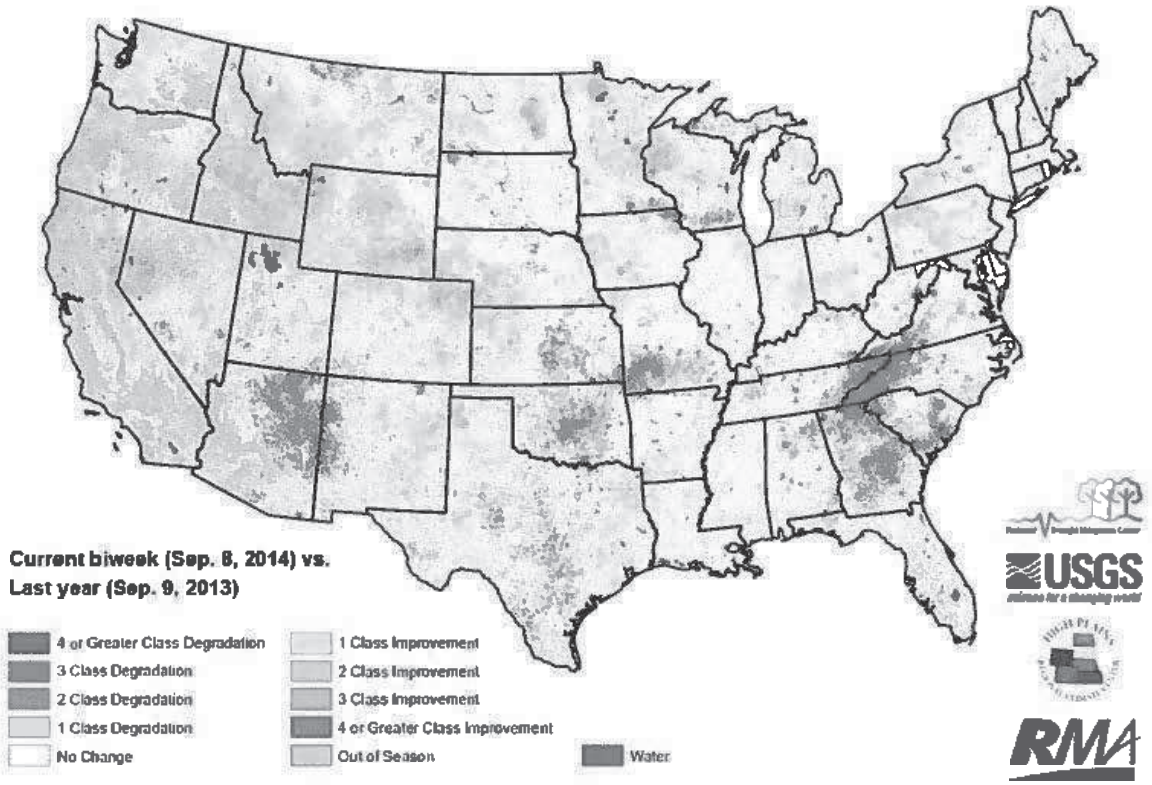
http://droughtmonitor.unl.edu/

Vegetation Drought Response Index (VegDRI) Change





Vegetation Drought Response Index (VegDRI) Change



These examples above place ranchers in the often untenable position of not being able to provide for the needs of their livestock at the right time of the year. Also, in some examples, these restrictions could be seen as a taking since the grazing season-of-use is not in line with the permitted use of the water right appurtenant to riparian areas.

We have found that under the above circumstances, any real resource burden is often shifted to private lands. Much of the prime and invaluable wildlife and riparian habitat in the State is under private control. Anytime grazing restrictions are placed upon the federally administered land, it only increases the possibility of land degradation on private lands—these restrictions do not solve the resource issues on a regional or global scale.

Request for the Drought Forum's Consideration

We ask for assistance in exhorting federal land management agencies, primarily BLM, to quit misusing drought as an umbrella excuse to reduce grazing when drought is truly not impacting rangeland conditions and to avoid unjustified, arbitrary and subjective grazing restrictions on federally administered lands. We ask the Drought Forum to assist with the following to address grazing and vegetative drought on federally administered land:

1. Help ensure agencies separate hydrologic and vegetative drought and do no rely on USDM for drought determinations regarding vegetation. Instead, properly use VegDRI and incorporate other indices such as the Evaporative Demand Drought Index (EDDI) being researched by DRI and Dr. Huntington.
2. Federal agencies in coordination with grazing permittees must ensure that management decisions are based upon the best rangeland science, that flexibility is built into grazing permits to allow for adaptive management as issues and concerns arise, and that that quality and quantity of data collected can support all decisions made;
3. Before imposing grazing restrictions or seeking changes in livestock stocking rates or seasons of permitted use, federal agencies in coordination with grazing permittees must identify and implement all economically and technically feasible livestock distribution, forage production enhancement, weed control programs, prescribed grazing systems, off-site water development by the water rights holder, shrub and pinyon/juniper control, livestock salting/supplementing plans, and establishment of riparian pastures and herding;
4. Federal agencies in coordination with grazing permittees must assure that all grazing management actions and strategies fully consider impact on property rights of inholders and adjacent private land owners and consider the potential impacts of such actions on grazing animal health and productivity.

If you have any questions or would like to discuss this matter in more detail, we can be reached at 775-237-6010 or at natresmgr@eurekanv.org. Thank you for your time and consideration.

PERSHING COUNTY
WATER CONSERVATION DISTRICT
OF NEVADA

PHONE 775-273-2293
FAX# 775-273-2424
E-MAIL: pcwcd@irrigation.lovelock.nv.us

POST OFFICE BOX 218
LOVELOCK, NEVADA 89419

August 24, 2015

Leo Drozdoff, Chairman
Nevada Drought Forum
c/o Nevada Department of Conservation and Natural Resources
901 S. Stewart St., Ste. 1003
Carson City, NV 89701
Contact Email: Gail Powell (gpowell@dps.state.nv.us); Jo Ann Kittrell (jkittrell@dcnr.nv.gov).

Dear Chairman Drozdoff:

The Pershing County Water Conservation District ("PCWCD" or "District") is an irrigation district located in Lovelock Nevada, formed under Chapter 539 of the Nevada Revised Statutes. PCWCD is a quasi-municipal agency that is led by a Board of Directors with myself as District Manager. While the District provided public comment at the August 19, 2015 Governor's Drought Forum, the District submits the following detailed written comments.

Overview

PCWCD owns, controls, and operates a water conveyance system that provides water to approximately 100 constituents with approximately 37,506 acres of irrigated agricultural lands within the District boundaries. PCWCD operates diversion structures and dams along the Humboldt River, as well as diversion structures within the District's delivery system. The District controls a significant number of the senior decreed surface water rights to the waters of the Humboldt River, with storage rights in Rye Patch Reservoir, as well as the Upper and Lower Pitt-Taylor Reservoirs.

In recent years, the Humboldt River's flow to its terminus ceases long before any water reaches the District's farmers. While the District holds very senior decreed water rights, little water is making it to the District. The District is currently enduring its second consecutive year with 0% water allocation to its constituents.

Hydrologic Connectivity

The Humboldt River Basin groundwater aquifers are greatly over-appropriated. Studies show that groundwater pumping, likely increased with drought, and in the vicinity of the river, is

pulling water away from the river. This hydrologic connectivity is a large factor contributing to the District's lack of water.

The Humboldt River Basin is comprised of 34 separate and distinct hydrographic groundwater basins. According to the Nevada Division of Water Resources, there are 1,852 wells within the Humboldt River Basin, and 1,291 groundwater permits with their point of diversion within 5 miles of the Humboldt River and its tributaries, of which 273 capture 10% or more of their water from the Humboldt River. The total combined perennial yield of all collective groundwater basins in the Humboldt River Basin is 476,400 AFA. However, the total combined permitted groundwater allocation is 753,394 AFA. Of the 34 hydrographic basins within the Humboldt River Basin, 23 are over-appropriated.

Evidence supports the conclusion that groundwater users have lowered the water table in the basins surrounding the Humboldt River to a depth that is causing a dewatering of the Humboldt River, as surface waters are flowing away from the river to service groundwater withdrawals. It is clear that these groundwater withdrawals are junior in priority to the Humboldt River Decree. Groundwater withdrawals are causing a severe and detrimental impact to the surface water Decree users whose priority entitlement is unavailable due to lack of regulation of the groundwater sources.

Water Use for Mining and Milling

The majority of groundwater appropriation in the Humboldt River Basin is used for irrigation and mining purposes. Water use for mining and milling is most significantly used to dewater open pit mines, which is the current practice of extracting minerals in the Humboldt River Basin. This practice often seeks to extract ore from below the water table, which requires the mining area to be "dewatered." Generally, the mine drills a number of wells around the mining pit, then pumps water to create a cone of depression under the pit, thereby drying up the mining area. When the pit is not being dewatered, the pit fills up to the level of the water table, creating a pit lake.

In Nevada, the State Engineer grants permits for mining and milling on a "temporary" basis. However, rather than issuing one-year temporary permits as allowed for under statute, historically, the State Engineer issues permits for mining and milling akin to permanent water rights, while side-stepping an analysis as to whether water is available for appropriation. The Humboldt River Chronology states that "mine dewatering and mine pit lake formation, and their potential near-term and long-term effects on groundwater levels and surface-water flows" has been identified as a principal water-related issue plaguing the Humboldt River Basin.

In an article entitled *Nevada's Pit Lakes: Wasted Water*, published in the December 2012 issue of the *Desert Report*, Nevada's pit lake problem was discussed in detail. Nevada has more precious metal pit lakes than any other state in the country. The majority of pit lakes in the State of Nevada are in the Humboldt River Basin, and when filled, hold over 1 million acre-feet of water. Evaporation from these pit lakes is also staggering. It has been estimated that such evaporation will "remove the equivalent of five percent of the flow of the Humboldt River at Winnemucca each year."

Action Taken by PCWCD

After feeling the effect of groundwater pumping that decreases flows within the Humboldt River, coupled with the ongoing drought in the West, the District sought the assistance of the State Engineer to develop a collective plan to ensure PCWCD's senior water rights are delivered, while at the same time attempting to allow junior users to continue to allocate water to the greatest extent possible. On August 21, 2014, PCWCD prepared a report for the State Engineer to assist in the development of such a plan.

The report provided the State Engineer with a list of requested "Action Items" and asks the State Engineer to take action to: 1) develop a system of conjunctive management; 2) regulate mine dewatering under statutory code; 3) account for "temporary" permits in the hydrographic basins' annual budget; 4) regulate mining pit lakes under statutory code for water storage; 5) curtail junior groundwater rights in basins surrounding the Humboldt River, until perennial yield equilibrium is met; 6) require mandatory metering on groundwater wells in the Humboldt River Basin; 7) create an enforcement officer to regulate groundwater use; and 8) bring groundwater basins back to sustainability. On September 9, 2014, the PCWCD Board Members and Manager met with the State Engineer to discuss the report and request action. The report also discussed water management strategies utilized by other western states. While the District understands that not all actions taken by other states are applicable to the difficulties effecting Nevada, the point was to start the conversation to develop a system of water management that will work for Nevada. PCWCD received no written response to their report or otherwise.

On January 14, 2015 and January 15, 2015, the State Engineer held a series of workshops on the Humboldt River stating their intent to prepare a capture model in the basin, to be completed within 4 to 5 years. The State Engineer also demonstrated a simple "Glover" analysis capture model illustrating that groundwater pumping curtailment would supply additional water to the Humboldt River, but determined that the "Glover analysis shows that curtailment of pumping over one irrigation season will not cause an appreciable gain in Humboldt River flows."

On March 24, 2015, with a second irrigation season with 0% allocation looming, the PCWCD Board Members again met with the State Engineer, this time presenting data through a District retained hydrogeologist. The District provided to the State Engineer a Request for Implementation of Water Management Strategies. PCWCD expressly asked for a written response to their letter and presentation. No response was received.

On August 12, 2015, PCWCD filed a Writ of Mandamus against the State Engineer seeking action be taken to bring the groundwater basins surrounding the Humboldt River back to sustainability. While the District hoped to avoid litigation, inaction is affecting the livelihoods of all those in agriculture, as well as their economic impact in the Lovelock area. The hope is that the Writ will help combat the increasing interference groundwater pumping has on the Humboldt River.

State Action Needed

First and foremost, the doctrine of Prior Appropriation, the law governing all water resource management in the State of Nevada, must be complied with. Before any new

legislation, or any new management practices are established to better manage drought, the law must be followed, and senior rights must be served before junior rights.

Beyond that, sustainability of groundwater must be a key priority in confronting the effects of drought, and water management as a whole. Decades of over-appropriation of the groundwater resources in this State has created a detrimental effect on the surface water sources in the state, including an unknown effect on the future of groundwater availability. The State Engineer is now faced with the task of trying to right the years of abuse. PCWCD believes the tools for sustainable management are available, however, providing the State Engineer, the Nevada Division of Water Resources, and the Department of Conservation and Natural Resource, with further power to develop sustainability based programs, may be necessary for real action to take place.

As previously provided to the Nevada Division of Water Resources, PCWCD proposes managing water use in the Humboldt River Hydrographic Region in the following manner, and proposes the following action be taken:

1.) Bring each groundwater basin along the Humboldt River that is pumping in excess of its perennial yield into balance via a sustainable annual yield concept. This may include and require curtailment based on priority.

2.) Initiate Rulemaking now to allow for the future management of the groundwater and surface water basins along the Humboldt River to be managed as one system, to correct the current imbalance in the surface water system.

3.) Identify and establish "indicator wells" in each basin along the Humboldt River to evaluate the water table aquifer within 7 miles of the Humboldt River corridor, as well as along the major tributaries to the Humboldt River. These indicator wells can then be used for additional monitoring to track hydraulic gradients to surface water discharge in each basin within the Humboldt River Hydrographic Region. PCWCD proposes indicator wells for, at minimum, the Winnemucca, Paradise Valley and Grass Valley hydrographic basins.

4.) Curtail groundwater permits, if prior to the irrigation season (i.e. March 1) the "indicator wells" show that the hydraulic gradient between the indicator well and the Humboldt River is less than 90% of the pre-pumping hydraulic gradient, and thus would pull water from the surface source once the pumps turned on. Historic well and/or surface water elevation data are to be utilized for determining the initial hydraulic gradients.

The District welcomes the opportunity to aid in the State's drought response, and share its insights and experiences, as well as information it has collected, in its effort to keep water

flowing to the District's constituents. If you have any questions regarding that discussed above, please contact the District.[1]

Very truly yours,

PERSHING COUNTY WATER CONSERVATION DISTRICT

Bennie B. Hodges
District Manager
Pershing County Water Conservation District

[1] Letter prepared at direction of Bennie B. Hodges, by Schroeder Law Offices, P.C., 440 Marsh Avenue, Reno, NV, 89509.

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FLOYD W. RATHBUN (775)423-4267
CERTIFIED RANGE MANAGEMENT CONSULTANT P.O.BOX 1612
Fallon, NV 89407
rathbun@phonewave.net

August 19, 2015

Marianne Leinassar asked me to attend today's conference for FIM Corporation. Marianne, her father Fred Fulstone, and son Kris own and operate their family's sheep ranch with irrigated croplands producing hay in Smith Valley, pasture in Bridgeport Valley, and extensive rangeland grazing allotments on BLM and Forest Service controlled areas.

1. Western Nevada ranches suffer drought in two possible ways. First is the obvious lack of snow pack that normally produces the water needed for irrigation of crops and for livestock water from springs or creeks on rangelands. Second is lack of rainfall in April and May that is needed for production of range forages.

2. Churchill County farms received less than 20% of average water which provided a single irrigation for most producers. Unusual amounts of rainfall kept many alfalfa and pasture fields productive into July. April and May rainfall resulted in average or above average range forage production.

3. Pershing County farms received no irrigation water from the Humboldt River. Some areas received rainfall that produced rangeland plants as forage but other areas only received May and June rainfall which favored certain weeds such as Russian thistle and Halogeton.

4. Lyon County received a fraction of normal water for irrigation from both forks of the Walker River.
    - Smith Valley farms had a small amount of water from storage and decree from the Walker River.
    - State Engineer threatened to also cut off irrigation from "supplemental" wells.
    - Rangelands received spring rainfall that produced abundant forages so there is no detrimental affect of drought on rangeland forages.
    - However springs and streams dried up and water has to be hauled to livestock at great expense.

5. Mismanagement of upstream watersheds has greatly reduced the amount of water yield that used to flow into our reservoirs and recharge our valley aquifers. Forest Service and BLM have failed to restrict the spread of Pinyon-Juniper trees and have allowed willows and other species to plug up the streams so badly that even without the drought we did not receive the normal water flow. This drought has made the effect of badly managed rangelands all the worse.

6. Water for irrigation in Lyon County comes from irrigation reservoirs built in Bridgeport and Topaz. Those reservoirs and others have been assigned a minimum pool for the frivolous purpose of providing fish and wildlife for recreation. When water is abundant that is not an issue but with drought the water rights for agriculture need to take first place.

7. For years requests that BLM and Forest Service spend some money to drill wells, develop springs, and other water developments have either been ignored or have been answered with statements about how NEPA will take a long time to complete so nothing can be done for a long time. If new developments and needed repairs had been done when requested the water resources for both livestock and wildlife may have been adequate for this drought.

8. Nevada has the best water law in the West. Our law protects citizens as owners of permitted (statutory) water rights and protects the owners of pre-statutory vested water rights as well. This drought is inconvenient but it is not worth compromising Nevada Water Law for some short-term gain. Please work through this situation starting from the fact that water rights and other private existing rights on federally controlled lands and on patented lands must be protected and must be intact when the drought ends.

Talking Points: Legal Uncertainties and Drought Response

1. How has drought affected the livestock industry

From a range grass production stand point not much. Rangelands are in good condition and grass production for the past two years have actually been very good thanks to well timed spring and summer rains.

Pastures relying on snow pack and runoff are deficient and way below normal.

Stock water is an issue on many allotments.

Irrigation water for hay production is deficient due to the reduced snow pack.

A lot of legal uncertainties are present if this drought situation continues. Conflicts between users will intensify.

- Surface water sources with senior water rights may be impacted by junior groundwater pumping. As surface water flows decline, surface water users may switch to groundwater and the increased pumping levels could impact other groundwater users. More straws in the ground.

- While conflicts between water users will first be addressed by the State Engineer's office, eventually the issues will reach the court system. Many of the issues related to water use conflicts will concern areas of law that have not been interpreted or enforced before. The effects of drought will test the completeness and complexity of Nevada's water law.

- Steps should be taken now to improve the clarity of certain key aspects of Nevada's water law so that all water users can be treated fairly when they are faced with responding to water supply limitations caused by drought.

- The areas of law that should be clarified are:

    - Recognizing in statute that impacts to other water rights is an acceptable part of sharing a water resource, but that when an impact rises to a level that cannot be mitigated, a conflict exists and the prior appropriation system prevails.
    - Monitoring, management, and mitigation plans ("3M Plans") that rely on adaptive management principles are appropriate tools for the State Engineer to use and consider, both in deciding whether to grant a water rights application and in managing competing water uses and protecting the environment.
    - The State Engineer has the inherent authority to require 3M Plans, but the legislature can confirm this and add detailed requirements like the appropriate

contents of a 3M Plan and the timeframe for setting mitigation triggers, including whether performance bonds should be required.
    - When mitigation is necessary, water right users should expect to receive the same amount of water, in the same place, and at the same time as provided for in their water right, but do not have an entitlement to water from a specific source.
    - In a drought, conservation should be rewarded and not punished by the "use it or lose it" system. Conserved water can be used by junior water users and the junior water rights retired in order to benefit the system.

- Legislative ambiguities lead to economic uncertainties.

- The Nevada Drought Forum should be used to identify specific statutes that can be amended and clarified, and the Governor should consider these recommendations in the bill draft request process for the 2017 legislative session.

Nevada Farm Bureau Federation
2165 Green Vista Dr., Suite 205, Sparks, NV 89431
1-800- 992-1106 | www.nvfb.org

Nevada Drought Forum Sector Meeting
Wednesday, August 19, 2015

Mr. Chairman and members of the Nevada Drought Forum, my name is Darrell Pursel. I'm here this morning representing Nevada Farm Bureau Federation. Nevada Farm Bureau Federation is the largest general agriculture organization in Nevada, representing over 18,000 member families. I am the president of the Lyon County Farm Bureau and a 5th generation Nevada farmer. I farm 320 acres and have a small cow-calf operation in Yerington.

The total economic impact of Nevada's agriculture cluster is $5.3 billion. Our industry is one of the largest and most valuable in Nevada, and it is one that is greatly affected by the drought. Lack of water for farmers and ranchers has resulted in cutbacks across our industry. To some Nevada farmers, the current drought is devastating, and to others, it is just another challenge. Each farmer has different problems due to their individual circumstances and location even though they may be next door to one another. Farmers have fallowed valuable farmland because there is not sufficient water to grow the crops they would normally grow. In counties like mine, farmers have been allocated 3 percent of their normal surface water rights and must rely on supplemental pumping rights to grow crops. Without a wet winter, farmers will not receive any surface water rights and may be forced to cut back their supplemental and primary pumping rights by as much as 75% or more by priority. Further, the lack of well water pumping for irrigation may fallow 75% or more of farms in the two valleys. That means only 25% of agriculture wells will be allowed to be pumped in the coming year in Mason and Smith Valley's . The total economic impact of food and agriculture is $338 million in Lyon County. Drastic cutbacks to our water use due to drought will be detrimental not only to our farmers but also the local communities on which agriculture has a positive economic effect.

Some livestock producers have had to sell off some of their herds, buy or lease more pastureland or grazing allotments and feed more hay. Many have been forced to take their livestock out of state for pasture. In range operations, many producers have had to drill livestock wells, purchase water trucks and haul water for livestock to drink. Ranchers in counties like Lander have been forced off of their permitted land early because drought environmental assessment triggers have been met. They have been

forced to sell their animals because they are not permitted to graze all of the livestock they own. The drought directly affects Nevada agriculturists' livelihoods, and in some cases, it has forced farmers and ranchers out of business dispalcing generations old farming and ranching operations.

This is not the first drought affecting our industry. Agriculture in Nevada has always tried to become more efficient at using our water resources because we face drought often. There are many examples of what the agriculture industry has done to conserve water for irrigation. Starting in 1920 Topaz and in 1923 Bridgeport reservoirs were built by farmers on the East & West Walker River to help limit the effects caused by drought by being able to store water in the good years for use in drought years. In the 1960s and 70s, many of the farmers put in irrigation wells to help survive droughts when water was short. In the late 70s to today, they have put in concrete ditches, underground pipelines, sprinkler irrigation and laser leveling fields. In the recent years, drip tape, variable drives and GPS control and leveling systems have been employed all to help use water more efficiently. Each and every one of these pieces of technology increases efficiency and reduces water consumption especially in drought conditions and can be the difference between producing a crop and not. As better and more efficient technology becomes available, farmers will be the first to adopt their use.

Our ranchers also continue to use efficient methods to preserve the rangeland in years of drought. They practice holistic management of the land to graze large numbers of cattle while preserving and improving the vegetation for animals and wildlife in the future. They rely on sound grazing practices, ensuring that public lands are properly grazed to prevent wildfires, which are more common in years of drought.

Several big obstacles exist to overcoming additional levels of water efficiency. Often times, uninformed government officials and individuals make decisions regarding the agriculture industry and drought. While agriculturists in Nevada are dedicated to conserving water, they often face misplaced restrictions that will not conserve water or protect the rangeland that needs to be conserved and protected. In the last year, the BLM closed grazing allotments because of antiquated drought environmental assessments even though the area in question had lots of vegetation due to spring rains. The Nevada Division of Water Resources attempted to implement a well water pumping curtailment without doing sufficient research to identify which parts of the valley needed to be curtailed.

The other obstacle that our industry faces is one that cannot be eliminated. Agriculture needs water to operate. Forcing our agriculturists to cut their water use back more than they currently do will result in a reduction in the availability of local

fruits, vegetables, meat and animal by-products. It has been said that by the year 2050, the Earth's population will have doubled. Where do you think your food will come from? Agriculture will have to produce twice as much food and fiber than we do now and more than likely with less water and less land than we currently use. Today, each farmer produces enough food and fiber for 155 people. In 2050, each farmer will have to produce for 310 people or more.

In closing, I would like to end with a short personal story. Due to the drought this year and loss of production, I began raising pheasants and mallard ducks. I fed the wheat in a grain bin that I couldn't use for other purposes to my new birds and plan to start a pheasant hunting preserve to increase income in the future. I am sure you are wondering who in their right mind would raise ducks in a drought. I'll tell you who, agriculturists. In hard times like these, we will adapt to persevere because we have adapted since the beginning of civilization to feed a growing population. We are farmers and ranchers, and we will continue to feed the world even when we face challenging times like these.

Thank you.

Good morning Chairman Drozdoff and the rest of the Committee. We appreciate you taking the time today to hear testimony from a variety of agricultural and conservation interests. My name is Joe Sicking, and I'm the Chairman of the State Conservation Commission. As many of you know, the Commission works with and assists the 28 Conservation Districts throughout the state; all of them provide locally elected leadership on renewable natural resources in Nevada. They all serve as volunteer Supervisors, but they do their best to help their communities address some of the most important issues of our day.

Of course water, and the related use of it, is always one of the most important natural resources there is, particularly in Nevada. The current level of drought, stretching now well over ~~the past~~ four years, has led many of its traditional users to conserve, use less, and for some not even have any to use ~~currently~~.

In order to remain productive in a drought-stricken state such as Nevada is currently, most agricultural producers have done everything they can to continue their operations and yet remain economically viable. With the help of NRCS, some producers have been able to convert from flood irrigation to center pivot. This option, although a Laser Level Their fields or Re... ...Existing Pivots large investment for the producer, does provide significant water savings as well.

Some operators are leaving some of their fields fallow – others have done so not by their choice but due to the fact they simply don't have water to use. It's not uncommon these days for producers to leave their grain crops in a year or two longer during their normal rotation between alfalfa and grain, since this allows for a lower use of irrigation water. Others are trying different crops that are water efficient or use less water as well. Grains such as Teff, as well as others, use significantly less water; provide a cash grain crop, as well as useable forage if the producer chooses to use it as such. Some simply ~~farm~~ till it into the soil which provides for less water usage the next few years on that field due to higher levels of organic matter.

The Conservation Districts themselves have been actively working on developing projects that could help Nevada's waterways to be more efficient and effective, store water on the land longer, and help in putting those waterways into proper functioning condition. The District I serve on, Paradise-Sonoma in Humboldt County has partnered with the Owyhee Conservation District in Elko County and applied for a Conservation Innovation Grant through NRCS. If we are successful in obtaining this grant – we won't know for sure until next month sometime – it will allow us to put many miles of the Little Humboldt River, portions of both the North Fork and South Fork, into proper functioning condition. This project will help keep what little water we

receive in those drainages in time of drought, on the land longer and allow it to be used more efficiently. It also has a side benefit of improving habitat for the Greater Sage-grouse which as we all know is a big issue these days.

The State Conservation Commission, in partnership directly with the Nevada Association of Conservation Districts, as well as many others including BLM, USFS, and NDF, just to name a ~~couple~~ few, has also applied for another grant known as the Regional Conservation Partnership Program through NRCS. This five year grant, again if we're successful, will provide about $19 million dollars worth of planning and work to be done throughout the state. The first couple of years will be spent developing Conservation Resource Management Plans, known throughout the country as an extremely collaborative process, for each of the 28 Districts. The following few years will be spent putting the projects developed through the planning process on the ground. We anticipate that with water issues being front and center, that many of the top ranking projects will be water conservation related.

All of these management tools are effective in reducing water consumption for irrigation. However, there is a legal issue that arises in Nevada water law. Producers have come to refer to this issue as "use it or lose it" regarding water rights. The current statutes provide that if a producer doesn't use their adjudicated water rights for a period of time,

the state can regain the right to re-appropriate those rights. Therefore, if a producer uses good, efficient management techniques such as some of those mentioned above, and reduces his water use by, as an example 20%, he could legally lose that amount of his water right. For a field that has been permitted for 20 acre feet of water, this could be the loss of four acre feet of water on an annual basis. This reduces the value of the overall operation, and if he does that on a number of fields the negative effect of that value adds up quickly. This needs to be changed as soon as possible. It is a very significant issue throughout the Nevada agricultural community as they stand to lose significant amounts of their rights and value to their operation if they do the right thing.

I would like to close by thanking the members of the Committee for their service and attention to this critical issue on everyone's mind. I would also like to thank Governor Sandoval for his work in bringing this forward as an important issue for his administration. I would offer the assistance of the Conservation Commission, as well as the individual Districts, in addressing this issue. Thank you Chairman Drozdoff and I would be happy to take any questions you or the Committee may have.

P.O. Box 75 Baker, Nevada 89311
(775) 881-8304

GREAT BASIN WATER NETWORK

info4gbwn@gmail.com
GreatBasinWaterNetwork.org

August 19, 2015

Mr. Chairman, Members of the Drought Forum Board:

My name is Abby Johnson, President of Great Basin Water Network. We are a regional, nonpartisan, non-profit organization dedicated to preserving rural water at its source. Counties, Tribes, ranchers and farmers, irrigation districts, small businesses, conservationists, and community members are part of our network. Thank you for inviting us to participate in this meeting. For this process to succeed, we believe it is important for the public and stakeholders to understand what the final work products from the Forum will be, how they will be developed, and how they will be implemented after the Summit in an inclusive and effective way.

1. How has the drought in Nevada affected the environment?

Drought has put all of Nevada on notice: as the driest state in the nation we cannot afford to be complacent. The natural environment is struggling to stay in balance in the face of declining precipitation and rising water use. Our message is simple: Drought should not be used as an excuse to sacrifice one part of the state for another. We are one Nevada and must find solutions so that all parts of the state, including rural areas, can survive and thrive.

It should be clear that there is no “new” water to develop in the West. Many water rights are little more than slips of paper in basins that were overallocated even before the drought took hold. Major water exportations like the Las Vegas Water Grab are not viable solutions. They depend on exploitation of the target area by depleting its water supply. This has never been acceptable, and the drought makes this even clearer. Pump-and-pipe groundwater projects will exacerbate impacts of water shortages from where water is taken, while subjecting urban ratepayers to exorbitant rate increases.

One question we should be asking is: is this a drought or a more long-term climate change where drier is the new normal? The smart thing to do either way is adapt with short-term, mid-term and long-term changes in our water use and management. Will a wet winter deter policy makers from carrying out the systemic changes to sustain Nevada through future adversity? We hope not.

Local agricultural producers are already experiencing the challenges of farming and ranching with a declining water table. Lovelock's farmers are experiencing a fourth year without irrigation water. Sustaining the agricultural base, economy and way of life in Nevada is a necessary part of Nevada's twenty-first century economy, culture, and survival.

2. What has your organization done to address drought?

We oppose the SNWA Groundwater Development Project, better known as the Water Grab, which would bring unacceptable harm to the environment and would poach senior water rights. We have many objections to that project. First among them is that the water is not available long term for massive exportation, rendering it destructive, unaffordable and unacceptable as an option to address drought or expand supply. So far the state's high courts have agreed with that assessment.

We have urged SNWA to pursue alternatives to future water supply needs including desalination and more aggressive conservation, but our efforts and suggestions have not been welcomed.

We supported the Nevada State Engineer's legislative proposals to address overpumped basins as proposed in SB 65 and 81 of the last legislative session. We continue to support changes in Nevada water law that recognize the need for conservation and the importance of water to sustain a healthy environment for wildlife, fish, plants, residents, and tourists.

3. What major obstacles do you believe exist to overcoming additional levels of water efficiency?

Southern Nevada Water Authority has made admirable progress in water conservation. But in the largest city of the driest state, per person water use should be the lowest in the west, and it isn't. In fact, it's about double that of many other Western cities. SNWA points out that its use is much lower once return flow is factored in, but imagine if they used 100 gallons per person per day instead of 205. With return flow they'd be the clear leader in the region and be able to support double the population on today's water use.

Ratepayers in Southern Nevada typically face across-the-board flat rate water increases, removing the conservation incentives that come with tiered rate increases. Conservation pricing works, and it funds investments in enforcement and incentive programs. Large water users shouldn't be given a "bulk rate." The mixed missions of a water authority to both sell and conserve is not lost on us, and we believe it contributes to mixed messages and actions on conservation.

The only option for increasing freshwater supplies is desalination. Outside of this, we can increase the efficiency of using our existing water resources to restore balance to stressed systems. The reuse of wastewater has challenges, but should be part of statewide conservation policies. Gray water and rainwater collection and utilization should be legal and invested in throughout the state. It was brought up in the last meeting, but the treatment and movement of water uses energy, and that energy has a water cost. Gray water systems save consumers money and save communities energy and water. More aggressive indoor conservation retrofits would mean less demand, resulting in more people being able live sustainably on the water supplies that exist today. Every locality should be setting bold yet reasonable conservation goals. Southern Nevada's is due for a revision.

The "use it or lose it" caveat embedded in Nevada water law does not provide flexibility for agricultural producers who want to conserve by pumping less in a drought crisis. Change water law to incentivize water savers and exempt them from "use it or lose it" requirements.

The evaporation rates of Lake Mead and Lake Powell are astounding. Pursuing technology to store more water underground is essential. And how about phasing out the ornamental lakes that serve no purpose for the vast majority of residents or tourists, but lose many acre feet of water to evaporation?

Nevada law allows the die-off of plants to capture the water they would use. But this extermination has consequences too, including erosion, subsidence, and fugitive dust. This policy should be re-examined to ensure we do not become overzealous in taking the water our environment needs.

Finally and foremost, it is past time for all parts of Nevada to have water-smart growth management ordinances. It is unacceptable, unsustainable and yes, unhealthy, to set no limits on growth in the desert. The public perception is that water conserved will simply be used by developers to support new growth instead of protect the environment and preserve quality of life. As in other areas, let's adapt successful approaches by other arid communities to make it work in Nevada. We should be able to, but can't, answer a simple question: how many people can today's proven water supplies and conservation techniques support?

Nobody has a spotless record on water use, but now we have enough information in front of us to make a clear choice between gambling the future of our environment and economy on growth and water theft, or showing the responsible restraint needed to guarantee that future generations can enjoy a Nevada whose character is largely preserved. We hope this Forum will help our state make the right choice.

Delaine Spilsbury
P O Box 1055
McGill, NV 89318
775-235-7557
mssquaw@hotmail.com

08/21/15

TO: NV Drought Forum

RE: Submit an Idea

Nevada needs to protect our underground clean water supply:

Industry is permitted to withdraw tremendous amounts of pure water. When the projects are completed, the resulting polluted water is dumped and can contaminate pure water.

Industry also uses great quantities of fresh water to drill underground, where it becomes contaminated. The contaminated water can mix with well water and poison our aquifers. This is simply ridiculous!

Industry also dumps poisonous used water into holding ponds resulting in poison ponds that do not go away. Industry should be compelled to purify water before it is dumped.

Also, during the Drought Forum meeting held Aug. 19 a knowledgeable person stated that there is no time limit or deadline for "Temporary" water permits for mining. This situation needs to be assessed and revised.

Please protect our water. "This is a desert, Dammit!" Thank You,

Delaine Spilsbury

Nevada Drought Forum
Talking Points
Mike Baughman, Ph.D.; CEcD
Executive Director
Humboldt River Basin Water Authority
August 19, 2015

I. Overview of Humboldt River Basin Water Authority (HRBWA).

a. Established in early 1990's by Elko, Eureka, Lander, Humboldt and Pershing counties in response to a proposal to export in excess of 300,000 acre feet of groundwater from the upper Humboldt River Basin to the lower Carson River Basin. Related water right applications were denied by the Nevada State Engineer as being speculative in nature.
b. For the past 20 years, HRBWA member counties have continued to meet quarterly to address surface and groundwater water quantity and quality issues of common concern.

II. Humboldt River Basin Characteristics

a. Annual average flow of the Humboldt River is approximately 296,000 ac. ft.
b. There are approximately 690,000 ac. ft. of decreed surface water rights within the Humboldt River Basin.
c. Highly efficient reuse of agricultural irrigation water runoff is key to meeting demand which greatly exceeds annual average flows.
d. Annual variations in surface water flow produce economic and environmental uncertainty.
e. Approximately 469,900 acre feet of perennial groundwater yield in Humboldt River Basin.
f. Approximately 757,758 acre feet of committed groundwater rights in Basin.
g. All groundwater basins within the Humboldt River Basin have been designated as requiring special management by the Nevada State Engineer.
h. Very little unappropriated groundwater remains available, 23 of 34 groundwater basins are over-appropriated.
i. Long-term over-pumping of groundwater basins is impacting base flow of the Humboldt River.
j. Climate change is resulting in less precipitation falling as snow and greater frequency of rain on snowpack.
k. Storage in upper and middle Humboldt River Basin is not available for consumptive uses such as irrigation.
l. Storage in lower Humboldt River Basin requires adequate upper and middle-Humboldt River flow to move water to Rye Patch Reservoir.
m. During years of average and better flows, lack of upstream storage results in significant losses of water to evaporation in the Humboldt Sink.
n. Little to no storage capacity results in little to no drought reserve within the Humboldt River Basin.
o. Unpermitted consumptive use of water through evaporative losses from ever-expanding number of pit lakes is a growing problem.

III. On-Going Drought Impacts

a. Loss of soil moisture – impacts to vegetation for wildlife and domestic livestock.
b. Loss of vegetative moisture – increased risk of wildfire and changing plant compositions.
c. Loss of bank storage – reduced base flow and loss of riparian habitat.
d. Reduced progress to recovery of Lahontan Cutthroat Trout.
e. Impacts to sage grouse habitat – wildfire, invasive species, reductions in spring flow.
f. Water level declines – reduced surface water recharge of aquifers.
g. Reductions in Animal Unit Months (AUMs) of private and public land grazing (voluntary and in-voluntary reductions).
h. Significant reductions in surface water irrigated acreage (zero water delivered in Pershing County Water Conservation District during past two years).
i. Continued groundwater pumping exacerbating drought impacts to Humboldt River base flows.
j. Reduced flows and higher air and water temperatures resulting in increasing exceedance of Nevada water quality standards and ever-increasing numbers of stream segments within Humboldt River Basin being listed as "impaired" by the Nevada Division of Environmental Protection.
k. Intrabasin conflict between Senior and Junior surface irrigation water rights holders; between surface and groundwater irrigation right holders and between upper, middle and lower Humboldt River water rights holders.
l. Economic (employment and income) and fiscal (state and local tax revenue) impacts resulting from reduction in agricultural production, Lovelock area particularly hard hit.
m. Economic and fiscal impacts resulting from reduced recreation at South Fork and Rye Patch reservoirs in particular.

IV. Drought Recovery/Management

a. Two to three years of above-average snowpack required.
b. Design, implement and institutionalize a comprehensive and cost-effective cloud-seeding program (with generators located in upper, middle and lower Humboldt River Basin) for FY 16 and beyond.
c. Curtailment of groundwater pumping to facilitate recovery of over-pumped groundwater basins.
d. Design and construct additional storage capacity – new reservoirs and/or aquifer storage and recovery, particularly in upper and middle Humboldt reaches.
e. Compensation of lower basin senior surface water right holders by upper basin junior surface water rights using water not otherwise deliverable to lower basin.
f. Design and implement economic and fiscal incentives to assist agricultural producers to maintain agricultural production capacity (an aggressive agricultural industry retention initiative is needed, perhaps spearheaded by the Governor's Office of Economic Development).
g. Condemnation of water rights should not be an option.
h. Prohibit the filing of new supplemental groundwater applications which are proximate to decreed surface water sources.

i. Prohibit the filing of change applications to move existing supplemental rights proximate to decreed surface water sources.

For Additional Information:

Mike Baughman, Ph.D., CEcD
Executive Director
Humboldt River Basin Water Authority
(775) 315-2544
mikebaughman@charter.net

TO: Leo Drozdoff, Chairman, Nevada Drought Forum

FROM: Steve Bradhurst, Executive Director, Central Nevada Regional Water Authority

DATE: August 17, 2015

RE: Central Nevada Regional Water Authority statement to the Nevada Drought Forum

On behalf of the Central Nevada Regional Water Authority I would like to thank you for inviting the Authority to participate in the August 19, 2015 Nevada Drought Forum Sector Meeting. The purpose of this statement is to 1) provide the Nevada Drought Forum information on the Authority, 2) bring attention to Nevada's water supply problem, and 3) respond to the three questions the Forum posed to the Authority.

What is the Central Nevada Regional Water Authority?
The Central Nevada Regional Water Authority is a unit of local government established by agreement of its member counties in the fall of 2005. The agreement is pursuant to the provisions of Nevada's Interlocal Cooperation Act (Chapter 277 of NRS).

The Authority has eight member counties (Churchill, Elko, Esmeralda, Eureka, Lander, Nye, Pershing and White Pine Counties), and together they cover approximately sixty three percent of Nevada's land area. The Authority has a twenty three member board of directors, including ten county commissioners and six former county commissioners.

The Authority's conferred functions include the following: 1) be a forum to discuss and formulate positions on critical water and water-related issues pertaining to the eight member counties, 2) provide technical and policy advice necessary for sound water resource decisions, 3) assess and respond to proposals/plans that would export water resources from member counties, and 4) facilitate the development and implementation of a groundwater monitoring program in member county water basins. The Authority is not in the water utility business (wholesale and/or retail). Given the Authority's large geographic footprint, and the fact that most Nevada water issues impact urban and rural Nevada, the Authority is by necessity interested in all Nevada water issues (federal, state and local).

Are we "whistling past the graveyard?"
"Whistling past the graveyard" is when you do something to keep your mind off your worst fear. Nevada's worst natural resource fear has to be the real possibility of a water supply crisis in the near term (within the next 30 years). The Nevada Drought Forum is "doing something" in the water arena, but it is not addressing Nevada's worst natural resource fear. The Authority feels a Nevada water supply crisis will be caused by five interrelated realities: 1) limited traditional in-state water supply sources (surface water and groundwater), 2) drought, 3) climate change, 4) population growth, and 5) indifference or inattention.

Since 2008, the Central Nevada Regional Water Authority has asked the Nevada Legislature to consider Nevada's limited and possibly diminishing water supply a critical issue for Nevada's economic well-being, valued quality of life and natural environment. In the 2013 Nevada Legislative Session the Authority asked the Legislature, via Assembly Bill 301, to have the Legislative Committee on Public Lands conduct a study during the next interim (2014) on alternative sources of water for Nevada communities. The Authority's testimony on AB 301 included a statement that a number of Nevada communities do not have an identified, sustainable water supply within their control to accommodate projected population growth over the next 30 years. AB 301 was not approved by the 2013 Session. Fortunately, AB 301 became AB 198 in the 2015 Session, and AB 198 was approved by the Legislature and signed by Governor Sandoval. Therefore, it is hoped during the next year the Legislative Committee on Public Lands will conduct a study that will focus on the real possibility of a Nevada's water supply crisis in the not-to-distant future, including what to do about it.

The AB 198 study, the Nevada Drought Forum and the Nevada Drought Summit should be the foundation to have a meaningful statewide Nevada water future discussion, as well as a follow-on development of a Nevada water future strategy. The Central Nevada Regional Water Authority recommended a Nevada water future discussion and strategy in the spring of 2014. Please see the attached Central Nevada Regional Water Authority April 2014 position paper entitled "Is It Time for a Nevada Water Future Discussion and Strategy?" It is critical that the water future discussion and strategy involve all interested parties (e.g., State of Nevada, Nevada Legislature, Nevada's local governments, Nevada's business community, the environmental community and the general public).

The Authority's response to the three questions posed by the Nevada Drought Forum.
The first question is *"How has the drought affected the Central Nevada Regional Water Authority*?" The short answer is the drought made the Authority more acutely aware that Nevada is facing a water supply crisis, maybe sooner than thought. Climate change, population growth and limited traditional in-state water supply sources would eventually make water supply a critical issue in Nevada, but the prolonged drought in the Colorado River Basin and the Great Basin should convince state and local government decision-makers it is time to address the water supply problem now. Another impact of the drought that concerns the Authority is the thinking on the part of some local government officials and entrepreneurs that the solution to the water supply problem in Nevada's urban areas is groundwater from rural Nevada. At a minimum, it is expensive, controversial and risky for a Nevada urban area to stake its future on unrevealed and speculated groundwater from rural Nevada.

The second question posed by the Nevada Drought Forum to the Authority is *"What has the Central Nevada Regional Water Authority done to respond to the drought?"* Most certainly the Authority's efforts to have state decision-makers focus on Nevada's impending water supply crisis, via AB 301, AB 198, and the Authority's April 2014 position paper is a response. Also, in 2009 the Authority signed a memorandum of understanding with two counties in Utah and three counties in California to hold an annual Great Basin Water Forum to discuss Great Basin

water issues. The Authority hosted the first five Great Basin Water Forums (2009, 2010, 2011, 2012 and 2013), and the focus of the Forums was on water supply problems in the Great Basin. In 2014 the Authority held a joint meeting with the Nevada State Land Use Advisory Council to hear how the states of Arizona, California and Utah are addressing their impending water supply problem. These states have acknowledge a projected gap or shortfall between water supply and demand in the not-to-distant-future, and they are doing something about their worst natural resource fear.

The third question posed by the Nevada Drought Forum to the Authority is *"What major obstacles exist to overcoming additional levels of water efficiency in your region?"* In light of the preceding statements the question to the Authority should be "What major obstacles exist to addressing Nevada's water supply problem?" The short answer is indifference or inattention. The famous English author G.K. Chesterton wrote "Of all the sins, indifference is the worst." Nevadans, as well as most Americans, have a dysfunctional relationship with water; that is, clean drinking water is taken for granted. It is possible there will come a time when it will be hard to ignore Nevada's water supply problem. And, at such a stressful time sound decision-making will be difficult. The Nevada Drought Forum, the Nevada Drought Summit and the AB 198 study should provide some momentum in addressing Nevada's water supply problem; assuming these efforts are more than just a feel good, bureaucratic exercise. State and local government decision-makers need to acknowledge there is a real possibility of a water supply problem in the future, and they need to be actively involved in addressing the problem. Another obstacle to addressing Nevada's water supply problem is the less than honest statement made by some that a community has plenty of water because it has water rights to surface water and/or groundwater that will accommodate growth. Water rights do not equal wet water. Communities should make every effort to develop land use plans based on identified and sustainable water resources within their control, not on the use of all paper water rights and/or wished-for new water supplies.

Closing recommendation.

In closing, the Central Nevada Regional Water Authority recommends the Nevada Drought Forum include a discussion of Nevada's water supply problem at the September Nevada Drought Summit. It is time for state and local government decision-makers to discuss the problem and not just whistle it away.

Attachment

c: Central Nevada Regional Water Authority Board of Directors

Is It Time for a Nevada Water Future Discussion and Strategy?

By
Central Nevada Regional Water Authority
April 2014

BACKGROUND

On May 2, 2003 the U.S. Department of Interior released a report entitled "Water 2015: Preventing Crises and Conflict in the West." The report states "Today, in some areas of the West, existing water supplies are, or will be, inadequate to meet the demands of the people, cities, farms, and the environment even under normal water supply conditions." The report says five interrelated realities of water management are creating crises in the West: 1) explosive population growth, 2) water shortages exist, 3) water shortages result in conflict, 4) aging water facilities limit options, and 5) crisis management is not effective." Today, it appears two additional interrelated realities exist, and they are extended drought and climate change.

Over the last few years many articles have been written about the existing and/or impending water supply crisis in the West. The titles of a few of these articles are: 1) "Warning: Water policy faces an age of limits," 2) "Growth top threat to water supply," 3) "Dramatic water changes coming to the Southwest," 4) "Study: Climate Change May Dry Up Important U.S. Reservoirs Like Lake Powell and Lake Mead," 5) "Where Will All the Water Come From?," 6) "Worst Drought in 1,000 Years Could Begin in Eight Years," and 7) "A new report confirms what we should already know: The Colorado River is in deep trouble."

The new report that confirms the Colorado River is in deep trouble is the December 2012 U.S. Bureau of Reclamation report entitled "Colorado River Basin Water Supply and Demand Study." The Study's primary finding is significant shortfalls between projected Colorado River water demands and supplies will likely exist in the coming years. The median shortfall is projected to be 3.2 million acre-feet per year by 2060, and the worst case shortfall is projected to be close to 8 million acre-feet per year by 2060. To put this in perspective, consider the fact that the average Colorado River flow of late has been approximately 15 million acre-feet per year, and the Law of the River allocates 17 million acre-feet of Colorado River water per year to seven Colorado River Basin states and other

parties (including Mexico). Therefore, on paper there is already a shortfall between Colorado River water allocation and supply.

At the December 2013 Colorado River Water Users Association conference in Las Vegas the Secretary of Interior, Sally Jewell, said decreasing Colorado River water supplies is the "new normal on the river that we all had to deal with."

If Secretary Jewell's statement and the Bureau of Reclamation's report are accurate, or even close to accurate, then Las Vegas Valley is facing a water supply dilemma. Las Vegas Valley receives 90 percent of its water supply from the Colorado River, and it appears there may be significant curtailments in Colorado River water to the Valley in the years to come. In addition, Nevada's traditional in-state sources of water – surface water and groundwater – are at best limited, and at worst diminishing. Also, it is clearly expensive, controversial and risky for Nevada's urban areas to stake their future on unrevealed and uncertain groundwater from rural Nevada.

The Central Nevada Regional Water Authority feels all of Nevada is facing a water supply crisis. In fact, since 2008 the Authority has asked the Nevada Legislature to consider Nevada's limited and possible diminishing water supply a critical issue for Nevada's economic well-being, valued quality of life and natural environment. In the 2013 Nevada Legislative Session the Authority asked the Legislature, via Assembly Bill 301, to have the Legislative Committee on Public Lands conduct a study during the next interim (2014) on water supply for Nevada communities. The Authority testified that Nevada is the most arid state in the union, and the Colorado River Basin and the Great Basin have experienced severe drought over the last decade. For example, 2000 to 2013 was the driest 14-year period in the 100-year historical record for the Colorado River Basin. Also, some scientists believe the Sierra Nevada snowpack that is the basis for western Nevada's water supply could decease as much as 40 percent by 2050. The Authority's AB301 testimony included a statement that there is no question that a number of Nevada communities do not have an identified, sustainable water supply within their control to accommodate projected population growth over the next 30 years. The Authority asked that the AB301 study focus on alternative sources of water for Nevada communities since Nevada's surface water resources are scarce and fully appropriated, and its groundwater resources are scarce, uncertain and fully appropriated in many areas. Alternative sources of water include water

conservation, water recycling, desalination, conjunctive use and rain water capture. AB301 passed the Assembly by unanimous vote of approval, but it was not voted on by the Senate.

As would be expected, the States of Arizona, California, Colorado and Utah are also confronted with projected water supply shortfalls in the near future. These states are actively addressing the problem by way of programs focused on ensuring a secure water future. In Arizona, the Arizona Department of Water Resources, in partnership with Arizona's water community, produced a comprehensive water supply and demand analyses that identified a potential water supply and demand imbalance if no action is taken to secure future water supplies. In an effort to deal with the projected imbalance, Arizona Governor Jan Brewer asked the Arizona Department of Water Resources to conduct a comprehensive analysis of how to address the projected imbalance. The Department did that, and in January 2014, the Department released a report entitled "Arizona's Next Century: A Strategic Vision for Water Supply Sustainability."

The State of California's program to address a projected water supply shortfall is called "California Water Action Plan," and a draft was released in late 2013. The State of Colorado's program to address a projected water supply shortfall is called "Colorado's Water Plan," and the first draft of the plan was also released in late 2013. The State of Utah's program to address a projected water supply shortfall is called "Utah's Water Future – Developing a 50-Year Water Strategy for Utah." Utah Governor Gary Herbert initiated the program in the spring of 2013. He said "We are at a crossroads for our future here," and he cited the challenges of ensuring adequate water supplies in the face of demand brought by population growth, the outdoor economy and environmental concerns. In July and August of 2013 the Utah water future program had eight listening sessions, held across the state, to begin mapping out a water strategy for the future. In addition to public comments at the listening sessions, the State of Utah received more than 800 online comments during the summer. On October 30, 2013 Governor Herbert convened a water summit to review what the public said about Utah's water future and announce the next steps in the process to develop the 50-year water strategy. At the water summit Governor Herbert announced the creation of a 38-member Utah Water Strategy Advisory Team to help develop the 50-year water strategy.

At the December 13, 2013 Central Nevada Regional Water Authority meeting the Authority received a presentation from Steve Erickson, a member of the Utah Water Strategy Advisory Team. He said the Team will solicit and evaluate potential water management strategies, frame water management options for public feedback, and develop a set of recommended strategies to be considered by the State of Utah as part of the 50-year water strategy. Mr. Erickson said the critical component of the Utah water future program has been the effort by Governor Herbert to involve the public in the program, and the tremendous response by the public to participate in the program.

RECOMMENDATION

The question that begs an answer is what can be done to avoid a Nevada water supply crisis stemming from population growth, limited in-state water resources, drought and climate change? Ensuring a secure water future for the State of Nevada has to be a top priority for the State, the Nevada Legislature and Nevada's local governments. The Authority feels the State of Nevada, the Nevada Legislature, Nevada's local governments, Nevada's business community, the environmental community and the public should come together in a partnership to develop a meaningful statewide water supply strategy.

At the December 13, 2013 Central Nevada Regional Water Authority meeting the Authority asked its executive director to look into the development of a Nevada water future program similar to the Utah water future program. In early 2014 the Authority's executive director discussed the concept of a Nevada water future program with the directors of eight Nevada water entities and asked them if they would be amenable to attending a meeting to discuss the merits of a Nevada water future program. The response was yes. The Authority feels a possible next step is to have a meeting to 1) receive presentations from the States of Arizona, California and Utah on their water future programs, 2) receive presentations from water resource research organizations (e.g., Bureau of Reclamation, USGS, Natural Resources Conservation Service, etc.) on water supply challenges facing Nevada, and 3) discuss whether or not to have a Nevada water future program, and if there is support for the program, develop a program outline. For example, a Nevada water future program could include the following steps: 1) initial discussion of Nevada's water future and a Nevada water future program at a water future meeting, 2) listening sessions throughout the state to discuss

Nevada's water future and potential water management strategies, and 3) the development of a Nevada water future strategy by a water strategy advisory team for consideration by the State of Nevada, the Nevada Legislature and Nevada's local governments.

CLOSING COMMENT

The answer to the title of this paper is yes; that is, it is time for a Nevada water future discussion and strategy. One should keep in mind the old Chinese proverb: "If we are not careful we will end up where we are going." Also, it has been said one should not waste a crisis since it presents an opportunity to do good.

NOTICE OF PUBLIC MEETING
of the
NEVADA DROUGHT FORUM

MONDAY, SEPTEMBER 28, 2015 – 8:30 AM

The Nevada Drought Forum will conduct a public meeting on MONDAY, SEPTEMBER 28, 2015, beginning at 8:30 a.m. at the Nevada Legislative Building, Room 4100, 401 South Carson Street, Carson City, Nevada, and will video conference to the Grant Sawyer State Office Building, Room 4401, 555 East Washington Avenue, Las Vegas, Nevada, and Great Basin College, Berg Hall Conference Room, 1500 College Parkway, Elko, Nevada. The public is invited to attend at all locations.

NOTICE

(1) Items may be taken out of order; (2) Two or more items may be combined; (3) Items may be removed from the agenda or delayed at any time; (4) Public comment may be limited to three minutes per person at the discretion of the Chair; comment will not be restricted based on viewpoint; (5) Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Please call (775) 684-5670 in advance so that arrangements for attendance may be made.

AGENDA

Action may be taken only on those items denoted "For possible action."

1. Call to Order & Roll Call – *For possible action*

2. Public Comment

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

3. Review and Consideration of Approval of Agenda – *For possible action*

4. Review and Consideration of Approval of Minutes – *For possible action*

A. Approval of minutes from the meeting held August 19, 2015.

5. Presentation on Potential Federal Legislation – *Discussion*

The Forum will receive a presentation from Samuel Crampton, Regional Representative for U.S. Senator Dean Heller, regarding potential federal legislation related to the drought.

6. Forum Members Discuss Information Generated at July and August Drought Forum Meetings - *Discussion and Possible Action*

The Forum will discuss information presented at the July 17, 2015, and August 19, 2015, meetings of the Nevada Drought Forum, including comments received from sectors such as Gaming and Hospitality, Mining, Development, Energy, Commercial and Industrial, Tourism and Recreation, General Business and Agriculture, as well as from Tribal Interests, Non Governmental Organizations, Public and Private Water, Water Authorities and the General Public.

7. Forum Members Discuss Information Generated at the Governor's Drought Summit – *Discussion and Possible Action*

The Forum will discuss information presented at Governor Brian Sandoval's Drought Summit held September 21-23 in Carson City, Nevada.

8. Forum Members Discuss Additional Information and Ideas – *Discussion and Possible Action*

The Forum will discuss additional information and ideas presented to the Drought Forum, as well as possible recommendations individual Forum members wish to make based on information they have been provided and/or their professional experience.

9. Forum Members Discuss Drought Information Gathered in Relation to Recommendations of the Western Governors' Association Drought Forum – *Discussion and Possible Action*

The Forum will discuss Nevada information presented at Drought Forum Meetings and the Governor's Drought Summit relative to the seven key themes of the Western Governors' Drought Forum: data and analysis; produced, reused and brackish water; forest health and soil stewardship; water conservation and efficiency; infrastructure and investment; working within institutional frameworks; and communication and collaboration.

10. Review of Discussion, Future Meetings and Agenda Items – *For Possible Action*

The Forum will review items discussed and identified for possible inclusion in its report, and also identify areas for further consideration and staff work. The Forum will also discuss scheduling a future meeting.

11. Public Comment - *Discussion*

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

12. Adjournment – *For action*

This notice and agenda has been posted on or before 9 a.m. on the third working day before the meeting at the following locations:

(1) Nevada State Capitol, 101 North Carson Street, Carson City, Nevada
(2) Legislative Building, 401 South Carson Street, Carson City, Nevada
(3) Grant Sawyer Building, 555 E. Washington Street, Las Vegas, Nevada
(4) Department of Conservation & Natural Resources, 901 S. Stewart Street, Carson City, Nevada
(5) Department of Agriculture, 405 South 21st Street, Sparks, Nevada
(6) Department of Wildlife, 1100 Valley Road, Reno, Nevada

Notice of this meeting has been included on the Nevada Public Notices website at http://notice.nv.gov/ *Notice of this meeting was also posted on the Nevada Drought Forum website at http://drought.nv.gov. Please contact Andrea Sanchez-Turner at 775-684-2705 (direct) or asanchez@dcnr.nv.gov to obtain support material for the agenda. Any materials will also be posted at http://drought.nv.gov.*

We are also pleased to make reasonable accommodations for individuals with disabilities who wish to attend the meeting. If special accommodations or assistance at the meeting are requested, please notify Andrea Sanchez-Turner in writing at 901 S. Stewart Street, Suite 1003, Carson City, Nevada, 89701, or by email at asanchez@dcnr.nv.gov, no later than two (2) working days prior to the scheduled meeting.

Summary of Minutes of the

Nevada Drought Forum

Meeting of September 28, 2015, 8:30 AM

Nevada Legislative Building, Room 4100
401 South Carson Street
Carson City, NV

Video Conference:

Grant Sawyer State Office Building, Room 4401
555 East Washington Avenue
Las Vegas, NV

Members Present:

Leo Drozdoff, P.E., Chair

John Entsminger, Vice Chair

Dr. Doug Boyle

Dr. Justin Huntington

Jason King, P.E.

Dr. Mark Walker

Jim Barbee

Caleb S. Cage

Forum Staff Present:

Micheline Fairbank, Senior Deputy Attorney General

Andrea Sanchez-Turner, Administrative Support

BEGIN SUMMARY MINUTES

1) Call to order and Roll Call

Chair Drozdoff called the meeting to order at 8:42 a.m. Andrea Sanchez-Turner conducted the roll call.

Chair Drozdoff reviewed the meeting process and the goals of the meeting.

2) Public Comments: (Discussion)

Carson City Public Comment:

Jonas Sipaila, Evaporative Control Systems (ECS), provided background on his company. He spoke about Truckee Meadows receiving 10,000 acre feet of distilled water (over three billion gallons), however because of outdated regulations, policies, etc., the water became contaminated and was dumped in the Truckee River where it went to Pyramid Lake perhaps creating a rise of a ¾ inch in the lake and

ultimately the water evaporated. The reality of water management is the constancy of the plan. The dependence on snowpack is unreliable. He spoke about Community Water Harvesting, capturing rainwater and the legality of this process. There are technologies available to capture, filter and store captured rainwater for reuse.

Tina Nappe, spoke about population growth in Nevada. As a state, Nevada has allocated and over-allocated the "easy" water and is now focused on transferring existing uses to serve an anticipated population increase. This can be done partly by purchasing ranches and by raising the costs on domestic water users. More wells can be built and existing wells can be deepened. She spoke about the Washoe Valley and how it has changed because of the drought and low snowfall. Agricultural lands are the receivers of critical surface water and many groundwater rights. Many wildlife species are now dependent on agricultural waters and lands. Purchases for agricultural water rights to serve urban homes will continue and further erode wildlife values. She asked Forum members to include nature in future plans as they move forward.

David Barrett, Dedicated to You, spoke about a project that his organization is bringing to Nevada. It concerns indoor agriculture. This type of business is growing rapidly. This industry offers solutions when it comes to technology. There is technology currently being used in greenhouses that will reduce water consumption by 80 percent. He spoke about the ability to store and capture rainwater, which is currently illegal in Nevada. This law needs to be changed. If they could capture rainwater, they would not need to pump from reservoirs or underneath the ground-table. Mr. Barrett's system is a closed looped system and does not contaminate the groundwater. Once they get water into the system, they are constantly using it and recirculating it. This is what they would like to see and encourage in the State of Nevada. Zoning laws need to be reevaluated for this to be successful.

Las Vegas Public Comment:

Mike Baughman, Humboldt River Basin Water Authority, spoke about accomplishing some short-term drought recovery in the Humboldt River Basin. In the lower part of the Basin there have been no deliveries of water to senior rights holders or surface rights holders for the past two years and they are looking at the possibility of an El Nino event this winter. If this does happen and there are flood flows the water typically moves through the system quickly to avoid damage from flooding and ends up out in the Humboldt sink and evaporates. Mr. Baughman's recommendation to the Forum is to come up with a short-term operating plan for the river that would allow diverted flows outside the normal irrigation season. Rye Patch Reservoir would be filled quickly early in the season to provide storage. There would be diversions of water off the river and water spreading out into the irrigated lands. Perhaps this should start with senior rights holders to allow the soil moisture to be increased, because if it has not been irrigated for two years, it will take extra water to flush out the salts that have accumulated in the soils. This would help with drought recovery and would be a short-term operating plan for the river that would allow them to do some things that they may not be able to do under the Decree as it is specifically laid out.

Member King asked Mr. Baughman if he would petition the Decree Court to move forward with this plan. Institutionally and legally, Mr. Baughman noted, he is not sure how to proceed, however, there is no doubt they could figure it out and move forward.

A full account of public comments were captured in the audio recording, available on the Forum's website (*www.drought.nv.gov*).

3) Review and Consideration of Approval of Agenda (Action Item)

Member Barbee moved to approve the agenda; second by Member Huntington; motion passed unanimously. ***ACTION**

4) Review and Consideration of Approval of Minutes (Action Item)

Member Barbee moved to approve the minutes from the August 19, Drought Forum meeting; seconded by Member Walker; motion passed unanimously. ***ACTION**

5) Presentation on Potential Federal Legislation (Discussion)

Samuel Crampton, Senator Dean Heller's Office, spoke about working with local stakeholders to find potential solutions via federal legislation for some of the problems faced by Nevada, including drought. There are two of pieces of competing legislation relative to drought in the United States Congress. The House passed the Western Water and American Food Safety Act. On the Senate side, the California Delegation, Senator Dianne Feinstein and Senator Barbara Boxer, has a piece of legislation focused on California. Senator Lisa Murkowski of Alaska is offering a hearing on this piece of legislation as long as the California Delegation is willing to take amendments for other states. Senator Heller's Office is reaching out to stakeholders to garner possible solutions to ensure Nevada has an opportunity to be a part of this legislation. Mr. Crampton spoke about funding and the possible bureaucratic red tape that may be an obstacle to receiving money. The Senator's Office would like to know about these obstacles and perhaps they can expedite a process to assist with this issue. Senator Murkowski would like to have the legislation done in October. Senator Heller's deadline for receiving comments and suggestions for this legislation is no later than the second week in October.

Member Walker asked if the Senator's Office had received any ideas so far. Mr. Crampton noted they have received some responses as a result of an email that was distributed via a listserve.

Chair Drozdoff noted that as the Drought Forum works through their process for recommendations to the Governor, there may be some ideas put forward that could be included in this federal legislation.

Mr. Crampton noted they are also working with federal agencies to come up with ideas.

Member King asked if any of the suggestions received so far have included the idea of storage and getting some funds earmarked for storage in Nevada. Mr. Crampton acknowledged it is difficult to get funding. There have been a number of potential solutions suggested, including water banks and getting water into more controlled storage. Nevada has capacity. It is just not being filled right now. There have been recommendations that there is a need to increase funding through USDA and NRCS programs for updating water delivery systems, however, this is a slow process.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

6) Forum Members Discuss Information Generated at July and August Drought Forum Meetings (Discussion and Possible Action)

Chair Drozdoff described the process for listing recommendations on flipcharts for possible inclusion in the final report to the Governor.

Member King proposed Water Law be listed. He noted he supports prior appropriations and believes Nevada Water Law is solid, however, he does believe there needs to be some modernization done with it. He proposed adding "Water Law Issues" to the flipcharts. There was discussion about this. Member Barbee suggested listing items as they come up and then the Forum can come back to them to address them more in depth.

Member King proposed the following items be added under Water Law Issues: "Use It, or Lose It," exploring the idea of capturing rainwater, critical management areas (CMAs)/Groundwater Management Plans (GMAs), and the surface-water/groundwater relationship.

Member Huntington noted the idea of having the ability to spread water when you have it should be explored more. This will involve federal decrees. Chair Drozdoff advised in reference to this item, "Decrees" should go under the heading "Other".

Member King noted storage is another topic that needs to be addressed. Chair Drozdoff stated this should also be listed under "Other."

Vice-Chair Entsminger suggested the Forum come up with categories, suggesting sub-categories for Water Law Issues. There was discussion the name of categories and what should be listed under each. The categories included: Over-appropriated Basins, Other Water Law (3 M Plans, idea of defining terms (will help with the effort of flexibility), CMAs and Use It, or Lose It (should also be listed under Over Appropriated Basins), Drought Response and Other Authorities to Respond to Drought.

Member Cage noted the Nevada Division of Emergency Management (NDEM) is a coordinating agency not a response agency. The NDEM commonly helps jurisdictions throughout the state through a grants process that they administer from FEMA or the Department of Homeland Security to conduct studies, training, and other research. He suggested having the NDEM identify grant opportunities for resiliency plans for drought and water and have NDEM engage with the Department of Homeland Security to conduct some critical infrastructure analysis as it relates to water throughout the state to see what Nevada's threat assessment is for manmade or natural disasters, identifying Nevada's preparedness level and ability to respond to the threat.

There was discussion about the issues being brought up, including the idea of flexibility which is supported by some, but feared by others, and how to organize them.

Water Law is not limited to state law, but could include federal law, funding programs, etc. Member Walker proposed adding "Education" concerning helping others understand the Nevada Water Law and informing others of what is available for relieve during times of need.

Member Barbee noted there are federal programs, grants and subset programs available for funding. Department of Agriculture has seen a tremendous amount of use of them. The difference in sizes of operations on the capital investment and the pay off in capital investment affects the ability to bring in technology. There are agriculture investments on the state side through general fund that could help some of the smaller producers be more effective in efficiencies. Member Walker stated there are federal programs available, however, one of the limitations in getting the programs to the people who need them is income.

Chair Drozdoff noted there were a few points brought up during the discussion that should be discussed further: technology transfers, education to make information known, what can be done to compete better in existing programs, and there is money that can be spent to increase efficiency for smaller farms. "Federal Programs" became a category for the flipcharts with areas for enhancement and ability to

compete better with the existing programs listed underneath. Member Barbee noted it would "Education and Outreach" to better inform those producers that exist of the programs that currently exist. He also stated that the creation of a state granting system that could be utilized to enhance operations and bring efficiency in needs to be discussed.

Chair Drozdoff brought up the topics of "Homeowners' Associations" (HOAs), "Water Reuse," and "Wastewater Affluent." Member Walker noted the topic of Homeowners' Associations should be broader and perhaps called "Urban Residential Water Use."

Member Boyle suggested the topics "Defining Drought," "Drought Monitor," and "Predicting Drought." Defining Drought should include: identifying and communicating drought. The Drought Monitor is an operational product and a good way to state the current conditions of a drought. Although it has challenges, it is the best tool available and is being linked to policy and it is important to make sure it as accurate as possible. Under Drought Monitor the topics are: is it being used correctly, are we spending as much time as we need given its importance, what does the drought monitor represent in terms of drought conditions (subcategories: vegetative versus hydrologic drought, policy implications, drought declarations, grazing restrictions, opportunity to develop other tools in addition to the drought monitor that federal agencies can use).

Member Huntington noted the importance to identify how a drought is declared in Nevada. It is based upon the USDA, which is based upon Drought Monitor conditions and time. There was discussion on these topics and why they should be included. Member Huntington stated the tools have been developed, however, we need to educate people on them. Member Barbee suggested the recommendation that the current drought monitoring system be expanded to also include, at a minimum, multiple indicators of drought (e.g. vegetation and hydrologic). Member Walker proposed adding a topic about trying to make the best use of on-the-ground observations by people who are qualified to assess vegetation condition. Member Boyle noted this should include the individual farmers and ranchers as well. Chair Drozdoff noted this topic may be critically important. Member Boyle stated there is a need to better communicate and educate stakeholders and decision makers on some basic weather and climate issues. Also, there is an idea of a drought early warning system.

Member Huntington spoke about the National Integrated Drought Information System (NIDIS) and an offer to expand what they are doing in California in terms of the early warning system called the DEWS (Drought Early Warning System). Chair Drozdoff stated he would prefer developing a Nevada early warning system that works. Member Huntington noted the intent is to have a Nevada DEWS and not just an expansion of ongoing efforts in California. The topic "DEWS" was added to the flipcharts. Member Boyle noted he would like the DEWS to be based upon three impacts: Hydrologic (irrigation for crops), Vegetation (rangeland) and the Impact to the Municipal, Industrial and Residential Water Supply. Member Huntington added Seasonal Forecasts, Funding, Outreach and Education.

Member Drozdoff stated a website could help be a conduit of the things being discussed by the Forum, including communication, technology transfer, etc. "Website" was listed on the flipcharts. Member Walker noted there are a few good sources on drought, but the challenge is how to get people to use them. This idea was added under the Website list.

Member Drozdoff stated another category is Additional Monitoring. There was discussion on this with Member Huntington stating there needs to be more monitoring/weather stations to be able to subdivide drought into subcategories. The weather stations could be listed as different categories, Cooperative Observer Weather Stations, Agricultural Weather Stations, Snotel/High Elevation Weather Stations, Soil Moisture, Streamflow and Groundwater. There was discussion on adding weather stations to elementary schools.

The Forum discussed the topic of Education with Member Barbee suggesting the Forum identify a high level message that should be delivered statewide and look at how to spread this message across different educational boundaries.

Member Walker noted the need to educate the judges and lawyers on how to understand Nevada Water Laws. This should include enhancing additional programs the currently exist. He also mentioned sharing success stories from industries to educate others on how to conserve. Member Walker discussed using the education system to get information out about water and voiced his concern that some educational materials may not be tailored for Nevada's climate. He suggested adding a topic on how to adapt what material is available for use in the State of Nevada. The topic listed under Education is: need to adapt the best curricula for use in K through 12 to look like Nevada.

Chair Drozdoff noted other topics for the flipcharts: "Areas to Augment Water" (desalinization and cloud seeding) and "Water Meters" (state agencies in a position to lead, areas in the state that don't have water meters that could). Member Boyle noted the unbundling of water rights should be added to the list and the impact of drought financially on Nevada. Member King clarified that "Reuse" should include: recharge of affluent.

Chair Drozdoff offered an opportunity for Public Comment.

Carson City:

Steve Walker spoke about federal programs particularly in reference to agriculture enhancement and specifically to increase efficiencies. He spoke about Conservation Districts. He noted the federal government helps those who help themselves. He recommended this message be shared with the Conservation Districts and agricultural producers. If they provide seed money this is the best access to the USDA, NRCS money.

Mr. Barrett noted the water laws with respect to Use It or Lose It and storage are paramount in his opinion. Using water and metering of water resources is also important. He also noted that capital is drawn to where the best returns are. Education is very important.

Tim De Turk, Douglas County Utilities, stated the future of our children should be included in the discussion the Forum is currently having. Use It or Lose It is an oxymoron and encourages waste. The hydrologic cycle can be used to benefit the situation. Ecosystems can be created to benefit everyone. He encouraged the Forum to recommend the identification of areas that will have surplus water that may be collected, such as floods, then identify the unused aquifer type basins or storage facilities to utilize them to collect floodwaters or surplus waters. He noted that conveyance is a problem. The creation of programs that cost dollars should not be the goal. Water meters for public systems and low flow toilets should be implemented.

Cathy Bowling spoke about her appreciation of the comments in regard to Education. She is concerned about the next generation. Our youth does not understand how important the current drought is. She recommended the Forum work with the Nevada Department of Education to provide better courses to be incorporated into the schools, especially at the high school level. She also spoke about Homeowners' Associations stating they should not be grouped with urban residential users as they could be abusive to their residents. They make requirements to use water that is not being used in the most beneficial way.

Chair Drozdoff reviewed the listed items on the flipcharts.

Member Walker spoke about urban residential water use. He noted the Southern Nevada Water Authority (SNWA) has a great plan in place and people are taking advantage of the opportunity. In northern Nevada, homeowners have little contact with their own sprinkler/irrigation systems. He recommended the topic of "Homeowner Education" be added to the list. There is a simple message, reduce your water usage by 10 percent. He mentioned a number of opportunities from SNWA.

Chair Drozdoff clarified his idea on HOAs concerns where their authority lies to require water use and how to address it. Vice-chair Entsminger stated that during a past legislative session there was a change to NRS to prohibit HOAs from requiring spray irrigation. It is currently in state law that new HOAs could not require that. However, concerning CCNRs that existed prior to this change in state law are not bound by that ruling and there are issues of legislatively violating contracts, and property rights, etc. It would be impossible to change this without some significant legal battles.

Vice-chair Entsminger spoke about desalination noting that it is listed in the SNWA water resource portfolio under the Future Resources category. He described what SNWA has done with this issue. They are in a situation right now where they do not need the water. They will not work on this until their community needs it. He is not sure what this recommendation to the Governor would look like. He also noted that in regards to cloud seeding, SNWA has participated with other states in funding this. If you get a good system running through, cloud seeding will add 10 to 15 percent to the snowpack, however, you need the weather systems to move through. As a drought measure, you probably will not get a lot of water out of it during drought years as you do not have the weather systems moving through to utilize it. You can use this during good weather years to store water.

Member King asked Vice-chair Entsminger if the power costs were greatly reduced for desalination and it did not have to rely on gas-fired power plants, would it become a bigger part of SNWA's portfolio. Vice-chair Entsminger noted that even with the current technology they believe that over the intermediate term adding desalination to their portfolio is realistic. The more the costs can be driven down, the more attractive it will be, however, you will have three significant challenges: power, because of physical location, what to do with the salt, and the need for a partner to take direct delivery of desalinated water. It will take some time to bring all three of the variables in line. The rate base in southern Nevada will support desalination at the appropriate time. They will not want to see an increase in rates until SNWA verifies there is foreseeable need for these water resources.

Member Huntington noted there needs to be better information on the effectiveness of cloud seeding in Nevada. Cost per acre foot of groundwater recharge or surface water flows would be helpful. There was discussion on cloud seeding.

Chair Drozdoff noted that NDEP has a committee working on a process concerning reuse. The Forum should get information on where they are and what timeframe they are looking at.

Member King spoke about storage and how during wet years in Nevada, we need to capture water. This is a challenge as there are a lot of systems that have water rights on flood waters. Member Boyle brought up the use of reservoirs and policies for flood control, and the possibility of operating the reservoirs differently to capture early runoff. It was noted this can be done through the Decree court. There was discussion. "Develop a process to capture flood water" was added to the flipcharts.

Member King spoke about water metering and one barrier being the idea of the government looking in on what people are using. He believes this not a barrier, but a possible solution to conflict as being able to prove how much water people are using defends them from anyone else asserting they are over-pumping or illegally using water. If you can't measure it, you can't manage it. He would like to see meters on every use of water in the state. He noted that his office has ordered mandatory meters in a number of

basins on all manners of use, except for domestic and uses of five acre feet or less. It can require through current statutes. "Look at providing more opportunities to provide metering data" was added to the flipcharts. Member Huntington noted opportunities should include: new technology that can augment or support physical meters (remotely sensed metering).

Member King also noted that some people are concerned if they have to report their usage to the state then the State Engineer's Office will use the data to take their water away from them. This ties into the Use It or Lose It issue. Water rights are not taken away often however it is possible within the current water law.

Chair Drozdoff added topic concerning: an opportunity for the state to lead in terms of water meters and landscaping.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

7) Forum Members Discuss Information Generated at the Governor's Drought Summit (Discussion and Possible Action)

Chair Drozdoff noted Claudia Vecchio, Nevada Department of Tourism and Cultural Affairs, offered to have her agency do more research on drought and visitation. The Forum should take advantage of this offer. This was included as element of "Economic Impact."

Chair Drozdoff also noted even within BLM there are some districts that do more watershed NEPA approvals and some that do not, this recommendation is to encourage federal agencies (BLM and US Forest Service) to complete broader (watershed) NEPA approvals, which could result in more expedited work.

Chair Drozdoff stated another topic that came up is the State Engineer Office having more resources and more enforcement authority to make sure that monitoring is occurring and in areas where violations are occurring they have the requisite tools to fix the problem.

Chair Drozdoff asked if there is anything to be done or recommended at the state level with regard to local land use decisions. Asking if there is an element of water planning that would help local authorities benefit from activities at the state level that would inform their own decisions.

Chair Drozdoff added another top as "Why Are We Doing This Drought Work."

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

Lunch 12:17 p.m. to 1:23 p.m.

8) Forum Members Discuss Additional Information and Ideas (Discussion and Possible Action)

Chair Drozdoff asked Forum members if they would like to add ideas under this agenda item. There were none.

9) Forum Members Discuss Drought Information Gathered in Relation to Recommendations of the Western Governors' Association (WGA) Drought Forum (Discussion and Possible Action)

Chair Drozdoff asked Forum members for direction on what they would like to spend time on concerning the ideas brought up earlier in the meeting.

Member King reviewed the facilitator recommendations from the Governor's Drought Summit, including measurement, creating more water (e.g. desalination and cloud seeding), use water more efficiently, local control specific to area, don't go too far too fast with water law changes, adaptive management (3M plans). The facilitator also mentioned there is a mood for change. Member King agreed with this sentiment. There needs to be collaboration and communication.

Member King reviewed some of the seven issues listed by the WGA's Drought Forum: data and analysis, reuse of water, water conservation, working with institutional frameworks to manage drought, communication and collaboration and forest health and soil stewardship. Member King noted the Forum has discussed and listed items pertaining to many of these issues. It lines up well with the WGA's recommendations and what the facilitator from the Drought Summit listed.

Member Huntington noted that technology is a low hanging fruit that can be addressed and expanded based upon the current work that being done.

Member Walker stated there is an element of education concerning data and data analysis as people are not aware of available information and do not know how to utilize the information.

Member Huntington suggested the Forum make a recommendation to add staff to the State Engineer's Office in respect to water use monitoring and hydrology.

Member Boyle stated it is important to make information available easily and quickly.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

10) Review of Discussion, Future Meetings and Agenda Items (Discussion and Possible Action)

Chair Drozdoff provided a brief review of the meeting and the topics discussed and listed on flipcharts. He noted that when completing the report to the Governor the Forum may need to make a distinction between northern and southern Nevada. He discussed getting the information listed today to Forum Members to digest and review and then come together to discuss at a future meeting. Vice-chair Entsminger stated he agreed with the thoughts of Chair Drozdoff and noted that in the Executive Order the deadline for a report is by the end of the year. The Forum Members can review the provided information and come together in October to come up with initial recommendations to make in the report.

Member King stated the proposed process is a good one, however, the deadline is November 1 for the report to be submitted to the Governor. Chair Drozdoff stated he would discuss moving the deadline with the Governor's staff.

Member King also brought up AB 198, which will look at alternative sources of water and if the Forum should consider this in their discussions. Chair Drozdoff noted this was a good idea and the Forum should consider any connections that can be made between the two.

Chair Drozdoff asked JoAnn Kittrell, Nevada Department of Conservation and Natural Resources, what the timeline would be to get the information together and send it out to Forum Members to review before their next meeting. Ms. Kittrell noted it would take approximately two to three weeks to distill the information and provide as much detail as possible for Forum Members.

Chair Drozdoff discussed assigning certain Forum Members certain topics because of their expertise to review and bring back recommendations to the other members at a subsequent meeting. There was discussion on this, including creating working groups. Micheline Fairbank, Nevada Attorney General's Office, reminded the Forum Member about the requirements of Nevada's Opening Meeting Law and stated that each member has been selected to be a part of the Forum because of their expertise and experience in certain areas, and based upon what they bring to the table in this capacity is the intent behind their participation. If there are individual forum members meeting to collaborate and digest information and then bring recommendations back to the full forum, it would could be subject to the Nevada Open Meeting Law. To the extent that each member is bringing their recommendations individually during a forum meeting is okay.

Chair Drozdoff asked Member Barbee if his facility would be available for the future meetings of the Nevada Drought Forum. Mr. Barbee noted he would check on availability.

Chair Drozdoff stated the information from today's meeting will be distributed to Forum Members the week of October 11.

The Forum discussed the dates of future meetings. It was decided the next two meetings would be held on Monday, October 26, and Friday, November 20.

Member Huntington noted that Mr. Baughman stated that when the Forum outlines their recommendations, they should identify the mechanisms to implement the proposed actions, identify barriers, and provide some level of cost-estimates, including additional staff to accomplish things. Chair Drozdoff agreed with Member Huntington's comments.

Chair Drozdoff asked for Public Comment concerning this Agenda Item.

Carson City:

Mr. Walker spoke about the "other law" component, including NRS 278. He discussed urban planning and commercial landscape and recommended these should be revisited. Chair Drozdoff stated in addition to NRS 278 the Forum should consider emergency management statutes.

Steve Bradhurst, Central Nevada Regional Water Authority, spoke about AB 198. The AB 198 study is to be conducted by the Public Lands Committee. There may be a subcommittee created within the Public Lands Committee to focus in on AB 198. At the Summit, there was a recommendation to create a Blue Ribbon Taskforce on water. This is difficult to do and he suggested the Forum utilize the subcommittee of the Public Lands Committee for any recommendations they may have on legislation.

Chair Drozdoff noted the Forum needs to spend some time on AB 198 and acknowledged the SNWA's experience concerning local land use plans. Vice-chair Entsminger provided background on SNWA's process. They created a citizen advisory group ensuring input from across their community. They then convened the Principles Group of the SNWA, which consisted of local utility managers and senior staff of the member agencies of the water authority to agree to one plan that could be implemented throughout the region through numerous codes and ordinances. The water authority then adopted a conservation plan that went before local boards (e.g. city councils) to modify ordinances to codify the conservation rules and

have one uniform conservation plan throughout southern Nevada. They are now facing the need to stay ahead of the curve. They are going through the process again to update their current conservation plan. Chair Drozdoff noted that this process provides better coordination with the different parties involved. Chair Drozdoff stated his staff will contact SNWA staff to get this process down into a template that can be a model and distributed to Forum Members.

Mr. Sipaila spoke about new, not so new, and emerging technologies available that the Forum should review and consider. He spoke about water storage and the different methods and the challenges of certain methods.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

11) Public Comment: (Discussion)

Chair Drozdoff asked for public comment. There was none.

12) Adjournment:

Meeting adjourned by acclamation at 2:17 p.m.

NOTICE OF PUBLIC MEETING
of the
NEVADA DROUGHT FORUM

MONDAY, OCTOBER 26, 2015 – 9 AM

The Nevada Drought Forum will conduct a public meeting on MONDAY, OCTOBER 26, 2015, beginning at 9:00 a.m. at the Nevada Department of Agriculture, Main Office, 405 South 21st Street, Sparks, Nevada, and will video conference to the Nevada Department of Agriculture offices at 2300 McLeod, Las Vegas, Nevada, and at Great Basin College, McMullen Hall #102, 1500 College Parkway, Elko, Nevada. The meeting will also be accessible via videoconference to Cooperative Extension Offices in the following locations: Caliente, Carson City, Eureka, Gardnerville, Lovelock, Pahrump, Winnemucca and Yerington. The address for each of these locations is available at the bottom of this agenda. The public is invited to attend at all locations.

NOTICE

(1) Items may be taken out of order; (2) Two or more items may be combined; (3) Items may be removed from the agenda or delayed at any time; (4) Public comment may be limited to three minutes per person at the discretion of the Chair; comment will not be restricted based on viewpoint; (5) Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Please call (775) 684-5670 in advance so that arrangements for attendance may be made.

AGENDA

Action may be taken only on those items denoted "For possible action."

1. Call to Order & Roll Call – *For possible action*

2. Public Comment

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

3. Review and Consideration of Approval of Agenda – *For possible action*

4. Review and Consideration of Approval of Minutes – *For possible action*

A. Approval of minutes from the meeting held September 28, 2015.

5. Climate Forecast Update – *Discussion and possible action*

The Forum will receive an update from Dr. Doug Boyle, Nevada State Climatologist, on current and forecasted conditions related to the drought.

6. Forum Member Review and Recommendations – *Discussion and possible action*

The Forum will engage in a facilitated review of recommendation areas discussed at its September 28, 2015, meeting, along with additional topics based on staff's review of all Forum meetings and the Governor's Drought Summit, as well as the suggestions and work of individual Forum members. Based on this information and through

facilitated discussion, the Forum will begin to narrow and identify the specific recommendations the body will include in its report to the Governor.

7. Discussion of November Meeting and Possible Agenda Items – *For possible action*

The Forum will discuss its expectations for the November meeting and the work and steps necessary to complete the body's "report of recommendations" due to the Governor on or before December 15, 2015.

8. Public Comment - *Discussion*

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

9. Adjournment – *For action*

This notice and agenda has been posted on or before 9 a.m. on the third working day before the meeting at the following locations:

(1) Nevada State Capitol, 101 North Carson Street, Carson City, Nevada
(2) Legislative Building, 401 South Carson Street, Carson City, Nevada
(3) Grant Sawyer Building, 555 E. Washington Street, Las Vegas, Nevada
(4) Department of Conservation & Natural Resources, 901 S. Stewart Street, Carson City, Nevada
(5) Department of Agriculture, 405 South 21st Street, Sparks, Nevada
(6) Department of Wildlife, 1100 Valley Road, Reno, Nevada

Notice of this meeting has been included on the Nevada Public Notices website at http://notice.nv.gov/

Notice of this meeting was also posted on the Nevada Drought Forum website at http://drought.nv.gov. Please contact Andrea Sanchez-Turner at 775-684-2705 (direct) or asanchez@dcnr.nv.gov to obtain support material for the agenda. Any materials will also be posted at http://drought.nv.gov.

We are also pleased to make reasonable accommodations for individuals with disabilities who wish to attend the meeting. If special accommodations or assistance at the meeting are requested, please notify Andrea Sanchez-Turner in writing at 901 S. Stewart Street, Suite 1003, Carson City, Nevada, 89701, or by email at asanchez@dcnr.nv.gov, no later than two (2) working days prior to the scheduled meeting.

University of Nevada Cooperative Extension – Lincoln County
360 Lincoln Street
Caliente, NV

University of Nevada Cooperative Extension – Carson City
2621 Northgate Lane, Suite 15
Carson City, NV

University of Nevada Cooperative Extension – Eureka County
701 S. Main Street
Eureka, NV

University of Nevada Cooperative Extension – Douglas County
1329 Waterloo Lane
Gardnerville, NV

University of Nevada Cooperative Extension – Pershing County
810 Sixth Street
Lovelock, NV

University of Nevada Cooperative Extension – Nye County
1651 E. Calvada Blvd
Pahrump, NV

University of Nevada Cooperative Extension – Humboldt County
1085 Fairgrounds Road
Winnemucca, NV

University of Nevada Cooperative Extension – Lyon County
504 South Main Street
Yerington, NV

Summary of Minutes of the

Nevada Drought Forum

Meeting of October 26, 2015, 9:00 AM

Nevada Department of Agriculture
405 South 21st Street
Sparks, NV

Video Conference:

Nevada Department Agriculture
2300 McLeod
Las Vegas, NV

Great Basin College
1500 College Parkway
McMullen Hall #102
Elko, NV

Members Present:

Leo Drozdoff, P.E., Chair

John Entsminger, Vice Chair

Dr. Doug Boyle

Dr. Justin Huntington

Jason King, P.E.

Dr. Mark Walker

Jim Barbee

Caleb S. Cage

Forum Staff Present:

Bryan Stockton, Senior Deputy Attorney General

Andrea Sanchez-Turner, Administrative Support

BEGIN SUMMARY MINUTES

1) Call to order and Roll Call

Chair Drozdoff called the meeting to order at 8:59 a.m. Member Barbee noted there were technical difficulties concerning the videoconferencing equipment, however, the teleconference equipment is working for connecting with the satellite locations.

Chair Drozdoff contacted the remote locations to see if anyone was in attendance. The Las Vegas location was the only location with people in attendance.

Andrea Sanchez-Turner, Department of Conservation and Natural Resources (DCNR), conducted the roll call.

2) Public Comments: (Discussion)

Sparks, Nevada

Susan Lynn, Great Basin Water Network, requested the Forum develop a process for declaring a drought with measurable standards. She also stated that Phreatophytes are not available as a water source, especially during drought and this idea needs to be reviewed. Chair Drozdoff stated objective standards were discussed at the Governor's Drought Summit held in September.

Connection was lost to the satellite locations. The meeting was stopped until the technical difficulties were resolved.

Bryan Stockton, of the Nevada Attorney General's Office, stated that he contacted the Attorney's General's Office to see if it would be okay to move forward with the meeting without the connection to the satellite locations. He is waiting for a call back. There was discussion about the technical difficulties with Mr. Stockton noting that since the Las Vegas location was the only location with participants, the Forum could conference call with only that location, letting the other locations know about the technical difficulties and giving them the number to call if participants show up.

Las Vegas, Nevada

Yuzhen Feng and Crystal Dubose, University of Nevada Las Vegas, noted the use of a significant amount of water to produce electricity in Nevada. The majority of Nevada's electricity is produced from thermal electric plants, which uses millions of gallons of water per year. In comparison, PV Solar uses little to no water to produce electricity. With Nevada's abundance in solar resources, PV Solar has the potential to serve much of the state with electricity and save huge amounts of water. Ms. Feng and Ms. Dubose look forward to hearing from the Forum on addressing the solutions the electricity sector can provide concerning the drought within Nevada.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

3) Review and Consideration of Approval of Agenda (Action Item)

Vice-chair Entsminger moved to approve the agenda; second by Member Barbee; motion passed unanimously. ***ACTION**

4) Review and Consideration of Approval of Minutes (Action Item)

Member King moved to approve the minutes from the September 28, Drought Forum meeting; seconded by Member Huntington; motion passed unanimously. ***ACTION**

5) Climate Forecast Update (Discussion and Possible Action)

Member Boyle noted this summer there was above-average precipitation within much of Nevada, as well as above average temperatures. Precipitation helped range-lands, however, did little to help the water supply, particularly in area reservoirs. Long-term deficits throughout the state remain. The drought status

in the northern area of Nevada has improved on the Drought Monitor. The new water year started October 1, beginning water year 2016. Most of Nevada is ahead of normal at this time in terms of precipitation, however, it is not enough to change the drought status. The hope is there will be strong El Nino this year. The most recent forecast stated there is a 95 percent chance it will remain strong throughout the winter into the spring. The anticipation is a strong El Nino will affect the lower half of the state. The middle of the state has an equal chance and the northern part of the state should expect less precipitation. The forecast for temperatures are above normal.

Member Walker asked about Nevada's dependence on snowpack for a gradual release of the water to replenish the reservoirs and if the above-average precipitation does the same thing. Member Boyle noted there are three reservoir systems, groundwater, man-made surface reservoirs, and snowpack (the seasonal reservoir). As seen last year, Nevada had high snow levels so it did not build the snow pack that was expected even though there was a limited amount of precipitation, because it was warm and snowpack was meager. Then there were the warm temperatures early in the spring. The expectation is 2016 will be similar to last year when it comes to the reservoirs and snowfall.

6) Forum Member Review and Recommendations (Discussion and Possible Action)

Chair Drozdoff reviewed the process for discussing and determining recommendations concerning the final report to the Governor. He introduced Lewis Michaelson who will be facilitating this part of the meeting.

Mr. Michaelson noted the success of the Governor's Drought Summit and acknowledged the difficulty of integrating all of the information and ideas brought forward. He spoke about the process for discussion and recommendations, including specific categories. The goal is for the Forum to draft recommendations, including timeframes and who will take the lead for the recommendations.

Chair Drozdoff noted the Governor's Office has extended the Executive Order report due date to December 15, 2015.

<u>Category: Water Conservation</u>

Vice-chair Entsminger spoke of the requirement in the existing NRS to have a water conservation plan and how some lack specificity. He believed this should be explored, including requiring minimum requirements as part of the conservation plans (he provided examples that are done by the Southern Nevada Water Authority [SNWA]). There was discussion about this among the Forum members, including measuring water use with metering.

Member King noted NRS 540.141 is the statute that outlines what has to be included in a water conservation plan when it is sent to the State Engineer's Office. He reviewed some of the requirements and spoke about the Forum possibly needing to make this statute more specific.

Member King supported having every water use within the state metered. This will make it easier for the state to manage it and will let water rights users know it is to their benefit to know how much water they are using. They will be able to defend themselves against anyone that alleges they are over-pumping, etc. There is a concern by some that the State Engineer's Office will use this information to take away the unused amount of water (e.g. "use it, or lose it").

Water conservation plans are required to be updated every five years. Some of the small purveyors of water may not be up-to-date, however, all of the large purveyors are compliant with this requirement.

There was discussion concerning the enforcement of keeping plans current and within the statute regulations.

Member King noted that the State Engineer's Office, during the last legislative session, pursued attempting to have NRS 540 to have fines and penalties included. This was included in a bill that did not pass the last session. The State Engineer's Office does not have a mechanism to penalize violators, except for sending a letter.

There was a discussion concerning the availability of technical help for those individuals requesting it concerning water conservation plans. Technical assistance is something to consider when working through the categories and recommendations for the final report.

Member Walker noted the Nevada Rural Water Association has circuit writers that go out and provide technical assistance on a number of things. This could be an opportunity on how to reach out to the smaller purveyors of water.

There was discussion about how to handle these issues with Mr. Michaelson reviewing the three things he heard could be a minimum threshold for a municipal's water conservation plan. They are: metering, tiered rates, and time of day restrictions.

Mr. Michaelson stated language for a possible motion to review NRS 540.141 concerning requirements of a water conservation plan that are currently aspirational but deserve to be actual requirements such as: metering, tiered rates, and time of day restrictions. The NRS should also be associated with an enforcement mechanism capable for supporting these requirements that includes consequences for violation. The section should include a program for technical assistance to provide help in developing water conservation plans.

Vice-chair Entsminger made a motion to have language drafted similar to this wording and have it included in the draft report that will be reviewed at the next meeting; seconded by Member Walker; motion passed unanimously. ***ACTION**

PUBLIC COMMENT: Mr. Steve Walker, Lobbyist, Truckee Meadow Water Authority (TMWA), Lyon County and Douglas County, asked if there would be an opportunity for public comment as motions are made. He spoke about the NRS Statutes for water conservation in Senate Bill (SB) 62 of the last session, both SNWA and TMWA requested a certain section that required, gallons per capita per day per each conservation practice be removed and made, gallons per capita per day per the conservation plan be applicable. He suggested this be added.

The Forum discussed water efficiency standards for new residential and commercial development located in the NRS such as low-flow toilets, etc.

PUBLIC COMMENT: Julie Wilcox, SNWA, spoke about current residential and commercial efficiency standards, the process followed in Las Vegas, and how these standards are determined by each county and each city.

There was discussion concerning the legality of the state to set these standards. Mr. Stockton noted the legislature has all the state legislative power, they do delegate some to the counties, through the counties zoning ordinances, although there are some supreme court decisions that could affect this, the state is the source of this power. There could be a state-wide set of efficiency standards.

PUBLIC COMMENT: Mr. Walker noted typically in local governments the uniform plumbing code handles efficiencies and fixtures. The uniform plumbing code is revised by local governments through ordinances. This is the mechanism that currently addresses fixture efficiencies. Ms. Wilcox noted this is included in state law.

Mr. Michaelson repeated language for a motion, as part of revising the statute dealing with the water conservation plans it be specifically mentioned they should include the elements of how they are addressing water efficient fixtures and landscape development codes. Member Barbee moved to made this motion; seconded by Vice-chair Entsminger; motion passed unanimously. ***ACTION**

The Forum discussed technology and agriculture, noting there are opportunities available, however the cost of using some technology makes it difficult for some agricultural operations, especially the smaller ones.

Member Barbee noted agriculture is a business entity therefore efficiency is always a driving factor at some level and this depends on the size and the organization itself. Efficiency garnered through agriculture equates in greater production and equates to greater food production, which is the output of this industry. There had been discussion about putting together a state funding mechanism where it would help a producer increase their efficiency, and if the state could garner some of that water right as part of the buy-in on the financial granting system, meaning part of that water right efficiency would then come back to the state. There was discussion about this idea. Member Barbee noted that in the places where there is an over-allocation of water, this idea would make sense, however the state could also simply go out and buy back these water rights, which may be a better use of state money. Member Barbee also commented on the idea of investing in higher labor agriculture productions that have lower water inputs. There are only a few areas in Nevada where this will work.

Member King spoke about "use it, or lose it," and how people will use more water than they need to keep their water rights intact. There is no incentive to conserve. This needs to be addressed. Member King noted it should be abundantly clear in statute that in times of drought people should not be pumping their water simply so they do not lose the water right. Member King also noted water permits are issued subject to existing rights, if the State Engineer's Office has to curtail, they will curtail and they do not have to buy water rights.

Member Huntington discussed consumptive use and the relationship with water efficiency, including the ideas being discussed by the Forum. There may be unintended consequences.

Member King suggested language for a motion, stating to make it more explicit in statute that the State Engineer's Office has the ability to require meters on all water use in the state, including domestic wells.

Mr. Michaelson repeated the motion to be clear that the law be strengthened to make it explicit that the State Engineer has the ability and the right to require metering of all uses, including domestic wells. Vice-Chair Entsminger made this motion; seconded by Member King; Member Walker asked if this would be one of the recommendations under the Water Law Category. It was decided it would not be. Motion passed unanimously. ***ACTION**

There was discussion on the Drought Monitor, how it monitors, the information that it receives and how it distributes information. Member Boyle noted there are two things to consider. One, is it adequately and accurately assessing the current state of where the water is each week and two, is the correct information getting to the Drought Monitor authors. It was decided to discuss this further under the Monitoring and Research Data Category.

There was additional discussion on technology as it pertains to agriculture. Member Huntington noted it is important to try to reduce the non-beneficial consumptive use from agriculture.

Member Barbee made the motion to encourage development and use of water saving technology and/or best management practices by agricultural and livestock producers (including but not limited to crop covering, drip irrigation, variable rate irrigation, center pivot irrigation, laser leveling and crop selection); seconded by Member Huntington; motion passed unanimously. ***ACTION**

Member King made a motion to review changes to the "use it, or lose it" doctrine in order to increase water conservation during drought and otherwise; seconded by Member Barbee; motion passed unanimously. ***ACTION –** *Moved from the category below per Forum agreement.^*

Category: Water Law

There was discussion concerning the "use it, or lose it" concept and how to address this it. Mr. Stockton noted this is in reference to the forfeiture provisions.

Member King noted his recommendation would be to review potential changes to "use it, or lose it" to encourage water conservation. There was discussion about the wording of this motion and if it should include language pertaining to drought and non-drought situations and when and how the Governor declares drought.

Member King made a motion to review changes to the "use it, or lose it" doctrine in order to increase water conservation during drought and otherwise; seconded by Member Barbee; motion passed unanimously. ***ACTION^**

There was discussion concerning monitoring, mitigation, and management plans (3M Plans).

Mr. Stockton noted the connection with Las Vegas was lost. There was a break taken until the issue was resolved.

Chair Drozdoff stated the motion regarding "use it, or lose it" should be listed under Water Conservation. The Forum agreed to have it listed under Water Conservation.^

Member Barbee made a motion to change the law to clarify and confirm the long-standing practice of the Nevada State Engineer to implement monitoring, mitigation and management plans (3M Plans); seconded by Member Boyle; motion passed unanimously. ***ACTION**

There was discussion concerning recovery of impacted river storage and groundwater systems. Member Huntington mentioned a possible feasibility assessment with specific focus on which areas where storage can be enhanced, depending on the types of storage.

Member Barbee made a motion to explore the feasibility of additional management measures that can help to expedite the recharge and recovery of impacted rivers and groundwater systems and enhance storage; seconded by Vice-chair Entsminger. There was discussion where this motion should be listed with the Forum noting it should be listed under the Infrastructure, Supplies, and Long Range Planning Category. ^^ There was a vote on the motion; motion passed unanimously. ***ACTION**

Member King spoke about the legality capturing rain water in rain barrels. There was discussion about this issue, including if it should be specified how the captured water will be used. Member King noted the water should be use for beneficial use.

Member Barbee made a motion to examine potential changes to water law to allow the use of small scale water precipitation capture devices; seconded by Member Huntington.

PUBLIC COMMENT: Mr. Walker noted there may be an unintended consequence when there is development in commercial areas where you have to retain the impervious area generated water into retention basins. He asked if this was considered a large-scale rain-barrel. Chair Drozdoff stated it was not because they capturing it to ensure that pre-development and post-development water use match up. Mr. Walker wondered if it would create an opportunity for the developer to capture water and use it for other intentions and the need for the rain barrel to be defined as small scale. Chair Drozdoff noted the Forum should keep in mind Mr. Walker comments.

There was a vote on the motion; motion passed unanimously. ***ACTION**

Member King brought up the issue of groundwater management plans within the state. The State Engineer's Office is currently in the middle of efforts to work with stakeholders in the basin to come up with a groundwater management plan and how best to develop the water and to curtail it in times of drought. The Nevada statutes are limited on this issue. There was a bill drafted for the last session that did not pass. It is necessary to provide more tools in statute for the State Engineer's Office to deal with groundwater management plans. The Forum could pursue some statutory changes concerning what is acceptable in a groundwater management plan. There was discussion about this issue. Chair Drozdoff asked Member King if this should pertain to all basins or just in over-appropriated basins. Member King noted it was for use only in areas with critical management issues, only in basins that are severely over-appropriated. Chair Drozdoff noted there should possibly be a two part recommendation. There was discussion concerning the language for a recommendation. Chair Drozdoff noted the Forum will be able to review any recommendations at the next Forum meeting before they are included in the report to the Governor, therefore, the Forum is not expected to get the wording exact at this time.

Vice-chair Entsminger made a motion to direct DCNR staff and the State Engineering staff to draft language on critical management areas and groundwater management plans for review by Forum Members at their next meeting; seconded by Member Boyle; motion passed unanimously. ***ACTION**

Chair Drozdoff and Vice-chair Entsminger both noted the motions made during this meeting are considered language for staff to draw from for more detailed recommendations to be reviewed during the next Drought Forum meeting. The wording may change through the process of developing the final report to be submitted to the Governor, stating nothing is final until the Forum votes on a final report.

Member King brought up issues concerning thermal plants and if it should be a statewide policy that all thermal electric power plants in the state, from this point forward, are air-cooled and not water-cooled, because of the amount of water that is used for water cooling. There was discussion about this.

Member King made a motion to adopt a statewide policy that all new thermal electric power plants use dry-cool or other similar water efficient technologies; seconded by Member Barbee; motion passed unanimously. ***ACTION**

Break for Lunch 12:17 p.m. to 12:51 p.m.

<u>Category: Water Law</u>

Member King noted domestic wells in the State of Nevada have a priority of the date that those wells were completed, which makes them the most junior user in a basin in the times of curtailment, like

drought. They would be one of the first ones shut off. Member King thought it would be prudent to pursue statutory change that would allow for indoor watering of domestic wells in times of curtailment.

Member King made a motion to pursue language that allows for indoor use for those on domestic wells in times of curtailment; seconded by Member Huntington; motion passed unanimously. ***ACTION**

Category: Other Laws / Regulations

Chair Drozdoff noted there may be other tools available for Nevada to use rather than amending/adjusting water law. If there were objective criteria established similar to public safety statutes that certain things would occur in times of drought or other natural emergencies, it would allow greater flexibility by the State Engineer's Office and others where more strategic decisions can be made. Chair Drozdoff provided examples of where the flexibility would be helpful. There was discussion on this issue.

Member Cage noted the powers stated in NRS 416.060 are currently broad. Member Cage read a portion of the NRS for the Forum and noted the powers are the same as the Governor's emergency powers under any other declaration. Member Cage noted one thing the Forum may consider is requiring, in times of a declaration, establishing a group to make recommendations for improvement moving forward. There was discussion concerning this idea and the Governor's authority, NRS 416.060, and the wording included in the statute, including the definition of a drought.

Member Cage made a motion to revise NRS so that during a Governor declared water emergency, based on objective criteria, state agencies are given the authority to take appropriate measures to ensure the availability of water resources for basic needs, such as: "use it, or lose it" tolling; ability to curtail in ways other than prior appropriation; and to objectively look at water quality standards that may be restricting the amount of water that can make its way into a river system; seconded by Member Walker.

PUBLIC COMMENT: Kay Scherer, DCNR, noted the two concepts being discussed. One, the ability for the Governor to declare a drought and at what point is the drought is declared. The second is the emergency statutes and when a declaration of a drought condition becomes a water emergency where the Governor has the power to lift everything. The declaration of a drought invokes certain types of actions that do not necessarily rise to the level of the Governor declaring a state of emergency related to water, which is a higher bar and would give higher powers.

Member Cage read sections of NRS 416.050 to the Forum. There was discussion about what Ms. Scherer's comments and possibly amending the motion by Member Cage. Member Cage read the definition of "emergency" from NRS 414.0345. There was discussion concerning the difference between an emergency declaration and a drought declaration. Mr. Michaelson noted perhaps the Forum should simply capture the concept rather than determining which statute the recommendation would be under, which will be left open for now. Forum members agreed. After hearing the amended language purposed to the motion, Member Cage noted that he believes a drought equals a water emergency based upon existing statutes.

Member Cage agreed to the amended language to the original motion, the new motion is: revise NRS so that during a Governor declared drought, based on objective criteria, state agencies will be given the authority to take appropriate measures to ensure the availability of water resources for basic needs, including the following measures: "use it, or lose it" tolling; ability to curtail in ways other than prior appropriation; to objectively look at water quality standards that may be restricting the amount of water that can make its way into a river system; plus any others to be identified before adoption. Member Walker (as the second) noted his agreement with the amended wording. Member King asked for clarification on the wording. Member Boyle read sections of the California Governor Drought Declaration

for Forum Members. Member Cage told the Forum that he contacted his Deputy Attorney General Representative concerning regulation language and she noted it depends on how you define orders, but other states do list it specifically as statute. There was discussion about this. Chair Drozdoff asked for a vote; motion passed unanimously. ***ACTION**

Member King stated there currently is a state-wide working group that is trying to promulgate regulations dealing with indirect potable reuse. This working group needs the Forum's support. There was discussion about the steering committee and its membership and background.

Member King made a motion to support the efforts of the state water reuse steering committee in exploring changes to laws and regulations to expand the reuse of waste water in areas where appropriate; seconded by Member Barbee; motion passed unanimously. ***ACTION**

There was discussion concerning Homeowners' Associations and their possible disregard for state law regarding drought tolerant landscaping.

Vice-chair Entsminger made a motion to explore the potential for political subdivisions to implement water conservation in situations where there are Covenants, Conditions, and Restrictions (CC&Rs) to the contrary; seconded by Member Walker; motion passed unanimously. ***ACTION**

Category: Monitoring and Research Data

There was discussion concerning establishing a committee concerning monitoring recommendations and more weather stations.

Member Boyle made a motion to establish a committee to establish goals and assess monitoring recommendations, including cost identification and funding strategies, network gaps, prioritization of efforts and development of implementation strategies; seconded by Member Huntington; motion passed unanimously. ***ACTION**

There was discussion about the need for an enhanced and robust data collection monitoring system.

Member Barbee made a motion to partner with other organizations to increase and enhance the accuracy of data reporting; include: monitoring stations in both high and low level elevations; centralized monitoring data for ease of access by stakeholders; and established standards for the collection of data and reporting; seconded by Member Huntington. Member Cage noted this discussion includes immediate actions that can be taken by the Governor and not long-term items, like changing statute and beyond. The Forum may want to consider recommending the Governor declare a water emergency through proclamation and embedding these recommendations under that or a separate Executive Order, but in relation to the proclamation. Member Cage stated there seems to be a distinction being made that there is a difference between a drought and a water emergency. He contends that that is a distinction without a difference, and felt everything being discussed falls under NRS 416. He read from NRS 416.030 and noted the Forum may want to consider giving the Governor the option of making an affirmative step toward declaring a drought. There is a fundamental disagreement on the Forum about the definition of an emergency. After additional discussion, Chair Drozdoff asked for a vote; motion passed unanimously. ***ACTION**

Member Huntington brought up the early drought warning system issue that came up as a result of a discussion had with the National Integrated Drought Information System (NIDIS) and their desire to develop a Nevada drought early warning system. It would be a California/Nevada drought early warning system. There are a lot of moving parts to an early warning system. Member Huntington reviewed several

aspects and provided background and updates on this process and request. There was a discussion of a possible motion and the language for the motion.

Member Boyle made a motion to partner with other organizations such as the National Integrated Drought Information System (NIDIS) and/or implement new technologies to improve forecasting (including early drought warning systems and seasonal forecasting), monitoring, including place-based remote sensing and enhanced monitoring networks; seconded by Member Huntington; motion passed unanimously. ***ACTION**

Chair Drozdoff stated the Drought Monitor has been coupled with many different decision-making tools; however, it needs a greater level of support, or perhaps a different tool needs to be developed. Member Boyle noted if there were a higher level of participation in the state on the evaluation of the accuracy of the Drought Monitor and what the communication should be like it would suit Nevada's needs. He reviewed the process and provided an example of how it can be done. There was discussion including possible language for a recommendation.

Member Boyle made a motion to recommend the use of diverse sources of information to complement and enhance the applicability, value, and effectiveness of the U.S. Drought Monitor; seconded by Member Huntington; motion passed unanimously. ***ACTION**

Category: Information Sharing and Outreach

Member King made a motion to work with federal partners to establish triggers for management actions to enhance predictability of operational needs for asset managers and allow for a more flexible response to evolving drought conditions; seconded by Member Barbee; motion passed unanimously. ***ACTION**

Member Barbee made a motion that the Western Governors' Association ask for a western drought monitor author and for the drought monitor to cover broad information including impact reporting; seconded by Member Walker; motion passed unanimously. ***ACTION**

Chair Drozdoff noted that during his panel at the Governor's Drought Summit, Claudia Vecchio, Director, Department of Tourism and Cultural Affairs, proposed having her agency conduct specific research on drought and visitation.

Member King made a motion to support the efforts of the Commission on Tourism to do specific research on impacts of drought on visitation; seconded by Member Boyle; motion passed unanimously. ***ACTION**

Category: Financial/Technical Assistance and Incentives

Member Barbee noted this discussion should include incentives to encourage greater efficiency, including agriculture. There was discussion concerning a possible recommendation on this issue and if it should include a list of specific items such as cloud seeding or be more general.

Member Barbee made a motion to direct relevant state agencies to formulate statewide incentive programs and funding resources to help offset costs associated with high priority programs to improve drought response and resiliency for inclusion in FY 2017 budgets; seconded by Member Walker; motion passed unanimously. ***ACTION**

There was discussion on investment tax credit for implementation of water saving technologies. There was not a lot of support for a recommendation. There was discussion on pursuing federal grants and other

funding credits, staffing for the Division of Water Resources, and how to make a recommendation to possibly include a budget proposal.

PUBLI COMMENT: Ms. Lynn noted that 3M Plans would require more budgeting and funding. It would be helpful if the Division of Water Resources had a biologist on staff.

Member Walker made a motion to increase the Division of Water Resources staffing for enhanced metering, water use reporting, other monitoring needs, and technical assistance; seconded by Member Huntington; motion passed unanimously. ***ACTION**

Chair Drozdoff noted in the past there was discussion about the AB 198 Program, which has not been funded historically. He noted there is aging infrastructure and infrastructure that is being relied upon more. Part of effective drought management is having infrastructure programs that can be relied upon. It needs to be funded. There was discussion about this with the Forum determining the issue was covered in a prior motion.

Category: Information Sharing and Outreach

There was discussion about increased staffing and making a broader recommendation from the motion concerning Division of Water Resources Staffing.

PUBLIC COMMENT: Ms. Scherer noted that through this process the Governor has given the Forum the opportunity to say what Nevada needs to deal with a drought in such a way that what is needed for drought is not competing with other agency priorities. No state agency should be put in a position of picking or choosing between something that's imposed outside of their budgets by the Governor. There was discussion about Ms. Scherer's comments and the acknowledgment that information sharing is a topic discussed at meetings and at the Drought Summit. Coordinated and consistent messaging and technical assistance from state agencies is important. There was discussion about developing a statewide communication, education and outreach program that addresses drought response and the Forum determining who leads and coordinates that effort.

There was discussion about determining who should be in charge of the coordinated effort.

Member Walker noted that the current discussion is stuck on who is the leader of the process, what agency has the appropriate leadership for dealing with drought at this point. This seems like an issue that the Forum will not be able to resolve. This is an issue that needs to be resolved at the Governor's level, designating a lead agency. Member Walker noted that perhaps the Forum can include in its recommendation a provision that addresses the need to designate or identify a lead agency for drought response as part of the process.

There was discussion about this idea. Chair Drozdoff suggested the Forum take this issue and think about it to be addressed at the next meeting. He also proposed directing staff to create a possible recommendation keeping this discussion in mind to be considered by the Forum at the next meeting.

Mr. Michaelson asked the Forum members if there was anything that was missed during the day's discussion that needs to be addressed.

Member King spoke about working with the judicial college to try and educate judges on Nevada Water Law. Also, perhaps there should be a Water Court, a specific court where the judges that work this court know water law. There would be consistency in decisions. There was discussion about this issue. It was

decided to direct staff to create a possible recommendation keeping this discussion in mind to be considered by the Forum at the next meeting.

Category: Infrastructure, Supplies, and Long Range Planning

There was discussion about this category, including resources and what type of recommendations the Forum would make.

PUBLIC COMMENT: Mr. Walker noted that in the next list of BDRs scheduled to come out in the legislative session for 2017, there will be one or two that will include State Water Plan. He provided background on how this has been dealt with in the past. A possible option for the Forum is to let the Governor know he will get legislative pressure, particularly under the drought scenario, for a state water plan.

There was discussion about this.

Chair Drozdoff acknowledged the accomplishments of the Forum during the meeting and noted the Forum covered many important issues and items. Members will have an opportunity to think more about the discussions and recommendations and can bring issues up at the next meeting. Staff will put together recommendations to be reviewed at the next meeting. The Forum members agreed.

Category: Infrastructure, Supplies, and Long Range Planning

Member Barbee made a motion to explore the feasibility of additional management measures that can help to expedite the recharge and recovery of impacted rivers and groundwater systems and enhance storage; seconded by Vice-chair Entsminger. There was discussion where this motion should be listed with the Forum noting it should be listed under the Infrastructure, Supplies, and Long Range Planning Category. There was a vote on the motion; motion passed unanimously. ***ACTION -** *Moved from the Water Law Category per Forum agreement* **^^**

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

7) Discuss of November Meeting and Possible Agenda Items (Discussion and Possible Action)

Chair Drozdoff noted the next meeting is scheduled for November 20, at this same location. Pam Robinson, Nevada Governor's Office, will be working on securing a new location and a possible new date. As soon as that has been finalized, the Forum members will be informed.

A full account of the discussion is captured in the audio recording, available on the Nevada Drought Forum's website (*www.drought.nv.gov*).

8) Public Comment: (Discussion)

Chair Drozdoff asked for public comment. There was none.

9) Adjournment:

Meeting adjourned by acclamation at 4:00 p.m.

NOTICE OF PUBLIC MEETING
of the
NEVADA DROUGHT FORUM

FRIDAY, NOVEMBER 20, 2015 – 9 AM

The Nevada Drought Forum will conduct a public meeting on FRIDAY, NOVEMBER 20, 2015, beginning at 9:00 a.m. at the State Capitol Building, Guinn Room, 101 N. Carson Street, Carson City, Nevada, and will video conference to the Grant Sawyer State Office Building, Governor's Office Conference Room, at 555 E. Washington Street, Las Vegas, Nevada. The public is invited to attend at both locations. There will also be a telephonic connection available at 1-888-808-6929. Please enter code 3678844 when prompted.

NOTICE

(1) Items may be taken out of order; (2) Two or more items may be combined; (3) Items may be removed from the agenda or delayed at any time; (4) Public comment may be limited to three minutes per person at the discretion of the Chair; comment will not be restricted based on viewpoint; (5) Reasonable efforts will be made to assist and accommodate physically handicapped persons desiring to attend the meeting. Please call (775) 684-5670 in advance so that arrangements for attendance may be made.

AGENDA

Action may be taken only on those items denoted "For possible action."

1. Call to Order & Roll Call – *For possible action*

2. Public Comment

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

3. Review and Consideration of Approval of Agenda – *For possible action*

4. Review and Consideration of Approval of Minutes – *For possible action*

A. Approval of minutes from the meeting held October 26, 2015.

5. Climate Forecast Update – *Discussion and possible action*

The Forum will receive an update from Dr. Doug Boyle, Nevada State Climatologist, on current and forecasted conditions related to the drought.

6. Discussion of Nevada Drought Forum Recommendations Report – *Discussion and possible action*

The Forum will discuss and finalize its recommendations for inclusion in the report, and will also provide general approval of the report's overview content as prepared by staff.

7. Next Steps – *For possible action*

The Chairman will discuss with members various aspects related to delivery of the final report.

8. Public Comment - *Discussion*

Public comment will be taken at the beginning and end of the meeting, and may be taken at the discretion of the Chair on agenda items listed for possible action. Public comment may be limited to 3 minutes per person at the discretion of the Chair. Comment will not be restricted based on viewpoint. No action will be taken on any matters raised during the public comment period that are not already on the agenda. Persons making comment will be asked to begin by stating their name for the record.

9. Adjournment – *For action*

This notice and agenda has been posted on or before 9 a.m. on the third working day before the meeting at the following locations:

(1) Nevada State Capitol, 101 North Carson Street, Carson City, Nevada
(2) Legislative Building, 401 South Carson Street, Carson City, Nevada
(3) Grant Sawyer Building, 555 E. Washington Street, Las Vegas, Nevada
(4) Department of Conservation & Natural Resources, 901 S. Stewart Street, Carson City, Nevada
(5) Department of Agriculture, 405 South 21st Street, Sparks, Nevada
(6) Department of Wildlife, 1100 Valley Road, Reno, Nevada

Notice of this meeting has been included on the Nevada Public Notices website at http://notice.nv.gov/

Notice of this meeting was also posted on the Nevada Drought Forum website at http://drought.nv.gov. Please contact Andrea Sanchez-Turner at 775-684-2705 (direct) or asanchez@dcnr.nv.gov to obtain support material for the agenda. Any materials will also be posted at http://drought.nv.gov.

We are also pleased to make reasonable accommodations for individuals with disabilities who wish to attend the meeting. If special accommodations or assistance at the meeting are requested, please notify Andrea Sanchez-Turner in writing at 901 S. Stewart Street, Suite 1003, Carson City, Nevada, 89701, or by email at asanchez@dcnr.nv.gov, no later than two (2) working days prior to the scheduled meeting.

Appendix G

Constituent Online Submissions to Drought Forum
Provided via **drought.nv.gov**

SUBJECT: Water
MESSAGE: I think the state or combined governments of our communities should raise funding to create a desalinization facility on the coast of California and send water via pipeline to some of our reservoirs here in the state and have an unlimited supply of water. Once created and paid for, it will enable us to have water resources for years to come no matter what weather has in store for us.

SUBJECT: Water shortage
MESSAGE: I hate to sound silly, but how much water would be saved if compost toilets were allowed (or required) in houses? Why do we continue to use drinking water for waste disposal? How about developing a program for disposal of compost toilet material? Shouldn't we be thinking about getting cities, counties...to think differently? Your faced with these issues that aren't going away soon. Implementing some of the restrictions like California might be in order too. I don't like extra restrictions, but more then willing to do my part.

SUBJECT: Nevada Drought?
MESSAGE: Hello, my name is (removed) and I'm a freshman at the University of Nevada, Reno. I moved to Nevada from California almost 1 month ago. I used to live in a small farming town called Brentwood, about 50 minutes east of San Francisco and about 10 minutes west of the San Joaquin Valley. As I'm sure you know, Governor Jerry Brown declared our drought as a state of emergency and put us on strict water restrictions. Due to my close proximity to both the Valley and the Delta, our city required a larger amount of water savings, and even gave us cash rewards if we met their goals. I got in such a great habit of always saving water that it was quite a shock to come to Nevada and not have any water restrictions. I was surprised that Nevada wasn't in a drought, I had heard about the lack of snowfall and I had always imagined Nevada as a giant desert. After a little research I found that Nevada is in a just as bad, if not worse, drought than California. The only difference? It has not been declared a state of emergency. Everybody I talk to from California says how great it is living in a state that isn't in a drought: they get to lay in green grass (a luxury we get fined for back home), they get to take 30 minute showers (6 times longer than the recommended max in Brentwood) and there's always a set of sprinklers on somewhere on campus. Since being in Nevada I have noticed my own habits change, even with the knowledge that we are in a drought. I leave the water running while brushing my teeth, I let the shower in my dorm warm up before getting in, I've even flushed a tissue down the toilet instead of just throwing it away. I've even stopped noticing the small things around campus— they water the grass at the hottest time of the day, even thought that wastes the most water—things that during my first week I found appalling. My question for you, whomever it may concern, is: Why is the Nevada drought not a state of emergency? I can speak from personal experience, when you have the state telling you that you need to conserve water people tend to take it a bit more seriously. Food for thought.

SUBJECT: Solution to Drought in Lake Mead
MESSAGE: With Lake Mead having a drought we need to get a solution to fix it. My idea will help fill up Lake Mead and build the economy. It will also help California with their drought. We need to build at least four huge water condensers & four large canals. They would be built on the ocean of Northern California and run to Las Vegas, Nevada. The canals could provide water to communities and new communities in California on the way. There would need to be more than two canals because if one needed to be serviced you could use the others. Since there are more than two canals if one needs to be repaired you could use the other ones. It would need to be powered by nuclear energy, because it's the most efficient and clean energy. It wouldn't add to greenhouse gasses and you'd have the least amount of byproduct. You could sell the excess power to pay off the project and the operation of the canals. The canals will build up towns and farming because there would be access to water. This would bring communities around the canals as well. It would also bring commerce and build the economy on a large level.

The canals would lead to the Colorado River and it would help to raise Lake Mead's water levels.

SUBJECT: Water Storage
MESSAGE: I don't know if you keep a running list of suggestions and possible solutions, but regarding additional storage one possible long term solution would be the collection of monies to fund drought improvements, collecting from new commercial/business developers/developments. These earmarked funds could go into a state account (allocated by area or region?) to fund future reservoirs, tanks, basins, dams and similar structures at the local or regional level. With state oversight and local area fund designation, priority infrastructure could be constructed. Simple and less expensive infrastructure—collection of flood waters in wash areas—might be a good starting point.

SUBJECT: Desalination
MESSAGE: I have submitted a suggestion to the drought forum and the attached diagram might help to understand it. While we have no access to the Pacific Ocean, Ca. does. With what the diagram references, the sea water moving through the membrane should have little cohesion. This is because the water in the pressure heads would be placing a load on the water being desalinated. And when moving the water, the columns of fresh water and brine would counter balance the sea water being lifted. Of course, if this works, then restricting the water flowing to the membrane might have the same effect as what pressure heads create. And if this is an improvement compared to using 600 to 1,200 psi, then Ca. might become less dependent on the Colorado River allowing us and Az. to have some relief. And if moving water across Ca. were to become necessary, then pipes 2 to 3 feet in diameter might help to provide needed relief. And in some ways, the drought we are facing does seem to be a regional problem.

SUBJECT: HOA Requirements
MESSAGE: I am concerned that so many housing developments, both new and existing, mandate that residents keep lawns in their front yards. It seems to me that every housing development should, by law, offer both xeriscape and lawn options. I asked about this at the City of Sparks, and they said that "HOA or CCRs are a civil contract between property owners and are not at the discretion of local or state government." With the latest housing boom, there will be thousands of new homes. Nearly all of them will have mandatory grass in the front yards. Is there anything we can do to make housing developers offer a xeriscape option? Another thought: The Nevada Drought Forum could work to convince homeowners who are not at the mercy of CC&Rs to get rid of their lawns and either xeriscape or grow food in their front yards.

SUBJECT: Houses
MESSAGE: I am e-mailing you to step in, and stop the building of houses in the Las Vegas and surrounding areas..... Lake Mead is low enough!!! How much lower does it need to get, to get you guys to realize you messed up?? More houses = more showers, more laundry being done, we get our water supply from Lake Mead.... What's going to happen when that water is gone???? I strongly urge you, to stop worrying about the $$$ and worry about the people you have now...

SUBJECT: Building
MESSAGE: Why are we building thousands of homes in SO. NV, when we have no water. We keep hearing about saving our water because there isn't any and in 10 years we will be out of water, so why in my neighborhood are they building a new community of over 500 homes? If they sell these homes today then in 10 years the owners will have to forfeit them. It's hard to ask me to reduce my water intake when the government is reckless with our water. Why is this happening? Please tell me?

SUBJECT: Building
MESSAGE: We are running out of water here in Southern Nevada, why are builders allowed to keep building??? We need to stop this until a solution to the water shortage is found. Please help us in Southern Nevada! We don't need anyone else here with this situation.

SUBJECT: Saving Water
MESSAGE: I live in a house that has about 2500 square feet in it. The bathrooms and showers are

in the back and the water heater is in the garage, where most of them are. How long does it take for hot water to get to the showers? Just about a gallon and a half and where does it go? Down the drain. Most hotels, motels, and Hospitals have hot water recirculating systems. Turn on the hot water and you have it within seconds. Why can't houses built in Nevada have this type of systems installed during construction? Why can't counties require the system be installed during the replacement of a Hot Water Tank? How many showers do most people take in a weeks time. One person may run down a gallon or two to get hot water. Then another person comes along later and does the same thing. The State could save about 1000 to 1400 gallons of water per week per house hold. That is a lot of water. We are in a drought condition, why not make it a state law to have hot water recirculating systems installed in every new house built and installed when a Hot Water Tank is replaced?

SUBJECT: Building
MESSAGE: I would like to know if we are in a drought, then why is Henderson building about 500 new homes within a 5 mile radius of my home. They city tells me that they will not be using much water because of the drought plants they will be using. I don't believe this as I am not watering any plants at my home and I USE WATER. These are not like studio apt they are 4 and 5 bedroom homes. If they say within 10 years we will be out of water, then isn't this not fair to the new home buyers who get a 30 year mortgage and in 10 years will have to leaving their homes owing money? If there wasn't a large suplus of empty homes in the immediate area then I can somewhat see the need for new homes. On my block alone there are 4 empty homes looking for buyers. It seems to me that the state is not looking for the welfare of it's citizens, only looking to make money. Please explain why this was allowed. The city says the state wants more homes, does the state know where the water is coming from. I as a homeowner would like to know, as I have already invested in a home 21 years ago and would like to live here longer than 10 more years with knowing the state looked ahead to make sure I would have water and other resources to continue my living here. So why at this time are 500 homes being built near me. Who knows the exact number of new homes are going up in the Vegas valley, that they will be no water for. And since we are on a drought situation, exactly how much am I going to have to pay extra because of these new homes using water we don't have. Can you explain why someone gave the approval for all these new homes, not just the 500 near me but for the entire Vegas Valley?

SUBJECT: Water Conservation
MESSAGE: As the owner of 3 Las Vegas properties, I want to know if the Governor and/or the State Legislature can direct (mandate or otherwise) that Homeowner Associations' cut in half, the required minimum green-coverage of home lots. This is a terrible waste of water, maintaining these minimums even using desert plantings.

SUBJECT: Water
MESSAGE: Over the past couple of decades the southwestern United States has been dealing with the growing issue of water shortages. Increases in population growth, agriculture, and the drought have already begun to affect quality of life and the economy of the region. Plans to limit and cut water to agriculture will undoubtedly have negative effects to the economy across the entire United States. This I'm sure you already are well aware of. Water conservation efforts are fantastic. We all need to do our share to preserve fresh water and make decisions based on sustainability. However, I believe the focus now needs to be on the issue at hand.

THE ISSUE: Plain and simple, there is not enough fresh water in the southern United States to allow for the continued population, agricultural, and economic growth that the United States will need in the future. The focus: Identify water sources and make them available to the areas that need them. The idea: I'm advocating a program similar to that of the Central Arizona Project (CAP) be constructed that will bring water from Lake Michigan to Colorado via canals and empty into the Colorado River. Bringing water from the largest source of fresh water in the United States

to the areas that need it makes sense. Currently the Colorado River supplies Nevada, Southern California, Arizona, and Mexico with fresh water. Demands on the river have reduced the flow to a trickle by the time it reaches Mexico. Lakes Mead and Powell are at their lowest point on record and continue to dwindle. Sound absurd? Possibly. There are a million reason why it wouldn't work I am sure. But, what if? The Central Arizona Project consists of 380 miles of canals that is supplying water across Arizona and was built at a cost somewhere in the neighborhood of $3.8 billion. The Project was also eventually to have served New Mexico as well. The distance from Lake Michigan to Colorado is roughly 1,100 miles. If a canal could be introduced it could service the southern US and in years where the west received ample snow and rainfall the water could be 'dropped off' along the route in the mid-west as well with an affect of opening up new agricultural corridors. Our country needs projects that build infrastructure and that will sustain our economics and population long term. A project on this magnitude will directly put thousands of Americans to work for decades to come and open up an economic boom for all areas that it would service. The western United States is fast approaching its growth potential for the simple fact that there will not be enough fresh water to allow for growth. A project such as this could be a catalyst that would benefit the country for centuries.

SUBJECT: Ground water and water rights
MESSAGE: During this time of drought, I understand that we must protect our water, but I think that the state in trying to reclaim some water rights of unused or unproven rights is backfiring. I have noticed that I live in Palomino Valley fields that have been fallow for several years are now in production. I believe that this is due to threats of water rights being removed due to nonuse, those rights are owned by people who don't want to loose them so they start using them to comply with the state. Increasing ground water usage in this time of drought. I believe that your office should issue a stay on these rights that are not proven water rights and while identifying them and keeping them fallow and non transferable till the drought is over.

My idea is all water rights that don't meet water usage requirements would be put on hold till the drought is over with the state agreeing not to remove rights till a set period of time after the drought is over and said water rights are still unused. This would allow the state to save ground water and control water rights while allowing water right owners the future chance to prove up on those rights.

SUBJECT: WATER SHORTAGE
MESSAGE: Just walked by a large park next to our little enclave; sprinklers all over the place just pouring out water in a desperate attempt to keep the grass a luscious green in August in the desert of Las Vegas. Despite this waste, there are still streaks of yellow throughout the park and this attempt is futile. Whether here in Nevada or over there in California, I believe it's time for the media to live up to its' responsibility to the citizens of these states and lead the charge: OUTLAW ALL NATURAL GRASS in Nevada and California...and I don't mean marijuana. Please, before it's too late.

SUBJECT: Rain making over lake mead
MESSAGE: Just curious from a los angeles resident. if when clouds pass over the lake mead that you might ask either the Nevada air national guard or the USAF to make a few short supersonic passes directly over the clouds on the lake.. or beside the clouds. the shock wave bouncing thru them might cause an instant cloudburst over the lake.. i was also hoping to mention that looking at the way the flood waters get into Las Vegas and other Nevada towns.. working in the arroyos to dig cross trenches in them.. will reduce flash flooding.. this could be done with a single excavator.. in just a few days.. working upstream.. the excavator digs across the bottom.. sets the soil off to the side.. depending on the width of the arroyo... perhaps a pair of dump trucks.. to transport it to the edge.. when the flash flood starts . the first excavation is filled. then the next then the next.. with enough.. very little flood water will reach into town.. it will also soak into the ground to recharge the groundwater .. the diggings could also be screened and separated to sell to the building materials companies. sand, gravel, river rocks are all how far out up the arroyo this would need to be done i

don't know. it depends on the watershed above it.. the holes should not have steep sides.. just 8 to 10 feet below the arroyo bottom..

SUBJECT: Water
MESSAGE: Vacationing in Midway AR where my dad lives on Bull Shoals Lake. This is one of many reservoir lakes on the White River. This lake is in my estimation over 50' above normal level and its a big lake. There has to be in my wild guess trillions of gallons of excess water sitting here plus all the other lakes worth waiting to slowly drain away-this is the last lake in the chain and they are all full-perhaps a pipe line to your state would be a win win-they could use $$ here and you desperately need the water-a pipeline perhaps? This water plus all the other excess water between here and there could probably keep Lake Mead full (pipeline would be easy compared to Hoover dam) Just an idea...

SUBJECT: Drought Solution
MESSAGE: There is a relatively simple way to bring water to the drought areas of the US. Hydrolyse water where it is plentiful, using electricity to split it into hydrogen and oxygen. Then piping the hydrogen where water is needed. When the hydrogen is burned using oxygen from the atmosphere, pure water is the product. 100% pure. When this water is formed, the resulting heat can be used to drive power plants, recovering some of the electrolysis energy.
Either seawater or fresh water can be hydrolysed, fresh being the easier of the two.
A grid of high pressure hydrogen pipes throughout California and the SW US would allow water to be available where needed. A hydrogen grid would also allow for hydrogen refueling stations for hydrogen cars and trucks. Mountains do not present the same barrier as pumping water when hydrogen is piped. Water could be redistributed from the SE US to the drought zone.
Relatively quick to set up with simple technology.

SUBJECT: Water in Southern Nevada
MESSAGE: I understand you going to be hosting the water conference, and I would love to put my input into solving a few thing that would help Southern Nevada in conversing our natural resource. Limit the amount of building permits in the area, and then you will see property prices starting going up, and water usage start to stabilize. If you look at real estate prices in Boulder City compared to Henderson, it's because of the building permits limits in that city. Perhaps, it's time to put a folk into the City commissioners in Las Vegas, and tell them to stop the growth of this city. This is my two cents.

SUBJECT: Water
MESSAGE: I think the state or combined governments of our communities should raise funding to create a desalinization facility on the coast of California and send water via pipeline to some of our reservoirs here in the state and have an unlimited supply of water. Once created and paid for, it will enable us to have water resources for years to come no matter what weather has in store for us.

SUBJECT: current Water issue
MESSAGE: May I suggest thinking out of the box regarding the water issue for a moment and consider the use of solar panel units powering commercial size dehumidifiers and then using that set up to collect water out of the atmosphere. I got this idea watching the air conditioner unit on top of my home drain water from the atmosphere on humid days. I've also heard about a similar kind of program either being developed or is currently under use somewhere in the Middle East. I understand Bedouin use the devices to harvest water in the desert to support themselves. Why are we are actually at that point, how much water could be saved being drained from Lake Mead to create power if we could replace that power from a collection of solar panels. If for example, Nevada power would adopt a new business operation plan that would include helping every homeowner in the city put panels on their home to generate electricity, a cooperative venture could be formed between citizens of the city and the power company forming a Co - op program so that we act as one unit selling power to other cities and states. the power unit on Lake Mead could be shut down and subsequently the water would begin to rise by non use. please understand I don't know a lot about the other areas of the topics,

like considerations of those needing water down river. just trying to offer a couple of ideas thinking out of the box. Who knows, sometimes when you brainstorm, a silly idea that won't be used, could lead someone into thinking of an actual plan that would work. Best of luck to all who are working on this very important topic for all of us who calls Nevada home.

SUBJECT: Drought
MESSAGE: One thing not mentioned in an article I read about your Water Meeting, tho it looked like it might be. When your water is metered and you're asked to cut x% from the year before....it would be extremely helpful to have that info on the bill instead of having to find previous bills to see what you need to do.

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