



**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)

Gaming and Hospitality

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 to 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 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 water. 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 ample 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.

Tourism and Recreation

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. Southern 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 and 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.

General Business

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 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 than 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.