

Hazard Mitigation Plan

Bighorn-Desert View Water Agency

Homestead Valley Community

California 92285

Adoption Date: October 28, 2014

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Web-Links

Water Master Plan: <http://www.bdvwa.org/wp-content/uploads/2014/08/DOC003.pdf>

Urban Water Master Plan, under Mojave Water Agency:

<http://www.mojavewater.org/planning.html>

SECTION 1: INTRODUCTION

1.1 Purpose of the Plan

Emergencies and disasters cause death or leave people injured or displaced; cause significant damage to our communities, businesses, public infrastructure and our environment; and cost tremendous amounts in terms of response and recovery dollars and economic loss.

Hazard mitigation reduces or eliminates losses of life and property. After disasters, repairs and reconstruction are often completed in such a way as to simply restore infrastructure to pre-disaster conditions. Such efforts expedite a return to normalcy; however, the replication of pre-disaster conditions results in a cycle of damage, reconstruction, and repeated damage. Hazard mitigation attempts to break this cycle, which results in a reduction in hazard vulnerability.

While we cannot prevent disasters from happening, their effects can be reduced or eliminated through a well-organized public education and awareness effort, preparedness, and mitigation. For those hazards, which cannot be fully mitigated, the community must be prepared to provide efficient and effective response and recovery to emergencies.

1.2 Authority

As required by the Department of Homeland Security's Federal Emergency Management Agency (DHS-FEMA), all Hazard Mitigation Plans (HMP) must be updated, adopted, and approved every five (5) years. The Bighorn-Desert View Water Agency (BDVWA) has not had a Hazard Mitigation Plan in the past. The purpose of completing a plan is to validate and incorporate information into the plan and identify the hazards to the community and formulate mitigation measures for the future protection of the community and critical infrastructure. It should also be noted that an approved HMP is required to receive federal assistance under the Hazard Mitigation Grant Program (HMGP) or Pre Disaster Mitigation (PDM) programs.

1.3 Community Profile

The Bighorn-Desert View Water Agency provides water service to approximately 1,450 active residential customers, 400 infrequent/inactive customers, and 100 bulk-hauling customers within its forty-four (44) square mile service area, located in the Western Mojave Desert of San Bernardino County. The BDVWA encompasses the unincorporated Homestead Valley Communities in the County known as Flamingo Heights, Johnson Valley, and Landers.

The Bighorn-Desert View Water Agency is a consolidated independent Special District, formed in 1990, operating pursuant to the provisions of the Bighorn-Desert View Water Agency Law, California Water Code Appendix 112-1 et. Seq. The BDVWA is governed by a five-member Board of Directors, elected at-large from within the Agency's service area. The General Manager administers the day-to-day operations of the BDVWA in accordance with policies and procedures established by the Board of Directors. In addition to the General Manager, the BDVWA employs six (6) full time employees organized into two departments: Administration and Operations.

1.3.1 Physical Setting

The Bighorn-Desert View Water Agency is located in the State of California, San Bernardino County High Desert area, 30 miles North of Interstate 10 and Palm Springs, and Southeast of the City of Victorville. The Community of Landers and the Bighorn-Desert View Water Agency are located in the South Eastern section of the Mojave Desert on the Eastern side of the San Bernardino Mountains.

The Mojave Desert occupies a significant portion of Southern California and parts of Utah, Nevada, and Arizona. Named after the Mojave Native Americans, it occupies roughly 54,000 square miles in a typical Basin and Range topography. The Mojave Desert is bound in part on the Western ends by the Tehachapi Mountains together with the San Gabriel and San Bernardino Mountain Ranges. The mountain boundaries are quite distinct since they have been created by the two largest faults in California: the San Andreas and the Garlock. Its Northern and Eastern boundaries are less distinct. One way to determine location is by observing the presence of Joshua Trees. The Mojave Desert receives less than 6 inches of rain a year and is generally between 3,000 and 6,000 feet in elevation. The Mojave Desert also contains the Mojave National Preserve; Joshua Tree National Park; and the lowest-hottest place in North America: Death Valley, where the temperature can approach 120 F in late July and early August. The Mojave Desert, like all deserts in general, is known for its summer heat; however, in the wintertime - cold. Snow, although uncommon, does fall in parts of the Mojave Desert. Amounts range from just a trace, to a foot or more of heavy wet snow, which can lead to freeway traffic closures, and the population being "snowed in." The coldest wintertime temperature ranges well below freezing. Many parts of the Mojave Desert typically range from highs of around 95-105° F in the summer, to lows of around 15-30° F in the winter, and may dip even lower. High winds, often above 50 miles per hour, are also a weather factor and occur frequently along the Western end of the Mojave Desert.

1.3.2 History

Bighorn-Desert View Water Agency

The Bighorn-Desert View Water Agency is a consolidated Independent Special District, formed in 1970, working pursuant to the provisions of the Bighorn-Desert View Water Agency Law, California Water Code Appendix, Sections 112-1 et. Seq. The BDVWA is governed by a five-member Board of Directors, elected at-large from within the Agency's service area. The General Manager administers the day-to-day operations of the BDVWA in accordance with policies and procedures established by the Board of Directors. In addition the General Manager, the BDVWA employs six (6) full-time employees organized into two departments: Administration and Operations. The BDVWA's Board of Directors regularly scheduled meetings are on the fourth Tuesday of each month at 6:00 p.m. Meetings are publically noticed and citizens are encouraged to attend.

The BDVWA provides water service to approximately 1,450 residential customers, 400 infrequent/inactive customers, and 100 bulk-hauling customers within its forty-four (44) square-mile service area, located in the Western desert of San Bernardino County. The BDVWA encompasses the unincorporated communities in the county known as Flamingo Heights, Johnson Valley, and Landers.

Community of Landers

Landers lies in the Homestead Valley section of San Bernardino County, also known as the Southeastern part of the Mojave Desert. The town's elevation is 3,100 feet (940 m) above sea level.

Landers is located approximately 14 miles north of Yucca Valley; is bordered by the Village of Joshua Tree to its southeast; Johnson Valley to its north; and Pioneertown to its southwest. California State Route 247, named "Old Woman Springs Road," passes through Landers from Yucca Valley en route north to Barstow.

The U.S.P.S. Landers Post Office is located at Landers Lane and Reche Road, serving Zip Code 92285. A Loyal Order of Moose Lodge, convenience store, realty office, chamber of commerce, elementary school, and community center are also located in the mostly residential community. The Landers Airport has a short runway, adequate for single engine aircraft.

The 1992 Landers earthquake was a magnitude 7.3, earthquake that occurred on June 28, 1992 with an epicenter near the Community of Landers and Flamingo Heights, California.

County of San Bernardino

San Bernardino County, officially the County of San Bernardino, is a county located in the southern portion of the U.S. state of California. As of the 2010 U.S. Census, the population was 2,035,210, up from 1,709,434 in the 2000 census. With an area of 20,105 square miles, San Bernardino County is the largest county in the United States by area. It is larger than each of the nine smallest states, larger than the four smallest states combined, and larger than 71 different sovereign nations.

Located in southeast California, the thinly populated deserts and mountains of this vast county stretch from where the bulk of the county population resides in two Census County Divisions, some 1,422,745 people as of the 2010 Census, covering the 450 square miles south of the San Bernardino Mountains in San Bernardino Valley to the Nevada border and the Colorado River.

1.3.3 Demographics

The BDVWA service area is commonly called a bedroom community. The community has no public hospitals or major manufacturers within its boundaries. The BDVWA service area contains approximately 44 square miles and currently serves approximately 2,000 residents over a large service area. The Landers, Johnson Valley and Flamingo Heights are listed by the State of California as a severely disadvantaged community.

1.3.4 Existing Land Use

The existing land use is housing and small to light industry. The largest employer in the area is the 29 Palms Marine Base, the largest Marine Base in the world. However, 29 Palms has most of the military housing, and the Landers area benefits only slightly from the installation, due to the fact that there are no finished roads from the Landers area into the Marine Base.

1.3.5 Development Trends

The development of the Landers area has been insignificantly since the housing industry crash. The BDVWA has not seen an increase of the housing market or any development in the BDVWA boundaries. There are no new housing projects or planned development of either industry or housing in the near future.

SECTION 2: PLAN ADOPTION

2.1 Adoption by Local Governing Body

This 2014 Hazard Mitigation Plan (HMP) will be presented to the Bighorn-Desert View Water Agency's Governing Body for adoption upon final FEMA approval.

Upon adoption, The Board meeting minutes will be included within the HMP.

2.2 Promulgation Authority

This Hazard Mitigation Plan was reviewed and approved by the elected members of the Bighorn Desert View Water Agency Board of Directors:

Ms. Judy Corl-Lorono
Board President

Description of Involvement: Board President, Bighorn-Desert View Water Agency Board of Directors

Mr. J. Dennis Staley
Vice President

Description of Involvement: Vice-President, Bighorn-Desert View Water Agency Board of Directors

Mrs. Terry Burkhart
Director/ Board Secretary

Description of Involvement: Director, Bighorn-Desert View Water Agency Board of Directors

Mr. Michael McBride

Description of Involvement: Director, Bighorn-Desert View Water Agency Board of Directors.

Mr. J. Larry Coulombe
Director

Description of Involvement: Director, Bighorn-Desert View Water Agency Board of Directors

Ms. Marina West, PG
General Manager / Chief Engineer

Description of Involvement: General Manager, Bighorn-Desert View Water Agency

2.3 Primary Point of Contact

The Point of Contact for information regarding this plan is:

Marina West, PG
General Manager/ Chief Engineer
Bighorn-Desert View Water Agency
622 South Jemez Trail
Yucca Valley CA 92284
760-364-2315 (Office)

Or

Gary Sturdivan
Sierra West Consultants
gsturdivan@mac.com
909-658-5974

SECTION 3: PLANNING PROCESS

The purpose of this section is to document the planning process that was taken to review and compile information that would lead to an affective Hazard Mitigation Plan (HMP). A comprehensive description of the planning process not only informs citizens and other readers about how the plan was developed, but also provides a permanent record of how decisions were reached so it can be replicated or adapted in future plan updates. An integral part of the planning process is documentation of how the public was engaged through the process.

This HMP was completed with the coordination and involvement of the BDVWA staff, which have a vested interest in the resiliency of the Agency. Additionally, other involved persons are employees from other water agencies in the area, such as Joshua Basin Water District and Hi-Desert Water District; local community concerned citizens; the Morongo Basin community; and the Board of Directors. For example, one person on the Planning Team has been with BDVWA since 2002 and knows the history of previous hazards affecting the Agency. This team developed and implemented the planning process.

This section includes a list of the Planning Team Members, a summary of the meetings held, coordination efforts with the surrounding communities/groups, and all Public Outreach efforts.

3.1 Preparing for the Plan

The Planning Team reviewed the FEMA, Hazard Mitigation Planning Crosswalk: the hazards that could and have had an effect on the region in the past. Once the Planning Team had reviewed these documents and added any new hazard and mitigation program information, recommendations were presented for public review and input.

The update process consisted of:

- Documenting of past events
- Incorporating data
- Engaging the Planning Team
- Posting the meeting agendas and meeting minutes onto the BDVWA's website
- Sharing information at the monthly BDVWA Board Meetings
- Conducting Public Outreach

The Planning Team provided a better understanding of the planning process and was able to give a timeframe of the effort. Table-1 shows the draft time line for preparing the Draft HMP for the BDVWA, which is discussed further in the following sections.

3.1.1 Planning Team

This Hazard Mitigation Plan was compiled and authored by members of the following Planning Team:

Ms. Marina West, PG

General Manager/ Chief Engineer

Description of Involvement: Planning Team Member

Ms. West is the General Manager for Bighorn Desert View Water Agency. Ms. West coordinates meetings and has direct input into the planning of the Mitigation Planning Team. Ms. West attends all mitigation meetings and has a vast knowledge of the area and the BDVWA's past history in emergencies. Ms. West is a Registered Professional Geologist. She has a state of California Water Distribution certification D-5 and Treatment T-2, with over 25 years of professional experiences in the water industry in California.

Ms. Judy Corl-Lorono

President of the Board of Directors, Bighorn Desert View Water Agency

Description of Involvement: Planning Team Member

Service to the community has been a major part of Ms. Corl-Lorono life since moving to Yucca Valley in 2001. Ms. Corl-Lorono worked for the Salvation Army, running a thrift store in Yucca Valley. Ms. Corl-Lorono put the skills learned in the hotel and food industry to use running a free food distribution center in Palm Desert. She utilized the spirit of community. As a Director BDVWA, Ms. Corl-Lorono has focused on learning about water related issues and served as President of the Board in 2008/2009 and has served as Vice-President of the Board. Ms. Corl-Lorono is current President of the BDVWA Board for 2013/2014

Mr. Gary Sturdivan

HMP Consultant

Description of Involvement: Planning Team Lead

Gary Sturdivan is the Consultant hired by Bighorn-Desert View Water Agency as Team Leader for the BDVWA's Mitigation Plan. Mr. Sturdivan sets the Agenda for all mitigation meetings, compiles all information for public input, and coordinates all mitigation meetings. Mr. Sturdivan takes information to the Agency's Board of Directors and oversees information for input into the Mitigation Plan. Mr. Sturdivan has a vast knowledge of Mitigation Planning, Grant Funding, and Emergency Management. Mr. Sturdivan worked in the water industry for 25 years prior to retiring in 2011.

Mr. Mark Ban
Assistant General Manager
Hi-Desert Water District

Description of Involvement: Planning Team Member

Mr. Ban has a vast knowledge of the issues facing water agencies in the Desert along with the hazards, mitigation, and operations of middle-sized water districts. Mr. Ban has been a past Planning Team Member in other HMP planning teams in the San Bernardino and Riverside Counties. Mr. Ban and Hi-Desert Water District are members of the Emergency Response Network of the Inland Empire.

Mr. Steve Corbin
Water Production Operator II
Joshua Basin Water District

Description of Involvement: Planning Team Member

Mr. Corbin is a Water Production Operator II at Joshua Basin Water District. Mr. Corbin has 7 years of experience in the water industry and 34 years experience in electro-mechanical manufacturing/repair and metal fabrication/welding. Mr. Corbin understands the effects disasters have on the community and the importance of a safe water supply to the community.

Ms. Judith Laffoon
Area Resident and Customer of Bighorn Desert Water Agency Water

Description of Involvement: Planning Team Member

Judith Lynn Laffoon is an Administrative Assistant (ret.), Maintenance and Operations - Morongo Unified School District. Landers resident of 21 years; member of the Landers Association; BDVWA customer; CERT Team Leader for the Community of Landers, and active volunteer in multiple disaster organizations: Morongo Basin CERT, American Red Cross, ARES, Morongo Basin Emergency Management Council (CERT), California Disaster Corp, and SoCal VOAD.

Mr. David Rewal
Lead Water Distribution Operator

Description of Involvement: Planning Team Member

Mr. Rewal is the Lead Water Distribution Operator at Bighorn-Desert View Water Agency and has been with the Agency since 2001. Mr. Rewal is a key person in the daily operations of the Agency's water distribution system. Mr. Rewal possesses a State of California Water Distribution Certificate Level D-3, and a Treatment Certificate T-2. Mr. Rewal is an avid golfer and competes in golf fundraisers in and around the Morongo Basin.

Mr. David Rodriguez

Area Resident/Engineering Tech

Description of Involvement: Planning Team Member

Mr. Rodriguez is a 35 year resident of Yucca Valley, and has work experience in the field of Civil Engineering and Land Planning. Mr. Rodriguez has worked with local civil engineering firms including Joshua Basin Water District, where Mr. Rodriguez served as the District's Resident Engineer and Inspector. Mr. Rodriguez has been involved in the Town of Yucca Valley's General Plan Advisory Committee. Mr. Rodriguez is self-employed as a Civil Engineering/Land Planning Consultant and is currently the Engineering/Inspection Consultant with Bighorn Desert View Water Agency.

Mr. Ken Jones

Area Resident and Customer of Bighorn Desert View Water Agency

Description of Involvement: Planning Team Member

Mr. Jones is the Morongo Basin CERT Team Leader for the Community of Flamingo Heights, Morongo Basin CERT Member, and Vice-President of Flamingo Heights, HAM radio Community Association. He is a long time resident of the California Desert.

3.2 Coordination with Other Jurisdictions, Agencies, and Organizations

Mr. Gary Sturdivan is coordinating the Hazard Mitigation Planning Team for Bighorn Desert View Water Agency. The General Manager of BDVWA has asked several agencies to participate in the planning of this document. The Team consists of one person from nearby Joshua Basin Water District, one person from nearby Hi-Desert Water District, two persons from BDVWA, a Contract Engineering Tech for BDVWA, and three members of the public who live in the area. The County of San Bernardino Office of Emergency Services has been asked to participate on the Planning Team; however, Mr. Sturdivan has received no response from the County of San Bernardino, OES.

The Team participated in bi-weekly meetings to coordinate and receive support for the HMP. The support included receiving technical expertise, resource materials, and tools, not only to expedite the HMP update process, but also to ensure that the information received is in compliance with the Federal requirements of the program. The tools, resource materials, and other project related information is maintained on a Project Portal (www.bdvwa.org) to ensure the information is available to all participants and the public at large.

Also, interaction with other local water agencies proved valuable in the development of the mitigation projects for the plan. Water agencies within the Morongo Basin, in San Bernardino County, met to collectively discuss necessary decisions for the HMP and ideas to streamline resources. Bighorn-Desert View Water Agency hosted meetings at the Agency Boardroom and organized the process for participating water agencies.

3.3 Public Involvement/Outreach

An effort was made to solicit public input during the planning process at the BDVWA Board Meetings beginning in March 2014 until completion of the plan. Information about the plan is posted on the Agency's website (www.bdvwa.org) and on Board Agendas for any public comments. Monthly Board Meetings are opened with a HMP Section for "Public Comment," where the Consultant Mr. Sturdivan is available to answer any comments or questions from the public. Mr. Sturdivan updates the Board of Directors and the Public on the progress of the HMP. Board Members and the Public are given time to ask questions. Questions are addressed at these meetings, or answered in writing after the meeting. The Public HMP meetings were recorded and meeting minutes taken.

The 2014 agendas and meeting minutes, and portions of the HMP are posted on the Agency's website as the HMP as written, asking for public comments.

See **Attachment A** for the details of the public involvement process such as the meeting dates, purpose, agendas, sign-in sheets, minutes, and public comments.

3.4 Assess the Hazard.

This HMP has been developed through an extensive review of available information on hazards the Agency has faced in the past and most likely will face in the future. The Team viewed and discussed items that have happened in the State of California as well as disasters that have happened in desert areas in the United States. The Team reviewed documents such as engineering drawings, aerial

photographs, and available geotechnical and geologic data both from the Internet and outside sources (for example, California Geological Survey for detailed fault investigation reports).

The Planning Team completed the assessment of the various hazards in a group. The Team has an average of 30 years of personal experience working in a water utility and knows the history of past hazardous events, such as the 1992 Landers Earthquake a 7.3 magnitude earthquake that severely impacted the region. This earthquake's epicenter was at 34° 13' N, 116° 26' W 6 miles north of Yucca Valley in the area of Landers, CA. The fault rupture was within 10 feet of one of the BDVWA's reservoirs.

3.5 Set Goals

The process of identifying mitigation goals began with a review and validation of damages done to the agencies in the surrounding area. The Planning Team completed an assessment and had discussion of whether each of the mitigation goals was valid. This discussion also led to the opportunity to identify new goals and objectives for mitigation in the Plan such as pipelines that are undermined in flooding and debris flow each year.

The Agency's Planning Team set the goals for the 2014 HMP. The team members understand and know the issues facing the Agency with respect to the Agency's Mission Statement "To provide a high quality supply of water and reliable service to all customers at a fair and reasonable rate."

At one of the planning meetings, the group "brainstormed" to determine the best mitigation goals to reduce or avoid long-term vulnerabilities and to identify the hazards. First, the team reviewed the past hazards that have faced the area and other water agencies in the area and discussed the changes in the community in the previous several years. Then the team decided whether those hazards were still viable today. Some hazards were removed and other hazards were added to the list.

3.6 Review and Propose Mitigation Measures

Meetings were held with the Planning Team to solicit their input and review all of the hazards identified in the Plan. The Team identified what mitigation measures could be utilized to mitigate the hazards in the future for each critical piece of infrastructure. Each meeting focused on specific hazards, BDVWA facilities, risk assessment, mitigation strategy, and plan maintenance.

3.7 Draft Hazard Mitigation Plan

The Consultant for the Agency led the Planning Team and wrote the MHP with the input of the Planning Team, Board of Directors, and public comments into the Draft Plan. The Planning Team members reviewed and commented on the changes, and the consultant revised the plan before the HMP was finalized and adopted by the Board of Directors.

The HMP's will be reviewed against a FEMA-designed Crosswalk. The Crosswalk links the Federal Requirements and identifies the sections in the HMP where the information can be found and a rating as to the level of compliance with the regulation.

3.8 Adopt the Plan

Upon finalizing the HMP by the Planning Team, the HMP was sent to the Agency's Board of Directors for adoption. The 2014 HMP was adopted as written, at the Agency's regularly scheduled Board Meeting on October 28, 2014. The HMP was then sent to the State of California, before being sent to FEMA for approval.

SECTION 4: RISK ASSESSMENT

The goal of mitigation is to reduce the future impacts of a hazard including property damage, disruption to local and regional economies, and the amount of public and private funds spent to assist with recovery. However, mitigation should be based on risk assessment.

The purpose of this section is to describe the methodology taken to understand the hazards in the Agency's service area. There are generally four (4) steps in this process: 1) identify and screen the hazards; 2) profile the hazards; 3) inventory the assets; and 4) estimate losses.

A risk assessment involves measuring the potential loss from a hazard event by assessing the vulnerability of buildings, infrastructure, and people. It identifies the characteristics and potential consequences of hazard areas of the BDVWA that could be affected by a hazard, and the impact on Agency's assets. A risk assessment consists of three components: 1) hazard identification; 2) vulnerability analysis; and 3) risk analysis. Technically, these are three different items, but the terms are sometimes used interchangeably.

4.1 Hazard Identification

During a "brainstorming session" with the Planning Team Members, all hazards were discussed. Some of the items were not used in the plan because the likelihood of such hazards as tsunami, hurricane or tornado affecting this area is improbable at best.

4.1.1 Hazard Screening Criteria

The intent of screening the hazards is to help prioritize which hazard creates the greatest concern to the BDVWA. The process that was implemented is logical and can be universally applied.

A list of the natural hazards to consider was obtained from Federal Emergency Management Agency's (FEMA) State and Local Mitigation Planning How-to Guide: Understanding Your Risks (FEMA 386-1), and guidance from the American Water Works Association. The Agency's Planning Team reviewed each hazard on the list, using their experience with the hazards, and the following conclusions were drawn.

Natural hazards considered by the Agency's Planning Team include the following:

- Earthquake
- Flash Flooding/Mudslides/Landslides
- Terrorist Events
- Wildfire
- Freezing Events
- Power Failure
- Windstorms
- Drought
- Long term
- Volcanoes

The following natural hazards were considered not to affect or be a risk to the Agency by the Planning Team:

- Wildfire
- Windstorms
- Volcanoes
- Drought

4.1.2 Hazard Assessment Matrix

For the 2014 HMP the BDVWA is utilizing a non-numerical ranking system for the hazard screening process. This process consists of generating a non-numerical ranking (similar to high, medium, and low) rating for the probability and impact of each screened hazard. For each of the Agency's screened hazards:

- For **Probability**, the rating options are: Highly Likely, or Somewhat Likely
- For **Impact**, the rating options are: Catastrophic, Critical, or Limited

Table 2:

The screening assessment matrix is used for the Agency's hazards. The hazards have been placed in the appropriate/corresponding box/cell of the corresponding "Hazard Matrix" based on the Planning Team's experience. A subset of this group of hazards is used for the prioritization of the hazards in the following section.

Table 1: Screening Assessment Matrix

<i>Probability</i>	<i>Impact</i>			
		Catastrophic	Critical	Limited
	Highly Likely	Earthquake Flash flooding Mudslides	Freezing Power failure	Long-term Drought
	Likely	Terrorist Event		
	Somewhat Likely		Wind storms	Wildfires Volcanoes

4.1.3 Hazard Prioritization

Using the hazard screening criteria and assessment matrix discussed in the previous two sections, the Agency's Planning Team identified the following two hazards to be the most likely to affect the Agency:

1. **Earthquake:** There are many faults running through the BDVWA's service area. The 1992 Landers earthquake caused catastrophic damage to the Agency's distribution system, wells, and reservoirs. FEMA replaced portion of the pipelines after the 1992 Landers Earthquake. The local faults could potentially damage 100% of the Agency's critical facilities.
2. **Flash Flooding, Mudslides/Landslides:** Flash flooding is very common in the San Bernardino County Deserts, and happens almost yearly. The last event of flooding was in 2013. The flash flooding was very heavy. Before the 2013 event there was flooding in 2011. These events uncover pipelines in the dirt roads throughout the distribution system. When San Bernardino County Road Department comes in after the flooding to re-cut the dirt roads, the heavy equipment and graders uncover the pipelines, sometimes taking the stem off the "gate-valve," and other times scrape the tops of the pipeline which leaves them exposed and vulnerable to damage. As A/C pipe ages, to become very brittle and tends to rupture when moved or disturbed. Once a hole develops in a section of pipe, the pipe will split requiring the entire section of pipe to be replaced.
3. **Freezing Events:** The temperature range in the Morongo Basin is quite extreme. Temperatures range from a low of 20 degrees in the winter to 115 degrees in the summer months. The BDVWA had a major freezing event during the winter of 2007, 2010 and 2013, which froze water in the pipe coming out of a wellhead. Freezing this pipe can cause damage to the pump motor and rupture the pipe.
4. **Terrorist Event:** The largest Marine Base in the world is located within 5 miles of the BDVWA's eastern boundary. A major terrorist event at the Marine Base could have a negative effect on the water supply or damage to the infrastructure of the Agency, leaving the Agency with no power and no water in the system due to ruptured pipelines.
5. **Power Failure:** Power failure that is long lasting will affect the delivery of water from the wells that feed the water system. BDVWA pumps ground water from the underground aquifer into the distribution system as potable water. The water is chlorinated for disinfection before distribution.

The Agency has no treatment systems in place. The water treatment is not needed, as the groundwater in the area meets or exceeds the Federal and State of California regulations for potable drinking water. However, without power from the local utility, the potable water in the reservoirs would be exhausted within 3 to 5 days in the winter months, and two days in the summer months.

Table 3

This table presents the summary results of prioritizing each hazard based on the level of risk. The “red-shaded” boxes are the top ranked hazards. As can be seen from the table, the hazards in the “red-shaded” boxes are the BDVWA’s priority (or high profile) hazards, while the hazards in the “white” boxes are the less critical/important hazards for the Agency

Table: 2 Hazard Prioritization Matrixes

<i>Probability</i>	<i>Impact</i>			
		Catastrophic	Critical	Limited
	Highly Likely	Earthquake Flash Flooding	Freezing	
	Likely	Power Failure		
	Somewhat Likely		Terrorist Event	Volcanoes Drought Wind Storms

The three highest profile hazards for the BDVWA are earthquake and flash flooding and power failure. While other hazards are profiled in the following sections for completeness, the Agency’s priority and focus for the mitigation projects will be for only the two high profile hazards.

4.2 Hazard Profile

Summarizing Risk

Probability: **Highly Likely**

Impact: **Critical**

4.2.1 Earthquake Hazard

Table 3: Hazard Prioritization Matrix (Earthquake)

<i>Probability</i>	<i>Impact</i>			
		Catastrophic	Critical	Limited
	Highly Likely	Earthquake		
	Likely			
	Somewhat Likely			

The following section describes the hazards and then details the historical events associated with this hazard for the Bighorn Desert View Water Agency.

General Definition: An earthquake is a sudden, rapid shaking of the Earth caused by the breaking and shifting of rock beneath the Earth's surface. For hundreds of millions of years, the forces of plate tectonics have shaped the Earth as the huge plates that form the Earth's surface move slowly over, under, and past each other. Sometimes the movement is gradual. At other times, the plates are locked together, unable to release the accumulating energy. When the accumulated energy grows strong enough, the plates break free causing the ground to shake. Most earthquakes occur at the boundaries where the plates meet. However, some earthquakes occur in the middle of plates.

Ground shaking from earthquakes can collapse buildings and bridges, disrupt gas, electric, water utilities, and phone service and sometimes trigger landslides, avalanches, flash floods, fires, and huge, destructive ocean waves (tsunamis). Buildings with foundations resting on unconsolidated landfill and other unstable soil, and trailers and homes not tied to their foundations are at risk because they can be shaken off their mountings during an earthquake. When an earthquake occurs in a populated area, it may cause deaths and injuries and extensive property damage.

Earthquakes strike suddenly, without warning. Earthquakes can occur at any time of the year and at any time of the day or night. On a yearly basis, 70 to 75 damaging earthquakes occur throughout the world. Estimates of losses from a future earthquake in the United States approach \$200 billion.

There are 45 states and territories in the United States at moderate to very high risk from earthquakes, and they are located in every region of the country. California experiences the most frequent damaging earthquakes; however, Alaska experiences the greatest number of large

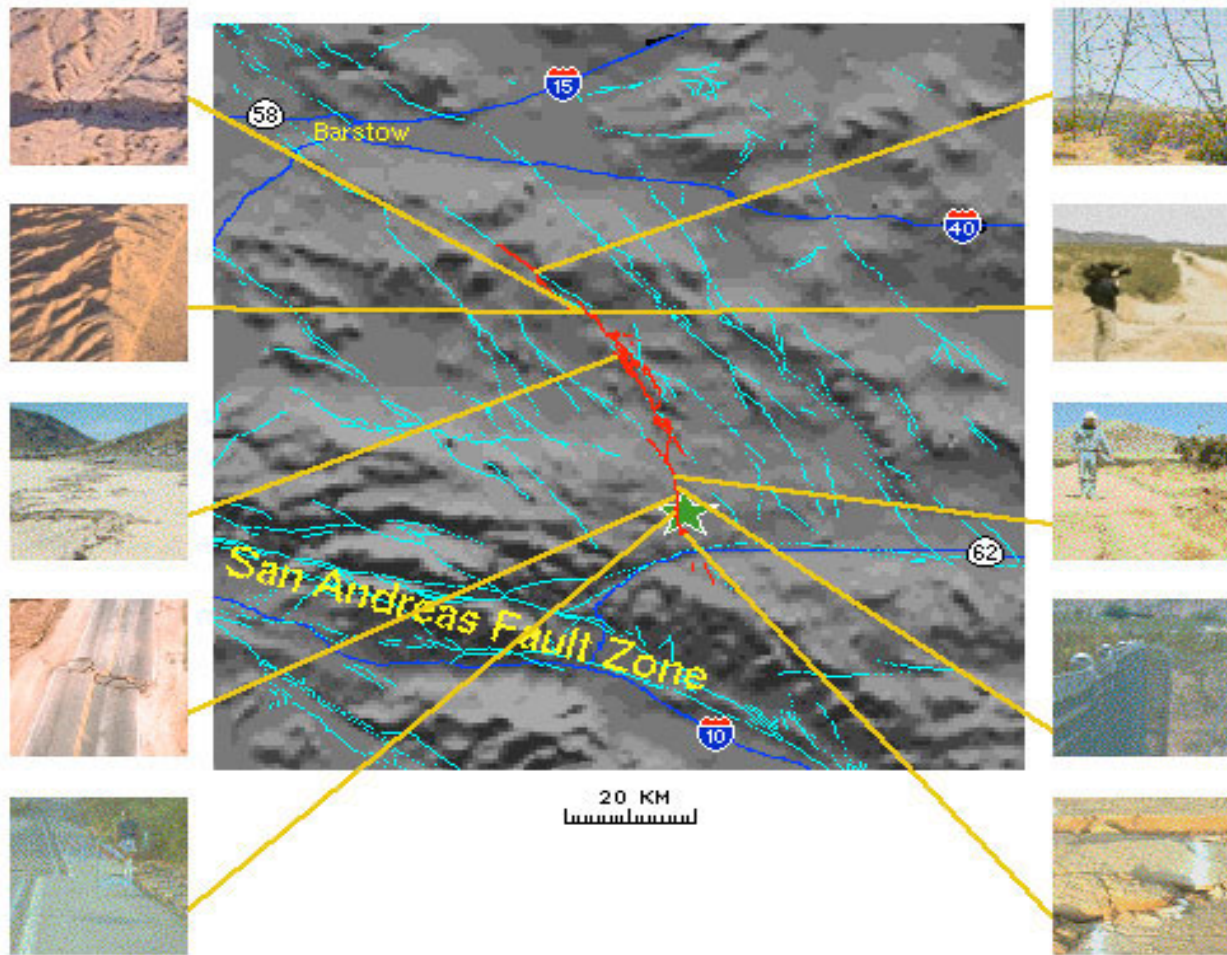
earthquakes - most located in uninhabited areas. The Landers Fault is ranked in the top 10 most likely faults to cause major damage in the U.S.

Description: There are several earthquake faults located within the BDVWA's service area.

While there have been many earthquakes in and around the Agency's service area, only one earthquake has actually caused major damage to the Agency's facilities. In 1992, the Landers, Big Bear earthquakes destroyed above ground reservoirs, approximately 75 miles of pipelines in the distribution system, and damaged several groundwater wells. The epicenter of the 1992 Landers earthquake was within the service boundaries of BDVWA.

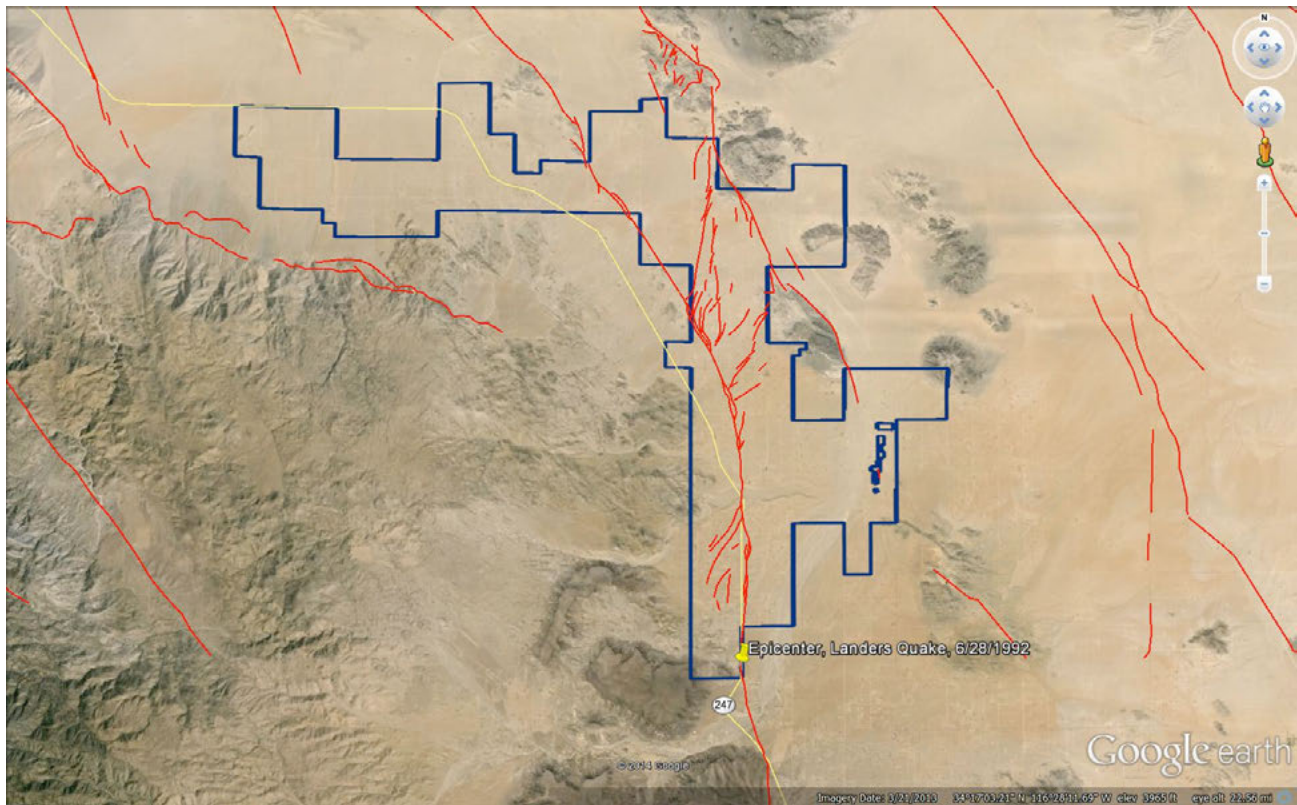
A source for the earthquake profile was a report that describes a new earthquake rupture forecast for California developed by the 2007 Working Group on California Earthquake Probabilities (WGCEP 2007). The Earthquake Working Group was organized in September 2005, by the U.S. Geological Survey (USGS), the California Geological Survey (CGS), and the Southern California Earthquake Center (SCEC) to better understand the locations of faults in California. The group produced a revised, time independent forecast for California for the National Seismic Hazard Maps.

Figure 1: Earthquake Fault Map



Red line is the 1992 Landers Earthquake and Rupture Line. Faults that ruptured in the Landers Earthquake are the Johnson Valley, Homestead Valley, Emerson and Camp Rock

Figure 2: BDVWA's Boundaries with Fault lines



Main fault in picture is the Johnson Valley Fault

Figure: 3 Historic California Earthquakes:

<i>Earthquake Name</i>	<i>Date of Earthquake</i>	<i>Magnitude of Quake</i>	<i>Damage Description</i>
<i>Wrightwood Earthquake</i>	<i>Dec. 8, 1812</i>	<i>7.5</i>	<i>40 deaths.</i>
<i>Cajon Pass</i>	<i>July 22, 1899</i>	<i>5.7</i>	<i>Landslides, heavy damage to buildings in San Bernardino. No deaths.</i>
<i>San Jacinto</i>	<i>Dec. 25 1899</i>	<i>6.5</i>	<i>San Jacinto & Hemet had severe damage. Six deaths. Chimneys thrown down and walls cracked in Riverside.</i>
<i>Elsinore</i>	<i>May 15, 1910</i>	<i>6</i>	<i>Chimney's toppled.</i>
<i>San Jacinto</i>	<i>April 21, 1918</i>	<i>6.8</i>	<i>Most damage in San Jacinto and Hemet. Several injuries, one death. Landslides, cracks in ground, roads, and canals.</i>
<i>North San Jacinto</i>	<i>July 22, 1923</i>	<i>6.3</i>	<i>Chimney's toppled, broken windows, 2 critical injuries, no deaths. San Bernardino hospital and Hall of Records badly damaged.</i>
<i>San Jacinto Terwilliger</i>	<i>March 25, 1937</i>	<i>6.0</i>	<i>Few chimneys damaged, some plaster cracked, a few windows broken. Minimal damage mostly due to sparsely populated area.</i>
<i>Fish Creek Mountains</i>	<i>Oct 21, 1942</i>	<i>6.6</i>	<i>Little damage due to remote location, felt over a large area. Rockslides</i>
<i>Desert Hot Springs</i>	<i>Dec 4, 1948</i>	<i>6.0</i>	<i>Widespread damage. In Los Angeles, a 5,800 gallon water tank split, water pipes broken in Pasadena, at UCLA, and San Diego. Walls cracked in Escondido and Corona.</i>
<i>1954 San Jacinto</i>	<i>March 19, 1954</i>	<i>6.4</i>	<i>Minor widespread damage. Parts of San Bernardino experienced a temporary blackout.</i>
<i>Borrego Mountain</i>	<i>April 8, 1968</i>	<i>6.5</i>	<i>Largest most damaging earthquake in 16 years. Damage across most of Southern California. Landslides, huge boulders thrown.</i>
<i>Lytle Creek</i>	<i>Sept. 12, 1970</i>	<i>5.2</i>	<i>Landslides, rock falls, 4 injuries. San Bernardino radio station knocked off the air.</i>
<i>White Wash</i>	<i>Feb 25, 1980</i>	<i>5.5</i>	<i>Landslides. Windows and dishes broken. Fire broke out in Rancho Mirage due to a gas line rupture in an empty home.</i>
<i>1988 Upland and 1990 Upland</i>	<i>June 26, 1988 and Feb 28, 1990</i>	<i>4.7 and 5.4 respectively</i>	<i>Landslides, damage to San Antonio Dam, 38 minor injuries. Public-\$4.87M; business-\$4.7M; private-\$2.4M; total-\$12M; 501 homes and 115 businesses damaged or destroyed.</i>
<i>North Palm Springs</i>	<i>July 8, 1986</i>	<i>5.6</i>	<i>29 injuries. Destruction or damage of 51 homes. Landslides. Damage over \$4M.</i>
<i>Joshua Tree</i>	<i>April 22, 1992</i>	<i>6.1</i>	<i>Minor injuries. Near Landers</i>
<i>2 separate earthquakes: Landers and Big Bear</i>	<i>June 28, 1992</i>	<i>Landers 7.3 Big Bear - 6.4</i>	<i>Landslides in San Bernardino Mountains. Near Landers. Substantial damage in Big Bear and Landers. Landers earthquake was the largest earthquake in Southern California in 40 years. Earthquake ruptured 5 separate faults. Total rupture length was 53 miles. One death, 402 injuries. Private-\$47.5M; business-\$17M; public-\$26.6M; total-\$91M; 77 homes destroyed, 4,369 homes damaged, 139 businesses damaged.</i>
<i>Hector Mine</i>	<i>Oct. 16, 1999</i>	<i>7.1</i>	<i>Very remote location. Ruptured in both directions from the epicenter. Near BDVWA</i>

Table 4: Earthquake History

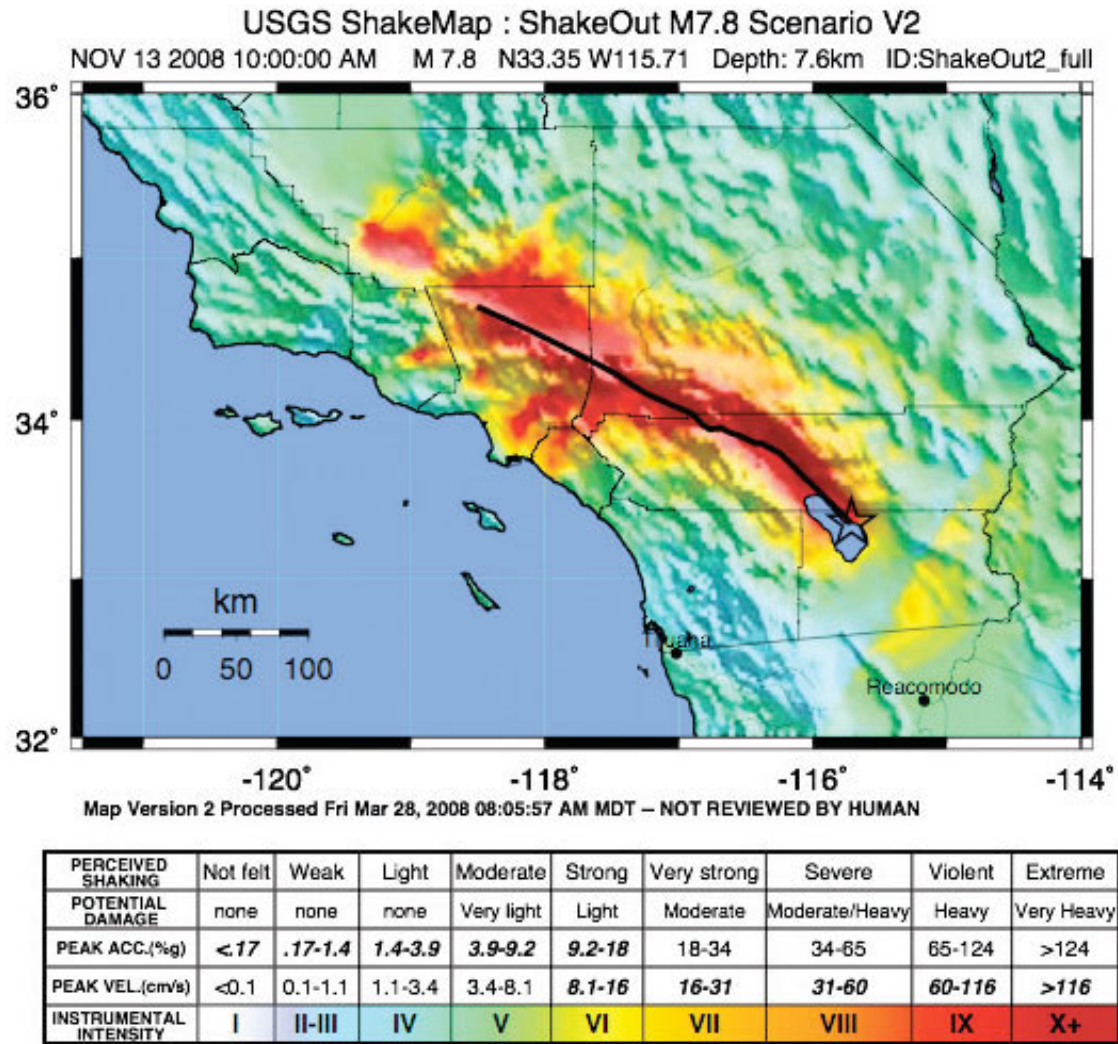


Table 4 presents the earthquake profile findings for the BDVWA service area. The ground motion findings indicate the peak ground acceleration (PGA) within the Agency’s service area could potentially exceed 65 percent. Typically, any acceleration over 3 percent is considered excessive. Also, a map shown in **Table 5** illustrates that there is a 97% probability that Southern California will have a 7.6 scale earthquake within the next 30 years, per USGS.

Since 2005, the BDVWA has had no damages to facilities resulting from earthquakes. Table 8 summarizes the occurrences, impact, and costs of this hazard.

Summarizing Risk

Probability: **Highly Likely**
Magnitude/Severity: **Catastrophic**

1992 Landers Earthquake, Bighorn Desert View Water Agency Reservoir's



1992 Landers Earthquake, Bighorn Reservoir, with Elephant footing of the bottom of the tank



Roadway after Earthquake Repair in 1992



4.2.2 Freezing

Table 5

<i>Probability</i>	<i>Impact Freezing Events</i>			
		Catastrophic	Critical	Limited
	Highly Likely			
	Likely	Freezing		
	Somewhat Likely			

Freezing Events: The temperature range in the Morongo Basin is quite extreme. Temperatures range from a low of 20 degrees in the winter to a high of 115 degrees in the summer months.

The BDVWA had a major freezing event during the winter of 2010 and 2013, which froze water in the pipe coming out of a wellhead. Freezing can cause damage to the pump motor and rupture the pipe.

Mitigation:

Purchase pipeline heaters to keep the water in the wellhead and output pipeline from freezing.

4.2.3 Power Failure

Table 6

Probability	<i>Impact Power Failure</i>			
		Catastrophic	Critical	Limited
	Highly Likely	Power Failure		
	Likely			
	Somewhat Likely			

Power Failure Definition: Long-term power failures affect the delivery of water from the wells that feed the water system. BDVWA pumps ground water from the underground aquifer into the distribution system as potable water and has no treatment systems in place. The water treatment is not needed as the groundwater in the area meets or exceeds the Federal and State of California regulations for potable drinking water. However, without power from the local utility, the potable water in the reservoirs would be exhausted within 3 to 5 days in the winter months and two days in the summer months.

Mitigation:

BDVWA will need to purchase generators for back-up power to be able to power up wells and booster station in the event of a long-term power failure.

Generator sizing:

See attachment “B”

4.2.4 Long Term Drought Hazard

The following section describes the hazard and then details the historical events associated with this hazard for the Bighorn Desert View Water Agency.

Table 7: Hazard Prioritization Matrix (Drought)

Probability	Impact Long Term Drought			
		Catastrophic	Critical	Limited
	Highly Likely		Drought	
	Likely			
	Somewhat Likely			

General Definition: A drought is a period of drier-than-normal conditions that results in water-related problems. Precipitation (rain or snow) falls in uneven patterns across the country. When no rain or only a small amount of rainfalls, soils can dry out and plants can die. When rainfall is less than normal for several weeks, months, or years, the flow of streams and rivers declines, water levels in lakes and reservoirs fall, and the depth to water in wells increases. If dry weather persists and water supply problems develop, the dry period can become a drought. The first evidence of drought usually is seen in records of rainfall. Within a short period of time, the amount of moisture in soils can begin to decrease. The effects of a drought on flow in streams and rivers or on water levels in lakes and reservoirs may not be noticed for several weeks or months. Water levels in wells may not reflect a shortage of rainfall for a year or more after the drought begins. A period of below-normal rainfall does not necessarily result in drought conditions. Some areas of the United States are more likely to have droughts than other areas. In humid or wet regions, a drought of a few weeks is quickly reflected in a decrease in soil moisture and in declining flow in streams. In arid or dry, regions, people rely on groundwater and water in reservoirs to supply their needs. They are protected from short-term droughts but may have severe problems during long dry periods because they may have no other water source if wells or reservoirs go dry.

Description: Because the Agency is in the business of supplying the public with potable water, drought can be a disastrous hazard to the any water provider. A drought is defined as a series of years with less than average rainfall and typically lasts seven years. The BDVWA is currently experiencing a drought that started in 1998.

Southern California has a history of severe droughts. There have been six severe extended droughts within the last 400 years (the most severe drought lasted from approximately 1650 to 1700). The U.S. Weather Service is forecasting 20 more years of below average rainfall.

The 2009 California Water Plan states that Water Year 2009 was the third consecutive dry year for the State. Because of losses caused by this drought, the U.S. Department of Agriculture in September designated all of the counties within the San Joaquin River, Tulare Lake, and Central Coast Hydrologic Regions as either Primary Natural Disaster Areas or Natural Disaster Areas (statewide total was 21 counties and 29 counties, respectively). The State entered the 2009-2010 Water Year with its key supply reservoirs at only 68 percent of average.

The fundamental drought impact to water agencies is a reduction in available water supplies. As a result, historic occurrences of drought have encouraged water agencies to review the reliability of their water supplies and to initiate planning programs addressing identified needs for improvement. In addition, public and media interest in droughts fosters heightened awareness of water supply reliability issues in the Legislature. More than 50 drought-related legislative proposals were introduced during the severe but brief 1976-77 drought. About one-third of these eventually became law. Similar activity on drought-related legislative proposals was observed during the 1987-92 droughts. One of the most significant pieces of legislation was the 1991 amendment to the Urban Water Management and Planning Act, in effect since 1983, which requires water suppliers to estimate available water supplies at the end of one, two, and three years, and to develop contingency plans for shortages of up to 50 percent. BDVWA has a Water Master Plan that was completed and adopted by the Board of Directors in 2007. Since BDVWA is a small agency BDVWA is included in the Mojave Integrated Regional Water Master Plan (IRWMP). Mojave and the agencies serving the local area, presents water supply to demand comparisons through 2030. The 2014 IRWMP was completed by June 30, 2014 and will update any demand and supplies documented in any other plans and will also require all water agencies to reduce their water demand by 20 percent by the year 2020. The plan also presents water supply to demand comparisons for single dry to multiple dry year scenarios. The comparisons show that the Agency has adequate supply through 2030.

If the current drought extends for the period that the U.S. Weather Service is currently forecasting, the Agency will have difficulty in meeting its water supply demands without additional supplies. The Bunker Hill groundwater basin is experiencing the lowest groundwater levels in 40 years and is currently in overdraft. If this condition continues, the Agency will need to purchase more State Project Water to supply the demand for the customer base. Table 9 summarizes the occurrences, impact, and costs of this hazard.

Table 8: State of California Drought History

Date of Event	Type of Damage	Amount of Damage	Statewide or Local
1976-1977	Annual statewide runoff dropped 21% below average.	1976-\$888.5M; 1977-\$1.775M; TOTAL-\$2.7B	Various
1987-1992	Annual statewide runoff dropped 27% below average. Twenty-three counties had declared local drought emergencies by the end of 1991.	SWP terminated services to agricultural contractors and provided only 10% of requested urban deliveries. Appropriate \$34.8M from the General Fund to the Department for financial assistance to local water suppliers for emergency drought-relief water supply, technical water conservation assistance, and operation of the Department's Drought Information Center.	Various
1998-2000	San Bernardino National Forest - dead and dying trees, bark beetle infestations.	\$12,100 crop damage.	Various
2002 - Current	Ongoing drought of historical proportions	Food crop damage - ongoing, in the billions Wildlife damage – ongoing Lost revenue to water agencies though-out the State - ongoing	Statewide

4.2.5 Flash Flooding Hazard

Table 9: Hazard Prioritization Matrix (Flash Flooding)

	<i>Impact Flash Flooding</i>			
	Highly Likely	Catastrophic	Critical	Limited
	Likely	Flash Flooding		
	Somewhat Likely			

The following section describes the hazard and then details the historical events associated with this hazard for the Bighorn-Desert View Water Agency.

General Definition:

An unusually heavy rain in a concentrated area, over a short or long period of time

Description:

Flash flooding can occur in the summer as well as the winter. In summer there is the Monsoon Season in June and July, and sometimes in August. During Monsoon heavy rainstorms that form in the Gulf of Mexico move into the area of Arizona, Texas, and the Deserts of California. These storms bring powerful winds and heavy rains within a short period of time and can dump two to five inches of rain within a half-hour period. There is no flood control infrastructure in this area of San Bernardino County, California. Most roads in the BDVWA service area are unpaved dirt roads.

FEMA Flood Inundation Mapping: There is no FEMA Flood Inundation Map for the community of Landers and the surrounding community at the time of this writing.

No Flood Map Available

2014 Flashflood damage to BDVWA Pipeline



2014 Flash Flooding in BDVWA Service Area; after pipeline Repair





2014 Flashflooding in BDVWA



2014 Flashflooding in BDVWA Service Area

Summarizing Risk

Probability: **Highly Likely**

Magnitude/Severity: **Limited**

4.2.6 Flooding Hazard

Table 10: Hazard Prioritization Matrix (Flooding)

Probability	Impact			
		Catastrophic	Critical	Limited
	Highly Likely			
	Likely			Flooding
	Somewhat Likely			

The following section describes the hazard and then details the historical events associated with this hazard for the Bighorn-Desert View Water Agency.

General Definition: A flood, as defined by the National Flood Insurance Program is: A general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties.

The collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood.”

Floods can be slow or fast rising but generally develop over a period of days. Mitigation includes any activities that prevent an emergency, reduce the chance of an emergency happening, or lessen the damaging effects of unavoidable emergencies. Flooding tends to occur in the summer and early fall because of the Monsoon and is typified by increased humidity and high summer temperatures. The FEMA standard for flooding is the “100-year flood,” which is used as a benchmark to establish a standard control in communities throughout the country. Thus, the 100-year flood is also referred to as the “regulatory” or “base” flood. Actually, there is little difference between a 100-year flood and what is known as the 10-year flood. Both terms are really statements of probability that scientists and engineers use to describe how one flood compares to others that are likely to occur. In fact, the 500-year flood and the 10-year flood are only a foot apart on flood elevation - which means that the elevation of the 100-year flood falls somewhere in between. The term 100-year flood is often incorrectly used and can be misleading. It does not mean that only one flood of that size will occur every 100 years. What it actually means is that there is a one percent chance of a flood of that intensity and elevation happening in any given year. In other words, it is the flood elevation that has a one percent chance of being equaled or exceeded each year. And it could occur more than once in a relatively short period of time. (By comparison, the 10-year flood means that there is a ten percent chance for a flood of its intensity and elevation to happen in any given year.)¹

Figure 2: Flood Map

Due to the low population of this area, there are no FEMA Flood maps for this area of San Bernardino County. San Bernardino County Flood Control maintains no information on flooding events in this area.

In recent history, there have been 17 floods, storms, and flash floods in the Agency's general service area. Table 11 summarizes the occurrences, impact, and costs of this hazard.

No Flood Map Available

Table 11: California Historical Flooding

Date of event	Type of Damage	Amount of Damage	Statewide or Local
Dec-55	74 deaths	\$200 M	State wide
Apr-58	13 deaths, several injuries	\$20 M, plus \$4 M agricultural	State wide
Fall 1965	Abnormally heavy and continuous rainfall.	Public - \$5.8 M; private \$16.0 M; Total - \$21.8 M	Riverside, San Bernardino, Ventura, San Diego Counties
Winter 1966	Abnormally heavy and continuous rainfall.	Public - \$14.6 M; private \$14 M; Total - \$28.7 M	Various
Winter 1969	Storms, flooding, 47 dead, 161 injured. An alluvial flood and debris flow on Deer Creek in San Bernardino County killed 11 people.	Public - \$185 M, Private - \$115 M; Total - \$300 M	Various
Sep-76	High winds, heavy rains, and flooding	Public - \$65.7 M; private - \$54.3 M; Total - \$120 M	Imperial, Riverside, San Bernardino, San Diego Counties
Winter 1978	14 dead, at least 21 injured	Public - \$73 M; private - \$44 M; Total - \$117 M; 2,538 homes destroyed	Various
Jul-79		Public - \$3.0 M; private - \$22.9 M; Total - \$25.9 M	Riverside
Feb-80	Rain, wind, mud slides, and flooding		Various
Winter 82-83	Heavy rains, high winds, flooding, levee breaks	Public - \$151 M; private - \$159 M; agricultural - \$214 M; Total - \$524 M	Various
Aug-83	High winds, storms, and flooding; 3 deaths	Public - \$10 M, private - \$15 M, agricultural - \$10 M; Total - \$35 M	Inyo, Riverside, San Bernardino Counties
Feb-92	Flooding, rainstorms, mud slides; 5 deaths	Public - \$95 M; private - \$18.5 M; business - \$8.5 M, agricultural - \$1.5 M; Total - 123 M	Los Angeles, Ventura, Kern, Orange, San Bernardino Counties
Dec-92	Snow, rain, and high winds, 20 deaths, 10 injuries	Total - \$600 M	Various
Jan-95	11 deaths	Public - \$299.6 M; individual - \$128.4 M; businesses - \$58.4 M; highways - \$158 M; ag - \$97 M; Total - \$741.4 M; damage to homes: major-1,883; minor-4, 179; destroyed-370.	Various
Feb-95	17 deaths	Public - \$190.6 M; individual - \$122.4 M; business - \$46.9 M; highways - \$79 M; ag -\$651.6 M; Total - approximately \$1.1 billion; damage to homes: major-1,322; minor-2,299; destroyed-267	57 counties (all except Del Norte)
Feb-98	17 deaths	\$550 M	Various
Dec-03	15 deaths	\$750 M	San Bernardino – Waterman Canyon from Lytle Creek River and Highland.

4.3 Inventory Assets

This section provides an overview of the assets in the Bighorn-Desert View Water Agency and the hazards to which these facilities are susceptible.

4.3.1 Population

The total population of Bighorn-Desert View Water Agency is currently approximately 3,042

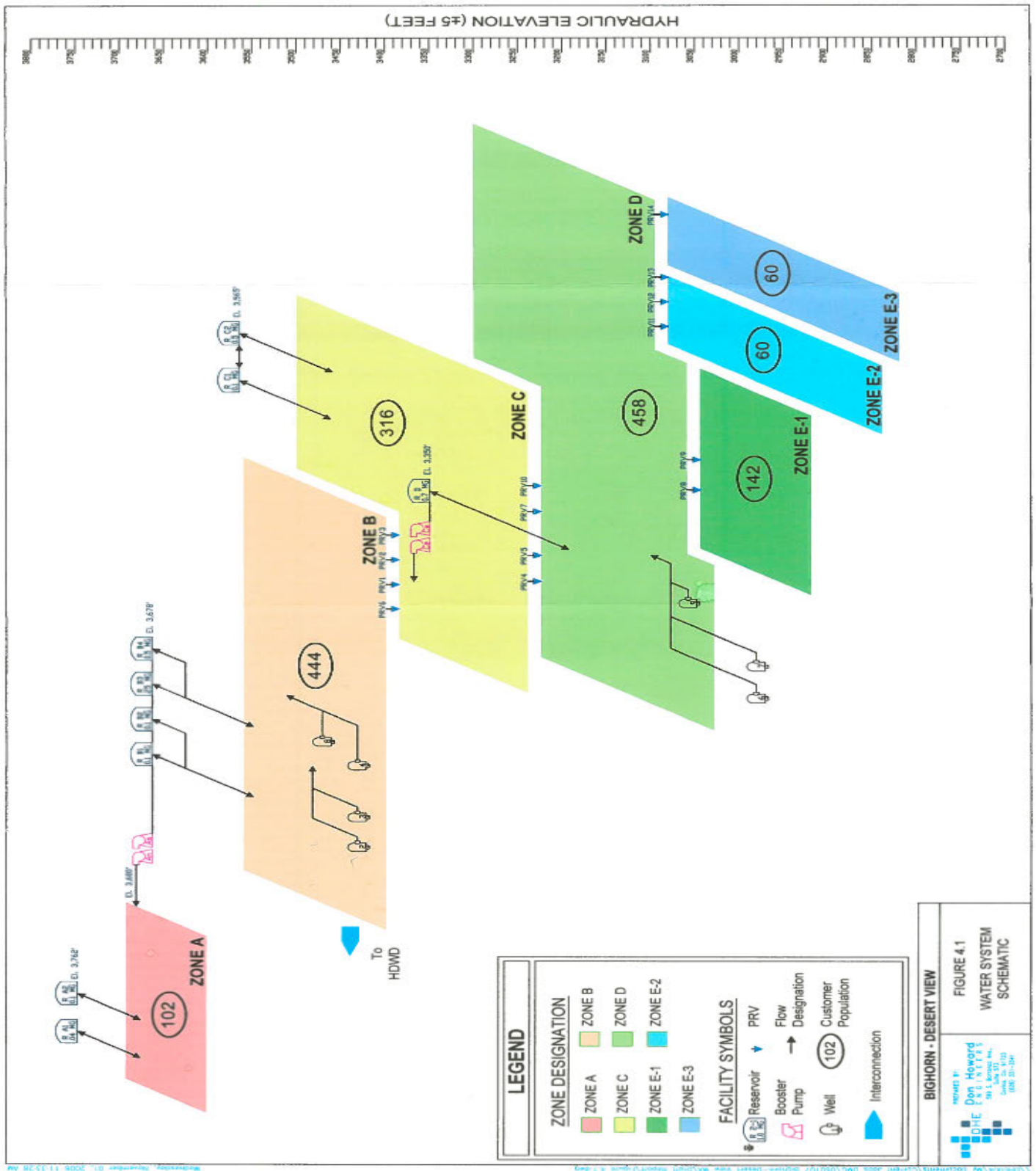
4.3.2 Buildings

As of August 2014, the BDVWA operates and maintains the following facilities:

- 7 pressure zones
- Existing reservoirs with a total storage capacity of 2,402,000 million gallons
- Existing wells with a total pumping capacity of 3,548,160 gallons per day
- The Agency currently has no water Treatment Facilities
- Approximately 100 miles of distribution and transmission facilities (sizes 4 inches to 8 inches in diameter).

Figure 4 is a map of the Agency's facilities and how the facilities flow to provide portable drinking water to the residents of the area.

Figure 4 Pumping System Map with facilities location, wells, reservoir:



Bighorn Desert View Water Agency delivers potable water service to Landers, Flamingo Heights, and Johnson Valley. BDVWA currently serves more than 6,800 residents through approximately 1,850 connections.

Water demands in the service area vary throughout the year with maximum daily summer demands estimated at 1.9 Acre Feet or 0.63 MG, in July. The BDVWA currently has one source of water, ground water, pumped from the underground aquifer. There is an Intertie with Hi-Desert Water District that could be utilized in an emergency.

4.3.3 Critical Facility List

This section provides a listing of the critical facilities in Bighorn-Desert View Water Agency. The primary contact for all the BDVWA facilities is the following:

Primary Contact:

Marina West, General Manager
Phone: 760-364-2315
bdvwd2@mindspring.com

Because the Agency's exact facilities location is extremely sensitive, especially due to increased concerns for National Security, only general locations have been included in this section.

Critical Facilities:

As deemed by the Planning Team, all critical facilities are listed on the following pages.

To minimize any hazard mitigation potential from the Agency's newly constructed facilities, all future reservoirs will be constructed adequately for existing seismic conditions, which includes a swivel joint for the inlet/outlet to allow movement and anchoring the tank down with bolts similar to a large concrete footing. In addition, all buildings will meet the current seismic building codes.

Table 12: Critical Facilities List

Plants A-1 and A-2

Two reservoirs

Size: 35,000 SF

Facility Description: Water Storage

Bighorn and Hi-Desert Water Intertie

Water Plant

Size: 2,000 SF

Facility Description: Location the BDVWA can deliver water to Hi-Desert Water or Hi-Desert Water can supply water to BDVWA. Intertying both agencies' water supplies together

Wells 2 and 3

Size: 25,000 SF

Facility Description: two water wells at this site

Well 4**Water well and Water Hauling Station**

Size: 80,000 SF

Facility Description: Water Well and Water Hauling Station

Plant “C”**Water Reservoir**

Size: 10,000 SF

Facility Description: Water Storage Tank C-1 and C-2

Well Site 10**Water Plant**

Size: 25,000 SF

Facility Description: Water Well

Well 9**Water Plant**

Size: 10,000 SF

Facility Description: Water Well

Well 6 and 7**Water Plant**

Size: 25,000 SF

Facility Description: Two Water wells

Water Well 3-A**Water Plant**

Size: 10,000 SF

Facility Description: Water well, being turned over to BDVWA by the County of San Bernardino

Water Well and Reservoir**Water Plant**

Size: 120,000 SF

Facility Description: Water Storage and water well, being turned over to BDVWA from County of San Bernardino

Well 8**Water Plant**

Size: 100,000 SF

Facility Description: Water Well

“C” Tanks, Reservoirs

Water Reservoir

Size: 100,000 SF

Facility Description: Water Storage

BDVWA Yard

Water Plant

Size: 120,000 SF

Facility Description: Water Well, Office and Maintenance Buildings, four “B” Water Reservoir 1, 2, and 3

“D” Tanks, Reservoirs

Size: 80,000 SF

Facility Description: Water Storage, warehouse and Board Room

Pipeline System locations:

Chaparral Street

Water pipeline

Size: 6 and 8 inch

Length: 200 feet

Butterfly between Tahoe and Cambria Streets

Water Pipeline

Size: 6-inch AC pipe

Length: 500 feet

Starlight and Tanger

Water Pipeline

Size: 8-inch AC pipe

Length: 5,000 feet

Mira Street between Old Woman Springs and Geronimo

Water Pipeline

Size: 8-inch AC pipe

Length: 5,000 feet

Lodi Street, between Delgada and BDVWA Boundary

Water Pipeline

Size: 6-inch AC pipe

Length: 200 feet

Hopi Street

Water pipeline

Size: 6-inch AC

Length: 100 feet

Marmac and Wamego Streets

Water Pipeline

Size: 6-inch AC

Length: 1,200

Oasis Trail, between Novato Road and New Dixie Line Road

Water Pipeline

Size: 8-inch AC

Length: 200 feet

Geronimo Trail, between Desert View and Novato

Water pipeline

Size: 6-inch AC

Length: 200 feet

Acoma, South of Desert View

Water Pipeline

Size: 4-inch

Length: 200 feet

Acoma Trail, Between Navato Road and Desideria

Water Pipeline

Size: 8-inch AC

Length: 2,000 feet

All areas between BDVWA Boundary on the east and North, Geronimo Trail on the West and New Dixie Line on the South

Water Pipeline

Size: 8-inch AC

Length: 8,500 feet

Cambia Avenue Between Gavilan Road and Cubero Road

Water pipeline

Size: 8-inch AC

Length: 1,000 feet

Fortuna Avenue and Camulos

Water Pipeline

Size: 6-inch

Length: 500 feet

Linn Road, between Acoma Trail and Cherokee Trail

Water Pipeline

Size: 6-inch AC

Length: 1,500 feet

Lum Lane on the north, Olga Lane on the West, Dusty Mile Road on the East and Encantado on the South

Water Pipeline

Size: 8-inch and 6-inch

Length: 2.1 miles

Kickapoo Trail, between Happy Trail and Shannon Road**Water Pipeline**

Size: 6-inch AC

Length: 200 feet

Lin Road, between Acoma Trail and Deer Road**Water Pipeline**

Size: 8-Inch AC

Length: 200 feet

Ming Road, between Dusty Mile and Jemez Trail**Water Pipeline**

Size: 6-inch AC

Length: 500 feet

Dusty Mile between By Pass Road and Shannon Road**Water Pipeline**

Size: 8-inch

Length: 1,000 feet

Shawnee Trail, between Mesquite and Ming Road**Water Pipeline**

Size: 8-inch

Length: 1,000 feet

4.4 Vulnerability Assessment

The team reviewed pictures of each of the Agency's facilities. The pictures were overlaid on a map of the area, the Team Members each having a long history in the area. The Team members have the knowledge of disasters in and around the community and have a vast knowledge of Emergency Management. The Team members have the knowledge to assess the system and give valuable input into the assessment and vulnerabilities to the system.

4.4.1 Methodology

Ranking the facilities by their importance to the Agency's production of water and using this ranking to develop a percentage of importance for each facility, estimated the annual economic impacts. This percentage was applied to the projected 2013-2014 annual water revenue for the Agency \$444,000.00 to obtain the annual economic impact for each facility.

4.4.2 Dam Inundation Vulnerability Analysis

Population: None

Critical Facilities: There are no earthen or concrete dams or any other type of dam in the BDVWA Service area.

4.4.3 Long Term Drought Vulnerability Analysis

Population: Approximately 100% of the Agency's population is vulnerable.

Critical Facilities: Approximately 100% of the BDVWA's critical facilities are vulnerable.

The specific critical facilities vulnerable in Bighorn-Desert View Water Agency are:

All wells are critical to drought because they supply the water for the Agency. During a long-term drought, the levels in the wells become lower and therefore, more pumping is required (increasing the pumping costs) and many wells are not able to produce as much water during the peak demands. Also, since the water in the underground aquifer is dropping during a drought period, the well shaft and bowels need to be lowered to bring the pump deeper into the aquifer to produce water.

Of the critical facilities, 9 are wells. This generates the 100% of the well sites being at risk. Reservoirs and pipelines are NOT critical in a drought.

Estimated Losses: The economic loss resulting from this hazard is approximately \$20,000 a month.

The loss from damage to structures from this hazard is approximately \$0.

The BDVWA adopted Ordinance No. 11P-01, Water Conservation Plan on August 23, 2011, which, established the policy and conservation measures needed during drought conditions. Also, California Governor, Jerry Brown has declared a Water State of Emergency for the entire State, mandating water conservation by all residents.

4.4.4 Earthquake Vulnerability Analysis

Population: Approximately 100% of the BDVWA's population is vulnerable.

Critical Facilities: Approximately 100% of the BDVWA's critical facilities are vulnerable.

All facilities are vulnerable in the event of a major earthquake within the Bighorn-Desert View Water Agency Boundaries. There are many faults that affect the Agency's facilities: Landers, Johnson Valley, Homestead Valley, Emerson and Camp Rock Faults, and many more are close or run through the BDVWA boundaries, such as the Big Bear, Garlock and San Andreas Fault. If any of these faults rupture it would have a negative effect on the BDVWA's facilities.

Estimated Losses: The economic loss resulting from this hazard is approximately \$800,000. The loss from damage to structures from this hazard is approximately \$6.5 Million.

Losses are estimated assuming:

1. The projected 2014/2015 BDVWA revenue was used to estimate the lost annual revenue.
2. The BDVWA could have 6 months of lost revenue from the earthquake.

3. All the Agency's critical facilities are at risk, including 80% of the BDVWA's pipelines.
4. Without the critical facilities no revenue can be generated for the BDVWA.

The percent of Agency's population at risk: 100%

4.4.5 Flash Flooding Vulnerability Analysis

Population: Approximately 50% of the BDVWA's population is vulnerable.

Critical Facilities: Approximately 50% of the BDVWA's critical facilities are vulnerable.

4.4.6 Flooding Vulnerability Analysis

Population: Approximately 0% of the Agency's population is vulnerable.

Critical Facilities: Approximately 0% of the Agency's critical facilities are vulnerable.

The BDVWA is not a member of the National Flood Insurance Program (NFIP) and is fortunate to not have any identified Repetitive and Severe Repetitive Loss properties. However, the Town of Yucca Valley and the City of 29 Palms are members of the NFIP. The Agency does not have any flat areas that are susceptible to flooding. The Agency is susceptible to flash flooding only.

4.4.7 Wildfires Vulnerability Analysis

Population: Approximately 20% of the Agency's population is vulnerable.

Critical Facilities: Approximately 20% of the BDVWA's critical facilities are vulnerable.

Although wildfires in the desert communities are not common desert wildfires do occur. On July 9, 2006, lightning ignited natural vegetation in several locations known as Sawtooth, Water and Ridge fires and burnt two-miles into Yucca Valley. The three separate fires joined into one fire becoming the Sawtooth Fire, which destroyed over 300 structures.

4.4.8 Potential Loss Estimation

Table 13 summarizes the economic impacts on the critical facilities for the BDVWA.

Table 13: Economic Impacts on Critical Facilities for the Agency

Plant A-1 and A-2

Facility Replacement Cost: \$ 1.5 million

Estimated Economic Impact: \$2,500.00 a month in lost sales

Description of Economic Impact: loss of water sales

Bighorn/Hi Desert Intertie

Facility Replacement Cost: \$40,000

Estimated Economic Impact: \$1,500.00 a month in lost sales

Description of Economic Impact: loss of water sales

Well 2 and 3

Facility Replacement Cost: \$1.6 million

Estimated Economic Impact: \$2,500 a month in lost sales

Description of Economic Impact: loss of water sales

Well 4

Facility Replacement Cost: \$800,000

Estimated Economic Impact: \$2,800 a month in lost sales

Description of Economic Impact: loss of water sales

Plant “C”

Facility Replacement Cost: \$800,000

Estimated Economic Impact: \$2,500 a month in lost sales

Description of Economic Impact: Loss of water sales

Well Site 10

Facility Replacement Cost: \$800,000

Estimated Economic Impact: \$2,500 a month in lost sales

Description of Economic Impact: loss of water sales

Well 9

Facility Replacement Cost: \$800,000

Estimated Economic Impact: \$ 2,500 a month in lost sales

Description of Economic Impact: Loss of water sales

Well 6 and 7

Facility Replacement Cost: \$1.6 million

Estimated Economic Impact: \$5,000a month in lost sales

Description of Economic Impact: loss of water sales

Well 3-A

Facility Replacement Cost: \$800,000

Estimated Economic Impact: \$2,500 a month in lost sales

Description of Economic Impact: loss of water sales

County Well and Storage Site

Facility Replacement Cost: \$1.0 million

Estimated Economic Impact: \$3,500 a month in lost sales

Description of Economic Impact: loss of water sales

Well 8

Facility Replacement Cost: \$800,000

Estimated Economic Impact: \$2,500 a month in lost sales

Description of Economic Impact: loss of water sales

“C” Tanks, Reservoir’s

Facility Replacement Cost: \$800,000

Estimated Economic Impact: \$2,500 a month in lost sales

Description of Economic Impact: loss of water sales

“D” Tanks, Reservoir’s Storage, Board Room

Facility Replacement Cost: \$3.5 million

Estimated Economic Impact: \$4,500 a month in lost sales

Description of Economic Impact: loss of water sales

“B” Tanks, Reservoir’s Administrative office, yard, Maintenance shop, Fuel

Facility Replacement Cost: \$4.3 million

Estimated Economic Impact: \$5,500 a month in lost sales

Description of Economic Impact: loss of water sales

Chaparral Street

Facility Replacement Cost: \$ 85,000

Estimated Economic Impact: \$1,500 a month in lost sales

Description of Economic Impact: loss of water sales

Butterfly Street

Facility Replacement Cost: \$85,000

Estimated Economic Impact: \$1,500 a month in lost sales

Description of Economic Impact: loss of water sales

Starlight and Tanger

Facility Replacement Cost: \$100,000

Estimated Economic Impact: \$1,500 a month in lost sales

Description of Economic Impact: loss of water sales

Cambia Ave.

Facility Replacement Cost: \$250,000

Estimated Economic Impact: \$1,200 a month in lost sales

Description of Economic Impact: loss of water sales

Fortuna

Facility Replacement Cost: \$55,000

Estimated Economic Impact: \$1,200 a month in lost sales

Description of Economic Impact: loss of water sales

Linn Road

Facility Replacement Cost: \$80,000

Estimated Economic Impact: \$1,200 a month in lost sales

Description of Economic Impact: loss of water sales

Lum Lane

Facility Replacement Cost: \$300,000

Estimated Economic Impact: \$1,800 a month in lost sales

Description of Economic Impact: loss of water sales

Kickapoo Trail

Facility Replacement Cost: \$85,000

Estimated Economic Impact: \$1,800 a month in lost sales

Description of Economic Impact: loss of water sales

Lin Road/Dusty Mile/ Jemez Trail

Facility Replacement Cost: \$90,000

Estimated Economic Impact: \$1,800 a month in lost sales

Description of Economic Impact: loss of water sales

Ming Road/Dusty Mile/Jemez

Facility Replacement Cost: \$87,500.00

Estimated Economic Impact: \$3,609 a month in lost sales

Description of Economic Impact: loss of water sales

Dusty Mile/Pass Road/Shannon

Facility Replacement Cost: \$80,000

Estimated Economic Impact: \$1,500 a month in lost sales

Description of Economic Impact: Loss of water sales

Shawnee Trail

Facility Replacement Cost: \$80,000

Estimated Economic Impact: \$1,200 a month in lost sales

Description of Economic Impact: loss of water sales

SECTION 5: COMMUNITY CAPABILITY ASSESSMENT**5.1 Agencies and People**

Bighorn-Desert View Water Agency is located in the Southwestern section of the Mojave Desert within San Bernardino County. BDVWA serves the communities of Landers, Johnson Valley, and Flamingo Heights.

To help mitigate the potential impacts of disasters, BDVWA joined the Emergency Response Network of the Inland Empire (ERNIE), which consists of water agencies within San Bernardino and Riverside Counties. The ERNIE group of agencies coordinates mutual aid to help each agency recover from local jurisdictional issues. All ERNIE members are also members of the California Water/Wastewater Agency Response Network (CalWARN), which focuses on mutual aid within the State of California.

BDVWA employs 8 people. However, with the capabilities of ERNIE and CalWARN, the BDVWA has the potential of having hundreds of mutual aid workers at its disposal within hours of an emergency.

5.2 Existing Plans

ERNIE Emergency Operations Plan, CalWARN Emergency Operations Plan, BDVWA Emergency Response plan, Illness Injury Prevention Plan (IIPP), Mutual Aid Agreements within San Bernardino and Riverside Counties and in the state of California, and being a Government Entity (Special District, within California Law) BDVWA has the ability to access the Emergency Managers Mater Aid (EMMA) and the Emergency Management Assistance Compact (EMAC) for National Mutual Aid.

5.3 Regulations, Codes, Policies, and Ordinances

Legislation provides the Agency a safeguard for water supply and some drought hazard protection. In 1991, the amendment to the Urban Water Management and Planning Act, in effect since 1983, requires water suppliers to estimate available water supplies at the end of one, two, and three years, and to develop contingency plans for shortages of up to 50 percent.

The BDVWA has an Emergency Response Plan that is a written Response Plan detailing how the Agency will respond in the event of an emergency or disaster. The Agency must be prepared to respond to a variety of threats that require emergency actions by its employees.

Potential threats include:

- Operational incidents, such as power failure or bacteriological contamination of water associated with the BDVWA's facilities.
- Outside or inside malevolent acts, such as threatened or intentional contamination of water, intentional damage/destruction of facilities, detection of an intruder or intruder alarm, bomb threat, or suspicious mail.
- Natural disasters, such as earthquakes or floods and power failures.

Since BDVWA is a government agency operating in California, the Agency is required to follow Standard Emergency Management System (SEMS) and the National Incident Management System (NIMS).

5.4 Mitigation Programs

There has not been any past mitigation programs in place at BDVWA.

5.5 Fiscal Resources

Fiscal resources for the Agency include the following:

- Revenue from water sales
- Metering availability charge
- If necessary, local bond measures and property taxes.
- General Property Taxes

Through the California Department of Water Resources, local grants and/or loans are available for water conservation, groundwater management, and studies and activities to enhance local water supply reliability. Project eligibility depends on the type of organization(s) applying and participating in the project and the specific type of study or project. More than one grant or loan may be appropriate for a proposed activity. The forming of the HMP will help the BDVWA obtain Grant funding in the future.

The BDVWA has been a recipient of FEMA funding in the past after the 1992 Landers Earthquake and again in the 2007 for winter freezing.

SECTION 6: MITIGATION STRATEGIES

6.1 Overview

The purpose of this analysis was to identify projects (actions) that help the BDVWA to meet the Goals and Objective for each priority hazard. By going through this process, the Agency has identified hazards in the community, assessed which hazards pose the most significant risk, and identified projects to help reduce and/or eliminate the risk.

6.2 Mitigation Goals, Objectives, and Projects

As discussed in Section 3.5, the process of identifying goals began with a review and validation of the Goals and Objectives in the Agency and the San Bernardino County's 2010 Operational Area HMP. Using the 2010 as the basis, the Agency's Planning Team completed an assessment/discussion of whether each of the goals was valid.

The five high profile hazards for the Agency are Earthquake, freezing, flash flooding, terrorist events and power failure. While other hazards were profiled in previous sections, the Agency's priority and focus for the mitigation projects will be for only the five high profile hazards.

6.2.1 All Hazards

Description: *Protect lives and mitigate damage to infrastructure.* Many local laws have public safety of citizens as their primary concern. Protecting lives is also the basis for Emergency Planning, Response, and Mitigation activities.

Objectives:

- Continually improve the understanding of the location and potential impacts of natural hazards, the vulnerability of building types, and community development patterns and the measures needed to protect lives and critical infrastructure.
- Continually provide State and Local Agencies with updated information about hazards, vulnerabilities, and mitigation measures.
- Ensure that all local codes and standards ensure the protection of life.
- Ensure BDVWA owned and operated infrastructure meet minimum standards for life safety.
- Ensure that all BDVWA development in high-risk areas is protected by mitigation measures that provide for life safety and protect critical infrastructure.
- Identify and mitigate all imminent threats to life safety.

6.2.2 Earthquakes

Description: *Goal is to avoid damages to property.* The BDVWA agrees that the strengthening of building and fire codes are critical to the protection of property and life and the reduction of seismic events. These codes help water utilities design and construct reservoirs, pump stations, groundwater wells, and pipelines that resist the forces of nature and help ensure safety.

Objectives:

- Design new facilities to withstand an 8.0 earthquake. The population of BDVWA can't be moved into a safer area; therefore, the safety of the residents and the protection of the water supply becomes the main objective. Southern California is a high-risk earthquake area and is built on top of many known and unknown fault zones.
- Encourage property protection measures for structures located in the area.
- Adopt cost-effective codes and standards to protect life properties and critical infrastructure.
- Establish a partnership among all levels of government and the business community to improve and implement methods to protect property.

Mitigation Projects:

- Flexible pipe joints
- Seismic shut-off valves
- Bolt down reservoirs
- Tie down equipment
- SCADA Control systems

6.2.3 Long Term Drought

Description: *Goal is to improve drought preparedness.* The goal is to address the drought hazard through mitigation over the long-term and the objectives listed below have been taken from the recently Governor Jerry Brown, signed a declaration of a Drought State of Emergency for California, on January 17, 2014.

Objectives:

- Increase water supply - creating innovative ways to generate new supplies.
- Improve operational efficiency & transfers – this idea is to move water from where it occurs to where it will be used.
- Reduce water demand - water conservation has become a viable long-term supply option because it saves considerable capital and operating cost for the Agency.

Mitigation Projects:

- Increase public awareness of water conservation
- Increase water storage capabilities
- Increase Water Storage
- Intertie water system with other water agencies in the area

6.2.4 Flash Flooding

Description: *Goal is to mitigate the effect of flash flooding to the potable water system.* A sudden, localized flood of great volume and short duration, typically caused by unusually heavy rain in a semiarid area. Flash floods can reach their peak volume in a matter of a few minutes and often carry large loads of mud and rock fragments. Flash flooding is common in the arid desert areas of California, Arizona, Nevada, and New Mexico

Objective:

- To prevent damage to water distribution facilities
- To protect loss of critical facilities
- To mitigate damage cost of damage during and after a flash flood

Mitigation Projects:

- Block walls
- Block or concrete diversion walls
- Lower pipelines
- Concrete protection of pipelines at critical points

6.2.5 Power Outage

Description: *Goal is to ensure potable water is delivered during a short or long-term power failure.* A sudden failure of equipment resulting in the loss of electric distribution to a large geographical area, which results in the loss of operation of water wells, booster pumps and the loss of water delivery and/or water production and water pressure to a large area of population.

Objective:

- To ensure proper operation of critical facilities
- To ensure water delivery
- To mitigate damage cost of damage during and after a flash flood

Mitigation Projects:

- Purchase generators that can power critical facilities
- Purchase generator transfer switches for critical facilities, where a generator would be utilized

6.2.6 Freezing Conditions

Description: A period of cold temperatures that will allow still or slow moving water to freeze. Pipelines that are above ground, or above the frost line are most susceptible to freezing. When water freezes inside of a pipe, the water expands and ruptures the pipe. Water will not flow through a pipe that is frozen.

Mitigation Projects:

- Lower pipelines, which are susceptible to freezing, below the frost line
- Install automatic electric heaters on pipes and wells that are above ground
- Build block structures with roofs around wells and booster pumps
- Heat structures to eliminate freezing

6.2.7 Terrorism Events

Description: A person or group of persons willing to cause damage to people or property, to forward their goals, by intimidation or coerce a civilian population, to influence the policy of a government either large or small, and to affect the government or population with destruction of key components or to injure, kill other, to instill fear into a population.

Objective:

- To help prevent damage to critical water facilities
- Educate the public on terrorism
- To help to ensure safety within the region

Mitigation Projects:

- Train the public in “if you see something, say something.”
- SCADA controls
- Install video camera’s at critical facilities
- Harden security at critical facilities
- Build block walls around facilities to help ensure protection

6.4 Mitigation Priorities

Plant A-1 and A-2

- Mitigation to Earthquake: Earthquake tie-down system, seismic tank shut-off system
Cost: \$450,000 per reservoir
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, enclose facility with a block wall.
Cost: \$500,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System, Block wall around facility.
Cost: \$200,000
Cost: Storage Reservoir \$800,000

Bighorn/Hi Desert Intertie

- Mitigation to Earthquake: Flexible pipe joints, generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, Block wall around facility, or place intertie in an underground vault.
Cost: \$145,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$55,000
- Drought: Intertie with Hi-Desert Water, Add more water storage.
Cost: \$800,000

Well 2 and 3

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$245,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

Well 4

- Mitigation to Earthquake: Flexible pipe joints, generator for back-up power, block wall facility

Cost: \$210,000

- Mitigation to Flooding: Flood control walls to direct floodwater away from property; block wall around facility
Cost: \$200,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

Plant “C”

- Mitigation to Earthquake: Flexible pipe joints, generator for back-up power, block wall around facility
Cost: \$210,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$200,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

Well Site 10

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$210,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$185,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

Well 9

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$200,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System-
Cost: \$45,000

Well 6 and 7

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$200,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

Well 3-A

- Mitigation to Earthquake: Flexible pipe joints, Generator for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$200,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

County Well and Storage Site:

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$220,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

Well 8

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$210,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System

Cost: \$45,000

“C” Tanks, Reservoirs

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$400,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

“D” Tanks, Reservoir Storage, Boardroom

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$185,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$285,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

“B” Tanks, Reservoir’s Administrative office, yard, Maintenance shop, Fuel

- Mitigation to Earthquake: Flexible pipe joints, Generator, for back-up power, block wall around facility
Cost: \$390,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from property, block wall around facility
Cost: \$530,000
- Terrorist Events: SCADA Control System, Security System incorporated into SCADA System
Cost: \$45,000

Chaparral Street

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$55,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$150,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$45,000

Butterfly Street

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$55,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$150,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$45,000

Starlight and Tanger

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$55,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$150,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$45,000

Cambia Avenue

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$55,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$150,000

- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$45,000

Fortuna

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$55,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline. Lower pipeline.
Cost: \$180,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$45,000

Linn Road

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$60,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$200,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$45,000

Lum Lane

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$55,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$ 220,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$35,000

Lin Road / Dusty Mile / Jemez Trail

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$110,000

- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$245,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$35,000

Ming Road / Dusty Mile /Jemez Trail

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$85,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$220,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$35,000

Dusty Mile / Pass Road / Shannon

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$155,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$ 220,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$35,000

Shawnee Trail

- Mitigation to Earthquake: Flexible pipe joints.
Cost: \$85,000
- Mitigation to Flooding: Flood Control walls, to direct floodwater away from pipeline, lower pipeline.
Cost: \$220,000
- Terrorist Events: SCADA Control System, Contamination detection system part of SCADA System
Cost: \$35,000

The BDVWA's objectives have been prioritized based on the following:

- Impact to the BDVWA's system from the identified vulnerability. This was the Planning Team's decision and they included impact cost in the decision.
- Overall cost/benefit of the mitigation strategy. For example, anchoring of equipment, such-as, bookcases, file cabinets, wall hanging item, chemical storage drums, storage cabinets in warehouse and workshop at the BDVWA's facilities is considered a high priority because of very high benefit to low cost ratio.

The following are the items that the group identified as projects that would reduce the vulnerabilities to the identified hazards at each site and the approximate cost of each item.

6.5 Implementation Strategy

For the successful mitigation of hazards identified in this plan and to meet the BDVWA's goals within a reasonable time frame, an implementation strategy has been developed. The strategy includes an identification of the objectives identified in Section 7.2

BDVWA is currently running within budget and has reduced its operating budget in the last 7 years. Currently, the BDVWA's revenues are flat. Capital improvements projects have slowed. The Agency has cut all unnecessary spending during the economic downturn of the last 7 years. The community of Landers, Flamingo Heights and Johnson Valley are listed by the State of California as disadvantaged communities. The Agency is attempting to gain and utilize funding in grants and low cost loans to improve and mitigate the potential damage from disasters.

There is currently no mitigation money in the BDVWA's budget. As money or grant funding becomes available the Agency will include mitigation into the budget process.

Mitigation Projects Funding Source

The only funding that has been budgeted for Mitigation is the money to develop this Hazard Mitigation Plan. The community that BDVWD service area is classified as a "severely disadvantaged community, by the State of California."

Timeframe

No timeframes were used, since there are no funding streams within the current BDVWA's budget identified for Hazard Mitigation. Mitigation Items will be placed into the next year's budget starting in 2015 2016 fiscal year as money permits.

SECTION 7: PLAN MAINTENANCE

7.1 Monitoring, Evaluation, and Updating the Plan

The Hazard Mitigation Plan will be reviewed as part of the annual BDVEA Board of Directors workshop in February of each year. At that time staff and elected Board members will review funding and Capital Improvement Projects (CIP) to be included into the next fiscal year's budget. A full review of the plan will be done on a 5-year interval.

7.2 Implementation through Existing Programs

Once the State of California OES and FEMA approve the HMP, BDVWA will incorporate the HMP into Capital Improvement projects, pipeline replacements, building design and any updates or repairs to the water distribution system. BDVWA will submit Notice of Intent to the State of California, yearly to help facilitate funding opportunities in obtain FEMA and State Funding to mitigate hazards within the service area.

7.3 Continued Public Involvement

The approved HMP will be posted on the Agency Website with contact information. In February of each year at the agencies regular scheduled Board of Directors annual workshop, public comments will be taken in regards to the HMP and projects that could possibly be included the next year budget.

Attachment “A”

Public Meeting, Board Meeting Agenda’s and Minutes

Bighorn-Desert View Water Agency

Board of Directors

Judy Corl-Lorono, President
J. Dennis Staley, Vice President
Terry Burkhart, Secretary
Michael McBride, Director
J. Larry Coulombe, Director



Agency Office
622 S. Jemez Trail
Yucca Valley, CA 92284-1440

760/364-2315 Phone
760/364-3412 Fax

Marina D West, PG, General Manager

A Public Agency

www.bdvwa.org

BOARD OF DIRECTORS' REGULAR MEETING AGENDA

BOARD MEETING OFFICE
1720 N. Cherokee Trail, Landers, CA 92285
Tuesday, March 25, 2014 - 6:00 p.m.

1. **CALL TO ORDER**
2. **PLEDGE OF ALLEGIANCE**
3. **ROLL CALL**
4. **APPROVAL OF AGENDA**

DISCUSSION AND ACTION ITEMS - The Board of Directors and Staff will discuss the following items, and the Board will consider taking action, if so inclined.

The Public is invited to comment on any item on the agenda during discussion of that item.

When giving your public comment, please have your information prepared, if you wish to be identified for the record then please state your name. Due to time constraints, each member of the public will be allotted three-minutes to provide their public comment.

5. **RESOLUTION NO. 14R-XX REQUESTING THE LOCAL AGENCY FORMATION COMMISSION TO INITIATE PROCEEDINGS FOR A REORGANIZATION TO INCLUDE ANNEXATIONS TO BIGHORN-DESERT VIEW WATER AGENCY AND DISSOLUTION OF COUNTY SERVICE AREA 70 ZONE W-1**

Board considers taking the following action(s):

1. Adopt Resolution No. 14R-XX Requesting the Local Area Formation Commission to initiate proceedings for a reorganization to include annexations to the Bighorn-Desert View Water Agency and dissolution of County Service Area Zone W-1; and

2. Authorize increase in project by \$15,000 to cover LAFCO filing fee for annexation of "3 island areas" and authorize staff to formally request waiver of said fees in the formal application process.
6. **UPDATE ON THE HAZARD MITIGATION PLANNING GRANT AWARD FROM OFFICE OF EMERGENCY SERVICES**
Information and Discussion Item Only
7. **CONFERENCE AND TRAVEL 2014 – PER BOARD OF DIRECTORS' WORKSHOP**
That the Board considers approval of the following conferences related to Board education for Calendar year 2014:
 - a. California Special Districts Association Legislative Days – Sacramento CA, May 20-21, 2014.
 - b. 7th Annual San Bernardino County Water Conference - San Bernardino CA, August 22, 2014.
 - c. California Special Districts Association Annual Conference and Exhibitor Showcase – Palm Springs CA, September 29 – October 2, 2014.
 - d. ACWA/JPIA Board Meeting for member Corl-Lorono, San Diego CA, December 1, 2014.
 - e. Association of California Water Agencies Fall Conference – San Diego, CA December 2-5, 2014.
8. **PREPERATION FOR A COST-OF-LIVING ADJUSTMENT (COLA) TO THE BOARD OF DIRECTORS COMPENSATION VIA FUTURE ORDINANCE**
Board considers taking the following action(s):
 1. Direct staff to initiate the process for increasing the Board of Directors per diem compensation by five percent (5%) for fiscal year 2014/15.
9. **SELECTION ELECTION - BOARD TO CHOOSE A CANDIDATE TO FILL THE REGULAR MEMBER AND ALTERNATE MEMBER OF THE LOCAL AGENCY FORMATION COMMISSION (LAFCO) SAN BERNARDINO**
Board considers taking the following action(s):
 1. The Board to consider voting by roll call vote one (1) candidate for the Regular LAFCO Member; and
 2. The Board to consider voting by roll call vote one (1) candidate for the Alternate LAFCO Member.
10. **RESOLUTION 14R-XX PLACING IN NOMINATION JUDY CORL-LORONO AS A MEMBER OF THE CALIFORNIA SPECIAL DISTRICTS ASSOCIATION (CSDA) BOARD OF DIRECTORS REGION 6**
Board considers taking the following action(s):
 1. The Board to consider nominating by roll call vote President Judy Corl-Lorono for the CSDA Board of Directors Region 6.
11. **DISBURSEMENTS FEBRUARY 2014**
Recommended Action:
Ratify Check Register (payment of bills) for February 2014.
12. **CONSENT ITEMS** – The following items are expected to be routine and non-controversial and will be acted on by the Board at one time without discussion, unless a member of the

Public or member of the Board requests that the item be held for discussion or further action.

- a. Financial Statements February 2014
 1. Balance Sheet
 2. Statement of Revenue and Expense
 3. General Account (Union Bank)
 4. Disbursements
 5. Local Agency Investment Fund Balance Timeline
- b. Service Order Report, February 2014
- c. Production Report, February 2014
- d. Regular Board Meeting Minutes, February 25, 2014
- e. Special Board Workshop Meeting Minutes, February 22, 2014
- f. Adopt Resolution 14R-XX Establishing Standing Committees and Authorizing the Creation of Ad Hoc Committees.
- g. Board to consider authorizing application for General Services Administration (GSA) State and Federal Surplus Property Program.

Recommended Action:

Approve as presented (Items a - g):

13. MATTERS REMOVED FROM CONSENT ITEMS

14. PUBLIC COMMENT PERIOD

Any person may address the Board on any matter within the Agency's jurisdiction on items not appearing on this agenda.

When giving your public comment, please have your information prepared. If you wish to be identified for the record then please state your name. Due to time constraints, each member of the public will be allotted three-minutes to provide their public comment. State Law prohibits the Board of Directors from discussing or taking action on items not included on the agenda.

15. VERBAL REPORTS - Including Reports on Courses/Conferences/Meetings.

- a. GENERAL MANAGER'S REPORT
- b. DIRECTORS' REPORT
- c. PRESIDENT'S REPORT

16. FUTURE AGENDA ITEMS

17. ADJOURNMENT

In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted in the main lobby of the Bighorn-Desert View Water Agency, 622 S. Jemez Trail, Yucca Valley, CA not less than 72 hours if prior to a Regular meeting, date and time above; or in accordance with California Government Code Section 54956 this agenda has been posted not less than 24 hours if prior to a Special meeting, date and time above.

As a general rule, agenda reports or other written documentation has been prepared or organized with respect to each item of business listed on the agenda.

Copies of these materials and other discloseable public records in connection with an open session agenda item, are also on file with and available for inspection at the Office of the Agency Secretary, 622 S. Jemez Trail, Yucca Valley, California, during regular business hours, 8:00 A.M. to 4:30 P.M., Monday through Friday. If such writings are distributed to members of the Board of Directors on the day of a Board meeting, the writings will be available at the entrance to the Board of Directors meeting room at the Bighorn-Desert View Water Agency.

Internet: Once uploaded, agenda materials can also be viewed at www.bdvwa.org.

Public Comments: You may wish to submit your comments in writing to assure that you are able to express yourself adequately.

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Bighorn-Desert View Water Agency

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BOARD OF DIRECTORS' REGULAR MEETING AGENDA

BOARD MEETING OFFICE
1720 N. Cherokee Trail, Landers, CA 92285
Tuesday, April 22, 2014 - 6:00 p.m.

1. **Call To Order**
2. **Pledge Of Allegiance**
3. **Roll Call**
4. **Approval of Agenda**

Discussion And Action Items - The Board of Directors and Staff will discuss the following items, and the Board will consider taking action, if so inclined.

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When giving your public comment, please have your information prepared. If you wish to be identified for the record then please state your name. Due to time constraints, each member of the public will be allotted three-minutes to provide their public comment.

5. **Update on Dissolution of CSA 70/W-1 and Annexation to BDVWA**

Board considers taking the following action(s):

1. Resolution No. 14R-XX Requesting the Local Agency Formation Commission to initiate proceedings for a reorganization to include annexations to the Bighorn-Desert View Water Agency and dissolution of County Service Area 70 Zone W-1; and
2. Receive and file the Plan for Services and Fiscal Impact Analysis with application documents addressed to the Local Agency Formation Commission (LAFCO).

6. **Hazard Mitigation Plan Status Update and Receive Public Comments**

Copies of these materials and other discloseable public records in connection with an open session agenda item, are also on file with and available for inspection at the Office of the Agency Secretary, 622 S. Jemez Trail, Yucca Valley, California, during regular business hours, 8:00 A.M. to 4:30 P.M., Monday through Friday. If such writings are distributed to members of the Board of Directors on the day of a Board meeting, the writings will be available at the entrance to the Board of Directors meeting room at the Bighorn-Desert View Water Agency.

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- a. Financial Statements February 2014
 1. Balance Sheet
 2. Statement of Revenue and Expense
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 4. Disbursements
 5. Local Agency Investment Fund Balance Timeline
- b. Service Order Report, February 2014
- c. Production Report, February 2014
- d. Regular Board Meeting Minutes, February 25, 2014
- e. Special Board Workshop Meeting Minutes, February 22, 2014
- f. Adopt Resolution 14R-XX Establishing Standing Committees and Authorizing the Creation of Ad Hoc Committees.
- g. Board to consider authorizing application for General Services Administration (GSA) State and Federal Surplus Property Program.

Recommended Action:

Approve as presented (Items a - g):

13. MATTERS REMOVED FROM CONSENT ITEMS

14. PUBLIC COMMENT PERIOD

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- a. GENERAL MANAGER'S REPORT
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As a general rule, agenda reports or other written documentation has been prepared or organized with respect to each item of business listed on the agenda.

2. Authorize increase in project by \$15,000 to cover LAFCO filing fee for annexation of "3 island areas" and authorize staff to formally request waiver of said fees in the formal application process.
6. **UPDATE ON THE HAZARD MITIGATION PLANNING GRANT AWARD FROM OFFICE OF EMERGENCY SERVICES**
Information and Discussion Item Only
7. **CONFERENCE AND TRAVEL 2014 – PER BOARD OF DIRECTORS' WORKSHOP**
That the Board considers approval of the following conferences related to Board education for Calendar year 2014:
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8. **PREPERATION FOR A COST-OF-LIVING ADJUSTMENT (COLA) TO THE BOARD OF DIRECTORS COMPENSATION VIA FUTURE ORDINANCE**
Board considers taking the following action(s):
 1. Direct staff to initiate the process for increasing the Board of Directors per diem compensation by five percent (5%) for fiscal year 2014/15.
9. **SELECTION ELECTION - BOARD TO CHOOSE A CANDIDATE TO FILL THE REGULAR MEMBER AND ALTERNATE MEMBER OF THE LOCAL AGENCY FORMATION COMMISSION (LAFCO) SAN BERNARDINO**
Board considers taking the following action(s):
 1. The Board to consider voting by roll call vote one (1) candidate for the Regular LAFCO Member; and
 2. The Board to consider voting by roll call vote one (1) candidate for the Alternate LAFCO Member.
10. **RESOLUTION 14R-XX PLACING IN NOMINATION JUDY CORL-LORONO AS A MEMBER OF THE CALIFORNIA SPECIAL DISTRICTS ASSOCIATION (CSDA) BOARD OF DIRECTORS REGION 6**
Board considers taking the following action(s):
 1. The Board to consider nominating by roll call vote President Judy Corl-Lorono for the CSDA Board of Directors Region 6.
11. **DISBURSEMENTS FEBRUARY 2014**
Recommended Action:
Ratify Check Register (payment of bills) for February 2014.
12. **CONSENT ITEMS** – The following items are expected to be routine and non-controversial and will be acted on by the Board at one time without discussion, unless a member of the

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BOARD OF DIRECTORS' REGULAR MEETING AGENDA

BOARD MEETING OFFICE
1720 N. Cherokee Trail, Landers, CA 92285
Tuesday, May 27, 2014 - 6:00 p.m.

1. **Call To Order**
2. **Pledge Of Allegiance**
3. **Roll Call**
4. **Approval Of Agenda**

Discussion And Action Items - The Board of Directors and Staff will discuss the following items, and the Board will consider taking action, if so inclined.

The Public is invited to comment on any item on the agenda during discussion of that item.

When giving your public comment, please have your information prepared. If you wish to be identified for the record then please state your name. Due to time constraints, each member of the public will be allotted three-minutes to provide their public comment.

5. **Update on Dissolution of CSA 70/W-1 and Annexation to BDVWA**
Discussion item only.
6. **Hazard Mitigation Plan Status Update and Receive Public Comments**
7. **Resolutions Modifying Basic Facilities Charge and Service Line Installation Charge and Construction Meter Charge**
Board considers taking the following action(s):
 1. Board to consider adopting Resolution No. 14R-XX modifying the Basic Facilities Charge and service line installation charge; and
 2. Board to consider adopting Resolution No. 14R-XX establishing certain fees and charges (Construction Meters).

8. **Resolution No. 14R-XX – A Resolution of the Board of Directors of the Bighorn-Desert View Water Agency Providing for the Levy and Collection of Taxes (Setting the Ad Valorem Tax) Within Improvement District No. 1 for Fiscal Year 2014-2015 at \$175,900.**

Board considers taking the following action(s):

1. Board to consider adopting Resolution No. 14R-XX – Providing for the levy and collection of taxes (setting the Ad Valorem tax) within Improvement District No. 1 for Fiscal Year 2014/2015 for a total collection of a value to be determined at the board meeting no greater than \$175,900.
9. **Review Draft Fiscal Year 2014/15 Operating Budget**
Discussion item only.
10. **Update – Integrated Regional Water Management Plan**
Discussion item only.
11. **Consent Items** – The following items are expected to be routine and non-controversial and will be acted on by the Board at one time without discussion, unless a member of the Public or member of the Board requests that the item be held for discussion or further action.

- a. Financial Statements March and April 2014
 1. Balance Sheet
 2. Statement of Revenue and Expense
 3. General Account (Union Bank)
 4. Disbursements
 5. Local Agency Investment Fund Balance Timeline
- b. Receive and File Disbursements March and April 2014
- c. Service Order Report, April 2014
- d. Production Report, April 2014
- e. Regular Board Meeting Minutes, April 22, 2014
- f. Special Board Meeting Minutes, April 22, 2014

Recommended Action:

Approve as presented (Items a - f):

12. **Matters Removed From Consent Items**

13. **Public Comment Period**

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When giving your public comment, please have your information prepared. If you wish to be identified for the record then please state your name. Due to time constraints, each member of the public will be allotted three-minutes to provide their public comment. State Law prohibits the Board of Directors from discussing or taking action on items not included on the agenda.

14. **Verbal Reports** - Including Reports on Courses/Conferences/Meetings.

- a. General Manager's Report

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15. Verbal Reports - Including Reports on Courses/Conferences/Meetings.

- a. General Manager's Report
- b. Directors' Report
- c. President's Report

16. Future Agenda Items

17. Adjournment

In accordance with the requirements of California Government Code Section 54954.2, this agenda has been posted in the main lobby of the Bighorn-Desert View Water Agency, 622 S. Jemez Trail, Yucca Valley, CA not less than 72 hours if prior to a regular meeting, date and time above; or in accordance with California Government Code Section 54956 this agenda has been posted not less than 24 hours if prior to a special meeting, date and time above.

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Public Comments: You may wish to submit your comments in writing to assure that you are able to express yourself adequately.

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7. Public Hearing: Ordinance 14O-01 – An Ordinance of the Board of Directors of Bighorn-Desert View Water Agency Providing for Compensation of the Board of Directors and Establishing Procedures Related Thereto -

Board considers taking the following action(s):

1. Staff report;
2. Receive questions from the Board of Directors;
3. Open public hearing;
4. Receive public comments;
5. Close public hearing;
6. Board discussion; and
7. Board to Consider the following proposed actions:
 - (a) Adopt Ordinance 14O-01 Providing for Compensation of the Board of Directors and Establishing Procedures Related Thereto; or
 - (b) Amend Ordinance 14O-01 Providing for Lower Compensation of the Board of Directors and Establishing Procedures Related Thereto; or
 - (c) Defer action until a later date; or
 - (d) Decline to adopt Ordinance 14O-01 Providing for Compensation of the Board of Directors and Establishing Procedures Related Thereto.

8. Update – Integrated Regional Water Management Plan

Information and discussion item only.

9. Receive and File Certificate of Achievement for Excellence in Financial Reporting for Fiscal Year Ending 2013

10. Consent Items – The following items are expected to be routine and non-controversial and will be acted on by the Board at one time without discussion, unless a member of the Public or member of the Board requests that the item be held for discussion or further action.

- a. Service Order Report, March 2014
- b. Production Report, March 2014
- c. Regular Board Meeting Minutes, March 25, 2014
- d. Resolution No. 14-XX Establishing an Agency Meeting Agenda Preparation Policy

Recommended Action:

Approve as presented (Items a - d):

11. Matters Removed From Consent Items

Closed Session

12. Closed Session Real Property

Conference with Real Property Negotiators; Government Code Section 54956.8

Property: APN 0635-031-01-0-000 and/or APN 0454-683-01-0-0000 and/or APN 0454-221-10-0-0000 and/or APN 0454-221-13-0-0000.

Agency Negotiator: Marina West

13. Closed Session Report

14. Public Comment Period

Bighorn-Desert View Water Agency



Board of Directors

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BOARD OF DIRECTORS' REGULAR MEETING MINUTES

BOARD MEETING OFFICE
1720 N. Cherokee Trail, Landers, CA 92285
Tuesday, June 24, 2014 - 6:00 p.m.

Call to Order

Meeting convened by Board President Judy Corl-Lorono at 6:00 p.m.

Pledge of Allegiance

Led by Randy West

Roll Call

Directors Present:

Judy Corl-Lorono
J. Dennis Staley
Terry Burkhart
Michael McBride
J. Larry Coulombe

Staff Present:

Marina West
Michelle Corbin

Approval of Agenda

Motion to approve the agenda.

MSC¹ (McBride/Burkhart) unanimously approved.

WORKSHOP

Update on Dissolution of CSA 70/W-1 and Annexation to BDVWA

General Manager West reported on the status of the dissolution of CSA 70/W-1 and its annexation to Bighorn-Desert View Water Agency. West reviewed the importance of the tax transfer that will go before the San Bernardino County Board of Supervisors. The Commission Hearing could be as early as September this year. West also discussed the recent budget hearing at the last San Bernardino County Board of Supervisors meeting where numerous protests were filed regarding the spending and depleting of CSA 70/W-1 funds.

Public comments:

Anonymous stated that he appreciates the way the Board shows enthusiasm towards this issue.

Anonymous questioned about the date the San Bernardino Board of Supervisors will vote on the tax transfer.

Supervisor Ramos Field Representative Mike Lipsitz stated he appreciates the public comments and reminded the Board and public the San Bernardino Board of Supervisors regularly meets every two weeks.

Anonymous commented that Special Districts has stated the people may change their water provider anytime they wish.

Anonymous stated she feels this entire issue makes sense from all perspectives.

Anonymous requested further clarification of the recent Board of Supervisor meeting that voted to spend most off of CSA 70W-1's reserves.

NEW BUSINESS

Resolution No. 14R-10 Establishing the Agency's Appropriation Limit for Fiscal Year 2014/2015 at \$141,880.32

General Manager West reviewed the process in determining the appropriation limit. West stated the required postings are complete and reminded the Board the setting of the Agency's appropriation limit is a routine matter.

No public comment.

Motion No. 14-032

(After brief Board discussion), Director McBride made a motion to adopt Resolution No. 14R-10 establishing the Appropriation Limit of the Agency at \$141,880.32 for fiscal year July 1, 2014 – June 30, 2015 pursuant to Article XIII B of the California Constitution. The motion was seconded by Director Coulombe.

MSC¹ (McBride/Coulombe)

Corl-Lorono: Y

Staley: Y

Burkhart: Y

McBride: Y

Coulombe: Y

Adjourned for a Break at 6:45 p.m. - Reconvened from Break at 7:00 p.m.

Resolution 14R-11 Fixing and Adopting the Agency's Budget for Fiscal Year 2014/15

General Manager West briefly reviewed the budget highlighting vehicle replacement, purchasing, the annexation carryover, grant funding and pending refunds. West also discussed the ageing financial and billing server and the pending software system that will need to be purchased this next fiscal year.

No public comment.

Motion No. 14-033

(After brief Board discussion), Director McBride made a motion to adopt Resolution No. 14R-11, A Resolution Fixing and Adopting the Agency Budget or Fiscal Year 2014/2015 for the Bighorn-Desert View Water Agency. Director Burkhart seconded the motion.

MSC¹ (McBride/Burkhart)

Corl-Lorono: Y

Staley: Y

Burkhart: Y

McBride: Y

Coulombe: Y

Board to Select a Candidate for the California Special Districts Association (CSDA) Board of Directors

Director McBride began the subject by calling for the Board to nominate Judy Corl-Lorono.

Anonymous requested clarification of this election process.

Motion No. 14-034

(After brief Board discussion), Director McBride made a motion to nominate President Judy Corl-Lorono to serve as a representative to the CSDA Board of Directors for Region 6, Seat C. Director Burkhart seconded the motion.

MSC¹ (McBride/Burkhart)

Corl-Lorono: Y

Staley: Y

Burkhart: Y

McBride: Y

Coulombe: Y

Hazard Mitigation Plan Status Update and Receive Public Comments

General Manager Marina West briefly reviewed the Hazard Mitigation Plan. This item is on agenda each Board of Directors meeting and minutes and agendas are posted on the Agency website.

No public comment.

Motion No. 14-035

(After brief Board discussion), After Board discussion, Director Burkhart made a motion to authorize execution of the Designation of Applicant's Agency Resolution and the Subgrantee Assurances documents as required for execution the Hazard Mitigation Planning Grant awarded by the California Office of Emergency Services. The motion was seconded by Director McBride.

MSC¹ (Burkhart/McBride)

Corl-Lorono: Y

Staley: Y

Burkhart: Y

McBride: Y

Coulombe: Y

Consent Items

a. Financial Statements May 2014

1. Balance Sheet
2. Statement of Revenue and Expense
3. General Account (Union Bank)
4. Disbursements
5. Local Agency Investment Fund Balance Timeline

b. Receive and File Disbursements May 2014

c. Service Order Report, May 2014

d. Production Report, May 2014

e. Regular Board Meeting Minutes, May 27, 2014

f. Approval of Agency Bad Debt Expenses "Write-Off" for period of July 2013 to present in the amount of \$874.61.

g. Authorize staff to provide water for the fire protection at the "Third of July" Community Celebration at Homestead Valley Park.

No Public comment.

Motion No. 14-036

Director McBride made a motion to approve consent items a - g. The motion was seconded by Director Burkhart.

MSC¹ (McBride/Burkhart)

Corl-Lorono: Y

Staley: Y

Burkhart: Y

McBride: Y

Coulombe: Y

Matters Removed From Consent Calendar

None

Public Comment Period

None

Verbal Reports

General Manager West reported on the Integrated Regional Water Management Plan. West reported the plan is almost complete and our Board will have the opportunity to adopt the plan in July 2014. West also reported the Agency is applying for a grant to help with leak detection.

Director Burkhart reported on the Technical Advisory Committee meeting she had attended where they discussed the Integrated Regional Water Management Plan.

Future Agenda Items

Future agenda items will include a the public hearing on liens.

Adjournment – President Judy Corl-Lorono adjourned the meeting at 7:53 p.m.

Approved by:


Terry Burkhart, Secretary of the Board

MSC¹ – Motion made, seconded, and carried.

Bighorn-Desert View Water Agency

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BOARD OF DIRECTORS' REGULAR MEETING AGENDA

BOARD MEETING OFFICE
1720 N. Cherokee Trail, Landers, CA 92285
Tuesday, August 26, 2014 - 6:00 p.m.

1. **Call To Order**
2. **Pledge of Allegiance**
3. **Roll Call**
4. **Approval of Agenda**

Discussion and Action Items - The Board of Directors and Staff will discuss the following items, and the Board will consider taking action, if so inclined.

The Public is invited to comment on any item on the agenda during discussion of that item.

When giving your public comment, please have your information prepared. If you wish to be identified for the record then please state your name. Due to time constraints, each member of the public will be allotted three-minutes to provide their public comment.

5. **Hazard Mitigation Plan Status Update and Receive Public Comments**
Information and Discussion Item Only

6. **Update on Dissolution of CSA 70/W-1 and Annexation to BDVWA**

Board considers taking the following action(s):

1. Authorize budget adjustment of \$3,100 for processing LAFCO 3181: Reorganization to include Annexations to Bighorn-Desert View Water Agency, Dissolution of County Service Area 70 Zone W-1 and Formation of an Improvement District for Bighorn-Desert View Water Agency.

7. Financial Utility Billing Software Upgrade

Board considers taking the following action(s):

1. Authorize General Manager to execute contract with Springbrook Software, Inc. for 4-Year Cost of Ownership Premise License and first four years of software maintenance in the amount of \$159,993; and
2. Provide direction to staff on preferred payment option; and
3. Authorize General Manager to purchase and install hardware and peripheral equipment to accommodate Springbrook Software as well as centralized employee file sharing in an amount not to exceed \$13,313.
4. Authorize a total project contingency of \$12,500 for unforeseen professional services or software application adjustments identified during the period of conversion as well as any miscellaneous appurtenant hardware and labor services identified during installation.

8. Resolution 14R-XX Establishing Standing Committees and Authorizing the Creation of Ad Hoc Committees

Board considers taking the following action(s):

1. Adopt Resolution 14R-XX Establishing Standing Committees and Authorizing the Creation of Ad Hoc Committees.

9. Consent Items – The following items are expected to be routine and non-controversial and will be acted on by the Board at one time without discussion, unless a member of the Public or member of the Board requests that the item be held for discussion or further action.

- a. Financial Statements June 2014
 1. Balance Sheet
 2. Statement of Revenue and Expense
 3. General Account (Union Bank)
 4. Disbursements
 5. Local Agency Investment Fund Balance Timeline
- b. Receive and File Disbursements June
- c. Financial Statements July 2014
 1. Balance Sheet
 2. Statement of Revenue and Expense
 3. General Account (Union Bank)
 4. Disbursements
 5. Local Agency Investment Fund Balance Timeline
- d. Receive and File Disbursements July 2014
- e. Service Order Report, July 2014
- f. Production Report, July 2014
- g. Regular Board Meeting Minutes, July 22, 2014

Recommended Action:

Approve as presented (Items a - g):

10. Matters Removed From Consent Items

11. Public Comment Period

Any person may address the Board on any matter within the Agency's jurisdiction on items not appearing on this agenda. When giving your public comment, please have your information prepared. If you wish to be identified for the record then please state your name. Due to time constraints, each member of the public will be allotted three-minutes to provide

Planning Team Meeting Agenda's and Minutes

Attachments “B”

Agenda

Hazard Mitigation Planning, Kick-off Meeting

Bighorn Desert View

March 28, 2014

10:00 – 11:30

- Introduction
- Thank you
- Why we are here?
- What to expect from these meetings?
- What is the end plan for a Hazard Mitigation Plan?
- Grant Time-line.
- What do we need from you?
- What is the best time and day of the week to meet?
- Next meeting date and time? (Within two weeks)

Start time
10:05

meeting closed @ 11:05

Agenda
Hazard Mitigation Planning, Kick-off Meeting
Bighorn Desert View
March 28, 2014
10:00 - 11:30

Ken Jones
Not at this meeting

- Introduction ✓
- Thank you. ✓
- What we are here for? ✓
- What to expect from these meetings? ✓
- What is the end plan for a Hazard Mitigation Plan? ✓
- Grant Time-line. Aug 14 ✓
- What do we need from you? ✓
- What is the best time and day of the week to meet? ✓
- Next meeting date and time? (Within two weeks) ✓

meet at Board room next meeting
Next @ ~~June 10~~ June 10 @ 9:00
April 8 @ 9:00 am
April 22 @ 3:00
June 24 @ 3
May 13 @ 9:00
May 27 @ 3:00

Agenda
Hazard Mitigation Planning
Bighorn Desert View

April 9, 2014

10:00 – 11:30

- Self-Introductions
- Approval of the last meeting minutes
- What we are here for
- Time-line
- What are the top six hazards in this area
- Power Point list of Facilities, What are the hazards for each

Next meeting dates and times:

April 22, 2014, at 3:00 pm.

May 13, 2014, at 9:00 am.

May 27 2014, at 3:00 pm.

**Meeting Minutes for Bighorn Desert View WA, Mitigation Planning Team
April 9, 2014 and April 22, 2014**

- 1) Meeting opened at 9:30 am
- 2) Introductions were conducted (sign in attached)
- 3) Last Meeting Minutes (3-28-14) were reviewed and approved (100% yes)
- 4) The time-line for the project was discussed, with the final Mitigation Plan being sent to CalOES in August 2014.
- 5) Risk- Hazards were discussed with the group, lead by Mr. Sturdivan.
 - Earthquake
 - Flash Flooding/Mudslides/ landslides
 - Terrorist events
 - Wildfire
 - Freezing
 - Power failure
 - Wind storms
 - Drought
 - Volcanoes

Following the discussions of the items listed above the Team came to an agreement of the top six (6) hazards that face the Bighorn Desert View Water Agency and the critical water-pumping infrastructure that would be affected by the hazard.

The top six hazards are listed below in order of importance.

- 1) Earthquake
- 2) Freezing events
- 3) Flashflood/landslide
- 4) Power Failure
- 5) Terrorist events on the water system or attacks on the nearby Marine-Base.
- 6) Drought

Plant A-1 and A-2

Mitigation

- Seismic shut of valves
- Seismic tie-down's both tanks
- SCADA, System, with security for the tanks and gates

- Block wall around plant to mitigate flooding, and debris flow, from hillside to the west.
- Drainage improvements
- Flex-piping for inlet and outlet

Intertie site between Bighorn and High Desert Water District, can take water from High Desert into Bighorn's system or Bighorn can give water to High Desert Water

Mitigation

- Build block wall around plant
- Generator Back-up
- SCADA system with security system
- Put intertie in a vault
- Water booster pump

Well 2 and 3

Mitigation

- Block wall facility and wellheads
- Cooling system
- Generator
- SCADA System
- Security System
- Generator Transfer Panel

Well 4, Well and Hauling Station (plant is at the epicenter of the 1992 Landers Earthquake)

- Enclosure for Well,
- Block wall facility
- SCADA System
- Security System
- Vulnerabilities to water contamination
- Generator Transfer Switch

Tank "C"

Mitigation

- Seismic Shut-off valves for water inlet and outlet
- Seismic tie-down system

- SCAAD System
- Security System
- Block wall (protection from flooding)
- Generator Transfer Switch
- Flex-piping for inlet and outlet

Well 10

Mitigation

- Seismic Shut-off valves for inlet and outlet
- Seismic tie-down system
- SCAAD System
- Security System
- Building for wellhead and booster pumps
- Generator Transfer Switch
- Block wall facility

Well 9

Mitigation

- Building for wellhead
- Block wall
- Security System
- SCADA System
- Pipe heating system for freezing
- Generator Transfer Switch
- Drainage

Well 6 and 7

Mitigation

- Building for wellhead
- Block wall
- Security System
- SCADA System
- Pipe heating system for freezing
- Generator Transfer Switch
- Drainage

County Well number 3 (County of San Bernardino) sites are in the process of being incorporated into Bighorn Desert Water Agencies, System

Mitigation

- Enclosure Block building for wellhead
- Seismic Shut-off
- Security
- SCADA System

County Well site number 2, (same information on site as number 3)

Mitigation

- SCADA System
- Security System
- Seismic Tie-down of the tank
- Seismic shut-off value inlet and outlet
- Block wall

Well 8

Mitigation

- Block wall
- Building for wellhead
- Generator Transfer Switch
- SCADA System
- Security
- Seismic tie-down for tank
- Seismic flex or shut-off system, inlet and outlet
- Site drainage and diversion wall

District Yard/Office (Three tanks on-site)

Mitigation

- Security System
- SCADA System
- Seismic Shut-off for all three reservoirs on site
- Seismic tie-down, for all three reservoirs
- Generator Transfer switch

- Protection for the booster station on site, move booster station into a underground vault
- Block wall facility
- Flood diversion wall to protect office building

Gary Sturdivan closed hazard Mitigation Meeting at 11:35 pm.

Next meeting of the Mitigation Planning Team

April 22, at 3:00 pm.

May 13, at 9:00 am

May 27, T 3:00 PM.

Attendees: West, Corl-Lorono, Rodriguez, Corbin, Ban, Rewal, and Sturdivan

Agenda
Hazard Mitigation Planning
Bighorn Desert View
April 22, 2014
3:00 PM
District Board Room

- Welcome Self Introductions
- Review last meetings hazard identification and mitigation findings
- Approval on the Meeting Minutes (April 9, 2014)
- Identify other infrastructure to Mitigate (pipelines)
- Any other items to identify
- Any other items for mitigation
- Schedule June meeting times and dates
- Last words

Next meeting dates

May 13, 2014, 9:00 am

May 27, 2014, at 3:00 pm.

Agenda

Hazard Mitigation Planning, Kick-off Meeting

Bighorn Desert View

May 13, 2013

9:00 – 10:30

- Introductions
- Review and approval of last two meeting minutes April, 22, 2014 and April 9, 2014
- Review HMP layout
- Review first part of the Plan
- Review Table of Contents
- Adjournment
- Next Meeting Dates

May 27, 2014 @ 3:00 p.m.

June 10, 2014 @ 9:00 a.m.

June 24, 2014 @ 3:00 p.m.

Agenda

Bighorn Desert View Water Agency

Hazard Mitigation Planning Team

May 27, 2014

3:00 to 4:30

- Introductions
- Review and review of the meeting Minutes from May 13
- Review of Pipeline Infrastructure
- Which pipelines are critical
- Identify ways to mitigate damage to critical pipelines
- Adjournment
- Next Meeting

June 10, 2014 @ 9:00 am

June 24, 2014 @ 3:00 pm (May have to cancel, will advise by next meeting)

Agenda
Bighorn Desert View Water Agency
Hazard Mitigation Planning Team
July 8, 2014
9:00 to 10:30

- Introductions
- Review of the meeting Minutes from May 27
- Review Pipeline Structures, for cost recovery
- Well-sites, pump stations, Reservoir sites Cost basses
- Infrastructure cost and recovery
- Adjournment
- Next Meeting

July 22, 2014, 2014 @ 3:00 pm

Agenda

Bighorn Desert View Water Agency

Hazard Mitigation Planning Team

July 22, 2014

3:00 to 4:30

- Introductions
- Review of the meeting Minutes from July 8, 2014 meeting minutes
- Review Cost Basis for Mitigation Measures
- Review layout of Draft HMP
- Adjournment
- Next Meeting

There is no further Team Meetings Scheduled. The Team members will be emailed the final Draft HMP in about two week for comments. The Draft HMP will also, be posted on the Agency's Web site for Public Input

Public Meeting will be conducted at the Board of Directors Meeting scheduled for 5:00 p.m. today.

Attachment “C”

Generator Sizing per Facility

RECEIVED

MAY 28 2013

MEMORANDUM

TO: MARINA WEST, GENERAL MANAGER
BIGHORN-DESERT VIEW WATER AGENCY **FILE:** 997-6.5

FROM: RUSSELL E. ROMEYN *RER*
SABRINA A. NIES *SAN* **DATE:** 5/23/2013
KRIEGER & STEWART, INCORPORATED

SUBJECT: EQUIPPING PUMPING PLANTS WITH MANUAL TRANSFER SWITCHES
STANDBY GENERATOR REQUIREMENTS

As requested during an April 30, 2013 conference call with Agency staff, Krieger & Stewart evaluated the maximum load requirements for each of the Agency's facilities and determined the minimum standby generator size for each facility. The purpose of this memorandum is to summarize the results of our evaluation.

As set forth in the sections below, we have provided a recommendation on the minimum generator size required at each of the Agency's facilities, an evaluation of the Agency's existing trailer-mounted generator, and budgetary costs for a new trailer-mounted standby generator.

I. STANDBY GENERATOR REQUIREMENTS

Based on information we obtained during field review of the Agency's sites, we determined the maximum running load for each of the Agency's facilities. Using generator sizing software (provided by each generator manufacturer), we determined the minimum generator size at each facility. For sites with multiple wells (i.e. Wells No. 2 and No. 3, and Wells No. 6 and No. 7) or booster pumps (i.e. Booster A and Booster C), generator sizes were determined based on operating only one pump at a time.

MARINA WEST
5/23/2013
PAGE 2

The following table summarizes the maximum running load and minimum generator size that will be required at each Agency facility; however, if the Agency decides to purchase a generator, the generator size will need to be confirmed by the selected generator manufacturer prior to purchase:

Facility	Voltage	Maximum/Running kW Level	Minimum Generator Size
Wells No. 2 and No. 3	480V, 3-Phase	137.2 kW / 62.1 kW	150 kW
Well No. 4	480V, 3-Phase	136.7 kW / 7.0 kW	150 kW
Wells No. 6 and No. 7	480V, 3-Phase	142.7 kW / 67.6 kW	175 kW
Well No. 8 ⁽¹⁾	480V, 3-Phase	166.2 kW / 166.2 kW	175 kW
Well No. 9 ⁽¹⁾	480V, 3-Phase	106.7 kW / 106.7 kW	125 kW
Well No. 10 ⁽²⁾	480V, 3-Phase	24.1 kW / 7.0 kW	25 kW ⁽²⁾
Booster C	480V, 3-Phase	82.8 kW / 37.8 kW	90 kW
Booster A	240V, 3-Phase	24.1 kW / 7.0 kW	25 kW
Jemez Office (Full Load) ⁽³⁾	240V, 1-Phase	18.0 kW / 18.0 kW	60 kW
Jemez Office (Reduced Load) ⁽⁴⁾	240V, 1-Phase	9.0 kW / 9.0 kW	30 kW

- (1) Sizing is based on the assumption that the autotransformer is set at 65% voltage during startup.
- (2) Well No. 10 currently has a 45 kW trailer-mounted generator onsite that we understand is intended for exclusive use at Well No. 10.
- (3) Full load at the Jemez Office includes operating both the A/C and water heater.
- (4) Reduced load at the Jemez Office does not include operating the A/C and water heater.

MARINA WEST
5/23/2013
PAGE 3

II. EXISTING STANDBY GENERATOR

During our field visit, we confirmed that the Agency's existing Caterpillar trailer-mounted standby generator (located at the Wells No. 2 and No. 3 site) is rated at 185 kW/480V. At 185 kW, this generator will produce approximately 278 amps of 480V, three phase power. Assuming that the generator is in good operating condition, the 185 kW generator appears to be of adequate size to power all of the Agency's sites (which are 480V), except for Booster A and the Jemez Office (which are 240V).

The existing generator and Wells No. 2, No. 3, and No. 4 are each equipped with a receptacle/plug that is only rated for 100 amps and does not provide a ground connection. The electrical power cord on the generator is #2 AWG in size and only capable of 94 amps. Therefore, if the Agency intends to continue to use the generator, we recommend that the receptacle, plug, and related power cord be replaced with the correct size of equipment required by the electrical code. If the generator is to be used at all of the Agency's sites, additional circuit protection will need to be provided and the power cord and receptacles will need to be sized for the largest load of all of the sites.

If desired by the Agency, modifications and replacement of the power cord for the existing generator and related receptacles could be included in the manual transfer switch addition project.

MARINA WEST
5/23/2013
PAGE 4

III. GENERATOR OPTIONS

We understand that the Agency intends to utilize a trailer-mounted standby generator (using either the existing generator or purchasing a new generator) for use at multiple facilities. Based on the minimum generator sizes set forth above, the following table summarizes which facilities could be operated by a given generator size:

Facility	Facilities Capable of Operating Using the Following Generators				
	40 kW Generator	60 kW Generator	150 kW Generator	175 kW Generator	Existing 185 kW Generator
Wells No. 2 and No. 3			X	X	X
Well No.4			X	X	X
Wells No. 6 and No. 7				X	X
Well No. 8				X	X
Well No. 9			X	X	X
Well No. 10 ⁽¹⁾	N/A	N/A	N/A	N/A	N/A
Booster C			X	X	X
Booster A	X				
Jemez Office (Full Load) ⁽²⁾		X			
Jemez Office (Reduced Load) ⁽³⁾	X				

- (1) Well No. 10 currently has a 45 kW trailer-mounted generator onsite that we understand is intended for exclusive use at Well No. 10.
- (2) Full load at the Jemez Office includes operating both the A/C and water heater.
- (3) Reduced load at the Jemez Office does not include operating the A/C and water heater.

MARINA WEST
5/23/2013
PAGE 5

IV. BUDGETARY COSTS FOR A NEW STANDBY GENERATOR

We contacted several generator manufacturers to obtain budgetary pricing for a portable generator capable of providing the required electrical power for use at any of the Agency's sites.

The budgetary prices provided below include a Tier 4 emission rated generator (as required by California Air Resources Board (CARB)), trailer, freight, battery charger, and block heaters. Additional costs would be incurred for tax, power cords, transformer, plugs, receptacles, etc.

Manufacturer	Generator Size	Model	Budgetary Cost	Vendor
Caterpillar	200 kW	XQ200	\$117,000	Johnson Power (Riverside)
Cummins	200 kW	C200D6R	\$90,000	Power Generation Sales (Bloomington)
Kohler	175 kW	DCA2220SSCU	\$112,000	Bay City Electric Works (San Bernardino)

RER/SAN/blt
997-6P5-MW-M1

Attachment “D”

Policies

Appendix ? Attachment ?
Where is this identified
why is it here ?
POLICY STATEMENT
No. 11P-01

**A POLICY OF THE BOARD OF DIRECTORS OF THE BIGHORN-DESERT
VIEW WATER AGENCY ESTABLISHING
"DESERT LANDSCAPE WATER CONSERVATION GUIDELINES"
IN AN EFFORT TO REDUCE THE IMPACT ON FUTURE WATER DEMAND**

It is the mission of the Bighorn-Desert View Water Agency "To provide a high quality supply of water and reliable service to all customers at a fair and reasonable rate" pursuant to California State Water Code Appendix, Section 112-15.

The Board of Directors of the Bighorn-Desert View Water Agency, acting as an elected legislative body and serving as custodian of the water resources within its boundaries, finds it necessary to take proactive steps to preserve, maintain and efficiently utilize the available water supplies for the benefit of the Agency and its customers.

In an effort to support water conservation practices, the Board hereby creates these guidelines for developers, single new connections, and existing customers, taking the initiative to influence and further support the conservation of water for the purpose of extending the life of the Agency's water supplies for the benefit of the Agency and its customers.

"DESERT LANDSCAPE CONSERVATION GUIDELINES"

Using drought tolerant Desert landscape offers endless possibilities to conserve nature's most precious natural resource: water. Use the simple guidelines below to get started. You may also want to check with your local nursery, home-improvement center or professional landscape designer for ideas on drought tolerant landscaping for your specific property.

1. **Proper planning and design.** While creating a garden plan can take time, it increases the likelihood that you will end up with a beautiful, well planned landscaping, saving time, money and water.
2. **Use Low-Water Need and Native Plants.** These thrive with less water in our hot, dry climate. This type of garden may include many elements, such as trees, grasses, shrubs, ground covers, and flowers. This is one of the easiest ways to practice conservation in the garden; selecting low-water-use vegetation. While water-efficient plants require adequate irrigation while they are developing root systems, once established they need very little water. And contrary to popular belief, many low-water-use plans are green and lush. Some produce blooms in brilliant colors.

This is here, Pg 63
~~it is on page 63~~
and as last page?

3. **Rocks of various sizes** create interesting contrasts in the landscape.
4. **Use of mulches.** Applying a layer of mulch can reduce evaporation; provide weed control, and moderate soil temperatures. Good mulches include rocks, bark, gravel, wood chips, or compost.
5. **Efficient irrigation.** Install an appropriate irrigation system that includes an automatic sprinkler system that targets plantings and avoids runoff. Installing drip or bubbler systems to water shrubs, trees, and flower beds saves hundreds of gallons of water. Irrigating early in the day and late in the evening also conserves water.
6. **Limit turf areas.** Grass, should only be planted where it provides functional or recreational benefits.
7. **Visit the internet:** High Desert Alliance for Water Awareness and Conservation (www.hdawac.org) is a locally sponsored landscape planning resource.
8. **Visit a garden:** Locally there are many landscape demonstrations of various sizes. These can be found at:
 - Copper Mountain College, east end Joshua Tree
 - Joshua Basin Water District, central Joshua Tree
 - Hi Desert Water District, Yucca Valley
 - Mojave Water Agency, Apple Valley
 - Bighorn-Desert View Water Agency

Effective immediately the General Manager shall implement the "Desert Landscape Conservation Guidelines" as set forth in this Policy Statement, with Policy Statement No. 05P-03 hereby rescinded

I, the undersigned, hereby certify that I am the duly-appointed Secretary of the Board of Directors of the Bighorn-Desert View Water Agency, and that at a regular meeting of the Board held on August 23, 2011, the foregoing Policy 11P-01 was adopted by said Board, and that it has not been rescinded or amended since the date of its adoption, and is now in full force and effect.


Judy Cori-Lorono, Board Secretary

RESOLUTION NO. 11R-18

**RESOLUTION OF THE BOARD DIRECTORS OF THE
BIGHORN-DESERT VIEW WATER AGENCY'S
DESIGNATION OF APPLICANT'S AGENT RESOLUTION
FOR NON-STATE AGENCIES**

BE IT RESOLVED BY THE, Board of Directors OF THE Bighorn-Desert View Water Agency.

THAT the General Manager, OR
the Executive Secretary/Personnel Administrator, OR
the Accounting Technician II/Customer Service Representative, OR
the Accounting Technician III/Customer Service Representative, OR
the Water Distribution Operator I, OR
the Water Distribution Operator II

is hereby authorized to execute for and on behalf of the Bighorn-Desert View Water Agency, a public entity established under the laws of the State of California, this application and to file it with the California Emergency Management Agency for the purpose of obtaining certain federal financial assistance under Public Law 93-288 as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, and/or state financial assistance under the California Disaster Assistance Act.

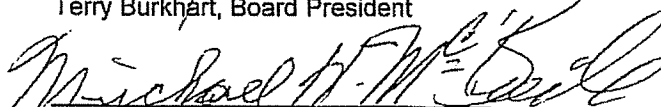
THAT the Bighorn-Desert View Water Agency, a public entity established under the laws of the State of California, hereby authorizes its agents to provide to the California Emergency Management Agency for all matters pertaining to such state disaster assistance the assurances and agreements required.

THAT this is a universal resolution and is effective for all open and future disasters up to three (3) years following the date of approval below.

THAT Resolution No. 07R-01 is hereby rescinded and of no further force and effect.

PASSED AND APPROVED this 3rd day of October, 2011



Terry Burkhart, Board President


Michael McBride, Board Vice President


David Larson, Board Director

CERTIFICATION

I, Judy Cori-Lorono, duly appointed and Board Secretary of the Bighorn-Desert View Water Agency, do hereby certify that the above is a true and correct copy of a Resolution passed and approved by the Board of Directors of the Bighorn-Desert View Water Agency on the 3rd day of October, 2011.


Judy Cori-Lorono

Board Secretary

POLICY STATEMENT
No. 11P-01

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VIEW WATER AGENCY ESTABLISHING
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“DESERT LANDSCAPE CONSERVATION GUIDELINES”

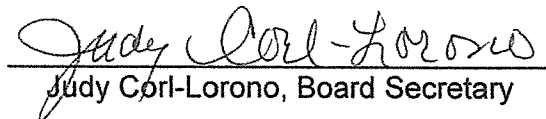
Using drought tolerant Desert landscape offers endless possibilities to conserve nature's most precious natural resource: water. Use the simple guidelines below to get started. You may also want to check with your local nursery, home-improvement center or professional landscape designer for ideas on drought tolerant landscaping for your specific property.


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 - Hi Desert Water District, Yucca Valley
 - Mojave Water Agency, Apple Valley
 - Bighorn-Desert View Water Agency

Effective immediately the General Manager shall implement the "Desert Landscape Conservation Guidelines" as set forth in this Policy Statement, with Policy Statement No. 05P-03 hereby rescinded

I, the undersigned, hereby certify that I am the duly-appointed Secretary of the Board of Directors of the Bighorn-Desert View Water Agency, and that at a regular meeting of the Board held on August 23, 2011, the foregoing Policy 11P-01 was adopted by said Board, and that it has not been rescinded or amended since the date of its adoption, and is now in full force and effect.


Judy Corl-Lorono, Board Secretary

From: Marina West <bdvwa2@mindspring.com> 
Subject: HMP signing authority
Date: May 20, 2014 10:20:04 AM PDT
To: 'Gary Sturdivan' <gsturdivan@me.com>

1 Attachment, 39 KB

Gary, Will this work?

STATE OF CALIFORNIA
CALIFORNIA EMERGENCY MANAGEMENT AGENCY
Cal EMA 130

Cal EMA ID No. 071-91008

RESOLUTION NO. 11R-18

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DESIGNATION OF APPLICANT'S AGENT RESOLUTION
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THAT the General Manager, OR
the Executive Secretary/Personnel Administrator, OR
the Accounting Technician II/Customer Service Representative, OR
the Accounting Technician III/Customer Service Representative, OR
the Water Distribution Operator I, OR
the Water Distribution Operator II

is hereby authorized to execute for and on behalf of the Bighorn-Desert View Water Agency, a public entity established under the laws of the State of California, this application and to file it with the California Emergency Management Agency for the purpose of obtaining certain federal financial assistance under Public Law 93-288 as amended by the Robert T. Stafford Disaster Relief and Emergency Assistance Act of 1988, and/or state financial assistance under the California Disaster Assistance Act.

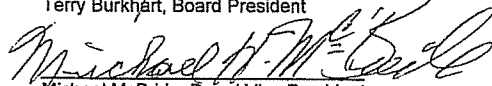
THAT the Bighorn-Desert View Water Agency, a public entity established under the laws of the State of California, hereby authorizes its agents to provide to the California Emergency Management Agency for all matters pertaining to such state disaster assistance the assurances and agreements required.

THAT this is a universal resolution and is effective for all open and future disasters up to three (3) years following the date of approval below.

THAT Resolution No. 07R-01 is hereby rescinded and of no further force and effect.

PASSED AND APPROVED this 3rd day of October, 2011

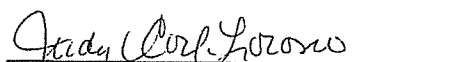

Terry Burkhardt, Board President


Michael McBride, Board Vice President


David Larson, Board Director

CERTIFICATION

I, Judy Cori-Lorono, duly appointed and Board Secretary of the Bighorn-Desert View Water Agency, do hereby certify that the above is a true and correct copy of a Resolution passed and approved by the Board of Directors of the Bighorn-Desert View Water Agency on the 3rd day of October, 2011.


Judy Cori-Lorono

Board Secretary

Attachment “E”

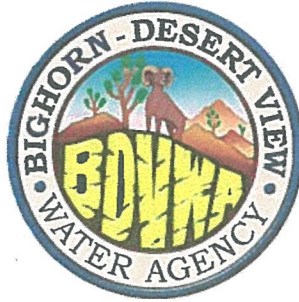
Board Adoption

Bighorn-Desert View Water Agency

Board of Directors

Judy Corl-Lorono, President
J. Dennis Staley, Vice President
Terry Burkhart, Secretary
Michael McBride, Director
J. Larry Coulombe, Director

Marina D West, PG, General Manager



A Public Agency

Agency Office

622 S. Jemez Trail
Yucca Valley, CA 92284-1440

760/364-2315 Phone

760/364-3412 Fax

www.bdvwa.org

Board of Directors' Regular Meeting Minutes

Board Meeting Office
1720 N. Cherokee Trail, Landers, CA 92285
Tuesday, October 28, 2014 – 6:00 p.m.

Call to Order

Meeting convened by Board President Judy Corl-Lorono at 6:00 p.m.

Pledge of Allegiance

Led by John Burkhart

Roll Call

Directors Present:

Judy Corl-Lorono
J. Dennis Staley
Terry Burkhart
Michael McBride
J. Larry Coulombe

Staff Present:

Marina West
Michelle Corbin

Approval of Agenda

Motion to approve the agenda.

MSC¹ (McBride/Burkhart)

Corl-Lorono: Y

Staley: Y

Burkhart: Y

McBride: Y

Coulombe: Y

Presentation of the Agency's Financial Audit

Ken Al-Imam of Mayer Hoffman McCann P.C. reported on the Fiscal Year 2013-2014 Agency Financial Audit. Mr. Al-Imam began with a brief overview of the purpose of the audit and presented examples of the procedures performed by the auditors.

This year his firm focused on the cash investments and cash handling processes. Mr. Al-Imam said he was very happy to announce the agency revenue exceeded expenses by \$103,885.00. Due to the passing and signing of Assembly Bill 246 the agency is no longer required to segregate itself between the original agencies Bighorn Mountains Water and Desert View Water. Mr. Al-Imam also noted the agency water sales were down 3.4% and general administration cost increased due to items such as health care and the Cost of Living Allowance (COLA).

Public comments: No public comments.

Motion No. 14-049

(After brief Board discussion), Director Burkhart made a motion to receive and file the Agency Financial Audit for Fiscal Year 2013-2014 conducted by Mayer Hoffman McCann P.C.. Director McBride seconded the motion.

MSC¹ (Burkhart/McBride)

Corl-Lorono: Y
Staley: Y
Burkhart: Y
McBride: Y
Coulombe: Y

Hazard Mitigation Plan

Consultant Gary Sturdivan presented the final draft of the Bighorn-Desert View Water Agency Hazard Mitigation Plan for adoption by the Board of Directors. Once adopted, the plan will be forwarded to the State of California and the Federal Emergency Management Agency for their approval. Mr. Sturdivan reiterated the purpose of the Hazard Mitigation Plan as it relates to helping the agency receive grant funding for mitigation projects outlined in the plan.

No public comment.

Motion No. 14-050

(After brief Board discussion), Vice President Staley made a motion to adopt the Agency's Hazard Mitigation Plan document dated October 28, 2014. The motion was seconded by Director Burkhart.

MSC¹ (Staley/Burkhart)

Corl-Lorono: Y
Staley: Y
Burkhart: Y
McBride: Y
Coulombe: Y

Ames/Reche Groundwater Storage and Recovery Program

General Manager West gave a power point presentation on the history of the Ames/Reche Groundwater Storage and Recovery Program. West began with an overview of Bighorn-Desert View Water Agency's complaint filed on Hi Desert Water District as it pertains to the drilling and use Well No. 24 and the California Environmental Quality Act. West continued with a chronology of events that followed the stipulation judgment such as acquiring grants, the "strawman" principles, permits obtained and the building of the recharge project itself.

Public comment:

Anonymous, thanked the General Manager and staff for all their efforts in completing this project.

Anonymous commented on the Pioneertown connection cost.

Motion No. 14-051

(After brief Board discussion), Director McBride made a motion to receive and file the Stipulated Amended and Restated Judgment for the Ames Valley Water Basin. Vice President Staley seconded the motion.

MSC¹ (McBride/Staley)

Corl-Lorono: Y
Staley: Y
Burkhart: Y
McBride: Y
Coulombe: Y

CSA 70/W-1 Reorganization Update

General Manager West gave a brief report on the status of CSA 70/W-1. West reported the Local Agency Formation Commission meeting should be held in January 2015. West also stated the California Environmental Quality Act portion of the application may receive a finding that the project is categorically exempt.

No public comment.

Consent Items

- a. Service Order Report, September 2014
- b. Production Report, September 2014
- c. Regular Board Meeting Minutes, September 23, 2014

No Public comment.

Motion No. 14-052

Director McBride made a motion to approve consent items a - c. The motion was seconded by Director Coulombe.

MSC¹ (McBride/Coulombe)

Corl-Lorono: Y
Staley: Y
Burkhart: Y
McBride: Y
Coulombe: Y

Matters Removed From Consent Calendar – None

Public Comment Period - None

Verbal Reports

General Manager West reported that tonight's presentation on the Ames/Reche Groundwater Storage and Recovery Program will be presented at the Mojave Water Agency meeting on November 6.

Vice President Staley reported on the Mojave Water Agency Technical Advisory Committee meeting he had attended.

Director Coulombe reported on the California Special District Association conference where he attended a seminar on the California Environmental Quality Act. Director Coulombe also reported on the Mojave Water Agency meeting and Joshua Basin Water District recharge project ribbon cutting he attended on October 9, 2014. Lastly, Director Coulombe gave a brief report on the Alliance for Water Awareness and Conservation (AWAC) meeting held on October 22, 2014.

Director McBride reported on the California Special District Association conference where he attended seminars on public communications and crisis communications as well as a seminar on the 2014 drought.

President Cori-Lorono reported on the California Special District Association conference where she accepted the Special Districts Leadership Foundation - District Transparency Certificate of Excellence Award.

Future Agenda Items

No items suggested.

Adjournment – President Judy Cori-Lorono adjourned the meeting at 7:47 p.m.

Approved by:

Terry Burkhardt, Secretary of the Board

MSC¹ – Motion made, seconded, and carried.