

# Inland Geological Society

December 2015

Newsletter of the Inland Geological Society

Volume 31 No. 12

Wednesday,  
December 2<sup>nd</sup>

Time:

Social: 6:00pm  
Dinner: 7:00pm  
Lecture: 7:30pm

Location:

LSA Associates  
1500 Iowa Ave  
Suite 200  
Riverside, CA  
92507  
(Map on Pg. 4)

Coming to  
Dinner?

Please RSVP:  
By Monday 11/30  
(909) 227-7704  
Baircrystal@ca.rr.com

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## **December Speaker:**

**Ms. Marina West, PG**

General Manager, Bighorn-Desert View Water Agency

## **A Poor Judgment Can Lead to Better Judgment**

*Abstract*

In 2014, Bighorn-Desert View Water Agency (BDV), a “small water system” serving approximately 3,050 residents (1,900 service connections) in rural unincorporated San Bernardino County, in partnership with the Mojave Water Agency (MWA), completed a project known as the Ames/Reche Groundwater Storage and Recovery Program (Ames). This capital project, first outlined in the MWA 2004 Integrated Regional Water Management Plan and was awarded the 2015 Clair A. Hill Water Agency Award for Excellence for being creative and innovative, fiscally responsible and environmentally sensitive while fostering excellence in a collaborative stakeholder-driven effort among the five participating water supply agencies and recognized as a regional solution to local groundwater basin sustainability.

The Ames project was a hallmark of local creativity and innovation as it aimed to develop a mutually cooperative arrangement for management in the Ames Groundwater Basin. The basin underlies the service territory of BDV, but several municipal suppliers export from the basin. The other project partners are Hi Desert Water District, Mojave Water Agency, County of San Bernardino Water Zones W-4 (Pioneertown) and Zone W-1 (Landers). From the Ames Basin, these agencies pump a total annual basin production of approximately 1,650 Acre-Ft. In order to avoid costly litigation and court imposed

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adjudication, these agencies came to accept the management needs and parameters outlined in the BDV Conceptual Model for the Ames Groundwater Basin, Ames Basin Groundwater Management Plan including calibrated MODFLOW groundwater model and water budget, feasibility studies of recharge potential at the preferred location, environmental proceedings in accordance with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) and all associated state and federal permits (ie. take permit, streambed alteration, mitigation lands, etc.) which eventually led to the design and construction of the groundwater recharge facilities necessary to sustain this critically important native resource. These producers negotiated an agreement which resulted in groundwater production caps, a robust monitoring program administered by MWA (ie. neutral party), a facility to mitigate pumping beyond limits or to “pre-store” State Water Project, development of long-term storage accounting protocols allowing for a “water market” between agencies for the unused native groundwater baselines and implementation of a fee to BDV for utilization of groundwater basin storage underlying the agency boundaries as well as accounting for exportation out of the basin by the other parties and thus loss of non-consumptive return flows. In 2014, the municipal producers, along with MWA acting as our State Water Contractor, voluntarily entered into a Court Approved Stipulated Judgment to finalize this innovative and cooperative groundwater management program. The Judgment marks the completion of the original project concept outlined in the 2004 MWA Integrated Regional Water Management Plan.

Funding for the project came from an Environmental Protection Agency State and Tribal Assistance Grant secured by BDV approximating \$475,000 and a \$1,000,000 grant from MWA. BDV was able to accomplish all project objectives with the funds provided and at no cost to the BDV customers while concurrently providing huge benefit to the customers of Hi Desert Water District and County of San Bernardino who did not provide any capital funding. The BDV Board of Directors has declared that this project marks the completion of a “generational” promise to bring an outside source of water into the Ames Basin to supplement that which is recharged naturally. The project connects the Ames Basin to the State Water Project via a 3,650 foot conveyance pipeline and is designed to recharge up to 1,500 acre-ft annually on 6 acres of federally managed land. The project parameters were designed to specifically meet the participant’s demands for imported water well into the future.

From the beginning BDV Staff was determined to avoid environmental conflict in designing this project within the deeply incised Pipes Wash (dry wash) identified as the only and therefore critically important wildlife linkage corridor between the San Bernardino Mountains and the Twentynine Palms Marine Corps Air Ground Combat Center. Furthermore, areas within the wash are inhabited by the federally threatened Desert Tortoise. To that end, traditional engineering designs including mass grading/clearing of native vegetation and excavation of “recharge basins” were avoided. Instead the land was used in a manner that promotes biodiversity conservation, environmental education, low-impact outdoor recreation and thus preserves open space and the scenic beauty of the adjacent proposed Black Lava Buttes Area of Critical Environmental Concern (ACEC). This project avoids visual impact by working in close proximity to already disturbed portions of the wash, leaving all native vegetation in place thus minimally disturbing the ground and allowing natural processes to continue. Further minimizing the footprint, the project was located in close proximity to the BDV Morongo Basin Pipeline and metering structure (turnout) which connects Morongo Basin region to the State Water Project delivery system.

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Due to limited allocation of State Water Project during 2014, a total of 50 Acre-Ft or 13% of annual demand was recharged at the facility on behalf of BDV. Another 50 Acre-Ft was delivered in 2015 to this fully operational facility.

**Biography:**

Ms. Marina West is the General Manager of the Bighorn-Desert View Water Agency where she has served in that capacity since 2008. Bighorn-Desert View Water Agency (BDVWA) is a small water system serving the hi-desert communities of Landers, Flamingo Heights and Johnson Valley. Over the past 8 years, Ms. West has led BDVWA out of some tough financial and public relations issues, but considers among her top achievements the completion of the Ames/Reche Groundwater Storage and Recovery Program for which the Agency was selected to receive the 2015 Clair A. Hill Water Agency Award for Excellence from the Association of California Water Agencies as well as the recently completed Local Agency Formation Commission (LAFCO) action to dissolve an adjacent small county run water district so that it could be annexed into BDVWA thus enlarging the Agency's customer base by 30% and further stabilizing the Agency's position in the region.

Prior to joining Bighorn-Desert View Water Agency, she was the Chief of Operations for the Joshua Basin Water District for 4-years having turned from a 16-year career with the Orange County Water District's Hydrogeology Department. Ms. West's interest turned from the hydrogeology focus to water distribution around the turn of the century after she was assigned to operate and manage the OCWD Talbert Barrier (a series of injection wells designed to form a barrier against seawater intrusion). This was not just a series of injection wells, but a distribution system comprised of pipelines, valves and a pump station fueled by the effluent of Water Factory 21 (OCWD's first advanced wastewater treatment plant decommissioned to make way for the Groundwater Replenishment System). At the time of her departure from OCWD, Ms. West was working with the engineering and consulting staff on the design of the next generation of injection wells and control strategies.

Ms. West holds a Bachelor of Science in Geology from Cal Poly Pomona (1988), a certificate in Water Distribution from Santiago Canyon College (2000) and a Master of Public Administration from Cal State San Bernardino (2011). She is a registered Professional Geologist in California and is also licensed with the state as a Distribution Operator (D5) and a Treatment Operator (T2).

## **Request for Assistance and Resources**

Ms. Shelby Barker will be teaching the Field Methods of Hydrogeology course this upcoming winter quarter in CSU San Bernardino's Geology Department. The course meets mid-January through March on Friday's from 10 AM to 5:50 PM. She would like to take the student's to observe field activities such as drilling operations (students would remain at a safe distance), groundwater monitoring and gauging, treatment and/or remediation facilities, etc. She is also interested in having speakers present to the students. Please contact Ms. Barker by cell at 760-680-0389 or by email at [Shelby.Barker@acem.com](mailto:Shelby.Barker@acem.com) if you have any opportunities available for this course.

## Upcoming Meetings/Events

### Rock & Gem Shows—Various locations

Various rock and mineral shows will be throughout So. California. To find one near you, visit [www.rockngem.com/showdates.asp](http://www.rockngem.com/showdates.asp)

### AEG—So. California Chapter Meeting



The next meeting info has not been announced. For more info., visit the So. California Chapter at [www.aegsc.org/calendar/](http://www.aegsc.org/calendar/).

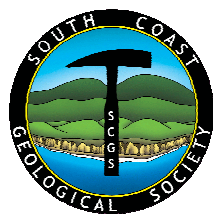
### AEG—Inland Empire Section Meeting



Dr. Jeff Keaton, Principal Engineering Geologist at AMEC Foster Wheeler, will be giving a talk on "Earthquake Ground Motion for Design of Hoover Dam Bypass Bridge" on

**Wednesday, December 9, 2015.** For more info., visit [www.aegsc.org/chapters/inlandempire/](http://www.aegsc.org/chapters/inlandempire/).

### South Coast Geological Society Meeting



To get information regarding SCGS's upcoming meeting, please visit SCGS on Facebook and/or [www.southcoastgeo.org](http://www.southcoastgeo.org).

### Los Angeles Basin Geological Society



LABGS has not posted their November meeting; however, it's generally the 4th Thursday of each month. Visit their website for more info. ([www.labgs.org](http://www.labgs.org)).

### San Diego Assoc. of Geologists Meeting



Tom Deméré with the San Diego Natural History Museum will be giving a presentation at the December meeting. For more info, visit [www.sandiegogeologists.org](http://www.sandiegogeologists.org).



## IGS Meeting Schedule

### **January 7, 2016 (Thursday)**

Dr. Norman Meek, CSUSB Department Chair,  
Geography  
*TBD*

### **February 3, 2015 (Wednesday)**

*TBD*

**IGS MEETING LOCATION:**

**LSA Associates, Inc.**  
**1500 Iowa Ave, Suite 200**  
**Riverside, CA 92507**

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