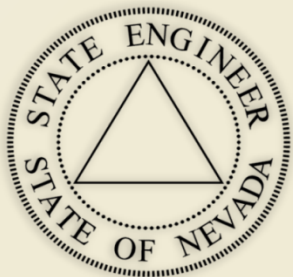


The Australian Approach to Water Management

A Pilot Project in Diamond Valley, Nevada

2016 Western State Engineer's Annual Conference
Zion National Park, Utah

Jason King, P.E.
Nevada State Engineer
Monday, September 26, 2016



Diamond Valley

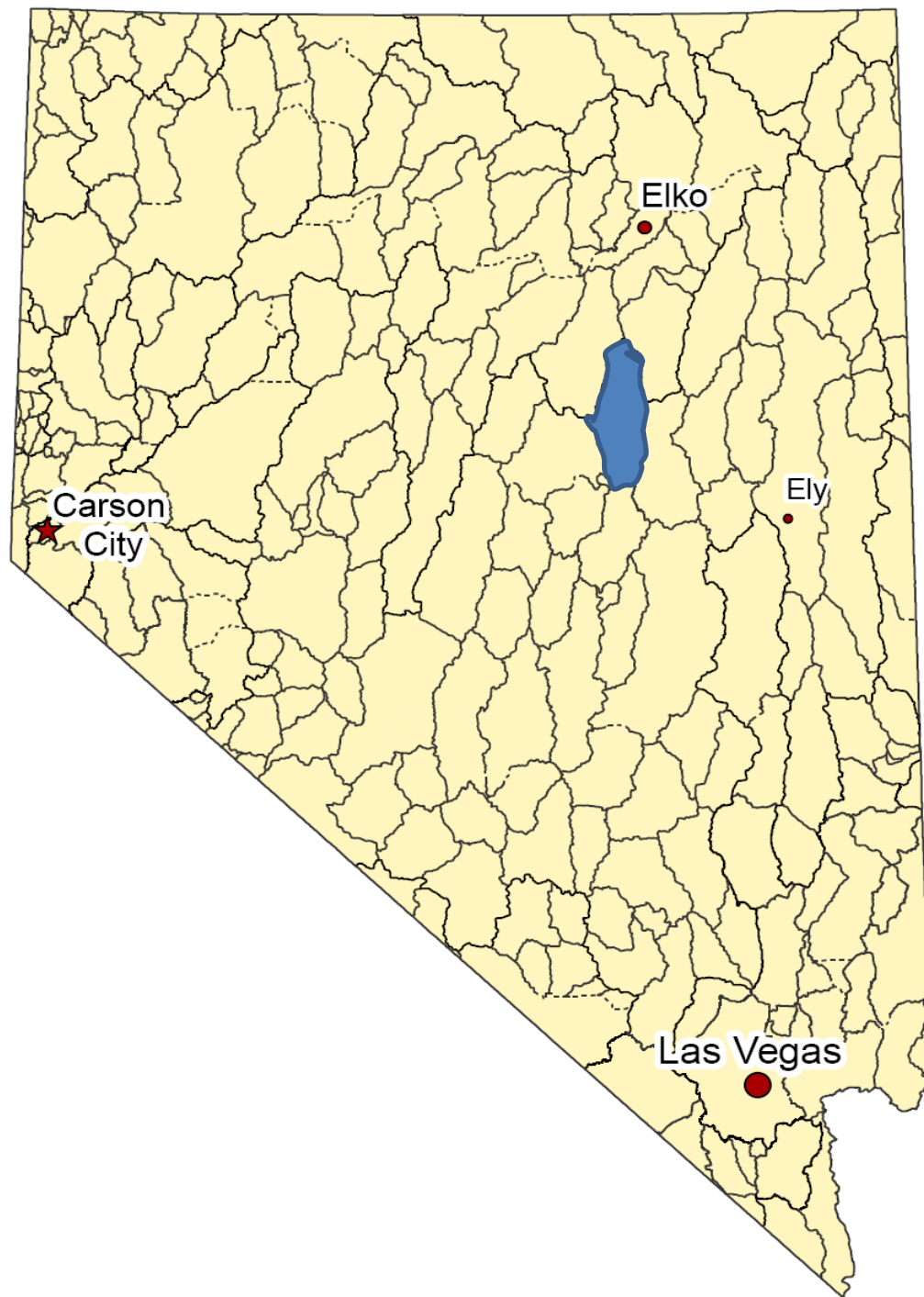
Perennial Yield:

30,000 – 35,000 AF

Committed:

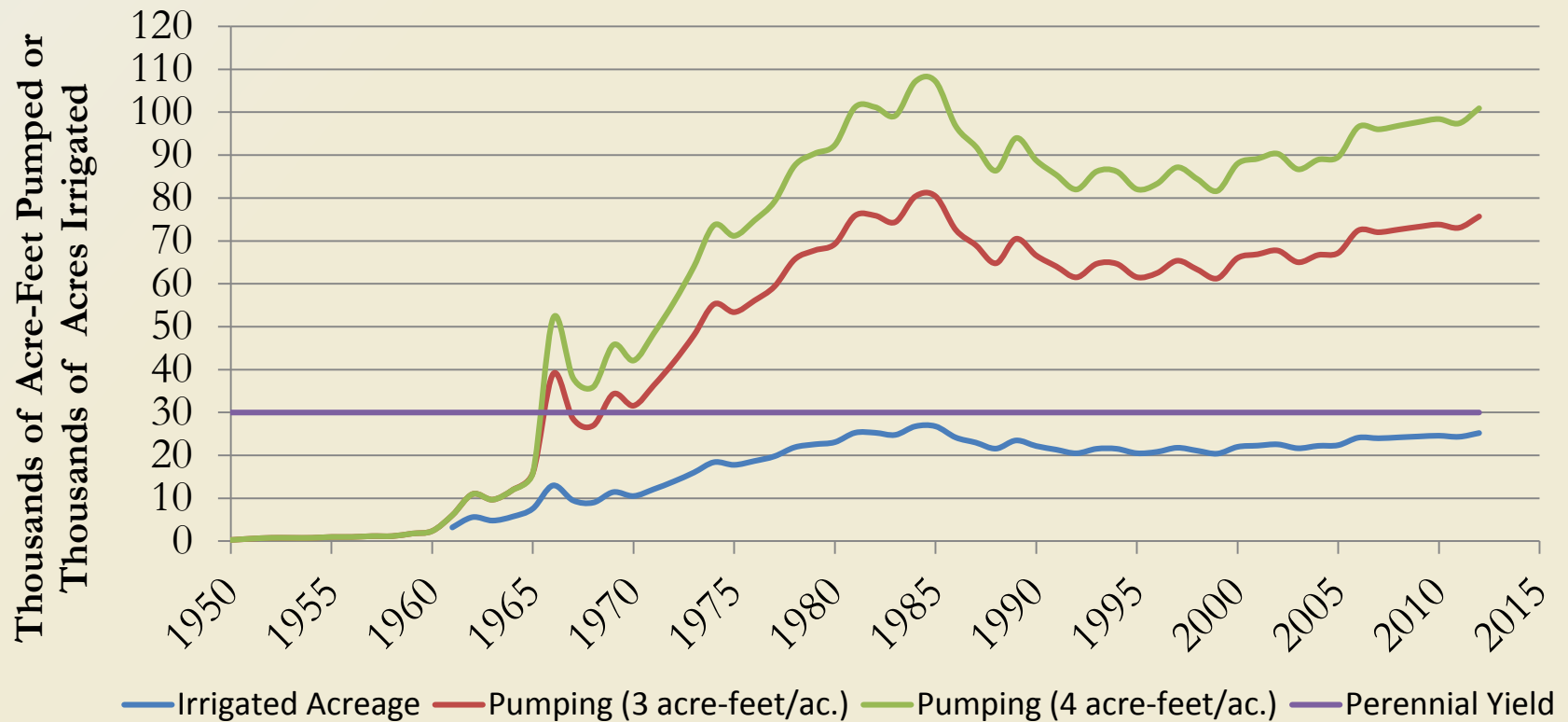
131,000 AF

(125,000 AF in AG at 4 AFA)



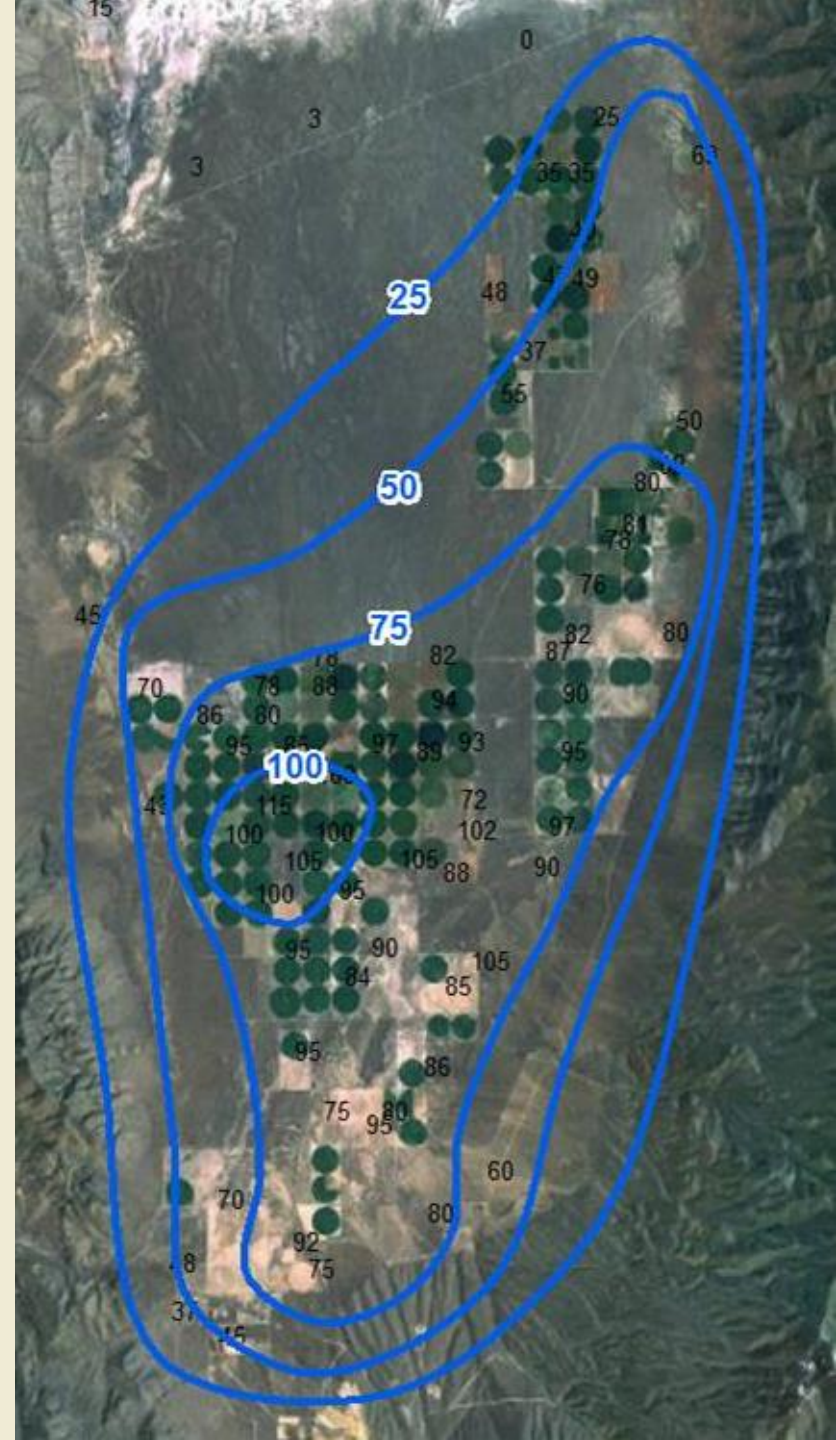
Historical Agricultural Use

Estimated Irrigated Acreage and Estimated Pumping in Diamond Valley, Nevada, from 1950 through 2012



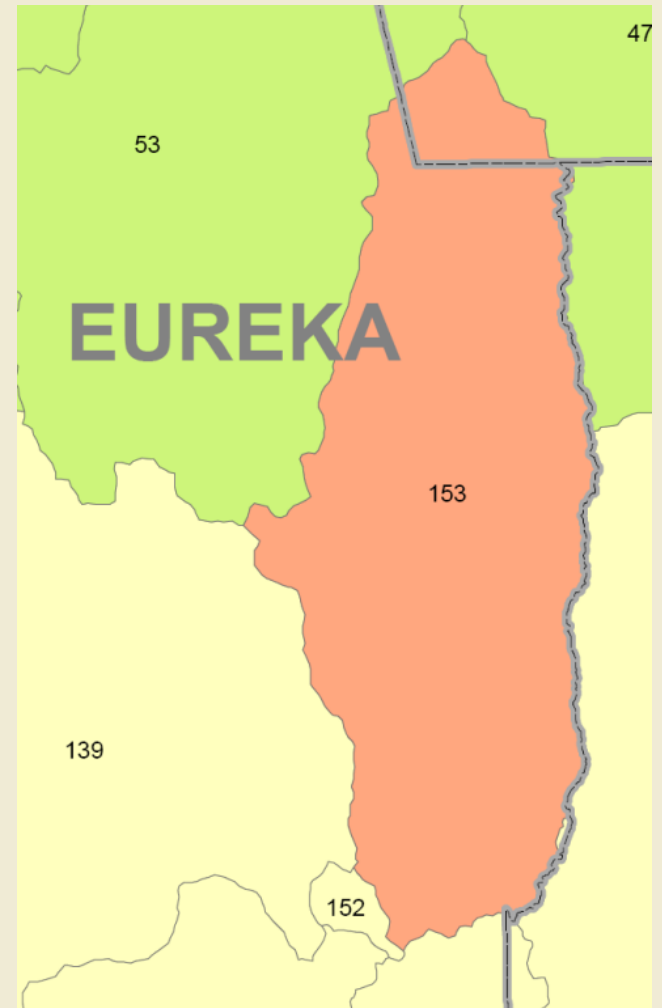
Data for 1950-65 are from Bulletin 35 (Harrill, 1968), data for 1966-89 and 1991-2012 are from files of NDWR, and data for 1990 are based on a field inventory by U.S. Geological Survey (Arteaga et al, 1995).

Approximate Groundwater Level Decline Due to Agricultural Pumping



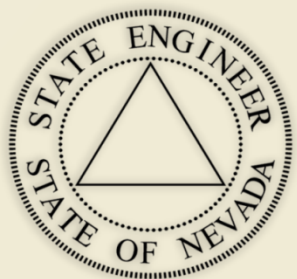
Diamond Valley

Order No.	Order Date	Type
277	08-05-1964	Designation (portion)
280	08-28-1964	Amended Designation
541	12-22-1975	Notice of Curtailment
717	07-10-1978	Notice of Curtailment
809	12-01-1982	Totalizing Meter
813	02-07-1983	Amendment of Order 809
815	04-04-1983	Amended Designation
1226	03-26-2013	Further Curtailment



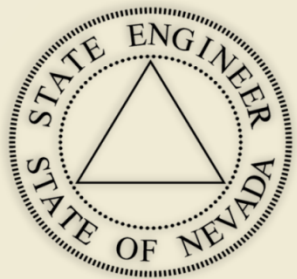
Urgency

- Groundwater depletion will affect ability to economically irrigate.
- Unsustainable in the long term, and may even be *unsustainable in the short term*.
- Concerned about *irreversible harm* from continued over-draught.



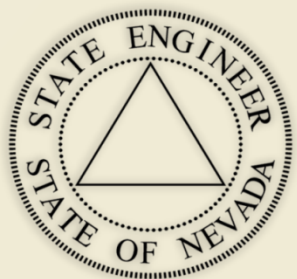
Declared Diamond Valley a Critical Management Area

August 25, 2015



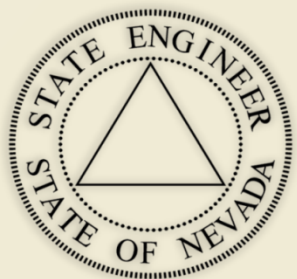
Critical Management Area (CMA)

- NRS 534.110(7) - The State Engineer:
 - (a) **May** designate as a critical management area any basin in which withdrawals of groundwater consistently exceed the perennial yield of the basin.
 - (b) **Shall** designate as a critical management area any basin in which withdrawals of groundwater consistently exceed the perennial yield of the basin upon receipt of a **petition for such a designation which is signed by a majority of the holders of certificates or permits** to appropriate water in the basin that are on file in the Office of the State Engineer.



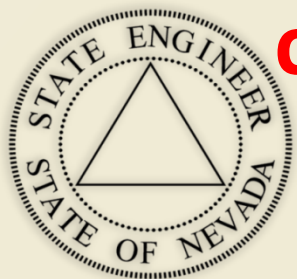
Critical Management Area (CMA)

- NRS 534.110(7) - The State Engineer:
 - If a basin has been designated as a critical management area for at least 10 consecutive years, the State Engineer **shall** order that withdrawals, including, without limitation, withdrawals from domestic wells, be restricted in that basin to conform to priority rights, *unless a groundwater management plan has been approved for the basin pursuant to NRS 534.037.*



Groundwater Management Plan (GMP)

- A petition signed by a **majority of the holders of permits or certificates** in the basin for the approval of a groundwater management plan.
- The petition must be accompanied by the groundwater management plan, which must set forth **the necessary steps for removal of the basin's designation as a critical management area.**



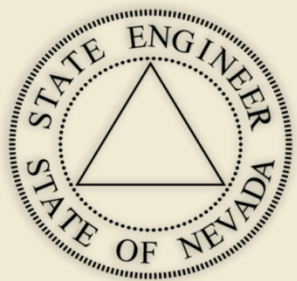
Unbundling of Water Rights The Australian Framework



Unbundling Water Rights

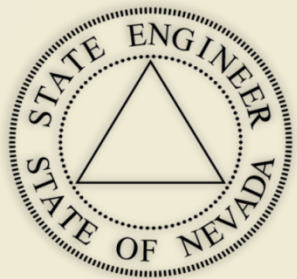
Diamond Valley

- January 1, 2017 proposed start date
- The plan shall be reviewed after 3 years for possible amendments
- ONLY groundwater irrigation rights (including valley floor springs) and those rights that began as irrigation, are subject to the GMP
 - Represents 97% of the rights in the basin



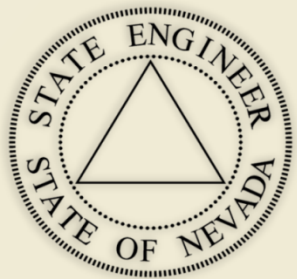
Unbundling Water Rights

- ALL irrigation right holders agreed to begin the GMP with a 25% reduction of their paper rights by 25% (3 AFA instead of 4AFA)
- Begun installation of smart meters on all irrigation rights
 - Stringent meter installation requiring certification
- Smart meters will report to a database via telemetry (cell router), and will debit diversions from account



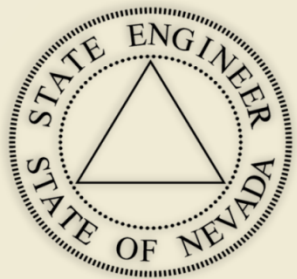
Unbundling Water Rights

- Diamond Valley Groundwater Authority
 - SE, as Chair, establishes the Board of 5 members
 - No member shall have a direct interest in businesses that uses > 5AF in Diamond Valley
 - No member shall hold or have an interest in any share in Diamond Valley
 - There is a CEO on the Board who is the point contact to the SE.
 - Each term is for no more than 5 years.



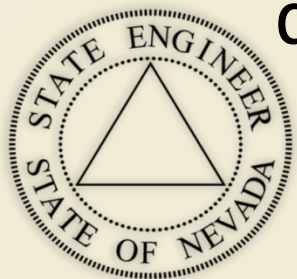
Unbundling Water Rights

- Diamond Valley Water Resource Advisory Panel
 - Eight (8) member panel
 - Made up of irrigators and mining interests (base rights were irrigations) within Diamond Valley
 - Makes recommendations to the Management Board



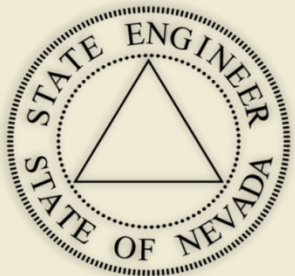
Unbundling Water Rights

- Every water user must have a ***Use Approval***
- Each ***Use Approval*** is linked to a Water Account
- Online “Share Register” that shows all the Water Accounts
 - Google “Waterfind Australia”
- Throughout the irrigation season, all diversion of irrigation water will be deducted from the Water Account



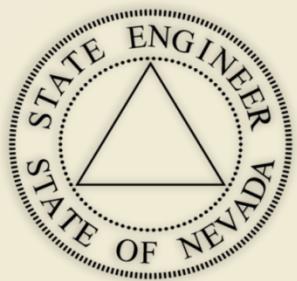
Unbundling Water Rights

- The GMP
 - 2017, Total Assigned Volume of water is 74,000 AF and converted to shares. After the initial 25% across the board reduction:
 - Junior users are reduced by an additional 20%
 - Senior users not reduced in 1st year
 - Goals:
 - 30% pumping reduction after 10 years
 - Locked in for the 1st 10 years
 - 50% pumping reduction after 30 years
 - Maximum 2% deviation from previous year



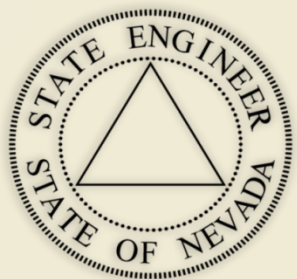
Unbundling Water Rights

- Banking of water is allowed
 - Can be leased or sold
- Funding the program
 - Basin assessments
 - Penalties
 - Annual well charge (to keep account active and linked to register)
 - Transaction fees within the share register



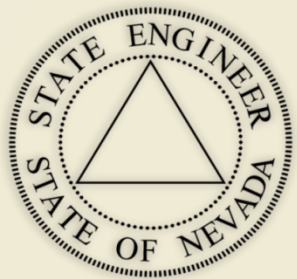
Unbundling Water Rights

- Exit Ramp - after 5 years (2022), if more than 20% of the stakeholders don't believe the GMP is working, a meeting will be held to vote on its future.
 - If more than 30% (prorated by shares) vote for discontinuation of the GMP, it shall cease to exist.
 - Shares are converted to water right equivalents.



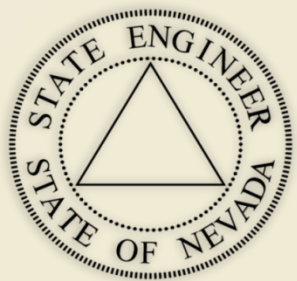
Unbundling Water Rights

**State Engineer retains authority under
GMP for conflict/impairment analysis!**



Unbundling Water Rights

- Need statutory change to make legal
- Several Bill Draft Requests in the queue for 2017 legislative session to do just that!





Train Wreck Or Panacea?



Nicholas Institute for
Environmental Policy Solutions

Unbundling Water Rights: A Blueprint for Development of Robust Water Allocation Systems in the Western United States

Michael Young*

with assistance from
Peter Culp*
Disque Deane, Jr.*
Martin Doyle*
Christine Esau**
Tim Profeta*
Sam Routson**
David Sunding**



Questions?

