

Division of
WATER RESOURCES

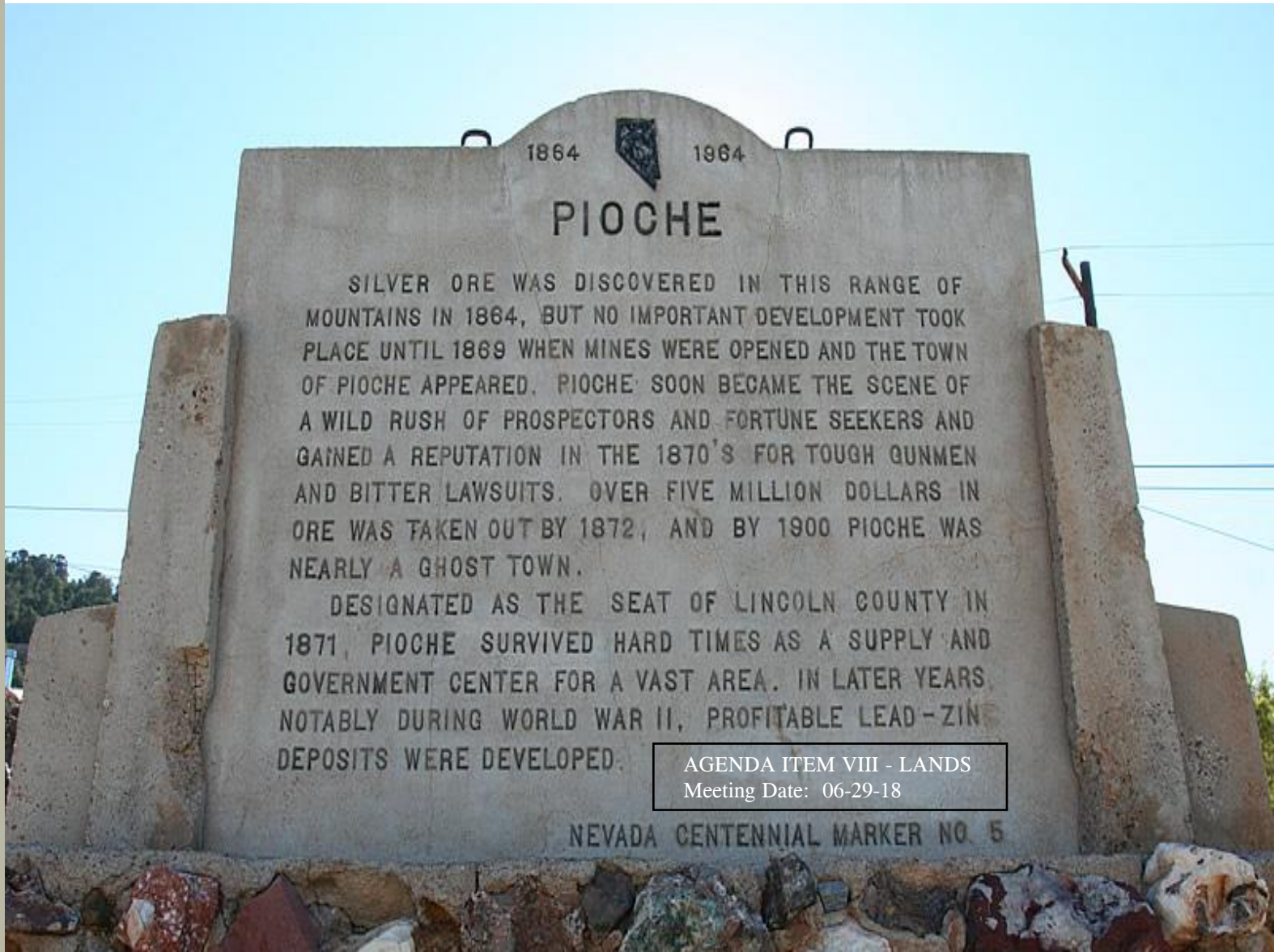
Legislative
Committee on
Public Lands

Jason King, P.E.
State Engineer

Pioche, NV
June 29, 2018

DEPARTMENT OF
CONSERVATION &
NATURAL RESOURCES

Overview of Current Issues



AGENDA ITEM VIII - LANDS
Meeting Date: 06-29-18

Nevada Division of Water Resources

Mission Statement:

To conserve, protect, manage and enhance the state's water resources for Nevada's citizens through the appropriation and reallocation of the public waters.

Current Issues

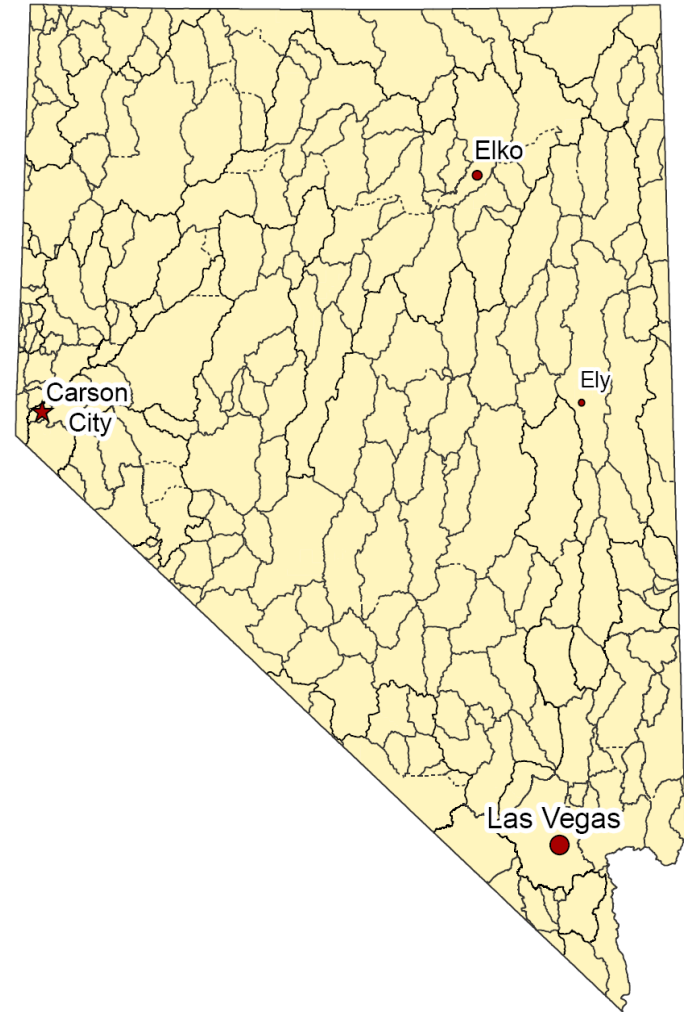
1. Severely over-appropriated groundwater basins
2. Conjunctive Management
3. Domestic wells
4. Lower White River Flow System

Issue #1

How to bring severely over-appropriated groundwater basins back into balance?

Groundwater Management in Nevada

Nevada's groundwater is divided into 256 hydrographic basins and sub-areas



Groundwater Management in Nevada

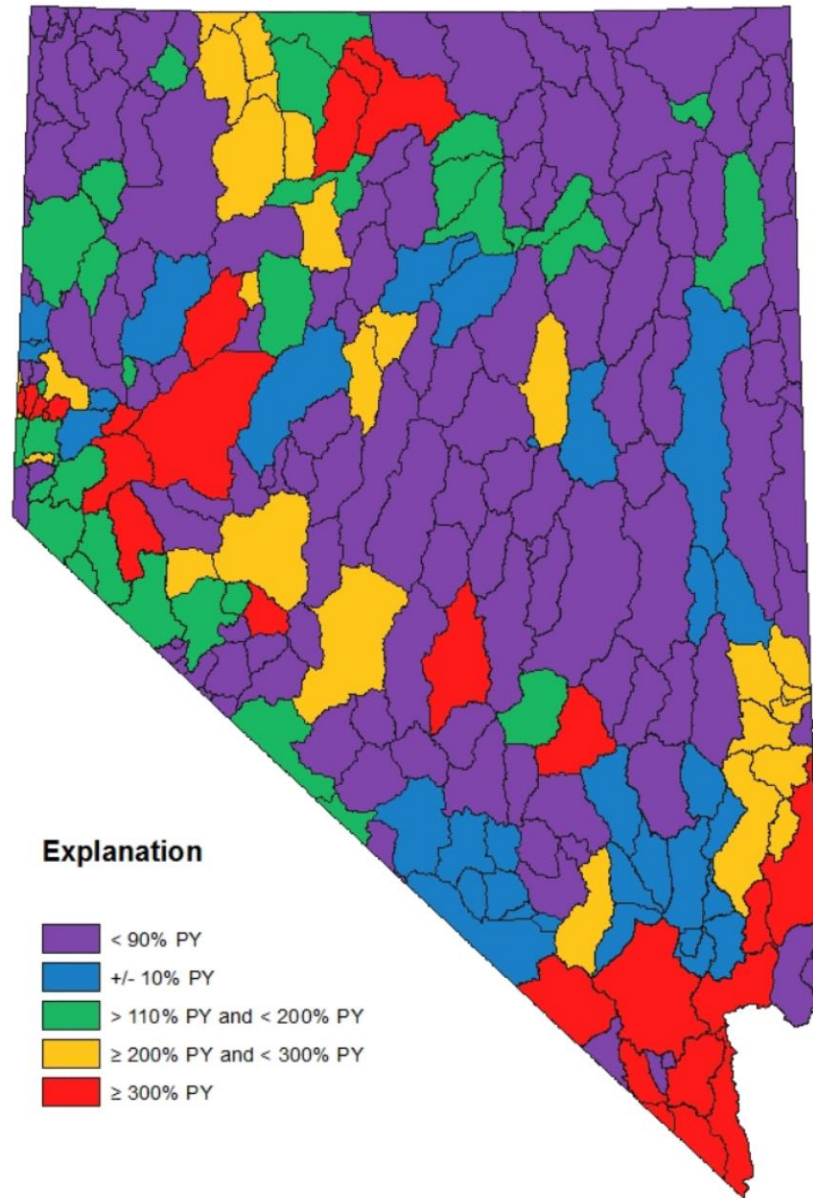
Amount of groundwater available based on the
Perennial Yield Concept

- The maximum amount of ground water that can be salvaged each year over the long term without depleting the ground water reservoir.
- The goal is to **not** allow the consumptive use of groundwater rights and domestic wells to exceed the basin's perennial yield.

Perennial Yield Values

- Highest: 84,000 af – Spring Valley
- Lowest: 10 af – Emigrant Valley-Papoose Lake Valley
- Approximately 25% of basins have a PY < 1,000 af
- Sum of PY's = ~2 million acre-feet

Ratio of Committed Groundwater Resources to Perennial Yield by Basin



How Did the Basins get Over-Appropriated?

- Of the basins that are over appropriated, most were already over appropriated prior to the Perennial Yield (PY) being established (keep in mind that 25% of PY's are < 1000 acre-feet).
- Popular thinking that not all rights would be put to their maximum beneficial use, so it was acceptable to over-appropriate.
- Desert Land Entry Success Rate
 - Diamond Valley and Pahrump Valley
- In the case of Las Vegas Valley, purposely allowed to overdraft (revocables) with the intent that infrastructure would eventually be in-place to deliver Colorado River water and the over pumping would be curtailed.

How to deal with severely over-appropriated groundwater basins?

- Curtail by priority; or
- Designate Critical Management Areas
 - Starts 10 year time clock to develop a Groundwater Management Plan (GMP); or
- Voluntary stakeholder GMP's

Severely Over-Appropriated Basins

- Need a more robust statutory framework to provide stakeholders the ability to create and adopt a groundwater management plan for approval by the State Engineer's Office.
- The framework needs to allow for maximum flexibility in terms of what tools can be used to bring a basin back to a sustainable level.

Groundwater Management Plans

- Pahrump Valley GMP
 - Approved by Nye County Water District Governing Board, February 26, 2018
 - Approved by Nye County Board of Commissioners, April 17, 2018
- Propose a 50-year water balance

Groundwater Management Plans

- Diamond Valley GMP
 - Draft finalized in May
 - Public meeting held at the Opera House on June 5th to review content, answer questions and begin gathering petition signatures
 - All water right holders in the basin were provided a bound copy of the GMP with all appendices, a petition, and a cover letter requesting that petitions be returned in 30 days.
 - If holders were not present at the June 5th meeting, then this information was provided by certified mail.

Groundwater Management Plans

- Diamond Valley GMP
 - Public meeting to be held on Tuesday, June 26th to tally signatures and verify signatures and ownership as needed.
 - If a majority has not signed, additional petition signatures will be sought through direct personal contact. A final public meeting is planned on July 24th to again tally signatures and verify ownership as needed.
 - If a majority has signed, the GMP will be submitted to the State Engineer. Their goal is to submit the GMP to the State Engineer by August 1st, and request a hearing in August in Eureka.

Issue #2

Conjunctive Management

To manage conjunctively the appropriation, use and administration of all waters of this State, regardless of the source of the water.

NRS 533.024(1)(e)

Nevada's Water Law

- Surface water law – NRS Chapter 533
- Groundwater law – NRS Chapter 534
- 1000's of decisions and dozens of court affirmations have molded water policy in Nevada
- The water law and science have not always been harmonized
 - There have been numerous State Engineer decisions that dealt with groundwater/surface water connectivity over time but there hasn't been enough momentum to further the effort.

Some History

IV.

The State Engineer concludes that Nevada water law provides for the management of surface water and ground water as distinct sources. The State Engineer concludes that to change that scheme of water management at this point in time would conflict with existing rights and threaten to prove detrimental to the public interest. The State Engineer also concludes that since he has

Ruling 5079, 2001

The Problem

- Surface water used first, typically most senior priority
- Groundwater, generally, used after surface water fully appropriated, therefore junior to surface water rights
- In hydrologically connected systems, groundwater pumping either captures water that would ordinarily flow to the river OR pulls water from the river into the groundwater resource.
- Nevada's water law, based on the prior appropriation doctrine, must protect existing rights from subsequent use.

Humboldt River

- Fully decreed
 - Priorities are 1860's to early 1900's
 - 285,000 acres irrigated under the decree, rights total ~700,000 af
 - Flows through 34 groundwater basins.
- Current groundwater appropriations of 716,000 af
 - 2016 pumpage ~323,000 af
 - 43,000 af above Palisade
 - 280,000 af below Palisade
- All Decree rights senior to all groundwater rights

Humboldt River

- USGS and DRI building a capture model of the entire drainage
 - Best available science
 - Completion by the end of 2019
 - Better define surface water – groundwater connectivity
- Humboldt River Working Group (HRWG) created
 - Members represent agriculture, mining, municipal interest from upper, middle and lower Humboldt River
- Goal is to adopt regulations to address mitigation (augmentation) using the capture model results.

Issue #3

How to deal with exempt domestic wells in fully appropriated groundwater basins?

Domestic Wells

- Domestic wells – only exempt use in our water Law
- Domestic wells have a priority of the date that the well was completed. 534.080(4)
- Curtailment by priority

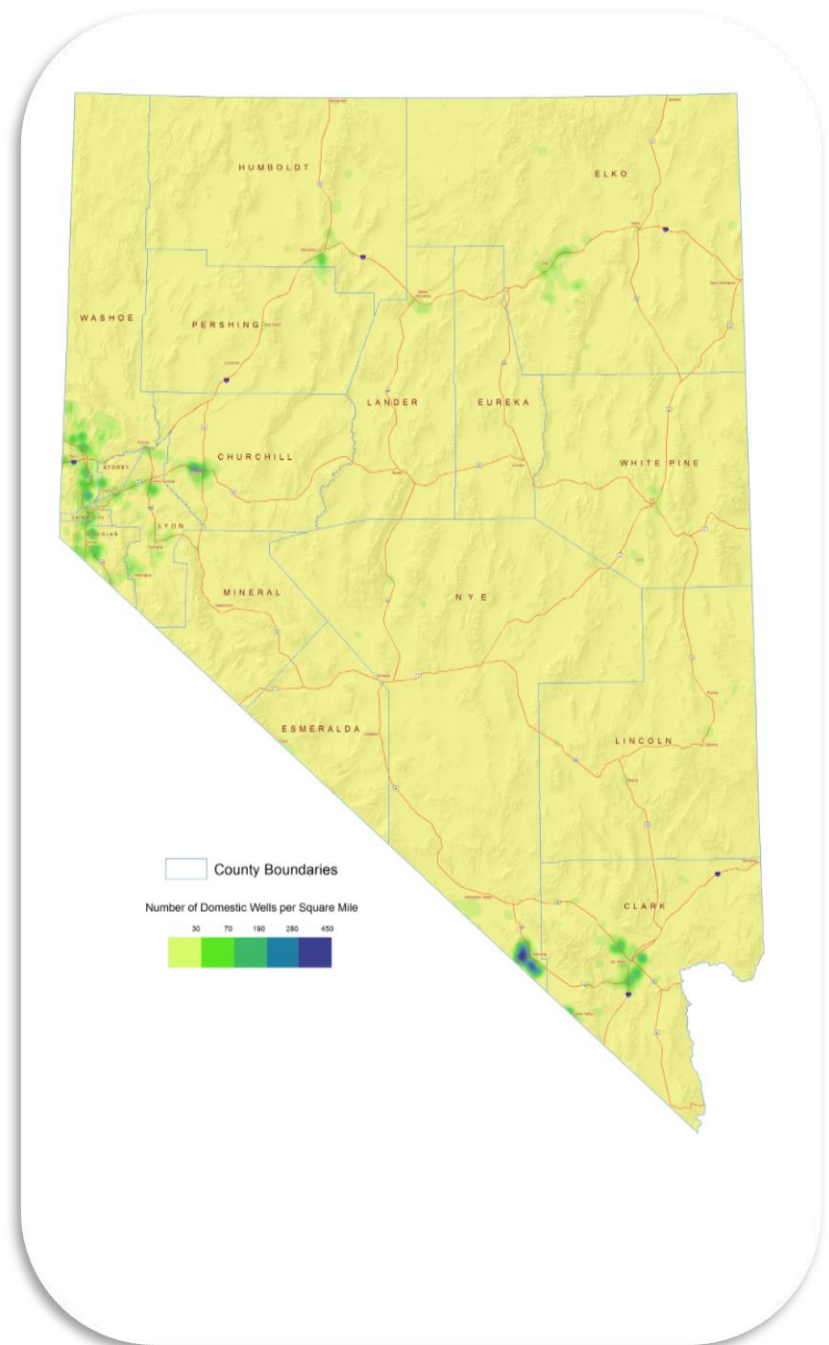
“... where it appears that the average annual replenishment to the groundwater supply may not be adequate for the needs of all permittees ...the State Engineer may order that withdrawals, including, without limitation, withdrawals from domestic wells, be restricted to conform to priority rights.” 534.110(6)

Domestic Wells

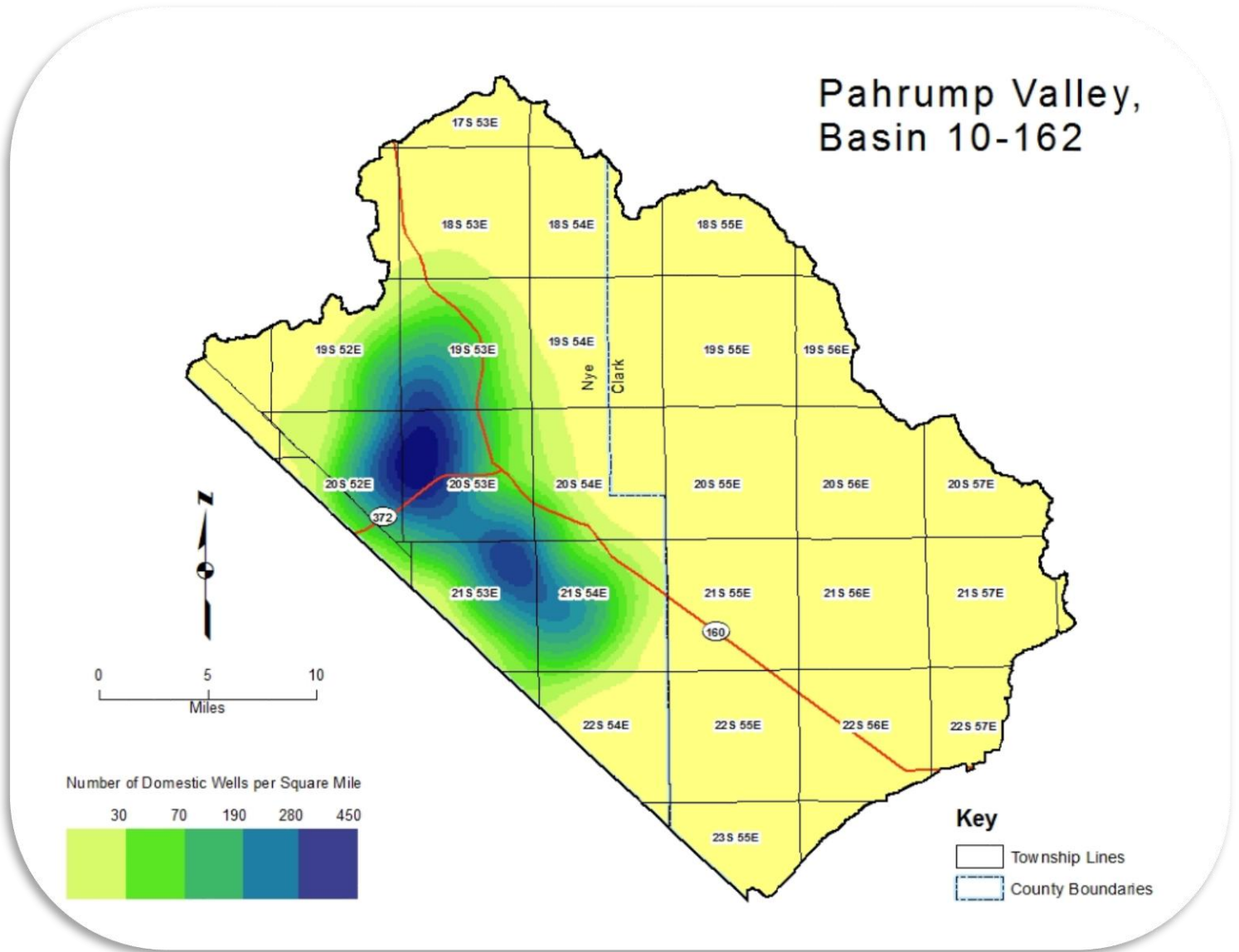
Total 50,342

Top 5 By Basin:

1.	Pahrump	11,280	22%
2.	Las Vegas	5,682	11%
3.	Carson Desert	4,086	8%
4.	Carson Valley	3,759	7.5%
5.	Truckee Meadows	1,753	3.5%



Domestic Wells in Pahrump



Domestic Wells

2017 Legislative Session

- SB 271 - during times of curtailment, only outdoor water would be stopped.
- SB 272 - in basins consistently over-pumped, domestic wells could be ordered whereby they can only pump .5 AF instead of 2.0

Both bills failed

Domestic Wells

- Order 1293 issued 12/19/17 in Pahrump, prohibiting the drilling of any new domestic wells without the dedication (relinquishment) of 2.0 acre-feet (AF) of a valid water right
- Order was appealed
- Motion to stay of the Order was also filed
 - The stay was heard on May 10th and the court denied the motion to stay.

Domestic Wells

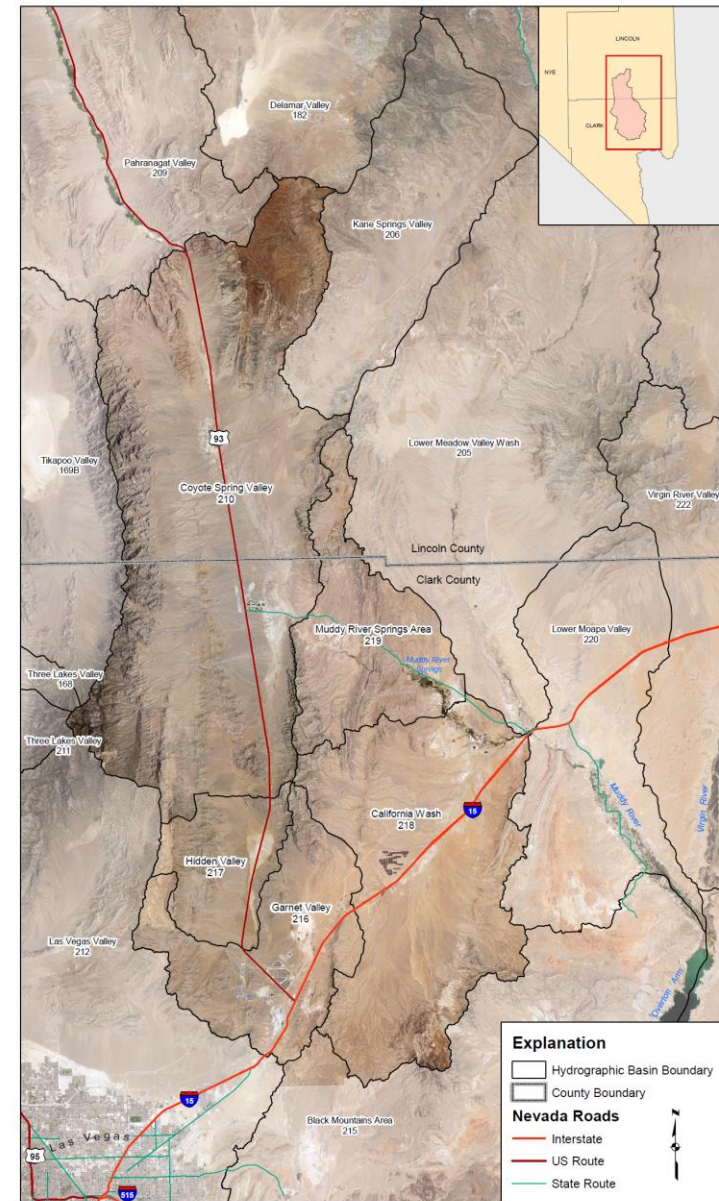
- In severely over-appropriated basins, why should any more exempt domestic wells be allowed when they will be the first to be cut-off during curtailment?
- Need a statutory amendment to provide a softer landing for domestic well owners in times of curtailment.

Issue #4

Lower White River Flow System

Lower White River Flow System

- Coyote Springs Valley
- Muddy River Springs Area
- Hidden Valley
- Garnet Valley
- California Wash
- Black Mountains Area (NW area)



June 2018 0 5 10 20 Miles Nevada Division of Water Resources Office of the State Engineer Jason King, P.E. State Engineer

Summer 2017 imagery from the National Agriculture Imagery Program (NAIP)

Lower White River Flow System

Background

2002

Our office issued Order 1169 holding in abeyance pending applications in the carbonate aquifer (LWRFS + 2 other basins) until an aquifer pump test could occur in order to better understand the system

2003 thru 2009

Not enough carbonate pumping occurred to satisfy the aquifer pump test requirements of Order 1169

Lower White River Flow System

Background

2010 thru 2012

State Engineer required the aquifer pump to commence. A 25½ month aquifer pump test was conducted. An average of 10,200 acre-feet each year was pumped from the LWRFS.

2013

Following the aquifer pump test, the participants & other interested parties submitted reports addressing the information gained from the test.

Lower White River Flow System

Background

2013 (continued)

Aquifer pump test findings showed unprecedented declines in groundwater levels and flows in the early warning indicator springs which are in the head waters of the Muddy River

2014

Based on the aquifer pump test findings, our office issued rulings in the subject basins **denying** all pending applications.

Additionally, the basins in the LWRFS will be jointly managed due to their close hydrologic connectivity to one another.

* The first and only time our office has made such a determination.

Lower White River Flow System

Background

Continued monitoring

Since the aquifer pump test, monitoring of the system has continued. Groundwater levels and spring flows have remained relatively flat while precipitation has been about average. The carbonate pumping has averaged 7,300 acre-feet each year.

Lower White River Flow System

The Problem:

- Muddy River - ~35,000 acre-feet of decreed rights – most senior in the LWRFS
- Muddy River and springs are the source water for the Moapa Dace, an endangered fish since 1967.
- 50,000+ acre-feet of groundwater committed in the LWRFS
- Aquifer pump test of 10,200 acre-feet per year showed unprecedented water level declines and spring flows in the warning indicator springs

Lower White River Flow System

Our office has sent a notice to all water right holders in the LWRFS making them aware of a Public workshop scheduled for July 24th at 9 a.m. at the Moapa Valley Community Center to:

- provide an over view of the status of the LWRFS
- address the feasibility of developing groundwater in the LWRFS
- take public comment on proposed management options.



Questions?