Nye County Water District & Basin 162 Groundwater Management Plan

Presentation to Nevada Legislative Committee on Public Lands 04/24/2014

EXHIBIT E - LANDS
Document consists of 24 pages.
Entire exhibit provided.
Meeting Date: 04-24-14

NCWD - Established in 2007

- **NYE COUNTY WATER DISTRICT ACT**
- CHAPTER 542, STATUTES OF NEVADA 2007
- Can be found on
- http://www.nyecountywaterdistrict.net/
- http://www.leg.state.nv.us/SpecialActs/
- First meeting was held March 16, 2009

NCWD - Accomplishments

- Mostly grant funded – Started under Congressional Ground Water Evaluation Grant
- Pahrump Valley groundwater flow model
- NDEP/NCWD Community Source Water Protection Plan – all public water systems
- USBR – NCWD – Water Supply Appraisal investigation
- Pahrump Fairgrounds well
- Private Utility Companies – due diligence /IRP

Additional accomplishments

- Nitrate Pilot Study – full study ongoing
- Drilled 16 wells for water level monitoring program - Pahrump, Amargosa & Oasis Valleys
- Ongoing Projects-
- Evapotranspiration Study – Amargosa w/USGS
- Cooperate in USGS – SAMM Model
- Expanded NWRPO water level monitoring
- Water sampling – wells & springs Pahrump

AB 419 - 2011 / NRS 534

- **Critical Management Area**
- *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 section 1 of this act.*

AB 419-2011 / NRS 534

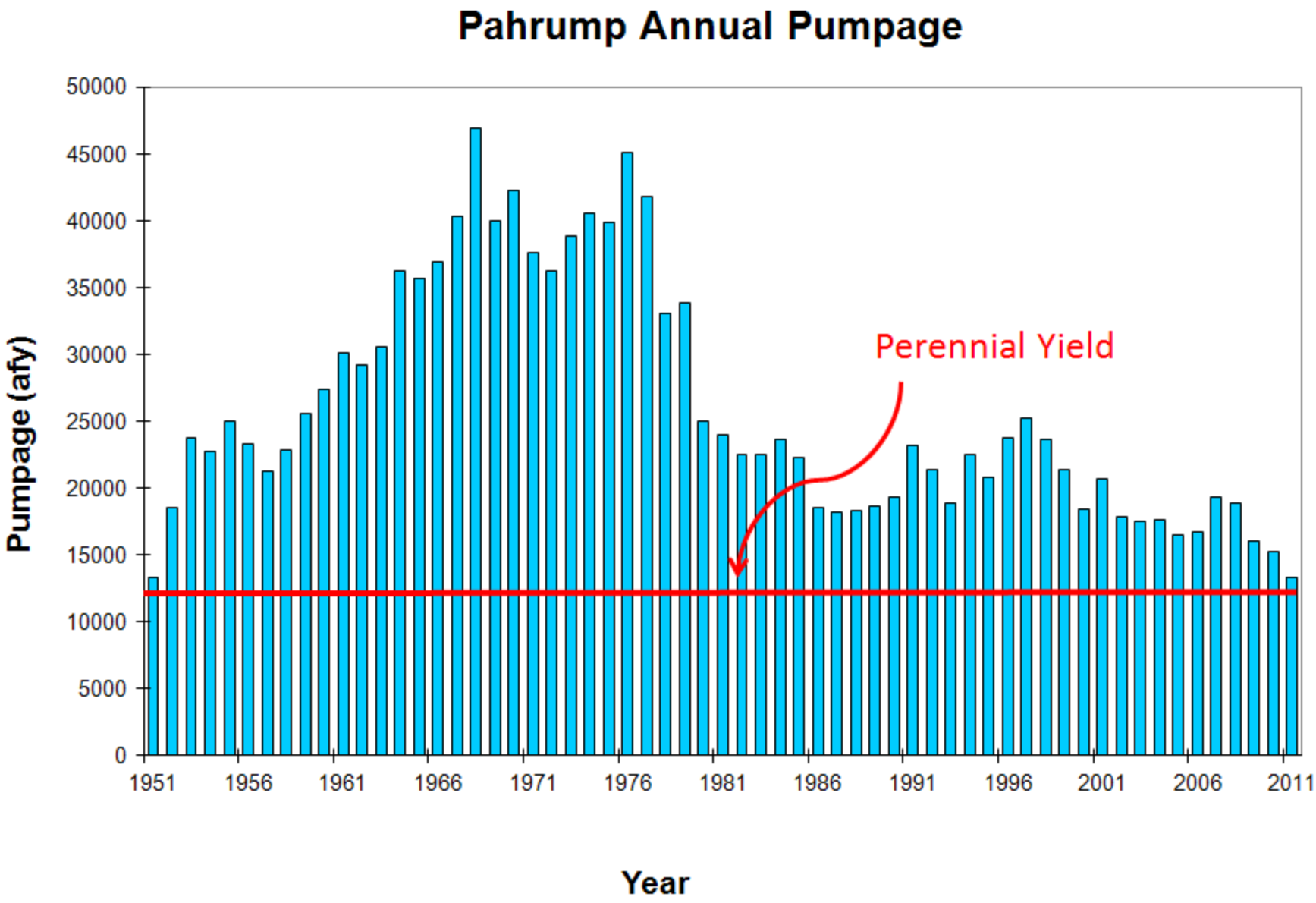
- **Groundwater management plan**
- ***management plan submitted pursuant to subsection 1, the State***
- ***Engineer shall consider, without limitation:***
- ***(a) The hydrology of the basin;***
- ***(b) The physical characteristics of the basin;***
- ***(c) The geographic spacing and location of the withdrawals of***
- ***groundwater in the basin;***
- ***(d) The quality of the water in the basin;***
- ***(e) The wells located in the basin, including, without***
- ***limitation, domestic wells;***
- ***(f) Whether a groundwater management plan already exists***
- ***for the basin; and***
- ***(g) Any other factor deemed relevant by the State Engineer.***

Jason King – 10/02/2012

- **Why Are We Here?**
- **•Pahrump Basin is over-appropriated and over-pumped**
- **•Water levels continue to decline**
- **•Explore options to minimize any adverse effects of ground-water pumping in the basin**
- **•Discuss available tools to bring the basin back into balance**
- **•Listen to residents and water users concerns**

Jason King – 10/02/2012

Existing Groundwater Rights Manner of Use	**Acre-Feet**
Commercial	1,038
Domestic	7,105
Irrigation	15,442
Municipal and QM	38,156
Other	799
Total Water Rights	**62,540**
Existing domestic Wells = 11,106	5,553
Potential New Domestic Wells = 8,500	4,250
Total Potential Pumpage	**72,343**


Pahrump Annual Pumpage
Pumpage (afy)
50000
45000
40000
35000
30000
25000
20000
15000
10000
5000
0
1951
1956
1961
1966
1971
1976
1981
1986
1991
1996
2001
2006
2011
Year
Perennial Yield

Jason King – 10/02/2012

- **What are the Options?**
- •Do nothing
- •Administer basins by priority date NRS 534.110 (6)
- …where it appears that the average annual replenishment to the ground water supply may not be adequate for the needs of all permittees and claimants, and if his findings so indicate, the State Engineer may order that withdrawals be restricted to conform with priority rights.
- •Call for Proofs of Beneficial Use
- •Designate the basin as a **critical management area pursuant to NRS 534.110(7)**

What can we do?

- Groundwater management plan
- ***(a) The hydrology of the basin***
- ***(b) The physical characteristics of the basin***
- The NCWD hired UNR / DRI to develop the Pahrump groundwater flow model
- *Identified data gaps – added additional wells to monitoring network and drilled new monitoring wells where needed*

What can we do?

- ***(c) The geographic spacing and location of the withdrawals of groundwater in the basin***
- ***(e) The wells located in the basin, including, without limitation, domestic wells***
- *There are some areas of the Pahrump Basin that have a long steady decline*
- *High density of domestic wells*

What can we do?

- ***(d) The quality of the water in the basin***

- *Overall the quality is good*
- *Continue to study and identify problem areas*
- *CSWPP and Nitrate studies*
- *There are technical solutions when needed*

What can we do?

- ***(g) Any other factor deemed relevant by the State Engineer***
- *Dropping groundwater level*
- *Over allocation of water rights*
- *Future demand - population growth*

What can we do?

- The solution will need both Nye County and NCWD
- Mainly falls in three areas
  - Wet Water – pumping and quality
  - Paper Water – water rights and law
  - Future demand – growth and conservation
- Nye County BOCC chartered an advisory committee to develop a groundwater plan

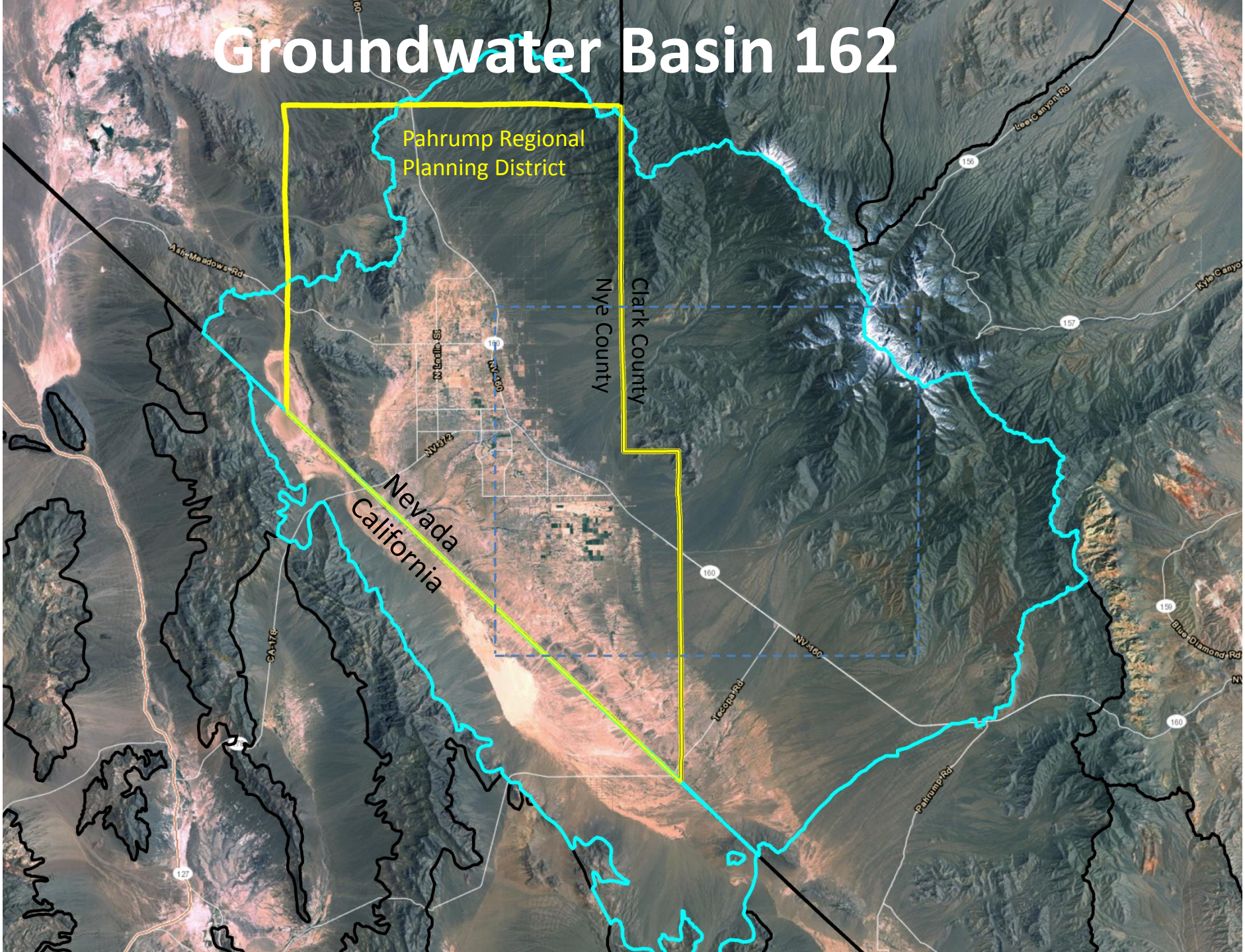
Wet Water

- Historic over pumping of Ag from 1950s to 80s
- Continued pumping from high density of domestic wells in the valley floor
- Luckily the reduction in ag use and overall pumping has allowed a recovery on the fan and some other areas

Wet Water

- There are ways to protect domestic wells and address water level drops
- Preferentially pump from a broad area on the fan and reduce pumping in the valley floor
- Water injection – ASR projects
- Effluent reuse / infiltration
- Conservation

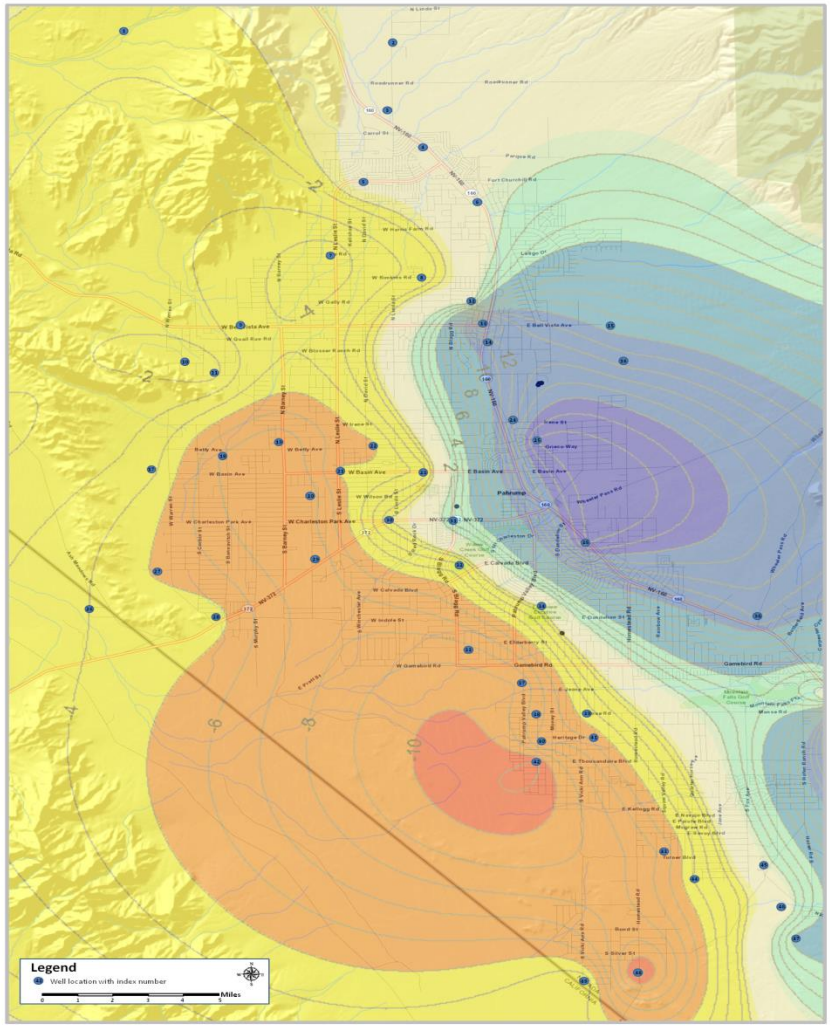
Groundwater Basin 162



7- Year Water Level Trends in the Pahrump Valley

September 2004 to September 2011

Nye County Nuclear Waste Repository Office



Paper Water

- 62000 afa of water rights and 12000 domestic wells
- 12000 (20,000) afa perennial yield –
- Who is to blame? – It does not matter!
- Simple Fix – let DWR handle
- Proof of beneficial use
- Priority date – 1943!

Paper water

- No one will like the simple fix
- Most domestic wells have been drilled after 1980 and utilities have mostly newer water
- What else ?
- Fine tune over dedication for subdivisions and relinquishment for parcels
- Address the speculation and serial extensions / change apps for water rights that have not been used.

Land Use

- Development codes, planning and conservation
- NRS provides that planning conform to available resources
- Current master plan provides for full build out at a population of 495,000 (current 38,000)

Land Use

- Planning horizon of 50 years
- Perennial yield of 20000 afa with potential for 5000 - 7000 afa effluent reuse / infiltration
- Realistic conservation goal of 150 gallons daily per capita water use (100 gpd residential use)
- Equivalent population of 120,000 to 150,000
- With 5000 afa import = up to 180,000 population
- Reduce master plan future lots by 2/3

Who will do this?

- The NCWD has broad powers in wet water, many require ratification by the Nye County BOCC
- Most require application to the Nevada DWR
- DWR has primary powers in paper water
- BOCC has primary powers in Land Use and Zoning
- Difficult decisions! Luckily we have some time