Pershing County Water Conservation District’s Water Issues in the Humboldt River Basin
Located at the Terminus of the Humboldt River.

Approximately 40,000 acres within the district boundaries.

Main crops produced include alfalfa, wheat, corn, and alfalfa seed.

Livestock produced include cattle, goats, and sheep.

The Humboldt River and precipitation are our only sources of water.

Ground water quality is too poor for supplemental wells.
River flows from Palisade to Imlay are decreasing percentage wise.

i.e. May 16, 2015 the river flows at Palisade – 161 c.f.s, Comus – 91 c.f.s and Imlay – 26 c.f.s.
Factors Affecting Decreasing River Flow Percentages

- Drought
- Mine Dewatering
- Ground water pumping for agriculture production
New permits for mine dewatering are considered “temporary” in the state of Nevada.

Nevada needs to define “temporary”.
- Some “temporary” permits can last four or five family generations.
- In the state of Oregon the “temporary” permit limit is five years.

Many basins are over appropriated due to “temporary” permits.
- i.e. Kelly Creek, Clovers, and Pumpernikel Valley
Pit Lakes

Pit lakes are reservoirs without storage permits which other reservoirs require.

i.e. Rye Patch and Pitt Taylor.
A few boring statistics about the pit lakes

Over a million acre feet in the lakes.

Some are doing more backfill now, so the eventual amount may be less.

Evaporation lost from pit lakes will be close to the amount of water SNWA requests from Cave Valley.

<table>
<thead>
<tr>
<th></th>
<th>Volume When Full</th>
<th>Area When Full (ac)</th>
<th>Approximate Depth When full</th>
<th>Source</th>
<th>Evaporation (af/y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>McCoy Cove</td>
<td>35000</td>
<td>165.4</td>
<td></td>
<td>HCI, 2001</td>
<td>645.2</td>
</tr>
<tr>
<td>Goldstrike</td>
<td>360000</td>
<td>710.0</td>
<td>1120</td>
<td>Schaeffer, 2007</td>
<td>2769.0</td>
</tr>
<tr>
<td>Gold Quarry</td>
<td>175000</td>
<td>371.0</td>
<td></td>
<td>HCI, 1997</td>
<td>1446.9</td>
</tr>
<tr>
<td>Lone Tree</td>
<td>129900</td>
<td>400.2</td>
<td></td>
<td>WMC, 2008</td>
<td>1560.9</td>
</tr>
<tr>
<td>Twin Creeks</td>
<td>128558</td>
<td>393.0</td>
<td>852</td>
<td>Geomega, 2007b</td>
<td>1532.7</td>
</tr>
<tr>
<td>Crossroad</td>
<td>143220</td>
<td>269.0</td>
<td>870</td>
<td>Geomega, 2007a</td>
<td>1049.1</td>
</tr>
<tr>
<td>Cortez Hill</td>
<td>79931</td>
<td>179.0</td>
<td>840</td>
<td>Geomega, 2007a</td>
<td>690.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>1051609</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>9701.9</strong></td>
</tr>
</tbody>
</table>
S Mines need to dedicate some of their water rights to account for evaporation losses and large bodies of water that are being created.

- Mines own a lot of surface rights and underground rights. They should use both of these rights to offset or account for dewatering, pit lake storage, and evaporation from pit lakes.

S Mines have said, “If we have to account for evaporation losses, so should PCWCD.”

- PCWCD losses are covered in the Decree as transportation losses and any other loss is simply less water we have for crop production.
Underground Pumping needs to be Connected to Surface Water Flows

- U.S.G.S studies show groundwater and surface water are connected.
- U.S.G.S studies show over pumping is affecting the middle and lower reaches of the Humboldt River Basin.
- Because mine dewatering is temporary, it is not factored into a basin’s water budget.
  - This has created a situation where many river basins (Humboldt River Basin) are vastly over appropriated.
- Idaho and Colorado have a conjunctive use system where surface and groundwater users can borrow and payback each other in times of drought and surplus water.
Conclusion

Statistics

- Groundwater over pumping is affecting Humboldt river flows.
- In the last 20 years, the Lovelock Valley has had 10 years where the allotment received has been 50% or less of a full allotment. Yet, year after year producers with underground rights have had a full allotment.
- In the Humboldt River Basin the most junior surface right is still senior to the most senior underground right.

Solutions

- Put time limits on “temporary” mining permits. Follow Prior Appropriation Doctrine. (first in time, first in right)
- Reduce junior underground pumping rights that are affecting senior surface rights. Factor mine dewatering numbers into water basin water budget.
- Mines should use water rights they own, both surface and underground, to address pit lake storage and evaporation.
Photo Credits

- Pershing County Water Conservation District
- Google Images
- Tom Meyers, Ph.D. Hydrologic Consultant