NEVADA DIVISION OF MINERALS

California AML Forum

June 18, 2008
Sacramento, California

Alan R. Coyner, Administrator
Nevada Division of Minerals
400 W. King Street #106
Carson City, NV 89703
minerals.state.nv.us
acoyner@govmail.state.nv.us
775/684-7047
TOPICS

- Division of Minerals
  - Who We Are, What We Do
- Nevada Mining Industry
- Division of Minerals AML Program
- Nevada Abandoned Mine Lands Environmental Task Force (NAMLET)
- USACE RAMS Program
MISSION

The mission of the Division of Minerals is to conduct activities to further the responsible development and production of the State’s mineral resources to benefit and promote the welfare of the people of Nevada.
STRUCTURE

- State Agency and part of the Commission on Mineral Resources (CMR)
- CMR is 7 members appointed by the Governor from the minerals industry
- Offices in Carson City (8 employees) and Las Vegas (2 employees)
- Annual budget of $1,200,000
- No general fund money in budget, all revenue from fees on mineral industry
INDUSTRY RELATIONS AND PUBLIC AFFAIRS
ABANDONED MINE LANDS PROGRAM
# Oil and Gas

## Railroad Valley, Nye County

<table>
<thead>
<tr>
<th>Year</th>
<th>Wells permitted</th>
<th>Wells drilled</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2006</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>2007</td>
<td>15</td>
<td>7</td>
</tr>
</tbody>
</table>
### Geothermal

#### Beowawe Plant

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wells permitted</td>
<td>63</td>
<td>45</td>
<td>72</td>
</tr>
<tr>
<td>Wells drilled</td>
<td>34</td>
<td>13</td>
<td>43</td>
</tr>
</tbody>
</table>

Lander County

![Geothermal Plant Image](image-url)
Nevada is the Saudi Arabia of Geothermal Energy – Sen. Harry Reid
RECLAMATION BOND POOL

- Accepted by BLM and NDEP
- Maximum bond is $3,000,000
- Deposit 50 to 80%, premium 10 to 5%
- Total amount bonded is $2,293,366
- Total cash in pool $3,067,031 (112%)
- Notice level statewide bond offers expedited bonding (198 projects)
Nevada is a great place to explore for and mine gold, silver, and other mineral commodities.
Nevada Mineral, Petroleum, and Geothermal Production

Record $5.4 B in 2007
6.04 M oz X $695 per oz average price = $4.2 B in 2007

Nevada produced 78% of U.S. and 8% of world gold in 2007
The current boom (1981-2006) = 203M oz Au
(mostly Carlin and other Nevada deposits = 140M oz)

Goldfield (NV), Black Hills (SD), Cripple Creek (CO), porphyry Cu (AZ & UT) = 95M oz Au

'49ers = 29M oz Au

We are in the biggest gold-mining boom in history

U.S. Total = 522 M oz    Nevada = 170 M oz
Not $650, but ~$900+/oz Au!

THE MAIN POINT
Nevada is a really great place to explore for and mine gold
Not $300, but ~$900+/oz Au!

THE MAIN POINT

Nevada is a really great place to explore for and mine gold.
Most productive open pit: Barrick’s Betze-Post mine
1,215,447 million oz of gold in 2007 (25M+ total)
Most productive underground: Barrick’s Meikle mine
413,186 oz of gold in 2007 (7M+ total)
CARLIN TREND

Cumulative production from the Carlin trend (1965-2007) = 68.5 million ounces of Au

Barrick and Newmont’s announced proven and probable reserves on the Carlin trend (end of 2007) = 27.3 million ounces of Au

At current prices and production rates approximately 9 years of reserves remain to be mined
Nevada is “The Silver State”, but Alaska is #1
143 M lbs x $3.23 per lb average price = $461 M in 2007

Nevada Copper

516,000 pounds of Mo produced in 2007
Barite – Nevada is the leading producer in the US
Diatomite - Nevada is largest producer in US
Eagle-Picher’s Colado plant is largest producer in NV

Miocene fish fossils in diatomite
## Nevada Mining Financial Assurance (in millions)

<table>
<thead>
<tr>
<th>Source</th>
<th>2003</th>
<th>2005</th>
<th>2007</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bonds</td>
<td>$272</td>
<td>$248</td>
<td>$210.6</td>
<td>$214.0</td>
</tr>
<tr>
<td>Letters of Credit</td>
<td>In above</td>
<td>$254</td>
<td>$412.7</td>
<td>$618.1</td>
</tr>
<tr>
<td>CD / Cash</td>
<td>In above</td>
<td>$4</td>
<td>$4.7</td>
<td>$9.3</td>
</tr>
<tr>
<td>Corp Guarantee</td>
<td>$271</td>
<td>$204</td>
<td>$187.3</td>
<td>$182.0</td>
</tr>
<tr>
<td>USFS</td>
<td>$14</td>
<td>$10</td>
<td>$12.3</td>
<td>$12.5</td>
</tr>
<tr>
<td>Bond Pool</td>
<td>$1</td>
<td>$1</td>
<td>$2.3</td>
<td>$2.7</td>
</tr>
<tr>
<td>Total</td>
<td>$558</td>
<td>$721</td>
<td>$829.9</td>
<td>$1,038.6</td>
</tr>
</tbody>
</table>
ABANDONED MINE LANDS

- Mining and prospecting has occurred all across Nevada for last 150 years
- 526 identified mining districts
- Over 200,000 mining-related features
- Estimated 50,000 mining-related features (adits, shafts, tunnels, declines, pit high-walls) considered hazardous to people
For every mine, adit, shaft or prospect symbol on a topographic map, there are 2 to 3 more waiting to be found.
“STAY OUT AND STAY ALIVE”

12,782 Discovered - 9,427 Secured (1987 – 2007)
GOODSPRINGS, NEVADA
Because of the number of deaths and injuries related to abandoned mines, the Nevada Legislature created the Abandoned Mine Lands Program in 1987.

Three Program Activities Mandated:
- State-wide Inventory of Sites
- Securing of Hazardous Mines
- Public Awareness Campaign
STATE-WIDE INVENTORY

- Locate on the ground using GPS
- Written description, sketch and photograph
- Apply numerical hazard ranking based on location and type of mine opening
- Conduct land ownership research to determine current land owner or party responsible for securing mine
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hazard ID #</td>
<td></td>
</tr>
<tr>
<td>Date Investigated</td>
<td></td>
</tr>
<tr>
<td>Investigated By</td>
<td></td>
</tr>
<tr>
<td>Degree of Hazard (per NAC 513)</td>
<td></td>
</tr>
<tr>
<td>Location</td>
<td></td>
</tr>
<tr>
<td>Investigated By</td>
<td></td>
</tr>
<tr>
<td>Date Investigated</td>
<td></td>
</tr>
<tr>
<td>Ownership Research Date</td>
<td></td>
</tr>
<tr>
<td>Research By</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Hazard Rank</td>
<td></td>
</tr>
<tr>
<td>Ownership</td>
<td>BLM: USFS: NPS: Private: BIA: Pat:</td>
</tr>
<tr>
<td>Research By</td>
<td></td>
</tr>
<tr>
<td>Signs of Visitation</td>
<td>Yes</td>
</tr>
<tr>
<td>County</td>
<td></td>
</tr>
<tr>
<td>Topographic Sheet</td>
<td>BLM Field Office:</td>
</tr>
<tr>
<td>Township</td>
<td>Range:</td>
</tr>
<tr>
<td>Section:</td>
<td>Quarter/Quarter:</td>
</tr>
<tr>
<td>UTM NAD27:</td>
<td>E</td>
</tr>
<tr>
<td>Waste Rock?</td>
<td>Yes</td>
</tr>
<tr>
<td>Size Estimate (yd^3):</td>
<td></td>
</tr>
<tr>
<td>Water present?</td>
<td>Yes</td>
</tr>
<tr>
<td>Apparent chemical toxicity?</td>
<td>Yes</td>
</tr>
<tr>
<td>Water and/or Chemical description, if any:</td>
<td></td>
</tr>
<tr>
<td>Is all of mine visible?</td>
<td>Yes</td>
</tr>
<tr>
<td>Crevices?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is there cribbing or timbers?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is there detectable airflow?</td>
<td>Yes</td>
</tr>
<tr>
<td>Apparent Wildlife Use and Rating (Bats, Owls, Tortoise, e.g. bat(C), owl(A), tortoise(B), etc.):</td>
<td></td>
</tr>
<tr>
<td>Rating Criteria: A = present; B = possible habitat, contains nesting, feces, or other sign; C = habitat limited to unsurveyed crevices or debris; D = no wildlife habitat potential</td>
<td></td>
</tr>
<tr>
<td>Apparent Cultural/Historical Resources:</td>
<td></td>
</tr>
<tr>
<td>Mine/site Name:</td>
<td>Claim Name:</td>
</tr>
<tr>
<td>Apparent Owner:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Date owner notified:</td>
<td>Date county notified:</td>
</tr>
<tr>
<td>If orphan hazard, date of approval to secure given by BLM or USFS:</td>
<td></td>
</tr>
<tr>
<td>General Hazard Sketch (include North arrow and scale bar):</td>
<td>Written Hazard Description (include type, dimensions, relationship to nearby features or other hazards):</td>
</tr>
<tr>
<td>Secured:</td>
<td>By:</td>
</tr>
<tr>
<td>Re-visit Date:</td>
<td>By:</td>
</tr>
<tr>
<td>Re-visit Date:</td>
<td>By:</td>
</tr>
</tbody>
</table>
SECURING OF HAZARDOUS MINES

- Notify land owners of responsibility to secure mine hazards on their property
- Division of Minerals secures mine openings on public land if no responsible party exists
- Mine hazards are fenced, barricaded, posted with warning signs, sealed or backfilled
- Division of Minerals maintains records of mine securing work
SUMMER INTERN PROGRAM 2007
6 MACKAY STUDENTS

- 156 hazards secured
- 549 loggings
- 52 re-visits
- 1,731 non-hazards

Performed securing and logging of hazards and non-hazards in 14 of 17 counties, logging nearly 9,500 miles in 14 weeks.
Hazard Rank Distribution
(as of 5/14/08)

Number of Hazards

Hazard Rank

Minimal
Low
Moderate
High
Land Status of Inventoried Abandoned Mine Hazards in Nevada (as of 5/14/08) – 12,782 total

- BLM: 5,186, 41%
- USFS: 3,956, 31%
- Private/Patent: 2,687, 22%
- NPS: 691, 5%
- Other: 20, 0%
- Unknown: 52, <1%
Breakdown of Securing Methods

- Enclosures, 4765, 51%
- Signs Posted, 1253, 13%
- Barricades, 1215, 13%
- Gates, 37, 0%
- Sealed, 119, 1%
- Filled, 2018, 22%
- Foamed, 20, 0%
AML DATABASE STATISTICS (5/14/2008)

<table>
<thead>
<tr>
<th>COUNTY</th>
<th>HAZARDS DISCOVERED</th>
<th>HAZARDS SECURED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carson City</td>
<td>74</td>
<td>72</td>
</tr>
<tr>
<td>Churchill</td>
<td>446</td>
<td>372</td>
</tr>
<tr>
<td>Clark</td>
<td>2039</td>
<td>1355</td>
</tr>
<tr>
<td>Douglas</td>
<td>170</td>
<td>137</td>
</tr>
<tr>
<td>Elko</td>
<td>382</td>
<td>296</td>
</tr>
<tr>
<td>Esmeralda</td>
<td>1732</td>
<td>1190</td>
</tr>
<tr>
<td>Eureka</td>
<td>672</td>
<td>583</td>
</tr>
<tr>
<td>Humboldt</td>
<td>483</td>
<td>421</td>
</tr>
<tr>
<td>Lander</td>
<td>420</td>
<td>309</td>
</tr>
<tr>
<td>Lincoln</td>
<td>594</td>
<td>473</td>
</tr>
<tr>
<td>Lyon</td>
<td>827</td>
<td>660</td>
</tr>
<tr>
<td>Mineral</td>
<td>1165</td>
<td>1027</td>
</tr>
<tr>
<td>Nye</td>
<td>1557</td>
<td>1005</td>
</tr>
<tr>
<td>Pershing</td>
<td>947</td>
<td>677</td>
</tr>
<tr>
<td>Storey</td>
<td>160</td>
<td>142</td>
</tr>
<tr>
<td>Washoe</td>
<td>360</td>
<td>329</td>
</tr>
<tr>
<td>White Pine</td>
<td>762</td>
<td>379</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12790</td>
<td>9427</td>
</tr>
</tbody>
</table>
91 projects since 1992
481 securings
108 hazards backfilled in 2007
Esmeralda, Douglas and Washoe counties
cooperative effort between NDOM, BLM,
and volunteers from NvMA

368 BACKFILLS SINCE 2000
PUBLIC AWARENESS

ABANDONED MINES... STAY OUT AND STAY ALIVE!
NEVADA COMMISSION ON MINERAL RESOURCES, DIVISION OF MINERALS
CARSON CITY 775-684-7040 OR LAS VEGAS 702-486-4343

Brochures, bumper stickers, magnets, stickers, pencils, AND SQUEEZE BATS!
2007 “Stay Out, Stay Alive” Campaign

- 1,700 AML educational mini-units and 74,000 AML brochures sent to 4th and 8th grade classrooms statewide
- Each school library has the AML companion video, with additional copies provided free upon request
- Over 100 AML presentations to more than 2,900 school children
- AML message given at public events to over 6,000 children and adults
- Public Service Announcement (co-produced with BLM) addressing hazards of OHV use in regions containing abandoned mines
2007 AML ACCOMPLISHMENTS

- 591 sites secured
- 965 new sites logged
- 3,100 non-hazards identified

- 108 sites backfilled thru multi-agency and industry volunteer efforts

- 156 by six summer interns
- 21 by Boy Scouts
NAMLET

- Formed to remediate environmental problems associated with AML
- 11 Federal and State agencies
  - Federal – BLM, USFS, USACE, EPA, USFWS, and USGS
  - State – NDOM, DCNR/NDEP, NBMG, NDOW, and DRI
- MOU signed in 1999
NAMLET (cont.)

- Prioritized a list of 33 sites with six sites recommend for priority funding
- Meets at least annually to review progress, revise list and make funding decisions
- Focus on “do-able” sites and funding from multiple agency sources
USACE RAMS
(Restoration of Abandoned Mine Sites)

- Originally authorized - Water Resources Development Act 1999, Section 560
- Language authored by Congressman Gibbons of Nevada (now Governor Gibbons)
- Program provides technical, planning, and design assistance to Federal, State, and Tribes
- Includes demonstration projects and database, but not construction
USACE RAMS (cont.)

- Funded by congressional earmarks
- Provided $7.5 M ($5 M to Nevada) from 1999 to 2008
- Provided funding towards 11 of the 21 NAMLET field projects
- Provided funding for 3 database projects
- RAMS funding leverages other funds
Multiple annual trips have been made to Washington DC to brief congressional staff on RAMS program and request funding and language amendments.

USACE RAMS (cont.)

- RAMS involved in Southern Nevada Public Land Management Act (SNPLMA) projects totaling +$4 million
- Includes logging and inventory of physical hazards, cultural and biological surveys, bat gates, foam and back fills
- Clark, Lincoln, and White Pine counties
Round Mountain
55 pounds
@$950/oz = $760,000
Thank You!