



STATE OF NEVADA
 COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
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 Carson City, Nevada 89703
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STEVE SISOLAK
 Governor

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RICHARD PERRY
 Administrator

COMMISSION ON MINERAL RESOURCES
 City of Henderson Council Chambers
 240 S. Water St. Henderson, NV 89015

Thursday, February 7, 2019

1:00 P.M.

AGENDA

CALL TO ORDER

The Agenda for this meeting of the Commission on Mineral Resources has been properly posted for this date and time in accordance with NRS requirement.

ROLL CALL

PLEDGE OF ALLEGIANCE

COMMENTS BY THE GENERAL PUBLIC

Pursuant to N.R.S. 241, this time is devoted to comments by the public, if any, and discussion of those comments. No action may be taken upon a matter raised under this item on the agenda until the matter itself has been specifically included on a successive agenda and identified as an item for possible action. Public comments may be limited to 5 minutes for each person. **ACTION WILL NOT BE TAKEN**

I. AGENDA

A. Approval of the Agenda

FOR POSSIBLE ACTION

II. MINUTES

A. Approval of the November 16, 2018 meeting minutes

FOR POSSIBLE ACTION

III. NEW BUSINESS

A. Introduction of two new NDOM employees.

Rebecca (Becky) Ely, Field Specialist, Southern Nevada
 Sherrie Nuckolls, AA IV, Northern Nevada
 Promotion of Valerie Kneefel to Program Officer II

FOR DISCUSSION ONLY

B. Delivery of the 2017 Mineral Industry Report and progress on the 2017-2018 Exploration Survey by the Nevada Bureau of Mines and Geology. NBMG Director Jim Faulds

FOR DISCUSSION ONLY

C. Plans for a trade booth and presence at the Prospectors and Developers Association of Canada annual convention on March 3-6, 2019. Garrett Wake will present details on the booth location, design, graphics, partnering organizations and speakers.

FOR DISCUSSION ONLY

- D. Commission Study and Report by the Nevada Bureau of Mines and Geology (NBMG). The Commission has a two-year contract with the NBMG to produce specific Mineral Industry Reports and archive well logs and cuttings. The contract calls for a study and report of a topic to be approved by the CMR in odd-years, in this case that would be fiscal year 2020. Bureau Director Jim Faulds has prepared three topics as options for the Commission to consider. **FOR POSSIBLE ACTION**
- E. 2019 Legislative Session (80th Session of the Nevada Legislature)
Rich Perry will provide an update of any legislation that might affect the Commission or Division, and important dates and meetings. **FOR DISCUSSION ONLY**
- F. Reimbursement Policy for professional organizations and meetings, and for Safety Gear. The Commission last approved these in 2015. The policies have been updated for consideration of the Commission. **FOR POSSIBLE ACTION**

IV. OLD BUSINESS

- A. Update of Commission/Division Financials
With all claim fees from the previous year collected, hard closure invoices paid, and FY 2018 closed, Mike Visser will give a financial status report. **FOR DISCUSSION ONLY**
- B. 2018 Annual Report for NDOM's AML Program, plans for 2019 and possible approval of additional projects. The Division may exceed budgeted expenditure authority for hard-closure projects in FY 2019, and is requesting approval by the CMR to proceed with the necessary work programs to increase spending authority. Rob Ghiglieri **FOR POSSIBLE ACTION**
- C. Southern Nevada Education Outreach Update for 2018 - Garrett Wake **FOR DISCUSSION ONLY**
- D. Las Vegas Natural History Museum Exhibit Update
The Commission approved funding of up to \$50,000 in FY 2019 and instructed Division Staff to help develop interactive minerals and mining displays. Garrett Wake will provide an update. **FOR DISCUSSION ONLY**

COMMISSION BUSINESS

- A. Determination of time and place of next CMR meeting

COMMENTS BY THE GENERAL PUBLIC

Pursuant to N.R.S. 241, this time is devoted to comments by the public, if any, and discussion of those comments. No action may be taken upon a matter raised under this item on the agenda until the matter itself has been specifically included on a successive agenda and identified as an item for possible action. All public comments will be limited to 5 minutes for each person. **ACTION WILL NOT BE TAKEN**

ADJOURNMENT

NOTICE TO PERSONS WITH DISABILITIES

Members of the public who are disabled and require special accommodations or assistance at the meeting are requested to notify the Division of Minerals, 400 W. King Street, suite 106, Carson City, NV 89701 or contact Sherrie Nuckolls at (775) 684-7043 or Email VKneefel@minerals.nv.gov

The Commission will be attending a field trip on Friday 2/8/19 to Southern Nevada Liteweight's quarry near Las Vegas. The Commission will depart the Hawthorne Suites in Henderson by Van at 8:00 AM, and will return to the LV Airport by 1:30 PM. Members of the public may attend but must provide their own transportation and safety equipment. Advanced notification is required. Please call Sherrie Nuckolls at (775) 684-7043.

II. MINUTES



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RICHARD PERRY
 Administrator

COMMISSION ON MINERAL RESOURCES
 Nevada Department of Wildlife
 1100 Valley Rd (Conference Room) Reno, NV 89512

Friday, November 16, 2018

9:00 A.M.

MINUTES

CALL TO ORDER

9:00 am by Richard DeLong

ROLL CALL

Commission	Staff
Richard DeLong	Richard Perry
Dennis Bryan	Mike Visher
Nigel Bain	Rob Ghiglieri
Arthur Henderson	Bryan Stockton
Mary Korpi	Lucia Patterson
Bob Felder	Valerie Kneefel
John Snow	Lowell Price

PLEDGE OF ALLEGIANCE

Led by Rich DeLong

COMMENTS BY THE GENERAL PUBLIC

Richard Perry: Many of you probably knew Brian Morris who died last Friday in a tragic incident. This hit home for me because I was out chucker hunting with him the weekend before. I wanted to share with you the safety component, since we do a safety share in our own Division. A couple of key points for when you come across an accident like that to try and be safe. After talking to a public safety officer, his perspective and suggestions were different for day and for night. This accident happened at night, when there was no moon or lights. Both vehicles' lights had been disabled due to the head on collision. Brian and his wife stumbled upon the accident and stopped. First and foremost you need to have a situational awareness, call 911 before you get out and do anything. Always assume no one can see you on the highway. At night, you should stop before the accident (not after) and shine your lights on the accident so you can illuminate the area. And then turn your blinkers on. What happened in this accident is that a car came along and because it was too dark to see them, fatally injured two of the people who had stopped to offer assistance.

Rich DeLong: Definitely a tragic loss. We have a new commissioner, Bob Felder. Asked our new commissioner to give a brief background and history of himself.

Bob Felder: Thank you. Originally from Ohio and graduated Ohio State with a Master's degree in Geology. He went out west to Denver working for Anaconda. In the mid 80's came out to Nevada working exploration ever since on the management/executive side of things. Most all of my career has been in Nevada and in exploration.

Jim Faulds: Wanted to give a quick update, recently returned after being gone for a year. The Bureau has recently been approved to hire a new position in Economic Geology. It will be more economic geochemistry. This will fill a much needed gap and will reside in the Bureau. It will also have some teaching obligations in the Geology department and will

help John Muntean. Also, there were proposals for positions for advanced manufacturing. We put in a request for 3 positions. One was called Critical Minerals, Lithium and other minerals. Second, was geothermal reservoir engineering. And a third was Metallurgy. We received word last week that 2 of the 3 positions are on the short list and are to be funded, pending funding from the Legislature. Lidar proposal was put together with other agencies in the area. We now have high resolution Lidar in all of southern Washoe County, including Storey County, parts of Lyon County, down to Douglas County line.

I. MINUTES

A. Approval of the August 23, 2018 meeting minutes

Motions made by: Dennis Bryan

Seconded by: Mary Korpi

Unanimously approved.

II. NEW BUSINESS

A. **Planning for the 2019 Exploration Survey.** The Nevada Bureau of Mines and Geology produces a biennial Report Entitled “Nevada Mineral and Energy Resource Exploration Survey”, which is released early in the State Legislative session to assist elected officials in understanding the economic impacts of the minerals industry. This agenda item is intended to allow NBMG authors to discuss with the Commission the content and methodology of the survey.

Mike Russel: From NBMG. He went through a presentation that discussed how the 2016 Nevada Exploration Survey was put together. They are now working on the 2017/2018 booklet.

PowerPoint:

Research and Survey-

- Compiled a list of 318 companies operating or recently operating in Nevada
- Sent e-mails to 296 companies; 242 “reliable” contacts
- Received online responses from 86 companies
- Received additional “no” response from 23 companies
- Researched expenditures on 54 non-responding companies

• Obtained expenditure data for 140 companies

Nevada Exploration Expenditures-

2015 Reported Expenditures: \$348 M (n=140)

• 2016 Reported Expenditures: \$325 M (n=125)

• BY COMPARISON:

• 2011 Expenditures = \$675 M (n=185)

• Decrease in NV expenditures: 2011 to 2016: 52%

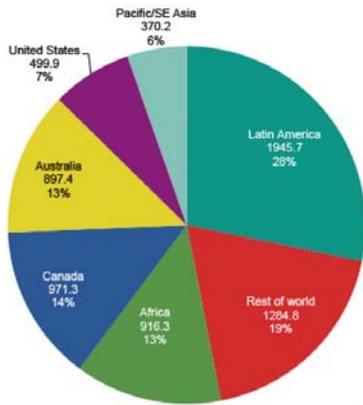
Global** decrease (2012-2015): 58%

* Minimum expenditures based on partial pool of companies reporting

** Data from SNL Metals and Mining summary report, 2016

Global Metals Exploration Expenditures-

1580 companies reporting



Nevada's minimum \$325M in expenditures represents 62% of total U.S. non-fuel exploration expenditures in 2016

Expenditures by Exploration Type-

- 2016: Grass Roots/Generative: 39%
- 2016: Resource & Mine Expansions: 61%
- 2011: Grass Roots/Generative: 33%
- 2011: Mine Expansion: 67%

Percentages calculated on a cumulative cash basis

n = 79 respondents in 2016; n= 95 respondents in 2012

2016 Breakdown of Expenditures-

- Exploration (in-ground): 63.3%
- Holding Costs: 10.7%
- Permitting/Compliance: 8.1%
- Corporate: 12.1%
- Other: 5.8%

Cumulative cash basis; n =73 respondents in 2016

2016 Factors Impacting Exploration-

5=high impact, 1=low impact

- Favorable Geology 4.7/5
- Discovery Potential 4.5/5
- Access to Public Land 4.3/5
- Permitting Time/Costs 3.8/5
- Commodity Prices 3.6/5
- Claim Fees 3.4/5
- Mining Law Uncertainty 3.1/5

Dennis Bryan: Will this be available for the Legislation session when it begins?

Mike Russel: Yes.

Bob Felder: I answered the survey last time. We've had a huge influx of Australian investors that may not be captured. It would be good to see who the investors are.

Richard DeLong: On the permitting side, we are seeing more Australian investors as well.

B. NDOM's Open-Data Web Site and Claims Update Recent additions to the web site include interactive maps for researching active mining claims, maps showing wilderness and wilderness study areas, and story maps for educators.

Lucia Patterson: Presented a live version of the open data site along with a PowerPoint presentation.

Why open data? To provide data, to fulfill data requests without consuming significant time and to provide interactive maps for consumers without the need for specialized software.

Open data sites are websites that are hosted by ESRI in which you can host maps and data. Open data sites have not only opened the door to a new public data resource, but have also created a nexus where many pieces of data can be placed in one location and formatted to meet the needs of, and assist people in, specific industries.

Our open data site is intended to provide data to the public as it relates to minerals exploration and production in Nevada. One major topic which has found a home on our open data site is land issues within the state. On this particular page

interested parties can find statistical information on land withdrawals as well as a presentation which gives the historical perspective on land withdrawals from mineral entry in Nevada.

Nevada Land Withdrawals vs. Historic Mining Districts maps.

This map is intended to show interested parties land withdrawals and how they affect mining districts throughout the state. All interactive map viewers have navigation, selection, and querying capabilities. Notice that on each page there is a ribbon across the top which provides links for viewing the interactive link on a mobile device, help with the interactive map viewer, NDOM's home page, and the Open Data Site's home page. It is highly recommended that users select the link for mobile devices to interact with the maps. The maps are much more responsive as the user will be dealing with the app itself, not an app embedded into a website.

Data within the map can be exported into CSV files, feature collections (JSON) or GeoJSON. Feature layers can also be downloaded as shapefiles, or KML/KMZ files (Mining claim points is too large for GoogleEarth to handle).

Performing land research prior to staking a claim has been challenging and indirect. This does not result from lack of data but rather from poor presentation of, challenging input parameters for, and unclear locations of the data.

The Nevada Division of Minerals open data site has evolved not only to be a source of data but also a utility for research which does not require any specialized software, additional data files, or knowledge of reports and query designs. The open data site was constructed to assist prospectors, exploration entities, county recorders, government land managers, and the public, who need information on mining claims utilizing-public facing BLM databases.

Claim data has been pulled from the BLM LR2000 database in October, January, and June.

The number of claims per section has been calculated for each section, and the individual claim points are plotted in the center of the section. The methodology for plotting the claims can be found in the metadata.

Richard DeLong: That is an overwhelming amount of data.

Bob Felder: Private land often takes a title search, or more detailed search. Are there any links?

Lucia Patterson: We can link to the BLM, county recorders and county assessors' website, but they are changed so frequently. We are not sure we want to maintain that kind of information. We would have to constantly be checking the accuracy of the links.

Bob Felder: That would be an amazing dream to happen but I'm afraid it would be like opening a can of worms.

Lucia Patterson: If the BLM changed just one thing then we would have to start over. There is not an easy way to do this.

John Snow: BLM is putting together a staff team to put an interactive map together on their website.

Lucia Patterson: They reached out to me regarding the maps. It's a small group.

C. Task Force for Bond Pool Regulation Update The Task Force met on October 3rd and analyzed options for reducing the Bond Pool reserve over time. Options include reducing the 3 percent premium fee and refunding a portion of premiums paid for plan-level participants when exiting the bond pool.

Mike Visher: The Task Force met which included Dennis Bryan, Rich DeLong, Richard Perry and himself. We researched back as far as year 2000.

Rich DeLong: Are you talking about fiscal or calendar?

Mike Visher: Fiscal

Mike Visher: Explained how the bond pool works and the difference between Notice-level Bonds and Plan-level Bonds. It's not intended for participants to be in it for a long time. The reason is they only get their deposit back and not any premium. Legislation has swept the interest earned in the past. It takes 3% to cover administrative costs. The task force didn't come to a final conclusion. They didn't have a chance to meet to present which scenario works best.

Dennis Bryan: It's somewhat confusing. We went through this before and we agreed the premium should go down.

Rich DeLong: The excess is higher than we like and reducing the premium to 2% sounds reasonable to get there. The bond pool is intended to be a short term fix. It makes sense to give back more of the premium to ensure the bond pool is used as more of a short term vehicle.

Rich Perry: There are 2 components to the bond pool. What DeLong is mentioning is the Plan-level bond. We have seen the plan-level bond starting to shrink. 5 years ago it was maybe 12 participants and now it's down to 5. I think we should reduce it from 3% to 2% and to refund part of the premium. This would be a rulemaking change and we can start that next July, since Legislation will be in session until then. It should be a simple process.

John Snow: Under default, what are the admin costs and the history?

Mike Visher: We are really just a bank. He went on to explain the history of the bond pool and our working relationship with the BLM and NDEP.

Dennis Bryan: On Notice-Level if the participant does the reclamation himself, does he get the premium back?

Mike Visher: Only the unneeded premium amount, but he gets 100% of the deposit back.

Rich DeLong: On the plans are we talking about giving them back 100% of the premium or deposit back?

Mike Visher: On the Plans we were talking about giving them back 100% of the deposit and 75% of the premium.

Bryan Stockton: Since this is a regulation change this is to start the rulemaking change.

Motions made by: Dennis Bryan approved NDOM to change the regulations for the Bond Pool to go from 3% to 2% for all premium payments and for all plan-level participants refund 75% of the premiums when they exit the bond pool.

Seconded by: Mary Korpi

Unanimously approved.

D. The Gold Butte Closure Project 40 hazards were secured using wildlife-compatible gates and PUF plugs at Gold Butte National Monument in Clark County. This project was made possible by partial funding from the Clark County Desert Conservation Program. The work was performed from September 22 through October 16.

Rob Ghiglieri: presented a PowerPoint recap of the project.

The project overview:

- 42 Hazards
 - 2 removed
 - 30 BCCs
- 3 with Tortoise Door
 - 10 PUFs
- 29 total days
- Spread across an area greater than 220 square miles
- Total Cost = \$269,349.26
 - Clark County Desert Conservation Program (DCP) funded \$149,950
- Partnering Agencies
 - NDOM
 - NDOW
 - BLM
 - DCP

Desert Conservation Program:

- Interlocal Agreement
 - \$193,824.79 total amount of funding
 - \$149,950.00 towards Gold Butte
 - \$43,874.79 remaining funding for bat compatible closures in Clark County
 - Terminates December 19, 2019

Dennis Bryan: What is the charge for a helicopter?

Rob Ghiglieri: \$105,000 for 26 days straight of using it. Helicopter was the only way we were going to be able to get to some of these sites. It just made sense to use it. It saved a lot of time as well.

Rob Ghiglieri: Introduced a one page fact sheet per project to hand out to the public.

Dennis Bryan: Did you reclaim the mine that Fred Gibson had?

Rob Ghiglieri: When researching the lake view mine, there were several articles that indicated that Fred Gibson was giving tours of this area.

III. OLD BUSINESS

A. Release of Commission-funded report entitled “Opportunities for Precious Metals Toll Processing and Copper Concentrate Processing in Nevada”. This report was funded through the 2-year contract with the Nevada Bureau of Mines and Geology, and will be published as Special Report #57

Rich Perry: Went through the history of how this report was established. He also discussed the map that is included with the report. This report covers everything from precious metals to copper concentrates.

Dennis Bryan: Can you explain again what the green areas are on the map?

Rich Perry: Those are open air basins that are not closed to additional PSD's (Point Source Discharges).

Dave Davis (NBMG): a lot of the data from our Mineral Industry Report is already there. We used a minimum resource grade of 0.1 ounce/ton gold-equivalent of precious metals deposits to comprise the report.

Rich Perry: We only have 30 draft copies here and we will be ordering 470 more for AEMA.

Mary Korpi: What is the deadline for our changes or comments?

Rich Perry: By the end of next week.

Rich DeLong: How about the Monday after Thanksgiving?

Rich Perry: Yes, Monday after Thanksgiving is good.

B. Planning for AEMA and PDAC. The Division will have trade booths at AEMA, which will be held December 5-7 in Spokane and at PDAC in Toronto on March 3-6, 2019. The Division is seeking input on messages and topics to deliver.

Rich Perry: Garrett Wake is the organizer of this. We are currently trying to upgrade our location of the booth. It is now in a location where we can have hospitality in our booth. See 5-17-18 CMR E-Packet for more PDAC information.

C. Update on Proposed Land Withdrawals in Nevada

Mike Visher: He went over a Fallon Range Training Modernization Draft EIS land withdrawal map with the Commission. The blue areas are the bombing areas. There are as many as 700 mining claims that are affected. We are hoping they address some of our concerns and comments. FRTCmodernization.com is the monitoring website to access this information. This will be going to Congress in 2021. Their current land withdrawal will expire in 2021. We will be updating our website and maps. http://minerals.nv.gov/home/features/Information_Related_to_Proposed_Land_Withdrawals/

Bob Felder: What is the red land designation at the bottom?

Mike Visher: That is tribal land. They will have to re-route the Paiute pipeline which goes to Gabbs. This won't be defined until funding comes through. They will also have to re-route Highway 361 around the proposed B-17 bombing area which will likely take it through the Broken Hills mining district.

John Snow: Do you use the term delisting?

Mike Visher: Because it's linked to their withdrawal, only Congress can designate or de-designate wilderness. It has to happen at Congress.

Nigel Bain: Are we going to comment as a State as a whole?

Rich Perry: We have commented at every step for over a year and a half.

Mike Visher: Went through the Nevada Test and Training Range Land Withdrawal and Washoe County Economic Development and Conservation Act. He also mentioned the US Department of the Interior Bureau of Land Management Carson City District amended Resource Management Plan.

Rich DeLong: In the executive summary on page ES-12, a note to the rest of the commissioners, about halfway down it talks about travel and transportation. It's almost just over 4.7 million acres in limited to existing routes. How are explorationists supposed to get out and explore with limited routes?

Bob Felder: it's doable but completely impractical.

Mike Visher: as we get more information we will be posting updates on our website.

Rich Perry: At the next commission meeting, we should look at some type of letter from the Commission.

D. Winter AML work program

Rob Ghiglieri- Looking for 6 returning interns. Currently we have five that have applied. This is for three field weeks. He went through the locations where he will be sending the Winter Interns in Southern Nevada.

Winter Interns:

- 4th Year of Winter Interns
 - 6 past interns
- 3 Field Weeks
 - 1 Northern Nevada
- New inventories near Fallon
 - 2 Southern Nevada
- Clark, and Sothern Nye Counties
- Focus on finishing inventorying and revisit sites

- Incorporate UAS

Gunmetal Mine:

- Explosives found
 - Detonated by Bomb Squad
- 11 Hazards
 - 6 BCCs
 - 4 Backfills
 - 1 Fence (Pit)
- Fence completed, remainder of closures in November and December 2018 weather depending.

Nevada Eagle:

- 43 hazards
 - 17 BCC's
 - 26 backfills
- Located along Hwy 95 and portions are on the Vegas to Reno Race Route
- Closures in spring 2019

Valley of Fire State Park:

- 3 hazards located inside Valley of Fire State Park
- 2 hazards have significant bat habitat
 - NDOW noted ATV tracks inside the lower adit
- Need to create interlocal agreement with State Parks, State Lands, and NDOM
- Possible funding by Desert Conservation Program
- Anticipated work during February-March 2019

Near Future Closure Projects:

- Double O (round 2, 81)
- Walker River State Park (107)
- VC Grand Prix (21)
- Mullen Pass (23)
- Como (24)
- Nelson (73)
- Pioche (68)

NDOM AML Database:

- USACE RAMS Program AML Database Development
 - Round 1 & 2 development and implantation:
- Total funding: \$256,000
- Completed
 - Round 3: Migration to GDB database
- Funded an in process
- Expected to release spring 2019
 - Round 4: Additional enhancements and hard closure database:
- Approved (October 2018)
- Preliminary assessment

AML database in 2014 we submitted USACE RAMS program. In spring 2019 we are expected to migrate to Round 3. Round 4 funding was approved this October (2018) and will probably be next fall before it's obligated.

E. The Nevada Excellence in Mine Reclamation Awards Program 5 Awards was presented at the Nevada Mining Association annual conference on September 8th in Lake Tahoe. This State award is determined by a committee comprised of a representatives from NDEP-BMRR, BLM, USFS, NDOW and NDOM.

Rich Perry: Award Program began in 1991.

Purpose: "to recognize and share examples of successes in the areas of reclamation, closure, planning, and wildlife protection and enhancement in Nevada"

- MEMBERS OF 2018 AWARD COMMITTEE:
- Dan Atkinson, BLM
- Joe Sawyer, NDEP-BMRR

- Susan Elliot, USFS
- Matt Maples, NDOW
- Rich Perry, NDOM

The winners are:

1. Coeur Rochester, Inc.,
Marzen House Museum Exhibit on Rochester Mining District
Award Category:
Cooperative Partnership in Preservation of Mining History
Pershing County
2. KGHM Robinson Mine,
Reclamation through Mining
Award Category:
Leadership in Reclamation
White Pine County
3. Kinross Gold U.S.A. Inc.,
Nevada Conservation Credit System Credit Transfer at Bald Mtn. Mine
Award Category:
Leadership in Conservation Planning
White Pine County
4. Lithium Nevada Corp.,
Upper Basin Exploration Project Reclamation
Award Category:
Exploration Project Reclamation
Humboldt County
5. Newmont USA Ltd.,
North Area Leach Phase Closure
Award Category:
Concurrent Reclamation
Eureka County

- Nominations can be submitted by Mines, Exploration entities, and Government Agencies
- Share innovative, excellence and best practices
- Deadline for entries June 28, 2019
- Award team site visits July 10-12, 2019
- Please take flyer back to your site and share

Mary Korpi: What about the Arden project?

Rob Ghiglieri: We did submit Arden to NAAML for AML hard rock closure. But, it didn't win.

Mary Korpi: You could submit it to the BLM.

IV. STAFF REPORTS

1) Mining and Reclamation Bond Pool –

Mike Visher: The enclosed sheet is the total active bonds. He went through the bond pool sheet.

2) Administrator Report and correspondence-

Rich Perry: He mentioned that Carson City is in the midst of a transition in the Governor's office. Also, we have a vacancy in the Las Vegas office and are currently interviewing for that.

COMMISSION BUSINESS

A. Determination of time and place of next CMR meeting

February 7, 2019 afternoon 1:00 pm Las Vegas. February 8, 2019 tour day.

COMMENTS BY THE GENERAL PUBLIC

Lucia Patterson: wanted to mention the Geothermal and Oil sites are on the open data site as well.

ADJOURNMENT

12:43 PM

III. NEW BUSINESS

III. A Introduction of two new NDOM employees

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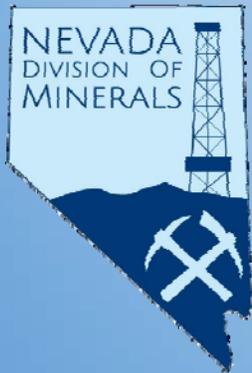
III. B Delivery of the 2017 Mineral Industry Report

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III. C Plans for a trade booth and presence at PDAC.

2019 Nevada Booth at PDAC

Commission on Mineral Resources Meeting
7 February, 2019



Garrett Wake
Nevada Division of Minerals
gwake@minerals.nv.gov
Minerals.nv.gov



Overview

- Recap of 2018
- Changes in 2019
 - Overview of structural design
 - Current iteration of graphics panels
- New/updated hand-out materials
- Presentations
- Nevada Booth Local Website
- Questions

Recap of 2018 Nevada Booth

- 10' x 40' space
- Left side hosted the “State Agencies”
 - NDOM, NBMG, BLM, GOED
- Right side hosted the “Partners”
 - NMA, NMEC, GSN
- Center room as meeting space
- Presentation area



Recap of 2018 Nevada Booth

- Cons of 2018 location and layout:
 - Far back corner of North hall, which already receives less traffic
 - Design of booth was only open from front, walls on back
 - Not off of main aisle way
 - No reason for most people to travel to that area



Changes in 2019

- Still in North Hall, but PDAC has expanded the hall
 - About 1/3 larger than 2018
 - Planning more events in North Hall
 - Increased number of spaces should translate to increased visitation
 - People may want to come to see the expansion
- Booth splits three main aisles
 - Should see plenty of traffic
- Reception-type events planned near both by PDAC

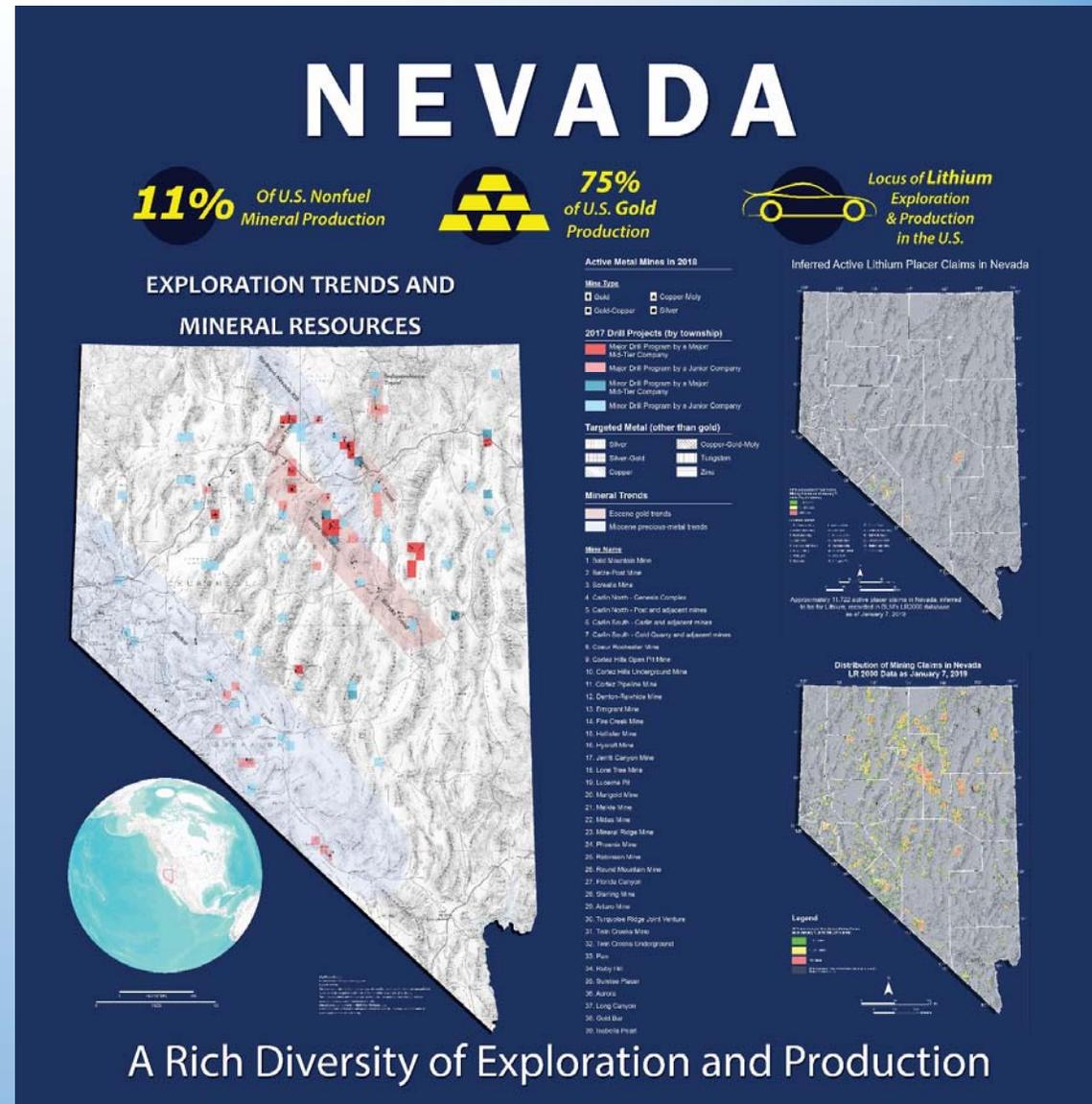


Changes in 2019

Graphics Design

- Graphics Design

- Maps created or retouched by NBMG:
 - Exploration Trends and Mines & Projects Map
 - Updated Geologic Map
 - Magnetic and Gravity Anomalies Maps
- By NDOM
 - Updated Mining Districts Map
 - Public Lands of Nevada Map
 - Updated Lithium Claims and Active Mining Claims Map



New/updated hand-out materials

DATA MINING for Explorationists

Nevada State Resources

- Nevada Division of Minerals (NDM) provides links to resources for possible acquisition, identification of mineral resources, mineral rights, mineral claims, permitting, and recording of all legal mineral interests, national resource policy, investment, associated mine hazard awareness, education, and mining production activities. For more information on mining and exploration, please visit <http://data.mines.nv.gov>.
- Nevada Bureau of Mines and Geology (NBMG) Nevada's geological survey, mineral resources, geologic mapping, mineral and geochemical reports, exploration surveys, technical and scientific research, web-based GIS maps, mining district files, exploration sample repository. <https://data.mines.nv.gov>
- Governor's Office of Economic Development (GOED) www.diversitynevada.com

Exploration and Mining Organizations

- Geological Society of Nevada (GSN) provides education, training, and professional development for geologists and geologists-in-training. It is the only national geological society in the United States. <http://www.gsn.org>
- Nevada Minerals Exploration Coalition (NMEC) is a voluntary group for Nevada explorationists through public discourse, education, and government interaction. <http://nmecc.org>
- Nevada Mining Association (NMA) is dedicated to support and sustain the mining industry in Nevada through policy, research, and education. <http://www.nvmining.org>

Academic Departments

- Ralph J. Roberts Center for Research in Economic Geology (CRG) University of Nevada, Reno: graduate research in economic geology with a focus on the Great Basin. <http://www.rjroberts.com>
- University of Nevada, Reno W.M. Keck Earth Sciences and Mining Research: <http://kecklab.org/umr>

Federal Agencies

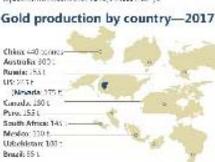
- Bureau of Land Management: <https://www.blm.gov/area/energy-and-minerals/mine-and-mineral-claims/locate-claim-staking>
- Bureau of Energy and Minerals: <https://www.blm.gov/area/energy-and-minerals/mine-and-mineral-claims>
- BLM US 2005 claim status on line: <https://reports.blm.gov/reports/claim-application-us2005>

NEVADA Stake Your Claim



Exploration is the first step in stake your claim.

Gold production by country—2017



Country	Production (t)
China	4,000,000
Australia	2,000,000
Russia	1,500,000
USA	1,000,000
Canada	700,000
Pakistan	500,000
South Africa	400,000
Mexico	300,000
Indonesia	200,000
Brazil	150,000

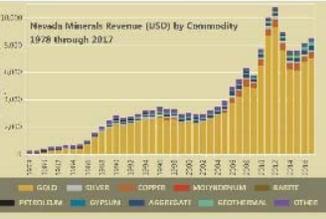
Not all that glitters is gold...



Selected Non-gold Resources/Mines

- Ag: Henry, Dixie
- Cu: San Juan
- Pb: Henry, Dixie
- Zn: San Juan
- Mo: Dixie
- V: Dixie
- U: Dixie
- Li: Dixie

Nevada Minerals Revenue (USD) by Commodity 1928 through 2017



NEVADA Stake Your Claim

- For the first time since 2017, Nevada had a strong 61% increase in globally the Investment Attractiveness (or more exploration oriented) (2017 Investment Attractiveness Index)
- Nevada continues to rank in the top 3 worldwide in the Investor Investment Attractiveness Index

Year	Rank
2017	5th
2016	4th
2015	3rd
2014	1st
2013	2nd
2012	2nd

- Nevada is about 47% of the US total in exploration budget in 2017 (78% Global)
- What Nevada produced in 2017:
 - Gold: 5.64 Moz (1,786 US\$) — #1 in U.S., 22% of U.S. production, and #6 in the world behind only China, Australia, Russia, and Canada
 - Other commodities produced in order of value: copper, aggregates, geothermal energy, silver, diamonds, gypsum, lithium, limestone, vanadium, specialty clays, molybdenum
 - Nevada is the only US producer of U.S. and is a leading producer of Ag, Cu, Geothermal energy, barite, and uranium
- Nevada gold production since California's start-up in 1955: 209.1 million **trillion ounces**; highest production of any regional jurisdiction or province during the past 60 centuries
- At least \$25.1B was spent on exploration in Nevada in 2018, down from a peak of \$27.1B in 2011. Sources: BODVA/BMG as of January surveys 2011, 2015, 2018; outlook was for increased spending in 2017

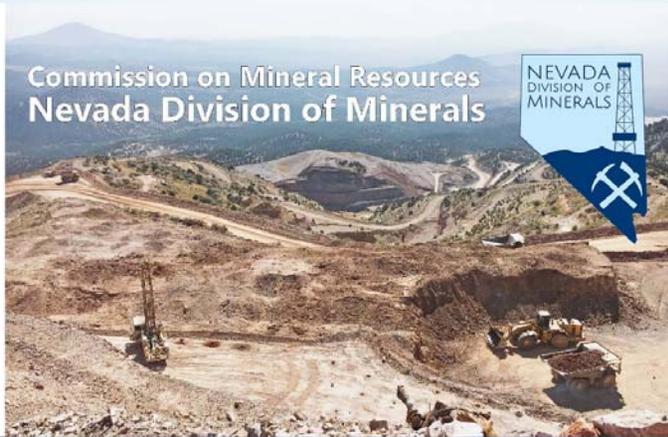
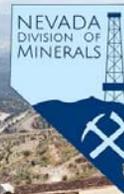
- Exploration Survey
- Stake Your Claim Brochure
- MI 2017 Report
- Smelter Study
- USB Key containing Nevada-specific data for explorationist
- NDOM Brochure
- Major Mines
- Active Mines and Energy Producers Map

Nevada Revised Statutes
 NRS 513 - Commission on Mineral Resources
 NRS 517 - Mining Claims, Mill Sites and Tunnel Rights
 NRS 519A.290 - Reclamation Bond Pool
 NRS 522 - Oil and Gas
 NRS 534A - Geothermal Resources
 NRS 534B - Dissolved Mineral Resources

Northern Nevada Office
 Richard Perry - Administrator
 Courtney Brailo - Field Specialist
 Robert Ghiglieri - Manager, AML Hazard Program
 Valerie Kneefel - Program Officer II
 Sherrie Nuckolls - Administrative Assistant IV
 Lucia Patterson - GIS / Field Specialist
 Lowell Price - Fluid Minerals Program Manager
 Mike Visher - Deputy Administrator

Southern Nevada Office
 Rebecca Ely - Minerals Education / Field Specialist
 Deborah Selig - Administrative Assistant IV
 Garrett Wake - Manager, Southern Operations

Commission on Mineral Resources Nevada Division of Minerals



Commission on Mineral Resources
 Richard DeLong, Chairman, Large-Scale Mining

Nigel Bain, Large-Scale Mining
 Dennis Bryan, Small-Scale Mining and Prospecting
 Robert Feider, Exploration and Development

Arthur Henderson, Oil and Gas
 Mary Korpi, Public at Large
 John H. Snow, Geothermal Resources

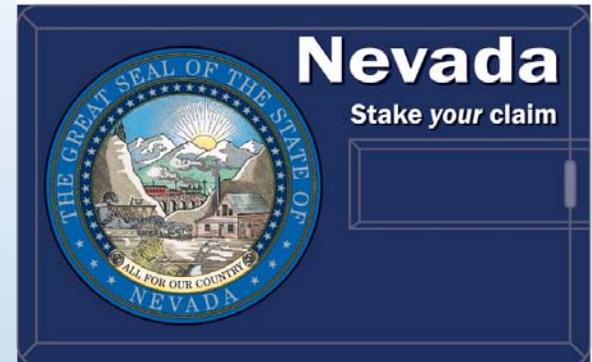
Mission: To encourage and assist in the responsible exploration for and the production of minerals, oil, gas, and geothermal energy which are economically beneficial to the State; to provide for public safety by identifying, ranking and securing dangerous conditions at mines that are no longer operating; and to collect and disseminate information on mineral exploration, production and other related topics.

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 400 W. King St., Ste. 106
 Carson City, NV 89703
 (775) 684-7040 (phone)
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 ndom@minerals.nv.gov

Southern Nevada
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 (702) 486-4345 (fax)
 ndomlv@minerals.nv.gov

www.minerals.nv.gov
 Publish Date: January, 2019

FRONT



85 mm

BACK



85 mm

Presentations at the Nevada Booth



- Presenters:
 - **Joel Lenz, GoEd**
 - “The Nevada Advantage”
 - Smelter Study
 - **Rich/Garrett, NDOM**
 - MI 2017
 - **Bob Felder, Renaissance Gold**
 - TBD
 - **Last presenter TBD**
- 10-15 minutes in length
- Goal is to generate interest in Nevada exploration
- Talks cover several aspects of Nevada’s favorable exploration and production qualities

Nevada Booth Local Website

NEVADA
STAKE YOUR CLAIM

Home | GOV | NCOM | BLM | NIMB | INMA | INMCC | GOED | Nevada Partners | PSAC Presentations

84
NUMBER OF ACTIVE MINES
IN THE SILVER STATE

Stake Your Claim

Nevada Exploration and Mining Information

Is your business part of Nevada's mining economy?

- 2,230 Nevada Companies
- 28,660 Nevada Jobs
- \$8.8 BILLION For Nevada's Economy

10% of U.S. Non-fuel Mineral Production

10% of U.S. Non-fuel Mineral Production

WELCOME TO Nevada THE SILVER STATE
Pacific Time Zone

Mining has been a critical part of Nevada's Economy since before statehood. Today, the industry continues to thrive, and more than 100 miners produce minerals we use every day. Nevada makes up 10% of all U.S. non-fuel mineral production. While only taking up less than 1/4th of 1% of Nevada's 70,790,000 acres.

Mining in Nevada

- 29,753 Nevada Jobs
- 2,234 Nevada Companies
- \$1.3 Billion for Nevada's Economy
- 4.2% of Nevada's General Fund Taxes
- Average Salary of \$90,414

Critical Mineral Resources

Nevada has an abundance of minerals critical to daily life, such as Gold, Lithium, Copper, Diatomite and Gypsum.

STAKE YOUR CLAIM IN NEVADA
The Stake Your Claim booth at PSAC has all the services available to empower your success with Nevada projects.

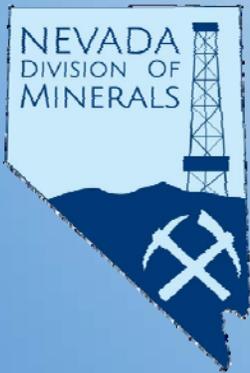
NEVADA PARTNERS
Nevada Division of Minerals
Nevada Bureau of Mines and Geology
Bureau of Land Management
Geological Survey of Nevada
Colorado School of Mines

- Hosted on computers connected to the two 60" TVs
- Landing page will display a presentation schedule, photo carousel and links to each organization's page
- Each organization may host data and text on their own page
 - Quickly interact with data without need for internet access
 - Looks professional, and provides data from all agencies in one place

2019 Nevada Booth at PDAC

Commission on Mineral Resources Meeting
7 February, 2019

Questions



Garrett Wake
Nevada Division of Minerals
gwake@minerals.nv.gov
Minerals.nv.gov



III. D Commission Study and Report by the Nevada Bureau of Mines and Geology

The Commission has a two-year contract with the Nevada Bureau of Mines and Geology (NBMG) to produce Mineral Industry Reports and archive well logs and cuttings. The contract calls for a study and report of a topic to be approved by the CMR in odd-years; in this case that would be fiscal year 2020.

NBMG has prepared three topics as options for the Commission to consider, as presented by NBMG Director Jim Faulds:

1. Organize, review, and publish a large dataset on the structural settings of active geothermal systems and late Miocene to recent epithermal mineral deposits in Nevada.
2. Evaluation of trends in mineral production in Nevada as gleaned from the annual Mineral Industry Reports.
3. Base-line assessment of critical minerals in Nevada.

Project 1: Publish Database of Structural Settings of Geothermal Systems and Young Epithermal Mineral Deposits in Nevada (Total Cost: \$35,000)

NBMG has conducted a comprehensive analysis of the structural controls of geothermal systems within Nevada and adjacent regions. Our main objectives were to: 1) produce a catalogue of favorable structural environments and models for geothermal systems; 2) facilitate development of blind or hidden geothermal systems through identification of the most favorable structural settings; and 3) enhance exploration strategies for geothermal systems and reduce the risk of drilling non-productive wells.

The comprehensive inventory of structural settings included 426 known geothermal systems $\geq 37^{\circ}\text{C}$. Of the known systems, we found that ~39% are blind (no surface hot springs or fumaroles), but estimates suggest that as much as 75% of the geothermal resources in the region are blind. We catalogued systems into eight major groups, based on the dominant pattern of faulting. Of the nearly 250 categorized geothermal fields, we found that step-overs or relay ramps in normal fault zones are the most favorable setting, hosting ~32% of the systems. Such areas are characterized by multiple, commonly overlapping fault strands, increased fracture density, and thus enhanced permeability. Other common settings include a) normal fault terminations (25%), where horse-tailing generates a myriad of closely-spaced faults and thus increased permeability; and b) fault intersections between two normal faults or between normal faults and transverse oblique-slip faults (22%), where multiple minor faults connect major structures and fluids can readily flow through highly fractured, dilational quadrants. Less common settings include: a) accommodation zones (9%); b) displacement transfer zones (5%); and c) pull-aparts in strike-slip faults (3%). Quaternary faults lie within or near most of the geothermal systems. Geothermal systems are rare along major range-front faults due to reduced permeability in zones of clay gouge and periodic release of stress in major earthquakes. Step-overs, terminations, intersections, and accommodation zones correspond to long-term, critically stressed areas, where fluid pathways are more likely to remain open in closely-spaced, breccia-dominated fractures. These data have been used to guide exploration strategies, especially for blind systems. Although not part of the original analysis, many late Miocene to recent epithermal mineral deposits follow similar patterns and reside in structural settings similar to that of the geothermal systems. In several areas, young epithermal mineral deposits (e.g. Wind Mountain, Florida Canyon, Hycroft-Lewis) are collocated with active geothermal systems (e.g. San Emidio, Humboldt House).

This work was completed in 2012 with funding from a major grant awarded to NBMG by the Department of Energy (DOE). Although multiple publications have resulted from this work, the original grant did not allow for full review and publication of the dataset. Further, the settings for many sites have been refined since completion of the original grant.

NBMG therefore proposes to organize, fully review for quality assurance, and publish the large dataset on the structural settings of active geothermal systems in Nevada, while adding to the dataset the settings of late Miocene to recent epithermal mineral deposits. The data will be released through the NBMG open data site as an interactive web map and relational database. This work will facilitate new geothermal and mineral exploration and development in Nevada. It will be completed by NBMG cartographers and the geothermal data manager under the supervision of NBMG Director Dr. Jim Faulds, with assistance from Dr. Bridget Ayling (Director of the Great Basin Center for Geothermal Energy at NBMG).

**Project 2: Trends in Mineral Production – Analysis of Mineral Industry Datasets
(Total Cost: \$35,000)**

NBMG has produced annual Mineral Industry Reports since the 1980s. These reports now serve as an important resource for tracking activities in the mining industry for several decades. Although the annual reports have provided critical updates on the state of the mining industry and mineral production in Nevada, long-term trends have not been analyzed, with the exception of summary charts for individual minerals (e.g. gold) or brief comparisons with the results from the immediately preceding year. NBMG therefore proposes to develop databases for several products related to the Mineral Industry Reports, including: 1) drill projects for metals, 2) claims with claimant information, and 3) BLM notices and plans of operation. These databases will be very useful for both mineral assessments by various government agencies and exploration by the mining industry, especially junior companies. It will allow these companies to more easily determine the extent of previous exploration activities.

Much of these data have already been collected by Dr. John Muntean (Director of the Center for Research in Economic Geology at NBMG), but the datasets need to be digitally formatted in ArcGIS in order to permit development of web-map applications. For example, a web map will be prepared showing drilling projects from 2005 to 2017, with a click of the mouse bringing up drill projects for a specific township in a particular year. Similarly, web maps would show the number of active claims and notices of intent/plans of operations in individual sections from 1976 to 2017. This work will be completed by David Davis and the NBMG GIS-Cartographic staff under the supervision of Dr. John Muntean.

Project 3: Assessment of Critical Minerals in Nevada (Total Cost: \$35,000)

Critical minerals are key to the nation's economic future and security, and Nevada hosts substantial deposits of many such minerals, including lithium, barite, cobalt, and others. For example, key to advanced manufacturing is battery technology, where rechargeable lithium batteries are utilized for electric vehicles and consumer electronics. Worldwide lithium demand is expected to double in the next ten years. The USGS estimated that >50% of domestic consumption of lithium was imported in 2017. The only lithium mine in the U.S. is in Clayton Valley, Nevada, where lithium is produced from a brine in a closed basin. The majority of the world's lithium production and reserves are in brines in similar basins, mostly in Chile and Argentina. Nevada has many closed basins with the potential to host lithium either in brine or clays. However, maps of the occurrences of lithium and other critical minerals in the state have generally not been compiled to date. With completion of the Tesla Lithium Battery Gigafactory and other manufacturing facilities, lithium and other critical minerals are vital to the region's economic future and diversification.

NBMG therefore proposes to assess critical minerals in Nevada. This will include: 1) preparation of occurrence maps for all 23 critical minerals using MRDS, 2) determination of correct locations of these deposits using GIS and Google Earth imagery, and 3) preparation of short reports summarizing the occurrences for each critical mineral in Nevada. This work will help to stimulate mineral exploration and economic diversification through new discoveries of mineral deposits. This work will be completed by David Davis and the NBMG GIS-Cartographic staff under the supervision of Dr. John Muntean.

Proposed Studies and Reports: Nevada Bureau of Mines and Geology

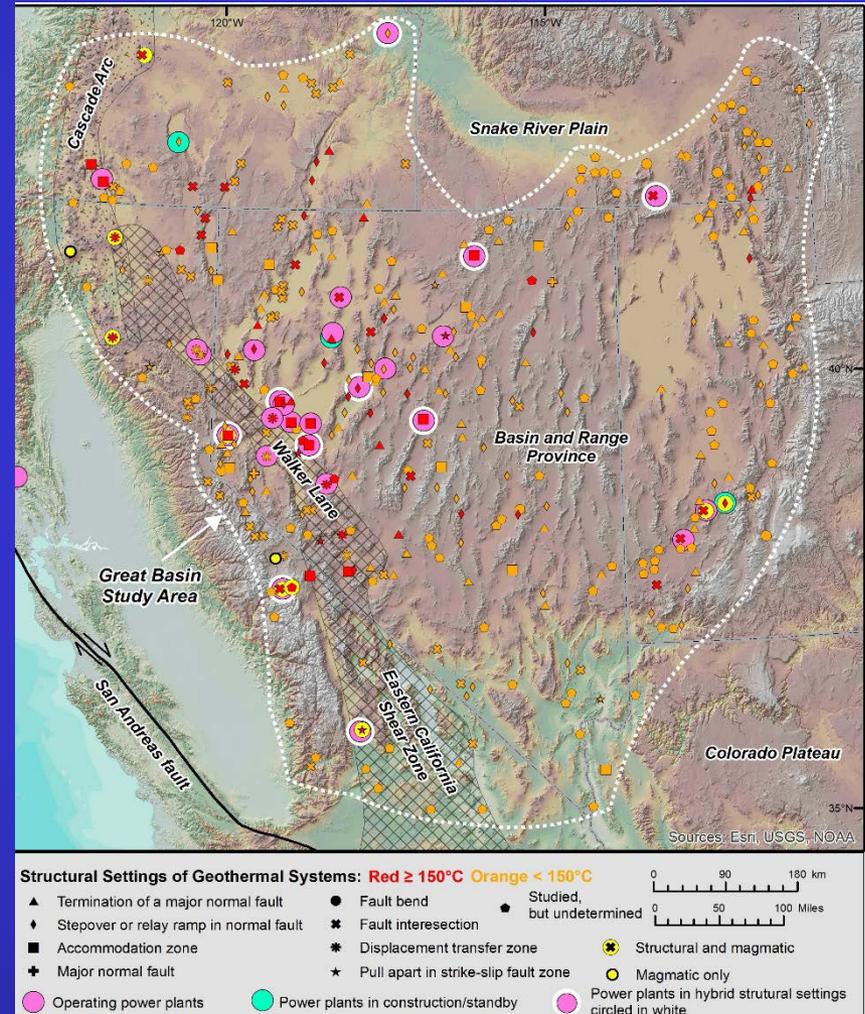
***James Faulds, NBMG Director
February 7, 2019***

- **Commission has 2-year contract with NBMG to produce Mineral Industry Reports and archive well logs and cuttings**
- **Contract calls for study and report to be approved by Commission in odd years – in this case fiscal year 2020**
- **Options for Commission to consider:**
 1. Organize, review, and publish dataset of structural settings for geothermal systems and young epithermal mineral deposits in Nevada
 2. Evaluation of trends in mineral production and activities in Nevada, as gleaned from Mineral Industry Reports, claims, and BLM notices of intent and plans of operations
 3. Base-line assessment of critical minerals in Nevada
- **Cost for each study - \$35,000**

Project 1:

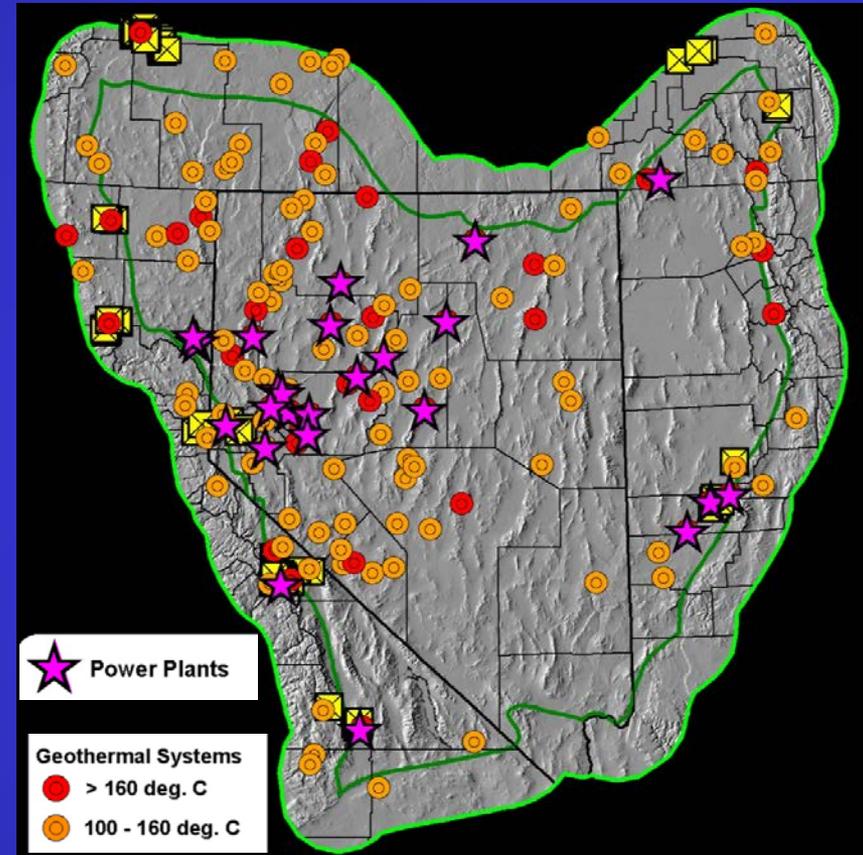
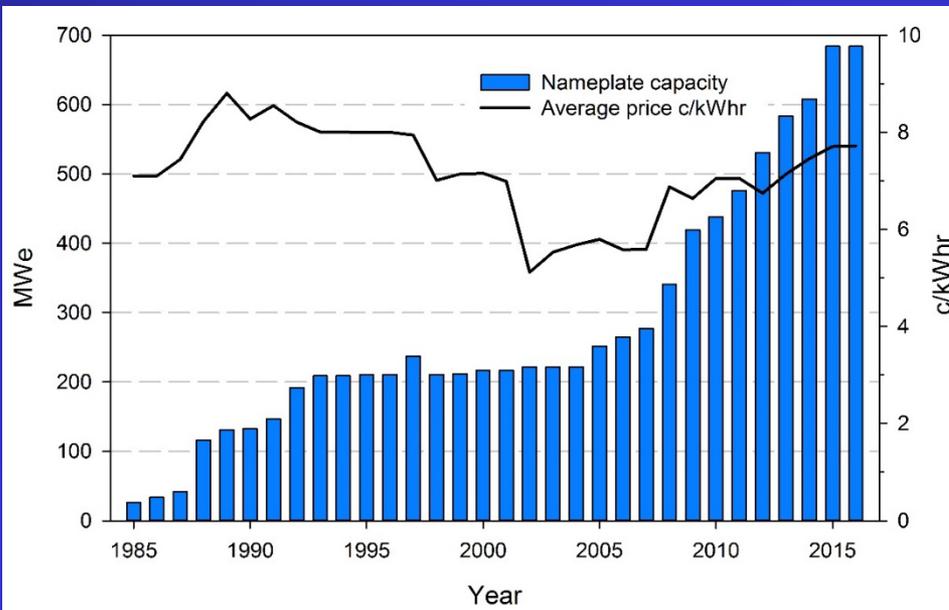
Publish Database of Structural Settings of Geothermal Systems and Young Epithermal Mineral Deposits

- Organize, QA, and publish structural settings dataset
- Add late Miocene to recent epithermal mineral deposits
- Released through NBMG open data site
- Interactive map and relational database
- Foster new geothermal and mineral exploration
- Supervised by Jim Faulds



Great Basin – Geothermal Production

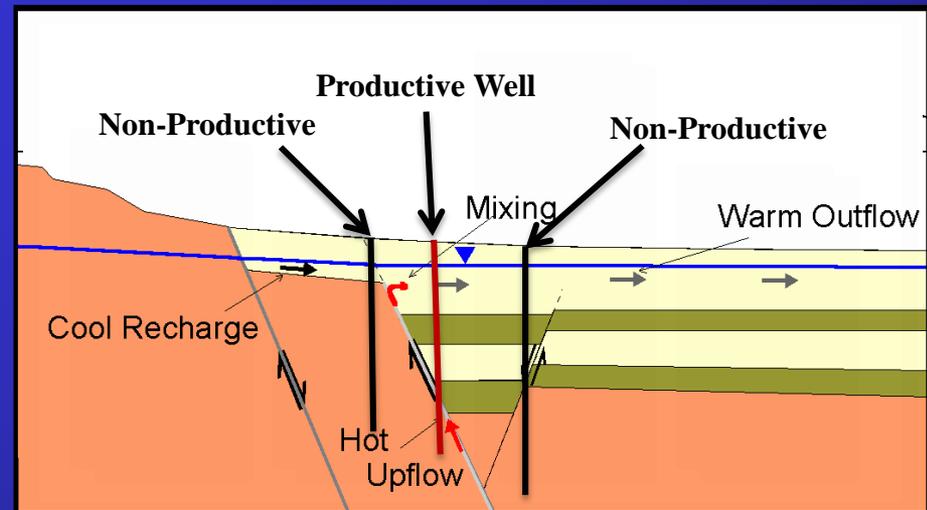
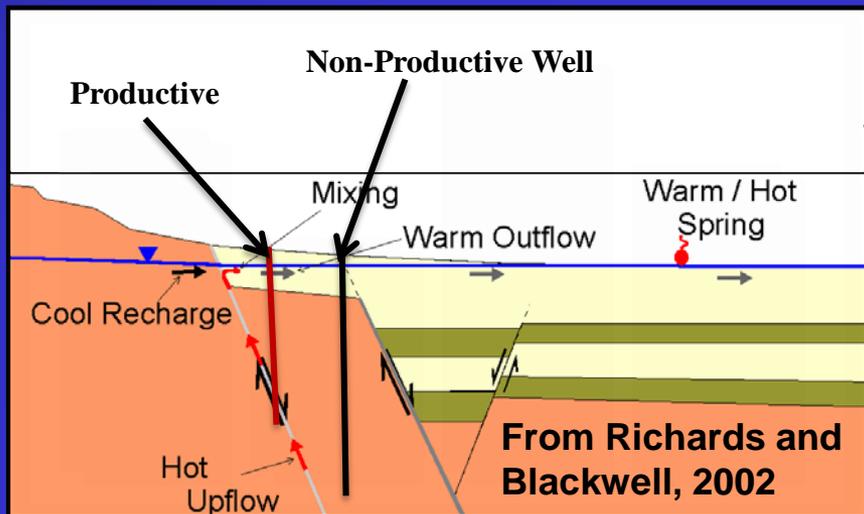
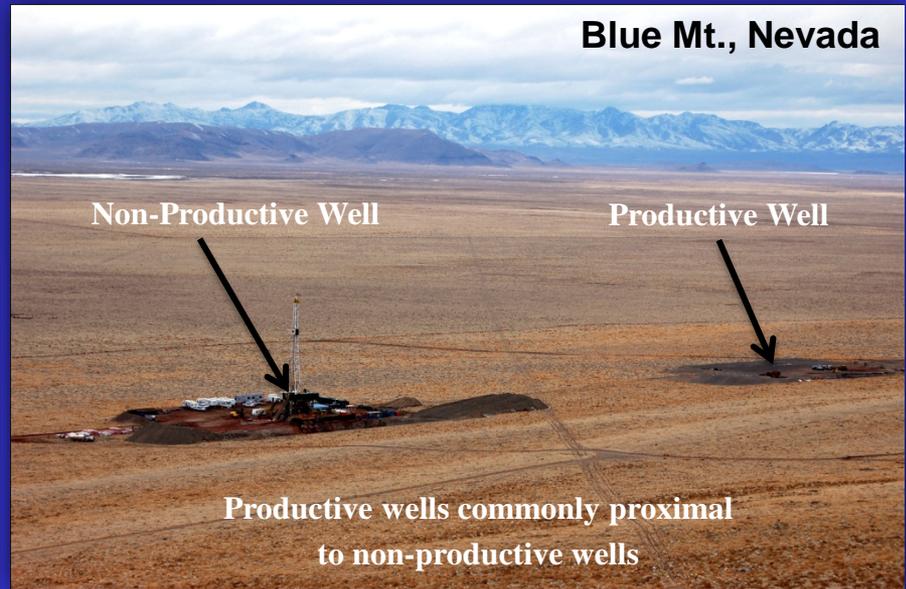
- Nearly 700 MW capacity in Nevada
- Much greater potential
- Most resources blind or hidden



*Great Basin Geothermal Systems:
Distribution of Known Systems*

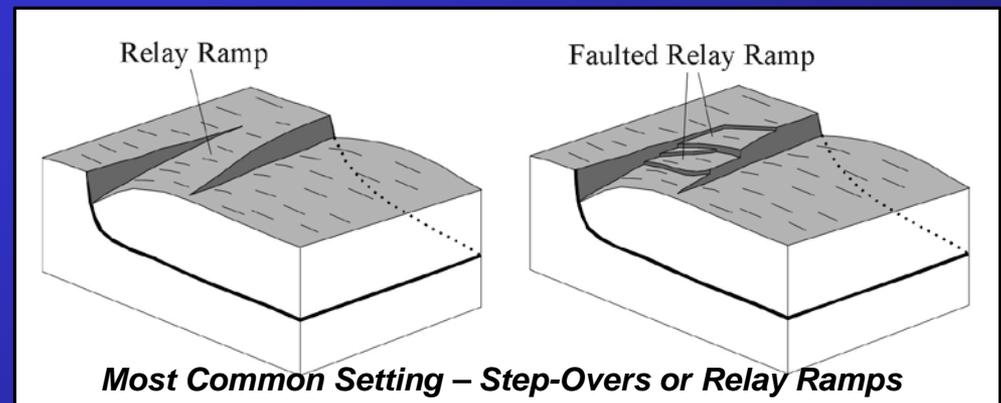
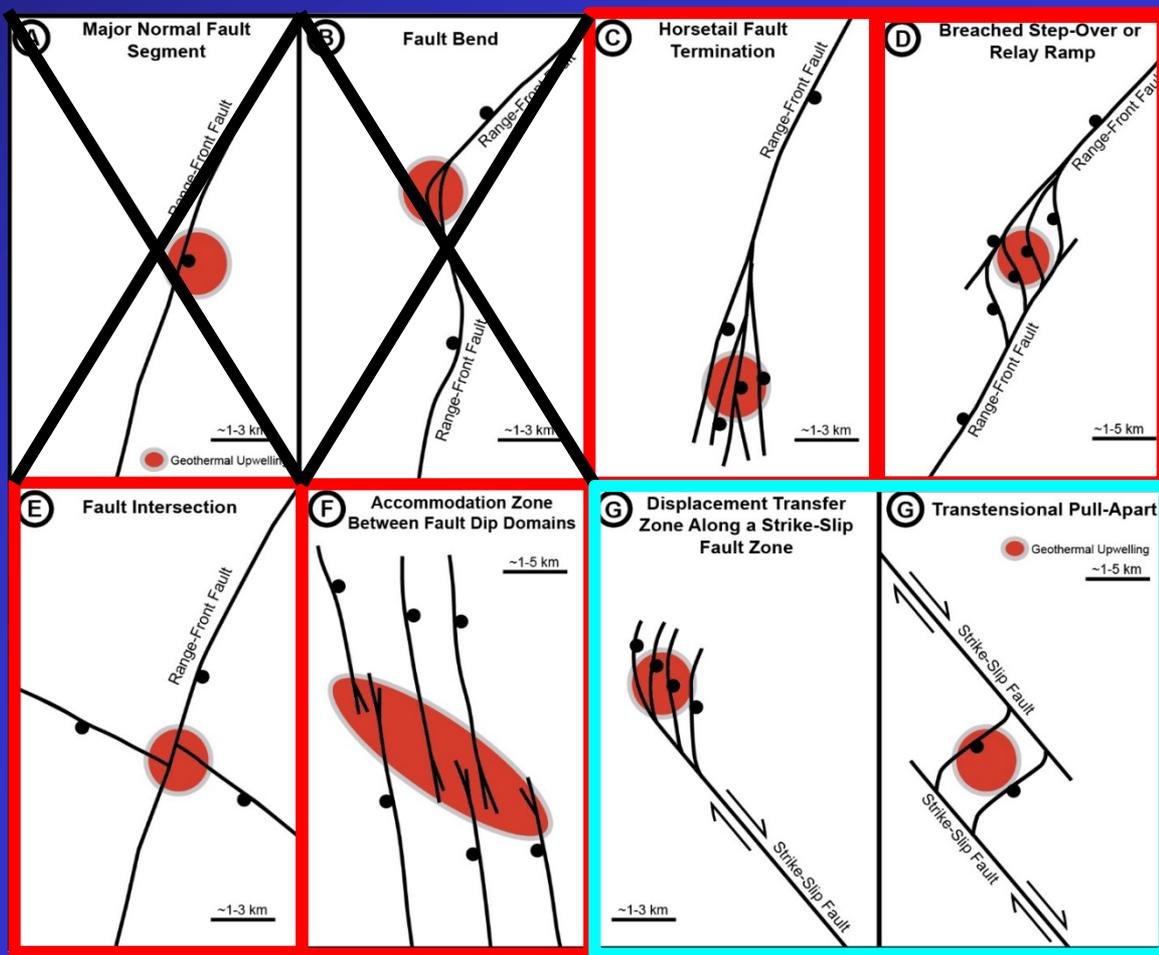
Geothermal Exploration Challenges

- **Exploration Challenges**
 - **Spring directly above upflow from deep source (uncommon)**
 - **Outflow from source (common)**
 - **Hidden or blind systems (most common)**
- **39% of known systems blind; estimated that 75% of all systems blind**
- **Results – significant drilling risk**
 - **Hot dry wells**
 - **Overtorn in down-hole temperatures**
- **Need better conceptual models to:**
 - **Locate areas of upflow**
 - **Avoid typically less productive outflow zones**
- **Capturing hydrothermal system in action**



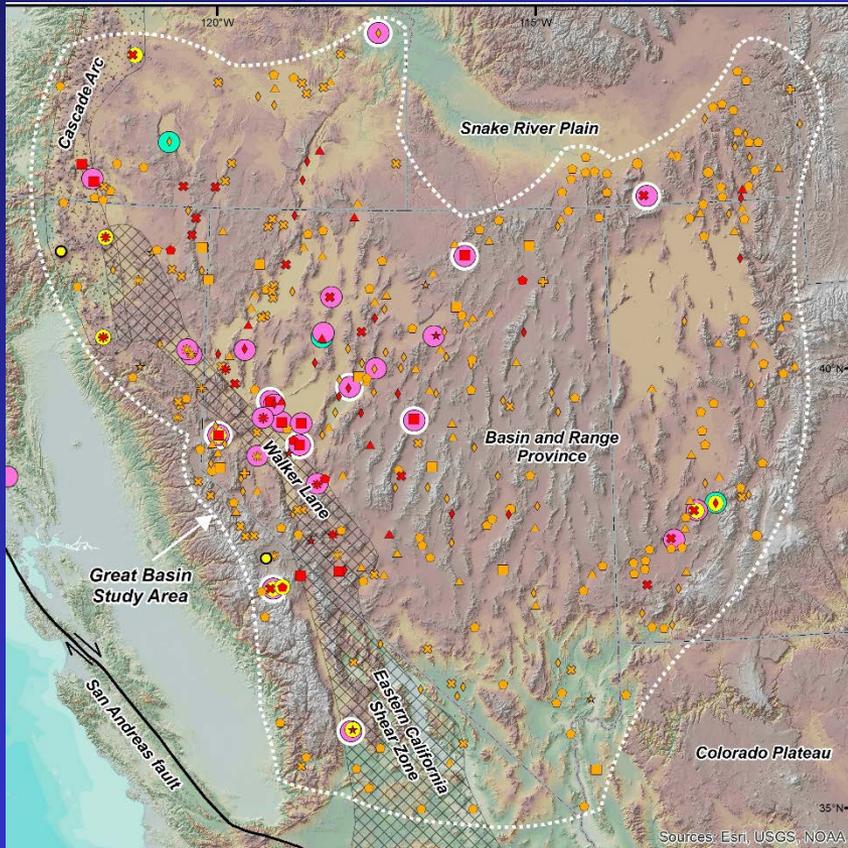
Favorable Structural Settings

- 450 systems analyzed; ~250 catalogued
- Most fields **not** on mid-segments of major faults
- Most on less conspicuous **Quaternary** normal faults
- Higher temp systems generally on faults <750 ka
- Hybrid settings most productive



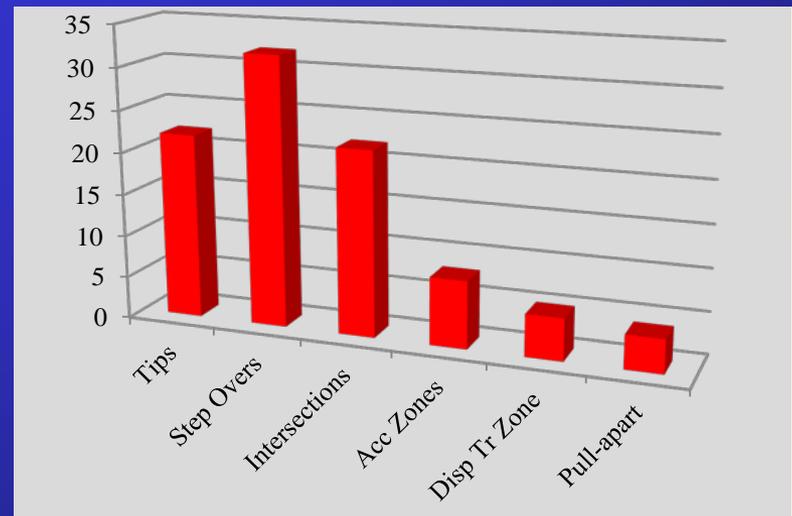
Structural Inventory: Major Findings

- Structural settings for geothermal fields:
 - Major normal fault (~1%)
 - Normal fault tip or termination (~22%)
 - Step-over or relay ramp in normal fault (~33%)
 - Fault intersection-normal and strike-slip or oblique fault (~22%)
 - Accommodation zone (~9%)
 - Displacement transfer zone (~5%)
 - Pull-apart (~4%)
- Quaternary faults in most systems
- Most common settings – critically stressed – fluid pathways more likely to remain open
- Many productive systems have >1 type of favorable setting at single locality



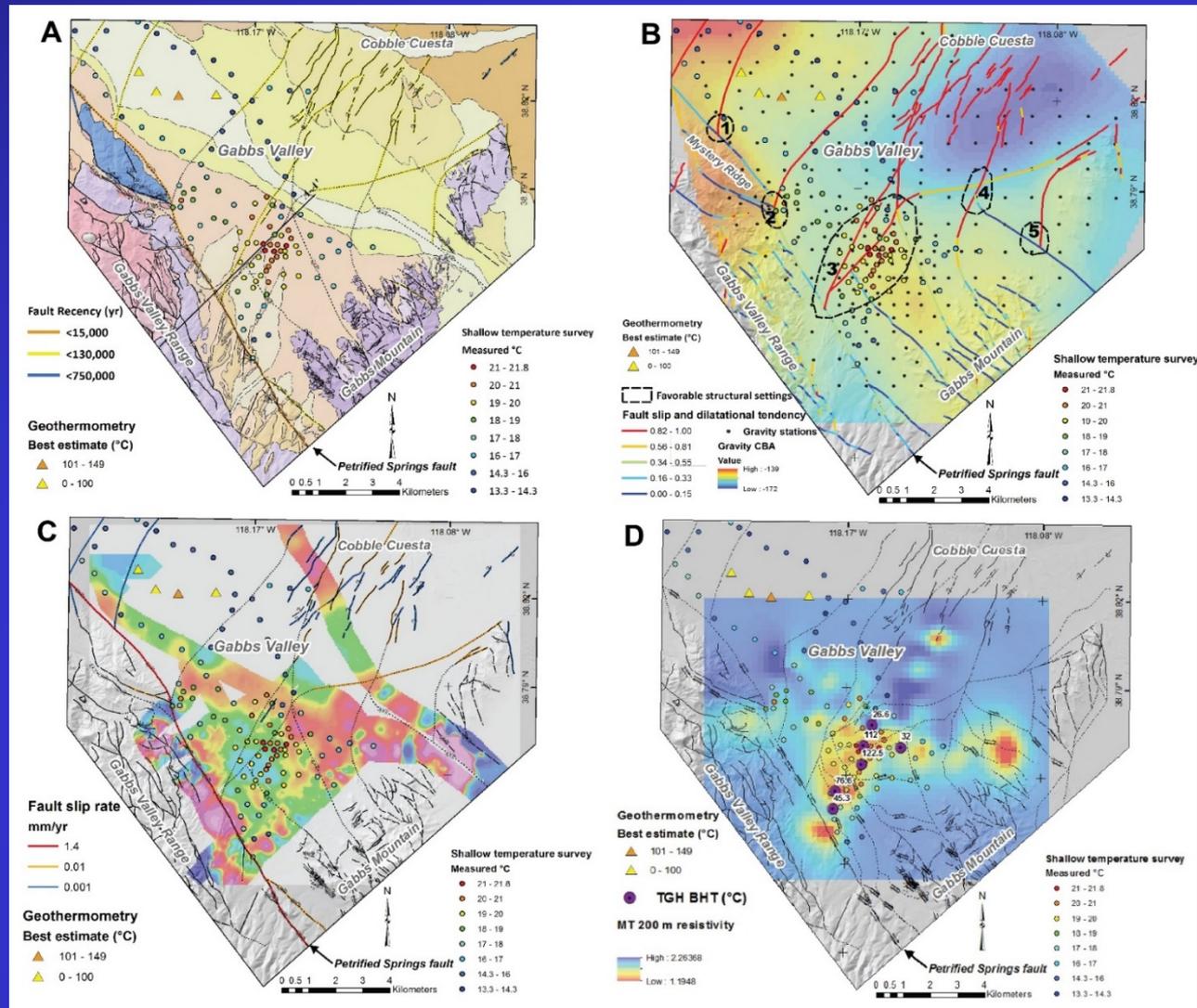
Structural Settings - ~400 Systems Analyzed

~39% Blind



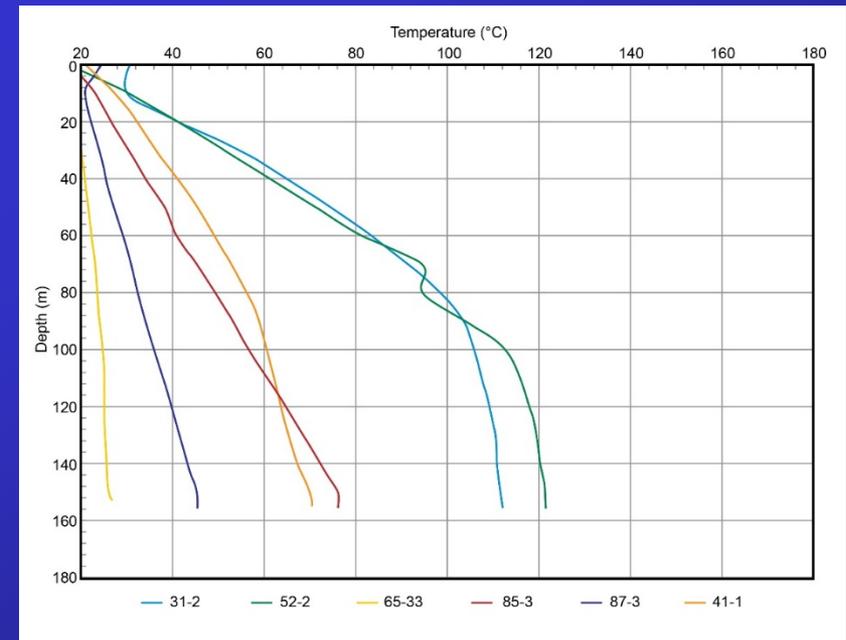
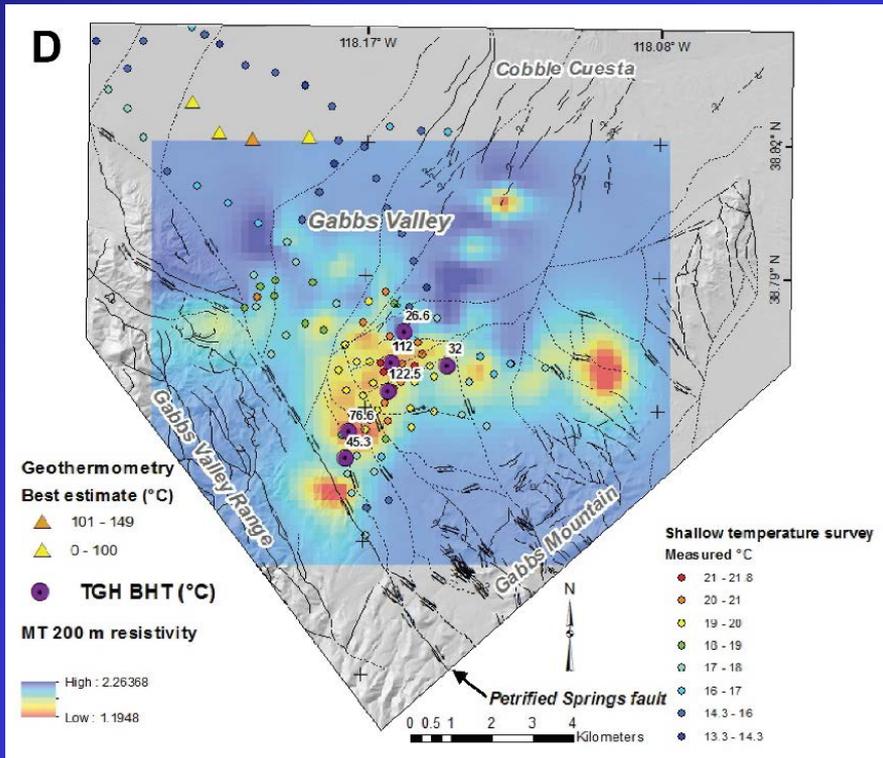
Southeastern Gabbs Valley

- New discovery-blind system using techniques developed by NBMG
- Structural setting: Displacement transfer zone
- Wells 32°C
- Geothermometry – 135°C
- 2-m temperature anomaly
- Intersecting gravity gradients indicating intersecting subsurface faults
- Magnetic low indicating altered rocks at depth
- Low resistivity indicating fluid flow and/or altered rocks at depth



Southeastern Gabbs Valley

- Drilled in June 2018
- Found 124°C at 152 m depth
- Blind system confirmed
- Methodology *verified*



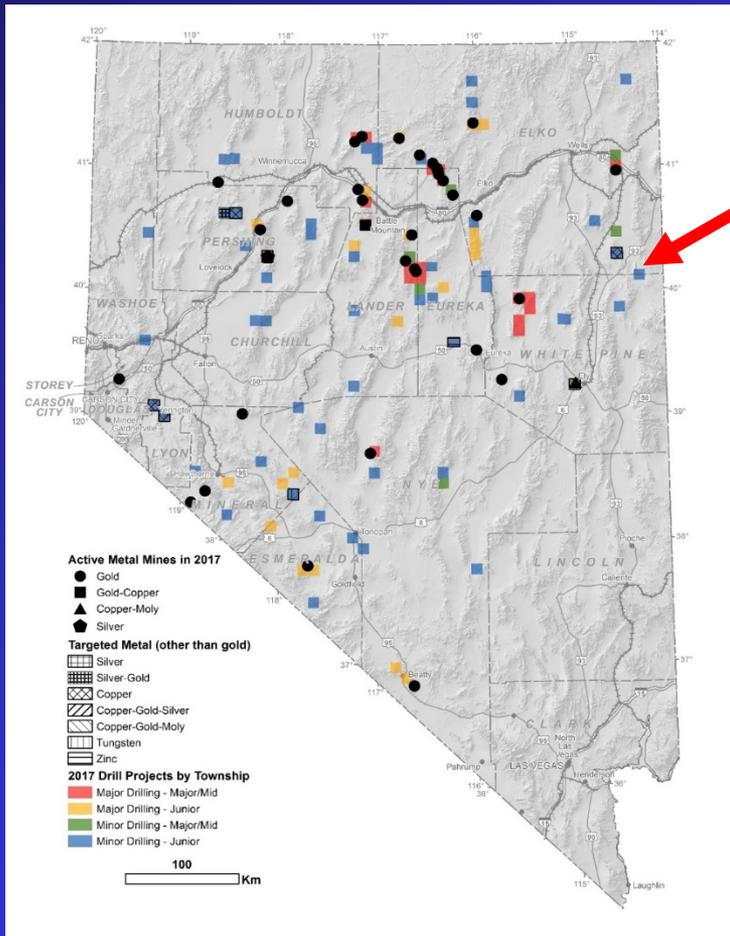
Project 2:

Trends in Mineral Production

- Much of the data has been collected and compiled by John Muntean since he joined NBMG
- Needs to be formatted by Cart-GIS for a web map service
- Can be efficiently updated annually by Cart-GIS
- Proposed databases
 - **Drill Projects for Metals with links to MI Reports**
 - **Claims, with claimant info**
 - **BLM Notices and Plans of Operation**
- Users and Value
 - **Mineral assessments by various government agencies**
 - **Exploration and Mining companies, especially junior companies in order to find what was done by who and when, which will help companies track down data.**
 - **Biggest complaint Muntean hears from junior companies, especially those run by companies outside Nevada and U.S. is the lack of easily accessible data.**
- Supervisor – John Muntean

Drill Projects for Metals 2005-2017

2017 Drill Projects by Township



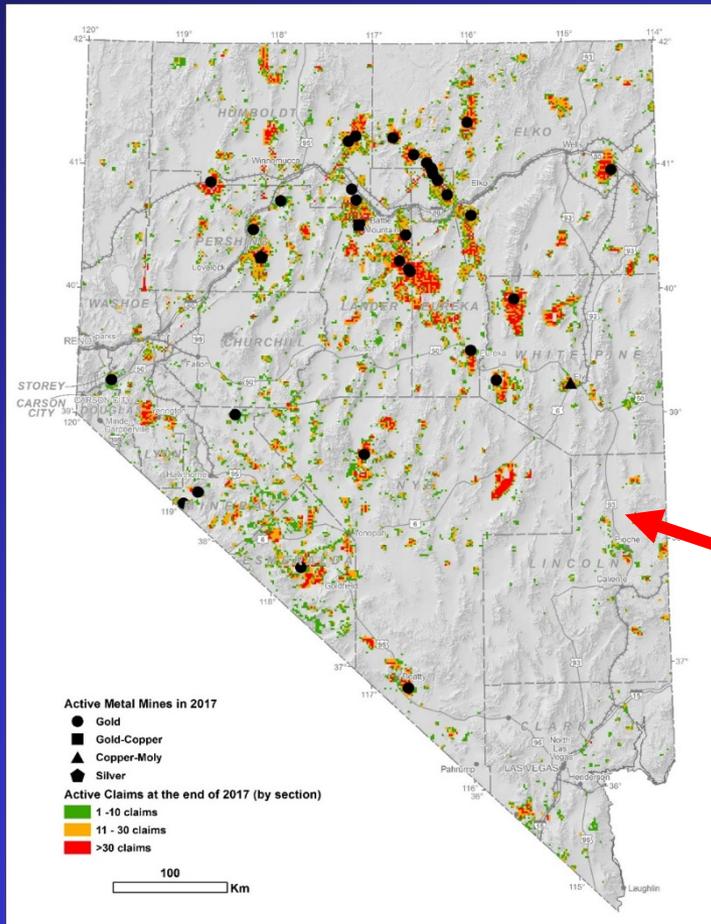
- Click on Township, and up comes excerpt from MI 2017 on the drill projects in this township. In this case, Kinsley.
- Each year from 2005 to 2017 will be on a separate layer

Kinsley District

Kinsley Mountain. Liberty Gold Corp., (named changed from Pilot Gold, Inc. in May 2017) completed five reverse circulation drill holes totaling about 4,254 feet (1,297 m) on the Western Flank East Extension Target at its Kinsley Mountain project (Liberty Gold Corp., 79%; Nevada Sunrise Gold Corp., 21%). Four holes tested the eastern extension of the Western Flank gold deposit, and one hole tested a geochemical anomaly in the southeastern part of the project area on the eastern flank of the Kinsley Range. The mineralization is contained in the Cambrian Secret Canyon Shale Zone (lower host) and the overlying Cambrian Dunderberg Shale Zone (upper host). Significant intercepts from the Western Flank East Extension included 1) 95 feet (29 m) averaging 0.15 opt (5.3 g/t) gold, including 55 feet (16.8 m) grading 0.23 opt (7.8 g/t) gold in the Secret Canyon Shale, 2) 15 feet (4.6 m) averaging 0.36 opt (12.4 g/t) gold, including 5 feet (1.5 m) grading 1.02 opt (35.1 g/t) gold in the Dunderberg Shale, and 3) 25 feet (7.6 m) averaging 0.2 opt (6.8 g/t) gold, including 10 feet (3 m) grading 0.37 opt (12.8 g/t) in the Dunderberg Shale. The mineralization of the Western Flank deposit remains open in all directions. The hole that tested the geochemical anomaly on the southeastern flank did not encounter any significant intercepts. (Liberty Gold Corp., Annual Information Form, 3/27/2018; Liberty Gold Corp. news releases 7/13/2017; Liberty Gold Corp. website, libertygold.ca; Nevada Sunrise Gold Corp. news releases, 4/12/2017, 7/13/2017; Nevada Sunrise Gold Corp. website, www.nevadasunrise.ca)

Claims 1976-2017

Number of Active Claims by Section at the end of 2017



1. USGS Data Series 290: Number of active claims per section from 1976-2005
2. NBMG Muntean data: Number of active claims per section at the end of a given year, from 2006-2017, including claimant info
3. NBMG Muntean data: Number of new claims located per section for a given year, from 2006-2017, including claimant info

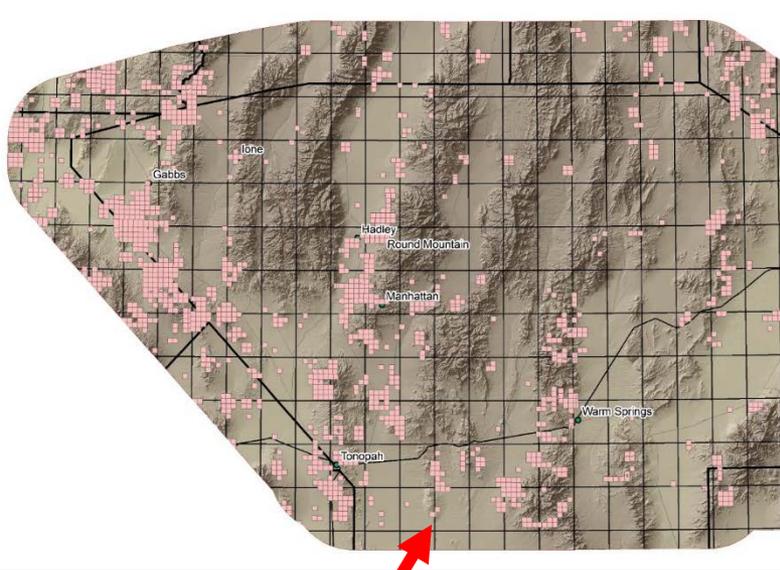
Click on this section and get the following

2017ActiveClaims								
ID	MTRS	Subdiv	Serial Number	Lead Serial Number	Case Type	Claim Name	Claimant Name	Loc Date
169836	21 0040N 0680E 030	SE	NMC1164990	NMC1164963	LODE	ONHN 3016W	LEE JOSEPH	11/8/2017
169837	21 0040N 0680E 030	NE,SE	NMC1164991	NMC1164963	LODE	ONHN 3009W	LEE JOSEPH	11/8/2017
169838	21 0040N 0680E 030	SE	NMC1164992	NMC1164963	LODE	ONHN 3016E	LEE JOSEPH	11/8/2017
169839	21 0040N 0680E 030	NE,SE	NMC1164993	NMC1164963	LODE	ONHN 3009E	LEE JOSEPH	11/8/2017
169840	21 0040N 0680E 030	SW,SE	NMC1164994	NMC1164963	LODE	ONHN 3015W	LEE JOSEPH	11/8/2017
169841	21 0040N 0680E 030	NW,SE	NMC1164995	NMC1164963	LODE	ONHN 3010W	LEE JOSEPH	11/8/2017
169842	21 0040N 0680E 030	SW,SE	NMC1164996	NMC1164963	LODE	ONHN 3015E	LEE JOSEPH	11/8/2017
169843	21 0040N 0680E 030	NW,SE	NMC1164997	NMC1164963	LODE	ONHN 3010E	LEE JOSEPH	11/8/2017
169844	21 0040N 0680E 030	SW,SE	NMC1164998	NMC1164963	LODE	ONHN 3014W	LEE JOSEPH	11/8/2017
169845	21 0040N 0680E 030	NE,SW	NMC1164999	NMC1164963	LODE	ONHN 3011W	LEE JOSEPH	11/8/2017
169846	21 0040N 0680E 030	SW,SE	NMC1165000	NMC1164963	LODE	ONHN 3014E	LEE JOSEPH	11/8/2017
169847	21 0040N 0680E 030	NE,SW	NMC1165001	NMC1164963	LODE	ONHN 3011E	LEE JOSEPH	11/8/2017
169848	21 0040N 0680E 030	NE,SW	NMC1165002	NMC1164963	LODE	ONHN 3013W	LEE JOSEPH	11/8/2017
169849	21 0040N 0680E 030	NE,SW	NMC1165003	NMC1164963	LODE	ONHN 3012W	LEE JOSEPH	11/8/2017
169850	21 0040N 0680E 030	NE,SW	NMC1165004	NMC1164963	LODE	ONHN 3013E	LEE JOSEPH	11/8/2017
169851	21 0040N 0680E 030	NE,SW	NMC1165005	NMC1164963	LODE	ONHN 3012E	LEE JOSEPH	11/8/2017
169852	21 0040N 0680E 016	NE,SE	NMC1165007	NMC1164963	LODE	ONH 1609W	LEE JOSEPH	11/9/2017

BLM Notices of Intent and Plans of Operations

1976-2017

BLM NOI's through March 2013



Click on this section and
get the following:

BLM_Permits_2010
NV210010N0450E0240

Location: 510,702.724 4,197,089.920 Meters

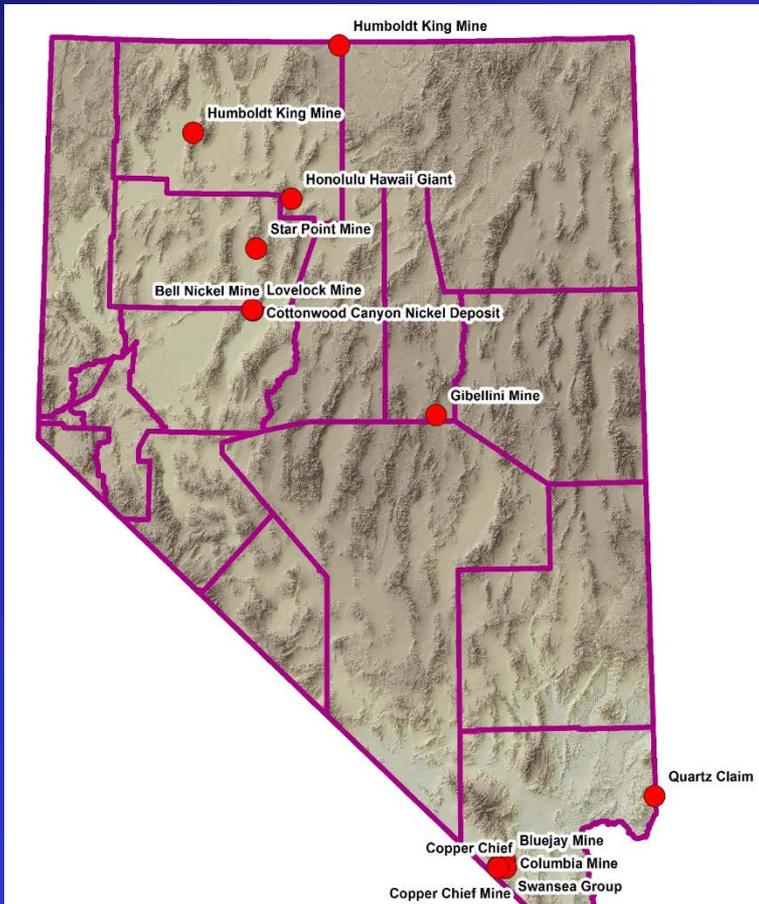
Field	Value
FRSTDIVTXT	Section
PLSSID	NV210010N0450E0
FRSTDIVLAB	24
SURVTYP	
SURVTYPTXT	
TRS	010N450E024
Township	010N
Range	450E
Section	024
OBJECTID_1	58
DisplayedN	AMERICAN COPPER & NICK CO INC
Township_1	0010N
Range_1	0450E
Section_1	24
Aliquot_Pa	ENTIRE SECTION
Serial_Nr_	NVN 072681
Casetype	380913
Case_Disps_	CLOSED
Disp_Act_C	970
Act_Txt	CASE CLOSED
Disp_Dt	6/14/1988
Action_Rem	
Ttl_Case_A	0
TRS_1	010N450E024
Shape_Length	6446.755136
Shape_Area	2597521.690048

Identified 1 feature

1. Muntean has already downloaded and compiled into spreadsheet NOIs and POOs from BLM LR2000 for entire state with Disposition Dates through Sept 2012
2. Prototype was done for Northern Nye County in 2010 as part of an aborted mineral assessment
3. Muntean has downloaded NOI and Plan for 2011 to 2017
4. This database would require the most work

Project 3:

Compile Maps and Short Summaries of Occurrences of Critical Minerals in Nevada



Cobalt Occurrences
in Nevada, USGS
MRDS Dbase

- USGS has listed 23 critical mineral commodities

1. Antimony
2. Barite
3. Beryllium
4. Cobalt
5. Fluorine
6. Gallium
7. Germanium
8. Graphite
9. Hafnium
10. Indium
11. Lithium
12. Manganese
13. Niobium
14. Platinum Group Elements
15. Rare Earth Elements
16. Rhenium
17. Selenium
18. Tantalum
19. Tellurium
20. Tin
21. Titanium
22. Vanadium
23. Zirconium

Objectives

1. Make occurrence maps for all 23 critical minerals using MRDS
2. Correct locations using GIS and Google Earth Imagery
3. Write short reports summarizing the occurrences for each of the 23 critical minerals, if present in Nevada
4. Supervisor – John Muntean

**III.E 2019 Legislative Session (80th Session
of the Nevada Legislature)**

ASSIGNED STAFFER	CABINET	NON-CABINET	CONSTITUTIONAL
MICHELLE WHITE <i>Chief of Staff</i> michellewhite@gov.nv.gov	ADMINISTRATION	NA	LT. GOV
	FINANCE OFFICE		CONTROLLER
	ECONOMIC DEVELOPMENT		
	TOURISM & CULTURAL AFFAIRS		
	EMPLOYMENT, TRAINING & REHABILITATION		
ALLISON COMBS <i>Policy Director</i> allisoncombs@gov.nv.gov	HEALTH & HUMAN SERVICES	PERS	TREASURER
	EDUCATION	PEHB	
	MILITARY OFFICE / NATIONAL GUARD	SPSCA	
	VETERAN SERVICES	NSHE	
		SILVER STATE EXCHANGE	
BRIN GIBSON <i>General Counsel</i> bringibson@gov.nv.gov	TAXATION	GAMING	AG
	BUSINESS & INDUSTRY	COLORADO RIVER COMMISSION	
	CORRECTIONS	NUCLEAR PROJECTS	
	PUBLIC SAFETY / DIV. OF EMERGENCY MGMT	JUDICIAL, LEGAL & LITIGATION	
		ETHICS	
SCOTT GILLES <i>Senior Advisor</i> scottgilles@gov.nv.gov	AGRICULTURE	MINERALS	SOS
	CONSERVATION & NATURAL RESOURCES	PUC	
	ENERGY OFFICE		
	WILDLIFE		
	MOTOR VEHICLES		
	TRANSPORTATION		
KEITH HIGHTOWER <i>Intergovernmental Affairs Director</i> khightower@gov.nv.gov	NV INDIAN COMMISSION	OSIT (Office of Science, Innovation & Technology)	NA
		OWINN (Governor's Office of Workforce Innovation)	



STATE OF NEVADA

2019 LEGISLATIVE SESSION

120-Day Calendar

Date (Day of Session)	Date (Day of Session)	Date (Day of Session)
Feb. 4 (1)	Mar. 16 (41)	Apr. 25 (81)
Feb. 5 (2)	Mar. 17 (42)	Apr. 26 (82)
Feb. 6 (3)	Mar. 18 (43) Legislators' Bill Introductions	Apr. 27 (83)
Feb. 7 (4)	Mar. 19 (44)	Apr. 28 (84)
Feb. 8 (5) <i>Subcommittees Start Meeting Jointly</i>	Mar. 20 (45)	Apr. 29 (85)
Feb. 9 (6)	Mar. 21 (46)	Apr. 30 (86)
Feb. 10 (7)	Mar. 22 (47)	May 1 (87) <i>Economic Forum Report Due</i>
Feb. 11 (8) Legislators' BDR Requests	Mar. 23 (48)	May 2 (88)
Feb. 12 (9)	Mar. 24 (49)	May 3 (89) <i>Start Resolving Budget Differences</i>
Feb. 13 (10)	Mar. 25 (50) Joint Standing Rule No. 14 and Other Remaining Bill Introductions	May 4 (90)
Feb. 14 (11)	Mar. 26 (51)	May 5 (91)
Feb. 15 (12)	Mar. 27 (52)	May 6 (92)
Feb. 16 (13)	Mar. 28 (53)	May 7 (93)
Feb. 17 (14)	Mar. 29 (54)	May 8 (94)
Feb. 18 (15) Joint Standing Rule No. 14 BDR Requests	Mar. 30 (55)	May 9 (95)
Feb. 19 (16)	Mar. 31 (56)	May 10 (96)
Feb. 20 (17)	Apr. 1 (57)	May 11 (97)
Feb. 21 (18)	Apr. 2 (58) Start Closing Budgets	May 12 (98)
Feb. 22 (19)	Apr. 3 (59)	May 13 (99)
Feb. 23 (20)	Apr. 4 (60)	May 14 (100)
Feb. 24 (21)	Apr. 5 (61)	May 15 (101)
Feb. 25 (22) Joint Standing Rule No. 14 BDR Details	Apr. 6 (62)	May 16 (102)
Feb. 26 (23)	Apr. 7 (63)	May 17 (103) <i>Committee Passage (Second House)</i>
Feb. 27 (24)	Apr. 8 (64)	May 18 (104)
Feb. 28 (25)	Apr. 9 (65)	May 19 (105)
Mar. 1 (26)	Apr. 10 (66)	May 20 (106)
Mar. 2 (27)	Apr. 11 (67)	May 21 (107)
Mar. 3 (28)	Apr. 12 (68) <i>Committee Passage (First House)</i>	May 22 (108)
Mar. 4 (29)	Apr. 13 (69)	May 23 (109) <i>Finish Budget Differences</i>
Mar. 5 (30)	Apr. 14 (70)	May 24 (110) <i>Second House Passage</i>
Mar. 6 (31)	Apr. 15 (71)	May 25 (111)
Mar. 7 (32)	Apr. 16 (72)	May 26 (112)
Mar. 8 (33)	Apr. 17 (73)	May 27 (113)
Mar. 9 (34)	Apr. 18 (74)	May 28 (114)
Mar. 10 (35)	Apr. 19 (75)	May 29 (115) <i>Budget Bills Introduced Exempt Bills from Committee</i>
Mar. 11 (36)	Apr. 20 (76)	May 30 (116)
Mar. 12 (37)	Apr. 21 (77)	May 31 (117)
Mar. 13 (38)	Apr. 22 (78)	June 1 (118)
Mar. 14 (39)	Apr. 23 (79) <i>First House Passage</i>	June 2 (119)
Mar. 15 (40)	Apr. 24 (80)	June 3 (120)

Shaded days are Mondays.

Bolded and italicized items are budget related deadlines.

Senate Natural Resources (NR)

Regular Meeting Schedule

The day, time, or location may be changed at any time by the committee chair. Frequently check the meeting agenda to determine if any items have been changed.

Monday	Tuesday 4:00 pm, Room 2144	Wednesday	Thursday 4:00 pm, Room 2144	Friday
---------------	--------------------------------------	------------------	---------------------------------------	---------------

Contact Information

(775) 684-1453

SenNR@sen.state.nv.us - Please submit all documents in support of your testimony to this email address.

Members

- Melanie Scheible - Chair
- Chris Brooks - Vice Chair
- Dallas Harris
- Pete Goicoechea
- Ira Hansen

Staff

Alysa Keller	Policy Analyst		
Erin Sturdivant	Committee Counsel		
Kayla Lee	Committee Manager	(775) 684-1421	LCB
Christine Miner	Committee Secretary	(775) 684-1464	LCB2127A
Steve Woodbury	Committee Secretary	(775) 684-1445	LCB2127A

Assembly Natural Resources, Agriculture, and Mining (NRAM)

Regular Meeting Schedule

The day, time, or location may be changed at any time by the committee chair. Frequently check the meeting agenda to determine if any items have been changed.

Monday 4:00 pm, Room 3138	Tuesday	Wednesday 4:00 pm, Room 3138	Thursday	Friday
-------------------------------------	----------------	--	-----------------	---------------

Contact Information

(775) 684-6738

AsmNRAM@asm.state.nv.us - Please submit all documents in support of your testimony to this email address.

Members

- Heidi Swank - Chair
- Shannon Bilbray-Axelrod - Vice Chair
- Alex Assefa
- Maggie Carlton
- Lesley E. Cohen
- Ozzie Fumo
- Sarah Peters
- Howard Watts
- John Ellison
- Alexis Hansen
- Robin L. Titus
- Jim Wheeler

Staff

Jann Stinnesbeck	Policy Analyst		
Allan Amburn	Committee Counsel		
Patricia Demsky	Committee Manager	(775) 684-8595	LCB3158
Nancy Davis	Committee Secretary	(775) 684-8875	LCB3158A
Alejandra Medina	Committee Assistant	(775) 684-8570	LCB3132

2019 SENATE STANDING COMMITTEES - 80TH SESSION
Membership, Schedule and Location of Meetings

COMMITTEE NAME	ROOM #	D/R	MEMBERSHIP	DAY AND TIME				
				Mon	Tue	Wed	Thu	Fri
Commerce and Labor	2135	5D/3R	Spearman (C), Atkinson (VC), Cannizzaro, Ohrenschall, Brooks, Hardy, Settlemeyer, Gansert	1:30 p.m.		1:30 p.m.		1:30 p.m.
Education	2134	4D/3R	Denis (C), Woodhouse (VC), Dondero Loop, Harris, Hammond, Hansen, Pickard	1:30 p.m.		1:30 p.m.		1:30 p.m.
Finance	2134	5D/3R	Woodhouse (C), Parks (VC), Denis, Atkinson, Cancela, Settlemeyer, Kieckhefer, Goicoechea	8 a.m.	8 a.m.	8 a.m.	8 a.m.	8 a.m.
Government Affairs	2149	3D/2R	Parks (C), Scheible (VC), Ratti, Kieckhefer, Goicoechea	1:30 p.m.		1:30 p.m.		1:30 p.m.
Growth and Infrastructure	2135	5D/3R	Cancela (C), Brooks (VC), Denis, Atkinson, Spearman, Hardy, Settlemeyer, Hammond		1:30 p.m.			1:30 p.m.
Health and Human Services	2149	3D/2R	Ratti (C), Spearman (VC), Woodhouse, Hardy, Hammond	4 p.m.		4 p.m.		
Judiciary	2135	5D/3R	Cannizzaro (C), Harris (VC), Ohrenschall, Dondero Loop, Scheible, Hammond, Hansen, Pickard	8 a.m.	8 a.m.	8 a.m.	8 a.m.	8 a.m.
Legislative Operations and Elections	2144	3D/2R	Ohrenschall (C), Cannizzaro (VC), Cancela, Gansert, Pickard	4 p.m.		4 p.m.		
Natural Resources	2144	3D/2R	Scheible (C), Brooks (VC), Harris, Goicoechea, Hansen		4 p.m.		4 p.m.	
Revenue and Economic Development	2134	3D/2R	Dondero Loop (C), Ratti (VC), Parks, Kieckhefer, Gansert		1:30 p.m.		1:30 p.m.	

S.B. 53

SENATE BILL NO. 53—COMMITTEE ON NATURAL RESOURCES

(ON BEHALF OF THE DIVISION OF ENVIRONMENTAL PROTECTION OF THE STATE DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES)

PREFILED NOVEMBER 19, 2018

Referred to Committee on Natural Resources

SUMMARY—Revises provisions governing the review of certain mining regulations. (BDR 46-218)

FISCAL NOTE: Effect on Local Government: No. Effect on the State: No.

EXPLANATION - Matter in bolded italics is new; matter between brackets [omitted material] is material to be omitted.

AN ACT relating to mining; revising provisions governing the review of certain mining regulations by the Mining Oversight and Accountability Commission; and providing other matters properly relating thereto.

Legislative Counsel's Digest:

1 Existing law establishes the Mining Oversight and Accountability Commission
2 and requires the Commission to provide oversight of compliance with Nevada law
3 relating to the activities of each state agency, board, bureau, commission,
4 department or division with respect to the taxation, operation, safety and
5 environmental regulation of mines and mining in this State. (NRS 514A.040,
6 514A.060) Under existing law, certain regulations relating to mines or mining are
7 not effective unless they are reviewed by the Mining Oversight and Accountability
8 Commission before they are approved by the Legislative Commission or its
9 Subcommittee to Review Regulations. (NRS 514A.110) This bill provides that if
10 the Mining Oversight and Accountability Commission fails to review certain
11 regulations relating to mines or mining adopted by the Commission on Mineral
12 Resources or the State Environmental Commission within 30 days after their
13 adoption, the regulations will become effective in accordance with the applicable
14 provisions of the Nevada Administrative Procedure Act.



- 2 -

THE PEOPLE OF THE STATE OF NEVADA, REPRESENTED IN
SENATE AND ASSEMBLY, DO ENACT AS FOLLOWS:

1 Section 1. NRS 514A.110 is hereby amended to read as
2 follows:

3 514A.110 ~~{A}~~

4 *1. Except as otherwise provided in this section, a permanent*
5 *regulation adopted by the:*

6 ~~{1}~~ (a) Nevada Tax Commission, pursuant to NRS 360.090,
7 concerning any taxation related to the extraction of any mineral in
8 this State, including, without limitation, the taxation of the net
9 proceeds pursuant to chapter 362 of NRS and Section 5 of Article
10 10 of the Nevada Constitution;

11 ~~{2}~~ (b) Administrator of the Division of Industrial Relations of
12 the Department of Business and Industry for mine health and safety
13 pursuant to NRS 512.131;

14 ~~{3}~~ (c) Commission on Mineral Resources pursuant to NRS
15 513.063, 513.094 or 519A.290; and

16 ~~{4}~~ (d) State Environmental Commission pursuant to
17 NRS 519A.160,

18 is not effective unless it is reviewed by the Mining Oversight and
19 Accountability Commission before it is approved pursuant to
20 chapter 233B of NRS by the Legislative Commission or the
21 Subcommittee to Review Regulations appointed pursuant to
22 subsection 6 of NRS 233B.067. After conducting its review of the
23 regulation, the Mining Oversight and Accountability Commission
24 shall provide a report of its findings and recommendations regarding
25 the regulation to the Legislative Counsel for submission to the
26 Legislative Commission or the Subcommittee to Review
27 Regulations, as appropriate.

28 *2. If the Mining Oversight and Accountability Commission*
29 *fails to review a permanent regulation described in paragraph (c)*
30 *or (d) of subsection 1 within 30 days after its adoption, the*
31 *regulation becomes effective in accordance with the provisions of*
32 *NRS 233B.070.*

33 Sec. 2. This act becomes effective upon passage and approval.

50



III.F Reimbursement Policy for professional organizations and meetings, and for Safety Gear



STEVE SISOLAK
Governor

STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89703
(775) 684-7040 • Fax (775) 684-7052
<http://minerals.nv.gov/>



RICHARD PERRY
Administrator

Las Vegas Office: 2030 E. Flamingo Rd. #220, Las Vegas, NV 89119
Phone: (702) 486-4343; Fax: (702) 486-4345

January 17, 2019

SUBJECT: Reimbursement Policy for Professional Organizations and Professional Meetings

BACKGROUND: Per NRS 513.063(4), the Commission on Mineral Resources shall formulate the Administrative policies for the Division. *Also, State Administrative Manual 2628 and 2629 is relevant to this policy.*

It is the policy of the Commission on Mineral Resources to encourage professional staff to keep their job skills current through professional registration in their area of expertise and membership and attendance in trade associations where these relate to the employee's work assignments and benefit the agency. Staying current with industry practices, exploration and development projects, and fluid minerals regulatory issues are consistent with the Division's mission to encourage and assist in the responsible development of minerals, oil/gas and geothermal resources in Nevada and to disseminate information to the public and industry.

The Division will reimburse employees annual dues for one of the following professional certification organizations, up to a maximum of \$200 per year. The professional certification must require continuing education and training.

- Nevada Professional engineering registration (Mining, Civil, Petroleum, Chemical, Metallurgical, Geological engineering)
- American Association of Professional Geologists –AIPG - (Certified Professional Geologist registration)

The Division will also reimburse employees annual dues for up to three professional associations which are education-focused, on the following list, up to a combined maximum of \$200 per year:

- Geological Society of Nevada
- SME - Society of Mining, Metallurgical and Exploration
- Nevada Landman's Association
- Association of Environmental and Engineering Geologists (AEG)
- Nevada Petroleum and Geothermal Society (NPGS)
- Nevada GIS users group

Employees may request reimbursement for meeting or conference costs for the organizations listed above if there is a lecture or educational component to the meeting. Attendance at professional association meetings is encouraged, but not eligible for comp or overtime unless the employee is acting as the speaker for the meeting at the request of the Division or association.



STEVE SISOLAK
Governor

STATE OF NEVADA
COMMISSION ON MINERAL RESOURCES
DIVISION OF MINERALS
400 W. King Street, Suite 106
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Phone: (702) 486-4343; Fax: (702) 486-4345



RICHARD PERRY
Administrator

January 17, 2019

SUBJECT: Reimbursement for Safety Gear.

BACKGROUND: Per NRS 513.063(4), the Commission on Mineral Resources shall formulate the Administrative policies for the Division.

In following NDOM's Mission statement to provide for public safety by identifying, ranking and securing dangerous conditions at mines that are no longer operating; the Division will reimburse up to \$200 per year for employee safety clothing or gear. The Division will supply basic PPE such as hard hats, safety glasses, Kevlar sleeves, and gloves. Examples of safety clothing and gear that are eligible for reimbursement are:

- Durable "Carhartt"-type pants or bib overalls
- Durable "Carhartt"-type field jacket
- Durable "Carhartt"-type field vest
- UV protective hat (wide brim to protect you from the sun)
- UV shirt
- Steel-toed boots

The maximum reimbursement in any calendar year is \$200. The original receipts are required to receive reimbursement.

IV. OLD BUISNESS

IV. A Update of Commission/Division Financials

THIS SECTION INTENTIONALLY LEFT BLANK.

**IV. B 2018 Annual Report for NDOM's AML
Program, plans for 2019 and possible
approval of additional projects**

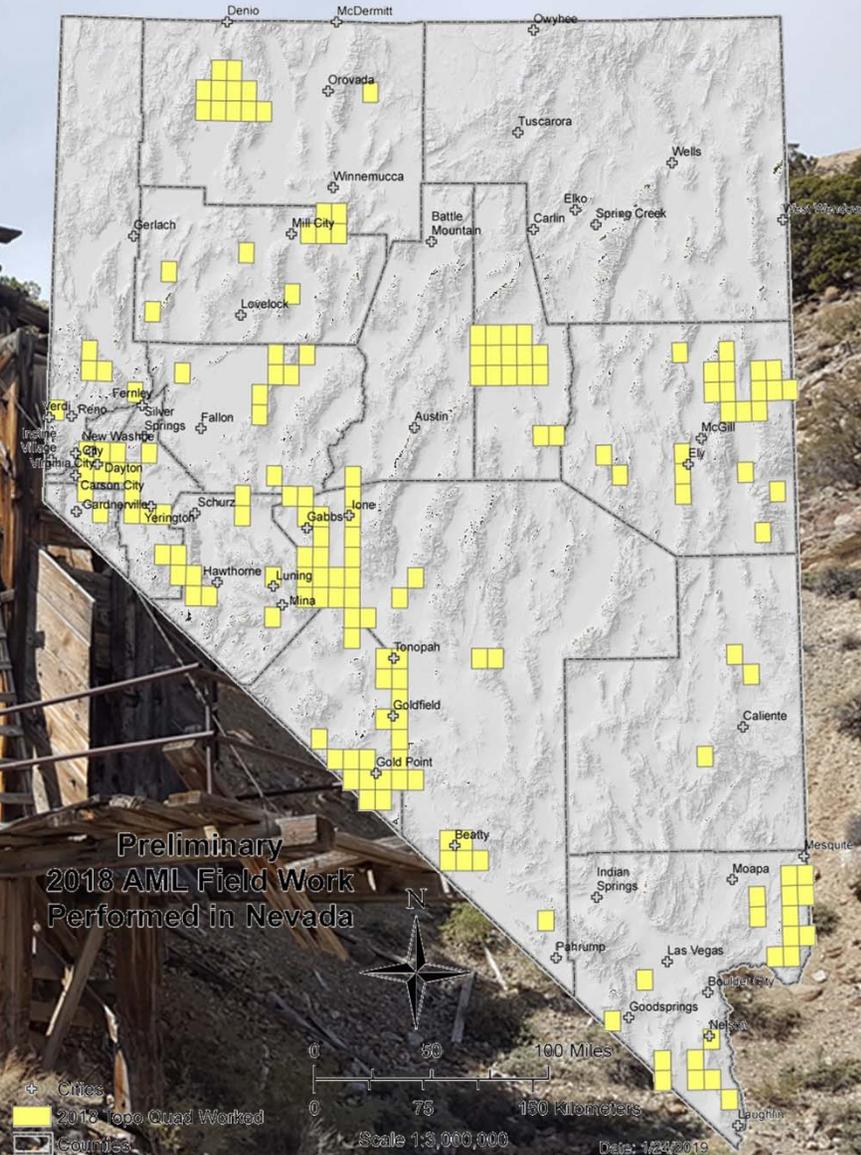


2018 Division of Minerals Abandoned Mine Lands Program Review

Commission on Mineral Resources
Quarterly Meeting
February 8th 2019
Henderson, NV
Rob Ghiglieri

2018 Preliminary Statistics

- ~920 Inventories
- 845 Revisits
- 810-900 Securings
 - 470 by NDOM or Contractor
 - 225-275 by Owner or claimant
 - 55-100 by BLM
 - 42 by USFS
 - ~25 other
- Missing Data
 - BLM/BOR
 - Owners



2018 Intern Statistics

- 757 Inventories
- 688 Revisits
- 276 Securings
 - 12 Counties
 - ~35,000 miles traveled
 - 12 Combined Interns
 - 6 January
 - 7 Summer
 - 4 December



2018 Hard Closures

- Completed eight Hard Closure Projects
 - Arden (47)
 - Broken Hills (40)
 - LY-1172 (1)
 - ST-19 (1)
 - Gold Butte (40)
 - Fort Churchill (1)
 - Brunswick (1)
 - THMP (3)
- 134 Total Closures
 - Program Record
 - \$768,023 expended
 - Split FY18 & FY19
- Completed by State Contractor: Environmental Protection Services
 - 30 fencings in addition to the closures



Outside Revenues Calendar 2018

- BLM
 - \$83,150
 - \$115,147 available on current modification
 - \$400,000 additional remaining on Grant
 - Not guaranteed
- USFS
 - \$6,565
 - \$13,409 expected FY19
- Clark County Real Property
 - \$150,000
- Clark County Desert Conservation
 - \$129,955
 - \$63,869 remaining
- Total 2018
 - \$369,670



Gunmetal Mine



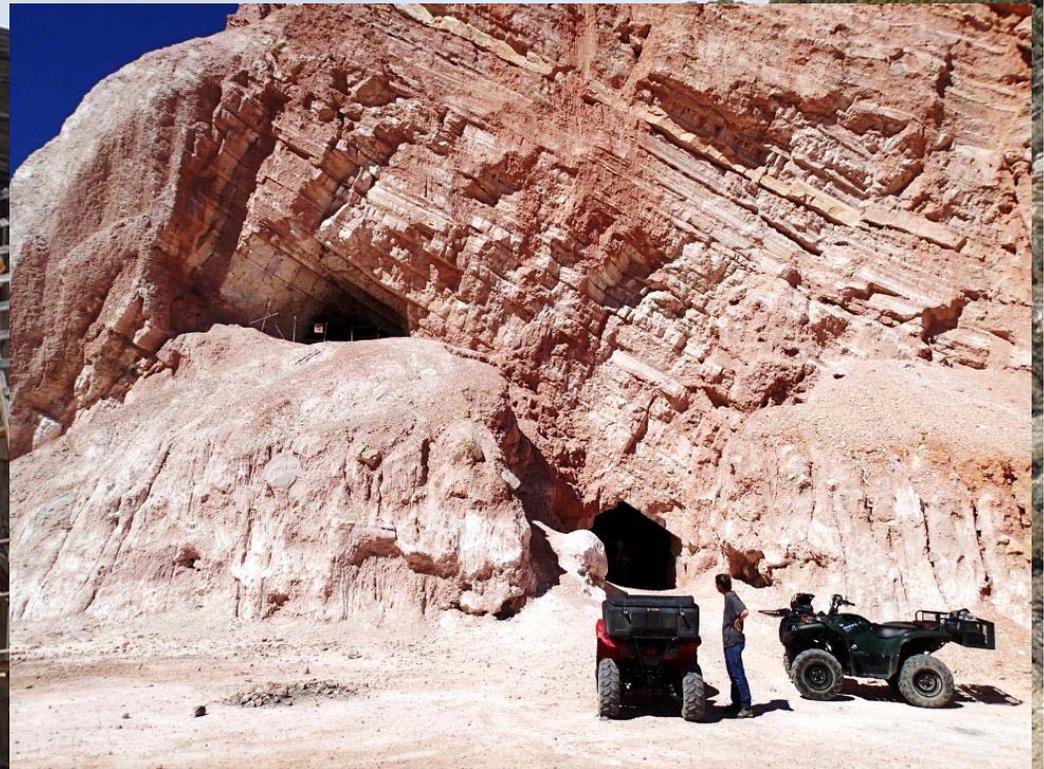
- Explosives found
 - Detonated by Bomb Squad
- 11 Hazards
 - 6 BCCs
 - 4 Backfills
 - 1 Fence (Pit)
- Fence completed, remainder of closures in February 2019
 - weather depending



Valley of Fire State Park



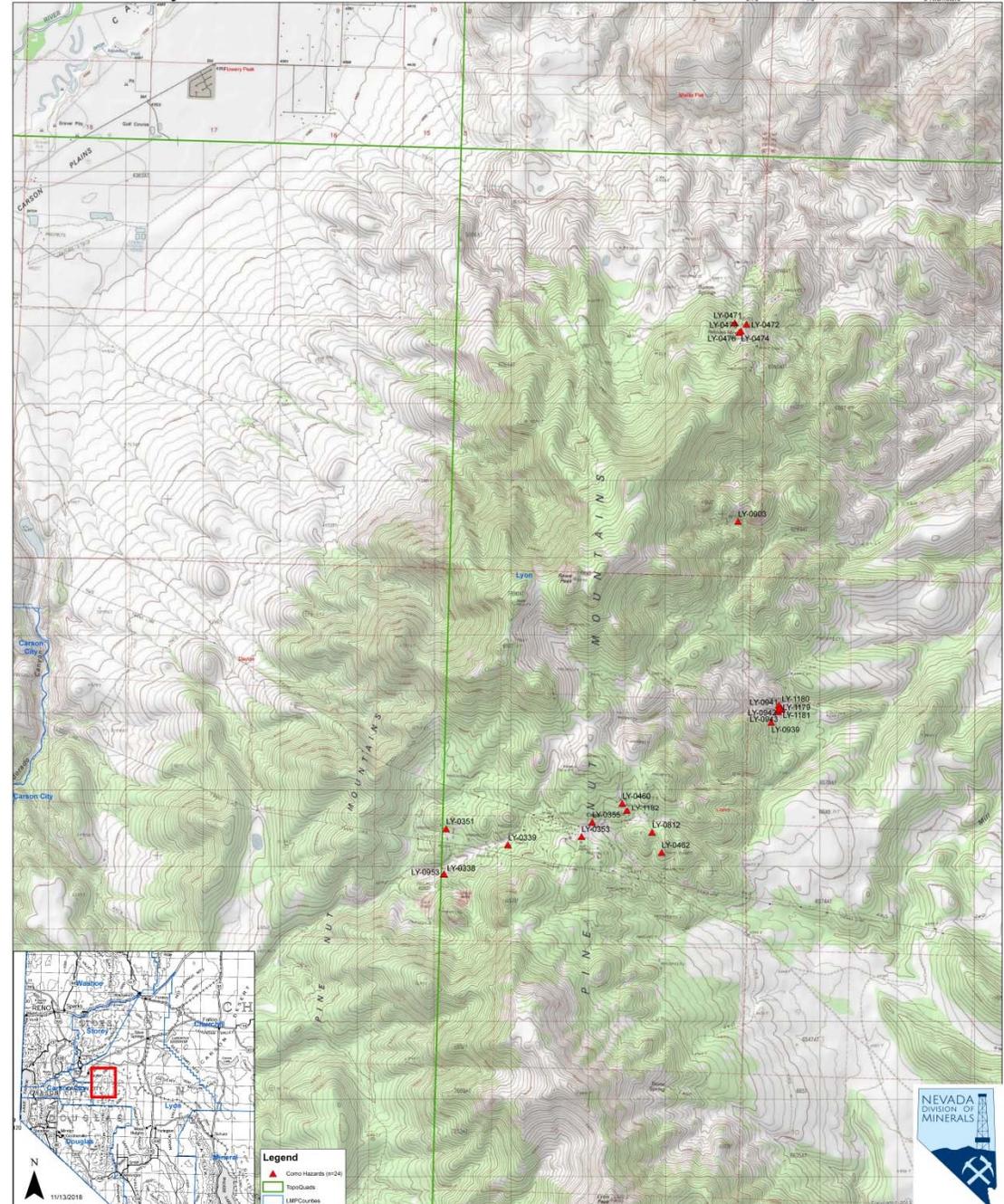
- 3 hazards located inside Valley of Fire State Park
- 2 hazards have significant bat habitat
 - NDOW noted ATV tracks inside the lower adit
- Entered into an Interlocal agreement with State Parks.
 - Waiting for approval from State Lands
- Desert Conservation Program contract will fund the two BCCs
- Anticipated work late February 2019
 - Estimate = \$15,575



Como

- 24 hazards
 - 10 BCC's
 - 14 Backfills/PUF
- Located just south of Dayton
- CX pending
 - Closures in spring 2019
 - Estimate
 - \$95,000

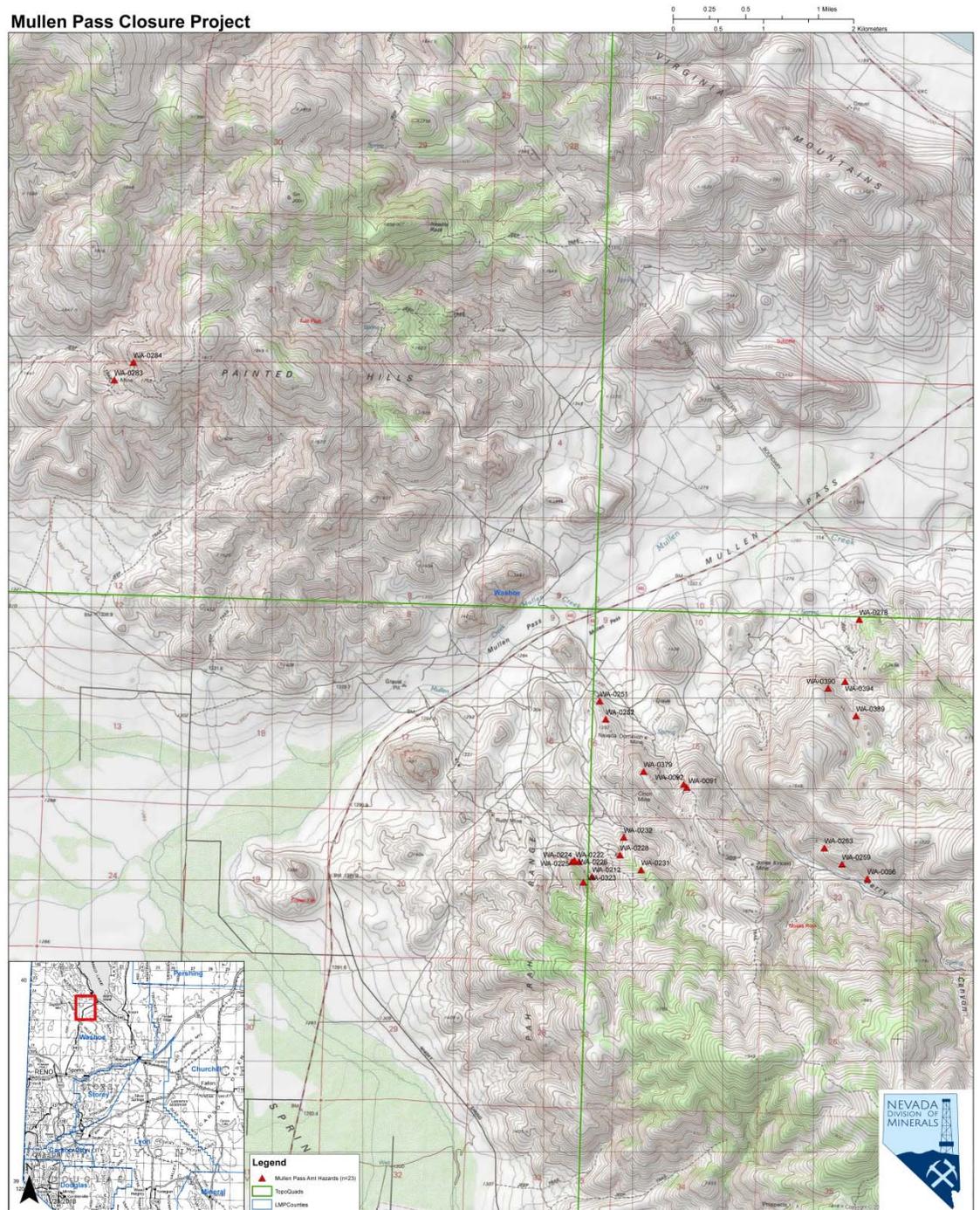
Como Closure Project



Mullen Pass

- 23 hazards
 - 5 BCC's
 - 18 Backfills/PUF
- Located along Pyramid Hwy before Pyramid Indian Reservation
- CX pending
 - Closures in spring 2019
 - Estimate
 - \$60,000
- Potential closure UNR Land
 - 6 securings
 - 1 repair

Mullen Pass Closure Project



EPS Fencing Projects

- Walker River State Park
 - + 33 Hazards
- Lida Area
 - 96 Hazards
- MGL Mine
 - 6 Hazards
- White Pine
 - 52 Hazards



Projected Expenditures

- CAT 39 FY19
 - Budgeted \$513,825
 - Current Expenditures \$380,707
 - Remaining \$133,118
 - Projected Work up to \$255,000
- Estimated FY20
 - Projected Work up to \$650,000
 - Budgeted \$494,000



Upcoming Closure Projects

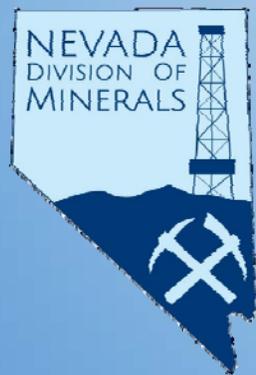
- Goodsprings, finish existing CX (~10)
- Double O, Round 2 (81)
- Walker River State Park (107)
- VC Grand Prix (20)
- Nelson (73)
- Pioche (68)
- Pine Nuts (66)
- Misfit Flats
- Nevada Eagle
- Searchlight
- Ely, Round 2
- American Canyon
- The Divide
- Twin Buttes (6)
- Eureka
- Cherry Creek
- Crescent
- And more



IV.C Southern Nevada Education Outreach
Update for 2018

2018 Education and Outreach Engagement

Commission on Mineral Resources Meeting
7 February, 2019



Garrett Wake
Nevada Division of Minerals
gwake@minerals.nv.gov
Minerals.nv.gov



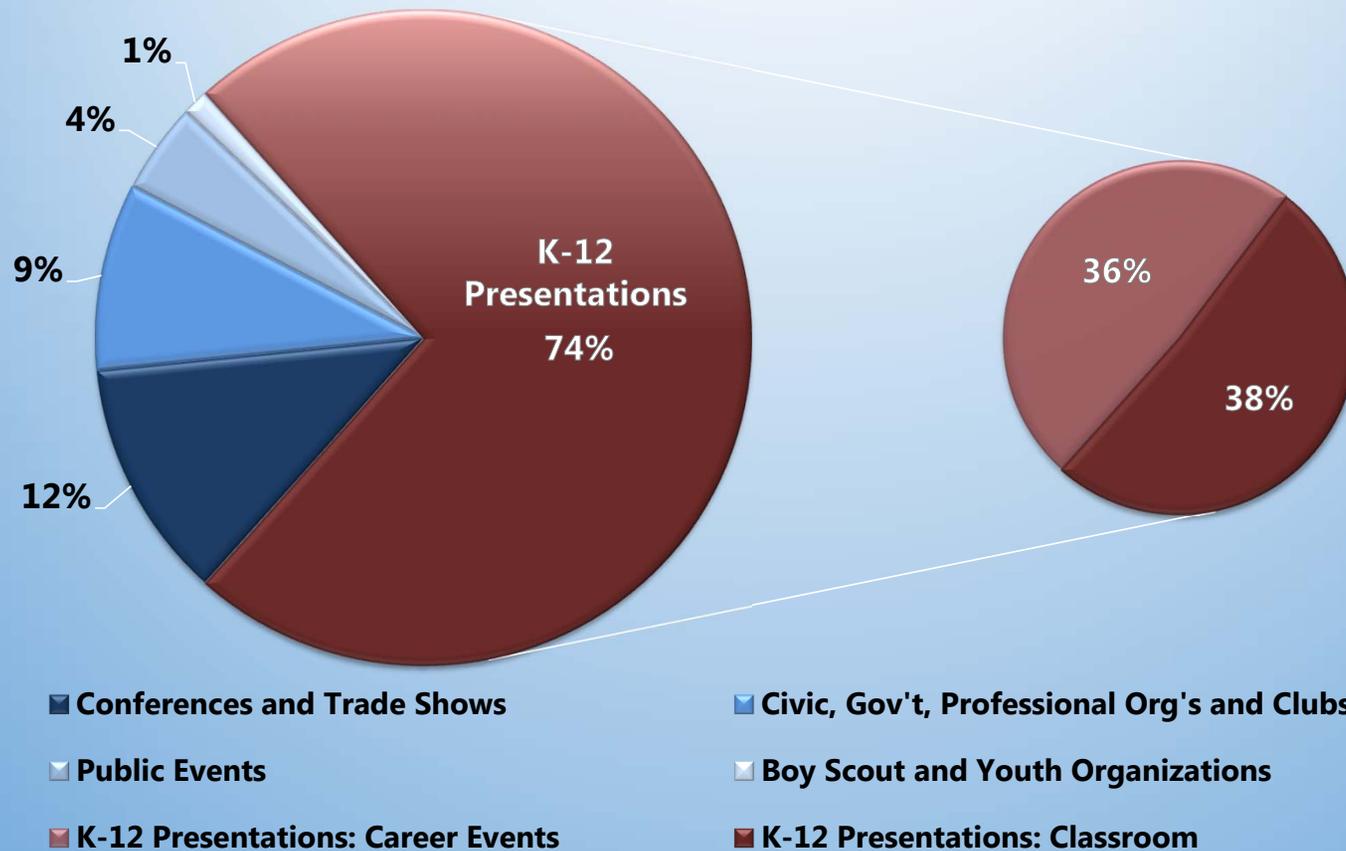
2018 Overview

- Outreach by category:
 - K – 12 schools
 - Trade shows, conferences and workshops
 - Civic, government, and professional organizations and clubs
 - Public Events
 - Boy Scouts/AML
- New NDOM K-12 classroom presentations
- NDOM agency brochure
- 2019 Teachers' Workshops
- Questions

Year-over-year outreach



2018 Outreach by Category



2018 Outreach by Category

K – 12 presentations

- NDOM staff:
 - Conducted 223 presentations to K-12 classrooms,
 - at 46 unique schools,
 - reaching >14,000 students,
 - with more than 10 unique presentations and activities.



2018 Outreach by Category

K – 12 presentations cont.



- Half of presentations are at career events:
 - ~20 minute presentations to Elementary and Middle Schools
 - What minerals are, where they're found, and how we use them in our daily lives
 - All-day, booth-manned events at High Schools
 - Field questions about careers in the geological sciences, mining and OGG industries

2018 Outreach by Category

Trade shows, conferences and workshops

- Prospectors and Developers Association of Canada (PDAC)
 - March 4th – 7th, 2018
 - 25,000+ attendees from 125 countries
 - Held in Toronto, CA
- American Exploration and Mining Association (AEMA)
 - December 5-7, 2018
 - Talks on Open Data site, GIS, State and Province reports
 - Held in Spokane, WA and Reno, NV
- North American Abandoned Mine Lands Program (NAAMLPL)
- Nevada State Science Teacher's Conference
- Nevada Landman's Association
- BLM Solid Minerals Training Conference
- Teachers' Workshops and others



2018 Outreach by Category

Civic, government, and professional organizations and clubs



- Society of Mining, Metallurgy and Exploration
- Society of Economic Geologists
- Geological Society of Nevada
- Rotary Clubs
- Gold Prospector' of America
- Nye Gold Seekers
- Gold Searchers of Southern Nevada
- UNLV Geosymposium & Mackay School of Mines
- Fallon Range Training Complex withdrawal working group
- And many others

2018 Outreach by Category

Public Events

- Capital City Farm Days
- Silver Stage Fall Festival
- Pioneer Days



2018 Outreach by Category

Boy Scouts/AML



- 5 Eagle Scout projects completed in 2018
 - Las Vegas, Nelson, Searchlight and Carson City areas
 - 15 sites secured, 2 by hard closure (PUF)
 - Consistent flow of Scouts contacting NDOM for projects

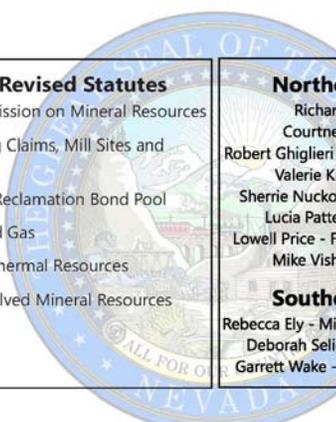
New/Revised Presentations and Activities

- Nevada Mining Activity (K-12)
- Understanding Natural Resources w/the 3 Little Pigs (K-1)
- AML Story Map (Everybody)
- Understanding the Rock Cycle (1-2)
- Mineral Resources (2-3): What are the things you use every day made of?
- Mineral Properties and Uses (4-5): Identifying minerals by their properties and learn their uses

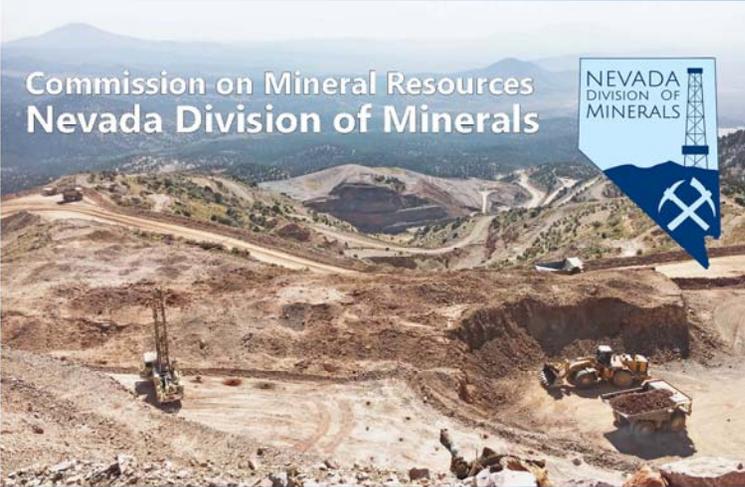
NDOM Classroom Activities			
GRADE	WHERE PRESENTED	LESSON	ACTIVITY
All Elementary Grades	CC/LV	General Geology, Minerals Ed & AML	Bead Mining, Paste with a taste
1, 3, 4, & 5	CC	Geologic Time Scale, Earth History and Evolution and Fossils	Put together the time scale and create your own fossils using plaster and animal shapes
K	CC	Introduction to Rocks and Geology	Weird Rocks - Sit down reading with specimen samples
K	New - LV	Understanding Maps	Using natural materials, mineral applications.
K	New - LV	Natural Resources/Raw Materials	Begin learning about natural resources and raw materials with the 3 little pigs
K	CC	Introduction to Fossils	Introduction to fossils and make a fossil
1	New - LV	Rock Cycle	Rolling along the rock cycle - game, rock ID and story about rocks
2	CC	Rock and Mineral Hunt	Outdoor activity & scavenger hunt for rocks and minerals
2	CC	The Rock Cycle	Delilah goes through the rock cycle - interactive with playdoh 'rocks'
2-3	New - LV	Minerals Resources	What are the things I use made of? Everyday necessities are made from different materials we source from the earth.
3	New - LV	Fossils/Minerals	Minerals Roll in Fossils - create fossil using permeable sponge in shape of bones and set with water plaster and mineral mixture
4	New - LV	Earth and Humans	How building and mining has affected our surroundings and what we do to conserve/reclaim the lands we use.
4	New - LV	Mixtures & Solutions in Geology	Using geologic concepts and a sediments activity to explain mixtures and solutions
4	CC	Earth history and Evolution	Build a Beast - Create your own new creature using theory of evolution and species development
4	CC	History of Mining in Nevada	Presentation - Boom and bust with cards/timeline activity, with AML message.
4	CC	Minerals & NV mining	Mine locations - what we mine, size of mining companies and where in the state they are located. Uses NV map and Major Mines of NV booklet. With AML Message.
4	CC	Minerals & Mineral Exploration	Cupcake Core Drilling - Types of drilling operations, theory of exploration and build a cross-section. AML Message.
5	New - LV	Mineral Properties & ID	Mineral testing and identification stations introduce 5th grade students to testing mineral properties and applying results to identification.
6-12	TW	Plate Tectonics	Discuss plate tectonics and the behavior of the Earth's crust under different types of stresses
8-12	TW	Drilling for Energy	Nevada Specific Geologic Interpretation of Wells and Resources (Oil, Gas and Geothermal)
8-12	TW	Geothermal Activity	Create a Geothermal Plant and Solve for Faraday's equation for electric induction (magnet in a coil)
9 & 10	CC	Soils & Mineral Exploration	Soil Composition and minerals/rocks, soil classification, texture and structure, mineral structure and rock composition
9 & 10	LV, TW	Mining & Exploration	Build a mine; Under the earth

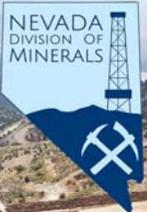
Key: LV - Las Vegas Office | CC - Carson City Office | TW - Teachers' Workshop Course

New NDOM Agency Brochure



<p>Nevada Revised Statutes</p> <p>NRS 513 - Commission on Mineral Resources</p> <p>NRS 517 - Mining Claims, Mill Sites and Tunnel Rights</p> <p>NRS 519A.290 - Reclamation Bond Pool</p> <p>NRS 522 - Oil and Gas</p> <p>NRS 534A - Geothermal Resources</p> <p>NRS 534B - Dissolved Mineral Resources</p>	<p>Northern Nevada Office</p> <p>Richard Perry - Administrator Courtney Brailo - Field Specialist Robert Ghiglieri - Manager, AML Hazard Program Valerie Kneefel - Program Officer II Sherrie Nuckolls - Administrative Assistant IV Lucia Patterson - GIS / Field Specialist Lowell Price - Fluid Minerals Program Manager Mike Visher - Deputy Administrator</p> <p>Southern Nevada Office</p> <p>Rebecca Ely - Minerals Education / Field Specialist Deborah Selig - Administrative Assistant IV Garrett Wake - Manager, Southern Operations</p>
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**Commission on Mineral Resources
Nevada Division of Minerals**








Commission on Mineral Resources
Richard DeLong, Chairman, Large-Scale Mining
Nigel Bain, Large-Scale Mining
Dennis Bryan, Small-Scale Mining and Prospecting
Robert Felder, Exploration and Development

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Mission: To encourage and assist in the responsible exploration for and the production of minerals, oil, gas, and geothermal energy which are economically beneficial to the State; to provide for public safety by identifying, ranking and securing dangerous conditions at mines that are no longer operating; and to collect and disseminate information on mineral exploration, production and other related topics.

www.minerals.nv.gov
Publish Date: January, 2019

New NDOM Agency Brochure (cont.)

Abandoned Mine Lands (AML) Public Safety Program

Inventory, rank and mitigate physical hazards associated with abandoned mines



Zero

injuries or fatalities since 2013

22,500+

individual sites cataloged

>80%

of known hazards safeguarded or secured

8

college interns hired each year for summer and winter AML work

100%

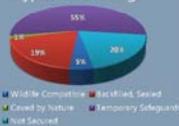
funded by mining-claim fees and assistance agreements

Program Partners:

- U.S. Bureau of Land Management
- Nevada Department of Wildlife
- U.S. Forest Service
- Nevada Division of Environmental Protection
- State Historic Preservation Office
- Clark County
- Nevada Division of State Parks



Types of securings



Who does the securings?



Education and Outreach

Educate on mineral use and production, dangers of abandoned mines, and more

In 2018:

> 300

individual presentations

22,300+

attendance at events and presentations

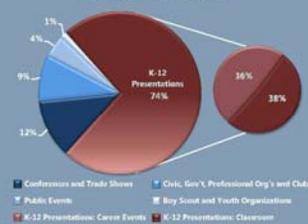
20+

unique classroom activities

2

earth science workshops for teachers

Presentations by Audience



Audiences

- Classroom presentations and activities
- Conferences, trade shows, and other industry events
- Mineral policy recommendations to Governor and Legislature
- Civic groups, clubs and professional organizations



Presentations available at minerals.nv.gov

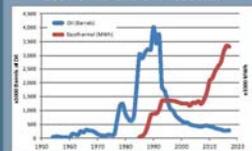


Fluid Mineral Resources

Permit and inspect geothermal, oil, gas and dissolved mineral exploration wells

- Ensure adequate construction and design of wells to protect natural resources and prevent groundwater contamination.
- Conduct regular inspections of all geothermal, oil and gas wells throughout the state.
- Ensure safety of operators by enforcing design standards of wells and testing of equipment when necessary.
- Developed comprehensive hydraulic fracturing regulations, as part of Nevada's dual permitting process on Federal lands, in 2014.
- Spearheaded the development of new regulations for dissolved mineral resource (lithium) exploration, in 2017.

Geothermal and Oil Production



> 3.3 million MWh

of geothermal-generated electrical production, and growing

250,000

homes potentially powered by Nevada's geothermal energy production each year

2nd

largest geothermal producing state

459

industrial & commercial geothermal wells in Nevada

25

geothermal plants and 5 commercial heating and utility districts

119

oil/gas related wells and 1 oil refinery in Nevada

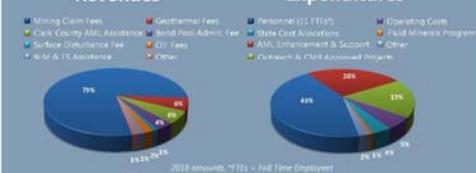
8

lithium brine exploration wells and boreholes drilled under new regulations

Annual Reports and Other Functions

Maps, downloads and other information available at: <http://data-ndom.opendata.arcgis.com/>

Revenues



Expenditures



Reclamation Bond Pool

- The Nevada Reclamation Performance Bond Pool is designed to expedite the time-frame for obtaining a reclamation bond for notice-level exploration projects; projects that have proposed surface disturbance on BLM-managed lands totaling no more than 5 acres.
- The Bond Pool provides bonds for about 1/3 of all the notice-level projects in Nevada.
- For larger projects, Plans of Operation permitted by BLM and/or NDEP, the Bond Pool is designed to reduce the initial financial burden needed to satisfy the bond/surety requirements of the reclamation permit.

Publications Supported or Produced by the Division include:

- Annual Abandoned Mine Lands Report
- Annual Major Mines of Nevada Report
- Annual Mineral Industry Report
- Technical Reports

2019 Teachers' Workshop

- Increased the number of courses offered
 - 8 Rock and Mineral courses
 - Class size from ~30 to ~20
 - More one-on-one interaction with the teachers
- One day classroom, one day field trip this year
- Field trips to PABCO, LV Rock, Lhoist, Frenchman Mtn, Red Rock and Tule Springs

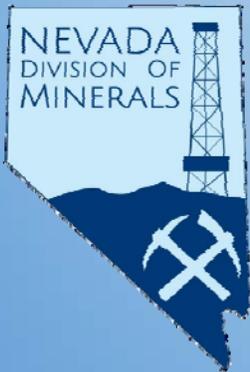
30th Annual Southern Nevada Earth Science Education Workshop 2019 Class/Session Plan Chart For Tuesday, April 16, 2019 updated 09/14/2018					
Room#	Session 1 8:15 - 9:45 a.m.	Session 2 9:55 - 11:25 a.m.	Session 3 12:20 - 1:50 p.m.	Session 4 2:00 - 3:30 p.m.	Session 5 3:40-5:10pm
304 H2O/Tab- Count	Minerals L1 K-8 Bill	The Circle of Mine Life/Reclamation 3-12 Ginger/Pamela	Rocks & Geology L1 K-8 Bill	One In A Million 3-8 Beth/Ginger	-----
308 H2O/Desk- Count	Minerals L1 K-8 DD	Mineral Use Activities 4-8 DD	Rocks & Geology L1 K-8 DD	-----	Water: Yours, Ours, Mine 6-12 DD/Ginger
311 ?/Tables	Minerals L1 K-6 Rachel M.	-----	Rocks & Geology L1 K-6 Rachel M.	Finding Your Way 4-12 Rachel/Garrett	Plate Tectonics 6-12 Rachel
312 H2O/Tab- Count	-----	-----	-----	Drilling for Energy 6-12 Courtney/Lucia	-----
313 -/Desks	Minerals L2 (prev att L1) Lucia/Courtney	Geologic Time and Fossils K-8 Lucia/Courtney	Rocks & Geology L2 (prev. att. L1) Lucia/Courtney	-----	Geologic Timescale Challenge 5-12 Lucia/Courtney
316 -/Tables	Minerals L1 K-8 Terry J.	-----	Rocks & Geology L1 K-8 Terry J.	Cupcake Core Drilling 5-12 Terry J.	-----
320 -/Tables	Minerals L1 K-8 Lorri Dee	Natural Disasters 5-12 Maureen	Rocks & Geology L1 K-8 Lorri Dee	Build a Mine 4-12 Joe/Rob	Nevada Mining History K-6 Rob
322 ??	Minerals L1 9-12 Jon	Critical Elements of Energy 6-12 Jon	Rocks & Geology L1 9-12 Jon	-----	-----
402 HE H2O/Tables	-----	Crystal Gardens and Stepping Stones; Make it and Take it K-6 Sam	-----	Geography/Geology of Nevada on a Brownie 2-12 Sam	Edible Geology K-8 Sam
408 ??	Minerals L1 4-12 Garrett	Nevada's Natural Resources K-12 Patti/Sean	Rocks & Geology L1 4-12 Garrett	-----	Minerals "Grab Bag" 2-8 Garrett

Tour #	Tour	Tour Guides
1	PABCO/Frenchman Mtn (tentative)	TBA
2	LV Rock/Red Rock NCA (tentative)	TBA
3	Lhoist/Tule Springs (tentative)	TBA

2018 Education and Outreach Engagement

Commission on Mineral Resources Meeting
7 February, 2019

Questions



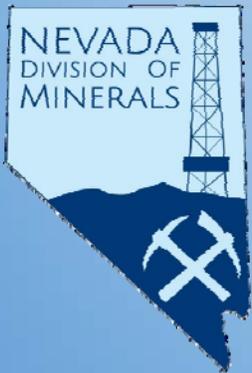
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IV. D Las Vegas Natural History Museum
Exhibit Update

Las Vegas Natural History Museum Exhibit Update

Commission on Mineral Resources Meeting
7 February, 2019



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Overview

- Introduction
- Current concepts and design
- Fabrication
- Timeline
- Questions



Introduction

- CMR approved \$50,000 toward the creation of an exhibit for the new Las Vegas Natural History Museum (LVNHM)
- NDOM staff has been working hand-in-hand with LVNHM staff and Joe Riney/NMA to design a concept
- Regular meetings have been taking place to advance the project
- NDOM has met with staff from several Carson, Reno and Las Vegas Museums for input



Current Design and Concepts

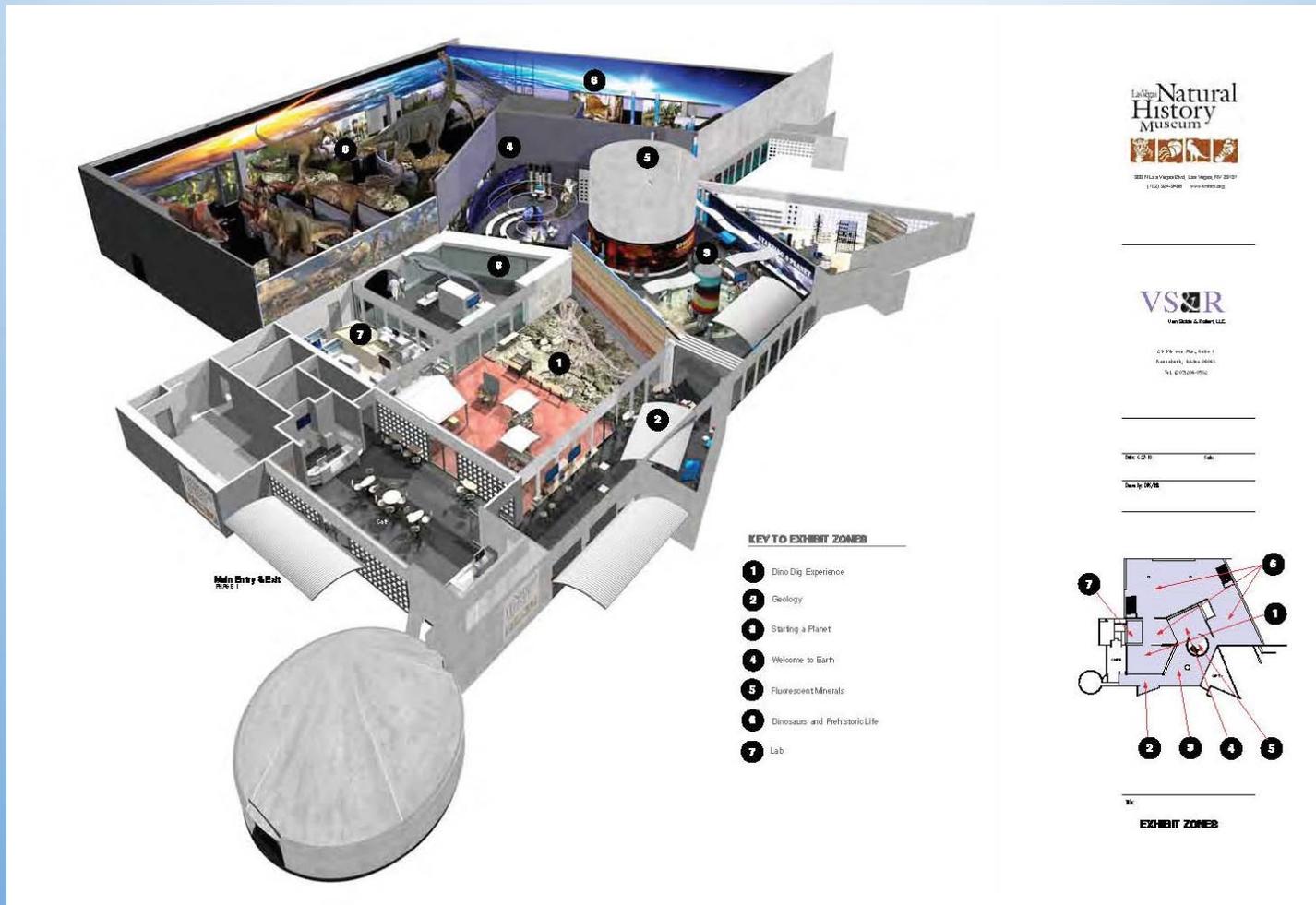
- Two free-standing tables, each with two distinct sides
 - Four concepts in total
 - Two rock related, two mineral related
- Rock Forming Environments
- Properties of Rocks
- Mineral Uses
- Properties of Minerals

Plan view of exhibits

Current Design and Concepts



Current Design and Concepts



Current Design and Concepts

Rock Forming Environments

- Rocks form in different environments on, and inside the earth
- Rocks (and their forming environments) can be generalized into three categories: IG, MET, SED
- Backlit, hand-drawn rock-forming environments graphic showing a generalized cross section from the Pacific Ocean through the Great Basin
 - Push buttons on the table below will correspond to certain environments on the graphic.
 - When those buttons are pressed the environment where that rock formed will light up in a highlight color.
 - Also, if applicable, a sound will play for that rock forming environment.
- On the table portion will be many rocks, characteristic of their respective environment
 - Igneous, Metamorphic and Sedimentary
 - Fossils? (near the sed area)
 - Each “rock area” (basalt, for example) will have a nice sized hand sample of the rock, the name of the rock, a short description of the rock, a picture of the rock forming environment, and a button to light up the display.

Activity 1: Rock Forming Environments
placeholder

Current Design and Concepts

Properties of Rocks

- This activity will focus on the visual properties of rocks, and how their rock-forming environments (conditions) are responsible for their unique textures.
- The properties of rocks explained (crystal size, grain size, textures, etc.)
 - How properties can be used to identify rock type & forming environment
- The exhibit will contain these elements:
 - Graphics of the three different rock types, and the characteristics that make them unique and identifiable. Rock cycle too?
 - Large samples of rock types exhibiting differences to help viewers understand concepts seen on the backboard above.
 - ~6" cubes with either a rock in the center (epoxy-like substance around), or with a slice of rock glued to each face.

Activity 2: Properties of Rocks

Current Design and Concepts

Mineral Uses

- This activity will focus on the physical properties of minerals, and how geologists go about classifying these properties.
- Discussion of several physical properties, including:
 - Color, streak, hardness, cleavage, crystal structure, luster, density, fluorescence, magnetism and others.
 - Chemical properties also? Chemical formula, radicals, etc.
- Hands-on testing of one or more properties (TBD)
- Minerals display, possible broken up by industrial minerals vs. technology minerals? Or non-metal vs. metal minerals?
- Sandstone cut-out of the State of Nevada. This could be engraved to show the counties, capital, etc.
- Fluorescent minerals display: visitors can look in from the top, or from the side (children or ADA) to see a fluorescent display (short & long wave).
- Mineral-property testing station. Hardness would be easy to do, and practical.
- Cubes with sliced minerals on each face displaying a mineral property.
 - Color: can show several colors and explain what elements or circumstances create each color.
 - Cleavage
 - Luster, etc.

Activity 3: Mineral Uses

Current Design and Concepts

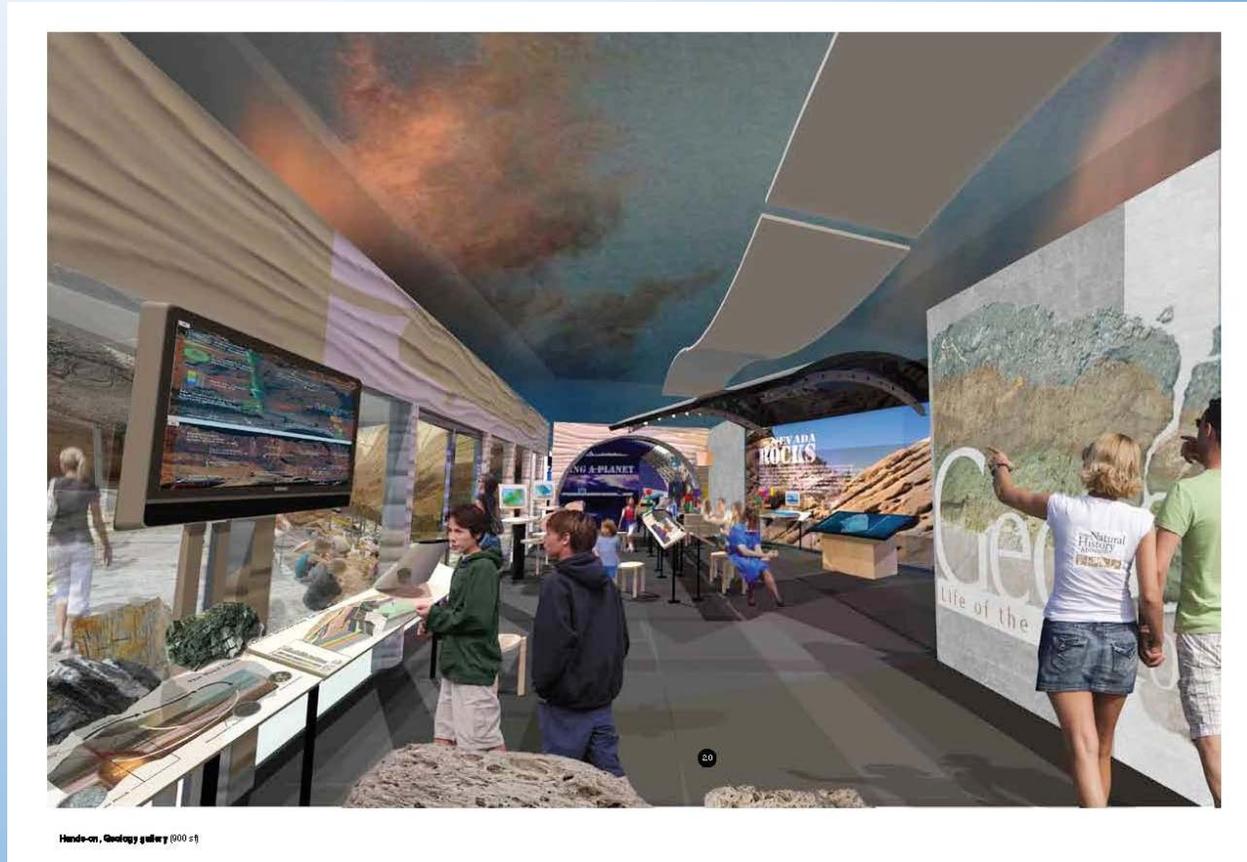
Properties of Minerals

- This activity will focus on the specific uses certain minerals play in our daily lives. Could possibly separate between industrial mineral uses and metal mineral uses.
- Minerals display, visible from both sides of the table.
- Backside of the Sandstone Nevada (will need to have a rectangular backer board between the two states). This Nevada graphic will show where each of these minerals are produced in a “light up” display, like the one in the Reno Airport.
- Graphic (or 3d model maybe) showing the materials used to build a home, and lines drawn to photos and descriptions of the minerals used to create the materials. Push-to-light buttons will be placed next to minerals on display, to light up an accent light on that mineral, and also highlight on the map where it is mined in Nevada.
- A “throw-the-switch” type of interactive display where visitors can throw a switch and light up a lightbulb, showing the elements of a circuit. An explanation next to each element will talk about what mineral(s) are used to create that part.
 - Copper wire, battery (for display, will probably use inline power), LED & glass bulb, computer chip (for show), etc. Push-to-light buttons next to the minerals that are in the case, and will light up the mining display.
- A cross section of, or dissection of a modern smart phone. Each piece can be carefully removed and glued next to the phone and labeled for its use, and the minerals that comprise it. Push-to-light buttons next to the minerals that are in the case, and will light up the mining display.

Activity 4: Properties of Minerals

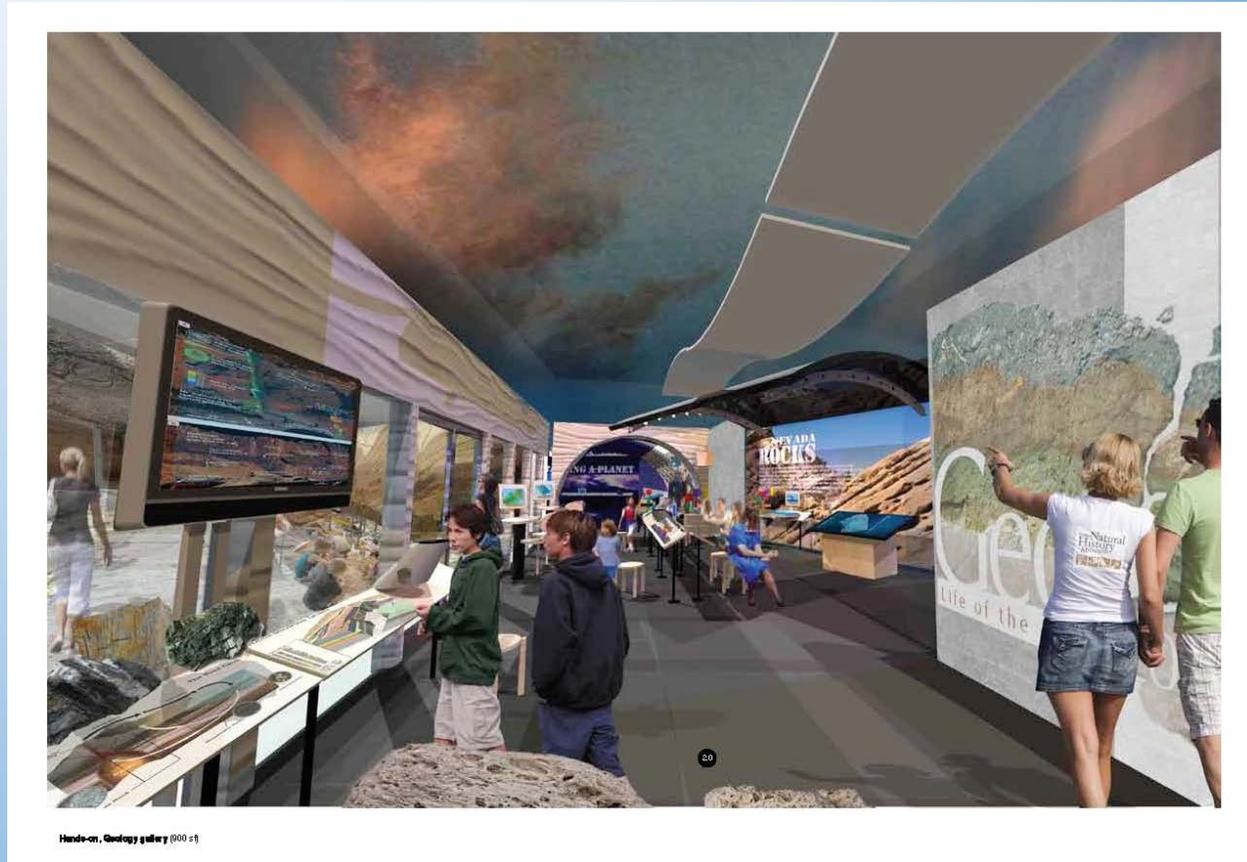
Fabrication of Exhibit

- Will likely have to send out RFP with NTE amount at \$49,999
- Next meeting on 1/30 to advance concepts further so a proposal can be written
- Need to consider how much design is done in-house vs. by the contracting company
- Museum is set to open late 2019, early 2020
 - Companies have given a general timeframe of 2-3 months to construct



Timeline

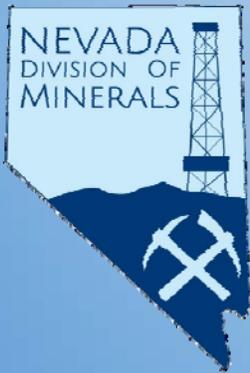
- NDOM funds need to be spent prior to
 - **30 June, 2019**
- Draft concept for two exhibits
 - **Late December, 2018 (completed)**
- Advanced sketches and write-up for exhibits produced
 - **Mid February, 2019 (in progress)**
- Submit RFP for project
 - **Late March**
- Fabrication company selected
 - **Mid June**
- Interact with fabrication company on exhibit creation
 - **June through July**
- Exhibit(s) delivered to LVNHM
 - **August, 2019**



Las Vegas Natural History Museum Exhibit Update

Commission on Mineral Resources Meeting
7 February, 2019

Questions



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2010-2018

Carson City

8/17/2012-Tour in Yerington
12/11/2014
5/19/2016
11/1/2016
11/30/2017-ACG Materials
02/20/2018

Elko

08/29/2014-Newmont LeeVille Mine
08/27/2015-Noble Energy's
Huntington
K1L Well & General Molly Mt. Hope

Reno

5/12/2010
10/19/2010
4/29/2011
7/27/2011 – Tour of Bat Cupola in VC
11/2/2011
5/03/2012- Virginia City
11/09/2012
5/03/2013- Hazen and Olinghouse
10/10/2013
05/09/2014- EP Minerals; Nevada
Cement Plant and Mine.
05/01/2015
11/05/2015-Bishop Manogue H.S.
05/04/2017-Tour of Tesla
11/16/18- Reno

Las Vegas

2/11/2010 – Tour of the McCaw
School of Mines - Henderson
2/07/2011 – Tour of Molycorp Mine
2/27/2012 – Searchlight Area
2/21/2013
2/14/2014- Tule Springs Park
2/24/2015
2/03/2016- Simplot Silica
3/02/2017
5/17/2018- Arden Mine

Battle Mountain

July 30, 2010 – Tour of Newmont Phoenix Mine

Tonopah

8/15/2013 - Solar Reserve Plant
8/16/2013 - Tonopah Mining Park
8/25/2017 – Mineral Ridge Mine and Uranium Resources Inc.

Wendover

8/25/2016- Graymont's Pilot Peak, Newmont Long Canyon Mine

