



STATE OF NEVADA  
COMMISSION ON MINERAL RESOURCES  
**DIVISION OF MINERALS**  
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**BRIAN SANDOVAL**  
*Governor*

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**RICHARD PERRY**  
*Administrator*

**COMMISSION ON MINERAL RESOURCES**  
DCNR/Division of Water Resources-Tahoe Hearing Room Suite 2002  
901 S. Stewart Street Carson City, Nevada 89701-5250

Tuesday, November 1, 2016

1:00 P.M.

**MINUTES**

**CALL TO ORDER**

Meeting started at 12:59

**ROLL CALL**

Commission in attendance:

Fred Gibson- **absent**  
Dennis Bryan  
Richard DeLong  
Arthur Henderson- **absent**  
John Mudge  
David Parker  
John Snow

Staff in attendance:

Rich Perry  
Mike Visher  
Rob Ghiglieri  
Lowell Price  
Garrett Wake  
Lucia Patterson  
Bryan Stockton  
Valerie Kneefel

**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. All public comments will be limited to 5 minutes for each person

**No public comments**

**I. MINUTES**

A. Approval of the August 25, 2016 meeting minutes

**MOTION:** Approval with no changes

**BY:** Dennis Bryan

**SECONDED BY:** John Snow

Unanimously approved.

## II. NEW BUSINESS

- A. Presentation on Albemarle Corporation by Karen Narwold, Chief Administrative Officer of Albemarle. Albemarle owns and operates the Silver Peak lithium mine in Esmeralda County.

Karen Narwold- Executive, Vice President of Albemarle Corporation. Lithium Operations. Serves as the company's general counsel. It is the world's largest lithium producer and the owner of the only producing U.S. lithium mining operations- Silver Peak, NV. They are the leader in lithium extraction and derivatization technology.

Albemarle is a global specialty chemicals company with leading position in lithium, bromine, refining catalyst and applied surface treatments. Albemarle is the only producer of lithium in the U.S. The safest, most sustainable and environmentally protective technology for lithium extraction from brine remains solar evaporation. Use only Lime in the processing and mainly solar. The largest employer in Esmeralda County (80 employees and contractors). They own the water rights in the Clayton Valley Basin.

Do not support any changes to the rules/NRS that don't encourage protection of the water.

The proposed BDR conflicts with the Nevada Water Laws. It also will allow for contamination/pollution of the aquifers. This proposal will allow physical harm to aquifers. The brine lithium resource is fragile, unique, and requires a balanced approach to avoid resource destruction. Promotes unproven technology over existing, sustainable operation. It undermines current dual permitting that protects water (water right) and minerals (mining claim). BDR 258 will result in lithium resource depletion; similar to geothermal resource depletion. It will promote speculation (Wildcat speculation in Clayton Valley) and reduce investments. Minor clarifying changes to the current water laws would enhance lithium exploration. Such as; clarify what "temporary" use of water for "minerals exploration" means for waiver NRS 534.050(2)(b). Clarify what a "borehole: is and specify that if it exceeds a certain depth and drilling in sensitive aquifers then it needs more engineering and monitoring.

Dave Parker: you glossed over the fact there are 1872 mining laws and placer claims which has boundaries (27:00)

Karen Narwold: you need the mining claim as well as the water claim. You can't take just the placer claim without having a water claim.

Dave Parker: is Abemarle's position that you own all the minerals because you have the water rights in the Clayton Basin.

Karen Narwold: most of them, yes. Impossible to access the mineral without the water.

Dave Parker: do you think Nevada water law should regulate lithium production?

KarenNarwold: it already has for approximately 50 years.

Rich DeLong: Will BDR 258 eliminate the need for water right to go into production?

Karen Narwold: the problem is that it encourages the exploration but not the development without the water rights. Water rights will be necessary.

Denis Bryan: explain any other company coming in how much water would they use outside of this re-injection. Couldn't they go out and buy that from a 3<sup>rd</sup> party?

Karen Narwold: They could buy water rights.

John Mudge: is your company exploring in Nevada outside of Clayton? (32:55)

Karen Narwold: no. Because of the regulatory uncertainties. We invest capital where there is greatest amount of return. We are continuously looking into other technologies.

John Snow: have you solved or have a position on non-patented claims and the byproducts of the extraction process that could be or are construed as leasable. (35:00)

Karen Narwold: we have spent quite a bit of time looking into how to extract from the salt piles. We have talked to BLM to have access to these salt piles. And then manufacture the potash. It's a win-win situation. It creates jobs and eliminates the salt pile waste.

Rich Perry: Comment: BDR 258 language that is not out yet, there is pre-language that was submitted by the Governor's office to LCB. The final language is not approved yet.

B. Oil, Gas and Geothermal databases

Demonstration - Lucia Patterson and Lowell Price

Lucia Patterson: (38:15) demonstrated the new database for oil, gas and geothermal. She showed the commission how the database works and how to quickly run a report. She also went through the Nevada Oil Patch report.

Lowell Price: we are currently incorporating older data that is only in hard copy. Our goal is to include cuttings information as well. If there are cuttings we haven't received, we can now go after them.

John Snow: good job Lucia. Will the production be available to the public online?

Lowell Price: eventually. I've been sending reports to anyone interested. What Lucia has done is a very thorough report of production. There is no confidentiality on production, so we could put them online.

John Mudge: can you make the database available to public?

Lucia Patterson: some is confidential.

Rich Perry: we don't have a searchable website for this capability for the database. We can put the reports or documents on the website.

C. Review of the 2016 Abandoned Mine Lands program

Rob Ghiglieri will outline the work performed and use of new MESA-2 field units. (52:12)

Rob Ghiglieri: Showed the commission the new MESA-2 tablets. He had 3 units to pass out to show. In the past we have had paper maps and pencils. These have now moved us forward. These tablets have all the current photos and hazards already in them. So, when we go in the field we have all the information including pictures of the site. This makes visits, new and revisits much more efficient and accurate. Rob went through the screens of the new MESA. It has a really long battery life as well.

Dennis Bryan: are there photos that auto populate on these devices?

Rob Ghiglieri: you can bring them up on the MESA, yes.

John Mudge: How much are they? (1:05:21)

Rob Ghiglieri: \$1,500 upgraded to \$2,200 each.

Dave Parker: what happens if one gets left in the field?

Rob Ghiglieri: that would be very unfortunate. There is no tracking device on it.

D. 2015 Major Mines of Nevada Publication

This annual publication was recently completed and printed. Mike Visher will explain the process of how production data is collected, compiled and reviewed for this annual publication and how it meets the requirements of the statutes. (1:08:25)

Mike Visher: went through why we do this publication. Read through the NRS 513 regulations, this indicates the reason for the publication. The final version of this publication is at the printers but, he did provide a final draft print out to the commission. The NRS has not been revised since 1988. He also went through the forms that the operators need to fill out. There is no dedicated fee to submit the information. Metallic is not usually a problem to get the operators to fill out the forms. However, the non-metallic companies are not consistent in sending them in. He showed the commission Colorado's major mine publication. Colorado was unable to put this publication out every year but, it is more information than what we provide. Asked the commission for feedback on whether our publication should be in color? Or larger in size? NDOM pays for the printing of approximately 1,500 booklets and consistently run out. The Bureau takes 50 to 100 to sell. It's the go to book for all the contractors in the state.

Dennis Bryan: what is the definition of a major mine? (1:19:28)

Mike Visher: Mines that have proceeds (reported to Taxation) over 100 to 200 thousand dollars. Most operators want to communicate with as few agencies as possible.

Dave Parker: the forms, are they on our website? Would you like us to put some teeth into this?

Mike Visher: Yes the forms are on our website. These have been in place since 1988. We don't want to change the NRS but, would like to get some feedback on the publication itself. If there are terms that need clarifying then we would need to clean up the NRS. We do get questions on percentage of underground mining vs open pit mining for gold. It's not information that we actually collect. However, we do collect information of public land (Federal) vs private land.

E. Presentation on Earth Science Teacher's Workshop  
and request for financial support for FY 2018-19.

The Commission has provided \$15,000 per year from claim fee revenues to support of the annual teacher workshops, which are organized by the Nevada Mining Association Education Committee. The support is used for purchases of texts, hand lenses, mineral kits and bus transportation, which the Division orders and receives. The expenditure is included in the FY 2018-19 budget, which begins July 1, 2017. A letter from the Chairperson of the Education Committee is included.

Garrett Wake will do a presentation on the last two workshops and what is planned for 2017.

Garrett Wake: presented a power point to the commission. (1:25:06)

Why workshops are important:

- Promotes positive impacts of the mining industry
- Most people don't make the obvious connection between the things they use and own, and the raw materials used to create them. Minerals are used to make, or are contained in virtually everything we own.
- Reiterating and reinforcing this connection leads to the realization that mining is not only important, it is essential.
- Mining companies abide by strict regulations and most do an excellent job of remediation/reclamation, not to mention provide thousands of well-paying jobs, provide significant income to the State and provide us with the essential minerals we need.
- Shows the industry cares about the local communities
- Teaching educators about the importance of earth science, minerals education and mining allows the "trickle-down" of information to their students – effectively reaching a much broader audience.
- The amount of money needed to fund these workshops compared to the quality and quantity of information passed on to these teachers, and then on to countless students over several years is money well invested and will pay dividends.
- Spurs interest in careers in mining and related industries
- Earth science, and minerals education especially aren't focused on in most curriculums. These workshops are one of few places educators can learn ways to bridge and incorporate minerals and mining studies into the classroom.

What educators take away:

- A general understanding of topics, including:
- Rocks and minerals education: what we use certain rocks and minerals for, how they're identified, where and how they form, are found and mined;
- The life cycle of a mine, from startup through reclamation;
- Nevada's natural resources: an overview;
- How minerals are extracted from ore; and many more topics!
- A mineral kit and a rock kit, along with tools needed for identification
- Teaching educators about how to identify rocks and minerals is great, but allowing them to take kits back to the classroom and allow students to apply theory with hands-on application is priceless.
- All rocks and minerals acquired here in Nevada, and are either donated by active mines, or are collected from known locations across the state. There's no better way to teach about Nevada's vast mineral wealth than to show it!
- Hands-on projects and activity guides
- We not only teach educators how to convey this information, but provide them with step-by-step instructions on how to conduct these activities in the classroom.
- Some student favorites include: birdseed mining, cupcake core drilling and "paste with a taste". All of these activities are great tools for educators to use showing students the importance of mining and minerals, while creating a fun and memorable experience.

Garrett showed a video of some interviews that he did at the workshop.

John Mudge: I love the fact that you are so passionate about it. (1:43:08)

Garrett Wake: all the volunteers are passionate about it. It's a great workshop. The amount of money is relatively small compared to what we give to the community.

John Mudge: we should do this.

Rich Perry: The request for funding are for certain things through the education committee for the Division of Minerals.

Rich DeLong: the request looks like it's for 3 years.

Rich Perry: the intent is for 2 years. This needs to coincide with the current fiscal budget years.

Dave Parker: the amount is for \$30,000?

Rich Perry: yes.

**MOTION:** Approved

**BY:** Dennis Bryan motion to approve for 2 years for the \$30,000.

**SECONDED BY:** Dave Parker seconded.

Unanimously approved.

Bryan Stockton: the agenda is for FY 18-19. The Mining Associations letter has the wrong dates.

Break (1:47:09) to (1:48:47)

### III. OLD BUSINESS

#### A. Dissolved Mineral Resource bill

Division staff drafted language for a bill to include the regulation of dissolved mineral resources in the geothermal resources chapter, NAC 534A. This is an agency bill through the Governor's office, assigned as BDR 258 for the 2017 legislative session. Administrator Perry will provide a presentation and update on activity and answer questions.

Rich Perry: Gave a power point presentation. (1:48:50)

Nevada has the only operating lithium mine in the U.S. – located in Clayton Valley, Esmeralda County

–Operated since 1967, employs 85 people

–Produces lithium carbonate

–Uses surface evaporation ponds to concentrate lithium after treating brines pumped from 4 aquifers

Geologic Model for a lithium brine deposit:

–Salar deposits – a salt flat that may represent the basin of a salt lake

–Accumulations of saline groundwater that are enriched in dissolved lithium.

–All producing lithium brine deposits share a number of first-order characteristics: USGS Open-File report 2013-1006

>10,000 placer claims staked since 1/1/15 in playas, presumably for lithium brine

- 15 different hydrographic basins in Nevada

- 25 different exploration entities, mainly “Juniors”

- Typical initial exploration is drilling of boreholes, sampling both sediment and brines, using a method called “dual wall reverse rotary”.

- Issues: Open boreholes in unconsolidated playa sediments are unstable, unable to sample multiple aquifers without casing holes and doing packer tests. Boreholes penetrating artesian aquifers connecting brine and fresh water aquifers.

9 exploration companies have contacted NDOM in the past year, some with question about “how do we drill a well to sample aquifers?”

–Unless a lithium claim holder has a geothermal lease and can apply for a geothermal temperature-gradient or observation well, NDOM can only refer them to the water well drilling regulations in NAC 534.010 to 534.450 (NDWR).

Lithium brines are a locatable mineral using a placer claim on Federal lands

- NOI's or POO's administered by BLM, BMRR also for reclamation if a POO

- Drilling of unlined boreholes, same as any mineral exploration, under NAC 534.4369 (NDWR regulations).

Cannot divert water and groundwater cannot be contaminated. Must be plugged within 60 days of drilling.

- A borehole that is completed with casing becomes a well (NAC 534.220) and must be completed according to

NAC 534.360

•A well must have a water right before being drilled – NRS 534.050

Dissolved or entrained minerals can be recovered in the process of removing geothermal energy – NRS 534A.010 (NDOM statute)

•A claimant cannot drill a geothermal well to remove energy or dissolved minerals unless they have a geothermal lease on Federal land

•In summary, one cannot legally drill a well to sample for dissolved mineral brines without a water right or a geothermal lease.

Proposed remedy: Add Dissolved Mineral Resource to Geothermal Statutes in NRS 534

•Proposed a definition of dissolve mineral resource to NRS 534A

•In geothermal statutes, this would allow for drilling a cased well and reasonable use of water to sample without a water right

•Would require a water right for permanent consumptive use. i.e.: if a process was built

•Would allow for reinjection of brine without a water right, same as geothermal, but would require a UIC permit

Proposed remedy: Add Dissolved Mineral Resource to Geothermal Statutes in NRS 534

BDR 258 is an agency policy bill through the Governor's office

State Engineer (NDWR) is supportive, this would resolve an issue that is consuming time with applications and protests for water rights that are only being used to sample brine aquifers for lithium

NDEP is supportive, wants to ensure groundwater in basins is not contaminated by requiring casing and cement seals to ensure no contamination between fresh and brine aquifers

Industry: NVMA, mineral attorneys and those who contacted NDOM were contacted for comments

Proposed language:

**NRS 534A.010 "Geothermal resource" defined.**

***NRS 534.XXX "Dissolved mineral resource" defined.***

**NRS 534A.031 Exploration and subsurface information: Filing with Division of Minerals of Commission on Mineral Resources; confidentiality; release to State Engineer or other agency.**

**NRS 534A.040 Applicability of procedures for appropriation.**

**NRS 534A.050 Ownership of geothermal resources.**

**NRS 534A.060 Permit required to drill or operate geothermal *or dissolved mineral* well or drill exploratory well; application.**

**NRS 534A.070 Approval or rejection of application for permit to drill exploratory well; review of application for permit to drill or operate geothermal *or dissolved mineral* well; hearing; conditions.**

**NRS 534A.080 Fees; use of money.**

**NRS 534A.090 Regulations of Commission on Mineral Resources.**

Proposed remedy: Add Dissolved Mineral Resource to Geothermal Statutes in NRS 534 (cont)

If bill is passed, rule-making in NAC 534A.170-690 would be required to address: Applications, design of well Casing and cement seals

Abandonment and plugging

Soonest this could happen is Q3 2017, public hearings required, and final regulations would have to be approved by the Commission on Mineral Resources, with final adoption by the interim Legislative Committee Arguments in favor of this bill:

Exploration for a locatable mineral under the mining law of 1872 should not be regulated by Nevada water law or geothermal leases.

•Allows exploration entities the ability to discover a deposit using cased wells, then if water is needed to process, acquire consumptive water rights (similar to geothermal). Developing Li-extraction technology does not utilize evaporation, but rather SX-EW and ion-specific exchange and re-injection of brines.

•NDOM is best suited to regulate dissolved mineral brine wells, as the regulator of geothermal, oil, gas wells in Nevada. Would ensure fresh water is protected and obsolete wells are plugged and abandoned properly.

•BLM would rely on NDOM for permitting of dissolved mineral brine wells on federal lands as condition of NOI's or PoO's.

Had an updated map on display for Lithium exploration in Nevada.

Dave Parker: Has a question for Bryan Stockton regarding the ownership issues. The ownership of Geothermal and dissolved brines. (2:12:58)

Bryan Stockton: I looked into this. There is no Nevada law that is directly on point. In California this has been litigated a lot but not specifically with Lithium. What the courts held generally was that the owner of the mineral rights owns the Lithium in the brine. They looked at the nature of the grant and specifically the wording.

Dave Parker: would it clarify everything if we just added “dissolved minerals” to the ownership.

Bryan Stockton: I wonder about that because the nature of the grant. The statute can make a presumption that whoever owns the mineral estate would own the lithium but not if the mineral rights are leased. The courts are really going to have to answer that question.

John Snow: patented and private lands. That the surface owner owns the mineral rights and are not subject to the federal government mining law or the 3809 regulations.

Bryan Stockton: there is no definitive law in place, so I can't say it's not clear. All locatable minerals are going to go with the mineral estate.

John Snow: Have you done any more research on the Correlative rights and how that would apply? (2:17:32)

Bryan Stockton: because it's a locatable mineral so it wouldn't apply.

John Snow: its only locatable if it Federal.

Bryan Stockton: I'm not clear. Can you email me the question?

Dennis Bryan: A huge issue here is if you have 2 separate claimants on a playa out there with lithium beneath both and it's a locatable mineral. Is there any case out there if they both start pumping, and they have the water rights? Is it a case of he who pumps the fastest gets the lithium?

Bryan Stockton: the only case law that comes close is Calif. Courts clearly state that the mineral goes to the owner of the mineral estate.

Rich DeLong: I would think that there would be case law prior to 1920 in the oil and gas. Prior to 1920 it was locatable. So the case law would be trying to adjudicate the mining claims for the pumping of the oil well fields.

Bryan Stockton: I didn't realize oil and gas was locatable prior to 1920.

John Snow: Oil and gas is very structured when it comes to mineral rights. Geothermal is not in Nevada.

John Mudge: trying to understand the market, 10,000 claims? Why are they out staking claims before we pass any rules? (2:21:55)

Rich Perry: Most claimants don't even know that there are rules not established as of yet. I think it's one of those exploration booms. It's the Tesla plant and 85% of the land is Federal, etc. If they have to go and apply for a water right and they get protested, then they will more than likely pull their claims and go elsewhere. We need to separate water law and mineral law. Next step, LCB comes back with language and the governor's office will see if it goes to Legislature for further adoption process.

#### B. Update on proposed Mineral Withdrawals and Land Bills

NDOM has prepared maps for use by industry and the public of the proposed withdrawals of federal lands that are currently being proposed or evaluated. Rich Perry and Mike Visher will explain the type of withdrawal proposed, active claims and leasable minerals that could be impacted, and where each proposed withdrawal is in the decision process.

- BLM Sagebrush Focal Area
- Navy Fallon Range Training Complex (FRTC) Expansion
- Air Force Nevada Test and Training Range (NTTR) Expansion
- Washoe County Lands Bill
- Pershing County Lands Bill

Rich Perry: Gave a power point presentation consisting of several maps. (2:28:55)

After the power point he went through the maps that were included in the packets to the commission.

John Snow: made a comment regarding the Navy in Calif. has Geothermal worldwide.

Rich DeLong: It looks like the area north of hiway 50 may include a gold deposit. (2:51:03)

Dennis Bryan: due date for comments?

Rich Perry: November 25<sup>th</sup>.

Mike Visher: the map I handed out is the 2017 update to replace the one in your packet. All maps are on our

website.

John Mudge: is it possible to be a cooperating agency when they are starting at such an extreme?

Rich Perry: yes. It's not the first time it's been proposed.

John Mudge: it would better to at least have a seat at the table.

Garrett Wake: went through the Nellis expansion/training range map for land withdrawal.

Rich Perry: would like an explanation as to why they needed more land.

Dave Parker: Nellis is expanding for the same reason in the north area? For flying?

Garrett Wake: It has to do with the path of aircraft travel routes.

Mike Visher: went through the Washoe County Wilderness Proposal and the Washoe County Land Transfer.

Mike Visher: also explained the Pershing County lands bill proposed wilderness areas (western map) and the Pershing County lands bill proposed wilderness area (eastern map). Mike handed out an updated map of Pershing County Public lands proposal. Because this map has Harry Reid and Dean Heller backing it, it is already moving forward. The information is on our website along with any meetings.

Dennis Bryan: conflict on the maps.

Mike Visher: Pershing County does not have a GIS department. The most recent land proposal is from January and says draft. We don't have a new map with everything on it. The bill actually does not have a map attached to it. If you want the shape files, it will cost you \$300 out of Chicago.

C. Oil, Gas and Geothermal drilling and production activity

OGG Program Manger Lowell Price will present the YTD drilling and production activities in Nevada. (3:13:30)

Lowell Price: Gave a power point presentation on updating the permit and drilling activity for Geothermal, Gas and Oil. The permitting is down from previous years but the drilling/activity is approximately the same as last year.

#### IV. STAFF REPORTS

1) Mining/Reclamation Bond Pool – Mike Visher

Mike Visher- Terminated one participant from the bond pool for non-payment.

Lucia Patterson- (3:28:40) did a Nevada Claims update, which are up 4.7% from last year 2016.

2) Correspondence

#### COMMENTS BY THE GENERAL PUBLIC

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Karen Narwold: concern coupling the mineral and water laws. Encourage that language be developed before the Bill comes out from LCB. Is disappointed that Albemarle wasn't contacted before for guidance and understanding on the process and exploration on Lithium.

Leo Drozdoff: BDR is with LCB and LCB tries not to change the intent of the Bill. We would like the opportunity to work with NDOM to try and change the Bill.

George Theil: waivers under NAC 534.4371 You can have a casing in a borehole without a waiver. It's allowed within the NAC. It's under the borehole regulation section 6.

#### COMMISSION BUSINESS

A. Determination of time and place of next CMR meeting

March 2 and 3, 2017 in Las Vegas.

#### ADJOURNMENT

4:58 pm.