

MINING OVERSIGHT & ACCOUNTABILITY COMMISSION

MARCH 14, 2014

MEETING

10:00 A.M.



Place of Meeting:

Legislative Building
401 S. Carson Street
Room 2134
Carson City, Nevada

Video Conference To:

Legislative Counsel Bureau
Grant Sawyer Office Building
Room 4412 E
Las Vegas, Nevada

MEETING NOTICE AND AGENDA

NEVADA MINING OVERSIGHT & ACCOUNTABILITY COMMISSION

Date and Time of Meeting: **March 14, 2014 10:00 a.m.**

Place of Meeting: **Legislative Building
401 S. Carson Street
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Video Conference To: **Grant Sawyer Office Building
Room 4412 E
Las Vegas, Nevada**

Action may be taken on the items indicated in **BOLD**:

1. **ROLL CALL, ESTABLISHMENT OF QUORUM AND OPENING REMARKS**

2. **Public Comment (See Note 2 below)**

In consideration of others, who may also wish to provide public comment, please avoid repetition and limit your comments to no more than three (3) minutes.

3. **AGENCY REPORTS; CONSIDERATION AND POSSIBLE ADOPTION OF RECOMMENDATIONS AND ORDERS**

(a) For Possible Action: Department of Conservation and Natural Resources-Division of Environmental Protection

Response to MOAC request for ideas and strategies for funding plan for the fugitive mercury emissions

(b) For Possible Action: Mine Safety and Training Section – informational presentation

Jeff Bixler, Chief Administrative Officer
Division of Industrial Relations, Department of Business and Industry
Mine Safety and Training Section

4. **AGENCY BRIEFINGS**

(a) For Possible Action: Pursuant to NRS 513.093(3)(a) and (b), Division of Minerals briefing on the activities of the Division, to include accounting of any fees or fines imposed or collected and the current condition of mining and of exploration for and production of oil and gas.

(b) For Possible Action: Pursuant to NRS 514.035(1), Bureau of Mines and Geology briefing on the activities of the Bureau undertaken since its previous report, to include the current condition of mining and of exploration for and production of oil and gas.

5. For Possible Action: Approval of Minutes for December 17, 2013

6. Briefing to and from Staff; Suggestions for Future Agenda Topics and Meeting dates

7. Public Comment (See Note 2)

In consideration of others, who may also wish to provide public comment, please avoid repetition and limit your comments to no more than three (3) minutes.

8. For Possible Action: ADJOURNMENT

NOTE 1: Items on this agenda may be taken in a different order than listed. Items may be combined for consideration by the Commission. Items may be pulled or removed from the agenda at any time.

NOTE 2: Public comment may be made on any issue and any discussion of those items; provided that comment will be limited to areas relevant to and within the authority of the Commission. No action will be taken on any items raised in the public comment period. At the discretion of the Chairman, public comment may be received prior to action on individual agenda items. Public Comment may not be limited based on viewpoint. Prior to the commencement and conclusion of a contested case or a quasi judicial proceeding that may affect the due process rights of an individual the committee may refuse to consider public comment. See NRS 233B.126.

NOTE 3: We are pleased to make accommodations for members of the public who are disabled. Please notify the Department of Taxation in writing, at 1550 College Parkway, Carson City Nevada, 89706 or call (775) 684-2180 prior to the meeting.

NOTE 4: Materials and files for items on this agenda are maintained in the offices of the Department of Taxation located in Carson City, Nevada. Requests for copies of materials and files for items on this agenda may be made to:
Terry Rubald, Deputy Executive Director, Department of Taxation 1550 College Parkway Carson City, NV 89706

Notice of this meeting was posted to the following Carson City location: Department of Taxation, 1550 College Parkway.

Notice of this meeting was faxed for posting to the following locations: Nevada State Library & Archives, 100 Stewart Street, Carson City; Legislative Building, 401 South Carson Street; Las Vegas Library, 833 Las Vegas Blvd, Las Vegas.

Notice of this meeting was emailed for posting to the following locations: Department of Taxation, 4600 Kietzke Lane, Building L, Suite 235, Reno; Department of Taxation, 2550 Paseo Verde, Suite 180, Henderson; Department of Taxation, 555 E. Washington Street; Las Vegas; Clark County Government Center, 500 South Grand Central Parkway, Las Vegas.

Notice of this meeting was also posted on the Internet through the Department of Taxation website at www.tax.nv.gov

ITEM 3

b) For Possible Action: Mine Safety and Training Section – informational presentation

Jeff Bixler, Chief Administrative Officer
Division of Industrial Relations, Department of Business and Industry
Mine Safety and Training Section

Mine Safety and Training Section

Established in 1909

- Purpose – To ensure the safety and health of Nevada's miners.
- Accomplished through compliance inspections, training and technical assistance/consultations.
- Accomplished with a complete staff of 14 employees.
- Offices in Carson City, Elko, Winnemucca and Henderson.

MSATS Staffing

- MSATS is currently 100% staffed!
- Down 4 inspectors this time last year
- Ongoing training for the new inspectors
- Income is a constant issue with the average annual wage in the Nevada mining industry being about \$89,000

Safety and Health Inspections

- Conducted 306 mine inspections – to include underground, surface, exploration drilling operations and sand and gravel.
- Basically unchanged from 2012

Work Site Hazards Eliminated

- Orders - 56
- Notices - 755
- Conditions Corrected – 476
- Statutory criteria allows MSATS to focus on effectively abating identified hazards.

Technical Assistance and Consultations

- Technical Assistance - 2041
- Consultations – 1848
- Total of 3889 technical assistance and consultation requests – more than any other year in our history, breaking our record set last year!
- MSATS has the expertise in areas where mine operators may not have the knowledge or resources to perform health and safety evaluations.

Miners Trained

- New Miners - 796
- Annual Refreshers – 1523
- Underground New Miners – 29
- Underground Annual Refresher – 13
- Mine Instructor Course – 70
- FA/CPR Classes – 54
- Ground Control Underground - 13
- Total number of 2498 is down slightly from 2012 where we trained more miners than any other year in our history!

MSHA – State Grant

- State grants are to be used for MSATS training purposes
- MSHA attempted to eliminate the grants over a 2 year period
- Congress recently mandated the State Grants to be reinstated
- Nevada's State Grants should match 2012

New Mining Activity

- Three new Barite mining operations – Two in the Northumberland area, One in the Candelaria area - could employ 45 people
- Midway Gold – Three new operations – First is in the Eureka area – should employ 150+
- Pumpkin Hollow Operation outside of Yerington (Copper). Underground shaft is underway with about 500' of the 2000' goal completed. Currently employ about 40 people. Goal of 200 people to be employed in the pit, mill and underground operation.

New Mining Operations

- Metallic Ventures in the Goldfield area
- Consists of 3 mines, with the Gem Field deposit as the flagship project – potential to employ up to 150 people?
- Rawhide Mine – East of Fallon – Gold
Potential to employ 120 number of people
- Lincoln Gold – Hwy 50, East of Fallon –
Potential to employ up to 65 people

New Mining Activity

- AU Gold – Manhattan area – placer mine – potential to employ up to 60 people
- Scorpio Gold – Manhattan area – potential to employ about 30 people

Conclusion

- The Mine Safety and Training Section accomplishes it's goals through effective compliance inspections, training and technical assistance/consultations
- Mining activity is on the increase in Nevada
- The potential of many well paying jobs in rural Nevada is very realistic
- We support and encourage mining in Nevada with the understanding that mines operate responsibly and safely!

ITEM 5

For Possible Action: Approval of Minutes for December 17, 2013

Minutes of the Meeting
MINING OVERSIGHT & ACCOUNTABILITY COMMISSION
December 17, 2013, 10:00 am

The meeting was held at the Nevada Legislative Building Room 2135, located at 401 S. Carson Street, Carson City, Nevada, and by video conference to the Grant Sawyer Office Building, 555 E. Washington Avenue Room 4412, Las Vegas, Nevada

**MINING OVERSIGHT & ACCOUNTABILITY
MEMBERS PRESENT:**

John Restrepo, Chairman
 Attending from Las Vegas location
Kyle Davis, Vice Chairman
Dennis Neilander, Member
Douglas Roger Bremner, Member

MEMBERS ABSENT:

Senator Greg Brower, Member
Congressman Steven Horsford, Member
Robert Campbell, Member

COUNSEL TO THE COMMISSION PRESENT:

Henna Rasul, Sr. Deputy Attorney General

DEPT OF TAXATION STAFF PRESENT:

Terry Rubald, Deputy Executive Director,
 Department of Taxation
Anita Moore, Program Officer,
 Boards & Commissions,
 Division of Local Government Services,
 Department of Taxation

MEMBERS OF THE PUBLIC PRESENT:

Carson City:
Stacey Shinn, PLAN
Kelly Langley, Department of Taxation
John Hadder, GBRW
Rich Perry, NDOM
Jim Wadhams, Fennemore Craig
Jesse Wadhams, Newmont Mining Co.
Tim Rubald, SEP/SETT
Coleen Cripps, NDEP
Rob Bamford, NDEP Air Pollution Control

Las Vegas:
Christian Gerlach
Dylan Shaver, NVMA
Richard Jacobs

1. Roll Call and Opening Remarks

Chairman Restrepo called the meeting to order and asked for the roll call. Terry Rubald called roll. All members were present except Congressman Horsford, Senator Greg Brower and Robert Campbell.

Ms. Terry Rubald, Deputy Executive Director Department of Taxation, took the opportunity to introduce the new administrator for the Division of Minerals, Rich Perry. Mr. Perry was appointed by the commission of Mineral Resources in October 2013; he recently worked for the State Engineer doing water-related work in eastern Nevada. Prior to that, he worked for 25 years in the mining industry, in various operating positions in Nevada and Republic of Indonesia, finishing his careers with Newmont as vice president of American operations. Mr. Perry has also served on the planning commission and city council for the City of Elko and he is a graduate of the Mackay School of Mines at UNR.

Mr. Perry replied that he had brought to the meeting the most recently issued Major Mines in Nevada book. He pointed out a section in the back on mining and its economic impacts in the state.

2. Public Comment

Chairman Restrepo then asked for public comment.

Christian Gerlach from Las Vegas introduced himself. He shared his concern about hydraulic fracturing that is soon to be coming to the State of Nevada. He said the state water authority has denied farmers and ranchers water rights but has allowed each individual test well right now and eventually all frac wells, probably, to get access to our state's water table.

Mr. Gerlach said he also has grave concerns about the monitoring that will be done. From recent drafts that were published between the Nevada Department of Environmental Protection (NDEP) as well as the Division of Minerals (NDOM), there will not be any monitoring outside one mile radius of the well heads for hydraulic fracturing. This is an issue when they are doing horizontal drilling, which can go for miles beyond the actual well head. He said that even if they are monitoring, they would not be monitoring in the right spots and it is a grave concern of the water quality issues this could bring about.

Mr. Gerlach also quoted Mr. Lowell Price of NDOM. He spoke to him earlier this year. He specifically told Mr. Gerlach that our ground is incredibly fractured and full of fault lines. That really indicates to him that there is a greater potential risk from hydraulic fracturing in the state and for our water quality.

Mr. Gerlach also stated that he represents himself and he started a petition that has grown to over 1500 signatures now to try to ban the practice of fracking in the State of Nevada. He said it is only a petition, not from an organization.

3. AGENCY REPORTS; CONSIDERATION AND POSSIBLE ADOPTION OF RECOMMENDATIONS AND ORDERS

For Possible Action: Department of Conservation and Natural Resources-Division of Environmental Protection Overview – informational presentation pursuant to NRS 514A.070(2):

Overview of Mercury Program

Dr. Coleen Cripps, administrator of NDEP introduced herself and Rob Bamford, the chief of the NDEP Bureau of Air Pollution Control. Mercury programs within the state and ongoing research will be discussed. Dr. Cripps wanted to make sure everyone knew that the mercury they will discuss is not from historic mining operations. Mercury is naturally occurring and can be geologically concentrated. They often find it collocated with gold deposits. When modern mercury gold mining occurs, mercury can often be released as a byproduct of that process. Some of these gold recovery processes utilize thermal treatment, meaning that the ore is actually heated up and that process volatilized the mercury.

Nevada currently has about 50 permitted mines. About 25 of those have thermal processes with the intent to emit mercury. Not all of them would emit mercury. It depends on the constitution of the mercury that is in the ore that they are processing. Mercury is not used for the recovery of gold so it is not added as part of the process.

Comments today will be about the types of units NDEP regulates under their mercury control program that use some sort of direct or indirect heat that has the potential to volatilize mercury. They include the roasters and autoclaves, electro winning, melt furnaces, retort, ovens and some lab equipment that also has potential to generate mercury.

The whole mercury control program started decades ago and now it seems to try and address mercury emissions. This started as a voluntary program in the late nineties. Since then, we

transitioned that program many years ago to a regulatory program that is referred to as the Nevada Mercury Control Program – in March of 2006.

Mr. Rob Bamford addressed the commission. He said that during the voluntary program, it came to the state's attention, EPA and various environmental groups, the mines have the potential to emit mercury in fairly notable quantities. NDEP began the voluntary program with the five largest emitters and took the biggest chunk out of the emission inventory within the first few years of the voluntary program. NDEP wanted to continue that process in a regulatory format, so they created the Nevada Mercury Emissions Control Program (NMCP). This is a state regulatory program applied to all the mines, not voluntary. It applies to gold and silver. The program was structured so that each thermal unit had to undergo a case by case analysis to determine the best control efficiency available to reduce mercury emissions.

The drafting of the rules, the stakeholder meetings and the regulatory process were completed in less than 18 months – enabling NDEP to create this program and get it into regulation. Mr. Bamford pointed out this program is control-based; the best control, the most emission reductions, less mercury.

Dr. Cripps added that the stakeholder process includes not only industry and stakeholders and environmental community but also representatives from other states. She stated it was a very broad group of people that worked together to develop this program.

Mr. Bamford continued stating the program was designed from a regulatory structure: existing units had to phase in and add controls then any new units had to immediately put on controls. Existing companies had 24 months to add controls. He said that NDEP has a prescribed method and regulation that determines how the best control is evaluated. Starting by looking at what controls are available, what controls work from an engineering sense and looking at cost, mine life, collateral pollutants. This is a prescribed series of steps and regulation on how to get to best technology that gives best reduction. This is called Nevada MACT or Maximum Available Control Technology.

There is a public notice process built in to the process for every permit action. In a 30 day public notice and comment period, a hearing can be requested. This process has a public participation component built in with all permit actions.

Mr. Bamford said that another regulatory structure is the requirement to report annually based on actual production. This is done by testing annually. NDEP has a specific test method so everybody is using the same method. They test the same way and then they report what they actually emitted for the year. This way, a bench mark is established to monitor program success and to see where the program is going. This data is available online at NDEP website. Each year's production by company can be viewed by unit.

In 2006, NDEP started testing every thermal unit. Some custom work was necessary because some of these mining processes are very unique and difficult to test – such as high mercury, high moisture and particulates. A test method was crafted that could be accurate for the types of processes that mining has.

The toxic release inventory was not a very accurate method of reporting but that is what brought to light that mines emit mercury. Mr. Bamford continued to say the state program had been under way for several years then federal EPA came along and said they wanted to implement a federal program as well. This was originally a surprise because there was something of a gentleman's agreement with EPA that if NDEP did a state program and it was comprehensive, EPA would not implement a program. As it turned out, the EPA did implement a program so there are two sets of requirements in place for mercury emissions at mines.

The EPA assigns one emission for each of three groups. The facilities can mix and match their control strategies to meet the limit for each group and their limits are in pounds per ton of whatever they process. In contrast, NDEP units are in grains for dry standard cubic foot. There are 7,000 grains in a pound. NDEP emission limits are very small and very finite because mercury is a toxic pollutant so it has low limits and is measured in very low units.

Vice Chairman Davis asked to hear a little more history on the federal program. Dr. Cripps replied that the EPA was sued by an environmental group and they agreed to do MACT as part of a settlement on a completely different issue.

Vice Chairman Davis mentioned the EPA rule doesn't cover fugitive emissions. He asked if that is covered under the state program right now? Dr. Cripps replied - no. It is not regulated. Vice Chairman Davis asked, then, if the first couple of readings from the toxic release inventory prompted this, why did it not come up until then? What was the reason why it just popped up on the radar with two years of toxic release inventories? Vice Chairman Davis said that NDEP had also mentioned that it was somewhat of a flawed measure and he was curious as to why that was the case. Mr. Bamford replied it wasn't a required TRI reporting category. The requirement did not exist prior to 1998. It just was not being reported. TRI calculates in a very unique kind of complex manner. Dr. Cripps said actual data is not required. You can use best engineering judgment. There is not a specific way that you determine what your emissions are under that program. Mr. Bamford said it involves area in a factor, how much material is moved. NDEP by contrast, does a direct measurement and stack. They directly measure emissions. EPA has a different methodology.

Dr. Cripps said that different mine sites can use different methodologies. That was a problem. As long as it was something that was consistent and it was based on the best data they had available to them at the time, that was all that was required. It was very different from the way it is now where NDEP has very different testing methods. This was not the case before.

Vice Chairman Davis asked in terms of both the voluntary and the Nevada plan, what was the impetus for putting this program in place? Was it something the state just decided to do? Was there talk of EPA regulations on this so it was decided to get ahead of it before there was a state implementation plan? Dr. Cripps replied that there were a couple of things going on at the time. There was some push by some of the environmental community to get EPA to regulate it. Also, once everyone started looking at the data that was coming out, it seemed there needed to be more consistency. That was part of what NDEP was trying to address as well with the development of the program.

Member Neilander commented that we have three different programs over the span of time from 1998. He asked if the testing is standardized now. Mr. Bamford stated they submit protocols for approval and NDEP reviews the method and makes sure the way they are operating during testing is representative of operations. They also make sure the controls are operating at optimal settings so they have multiple components and to make sure the test is a valid test.

Member Neilander asked if they review the script and then check that they tested it according to the script. Mr. Bamford said they must use a third party contractor to do the testing method. He said the EPA test is based off of method 29 which is an EPA reference. It is complicated with chemicals and training. The EPA cannot do the test themselves so NDEP goes to the site, witnesses the testing, reviews the protocol and then crunches the numbers to double-check the results.

Dr. Cripps said the protocol also requires they be operating near their maximum operating capacity. NDEP does not want them to do a test at a very low level with very little throughput, that would give a low number. NDEP wants to make sure they are testing the maximum emissions that they would see at the facility. Member Neilander said in addition to the standard for testing, there is a volume and he asked if they had to have a certain volume in order to do the test. Mr. Bamford said that was correct. Member Neilander asked if there was statutory authority for the program and Dr. Cripps replied yes. Then Member Neilander asked if it were more of a broad statute that just says you've got to go do this. Dr. Cripps said the statute themselves are very broad and provided them with adequate authority to develop this program as well.

Dr. Cripps continued with the report. She addressed some of the mercury-related research projects that they have been involved in over the last decade. She said much of this work is done by a research group at the University of Nevada, Reno, directed by Dr. Mae Gustin. Dr. Gustin and her group have published numerous papers on these various projects. She continued to say they have been involved for over a decade with the mercury deposition network. This is a national network.

Currently there are about 88 monitoring sites across the country and they monitor for the wet deposition of mercury.

Dr. Cripps reported that there is a global pool of mercury that occurs in the atmosphere which continues to cycle around the globe. During precipitation events, that mercury can be deposited on to the ground and this monitoring network actually evaluates that amount of mercury and is a way to look at trends in mercury deposition over time. There are currently only two sites in the Great Basin. Six or eight years ago EPA was going to defund this program and stop paying for a number of sites across the country. NDEP was using this data because that was during the development of the mercury program. There was other research that was being done that depended on this data that was coming from these two sites. NDEP has been paying to keep these sites operational ever since. This is the only network that currently provides a long-term record of mercury concentration and deposition in precipitation. That is still ongoing.

Dr. Cripps spoke about another project that was partially funded by NDEP and EPA – the development of a passive mercury sampling system. This sampling system is to be able to monitor for the deposition of dry mercury. This is very important in arid environments where there are deposition events but it doesn't always occur with precipitation. There is deposition that occurs with mercury flux all the time. With this project NDEP is able to measure both dry deposition and wet deposition.

In the past, dry deposition was monitored using expensive and complex equipment that required line electricity to be able to operate it. A trained technician had to run it. There was no trend data for dry deposition because it was so difficult. The creation of this passive sampling system allowed for dry deposition to be monitored in very remote locations easily. These new samplers are very inexpensive to operate. They don't require electricity and they are very user friendly. These systems have been tested. Part of this research with EPA was to test those and compare the data that was collected to the more expensive samplers that have been used for many years prior to this effort. These samplers are being implemented in projects across the country right now. The amount of information that will be collected on mercury deposition will be significantly enhanced because of the work that was done here on this project.

The other project NDEP worked on dealt with fugitive mercury emissions. Dr. Cripps said that UNR was funded by NDEP and the mining industry to study factors that affect fugitive mercury emissions and to look at the mercury to see if they can come up with a model that would work across the industry.

NDEP also wanted to look at reclamation possibilities and see what kinds of reclamation activities could occur and what the impact of those might be. The fugitive mercury emissions research had problems. In the first study, Twin Creeks and Cortez Pipeline, the industry was very helpful escorting researchers on the site. They moved things around to make sure NDEP could get good data at these locations. In addition to the field component, there was also a laboratory component of this research. The material types from different parts of the mine site were taken back in to the laboratory and evaluated. They looked at some of the factors that might influence mercury flux from these different types of materials in a more controlled environment.

Vice Chairman Davis asked what Dr. Cripps meant by "material type". Dr. Cripps replied they were looking at tailings, waste drop, heap leach material. They also compared it to native soils that were just mercury-enriched. They were also looking at a number of environmental conditions – solar radiation, temperature, daylight. The research showed that the mercury emissions accounted for about 20 percent of the current point source emissions. That is a relatively small percentage of the mercury that is being emitted from the mine sites.

There are large differences between the mines so it was difficult to come up with the universal emissions factors and a lot of that depends on the mine sites themselves, the characteristics of the ore, the concentration of mercury in the ore, how those sites are being managed, how wet the tails are, the age of the ore, how long it has been sitting on the surface before it was monitored and how much reclamation has actually occurred. There are a huge number of variables that affect the amount of mercury emissions that would come off of a mine site.

Vice Chairman Davis asked for clarification on this comment. He asked "When you say the fugitives are 20 percent of the point source emissions, does that mean that the measurements were taken from the point source, 20 percent of those can be attributed to fugitives?" Dr. Cripps said no. She stated that what she was saying is that they have a point source number, they know what that is, generally based on the initial round of research, if you compare the amount of emissions that was measured and estimated based on this research, look at that number and compare it to the number that comes out of the stack, it is roughly about 20 percent.

Vice Chairman then said "...another way of putting it is essentially the fugitives are an extra 20 percent... in terms of the total mercury emissions from the mine site, it's an extra 20 percent." Dr. Cripps replied yes, obviously with a large number of variables.

Dr. Cripps stated there was a remediation study that took place to try and figure out if there were techniques or methods that could reduce mercury emissions for mine surfaces. There was some modeling that was done and that was what the last data was based on. There was some additional testing that was done to try and validate that model. She said they were only using a couple of sites and it is difficult to get accurate numbers or do any sort of accurate modeling without a valid number of data points. There is a lot of work that needs to be done.

Dr. Cripps then addressed using the modeling to try and estimate the emissions from the mines. She thought the companies were really interested initially in these because they thought it might be helpful for them in figuring out their TRI numbers. She continued to say in their remediation study, materials were actually collected from four different mine sites: Twin Creeks, Gold Strike, Lone Tree and Cortez Pipeline. They were looking at waste rock and potentially using waste rock as a capping material. They looked at the leach and at the tailings. They also evaluated some dust control solutions and thought that if a dust pallet was put on, what impact would that have on mercury flux. They also wanted to look in more detail at the wetting of the materials to see whether keeping the material really wet like the tailings impoundment – if there would be more or less mercury emissions – depending on how wet the material was.

The remediation studies showed that the capping of the waste materials with a low mercury concentration substrate could reduce mercury emissions significantly. NDEP has a reclamation program in place that requires this type of control and it is good to know that the mercury emissions themselves would also be reduced by the kinds of reclamation that is already required at the mines. NDEP has been working a lot with the mining industry to do more staged reclamation. Rather than waiting to do all the reclamation at the end, they are doing it as they can and as those different parts of the project are finished. Dr. Cripps thinks because of this, we are going to see reduced mercury emissions from these sites as well.

Dr. Cripps said they were looking at the application of dithiocarbamate, which is a known mercury control agent. While it appeared to reduce mercury emissions, they felt it wasn't conclusive and they needed to do more testing. This is a material that has been talked about for years. Dr. Glen Miller has had a lot of interest in looking at this material and using it as a mercury control agent. Based on this research, it looks like a lot more work needs to be done to definitively determine whether or not it would be useful.

The two services that were shown to have the highest mercury emissions were the heap leach pads and the tailings ponds. There were dramatic differences depending on how wet they were. If there was standing water, there was less mercury emissions than if they were marginally wet. The modeling evaluation was conducted at Gold Quarry and Gold Strike. The annual mercury emissions varied from 39 to 42 kilograms per year based on the model emission for Gold quarry. At the Gold Strike it was 14 to 17 kilograms per year. Dr. Cripps said she thinks this is significantly lower than the 20 percent that was seen based on the initial round of work that was done. They are trying to refine that work and to come up with better numbers. The limitations are relatively few data points.

There was very limited data for the pits themselves. It was very difficult to get in there because there is active mining going on all the time. Blasting and big equipment make it hard to get data during the active pit phase. Age is a huge factor. Mercury volatilizes relatively quickly from the surface and so

depending on how long it's been since that surface was actually exposed can dramatically affect the amount of mercury that is going to be emitted. There was a question about the cyanide solution itself and the material wetness and how much of an impact that had. There is limited tailings and heap leach data. It is very sensitive in how those materials are handled. There is also an assumption that carbonation ore measurements could be translated to all stock piles.

Regarding concentration measurements at depth, Dr. Cripps said there is some question about how much of that mercury volatilizes and at what depth. It is still unclear if it is just coming from the surface or from further down in the soil.

Mr. Bamford added that one of the things he has noticed in working at the mines is that each one is different because each one has a different geologic resource. Depending on their resource, they are going to treat it differently. If it is a high grade versus low grade, carbonation or sulfidic, oxidized or not oxidized, they will apply different leach solutions, so they have different things on the leach pad going out to the tailings. He continued to say that all the mines have labs in-house and they are always looking at how to get the most efficient extraction so they are always changing the solutions they use. What is going out to the leach and what is going out to the tailing is always changing. If they hit a new vein they change their solutions accordingly. It is a constant fluid process. Coming up with one factor would be misleading because it is by its very nature an industry that is always fluid and in flux.

Dr. Cripps added that even though fugitives aren't regulated, they have not been ignored. There has been a lot of work and will continue to be work done on fugitive emissions from these sites. It is not as though there is going to be continuous emissions. She stated she thought it was important to point out there is a very large pool globally of mercury that is being transmitted around the world. They are working on that as well.

Vice Chairman Davis asked how the research is being funded right now and is there an expectation that this will continue. Dr. Cripps replied that the matters related to mercury and mining were funded by the mining industry and NDEP. Most of that money has been expended. NDEP is still funding ozone work that is going on that also dovetails with the mercury work. NDEP has a 1.6 million dollar project going on right now. Vice Chairman Davis asked where the funds come from; Dr. Cripps replied that it was received primarily from fees; non-general fund.

Vice Chairman Davis stated that he would like to see the research continue. "...if we're not going to do anything to stop these emissions or there's nothing we can do to stop these emissions without changing these operations and we've got to continue this. So that's a concern for me." Dr. Cripps stated that reclamation is occurring. There is some effort being made by the industry, although not regulated, to keep the tailings impoundments wetter. Vice Chairman Davis confirmed that it cannot be too dry or too wet. Dr. Cripps agreed.

Member Neilander asked with respect to the fugitive emissions, that in the EPA rule making they chose not to regulate those. He asked if that is because of the lack of research and lack of available science. Mr. Bamford said that is correct.

Chairman Restrepo asked if the division was considering putting together any legislative proposals on increased regulation. He also asked if NDEP has an estimate of what would be an adequate amount of funding per year to look at the fugitive emissions on an ongoing basis. Dr. Cripps responded to the first question by saying they have not been considering regulating it. As far as the funding, NDEP has not talked about it. She offered to work with Dr. Gustin and "get a number" to see what it would take.

Chairman Restrepo said he would be curious to see what NDEP thought would be an adequate level of ongoing funding for those processes and then some kind of idea of how it would be funded. Would it all be from fees or grants or the EPA, or is it at some point general fund allocation, or would the mining industry step up? Dr. Cripps, said that because there is really no federal funding at this point for this kind of work, it would either be fees, general fund or contributions from the industry, which NDEP has no direct control over.

Member Bremner asked how many passive mercury samplers are in operation now. Dr. Cripps did not know the answer to that question. Member Bremner asked if she knew how many are in the

State of Nevada, how are they being used or are they being used. Dr. Cripps said they are being used. They have been deployed at a number of locations across the state at locations where they had ozone samplers, perhaps 15 or more. Mr. Bamford said they would have to confirm the count. Member Bremner asked if they have the data or if the samplers are sophisticated enough to tell the sources of the mercury. Dr. Cripps replied that is a separate kind of analysis that would have to be done. He said he would need to talk with Dr. Gustin and see how much of that is actually being done. He said some is, but he was not sure how much and stated it was an expensive analysis.

Chairman Restrepo asked if NDEP could put together, for the next meeting, a two or three year funding plan to see how they would propose to fund some of this research beyond what is happening right now. He felt that would be very helpful.

3. Presentation by Department of Conservation and Natural Resources – Sagebrush Ecosystem Technical Team, “Sage Grouse and Mining”

Tim Rubald, Program Manager of the Sagebrush Ecosystem Program, Division of State Lands, Department of Conservation and Natural Resources, introduced himself.

To provide background, Mr. Rubald said this program was precipitated by the actions of Governor Sandoval who created an advisory committee in March or April of 2012. Governor Sandoval provided that advisory committee a very short time frame to develop some recommendations to him. They submitted those recommendations on July 31st of 2012. In those recommendations, it was suggested the creation of a sagebrush ecosystem program, Sagebrush Ecosystem Council and also the technical team. Mr. Rubald said in January and February of 2013 the council was appointed by the governor and the technical team was hired and went to work in February. In June of 2013 the governor introduced a bill and the legislature considered, passed and approved AB461 which was then signed into law. This was the first of its kind in any state. The sage grouse issue and the sagebrush ecosystem issue prevails in 11 western states currently and Nevada is the only one of those 11 states to have their functions and authority rested in statute at this time. Mr. Rubald continued to say the council, which is the leadership organization of the program, is actually 15 members. Nine members are appointed by the governor and six members are non-voting ex officio members who are a combination of land management agencies, the federal land management agencies in the state and three key departments in the State of Nevada.

Mr. Rubald explained that the technical team which is brought together is a multi-disciplinary, multi-agency group. They represent the Division of Forestry, the Division of State Lands, the Nevada Department of Agriculture and the Nevada Department of Wildlife. They have a number of responsibilities, not the least of which is serving as staff to the council itself. The team is also working on revisions to the state plan as well as working on a state alternative to the current, up for public review, draft sub regional environmental impact statement. They have generated an alternative that is referred to as Alternative E in that sub regional EIS and that is being reviewed in the council, and the technical team is spending time on that. They are also in the process of developing a conservation credit system. This will be a key item as they move forward.

Mr. Rubald also stated they have extensive science being developed with a sage grouse habitat suitability map for the sagebrush ecosystem in Nevada. Some of this work has already been done in the bi-state area for the bi-state distinct population segment of the greater sage grouse. He continued to say the technical team also provides consultation with project proponents in coordination with the BLM and US Forest Service on federal land and the duties as assigned.

Mr. Rubald continued to say that one of the biggest concepts in the state plan is to avoid, minimize and mitigate. Avoid disturbance in sagebrush ecosystems. Minimize those disturbances through some best management practices. Minimization, when avoidance is not possible, minimization has been maximized and mitigation is the alternative left. He said their goal is no net unmitigated loss due to astrogenic disturbances. They do not want to have any sagebrush ecosystem lost due to any type of man-caused disturbance.

The conservation credit system will become the primary regulatory mechanism to meet the objective of no net unmitigated loss for the sage grouse habitat and the sagebrush ecosystem in general. Recently at the board of examiners meeting a contract was signed in which they hired a consultant to develop this system. They have done similar work on the lesser prairie chicken, which affects five western states – Colorado, Kansas, Texas, Oklahoma, New Mexico. It is a different type of ecosystem that they have the ideas and the concepts developed behind this, which will allow them to move quickly.

Mr. Rubald said they anticipate having major functions of the system in place by September of 2014 but they also anticipate having some key aspects of the system developed prior to the end of February, which will allow them to incorporate those with BLM and forest service into the sub regional EIS which is currently ongoing.

They are also developing a sage grouse habitat suitability map which is being done through a contract with USGS. The bi-state area is on the California/Nevada border which is considered as a distinct population segment of the greater sage grouse but it is being handled differently by the fish and wildlife service in their listing transactions. Funding for this project is through NDOW and DCNR. They also work closely with BLM who has a much lower indirect rate with USGS than the State of Nevada does, so a few hundred thousand dollars is saved by making that transaction through BLM.

One of the unique aspects of this habitat suitability map is this will be taken by what the grouse use. There are many grouse wearing collars and fanny packs. The difference between those two is the collars are radio activated and the fanny packs are actually a GPS unit which they track by satellite and report as much as eight to ten times a day. This suitability map will be developed using the data that has been generated throughout the state by the work that NDOW and many others who have paid to generate that data. USGS is pooling that data into a unique, extremely detailed mapping system. It will not just generate any map. It will be an ongoing product that will be used, will be down to what they call the one meter resolution level. This will cover 20 plus million acres in the State of Nevada, so it is a very significant step up from what has been done in the past.

Mr. Rubald continued to say one of the other issues that they are very aware of and want everyone to try to assist them in, is the technical team has been deemed as the central location for any projects that go on in the ground – both disturbances as well as positive conservation methods that take place. They are in the process of gathering all of that information and developing a database. They will create a publically available database and continue to track those aspects and activities on the range in Nevada. This is being done through a collaborative effort with partners for conservation development which is an NDOW entity. The technical team will be the ongoing location for this.

Mr. Rubald stated they have numerous other responsibilities. They have created, with the assistance of US Fish and Wildlife Service because fire-invasive species is the number one threat to the sage grouse, the Nevada cheatgrass action team. They are trying to actually put some projects on the ground to determine ways to deal with cheatgrass.

They also work very closely with the Western Association of Fish and Wildlife Agencies and they have a fire invasive initiative. Mr. Rubald said they are a cooperating agency with all of BLM's land management, resource management plan amendments that are taking place throughout the state right now, all of which have place holders for the activities of the sub regional EIS which is being developed concurrently. They have also brought together a science work group for technical guidance to the technical team. This is a group of scientists, most of them having done their life's work in this type of activity. They provide their information, their insight, their commentary.

With regard to mining, Mr. Rubald pointed out they also work closely with the Conservation District Program in the state which is housed in the director's office of the Department of Conservation and Natural Resources. This group works with industry and very closely with the conservation districts. Their charge is conservation projects on the ground. They work with many partners including the mining industry.

Mitigation is being handled under MOU with the mining industry. All other issues currently go through NDOW except for the mining industry. Mr. Rubald continued to say the mining will be addressed through the sub regional EIS.

Mining itself is not a significant threat to sage grouse. Mining takes up a relatively small amount of the 20+million acres out there that they inhabit. It has been estimated somewhere between 100,000 and 200,000 acres is involved with mining.

There are a number of different threats – sound/visual impacts, increase in predation, traffic and other issues may not affect the males but can affect reproductive success. Linear features such as roads and pipelines are a vector for invasive weeds and can fragment landscapes. Fragmentation is one of the threats for this species. Vertical linear features such as power lines, anything that sticks up in the air provides perching locations for predators and predators have a significant impact on sage grouse. The number one predator to sage grouse is the raven. If you give them a place to sit and scan the horizon, they can pick out motion.

Water issues, particularly dewatering can impact area seeps and springs depending on the structure and the individual situation, reducing the availability of rugering habitat. Rugering habitat, those types of structures throughout the Great Basin, are the limiting factor for the sage grouse not only throughout Nevada but throughout the Great Basin.

Vice Chairman Davis asked about the differences in the state plan now that interfaces with the BLM preferred alternative. Mr. Rubald replied there are a number of differences. The differences are because of lack of definition, lack of triggers, lack of compatible terminology – all things they are working on very aggressively and have been for some time, to get those incorporated by flushing out the state's alternative.

Vice Chairman Davis mentioned, regarding the credit system, they have recently contracted with environmental incentives and they have done work with the lesser prairie chicken in terms of creating the conservation in that case. Mr. Rubald agreed and said they have also done some work on greater sage grouse in Colorado and Wyoming. Vice Chairman Davis then asked if there is any indication of whether those situations in those areas "...what the success has been or how that's worked or if that's been successful." Mr. Rubald stated they are still in the development process with those. No, they don't have any finalized outcomes or results at this point to report. The US Fish and Wildlife Service has significant voluminous amounts of information to provide guidance on the development of such system and they have continued to produce such.

Vice Chairman Davis asked if there was anything that is actually off limits for development. Mr. Rubald said no. The council took a specific vote deciding not set off, draw polygons around areas and say 'no - nobody can go there'. What they have decided to do instead is to make it an economic system and some policies yet to be developed. It could conceivably and will be on a supply and demand basis... the supply and demand in the eyes of the grouse. If there is a rugering habitat on a wet meadow and it is the only one within a hundred mile circumference that is pretty valuable to that group of grouse. That is going to be extremely extensive to do some type of a disturbance there. It would be providing an economic incentive not to do it there if at all possible.

Regarding industry, those causing the disturbance will have the opportunity to make the decision on their own but they will know exactly what the situation is. They have not actually set off any lands in the state other than those described. They do believe very strongly that many of the activities will have an economic effect.

Mr. Rubald also wanted to point out once they start putting limitation on the ground, those areas, although it is much more challenging to do it on public ground than it is private ground, they anticipate to have those through a variety of different methods. It will depend on the situation of the conservation, deem title, restrictions etc. Mr. Rubald said if you spend a million dollars creating additional habitat and approving habitat, it cannot be disturbed in the future.

Vice Chairman Davis mentioned that this brought up an interesting point. We are going to see a lot of these mitigation projects happening on private land just because of that assurance that we can do something to keep that from being damaged again. Mr. Rubald said that certainly not all mitigation

projects on private ground, NEPA not the least of the problem, because of the time constraints and those types of things through the NEPA process which sometimes lasts three to five years before work can get done. He believes the premise in the discussions, that the council is going to put mitigation projects on the ground where they can get the best bang for the buck and improve the habitat for the grouse in the most efficient matter. That will have to include some protections, which are possible on federal lands, but much more challenging.

Vice Chairman Davis asked Mr. Rubald to explain that there is a current MOU with the mining industry with the Sagebrush Ecosystem Council or the technical team, then said other things go through NDOW. Mr. Rubald said this is correct. He meant other disturbances. Mining disturbances. There are a number of signatures to an MOU that exist. That is signed by the Nevada Mining Association, a number of mining operators. Others can join as they choose to and that mitigation is currently being operated through the Department of Conservation and Natural Resources and of course the technical team and the council will be on that. Any disturbance that takes place on the range right now on federal lands is required to go through some type of a mitigation situation and also to avoid what is mitigated currently, a variety of issues. Vice Chairman Davis asked if this is BLM policy and Mr. Rubald replied yes, it is. He added that it covers all types of fine points – anything from mule deer to pigmy rabbits to any type of threatened species or just wildlife in general. Currently those negotiations take place with Nevada Department of Wildlife.

Mr. Rubald said that the Department of Wildlife is going to be absolutely key to this. He said they are the keepers of the information. They know what is going on in the range. They have more staff that can do the research and do the ground proofing. DOW will be intimately involved and continue to be. That is why they are involved with the counseling and also the technical team.

Member Neilander asked to make a follow up statement. He said that he found both presentations, the mercury presentation as well as Mr. Rubald's presentation to be very informative. From his perspective as one commissioner, he appreciated the efforts in bringing those forward.

Chairman Restrepo also thanked the presenters. He commented on the level of detail in the presentations and said they were very informative.

5. For Possible Action: REVIEW OF REGULATIONS

Review of LCB File No. R172-12, regulations adopted by the Nevada Tax Commission; Determination of Findings and Recommendations to be Reported to the Legislative Counsel

The regulation repeals provisions regarding the accelerated depreciation of certain capitalized costs to determine the net proceeds of minerals tax upon permanent closure of a mine.

Ms. Terry Rubald, Deputy Executive, Department of Taxation, spoke. She said that the Department was asking the commission to make a recommendation. The purpose of this proposed regulation LCB File 172-12 is to repeal regulations which are not used or useful, specifically the regulations proposed for repeal having to do with allowing accelerated depreciation for purposes of calculating the net proceeds of minerals tax for property of a mine that is undergoing closure.

Ms. Rubald continued that under the regulation proposed for repeal, if a mine has complied with certain requirements, including giving public notice that the mining operation will close within 36 months after the date on which the petition is filed with the commission, then the mining operator may petition the Nevada Tax Commission for permission to depreciate lease hold improvements, buildings, fixed machinery and fixed equipment at the accelerated rate that is provided in NAC 362.140.

She continued that the problem is that these regulations were adopted in 1991. In the 22 years since then, 72 mines have closed, but only one mine ever applied for the accelerated depreciation. Ultimately, the mine that applied did not receive the accelerated depreciation because upon audit the

department found that the mine had not actually closed. That finding had been upheld by the Tax commission after about ten years of litigation up to the Supreme Court and back.

The last two mines to permanently close occurred between 2008 and 2012. The last was a gypsum mine in Clark County. In that case there was no production and no taxes were due and therefore the accelerated depreciation would not have changed the net proceeds result.

Mine operators considering permanent closure may still rely on NAC 362.040, subparagraph 6 to capture any remaining depreciation. Under NAC 362.040, depreciation is calculated at a straight line rate. If any property is disposed of before the end of the depreciation period, the company receives all the remaining allowable depreciation. The department assumes that in a mine closure the assets are sold or dismantled and thus that particular NAC would allow all of the remaining depreciation.

Going back to workshops that were held in 2000, the mining industry participants reported that the regulations were not workable as written, particularly the public notice section in NAC 362.100 which was described as antiquated. Under NAC 362.100, application of accelerated depreciation is dependent upon permanent closure of the mine. In order to qualify - one of the conditions requires public notice that the mining operation will close within 36 months after the date on which the petition is filed with the commission. The public notice includes notice in county commissioners, notice of closure in SEC shareholder reports or if not publically held notice to all creditors. The comments from the industry at that time were that public notice causes anxiety to the local community. In addition, it is difficult to predict the date of mine closure. The end of life of a mine may or may not actually happen as predicted and there is no benefit gain in making a public announcement years in advance of the actual closure.

Ms. Rubald said it is for those reasons that she doesn't think the industry has taken advantage of these regulations and that is why they are proposing they be repealed. The Nevada Tax Commission met recently and approved this. Now, the department is asking MOAC, as well, for this recommendation which they will take to the legislative commission.

Member Bremner moved the commission approve the request.

Vice Chairman Davis seconded the motion.

The vote was unanimously in favor of the motion. The motion passed.

6. For Possible Action: Approval of Minutes for October 31, 2013

Member Neilander moved the commission approve the minutes for the October 31st meeting as provided.

Vice Chairman Davis seconded the motion.

The vote was unanimously in favor of the motion.

7. Briefing to and from Staff; Suggestions for Future Agenda Topics and Meeting dates

Vice Chairman Davis said he would still be interested in a briefing from the Department of Wildlife. He said he was curious about impacts from mining on wildlife in general and whatever regulations or sections of law that the department interacts with the mining industry.

Chairman Restrepo emphasized he would like NDEP to return with some type of ideas on a funding plan for the fugitive mercury emissions, and any strategy they may have. He stated his concern that they do not have a funding strategy.

Ms. Rubald suggested several dates for a March meeting. They agreed on March 14th.

8. Public Comment

John Hadder, Director of the Great Basin Resource Watch chose to make a comment. He said GBRW had worked a lot with NDEP on the initial development of the air monitoring program for

mercury and were quite happy with how it came out in terms of stack emissions analysis and the program has significantly reduced the mercury emissions in Nevada.

Mr. Hadder said they would like to see more annual testing. He added in 2010 Twin Creeks had a faulty autoclave or roaster and they were emitting a lot more than anyone knew. The testing time just happened to catch it. GBRW has been recommending that the program do twice a year testing to avoid those sort of events.

They also would like to see the program expanded beyond just precious metals. Now, mercury occurs most frequently with precious metals however it does occur generally in a lot of the geology in Nevada. There are a lot of other mining operations that could in fact emit mercury, but they are not being monitored or tested. That is another test they would like to look at in the future.

Also, Mr. Hadder said they have been asking for a number of years for what is called a mass balance on mercury so that they can analyze the materials, the ore in particular, for how much mercury there is and then look at how much mercury they are capturing, the stacks and where it is all going. How much of this mercury is going into tailings. This all would be very important to understanding where the mercury could be coming from, and ultimately in controlling it.

In Nevada there are tailings impoundments that contain a fair bit of mercury. Reclamation will contain that but it is important for us to be aware of where all the mercury is. GBRW would like to see this added also.

GBRW is also concerned about the fugitive emissions as well. He emphasized the need for monitoring off site so there is more data. Mr. Hadder said a theory of his is that the stack emissions come off high and hot from the sites so they tend to loft up into the upper atmosphere. Air modeling tends to show that in the higher atmosphere perhaps they don't deposit as easily as potentially fugitive emissions which are emitted at a very low level. His theory has been that there is a possibility that future emissions may be associated with a higher risk just because they tend to be lower elevations and might be a higher level of deposition in the local areas. There is no data on this. This theory is based on how thermal models usually work. He felt this should be looked into so the fugitive emissions aren't discounted too quickly.

Mr. Hadder also suggested screenings for the workers at the mines in terms of mercury that might be in their system. They are the ones that are going to be exposed the most on the site, especially with fugitive emissions. GBRW is concerned about what kind of exposure these workers are getting.

Mr. Hadder also wanted to comment on the sage grouse impact issue which GBRW is working on. They feel this is a major issue. Where there is mining exploration, there is a large impact to that population. Sage grouse is one of those species where we can't afford to lose habitat. Any impact is a large impact. Mr. Hadder feels this issue needs to be taken seriously. Exploration areas often encompass a large area. Mr. Hadder said all movement of vehicles on the roads they create, this all disturbs habitat and particular sagebrush, sage grouse, which is very sensitive to changes in their habitat. There is also a lot of information that shows that once the sage grouse leaves an area, they tend not to return; they are very connected to a place. Exercise caution in how we consider the impacts in mining. There are some areas of concern particularly with exploration where on the surface each exploration appears very small but actually can have a lot wider impact, entire ranges can be affected.

He continued the North Pequops area in Nevada is considered by BLM areas within that range considered to be wilderness character. GBRW is concerned that the mining is going to impact that wilderness character, including wildlife habitat.

Chairman Restrepo thanked the public for their comments.

Adjournment

Meeting was adjourned.