MINUTES OF THE MEETING
OF THE
ASSEMBLY COMMITTEE ON NATURAL RESOURCES, AGRICULTURE, AND MINING

Seventy-Fourth Session
March 12, 2007

The Committee on Natural Resources, Agriculture, and Mining was called to order by Chair Jerry D. Claborn at 1:32 p.m., on Monday, March 12, 2007, in Room 3161 of the Legislative Building, 401 South Carson Street, Carson City, Nevada. Copies of the minutes, including the Agenda (Exhibit A), the Attendance Roster (Exhibit B), and other substantive exhibits are available and on file in the Research Library of the Legislative Counsel Bureau and on the Nevada Legislature's website at www.leg.state.nv.us/74th/committees/. In addition, copies of the audio record may be purchased through the Legislative Counsel Bureau's Publications Office (email: publications@lcb.state.nv.us; telephone: 775-684-6835).

COMMITTEE MEMBERS PRESENT:

Assemblyman Jerry D. Claborn, Chair
Assemblyman Joseph Hogan, Vice Chair
Assemblyman Kelvin Atkinson
Assemblyman John C. Carpenter
Assemblyman Pete Goicoechea
Assemblyman Tom Grady
Assemblyman Ruben Kihuen
Assemblyman John W. Marvel
Assemblyman James Ohrenschall
Assemblywoman Debbie Smith

COMMITTEE MEMBERS EXCUSED:

Assemblyman David Bobzien

STAFF MEMBERS PRESENT:

Jennifer Ruedy, Committee Policy Analyst
J. Randall Stephenson, Committee Counsel
Sherrada Fielder, Committee Secretary

OTHERS PRESENT:

Rick Gimlin, Deputy Director, State Department of Agriculture
Glenn C. Miller, Professor, Natural Resources and Environmental Science, College of Agriculture, Biotechnology and Natural Resources, University of Nevada, Reno
Patrick Joyce, Undergraduate Student, University of Nevada, Reno

Chair Claborn:
[Meeting called to order.] We are going to hear testimony on Assembly Bill 42. We will not hear the bill again, but will receive additional testimony to provide more information regarding the measure.

Assembly Bill 42: Authorizes the State Department of Agriculture to accept and make certain grants. (BDR 50-634)

Rick Gimlin, Deputy Director, Department of Agriculture:
[Read from prepared testimony (Exhibit C).] As an example of a specific need for the legislation, the Department charges $100 to register a pesticide in Nevada. Under *Nevada Administrative Code* (NAC) 586.011 Section 2(c), $10 will be used to eradicate and control noxious weeds. In a state like this, one of the most effective means to control noxious weeds is to work with the Cooperative Weed Management Associations (CWMA). There are 31 CWMAs in the state with nearly one in each county.

Approval of A.B. 42 would give the Department authority to issue grants to these organizations. We do not have that authority now. Currently, we rely upon specific funding vehicles such as federal grants to provide us that authority. A.B. 42 will allow us to take our fee money and make grants and sub-grants as a purpose for collecting the money.

Assemblyman Marvel:
How much will this bring in?

Rick Gimlin:
We collect $10 from each pesticide registered and last year registrations were 9,629 which brought in about $96,000. After we paid staff and related operating expenses, there was $15,000 to $30,000 to be used for grants to CWMAs or other projects.

Assemblyman Marvel:
Do you use that money or keep it in a reserve?

Rick Gimlin:
Right now it is kept in reserve in budget account 4545.

Assemblyman Marvel:
Does the CWMA use the money?

Rick Gimlin:
We would, but if we wanted to move the money around, it would be over and above the limit for the executive budget. We would have to come back to the Interim Finance Committee.

Assemblyman Marvel:
Who do you grant this money to?

Rick Gimlin:
Typically, it is the Cooperative Weed Management Associations. They apply for grants and we currently award them with federal funds through the U.S. Forest Service.

Assemblyman Marvel:
That might be a good way to go then.

Assemblyman Goicoechea:
I am concerned that you are imposing a $10 administrative fee from the $100. I am assuming the $96,000 should be directly paid out less the $30,000.

Rick Gimlin:
Let me reiterate. Out of the $96,000 we currently collect, we pay for our Agriculturist II position and operating expenses. That is between $60,000 and $70,000 leaving $30,000 that we can grant to our CWMAs, or use for related purposes under that chapter. There are no administrative fees being taken out of the $96,000 at this point.

Assemblyman Carpenter:
Are there any other examples you can give us?

Rick Gimlin:
Currently in statute, we are allowed to make grants with funds received from the special license plate fees. Those funds are used in the form of grant awards for promotion of agriculture. We depend upon our funding programs to allow us to make grants and sub-grants. It is not the intent to take money from the general fund appropriation and use it for something other than what was

legislatively approved. We could only use those monies collected specifically for that purpose.

Chair Claborn:
I understand the Department of Agriculture needs A.B. 42 to be able to obtain grants for the fund and to award grants and subgrants out of the fund for projects such as growing crops. Is that correct?

Rick Gimlin:
That is correct. Currently we are waiting for grant funding for crop programs. We are hoping that along with the funding will be authority to make grants and subgrants out of it. Those funds will be used for many purposes such as establishing a winery or to improve methods for growing crops.

Chair Claborn:
To do this you would have to have this in place?

Rick Gimlin:
In that particular agreement we will have authority to make grants, but it does not always happen that way. I believe the language is in there to make grants, but I am not sure if it is in there to make subgrants.

Chair Claborn:
Are there any questions?

Assemblyman Goicoechea:
Typically, do all federal monies that come through the State Agriculture Department have earmarks on them for how they could be disbursed or granted out?

Rick Gimlin:
Yes. When we submit a request there is a scope of work attached that details how we are to use the money and do operations.

Assemblyman Goicoechea:
Would the money we would be dealing with under A.B. 42 be only for these small scenarios? How much money are we talking about?

Rick Gimlin:
The one I have specifically in mind is the pesticide fees. If this is put in place, should another occasion arise, it would give us an opportunity to make grants and subgrants to constituents. What we do not want is to not have the ability to react and serve our constituents.

Assemblyman Goicoechea:
Would this allow the Agricultural Board to oversee and sign off on this?

Rick Gimlin:
They could by policy. If the Board of Agriculture wanted to see these grants come before them before they are approved, they certainly have the right to make that policy and have the Director pursue that.

Assemblyman Goicoechea:
It would allow for oversight for the Department. When you have a line-item grant, I would be more comfortable if the Board had oversight.

Rick Gimlin:
We do currently have an account that does that. Our alfalfa seed research account does exactly that. That board meets, submits proposals to the Board of Agriculture for approval and then the Board makes a decision on them. That policy is in place.

Assemblyman Goicoechea:
It is something we need to look at and include provisions for in Assembly Bill 42 for oversight.

Chair Claborn:
Are there any more questions? [There were none.] Is there any further testimony? [There was none.]

> ASSEMBLYMAN MARVEL MOVED TO DO PASS ASSEMBLY BILL 42.
>
> ASSEMBLYMAN GRADY SECONDED THE MOTION.
>
> THE MOTION PASSED. [ASSEMBLYWOMAN SMITH WAS ABSENT DURING THE VOTE.]

I will now turn the gavel over to Vice Chair Hogan for the presentation on mercury.

Vice Chair Hogan:
We are going to have an informational hearing to obtain further information on the mercury situation in Nevada. Members of the committee will recall that on February 12, 2007, we had two presentations on the mercury situation. We felt good about what was being done and the progress that was made; however, in subsequent days, we have received reports that there may be other

points of view on this we may need to hear. To advance getting status information on the fight against mercury, we contacted Glenn C. Miller of the University of Nevada, Reno (UNR) to share with us the recent study he has done.

Glenn C. Miller, Professor of Natural Resources and Environmental Science, College of Agriculture, Biotechnology and Natural Resources, University of Nevada, Reno:

I wanted to make this presentation as this is a controversial issue. Initially I considered giving a copy of all the criticisms of my report with my responses but will email those to the Committee Policy Analyst. I feel strongly that some of the criticisms were warranted and some of them were not, and some went beyond the scope of funding and the study we had.

Nevada has a significant source of mercury in the atmosphere based on the Toxics Release Inventory (TRI). We were number two in the nation until about 2002 and 2003. The primary source of a huge reduction was the installation of mercury control systems at Jerritt Canyon. We went from being the highest mercury source in the nation to one that was less than 400 pounds. Initially it was 9,400 pounds which was four times the second largest source.

The largest source of mercury released into the atmosphere is from coal-fired power plants. Coal contributes in excess of 80 percent and mining five percent of the mercury released. Overall in the United States, it is not a dominant force and it is being reduced.

The report provided to you on "Mercury Reporting to the Nevada Department of Environmental Protection (NDEP) for 2004" (Exhibit E) shows Nevada having a total of about 5,000 pounds of mercury being released in the air, which rates our state seventh in the country after Texas. Of that, about 90 percent is from mining and this is based on the Toxics Release Inventory (TRI) data recently updated. We also produce a lot of mercury. To my knowledge we are the primary producer of bi-product mercury at 122 tons per year. There is a global interest in removing mercury from artesian mining where you mix mercury with gold and silver to extract the gold and silver. This is the most environmentally damaging use of mercury and is used by small miners.

We receive a lot of mercury from the United States stockpiles in Hawthorne that will keep Hawthorne open forever. Mercury can be managed appropriately and there has been discussion of adding mercury from mining to that stockpile.

Nobody likes mercury, but we still have uses for it such as lights and electronic uses, all of which are important. It is important for the environment to use

mercury through fluorescent lights, but we need to manage it. There is global interest in removing or reducing mercury emissions.

This issue is quite controversial and I have become crossways with the NDEP and representatives of the committee, but want to commend NDEP for doing a good job in developing mercury regulations which are the first of its kind in the world. They did not go as far as measuring mercury, but they have done a lot of work and their efforts are recognized.

About a year ago, comments were made on the need to measure mercury and to know how much mercury is in the air we breathe. This requires on-site and off-site measurements of the air. There are currently no requirements to measure ambient air around mines and that is what we did. There were arguments that it was too hard to measure and that it is hard to regulate mercury concentration in the air because there is no national standard. In the same sense, there is the analogy of knowing how much exhaust an automobile emits or what the exposure is. We need to have both. We need to have what the division has required. We need to measure source emissions and to be able to measure mercury in the air. This had not been done previously except for one study in Idaho. We felt it was appropriate to measure mercury by renting an instrument. We did this with an environmental organization. We selected an instrument out of Ohio called Lumex. I have provided an information sheet on it (Exhibit D). There is a $16,000 version and a $26,000 version. The $26,000 version may be 50 times more sensitive. The $16,000 version is not as sensitive but is still appropriate.

We did a reconnaissance study. This is where issues came up causing a misinterpretation. This was not meant to do sourcing of mercury, it was not meant to look at low level concentrations, it was simply to go around certain mines in publicly accessible areas and measure the mercury concentrations at those sites.

We went to the various mines to see what problems could arise with the instrument. Could we measure the mercury? Was the instrument sufficiently sensitive? What were the concentrations we might see? Would the instrument make too much noise? Some of the criticism leveled at this is that we do not have statistical data and cannot prove the source. The concentrations we saw in some cases were very elevated, some being well over a thousand times the norm with even higher concentrations found in closed places. The closest we got was in the parking lots. The person with me who did the work is Patrick Joyce and he will explain how he did the studies.

Vice Chair Hogan:
We want to take advantage of the change-over, we have a question.

Assemblyman Goicoechea:
It stands to reason that a parking lot would have higher mercury emissions because the cars are there.

Glenn Miller:
We measured the mercury levels around the cars. Cars produce a small amount of mercury but not in the order of thousands of nanograms per cubic meter. Nevada has a natural source of mercury of two-to-four nanograms, and with the cars, it might add another nanogram, but what we found in some of the sites were in the thousands. That was an issue where a question was raised about asphalt. Asphalt has mercury in it because it came out of a petrochemical facility. We did not see that in any way. The only way you can say asphalt was a source of mercury is if they put the asphalt that contained the mercury at the mine site and not on all the rest of the road we were on. We are not describing sources, but one can gather an inference of mercury concentration based on what Patrick is seeing. There is no question. Nevada exists in the high mercury belt and part of the debate is where did that mercury come from? Did it occur over geologic time, from naturally occurring sources, or what contribution was minor or major from the mining industry? I do not think anyone knows at this point.

Assemblyman Goicoechea:
It concerns me that none of the readings were taken from a ridge out and away from the mines. The elevated concentrations you show from the parking lots concern me.

Glenn Miller:
Patrick will talk about that. The purpose of this study was to see if the instrument worked and see what kind of concentrations we saw. Beyond that, it was a reconnaissance study; it was a simple study to see what mercury concentration we would find in Nevada around mine sites. That is all it was. It does not prove anything, it is not a regulatory suggestion, but if people find this data of interest, perhaps then it would have to be done in a much more narrowly focused area, asking questions in much more detail.

Assemblyman Grady:
In your opening comments, you said that you commended mining and NDEP for their work. I have seen some of the information put out by the Great Basin Mine Watch. Have you brought forward the information that they are doing a good job in some areas?

Glenn Miller:
I can give you numerous testimonies. This is a public debate and there is a point where the discussion is going. I have high regard for the staff at NDEP. This is not meant as personal criticism of anyone, but it is a matter of public policy and an issue of mercury and how are we protecting human health and the environment. That is what I think this debate should be focused on.

Assemblyman Grady:
You made the comment that you have no data to back the report. Is the University used to putting out this kind of information where you can criticize an industry with no data to support it?

Glenn Miller:
This is not what I said. The information presented here is you drive into a mine site from an area of low background of less than five nanograms per cubic meters, and then you drive into a parking lot next to a mine and you go up to 2,000 to 3,000 nanograms per cubic meter. A reasonable person will draw an inference, at the very least, that we should begin to look at what kind of source controls that industry has on it. That is the point I would make. This is a reconnaissance study and in the report I did not say anything that dramatic, but it does cause one to pause and suggest we should look at this. These concentrations are some of the highest I have ever seen and that is the point we should look at. Where are the sources of those and how are we going to respond to that level of mercury?

Assemblyman Grady:
I am concerned that the University is endorsing this.

Glenn Miller:
The University does not endorse this.

Assemblyman Grady:
It has the University's name on it.

Glenn Miller:
It is a study, but the University does not endorse or unendorse studies that we put out. We do not get a sign-off by the President for these things. This criticism is appropriate and I will accept that criticism of putting out reports that are based on the data we have. With the criticisms that are there, my conclusions in the report are such that, there is some elevated mercury and this instrument works. We will go over that at the end to see what the conclusions are. I believe there is some misinterpretation of what the conclusion said. Basically we said the instrument works, there are high concentrations at some

sites and low concentrations at others, and heat appears to be a source of mercury. Those are the conclusions we had and they are backed up by the data.

Assemblyman Marvel:
Did the University sanction this study?

Glenn Miller:
The University does sanction studies.

Assemblyman Marvel:
How did you go about conducting these tests?

Glenn Miller:
We had the instrument on our campus in a laboratory.

Assemblyman Marvel:
Nothing official?

Glenn Miller:
The University does not sanction ...

Assemblyman Marvel:
The University was not going to put a stamp of approval on it, were they?

Glenn Miller:
They do not put a stamp of approval on a lot of things.

Assemblyman Marvel:
There should be a higher being that authorizes something like this. We have a letter from the Environmental Department that is very critical of the information you passed out to the people.

Glenn Miller:
I will respond to those criticisms as they come up one by one and will definitely send my response. I disagree with a lot of those because they were outside the scope of what our project was.

Assemblyman Marvel:
Were these the same studies or a one-time monitoring?

Glenn Miller:
It was a one-time monitoring.

Assemblyman Marvel:
You do not have any continuum of data?

Glenn Miller:
As the report indicated, it is a snapshot. No one had done this before.

Vice Chair Hogan:
We are not intending this as an examination. We have another question.

Assemblyman Ohrenschall:
Earlier you mentioned that NDEP was leading the nation in terms of mercury regulation but had not gone as far as you would like to see. What kind of regulations would you like to see promulgated?

Glenn Miller:
The issue we feel is appropriate is additional monitoring. No regulatory monitoring, just monitoring to see how much mercury is in the air around a site. It is not a large or expensive process and there is an indication it is needed, but the question that should be asked is how do we know the mercury concentrations in the air are being reduced? You have to measure them. How do we know if the regulatory program is actually working at a particular mine site? You have to measure it. You have to measure the concentrations in the air and do it in a manner that is sufficient to provide the information you need to protect the people and environment. It is the same with automobile emissions. This is what NDEP's argument was, and it is a good argument that "we are going to control the source and reduce the mercury emissions." The argument is valid, but we also need to know what the result is in air concentrations. That is all we are trying to say here, that you can measure mercury and it is not very expensive.

I will ask Patrick Joyce to give an overview of what we did and show why the concentrations can vary.

Patrick Joyce, Undergraduate Student, University of Nevada, Reno:
The purpose of the study was to conduct a snapshot to determine if this type of monitoring is practical for different sources, including active and dry heat areas (Exhibit G). The instrument used was the RA-915+ Zeeman Spectrometer. It comes equipped with a case and hose and is portable and very rugged. It is very sensitive with a detection limit of 2 nanograms per cubic meter. The instrument was rented for $5,000 for a month. I used my laptop to store the data I collected.

For the actual acquisition of data, we were always mobile, typically in my car or the University pickup. We would have the hose out the window and I would be in the passenger seat. The instrument allows you to instantaneously see what the readings were in the air. From start to finish, when we got to the mine site, the instrument was turned on, calibrated using a zero mercury filter which would allow me to zero out the instrument to make sure there was no residual mercury inside or, if needed, to balance out background concentrations that would be present in the geographical area.

Using the continuous long strand of data, I would pick out 60 second averages and find the maximum, which I will present later. As for the background concentrations, we typically found that anything less than five nanograms were in very rural areas. We also investigated non-mine sites such as geothermal plants and hot springs, which are known sources of mercury. These numbers, the 5.1 from Brady Geothermal and 6.8 from Nightingale, were not anything to be concerned with. The Steamboat geothermal plant obviously was slightly elevated as well as the hot springs.

One of the mine sites monitored included Lone Tree off Interstate 80. The picture shows the plot sites that correlate to what I was reading at that point and the average taken from the entire loop. As you can see, we went through the dirt lot we had access to. We had an average of 7.2 and a maximum of 15. Not every parking lot tested had high concentrations.

We visited the Glamis Marigold Mine twice to see how our first initial reading of 1,340 would compare to a second visit, which received a maximum of 21.

Assemblyman Goicoechea:
There is a tremendous swing there. Do you know why?

Patrick Joyce:
In that case, we had abnormal winds for the area from the southeast. I cannot say that because we were downwind from the mine site that those were the only reasons for the differences, but we also do not know if they were processing at the mine that day.

Assemblyman Goicoechea:
Would it have made sense to swing around to get upwind to bring some validity to the numbers?

Patrick Joyce:
We would have attempted to get downwind and upwind of the facility, but in this case, accessibility to the site was an issue. We were only allowed to go

on publicly accessible land and roads. We were limited in our abilities to get to other areas.

Assemblyman Goicoechea:
I am familiar with Marigold and I guarantee I can get upwind of Marigold.

Glenn Miller:
You can use the lower one as the upwind one is slightly elevated. I do not think that is a concern. The point is not to make too much of the concentrated areas, because it will vary depending on which direction the wind will come from and the weather conditions when the facility is being operated. This is very notable in the first measurement as this was the highest one we found. The instrument worked. That is the bottom line. The instrument worked and we came back and the readings were lower. There was some source or wind direction that is unexplainably different.

You may feel this is not very satisfying as it was not to us, but we were not trying to say that with a certain amount of emission we would get a certain amount of concentration. It was simply a measurement at the site at that time. This is one of the concentrations where it may be an issue and someone else may need to go back and look at it. If you are going to go back you are going to need more cooperation and ask those questions in much more detail. This was only a snapshot to measure mercury in a reconnaissance study. That is all we did. We are not trying to make anything out of this other than to show there was a high concentration.

Assemblyman Carpenter:
Regarding the instrument you used. I have this document from the Environmental Protection Agency (EPA) that checked the instrument and the numbers on the model of the instrument are not the same as what you used.

Glenn Miller:
It is the same instrument. This may be a newer version, but it is the same instrument.

Assemblyman Carpenter:
They use the RA-915+/RP-91C. As I understand in your document it was RA-915+. What interests me is on the last page of the summary that says, "This instrument is a reliable field measurement devise for mercury in the soil and sediment." How can you measure air when this instrument is supposed to be used in the soil?

Patrick Joyce:
The instrument comes with optional attachments. The main attachment is an oven. Using the oven and a crucible, you can put anything inside such as soil sample, fish tissue or liquid. It then heats it to the point the materials volatilize and become gas molecules and then enter the chamber as would any air.

Assemblyman Carpenter:
What I get out of this is that EPA did not check this instrument out for measuring air.

Glenn Miller:
They actually did. It is highly recommended for hazardous waste and toxic substance testing. It is one of the easiest to use to measure air because the air is drawn through it. I was more concerned with the solid materials of fish and soils where you have to heat them and drive the air into the instrument, and measure it that way. It turned out to be a good measurement. The one in the air consists of no more than taking the air through the mercury and then a light shines between two mirrors and it determines the absorbance, which is measured every second. The instrument itself is good for doing this. There are instruments for doing techgrams when you go lower. For the purposes of this study it is the right instrument to use.

Assemblyman Carpenter:
Do you have the documentation information from the EPA on the measurement of mercury in the air?

Glenn Miller:
We can provide that. Basically, all it is, is mercury accumulation on a gold trap.

Assemblyman Atkinson:
This instrument, you stick it out the window?

Patrick Joyce:
You do not stick the instrument out the window, you use a hose.

Assemblyman Atkinson:
You do it for 60 seconds at a time?

Patrick Joyce:
We would run the instrument the entire time we were around the facility. The 60 seconds came from trying to organize the data and we had massive amounts of it. I chose 60 second intervals to break down the data to find the maximum and minimums.

Assemblyman Atkinson:
Does anyone have any information or statistics on the accuracy of the instrument?

Glenn Miller:
We can provide those. One of the assets is it has an internal calibration.

Assemblyman Atkinson:
Is there something that tells us the numbers? Is there something that says this?

Glenn Miller:
It is calibrated before it is shipped out.

Assemblyman Marvel:
You say it costs $5,000. Who paid for it?

Glenn Miller:
It came from a grant.

Assemblyman Marvel:
But not from the University?

Glenn Miller:
No. The University does not provide much money.

Patrick Joyce:
The data sets changed from the instantaneous plots to the 60 second transects. These maps are taken at a much higher elevation and it illustrates the path I would take in the vehicle as well as the spacing of the data sets. I tried to pick them out as evenly as possible so as not to manipulate the data.

As we approached the mine from the road, we had an average of about 4.8 and getting closer to the mine, those numbers increased to a maximum level of 47 which was adjacent to a leach pad. As we left the mine, the numbers began to drop again.

Assemblyman Goicoechea:
Did you take any readings at the top of Golconda or down in the narrows on State Route (SR) 766? What were those ratings?

Patrick Joyce:
Yes. I cannot produce any for you right now, but we measured just about everywhere we were to see what the levels were.

Assemblyman Goicoechea:
The fluctuation in the numbers makes me wonder if they were on top of Golconda or on top of Emigrant.

Patrick Joyce:
Just driving along it would typically look like data set number one. Anything that would float just around five and anything below ten was normally what we would see anywhere.

Assemblyman Goicoechea:
Even going down the highway?

Patrick Joyce:
Going down the highway would typically be lower. I do not have those numbers for you.

Assemblyman Goicoechea:
I would like to see some of those numbers if you can provide them.

Glenn Miller:
We have thousands of numbers.

Patrick Joyce:
On the way to Jerritt Canyon, we proceeded north on SR 225. We were curious what readings we would find. We did find elevated concentrations on the road as opposed to what we would typically see elsewhere. In this case, as we got farther north, data set six was where it started to drop off and go back to what you would normally see on a desert highway. To the west, it did not drop until data set nine.

Twin Creeks was the most interesting as far as acquiring the data. As I drove out to the facility and was stopped at the gate, I could see a visible plume in the distance and decided to get downwind. As you see, the numbers are standard but as I got downwind around data set seven and eight, the reading said 6,694. I had a Global Positioning System (GPS) with me and it calculated the plume to be about two miles. I determined the plume to be a source of the emission levels found. We had not seen the higher numbers until we got closer like in a parking lot. But in that case, I was a short distance away.

Glenn Miller:
Without proving it was the emission source.

Patrick Joyce:
We visited Couer-Rochester twice. Our first time there, we had a reading of 2,326. When we returned, the readings dropped to the standard elevated concentrations. On the road to the north there were leach pads. We looked to see if they were active and took note of what we were adjacent to. In this case, the active pads had much higher readings. We do not say they are the source, I am just saying it was what I was adjacent to at the time when I found the elevated readings. These pads are not the same; they were different in some type of rotational schedule from when we were there before.

Glenn Miller:
That is an overview of some of the data. I appreciate the concern the Committee has about this, but would like to underscore the fact that this has never been done before. You think someone would have done this sort of thing. It is not a satisfying data set. It does not resolve anything and probably raises more issues than it closes. The argument we make is that we measure things we care about. We measure urine compounds, blood compounds, methylmercury in fish, and various air pollutants. Should we not measure mercury? In Nevada we have some of the best places to mine because we do not have much water. Most of the chemical issues that happen at a mine site are held on site and the impacts are quite low for us. That is not the case in places like Montana, Peru, Indonesia, and other places where there are more amounts of water. The environmental issues are contained at those mine sites. Not always, but mostly. Mercury is one of the things that is not. Atmospheric mercury, when it goes up into the air, migrates and has a regional impact and ultimately becomes part of the global pool.

The argument is being able to measure things more frequently and provide some level of data. Currently there is no requirement to measure ambient mercury in mines and that is part of the reason we felt this study was important.

If I can go through the conclusions, I hope you will recognize that these are not radical, they are straight forward. We measured mercury, the instrument worked well, and we had some of the highest concentrations found. The highest background concentrations are debatable; but they are going to be five nanograms per cubic meter, plus or minus five nanograms per cubic meter in most of Nevada, except for geothermal areas. These were quite elevated. In some mines we saw none which may be due to the fact the wind was the wrong way or the facility does not produce any mercury. Lone Tree was a good example. We were interested in seeing Lone Tree because they essentially have no mercury production, no mercury releases and there was very low mercury there.

Assemblyman Goicoechea:
At what level would you determine it to be a health risk? There has to be a standard. What is the national level?

Glenn Miller:
I am sensitive to this because this is where everyone got angry. I had a sentence in here that said, "these concentrations were much higher than expected and they approached concentrations where impacts to worker health and safety, particularly women of child-bearing age, should be assessed." I chose those words very carefully. The worker exposure limit for Caucasians and women not of child-bearing age is 50,000 nanograms per cubic meter. That is the point when people start seeing urinary mercury release that is a problem. If you look at concentrations, 50,000 is the highest one. There are other people who suggest that 10,000 to 20,000 might be problematic for women of childbearing age.

The Agency for Toxic Substances and Disease Registry (ATSDR) with the Center for Disease Control (CDC) in Atlanta suggests the "no effect level" to be at 200 nanograms per cubic meter (Exhibit F). The EPA has it at 310. If you go from 310 up to 50,000, where should that limit be held? If you look at exposure to elemental mercury, what we breathe in the air, we retain about 80 percent of it. It is the kind of mercury that is retained fairly well. It goes through membranes and the central barrier. The placenta usually has higher concentrations of core blood. It goes through the blood brain barrier, also. The question is where should we go to protect human health? If you are breathing 300 nanograms per cubic meter per day during a 40 hour week, I would not have a problem with that. When you get up into the area of 3,000, it now begins to approach concentrations of someone I would assess. When you look at how much air we breathe a day, we go through about 25 cubic meters per day. If you do the calculations of how much we breathe each day and prorate it with how much we work, based on 40 hours per week, maybe 170 hours a month, and measure the concentrations retained, you get about the same amount of mercury the State Health Officer says is a potential problem. Women of childbearing age should not eat that much fish.

We are getting into an area where there is a question. Breathing 1,000 nanograms periodically at a work place is not a big issue. I would say with 90 percent certainty such a concentration would not pose a significant risk to employees. The industry has ways of monitoring mercury in urine, but I think it is better to measure it in the air and keep it below a certain concentration. At some point you have to make a decision. We measured the levels in the parking lot. We were a distance from the process facilities. We measured one day in a high area, which was closer in and the readings were very low. I do

not have the data to make an assessment if there is a health risk, but the concentrations of those two highest places are approaching concentrations where more measurements and assessment is warranted. That is the only point I would make. It is well below being a worker issue for older Caucasians like us, but for those other, very sensitive populations it begins to be an issue. The first thing to do is to get the mercury concentrations measured, and make a determination after that. There are no measurements publicly available for the sites. There should be some level of assessment done. That is the point I would like to make. There have been mercury intoxications at Nevada mines. You can hear from former Assemblyman Bremner where people have become intoxicated enough where they had to see a doctor for mercury poisoning in mines. It may have occurred in cases where they were not wearing respirators.

Basically, I think it is a healthful environment. But at what point do we say assessments are needed? Are we going to wait until we get up to 20,000 or 50,000 nanograms per cubic meter? I don't think that is a good idea. I think we just need to do additional measurements.

Assemblyman Ohrenschall:
The instrument, the RA915+, has been called into question; if it is suitable for these kinds of measurements. Do you know if it is used for monitoring mercury in other parts of the world or in other jurisdictions within the United States, by either scientists or governmental agencies?

Glenn Miller:
It is widely used. I am told by a manufacturer that in the industry in Nevada, it is not uncommon. It is a very common instrument. The issue is whether these measurements being made are publicly available. Should this information be made available and submitted to regulatory agencies to begin to ask questions about those concentrations that are reported very high?

When you go to a site, you sniff around and see how much mercury is in the air. The instrument is really easy to switch on. You put it in your power outlet in your automobile then calibrate it for five to ten minutes when measuring mercury. It is very easy to operate. You are on site and if you have no mercury, there is no problem. If you suddenly start getting large spikes you start to ask, "Do we think mercury is a problem?" We will be able to know what the concentrations are that exist at that site. That is all I'm suggesting. The instrument is not something out of the norm. We selected it because it is well known as the one you choose. It is portable. There are other instruments that have been made portable that are very sensitive. But they are more difficult to operate. The one we use is very specific to detecting mercury because of

the Zeeman Correction, which I will not go into. There are many reasons this instrument or this type of instrument is exactly the one to utilize.

Assemblyman Ohrenschall:
You have heard of industries in Nevada using it. Are there any other governmental agencies in the United States or abroad which use it?

Glenn Miller:
The EPA, which is the regulator of mercury, nationally, commonly uses these.

Assemblyman Carpenter:
The thing that concerns me is you can get these high readings and can go back to the same place and get no reading. I do not understand that. The industry does all this testing. Once a year they use a crane to measure the air from the smoke stack. Have you asked to be able to use the crane to do testing? To measure what is coming out of it to your satisfaction or dislike?

Glenn Miller:
That is called the Ontario Hydro method of measuring mercury. It is very detailed and it is incredibly expensive. There are other methods for doing the same thing that are less expensive which are certified by the EPA, like some of the things Frontier GeoSciences in Seattle has looked at. This is a very relevant issue concerning calibration and comparability of data. They have done fairly extensive comparisons between this Ontario Hydro Method with others. It is a very good method but the other ones are better and less expensive. They use the same kind of general instrument. It is either an atomic fluorescent spectrometer or an atomic absorption spectrometer. Everyone who does mercury studies knows this comparability is critically important. We will get some comparability data on this instrument as it relates to others to provide reassurance that the instrument is fine.

The reason why the ratings are high one day and the low another day was not due to the instrument, it could have been due to wind direction or other reasons. The equipment that produces mercury is not operated all the time, whether it is a retort or a carbon kiln. They turn them off and only operate them at certain times, so the mercury store effectively halts at that point. Part of what could be measured is what happens when you turn one of these pieces of equipment on. How do the mercury concentrations change when you do so? You can only do that if you measure the air concentration because you will not know otherwise. You can measure how much is coming out, perhaps, but you really want to know how much is in the air we are breathing.

Assemblyman Carpenter:
It seems to me the industry does not want to have a hazard out there, but if it was me and I had the concerns you do, you could get with them and go on the tours and do something cooperatively. You said it does not prove anything. Putting something like this in the media is not appropriate. If you went to the industry and got these readings and wanted more testing, then we would have some validity. The way this has been portrayed does not do you any good, does not do me any good and certainly does not do the industry any good. Larson Bill is a member of the Western Shoshone Defense Project and some other groups. He says that he is very concerned about the workers who are working around the mines. What I am more concerned with is the miners and if they could lose their jobs. Then what happens? It is these scare tactics that you, Earth Watch, and Great Basin Mine Watch put out that are troubling. You need more detail other than what you have done. As I said, it does not do you any good, us any good, the industry any good or the EPA any good.

Glenn Miller:
The concentrations were valid, but there does need to be more measurements. That is the point I need to make—more data is needed. It does point out the fact that there are some places where the mercury levels are high. That is why we think this provides some compelling reasons to actually do mercury measurements a lot better. I fully agree that it does not matter if the industry does it, industry consultants do it, or the University does it, as long as it is done and the data is valid.

Vice Chair Hogan:
Are there any other questions from the committee? [There were none.]

Chair Claborn:
Meeting adjourned [at 2:52 p.m.].

RESPECTFULLY SUBMITTED:

_____
Sherrada Fielder
Committee Secretary

_____
Christina van Fosson
Transcribing Secretary

APPROVED BY:

_____
Assemblyman Jerry D. Claborn, Chair

DATE:_____

EXHIBITS

Committee Name: Committee on Natural Resources, Agriculture, and Mining

Date: March 12, 2007 Time of Meeting: 1:32 p.m.

Bill	Exhibit	Witness / Agency	Description
* * *	A	* * * * * * * * * * * * * * * * * *	Agenda
* * *	B	* * * * * * * * * * * * * * * * * *	Sign-In Sheet
A.B. 42	C	Rick Gimlin / State Department of Agriculture	Written Testimony
* * *	D	Glenn C. Miller, Ph.D / College of Agriculture, Biotechnology and Natural Resources, University of Nevada Reno	Mercury Reporting to the NDEP for 2004, March, 2006
* * *	E	Glenn C. Miller, Ph.D. / College of Agriculture, Biotechnology and Natural Resources, University of Nevada Reno	Information on RA-915+ Zeman Mercury Vapor Analyzers
* * *	F	Glenn C. Miller, Ph.D. / College of Agriculture, Biotechnology and Natural Resources, University of Nevada Reno	Mercury Briefing Sheet
* * *	G	Glenn C. Miller, Ph.D. / College of Agriculture, Biotechnology and Natural Resources, University of Nevada Reno	Report: Mercury Air Concentrations in Northern Nevada