

**NEVADA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**

**NEVADA ENVIRONMENTAL COMMISSION**

**HEARING ARCHIVE**

**FOR THE HEARING OF November 7, 1995**

**HELD AT: Winnemucca, Nevada**

**TYPE OF HEARING:**

<b>YES</b>	<b>REGULATORY</b>
	<b>APPEAL</b>
	<b>FIELD TRIP</b>
	<b>ENFORCEMENT</b>
	<b>VARIANCE</b>

**RECORDS CONTAINED IN THIS FILE INCLUDE:**

<b>YES</b>	<b>AGENDA</b>
<b>YES</b>	<b>PUBLIC NOTICE</b>
<b>YES</b>	<b>MINUTES OF THE HEARING</b>
<b>YES</b>	<b>LISTING OF EXHIBITS</b>

# **A G E N D A**

## **NEVADA STATE ENVIRONMENTAL COMMISSION PUBLIC HEARING**

The Nevada State Environmental Commission will conduct a hearing commencing **1:00 p.m., on Tuesday, November 7, 1995** at the **Winnemucca Convention Center - West Hall, 50 West Winnemucca Blvd., Winnemucca, Nevada.**

This agenda has been posted at the Winnemucca Convention Center, Grant Sawyer State Office Building in Las Vegas, Nevada; the Washoe County Library in Reno, Nevada; the Nevada State Library and the Division of Environmental Protection Office in Carson City, Nevada. The Public Notice for this hearing was published on October 6, October 12 and October 24, 1995 in the Las Vegas Review Journal, the Reno Gazette Journal Newspapers, the Humboldt Sun and the Elko Daily Free Press.

The following items will be discussed and acted upon but may be taken in different order to accommodate the interest and time of the persons attending.

**I. Approval of minutes from the October 3, 1995 meeting. \* ACTION**

**II. Regulatory Petitions \* ACTION**

**A. Petition 96003** (R-127-95) is a proposed permanent regulation amending NAC 445A.202 to 445A.208, water quality standards for the Humboldt River. The petition amends or establishes beneficial use standards for temperature, suspended solids, nitrites, un-ionized ammonia, sulfate, escherichia coli and pH. Additionally, it is proposed to revise or establish requirements to maintain higher quality for temperature, pH, total nitrogen and fecal coliform.

**B. Petition 96004** (R-128-95) is a proposed permanent regulation that revises NAC 445A.144, standards for toxic materials applicable to designated waters. The proposed regulation updates the municipal and domestic supply standards with current federal maximum contaminant levels for various metals, including barium, cadmium, chromium, selenium and silver. In addition, it is proposed to delete the aquatic life standard for boron.

**III. Presentation by Chis Reitman of the Division of Agriculture on innovative techniques for water quality testing of pesticides.**

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**IV. Discussion Items**

- A. Legislative Study Committee
- B. Status of Division of Environmental Protection's Programs and Policies
- C. Past and Future Meetings of the Environmental Commission
- D. General Commission or Public Comment

Members of the public who are disabled and require special accommodations or assistance at the meeting are requested to notify the Executive Secretary in writing, Nevada State Environmental Commission, 333 West Nye Lane, Room 128, Carson City, Nevada, 89710, facsimile (702) 687-5856, or by calling (702) 687-4670 extension 3118, no later than **5:00 p.m. November 1, 1995.**

## NEVADA STATE ENVIRONMENTAL COMMISSION NOTICE OF PUBLIC HEARING

The Nevada State Environmental Commission will hold a public hearing beginning **1:00 p.m. on Tuesday, November 7, 1995**, at the **Winnemucca Convention Center - West Hall, 50 West Winnemucca Blvd., Winnemucca, Nevada**.

The purpose of the hearing is to receive comments from all interested persons regarding the adoption, amendment, or repeal of regulations. If no person directly affected by the proposed action appears to request time to make an oral presentation, the State Environmental Commission may proceed immediately to act upon any written submission.

1. **Petition 96003** is a proposed permanent regulation amending NAC 445A.202 to 445A.208, water quality standards for the Humboldt River. The petition amends or establishes beneficial use standards for temperature, suspended solids, nitrites, un-ionized ammonia, sulfate, escherichia coli and pH. Additionally, it is proposed to revise or establish requirements to maintain higher quality for temperature, pH, total nitrogen and fecal coliform.

There will be no anticipated adverse economic impact to businesses in the short or long term. The public should not experience any long or short term economic adverse impact. In addition, there would not be any short term economic benefit, however, the long term benefit to regulated communities could be beneficial. There is no additional cost to the agency for enforcement. There are no other state or government agency regulations which the proposed amendments duplicate. This regulation does not impose a new fee or increase an existing fee.

2. **Petition 96004** is a proposed permanent regulation that revises NAC 445A.144, standards for toxic materials applicable to designated waters. The proposed regulation updates the municipal and domestic supply standards with current federal maximum contaminant levels for various metals, including barium, cadmium, chromium, selenium and silver. In addition, it is proposed to delete the aquatic life standard for boron.

There will be no anticipated adverse economic impact to business in the short or long term. The public should not experience any long or short term economic adverse impact. In addition, there would not be any short term economic benefit, however, the long term benefit to regulated communities could be beneficial. There is no additional cost to the agency for enforcement. There are no other state or government agency regulations which the proposed amendments duplicate. This regulation does not impose a new fee or increase an existing fee.

## Page 2 - Notice of Environmental Commission Hearing for November 7, 1995

Pursuant to NRS 233B.0603(c) the provisions of NRS 233B.064 (2) is hereby provided:

"Upon adoption of any regulation, the agency, if requested to do so by an interested person, either prior to adoption or within 30 days thereafter, shall issue a concise statement of the principal reasons for and against its adoption, and incorporation therein its reason for overruling the consideration urged against its adoption".

Persons wishing to comment upon the proposed regulation changes may appear at the scheduled public hearing or may address their comments, data, views or arguments, in written form, to the Environmental Commission, 333 West Nye Lane, Carson City, Nevada. Written submissions must be received at least 5 days before the scheduled public hearing.

A copy of the regulations to be adopted or amended will be on file at the State Library, 100 Stewart Street, Carson City; the Division of Environmental Protection, 333 West Nye Lane - Room 128, Carson City and at the Division of Environmental Protection, 555 E. Washington - Suite 4300, in Las Vegas, Nevada for inspection by members of the public during business hours. In addition, copies of the regulations and public notice have been deposited at major library branches in each county in Nevada. Listed below are the locations where the public notice and regulations will be available for inspection and copying:

Carson City Library, 900 North Roop Street, Carson City;  
Churchill County Library, 553 South Maine Street, Fallon;  
Las Vegas Library, 833 Las Vegas Blvd. North, Las Vegas;  
Douglas County Library, 1625 Library Lane, Minden;  
Elko County Library, 720 Court Street, Elko;  
Goldfield Public Library, Fourth & Crook Streets, Goldfield;  
Eureka Branch Library, 10190 Monroe Street, Eureka;  
Humboldt County Library, 85 East 5th Street, Winnemucca;  
Battle Mountain Branch Library, 625 Broad Street, Battle Mountain;  
Lincoln County Library, 93 Main Street, Pioche;  
Lyon County Library, 20 Nevin Way, Yerington;  
Mineral County Library, First & A Street, Hawthorne;  
Tonopah Public Library, 171 Central Street, Tonopah;  
Pershing County Library, 1125 Central Avenue, Lovelock;  
Storey County Library, 95 South R Street, Virginia City;  
Washoe County Library, 301 South Center Street, Reno;  
White Pine County Library, 950 Campton Street, Ely.

Additional copies of the regulations to be adopted or amended will be available at the Division of Environmental Protection for inspection and copying by the members of the public during business hours. Copies will also be mailed to members of the public upon request. A reasonable fee may be charged for copies if it is deemed necessary.

**Page 3 - Notice of Environmental Commission Hearing for November 7, 1995**

Members of the public who are disabled and require special accommodations or assistance at the meeting are requested to notify the Executive Secretary in writing, Nevada State Environmental Commission, 333 West Nye Lane, Room 128, Carson City, Nevada, 89701, facsimile (702) 687-5856, or by calling (702) 687-4670 Extension 3118, no later than 5:00 p.m. on November 1, 1995.

This public notice has been posted at the Winnemucca Convention Center, Division of Environmental Protection, Clark County Public Library, Grant Sawyer Office Building, and Clark County Commission Chambers in Las Vegas; the Washoe County Library in Reno; and at the Division of Environmental Protection and State Library in Carson City.

**Meeting of November 7, 1995  
Winnemucca, Nevada  
Adopted Minutes**

**MEMBERS PRESENT:**

Melvin Close, Chairman  
William Molini  
Mark Doppe  
Russell Fields  
Robert Jones  
Marla Griswold  
Michael Turnipseed  
Roy Trenoweth

Jean Mischel - Deputy Attorney General  
David Cowperthwaite - Executive Secretary  
LuElla Rogers - Recording Secretary

**MEMBERS ABSENT:**

Fred Gifford  
Joseph Tangredi  
Paul Iverson

Chairman Close convened the meeting at 1:00 p.m. in the Winnemucca Convention Center West Hall. Chairman Close read the public noticing as defined in the agenda for November 7, 1995.

**Chairman Close moved to Agenda Item I: Approval of minutes from the October 3, 1995 meeting.**

**Commissioner Fields made a motion to approve the minutes as presented. Commissioner Molini seconded the motion. The motion was unanimously approved.**

**Chairman Close moved to Agenda Item II. Regulatory Petitions.**

- A. Petition 96003** (R-127-95) is a proposed permanent regulation amending NAC 445A.202 to 445A.208, water quality standards for the Humboldt River. The petition amends or establishes beneficial use standards for temperature, suspended solids, nitrites, un-ionized ammonia, sulfate, escherichia coli and pH. Additionally, it is proposed to revise or establish requirements to maintain higher quality for temperature, pH, total nitrogen and fecal coliform.

Wendell McCurry, Chief, Bureau of Water Quality Planning introduced Adele Basham and Bill Coughlin from the Bureau. Mr. McCurry stated the last revision to the Humboldt River Standards was made 11 years ago. Workshops regarding the proposed standards were held in Winnemucca, and in Elko. The Bureau also met with the Nevada Mining Association (NMA),

U.S. Fish and Wildlife and the Nevada Division of Wildlife (NDOW) to answer questions and provide information.

Adele Bashman, Supervisor, Water Quality Standards Branch, explained water quality standards are required by federal law to consist of three parts:

- 1) designation of beneficial uses;
- 2) standards to protect the beneficial uses, commonly referred to as beneficial use standards (BUS's);
- 3) antidegradation provision, implemented in Nevada through the establishment of Requirements to Maintain Existing Higher Quality (RMHQ's).

Ms. Basham explained the BUS's are based on national criteria established by EPA and the RMHQ's are based on the 95th percentile of the monitoring data.

Ms. Basham continued:

There are no proposed changes to the locations of the six control points on the Humboldt River. The control points are located near Elko, Palisade, Battle Mountain, Comus, Imlay and Woolsley.

There are two proposed changes to the description of the control points, necessary to more clearly and specifically define the control point and make the designation consistent with our monitoring data.

Section 1, NAC 445A.203, proposes to change the control point definition from Elko to Osino and Section 4, NAC 445A.206, proposes to change the definition of Comus Gage to "where state highway 789 crosses the Humboldt River".

There are no proposed changes to any of the beneficial uses designated for the Humboldt River.

Ms. Basham reviewed the individual proposed changes.

**Temperature:**

Temperature standards are established for the protection of aquatic life. The entire Humboldt River is classified as a warm water fishery. It was assumed that the temperatures that are protective of the most sensitive fish species in each reach would also be protective of other forms of aquatic life. Three major changes are proposed to the temperature standards at all six control points:

- 1) Delete beneficial use standard for temperature of a  $\Delta T$  (Delta T)<sup>1</sup> of 2E
- 2) Delete the existing RMHQ  $\Delta T$  of 0E, add seasons that specifically merit temperature standards.

Ms. Basham explained the reason for this change is, at times there is no flow in the Humboldt

Endnote: <sup>1</sup>  $\Delta T$  means the change in temperature (NAC 445A.132)

River to use as a basis for the  $\Delta T$  standard and the  $\Delta T$  alone does not insure the protection of the beneficial uses. Nevada Division of Environmental Protection (NDEP) requested that DOW identify fish species present in the Humboldt River then NDEP developed the numeric temperature standard based on extensive literature review which resulted in the blessing of NDOW. The rationale for proposing temperature standards is the same for all six reaches.

The Imlay control point has one additional footnote. During the public workshops the question was raised as to whether the walleye inhabit the river from Imlay up to the Comus gage. This concern arose because the walleye have lower temperature requirements during the winter months than the fish upstream. We requested clarification from NDOW on the exact location of the walleye. NDOW determined, based on creel census contact that is documented in the memo from Jim French (Exhibit 9), the walleye actually only go up the river to the point where U.S. Highway 95 crosses the Humboldt River. Therefore, NAC 445A.207 has a footnote which reads "this temperature less than 10E applies from the control point at Imlay to the point where U.S. Highway 95 crosses the Humboldt River, less than 29E applies from the point where U.S. Highway 95 crosses the Humboldt River to the Comus control point."

- 3) To replace the existing footnote which currently reads "maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone" with:

"the maximum allowable temperature increase caused by any discharge is either the absolute value or 10EC above upstream water temperature, whichever is less. In the event of no flow, the absolute values apply."

The existing footnote provided the definition for the existing  $\Delta T$  standard. The proposed footnote addresses the concern that warm-water fish are attracted to warm-water discharges but they can suffer fatal thermal shock if the discharge were to suddenly cease. EPA literature recommends

fish not be subjected to any greater than a 10E lowering of temperature. NDEP does not intend that this footnote would provide a mixing zone of any greater temperature differentials than 10E.

**pH:**

We are proposing to revise the existing Beneficial Use Standard of 7 - 9 to 6.5 - 9 for all reaches. This will be consistent with EPA's most recent water quality criteria.

We are also proposing to change the lower limit of the RMHQ's to 7 while keeping the upper limit based on the 95th percentile, the data. The reason for the change in the lower limit is to allow pH to go down if natural conditions cause it to lower and to eliminate the need for dischargers to raise their pH levels to comply with the RMHQ's.

**Total phosphorus:**

We are proposing to change the nomenclature of this parameter from total phosphates to total phosphorus since all our monitoring data is in the phosphorus form and it is widely recognized the total phosphorus stimulates alpha growth. Ms. Basham continued, based on feedback received at the public workshops we are proposing to revise the annual average to seasonal average for the growing season from April to November. The phosphorus standard is intended to protect the aquatic life beneficial use by protecting growth of plant synthesis in the river. Algae growth is not a huge problem in the Humboldt River and there is no lake at its terminus. The seasonal average will adequately protect the river.

**Nitrogen species:**

Currently, the only nitrogen species for which there is a standard is nitrate, as  $\text{NO}_3^-$ . We are proposing to set single value beneficial uses standards for nitrates, nitrites and un-ionized ammonia. All three of these are based on EPA criteria. We are also proposing to establish RMHQ's for total nitrogen, based on the 95th percentile data.

**Suspended solids:**

It is proposed to change the existing single value Beneficial Use Standard of 80 mpl to an annual median of 80 mpl. The existing standard was derived from recommendations from the National Academy of Sciences for moderate protection of aquatic life. The Academy's recommendation made no distinction for the type of aquatic life to be protected and because of the wide variations and flow conditions on the Humboldt River, which result in wide variations of suspended solids,

and based on the protection of warm water fish presented in EPA documents the change from the single value to the annual median is being proposed. In order to protect against further degradation the maximum allowable concentration of suspended solids in any point source discharge will remain as single value of 80 mpl, as stated in the proposed footnote.

**Sulfate:**

Currently there is no water quality standard for sulfate. Based on recommendations for taste and laxative affects, EPA recommends 250 milligrams per liter in their 1972 Bluebook. This recommendation is repeated in their most recent water quality criteria, the Gold Book.

Analysis for sulfate had not been routinely performed on samples from the Humboldt until 1992. NDEP does not feel there is adequate data to develop an RMHQ at this time. EPA recommended that NDEP consider establishing an RMHQ for sulfate.

**Turbidity:**

It is proposed to eliminate the existing RMHQ for turbidity. The laboratory method used to determine turbidity was changed in 1978 and the turbidity values that were generated by the old procedure were much lower than the values that were produced after the change was made. The existing RMHQ's were established using data generated with the old laboratory procedure.

The data generated using the current laboratory method is not comparable with the older data and that is reflected in the appendix that show the percent violations of the existing RMHQ ranging from 43 to 86 percent.

**Fecal coliform:**

Bacteria of the coliform groups historically have been considered primary indicators of fecal contamination. There are no changes proposed to the BUS's. In general the fecal coliform counts were lower than the existing RMHQ standards due to the removal of waste water discharges to the river. Because of the improved water quality, we are proposing several adjustments to the RMHQ's for fecal coliform.

**E coli:**

The use of the fecal coliform as an indicator of fecal contamination has been faulted because of non-fecal sources have been observed to increase the fecal count. EPA currently recommends the use of E coli and we are proposing the adoption of EPA's criteria.

Chairman Close asked for questions from the Commissioners.

Commissioner Turnipseed requested an explanation of the difference between suspended solids and turbidity and asked if there was a possibility to meet one and not the other. Ms. Basham explained turbidity measures the light reflection and suspended solids is just the material that sinks. Commissioner Turnipseed stated noted he understood the need to have a standard for turbidity or suspended solids but could not see the justification for having both and asked if it is an indication of upstream erosion, over-land flow, or some circumstance that is bringing fine particles into the river. Wendell McCurry explained you could have certain type particles that result in low turbidity but still have high suspended solids. Normally, they track each other. When you see high suspended solids you also see high turbidity.

Commissioner Griswold asked what sort of particles would be present when there is a difference. Adele Basham explained color pigment, like from leaf material, would make turbidity high where you may not actually have that much suspended matter in the water.

Commissioner Fields asked Ms. Basham to explain footnote "a". Ms. Basham explained there are times when the Humboldt River has no measurable flow at the USGS gages. Footnote "a" says that these standards in the table, the actual numbers, will apply in that situation.

Commissioner Fields asked, if you as a discharger are discharging into a no-flow situation, then the numbers in the table apply? Ms. Basham replied yes, in the river. Commissioner Fields asked, how about a tributary to the river? Wendell McCurry explained if it is a dry wash and the discharge is going to reach the river you make sure that discharge is not going to cause a violation of the standards. If it does not reach the river we are looking at net environmental benefit and potential effect on ground water. If you have a dry wash that is 15 miles distant from the river we will look at what the net environmental effect is going to be. Commissioner Molini stated, in essence, the standard for that reach in that season of the year would actually be applied at the point of discharge from a single source discharge. If it was a January - March standard of 29E centigrade, you would apply the standard at the point of discharge. Wendell McCurry agreed.

Commissioner Griswold noted a serious concern. The data on page 9 of the rationale shows that the Osino station, during the period of April - May was in violation 42%. With that kind of

violation at that particular time of year, it is hard to believe the standards can be reached in the future. Ms. Griswold asked what NDEP would do to correct this? Ms. Basham explained, in the table on page 9 you have the same number standards for Osino, Palisade, Battle Mountain and Comus. Notice that downstream you do not have this high percentage of violations. We puzzled over this when we reviewed the data and concluded, and it is talked about in the narrative, that the monitoring is always done in the same order. We start in the morning downstream when it is cool and move upstream. By the time we get to this station it is late in the afternoon and warmer. That is the only explanation we have because it does not seem to reflect what we are seeing other places in the river.

Commissioner Griswold stated, in light of that, this whole temperature proposal is very troubling to me because I can see monumental problems if we aren't able to establish some data that we are confident in.

Chairman Close for additional questions. There were none.

Wendell McCurry summarized comments, pertaining to Petition 96003, received.

Exhibit # 6 - Barrick Mines supports all revisions to the Humboldt River Standards except for sulfates. Barrick recommends deferring action on sulfates until a later date.

Mr. McCurry stated NDEP stands by its recommendation to establish the sulfates standards.

Exhibit # 7 - Independence Mining Company (IMC) opposed setting any sulfate standard with the reason that aesthetics should not be considered. Their justification against the sulfate standard was that supposedly a health effect does not exist, even at 500 ppm. IMC also stated it was in the Blue Book, but no longer listed in the Gold Book.

Mr. McCurry explained it does appear in the Gold Book under solids dissolved, and salinity. The Gold Book still recommends 250 ppm for the standards for domestic water supplies.

Exhibit # 8 - Nevada Mining Association (NMA), objects to any temperature standards applying if the water in a water course is solely discharge water.

Mr. McCurry explained the proposed standards are not very restrictive because of the fish species which NDOW identified as being the most important to protect. The seasonal values are the numbers not to be exceeded if the flow is from a discharge, only river flow, or a combination

of the river and discharge flows. This will be protective of the designated beneficial uses. That standard, which includes the 10E  $\hat{I}$ , cannot be exceeded. The discharges to ephemeral springs will be handled the same as they are now. The basis for applying the 10E centigrade temperature standard from Imlay to the Highway 95 bridge in Winnemucca is to protect the designated beneficial use and walleye is a sensitive species identified by the NDOW (Exhibit 9).

Mr. McCurry continued:

Footnote "a". The footnote is very specific - "the maximum allowable temperature increase caused by any discharge is either the absolute value or 10E centigrade above upstream water temperature, whichever is less". That means that the discharge can cause no more than a 10E increase above the upstream water as long as the absolute temperatures are not violated. It does not mean the mixing zone could be used which exceeded the 10E increase or absolute value and then meet the standard at some point downstream. Those numbers are not to be exceeded in the stream.

Mr. McCurry continued:

Exhibit # 6 - Barrick objects to the proposed sulfate standard.

Exhibit # 7 - IMC objects to the proposed sulfate standard.

Exhibit # 8 - NMA objects to the proposed sulfate standard.

Exhibit # 10 - EPA supports the proposed changes but suggests establishing RMHQ's, specifically for sulfates, or setting a lower beneficial use standard for sulfates.

NDEP disagrees with that at this time. The proposed standard is consistent with the EPA guidelines. EPA supports the approach with suspended solids that we provided in the

footnote that follows this proposed limit. "Any point source discharge is limited to a single value of less than or equal to 80".

Commissioner Griswold asked if NDEP considers irrigation a discharge in relationship to the 10E difference up and down-stream. Mr. McCurry explained irrigation is not considered a point source discharge. As NDEP obtains more data, if the data shows violations of temperatures then we would need to investigate the cause to see if it is something to be addressed through point sources or to address through best management practices relating to non-point sources.

Commissioner Jones noted the sulfate standards across the country seem to be in a state of flux.

The literature presented to the Commission suggests that if you were to use the water for domestic sources it would be fair to put that sulfate standard on it, but that standard on the water in the river may be excessive. How do you respond to that? Wendell McCurry explained the information submitted to the Commission regards EPA's sulfate mandatory standard for drinking water, 500 ppm, and that generated controversy on how it was going to be implemented. EPA's guidance now recommends limits for municipal water supplies or drinking water sources at 250 ppm unless the source of water is not available to provide that quality. Commissioner Jones noted the status of the river at 250 ppm is differentiating from when it is pulled off for domestic use. Is there a reason

to maintain the river at that level if the water is not being used for domestic purposes? Mr. McCurry explained the river is designated for municipal water supply and we want to protect the water quality to meet the beneficial uses.

Commissioner Griswold asked if all the species of fish, listed on page 7 of the handout, presently exist at those locations? Adele Basham explained the fish listed were identified by the Division of Wildlife and she understood they do exist. Commissioner Griswold asked, have those fish historically been known to exist. Commissioner Molini explained most of the fish listed are not native fishes and historically would not have existed in those reaches.

Deputy Attorney General Mischel noted EPA's letter did not limit their comment about RMHQ's to sulfate. EPA suggests there is enough data for other parameters to establish RMHQ's and state law requires that we do that if we have the data when you establish or change beneficial use standards. What is your rationale for not replacing the old RMHQ for turbidity or for adding RMHQ standards for any of the other parameters? Adele Basham replied, for turbidity specifically, we are proposing to delete the existing RMHQ. Our monitoring data does not show that we are meeting our beneficial use standard all of the time, but we are not way below the standard which would be the case where we would establish an RMHQ. Wendell McCurry explained, EPA stated the RMHQ's should be established for all parameters but we feel what we have done is adequate. Ms. Mischel asked if NDEP made a judgement whether the existing water quality is close to the beneficial use standard? Ms. Basham replied yes, and explained if there are violations of beneficial use standards then we don't consider an RMHQ. At the point that

they are close there is some judgement involved. We review existing data, calculate the 95th percentile and see how it works out compared to the beneficial use standard. Ms. Mischel asked if the division had done that for all the parameters. Ms. Basham replied yes, those are all included in the appendix, the rationale. For an existing RMHQ, like for fecal, we are proposing revisions. We look at the percent of violations of the existing RMHQ's and if they are less than 5% we look at adjusting that RMHQ to reflect what seems to be better quality. Ms. Mischel asked if they took into account unusual incidents - what if you have a catastrophic event and that causes a violation of the beneficial use standards, does that cause you not to establish and RMHQ for that parameter? Ms. Basham explained, when we analyze the data we look at extreme flow events and we will eliminate data in general associated with a flow event that is above or below the  $7Q_{10}$  flow. The Humboldt River flow varies extremely on an annual basis and to get a 7 day event with a 10 year recurrence in the flow is pretty extreme on the Humboldt. Data associated with those events is thrown out of the data base.

Wendell McCurry explained, we don't propose RMHQ's for temperature or dissolved oxygen and in this case, we see no reason for proposing it for phosphorus and suspended solids. There is no point having it with the kind of standards that we came up with for this River and we did not feel there was enough data to establish it for sulfates. We decided to do away with turbidity, and in E coli there is no information to really generate an RMHQ. EPA was not specific in that comment but they felt sulfates should be addressed. Commissioner Molini noted NDEP indicated you have some data on sulfates, you have one value over 100 mpl with the majority below 75 mpl, but you still do not feel comfortable with the data base at the RMHQ level. The Mining Industry comments read that essentially even the 250 mpl is for aesthetic purposes because there is no health risk involved, but the reason you are not doing an RMHQ is because you do not think you have a sufficient data base? Ms. Basham explained all the available data was collected during the drought period so we do not have different flow data.

Chairman Close called upon Jack Boyd.

Jack Boyd, Boyd Ranch, stated the proposed beneficial use standards for temperature caught his attention because, according to your information, over the past several years the standards in April -May would have been violated 42% of the time and the June - October standard would

have been violated 20% of the time. I don't agree that is simply an upstream phenomena because I see the Palisade gage, June - October standard, would have been violated 14% of the time; the standard at Comus was violated 11% of the time in April - May; violated 18% of the time in January - March; and violated 15% of the time in June - October. These are very substantial violations. I wonder what would be the point in setting a standard that is already violated. You are really going to have to hunt for the cause. I understand you are only taking 4 samples a year (quarterly). It has been stated, and I understand that it is the policy the environmental protection people do recognize, there is a very close relationship between flow and water quality. Natural conditions may, on occasion, be outside the limits established by the standards so they are not considered violated if the natural condition or extreme flows exist. This is an appropriate approach but it doesn't work for temperature. I don't have NDEP's data but I did check the water supply records of the USGS. They have good data for Carlin so I used the past ten years and what I plotted water temperature against air temperature. I used the degradation technique to estimate a coefficient of determination, which is the square of the correlation coefficient. This turns out to be, for air temperature and water temperature, about .84 for the data I used for the Carlin gage. This is not a real hard correlation but it is very significant and it has a direct interpretation with that coefficient of determination. It means about 85% of the observed variation in water temperature can be attributed to the variation in air temperature and 15% would be due to other causes, presumably flow, maybe a hot springs contributing upstream or channel configuration or over-bank flooding might spread the flow out. Obviously, the most important consideration is air temperature. Mr. Boyd continued, I believe if you are going to set standards like this for temperature you should analyze the air temperature in the same way that you are analyzing the flow data. In other words, analyze statistically and come up with extremes that if the air temperature reaches these certain extremes any violations that they cause in the water temperature should not be considered violations because it is just a natural event and you are not going to do a lot about the air temperature. I think these standards should not be established until such time as you can get a data base for air temperature at these various sampling points so that you would have a basis for determining whether or not natural conditions, specifically air temperature, causes any violations in the water temperature. I had

data from the 70's but I have not seen any later data. I think it is premature to place a standard like this. I also did a similar regression using the water temperature and flow and there is virtually zero correlation. Even if you use just April - May data, you are still going to come up with a correlation that is practically zero.

Commissioner Turnipseed asked Mr. Boyd if, when he did his regression, did he take the mean daily temperature? Mr. Boyd replied that he took the temperature the ES temperature measured at a certain time but I did not take the mean daily air temperature, it was at that time also.

Commissioner Griswold asked Ms. Basham, in relation to Mr. Boyd's comment, if NDEP used any of the data available on air temperature from the State Climatologist office. Ms. Basham replied no. Mr. Boyd stated they should take the air temperature when they take the water temperature, air temperature is the fact that influences water temperature the most.

Chairman Close called upon Glenn Miller.

Glenn Miller, Reno, representing the Sierra Club, and a professor in the Department of Environmental Resource Sciences at the University of Nevada, Reno, explained he has a Ph.D. in Agricultural & Environmental Chemistry, University of California, Davis and that he is not speaking for the University. For the record, he is on leave today. Dr. Miller explained he has had a long association with environmental organizations in Nevada, particularly Sierra Club, and he has been active on mining related issues.

Dr. Miller distributed uncorrected comments (Exhibit 11) and asked the Commission if he could make a correction, because he had misinterpreted one set of data, and submit the corrected set of comments as part of the official record. Chairman Close asked if he would be distributing a substitute page. Dr. Miller noted that it would be an entire revision of his comments but he would explain the misinterpretation in his testimony. Chairman Close explained that would be acceptable as long as Dr. Miller understood the Commission would be making a decision today and his revised remarks might not have a lot of influence. Dr. Miller noted that he felt it important to have his corrected comments in the record.

Dr. Miller stated, regarding Petition 96003, I believe the water quality standards, particularly for temperature, represent significant decrease and relaxation of water quality standards. I also suggest these standards are being relaxed to allow discharge of large volumes of water into the

Humboldt River primarily from one mine at present, but also from several other mines in the near future. There are estimates that flows of the Humboldt River are going to double, over historic averages, over the next 5 - 15 years. Estimates that flows in certain points of the river, instead of being 200,000 acre feet per year, will be 400,000 acre feet per year. Increase will be as much as 200,000 acre feet per year, although that estimate is really in question, 200,000 acre feet per year is not outside the realm of possibility and it may be higher. The discharge issues in this particular River are unprecedented for anything the Commission has ever done because this is not a single discharge that is diluted by a large volume of water and it is very important to look at this fundamental quantitative difference between these kinds of discharges and discharges you would get from normal industry or a municipality.

Dr. Miller stated these revisions have been available for less than three weeks and have not allowed the public sufficient time for review of this very major action. In addition, the data used to base these changes is lacking and it remains unclear how the river will be affected over the next two decades by these changes. It is becoming increasingly apparent that the changes in the Humboldt River ecosystem will be very large and because of the potential magnitude of the impacts on the Humboldt River due to these changes, it is prudent to delay the changes until such time as adequate information and additional biological information can be provided.

Dr. Miller noted the largest issue is the temperature. At present, the temperature of the Humboldt is largely unaffected by discharge into the River. The only requirement of temperature in the River is that any discharge cannot alter the temperature in the River by more than 2EC from upstream to downstream. Based on the 1994 Water Quality Regulations, no river system in Nevada can have a discharge which changes the temperature by more than 2EC across the board. I reviewed the yellow book and found no instance where any other water system in the State of Nevada was allowed to have a temperature change of greater than 2E for any single discharge. These are non-agricultural, but for any single discharge there is no other place that a more than 2E temperature change has been allowed, there is one I saw that is 1E. The proposed changes in the Humboldt River will allow temperature differences of up to 10E. This is unprecedented in Nevada and almost certainly would represent a thermal shock to any species migrating up or down the River.

At present, Lone Tree Mine is reportedly discharging water with a temperature of between 20-30EC and temperature is increasing as the dewatering depth is lowered. We suggest the water quality standards are being proposed so that this mine and others can continue to discharge water. This discharge, if allowed to continue under the proposed regulations, is likely to have a dramatic thermal affect on the River. As of last spring, Lone Tree Mine is discharging somewhere between 20,000 - 35,000 gallons per minute into the River. That is equivalent to 44 - 78 cubic feet per second. A proposed permit to discharge 75,000 gallons per minute (167 cubic feet per second) has been submitted for this mine. Based on historic flows past Comus, this flow constitutes the major flow in the River in November for at least 9 of the past 20 years. In many years, the flow effectively stops during November. When no water is flowing in the River, the temperature of the discharged water between November and December can be up to 29EC. In November, the ecosystem of the Humboldt reflects the temperature of the water and is much less active than when the temperature is high. What you have is an ecosystem that evolves around the temperature difference that relates to the water flowing down the Humboldt River. In most years the November and December temperature in this stretch of the River is less than 8EC. If the temperature of the Humboldt River is allowed to increase to 29EC, it is likely to affect the life-cycles of the entire food chain of the River. Adult bass can survive this temperature but there are organisms that live and grow based on temperature regimes, when it is cold outside it is cold in the river and when it is warm outside it is warm in the river. In the rational for the proposed changes a statement is made to the effect that "it was assumed that temperatures that are protective of selected fish species in each reach would also be protective of other forms of aquatic life" (page 6). No supporting documentation was provided for this statement which is almost certainly incorrect. Temperature of water affects the life-cycle of nearly every species. Adult bass can probably stand 29EC but the macroinvertebrates which will hatch at those temperatures will then be exposed to freezing air and probably die and there is some evidence that happened this last year. I have a letter from Mr. Robin Gray, a respected Entomologist in Humboldt County. He has been counting black flies for years and he has noted a large reduction in this pest species during the past 4 years, particularly in the winter of 1994-95. This may be due to sulfide releases from the Lone Tree Mine, that is a possibility - not proven, but it may also

be due to thermal effects. At present, the exact reason is unknown but Mr. Gray's letter provides data that problems exist in the Humboldt River below the mine, which did not exist in tributaries to the River. From a biological perspective, it makes no sense to base water quality standards on a single species, particularly if that species (walleye, for example) is introduced from a climate substantially different than Nevada's. Bass, bullheads and bluegill also are not native. They may be able to handle these temperatures during their life-cycles but many, if not all, of the remaining Nevada species may be severely affected. If you allow this to happen you will be protecting introduced species from other parts of the country, at least from a temperature perspective, while most of the rest of the ecosystem is changed dramatically.

Organisms can survive in geothermal systems that are hot, such as Yellowstone National Park. I don't think anybody is going to suggest that kind of ecosystem is going to be transported to Nevada but the temperatures of water coming out of some of these mines are very large and can substantially affect the species.

Dr. Miller continued, the present temperatures in the River are substantially lower between November - March than in the proposed regulations. One of the problems I had was assuming a different way that the temperatures were being regulated, for example from Comus to Imlay, was set on the Comus standards but in fact, it is the Imlay standard that moved back up so there are differences that I would like to correct. Basically, the temperature at Osino and Comus indicates the highest temperature recorded from November - March is 8EC, although the average is between 2-4EC. To allow this temperature to rise between 10EC - 29EC represents a substantial reduction in water quality since the standards proposed in every case where temperatures are listed for water quality are discussed as "less than" numbers. This directly implies that the lower temperatures are desired for water quality protection. To allow this discharge to dramatically change the temperature of the water represents a substantial degradation of the water quality in the Humboldt River. Every other stream in Nevada which employs water temperature standards has winter maximum temperatures lower than summer - this is the exact opposite of the case for Comus and above in the Humboldt. This includes the Truckee, Carson, Owyhee, Colorado and Walker Rivers. Even the Virgin River at Mesquite, which has a very high temperature, November - January temperature is less than 21EC. What you would be allowing by this

regulation is a temperature higher above Comus than is allowed at Mesquite. It is also inappropriate to set a water quality standard in a single species. There needs to be a lot of biological study to understand how this ecosystem is going to be maintained. Some temperature changes can be allowed but the temperature changes that are permitted under this proposed regulation are contrary to what we want to do to protect water quality. It makes sense to use standards similar to what exists for the Walker or Carson Rivers which will allow some increase in temperature and the 2E temperature change from upstream to downstream is critical, because that would probably solve the entire problem. Allowing a 10E temperature change from a single discharger is highly inappropriate and cannot be justified by any reasonable biological standards and should be the same for every other surface water in Nevada. Dr. Miller stated, I consider this the major issue. It will fundamentally change the ecosystem of the Humboldt River. If there is water coming in at Carlin, water coming in out of Boulder Basin and water coming in at Comus the ecosystem along the Humboldt River is likely to undergo a substantial change during this dewatering period. There are other options. There is technology that will allow these temperatures to be decreased and I think the Commission needs to force the dischargers to comply with this plus or minus 2E difference.

Dr. Miller stated the change to pH is reasonable. In this case the pH change due to a single discharge is kept to plus or minus 0.5 pH unit.

The change from total phosphates is appropriate. However, if the temperature is allowed to increase to the temperatures projected (and likely during dewatering) it is not appropriate to only have a seasonal standard, since algae will grow very well in January, February and March if the water is warm. Thus, the standard should be retained for the entire year, particularly if the temperature is allowed to increase as proposed. If you retain the 2E change it is reasonable. Sulfate is a clear representative of ore that is now being extracted in the sulfide ore bodies. Sulfate is a substantial problem, in places it is a predictor of acid mine drainage in some cases, but not always, sulfate is going to come off mine waste rock and mine heap material and other sources from a mine, disturbed areas. The sulfate standard is important, for no other reason than it retains a TDS concentration in the River. The annual TDS average is 500 mg/liter at Imlay. That is now being violated. I would have to look at the data, but if you relax the sulfate standard

and have no sulfate standard at all there is a very good possibility that sulfate will increase dramatically in the River and although the standard at that point may not be exceeded when you get down to Imlay, and boron is the same issue because the Humboldt River is a losing stream. There is a lot of water lost by evapotranspiration so the concentration of all these contaminants goes up as you move further down-river and sulfate at 250 mgl at Carlin may turn into a higher concentration at Imlay and 250 mgl at Carlin plus 250 mgl from Boulder Basin plus another amount from somewhere else can turn into a very high concentration resulting in agricultural problems. The water quality that finally makes it to Lovelock agriculture is reasonably good water but the salinity of this issue, which is the single over-riding factor of maintaining soil quality, is going to be substantially affected if there is no sulfate standard at all. Both the boron standard and the total dissolved salt is going to have a significant affect on agriculture requiring more water to wash out those salts. You can wash out salts, it just requires more water. Once mining is done is when the hit is going to come. Lots of water will be flowing down the river, farmers will have a lot of water to wash out the salts but when those mine pumps turn off and all that water returns to fill in those great holes and those depths it has created, there will be less water downstream and farmers are going to find themselves very heavily laden with salts. Less water and more salt and that is an issue that should be looked at. This 250 ppm sulfate standard is a minimum standard and I think this higher standard, "to maintain existing water quality" is reasonable because it is going to have an affect on the long-standing economy that is going to be here 100 years from now. I think that is something the Commission should look at very carefully.

Commissioner Turnipseed agreed that the Humboldt is a losing stream going downstream and asked Dr. Miller to explain how the flow would decrease but the sulfate would increase. Dr. Miller replied, just evaporative loss of water. I am not sure what the source of these are but you are going to have some concentration effects of vegetation just taking up waters evaporating from the stream. You are going to have losing water there that is going to concentrate the salts. If you look at water quality at Palisade or Comus and then look at water quality at Imlay or Rye Patch, the total dissolved solids goes up significantly. It is approaching a problem for salinity for agriculture. Alfalfa handles salinity quite well but there is a point at which you begin to lose

productivity of that land and need to have more water to wash out the salts. That is a significant issue that has not been addressed here.

Commissioner Fields noted the basic premise, the flow of the Humboldt River, could effectively double and asked Dr. Miller for the source of that information. Dr. Miller explained his major study in the Humboldt River Basin is going at glacial speed but right now, Lone Tree has an application in for 75,000 gallons per minute pumping. If you assume Lone Tree pumps 60,000 - 70,000 gpm that translates to about 100,000 acre feet per year. Add Newmont, who will be pumping from 40,000 - 50,000 gpm, that adds another 60,000 or 70,000 acre feet. Then, depending on what happens with American Barrick - Newmont Post Pit - whether that water is going to overflow into the Humboldt River (Newmont thinks it is) that may add another 10,000 acre feet of water. It is not at all hard to come up to 200,000 acre feet of water which will double the flow of the Humboldt River and that is why these standards in the Humboldt River are so fundamentally different than what has been proposed by anything to date. It has never been done, anywhere in the world. There has never been an ecosystem of this type that has experienced this degree of pumping and I think the Commission needs to very carefully consider that and I think they should look at some other options.

Commissioner Fields noted that Commissioner Turnipseed, as State Engineer, has tried to maintain a system for dewatering these mines that 1) requires use at the mines but make up water, etc.

2) to offset other beneficial uses but you want to put it back into the basin from which it came.

Commissioner Turnipseed agreed, the first priority is to get it back into the ground. The second priority would be to substitute for some other beneficial use. Commissioner Fields noted the State Engineer went through a lot of work, as did the company, in this decision on Lone Tree and maybe that is kind of a special case - Dr. Miller interjected, I am not making these numbers up, Newmont is projecting to put 550,000 acre feet of water into the River over a period of their 10 years of mining - over 1/2 million acre feet. I don't know what has happened to that permit application, but that is 75,000 gpm which translates to 100,000 acre feet per year for how many years? There are other Newmont properties that are potentially going to be dewatering plus Boulder Basin - I am sure the State Engineer has a much better handle on that - but it got within

100 feet of flowing into Boulder Creek this last spring. Newmont is very concerned about that and about Clean Water Act violations because of the boron and arsenic standards that they will have to meet. Newmont does not want to be accused of having a reservoir that leaks water that flows into Boulder Creek and they are almost certain that there is going to be discharge into Boulder Creek from the American Barrick properties. Although they may be dewatering for 10 years, there is only so much water that basin can stand. The numbers are easy to come up, 150,000 - 200,000 acre feet of water is probably a ballpark estimate. It is going to have a big affect on agriculture, probably as much as 20% of Lovelock agriculture is going to have to shut down, for a variety of reasons, most having to do with water quality.

Chairman Close called upon Rich Haddock.

Rich Haddock, Assistant General Counsel for Santa Fe Pacific Gold Corporation and the Chairman of the Water Resources Subcommittee of the Environmental Committee of the Nevada Mining Association, responded to the issue raised by Dr. Miller with respect to the temperature standards. We believe that the temperature standards as proposed are an appropriate way to go about addressing temperatures in the Humboldt River. Our statute specifically requires that the water quality standards must reflect water quality criteria which define the conditions necessary to support, protect, and allow the propagation of fish, shellfish and other wildlife, and to provide for recreation in and on the water if these objectives are reasonably attainable. We believe what the Bureau has done, identifying specific species that do actually exist in the Humboldt River and tying water temperature standards to those species, is an appropriate approach as opposed to just taking the hypothetical position that if the temperature is different than what it was before everything is going to die. Our main comment in respect to temperature relates to the ephemeral drainage's. Our position there is that, in some instances some of the mines will discharge relatively small amounts of water to ephemeral drainage's that are located far from the Humboldt River. These waters don't flow into the Humboldt River, under ordinary circumstances, and these ephemeral drainage's are drainage's where the actual runoff from those drainage's is in direct response to precipitation events. There are no aquatic communities in those particular drainage's to be affected and as Mr. McCurry indicated, it has been the Bureau of Water Pollution Control's position not to worry about temperature discharges to those ephemeral drainage's in the past.

However, in the past, the language of the regulations was such that it was a 12E standard, and when there is no water upstream then there is no 12E to apply. We feel the standards need to reflect that these will not apply to ephemeral drainage's and we don't believe the regulations, as presently written, make that clear. We agree with the Bureau that is an appropriate approach to the ephemeral drainage's.

Mr. Haddock continued, we believe, during periods of no-flow in the Humboldt River, that 12E again, does not apply. But for those discharges there wouldn't be an aquatic community in that reach of the River. Water in the River at that time of year is of benefit to the aquatic communities, they could not otherwise exist at that point in time. Commissioner Turnipseed can confirm there are long periods of no-flow in this River system, especially in the lower reaches of the River, and during those periods of time we don't believe it is appropriate to apply the absolute temperature standards.

Our next temperature issue relates to the standard that is established to protect walleye spawning. Our concern there is really two-fold: 1) We do not know where walleye do and do not spawn in the Humboldt River. When this proposal was first made to apply temperature standards for walleye as far up as the Comus gage, we made a request of the Bureau of Water Quality Planning and the Division of Wildlife for data so we could review and evaluate what that really meant. The only indication we were able to receive were comments made by Mr. Jim French of NDOW in response to the BLM on Lone Tree EIS (Environmental Impact Study) which has not yet been published. Mr. French's comment was that walleye don't generally go upstream from Mill City. Based on that information alone, we asked that the standard be moved down a little farther to Mill City.

Our next comment is more substantive, with respect to temperature. The temperature that has been proposed for that lower stretch of the River would apply from January - April. According to the data, during that period of time, that stretch of the Humboldt River violates the temperature standard of 10E 18% of the time. It is not clear how much of the time in April it violates the 10E standard but in the period from April - May it violates the 20E standard 25% of the time. It appears if the walleye are spawning in that reach of the River they are doing it in warmer temperatures than 10EC and we think there needs to be more attention paid as to what

temperature is really relevant to the walleye in that stretch of the River. As we understand it the temperatures are taken starting early in the day at the bottom part of the River, moving up the River and the River gets warmer during the day. If that is the case these temperature standards that already violate the standard a fair amount of the time are probably violating it even more if you were to take the temperature in the afternoon.

Regarding the mixing zone, I understand the proposal is that the allowance for a mixing zone which was in the previous water quality standards be deleted. We would urge against that. Our regulations allow for mixing zones and mixing zones have been commonly applied even to the 12E celsius. Our regulations allow mixing zones, even with respect to toxic's and we don't see any reason why it should not also apply to temperature as long as it is an appropriate approved mixing zone. We suggest the language in our comments be included to indicate that the mixing zone concept would still apply. If it is proposed the mixing zone provisions are to be deleted, I don't think there is adequate notice of that particular aspect of this particularly in light of the fact there is no reference to the mixing zone provisions of the regulations in the notices.

Mr. Haddock concluded, our only other comment relates to sulfate. Our position is pretty simple. Based on the rationale document part of the reason that 250 mg/l standard was suggested was because of laxative effects. At this point in time, EPA has a proposed rule-making out that indicates there are no laxative effects at levels below 500 mg/l. That rule-making has become quite contentious in-as-much that EPA has documentation that was generated by its own studies that indicate there are no laxative effects at levels up to approximately 1200. Our position is that while that rule-making is going on we should not be imposing a standard that is approximately one-half of that proposed by EPA.

Chairman Close asked for questions.

There were no questions.

Chairman Close asked for additional comments on Petition 96003.

There were no additional comments.

Chairman Close requested Wendell McCurry to respond to the comments made.

Wendell McCurry addressed Mr. Boyd's concerns regarding setting standards based on correlation with the air temperature data. The Bureau does not feel that an appropriate way to set

the standards. The standards should be set to protect the beneficial uses, if later on through the process proves that a standard is not attainable, then you do away with that beneficial use. Right now, the proper procedure is to protect that beneficial use. Chairman Close asked if the Bureau had tried at all to correlate ambient temperature with water temperature noting there has to be some relationship. Mr. McCurry replied, we have not. I expect there would be a correlation but again, it depends on the flow in the River as to what that correlation would be. If you have a high-flow in the River the correlation between the ambient temperature and water temperature would not be as strong as when you have low-flow in the River. Chairman Close asked, if you have a 42% violation, as appears in the Osino reach, what are you going to do to obtain the goal of 0% violations? If nothing is happening to cause the violation and your goal is to reach 0% violation, what is the purpose of having a temperature standard that may be violated 42% of the time just because of nature. Mr. McCurry explained, although 42% of our data showed a violation, based on NDOW information the fish are there, but they may not be reproducing and growing as much as they would if it was a more optimum temperature. Commissioner Turnipseed asked how the number 20EC was chosen - in that reach of the River that is the coldest time of the year, whereas at Imlay, January to March is the coldest time of the year. Mr. McCurry explained the number was chosen based on the most critical fish. Adele Basham noted page 8 of the rationale identifies the fish that were the most sensitive for that time of year. Commissioner Molini stated, more clearly than ever, the dilemma comes into focus for me. We look at the fish, and indeed they are fish exotic to the Humboldt system, if we would go back historically we would have cutthroat trout which would require more stringent standards in terms of temperature than these warm water species. We heard Mr. Boyd's concerns that the standards proposed are too stringent and Dr. Miller is concerned that they are far too lax. The question I have is with the old  $\hat{T}$  of 2E, how would you measure that and how would you know if a single source discharger to the River is violating that? Did you employ a mixing zone criteria and at some length down the river from the point of discharge measure to see if there was a 2E change in the temperature? Did you do that at a standard time of day and how far down the River did you go? This mixing zone seems to be an issue as well. Wendell McCurry replied the mixing zones vary -several of the dischargers in Reno are a matter of yards, one of them is 3,200 feet as

a mixing zone. Commissioner Molini asked, did we actually declare in the standards a mixing zone, was the mixing zone concept a part of the footnote or is that just an administrative measure along the Truckee River? Wendell McCurry stated the regulations provide for allowing mixing zones and spell out what has to be done in terms of providing for passage of the fish but it is general in terms of what can or cannot be done. Within the mixing zone you cannot exceed the toxic limit for whatever parameter you are talking about and in the periphery of the mixing zone you have to meet the beneficial use number so it allows a finite mixing zone. A  $\hat{I}$  of 2E took that concept into play. What we have proposed here is allowing something really more lax than that. The discharge could raise it by 10E as long as it does not violate this absolute number. But, you can't put it in there and raise it 30E and then meet the 10E two miles down-stream. It is not talking about writing off a section of the River.

Commissioner Molini asked how Mr. McCurry to comments from Dr. Miller that said the  $\hat{I}$  of 2E makes a lot more sense on a seasonal basis when if in the winter period you are going to allow the absolute number of 29E Celsius. You are going to have a warmer River than you would under natural conditions. Also Mr. Haddock from Lone Tree pointed out if you have no-flow in the River,  $\hat{I}$  is meaningless so having a big concern about temperature at discharge with no-flow, I don't know if we care, if there is no-flow. But, when you have flow in the winter period, Dr. Miller's comments are probably accurate for macroinvertebrates in terms of having a warm River and a cold outside temperature. Have you looked at that and is he correct that we have not ever applied this kind of temperature criteria to other stream systems in the State of Nevada?

Wendell McCurry replied, we have not. This is the first time for this concept. It is true if in the winter the temperature is 5E in the River and you raise the temperature, by a discharge, to 15E it would still be less than the maximum 29E. That is a big difference from what is in the River. The concept we came up with is just the fact that you raise temperature is not necessarily degradation of the River or harm to something. We came up with a temperature to protect what we felt was the most sensitive species with the idea that if we are protecting that species we should be protecting everything else but there may be some fallacy in that. Adele Basham explained part of the reason they make the assumption "if we are protecting the fish we are protecting everything else" is that literature for actually specifying numbers is unavailable for other species but there

is a paramount of literature for fish.

Wendell McCurry continued, in terms of Dr. Miller's comments, the majority of his comments has nothing to do with the subject at hand today. He talks about mining water and that is not what we are here to talk about, we are talking about the water quality standards. As to his charge that we are just changing the standards to allow mine dischargers, that is not true. The standards are being changed to address the latest science and evaluation but not necessarily to allow mine discharge. If it results in the mines being allowed to discharge something different than under existing standards, so be it, as long as we are protecting the beneficial uses. However, these changes will accommodate some city's problem in terms of handling their effluent during the winter. They generate so much effluent they can't handle it. They are not discharging to the River now, they are going to land application. Elko does not have any more pockets to put their effluent in so they are faced with the potential problem of having to discharge to the River for a short period of time during the winter months for a year or two. That is one of the options they are looking at and what we have proposed will accommodate that. Again, we feel what we have proposed we feel is protecting the beneficial uses, otherwise we would not be proposing it.

Mr. McCurry continued to address concerns. Regarding the short time for review, I feel we have been dragging this along longer than normal for people to review and could have input. NDEP appreciates all the input we received from the mining industry, NMA, NDOW, and U.S. Fish and Wildlife. All notices specified that we were proposing changes to the temperature and that is all wrapped into this concept of whether you have a  $\hat{1}$  of 2 or 10 or however it is applied.

Mr. McCurry noted he had addressed Mr. Haddock's comments, especially with respect to ephemeral drainage. We intend to continue handling ephemeral drainage's as stated.

The mixing zone is to allow a 10E discharge not to exceed the absolute value so if we put in a mixing zone this can mean that you could raise it up to 30E to 40E as long as you met the standards at some point down-stream.

Commissioner Molini asked, for clarification, please reiterate how you are going to handle ephemeral stream discharge. As an example, if Barrick discharges into Boulder Creek or Rock Creek and it does not reach the River, are those drainage's considered waters of the United States?

Mr. McCurry replied, yes, those do and some of those streams have standards. In regard to ephemeral stream discharge, if some of them have a dry wash and they discharge into that wash, if the flow is not large enough to push it to the River so you are not getting flows to the River, we are concerned about potential affects on ground water and what kind of net beneficial aspect we are going to get out of that discharge, not looking at sticking a number of 20E or whatever that is in the River standard onto that discharge. If the discharge goes to the River, whether it is temperature or whatever, we are looking at the potential affect on the River so it does not violate the standards. Commissioner Molini asked, if it were an ephemeral drainage, it does not have standards and you are not concerned about it reaching the River, therefore temperature is not a major concern but how about heavy metals and other toxic's, would you look at that relative to permitting a discharge to protect ground water? Wendell McCurry replied the Division would look at that because the toxic standards apply also.

Commissioner Turnipseed commented 42% is high for the Humboldt River at Osino, but the Humboldt River at Imlay has substantial violations for ten out of twelve months. You already have the temperature data. Under antidegradation philosophy, if they raise the standard to where they were getting 95% compliance now, and the bullheads and walleye are there and the walleye are spawning, wouldn't that make more sense? You have the data and you know what number you could meet 95% of the time, so you have met that goal of the 95 percentile, and we know the fish are there today so that ought to be the standard.

Commissioner Molini stated that seemed rational.

Commissioner Jones stated, if there are no discharges going in that are going to be changed to affect that, basically you are building a violation in perpetuity.

Commissioner Griswold exclaimed, right! We are working with an impossible situation. Look at the amount of violation over the last ten years. Unless we have a drastic climatic change we are going to be looking at data that is more frightening the next time we review this.

Wendell McCurry stated when you don't have point sources affecting it then other things come into play, such as the riparian habitat along the streams. What is there in terms of shading or the shape the streams in terms of wide, flat channels or deeper channels. The improvement of the riparian habitat on the Truckee River is already showing lower water temperatures.

Commissioner Griswold asked if the improvements were being done on private property or public lands? Wendell McCurry replied, on public lands but we do have some private land.

Commissioner Turnipseed noted the cottonwood trees planted this spring are all up.

Commissioner Griswold asked if measures had been taken to force private property owners to improve their land. Wendell McCurry replied the work was being done on a voluntary basis.

The Bureau handles the non-point source grants from EPA to fund projects around the area. We are funding the Pine Creek Project now which will result in improving the habitat and erosion run-off. Commissioner Jones asked Mr. McCurry if he was suggesting there are reclamation projects that could be done to bring that more into conformity or are there plans to do that?

Wendell McCurry replied it is a possibility because that is the problem throughout the State. We have erosion, sediment, temperature problems because of the barren river banks. Big improvements have been made on the Pyramid Lake Reservation because they have money to contribute also. We are on the second big fencing project. They are excluding the livestock from the stream, providing off-stream water and are managing their cattle better because water is provided for the cattle away from the river. Commissioner Griswold stated one other factor of a stream that floods quite often destroys its own bank cover.

Commissioner Turnipseed noted wide swings during the April - May time period. The peak of the Humboldt River does not even hit the lower River until after May but there are huge variations in flow and that is for the snow-melt period so the temperature standard is likely to be violated because you are going to have times when the peak flow of the Humboldt varies 400 - 4,000 second feet, a ten-fold increase in flow. There is going to be wide swings in the snow-melt period in April and May, but when you are violating it 10 months out of 12 months and the only reason you haven't violated for November - December is because the standard is set at 20EC where January - March is 10EC it seems to me like you would need to set the standard a little higher to get to compliance. Wendell McCurry explained the Bureau's approach is opposite of that. We set the standards to protect the beneficial use, not to achieve compliance.

Commissioner Turnipseed noted he knew that, the fish are there and the fish are surviving in spite of these standards and the % violations. Obviously the water is colder than 28E in November - December, even at the bottom end of the River. We can see why there is 0 %

violation there and the fish are surviving in temperatures that are higher than 10E and 20E and 24E, if that is what the beneficial use is. The walleye spawn, walleye develop and catfish incubate - if that is what you are trying to protect then we ought to set the standard for a habitat that they can continue to occupy.

Commissioner Molini asked, hasn't that really been the value of a  $\pm$  standard because then the River does what nature does with it - you measure the standard so that there won't be a change, in this case, of more than 2E for a point of discharge so you don't have this exact numerical standard because the River varies so much in nature itself but now you can control a discharger with this  $\pm$ . I understand that it has caused problems for a discharge from a wastewater treatment plant. Adele Basham explained it is difficult to put a permit limit on a discharger with only a  $\pm$  because they are trying to hit a moving target. They go out and measure the temperature on any given day, upstream and downstream, and if they are within a  $\pm$  of 2 then they are in compliance but if they are out of compliance it is difficult for them to design facilities to meet that. What are they shooting for? What is the upstream temperature going to be?

Commissioner Fields noted the last time standards were set for the Humboldt River was 11 years ago. We are obviously going into a time when we are going to see some change. Everything we have heard today says that the next 10 - 15 years will be a period of many changes that will potentially affect this River. Does the Bureau plan to revisit this set of water quality standards on a more frequent basis as we go through these changes? Wendell McCurry explained we are supposed to do it every three years. Commissioner Fields noted it was difficult for the Commission to adopt something that may be, or may not be, right. There are many variables. The real data, as Mr. Boyd suggested, is what we really need to make this decision.

Commissioner Jones recalled Dr. Miller's comments about some major occurrences - are we going to trigger a revisit to this based on time or would you automatically revisit it if something like a large discharge were to start in the River that would trigger an immediate look at the standards? Should we look at that criteria to make these changes versus time sequences.

Wendell McCurry replied that he would not expect a major discharge to result in the need for re-looking at the standards but he could see a major discharge improving the fishery because we are going to have considerable sustained flows compared to what is in the River now.

Commissioner Jones recalled Dr. Miller's comment, there are things other than fish in the ecosystem that we have to be concerned with. Wendell McCurry stated if we are going to have sustained flows and cooler water in the River, we may wind up with trout back in the system that we have to protect.

Chairman Close noted originally, a 2% variation in temperature was allowed and asked why the jump to the greater variation for the Humboldt River and what is the motivation for doing this if all the fish are protected with what we have. Why are we changing and going to a greater allowance, a higher temperature? Adele Basham explained there was no motivation, we were researching what the fish needed. All of the standards that we have revised within the last 5 years have involved cold water fish species but the Humboldt River is warm water fish species so when we were reviewing our literature we found that a fair amount of work had been done for power plant cooling discharges and that the warm water fish are attracted to, and congregate near, the warm water plume. If that plume is shut off, they are hit with this cold up-stream water and if it is more than 10E the fish experience thermal shock. It is a different point of view than we have previously looked at. We have looked at not having so much warm water being discharged that it is changing the temperature of the River and the fish are attracted to the discharge rather than being repelled from it. As Dr. Miller discussed, there is a possibility that these huge quantities of water may stop. Chairman Close asked how could they stop a warm water discharger. Adele Basham replied "turn off the pumps". Chairman Close stated he understands what you are saying, you must have this continued temperature but how can you compel that temperature to be maintained. Adele Basham explained that is why the Bureau is recommending the 10E difference, the fish should survive the change. We can't compel a discharger to continue discharging but if the situation arose that they would have to turn off the pumps we want to make certain the fish would survive that shock. That is what we are trying to protect.

Chairman Close asked for additional questions.

There were none.

Chairman Close asked for additional public comments.

Dr. Glenn Miller stated that the procedure the Division has used under the criteria the Division

has established is very appropriate. If you are trying to protect walleye and bass living in those systems, that will work. My whole issue is the fact that these are introduced species and if the temperature is allowed to warm dramatically in the Humboldt River you are going to have a dramatic affect on the ecosystem, particularly in November - December when the flows are stopped, above Comus for example, and you allow somebody to discharge water that is 28E Centigrade you are going to have a tremendous amount of biological activity down there if all those organisms hatch, feel great, fly out and all of sudden find it is 0E outside and die. That is the issue, the stability of the ecosystem. Like it or not, the ecosystem that has evolved in the Humboldt River is the one to sustain and that is not sustained by these systems. While the temperature standards that have been developed by the Division are reasonable, I think there is a lot of science for those particular species, but this issue of a 2E temperature differential is critically important. There is going to be discharge around Carlin, a discharge at Lone Tree, and those discharges are going to a substantial fraction of the River and this 2E change is the most critical issue simply because it does what is appropriate, it keeps the temperature down. That is the biggest issue. If Newmont out of Maggie Creek, Newmont Barrick out of Boulder Creek, and Lone Tree out of their mine all discharge, the temperature is allowed to go up 6E. That is not as big of a deal as a total increase of 29E from stop flow in November and December. The whole issue, state-wide, is the ecosystem that exists requires relatively small changes in the water temperature as it has existed over time. Those temperatures are fairly well established. There is a data set that goes back to the early 1970's and it is reasonably certain, if there is no flow in the Humboldt River, to allow a 29E temperature change does not make sense. The criteria should simply say "based on the historic averages during that time period they cannot have a temperature change greater than 2E from that point on". The bottom line, retention of this 2E change, is critically important and solves the problem. The other standards are O.K. and they may even be excessive but the 2E temperature change is the one that will protect the River ecosystem and retain it as best as it can under the mining that is going to be discharging. Chairman Close asked for additional public comment. No comments were forthcoming. Chairman Close declared the public comment period closed. Chairman Close asked for additional comments from the Commission.

Commissioner Griswold asked the Commissioner's if they are comfortable enough with testimony heard today regarding the temperature portion of this proposal to vote on it?

Commissioner Doppe stated he had problems with the temperature proposal as currently proposed. They do not match up with the natural standards already in place. Mr. Boyd and others pointed that out, based on the large number of violations. The intent was to protect species of fish but I am not sure we have enough data to understand all the ramifications of that, if they are the right species, and all of the other network of items that would have to be considered to zero in on a temperature. I don't agree with Mr. Haddock that simply allowing the change will create a situation where these things will not die and I am not prepared to vote to allow a 29E temperature in the dead of winter and say that is not going to have an impact. I cannot see the rationale for the 10E discharge. I think that the 2E limit that is in place now solves all those problems, it allows the natural force that is taking place right now to go forward and it says "if you are going to discharge into the River do it within 2E of what the River already is". If we can do that, all these other issues fall off. I can support that but I can't support the temperature provisions as they are now proposed.

Commissioner Molini commented that he was not totally comfortable. I might be willing to try it if I thought we would visit these standards more frequently. We are supposed to do this every 3 - 5 years on all waters of the state but we have problems meeting that schedule. I would like to look at a little more. Maybe we need a workshop with the Commission to review these things in detail.

Chairman Close asked about the rest of the proposal. There are some changes that are proposed that don't have the same controversial aspect as does the temperature standard.

Commissioner Doppe stated, I think every single other proposal in here is fine and I would support what has been proposed in regard to sulfates and also encourage further data so we could develop RMHQ's on sulfates. Commissioner's Griswold and Molini agreed.

Commissioner Fields asked Commissioner Turnipseed about the Lone Tree discharge. Isn't there a fairly long aqueduct that carries that water to the River? Commissioner Turnipseed explained the water from Lone Tree Mine goes in a pipeline to the railroad, an open concrete ditch to the Iron Point Relief Canal, and the Iron Point Relief Canal opens to a more-or-less natural channel,

(although the Bureau of Reclamation constructed the channel) to the Humboldt River.

Commissioner Turnipseed noted that a member of the public could answer that question. Rich Haddock, Assistant General Counsel for Santa Fe Pacific Gold stated he would address that for Santa Fee as opposed to NMA. Lone Tree has a aqueduct system that carries water from the mine to the River. As part of that aqueduct system there is a cooling pond system to be commissioned very shortly that is designed to cool the water to within 2E Celsius of the River temperature. In the past we have only had one period of time where we were not able to meet the 2E Celsius. That was a period of very low flow in December of 1994. Chairman Close asked how the water is cooled. Rich Haddock explained, as it moves through the system it is exposed to the ambient temperature and some evaporation. The cooling pond design is a combination of two things - evaporation and holding time in thermal exchange.

Mark Owens asked if Chairman Close had opened it back up to public comment. Chairman Close requested Mr. Owens keep his comments brief.

Mark Owens, City Engineer for the City of Elko thanked Wendell McCurry and NDEP for their cooperation with the City of Elko and the problem of what to do with the effluent from the wastewater plant. Elko is looking at discharging to the Humboldt River in January through March. Mr. Owens explained Elko has a geothermal heating system, we have two systems within the city and one of those systems discharges into our sanitary sewer system so our effluent is warmer than normal. If we look at discharging in the wintertime that  $\hat{T} \pm 2E$  may be a problem for us to design to. It would be easier to design for a  $\hat{T} \pm 10E$ . This could have a significant impact on what we do in Elko to approach our problem. Commissioner Jones asked if the City of Elko had the ability to segregate the geothermal discharge from the sewage treatment disposal process, can you separate those. Mark Owens replied, we can but then it goes into the storm drain system and then we would have a direct discharge to the River so we don't want to do that. We have a unique problem and this temperature standard will affect our solving the problem. We have an application in with NDEP to discharge in the wintertime.

Chairman Close asked for questions. There were no questions. Chairman Close again called the public comment period closed.

Commissioner Turnipseed noted there are hot springs all along the Humboldt River. There are

hot springs where Elko Heat extracts their heat and hot springs at Carlin so hot water enters the River naturally. The River is not pristine water that is unaltered by thermal waters anywhere along the Humboldt Reach.

Wendell McCurry explained, with respect to the temperature, if the existing standard of 12 for beneficial use and 0 for RMHQ is retained, that means when there is no-flow in the River there will be no limit on temperature. We are proposing a limit on temperature whether or not there is a flow in the River. Dr. Miller commented they could discharge up to 29E and that is true if there is no flow in the River. If there is flow in the river they can only raise it 10E above whatever the River temperature is.

Chairman Close asked, if we adopt this proposal except for temperature, is there any other study that you can provide to us that would help us to come to a more informed conclusion. I feel the consensus of the Commission is that we not adopt the temperature standard. There was also some comment that maybe we need a workshop to help us understand and feel comfortable with your proposal. Can you provide us with information at a later time. Wendell McCurry replied we have given you the information in summary. My instructions, when we started this, was to question everything and although we have set standards in the past, to go back and re-evaluate. In the process of looking at the temperature we reviewed studies that revealed the information about the temperature shock and the 10E. This is totally different than I had ever heard in the past. EPA's comment letter did not object to this so evidently this meets their view of being protective of the stream. We ran across some other parameters that were different than what we have done in the past and we feel that those are protective. I am not sure that we can present you with a lot more regarding the temperature other than getting into detailed discussion or presentation specifically related to those studies.

Commissioner Molini stated perhaps the change is not as radical as it appears but it is disquieting to me and I feel a substantial need to check with my staff and get some detail on the biological aspects of this. It has been 11 years so if we went 3 more months it would not make or break anything. I would volunteer my staff to assist at a workshop with the Commission so we can get more detail so we could be comfortable with making a decision. What are the ramifications of putting this off for a while or adopting everything but temperature? If we don't

adopt the proposed temperature standard we stay with the existing standard until there is some change. Mr. McCurry suggested deleting part of the existing temperature, that is the 1 of 0 under RMHQ and just stay with the 1 of 2 for the beneficial use standard. If you are going to stay with the existing standard I would just eliminate that part and adopt all the rest of what we have proposed. We could hold a workshop later on regarding not only the 10E but the process we go through in terms of determining the temperature standards to protect the various beneficial uses.

Commissioner Fields stated if it is the Commission's desire to go forward with a workshop that would be fine but I think the Division has brought forward a well thought-out and researched proposal which includes input and work with the public. I know it is not the Division's role, nor is it this Commission's role, to take into account or weigh economic impacts greater than environmental impacts but I think as a responsible body of state government we have to realize the implications of what we might do that affects the environment and micro-organisms that clearly we don't understand. But economics to the City of Elko and to the mining industry loom large in my mind. The BLM says there are 33 or 34 major mines within the Humboldt drainage system; we have the largest gold producing industry in the nation, and probably 13,000 people in this corridor that have their direct employment from the mines. In this venue, it is hard for us, and probably we shouldn't weigh that too heavily but I can't discount economics.

Chairman Close agreed with Commissioner Fields premise. We should take a look at economic effects on all the things that we do and if those discharges continue to increase as have been predicted, then we should determine a way to meet that problem.

Commissioner Turnipseed asked if there would be time for a workshop at the meeting scheduled in December, do you have time to prepare for a workshop at that meeting? Executive Secretary Cowperthwaite stated time could be scheduled. Chairman Close stated he would prefer to have the workshop in a more centralized location for the people.

Chairman Close called for a motion.

**Commissioner Doppe made a motion the Commission adopt Petition 96003 with the exception of the temperature provisions. Commissioner Griswold seconded the motion.**

Commissioner Turnipseed asked, we are going to leave the temperature the same but it has an

RMHQ of 0 - Commissioner Doppe stated, if we are going to take this up at a workshop in the near future, let's just wrap it all up into that. Commissioner Griswold agreed.

Commissioner Molini asked Commissioner Doppe if he would condition his motion on a workshop and a revisiting that facet of these standards within the next four months? I am sensitive to Commissioner Fields idea of us determining that we are doing what we can to protect the environment but we also want to look at the economic implications.

Chairman Close suggested that we not specify the four month time period but to leave it to a point in time when the Bureau can prepare their presentation and we can arrange to be back in the northern part of the state. Commissioner Jones stated we should do it expeditiously in light of the City of Elko's application because it may substantially deviate their design and I think we owe it to them to answer the question in a timely manner.

Chairman Close replied Wendell McCurry understands the necessity of rapid action and we should allow him to get back to us as soon as he possibly can.

**Chairman Close called for approval of the motion. The motion was unanimously approved.**

Chairman Close called for a ten minute break.

Chairman Close reconvened the meeting at 3:30 p.m. and referred to agenda item B.

**B. Petition 96004** (R-128-95) is a proposed permanent regulation that revises NAC 445A.144, standards for toxic materials applicable to designated waters. The proposed regulation updates the municipal and domestic supply standards with current federal maximum contaminant levels for various metals, including barium, cadmium, chromium, selenium and silver. In addition, it is proposed to delete the aquatic life standard for boron.

Adele Basham, Bureau of Water Quality Planning, explained these standards are applicable state-wide. The existing municipal or domestic supply standards for some of the metals contained in the toxic standards are based on maximum contaminant levels (MCL's) that were in place in 1988 when this standard was adopted by the Environmental Commission and are drinking water standards established by the U.S. EPA and EPA has revised several MCL's. It is proposed to change barium from 1,000 micrograms per liter (F g/l) to 2,000 F g/l; cadmium from 10 F g/l to 5 Fp/l; chromium from 50 F g/l to 100 F g/l; selenium from 10 F g/l per liter to 50 F g/l

per liter and to delete the municipal supply standard for silver since there is no longer an MCL for silver. These proposed changes are for the municipal or domestic supply standards.

Ms. Basham continued, NDEP is also proposing to delete the existing aquatic life standard for boron of 550 Fg/l. The existing standard is based on a California State Water Resources Control Board report entitled Regulation of Agricultural Drainage to the San Joaquin River. The boron standard recommended in this report is based on only three data points of adverse affects to sensitive species which include a rainbow trout, a water plant and a water flea. The report states "the data available for boron are not adequate to allow a very high degree in confidence in establishing water quality criterion". The U.S. EPA has not established a national criteria for boron for the protection of aquatic life. EPA specifically indicated in their national criteria that naturally occurring concentrations of boron should have no affect on aquatic life. EPA has established a boron criteria for irrigation of 750 Fg/l which is included currently in NAC 445A.144. Since all of the designated waters that are covered by NAC 445A.144 have been designated for irrigation it is NDEP's belief that this standard will provide adequate protection for aquatic life which is confirmed by the fact that U.S. Fish and Wildlife Service recommends 1,000 Fg/l for the protection of aquatic life.

Wendell McCurry, Chief, Bureau of Water Quality Planning, summarized comments received regarding this proposal.

U.S. Fish and Wildlife (Exhibits 1, 3 and 4). Deals with mine dewatering and shows that water quality standards for arsenic, mercury and selenium are being met. U.S. Fish & Wildlife proposes a selenium standard of 2.3 Fg/l and cite a 1993 study by Saylor shows elevated levels in pre-flight juvenile birds which indicated that the source of high levels of selenium in over 80% of the migratory birds was from Humboldt Wildlife Management Area. This is not what the study shows and common sense tells us to question where the migratory birds came from and how long they had been in the Wildlife Management Area. The study did show that selenium in the Wildlife Management Area does concentrate in young birds but the study did not show that birds that flew in got their selenium from being in the Humboldt Wildlife Management Area. Mr. McCurry continued, trace elements of primary concern to the U.S. Fish and Wildlife are arsenic, beryllium, mercury and selenium. The standards for all are being met. Statements have

been made today that increased loading from the mine dewatering discharge will have adverse affects on fish and wildlife and will cause an increase in concentrations. This is not factual since our concern in the standards is concentrations, not loads. A discharge with the concentration lower than the river will result in a lower - not higher - concentration in the river although the load may be increased significantly. U.S. Fish & Wildlife recommended establishing RMHQ's for trace elements. This is addressed in Footnote 4 of the Toxic Standards which states "if the discharge of a substance will lower the quality of the water a person who plans to discharge waste must meet the requirements of NRS 445.253 which is the antidegradation section of the statute". It would be very difficult to set RMHQ's for trace elements throughout the state. We may be able to do this for specific rivers in the future. Mr. McCurry explained, Exhibits 3 and 4, are identical and express concern with dropping the boron standard for aquatic life and that some surface waters may not have irrigation as a designated beneficial use. By default, the irrigation number, which is .75 mg/l, becomes the most restrictive number. As Fish and Wildlife stated, 1 mg/l is adequate protection for aquatic life. By dropping the .55 for aquatic life the standards default back to the next smallest number, the one for irrigation, which is .75 mg/l. So that applies and it would be protective of aquatic life.

Mr. McCurry continued, Barrick Goldstrike comments (Exhibit 2) provided supporting documentation on why the boron standard should be deleted and recommends an irrigation standard on the Humboldt River of 1 part per million (ppm). At this time, the Division feels that the irrigation standard of .75 is appropriate as a state-wide standard but not overly protective for the Humboldt River.

Dr.(Commissioner) Gifford (Exhibit 5) suggests leaving the boron standard for aquatic life as is. The existing standard was based on a 1988 California report which said "the .55 mg/l should be considered an interim standard". The Eisler report, cited by Dr. Gifford and Fish and Wildlife, states "the current recommended boron criteria is less than 1 mg/l for aquatic life". Because other studies have not supported the recommended number, stated the 1988 report did not result in a reliable interim standard, and because of the fact that there is no national criteria, the standards should be deleted. That is still the Division's position.

Barrick Goldstrike Mines (Exhibit # 6) supports dropping the boron standards for aquatic life.

Barrick referred to recent studies which do not support the standard, to the lack of national criteria and the lack of support by California for the existing standard.

Independence Mining (IMC) (Exhibit # 7) takes no position on the toxic's. IMC thinks the standards for aquatic life are more restrictive than EPA requires.

Nevada Mining Association (NMA) (Exhibit 8) endorsed and urged the Commission to adopt the Bureau's proposal for boron.

U.S. Environmental Protection Agency (EPA) (Exhibit 10) stated "the proposal for boron and silver is consistent with EPA guidance". EPA did not mention the other toxic's we are addressing.

EPA "suggests we consider developing site-specific standards for boron and selenium for the Humboldt River".

Chairman Close asked for questions. There were no questions.

Chairman Close called upon Peter Tuttle.

Peter Tuttle, U.S. Fish and Wildlife Service - Nevada State Office, explained the first letter Mr. McCurry cited was sent in regard to Petition 96003. In addition to specific standards for reaches of the Humboldt River we also recommended that trace elements and other constituents be included. Mr. Tuttle addressed U.S. Fish & Wildlife's concerns with the proposed elimination of the boron standards:

- 1) Boron has been shown to be toxic to invertebrates, fish, birds, other wildlife and plants and does cause significant sub-lethal effects including embryonic deformity, reduced growth and a suppressed immune system. As pointed out in the rationale for Petition 96004, toxicological testing does demonstrate a lethal concentration to 50% (LC 50) of the test individuals at moderate levels, generally over 10 milligrams. Boron exhibits a rather flat concentration response curve. Although 50% of the test population is dying at 10 - 13 milligrams, actual mortality is initiated at much lower levels and testing has shown the three data points that were referred to earlier, like rainbow trout where embryonic deformity and mortality is exhibited at levels as low as .009 milligrams.

- 2) Toxicity varies with species life-cycle stage and environmental conditions. This is a state-wide standard so sensitive species do need to be considered. Rainbow trout are a sensitive

species and an important game species in Nevada. Boron is incorporated into biological systems from water and sediment and some of our work has shown there is a very close correlation between boron concentrations in water and boron concentrations in aquatic invertebrates and plants which are both very important food sources for migratory birds. Boron has been shown to cause death and significant sub-lethal effects to migratory birds when administered through diet. A dietary level has been associated with biochemical changes and delayed growth; a dietary level of 300 ppm has been associated with reduced growth; and a dietary level of 1,000 ppm has been associated with reduced egg fertility and duckling survival. Research conducted by the Department of the Interior National Irrigation Water Quality Program has shown there is significant boron contamination in water and food chains in wetlands in this state. That program is a cooperative program between U.S. Geological Survey, Bureau of Reclamation and the Fish & Wildlife Service and concentrates on states in the Western United States. Of 25 sites investigated the second and third highest mean boron levels in water were found in Nevada, in the terminus of the Humboldt River and the terminus of the Carson River. We have seen high levels, sufficient to cause substantial affects to aquatic life, in the Humboldt River, Carson Lake, Fernley, and in the Stillwater Wildlife Management Area. 5 pond weed samples were collected in the Humboldt Wildlife Management area; all exceeded the 100 ppm effect level and 4 out of 5 exceeded the 300 ppm effect level associated with reduced growth of mallard ducks. 9 samples were collected in Stillwater Wildlife Management Area and Carson Lake and again, all 9 exceeded 100 ppm effect level, 8 exceeded the 300 ppm effect level, and 1 exceeded the 1,000 ppm level associated with mortality and reduced growth. Continuing studies have found 17% of the samples we have collected exceed the 1,000 ppm level associated with reduced growth. Mr. Tuttle explained the National Irrigation Water Quality Program focused on areas impacted by agricultural drainage so there is a tendency to attribute these problems to agricultural drainage. However, wetlands occurring in arid regions and wetlands in closed hydrographic basins are particularly prone to accumulation of boron and other trace elements and that describes virtually every surface water in Nevada. In these systems, water is lost through evaporation but boron and other trace elements still remain and are concentrated as they progress downstream. Between Palisade and Imlay there is a doubling of the boron concentration where water loss is 30%. So

there is a close correlation and once the water enters the terminal wetlands the water will be lost but the boron and other trace elements will remain and will be concentrated at toxic levels.

Because of these processes, loads are very important. Increasing loads boron in the river and stream systems in Nevada will exacerbate existing contamination of these wetlands.

Mr. Tuttle addressed a point mentioned by Wendell McCurry that we, in fact, did make that not all waters of the state receive protection for the standard for irrigation. That is my mistake.

I was referring to the non-designated waters that are in fact receiving discharges and are used by fish and migratory birds, locations such as Sleeper Wetlands and Brady Hot Springs, which at this time are receiving no protection or will not if this standard is eliminated.

Mr. Tuttle summarized, by saying wetlands in this area of the state are extremely important to wildlife and aquatic life. There is an existing boron problem along with other trace elements in the wetlands due in part to natural conditions and in part to man's activities. We feel elimination of the standard for boron will exacerbate the existing problems and make matters worse. It appears a number of these wetlands are teetering on the brink of major problems and we would hate to see them slide down to real problems with mortality, reproduction and also problems with large-scale avian disease outbreaks.

Chairman Close asked for questions.

Commissioner Turnipseed noted the concentrations that were toxic to waterfowl were 10 times higher than the irrigation standard. Mr. Tuttle explained that was boron in diet and not boron in water and there is a correlation between boron in water and boron in some of these avian dietary items. We can see where they are reaching levels where they are contaminating food chains.

Commissioner Turnipseed asked, you are saying that part of the concentration in the closed basins at the sinks are man-caused and part are natural, but over eon's of time isn't that where all the trace elements are headed anyway, whether by rain-fall or underground flow? Peter Tuttle replied, over eon's that is where all the trace elements have ended up that have been in the river and there is some relationship between loading and loss. Reviewing the difference between Ruby Marshes and Stillwater or the Humboldt River you can see a degradation and for the most part it is attributed to agricultural drainage. Increasing the load of trace elements in the River will exacerbate the problem. Commissioner Turnipseed asked if the trace elements lost at alkali flats

are windblown and going into the environment? Mr. Tuttle explained they are lost both through wind action and sedimentation and there is evidence that selenium volatilizes also.

Commissioner Fields noted asked if we had a standard of 550 Fg/l - would all of that boron be available for bio-accumulation or only a portion of it. Peter Tuttle explained, typically through the toxicity testing, you look at either borax or boric acid and he did not know how much of either those would be biologically available.

Chairman Close asked for questions. There were no additional questions.

Chairman Close called upon Dr. Glenn Miller.

Dr. Miller stated it is difficult to argue against the toxic standards but in all cases, except for cadmium and fluoride, the toxic standards reflect reductions in water quality standards and no data are presented except "this is what the EPA allows". Dr. Miller urged the Commission to recognize what it is doing, if it accepts this, is accepting the weakest federal standard, well within the Commission purview. On the other hand, the 4 ppm fluoride is right on the edge of where you are going to cause mottling of teeth. Silver is also toxic. I do not have a major problem with those but the boron standard is more problematic. No real data are presented for the change. I do not want to offend the mining industry, but I suggest this does appear to be in response to the mining industry problems with mine dewatering, again into the Humboldt River. There remains no compelling reason to relax the standards since boron is known to be a particular problem in Nevada for agricultural, dairy's, and quite possibly for plants that support wildlife along the Humboldt River. The data are simply not available and the prudent approach is to leave the standard intact until appropriate studies can be completed. A second major reason to maintain a boron standard is that it is reported that at least two major mines are reported to have elevated boron concentrations in their dewatering discharge. Data from Lone Tree, a sample collected by Bill Coughlin, NDEP, analyzed in the State Health Laboratory, shows a boron concentration of .7 ppm or 700 ppb. This violates the standard for water in the Humboldt River that presently exists for aquatic life and is very near that for agricultural irrigation uses. I have not seen data, but I am told some of the Carlin mines are also discharging a high amount of boron concentrations. So relaxing the standard is a real issue in total boron concentration in the River. Boron concentration of 700 ppb was found in both August and September of 1994 at

Comus Gage but at Imlay the concentration of boron is 900 ppb. That violates the irrigation standard by 150 ppb. What is happening is the increases in boron at Comus or other parts of the River that may not violate irrigation standards translate to a clear violation of boron standards down-stream because of these evapo-concentration processes. I have data from August of 1989 showing 200 ppb at Palisade; 300 ppb at Battle Mountain; 200 -600, 900, 600, 400, 700, ppb at Comus and at Imlay the concentrations are 900, 600, 500 so there appears to be somewhat of an increase of boron in the River.

Dr. Miller continued, although alfalfa is not substantially affected by boron at 750 ppm, the concentrations in boron in return water from the irrigation district have exceeded 4,000 ppb. A 1991 study completed by the USGS in 1991 indicates that boron is a problem in drains from the Lovelock area. If this boron standard is relaxed further than what exists now agricultural area in Lovelock and the wildlife in the Humboldt Sink are going to receive increasing boron loads, both concentration and in total loads. Increasing the amounts of water may be required to leach out the boron and ultimately result in increased burden on the Lovelock agricultural community. There is a relationship between boron discharge and boron concentrations down-stream, and it is appropriate to set a boron standard for discharge for agricultural uses. The Commission should make a determination of whether that should be at Imlay or somewhere down-stream. The same boron that exists up-stream and does not violate any water quality standard is going to evapo-concentrate and you are going to have increased boron concentrations which violate irrigation standards downstream so you can't just look at boron concentrations emitted from one area into the stream at that localized area. You need to look at boron releases into the River which will affect boron concentrations downstream and that is the central issue.

Chairman Close asked for questions. There were no questions.

Chairman Close called upon Chrisa Maison.

Chrisa Maison, Water Resources Planner for the Washoe Tribe in Minden supported supports Dr. Miller's statements about loading rate evaporation concentrations. Ms. Maison stated the Washoe Tribe does not think that eliminating the aquatic life standard from these permanent regulations is a good idea for those very reasons and agreed the irrigator's down-stream will ultimately pay the price and those farms using sprinkle irrigation will have a really rough time.

Ms. Maison quoted from the Standard Textbook, "boron is poorly understood and therefore it should be studied further and the narrow concentration range between boron deficiency and toxicity requires special care in application" and noted that statement says it all. Ms. Maison reiterated unless someone is willing to do the studies required, the aquatic life standards should be maintained and pointed out that even though the limits that affect fish in the River would probably not affect fish to adversely but those limits definitely affect plant life and degradation of plant life in the riparian habitats is going to increase temperature and other problems.

Chairman Close asked for questions. There were no questions.

Chairman Close asked for additional public comment on Item B - Petition 96004.

Rich Haddock, on behalf of the Nevada Mining Association (NMA), supported the Bureau's proposal with respect to boron. Mr. Haddock stated, the data has been submitted that shows the 550 standard is more protective than is necessary of aquatic wildlife and aquatic life. Two issues need to be recognized:

1) Water quality standards. If this proposal were to be put in place dischargers of mine water would have to meet the 750 standard. That water going down-stream is not going to degrade the water available for agriculture and for irrigation down-stream. It is actually going to improve it because there is going to be more water and the Humboldt will be losing less water in that reach during those periods of time, aptly demonstrated by the fact that during certain years the only water that even reached Rye Patch was coming from the mines.

2) Loading. Loading in this instance, if it occurs, is going to occur in the Humboldt Sink. As pointed out, that has been occurring for eon's and will continue to occur. We are not talking about putting quantities of boron in the Humboldt Sink that even approximate the kind of concentrations that are already there, that have already been identified. In the net analysis, there is no benefit to imposing this lower standard because this is an example of adopting an interim standard that is more stringent than can be supported by the existing data. We would oppose standards that don't have adequate factual basis and we do think the factual basis is here.

Chairman Close asked for questions. There were no questions.

Chairman Close asked for additional public comments. There were no additional comments.

Chairman Close called the public comment period closed.

Commissioner Turnipseed noted that we have scientists that bring us all the data and sets the standards and toxicity levels and if the 550 F g/l cannot be supported by science, in California or anywhere else, then we ought not keep it. If it can't be supported by studies we should get rid of it and if we obtain studies later on, we could put it back in. We are not talking about a great deal of difference between eliminating the 550 F g/l for aquatic life. The default number is 750 F g/l in irrigation standards and we are not talking about destroying the whole River system by a concentration of 200 F g/l.

Commissioner Doppe agreed with Commissioner Turnipseed but stated the issue is that the scientist are scratching their heads without enough data, admittedly on their behalf, to make a decision on whether to raise or lower a standard. If they could say definitively that 750 is the number and 550 is too strict, then we go with it. If they cannot say that, then I believe if we are going to err, and I don't know that we are erring, we ought to err on the side of conservatism. I looked for guidance from Commissioner Gifford and he says there does not appear to be enough data at this time to support moving the standard. I agree with most of this petition but I am opposed to lifting the aquatic life standard for boron.

Commissioner Molini asked Mr. McCurry, basically your rationale on eliminating the aquatic life standard is there is not a sufficient data base for it and that the standard for irrigation, in most cases, would be applicable and would take care of a potential problem? Mr. McCurry explained the toxic's table applies to all Class A-B-C-D waters, all waters where we have a table of specific standards for that water. The beneficial uses that are designated for all of those waters includes irrigation so the irrigation standards would apply to all Class waters, all of the numerical standard waters. The narrative standards in NAC 445A.121 apply to all of the waters in the State that are not under those two groups of standards and there is a list of "thou shalt not" or "free from" type of statements that applies to all of those waters. The question about how much boron is bio-available, maybe that is the problem that contributes to the uncertainty as to how big a number is still protective. Fish and Wildlife's research says "less than 1 ppm is protective". EPA says "1 ppm" is the suitable number as being protective.

Commissioner Molini noted a dilemma. Natural accumulation in the arid regions and interior basins of these heavy metals salts occur and will continue to occur. The question is how much in

reality a standard, like the irrigation standard, would exacerbate a naturally occurring problem. Mr. McCurry replied NDEP is interested in the concentration of boron in the water. If all the mine discharges come true, as Dr. Miller discussed, that could very likely result in lowering the concentrations of boron in the Wildlife Management Area. At the same time it would be increasing the load to it because I would expect the mines would have some small amount of boron in their discharge. They could wind up with large volumes of water and instead of evaporating and concentrating a larger volume of water would result in lower concentration until they quit discharging.

Commissioner Turnipseed noted these regulations deal with free-flowing streams and not with the sinks, the alkali flats. We are talking about up-river when the water quality has not been degraded to a great extent and we are talking about all streams, whether they are in the Great Basin, the Snake River Basin or Colorado River Basin? Wendell McCurry agreed and explained, several years ago, as a result of a new report about how agriculture was concentrating these contaminants, we had 550 Fg/l as the recommended interim number to be used. A 1994 report said that data is really not that valid to be used as a standard. Other studies did not even mention that report which implied the report was not that valid. At this point, EPA has not come up with any national criteria for boron. NDEP feels the .75 that applies to irrigation is also going to be protective for aquatic life and is appropriate. If future studies show that 1 ppm or .5 ppm should be for aquatic life and we feel it a valid study, we will bring that back before the Commission.

Commissioner Fields noted the Division has done their homework and EPA comments (Exhibit 10, item #4) "the proposed change for the standard for boron is consistent with EPA guidelines. It is our understanding that all portions of the Humboldt covered by this proposed change have irrigation beneficial use designation and are therefore subject to the 750 Fg/l standard".

I agree with Commissioner Turnipseed, without a scientific basis for a standard, I don't think we should attempt to set that standard.

Chairman Close asked for additional comments. There were no additional comments.

**Commissioner Fields made a motion the Commission adopt the proposed changes contained in Petition 96004 to NAC 445A.144, as presented. Commissioner Turnipseed**

**seconded the motion. Commissioner's Griswold, Fields, Turnipseed, Jones, Trenoweth, Molini and Close approved the motion. Commissioner Doppe opposed the motion. The motion carried.**

Commissioner Close asked that the 10 exhibits provided be made part of the hearing record as they apply to the various petitions. Commissioner Close asked Dr. Miller if he would provide the Commission with a corrected document that would be accepted upon receipt but the Commission would also accept his uncorrected version, read in reviewing our decision. Dr. Miller replied he would provide the Commission with a corrected copy.

**Chairman Close moved to agenda Item III:**

**Presentation by Chris Reitman of the Division of Agriculture on innovative techniques for water quality testing of pesticides.**

Chris Mason, Senior Chemist with the Nevada Division of Agriculture (NDA) explained that Chris Reitman is the lead chemist and deals with pesticide analysis but he, Mr. Mason was the presenter. Mr. Mason explained Commissioner Paul Iverson asked him to appear before the Commission to inform what we are doing in regards to analysis of pesticides in ground water. Mr. Mason continued, under the Federal Insecticide, Fungicide and Organocide Act the EPA has required the states to develop state management plans to monitor the use of certain pesticides in ground water, pesticides EPA considers liable to leech into the ground water and cause problems, as they have in many midwest states. NDA has an agreement with EPA to enforce or monitor within Nevada and our laboratory has been working, as part of the State Management Plan, to develop methods to monitor ground water to see if these pesticides were getting into the ground water in the State of Nevada in areas where they are being applied. EPA has a group of ground water methods based on Clean Water Act and drinking water methods but those methods are very time consuming and involve lots of toxic solvents. Basically, you have a chemist that has to sit and shake a liter of water and a liter of dichlormethane for a few minutes and then repeat that; then you have to get rid of all that dichlormethane which either goes up into the atmosphere or you must dispose of it, which is very expensive. NDA decided we would develop an alternative method from existing technologies that we could automate and would use minimal solvent. We are small. I run the laboratory and there are two chemists in the pesticide area and

ground water is not the only entity we deal with. We did preliminary work using solid-phase extraction - a technique where you pass ground water through a small cartridge which contains an absorbent, generally silica, loop that off with a very small amount of organic solvent and pass that into your instrumentation for final analysis. We did preliminary work with some cartridges which looked encouraging and purchased an instrument that allowed us to automate the whole extraction process by running six samples at a time. When you are running a sample, you are not just pouring water through a cartridge, there are a number of elution phases you have to go through. You have to prime it with a number to dissolve and then elute it; put the water through it and then elute with the final organic solvent you are going to use. We had some success with silica cartridges and then discovered cartridges containing graphite. Chris Reitman has been working the last year on this and we finally developed a method that permits us extract 29 pesticides of concern, which includes 5 that the EPA will not allow us to register in Nevada unless we have a management plan in place. If you can't prove that you can use this pesticide safely EPA wants you to register it. Plus, we have included a few more pesticides we know are being used in Nevada that may eventually make EPA's list to protect ourselves in the future in case these pesticides turn up in the ground water. Using this automated method we are running 29 pesticides and we actually separate those into two groups; base neutrals which include simazine, atrazine, various triazines and then the acid pesticides which includes 2-4-D. We have successfully developed a method and are getting 70% - 90% recovery from ground water for most pesticides. The EPA has accepted our method. We presented this method at national meetings in Florida and California and at one international meeting in Nashville, Tennessee. We are very pleased with the results.

Commissioner Fields stated he had toured the laboratory and was amazed at the work being done and questioned if this procedure could be patented. Mr. Mason expressed doubt it could be patented because the initial work was performed by a group in Italy and we applied that to our own field.

Commissioner Turnipseed inquired about recovery from surface water. Mr. Mason explained you get very poor recovery's from surface water, we think due to humic acid. We are trying to determine a way of getting the humic acids out so we can improve our yields. Chairman Close

asked what is humic acid. Mr. Mason explained he has not seen a good definition but it is what you get if you extracted compost with water - it is the complex bio-molecules. Everything else we talked about were all herbicides. The bulk of the pesticides applied in the country are herbicides.

Chairman Close thanked Mr. Mason for his presentation, offered congratulations from the Commission and noted pleasure that Nevada has people with the ability to instruct the United States, and perhaps the entire world.

#### **Chairman Close moved to Item IV - Discussion Items**

##### **A. Legislative Study Committee**

David Cowperthwaite reported on AB 538, a legislative study committee looking at certain areas of regulations affecting several jurisdictions, including State Health and the Environmental Commission. One meeting, a work session has been held. After the second meeting we will have a clear idea of the intent of the committee.

##### **B. Status of Division of Environmental Protection's Programs and Policies**

Dick Reavis, Deputy Administrator of NDEP reported the Division is struggling with internal issues, trying to generate enough money to accomplish designated duties. Commissioner Molini asked if congressional appropriations, EPA grants are materializing? Mr. Reavis explained that is part of the problem. EPA is under a continuing resolution from both the senate and the house of representatives that expires November 12, 1994. The conference committee has not met and there is very little indication that it will meet because congress is preoccupied with the debt ceiling and with the balanced budget. Information from Washington is the continuing resolution will continue but no one knows for how long. Then, at what point will EPA feel comfortable enough with the continuing resolution to grant the funds to us that makes up 40% of our budget. We are holding 18 positions to eliminate the necessity of laying people off if we don't get those grant funds. Not filling those positions is slowing us down, particularly our permit writing. Mr. Dodgion is doing the only prudent thing a manager can do by not filling those positions.

##### **C. Past and Future Meetings of the Environmental Commission**

David Cowperthwaite reported a hearing has been scheduled for December 12, 1995 in Laughlin to deal with revisiting the Mojave Opacity issue. A decision will be made to affirm or not affirm

the continuing path of dealing with the opacity at the Mojave facility, Southern California Edison.

D. General Commission or Public Comment

There were no comments from the public.

Chairman Close declared the meeting adjourned at 4:35 p.m.

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Hearing Date: NOVEMBER 7, 1995

Location: WINNEMUCCA CONVENTION CENTER-WINNEMUCCA, NEVADA

Subject: HUMBOLDT RIVER WATER QUALITY STANDARDS

**REGULATORY EXHIBIT LOG**

#	Item	Item Description	Petition	Accepted Yes/No
1	Letter dated October 18, 1995	From U.S. Fish & Wildlife Carlos S. Mendoza, State Supervisor	96003	Yes
2	Letter dated September 27, 1995	From Barrick Goldstrike Mine, Karl D. Burke, Environmental Manager Comments to Wendell McCurry and Adele Basham, NDEP	96004	Yes
3	Letter dated October 18, 1995	From U.S. Fish & Wildlife Carlos S. Mendoza, State Supervisor	96004	Yes
4	Letter dated October 18, 1995	From U.S. Fish & Wildlife Carlos S. Mendoza, State Supervisor	96004	Yes
5	Letter dated October 21, 1995	From Commissioner Fred Gifford	96004	Yes
6	Letter dated October 27, 1995 - With enclosure copies of letters dated 9/27 and 6/21/95	From Barrick Goldstrike Mine Karl Burke, Environmental Manager	96003 & 96004	Yes
7	Letter dated November 1, 1995 with enclosures: Exhibit 1 Blue Book Recommendations for Sulfate Exhibit 2 April 1, 1994 letter from EPA Region VIII to EPA Headquarters	From Independence Mining Robert W. Micsak, Vice President/General Counsel	96003 & 96004	Yes

Hearing Date: NOVEMBER 7, 1995

Location: WINNEMUCCA CONVENTION CENTER-WINNEMUCCA, NEVADA

Subject: HUMBOLDT RIVER WATER QUALITY STANDARDS

**REGULATORY EXHIBIT LOG**

#	Item	Item Description	Petition	Accepted Yes/No
8	Letter dated November 2, 1995 with attachments: Humboldt River Water Discharge Records and copies of letters from Barrick Goldstrike Mines dated October 27, 1995; June 21, 1995; and September 27, 1995.	Nevada Mining Association Michael J. Doyle, President	96003 & 96004	Yes
9	Copy of Memo	Jim French, Division of Wildlife. Memo documenting occurrence of walleye on the Humboldt River since 1983.	96003 & 96004	Yes
10	Copy of Letter to Bill Coughlin NDEP	Stephanie Wilson, U.S. EPA Region IX Comments on Humboldt River Water Quality Standards		Yes
11	Copy of Comments	Distributed by Glenn C. Miller, Ph.D. for the Toiyabe Chapter of the Sierra Club Dr. Miller will send REVISED comments to the Commission.		Yes
12				