

**NEVADA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**

**NEVADA ENVIRONMENTAL COMMISSION**

**HEARING ARCHIVE**

**FOR THE HEARING OF December 11, 1995**

**HELD AT: Laughlin, Nevada**

**TYPE OF HEARING:**

**REGULATORY**

**APPEAL**

**YES      FIELD TRIP      (Mohave Powerplant)**

**ENFORCEMENT**

**VARIANCE**

**RECORDS CONTAINED IN THIS FILE INCLUDE:**

**YES      AGENDA**

**PUBLIC NOTICE**

**YES      MINUTES OF THE HEARING**

**LISTING OF EXHIBITS**

**2nd REVISED A G E N D A**  
**NEVADA STATE ENVIRONMENTAL COMMISSION**  
**PUBLIC HEARING**

The Nevada State Environmental Commission will conduct a hearing commencing **1:30 p.m. (PST), 2:30 p.m. (MST) on Monday, December 11, 1995** at the Laughlin Public Library, 2840 S. Needles Highway, Laughlin, Nevada.

This agenda has been posted at the Division of Environmental Protection Office in Las Vegas, Nevada, the Washoe County Library in Reno, Nevada; the Nevada State Library and Division of Environmental Protection Office in Carson City, Nevada and the Laughlin Public Library.

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. Review of Southern California Edison's Mohave Powerplant Visible Emission Opacity Restrictions \* ACTION**

The Environmental Commission will revisit petition 93001 (R-044-93) as temporarily adopted on December 10, 1992 and permanently adopted on September 22, 1993. The petition was permanently effective on October 29, 1993. The Commission will review the status of compliance with the adopted regulation by Southern California Edison.

Petition 93001 amended Section 445B.357 of the Nevada Administrative Code (NAC), to change the visible emission standard for coal fired steam generating facilities with a heat input of more than 7936 million BTU's per hour which existed prior to 1972. The regulation modified the Southern California Edison's Mohave Generating Station opacity requirements. The amended requirements restrict the facility from discharging particulate matter with an average opacity of not more than 30 percent for any six minute period by April 1, 1994.

- II. Prior to the public meeting the Environmental Commission will be conducting a **tour of Southern California Edison's Mohave Powerplant**. The tour will begin at approximately **11:00 a.m. (PST)** and will last approximately one hour. The tour will begin at the Center for Competitive Development located at the gate of the powerplant on Edison Way. The public is invited to attend and tour with the Commission. Since this tour will be in cooperation with Southern California Edison it is necessary for members of the public to notify the Commission of their intent to participate in the tour. You must call 702-687-4670 ext. 3117 by 4:00 p.m. (PST), Friday, December 8, 1995. Restrictions on the tour include no dresses, no high-heeled shoes, no open-toed shoes, and no canvas shoes.

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 Ln, Rm 128, Carson City, Nevada, 89710, facsimile (702) 687-5856, or by calling (702) 687-4670 no later than **5:00 p.m. December 6, 1995**.

Meeting of December 11, 1995  
Laughlin, Nevada  
Adopted Minutes

**MEMBERS PRESENT:**

Melvin Close, Chairman  
Paul Iverson

Russell Fields  
Marla Griswold  
Michael Turnipseed  
Roy Trenoweth

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

**MEMBERS ABSENT:**

Fred Gifford  
William Molini

Joseph Tangredi  
Mark Doppe  
Robert Jones

Members of the Commission met officials at the Center for Competitive Development at Southern California Edison's Mohave Power Plant at 11:00 a.m.. Members, Nevada Division of Environmental Protection staff, and one member of the public were conducted on a hard-hat tour of the plant.

Chairman Close convened the meeting at 1:30 p.m. at the Laughlin Public Library, 2840 S. Needles Highway, Laughlin, Nevada. Chairman Close read the public notice as defined in the agenda for November 11, 1995.

**Chairman Close moved to Agenda Item I: Approval of the minutes for the November 7, 1995 meeting. Commissioner Griswold moved the minutes be approved as presented. Commissioner Turnipseed seconded the motion. The motion was unanimously approved.**

**Chairman Close moved Agenda Item II: Review of Southern California Edison's Mohave Powerplant Visible Emission Opacity Restrictions**

Tom Porta, Division of Environmental Protection, Air Quality Section, explained his presentation would include background and history of the powerplant; what has happened since the adoption of the new rules; a brief report on other studies that are being conducted; and a review of plant improvement and fugitive emissions which the Commission requested we review, based on citizen's complaints and concerns expressed at the Commission hearing in 1992.

Mr. Porta continued, the Mohave Generating Station (Mohave) began commercial operation in 1971 and is operated by the Southern California Edison Company (Edison). The Mohave plant has two coal-fired units, each rated at 790 megawatts. Particulate's from the units are controlled by electrostatic precipitator's (ESPs). This control device works somewhat similar to a television screen collecting dust and this control device also affects the opacity. Sulfur dioxide and nitrogen oxide are controlled by fuel and burner configuration. The Mohave Plant is able to meet federal standards for sulfur dioxide by burning low sulfur coal. The burners regulate or control the NOX emission based on air and fuel mixture.

The Environmental Commission adopted the new opacity rule for Mohave on December 10, 1992. At that hearing the Commission required the Division of Environmental Protection (DEP) to:

- 1) Report back to the Commission on the effectiveness of this new opacity rule;
- 2) Report on how well Mohave was complying with the rule;

- 3) To investigate fugitive emissions in the plant because of citizens complaints at the hearing;
- 4) To report back to the Commission on other studies being done at the time. Some of the studies started then are still on-going today.

Mr. Porta explained the background. In 1991, Mohave County District Attorney, Phil Exstrum, filed a petition with the SEC to change Mohave's opacity rule and the regulation based on complaints that he had received from area citizens. DEP then met with the Mohave County District Attorney and California Edison and instead of proceeding on controversial stances before the Commission we decided to get together prior to going before the Commission to see if we could come up with a rule that we could all agree on. As a result of the meeting in December of 1991 we agreed to conduct a study on the Mohave plume, the Mohave opacity. The study compared other plants in the region to the different rules, it looked at the size of the unit, the control technology that was available and the age of the facility. The study also reviewed citizens complaints about the area as well as ambient air quality data. That study was completed in September, 1992. California Edison, DEP and Mohave County met again and agreed on the rule to propose to the Environmental Commission. The new rule was a phased-in approach to reduce the opacity limits, making it more stringent on the Mohave plant, to be phased-in over a period of about 2 years.

Prior to the December 10, 1995, action, Mohave Generating Station had an opacity limit which allowed them hour averaging for the opacity and then the opacity was measured in each duct. There are two ducts which run into a common stack - each duct had its own requirement and they were allowed an hour average at 40% opacity. That was the limit. The new rule, which started April 1, 1993, - from April 1, 1993, to March 30, 1994, reduced the averaging time from one hour to six minutes. Secondly, it moved the measurement location from the ducts to the stack. Before, we had two measurement locations, now we have one which is located in the stack. Basically, the opacity limit of 40% remained the same for that one year period. The second phase which became effective April 1, 1994, kept the same averaging time - six minutes, the same measurement point - in the stack, but we lowered the opacity limit from 40% to 30% and that is where we currently are right now with the requirement. This was a much more stringent opacity regulation.

Mr. Porta presented history on the original 40% one-hour average in-duct opacity. Construction of Mohave plant began in 1967, which predates the Clean Air Act, so they were not subject to meet the new rules that newer facilities are now required to meet. The plant actually began operation in 1971 and sometime thereafter, Clark County Health District had the requirement standard of 20% six-minute average opacity limit and a 0.1 lbs/MBtu particulate emission rate. The opacity is the visibility portion of their standard and the 0.1 lbs/MBtu was the mass emission rate, how many particles are coming out of the stack for every MBtu produced. Mohave was not able to meet those original standards and a variance had to be obtained. When Mohave obtained the variance they made a number of plant improvements to help upgrade the electrostatic precipitator which enabled them to meet the 0.1 lbs/MBtu, that is the mass emission rate standard that we have right now, but they were still unable to meet that 20% opacity limit. About this same time our State Legislature changed the jurisdiction of coal-fired powered plants and fossil fuel-fired steam generating plants from the counties to the State. It then became DEP's responsibility to cover all facilities in Clark & Washoe Counties and as a result of that change in jurisdiction, the State Environmental Commission had to consider the emission limits for the facility and they were concerned with the opacity limit. Edison presented arguments before the Commission which said their 0.1 lbs/MBtu mass emission rate, which they could meet, was equivalent to a 40% 1-hour average opacity rate. This was accepted by the Commission and in 1979 the actual 40% 1-hour rule was adopted by the State Environmental Commission. That rule remained in effect until April 1, 1993.

Mr. Porta reported on the improvements that have been made since the adoption of the 1992 new opacity rule. It was clear after that rule was adopted that the Mohave Plant would have trouble meeting the new 6-minute average, and eventually a 30% limit, in moving the opacity measuring point from the ducts to the stack. Mohave had to up-

grade the electrostatic stack precipitator (ESP). DEP feels one of the major improvements to this device was a flow modification. Edison conducted a study and found that the gases coming out of the boiler were not being evenly distributed through the ESP - what that meant was, the ESP was not performing up to what its capabilities were. Edison spent approximately \$2.9 million dollars on flow modifications to direct the flow to the gas stream so it would flow evenly through the ESP, thereby increasing its efficiency. The second improvement, scheduled to be completed by mid-1996, is coal centrifuge replacement. One of the problems at Edison's plant is the coal slurry - they have to separate the water from the coal. This is accomplished by using centrifuges. The older generation centrifuges has had trouble handling the coal slurry and would fail. When they fail they cause a fuel flow problem to the boiler which in turn caused upsets to the ESPs and high opacities (i.e. puffing). Replacement of the centrifuges began in late 1994 and have resulted in fewer coal flow problems and fewer opacity exceedences. Each unit at Mohave has 20 centrifuges so there is a total of 40. The new centrifuges should result in smoother fuel flow through the boiler, hence reducing the emissions or spikes that we see from fuel flow upsets.

Mr. Porta addressed fugitive emissions. One of the problems Edison faced in 1992 was a coal pelletization operation on the facility. Not all the coal could be centrifuged which resulted in very fine left over particles. These fine particles were purchased by a separate operator who took the fine coal dust and made it into pellets for a coal gasification plant in California. This process meant bull-dozing up and pushing coal of flour-like consistency, then placing it into their processor for pelletization. The contract expired and was not renewed so the operation has been shut down for about 1 year. As a result, existing leftover coal fines are placed in an area and capped with a chemical surfactant to keep them blowing.

Another area of concern was fly ash disposal. After the coal is combusted you are left with a material called ash, a content of the coal which cannot be burned. That ash is subsequently collected in the electrostatic precipitator and then hauled out to a fly ash disposal area, basically like a landfill. In the past Edison had five to ten acres where the fly ash was dumped and exposed to the wind. Edison has implemented a policy to reduce that acreage down to one acre. Hence, the potential to have blowing fly ash is reduced.

Mr. Porta addressed ambient monitoring. DEP looked at the data before and after the adoption of the new regulation. At the present, Edison has three monitoring locations in the area that measure particulate, SO<sub>2</sub>, nitrogen oxide and ozone. Not each of these stations measure all four of these pollutants but a combination of the three monitoring systems measure all four. To date, after the new opacity rule, SO<sub>2</sub>, nitrogen oxide and ozone have never been exceeded and have never exceeded the health standards set by the Federal Governmental and the State. Particulate's were exceeded in the 1980's and early 1990's. Sonoma Technology, who conducted our study of the ambient monitoring data, found that less than 1% of the particles found on those monitoring location filters could be attributed to the Mohave Plant, this includes stack emissions, fly ash, and coal dust. Exceedances were attributed to major area construction, the new airport in Bullhead City and road construction was taking place. The last exceedence of particulate was in 1991. Since 1991 there has been a decrease in 24-Hour PM<sub>10</sub>, Annual PM<sub>10</sub>, 3-Hour SO<sub>2</sub>, 24-Hour SO<sub>2</sub> and Annual SO<sub>2</sub>. Ozone is starting to climb and Sonoma Technology feels this is a result of transport, possibly from the Los Angeles area.

Mr. Porta discussed the opacity data since the rules were changed. The compliance rate dropped from 99.97% to 98.98% - which means before, almost 100% of their operating time they were in compliance with the old rules. Under the new rule they have dropped about 1%. Right now they are operating 99% of the time in compliance with the new rule. NDEP feels that is pretty remarkable considering the tightening of this regulation. Mr. Porta cited two reasons Mohave is out of compliance 1% of the time:

1. Soot blowing, which every utility has to do. If you do not soot blow it becomes a very dangerous situation and the boiler can actually explode. NRS exempts soot blowing.
2. Process pumping. Mohave is still changing the centrifuges and some of the problem are with those older

centrifuges still causing fuel flow problems.

Baseline opacity, before the rule, was about 32%. Under the new rule it is about 20% so there has been a 12% improvement in the baseline opacity. That may look like a lot but a person who is not trained to read a stack has probably seen little or no difference, visually, with that 12% improvement. One thing the average citizen sees is the number of opacity spikes where the opacity may go up to 50% - 60% - 100%. Before the rule Mohave averaged 470 spikes a month in a three-month period. Mohave is now down to 28 spikes per month. If the average citizen were to see anything from the stack, it would be the opacity spikes, or puffs as we call them, emanating from the stack. Mr. Porta reported 34 complaints were received from citizens in 1991. Prior to 1991 there were 6 - 10 complaints per year. Since the adoption of the new rules complaints have dropped to 1 complaint in 1992, 0 complaints in 1993 and 1994, and 1 complaint in 1995.

Mr. Porta noted the Commission had asked for information regarding visibility studies being conducted. There are two that affect the Mohave Station - Project Mohave and the Grand Canyon Visibility Transport Commission Study. Both studies precipitated from the Clean Air Act Amendments of 1990. The Mohave Study specifically looked at large fossil fuel fired plants such as Mohave and required them to assess the impacts on Class I areas or the Grand Canyon. EPA, National Park Service and Edison are currently working on this study. In 1992, tracers were released from the Mohave stack and other locations in southern California, and the tracer and meteorological data were collected during the release period. The report, still being evaluated but results of the study are scheduled to be released in the fall of 1996.

The Clean Air Act specifically required The Grand Canyon Visibility Transport Commission to form, and required them to identify source regions that provide both dirty air and clean air to the Grand Canyon and surrounding National Parks. And based on those clean - or dirty air corridors, make recommendations on how those corridors can maintain and/or improve the visibility in the Grand Canyon. The Draft Report is out and it is scheduled to be adopted in May, 1996. Mr. Porta outlined staff recommendations:

NRS 445.401 states in part that, "It is the public policy of the State of Nevada and the purpose of NRS 445.401 to 445.601, inclusive, to achieve and maintain levels of air quality which will protect human health and safety, prevent injury to plant and animal life, prevent damage to property, and preserve visibility and scenic, esthetic and historic values of the state." The statute also states that, "It is the intent of NRS 445.401 to 445.601, inclusive, to..."Require the use of reasonably available methods to prevent, reduce or control air pollution throughout the State of Nevada". NDEP staff believes that the NRS criteria are being met and the new opacity regulation for Mohave has been effective in reducing emissions. Opacity base levels have declined at the station, the number of spikes or puffs have reduced significantly and citizen complaints have dropped. All the ambient air monitoring data that we have in this area shows that we are well within the limits of health standards that have been set by the State of Nevada. Staff believes the 30% to 20% baseline opacity would not be seen by the average citizen and by setting a further reduction from the 30% to 20% standard the public would probably not see a significant decrease in emissions. The trained observer is about the only person able to see this decrease of 10%, thus, staff feels the cost to reduce the Mohave opacity limit to 20% would not be justified because the plant would have to do one of two things: retrofit the plant with controls at an estimated cost of \$200 - \$250 million dollars; or, reduce their load, probably by one-half. That would mean from a station generating almost 1600 megawatts they would have to drop to 800 megawatts. Staff does not feel this cost would justify reduction in opacity that people could not even see. Staff also feels there are other factors in progress right now, the Grand Canyon Visibility Study and Mohave Tracer Studies which could require Edison's Mohave Plant to put on additional control. If we require Edison to put on additional controls and if one of the studies require additional control big conflicts could result. NDEP recommends that the current 30% opacity limit be left unchanged.

Chairman Close asked for questions from the Commissioners.

Commissioner Fields noted that a fair percent of the non-compliance is due to soot blowing but you also said NRS exempted that, so it is not a violation. Actually, the compliance would have been better than the nearly 99% if we disregarded the soot blowing, is that right? Mr. Porta replied that he had taken the soot blowing out of the 98% plus, compliance.

Commissioner Griswold asked for a report on the resultant increase of the cost of energy, since 1992, that is directly attributed to the environmental improvements that have been made. Mr. Porta asked Ms. Griswold if she was specifically referring to the plant, or the cost of electricity as a whole? Ms. Griswold re-phrased her question, what does the company feel they have had to increase the cost to the people that are buying it from them for the repairs made because of the environmental effort. Mr. Porta asked California Edison to address that in their presentation. Deputy Attorney General asked Mr. Porta to explain why the compliance history was better in 1994 than in 1995 when the flow modifications were completed in 1995. Mr. Porta replied the drop may be attributed to reduced loads - their objective is to get loads to capacity and still comply with the rule and they are doing a lot of testing to see what works. Ms. Mischel asked if it were known if one of the two other major studies would recommend scrubbers? Mr. Porta explained what happened to the Navajo Station - which sits almost on the edge of the Grand Canyon. They conducted a similar study and found that emissions from the Navajo Station were showing up in the Grand Canyon. As a result of that study, in the litigation agreement, the Navajo Station did agree to put on scrubbers. The visibility problems, very complex, are mostly due to transport visibility due to sulfates and SO<sub>2</sub>, so that is why the scrubber was put on. That study precipitated those controls on that facility.

Chairman Close asked for additional questions. No questions were forthcoming.

Nader Monsour, Manager of Environmental Regulations for Southern California Edison, reviewed what the Mohave Station has been doing since the 1992 opacity standards were implemented.

Three things changed in the new standards:

- 1) Measurement location moved from duct to stack - the measurement of opacity is basically a light source and a receptor and how much light transmitted is a measure of opacity. We estimate that the change of location from the duct to the stack makes the standard at least 50% more stringent without any other changes, i.e., keeping the averaging time the same, keeping the opacity level the same, simply measuring it at a different location can make it more stringent.
- 2) % Opacity limit lowered
- 3) Averaging time shortened

The impact of the first regulation was to make the standard approximately 80% more stringent than what it was before. The second change made it 98% more stringent than it was before - a significant change. As a result, \$24 million dollars will have been spent by mid-1996 with approximately \$20 million going to centrifuge replacement. Additional expense was made to correct the flow in the precipitator's, huge chambers in which the flow comes in, passes through a plate and adheres to the plate electrostatically. Some sections of the precipitator's were not working so well so flow modifications were installed which distributed the flow more evenly inside the precipitator and resulted in considerable improvement. Mr. Monsour explained the frequency distribution graph which showed all the data that collected for this period of December '92 to March of '93 - April '93 to March '94 and April '94 to September '95. The graph depicts that opacity, almost 100% of the time was at 12% or greater. When this regulation started, approximately 65% of the time our readings were in the 30% level or greater. In the first reduction of the regulation we were able to get it down to about 25% of the time at the 30% level. Now, readings greater than the 30% level is only being exceeded 2% of the time. Significant reduction has been achieved.

Mr. Monsour addressed the sudden "puffs" of opacity. Before the regulation was changed, readings were in excess of 30% about 65% of the time, that was in the first quarter of 1993. Subsequent to that, the graph shows the number

of "puffs" or "spikes" has been gradually dropping. Some of that may be attributed to ambient temperature. We are still searching for the factors that influence the performance of the precipitator and we think the ambient temperature may be a contributing factor, thus some fluctuation may be seen from quarter to quarter, depending on ambient temperatures. The average opacity, based on day-in and day-out, used to be at 32% prior to the regulatory change but has dropped to 20%, which indicates a 38% improvement. % Time Stack > 30% - "Puffs" used to be 65% of the time and they are now at 1.4% of the time, a 98% improvement. Average # "Puffs" >40%/Month used to be 470 and are now 28, a 94% improvement.

Mr. Monsour continued, in addition to changing the opacity we looked at fugitive dust. Staff concluded that Mohave is well controlled compared to similar coal-fired power plants and all potential emission sources are controlled. We water the dirt roads, we put up wind screens and we use coal slurry instead of coal piles. In addition we reduced the fly ash disposal area acres from 5-10 acres to 1 acre. The result in the local air quality has been good. Since 1992 the area has been in attainment of all ambient air quality standards, there are no adverse health impacts from stack plume, the plant is in compliance with all emission limits, and stack emissions contribute 1% to all particulate's at ground level. Measured at Bullhead City, PM10 is below average, SO<sub>2</sub> is below average, NOX is below average and Ozone is below average but needs to be addressed but ozone concentrations are a function of automobiles and not power plant emissions. In addition, Mohave Stack contributes to Ground Level Particulate's - 17% is attributed to mobile sources; 75.1% attributed to soil/dust; 4% attributed to long distance sources; 3.8% to other; and 0.1% is attributed to 0.1%.

Mr. Monsour reported a public opinion survey was conducted to compare public views now with a survey done in 1992. We received very high marks on the role of the station in the community:

- 72% of the residents believe the Mohave Generating Station is important to the financial health of the area;

- 70% believe that Mohave workers contribute a great deal to the local community;

- +12% believe the Station is working as hard as it can to reduce emissions and improve local air quality;

- 75% of residents would rate air quality good or better;

- 73% of residents believe that the Station contributes at least some to local air pollution;

- 24% decrease in the number of residents who perceive the Mohave Generating Station to be the single greatest cause of air pollution;

- less than 1% believe that Mohave Station emissions are the most serious social issue facing the region.

We are making headway in our education efforts.

When surveyed about the opacity:

- approximately 45% did not think it had changed;

- 25% thought it believed station emissions are getting better;

- 12% believe station emissions have gotten worse;

- 40% felt they were not sure;

- 75% of residents reported they had not seen "excessive smoke" during the previous week.

You might wonder why we are not getting more and more people in the community believing that opacity has improved and to obtain an answer to that, Mohave commissioned a study that created a computer simulated appearance of the flume under various sun angles and under various opacity levels so we could see what the community may be looking at and why we are not receiving recognition from the public of the improvements that have been achieved.

Mr. Monsour revealed the computer simulated slides that showed the top readings at an opacity level of 30%, the bottom readings at an opacity level of 20%. The slides confirmed that the un-trained eye sees very little difference in the plume.



Mr. Monsour referred to the community complaints and reiterated Mr. Porta's report of how complaints have dropped.

Mr. Monsour urged the Commission to accept staff recommendation for the reasons listed:

- The new opacity standard significantly more stringent than original standard;
- Plant opacity performance greatly improved as a result of plant modifications;
- Fugitive dust survey concluded Mohave controls exceed those on similar plants, however additional measure have been implemented;
- Laughlin meets all health based air quality standards. Mohave's contribution to local particulate air pollution is insignificant;
- Community satisfaction with plant has improved;
- Complaints all but eliminated.

Chairman Close asked for questions from the Commission.

Commissioner Griswold asked Mr. Monsour, in regards to the environmental efforts, from 1992 to the present, what effect has that had on the cost of the energy.

Mr. Monsour replied he could not give a direct answer but explained how rates are set for electrical utilities. The utility makes the investment in the electrical system, the power plants, transmission lines, etc. Then the utility goes to the state regulators and those regulators pass judgement on whether it was a prudent investment or not. If it is a prudent investment, the state regulators allow the utilities to recover that investment, plus a margin of return on their investment for the shareholders. The investment that was made in the Mohave Plant was thrown in with all the other investments and improvements made to all the utilities that are members or owners of the plant, which include Nevada Power, Southern California Edison and Los Angeles Water & Power. It is not like you take the money invested in Mohave and amortize it over the energy produced for Mohave therefore the cost of generating power went up by %. Let's say we spend \$24 million. About 60% of that is going into the rate base for Southern California Edison because they are about 60% owner of the plant. That is distributed over all the energy that Southern California Edison sells, not just the energy coming out of the Mohave plant. That is the current system for accounting for how rates are set. That probably is going to change under deregulation of the electric utility business. What is going to happen is each plant would have to compete in the open market so Mohave Generating Station, if they invest money, such as they have so far, would have to internalize that cost into their production of electricity. They need to then make sure that their cents per kilowatt hour is competitive in the market place so they can sell their energy in the bulk power market.

Chairman Close asked how much the Commission's regulations cost to implement. Mr. Monsour stated the most direct cost so far is approximately \$4 million. An additional \$20 million was spent, however we would have spent that for changes and upgrades.

Commissioner Turnipseed noted going through the different quarters for the year we have low factors - Mr. Monsour explained they try to get as much energy out of a unit that they can, no matter what the quarter. Typically, in the high temperature periods we can't produce as much because the ambient temperature affects production. Chairman Close asked what causes the "puffs". Mr. Monsour replied various reasons, but most have to do with upset conditions. For instance, if an ash collects on the side walls of a boiler or tube, then breaks loose all of a sudden and falls to the bottom, the bottom boiler is the hopper where the bottom ash collects, the ash will hit the bottom and create a puff of smoke. Sometimes it could be something in the precipitator - we can't explain all of them.

Chairman Close asked if soot blowing is a force of air that goes through the system. Mr. Monsour replied that is steam that goes through the system that cleans out the stack.

Chairman Close asked for public comment.

Robert Bilbray from Laughlin stated he had been a resident of the community for approximately 17 years, is not a scientist or engineer, but noted in the past three years there had been a significant change in what he sees out his back door in the plume from the plant. He also shares approximately 1½ miles of common property with Southern California Edison and could not ask for a better corporate neighbor. Community-wise, no one has been a better supporter of community services than California Edison. They have donated parks and contributed to every possible kind of community service function in both Laughlin and Bullhead City. That is a great asset to the 25,000 people living in this area.

Dick Edwards, Laughlin High School Principal commented on the quality of the personnel at the plant and reported the plant, the school, and the union are in a partnership which supplies jobs for six students from Laughlin High School, Mohave High School and River Valley High School. The students are in a job-training setting for 3 - 4 hours a day, working in each area of the plant, experiencing work-related education. When you talk about school-to-work issues, this is a model program and is a testimony to the kind of people we have in our community who work in the plant and make management kinds of decisions. I to, am a non-scientist, I am not sure about all this opacity - I am not even sure the word opacity was in my vocabulary until today. But I do know about people and these are the kind of people we are lucky to have in our community.

Doug Louts, Superintendent of Bullhead City Elementary School District stated he had been a community member for 25 years and has noticed a great deal of change in the past few years in emissions from the stack. We appreciate everybody's efforts because it was getting to be quite a concern. On behalf of the Elementary School District, I share in Dick Edwards' comments. California Edison have been very good to us, providing employment for our boys, but more so, bringing different programs into our schools, particularly Young Scientist Programs. We are isolated and our students are not always exposed to such programs. We appreciate California Edison as a good neighbor.

Chairman Close asked for additional comments. No additional comments were received.

Commissioner Griswold remarked that she and Commissioner Trenoweth noted public comments received today were certainly different from those received in 1992. Chairman Close agreed and stated that was a compliment to California Edison who has shown a marked improvement. Chairman Close complimented Southern California Edison for doing what they had been instructed to do. The Commission appreciates your cooperation in going along with the regulations.

**Commissioner Turnipseed made a motion that the Commission accept staff recommendation and not amend the air quality regulations at the Mohave Generating Station. Commissioner Fields seconded the motion.**

Chairman Close asked for additional comments. No comments were received.

**Chairman Close asked for a vote on the motion. The motion unanimously carried.**

Chairman Close adjourned the meeting.

## INDEX

1991	2-4
1992	1-6, 8
1993	2, 4, 5
1994	2-5
1995	1, 2, 4, 5
baseline	3, 4
Bilbray	7
Bullhead City	3, 6, 7
California Edison	1, 2, 5, 7, 8
centrifuge	3, 5
citizen	1, 3, 4
Clean Air Act	2, 4
Close	1, 4-8
Commission	1, 2, 4, 6-8
compliance	3-6
cost	4, 7
Cowperthwaite	1
Doppe	1
Doug Louts	7
duct	2, 5
dust	1, 3, 5, 6
Edwards	7, 8
electrostatic precipitator's	1
Emissions	1, 3-6, 8
ESP	2
Exstrum	2
Fields	1, 4, 8
flume	6
fly ash	3, 6
Fugitive	1, 3, 5, 6
Gifford	1
Grand Canyon Visibility Transport Commission Study	4
Griswold	1, 4, 6, 8
Health District	2
Iverson	1
Jones	1
Laughlin	1, 6, 7
Legislature	2
MBtu	2
megawatts	1, 4
Mischel	1, 5
Mohave	1-8
Molini	1
Monsour	5-7
NOX	1, 6
Opacity	1-7
phased-in	2
PM10	3, 6
Porta	1-6
Powerplant	1
Project Mohave	4
Puffs	4, 5, 7
SO2	3, 5, 6
Spikes	3-5
stack	2-8

sulfur dioxide .....	1
Tangredi .....	1
Trenoweth .....	1, 8
Turnipseed .....	1, 7, 8
Visible .....	1