

SENATE ECOLOGY COMMITTEE

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Public Hearings --- March 5, 1971

University of Nevada at Las Vegas Campus - Auditorium

Committee members present:

Thomas Wilson, Chairman

John Foley

Lee Walker

Chic Hecht

" " absent:

Emerson Titlow

Clifton Young

Coe Swobe

Under consideration were several bills: S.B. 15, 118 & 275.

TESTIMONY

SENATE BILL NO. 275 and ASSEMBLY BILL NO. 392

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HERBERT M. JONES, Attorney for BASIC MANAGEMENT INC., Henderson, Nevada, and its members, TITANIUM METALS CORP. OF AMERICA, STAUFFER CHEMICAL COMPANY, KERR-MC GEE CHEMICAL CORP., and FLINTKOTE CO.

This witness has been authorized to appear before this Honorable Committee for the specific purpose of stating that Basic Management Inc. does not oppose Senate Bill No. 275 and Assembly Bill No. 392, however, they do respectfully request permission to make what Basic Management Inc. deems to be a few constructive suggestions for amendments to said Bills and it feels that might make the Bills more applicable to the Nevada environment and conditions.

1. Directing your attention to page 2 of Senate Bill No. 275, line 2 of Section 4, we would like to suggest that a comma be inserted after the word 'atmosphere', and the words "except water vapor and water droplets" be added thereto.

Basic Management Inc. feels that the atmospheric conditions in the State of Nevada lends itself completely to the rapid absorption of any moisture factor such as water vapor and water droplets and thereby does not create a problem that would be sufficiently beneficial to the statute to compensate for the problems that might be created by eliminating these words.

2. We would further like to suggest that Section 11-2 on page 2 of the Senate Bill No. 275 be amended as follows:

"The members are to possess demonstrated knowledge and interest in environmental matters. That said members shall be selected, one each from the following professions and industries: Law, Engineering Higher Education, Agriculture (Soil Conservation or Wild Life), Organized Labor, Medicine (and/or Public Health), Manufacturing (or Mining

Industry), Municipal Government, and one Lay person. Membership of the Board shall fairly reflect the population distribution of the State."

The foregoing suggestion is made upon the belief that 150
it would be extremely difficult to ever get a Board constituted under the existing paragraph, and that there would be many individuals in the State of Nevada who would qualify with the above suggested prerequisites, and who would not only be interested in serving but who would endeavor to familiarize themselves with the subject in such a manner as to make the Nevada Environmental Law a credit to this State.

3. Referring to Section 22 (b), Basic Management Inc. would like to suggest that the following sub-section be inserted thereafter:

"(c) If the Board determines that no practical means is known or available for prevention, abatement or control of the air pollutant involved, a variance may be granted but said variance shall continue only until such means become known and available".

We make this suggestion that as the law in its present form would not allow any variance to be granted in spite of the fact that the State of the Art of that particular industry to a stage where there were any known solutions to the problem. The law apparently endeavored to take care of this problem by inserting a similar type paragraph under Section 24 (a) on page 8 from line 1 through 4, however, with this particular section being placed where it now is in the law there would never be any way for the variance to be obtained in the beginning, therefore, Section 24 (a) should be deleted and sub-section 22 (c) inserted as suggested above.

4. We would like to suggest that Section 25, sub-section 2, page 8 of said Senate Bill be amended to read as follows:

"Judicial review may be had of the granting or denial of a variance or any other alleged violation or breach of this statute, said judicial review to be conducted in accordance with the procedure

The statute in its present printed form would limit the type of review which could be obtained before the courts of the State or the Federal jurisdiction and does appear to be too restrictive in its present form. It is interesting to note that the Federal law does not put any limitations upon the rights of an appellant appearing before the Board to ask for or receive judicial review but simply gives him the right to have judicial review in the event of controversy pertaining to the adjudication of the Board.

5. Referring to Section 27, page 8 of the aforesaid Senate Bill, we would like to suggest that sub-section 3 be added to Section 27 which would read as follows:

"At any hearing held under this Section, before the Board, it shall be one of the Boards rules of procedure that all witnesses testifying in regard to an alleged violation of the statute shall testify under oath, and the witness shall be subject to cross-examination by the parties to the hearing."

6. Referring to Section 35, sub-section 4, page 11 of the Senate Bill No. 275, we would like to suggest that this Section be amended to read as follows:

"A person who discloses and/or knowingly uses information by violation of this Section is guilty of a felony and shall be liable in tort for any damages which may result from such disclosure or use. Any conspirator or purchaser of said information shall also be liable in tort for any damages which may result from such disclosure or use by said conspirator or purchaser of said information".

The foregoing suggestion is made, as a misdemeanor with a six months sentence and a possible \$500.00 fine might be deemed to be a minor punishment for the amount of money that could be obtained for some of the confidential information possessed by some industries pertaining to their own individual processes and procedures.

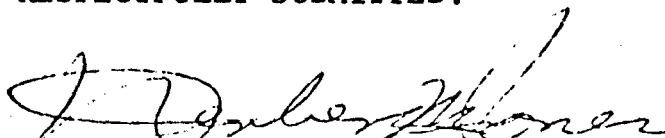
The individual who might disclose such information might also be judgment proof and yet sell such information to some individual who also should be liable in tort if they assisted in obtaining such information.

For those reasons, we ask that the above amendment be made to the statute.

7. Referring to Section 38, page 11 of said Senate Bill No. 275, we respectfully request that said Section be amended to read as follows:

"Except as provided in Section 40 of the Act, judicial review of all decisions of the Board when acting as a hearing Board or otherwise, shall be allowed upon proper petition being made for said judicial review. Any such judicial review shall be a trial de novo.

RESPECTFULLY SUBMITTED:


HERBERT M. JONES

ENVIRONMENTAL PROTECTION AGENCY

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REGION IX
50 FULTON STREET
SAN FRANCISCO, CA 94102

Air Pollution
Control Office

March 4, 1971

Honorable Thomas Wilson
The State Senate
Legislative Building
401 S. Carson Street
Carson City, Nevada 89701

Dear Senator Wilson:

Recently the Administrator of the Environmental Protection Agency, Mr. William D. Ruckelshaus, wrote Governor O'Callaghan about provisions of the 1970 amendments to the Clean Air Act that directly affect the States. Since you may not have received a copy, enclosed is the text of the letter to the Governor.

As Mr. Ruckelshaus states in his letter, this Office wishes to assist you and your colleagues to meet a very difficult mandate: the formulation and adoption of a statewide implementation plan to control air pollution. Your state, for example, may need to pass additional enabling legislation.

We wish to provide you information about what an air pollution control law should contain in order to be consistent with the new Federal legislation. For this reason, we are enclosing a staff evaluation of existing enabling legislation as it pertains to the requirements of the Clean Air Amendments of 1970. Please understand that our evaluation was done in a relatively short time period and the final interpretation of your existing legislation's consistency with the new Federal act rests with the State Attorney General's office.

We realize that you may have many questions which cannot be answered by this letter. In the next few weeks, our staff will be meeting with your State air pollution control officials to discuss the legal and other pertinent requirements necessary to develop the statewide implementation plan. This plan is due on January 25, 1972 for certain pollutants under the timetable dictated by the 1970 amendments to the Clean Air Act. If I can be of further service to you, please do not hesitate to contact me and we can arrange an appointment at your convenience to discuss these matters.

Most cordially,

David L. Calkins

David L. Calkins, Regional
Air Pollution Control Director

Enclosures

REVIEW OF LEGAL AUTHORITY FOR NEVADA
Chapter 445, NRS, Sections 2-40

ENVIRONMENTAL PROTECTION AGENCY
Air Pollution Control Office
February 1971

ESSENTIAL PROVISIONS	STATUS
1. Broad policy or definition of air pollution consistent with the Clean Air Act, as amended to protect and enhance air quality.	O
2. Authority to adopt rules and regulations including emission limitations on all sources.	A
3. Authority to require information relevant to air pollution control including authority to require periodic reports of emission information.	O
4. Authority to provide that emission reports be available for public inspection.	U
5. Authority to require installation of equipment by owner or operator of stationary sources to monitor emissions and to conduct source tests.	O
6. Authority to prevent construction or modification of new sources including prior review of location and compliance with appropriate rules and regulations. (Basically a permit to construct system).	O
7. Authority to inspect emission sources.	A
8. Authority to test emission sources.	A
9. Authority to issue appropriate orders to compel compliance with regulations.	I
10. Provision for adequate civil or criminal penalties.	A

A - Adequate
U - Unacceptable

I - Improvements desirable
O - No express provision

ESSENTIAL PROVISIONS	STATUS
11. Provision for injunctive relief in the event other legal remedies fail to abate violations.	A
12. Authority to implement emergency action comparable to section 303 of the Clean Air Act, as amended.	0
13. Authority (to the extent necessary to achieve and maintain National air quality standards) to adopt land use and transportation control.	0
14. Authority (to the extent necessary and practicable) for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards.	0
15. Authority as appropriate to regulate and coordinate local programs that are included in implementation plans.	A

A - Adequate
U - Unacceptable

I - Improvements desirable
0 - No express provision

Item 4. Emission data related to production apparently cannot be public record as stated in Section 38 of the Nevada Statutes.

Item 9. Immediate order of abatement cannot be issued.

ENVIRONMENTAL PROTECTION AGENCY
1626 K Street, N. W.
Washington, D. C. 20460

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Dear Governor _____:

On December 31, 1970, President Nixon signed the Clean Air Amendments of 1970, a copy of which is enclosed. The new legislation will require the Environmental Protection Agency and State governments to play an increasingly active role in dealing with the Nation's air pollution problems.

My purpose in writing to you is to call attention to those provisions of the new legislation that will most directly affect State air pollution control programs and to outline some of the steps that States will have to take to translate these provisions of the law into action.

First, the new legislation provides for promulgation of national ambient air quality standards. On January 30, 1971, proposed national ambient air quality standards for sulfur oxides, particulate matter, carbon monoxide, hydrocarbons, nitrogen oxides, and photochemical oxidants were published in the Federal Register. A copy of the Federal Register notice is enclosed. An announcement of the publication of air quality criteria for nitrogen oxides appeared the same day. Air quality criteria for the other five pollutants had been issued previously. No later than April 30, 1971, after review of comments submitted to us, national standards for these six pollutants will be promulgated.

State governments then will be required to formulate and adopt, after reasonable notice and public hearings, State-wide plans for implementation of the national ambient air quality standards. Such implementation plans will have to be submitted to the Environmental Protection Agency for review no later than nine months following the promulgation of the national standards.

The Environmental Protection Agency is now preparing guidelines to assist State governments in formulating implementation plans that will be acceptable under the new provisions of the Clean Air Act. It is expected that these guidelines will be published within the next several weeks.

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In the meantime, because of the time constraints imposed by the new provisions of the Clean Air Act, it is essential, particularly if your State legislature is now in session or will soon convene, that you make a prompt determination as to whether new State legislation will be needed to enable your State to formulate and carry out implementation plans meeting the requirements of the Act. To assist you in making such a determination, the Environmental Protection Agency has prepared the enclosed check-list of the types of statutory authority States will need.

It is our hope that you will work with your State attorney general, State air pollution control officials, and leaders and members of your State legislature in developing and adopting any new legislation you determine to be necessary. Technical assistance will be available from the Environmental Protection Agency's Regional Offices.

No doubt, many States will have questions about air quality standards and/or implementation plans they have already adopted or are in the process of developing. To the extent that any such air quality standards are equivalent to, or better than, the national standards, those State standards will remain in effect. Implementation plans already adopted and submitted will be reviewed and, within 90 days after promulgation of the first national ambient air standards, the States will be notified of needed modifications. States now in the process of formulating implementation plans should pursue this work, making any modifications necessary to conform to the new law, so as to enable the submittal of such plans well in advance of the statutory deadline.

The new provisions of the Clean Air Act also authorize the Environmental Protection Agency to establish performance standards for new stationary sources of air pollution and emission standards for hazardous emissions from any stationary sources. The first such standards will be promulgated later this year. Enforcement of these standards may be delegated to States if they submit adequate enforcement plans. The Environmental Protection Agency will provide advice on the formulation of such enforcement plans. It is our hope that all States will assume responsibility for this activity since it is an integral part of any effective air pollution control program.

I am sure you will be interested in knowing that under the new provisions of the Clean Air Act, States will be eligible, in some cases, for a greater degree of Federal grant support than they have received previously. For the first time, the grants

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based on three-to-one or three-to-two ratios of Federal-to-non-Federal funds, which previously were available only to interstate and intermunicipal programs, will be available to State programs.

The Clean Air Amendments of 1970 will, of course, have many other far-reaching effects on Federal and State programs for the prevention and control of air pollution. It is our intention to maintain communications with State governments, primarily through our Regional Offices, so that we can readily assist you in carrying out your responsibilities under the Clean Air Act and so that our efforts and yours can be properly coordinated.

You are aware, I am sure, that the new legislation calls on Federal and State agencies to accomplish a great deal within a relatively short time. This task will require an increased commitment of resources and an increased willingness to come to grips with the complexities of air pollution control. I ask your cooperation in this important and exciting endeavor.

Sincerely yours,

William D. Ruckelshaus
Administrator

3 Enclosures

Check-list of Required State Legal Authority*

1. Authority to adopt emission standards and limitations and any other measures necessary (e.g., limitations on the sulfur content of fuels) for attainment and maintenance of national ambient air quality standards.
 2. Authority to enforce without delay applicable laws, regulations, and standards, with appropriate sanctions including authority to seek injunctive relief.
 3. Authority to abate pollutant emissions on an emergency basis to prevent substantial endangerment to public health, i.e., authority comparable to that available to the Environmental Protection Agency under Section 303 of the Clean Air Act, as amended.
 4. Authority to establish and operate a State-wide system under which permits would be required for the construction and operation of new stationary sources of air pollution and the construction and operation of modifications to existing sources, including authority to prevent such construction, modification, or operation, and any other necessary land use control authority.
 5. Authority to obtain information necessary to determine whether air pollution sources are in compliance with applicable laws, regulations, and standards, including authority to require record-keeping and to make inspections and conduct tests of air pollution sources.
 6. Authority to require owners or operators of stationary sources to install, maintain, and use emission monitoring devices and to make periodic reports to the State on the nature and amounts of emissions from such stationary sources; also, authority to make such data available to the public as reported and as correlated with any applicable emission standards.
 7. Authority to carry out a program of inspection and testing of motor vehicles to enforce compliance with applicable emission standards when necessary and practicable, and other authority necessary to control transportation.
- * An implementation plan approvable under the Clean Air Act, as amended, must show these authorities are immediately available to the State agency or agencies directly responsible for the developing and carrying out such plans. The authorities described may be provided by specific or general legislation, and must be applicable to the entire State.



Council

TRIBUNE BUILDING • HIGHWAY 50 • P.O. BOX 3475
SOUTH LAKE TAHOE, CALIFORNIA 95705 • 916-544-5294

February 19, 1971

Mr. Ernest Gregory
Nevada State Sanitary Engineer
201 South Fall
Carson City, Nevada 89701

Dear Ernie:

Following up our recent conversation pertaining to Lake Tahoe water quality laws in Nevada, we remit for reference, (1) California Water Quality Control Policy covering Lake Tahoe, (2) the Addendum Regarding Implementation, (3) the recently adopted Addendum regarding Control of Siltation and (4) a brief summary of the Porter Cologne Water Quality Control Act adopted by the State Water Resources Board.

We are sincerely hopeful that any proposed revisions of the Nevada water control policy for Lake Tahoe will take into consideration the existing laws now in effect in California. You are probably aware that the Porter Cologne Act provides penalty fines up to \$6,000 per day for discharge violators.

The Lake Tahoe Area Council's concern is the siltation that is reaching the lake. Our Board of Consultants state that now that sewage export is a reality, the biggest single threat to the clarity of Lake Tahoe is from siltation coming from questionable land use practices in the basin. We are therefore hopeful that the above resource material will be of useful assistance in revising the existing Nevada laws concerning the Lake.

Our office would like to be kept apprised of your thinking on this matter and of any changes proposed in present Nevada law.

Very truly yours,

Lois E. Williams
Executive Secretary

Enclosures

CC: Governor Mike O'Callaghan
Senator Thomas R. C. Wilson

LEW:cb

STATE OF CALIFORNIA
THE RESOURCES AGENCY

STATE WATER RESOURCES CONTROL BOARD

CALIFORNIA REGIONAL
WATER QUALITY CONTROL BOARD
LAHONTAN REGION

LAKE TAHOE
WATER QUALITY CONTROL POLICY
ADDENDUM REGARDING
CONTROL OF SILTATION

December 17, 1970

PURPOSE

The purpose of this addendum is to protect the waters of Lake Tahoe and the California streams tributary to Lake Tahoe from degradation caused by land erosion within the watershed.

Portions of the shoreline area of Lake Tahoe and its tributary streams, both in California and Nevada, have in recent years been subjected to siltation from man's activities in the watershed. Siltation problems are especially serious in the areas of the watershed where land development has taken place. Many areas of the Tahoe Basin previously undisturbed are now being developed for residential and tourist oriented recreational uses. Siltation of tributary streams and the lake shoreline will occur in these areas unless strict attention is given to siltation control.

Mud, clay, silt, sand, nutrient materials, and debris enter Lake Tahoe in great quantities through the tributary streams which drain the developing areas of the watershed. During the spring and early summer months when the runoff rates are at their peak, certain shoreline areas are at times a chocolate brown in color.

Recent studies have shown that surface water runoff from developed and developing areas contains large quantities of nutrient materials which support the growth of algae in Lake Tahoe. During the summer of 1969, the first algal bloom of record in Lake Tahoe occurred along the south shore. Land erosion and the resulting continuous inflow of nutrient material and silt to the lake was the likely cause of this bloom.

FINDINGS OF FACT

The California Regional Water Quality Control Board, Lahontan Region, has reviewed this matter in detail and finds the following to be true and the basis for the discharge prohibitions contained herein.

- 1) The clarity of the waters of Lake Tahoe is presently being reduced in certain shoreline areas by the discharge of silt, sand, clay, nutrients, and organic materials directly into Lake Tahoe and its tributary streams.
- 2) Other water quality characteristics of the waters of Lake Tahoe are also being unreasonably degraded by discharge of silt, sand, clay, and other organic and earthen materials.
- 3) Earthen materials are intentionally and negligently being placed in locations where they will be discharged into Lake Tahoe and its tributary streams by surface waters.

- 4) The degradation of water quality and reduction in water clarity of Lake Tahoe and its tributary streams does presently have an adverse effect upon the beneficial uses of Lake Tahoe and its tributary streams including domestic water supply, fish and aquatic life, aesthetic enjoyment, and water contact sports.
- 5) A large and controllable percentage of the siltation of Lake Tahoe is the direct result of excavations, grading, filling, clearing, subdivision, and other land developments within the Lake Tahoe Watershed.
- 6) It is possible, practical, reasonable, necessary for the protection of the water quality of Lake Tahoe, and in the best public interest to require that all controllable man-caused sources of siltation to Lake Tahoe be stopped at the earliest possible date.
- 7) A pollution as defined by Section 13050 of the California Water Code, does exist in certain shore-line areas of Lake Tahoe at certain times of the year as a result of man's activities in that the quality of the waters is being altered by waste to a degree which unreasonably affects such waters for beneficial uses and facilities which serve such beneficial uses.
- 8) The discharge prohibitions contained herein are necessary for the protection of the water quality of Lake Tahoe and for the maintenance of the water quality objectives set forth in the Lake Tahoe Water Quality Control Policy.

APPLICABILITY

The discharge prohibitions contained herein shall be applicable to any person as defined by Section 13050 of the California Water Code and to any person who is a citizen, domiciliary, or political agency or entity of California whose activities in California or in another state affect the quality of the waters in Lake Tahoe or its tributary streams in California.

DISCHARGE PROHIBITIONS

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- 1) The discharge of solid or liquid waste materials including soil, silt, clay, sand, and other organic and earthen materials to Lake Tahoe or any tributary thereto, is prohibited.
- 2) The discharge of solid or liquid waste materials including soil, silt, clay, sand, and other organic and earthen materials to lands below the high water rim of Lake Tahoe or within the 100-year flood plain of any tributary to Lake Tahoe, is prohibited.
- 3) The placement of material below the high water rim of Lake Tahoe or within the 100-year flood plain of any tributaries to Lake Tahoe, in a manner which will cause the discharge of solid or liquid waste materials including soil, silt, clay, sand, and other organic and earthen materials to Lake Tahoe or any tributary thereto, is prohibited.

THE PORTER-COLOGNE WATER QUALITY CONTROL ACT

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In 1968 the State Water Resources Control Board appointed a Study Panel to initiate a year-long study of California's existing water quality control laws. The recommendations of the Study Panel were embodied in the Porter-Cologne Act, which became operative on January 1, 1970. The Act represents the first comprehensive revision of California's water quality laws in the last twenty years and is considered the toughest in the nation.

NEW CONCEPT OF BENEFICIAL USES

The new law reflects the growing environmental awareness and public concern over the pollution of natural resources. Beneficial uses of water to be protected by the State from pollution previously did not officially include esthetic uses and preservation and enhancement of fish and wildlife. However, the new law expands the legal definition of beneficial uses to include these important items.

Practically, the new definition enables more stringent regulation of water use and waste disposal to upgrade water quality. Philosophically, the inclusion of esthetic enjoyment is a major departure from most existing regulatory statutes and adds a new element to be protected: the beauty of the environment.

A basic premise of the Porter-Cologne Act is that the discharge of wastes into the waters of the State is not a right but a privilege granted by the State to cities, counties, private citizens, industry and State agencies as well. This privilege is regulated by the State, which has the responsibility and the obligation to protect State waters for the benefit of all the public.

ENFORCEMENT PROVISIONS

Waste discharge violations are first met with administrative action by the nine California Regional Water Quality Control Boards. If administrative action is unsuccessful, the boards are empowered to institute court proceedings through the State Attorney General where waste discharge violators can be fined up to \$6,000 per day for each day in which a violation occurs. (This is the highest fine provided by any State.)

In addition, violators must pay the full cost of any necessary cleanup resulting from the violation. California is the only state to have this provision. In short, California now has the toughest water quality Control act in the nation.

PUBLIC PARTICIPATION

The Porter-Cologne Act and the policies of the State Board and regional boards provide for increased public participation in the water quality decision-making process. Public hearings are used as a method of letting the public take part in the creation of policies to guard against pollution. If a person is dissatisfied with any action (or inaction) of a regional board, he may petition the State Board for review at any time. If State Board action is unsatisfactory, appeal may be taken to the Courts.

CALIFORNIA-PACIFIC UTILITIES COMPANY

550 CALIFORNIA STREET
SAN FRANCISCO, CALIFORNIA 94104

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986-0433

March 4, 1971

Senate Ecology
Committee
Public Hearing
3/5/1971

Honorable Thomas R. C. Wilson,
Chairman, Committee on Ecology
State Senate
Carson City, Nevada

Dear Sir:

Chairman Noel A. Clark of the Public Service Commission of Nevada has sent us a draft of a proposed "State Utility Environmental Protection Act" which appears to be identical to Senate Bill No. 287 which has been referred to your committee.

The purpose of this letter is to inform you of our belief that many of the provisions in SB 287 are unwise and impractical and would seriously interfere with the ability of Nevada utility companies to provide adequate and reliable utility service.

Section 10 defining "utility facility" is the source of much of the problem with SB 287. Sub-section 1 makes the bill applicable to all electric lines and associated facilities of a capacity of 12 kilovolts or more and defines such lines as "transmission lines". Such lines have not commonly been considered to be transmission lines for a great many years in the utility industry. Most utility companies lowest voltage line classified as a transmission line is in the vicinity of 60 kilovolts although some smaller systems classify lines in the range of 35 kilovolts as transmission.

By setting the limit at 12 kilovolts, it is assured that nearly every line built in the state of Nevada, whether it is a major 500 kilovolt transmission line clear across the state or a single span 12 kilovolt line extension to serve one customer, will be subject to the same type of Commission review and permit procedure. The delays attendant to and workload involved with such a permit procedure for every distribution voltage line extension in Nevada would quickly bring to a halt the Commission's action on the other responsibilities it has unless its staff were increased manyfold. More importantly, however, this type of licensing procedure would drastically delay the extension of electric service to new customers requesting it.

An additional problem with the electric facility definition is the inclusion of the term "associated facilities". If this term has any meaning at all, it must include transformers, switches, fuses, capacitor banks, and other equipment generally found on electric lines of 12,000 volts and above.

Honorable Thomas R. C, Wilson
March 4, 1971
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When a new customer is to be served from an existing overhead electric line, unless there already is a transformer near his property, it is necessary to install a transformer on a nearby pole. Under SB 287 that would constitute the construction of a utility facility and would require the obtaining of a permit after the filing of an application and hearings held by the Commission. Because the prospect of such an application for each simple addition to an existing electric line is so unbelievably inapt, it is difficult to ascribe this meaning to "associated facilities". But if it does not have this meaning, we are unable to discern what meaning it may have.

The sub-section of Section 10 dealing with communication facilities also contains the unhappy phrase "associated facilities". Perhaps one could reasonably interpret the phrase in that sub-section to exclude telephone instruments within houses; perhaps not. It would seem impossible, however, to interpret the phrase "associated facilities" to exclude telephone distribution lines and service drops. Thus a telephone utility, like an electric utility, would be unable to extend its lines to serve new customers or even serve new customers from existing lines without obtaining the permit contemplated by SB 287.

Section 12 of the bill sets out the required contents of the application for a permit. Sub-section 1 (e) thereof leaves the Commission unfettered discretion to require in the application data, studies, or other material not specified in the bill itself. The section is completely open ended and creates the possibility that the Commission might require an array of data never contemplated by the legislature.

Lest it appear we are insensitive to the worthwhile sentiments expressed at the outset of SB 287, I should point out that California-Pacific Utilities Company has for some time endeavored to minimize the impact of its facilities upon the environment in which they are located. The importance of environmental protection is not underestimated by this Company. What troubles us about SB 287 is that in apparent zeal to protect the environment a proposal has been made which will seriously interfere with the provision of utility service to Nevada residents. It is doubtful that people living in a new house in which they cannot have electricity or telephone service until after separate hearings on each of those services would consider the proposed procedure one which truly protected their environment. It has been said with some truth that a person's environment is seriously damaged when his power goes off; it is worse if the power never goes on.

We respectfully submit that SB 287 in the version dated February 19, 1971 is contrary to the public interest and ought not to be endorsed by your committee.

Sincerely,



Ross Workman,
Financial Vice President

RW:jcg

cc: Noel A. Clark, Chairman, Nevada Public Service Commission

STATEMENT OF DAISY J. TALVITIE, CHAIRMAN
OF ENVIRONMENTAL QUALITY, LEAGUE OF WOMEN
VOTERS OF NEVADA, AND CHAIRMAN OF OPEN
SPACES COUNCIL AIR POLLUTION TASK FORCE

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SENATE COMMITTEE HEARINGS
March 5, 1971

Mr. Chairman: The League of Women Voters of Nevada has been studying air pollution in Nevada for several years. During that time we have published several reports on the problems in our State including an analysis of Nevada law as compared against a Model law developed by the Council of State governments and recommendations of the National Air Pollution Control Office. Last May, the League in co-operation with the Open Spaces Council and several other civic organizations organized the bill drafting Task Force which has worked with legislators Hilbrecht, Brookman, Frank Young, and Mel Close to draft bill 275 which is the bill we are considering today. Several other legislators kept in touch with the Task Force during its deliberations even though they were unable to attend our meetings.

The League and the Task Force both believe that we Nevadans should accept state responsibility for air pollution prevention and control. We believe that both Nevada citizens and Nevada industry will be better served by local and state enforcement than by federal enforcement. And, as pointed out by Mr. Calkins, the regional director of the federal program, federal enforcement will result if there is no action at this session of the legislature. The new federal law establishes a timetable and certain requirements of the States. It does not leave the decision on federal pre-emption to the discretion of the federal administrator but rather mandates that he shall not approve a state's program if certain requirements are not met. Nevada's present law is deficient in 10 of the 15 areas required. The Task Force, working in anticipation of the passage of the federal law, attempted to draft a law that would meet the required enabling legislation. Mr. Calkins examined bill 275 this past week and found that we had succeeded in thirteen areas but still were lacking in two areas. These are pointed out in his testimony before the assembly committee. A copy of his testimony was placed on each legislator's desk in Carson City yesterday.

The League and the Task Force also believe that Nevadans themselves want air pollution problems and we would have been working continuously to that end, as we have for the past several years, even if the federal law had not been passed. The bill itself establishes no regulations. It provides the framework and the guidelines under which air pollution problems can be solved. It begins with an adoption of state policy which is important since it will serve as a guideline to both the governing board and the courts as interpretations of legislative intent. A key sentence is the statement of policy in Section 2, subsection 2 (a). This sentence establishes the principle that regulations shall be based on the latest control technology. You will find, on examination of federal law, that federal regulations are to be based on this same principle. The sentence also indicates through its broad wording that other methods such as proper highway design may be considered. However, I must emphasize that this statement is itself is a statement of policy only. Of itself, it establishes no authority. But the principle of latest control technology is of major importance. In Section 4, you will find a definition

of air contaminant as any substance discharged into the atmosphere. This definition is of the utmost importance and must be retained exactly as it is. Undoubtedly, there will be efforts to limit the definition of air contaminant with proposed exemptions of water vapor and perhaps even some other substances. In air pollution we deal with many different problems and with a mass of many different substances in the atmosphere. Water vapor, for example, may in some cases be beneficial. But if a plume of a plant located close to a highway descends to ground level, it can cause a serious visibility problem even though that plume is pure water vapor. This has already happened in some states--notably Oregon and New York. Also water vapor coming from a source in an area where sulfur dioxide is present can combine with the sulfur dioxide and create sulfuric acid mist which cannot be ignored. To date, we have not had to deal with water vapor as a problem in Nevada and have under regulation worked with the industries to exempt pure water vapor from penalties, etc. 175

But, the legal authority to deal with this type of problem must be there, in case the problem arises. The definition given here is the definition that is already Nevada law through regulation, and to change it in the law would be to weaken the present regulations. In any case, no regulation will be adopted without public hearing in which industry will be able to present its views for consideration. The same can be said for all other regulations. If there is no problem, it can be shown at that time.

I do not wish to go through S.B. 275 line by line as that would take a very long time. Rather, I prefer to stress the importance of each provision and that there is a reason for its being in the law and to answer your questions about the ones that you may want clarified. I do want to offer at this time a few recommendations for change which we have found necessary. This is about our fourth draft but we do still find a few errors in the drafting that must be corrected.

Section 11, subsection 2. Membership of the board. It was the recommendation of our committee that this section read:

"No officer, employee, major stockholder, consultant or counsel of any industry or any political subdivision of this state that would be substantially affected by decisions of the board shall be appointed to the board."

It was not our intent that no businessman should be eligible for appointment, but we do feel very strongly that since the board is to make enforcement decisions, there must be no conflict of interests. We do not want to be faced with a situation as occurred in one of our neighboring states when a water board had brought before it a charge against a packing house which was putting its raw waste into a river. It turned out the owner of the packing house was a member of the board.

Section 29, subsection 1 (b). This section was written before the passage of the new federal law. Under the 1967 law only six counties in Nevada had been designated federal control regions and the provision as written was designed to meet that situation. The new federal law now establishes that all counties in the state are a part of a federal control region so the section is no longer appropriate. It was the intent of our committee that the urban counties should be required to have programs of their own. Other counties should be allowed to solve their own problems either by inter-local contracts, contracts with the State, or establishing regional authorities. This section now needs either rewrite or possibly deletion.

(Cont.)

Section 28. Subsection 3. This is a drafting error in that it should read: "Should any pollution control equipment required pursuant to subsection one be removed, etc." Pollution control devices do not relate to visible auto emissions that are discussed in subsection two that this correction is therefore essential.

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Section 33. This section does not fully solve the problem of maintaining existing programs. A great deal of time, work, and money has gone into development of local programs. Many compliance schedules have been developed, regulations adopted, etc. It was our intention to give every protection to those programs to assure that their work had not been lost. Some rewrite will be necessary to assure that both the existing state and local regulations remain in effect until the boards alter them under the established procedures.

We also need to include a section to retain existing structures at the local levels such as local hearing boards, authority of local health districts, etc. Also we should include a section to assure that enforcement agreements remain in effect. I believe the local Department of Health will have some suggestions as to exact provisions.

Let me state once again that we stand solidly behind S.B. #275. And I do request permission to comment on amendments proposed by other witnesses after we have heard them.

At the hearings before the assembly committee on Wednesday, Kennecott Copper proposed a number of amendments which were unacceptable to us as they essentially would have resulted in what amounted to grandfathering in some of the older sources and also would have created some very dangerous side effects. I have a copy of those proposals but I understand they may be presenting some changes in them. However, I am prepared to comment on them at this time if you wish.

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2301 EAST SAHARA
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TO: SENATE ECOLOGY COMMITTEE

SUBJECT: S. B. 275

We look to the citizens of Nevada to support the philosophy of the idea behind the best quality air and water, consistent with our economic progress.

However, we oppose any Bill in the field of environmental control which would be detrimental to that economic progress. Specifically, we feel that S.B. 275, and its companion A.B. 392, are unacceptable as presently constituted, particularly in that they do not provide for sufficient judicial review and notification of violators, that the penalties are overly severe and could be financially disastrous to businesses and that the proposed makeup of the Air Pollution Control Board is discriminatory and again does not provide for wide enough representation from all economic segments of the State's economy.

That this Bill and similar Bills should be carefully considered by the committees of both Houses and redrafted or extensively amended, and should be again thoroughly reviewed by the affected segments of the society before final consideration through public hearings.

By order of the Executive Committee of the Board of Directors.

By: 

Gaylord K. Prather
President

THE BLACK MESA CRISIS

A REPORT PREPARED BY THE

COMMITTEE FOR TRADITIONAL
INDIAN LAND AND LIFE

OCTOBER, 1970

REVISED
NOVEMBER, 1970

COMMITTEE FOR TRADITIONAL
INDIAN LAND AND LIFE
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The most destructive and dangerous method of mining coal is now being used to desecrate Black Mesa, Sacred Female Mountain to the Navajo Indians and sacred to the Hopi for a dozen centuries before the coming of the Euro-Americans. The white man is uncaringly defiling the religion of the indigenous North Americans, disrupting sacred places and holy mountains, and ignoring the desires and warnings of the Navajo and Hopi People. The strip-mining of Black Mesa is a blasphemy to the traditional Indians and a threat to all land and life, according to their religious leaders. This is being done to make 'cheap' power for the white man's cities and to make way for the dying nova of Euro-American civilization.

The ancient and still strong examples of the way man should live, and the way the Euro-Americans must learn to live, are threatened directly with extinction by the Black Mesa Project. The traditional Hopi and Navajo are living ways of life older, more stable and more at one with Nature than that of the Anglos. The nomadic Navajo and the agrarian-village culture of the Hopi are examples of traditional ways more-or-less intact, now fighting big business exploitation and governmental economic-cultural manipulation to remain so.

From the beginning the indigenous North Americans told the invading white man the Euro-American way of life was dangerous to all land and life on Earth. They were not heard—they were massacred. Now all that they have warned us of has come to pass: the waters we drink are poisoned, the air we breathe is poisoned, the food we eat is poisoned, our agricultural lands are dead and dying, the people in our cities have gone insane, and the whole of the cycle of life is being destroyed by the way we live.

The Peabody Coal Company of St. Louis, already responsible for much devastation in Appalachia, has been given permission to strip-mine 100 square miles of the Sacred Female Mountain in a lease negotiated with the Bureau of Indian Affairs and the Department of the Interior. The Black Mesa Project involves land, life, and so-called resources located on the Kayenta Plateau in north-eastern Arizona, on the reservations of the Navajo and the Hopi. Peabody, wholly owned by the Kennecott Copper Company, will make over \$750,000,000 while feeding this low-grade, dirty coal into one of the largest power complexes in the country.

Some of the coal ripped from Black Mesa will be sent 80 miles by rail to the Navajo Power Generating Station near Page, Arizona. The rest will be crushed, mixed with precious desert water and pushed 272 miles through an 18" pipeline to the Mohave Power Generating Station near Bullhead City, Nevada. These two plants are part of a grid called W.E.S.T. (Western Energy Supply and Transmission Associates), which officially involves 23 major state, municipal and federal power companies and agencies. This politically and economically powerful complex sprawls over California, Nevada, Arizona, New Mexico and Utah, and it includes the Los Angeles Department of Water and Power, the Salt River Project of Arizona, Southern California Edison, the U.S. Bureau of Reclamation, and the Arizona Public Service Company. Also involved are many companies and agencies not officially connected with W.E.S.T., including such notables as Southern Pacific, Shell, Westinghouse, Boise Cascade, General Electric and Kennecott Copper.

→ This profit conglomerate is in the process of creating a wasteland out of the Southwest, under the guise of the "Four Corners Development Project." The spread of devastation resulting from what they do will be wide. The once-lush Imperial (S. Calif.) and Mexicali (Mex.) Valleys could easily be rendered completely un-productive. An area extending from Southern California to the Rocky Mountains will be as smoggy as the Los Angeles Basin in a few years—with all the health and ecological dangers which accompanies smog. The Grand Canyon is filling with smog already. But this is only the beginning. The Department of Housing and Urban Development has made plans for industrial 'parks' and 'model cities' (actually pre-fabricated cities) to dot the area. People rendered unemployed in recent economic upheavals and the exploding population will be enticed out to these cities with promises of employment, 'no smog', deer hunting, and they will become a large supply of cheap labor for electronics assembly and war-related industry (Fortune, Sept. 1970).

The activities of these polluters-destroyers have shown complete disregard for all land and life—they are motivated by clearly defined exploitation-profit policies. They have conspired, lied, propagandized and even openly combatted ecological legislation. Some of the classic examples of their manipulations include: (1) One month after the Peabody Coal Company was granted a 'drilling and exploration permit' by the Navajo and Hopi Tribal Councils, the Secretary of the Interior (who must authorize all contracts made by tribal councils) recommended enactment of legislation to sanction building of the Glen Canyon Dam; (2) Construction of the dam and the formation of Lake Powell, which were actually early steps in the Four Corners development, were begun only after voters, taxpayers and consumers had been convinced the lake was 'recreational'. (There were already plans to build one large power station (Navajo) and one monstrously large power station (Kaiparowits) almost on the shores across the lake from each other—plants that would pump vast

tonnages of smog-producing chemicals and poisons into the air around the lake, and that would dump pollutants, chemicals and hot, salinized water into the lake.); (3) Two years before the Navajo Tribal Council voted to permit the Salt River Project to build the Navajo station at Page, the turbine-generators (\$100,000,000 worth) had already been ordered from General Electric.

Waters from the Navajo Dam on the San Juan River, originally allotted to the 'Navajo Irrigation Project' have been cut, and are now being allotted to large power stations in northwestern New Mexico.

The Christian Science Monitor recently called the battle developing around the complex of electrical generating stations in the Southwest "the ecological confrontation of the decade." The entire complex is tied directly to Black Mesa, the Sacred Female Mountain—and to the cultures, land and life threatened by the operations there.

LAND AND LIFE

The Hopi:

Exerpts from a letter to President Richard Nixon: "We, the True and Traditional religious leaders, recognized as such by the Hopi People, maintain full authority over all land and life contained within the Western Hemisphere. We are granted our stewardship by virtue of our instructions as to the meaning of Nature, Peace and Harmony as spoken to our People by Him, known to us as Massau'u, the Great Spirit, who long ago provided for us the sacred stone tablets which we preserve to this day. For many generations before the coming of the white man, and for many generations before the coming of the Navajo, the Hopi People have lived in that sacred place known to you as the Southwest and known to us to be the spiritual center of our continent. Those of us of the Hopi Nation who have followed the path of the Great Spirit without compromise have a message which we are committed, through our prophecy, to convey to you.

"The white man, through his insensitivity to the way of Nature, has desecrated the face of Mother Earth. The white man's advanced technological capacity has occurred as a result of his lack of regard for the spiritual path and for the way of all living things. The white man's desire for material possessions and power has blinded him to the pain he has caused Mother Earth by his quest for what he calls natural resources. All over the country, the waters have been tainted, the soil broken and defiled, the air polluted. Living creatures die from poisons left because of industry. And the path of the Great Spirit has become difficult to see by all men, even by many Indians who have chosen instead to follow the path of the white man.

"We have accepted the responsibility designated by our prophecy to tell you that all life will stop unless men come to know that every one must live in Peace, and in Harmony with Nature. Only those People who know the secrets of Nature, the Mother of us all, can overcome the possible destruction of all land and life.

"Today the sacred lands where the Hopi live are being desecrated by men who seek coal and water from our soil that they may create more power for the white man's cities. This must not be allowed to continue for if it does Mother Nature will react in such a way that almost all men will suffer the end of life as they now know it." This letter is signed for Chief Mina Lansa (Oraibi), Chief Claude Kawangyawma (Shungopavy), Chief Starlie Lomayaktewa (Mushongnovy), and Chief Dan Katchongva (Hotevilla) by Thomas Banyacya, interpreter.

The Navajo:

Beauty and Harmony are the heart of the Navajo Way of Life. This harmony comes from the eternal and natural balance of the Male Mountain (Lukachukai) and the Female Mountain (Black Mesa). The singers and traditional religious leaders have stated that if these mountains, the sources of harmony, are damaged, the Navajo Way will be destroyed. "I do not agree with this mining," said one Navajo. "See that hill? My father and grandfather said that is a holy place. Now what will happen to that holy place?"

"An old story," says a tribal leader. "Our water and our land resources will be drained, taken out of the reservation, and in exchange we get a handful of jobs and a small payoff. What will be left of our Way of Life?"

"This is not economic development. This is economic termination of the reservation," he says.

"Everyone talks of self-determination for the Indians," says another Navajo. "And what do they do? They offer us self-destruction. Of our resources and religion."

Strip-mining:

"Hopefully, the line of opposition to the strip mine machine will continue to stiffen. No one denies the benefits which coal has brought to a developing nation and a bustling economy, but if men are to find on this land the necessities of life hundreds or thousands of years from now, we must cure ourselves of the expediency complex! We must look to the land with a deeper understanding, because the land is life and to destroy land limits life." (Laycock, The Diligent Destroyers, 1970) Although it is possible to argue about the 'benefits' coal has brought, and even the 'benefits' of a 'developing nation and a bustling economy', the fact that the land and life are inseparable is well taken. The land and life are equally inseparable from the people who live on the land.

In a 1966 report to the Department of the Interior entitled 'Surface Mining and our Environment', the Secretary of the Interior (who had also authorized the exploration and drilling permit issued to Peabody that year) stated, "This preoccupation with short term gain too frequently has ignored the long-term social cost involved--the silted streams, the acid-laden waters, the wasteland left by surface (strip) mining. We are an affluent society; but we can no longer tolerate (or afford) either prodigal waste of natural resources or cumulative degradation of our environment. Each generation has only a temporary rendezvous with the land; despite fee titles and documents of ownership we are no more than brief tenants on this planet."

The Navajo and Hopi, like all traditional North Americans, have a different attitude towards the land--they consider themselves Guardians of this Sacred Land. Strip-mining is one of the ultimate assaults on the land. It is a shock to the environment, even a shock to human sensibilities--to understand one merely has to see a strip-mine. Look at Appalachia and at what has been done to the Appalachian people and their way of life; look at what has been done near Farmington, New Mexico to fuel the Four Corners plant there; look at what is being done to Black Mesa, the Sacred Female Mountain.

Mountains have been removed, societies and psychologies destroyed, and surface excavations resembling vast moon craters with hundreds of feet of soil and rock discarded in the assault to reach the coal have been left in massive piles. The result is a drastic reshaping of the surface environment, massive erosions, alteration and poisoning of natural surface and subsurface drainage patterns, destruction of wildlife habitats, and an overwhelming poisoning of the general surroundings.

"During 1966, federal government workers totaled the extent of such damage to fish and wildlife habitats by strip-mining. There had been 12,890 miles of streams damaged. Of our lakes and reservoirs, 145,000 acres had suffered damage from strip miner's digging. And wildlife habitats had been destroyed--more than 1½ million acres of it. Kentucky, alone, had seen 395 miles of its streams seriously polluted by strip-mine products, and other states had suffered even more. In Louisiana, surface mining had damaged 1714 miles of streams and 100,000 acres of lakes. Ohio listed 1,200 miles of strip-mine damaged streams, and 68,000 acres of wildlife habitats ruined or heavily damaged. At least 39 states had miles of ruined streams and acres of ravaged land to add to the depressing total." (Laycock, 1970).

An understanding of the attitude taken by Peabody and the Department of the Interior, and how seriously they treat the extraordinary dangers of strip-mining, can best be gotten from the lease negotiated between them. For example, Peabody has agreed to: exercise diligence in the mining operations; to carry on development and operations in a workmanlike manner and to the fullest possible extent; and to surrender and return the premises on termination of the lease in as good condition as received, except for the ordinary wear, tear and depletion incident to mining operations and unavoidable accidents. While the emphasis is ours, the wording is theirs.

THE MINE

Threat to the Water Tables:

A representative of the Peabody Coal Company has stated that the slurry operation piping the coal from Black Mesa to Bullhead City, "won't take much water." Another representative has even tried to claim the strip-mine slurry line operation will improve the water table. Actually it requires a considerable amount of water to push 6½-10 tons of coal per minute through a 272 mile pipeline--estimates range from 2,000 to 4,500 gallons of water per minute. This means between 3,000,000 and 7,500,000 gallons of water will be pumped each day from beneath Black Mesa, not including water for on-site operations. According to Peabody this water is being pumped from five wells

that reach 4,000 feet under Black Mesa, into the Navajo Sandstone aquifer. The water being removed is fossil water, deposited eons ago when the Southwest was much wetter. It will not re-accumulate unless Nature re-adjusts climatic conditions in the region. Its re-accumulation now would depend directly upon the scant rainfall of the area--currently averaging 6-15 inches yearly.

No one can really be certain what the removal of 3,000,000 - 7,500,000 gallons of water per day will do to the water tables in the arid Black Mesa hydrological basin--which, of itself, is enough reason not to proceed. It is known that Black Mesa is structurally a basin and in terms of sub-surface water--that makes it a low point. The main aquifers beneath Black Mesa are higher in surrounding areas--and the main water-bearing aquifer beneath Black Mesa is the prominent spring-zone in Hopi country (USGS Professional Paper #521A). Even subsurface water flows downhill.

There are so-called 'impervious' layers which Peabody claims will keep surface water from percolating down and being lost to Hopi agriculture and to the forage vegetation the Navajo herdsman depend upon. Such layers are not actually 'impervious'--in a report on a hypothetical layer with a coefficient of permeability similar to the shale in the Hopi-Navajo area, it was indicated that the rate of interformational leakage would total 5.6 million gallons of water per square mile per day (Wisler and Brater, *Hydrology*, 1949). In addition, it has been known since the 1920's that folds, massive faulting and fracturing complexes formed when the Black Mesa basin was created will greatly increase the permeability--this has been discussed in several USGS reports. As the operations on Black Mesa de-water the Navajo Sandstone, permeability of the shale will increase even more--and rainwater formerly trapped in sand dunes will percolate down more rapidly into the sandstone. (cf. Clemmer 1970: p. 8) The dunes, where the Hopi have long grown the sacred corn, will lose their moisture content.

It must be understood that not only is corn cultivation the prime source of livelihood and food to the Hopi, it is the keystone to their entire way of life, their entire cultural and religious heritage. Without corn there is no Hopi--any tampering with the successful cultivation of corn is a direct attack on their cultural survival. If the natural equilibrium of the underground water is upset, the water from the crop-supporting upper water table will be depleted, destroying the delicate balance of the arid desert environment (in drought since 1925) upon which this ancient culture depends. Hopi corn, as many desert-adapted plants, is notoriously short-rooted--a drop of only a few inches in the water table would be enough to end its cultivation.

"Our religion and way of life says that water is the most important thing for life. Someday we Hopis and other people as well may need this precious water that is being pumped out of the ground, and we will find instead that it has been wasted for industry. Someday we may find our springs dry, if this drilling cracks the earth and drains our water table." From a letter signed by Chief Mina Lansa, Chief Claude Kawangyamma, seven Shungopavi village leaders and twenty-three Old Oraibi villagers, and sent to the fraudulent 'Hopi Tribal Council.'

Runoff Dangers:

The erosion resulting from the disturbances of strip-mine operations, and the poisoning of surface and sub-surface water-flow through the stripped area are two of the most disastrous results. The mining at Black Mesa will interrupt the natural flow of the surface and shallow sub-surface water in the Black Mesa hydrological basin. This flow is south and southwesterly, towards the ancient Hopi villages and down the washes between the mesas on which the villages stand. At the base of the mesas are ancient, sacred springs used for centuries (Oraibi is the oldest continuously inhabited village in North America)--and in the washes are fields that have been cultivated by the Hopi long before the coming of the Euro-americans.

While it is possible these springs and fields will be affected if the wells at Black Mesa lower the water table, it is certain that they will be directly affected by the runoff from spoil banks (waste-piles left by stripping) and the seep of dangerous chemicals from the mined area.

According to a study of strip-mining in the devastated Appalachian regions, "Soil losses from freshly disturbed spoil banks amount to 400 tons an acre," while in undisturbed areas the loss was "less than one ton per acre." (Udall, 1966) This runoff is particularly dangerous in this case because one of the substances piled in spoil banks is shale, which is extremely soluble--and when deposited farther down the wash in garden/field areas, it dries to plaster-like hardness. A thick layer will build up. In addition, the Udall report goes on to say that the extent of erosion from access roads to the mines was 2.6 inches per linear mile, per year--or about 475 tons per acre.

The access road to Black Mesa mine is 15 miles long, it cuts directly across all drainage washes on that side of the Mesa. "Debris alleys along the sides (where all trees and vegetation has been grubbed out) make it 150 feet wide in places. Add to this the parallel, equally devastated power line swath. Add to this the full network of mine roads. Add to this the thousands of acres of strip-mine devastation. Upshot: goodby Black Mesa."

"The coal mining lease lies athwart the drainages that head on Black Mesa's high rim, then flow southerly and southwesterly to the Hopi farmlands and beyond to the extensive Navajo farms in Moencopi Wash. Spring snow melt and summer rains turn these usually dry washes into streams that water the Indian farms." (Brown, 1970)

The mining will directly interfere with the flow of surface water. Artificial channels through mine fields will only be incidentally effective and will not prevent the water's picking up dangerous chemicals in passage. Much water, held in check by the ripped-up landscape and disturbed earth will leach into the ground. Water that gets through will carry in solution undetermined amounts of sulphuric acid and other dangerous chemicals dissolved in the pits. According to Udall's 1966 report, acid pollution from spoil banks and mining pits reaches downstream areas in two ways: "(1) Soluble salts formed at the surface through evaporation enter into solution during periods of surface runoff; and (2) ground water is altered chemically as it percolates through the spoil on its way to the stream. Consequently the sources of acid mine drainage are extremely numerous."

According to the Central Clearing House ('Black Mesa Problem', 1970), sulphur concentrates, resulting from the coal processing are now seeping into the Moencopi drainage area, thereby affecting the Moencopi-Tuba City produce farming regions and ultimately entering the Little Colorado River and from there into the Colorado River. Thus, even the meager amount of water which will eventually reach the Hopi fields and springs will be severely contaminated and unfit for consumption.

THE TRIBAL COUNCILS:

From OUR BROTHER'S KEEPER by Edgar S. Cahn: "Indians have no real opportunity to shape their tribal governments; the governments, and changes within them, are usually external creatures, often imposed against the will of the Indians. Once imposed, they persist, despite opposition. In 1935 members of the Hopi Tribe were asked if they wished to take advantage of the newly passed Indian Reorganization Act, which provided for the establishment of a tribal government with certain specified powers. The chief of the village of Shongopavi, Chief Kawangyawma, says his people discussed reorganization but decided against it. The BIA superintendent announced, however, that reorganization had carried. Shortly thereafter he called a second election to choose a tribal council, which, under the Reorganization Act, would become the officially recognized governing body. The Hopi had always looked to the hereditary chiefs of their villages for both secular and religious leadership, and so they ignored the election. The superintendent, however, would not be stopped. He selected a handful of the Hopi whom he deemed 'progressive' and installed them in office. The Hopi have been divided since, with a substantial number of villages continuing to follow their traditional leaders. Elections still draw only minimal participation, and in some villages virtually every member of the tribe abstains from voting."

Frank Waters, in his BOOK OF THE HOPI describes how reorganization 'carried', "Old Oraibi, Hotevilla, Shungopavi, and Mishongnovi—the most important villages and the strongholds of the traditionalists—condemned the Act immediately as another trick of the government to secure tighter control over them. Each village had its own chief and elders, its own clan system, and its own lands. Never in their long tradition had these independent villages entered into an organized relationship with one another. The new plan was a white man's concept, utterly foreign to their nature and background. They could not understand or accept it.

"Two villages were persuaded to support the Act's offered advantages: New Oraibi, largely comprised of schooled and Christianized Hopis; and Walpi, with the Tewa-speaking people of Hano, which had always been the first contact of the whites and was close to the agency at Keams Canyon.

"Despite the preponderant sentiment against the constitution, (ed., and despite the fact that a traditional Hopi could never vote because of religious reasons) the matter finally came to a vote on October 24, 1936. There were only 755 votes cast by the 4,500 Hopis—651 for the provisions of the constitution and 104 against. This indicated not only the Hopi's utter unfamiliarity with the white man's voting concept, but the ingrained Hopi trait of shying away from anything that smelled of government control. However, this acceptance by less than 15 percent of the Hopis was enough to warrant adoption of the constitution and by-laws and the establishment of a tribal council.

"Almost from the start the tribal council was boycotted by the traditionalists of all villages. None of them would serve as a member, attend meetings, nor even discuss the issues brought up before it. Nor were they informed. The tribal council was an organization composed solely of the 'friendly' or 'progressive' faction, which now merely took on the new name of 'tribal council.' Uneducated because of years of neglect, totally unfamiliar with white procedures, and often greedy for what-

ever small recompense they could manage, the members were generally regarded as rubber-stamp stooges blindly obeying the dictates of the government's local Indian agent and the tribal lawyer appointed to handle their affairs."

Added to the 'yes' column to achieve the total of 651 were: the names of the so-called 'eligible voters' of one village that boycotted the election, the names of dead Hopis, and the names of Hopis no longer living on the reservation and therefore ineligible to vote.

These tribal councils, created by the white man, and empowered by the white man's government as the sole recognized governing body, have the power to sell or lease lands held in common by the tribe. They are a form of government unnatural and unrepresentative of the Indian people. What power the government has given them is, in reality, miniscule, as all their decisions, agreements, contracts, leases, etc., even the spending of so-called tribal funds, cannot be done without the consent of the Secretary of the Interior.

The particular leases in question here, the leases permitting the coal mining operations, were not first negotiated with the Navajo and Hopi tribal councils. Negotiations were carried out in Washington, between the Peabody Coal Company and the Department of the Interior. According to Keith Smith, who was a Navajo tribal councilman when the coal leases came through, "It was done without adequate deliberation. The council never had good discussion on it. We were asked, in effect, to say yes or no to the proposal." Dozens of pages long, in obscure legal language, with hidden meaning in the phrases and hidden intentions in the wording--it was brought to the tribal council and they were told to say 'yes or no.'

Albert Purchase, Land Operations Officer for the Hopi Agency (B.I.A.) was quite upset about the fact the leases were negotiated in Washington. He said the Hopi lease came, and when he saw it he made a few nasty comments on it and sent it back to Washington. An answer came from the Secretary of the Interior, he says, telling him to just let the Washington office handle it, and saying the local office should just keep quiet. He said the tribal council never asked for advise on the matter and they "probably don't know what strip-mining is." "They didn't know they were going to pile mountains of dirt here and just go off and leave it." "If they (the tribal council) had known what they were going to do, you couldn't have got the lease for any amount of money."

THE PLANTS

The Complex:

The stations receiving coal from Black Mesa are: the Mohave power generating station, located across the Colorado River from Bullhead City, Nevada, five miles downstream from the Davis Dam; and the Navajo power generating station, located on the Navajo reservation, near Page, Arizona, three miles from Lake Powell. When completed and fully operative (if they are allowed to reach that stage), the five units at these two plants will receive, consume, and convert over 38,900 tons of coal (ripped from the Sacred Female Mountain) per day into smog and power.

The first unit of the Mohave plant should be operative October 1970--the second unit in July 1971. It will disperse smog-producing chemicals, poisons and pollutants over the Mohave desert which will meet and join with the eastward spread of smog from Los Angeles. It could pollute the Colorado River Basin all the way to Mexico.

Construction began on the Navajo Plant in April 1970. It is, to date, the largest thermal electric facility ever undertaken under a single contract (Salt River Project, 1970). The station's three units should be ready from 1974-76. The Navajo plant is on the shores of Lake Powell, and very close to the Grand Canyon, which is already filling with smog from power plants much farther away (L.A. Times 8-3-70). This places it approximately midway between the Mohave site in Nevada and the San Juan Four Corners site in northwestern New Mexico.

These plants are to take their place in a Southwestern Power Grid controlled by W.E.S.T. The other plants in the complex are: (1) The Four Corners Plant, near Farmington, New Mexico, partially operative since 1964. (2) The San Juan Plant, also near Farmington. Construction will begin in January 1971, operative in June 1974. (3) Huntington Canyon, near Price, Utah (which will be supplied with coal from another Peabody mine). Construction will begin in May 1971, operative in June 1974. (4) Kaiparowits, which is under study. It could be located at one of two sites--Warm Creek (12 miles north of Page) or Sit Down Beach (20 miles northeast of Page). It will probably include six units, the first of which will begin construction in 1973.

It is worthy of note that the Mohave and Navajo stations fit at an important point in this scheme.

These plants, supplied with coal from Black Mesa, would be placed between (2) and (3) above, between the plants already operating and the ones which will soon begin construction, and between the smaller plants and the immensely vast ones. The Mohave plant is ready and the Navajo plant has just begun construction. It would seem these two plants and their source of power, coal from the Sacred Female Mountain, could be the key to stopping this entire project.

Air Pollution:

It is well known that coal-burning power plants are dangerous sources of air pollution. Each day, each of these plants will be emitting hundreds of tons of fly ash particulates, oxides of nitrogen (NO_x), SO_2 , hydrocarbons, fluorides, and H_2S .

Particulates in air are a threat to life—a specific threat to human health by increasing respiratory ailments (smog-free air is one reason people move to the Southwest). Particulates are especially dangerous with high sulphur concentrations, as in this situation. Hydrocarbons are created principally by high-temperature combustion processes—e.g., power plants. Hydrocarbons and oxides of nitrogen are primary building blocks for photochemical smog; all that need be added are the sunny Southwestern days. Nitric oxide, a principle contaminant, is extremely dangerous by itself. It reacts with water, forming nitric acid, which is dangerous at very low levels of concentration. SO_2 is oxidized in the sunlight to SO_3 in a very few days—it combines with water to form sulphuric acid. This chemical is extremely dangerous. (For example Los Angeles has a 10 parts per million emergency level for SO_2 , and the Navajo plant will reach a level of 40 parts per million).

Under current standards and projected plans, these power plants will daily emit more ash particulate matter than is released in Los Angeles and New York combined. More SO_2 will be created and emitted than in either Chicago or New York—and nearly ten times the SO_2 released in Los Angeles. (L.A. has already banned burning of high sulphur fuels for seven months of the year, trying to keep down the SO_2 . SO_2 played a key role in New York City's recent smog attack disasters.) Southern Californians refused to permit the construction of similar plants in the cities of Victorville, Playa del Rey and San Bernardino, because of the air pollution they would cause.

Dr. Richard G. Layton, a Northern Arizona University physicist, recently conducted pollution tests at the Grand Canyon with a laser beam and said that the power plant operating in Farmington, New Mexico is already putting a blanket of smog over the canyon. "Proposed mammoth coal burning generating plants nearby will make the situation worse," he said.

"Thus," says Mike Williams, co-chairman of New Mexico Citizens for Clean Air and Water, and formerly a bio-chemist at Los Alamos Scientific Laboratory, "in what used to be wide open spaces, we will have more SO_2 than New York City, more dust (ash) than Los Angeles, and oxides of nitrogen comparable to those emitted by all the autos of Los Angeles. When higher ash or higher sulphur-content coal is used these tonnages will soar to higher levels. In one study, a power plant emitting 310 tons of SO_2 per day exceeds the pollution limits set by New Mexico. Based on this standard (which is by no means sufficient) three of the plants—Kaiparowits, Fruitland and Price—will be excessive polluters under average conditions. Under high sulphur-conditions all of the plants will exceed the daily summer emissions of Los Angeles. The National Air Pollution Control Administration report on the Four Corners area suggested that vegetation damage is already occurring at Fruitland."

Even spokesmen for the Navajo Power Plant have stated they won't meet state limits on coal ash pollution and have no plans to curtail sulphur dioxide emissions (Arizona Republic, 3-6-70). The entire W.E.S.T. consortium joined together in fighting propositions of air pollution regulation in the states of Arizona and Nevada (Arizona Republic, 3-31-70).

The one plant near Farmington that is now in operation, is daily spewing forth hundreds of tons of fly ash and invisible poisonous gasses. Aerial tracking of the visible pollution shows that this single plant, not yet in full operation, daily soils the air, water, land and people over an area of 100,000 square miles. What will happen when this plant is joined by its sister plant, San Juan, and by those proposed in Utah, and the ones at Page and Mohave?? "Projecting the answer from the observed effects of the Farmington plant, Dr. Joseph Denavey of Los Alamos Scientific Laboratory paints a noxious smear from Southern California to the Rocky Mountains. Long-term weather inversions typical of this region will concentrate the smog." (Brown, 1970).

Water Pollution and Salinization:

Water from the Colorado and its tributaries will be used in vast quantities. In the power-generating process great heat is produced, and the giant turbines must be cooled. Much like the

radiator of a car, a cooling process involving the circulation of large quantities of water is used. In the process the greater proportion of the water is evaporated--the portion which remains contains all the salts and dissolved solids, and is returned to the lake, river or tributary. The removal of this high quantity of water from Lake Powell will further increase the salinity of the Colorado River, which would have been increased even more had the Salt River Project gone ahead with the plan to return the water from the Navajo plant's cooling operations.

Water salinization in the Colorado is already affecting the Imperial and Mexicali Valleys, the major agricultural centers in the west. Thousands of once-fertile acres have already been abandoned in these areas. The farmers in the Mexicali Valley are allotted only enough water to irrigate one crop per year--they could raise five crops per year as their U.S. counterparts do, if allotted enough pure water.

Eight or nine million dollars per year is spent by the U.S. Government in trying to control the salinity problem on the lower Colorado. The River has long been over-used and over-allotted. The Mexicans must now mix river water with saline waste water from the Welton-Mohawk canal (averaging 4,000 parts per million of salt) as their allotment quota of 1½ million acre feet per year. To the Mexicans as well as to all other lower-river users, the government guarantees no specific quality of water. With the additional 370,000 acre feet these power plants will use per year, the salinity of the lower river will be increased by over 5%. W.E.S.T. associates imply the quantity of water used for cooling is insignificant, but in fact it is 25% of the total allotted to Mexico.

The problem is that the whole of the lower-river agricultural water users are now faced with a crisis threatening to force them out of business, and threatening us with famine. Regardless of this, departments of our government are committing themselves to this expansion of river water use and proportional increase in salinity of returned water.

THE POWER

Who Owns These Plants, Who Gets the Power:

FOUR CORNERS PLANT (units 1, 2, & 3)

Arizona Public Service Company

FOUR CORNERS PLANT (units 4 & 5)

Arizona Public Service Company

Southern California Edison Company

Public Service Company of New Mexico

Salt River Project

Tuscon Gas and Electric Company

El Paso Electric Company

*MOHAVE PLANT

Southern California Edison

Los Angeles Department of Water and Power

Nevada Power Project

Salt River Project

*NAVAJO PLANT

Salt River Project

Los Angeles Department of Water and Power

Arizona Public Service Company

Nevada Power Company

Tuscon Gas and Electric Company

U.S. Bureau of Reclamation

SAN JUAN PLANT

Public Service Company of New Mexico

Tuscon Gas and Electric Company

HUNTINGTON CANYON PLANT

Utah Power and Light Company

KAIAPAROWITS PLANT

Southern California Edison Company

Arizona Public Service Company

San Diego Gas and Electric Company

*power plants receiving coal from Black Mesa

In a fact sheet released in November 1969, the Los Angeles Department of Water and Power said this

low cost coal would enable it to meet the expected doubled use of its power over the next ten years. In the summer of 1970 they were made to cease and desist, by court order, the waging of an aggressive publicity campaign to increase the consumption of electricity by local residents. How much does Southern California want that electricity? How much do we really need it? Do we really want to destroy the traditional Hopi and Navajo cultures so we can lure still more industry and population into Southern California and the Southwest? Do we really need this kind of electricity at all??

"People over this land are turning to material things; the lives of many are corrupted; Evil Ones among the white people race about, to destroy the land and life of the Hopi and other Indian Brothers. We are even denied the right to be Hopis and to make our livelihood in accordance with our Religious Teachings. Hopi leaders have warned the leaders in The White House and in the Glass House, but they do not listen. We are at a crossroads.

"Perhaps you will understand our problem better if we tell you why we prefer our own way of life to the white man's way.

"First of all, we live in small villages; the white man lives mainly in large cities. We breathe pure air; the white man creates impure air through industry and transportation. He fills his lungs with particles of oil, dust, metals, chemicals that have no place inside a human being. At night our villages are quiet, we sleep peacefully, But for the white man, there is no time when his cities are quiet. Noise of many sorts disturbs the sleep of millions of white men and women and children.

"We grow our own grain and we put no calcium propionate, butylated hydroxyanisole or monosodium glutamate in it. We drink mountain stream water and the water from deep underground. The white man first takes impure water, then he puts in it poisonous chemicals such as chlorine to kill things in the water, then he drinks it.

"Forty or fifty or sixty million white families in this land every night look at television. There they see shootings, killings, cheatings, lying, every manner of corruption and violence. These images, and the words and moods that go with them, go into their minds. What damage this does, especially when these influences pour into the mind just before sleep!

"I only wish they could take into their hearts and souls what we see in the evening in our Hopi land; the mountains and valleys of the Great Spirit, the sky, the setting sun, the stars, the moon, and all of our brothers and sisters who inhabit this beautiful world with us: the animals, the birds, the plants, the trees, the stones! We live in harmony with all these and with one another, with all people. Our whole life is a seeking of peace, brotherhood and everlasting life, watching over and caring for all that the Great Spirit entrusted to us: the religious teachings, the land and all that is on it, the way of life He taught us." (from "THE TRUE WHITE BROTHER", 1961)

Although this paper has been divided into short sections, it must be understood this was for clarity of presentation. It is not to be taken to mean that each of these 'topics' mentioned is a separate or singular item. Each is bound inseparably to the others; they are aspects of ONE ACT. They, and many too numerous and tedious to mention, comprise ONE violent assault upon our Mother Earth, on the land and life. This single action is typical of the kind of motivation and consciousness that must stop immediately if we are not to be destroyed. Many of the top ecologists, ethnologists, psychologists, and environmentalists give us only 10 or 15 more years of life if we continue in this manner. The uncompromised traditional religious leaders of the people indigenous to this hemisphere say the same thing. We must all learn; we are destroying ourselves. We are being destroyed—now, this minute, and we must stop it. We are destroying the Hopi, and the Great Spirit is watching us. As an old Blackfeet proverb says, "Never go to sleep when your meat is on the fire."

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STATEMENT OF DAVID L. CALKINS BEFORE NEVADA STATE ASSEMBLY COMMITTEE HEARING
ON PROPOSED AIR POLLUTION CONTROL LAW (AB 392 and SB 275)

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Mr. Chairman, Ladies and Gentlemen, my name is David Calkins. I am the Regional Air Pollution Control Director for Region Nine of the Air Pollution Control Office, Environmental Protection Agency, located at 50 Fulton Street, San Francisco, California. Region Nine includes the States of Arizona, California, Hawaii and Nevada.

The purpose of my presentation today is to provide information on the recently enacted 1970 Amendments to the Federal Clean Air Act, and their relationship to present and proposed air pollution control laws in the State of Nevada. Recently, Administrator William D. Ruckelshaus of the Environmental Protection Agency wrote Governor O'Callaghan regarding the provisions of the new Federal Act. My office is presently in the process of evaluating the existing legislation of each of our respective States to assess compliance with the new Federal requirements. This evaluation is being sent to each State's legislative leaders this week. It is important that these changes in legal authorities be enacted during this session, as failure of a State to submit an approval implementation plan in January, 1972, will result in elimination of future Federal funding of State and local air pollution control programs.

On January 30, 1971, primary and secondary National ambient air quality standards were proposed for six common classes of air pollution: particulate matter, sulfur oxides, carbon monoxide, photochemical oxidants, nitrogen oxides, and hydrocarbons. Primary standards protect against endangerment to human health, and secondary standards protect against effects to soil, water, vegetation, materials, animals, visibility, and personal comfort. Within 90 days, the final standards will be promulgated.

Under the 1970 amendments, the States will continue to have primary 190
responsibility for devising regulatory and enforcement procedures to achieve
the necessary improvements in air quality. This is work that must begin at
once; it must reflect the kind of social and political decisions that are
inherent in reforms of this magnitude.

The States will have to consider such things as land-use projections,
which heretofore have been left almost exclusively in the domain of city
and county governments. There will be a need for States to develop detailed
plans for emergency action, so that the health of our citizens need no longer
be endangered by the whimsical playing of the forces of Nature and the
inadequacy of past pollution-control programming. The State Implementation
plans must consider the need for regulation of pollution from motor vehicles
in the hands of the public together with fuel storage and handling. In some
cases, there may very well be a need for the restriction of motor vehicle
traffic, increased parking fees in downtown areas, road fees and franchise
taxes designed to make us use our automobiles more efficiently.

State implementation plans are to be judged chiefly on their ability
to achieve the national standards within the time frames prescribed by law,
and when a State plan is partly or wholly unsatisfactory the Federal Government
will have no alternative under the new law -- given the four-month review
allowed by law -- but to prescribe for that State the remedies that seem to
us to be most likely to assure steady progress toward attainment of the
standards.

You can see that the States will be called upon to make a relatively
heavy commitment of resources in order to do all the things that must be done.
Legislative and other remedies may need to be devised.

This is the area of prime importance to each of you today -- unless the present Nevada law is strengthened now, the required implementation plan submitted by the State cannot be approved under the Federal law. The Clean Air Act places primary responsibility to control air pollution upon the State air pollution control agency. In order to assist the States to meet their responsibilities under this law, we will be providing increased financial and technical assistance to them. We are in the process of adding three persons to our staff whose primary responsibility will be to assist the States in developing the implementation plan.

Once again, if the resultant plan is rejected, we will be required to intervene and provide the implementation plan, and see that it is executed.

There are fifteen specific provisions that were covered in our evaluation of existing laws for legal authority in air pollution control in the State of Nevada. Ten of these items were deemed either needed improvements, unacceptable, or had no express provisions in the present enabling legislation, Chapter 445, NRS, Sections 2-40. It is these provisions that I would like to compare with the proposed AB 392. Let me make it clear, however, that this evaluation is strictly the interpretation of the existing and proposed laws by the Air Pollution Control Office and final decisions on each provision rests with the State Attorney General's office.

1. Broad policy or definition of air pollution consistent with the Clean Air Act, as amended, to protect and enhance air quality. This essential provision was not expressly provided for in the current law. The proposed law is adequate in that it provides in Section 5 for protection and enhancement of existing air quality.

2. Authority to require information relevant to air pollution control including authority to require periodic reports of emission information.

Authority to require emission information is lacking in the present law. This authority is quite clear in subsections of Section 13 of the proposed law.

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3. Authority to provide that emission reports be available for public inspection. Section 38 of the present law does not require emission data related to production be public record. Section 110, subsection (a) (2) (F) of the Federal law requires that such emission data be made available to the public. This is a point where the proposed law also appears lacking. Section 35, subsection 2(b) does not allow identification of the source of emissions be made public. Unless such a provision is added, the authority to delegate the State the Federal enforcement provisions under the 1970 Amendments to the Clean Air Act will not be approvable.

4. Authority to require installation of equipment by owner or operator of stationary sources to monitor emissions and to conduct source tests. This provision, not expressly provided in the present law, is contained in Section 19, subsection (a) (5).

5. Authority to prevent construction or modification of new sources including prior review of location and compliance with appropriate rules and regulations. This is basically a permit to construct system, and was not provided for in the present law. Section 13, subsection 13 of the proposed law requires registration of air pollution sources, and subsection 15 does likewise for new sources.

6. Authority to implement emergency action comparable to section 303 of the Clean Air Act, as amended. The present law has no express provisions for emergency actions. Section 34 of the proposed law provides for the control officer to take immediate action during air pollution emergencies and

appears to me to be one of the better provisions for emergency actions that I have seen in legislation.

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7. Authority (to the extent necessary to achieve and maintain National air quality standards) to adopt land use and transportation controls. This is an authority that is lacking in all but one or two States in the nation at the present time with respect to air pollution control. Yet, it is one of the most essential provisions for dealing with environmental problems during the next decade. Section 37 appears to meet some of the requirements of such a provision. It might be preferable, however, to spell out more specifically what powers the State or local air pollution control officer has in such decisions. Perhaps an environmental impact statement should be required on certain size projects or those particularly affecting the surrounding environment. Such statements are required on all Federal projects. Some mention of transportation controls would also be desirable. Subsection 7 of Section 11 does provide input from State planning and transportation agencies, and thus strengthens these legal authorities.

8. Authority (to the extent necessary and practicable) for periodic inspection and testing of motor vehicles to enforce compliance with applicable emission standards. Not expressly provided for in the present legislation, this provision is implied in subsections 1 and 3 of Section 28 of the proposed law. A statewide motor vehicle inspection system will not be required in the implementation plan until the Administrator of the Environmental Protection Agency determines that a practicable testing system is available. Authority for periodic inspection and testing should, however, be available to the State for whenever such a testing system is developed.

9. Authority to issue appropriate orders to compel compliance with regulations. The present law has needed improvements to this provision,

which is contained in Section 29. This provision does not allow an immediate order of statement issued to the violator. Section 26 of the proposed bill provides for issuing such statement orders.

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10. Provisions for adequate civil or criminal penalties. Section 40 of the present law needs improvement as it merely makes the violator guilty of a misdemeanor, whose penalties are inadequate. Section 40 of AB 392 makes the violator guilty of a civil offense and spells out the penalties.

I would also like to mention an area of AB 392 that should be clarified to be consistent with the 1970 Federal amendments. Section 29 deals with the authority to form county and city air pollution control programs within and outside of air quality control regions. Under the 1970 Amendments, all areas of the State will be within an air quality control region. Federal air quality control regions were established during 1970 in the 5-county Northwest Nevada intrastate area and an interstate region covering Clark County, and two counties in Arizona. The remainder of the State will automatically become the third air quality control region on March 31, 1970. Additional subdivision of this area is possible at a later date if requested by the Governor and approved by the EPA Administrator. Thus, Section 29 as now written could be interpreted as requiring all counties in the State to establish air pollution control programs within two years. This should probably be made specific to particular areas of the State.

I cannot emphasize too strongly the importance of passing this or similar enabling legislation. Legal authority is the prime factor in approving implementation plans. The new Federal legislation has set very tight time-tables to accomplish very significant objectives in air pollution control. There are no provisions for extensions in submitting implementation plans on primary standards, as often occurred in previous Federal legislation.

Either the State submits a workable implementation plan or the Federal Government takes over and implements one. If we fail to develop a suitable implementation plan by next January in Nevada, I and my staff will have personally failed as well as the State. If these deadlines are not met by the States, it is very possible that Federal matching grants, which will be possible at up to 3 to 1 ratio under the new Act, will be withdrawn.

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Once again, it is my sincere desire that a law such as AB 392 be enacted during this session of the Nevada legislature. My staff and I have an open offer to provide assistance in seeing that such a law be passed. Furthermore, we intend to continue to work very closely with State and local air pollution control programs to see that a workable implementation plan is developed.

Thank you for the opportunity to speak at this hearing.

STATEMENT OF OTTO RAVENHOLT, M.D.

DISTRICT HEALTH OFFICER

before the

SENATE ECOLOGY COMMITTEE

MARCH 5, 1971

LAS VEGAS, NEVADA

MR. CHAIRMAN:

I WOULD LIKE TO THANK YOU AND THE MEMBERS OF YOUR COMMITTEE FOR CONDUCTING HEARINGS IN CLARK COUNTY TO GAIN AN INSIGHT INTO OUR EMERGING PROBLEMS OF WATER, SOLID WASTE AND AIR POLLUTION.

I FIRMLY BELIEVE THE MAJOR ENVIRONMENTAL PROBLEM FACING SOUTHERN NEVADA TODAY CENTERS ON THE GROWING DEGRADATION OF LAKE MEAD, OUR PRIMARY SOURCE OF WATER IN DECADES TO COME.

THE PROBLEM CAN BEST BE PUT INTO FOCUS BY ONE SIMPLE STATEMENT. TIME IS RUNNING OUT.

SOME BACKGROUND ON THIS PROBLEM MAY BE HELPFUL.

DURING RECENT YEARS, THE EFFECTS OF WATER POLLUTION IN LAS VEGAS BAY OF LAKE MEAD HAS BECOME INCREASINGLY EVIDENT.

THE WASTE WATERS GENERATED WITHIN THE LAS VEGAS DRAINAGE BASIN ARE ADEQUATELY TREATED FROM A BIOLOGICAL STANDPOINT BY SEWAGE TREATMENT PLANTS WITHIN THE VALLEY.

THESE PLANTS, OPERATED PRINCIPALLY BY THE CITY OF LAS VEGAS AND THE CLARK COUNTY SANITATION DISTRICT, SATISFACTORILY TREAT THE WASTE FLOWS IN A MANNER AND TO A DEGREE WHICH IS ADEQUATE IN MOST PARTS OF THE NATION.

THE PROBLEM, HOWEVER, ARISES NOT FROM THE ORGANIC LOADINGS IN THE EFFLUENT BUT FROM NUTRIENTS, PHOSPHORUS AND NITROGEN, WHICH ARE NOT REMOVED BY CONVENTIONAL SEWAGE TREATMENT PROCESSES.

THESE NUTRIENTS HAVE ACCUMULATED IN THE QUIET WATERS OF LAS VEGAS BAY AND FOSTERED THE GROWTH OF ALGAE THERE.

DURING MOST OF THE PAST THREE AND ONE-HALF YEARS, I SERVED AS CHAIRMAN OF THE INTERAGENCY WATER POLLUTION CONTROL TASK FORCE, REPRESENTING THE PUBLIC AND PRIVATE ENTITIES WITH A DIRECT STAKE IN THE PROBLEM. EARLY IN THEIR DELIBERATIONS, TASK FORCE MEMBERS RECOGNIZED THAT LAS VEGAS BAY POLLUTION REPRESENTED ONLY PART OF THE LARGER PROBLEM NEED TO DEVELOP A LONG RANGE WATER RESOURCE MANAGEMENT PROGRAM TO OPTIMIZE THE BENEFICIAL USES OF THE TOTAL WATER RESOURCES OF THE VALLEY AND TO PROTECT THE QUALITY OF THOSE RESOURCES FOR FUTURE GENERATIONS.

A STUDY WAS SUBSEQUENTLY CONDUCTED BY AN ENGINEERING FIRM RELATIVE TO A COMPREHENSIVE WATER QUALITY CONTROL PROGRAM FOR THE LAS VEGAS DRAINAGE BASIS.

THE STUDY HAS BEEN ACCOMPLISHED AND THE REPORT SUBMITTED IN TWO VOLUMES.

A REPORT SUMMARY IS ATTACHED FOR YOUR PERUSAL.

IN BROAD TERMS, A COMPREHENSIVE WATER QUALITY CONTROL PROGRAM FOR THE LAS VEGAS DRAINAGE BASIN IS THREEFOLD:

1. IT SHOULD REDUCE AS SOON AS POSSIBLE AND TO THE MAXIMUM EXTENT POSSIBLE, POLLUTION DUE TO NUTRIENT CONCENTRATIONS IN LAS VEGAS BAY OF LAKE MEAD.

2. IT SHOULD REDUCE TO ACCEPTABLE LIMITS THE POLLUTION HAZARDS TO THE WATERS OF THE COLORADO RIVER INSOFAR AS LAS VEGAS VALLEY RESIDENTS HAVE CONTROL OVER THESE POLLUTION HAZARDS.

3. IT SHOULD MAKE MAXIMUM BENEFICIAL USE OF WATER RESOURCES AVAILABLE TO THE VALLEY.

THE TIME FACTOR HAS BEEN INJECTED INTO THE ISSUE BY THE NEVADA STATE BOARD OF HEALTH.

THE BOARD MANDATED THAT THE TOTAL PHOSPHORUS IN EFFLUENT DISCHARGED INTO LAS VEGAS WASH BE REDUCED TO LESS THAN 1.0 PARTS PER MILLION BY JULY 1, 1973.

IT ALSO IS REQUIRING THAT TOTAL NITROGEN BE REDUCED TO LESS THAN 7.0 PARTS PER MILLION BY THE SAME DATE.

AT THE SAME TIME, THE NEVADA STATE BOARD OF HEALTH SET 1980 AS THE DEADLINE FOR REDUCING BOTH PHOSPHORUS AND NITROGEN TO 0.05 PARTS PER MILLION IN ALL WATERS DISCHARGED FROM TREATMENT PLANTS TO LAS VEGAS WASH.

TO IMPLEMENT THE 1973 DEADLINE, THIS LEGISLATURE MUST TAKE DECISIVE ACTION IN DESIGNATING AN AGENCY WITH APPROPRIATE BONDING AND STATUTORY AUTHORITY TO INSTITUTE EFFECTIVE TERTIARY TREATMENT BY THE JULY 1 1973 DEADLINE.

IT IS IMPERATIVE THAT THIS MANAGEMENT AGENCY BE DESIGNATED IN THE NEAR FUTURE AND SUPPLIED WITH A COMPETENT STAFF TO PURSUE THE EXECUTION OF THE PROGRAM.

THE CONSULTING REPORT HAS ALSO INDICATED THAT ULTIMATELY A SINGLE AGENCY SHOULD BE GIVEN RESPONSIBILITY FOR BASIN-WIDE MANAGEMENT OF THE TOTAL WATER RESOURCE.

THIS RESOURCE INCLUDES THE GROUNDWATER WITHIN THE LAS VEGAS VALLEY,
THE IMPORTED COLORADO RIVER SUPPLY AND RECLAIMED WASTE WATER.

THE AGENCY RESPONSIBLE SHOULD BE IN A POSITION TO MANAGE THESE
SUPPLIES TO BENEFIT THE TOTAL AREA AND TO ASSESS COSTS OF OPERATION
EQUITABLY AMONG THOSE BENEFITED ACCORDING TO THE BENEFITS RECEIVED.

SENATE BILL 118 MAY WELL PROVE TO BE A USEFUL TOOL IN HELPING TO
BRING ABOUT IMPROVEMENT IN THE LAS VEGAS WASH PROBLEM.

YOUR COMMITTEE IS SCHEDULED TO HEAR TESTIMONY FROM REPRESENTATIVES
OF THE DESERT RESEARCH INSTITUTE WHO ARE CURRENTLY CONDUCTING
STUDIES RELATING TO LAS VEGAS WASH WATERS, INCLUDING INDIRECT AND
NATURAL SOURCES. THIS MEASURE PROVIDES A MECHANISM FOR IDENTIFYING
INDUSTRIAL WASTES DISCHARGED INTO THE WASH BY PLACING A BURDEN FOR
REGISTRATION ON INDUSTRY ITSELF.

AS THE BILL IS NOT WORDED, IT COULD BE CONSTRUED AS BEING APPLICABLE
ONLY TO DISCHARGES OF INDUSTRIAL WASTES DIRECTLY INTO WATERS OF THIS
STATE AND BUT NOT APPLICABLE TO THE DISCHARGE OF INDUSTRIAL WASTE
WATER ITSELF. WE FEEL THE BILL SHOULD CLEARLY INCLUDE ALL INDUSTRIAL
WASTE WATERS. IN ADDITION, IT MAY PROVE EXTREMELY HELPFUL IF THE
DEPARTMENT WERE TO MAINTAIN A REGISTER OF ITEMS 1, 2 & 3 FOR EVERY
MANUFACTURING INDUSTRY THAT DISCHARGES WASTE WATERS.

THE DISTRICT HEALTH DEPARTMENT IS IN FULL ACCORD THAT A SOLID
WASTE MANAGEMENT LAW SHOULD BE ENACTED.

IF AMENDED, SENATE BILL 15 COULD CREATE THE BASIS FOR CONTROL
AND MANAGEMENT OF SOLID WASTE.

THE CLARK COUNTY DISTRICT BOARD OF HEALTH, WITH THE COOPERATION OF LOCAL GOVERNING BODIES ADOPTED RULES AND REGULATIONS GOVERNING SOLID WASTE DISPOSAL SITES AND FACILITIES IN MAY, 1970.

WITH THIS NEW AUTHORITY WE EMBARKED ON A PROGRAM TO CONTROL THE DISPOSAL OF SOLID WASTES AND THE OPERATION AND MAINTENANCE OF SOLID WASTE DISPOSAL SITES AND FACILITIES.

HOWEVER, THIS REPRESENTS ONLY A PORTION OF THE OVERALL LAND POLLUTION PROBLEM AND THERE IS A VITAL NEED FOR LEGISLATION TO INCLUDE ALL FACETS OF SOLID WASTE MANAGEMENT.

ACCORDINGLY, WE SUBMIT THE FOLLOWING ITEMS FOR INCLUSION IN THE BILL:

1. THE FEDERAL RESOURCE RECOVERY ACT OF 1970 MAKES PROVISIONS FOR GRANTS FOR LOCAL PLANNING TO INCLUDE AREAWIDE PLANNING FOR PROPER AND EFFECTIVE SOLID WASTE DISPOSAL CONSISTENT WITH THE PROTECTION OF PUBLIC HEALTH AND WELFARE INCLUDING SUCH FACTORS AS POPULATIONS GROWTH, URBAN AND METROPOLITAN DEVELOPMENT, LAND USE PLANNING, WATER POLLUTION CONTROL, AIR POLLUTION CONTROL AND THE FEASIBILITY OF REGIONAL DISPOSAL AND RESOURCE RECOVERY PROGRAMS.
GRANT ELIGIBILITY FOR LOCAL PLANNING IS GENERALLY EVALUATED ON THE BASIS OF NEED IN THE AREA AS DESCRIBED IN A STATE SOLID WASTE MANAGEMENT PLAN. IT IS IMPORTANT THEREFORE THAT THE STATE BE DIRECTED TO DEVELOP A STATEWIDE SOLID WASTE MANAGEMENT PLAN IMMEDIATELY.
2. DEFINITIONS OF THE VARIOUS TERMS RELATED TO SOLID WASTE MANAGEMENT PROGRAMS SHOULD BE INCLUDED IN THE BILL.

3. SECTION 4 OF THE BILL SHOULD BE EXPANDED TO INCLUDE CONFORMITY WITH EXISTING RULES AND REGULATIONS.
4. THE BILL SHOULD INCLUDE PROVISIONS FOR REGISTRATION OF ALL SOLID WASTE DISPOSAL SITES OR FACILITIES IN ADDITION TO PROPOSED PERMIT PROCEDURE.
5. SECTION 7 OF THE BILL SHOULD BE EXPANDED TO INCLUDE IN Powers AND Duties OF THE HEALTH DIVISION OR HEALTH AUTHORITY PROVISION TO INCORPORATE CONTROL OF LITTERING ON PUBLIC OR PRIVATE LANDS.
6. THE BILL SHOULD INCLUDE PROVISIONS FOR ADMINISTRATIVE AND JUDICIAL REVIEW, INJUNCTIVE RELIEF AND PENALTIES WHICH SHOULD BE ADEQUATE TO DISCOURAGE VIOLATIONS.
7. THE BILL SHOULD INCLUDE AUTHORIZATION FOR HEALTH DIVISION OR HEALTH AUTHORITY REPRESENTATIVES TO ENTER AND INSPECT PROPERTY, PREMISES OR PLACES WHERE SOLID WASTE DISPOSAL ACTIVITIES ARE TAKING PLACE, TO ENSURE COMPLIANCE WITH EXISTING RULES OR REGULATIONS ESTABLISHED ~~HEREIN~~ UNDER THIS LAW.

I WOULD ALSO LIKE TO TESTIFY TO THE DISTRICT HEALTH DEPARTMENT'S SUPPORT IN PRINCIPLE OF PROVISIONS OF SB 275 WHICH WOULD ENHANCE THE ENFORCEMENT CAPABILITY OF AIR POLLUTION CONTROL AGENCIES AT A STATE AND LOCAL LEVEL.

WE BELIEVE CLARK COUNTY HAS A VIGOROUS AIR POLLUTION CONTROL PROGRAM WHICH IS COPING WITH A SERIOUS PROBLEM CAUSED BY A VARIETY OF MOBILE AND STATIONARY SOURCES. HOWEVER, WE FIND OURSELVES HANDICAPPED IN ATTEMPTING TO CONTROL POLLUTION FROM AUTOMOBILES. WE LACK AUTHORITY TO APPLY SPEEDY SANCTIONS TO PERIODICALLY OFFENDING STATIONARY SOURCES. PREVENTIVE ACTION UNDER EXISTING LEGISLATION IS NON-EXISTENT.

AS CHIEF HEALTH OFFICER OF THE CLARK COUNTY DISTRICT HEALTH DEPARTMENT, I MUST FIRST LOOK TO THE QUESTION OF THE IMPACT OF PRESENT AND ANTICIPATED DEGRADATION OF OUR AIRSHED UPON PUBLIC HEALTH.

THE DATA AVAILABLE ON THIS QUESTION IS DISTURBING. YOU HAVE BEEN GIVEN THREE CHARTS WHICH DESCRIBE THE DEGREE OF AIR POLLUTION IN CLARK COUNTY. FIGURE ONE SHOWS THE LEVEL OF PARTICULATE MATTER, COMMONLY THOUGHT OF AS DUST, FOUND IN THE AIR OVER THREE CITIES IN CLARK COUNTY, BOULDER CITY, LAS VEGAS, AND NORTH LAS VEGAS.

ALSO SHOWN ON FIGURE ONE IS A LINE DENOTING THE PROPOSED NATIONAL AIR QUALITY STANDARD. THIS IS THE LEVEL CONSIDERED SAFE BY SCIENTIFIC AUTHORITIES IN THIS FIELD FROM A HEALTH STANDPOINT.

YOU MIGHT NOTE THAT THE LEVEL OF THIS CONTAMINANT IN LAS VEGAS AND NORTH LAS VEGAS EXCEEDS THE PROPOSED STANDARD SUBSTANTIALLY. UNDER FEDERAL LEGISLATION, EACH STATE MUST DEVELOP AN ACCEPTABLE PLAN FOR ACHIEVING AND MAINTAINING NATIONAL AIR QUALITY STANDARDS.

FIGURE TWO ILLUSTRATES THE DEGREE OF PHOTOCHEMICAL SMOG, COMMONLY KNOWN AS LOS ANGELES TYPE SMOG, FOUND IN THE LAS VEGAS VALLEY. YOU MAY OBSERVE THAT THE PROPOSED NATIONAL AIR QUALITY STANDARD IS FREQUENTLY EXCEEDED.

ANY OXIDANT LEVEL ABOVE THE PROPOSED STANDARD IS ASSOCIATED WITH EYE IRRITATION. AS THE OXIDANT LEVELS EXCEED THE PROPOSED STANDARD BY INCREASING DEGREES, EFFECTS ON THE HUMAN RESPIRATORY SYSTEM BECOME MORE APPARANT.

FIGURE THREE SHOWS THE NUMBER OF HOURS THAT OXIDANT LEVELS EXCEEDED THE PROPOSED STANDARD DURING 1969 AND 1970. CLEARLY, THE INCIDENCE OF EXCESS OF PHOTOCHEMICAL SMOG IN THE LAS VEGAS VALLEY INCREASED SIGNIFICANTLY FROM 1969 TO 1970.

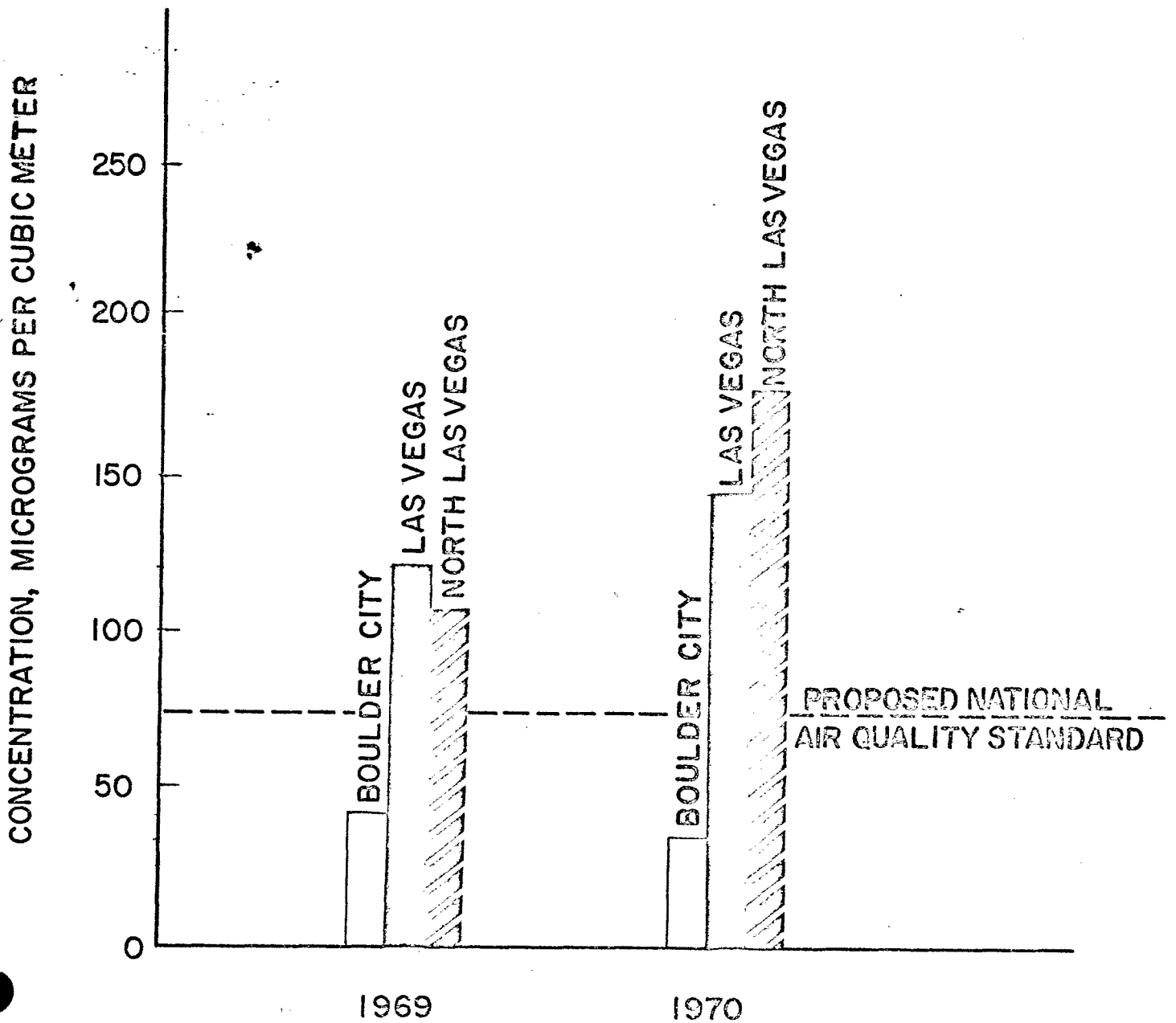
THIS ANALYSIS OF AIR POLLUTION LEVELS IN CLARK COUNTY SHOULD RIGHTFULLY CAUSE SERIOUS CONCERN, BOTH BECAUSE OF ITS RAMIFICATIONS IN RELATION TO PUBLIC HEALTH AND BECAUSE WE HAVE A MANDATE TO ENHANCE THE AIR RESOURCES OF CLARK COUNTY.

WE WILL CONTINUE TO EXHAUST THE LIMITED POWERS GRANTED TO US BY EXISTING STATUTES BUT CAN LOOK ONLY TO THE LEGISLATURE TO PROVIDE ADEQUATE SUPPORT FOR OUR EFFORTS TO RESOLVE THE INCREASING AIR POLLUTION PROBLEMS OF CLARK COUNTY.

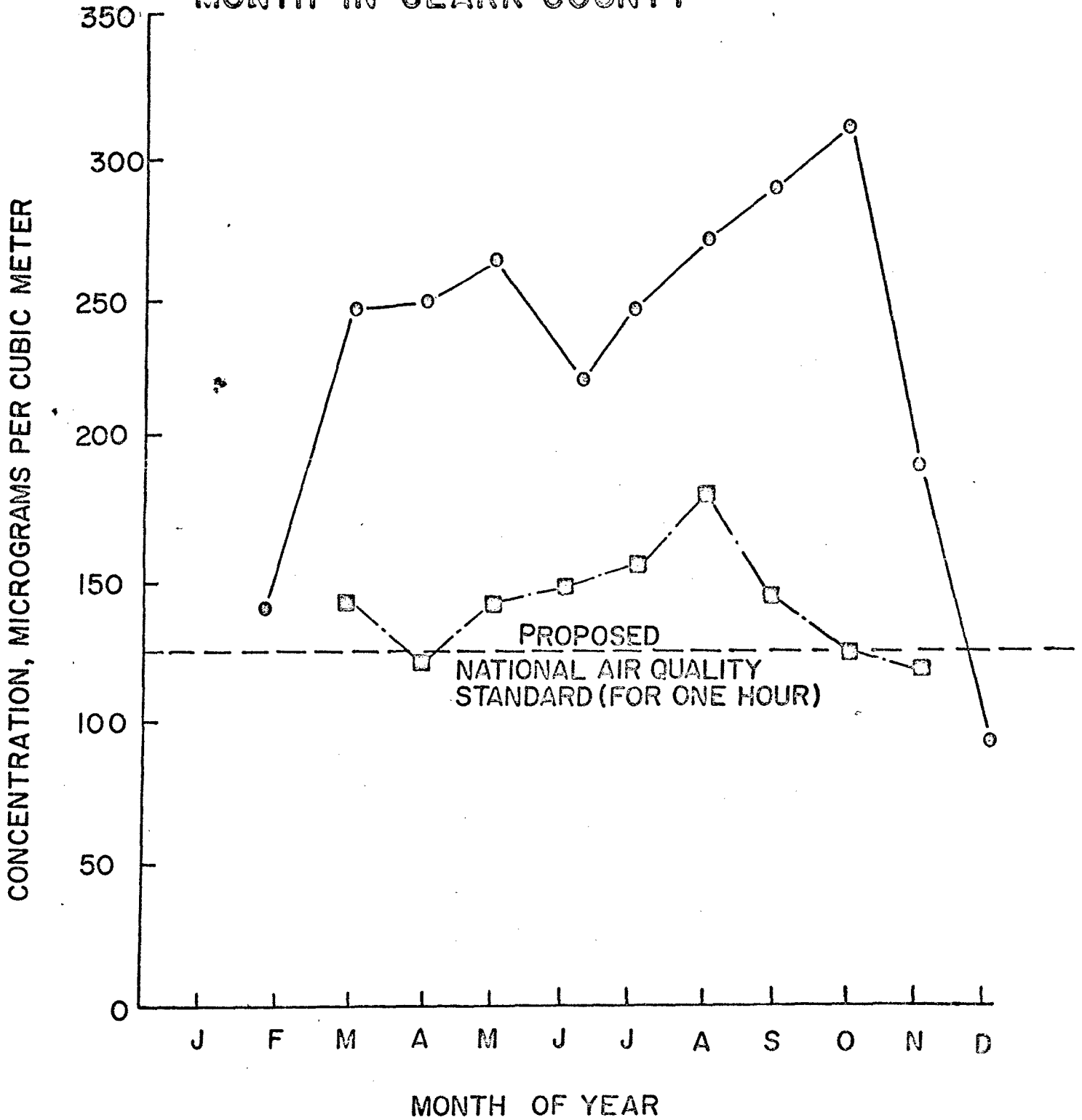
WE BELIEVE WE NEED ADDITIONAL ENABLING AUTHORITY WHICH PROVISIONS OF SB 275 COULD PROVIDE. HOWEVER, ITS VALUE TO US IN OUR LOCAL AIR POLLUTION CONTROL PROGRAM DEPENDS UPON ITS BEING MODIFIED TO CLEARLY PROVIDE FOR THE DISTRICT BOARD OF HEALTH TO CONTINUE AS LOCAL AIR POLLUTION CONTROL AUTHORITY WITH POWER TO ADOPT AND ENFORCE LOCAL STANDARDS AND REGULATIONS AND TO APPOINT LOCAL HEARING BOARD AS NOW PROVIDED FOR BY STATUTE.

CHARLES DEANER, CHAIRMAN OF OUR DISTRICT BOARD OF HEALTH, IS EXPECTED TO TESTIFY AT 1:30 p.m. TODAY REGARDING SPECIFICS OF SB 275.

ANNUAL AVERAGE LEVELS OF SUSPENDED PARTICULATE MATTER IN CLARK COUNTY



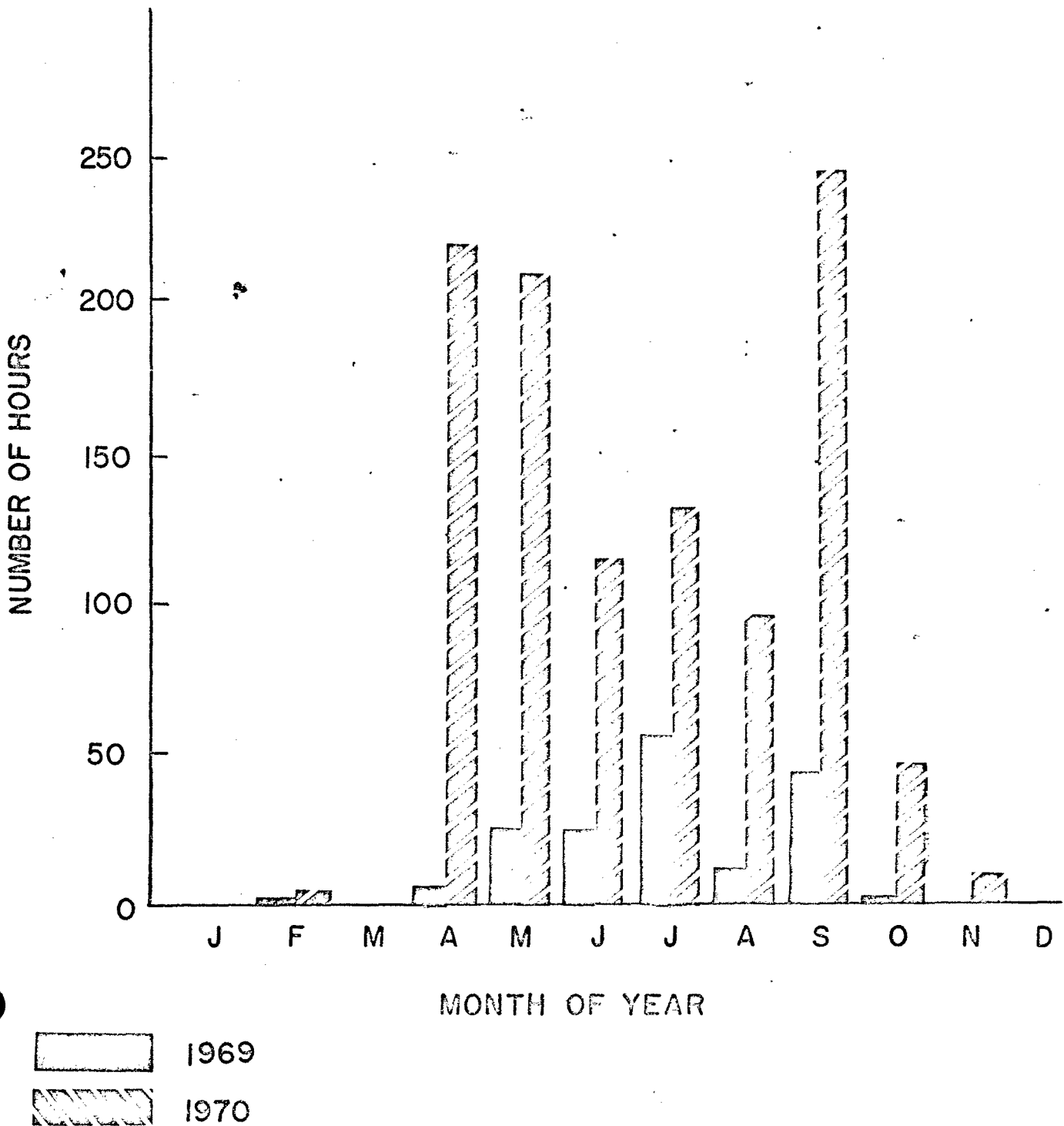
MAXIMUM ONE-HOUR CONCENTRATION OF TOTAL OXIDANT MEASURED EACH MONTH IN CLARK COUNTY



■ — ■ 1969

○ — ○ 1970

NUMBER OF HOURS THAT TOTAL OXIDANT LEVELS IN CLARK COUNTY EXCEEDED THE PROPOSED NATIONAL AIR QUALITY STANDARD



INTRODUCTION

During recent years the effects of water pollution in Las Vegas Wash and the Las Vegas Bay of Lake Mead have become increasingly evident. The waste waters generated within the Las Vegas Drainage Basin are adequately treated from a biological standpoint by the sewage treatment plants within the Valley. These treatment plants, principally those operated by the City of Las Vegas and the Clark County Sanitation District, treat the organic components of the waste flows in a manner and to a degree presently considered satisfactory in most parts of the Nation. The problem, however, arises not from the organic loadings in the waste waters, but from nutrients, phosphorus and nitrogen, which are present in community effluents and which are not removed by conventional sewage treatment processes.

These nutrients have accumulated in the quiet waters of Las Vegas Bay and have fostered the growth of algae there. The algae grows profusely, dies, and decays, thus presenting the pollution problem currently to be seen in the waters of Las Vegas Bay. This problem was partially defined in 1967, by an investigation conducted by the Federal Water Pollution Control Administration which correlated the deterioration of Las Vegas Bay (as measured by the density of algae) with the phosphorus content of treated sewage effluent discharged into Las Vegas Wash.

Recognizing the need for action to abate pollution of Lake Mead, concerned officials formed the Inter-Agency Water Pollution Control Task Force in 1968. The Task Force is funded by and has representation from the following public and private bodies: Clark County, Colorado River Commission of Nevada, Clark County Sanitation District, City of Las Vegas, City of Henderson, City of Boulder City, City of North Las Vegas, Las Vegas Valley Water District, Basic Management, Inc., Nevada Power Company and the Clark County Health District. In addition to funding provided by Task Force members, additional funding was received through the Federal Water Pollution Control Administration to finance the required study and planning effort.

Early in their deliberations, the members of the Task Force recognized that Las Vegas Bay pollution was only one part of the overall problem facing the residents of Las Vegas Valley. The larger need was for development of a long-range water resource management program to optimize the beneficial uses of the total water resources in the Valley and to protect the quality of these resources for future generations.

In September, 1968, upon recommendation of the Inter-Agency Water Pollution Control Task Force, Clark County executed a contract with the engineering joint venture of Boyle Engineering and Cornell, Howland, Hayes & Merryfield (Boyle-CH₂M) to perform the necessary studies and to submit reports relative to a comprehensive water

quality control program for the Las Vegas Drainage Basin. This study has been accomplished and the report has been submitted in two volumes: Phase I (dated February, 1969) deals with the formulation and definition of the problems, and Phase II (dated December, 1969) presents analyses of alternative plans of action and makes recommendations for implementation of the program.

PROBLEM DEFINITION

In broad terms, the aim of a comprehensive water quality control program for the Las Vegas Drainage Basin in terms of both long-range and short-range objectives is threefold and can be summarized as follows:

1. To reduce as soon as possible and to the maximum extent possible, pollution due to nutrient concentrations in Las Vegas Bay of Lake Mead.
2. To reduce to acceptable limits, pollution hazards to the waters of the Colorado River System insofar as the residents of the Las Vegas Valley have control over these pollution hazards.
3. To make maximum beneficial use of the water resources available to the Valley and assure, during the planning period adopted, adequate quantities of water and acceptable quality of water.

The above objectives should be met as economically as possible with due consideration given to the protection of the physical environment and the ecology of the Colorado River System as it may be affected by the activities of the people of this area.

Within the framework of the above broad objectives, it is necessary to define certain limits with regard to the objectives of the planned program. The planning period to be encompassed was taken as thirty years, terminating in the year 2000. The population to be accommodated at that time is based upon the land use plan adopted by Clark County for the Las Vegas Valley, and projects a population of approximately one million persons in the year 2000. Although the plans presented are for the population stated, the difficulty of population predictions some thirty years hence is such that flexibility in planning is considered a necessity. Therefore, although many of the economic analyses presented in Phase II of the report are based upon certain populations occurring in certain years, the key to incremental expansion of any program adopted is the occurrence of given population figures, not the occurrence of specific years. The programs proposed are planned in such a manner that staging or incremental construction of any given plan can be made to accommodate either an increase or a lag in the assumed rate of population growth. Furthermore, these programs can be adjusted should the rate of water usage, or the rate of waste water production, by the future population vary from those assumed in this study.

WATER RESOURCE DEVELOPMENT

The currently contemplated sources of water available for use by present and future populations of the Las Vegas Valley include: (a) the groundwater basin, (b) Colorado River Water, and (c) reclaimed waste water.

The groundwater basin under the Las Vegas Valley constitutes the principal source of water used in the Valley today. It was the total source until 1942, when water was first imported from Lake Mead to supply Henderson and the Basic Management, Inc., complex near Henderson. The Las Vegas Valley groundwater basin will continue to be an important source of water. Although the natural recharge to the basin is not firmly established, based upon existing data and recent practice, an annual yield of 50,000 acre-feet from the groundwater basin has been utilized in assessing the water resources available for the period of this water plan. Should a program of artificial groundwater recharge with reclaimed water be adopted, this groundwater basin yield could, of course, be increased by an amount corresponding to the volume of water recharged to the basin.

Colorado River Water will, in the future, be a much larger component of the total supply for the Valley than it has been in the past. The BMI pipeline will continue in use to the Henderson area. It is anticipated that in the future, most of this water will be used in the Henderson-BMI general industrial complex. The Southern Nevada Water Project from Lake Mead to Las Vegas Valley will begin operation in 1971, with an initial capacity of 135,000 acre-feet.

The allotment of Colorado River Water for the entire State of Nevada is 300,000 acre-feet per year. Commitments to Boulder City, Fort Mojave area, and others of approximately 35,000 acre-feet per year leave 265,000 acre-feet per year available for use within the Las Vegas Valley in the year 2000. To the amount of water from the Colorado River currently allotted to the State of Nevada, additional water allotment can be obtained if suitably treated waste water flows are returned to the river system. The increase in allotment on an annual basis would be equal to the amount of acceptable waters returned to the system. Although the initial capacity of the Southern Nevada Water Project is not designed to deliver the full entitlement of Colorado River Water to the Valley, it has been assumed for the purposes of this report that the Project system will be expanded as required to meet the need for water pumped from Lake Mead, which water supply is limited only by the State's allotment (265,000 acre-feet per year for the Las Vegas Valley), plus any credits for suitably treated waste waters returned to the Colorado River System. The magnitude and timing of the increase of capacity in the Southern Nevada Water Project will depend upon the particular plan of action finally chosen. Such a variation in timing and capacity has been analyzed in each of the alternative plans presented in detail in Phase II of this report.

Reclaimed waste waters must, of necessity, form a substantial portion of the future water resources of the Las Vegas Valley. The use of these reclaimed waste waters could include irrigation for agriculture and ornamental plantings, cooling water and other industrial uses, readmittance or return to the Colorado River System for credits on increased allotment, demineralization and sterilization for immediate return to the potable water system or any other possible beneficial use. It is estimated that by the year 2000, approximately 182,000 acre-feet per year of waste water will be generated within the Valley. After making allowance for waste waters not

connected to sewer systems, potential on-site reuse at industrial plants, and potential sales for irrigation usages near the sewage treatment plants, it appears that a net waste water volume available for reuse will approximate 135,000 acre-feet per year. 209

Based upon the figures shown above, the supply available to meet the net water demand of the Las Vegas Valley by the year 2000, includes groundwater (50,000 acre-feet per year), Colorado River Water (265,000 acre-feet per year), and reclaimed water (135,000 acre-feet per year), for a total of approximately 450,000 acre-feet per year. The estimate of the water need for the area at the same time is 441,000 acre-feet per year. Each of these figures will vary by that time, depending upon the method of water reclamation utilized, the per capita rates of water usage and sewage production as well as other estimated factors. The impact of this analysis, however, indicates that the Las Vegas Valley will have to look to additional sources of water other than those listed herein by the year 2000, or when its population reaches approximately one million persons. This analysis emphasizes the importance of local, State and Federal water agencies continuing to plan for water resource development to meet needs of the more distant future.

WATER QUALITY STANDARDS

Water quality standards describe requirements relating to the acceptability of a given water supply for a given purpose. To be meaningful, standards should relate to the uses planned for the water. To be useful, they should be technologically and economically feasible. Water quality standards are often based on what seems desirable rather than what is actually allowable in terms of safety to health or pollution control. Since man's knowledge of the total effects of various pollutants is far from complete, opinion and judgment enter into the setting of limits, and conflicts occur in the attempts to implement the resulting requirements.

For the purposes of this summary, water quality standards for various uses of reclaimed water will be stated in somewhat general terms rather than more specific technical terms. A more detailed technical discussion of this subject can be found in Chapter 12 of the Phase II Report. Since the quality standard for the water to be produced from a reclamation system governs the process to be utilized and the cost of such waste treatment, qualities of effluent and methods of attaining these qualities have been outlined for the various water usages.

For irrigation water to be used, either for agriculture, golf courses, or other beneficial irrigation use within the area, it has been assumed that the quality currently being produced by the City of Las Vegas and the Clark County Sanitation District's sewage treatment plants will be acceptable. This water, produced by the secondary treatment of domestic sewage in a conventional system using biologic processes, has proven its suitability for irrigation of golf courses, agricultural crops, green belts, etc., within the Valley. Furthermore, this use has been approved by appropriate health authorities. It is, therefore, anticipated that the current standards for this use will continue.

The suitability of a given water for use in recharging a groundwater supply (one of the alternative plans later outlined) is dependent upon a number of factors, including method of recharge, volume of underground water available for blending with recharged water, chemical characteristics of the groundwater aquifer, and many other factors. It has been assumed that water of the type

POSSIBILITIES CONSIDERED

currently produced by existing sewage treatment plants, would have to be filtered to remove solids suspended in these waters in order to prevent possible plugging of aquifers. Other than filtration, additional treatment of secondary effluent for recharge has not been postulated, but it is felt that data presently available are insufficient to permit confident prediction of recharge results.

The proposed treatment system to produce an effluent suitable for discharge into Lake Mead is more complex than that required for either of the foregoing usages or discharges. The Nevada State Board of Health has set discharge requirements for effluents to be discharged into the Las Vegas Wash (such discharge requirements are assumed to be comparable to those which will be required for discharge into Lake Mead). These effluent standards, which are quite stringent in regard to the removal of nutrients (phosphorus and nitrogen), are graded to provide one standard until the year 1980, and a more exacting standard after the year 1980.

The pre-1980 standard which is to take effect as of July 1, 1973, requires the reduction of total phosphorus to less than 1.0 parts per million and the reduction of total nitrogen to less than 7.0 parts per million. It is these stipulated reductions in the nutrients that require the addition of tertiary treatment processes to further treat the secondary effluent now being produced. This is a stringent but necessary requirement if progress is to be made in the revitalization of Las Vegas Bay. The necessary processes to produce this effluent will be listed later.

The 1980 standards for discharge as set by the Nevada State Board of Health, require further reductions in phosphorus and nitrogen to 0.05 parts per million for each of these nutrient constituents. The effect of this standard, utilizing present knowledge and technology, is to require the desalting or demineralization of the effluent water. It is anticipated that demineralization by whatever process utilized will be an additional stage of treatment to be added to the plant initially needed to meet the 1973 standard.

It should be noted that present State of Nevada requirements for water quality in the Colorado River do not apply directly to effluents discharged, but rather to the Colorado River itself. Therefore, for the purposes of this study and report, a set of standards for effluent discharge to the Colorado River immediately below Hoover Dam has been formulated. These proposed standards are the recommendations of the consulting engineers performing this study. They have not received official sanction of the Nevada State Board of Health which is studying the problem, and is scheduled to hold hearings and make determinations relating to these effluent discharge requirements in the relatively near future. The effluent standards recommended are, from the standpoint of nutrient levels, substantially the same as the proposed 1973 standards for discharge into Las Vegas Wash and Lake Mead. The calculated impact on nutrient levels in the Colorado River below Hoover Dam would be below the present level of detectability, utilizing standard testing procedures. It is believed that standards for effluent water discharged below the dam can be somewhat less stringent than those standards for discharge into Las Vegas Bay. Most authorities agree that flowing streams subject to good mixing action, have a far greater capability to assimilate nutrients than do still lakes. It must be emphasized, however, that the alternative based upon discharge into the Colorado River below Lake Mead is contingent upon the proposed standards and that adoption of substantially different standards may affect the feasibility of the plan presented.

In considering alternative programs for management of the Valley's water resource and maintenance of the quality of the water, many possibilities presented themselves. Following is a discussion of the principal possibilities for incorporation into the plan. The final alternative programs which are evaluated include one or more of the possible approaches discussed below:

1. IRRIGATION — In considering the disposal of treated waste waters by means other than discharge into Las Vegas Wash, the first alternative which comes to mind is the use of these waters for irrigation. This irrigation could be within the Valley entirely, utilizing treated waters for agricultural production as is currently being done to some extent on farmland near the City of Las Vegas and Clark County Treatment Plants. Presumably, if this operation could be expanded, either in its present location or in some other location on a grand scale, the waste waters treated to minimal standards could be utilized productively to raise agricultural products for marketing.

This possibility was investigated for potential farming in the Las Vegas Valley itself, in El Dorado Valley and in Dry Lake Valley. Agricultural experts were retained to evaluate the suitability of this type of water for agricultural use, the types of crops which could be raised in the area with the water and soil available, and the annual requirement for application of water to land, including not only that water necessary to service the crops being raised, but also the water necessary to leach the salts which accumulate in the plant root zone. The quantities of water which would drain from the agricultural fields to waste by evaporation or return to the Colorado River System were also assessed.

The use of these waters for agricultural purposes poses a number of serious problems which tend to limit this approach as an adequate solution. These problems are:

a. The flows of waste waters from the Las Vegas Valley are year-round flows which are discharged every hour of every day throughout the year. Agricultural and plant demand for water is maximal in summer months and minimal in winter months. Thus, for this to be a real alternate for disposal of reclaimed waste waters, it becomes necessary to construct seasonal storage reservoirs to store wintertime flows for summertime use. The problem involved in finding physical sites available for such water quantities — which may amount to as much as 50,000 acre-feet — is in itself a major undertaking. Furthermore, water treated only to the extent needed for use in irrigation, may not rest in reservoirs of some depth without presenting problems of deterioration of the effluent. Septic action or vigorous algal blooms would render the reservoirs more objectionable than the present conditions in Las Vegas Bay.

b. Investigations were made utilizing planned distribution systems to deliver this treated water to all possible areas of golf courses, parks, freeway rights of way, school grounds, green belts, etc., for beneficial use within the Valley. Excess flows could be wasted to irrigation in certain other areas in the Valley, simply as a means of disposal. An analysis of the cost of this type of reclaimed water distribution system and this type of a waste water disposal system indicated that the costs were out of line with other possible alternatives investigated in more detail. The in-Valley reclaimed water distribution system was

therefore abandoned as a possible total solution to the problem. The idea of utilizing the water on an "as needed" basis was not abandoned.

In the water budgeting procedure used, approximately 30,000 acre-feet (four times present usage) was allotted for in-Valley irrigation uses. Additional quantities can be made available. Any of the alternative plans proposed is flexible enough to permit this usage to the optimum amounts required.

2. EXPORTATION – In terms of immediately alleviating the pollution problem in the Las Vegas Bay, one of the methods which comes to mind is the export of effluent from the Las Vegas Valley to adjoining valleys for either agricultural use or simply for the purpose of removing the flows from Las Vegas Wash. Unfortunately, by approximately the year 1985, it will become necessary to reclaim waste waters to meet needs within the Valley. Because of this need, capital facilities built for the purposes of exporting waste waters from the Las Vegas Valley would in general have a short useful life. Nevertheless, the export plan for disposing of treated waste waters into adjoining valleys was investigated. Transportation and disposal of these waters in Dry Lake Valley, El Dorado Valley, Pahrump Valley, Hidden Valley, and the Jean Lake area were evaluated. Consideration was given to maximizing possible agricultural benefits from the use of exported water. On the basis of the preliminary evaluations of these plans, it became evident that exportation to the Pahrump, Hidden Valley and Jean Lake areas was prohibitively expensive as compared to the Dry Lake and El Dorado Valley areas. Therefore, the first three possibilities were not given detailed analysis, but one of the alternative plans presented in the report explores the export of treated effluents to the Dry Lake and El Dorado Valley areas for a time lapse between now and the time when it becomes necessary to reclaim the effluent for use within Las Vegas Valley or for the acquisition of additional credits on Nevada's water allotment.

3. PONDING AND RECREATIONAL LAKES – The possible utilization of treated waste waters for ponding to evaporation or for use as recreational lakes was considered on a preliminary basis. If these lakes were to serve as a disposal means, the surface area of the lakes must be sufficient to provide for the disposal of the effluent by evaporation to the atmosphere. This would require a surface area in excess of 20,000 acres based upon local evaporation rates. It is, in effect, a wastage of the water which would be needed as water supply in the Valley after the year 1985. The lakes themselves would have to be well sealed so the water could not find its way by underground seepage into the Colorado River picking up large amounts of salts, such as chlorides, to contribute additionally to the Colorado River Water System. Assuming that waters placed in these recreational lakes were not treated for the removal of nutrients, significant algae problems would result. If the reclaimed water lakes were to be used for anything other than ornament, such as body contact sports, some tertiary treatment of the effluent water would be needed. It was felt that from the standpoint of recreational waters the main body of Lake Mead offers superior facilities to anything that could be provided by recreational lakes utilizing reclaimed water.

4. GROUNDWATER RECHARGE – The utilization of suitably treated effluents for recharging the groundwater basin has many advantages. Unfortunately, at the present time, not enough is known about the characteristics of the groundwater basin underlying the Las Vegas Valley

to state positively that this alternative is acceptable. However, on the assumption that it is physically possible to recharge to the groundwater basin with a suitably prepared waste water effluent, an economic analysis was made regarding this possibility. It is apparent that it presents definite advantages. These are in the form of capacity for storing large quantities of water and favorable economic features. The report recommends that a detailed groundwater investigation be launched by the agency achieving management authority for the groundwater resource and that this program be expedited with the idea of attaining definitive results before the year 1980. A decision can be made by that time relating to the feasibility of a groundwater recharge as opposed to other alternative plans outlined.

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All possibilities outlined above use effluent either in the condition currently produced by treatment plants operated by the City of Las Vegas and the Clark County Sanitation District or use this effluent with minimal additional treatment. Other alternatives which visualize the discharge of a highly treated water into Lake Mead at Las Vegas Bay, into the Colorado River below Hoover Dam or into the potable water system were investigated. These alternatives require considerable additional treatment over that outlined for previous alternatives.

For discharge to the Colorado River below Hoover Dam or to Lake Mead, under the State of Nevada Health Department's 1973 Standards, additional treatment is necessary to remove phosphorus and nitrogen from waste water flows. Utilizing this approach to treatment of the effluent has disadvantages in terms of capital and operating costs needed to maintain the tertiary treatment facilities required for the removal of nutrients. On the other hand, once these flows are treated, they are relatively inexpensive to dispose of. The return flows to the Colorado River System should establish credit to increase Nevada's allotment of water from the River System, thus solving the problem of water supply after the mid 1980's. Tertiary treatment of the waste waters in order to reduce the nutrients discharged should alleviate substantially, although not cure, the pollution problem in Las Vegas Bay. If discharges are permitted to the Colorado River below Hoover Dam this offers maximum possible relief to the Las Vegas Bay problem while providing a satisfactory and realistic means of treated waste water disposal.

In order to meet the 1980 requirements as set by the Nevada State Board of Health, it is necessary to embark upon a demineralization program for the water in addition to tertiary treatment to remove phosphorus from the secondary effluents before it can be discharged into Lake Mead. Analysis of this possibility has been included in the proposed alternatives.

The desalinization system to meet the total 1980 requirements could be any one of a number of methods. It should be realized that distillation plants now in operation in many parts of the world are relatively small as compared to the capacity of the plant which will be required to care for the effluent waste waters generated within the Las Vegas Valley. For example, alternative plans presented indicate that the first unit of a desalinization plant, when built, should be on the order of one hundred million gallons per day, a substantial increase in size over any plant currently in existence. There are four different desalting processes which presently show promise: multiple effect distillation, membrane filtration, mixed bed ion exchange, and reverse osmosis. Cost estimates presented in the economic analysis concerned with the desalinization process are assumed to be

adequate to care for any one of these processes finally selected. At the present time, the distillation process has had most operational experience of any of the above with plants having been installed in San Diego, Guantanamo Bay, in the near East, and around the Persian Gulf, to mention a few locations.

All of the desalting processes will require massive amounts of power either from a direct heat source such as a fossil or nuclear fuel or from an electrical power source. The pros and cons of installing fossil fueled direct heat plants, fossil fueled electrical plants, nuclear fueled direct heat plants or nuclear fueled electrical plants has not been investigated in detail. However, it is obvious that the installation of any of these plants to provide large quantities of power offers additional problems from the standpoint of new requirements for cooling water, new possibilities of air pollution, and/or new possibilities for thermal pollution in the area.

It would appear that if the monies were spent toward a desalinization process of whichever type, in order to produce a water capable of meeting the 1980 State Health Board Standards, that it would be unwise to return this water back into Lake Mead to become degraded by the Lake Mead water. It would appear more feasible and economical to mix this demineralized water with the Lake Mead supply to produce better quality water for domestic consumption within the Valley. Alternatives investigated evaluate the cost of conveying the demineralized water to Lake Mead or to a point just before the water filtration plant on the Southern Nevada Water Project. From this point, such waters could be mixed and readmitted to the potable water system within the Valley.

ALTERNATIVE PLANS EVALUATED

After considering all possibilities advanced relating to the total management of the water resource for the Las Vegas Valley and relating to the treatment and disposal of waste waters generated within the Valley, four alternative plans of action were formulized and evaluated on a comparative basis. Unit costs for waste water disposal and water resource development for each of the programs were developed. The attempt was made to present each of these programs in sufficient detail so the documentation presented in Chapter 16 of the Phase II Report could be utilized to analyze the plans as presented; could be up-dated on a continuing basis through the years to take account of changing conditions or changing technology; or could be used as a set of building blocks by agency management and staff to evaluate modified programs. It is hoped that the serious students of this problem will take the time to thoroughly study and evaluate the data documenting the proposed alternatives as presented in Chapter 16. With this information in mind, almost any rearrangement or departure from the plans outlined can be analyzed and evaluated. The four alternative plans each contain elements of two or more of the possibilities previously considered. Each plan is flexible enough to accommodate changing conditions during the planning period and to provide for demands in water usages during these periods.

Each of the plans proposes the collection of effluent from the treatment plants in the City of Las Vegas, the City of Henderson, the Clark County Sanitation District, and the BMI industrial complex at a central point. It is further assumed that the difficult industrial wastes produced in the Henderson complex or by other industries in the Valley will be isolated either for separate treat-

ment and disposal, or will be pre-treated so that these wastes will not produce an undue burden on the total treatment plant process when blended with other discharges. After collection at a central point, the waste waters will be treated to the degree necessary as visualized in each of the following alternative plans, and after treatment, will be discharged in the manner outlined.

1. GROUND WATER BASIN RECHARGE ALTERNATE (INJECTION WELLS) 212

The possibility of treating waste waters to the degree necessary to inject these waters in the underground basin as a means of both waste water disposal and water resource management was investigated on the basis of the assumption that this operation could be accomplished. At the present time, it is not certain that this can be done since not enough is known about the geologic and hydrologic characteristics of the groundwater basin. Because of the favorable economics indicated for this system, a more detailed investigation and evaluation of the groundwater basin has been outlined in Chapter 18 of the Phase II Report. If before 1980, the practicality of recharging the groundwater basin can be established, this alternative may well be a major part of the program from that point forward.

The groundwater recharge alternate as evaluated visualizes the construction of a filtration system to follow the secondary biological treatment of wastes. From the filtration element of this system, waste waters would be conducted through a pump station and pipeline to a series of injection wells located at the higher elevations in the westerly portion of the City of Las Vegas. Through these wells, water would be injected into the underground basin for later withdrawal by pumps for use in the potable water system. In planning the program, injection wells and filtration plant increments were staged to meet the growing demand during the planning period. The estimated unit cost for treating and disposing of waste waters in this fashion, such cost being over and above the cost of secondary biological treatment, is estimated to range from \$225 per million gallons to \$338 per million gallons during the period discussed.

2. EXPORTATION TO EL DORADO AND DRY LAKE VALLEYS, PLUS DESALTING ALTERNATE

Exportation of secondary effluent to the El Dorado and Dry Lake Valleys for irrigated agriculture in the El Dorado Valley and for disposal to evaporation in the Dry Lake Valley offers advantages relating to low initial cost and to an immediate cessation of adding nutrients to the Las Vegas Bay. This plan, however, takes volumes of water from the Las Vegas Valley for disposal elsewhere and must be modified in the mid-1980's to meet the anticipated need for reclaimed waste waters as a source of water supply at that time. The plan, therefore, visualizes the installation in 1985 of both a desalting plant and a tertiary waste treatment plant to remove phosphorus and to pre-condition the water prior to it being demineralized. This plan proposes the immediate construction of a pipeline export system to Dry Lake Valley which would be later used as a pipeline to dispose of the waste brines, that is, streams with high salt concentrations generated through the operation of the desalting plant. This element of the system then, would be used continuously. Furthermore, the plan proposes immediate construction of an export system to El Dorado Valley together with agricultural storage reservoirs and percolating ponds to utilize this water for agriculture. This facility to the El Dorado Valley would be expanded to its maximum capability through addition of pumps and modifications to the agricultural system by the year

1983. From 1985 on, this system would be utilized to a steadily lesser extent because of the need for water in the Las Vegas Valley. By the year 2000, it is anticipated that the export system to El Dorado Valley and any agricultural economy which it may have generated would be phased out completely. This element of the plan, that is, developing and then collapsing an agricultural economy in the El Dorado Valley, is not a desirable feature. The tertiary treatment plant and desalting plant which would be started with incremental construction in 1985, could be expanded by steps to care for increased water needs of the Las Vegas Valley to the year 2000. This combined plan, which incorporates features of export, agricultural use of secondary effluent, and later desalting of the waste water for use in the potable water system or conveyance to Lake Mead, would cost from a low of \$103 per million gallons when the export system is operating at maximum efficiency to a high of some \$650 per million gallons at the end of the planning period.

3. LAS VEGAS VALLEY WASTE WATER COLLECTION AND TREATMENT SYSTEM ALTERNATE

The Las Vegas Valley Waste Water Collection and Treatment System Alternate calls for the collection of waste flows at a common point and installation of a tertiary treatment plant for removal of phosphorus and nitrogen to be consistent with the recommended standards for disposal at a point in the Colorado River below Hoover Dam. After the treatment (phosphorus and nitrogen removal) the flow would be conveyed through canals and pipelines by gravity to a point below Hoover Dam where it would be discharged into the main stream of the river. The economics of this plan are predicated on the assumption that the standards recommended for discharge at this point would be judged satisfactory. Should standards of a sharply different nature be set, a different type of treatment would have to be used. Based on these assumptions, however, this plan has many advantages. It offers the most positive relief for the pollution problem in Las Vegas Bay. It operates primarily by gravity, eliminating the need for extensive pumping as in the case of the export plan and the recharge plan. It avoids the need for an expensive and possibly objectionable power source for the desalting process. By transmitting this water, adequately treated, to the Colorado River System, the entitlement of the State of Nevada would be increased and the future water supply problem of the Valley cared for. Because this water will be conducted around Hoover Dam rather than through it there are some possibilities that a reduction in total generation of power at Hoover Dam may result although Nevada's percentage of the total generation should not be affected. This alternate has the additional possibility of the installation of a small hydro-electric generating plant at the point where the waste stream would drop into the River. Such hydro-electric generating feature is not an integral part of this alternative but should be judged strictly on its

own merits as an added feature.

This alternate would require immediate construction of the channel from the common waste water treatment plant to the point of discharge below the Dam. A tertiary treatment plant for removal of phosphorus and nitrogen would be installed at the common collection point. Expansion of the tertiary plant would be phased to keep pace with growing population. Costs of disposal and treatment of waste water under the Las Vegas Waste Water Collection and Treatment System are estimated to vary from a low of \$163 per million gallons to a high of \$217 per million gallons in the year 2000. The economy of this plan is due first to relatively low initial cost, but probably more importantly to the fact that it is a gravity operated system. If the hydro-electric plant were installed, resulting revenues would reduce the total cost of the program, although in minor amount.

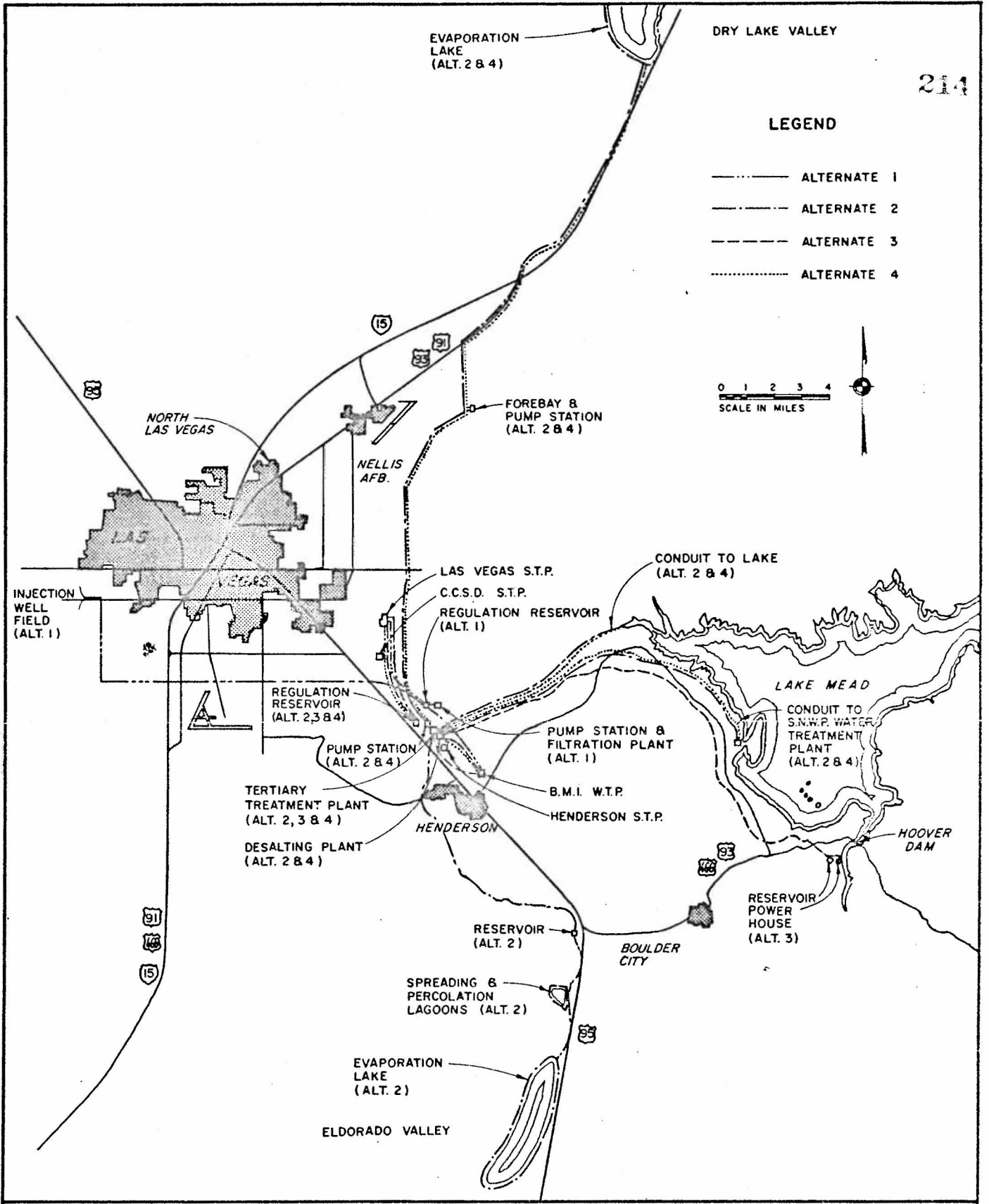
4. COMPLETE TREATMENT ALTERNATE

If the waste waters are to be discharged to Lake Mead in accordance with the recently promulgated standards for discharge into Las Vegas Wash, it will be necessary to provide for complete treatment of the waste stream including desalting by the year 1980. The Complete Treatment Alternate Plan visualizes again the collection of waste streams at a common point and the construction of a tertiary plant designed to remove the nutrients in accordance with the 1973 standards. At the same time, the export line to Dry Lake would be built and utilized for the purpose of wasting effluent rather than giving it tertiary treatment, until a desalting plant is constructed to meet 1980 requirements. At that time, the export line to Dry Lake would be used as a waste line to dispose of the brine generated in the desalting process. In addition, this line could be used to export industrial waste waters which might be harmful to the normal tertiary and desalting treatment processes. In the period of 1973 to 1980, it is anticipated that effluent produced with nutrient reduction would be discharged into Las Vegas Bay. After 1980, when the desalting plant is installed, the effluent could be discharged either into Las Vegas Bay or conducted to a point on the Southern Nevada Water Project System for incorporation into the potable water system. This alternate has the advantage of providing the most complete treatment possible with present technology, and providing after 1980, a product of high quality water which would be utilized to improve the quality of the potable water being served within the Valley. Costs of this process for treating and disposing of the water are estimated in the range of \$200 per million gallons before the desalting plant is installed in 1980. From that time, costs range from a minimum of \$514 per million gallons to \$657 per million gallons in the year 2000. Summarized below are salient features of the economics of the four plans discussed.

SUMMARY OF COMPARATIVE COSTS FOR ALTERNATIVE PLANS

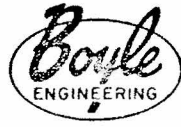
(PERIOD 1971 - 2000) (THOUSANDS OF DOLLARS)

BASIS	GROUNDWATER BASIN RECHARGE	EXPORTATION TO EL DORADO & DRY LAKE DESALT EFFLUENT TO:		LAS VEGAS VALLEY WASTE WATER COLLECTION & TREATMENT SYSTEM		COMPLETE TREATMENT DESALT EFFLUENT TO:	
		LAKE MEAD	SNWP T.P.	BASIC SYSTEM	WITH POWER PLANT	LAKE MEAD	SNWP T.P.
INITIAL CONSTRUCTION COSTS	\$31,382	\$20,874	\$20,874	\$18,616	\$21,309	\$25,826	\$25,826
PHASED CONSTRUCTION COSTS	19,992	148,057	151,829	7,460	9,981	101,018	104,251
TOTAL CONSTRUCTION COSTS	51,379	168,931	172,703	26,076	31,290	126,844	129,817
SUMMATION OF ANNUAL COSTS FOR WASTE WATER DISPOSAL	267,921	369,879	372,254	184,696	182,629	506,242	511,807
PRESENT WORTH (1970) - SUMMATION OF ANNUAL COSTS FOR WASTE WATER DISPOSAL	115,570	131,421	133,260	81,179	80,132	204,331	206,176
SUMMATION OF NET COMPARATIVE ANNUAL COSTS OF WASTE WATER DISPOSAL & WATER DEVELOPMENT	625,435	813,540	802,853	635,440	632,373	955,885	937,568
PRESENT WORTH (1970) - SUMMATION OF ANNUAL COSTS FOR WASTE WATER DISPOSAL & WATER DEVELOPMENT	\$264,380	\$317,152	\$313,617	\$269,590	\$268,219	\$392,261	\$385,218



- ALTERNATE 1 GROUND WATER BASIN RECHARGE
- ALTERNATE 2 EXPORTATION TO ELDORADO AND DRY LAKE VALLEYS PLUS DESALTING
- ALTERNATE 3 LAS VEGAS VALLEY WASTE WATER COLLECTION AND TREATMENT SYSTEM
- ALTERNATE 4 COMPLETE TREATMENT

SUMMARY OF ALTERNATES



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Based on the figures shown in the table, it appears the most advantageous system from the standpoint of economics is the Valley Waste Water Collection and Treatment System. However, it must be remembered that the cost of this system is predicated on the assumption that nutrient removals for discharge below Hoover Dam comparable to the State Board of Health 1973 Lake Mead Standards, will be satisfactory. If the impact of the alternative plans outlined herein is incorporated with the cost of water supply to the Valley, the Waste Water Collection and Treatment System still appears to be the most desirable alternative. The groundwater basin recharge program (if proven to be physically feasible) could be on a par with the Waste Water Collection and Treatment System.

MANAGEMENT AND FINANCING

The complexity of the water quality control problem and the close inter-relation of the various elements of the problem make it highly desirable that a single agency be given the responsibility and authority for basin-wide management of the total water resource. This resource includes the groundwater, imported Colorado River supply, and reclaimed waste waters. The agency responsible should be in a position to manage these supplies to benefit the total area and to assess costs of operation equitably among those benefited according to the benefits received. This concept will obviously require the shifting and redefinition of authority among the currently constituted state and local agencies within the Valley. Failure to centralize this authority will pose a substantial task of continuing coordination.

It is imperative that a management agency be designated in the near future and supplied with a competent staff to pursue the execution of the program outlined in this report, either in accordance with the recommended plan, one of the other alternatives presented, or a variation. The management agency must also have the authority and responsibility to evolve a financing program. Financing of the program is assumed to be through issuance of bonds for the construction of capital facilities and through levying of use charges for repayment of these bonds and operating expenses. The exact structure of the capital improvement funding and the rate charging to carry operating expenses cannot be defined until the management agency has been selected.

Until the organizational structure of the program management has been set, rate structures and mechanics of collection are a matter of speculation. However, to give some idea of the financial impact on the community, the following tabulation has been made to reflect the costs to an "average household." The average household is defined as a home having 3.5 occupants, each contributing about 125 gallons of waste water per day. This results in an annual waste water contribution of 160,000 gallons. The 125 gallon per capita figure provides allowance for infiltration, unused system capacity, and other factors.

<u>Cost of Additional Treatment And Disposal</u>	<u>Use Per Year Per Household</u>	<u>Cost Per Year Per Household</u>	<u>Cost Per Month Per Household</u>
\$/mg	(mg)		
150	0.16	\$24.00	\$2.00
300	0.16	48.00	4.00
450	0.16	72.00	6.00
600	0.16	96.00	8.00

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The above cost to the householder can be compared against existing average rates of about \$2.25 per month for sewage collection and secondary treatment. The figures shown above would have to be added to current charges, thus raising monthly charges to the householder from the current \$2.25 per month to the range of \$4.50 to \$10.00, depending upon the alternate selected, the rate schedule adopted, and the federal assistance available. If the Las Vegas Valley Waste Water Collection and Treatment System plan is adopted, as outlined in the Phase II Report, the cost per month for an "average household" would be on the order of \$2.50 per month during the period discussed. This lower cost is one reason for this plan being recommended by the authors.

RECOMMENDATIONS

The following recommendations are offered:

1. That an agency be selected to be responsible for management of water resources and water quality control in the Las Vegas Valley. This selection should be made as soon as possible to permit rapid progress toward solution of present water quality problems of Lake Mead.
2. That the alternate plan "Las Vegas Valley Waste Water Collection and Treatment System" be adopted as the preferred course of action.
3. That a financing program be adopted and implemented.
4. That a groundwater basin investigation and testing program, as outlined, be undertaken as soon as possible.
5. That application be made for Federal funds to help finance the necessary capital improvements required to meet the July 1, 1973 deadline imposed by the Nevada State Board of Health.
6. That consultants be retained to begin preparation of contract documents for construction of required facilities as soon as practicable.

STATEMENT OF CHARLES DEANER, CHAIRMAN,
DISTRICT BOARD OF HEALTH, CLARK COUNTY
before the
SENATE ECOLOGY COMMITTEE

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MARCH 5, 1971

MR. CHAIRMAN:

I WOULD LIKE TO EXPRESS MY APPRECIATION AND THAT OF THE DISTRICT BOARD OF HEALTH FOR THIS VISIT BY YOUR COMMITTEE TO GAIN FIRST-HAND KNOWLEDGE OF ENVIRONMENTAL PROBLEMS FACING SOUTHERN NEVADA.

WE NEED YOUR HELP AND ASSISTANCE IN SOLVING THEM.

DR. OTTO RAVENHOLT, OUR CHIEF HEALTH OFFICER, SPOKE EARLIER TO THE NEED FOR STATUTORY DESIGNATION OF AN AGENCY TO IMPLEMENT A SOLUTION TO THE LAS VEGAS WASH WATER POLLUTION PROBLEM.

I WISH TO ADD MY PLEA TO HIS AND TO REAFFIRM THE REQUEST FOR CREATION OF A MASTER AGENCY TO MANAGE THE WATER RESOURCES OF THE LAS VEGAS VALLEY.

SENATE BILL 118 PROVIDES A MECHANISM FOR IDENTIFYING INDUSTRIAL WASTES DISCHARGED INTO OUR WATERS.

ANYONE FAMILIAR WITH THE LAS VEGAS WASH UNDERSTANDS THE NEED FOR REGISTERING SOURCES OF INDUSTRIAL WASTE AS ONE ESSENTIAL STEP IN THEIR CONTROL.

WE SUPPORT THE PASSAGE OF THIS BILL AND ENCOURAGE A COMPLETE OVERHAUL OF NEVADA'S WATER POLLUTION CONTROL STATUTES TO PROVIDE FOR ENFORCEMENT OF STANDARDS FOR ALL SOURCES OF WATER POLLUTION.

SENATE BILL 15 WITH APPROPRIATE AMENDMENTS OFFERS A REASONABLE STARTING POINT FOR ALLOWING THE STATE HEALTH DIVISION TO ENTER THE FIELD OF SOLID WASTE MANAGEMENT.

WE RECOMMEND AMENDMENTS TO SENATE BILL 15 WHICH WOULD PROVIDE FOR A STATE MASTER PLAN AND GRANT AUTHORITY TO BOTH STATE AND LOCAL AGENCIES ALLOWING THEM TO COPE WITH THIS GROWING PROBLEM.

THE DISTRICT BOARD OF HEALTH ENACTED ITS OWN SANITARY LANDFILL REGULATIONS IN MAY OF 1970.

THESE HAVE PROVED USEFUL IN HELPING TO BRING ABOUT IMPROVEMENT IN THE OPERATION OF THE 26 DUMPS IN CLARK COUNTY.

YOU MIGHT ALSO NOTE THAT OUR REGULATIONS SPEAK TO THE PROBLEM OF DISPOSAL OF OIL AND TO THE OPERATION OF AUTO WRECKING YARDS.

THIS AFTERNOON, I WOULD LIKE TO TESTIFY ON SENATE BILL 275.

SENATE BILL 275:

SOME FOUR YEARS AGO, THE NEVADA LEGISLATURE ENACTED ITS FIRST LAW DEALING COMPREHENSIVELY WITH AIR POLLUTION CONTROL. THE CLARK COUNTY DISTRICT HEALTH DEPARTMENT WAS SUBSEQUENTLY DESIGNATED CONTROL AGENCY FOR CLARK COUNTY. AS A RESULT, THE DISTRICT BOARD OF HEALTH ENACTED REGULATIONS GOVERNING AIR CONTAMINATION AND INAUGURATED ITS CONTROL PROGRAM. TWO YEARS AGO, THE DISTRICT BOARD OF HEALTH ADVOCATED ENACTMENT OF LEGISLATION TO STRENGTHEN THE PROGRAM BY DEALING WITH PROBLEMS OF AUTOMOBILE EMISSIONS AND REVIEW OF NEW SOURCE CONSTRUCTION. AT THAT TIME, AN ASSEMBLY COMMITTEE REJECTED THE PROPOSALS AND URGED THE DISTRICT TO GAIN THE MAXIMUM PROGRESS FROM EXISTING LAW. WITHIN OUR ABILITIES, WE HAVE DONE THIS. WE HAVE STRENGTHENED OUR REGULATIONS TO PROVIDE MORE EFFECTIVE CONTROL OF STATIONARY SOURCES IN AN EFFORT TO PROTECT THE CLARK COUNTY AIRSHED. WE HAVE EXPANDED OUR ENFORCEMENT AND MONITORING STAFF.

WE HAVE LAUNCHED AN ENFORCEMENT PROGRAM AIMED AT REDUCING EMISSIONS FROM POINT SOURCES. EVERY MAJOR INDUSTRIAL POLLUTOR IN CLARK COUNTY HAS APPEARED BEFORE OUR HEARING BOARD AND INDICATED WILLINGNESS TO COMPLY WITH RULES AND REGULATIONS. THERE IS MUCH WORK TO BE DONE ON OUR PART IN THE NEXT FEW YEARS TO ENSURE THAT THESE ABATEMENT PROGRAMS ARE COMPLETED ON SCHEDULE.

WE FEEL, HOWEVER, THAT WE HAVE EXHAUSTED THE POWERS GRANTED TO US UNDER EXISTING STATUTES. FOR INSTANCE, NUMEROUS SOURCES OF AIR POLLUTION ARE BEYOND THE EFFECTIVE REACH OF ENFORCEMENT EFFORTS BECAUSE THE HEALTH DEPARTMENT MUST WAIT TEN DAYS AFTER ISSUING A NOTICE OF VIOLATION BEFORE TAKING FURTHER ACTION. FOR INTERMITTENT OPERATIONS SUCH AS GRADING AND LAND CLEARING, OPEN BURNING, AND SMOKING INCINERATORS, A TEN-DAY WAITING PERIOD NULLIFIES THE EFFECTIVENESS OF CONTROL EFFORTS. THE PROPOSED LEGISLATION ALLOWS THE CONTROL OFFICER TO ORDER IMMEDIATE CORRECTIVE ACTION OF SUCH DAY-TO-DAY ACTIVITIES. HIS ORDER, ONCE MADE, CAN ONLY BE OVERTURNED UPON SUCCESSFUL APPEAL TO THE HEARING BOARD.

ANOTHER FEATURE OF THE BILL DESERVING COMMENT IS THE PROVISION ALLOWING THE AGENCY TO REVIEW PLANS AND SPECIFICATION OF NEW SOURCE CONSTRUCTION. A SOURCE OF AIR POLLUTION ONCE BUILT IS EXTREMELY DIFFICULT TO CORRECT. THE DELAYING TACTICS AVAILABLE TO AN OFFENDER ARE NUMEROUS. PREVENTIVE ACTION IS THE MOST EFFECTIVE WAY TO ENSURE COMPLIANCE WITH AIR POLLUTION CONTROL REGULATIONS. THIS BILL ALLOWS THE AGENCY TO PREVENT CONSTRUCTION OF NEW SOURCES UNLESS APPROPRIATE CONTROL MEASURES ARE INCLUDED IN THE PLANT DESIGN. YOU MIGHT NOTE THERE IS A PROPOSAL TO CONSTRUCT A 2,000 MEGAWATT COAL-FIRED STEAM GENERATION PLANT

IN AN AREA WITHIN MILES OF THE LAS VEGAS VALLEY. WITHOUT PRIOR REVIEW POWERS, WE MAY WELL FIND OURSELVES IN A POSITION OF BEING FORCED TO TAKE ENFORCEMENT ACTION AGAINST THIS SOURCE ONLY AFTER MASSIVE AIR POLLUTION HAS BEEN ADDED TO THE ALREADY OVERLY CONTAMINATED AIR IN THE ENVIRONS OF LAS VEGAS.

SECTION 28 PROVIDES FOR THE CONTROL OF EMISSIONS FROM INTERNAL COMBUSTION ENGINES TO THE EXTENT PERMITTED BY FEDERAL LAW. THIS CORRECTS ONE OF THE MOST OBVIOUS DEFICIENCIES IN THE EXISTING STATUTE. THE BILL REQUIRES PROPER MAINTENANCE OF AIR POLLUTION CONTROL DEVICES ON MOTOR VEHICLES.

IT PROVIDES ENABLING AUTHORITY TO CREATE INSPECTION SYSTEMS WHERE NEEDED TO ENSURE THAT EMISSION CONTROL DEVICES ARE MAINTAINED IN GOOD WORKING ORDER.

IT GOES ONE STEP FURTHER BY GRANTING AUTHORITY TO CONTROL AGENCIES TO REQUIRE INSTALLATION OF POLLUTION CONTROL DEVICES ON EXISTING MOTOR VEHICLES, SHOULD SUCH DEVICES BECOME AVAILABLE IN THE NEXT FEW YEARS.

SENATE BILL 275 WOULD GRANT STATE AND LOCAL AGENCIES THE POWERS NEEDED TO DEVELOP APPROVABLE IMPLEMENTATION PLANS REQUIRED BY THE 1970 AMENDMENTS TO THE FEDERAL CLEAN AIR ACT.

THE VIABILITY AND RENEWAL OF OUR FEDERAL GRANT, WHICH SUPPORTS 50 PER CENT OF OUR PROGRAM, MAY WELL HINGE ON THE QUESTION OF WHETHER THIS LEGISLATURE FULFILLS THE MANDATES OF THE FEDERAL ACT. WE ENDORSE ENACTMENT OF BASIC REGULATORY PRINCIPLES CONTAINED IN SENATE BILL 275 PROVIDED THAT IT BE AMENDED TO ALLOW THE DISTRICT BOARD OF HEALTH TO CONTINUE FUNCTIONING AS THE AIR

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POLLUTION CONTROL AUTHORITY IN CLARK COUNTY. THIS REQUIRES POWER TO ADOPT AND ENFORCE LOCAL REGULATIONS AND TO APPOINT A LOCAL HEARING BOARD.

SECTION 33 STATES THAT EXISTING PROGRAMS MAY CONTINUE BUT SECTION 41 REPEALS THE STATUTORY AUTHORITY THAT ENABLES US TO FUNCTION. CONSEQUENTLY, WE URGE THAT SENATE BILL 275 BE AMENDED TO ACCOMPLISH THE FOLLOWING:

1. GRANT LOCAL AGENCIES THE SAME REGULATORY AUTHORITY GIVEN TO THE STATE BOARD.
2. PROVIDE FOR RETENTION OF THE PRESENT DISTRICT AIR POLLUTION CONTROL HEARING BOARD.
3. VALIDATE EXISTING CONTROL REGULATIONS AND HEARING BOARD ACTIONS ADOPTED UNDER THE PRESENT STATUTE.

TO AID THE COMMITTEE IN MAKING THESE CHANGES, WE ARE SUBMITTING AMENDMENTS TO ILLUSTRATE THE TYPE OF LANGUAGE WHICH MIGHT BE ADDED TO THE BILL TO ACCOMPLISH THIS PURPOSE.

THANK YOU, MR. CHAIRMAN.

SUGGESTED MODIFICATIONS TO SENATE BILL 275

Section 17.

1. The State Board of Environmental Protection shall serve also as the hearing board whenever an administrative hearing is required under Section 2 to 40, inclusive, of this act. The governing Body of any County, City or Health District authorized to operate an air pollution control program under this Act may appoint an air pollution control hearing board. Hearing Board proceedings are governed by the Nevada Administrative Procedure Act (chapter 233B of NRS) as it relates to contested cases, except as otherwise provided in this section, and may be reviewed as provided in chapter 233B of NRS.
2. (Same)
3. (Same)
4. * Five members of the State Board of Environmental Protection must be present to hold a hearing, and four must concur in any affirmative administrative or hearing decision.
5. The air pollution control hearing board appointed by a County, City or Health District shall consist of five members who are not employees of the State or any political subdivision of the State. One member of the hearing board shall be an attorney admitted to practice law in Nevada and one member shall be a professional engineer registered in Nevada. Two shall be appointed for a term of one year, two shall be appointed for a term of two years and one shall be appointed for a term of three years. Each succeeding term shall be for a period of three years.

Section 29.

1. The District Board of Health, County Board of Health or Board of County Commissioners in each county of this State which has a population of 100,000 or more, as determined by the last preceding national census of the Bureau of the Census of the United States Department of Commerce, shall establish an air pollution control program within two years after the effective date of this act, and administer such program within its jurisdiction unless superseded.
2. (2a and 2b of Sec. 29) existing version

Section 29 (Continued)

3. Such board shall be designated as the air pollution control agency of the County for purposes of this act
4. and the Federal Act insofar as it pertains to local programs and is authorized to take all action necessary or appropriate to secure for itself the benefits of the Federal Act.
5. Powers and responsibilities enumerated in Sections 13, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 34, 35, 36, and 40 shall be binding on and inure to the benefit of local air pollution control authorities within their jurisdiction.
6. The local air pollution control board shall carry out all provisions of Section 14 of this act with the exception that notices of public hearings shall be given in newspapers throughout its jurisdiction, once a week for three weeks, which notice shall among other items specify with particularity the reasons for the proposed rules or regulations and provide other informative details. Such rules or regulations may be more restrictive than those adopted by the State Board of Environmental Protection.
7. A county whose population is less than 100,000 or any city located within any county may meet the requirements of this section for administration and enforcement through cooperative or interlocal agreement with one or more other counties, or through agreement with the state.

Section 33.

1. (Same)
2. A county (or) city or Health District which has an air pollution control program in operation on the effective date of this act may continue its program if within 1 year after the effective date of this act the program is approved as adequate by the board. Such approval shall be deemed granted unless the board specifically disapproves the program after a public hearing. Nothing in this Act is to be construed as invalidating any rule, regulation, enforcement action, variance, permit, cease and desist order, compliance schedule, or any other legal action taken by any existing air pollution control authority pursuant to existing NRS 445.400 through NRS 445.595, inclusive, on or before the effective date of this act unless it is specifically repealed, superseded or disapproved, pursuant to Section 14 of this act.