

CITY OF LAS VEGAS
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CITY OF NORTH LAS VEGAS
CITY COUNCIL:

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COUNCILMAN THOMAS BROWN
COUNCILWOMAN CYNTHIA BAUMANN
COUNCILMAN GARY DAVIS
COUNCILWOMAN MARY KINCAID

MINUTES

SPECIAL JOINT MEETING
CLARK COUNTY CITIES.

Date: May 24, 1978

Time: 9:15 A.M.

INVOCATION: Rev. Melvin A. Pekarul, First Baptist Church

CITY OF HENDERSON
CITY COUNCIL:

MAYOR LORIN WILLIAMS
COUNCILMAN JAY PRICE
COUNCILWOMAN LORNA KESTERSON
COUNCILMAN CARLTON LAWRENCE
COUNCILMAN PHIL STOUT

CITY OF BOULDER CITY
CITY COUNCIL:

MAYOR HEBER TOBLER
COUNCILMAN ROBERT FERRARO
COUNCILMAN RICHARD DANIELSON
COUNCILMAN JOHN McEWAN
COUNCILMAN KENNETH ANDREE

CLARK COUNTY
COMMISSIONERS:

COMMISSIONER THALIA DONDERO
COMMISSIONER ROBERT BROADBENT

MINUTES

A Special Joint Meeting of the Board of City Commissioners of the City of Las Vegas, Nevada, and City Councilpersons of the Cities of North Las Vegas, Henderson, and Boulder City, Nevada, held on this 24th day of May, 1978, was called to order by his Honor, Mayor William H. Briare, at the hour of 9:15 A.M.

AGENDA POSTED _____, 19__ (See Page 3 of these Minutes - Affidavit)

AGENDA MAILED _____, 19__ (See Page 4 of these Minutes - Affidavit)

STAFF ATTENDANCE

CITY OF LAS VEGAS

City Manager	RUSSELL W. DORN
Deputy City Manager (Supportive Services)	RONALD C. JACK
Deputy City Manager (Community Services)	DONALD J. SAYLOR
City Attorney	MIKE SLOAN
Deputy City Attorney	JANSON STEWART
City Clerk	EDWINA M. COLE, CMC
Director, Dept. of Business Activity	ILA M. BRITT
Director, Dept. of Community Planning	HAROLD P. FOSTER, Acting
Director, Dept. of Rec. and Leisure Activities	RICHARD L. CAMPBELL
Director, Dept. of Funds, Coordination & Projects	RICHARD B. BLUE, Acting
Dept. of Financial Management	ROBERT CANEZ, Financial Services Officer
Director, Dept. of Municipal Services	J.C. CATHCART
Director, Dept. of Personnel & Emp. Relations	J. ROBERT McPHERSON

STAFF
ATTENDANCE

CITY OF
LAS VEGAS

Director, Dept. of
Public Services WILLIAM PURVIS, P.E.

Director, Office of
Budget & Management JOHN BRAMBLE

Director, Office of
Intragovernmental Relations CHARLES ZOBEL

CITY OF NORTH
LAS VEGAS

City Manager RAYMOND D. SCHWEITZER

City Attorney GEORGE E. FRANKLIN

Director, Public Works JACK MITCHELL

Urban Planner MATTHEW BECKSTEDT

City Clerk OSSIE DUNGAN, Assistant

CITY OF
HENDERSON

City Manager ROBERT E. CAMPBELL

Director, Public Works GEOFFREY BILLINGSLY

City Clerk GERRY GREENHALL, Clerk Steno

CITY OF
BOULDER CITY

City Manager M.L. DEGERNES, JR.

CLARK COUNTY

County Manager RICHARD BUNKER

Asst. County Manager BRUCE SPAULDING

GUEST SPEAKERS

Chairman, Dept. Biological
Sciences, UNLV PROFESSOR JAMES E. DEACON

Professor of Limnology,
Univ. of California @ Davis DR. CHARLES R. GOLDMAN

Principal Investigator
Vertex Corporation
Rockville, Md. JEROME HOROWITZ

Business Economist,
Los Angeles DR. MEYER LEVADIE

AFFIDAVIT OF POSTING

(Posting required under the provisions of Nevada Revised Statute 241)

State of Nevada)
County of Clark) ss.
City of Las Vegas)

CARL D. PETERSON, an employee of the City of Las Vegas, Nevada, being first duly sworn, deposes and says that on the 19th day of May, 1978, at the hour of 8:15 a.m. M. there were posted copies of an AGENDA (NOTICE), the attached of which is a true and correct copy of a SPECIAL Meeting of the Board of City Commissioners to be held at the hour of 9:00 A.M. M. on May 24,, 1978, in the Commission Chambers, City Hall, 400 E. Stedart Ave., Las Vegas, Nevada; on Public Bulletin Boards at the following locations:

1. In the United States Post Office (Downtown), 301 Stewart Avenue
2. In the Federal Building, 300 Las Vegas Blvd., South
3. In the Clark County Courthouse, 200 E. Carson Avenue.
4. On the Public Bulletin Board at the Plaza Level of City Hall, 400 E. Stewart Avenue (near the entrance to the Court Clerk's Office)
5. On the Special Public Bulletin Board at the Plaza Level of City Hall, 400 E. Stewart Avenue (near entrance to City Commission Chambers.

Carl D. Peterson

PUBLIC SERVICES - Quality Control Div.
(Department or Division)

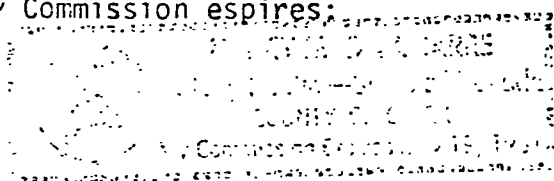
Subscribed and sworn to before me this

19th day of May, 1978

Maureen M. Della Bona

Notary Public in and for said County and State

My Commission expires:



CITY CLERK

MAY 19 10 00 AM 1978

RECORDED

PROPOSED
"208" PLAN

Good Morning, Ladies and Gentlemen. If we may have your attention. This Meeting is now officially called to order and I would request that you all rise for an Invocation that will be given this morning by Rev. Melvin A. Pekrul of the First Baptist Church. Following Rev. Pekrul's Invocation, please remain standing for the Pledge of Allegiance.

Welcome
Remarks
by
WILLIAM H. BRIARE,
MAYOR

Rev. Melvin A. Pekrul: Let us bow in Prayer. Eternal God and Heavenly Father, we are meeting here today for the purpose of a Comprehensive Area-wide Plan of Water Management. It's a tough problem, Father. We need illumination and we need guidance and we need moral leadership. We need Statesmanship. We just Pray, Father, now that you will guide us through this difficult problem that we may come away from this meeting having learned something and made some progress. We Pray this now, in Your Name. Amen.

Invocation

Pledge
of Allegiance

(Total Attendance): I pledge allegiance to the Flag of the United States of America and to the Republic for which it stands, one Nation under God, indivisible with Liberty and Justice for all.

Mayor Briare: Thank you very much, Rev. Pekrul. It's my pleasure this morning, first of all, Ladies and Gentlemen, for the purpose of introductions, Mayor Tobler from Boulder City has sent word that he is going to be slightly delayed this morning, so I would ask if Mayor Lorin Williams from Henderson would be so kind as to introduce his City Council.

Mayor Williams: Thank you, Mayor Briare. On my extreme right is Councilman Lorna Kesterson, and next to her is Councilman Carlton Lawrence and then Councilman Phil Stout is the third.

Mayor Briare: Mayor, thank you very much. We are delighted to have you, and your Council with you, and I'd ask if Mayor Ray Daines from North Las Vegas would introduce his Council.

Mayor Daines: On my immediate left is Councilman Thomas Brown, and next to him is Councilperson Cynthia Baumann, and just left of her is Councilman Gary Davis.

Mayor Briare: Thank you, Mayor Daines, and we certainly welcome you. My name is Bill Briare. I have the privilege of being the Mayor of the City of Las Vegas, and I would like to introduce Commissioner Paul Christensen, Commissioner Myron Leavitt, Commissioner Ron Lurie and Commissioner Roy Woofter.

We welcome everyone here today, including members of the Board of County Commissioners, and their Chairman, Thalia Dondero.

We are gathered here today for both a significant and historic purpose. As elected officials and the constituency we represent, the common cause, of course, this morning is the mutual concern of all the incorporated cities of Clark County, representing over half of the population of the State of Nevada, about the Proposed "208" Plan adopted by the Board of Clark County Commissioners.

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(cont'd)

Our individual pleas - seemingly having fallen on deaf ears - has caused us to join together to take serious and far-reaching steps which we feel are necessary in the best interests of the citizens and taxpayers that we represent.

The meeting today is historic because, to the best of our knowledge, this morning is the first time in the history of City Councils of Boulder . . . the first time in history the City Councils of Boulder City, Henderson, North Las Vegas and the Las Vegas City Commission, have ever sat down together in a spirit of cooperation with a mutually common cause.

We are pleased to welcome the professional City Managers who have worked so well as talented Administrators of the cities we govern. There has been an abundance of legal assistance and consulting services which cannot be measured.

There are some very serious questions that must be answered and some startling revelations we've made today, which are crying for recognition and consideration.

It is my singular honor to call to order this significant and historic meeting of Boulder City, Henderson, Las Vegas and North Las Vegas, and to pass the gavel to the distinguished Mayor of our adjoining City, North Las Vegas, the Honorable Ray Daines, who will act as Chairman of this meeting. Mayor Daines.

Mayor Daines: Thank you, Mayor Briare. We appreciate being here. We appreciate also that you're going to allow us to be part of your meeting here today, and I'd like to preface my remarks with - we are not here today to have a little circus, or anything of this nature. We are here on a very, very serious matter and as the moderator, so to speak, of this historic meeting as so aptly described by the Honorable Mayor Briare, we're going to conduct it in a manner, I believe, that will make everyone proud of us and if I think you're out of line, I'm going to gavel you down and I would appreciate it if you'd accept it as such - go back - sit down and relax and take another run at it.

As the moderator, I'm going to act as an unbiased person as well as I possibly can. I'm personally concerned, of course, and I think that this meeting can be conducted, and can be concluded, with some real viable results, and I'm sure that all of the people here are here for that one intended purpose.

So, without any further adieu, I'd like at this time, say simply we're here to discuss "208" and it's not limited to any specific areas.

So, at this time on the discussion of the Proposed "208" Plan, I'd like to call Professor James E. Deacon, and I would like at this time to have him come forward and if he would, rather than from the podium, have him give a little background and go forward with his presentation at this time.

PROFESSOR JAMES E. DEACON: Thank you, Mayor Daines. You said "rather from the podium" - you'd like me some place else?

Mayor Daines: No. I would like you to tell us who you are, where you're from, and why.

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(cont'd)

Professor Deacon: OK. I'm Professor James Deacon from the University of Nevada, Las Vegas, and I'm here at your request (inaudible, due to the fact that Professor Deacon is having a problem with the microphone). (Change of microphone) - alright - I'm Professor James Deacon from the University of Nevada, Las Vegas, and I'm here at your request to summarize the work that the University of Nevada has done on Lake Mead, and to present my opinion with respect to the appropriateness of the Water Quality Standard at North Shore Road as it presently exists.

I think it necessary for us to have a little background on what has happened. There are a number of things, of course. Essentially, I'll start with 1968, ten years ago. The Inter-agency, Water Pollution Control Task Force, was formed to advise the County Commissioners on a solution to the problem of pollution in Lake Mead.

Today we have under construction an Advanced Waste Treatment Plant, a salinity control project, being planned and a raging controversy over whether either Project is necessary.

In order to understand how we got to this point, I think we need to review where we've been. Basically, we started out with a situation in which there was no long-term information. Then after much, much shifting of responsibility, there was a Study recommended which resulted in one year of data from Lake Mead and, on that basis, we recommended a Water Quality Standard for nutrients at North Shore Road. The formation of the Water Pollution Control Task Force was the result of an assumption that a pollution problem did, in fact, exist in Las Vegas Bay. This assumption resulted from studies conducted by FWPCA in 1966 and later supplemented by a number of other Federal Agencies.

In 1967, the Nevada State Board of Health adopted a set of standards for phosphorus for Las Vegas Wash. For phosphorus and nitrogen, the standard as set at .05 milligrams per liter. This standard was to be met by 1980. In effect, it was a "no discharge" standard which represented, basically the most extreme prevailing philosophy in Water Pollution Control.

On September 2, 1970, the Governor requested the Colorado River Commission to assume responsibility for the formulation of a Pollution Abatement Plan for Las Vegas Bay of Lake Mead.

In 1971 the State Legislature transferred that responsibility to the Las Vegas Valley Water District, and the Water District hired a Scientific Evaluating Committee to advise in the execution of a Pollution Abatement Program.

The Committee pointed out that very little was known about conditions in Las Vegas Bay and insisted that information must be developed. Consequently, on November 23, 1971, UNLV began a one-year Study of the limnological conditions in Las Vegas Bay.

On December 23rd of that year EPA issued a notice of violation of Water Quality Standards to municipalities and industries in the Las Vegas Valley,

In April 1971, a Consulting Firm was selected to prepare a detailed environmental assessment of alternatives for pollution abatement -

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- alternatives that were presented in a Phase III Report from Boyle CH2M. The environmental assessment that was instituted by that group, approximately a year later, recommended export of most of the waste water to Dry Lake and possible reuse there, construction of a pilot scale AWT Plant, a pilot desalinization plant and a pilot groundwater recharge program. AWT effluent would be used to maintain a Green Belt in Las Vegas Wash.

In Spring of 1973, the UNLV Study was concluded and showed the conditions in Las Vegas Bay were not as serious as had been assumed, but that some problems do exist. There were areas, for instance, in Las Vegas Bay that were devoid of oxygen, both at the bottom and in the mid-water layer. This condition existed in the summer of 1972. It is pointed out in the Report that algal growth in the inner portion of Las Vegas Bay was apparently limited by nitrates and, in the outer Bay, nitrates or phosphorus presented the nutrient limitations, depending on the season of the year.

In 1973, the Nevada State Legislature transferred responsibilities for the Pollution Abatement Project to Clark County, directing them to emphasize in-Valley use of waste water.

The Nevada Commission, in 1973, on June 12th, the Nevada Commission of Environmental Protection heard a proposal to relax Water Quality Standards for Las Vegas Wash. This request was based in large part on results of a 1972 Study of Las Vegas Bay conducted by UNLV. The revisions were supported by the Scientific Evaluation Committee, and were adopted by the State Environmental Commission on October 24, 1973.

These revised standards relaxed the phosphate standard to a monthly mean of a half a part per million, but not to exceed 400# per day during the months . . . from the months of April through October. The nitrogen standard that had been set at .05, was eliminated entirely. They stated at the hearing that a continuous monitoring program would be maintained on Lake Mead so that the standards, or the effects, of the Abatement Project that resulted from establishment of this standard could be periodically evaluated.

In January '74, the Lake Mead Monitoring Program was begun with County funding, and was conducted by UNLV.

In July of that year, NECON completed a Facilities Plan with the advice and assistance of the Sewage & Wastewater Advisory Committee and the Wastewater Management Staff. This Facilities Plan recommended construction of an AWT Plant.

In 1975, the UNLV Report of the monitoring study pointed out that algal populations in Las Vegas Bay were lower in 1974 than in 1972 and again suggested nitrogen limitation. At that time it was thought perhaps that the lower algal population simply reflected normal annual variation, and that there might not be much significance in that fact.

The July '76 Report, again, noted algal declines that had taken place since '72, and again pointed to nitrogen limited conditions. It was suggested that reduced algal populations might be attributable to higher Lake levels. If so, we could probably expect a return to 1972's conditions if Lake level dropped again. Lake levels have since remained near those of 1974. We, therefore, have no additional data on whether or not the probability is that conditions will return to the '72 conditions with lower Lake level.

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In July of '76 the Sewage & Wastewater Advisory Committee requested reevaluation of the Water Quality Standards at North Shore Road and, subsequently, Drs. Sawyer and Goldman produced Reports in about October of that year, which you all have.

During the period of review of these two Consultants there was, in effect, no communication with UNLV.

In November of '76, UNLV redirected some of its monitoring efforts to examine some of the questions raised by the Goldman and Sawyer Reports.

In the Summer of '77, we began a Study of Lake Mead and Lake Mojave under other funding. Then, in September of '77, the Final Report of the Monitoring Program confirmed again that there had been an improvement trend in the conditions of Lake Mead since '72. From the algal assays it was again considered that nitrate was probably the most frequently limiting nutrient in Las Vegas Bay, and that phosphorus removal might result in some reduction of algal growth. The degree of this reduction could not be determined at that time, and still hasn't been. The complication by, & the possible significance of ammonia was noted, but was not considered in the algal assays.

In November of 1977 I pointed out to the Sewage & Wastewater Advisory Committee that a by-pass pipeline from the AWT Plant around the Salinity Control Project might offset the advantages gained from removal of phosphorus by adding relatively high concentrations of ammonia to Las Vegas Bay.

In the Winter of '77 and '78, we prepared proposals for continuation of monitoring programming for further bioassay work in an attempt to better quantify the influence of nutrient loading on Las Vegas Bay.

In the Spring of '78, the UNLV Research Team, largely on the basis of work under the Bureau of Reclamation funding, in which we were working on the entire portion of Lake Mead, as well as Lake Mojave, and examining the potential inter-actions of the two Reservoirs, or the . . . examining of the influence of Lake Mead on Lake Mojave, and some of the potential influence of the Colorado River on Lake Mead. We developed a tentative hypothesis regarding historical patterns of algal productivity in nutrient dynamics in Lake Mead. The hypothesis is based on examination of our data from Mead and Mojave, as well as on water quality records that exist for the Colorado River.

Okay - specifically, what is the origin of the present phosphorus standard then? The standard is basically derived from a recommendation on Page 181 of my 1972 Report, and the reasoning behind that recommendation follows:

The 1967 FWPCA Report documented the existence of troublesome algal blooms in the inner Las Vegas Bay in 1966. At that time there was an estimated 690# a day of phosphorus going into the Bay.

Our work in '72 also indicated troublesome algal blooms in the inner portion of Las Vegas Bay. We did not find that a serious condition existed in the outer Bay at that time and indicated that the problem in Lake Mead was probably overstated.

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Subjective observations of the Lake from the early 60's indicated that in the early 60's we did not have troublesome algae blooms. Such data as were available indicated that phosphorus inflows during the early 60's were about one-half of the early 1970's.

Phosphorus inflow in 1970 was about 800# per day. We, therefore, reached the conclusion that if we cut that in half, chances are pretty good that the algal population would be reduced to acceptable levels. Our recommendation on Page 181 regarding nutrient limitation was further relaxed by removal of all standards on nitrogen. The rationale used for that position was, basically, a recognition that phosphorus limitation was generally considered to be the most effective means of controlling algal blooms in lakes and reservoirs. Phosphorus had been identified in 1967 FWPCA, in 1980 by FWQA and in 1971 by the Bureau of Reclamation and in '71/'72, by the University of Arizona as probably limiting algal growth in most of Lake Mead.

Although the inner Las Vegas Bay appeared to be nitrogen-limited, it was felt that phosphorus could be made limiting by reducing the inflow of phosphorus. Nitrogen can be fixed by some algal species under some conditions and, therefore, can be made available from the atmosphere. Phosphorus limitation as the best approach to the control of eutrophication has recently been emphasized by the General Assemblies of both the International Congress of Limnology and the International Ecological Congress. These two groups contain essentially all of the best Fresh Water Scientists in the world.

Now that we have data over a long enough period of time that surely - you're actually seeing consistent trends rather than random variation, and have developed at least one tentative hypothesis that appears to satisfactorily explain those trends, it seems appropriate to attempt to re-evaluate the Water Quality Standards.

The first condition that must be addressed in a reevaluation, is the establishment of what are considered to be desirable conditions in Lake Mead. The Nevada Water Quality requirements provide for control of any identifiable source of water pollution to the maximum degree practical with available technology. They also provide that interstate waters of the Colorado River be free from materials attributable to domestic or industrial wastes in amounts sufficient to create public nuisance or to interfere with any beneficial use of water. This, obviously, leaves the specific applicability of these criteria open to discussion. However, it must first be decided whether a public nuisance exists in the inner Las Vegas Bay that interferes with that beneficial use of the water.

From late 1969 to 1974, there seemed to be a strong "yes" to this question. Since 1974, however, there seems to have been almost as many "no" answers as "yes" answers. What is necessary then is to attempt to establish exactly where conditions are acceptable in Las Vegas Bay and Boulder Basin. Once these goals are defined, it might be possible to establish standards designed to meet those goals.

But anyway, it is clear that conditions in Lake Mead are improving. This could be a result of higher Lake levels than were present in '72; inflow of Colorado River rather than Las Vegas Wash exerting the main control over nutrient dynamics in Las Vegas Bay and Boulder Basin; significant shifts in the food web relationships in Lake Mead since '72, or be caused by other things that haven't been considered yet because of lack of data.

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For whatever reason, conditions are improving. Not getting worse as expected. This fact alone is sufficient to require the reassessment of Water Quality Standards. Evidence for this improvement involves nutrient considerations and algal productivity.

Essentially, I have alluded to the nutrient consideration and algal productivity but, basically, what it amounts to is that nitrogen/phosphorus ratios suggest that nitrogen probably limits algal growth at most places in Las Vegas Bay and in Lake Mead.

Secondly, bioassay results from the 1976 Monitoring Study indicate that nitrogen is probably the most important limiting nutrient in Summer; both nitrate and phosphate in Spring and Fall; phosphate in the Winter and the most important limiting nutrient in the Summer has not been identified.

- Our 1972 work, on which various standards were based, showed that nitrate was probably limiting at the head of Las Vegas Bay, but results from other stations were inconclusive. Therefore, based on the earlier Federal Reports, we accepted phosphate as a limiting nutrient elsewhere in the Bay. Subsequent studies have indicated that nitrate is the more usual limiting nutrient under present conditions.

Third, in Las Vegas Bay and Boulder Basin, nitrate levels were reduced in the upper layers of water during period of high algal activity in the Spring. Nitrate remains depleted in the euphotic zone throughout the Summer, but reappears after Fall mixing. Similarly, any regenerated ammonia is either assimilated by algae or nitrified, since ammonia concentrations are usually very low in this zone. This implies that there is enough phosphorus available, or that the phosphorus is being rapidly recycled to sustain the rate of algal growth under the conditions of nitrate limitation.

SUMMARY

In summary, present evidence suggests that algal growth in Las Vegas Bay may be limited more frequently by nitrate than it is by phosphate. Perhaps more importantly, algal population has been reduced somewhat since 1972 by other factors, as yet totally unexplained, despite the high nutrient-loading coming in from Las Vegas Wash. Other evidence from algal productivity would also indicate that there is an improving condition, and if you want to look at those, I've got them written down. I'll let you go ahead and read them, if you like but, basically, what it amounts to is that various parameters of algal productivity also indicates that there is an improving condition in Lake Mead.

Probably the most important indicator that the situation in Lake Mead is improving comes from the vertical analysis of oxygen in a vertical profile, which shows that nearly oxygen-depleted conditions that existed in some areas in 1972, no longer exist. There is reduced oxygen in some areas, but it does not approach the levels approached in 1972. This is, in effect, a measure of the sum total of biological activity and, therefore, algal productivity as it influences the Lake.

In addition to these factors, there have been changes in proposed Water Management Systems in Las Vegas Wash. Nitrogen levels in Las Vegas Wash may dramatically change as a result of the desalination installation in the lower part of the Wash. The proposed pipeline to carry AWT effluent past the desalination barrier may also influence nitrogen concentrations, specifically, ammonia and these, therefore, constitute

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significant changes in the proposed Water Management Systems that are likely to impact the Lake.

The conclusions presented, I think, are obvious: One, there have been significant changes in the limnological conditions of Lake Mead since '72. These changes are not consistent with the basic assumption that Las Vegas Wash effluent has a dominant influence on the trophic status of most of Las Vegas Bay and Boulder Basin.

Secondly, since the nutrient standards for North Shore Road were based on studies that made this assumption, it seems to be the time to reevaluate that position.

In summary, in 1972, in spite of the fact that there was evidence from FWPCA, FWQA, EPA, the University of Arizona, and a considerable amount of citizen and governmental opinion that Lake Mead was being polluted by Las Vegas Wash, I pointed out that the standards should be significantly relaxed. In fact that roughly a 50% reduction of the condition in 1972 would likely take care of the problem.

Now, after gathering and analyzing an additional four years of data, it was apparent to me that additional relaxation of those standards is appropriate.

I would be happy to answer any questions you might have.

Mayor Daines: Mr. Deacon, if you would stay around - is there anyone that has any comment or questions that they'd like to ask at this point? You are going to stay, are you not?

Professor Deacon: Yes.

Commissioner Christensen (Las Vegas City Commissioner): Dr. Deacon, these are difficult terms for some of us to understand and it is sometimes difficult to follow some of this scientific data, but do I understand correctly - is it your opinion that the State should reevaluate the Water Quality Standards in Las Vegas Wash and Las Vegas Bay? Especially the phosphorus standard?

Professor Deacon: That's what I've said. Yes.

Commissioner Christensen: In other words you feel . . . is it your opinion that the extreme phosphorus removal is perhaps not warranted?

Professor Deacon: It's my opinion that the Water Quality Standards - the phosphorus standard - at North Shore Road does not address the problem that has been identified in Lake Mead. That is, that the phosphorus standard, as it presently stands, is likely to have little influence on the algal productivity in Lake Mead.

Commissioner Christensen: Have you had other Scientists working with you on these studies?

Professor Deacon: -Yes.

Commissioner Christensen: Who has helped you on these?

Professor Deacon: Mr. John Baker and Dr. Larry Paulson have been the primary . . .

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Commissioner Christensen: They feel the same way though?

Professor Deacon: As individuals, Yes, they do.

Commissioner Christensen: Thank you very much.

Mayor Daines: Councilman Stout?

Councilman Stout (Henderson): He answered my question. Thanks.

Mayor Daines: Apparently the question was answered that he wanted to ask. Are there any other questions from the panel? Professor Deacon, I would ask that you stick around because I'm sure there will be some questions later and we may want to call on you.

Professor Deacon: Sure -

Mayor Daines: We would ask now if Dr. Meyer Levadie is ready to make his presentation.

(It was indicated by a member of Staff that Mr. Levadie was not present at this point in time)

Mayor Daines: Next we'll have the report from Dr. Charles R. Goldman.

Dr. Goldman: Thank you very much. It's a pleasure to return to Las Vegas again and address the distinguished Councilpersons assembled here and the Mayors and guests. My role in the Lake Mead question began a number of years ago through an interest in eutrophication and water quality, in general, and specifically through my twenty years of activity in California, particularly on Castle Lake and Lake Tahoe, which I think some of you know, has an Advanced Wastewater Treatment Plant - one of the early ones that has been in the news a good deal.

In addition to this kind of experience, I've been working world-wide on tropical reservoirs - particular pre-impoundment studies dealing with hydro-electric schemes in places like New Guinea, Africa and Central America.

We've seen a gradual evolution, I think, in understanding of the eutrophication process - this process of enrichment of waters - which caused so much concern in the early/late 1960's and early 1970's with your own Lake Mead. I think by now a good deal of the dust and smoke has settled and perhaps we can take a fresh look at a problem which is, I think, deserving of new solutions in view of the changing times.

When I first reviewed Dr. Everett's work, from Arizona, I was struck with the fact that Western reservoirs, in general differ a great deal from their Eastern natural lake counterpart upon which a lot of the general theories for Lake Management and, particularly, nutrient-loading management, has been based. I think this conclusion has been nicely borne out by the excellent presentation of Professor Deacon, and I'll try not to repeat the points that he's covered.

One of the things that I was struck with when I was asked by Clark County to examine the Lake Mead question, was that I was expecting to encounter a eutrophic situation that went out of control - a mini-Lake Erie, if you like - a Lake that according to the Press, might be dying.

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When I arrived on the scene in 1976, the Lake was certainly not unproductive, but in no way would I have considered it a "nuisance" condition as we encounter, for instance, in Clear Lake, a natural shallow highly-productive lake in California which, incidentally, is almost anything but never clear.

Now, the philosophy that has caused the interest in phosphorus removal goes back to extensive application, really, of what's called Liebig's Law of the Minimum. Now, Justus von Liebig was a German Chemist and he made the observation that any chemical process can actually be controlled by what you're putting into the process that's in sort of the minimum supply. If you had a reaction in a chemical system going, if you hold back one of the components, then you can regulate the speed of the reaction by the input of this. And this is where phosphate limitation came into the forefront.

In general, through the United States, 50% of the phosphorus coming out of our sewage treatment plant, is derived directly from the detergent box. Now, one point - the largest producer of detergents in the Country and, I guess, in the World, Proctor & Gamble, who has 80% of the market - had a good substitute lined up and they invested heavily in the use - in the production of - planned production, of NTA (trinitroacetic acid) in the incidentally, is used in detergents in Sweden and Canada.

Just about at the moment they were going to break NTA out on the Market, a study indicated that it might have a carcinogenic effect, which essentially killed the program. Faced with the lack of a substitute for phosphate - and phosphate is a super-builder for detergents - it really makes a fine detergent as any of you . . . I think that you're all aware - then they had to come up with another solution to the growing phosphate problem, particularly in the Eastern United States. The approach then was to use a very old technology of coprecipitating phosphorus out of waste water in what is now known as Advance Wastewater Treatment, or tertiary treatment. And it had a lot of appeal because of the application of Liebig's Law of the Minimum and the recognition that phosphorus is easy to remove, but expensive, in a tertiary plant. - you can get up to 98/99% removal using this technology.

So with the enthusiasm for moving towards this tertiary treatment and the engineering availability of building these Plants, it was natural that in a time when there was plenty of energy - there was plenty of business - we weren't in an economic slump at all - that a lot of emphasis went towards the development of Advanced Wastewater Treatment, which became a part of the National policy.

Unfortunately, things have changed. Energy is no longer cheap. The technology of just a few years ago has now become very expensive and Las Vegas is caught, in a sense, between (as we used to say) a rock and a hard spot, because of EPA regulations and was really forced into the position of going in this direction.

Now, the paradox of the problem is - and I think it has been clearly developed in Dr. Deacon's presentation, that in this system phosphorus removal isn't really appropriate. I think in a Lake that is essentially nitrogen-limited, particularly in the Bay, that you could take the phosphorus out and show little, or no, improvement in the water quality.

Further, and certainly as we brought out in our Report to the County, the natural situation, the Marsh is doing a splendid job of nutrient stripping.

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And here you have a low cost efficient system that's taking the nitrogen out that needs to be taken out. I was out on Las Vegas Bay and Lake Mead a week ago last Sunday and, frankly, you have swimming pool conditions there. Nobody in their right mind can complain about the water quality in Las Vegas Bay at this time.

Now, Dr. Deacon has pointed out what are some of the possible explanations for this. Certainly, as we reported in our ERA Report on the subject, there has been a significant change in the volume of Las Vegas Bay. Further, there's good evidence that most of the Las Vegas Wash discharge passes deep through the Las Vegas Bay, emerging again for Lake Mojave down below.

Now, why has the problem gone away? Well, I think the problem has gone away because there's more volume for dilution and, if anything, it may be very desirable to maintain a certain nutrient input for the fishery into Lake Mead because, characteristically, reservoirs throughout the world go through an early phase of high fertility and then show a very rapid decline in fertility, as evidenced by algal growth, animal plankton production and this transfer of energy into what we call Higher trophic levels which are the harvestable components of Lake Mead - the important fisheries. We do have a multiple-purpose reservoir here, with fishermen, water skiers, boaters, swimmers alike utilizing the resource, as well as utilizing it as a water supply and as a source of power generation, so that managing the reservoir for multiple use certainly is the most desirable goal.

Now, one of the reasons why Lake Mead is likely to continue to decline in fertility, and why nuisance blooms of algae are likely to become a less and less frequent episode in the system, is that the deep nutrient-enriched waters of Lake Mead - water going through the turbines and on down to Lake Mojave, so that the Lake itself is being stripped of its nutrient content by the structure of the Dam itself - which brings up the question of the effects of pump storage if water is pumped back from the lower Lake into Lake Mead, and is a subject that should be considered seriously, but I won't go into further today.

Now, the real bottom line, I think, in today's discussion, is whether Advanced Wastewater Treatment is necessary. And from everything that I have read - from my experience in tropical lakes, and with Lake Mead in particular, I conclude that it is probably not necessary and, particularly since you have the availability of a natural treatment system in the Las Vegas Wash, the stripping of nutrients there is efficient, and it's almost free.

Further, Advanced Wastewater Treatment has one bad side effect. The Plants are designed for phosphorus-stripping and they leave the nitrogen in the effluent. The nitrogens in the effluent in the form of nitrate and ammonia. Ammonia is extremely toxic to fish at high pH, and this is one of the characteristics of Las Vegas Bay. The alkalinity of the water is high. The pH (the acidity) decreases during the Summertime and at high pH, ammonia combines with the hydroxide to form Ammonium Hydroxide. Ammonium hydroxide is extremely toxic to fish and, in fact, this is one of the major problems that we have with the South Tahoe Public Utility District Tertiary Treatment Plant. After tertiary treatment, the water can't be put into Lake Tahoe. Tahoe is very nitrogen-sensitive. The tertiary treatment, even with nitrogen stripping, leaves enough nitrogen in the effluent so it's a very potent fertilizer for Tahoe. So, at great cost, following tertiary treatment, the effluent is pumped up to Indian

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Creek Reservoir. Almost annually there's a large trout kill from ammonium Hydroxide and, further, the reservoir is extremely eutrophic despite the fact that it's gone through this expensive tertiary treatment. And the reason is that it's got nitrogen in it in a nitrogen-limited - not a phosphorus-limited - environment, and this is rather characteristic of western topography and lakes in arid regions.

Now, what are some of the other reasons that we should utilize the existing facilities in Las Vegas Wash? The Secondary Plant has been performing particularly well. It can be upgraded, as I understand they have this summer, or this last year, utilized the iron to remove some of the phosphorus.

Tertiary is not only expensive to build, but it is enormously expensive to run. And, of course, this expense is passed on year after year to the taxpayers. Further, and perhaps most important in this era, is the fact that tertiary treatment is extremely energy-demanding, and the cost of energy is escalating - I think as you're all painfully aware. Further, it's very easy to create one problem while attempting to solve another, and the use of fossil fuels to develop the energy necessary for the various stages of tertiary - some, admittedly, are passed back to the chemical industry that produces the chemicals for tertiary treatment. But, even so, if we just calculate using the Ely, Minnesota Tertiary Treatment experience, the cost in air pollution - we find that the carbon dioxide production for producing only 1.1 Million Gallons of effluent - and we're talking of ranging somewhere between 25, and say, 70 Million Gallons - is equivalent to three hundred and thirty-seven thousand vehicle miles per Million Gallons - per Million 1.1 gallons - their hydrocarbons - we've got two hundred and twenty-four thousand; for nitrous oxide, we've got fifty-seven million vehicle miles - so that we have a potential here of becoming more in violation of air standards through utilization of a Tertiary Treatment Plant.

Now, this is something that might have been missed in the early considerations and this Ely, Minnesota Report is an EPA Report, which is available.

What I feel is that the Advanced Wastewater Treatment Plants of today are going to be the dinosaurs of the next decade - that the expense in building these large Plants is very difficult to justify now - and I think, Nationally, there's going to be a movement away from this solution when biological treatment is cheaper - we need the nutrients that Advanced Wastewater Treatment is removing. They can be used in agriculture. It's always struck me as a strange paradox that after this expensive tertiary treatment of sewage at South Tahoe, the water is exported out of the basin for use in alpine irrigation, where the nutrients would be most valuable in growing pasture land. They actually have to be added back in.

Now, the alternatives may require some additional study and some additional development. I am aware of the complexing factor of the desalination program in the Las Vegas Wash. I do think that the development - as the "208" Program has suggested - of an aquatic park, is extremely desirable, and that this could be expanded. You could kill two birds with a single stone in this venture by some proper low-cost dam construction in the lower part of the Wash to reduce the erosion problem - and since there are no Water Quality Standards for Las Vegas Bay, it is

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a certain irony that North Shore Road standards should be applied. I think there's a strong case for reconsidering the whole Standard question that Las Vegas has been faced with.

I have been impressed with the fact that four cities have joined here in an atmosphere of non-hostility to consider the best possible solution to a very complicated problem that, unlike lots of problems, it's been changing with time. The water quality of Lake Mead has been improving. If I had been a Consultant Limnologist four years ago and could have predicted it, I'd just clean up the Lake visiting it . . . I would have been famous by now.

I do think that the fertility of Lake Mead can be managed; that the technology is here; the will is certainly in the community to keep down the costs, and I look forward to a really good solution to a problem that I know has been an enormous strain on the community for the last half decade. Thank you.

Mayor Daines: Dr. Goldman, thank you. Do we have some questions from the panel? Commissioner Lurie.

Commissioner Lurie (City of Las Vegas): Dr. Goldman, it seems to me that your remarks and Professor Deacon's remarks that the AWT is not needed because of the treatment that is being taken care of - a lot of the nutrients now - with the Marsh, and also, I believe your recommendations on alternatives should have been used before we entered into this large expense of building the AWT. Is that correct?

Dr. Goldman: Yes - essentially, that is it.

Mayor Daines: Councilman Stout:

Councilman Stout (Henderson): Dr. Goldman, one of the reasons we are here today is because there's been a misunderstanding over the months, and years, that this has been put together - not only with the Boards up here, but the public in general, and I believe also the Commissioner of the County. It is only at this time we have started to understand some of the things you Scientists have said over the past two years, so if we do ask redundant questions, I think it's only to assure the public that we are trying to all understand this together.

So I want to ask a couple of questions in hopes that it would become even more clarified. Now, due to the high cost of the energy, and the high expenses to build an AWT Plant, do you think that the cost to the average citizen for sewage treatment will go up?

Dr. Goldman: Unquestionably - I think values of four times have been estimated.

Councilman Stout: And do you believe that the public can expect a benefit from this higher cost?

Dr. Goldman: It is my conclusion that there will be a change in Las Vegas Bay and Lake Mead that will be undetectable to the average citizen.

Councilman Stout: Thank you.

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Mayor Daines: Councilman Baumann has a question, Doctor -

Dr. Goldman: Yes -

Mayor Daines: She's behind you . . .

Councilman Baumann (North Las Vegas): How much energy will the AWT Plant use when it reaches full capacity as compared to, say, a Strip Hotel?

Dr. Goldman: Well, I'd have to calculate that for you - we were planning on doing an energy budget for projected expansion of the Plant. All I can say is that the BTU requirements are enormous and it's . . . in the Ely, Minnesota Report which, unfortunately, I left behind or I could quote directly from - they calculate, per million gallons, how many residential houses that you could completely supply with electric power and heat. It's really enormous. It's a most impressive figure in terms of barrels of oil, cubic meters of gas or electricity.

Councilman Baumann: Could you get me that information?

Dr. Goldman: Yes - I certainly will.

Councilman Baumann: Thank you.

Mayor Daines: Dr. Goldman, thank you very much. You are going to stay, I guess.

Dr. Goldman: That's right -

Councilman Davis (North Las Vegas): I have a question to ask: Dr. Goodman, in fact, EPA has cried "walk" to the point that the cities - the entities here - have been frightened into possibly creating a consumer . . . an energy-eating Frankenstein, in fact. Is that what you would say?

Dr. Goldman: Well, I probably wouldn't use exactly those words, but I think that Advanced Wastewater Treatment is just going to be too expensive for the next decade. If we had the old, cheap energy, we could do a lot of Advanced Wastewater Treatment and it wouldn't be so noticeable but if any of you have been in the position that I have with my electricity bills sky-rocketing, I think you can appreciate that these costs are going to be passed on immediately to the taxpayer and they have real reason, I think, for concern because it's one of the . . . I look at this particular situation as one of the really unnecessary inflating costs that we face in the next decade.

Councilman Davis: Thank you. I appreciate your simple talk. It was to the point and in this entire discussion I was able to follow you along exactly what you were saying, as I'm sure the audience was. It is much appreciated.

Dr. Goldman: Thank you. It has been a real pleasure to come back to Las Vegas.

Mayor Daines: I believe we have a gentleman on the other end - Councilman Lawrence -

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Councilman Lawrence (Henderson): Dr. Goldman, I want to be sure that I understood correctly on your summation and recommendations at the end. Did you state that you felt that the Lake Mead problem could be controlled, particularly the Wash area, through a series of dams in the Las Vegas Wash?

Dr. Goldman: Actually, it probably would be a good idea for you to look at the ERA Report where we laid out a whole plan for the development of the Wash. But it includes managing the Wash - or what we call nutrient stripping. In other words, right now the Wash is performing incredibly well without any management at all. It's fortuitous that they . . . that the nutrient stripping is occurring so well and with just a little bit of work, flowing the water flow down so that the plants have more time to throw the nutrients out of it, by perhaps adding to a Secondary Treatment System a series of ponds, as they do in Santee, California, where they re-claim the water - there's swimming in the seventh lake down there. Unfortunately they were caught in a similar pressure situation of hooking up to a big ocean outfall so that some of the benefits have been lost through no fault of their own. But in Las Vegas Wash this water could be reclaimed and delivered back to Lake Mead in really good condition, without the necessity of the high cost of Advanced Wastewater Treatment. And that's what I really feel should be done, because it's good for the Wash - it's good for Las Vegas and it's very good for the taxpayer.

Councilman Lawrence: Thank you. I've learned a lot this morning. I agree with these people - it was very understandable. I even found out what a limnologist is.

Dr. Goldman: You know, we usually define ourselves as "inland Oceanographers" because everybody knows what an oceanographer is, but not many people have heard of Limnologists.

Mayor Daines: Dr. Goldman, we have a couple of questions, I believe, from Russell Dorn, the City Manager of Las Vegas

Russell W. Dorn (City Manager, City of Las Vegas): Dr. Goldman, in your presentation today, I'd like to ask two questions that you referred to for further explanation, if you'd care to comment on them.

One was that fuel, and fuel power - in the phases of building three AWT Plants - and I believe the source of power would either be a coal furnace or natural gas. Would you care to comment on how the burning of this fuel at one AWT might affect our air pollution in the Las Vegas Valley? Could that have a serious affect on air pollution, in your opinion?

Dr. Goldman: Well, I think it's . . . you know . . . when you burn fossil fuel you create air pollution and we have already a serious air pollution in the Tahoe Basin, which was once thought to be, you know, immune from this kind of problem - a very serious problem. And as the need for more energy and more Advanced Wastewater Treatment develops - in other words, the capacity increases, the air pollution problem is going to increase with it. If the Plants have to burn more fuel to produce extra energy to operate this Plant, which I assume they would have to.

This means that this is going to be added to the increasing traffic problem and . . . I remember in 1976, coming back from a long day on Lake Mead doing some of the sampling we reported on - noticing the

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inversion over Las Vegas and the clear smog layer, and I would guess that you are going to have real problems meeting Air Quality Standards in the next decade. And that this, of course, is only going to be aggravated if you have an Advanced Wastewater Plant that's demanding heavy energy inputs.

Mr. Dorn: Thank you. And the second question was: You mentioned about an energy crunch in the Nation, and we're all familiar with that - and you mentioned in your presentation, Sir, today that it takes approximately fifty-eight million BTU's to treat one million gallons . . .

Dr. Goldman: Uh-huh -

Mr. Dorn: . . . of water that we might treat in these Plants twenty to seventy million gallons. My question on this is that in Southern Nevada here, we have a limited source of power and, as you mentioned, throughout the Nation. The cost of energy is going up. People have stated questions about a moratorium from EPA on building. My question is - if you care to comment, is: If there is a limited power supply, and AWT uses a lot of power or uses a large portion of this, will this in any way cause another moratorium that we might be looking at now, such as economic development; bringing in companies like Levi Strauss, who uses power, and industries bringing tax revenues and finding jobs and employing more people and, secondly, that with the fantastic amount of energy used, could this discourage home-building because we wouldn't have the power source?

Dr. Goldman: Well, one always . . . you can only be an expert if you stay in your own area of confidence. I think that . . . sort of a bottom line, to answer your question - would be that if there is going to be an increasing demand for energy, and the supply of energy is not in the future without a lot of input of soul, and so on, I'm going to meet these demands.

Any component such as an energy-demanding Wastewater Treatment Facility, is going to compete for this power and going to cause an increase in its cost and, more importantly, what happens when you have to decide between heating homes or firing an Advance Wastewater Treatment Plant? How much better to have a natural system that isn't going to demand the power input! And, certainly, if energy does become an absolute limiting factor for growth in Las Vegas, anything that's consuming large amounts of it, as this Plant would, is going to limit the future growth of the community.

Mr. Dorn: I appreciate those comments, Dr. Goldman. Thank you, Mayor.

Unidentified voice: I have one question -

Mayor Daines: Just a moment. Commissioner Woofter?

Commissioner Woofter (Las Vegas): Yes, Mayor. One question I have, Doctor: Does it seem like through the years then - you stated that you have made an extensive study of the Lake, as well as did Dr. Deacon, and so forth. Originally, I imagine there was some disagreement then amongst you experts of whether or not there was a need for such a Plant. But now, I am gathering from comments here today that most of the experts . . . that possibly there was disagreements that are now pretty much of the same consensus that there is no need for the Plant at the present time?

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Commissioner Lurie: When are we going to get this system working?

Mr. Horowitz: I can speak very loudly. I don't need the mike at all.

Mayor Daines: That one (mike) seems to be working - try it.

Mr. Horowitz: OK. I'm Jerome Horowitz. I am the Principal Investigator for the Vertex Corporation, Rockville, Maryland.

Mayor Daines: No - that one isn't working either -

Mr. Horowitz: I don't need that - I think it's more trouble than it's worth. Just leave it lie, and I'll speak up loudly.

Mayor Daines: Now that one (mike) is working.

Mr. Horowitz: OK? OK? Well, I'm not going to say it again - right? I've been retained as a Consultant by the City of Las Vegas because I have been dealing with Water Quality Standards, Advanced Wastewater Treatment and Water Quality Planning for all the principal agencies in the Federal Government in Washington, D. C. My principal client is EPA Headquarters.

You've heard a great deal about Water Quality Standards from both Professor Deacon and from Professor Goldman. There's not very much I have to add about Las Vegas Bay.

Let me begin by saying that the Federal Law we operate under (Public Law 92-500, as amended) has two kinds of standards in it. One kind of standard applies to wastewater - what comes out of your sewage treatment plant - the effluent standard, or wastewater standard. The other kind of standard is called a Water Quality Standard, and these two kinds of standards are very much confused. Let's be sure we have them straight to start off with because they're so often confused, and it causes trouble.

A Water Quality Standard tells you how good the water is supposed to be in your lakes, streams, rivers, and so forth - in the water - in the rivers; whereas an effluent standard, or a Wastewater Standard, tells you how good the effluent quality should be coming out of a sewage treatment plant. Be sure to get these two things straight.

Mayor Daines: Wait a minute - if you would move that mike about three inches closer, it picks you up beautifully.

Mr. Horowitz: Thank you - yes. Now, the Federal Law isn't called the Clean Water Act for nothing. The purpose of the Act, and its various amendments, is to ensure clean water throughout the Nation. How do you know whether water is clean, or not? Federal Law requires the State to set standards and the EPA to approve them. Water Quality Standards consist of two parts: Uses and Criteria. "Uses" say - what do you want to use the water for? You've heard both Professor Deacon and Professor Goldman testify about

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The standard, I think, should have something about flow velocity, because wildlife need quiet water. They don't like rapids - they don't like a deep, gouged-out canyon with water rushing down to Las Vegas Bay. The rapids in the Wash are not good for wildlife habitat, but you will notice there is no standard - no criterion - for how fast the water should be moving - for velocity. I think it is an oversight. You can, of course, slow the water down by a series of dams, as Dr. Goldman has been recommending.

Look at the criterion for suspended solids. It says that the monthly mean must be two (2) milligrams per liter, and the 90th percentile not more than five (5). Well, what use does this criterion protect? Why must the percentiles be so low? Las Vegas Wash is the only stream in Nevada with a standard for suspended solids. Other fishing streams - like the Colorado River, do not have a suspended solids standard. There is something "fishy" here.

There are General Water Quality Standards as well, which we haven't reproduced because they go on at great length. But, essentially, there are three (3) there: The water should be free from taste and odor, and scum and sludge-banks, and toxic materials. I have no argument with any of them. Some of those are very important to the Uses you want to make of the Wash. If the water smells, you shouldn't use it for recreation and aesthetics. And, of course, there are oil slicks - lots of foam - lots of smells and lots of floating debris in various places in the Wash.

Please look at the standard for dissolved oxygen. It says that the average - the mean - should be five (5) milligrams per liter and the 90th percentile should be more than four (4) milligrams per liter. Well, this standard can't be met. We've been taking measurements around the clock at Pabco Road - in the middle of the marshes - as you know, it's been running less than one (1) milligram per liter during all hours of the day and night - less than one (1) and it's supposed to be an average of five (5). Less than one (1). There is no diurnal variation. The dissolved oxygen is very low all the time.

The only fish there are mosquitofish, and they are very pollution tolerant. There are no game fish there now, and I don't think you'll ever have them unless there's enough oxygen for them to breathe.

After the "208" Plan is implemented, which calls for a smaller discharge of secondary effluent to the Wash, the dissolved oxygen may be even lower than it is now. The water may even be more stagnant. The lack of dissolved oxygen in the swamps may explain the smell of sulfide - sewage

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nuisance conditions in Las Vegas Bay - you can swim there - boat there - so forth and so on.

These two together - Uses and Criteria - make up these Water Quality Standards. In general, Uses consist of things like swimming, public water supply, fishing, irrigation, stock-watering and so forth. Okay, then how are the criteria set? These are chemical, physical, microbial tests to ensure that the water is good enough for the intended uses. For example: If you want to use the water for swimming, the water had better not contain harmful bacteria to make swimmers sick. Now, that is a standard on harmful bacteria. If you want to use the water for drinking water supply, the water shouldn't contain toxic, or poisonous or carcinogenic substances. If you want to use the water for fishing, the water had better contain oxygen, because fish got to breathe. It shouldn't be too hot, because many fish can't take hot water and there'd better not be any fish toxins in the water because there are a lot of things that are toxic to fish that aren't toxic to humans. Professor Goldman and Professor Deacon both mentioned ammonia, which is quite harmless to us, and very bad for fish.

Okay - what are the Water Quality Standards - that is, the Uses and the Criteria - established for Las Vegas Wash and Las Vegas Bay? Now, I know that some of you folks did not get hand-outs - some did - bear with me, those who didn't. If you look at the last two pages of the legal size hand-outs - that's the one - you can see there that the beneficial uses for Las Vegas Wash are fish and wildlife, aesthetics, irrigation, stock-watering and recreation.

Well, the first question we'll ask ourselves when examining Water Quality Standards - are these Uses reasonable? Well, recreation, in a sense, is certainly turning up in the Wash. What about stock-watering? The only farm we know of in the Valley that has cattle on it, is the LDS Farm - and we just checked with them, and they water their stock from wells, not from Las Vegas Wash so I don't know why we're protecting a Use that isn't there.

There are really three kinds of water in Las Vegas Wash. Las Vegas Wash is a complicated place - not simple. There are two photographs there and there (pointing) which show what I think you know already - you local people - I'm an outsider and I was rather impressed when I discovered it - that you've got in the bottom part of the Wash, an eroding canyon. The water is causing a terrible erosion problem. In the middle part of the Wash there are large swamps, and the upper part is, essentially, a passageway for sewage effluent. There are three distinct kinds of water in the Wash - sewage effluent, swamp, and heavy erosion, and you can't use those three distinct bodies of water for the same thing.

For example, I don't recommend that anybody go swimming at North Shore Road - the water is moving extremely fast and it's very dangerous. Right? Are your criteria consistent with the uses? Well, No, I don't think so. Most of the criteria are irrelevant to the intended uses. The most important use is wildlife habitat. There's no need for restrictive criteria. The wildlife are doing very well now in one of the dirtiest parts of the swamp. Swamp water isn't especially noted for its good water quality.

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stench - although it's not from sewage. I don't think the stench is common on Pabco and Telephone Line Roads, and I think this may come from the reduction of sulfate to sulfide. The matter bears looking into because people don't like the way their swamp smells - especially when they're standing in the Stadium!

Other standards can't be met in the swamps, For example, the turbidity Standard - how clear should the water be - can't be met now. If you look at the first page of your legal size hand-out, we summarize some of the violations of Water Quality Standards right now. I wonder why there is a Turbidity Standard. I don't know what Use it protects. Why must the water be crystal clear?

Well, there are others there. I suppose the one that struck me immediately was the Standard for Taste and Odor, which says there shouldn't be any taste or any odor - but everybody knows that Las Vegas Wash is salty, and if you don't believe me, try it for yourself. That water . . . how do you expect the water to have no taste when it's nothing but full of salt? You know, you don't have to be as abstruse and sophisticated as the distinguished Professors here, to realize that some of these things are simply impossible and shouldn't be there.

You certainly can't meet the Turbidity Standard and the suspended-solids Standard at North Shore Road, as anybody can see. It's as brown as mud. You can't meet them now, and I don't think you can meet them after the AWT Project is built and the "208" Plan is implemented. Why have them at all? What Uses do they protect? Why must the water be crystal clear at North Shore Road? None of the Uses indicated for the Wash - the fish, the wildlife, aesthetics, irrigation, stock-watering and recreation - I can't imagine why they've got to have it.

Alright - why am I spending so much time bothering with Water Quality Standards? Because they are essential to Federal Law. The Federal Law says you need only secondary treatment unless the Water Quality Standards are so restrictive that you can't meet them without having Advanced Wastewater Treatment . . . AWT. And in the Las Vegas Valley, AWT has always been justified by appealing to the Water Quality Standards. Without these restrictive Water Quality Standards, there would be no need for AWT, as the Professor has already told you.

Now, the Federal regulations are very clear about the need to guarantee compliance with the Water Quality Standards in the "208" Plan. And let me quote for you from the Code of Federal Regulations, Title 40, Part 131.10(a), which you can see in your hand-out. This sub-part describes the required content of Water Quality Management Plans to be prepared for each area designated, pursuant to Section 208 of the Act. "The Plans shall identify the controls, regulatory programs and management agencies necessary to attain the Water Quality goals and the established State Water Quality Standards." If the Plan does not ensure compliance with Water Quality Standards, you're in trouble.

The "208" Plan, which you've all seen, talks only about possible violations of the Water Quality Standards at North Shore Road, following flood events. If you will look at Page 161 of the last "208" Report, it says: "Water Quality Standards may be exceeded - may be exceeded by urban run-off pollutants following storm events."

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I have summarized for you the existing violations of Water Quality Standards, including those for taste, turbidity, dissolved oxygen and suspended solids. You've got the list in front of you.

Let me say, of course, there are continuous violations of these Standards during wet weather. We're dry right now. The suspended solids have been running from several hundred to one thousand four hundred milligrams per liter at North Shore Road during May. Not two (2), as required by Water Quality Standards. The Standards say two (2). Actually, it's over a thousand (1000).

These Water Quality Standard violations have nothing to do with the wastewater discharges in Las Vegas Valley. As anyone can see, the water is generally quite clear in the swamps, although there are places in the swamps where both the Standards for suspended solids and turbidity are violated. Although the water in the swamps is usually quiet, the swamp bed is made of very, very fine mud and the slightest current of water will stir it up and violate the Standard. It has nothing to do with any beneficial Use. It doesn't create any nuisance that I know about.

OK - the water is clear in the swamps, but even there, you've got violation of the Standards - clearly most of the mud, though, being carried on the Wash, comes from erosion down stream of the swamps, below the head cut - we've got head-cutting - backscours, as they are called technically, and bed-cutting. The big problem with the backscouring and head-cutting are very, very clear at North Shore Road where the canyon is 40 ft. deep. Now, that means that the Las Vegas Wash has excavated 30 ft. of its bed and carried the mud into Lake Mead. It's a very serious erosion problem. Why? Because the water is moving fast - high velocity - lots of erosion within the channel Erosion of all kinds.

As Dr. Goldman has said and as the Soil Conservation Service here said, you need check basins, debris basins, bank stabilization and other kinds of engineering work, to stop the erosion. And until this is done, the erosion and the consequent violations of Water Quality Standards will continue. There is nothing substantial on these erosion problems in the lower Las Vegas Wash in the "208" Plan.

The "208" Plan calls for a limited discharge of secondary effluent to maintain the swamps above Pabco Road. I have, certainly, no argument with creating a Wet Lands Park with secondary effluent, which will cut down the cost of operating the AWT Plant, but the discharge of secondary effluent will violate nearly every Water Quality Standard in the books.

If you will look at the 2nd page of your legal hand-out . . . this 2nd page summarizes future violations of Water Quality Standards. There's a small discharge of secondary effluent to the Wet Lands Park there. The water may become more stagnant than it is now. There may be lower dissolved oxygen, although it hasn't got very far to fall. It's almost to zero now, and there could be more smells. These smells could come from a reduction of sulfate, which is common in the watter supply here, to sulfide. It's a legitimate question and one that certainly should be looked into.

Let me pass on now to some of the legal questions: If you will refer to

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the first two pages of the legal size hand-out, you'll see that there are plenty of violations of the Water Quality Standards now, and there seem to be plenty after the "208" Plan is implemented. These violations are in open defiance of Federal Law and Federal Regulations, especially Title 40 of the Federal Code, Part 131.10(a), which I have already quoted to you.

The whole idea of Federal Law is to put the water in compliance with Water Quality Standards, but the "208" Plan before you guarantees that the Water Quality Standards will be violated. This contradicts the very intent of those fundamental ideas behind Federal Law.

There's been a lot of talk about moratoriums - we've heard that several times today - unless the AWT Plant is built and the "208" Plan is implemented. But, if EPA is really looking for a reason to slap a moratorium here, I think the "208" Plan will give them all the ammunition they can need - guaranteed violations of Water Quality Standards.

I've already alluded to fundamental difficulties with these Water Quality Standards, which I don't want to defend. I'm here to criticize them and to remind you of the importance of changing them. Some of the uses specified, I think, are unreal - for example, stock-watering. Some of the criteria have no relation to the beneficial uses. For example, suspended solids.

There are some missing criteria. For example, velocity, which is bad for wildlife; ammonia, which is bad for fish. Plainly, the Water Quality Standards need a major overhaul, and I think that the "208" should, at least, begin it. Without this overhaul, the "208" Plan is a guarantee of violation of Water Quality Standards.

Both the Code of Federal Regulations and Public Law 92-500 - the Clean Water Act - insist that Water Quality Standards must be put to work through maximum daily loads and waste load allocation.

These technical terms I can explain at length later - but there's no such thing as the "208" Plan here in Clark County. Now, the State certainly knows better, and in the "208" Plan the State is preparing, there are both maximum daily loads and waste load allocation.

The State retained an internationally famous Engineering Firm (CH₂M Hill) to help with these tasks and hired staff who are skilled in those jobs. There is nothing of this kind in the County's "208" Plan, but the Code of Federal Regulations are explicit in the need to identify maximum daily loads. These loads must be included in the initial "208" Plan - this one - not in some later Plan. Federal Law is equally explicit - as you will see from the material that Betty Jo handed out - Public Law 92-500, as amended, Sections 303(d) (1) (A) and 303(e) (3) (C)

They say a continuing planning process must contain total maximum daily loads based on allocations - based on Water Quality Standards. If you will look at Title 40 of the Federal Code, Section 131.11 - this Section of the Code specifies the required items this "208" Plan must contain.

On pages 150 to 151, the Code sets out in detail what this Plan must say about total maximum daily loads and wastewater allocations, and I'll summarize that further. It says: "Total maximum daily loads shall be

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established at levels necessary to achieve compliance with applicable Water Quality Standards. Such loads shall take into account provision for seasonal violation and provision of a margin of safety. For each water quality segment, a total allocation for point sources of pollutants and a gross allotment for non-point sources of pollutants.

Further - "a specific allowance for growth" and "the total of the allocation for point sources and the gross allotment for non-point sources shall not exceed total maximum daily load." This Section goes on to spell out in detail what the "208" Plan must contain under the subject of maximum daily loads and allocations.. It continues under 131;11 (h) "the identification of municipal waste treatment systems needs shall take into consideration - load reductions needed to be achieved by each waste treatment system in order to attain, and maintain, applicable water standards and effluent limitations."

The "208" Plan does identify the load reductions necessary for the compliance with the effluent limitations - the effluent Standards. But it fails to identify the load reductions necessary to comply with the Water Quality Standards. And this failure vitiates the Plan. It shows that the Plan fails to comply with the explicit requirements of the Code of Federal Regulations.

Let me leave you with an example that will bring home the importance of load reductions and maximum daily loads . . . let's return to North Shore Road briefly - during May, we measured suspended solids at North Shore Road up to one thousand four hundred milligrams per liter. Assuming that the flow was Fifty Million Gallons a day, as a rough approximation

At Fourteen Hundred mill grams per liter, it was running three hundred tons a day of mud - six hundred thousand pounds per day. Refer back to the Water Quality Standards using the average of two milligrams per liter - it would have been about eight hundred pounds per day, as compared to six hundred thousand. Now, if you use the high number of five with a ninety percentile, there would have been only about three thousand pounds per day - that three thousand pounds per day, as required by the Standards, actually running six hundred thousand pounds per day.

Now, these calculations show that the "208" Plan must find some way to reduce the suspended solids at North Shore Road by over half a million pounds a day - and remember that the mud at North Shore Road comes from channel erosion, not from the sewage treatment Plants.

This example shows the importance of eliminating all pollutants - all the substances mentioned in the Water Quality Standards. It shows their relative magnitude and the nature of the engineering solutions to solve these problems.

The "208" Plan, I feel, fails to address itself to the total maximum daily loads required by Federal Regulations and Federal Law misses these problems. This is why the change guarantees that Water Quality Standards will continue to be violated after the Plan is implemented. Thank you.

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Mayor Daines: I believe at this point we should, Mr. Horowitz, take a 10-minute break. Everybody is getting fidgety. I see several people slipping out - and when we come back and I'm sure by then they will have their questions -

Meeting recessed at 10:50 A.M.

Meeting reconvened at 11:05 A.M.

Mayor Daines: If everyone will please be seated, we will proceed with the meeting. Mr. Horowitz, could we have you back on the podium, Please? We'll continue at this time - Mr. Horowitz you are ready for any questions to be asked at this time - is that correct?

Mr. Horowitz: Yes, Sir.

Mayor Daines: Is there anyone who has a question - Commissioner Lurie -

Commissioner Lurie: I have a question, Mr. Chairman. You've already mentioned that we are going to be in violation, no matter what happens with the "208" Plan. Would you recommend that maybe the Plan be stopped - that construction be stopped of the AWT until alternatives can be looked at?

Mr. Horowitz: You should certainly change the Water Quality Standards, because no matter what you build, you are going to violate them, and that is contrary to Federal Law. Now, what you should do about that I think you ought to talk to your Attorneys about. That's a legal question - not a technical one - I can't answer it, but violation of Water Quality Standards is serious business and that's the reason for AWT -

Mayor Daines: Are there any other questions?

(No response)

Mayor Daines: Mr. Horowitz, thank you very much. You will come back, I'm sure, a little later. Is Dr. Meyer Levadie here, please?

Mr. Levadie: It's Mr. Meyer Levadie -

Mayor Daines: I'm sorry -

Mr. Levadie: It's alright - I appreciate the compliment.

Mayor Daines: Mr. Meyer Levadie, if you will pick up the microphone and everybody can get in the act here . . . there you go -

Mr. Levadie: The name is Meyer Levadie -

Mayor Daines: That mike has to be within six inches of your moustache -

Mr. Levadie: My name is Meyer Levadie. I am from Los Angeles. I am an Economist and a Staff Consultant to various companies involved in Social and Economic Programs and Environmental Programs. Amongst them are included Daniel, Mann, Johnson and Mendenhall of Los Angeles, Engineering Science, Environmental Planning Documentors at Riverside, California, Associated Economic Systems of Los Angeles and I also conduct an Economic Consulting practice of my own.

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I have done work in the areas of Water Resources Planning and Water Quality, including managing the Projects for a major facility in California, the Peripheral Canal, which is about a Two Hundred and Fifty Million Dollar project when we started it, and now has gone up to perhaps a Half Billion Dollar project.

Also I've done economic studies on behalf of the Metropolitan Water District of Southern California; the Pomona Valley Municipal Water District; Kitsap County, Washington, secondary treatment plant - Boulder, Colorado, secondary treatment plant - these are all economic studies.

I don't profess to know a terrible amount about the "208" itself - I haven't evaluated "208" that intensely. However, I consider myself to be something of an expert on Economic Studies, and what an Economic Study should contain. I regret that I don't have something to give to you so that you would be able to see some of the comments that I have to make with reference to this particular Project, and I might add that I am not for or against this particular "208" Study. You've heard enough from the Scientific experts here - I don't presume to have any scientific knowledge.

But I had hoped that we would have here today a document in the form of a simple matrix that was promised to me three weeks ago Monday by the "208" Planning Staff, which would show what the total cost - the known costs - of the "208" Program would be; where the revenues would come from and which would show what the unknown costs would be, over time - and this time, obviously, runs from today on to the year 2000, and possibly beyond that.

I regret to say that when I received the document by special messenger on Friday, there was no such matrix in it, and it's a very complex document - it is difficult to present ideas on costs without this sort of material. The original submission that I made some four weeks ago - in comments on the draft "208" Plan, resulted in some changes in the "208" Plan from the economic viewpoints, and so I can't even use that particular document.

However, I might say there has been a considerable amount of confusion. This is - as I've said - a very complex Project and there's been a considerable amount of confusion as to what the costs might be; where the monies would come from; where costs might exist that hadn't been shown in the Program, and I question, still, some of the costs that I questioned more than three weeks - approximately a month ago, in writing, that hadn't been changed. I had no way of challenging those costs other than on the basis of personal experience.

For example: When somebody tells me they are going to spend \$10,000 a year to augment a committee of experts to look into certain problems, I don't believe that this can be done for \$10,000 a year, if it's truly a committee of experts. I think that experts may cost a little more money than that. I don't know what the true costs might be, but I have some doubts about the economic costs entailed in that way.

The "208" Plan itself, in terms of costs, makes many inferences as to the fact that costs will be shared by Federal entities. But there's only one point in it that I can find where there's an assurance that Federal entities will share in the costs, and that's in the Advanced Wastewater Treatment Plant. And recommendations that other parties will share, or

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might share, in costs does not necessarily mean that they are going to share in those costs. In fact, Federal Government in the United States, of both Parties, have been known to back away from commitments and explain them away in different ways. Unless there is something contractual, I can't see that this can be accepted as cost-sharing. And so, when we talk about costs, we're talking about a total Program that would be involving close to Two Hundred Million Dollars - One Hundred Eight-four Million Dollars at the bottom point, in which we might see Federal cost-sharing to the expense of close to Forty Million Dollars, based on the existing zone - 75% participation in Advance Waste-water Treatment Plants.

That leaves an awful lot of money that would have to be funded by the local community. This funding isn't made available from higher levels of government, and I haven't seen, anywhere, where those costs have been distributed by the tax base for the communities involved, to show what the real costs might be to the taxpayers; to the members of the community, and so forth.

Another comment that I make about the "208" Plan, in terms of sources of funds, is that the Plan seems to address itself, particularly, to costs that will be paid by public agencies - that might come out of General Funds - that might be backed by Bonds - but the Plan seems to gloss over those costs that may be imposed on individual citizens, without having to pay taxes. I will bring one example to mind: There is one item in the Plan - in the final Plan - that didn't appear in the draft Plan, that refers to a possible restriction on placement of garbage grinders in your homes. It's a very simple mundane thing - a garbage grinder - and it's tough to relate to something like this.

However, if the rest of Clark County, or Clark County today, has garbage grinders in the homes, and over a period of twenty years, perhaps two hundred thousand dwelling units appear that are not allowed to have garbage grinders in their homes - they're going to have to pay to take the garbage away. Now, are they going to pay Ten Cents a week, or a Dollar a week for the excess garbage that they're going to have to pay to have removed from their property? I don't know what that cost is, and the Plan didn't tell me what the cost is - if it will cost those two hundred thousand home owners a Dollar a week - or, I should say per two hundred thousand dwelling units - a Dollar a week, we are talking about more than Five Million Dollars a year that will come out of the pockets of individual taxpayers and not distributed through public agencies. And by the year 2000, in that case, assuming the garbage grinders in existing homes today break down, are we going to see a prohibition to their repair or replacement and, so, will there be more private funds being paid out for this -

I think that in an economic assesment, that sort of information has a place. We may not have accurate figures, but some effort at estimating the figures should be made.

There are an awful lot of unknowns in the Study . . . I should say in the Plan. There are studies recommended - lots of studies recommended - some of them for \$10,000 - some of them for Fifty - some of them for a Quarter of a Million Dollars - in order to achieve implementation of the Plan.

Now, when I see things like this - and I can list some of the studies that are recommended - there are Salinity Control Studies - Water

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Conservation and Waste Flow Reduction studies; Waste Water Facilities studies; Septic Tank Management studies - and then there are several others under sub-surface water. When we have Studies of that sort it seems to me we're facing the possibility that the Plan is not fixed and that the Plan may require change. These Studies are going to provide scientific information, and the scientific information may tell the community that this part of the Plan may have to be changed. At what cost? We don't know and thus these costs have to be considered open-ended until actually the Studies are completed, and we don't know whether those costs will be ready upon the political agencies; on the various municipal entities; on the County, or whether they will come in direct levies to the taxpayer, again.

We have a recommendation, for example, on Street Sweeping for Flood Control and . . . I should say, Surface Water Control, and the Plan mentioned that this might require off-street parking facilities to be introduced into the community. Who is going to pay for the Off-street Parking Facility? What might they cost? Is there a minimum? Is there a maximum? Will the community require subterranean parking in apartment units? Will the community require removal of buildings in the Downtown area and thus reducing the tax base? Will they require additional parking facilities to be built by municipal entities or by private entities in the Downtown areas?

These are all questions to which we have no answers, and I can go on with several more. The Las Vegas Wash - we've heard that there is one particular part of that Program that will cost Four Million Dollars. I haven't seen anything else in the Plan that increases the cost of that particular part of it - beyond the 4.05 Million Dollars, I believe, but on discussing this with the very competent scientific people involved here, they say - we have no idea what this can cost yet. Much of this, admittedly, in the Plan says that it depends on a Wet Lands Park Study - which is yet to be conducted.

There again, then, if the Study is yet to be conducted, it seems that any investment in the Wash has to be considered to be open-ended - we don't know what it will cost because we don't know what the Park Study is going to recommend, and we don't know what side effects the Park Study recommendations are going to be involved in other aspects.

There are many, many loose ends, as I have said, and I haven't got all of them in an organized fashion, but I have indicated some examples of the thing. If I were to bring a Plan of this sort to a client of mine, I wouldn't be at all surprised if the client told me to go back to your desk and do a little more work on it, because it is not a Plan that brings forth information, from an economic viewpoint only, right now, of decision-making quality - because we don't know what it's going to cost the public agencies - we don't know what it's going to cost the individual members of the public - we don't know whether it might run high or run low. It's just open-ended right now.

And, so, as I say, it does not contain, from an economic viewpoint, information of decision-making quality. That's my general impression.

Mayor Daines: Do you have any questions for Mr. Levadie? Councilman Stout.

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Councilman Stout (Henderson): You touched on - just a moment ago - on the Federal sharing part of the "208" Program. The City of Henderson is really concerned with this. We have two reasons: One, that we may or may not have to hook up to the AWT Plant, but we understand that we may lose a great deal of the Federal sharing if the AWT Plant continues to go. One of the items we're concerned with is that we are going to have to, immediately almost, come up with 16.9 Million Dollars for our Interceptor Program - that we will have to do in order to grow.

Did you notice that discrepancy in there - the Federal monies that could be obtained would be for the AWT Plant and not for Interceptors, as in our case?

Mr. Levadie: No, I must admit that I didn't observe that. It may be in there, but . . .

Councilman Stout: You did mention that most Federal monies would be just for the AWT Plant?

Mr. Levadie: Assured money for the AWT Plant. I haven't found references - they may exist - I haven't found references within the time available for me after receiving the documents, to check all of those. I had these monies, and these allocations, and cost-sharing, might have been in that matrix that we were told we would receive, as far back as May 1st, and which is not in the document.

Councilman Stout: Then, what you would say is that some of these costs were not addressed, and there would be many questions left to ask - is that correct?

Mr. Levadie: Many, many open questions.

Councilman Stout: Thank you.

Mayor Daines: Mayor Briare.

Mayor Briare (City of Las Vegas): Mr. Levadie, you made a very interesting comment in the closing of your statement, where you used the comparison of perhaps how you would address a private client of yours, if you were to have submitted the "208" Study to him, and he would suggest that you go back to your desk. Supposing that private client - or, suppose you gave this answer to your private client - and my question is going to be - what do you think your client would say? Suppose you were to tell your client that the Plan is an on-going one, and it's understandable - or it's to be understood - that changes and amendments will be made from time to time as different things come about that perhaps might have an effect on the Plan. If you were to make that statement, what do you suppose your client would say to you?

Mr. Levadie: I think - I can't say what my client would say to me, but I can put myself in the position of a client and, based on my experience, I think I can say that he would have a right to expect from me, to present to him some possible alternative scenarios, and what I think the costs might be for the several alternative scenarios so, at least, he would have some way of monitoring, guiding and planning his ultimate investment decisions, but those alternative scenarios don't exist in the Plan I worked.

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Mayor Briare: Thank you, Mr. Levadie.

Mayor Daines: Commissioner Christensen.

Commissioner Christensen (Las Vegas): Am I correct in understanding that what you're telling us, is that this is a Plan that we could be entering into, similar like entering into a contract without knowing what the costs are going to be - in any way, shape or form? Is that the bottom line of what we're talking about?

Mr. Levadie: Commissioner Christensen, that's the bottom line - it's that. In Los Angeles right now we're talking about a Olympics Program for 1984 and there's a possible rejection of it because, on the experience of the City of Montreal - they bought an Olympics Program that they thought would cost them perhaps a Hundred and Fifty Million Dollars to conduct. And, with the open-ended nature of that situation, they went on spending a Billion and a Half Dollars, and practically put the City and the Province of Montreal, in Canada, into a state of economic chaos.

Commissioner Christensen: Thank you.

Mayor Daines: Councilman Davis.

Councilman Davis (North Las Vegas): Is this cost broken down in any form, entity by entity? I realize you say there are no total costs, but how would it be broken down, and how would we know what our share would be?

Mr. Levadie: All I can say to that, Councilman, is that your share is whatever the Federal Government has not agreed to pick up, and if you don't have a contract with the Federal Government, it's going to have to be paid for by the citizens of Clark County - unless you can get the State of Nevada to pay for it.

Councilman Davis: Thank you.

Mayor Daines: Commissioner Lurie.

Commissioner Lurie (Las Vegas): I have just one question - I think you've clarified it, but I would just like it clarified a little further. What you're saying is that this Plan should not have been adopted because there wasn't sufficient financial data to back up what the Plan calls for, as far as . . .

Mr. Levadie: As far as the economic portions of the Plan are concerned - I consider them incomplete and indeterminate. As far as the technical and the scientific portions of this Plan are concerned, I can't make any observations at all.

Commissioner Lurie: Thank you.

Mayor Daines: Are there any other questions?

(No response)

Mayor Daines: OK - we thank you very much. At this time, then, I'm sure there are a lot of people who would like to know just how this type

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members that were on these Committees - Technical Advisory - Citizens' Advisory- that were handling "208" for many years. If I may just have a show of hands of people in the audience who received these letters - show a hand, please. Did you receive them? Some were hand-carried - some 40, and the other ones were mailed.

Mayor Daines: Everyone who received a letter/notice, would you raise your hand?

Mr. Dorn: This brief list is here and if anybody would like to see who they went to, I would appreciate it - to speak with them after the meeting. But, basically, and in summary, this is how this meeting was brought together today - with the assistance of the various City Commissioners and Councilmen. Thank you, and I appreciate that.

Mayor Daines: Thank you very much. At this time, now, we have the Chairman of the County Commission here - Mrs. Thalia Dondero . . . and I see that Mr. Bunker is here and some of the Staff from "208, and we'll open this up, Mrs. Dondero, if you please.

Commissioner Dondero: Thalia Dondero -

Mayor Daines: Mrs. Dondero, that mike isn't working - I'm sorry - imagine you're singing at the Stardust and pull the mike a little closer -

Ms. Dondero: Thalia Dondero, Chairman, Clark County Board of Commissioners, and, as you can see, we do have other Commissioners - we have Commissioner Robert Broadbent and Commissioner Sam Bowler in the audience, as well as our Staff - Richard Bunker and Bruce Spaulding, and other members that are here - members of the Staff. - Also, I'd like to have recognized Ernie Gregory from the State Department of EPA. But at any rate, I would like to say at this point that I was particularly distressed that as a Clark County Commissioner and representing you on the Clark County Commission, and you representing me as City Commissioners, that I was not really invited to participate in this round table discussion, because this is the first meaningful discussion that we have had with the City Commissioners, and I really am distressed with that, because I think I have been to many, many Public Hearings and have not seen the concern, until now, when it is so late in the game for the AWT Plant - part of it is in the ground . . . that we're now discussing these certain facts.

I know that Dr. Deacon is a member of one of the Committees. I have not seen his Report that he had here this morning. Dr. Goldman - I have seen a Report from Dr. Goldman. Mr. Horwitz' Report I have not seen, or heard of, until this morning. And the other gentleman from DMJM , I have heard his Report - some of it was given to us, but I would also like to report that the plan - the "208" Plan was developed to be flexible - to meet the needs of the community, so that we would not locked in to certain certain funding programs that would be too expensive for this Valley.

I would, you know - the things - Mr. Dorn's questions that were put to the Commission were delivered to him right here . . . those questions were answered - the ones that were asked of the Commission. I do think that we really have to work together. I don't live in some other

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of meeting came about, and was called, and I'd like to, at this time, call the Gentleman who's responsible for - mainly, anyway - for putting this meeting together. Mr. Dorn, if you would explain.

Russell W. Dorn, City Manager, City of Las Vegas: Yes, Mr. Mayor - thank you. As we all know, there is a Public Hearing on "208" raised by the University on May 30th at 7:00 P.M., Room 104 and 105, in the Humanities Building, and I would like to get commercial and invite everybody here - concerned citizens - to attend that meeting because you'll hear both sides of the story - the City will be there and the County will be there.

This was my idea. I discussed it with my Staff, but I can't take full credit for it because I discussed it with my colleague City Managers to see what they thought of the idea. They liked the idea and they, in turn, asked their Councils and Commissions what they thought of the idea, and the idea is right here today in the first meeting of the cities in Southern Nevada's history on a public awareness issue, such as "208".

We feel that we gave input to the County and to the "208" Staff, and our questions are still not answered - the questions that the experts brought up today . . . our concern for our Public. The purpose for this meeting is to bring forth an important issue that will cost a Hundred Eighty-four Million Dollars, to Two Hundred Twentyfour Million Dollars, as quoted by the "208" Staff on Page 151 of the Final Draft, Table 17. We feel that it is important to let our Public know what the cost is to the taxpayer, and how this might affect the people on the street.

We feel that the County still hasn't answered those questions that we submitted, in writing, to them and it's been said before in the newspaper, that this is a City/County political fight.. I answer that and say - "No".

I say that here, today, the public was aware of this meeting; that we brought in experts, who are Nation-famous experts, to not give an emotional appeal, but to tell the facts in their expert testimony, and to bring attention to what they felt are deficiencies, or even the legalities, or the lack, that the "208" Plan addresses to as to Water Quality Standards and Maximum Daily Load, which is the heart of the Pollution Control Program, and you have just heard Mr. Levadie on the Economic Impact.

Now, you might say - how did everybody get here? Well, the answer is - this: That on Friday I had the opportunity of the City Managers' Breakfast and County Manager Breakfast - I personally invited our County Manager, Richard Bunker, to personally extend an invitation to his Staff . . . County Commissioners - and his Planning Staff to attend this meeting.

Then, on Monday, I had my Secretarial Staff come in at 7:00 a.m. and decided to send out letters. I sent these letters out to people - this is an example of the letter before me - the letter was hand-carried to our Elected Officials that represent us in the State Legislature and in the County Government, our State Assembly people and our State Senators. They were hand-carried on Monday by two members of my Staff. Then sixty-two (62) letters were sent out the Citizen Advisory Committee

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county - I don't live in some other city - I live here! I have to bear those same costs and I'd like to, at this time, introduce Mr. Bunker. Thank you.

Mayor Daines: Mr. Bunker.

Robert Broadbent, Co. Commissioner: Mr. Mayor and Honorable members of Commissions for the City of Las Vegas and Clark County. It's with a great deal of trepidation, I guess, that we approach you today, sort of on a partial-invitation, with the idea that maybe we might have something else to say or to add. It's very easy to find Consultants and Engineers Scientists, on both sides of any issue and, today, you have heard one side of the issue. We would hope that all of you would take the opportunity to hear both sides of the same issue.

The only thing that is new today, that we have heard that hasn't been heard before was the Report of Dr. Deacon, and my problem with that kind of a Report is that we have dealt with Dr. Deacon for many, many years, and have hired him through the University to do many studies for many years. And our "208" Staff has worked closely with him for the last six or seven months on the "208" Plan. He, and members of his Staff, were members of the Technical Advisory Committee on "208" Planning, and attended very few meetings. His work that is done, and presented to you, is brand new today and we never even had an inkling that it was coming.

Now, I guess that's one of the problems that we, as people who have to make policy decisions, are faced with. Two of them - Scientists - seem to adopt a posture which allows them to change their policy, or their recommendations. I recognize that, because these are changing times and changing circumstances. I wonder if you heard today some of the things that I heard from some of these people that talked. They talked about "possible" - "probable" - "inconclusives" - "suggests" - "imply" - "maybe" - "perhaps" - "unexplained" - "make" - "likely" - "assumption" and then from that, they say - this is the obvious conclusion. It's no wonder, sometimes, that people in policy provinces are stuck with making decisions that they are never sure whether they made a good one or a bad one.

Now, two years ago when we entered into the AWT Contract, and awarded that Contract, nobody in Clark County indicated to us on final date of award - and I'm talking about from Clark County - that we did not, and were not, forced to award that AWT Contract. Many of us were not happy with having to build an Advance Wastewater Treatment Plant. Many of us fought, as hard as we could, through the State and the EPA to try and postpone it - to try and amend the Standards - to try to do many things, to hold down the cost to the community. We knew at that time it was going to be a tremendous burden, in operation and maintenance, to all the people in the community - to all of them. But at that time we saw no other chance or opportunity but to award the contract or suffer the consequences and at that time, the consequences were made rather clear to us. The consequences were to close down the town - to stop construction permits - to stop - to stop awarding of sewer grants - and we were afraid to take that chance. We were afraid to take that chance, so we awarded the contract.

Well, in the County, we've had much the same concern over the last

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three or four days and so, in discussion with the County Commissioners and with our Staff, we were attempting to get the answers to three (3) questions, and that's all I'd like to have the opportunity to talk to you about today. The answers to three (3) questions:

No. 1, What would happen if AWT construction was stopped?

No. 2, What would happen if the "208" Plan was scuttled? And

No. 3, and probably most important, is the top tough decisions we have to make on Air Quality, and what happens if we do not meet the deadline by submitting an Air Quality Implementation Plan by January 1, 1979?

On Friday, we felt the way to get an answer to this problem was to go to those people who we felt would be the determining factor in making that decision. So, we made the opportunity - we had the opportunity to meet with Mr. Gregory - some of us met with Mr. Gregory in his office on Monday, and rather than bring back a Report to you on what he would have to say, we asked him if he might come down and answer a part of those questions that we have given to you today. And he is here and I would hope you would have the opportunity while he is here, to hear from him.

Secondly, we requested Mr. De Falco, who is the Regional Administrator of Region IX. At the time we went up there on Monday, in contact with the Governor, we indicated to the Governor that we were hopeful that we could get these answers from Mr. Gregory and from Mr. De Falco, and he said - well, maybe you'll have a chance to talk with Mr. De Falco - he's going to be in my office and why don't you come over and I'll give you the opportunity to discuss it with him.

So we went and discussed it with Mr. De Falco and asked him the same three (3) questions that I just proposed to you. I would like to - first of all - we asked a couple of other things, and they were answered in a letter - a letter that we were copies on, and I would like to read to you some of the portions of this letter. This letter is signed by Clyde B. Eller, acting for Paul De Falco, Jr., Regional Administrator and we were copies on the letter.

We would like to read it to you because we think it's pertinent - some of it. It says the Clark County "208" Work Program and Planning Process operated from the beginning on major planning constraints and givens. In view of these constraints the "208" Plans were operated on - and I'll read this verbatim:

No. 2. "That the AWT Facility developed by Clark County and approved and funded by the EPA, would be constructed and operated to meet the NPDES permit requirements and Water Quality Standards.

No. 3. "That the Bureau of Reclamation's Las Vegas Wash Salinity Control Unit, as authorized by Congress in Public Law 93-320 and as further included in the EPA-approved Water Quality Standards Plan of Implementation for Salinity Control, would be constructed . . ."

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And he goes on further to say that the "208" Planning Process was not intended to re-examine the AWT Project. This is from the Regional Administrator.

It goes on further to say this: "Although further monitoring and research have been performed, and the level of Lake Mead has changed, we are not aware of any evidence that the existing WQS's should be relaxed. Indeed, I am concerned that revisions based upon new information may result in more restrictive standards (e.g. Phosphorus) and for new parameters (e.g. possible nitrogen and toxic chemicals).

It further says: "The "208" Program was not initially authorized to review Water Quality Standards . . . Any revisions of Water Quality Standards are subject to the public participation requirements of State and Federal regulations, and I would encourage you all to provide appropriate input to these proceedings.

"We are aware of much discussion and concern over nitrogen compounds (especially ammonia) in the wastewaters and its potential effects on Las Vegas Bay. To date, there is no clear evidence to document the role of nitrogen compounds in the biologic response in Las Vegas Bay. . . . If nitrogen compounds are subsequently deemed to be a major problem, technical solutions do exist that can be applied to remedy such problems." And they are talking about a lot of additional costs over and above AWT to do that.

See Pages 39 thru 42 of these Minutes - Mr. De Falco's Letter

I recognize that much of the Water Quality Management decision making is based on technical information and that as better technical knowledge is acquired, our decision must keep pace. To the best of our ability, we shall endeavor to attain the Water Quality objectives as is expeditiously possible but, at the same time, we will keep our options open for redirection.

For this reason, "208" Planning is designed to be a continuing Planning Process to evaluate and incorporate new knowledge; to refine previous studies; to insure Implementation of the Plan and provide for annual updating.

I'd like to read now the telegram, and the real concern that we have about some of the discussion that is going on today: This telegram is dated yesterday -

Mayor Daines: Excuse me - could we have the date on the letter?

Commissioner Broadbent: The letter was dated yesterday - we will furnish copies to you at the conclusion - we got it by teletype from EPA yesterday. This letter is a teletype - it was sent from EPA in San Francisco to EPA here, and it was delivered to us yesterday. It's addressed from Paul De Falco, Regional Administrator, EPA, to the County Manager, County of Clark - and it says:

"Re your inquiry of this date"(and in our inquiry I asked the three (3) questions that were posed before). And here's the response:

"1. If for any reason AWT construction is stopped, or discontinued

(The following is a re-typing of a Teletype letter addressed to Russell W. Dorn, City Manager, City of Las Vegas, Nevada, from Paul De Falco, Jr., Regional Administrator, United States Environmental Protection Agency, Revision IX, 215 Fremont Street, San Francisco, California 94305)

May 23, 1978

Mr. Russell W. Dorn
City Manager
400 Stewart Ave.
Las Vegas, NV 89101

Dear Mr. Dorn:

This is to acknowledge receipt of your correspondence dated May 8, 1978. Thank you for keeping us advised of your questions and comments on the 208 Program for Clark County.

We are sensitive to your concern that the City's comments and questions on the Proposed 208 Plan will be adequately addressed. The public participation and local adoption processes for the Proposed 208 Plan are such that we expect all comments received on the Proposed 208 Plan to be documented and fully addressed by the 208 Planning Agency.

The Proposed 208 Plan as adopted by resolution of the Clark County Board of Commissioners on May 9, 1978, will be subject to detailed State review and formal certification. During the State certification process, we expect the State to take cognizance of all comments received and judge the adequacy of each response. Once certified by the State, EPA will review the record of both State and local actions for conformance with applicable Federal requirements. EPA may consult with the City or with other parties as necessary and appropriate in the course of our review. In summary, you may be assured that the City's comments will be considered and adequately addressed.

The AWT Project is part of a major long-term effort on the part of State and local authorities to develop a comprehensive pollution abatement program for Las Vegas Wash/Bay. A chronology of this process is attached and illustrates the historical foundations of the project. As indicated by the chronology, the AWT Project resulted from local development of a facilities plan and environmental assessment. In July 1974, the Board of County Commissioners, acting under authority of Statutes of Nevada 1973, Chapter 798, adopted the Las Vegas Wash/Bay Pollution Abatement Project Facilities Plan-Annex A and Environmental Assessment-Annex B. The project selected by the County Commission as being the most cost effective and environmentally sound was for (1) construction of a pipeline to convey secondary treated effluent from Clark County and City of Las Vegas treatment plants to an AWT site, and (2) construction of an AWT plant to meet Water Quality Standards (WQS) and associated HPDES discharge requirements.

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The AWT Project as proposed by the County was subjected to a formal Environmental Impact Statement (EIS) under the National Environmental Policy Act. The EIS examined the full range of alternatives and impacts. The Draft EIS was published by EPA on October 21, 1974 and the Final EIS was published on May 29, 1975. Implementation of the selected project was concurred in by the State and EPA following the Final EIS. Although the EIS was published several years ago, we are concerned that the formal record does not show that the City of Las Vegas commented on the EIS or otherwise participated in the EIS process.

At this time, Clark County has received a major Federal grant to construct the AWT facility, State bonds have been issued to finance the local share, contracts have been entered into for onstruction and construction management services, and actual site construction is roughly 15% complete. The present schedule forecasts that the AWT facility will be complete and operational by July, 1980.

The relationship of the AWT facility to the Clark County Section 208 Areawide Water Quality Management Plan, and the relationship of the AWT facility and the 208 Plan to the Bureau of Reclamation's Las Vegas Wash Salinity Control Project is very complex and has, unfortunately, caused considerable confusion. The Clark County 208 Work Program and Planning process has operated from the beginning on four major planning constraints or givens:

1. That the 208 Plan must develop alternatives to insure compliance with EPA-approved State Water Quality Standards for Lake Mead and Las Vegas Wash, and Water Quality Standards-Plan of Implementation for Salinity Control in the Colorado River.
2. That the AWT facility developed by Clark County and approved/funded by the EPA would be constructed and operated to meet the HPDES permit requirements and Water Quality Standards.
3. That the Bureau of Reclamation's Las Vegas Wash Salinity Control Unit, as authorized by Congress in PL 93-320 and as further included in the EPA-approved Water Quality Standard-Plan of Implementation for Salinity Control, would be constructed, and
4. That water rights and provisions for return flow credit would be respected.

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Thus the 208 planning process was not intended to re-examine the AWT Project. However, the 208 planning process did examine alternative management plans for Las Vegas Wash. The Plan examined in a preliminary fashion various release rates of treated effluent into the Upper Wash, hydraulic flow regimes, extent of marsh/wetland maintained, impact on the Las Vegas Wash Salinity Control Unit, and impact on operation costs of the AWT facility. Preliminary results indicate that the Upper Wash can be managed for multiple purposes, that the Marsh can be used as a partial treatment mechanism in association with upstream secondary and advanced treatment, and that substantial savings of O&M costs at the AWT facility can be realized. EPA views these results with considerable interest and will encourage Clark County to focus on specific management directions for the Wash in the course of the 208 continuing planning process.

The Water Quality Standards for Las Vegas Wash and for Lake Mead were developed in the early 1970's and adopted by the State Environmental Commission on October 24, 1973. The WQS were based upon the best knowledge available on the effects of nutrient addition (both mass loading and concentration) on the eutrophication of Las Vegas Bay in Lake Mead. Although further monitoring and research studies have been performed and the level of Lake Mead has changed, we are not aware of any evidence that the existing WQS should be relaxed. Indeed I am concerned that revisions based upon new information may result in more restrictive standards (e.g. Phosphorus) and for new parameters (e.g. Nitrogen and toxic chemicals).

The 208 Program was not initially authorized to review water quality standards. However, by separate letter from the State and EPA, Clark County is performing a review of the WQS to be submitted to the Nevada Division of Environmental Protection and hence to the State Environmental Commission. Any revisions of Water Quality Standards are subject to the public participation requirements of state and federal regulations, and I would encourage the City to provide appropriate input to those proceedings.

We are aware of much discussion and concern over nitrogen compounds (especially ammonia in the wastewaters and its potential effects on Las Vegas Bay). To date, there is no clear evidence to document the role of nitrogen compounds in the biologic response in Las Vegas Bay. We are most interested in this question and will welcome any information that the City may possess. If nitrogen compounds are subsequently deemed to be a major problem, technical solutions do exist that can be applied to remedy such problems.

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I recognize that much of the water quality management decision-making is based upon technical information, and that as better technical knowledge is acquired our decisions must keep pace. To the best of our ability we shall endeavor to attain the water quality objectives as expeditiously as possible but at the same time keep our options open for redirection. For this reason, 208 Planning is designed to be a continuing Planning process to evaluate and incorporate new knowledge, to refine previous studies, to insure implementation of the Plan, and to provide for an annual update.

Again thank you for your interest in this matter. Should you desire additional assistance or information please feel free to contact Mr. John Wise, Chief Nevada Branch at (415) 556-2575.

Sincerely,

/s/ Clyde B. Ellis, Acting for

Paul De Falco, Jr.
Regional Administrator

Attachment

cc: HDEP
Clark County Board of Commissioners
CCSD
CNLV
CH
Boulder City

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current and future EPA Grants for Wastewater Treatment Works will be jeopardized and will possibly force recovery of expended Federal funds. Since violation of compliance schedule would occur, EPA enforcement action will issue. Remedies under Law are penalties up to \$25,000.00 per day and/or connection ban.

- "2. Failure to have an approved Section "208" Plan will jeopardize all future Section 201 Wastewater Treatment Construction Grants and Section 402 Permits in Clark County.
- "3. Failure to meet statutory dates of July 1, 1979, under Clear Air Act for Air Quality Implementation Plan approval will jeopardize Sewage Treatment Grants under Section 316, and will impose severe limitations under Section 176 on Federal assistance, including Transportation Projects and Air Quality Planning Grants, will preclude the approval of any new Air Pollutant Source and will otherwise jeopardize Federal licenses and permits."

We would only present this telegram to you with the hope that you'll consider it in any decision you make. We think it's a tough, tough decision that has to be made by all governments in Clark County, and you've got to weigh the consequences of everything you do, and we hope that in your decision today, or your decision in the further days, that you will weigh this evidence and make those considerations based on the sound knowledge that we think you all have. Thank you.

Mayor Daines: Commissioner Broadbent - before you leave - whose telegram was that? Who is that from?

Commissioner Broadbent: The telegram was sent by Paul De Falco - He is the Regional Administrator of Region IX.

Mayor Daines: And the letter also came from Him?

Commissioner Broadbent: It was signed by somebody acting for Paul De Falco -

Mayor Daines: But both of those messages were from Paul De Falco - Region IX in San Francisco - is that right?

Commissioner Broadbent: That's correct -

Mayor Daines: There will probably be some questions, if you don't mind. Councilman Davis.

Councilman Davis (North Las Vegas): Mayor, I have a question of Commissioner Broadbent: Commissioner, you said under the "208", we have no right to question the AWT Plant?

Commissioner Broadbent: What I read was a quote from a letter -

Councilman Davis: I think someone should inform this person that any citizen, and at any time, has the right to question the actions of the Federal Government -

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Commissioner Broadbent: That isn't what I said, Gary (Davis).

Councilman Davis: Okay -

Commissioner Broadbent: I agree with you, and I'm not as happy with the environmental concerns that are put on us by the Federal Government any more than you are. I think they have invaded the privacy and intruded into State's rights, and our own rights, and they are gradually eroding away our own rights. But the fact is that the Law is the Law and until it is changed, you've got to obey it.

What I said was that - and I'll quote it again - "that the AWT Facility development in Clark County and approved by funds by EPA will be constructed and operated to meet the NPDES requirements and Water Quality Standards." And the letter further says that . . . "the "208" Process was not intended to re-examine the AWT Project.

Councilman Davis: Commissioner Broadbent, I am of the feel that the Federal Government is here to serve the State Government - who is here to serve the County and who is here to serve the city - and if these people feel that they can come in here and run our city, then, possibly, we don't need city, county or local government. Maybe we should have a Dictator! Possibly what we should do at this time is to tell the Federal to take a hike out of this town.

Commissioner Broadbent: Do you want me to respond to that?

Councilman Davis: I would welcome your response to that -

Commissioner Broadbent: I agree with you - if we could logically tell them to take a hike, I think we would, but I think you have to recognize from the telegram the consequences of telling them to take a hike.

Councilman Davis: Could you imagine if the citizens stood up to the Federal Government - that would be a crime - they'd probably lock us all up.

Commissioner Broadbent: The way to stand up to the Federal Government is to elect some people back in Washington who are going to respond and give our rights back to us -

Mayor Daines: I think we're getting a little off the subject here.
Commissioner Lurie.

Commissioner Lurie: Commissioner Broadbent, I think the intent of this meeting is - we're not going to take any action today, because the action has already been taken by the County Commission. We were hoping we could get the cooperation of the County, and since we didn't get the cooperation of the County, now we hope to get the cooperation of the State EPA, and also the Governor, in order to stop this Plan from being implemented and going any farther with it, after hearing from the Professors on the problems and the questions that were raised on that the AWT Plant is not going to correct the problem. The problem is correcting itself, without AWT on line.

Now, in good conscience, I cannot go to my constituents that I represent in the City of Las Vegas and ask them to pay maybe eight times what they are paying out for sewer service - ask the commercial and the hotels and resort areas to pay anywhere from two hundred to five hundred percent

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increase in sewer rates on a Plant that is not going to work. That, I think, is the bottom line to our concern - is how can we justify this cost on something that is not going to clear up a problem? The problem is clearing itself up.

I think that's my concern, and I was hoping that the County would have the same concern because the same people you represent, some of them I represent, and I think it's unfair to the taxpayers to have to pay for something that has been told to you this morning is not going to solve the problem in the Las Vegas Wash.

Commissioner Broadbent: Do you want me to respond to that?

Commissioner Lurie: If you'd like -

Commissioner Broadbent: If you'd like a statement - I wouldn't mind responding - first of all, I disagree with your premises and I think that you again - I would repeat - that you've heard one side of it today. Now, many of you have heard the other side - we've been involved in long discussions on both sides of it by qualified people. And I think the thing that we've got to still remember is that it is an on-going Process and can be amended at any time - and we've got to look at Water Quality Standards again - we've got to look at the whole thing.

Commissioner Lurie: Well, I understand that. I'm not opposed, you know - and I don't think anybody up here is opposed to clean water - we all want that for the people we represent. We want our City to grow and we want it to grow in a healthy manner, but I don't see where the cost of this AWT is going to benefit the public at this time, because now it has been brought out, as far as Air Quality, the County is responsible for implementing Air Quality plans and this Plant, right now, is going to be putting out more pollution than this Valley can contain at the present time.

Commissioner Broadbent: I don't see how you can say that, because the Plant itself does use a lot of electricity. Now it depends on where you buy that electricity, and where they generate it. We don't know where they are going to generate it - as you will remember, we entered into a long term contract with Nevada Power Company to sell the effluent, which was AWT treated - it had to be AWT treated effluent, incidentally, and it sold at a very favorable price - and it's about half of it to Nevada Power Company for the building of an Allen Power Project, which is outside of this Valley, and would not contribute to the Air Quality in this Valley.

Mayor Daines: Commissioner Stout.-

Mr. Broadbent: I think that one of the things that has just been brought up is the comment about the Standards at North Shore Road, and I would hope that you would ask Mr. Gregory about that, because we've tried to explain to Mr. Horowitz, and you, the problem that he says with the Standards - and that he goes along with the Standards - we disagree with Mr. Horowitz - our Staff and our Technical people disagree. We would hope you might ask Mr. Gregory about the North Shore Standards and the comments of Mr. Horowitz.

Mayor Daines: We have a couple of other who would like to ask questions -

Commissioner Stout: I would hope that we don't forget to do that very

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(cont'd)

thing, because I'm still, you know, confused at it - but I have some questions of Mr. Broadbent. First of all, you make reference to the fact that you haven't been privy to some of the information that we've had today -

Commissioner Broadbent: Only one - Dr. Deacon's, and as I understand it, it was new today - I talked to him early this morning and he told me it was brand new today.

Commissioner Stout: Well - a couple of weeks ago, it was the understanding that some of the information that I received that there was a question whether the removal of phosphorus from the Bay was going to get rid of some of the algae blooms. I'm sure you are aware of that - and this, to me, was some of the significant things that were told today.

Commissioner Broadbent: Well . . .

Commissioner Stout: And also, weren't you told by Dr. Goldman two years ago that in the AWT Plant there may be some serious question as to its effectiveness on Water Quality Standards?

Commissioner Broadbent: Just the water . . .

Commissioner Stout: I am only trying to point out that this is not something new. I think, really, it's new to this Commission - I mean this Board that is assembled today - that we are getting to it, but these are the things that I think that EPA has constantly not taken into consideration, or at least that I am aware of.

Commissioner Broadbent: I agree with you. On November 16, 1976, Dr. Sawyer and Dr. Goldman presented their Reports. They were considered by SWAC on November 19, 1976. On November 22nd, there was a meeting with EPA and the Clark County Sanitation District regarding the Sawyer/Goldman Report. On November 29th, EPA sent a telegram response to the Sawyer/Goldman Reports, finding no adequate basis to support Water Quality Standard changes, and it was on that basis we were forced to award.

Commissioner Stout: I appreciate that - I think that's what we're up here on now - the last part from De Falco - whoever he might be - this Federal person we are dealing with - who is going to close our town down. I'm concerned, as is Commissioner Davis - if someone as nebulous as that can just come in and make these statements and he finds himself with nothing . . . while we have Scientific facts - that it may or may not work in this case - so I would just speak up from my position as a Councilman in Henderson, that if this is what we have to do, we're not going to have to knuckle under to it.

Commissioner Broadbent: Well, we were in much the same position two years ago on the award of the AWT Plant - and we were of much the same opinion that we weren't going to knuckle under to it. And then they went to the extent that they contacted the United States Attorney's Office to prepare the necessary documents to put a moratorium on sewer hook-ups, and it was at that point - quite honestly - the County Commission, with the letters of support from the Labor Organizations; from all the business entities, or major business entities in the community, and from many of the other Public Officials, awarded the AWT contract. I think that's sort of the position we're in today -

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(cont'd)

- and I don't mean to use smear tactics and I don't mean to knuckle under to anybody, but I think you've got to realize that Paul De Falco is the Administrator of Region IX - that he is there to enforce Federal Law. The Federal Law has passed, by Congress, Federal Law that gives the Regional Administrator the power to do these things. We may disagree with it - we may not like it - but if you want to take the chance of closing down this community, then I think that's really the choice we have.

Councilman Stout: And we want to take that chance, Mr. Broadbent - and I will say this - there are probably thirty-five communities in the State that have gotten moratoriums from the Federal Government and many of them, including Washington, D. C., has been on the moratorium for sewers for thirty years and have doubled, and almost tripled, in size. So when these moratoriums are put out, you know, I wonder saying - are they saying . . .

Mayor Daines: The information is not supposed to come from here - it's supposed to be received here so, Mr. Stout, I'm going to call you out of line and go on to the next one -

Commissioner Broadbent: I could respond to it -

Mayor Daines: Well, I've called him out of line -

Commissioner Broadbent: I will - privately -

Mayor Daines: Mrs. Baumann.

Councilman Baumann: Mr. Commissioner, does Public Law 92-500 allow for County Government, without the consent of the cities, to be the "208" Planning Agency? Paragraph 2 of Section 208 says - elected officials from local governments.

Commissioner Broadbent: We've discussed that same thing many times - in fact, you've been at one or two of the meetings where we discussed that same thing. It is the opinion of our Attorneys, and our Staff, that the "208" Management Agency, as provided, is legal both at a Federal and local level. That's the best I can answer that -

Mayor Daines: Commissioner Christensen.

Commissioner Christensen: Commissioner Broadbent, I . . . Cynthia (Baumann) covered part of which I was going to mention - but I'll go over it one little bit more. You mentioned that we have to abide by the Federal Law, and I agree that we probably do have to abide by the Federal Law, but I wonder if we can really . . . do you feel that we can really pick and choose on that Federal Law, and that when the Federal Law says that we must build an AWT Plant, we obey it - but when the Federal Law says that the governing body must be made up of representatives from the entities, including the cities, that you don't have to obey that portion of the Federal Law?

Commissioner Broadbent: Well, it's like I told Mrs. Baumann - our Attorneys and our people tell us that we are in compliance. I would suggest to you people that that should be the major - if that's your main concern - that that should be the thing that you take to the State hearing and the Federal hearing.

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(cont'd)

Commissioner Broadbent: If our "208" Plan isn't in compliance with Federal Law; they are going to turn it down.

Commissioner Christensen: And I hope they do. I have a couple of other questions that go right along that line: I find the letter that you had from - don't you find the letter that you have from Mr. De Falco's man, whoever he was, a little contradictory where I believe - and I don't remember the exact terminology - but it says something to the effect that the parameters were narrow - that you had to assume AWT in your "208" Plan and yet, later on in the letter, it says that you must accept the Water Quality Standards, the AWT Plant, and yet all options for treatment of wastewater must remain open? Don't you find that a little contradictory to say that we have to close some options and then we have to keep these options open later on in the letter?

Commissioner Broadbent: Well, my only response to that is that I didn't write the letter -

Mayor Daines: OK, I think we're going to call a halt on this - we can drag this on forever. I think the question has been answered as well as Commissioner Broadbent can - if you are too much on the spot, your Attorney is right behind you - call him up there.

(Too much cross-talk at this point to be audible)

Mayor Daines: City Manager, Russell Dorn.

Russell W. Dorn, City Manager, City of Las Vegas: Commissioner Broadbent, in today's discussion it's been mentioned - it's been mentioned in the Press - that the other cities over the past three years - how come they haven't been involved? I can't answer that - I just came, but I can assure you I have a memo right here in front of me and, if I may, I would just like to summarize that - about how the cities were involved. And that it - it reads on the top of the memo - Clark County Sewage Wastewater Committee, advisory to the Board of County Commissioners. It is dated November 23, 1976. I would like to put that on the record. And it says - it is entitled Wastewater Treatment Plant in the Las Vegas Valley - "as per your request the Sewage and Wastewater Advisory Committee has reviewed, in detail, the Report submitted by Dr. Sawyer and Dr. Goldman. Subsequent to the formal presentation of the Reports at their meeting on November 16, 1976, we, as a Committee, met that afternoon to go over the detailed information presented. We also met on November 19th to formulate the recommended course of action that we feel is the most feasible solution to the pollution problem, considering all factors."

As a matter of record, they voted on this, and I'll say the gentlemen's names: Jim Parrott for the Sanitation Dept., Clark County - "no"; Eric Loveless, "no"; Jim Gans, Clark County, "no"; The City of Las Vegas: Larry Hampton, "yes"; Bill Purvis, "yes"; Lou Anton, "yes"; Tom Rice from the Water District, "yes"; Duane Sudweeks, City of North Las Vegas, "yes"; Larry McCutchen, City of North Las Vegas, "yes"; Geoffrey Billingsly, City of Henderson, "yes".

Before listing our recommendation we feel that the following points made by the experts should be noted. Both experts concluded that the

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AWT Plant should not be built. The AWT Plant, as proposed, will not solve the algal problem in the Las Vegas Bay." It goes on to say that more information should be obtained that would more clearly identify the problem and that considerable savings could be derived by utilizing the natural Marsh for nutrient stripping.

This saving would be in capital as well as operation and maintenance. It goes on to recommend that action to the County Commissioners - that EPA and the Nevada Environmental Commission should be notified of the Experts' conclusion. Dr. Goldman was to meet with Mr. De Falco, which he did, and presented his remarks and his Report A Hearing before the Nevada Environmental Commission to change the compliance schedule regarding the abatement of pollution in the Las Vegas Wash - the justification for changing the compliance schedules to allow time for Clark County to conduct additional investigations of the Las Vegas Wash . . . the result of this investigation would be of great use to the Nevada Environmental Commission in conducting its required re-assessment of the Pollution Standards under Public Law. If successful at the State level, would request EPA to concur in State action.

Again, it goes on . . . if successful at the Federal level, the following action should be considered: The Board of County Commissioners should negotiate with an expanded scope of work for our Consultants - where needed - to investigate immediate upgrade of existing Secondary Treatment Facilities to provide phosphorus removal, incorporating the phosphorus reduction process in the proposed Las Vegas Valley regional Secondary Treatment Facility. The Board of County Commissioners may retain a Consultant to investigate nutrient-stripping; capabilities of the Las Vegas Wash and the effect of a diffusion pipeline at Boulder Basin.

The Board of County Commissioners, if I may - just one moment - the Board of County Commissioners to act upon the recommendations contained in Dr. Charles Goldman's Report dated October 28, 1976, as it relates to the required additional data. It is recommended that a representative group of Public Officials visit the Treatment Plants to study Secondary Treatment.

My question is this: In 1976, on November 23rd, why didn't the County Commissioners take the advice of paid Experts, that were paid by the County, to not go to an AWT . . . to change the Water Quality Standards; to look at the Secondary Treatment Facilities that are a cheaper cost to the taxpayers, both for construction and operations costs, and concluding that this is an Advisory Board to the County Commissioners. What scares me, in the final draft of the "208" Plan is that the cities are also considered advisory boards to the County Commissioners. Would this be the same action that the City would advise the County Commissioners to prevail?

Mayor Daines: Mr. Broadbent.

Commissioner Broadbent: Well, it's a long question - if I miss it, get me back to it and let me get at it, because I hope I can remember all of it.

I remember that SWAC meeting, and I remember all of it, and it's a shame probably that you weren't there, because there were a lot more

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(cont'd)

meetings besides this SWAC meeting, and there were a lot of them where we discussed some of the same things afterwards.

Like I said - it was not an easy decision and, as I remember, we empowered the Board of County Commissioners - empowered SWAC, because there was a feeling at that time that we were on . . . that the County Commission itself was prejudiced towards AWT. So, as I remember, we empowered SWAC, and gave them authority and agreed to pay some of their costs and go to the Environmental Commission . . . Mr. Gregory is here to speak about that . . . I could speak about it, I think - and to attempt to change those Standards. And, at the same time, we concluded that we would try to do some of the other things that were mentioned in that Report.

After that meeting - after that meeting was when we got the telegram and the response from EPA and which said, in essence, that they found no adequate basis to support a Water Quality Standards change. Now, we went through the process of going to the Environmental Commission and asked them to have the Water Quality Standards changed. I remember at that time, I think that Larry Hampton was Chairman of SWAC, if I remember correctly - and at the December meeting, and at some subsequent meetings that we had, Mr. Hampton made the statement - and I'm sure it's on the record at one of our County Commission meetings when we were talking about the award, and we postponed - we awarded the contract, conditionally, in December on a long term basis, subject to being able to get the Law changed to get the additional money, because we had to go back to the Legislature and get money.

Then, when we did that, it was with - and I'm sure he said that - he was the Engineer for the City and supposedly the spokesman - that at that time he felt that the County had no other choice but to go ahead and do what we did. And so, hopefully, we did try to respond to all of those things that went on. As a result of that, and as a result of the fact that we awarded the contract conditioned on getting the money - and it was conditioned on being able to get money - we went up to the Legislature and there were long Hearings held before several Legislative Committees and they, themselves, got into the act. They said: Why are you awarding that AWT contract? And they brought people in from EPA and people from Mr. Gregory's office to answer that question, as well as our own people. And it was their influence that we ended up with having no other choice, and they amended the Laws so we could get the additional money so that we would have the availability to award the contract.

And, so, through the whole process, I would hope that we did respond to most of those requests, and did try to react to most of them. But it was a practical, tough decision to be made, and maybe we were wrong. I don't know. We made the decision and we were going to award the AWT rather than go to Court and get an injunction, or try to get an injunction - and if we had, we had a Thirty-five Million Dollar Grant that we stood to lose and we may have been forced to build an AWT without that Federal money - and we stood, then, to have a moratorium issued on all new permits for sewage to hook up to the sewer system. And we were afraid to take that chance.

Russell W. Dorn: Commissioner, do you feel in your opinion - in the history of "208" and AWT - and I would like to extend it to Air Quality Maintenance Plan - do you think that EPA is using Clark County as an example? Is that part of your . . .

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(cont'd)

Commissioner Broadbent: We made that statement . . .

Mr. Dorn: To the effect - saying to the EPA - we have Thirty-four Million Dollars committed, but this Program is going to cost Two Hundred Million, and our taxpayers are poor . . . using Clark County as an example to test AWT . . .

Mr. Broadbent: Yes, I think so. I think so. I think they did and, in fact, I can remember the conversation we had with the State, and as I remember, we had Eight or Nine Million Dollars that had to be obligated before the 1st of July. And then the other Thirty-four Million came - parts of the Thirtyfour Million - came after that.

And as I remember our discussion at the time, we were in essence told . . . Mr. Gregory is here and he may correct me, but we were told, in essence, that we would probably lose that Nine Million if we didn't get it going because the State had no other place to use it - that it would probably revert back to somebody else because it was so late in the game. We were just afraid to lose the Federal money - to take the chance and to . . . you know, we really went into this very reluctantly. I think we have fought EPA and the State Environmental Commission has hard as anybody. When you walk into Region IX Headquarters in San Francisco - and they would say to Clark County - What are you guys trying to hold up now - we knew we were in trouble with them. We knew it!

Mr. Dorn: Do you think if the cities and the County got together now in fighting EPA, and with the Expert testimony that we heard today that there is no need for the AWT - they should change their Air Quality Standards - that there would be some Ten Million Dollars that we have in the ground already for the foundation - that we could bring in Scientific Engineering Designs to justify two EPA Secondary Treatment Plants, will solve our Air Quality Problems and that it will be cheaper for us - the taxpayers?

Commissioner Broadbent: Well, I would agree to one thing - if you do build an AWT, it will be cheaper to the taxpayer. I think our cost estimates are that by 1985 that we would put somewhere between Eighteen and Twenty-four Dollars just for O&M costs of AWT - for a single family home.

Mayor Daines: Would you explain O&M?

Commissioner Broadbent: Operation and Maintenance costs - which are the high power costs that were mentioned . . . but if you're asking me if I think the County would join with the cities in stopping AWT, and in stopping "208", I would have to answer that under the Federal Law that is there, I don't think that I would be willing, as a member of the County Commission, to vote to stop AWT or to stop the "208" Planning with the telegram we have and with the sanctions that could be put on us. I think we're in the same position now that we were in two years ago - and we did face it two years ago and take that chance, and I don't think we should face it now. I think it could very well close down this town.

Mr. Dorn: Do you feel - like in the Federal Law it says that we should have the "208" Plan first and then find out what we should do with the

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(cont'd)

AWT and Secondary. In this case we started construction of AWT, forced by EPA, and now we're doing the "208" Planning. It's like the horse coming after the cart.

Commissioner Broadbent: It might be, but I think you have to go back to the same letter we got from the Federal Government - and that was that the parameters for the award of the "208" Grant were such that they precluded us from looking at AWT.

Mr. Dorn: I would like to thank you for answering those questions, Sir.

Mayor Daines: Mr. Davis:

Councilman Davis: Whenever any Federal regulatory Agency engages in arbitrary or capricious actions, the remedy is not in some future election, but in immediate Court action. The EPA is not above the Courts and its record in Court is not that good.

Commissioner Broadbent: Is that a statement, or would you like me to respond?

Mayor Daines: I think we'll call that a statement. Mr. Stout.

Councilman Stout (Henderson) Commissioner Broadbent, we've heard an awful lot of testimony here today - some of it is fairly technical to some of us - you talk about milligrams, you know, per liter, and this really doesn't mean too much to a great many of us - now we're talking Dollars and Cents - you've even mentioned this \$24.00, on in. This is something I've been sitting here wondering about. You say that the EPA says it would shut down las Vegas - in a sense would shut down the Valley and the County, if we don't go along with this. I'm wondering if they aren't just as effectively shutting it down if they price us out of . . . beyond the reach of anyone. I really see this coming - we already know what's happening in the Power field - we know that the Clean Air Act is going to be a costly thing - we know that the second phase of the Southern Nevada Water Project is - now we've got this - and I really wonder who the heck is going to be here to enjoy it in the Valley if it continues.

Commissioner Broadbent: I think . . .

Mayor Daines: I'm sorry, Mr. Broadbent - I called you Mayor - I promoted you . . . I'm sorry, I thought you had answered that . . .

Commissioner Broadbent: I would say this - that we're in tough shape in many areas. The Air Quality Act is going to be much tougher and put much more restraints and probably be more costly to the community, than the Water Quality. If we're looking at "208", you have to assume that we're already locked in to AWT, unless it is stopped, or something like that, and that's a big part of that cost - that One Hundred Eighty, or Two Hundred Million Dollars - there was Sixty, some, for AWT - it's Forty, some odd, Million for the new Primary/Secondary and then it's Fifteen or Twenty Million throughout the Valley for other "201" Grant money - of which a considerable amount is in your community. And so, what it really boils down to our "208" Plan,

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(cont'd)

and as I looked at it, outside of AWT and "201" Grant monies - which are facility monies - I think we've locked ourselves in to solving the salinity problem on the Wash; we've locked ourselves into a Flood Control Study that is probably going to cost us Two Hundred Fifty Thousand Dollars, and may lead to some additional expenses . . . hopefully, by doing our own Studies they will be able to determine how much it is going to cost us - and maybe another Fifty or a Hundred Thousand Dollars in other Studies. Now, that's what we've locked ourselves into in "208. We have tried to leave it as open as we could.

NOTE: Due to the fact that the following pages of these Minutes were transcribed first because of a request that certain portions be made available prior to the final draft, - proceed to Page 54 -

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Mayor Daines: I have a matter for clarification and we have a couple of others who want to speak. Are you representing and speaking for the entire County Commission, or are you here as Robert Broadbent, and are these your views, or are they the entire Commission's views?

Commissioner Broadbent: These are my views. We didn't authorize anybody. We weren't invited to the meeting and these are my views.

Mayor Daines: As Chairperson, you are saying "we" - "we" - "we" - when you say "we" I assumed that . . .

Commissioner Broadbent: Most of the things where I've said "we", are actions that have been taken by the Commission, and when actions have been taken by it, I would assume it's "we".

Mayor Daines: The word "assume" is dangerous. As far as I'm concerned, I cringe when I hear it - I split it three ways - it hits too many situations, but I did want to make it clear that these statements are Robert Broadbent's as Commissioner for Clark County, rather than the Commission itself.

Commissioner Broadbent: We would like to give those to you for the record.

Mayor Daines: Thank you very much.

Mayor Briare: Thank you, Your Honor. I have a great deal of respect for Bob Broadbent and I would venture to say that if Bob says "we" in terms of discussing "208" he means the County Commission. Bob, you've had good candor when you speak here and you indicated to the City Manager of the City of Las Vegas, in response to a question - would you, personally, want to join in an injunction to stop the "208" Program, or to hold the deadline in abeyance and so on and so forth? Mayor Daines, in a few moments, is going to bring up before this group of people from local cities the consideration of a possible Interlocal Agreement to consider a Planning Agency and an Implementing Agency for "208" which would consist of all the political entities. One of the proposed signators to that is the County Commissioners - to be a part of that.

Since you wouldn't join, perhaps, in a law suit, would you perhaps have the inclination to join into an Interlocal Cooperative Agreement?

Commissioner Broadbent: I would have to read it.

Mayor Briare: So the door is open?

Commissioner Broadbent: Sure - I think the door is open. Listen - if we don't go along - one of the things about air quality and I think Mr. Gregory will probably talk on this - that in the Air Quality Implementation Plan it is necessary for all the entities to agree, and if all the entities do not agree on the presentation of that Plan by next December, any one entity is probably going to be able to stop that Plan from being adopted - because we've all got to agree - and if we don't agree and with the premises put in here by Paul DeFalco's letter - that it is an automatic - these things we're talking about in Air Quality are automatic and mandatory - that's the stopping of all transportation money . . .

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(cont'd)

Mayor Daines: Commissioner Lurie -

Commissioner Lurie (Las Vegas): I had another question that is down those same lines - about taking all this information that we have, if there's conflicting statements and comments to the Federal Judge - get an injunction against EPA until such time as we can sit down with both sides and try to get it one way or the other on who's right. We do have a lot of conclusions here that don't mean too much to me because they are conflicting.

Commissioner Broadbent: The problem with an injunction, as I see it, is that once you got that injunction, you would be in violation of the air - of the water quality - in violation of the compliance schedules . . .

Commissioner Lurie: I have one other question. We have been instructed by the County to bill our residents \$5.00 per house to pay the indebtedness on the First Phase of the AWT. Now, what does the County have planned if the City doesn't pass this ordinance to pay this money? What type of procedure are you going to follow then - if we don't approve the Ordinance?

- Mr. Broadbent: Well, we aren't going to force it on you. Let me tell you - as long as you're talking about that \$5.00, let's talk about it. Let's get it out in the open. The City of Las Vegas has not paid their first payment on the Advanced Wastewater Treatment Plant construction - \$100,000.00 plus. I think the ramifications of that - you ought to check out with your Bond Counsel and with your Financial Consultants - because, the way I look at it, those are State-supported bonds . . .

Mayor Daines: Excuse me - I'm going to call a halt right now. I don't think a Commissioner from the County has the right to give the City all this advice on my time -

Commissioner Broadbent: He asked a question -

Mayor Daines: Right, but . . . are there any other questions of Mr. Broadbent?

Commissioner Stout (City of Henderson): Yes, I have. I have some questions.

Mayor Daines: Commissioner Stout.

Commissioner Stout: One of the arguments that is advanced by EPA is the fact that evidence has arisen in the last two years does not change their mind as to the Water Quality Standards. Well, today we have heard some very strong evidence that would change all of that, and by some very well known Scientists. Are you aware of evidence to the opposite that the Courts - that the premise we've been trying to circumvent today?

Mr. Broadbent: Phil (Stout), I think what you ought to do is ask Mr. Gregory if he feels there is any evidence that's been given today that would amend the Water Quality Standards.

Commissioner Stout: I would like to have also . . . but I wonder if there's some evidence to support the ones that are existing now.

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(cont'd)

Commissioner Broadbent: That's what I'm talking about. The ones that are existing now . . . in my mind, I think there is probably some evidence that would indicate we ought to review the Water Quality Standards.

Commissioner Stout: OK, I'm glad you agree - Mr. Chairman -

Mayor Daines: Yes -

Commissioner Stout: I would like to have that answered again so that I understand it. He said he thinks we should review the Water Quality Standards and he believes that there is evidence to back that up. Is that correct?

Commissioner Broadbent: No, I didn't say there was evidence . . .

Commissioner Stout: I believe I was addressing the Chair -

Mayor Daines: Mr. Stout, I think the Commissioner advised you that you should get this information from Mr. Gregory. Is Mr. Gregory here?

Response: Yes.

Mayor Daines: Would you be willing to come to the podium and answer those questions?

Mayor Daines: I think you are correct, Mr. Broadbent - I think you need to pass-the-buck now -

Response: My name is Ernie Gregory. I am the Administrator of the State Environmental Protection Division, and as to the matter of changing the Standards at this particular point in time, we have not received any information that would refute the earlier studies. I haven't talked to Dr. Deacon - he has indicated he has some new information - he is vague as to what point in time he will have his conclusion solidified, saying a review of the Standards would be justified. Now, it's more or less guess work.

Councilman Stout: Mr. Chairman, may I ask him a question then?

Mayor Daines: Yes.

Mayor Daines: Alright . . . we have had some inquiry - and if Mr. Stout will bear with us for a moment - some people would like to go to lunch - some wouldn't - some want a break. I might ask, Mr. Bunker, do you have any idea how much, in minutes, that the County would like to have for input on "208" . . . how many people are expecting to speak yet - because we're certainly not going to restrict it. I think we'll poll and we'll see. We'll start right down there on the end. Do you want to break for lunch and come back in an hour. We will start right now and say "yes" or "no", please.

(Majority elected to continue the meeting)

Mayor Daines: Go ahead.

Commissioner Christensen (Las Vegas): Mr. Chairman, could I speak for

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(cont'd)

just a second? I notice that everybody else that has come to the podium to speak, has given us a little background, and I'd like to hear Mr. Gregory's background in Water Mangement, and so forth. I know he's the Administrator, but that's all I know.

Mr. Gregory: Alright - believe it or not, I'm a native Nevadan too. I'm a Graduate Civil Engineer. Most of my work in the water pollution field is with the State of Nevada. I joined the State Health Department in 1955, I believe it was, as the Administrator for the then budding Water Pollution Control Program and I have been in that Program ever since. It's a pretty limited background, but that's it.

Mayor Daines: Alright, Mr. Stout.

Commissioner Stout: Mr. Gregory, the reason I'm trying to find out is that the EPA has made the statement that there has been nothing to change their mind as to the Standards that were set and the ones that established the AWT. Today, we've made an attempt to prove to the public that removal phosphorus from the Bay is not as important as it was when the AWT Plant came on line.

Now, I want to ask two questions: First of all, is the removal of phosphorus the reason that we're building the AWT Plant?

Mr. Gregory: Yes, that's the reason.

Commissioner Stout: And what evidence is absent in this conversation today and the conversation conducted over two years ago that makes the State EPA and the National EPA continue to want to have the phosphorus removal and the AWT Plant continued?

Mr. Gregory: I think Dr Deacon touched on it - partly - in his discussion. We received several complaints, as you well know, in the middle of the 60's, and continuing, about the algae blooms in the Las Vegas Bay. As the result of that, we requested the EPA - it used to be the U. S. Public Health Service - to provide technical assistance in trying to determine what the problem was. Dr. Deacon did mention the studies that were done by the U.S. Public Health Service, FWPCA and whoever they were before they were EPA. They did a fairly detailed Study in 1971 and they drew the conclusion that phosphorus was the nutrient that contributed to the algae blooms in the Bay - then these Standards were established on that Study. So, what we need now - you know - Dr. Deacon, incidentally, agreed with that conclusion at that time. OK - now he says the game has changed - there are other things that have happened, and they may have it, but we do not have that information at hand nor a conclusion so that we can submit this to other Biologists who may, or may not, agree with Dr. Deacon's conclusion.

Commissioner Stout: Thank you.

Mayor Daines: Commissioner Lurie.

Commissioner Lurie (Las Vegas): Why didn't you recommend to the County, like EPA has to other cities, about banning phosphorus-base detergents and try some alternatives before making us get into this expensive way to treat this water?

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(cont'd)

Mr. Gregory: You people spent Three Million Dollars to determine which way you wanted to go - that was not our decision as to what you should look at.

Commissioner Lurie: Who spent Three Million Dollars?

Mr. Gregory: I believe the County did in Studies on determining what they wanted to do to control the phosphorus -

Commissioner Lurie: But you didn't recommend any alternatives that . . . because EPA has - in the past, to other cities, has recommended alternatives before getting into high expense for that type of . . .

Mayor Daines: Let me interrupt for a minute - we would ask Mr. Horowitz - would you come up to the podium? I think I've got you here right in the middle of this so I think you should be here to answer some of these questions.

Jerome Horowitz: (Mr. Horowitz stepped to the other of the two microphones at the podium, which did not seem to be functioning properly) I would just as soon not use it - can you hear me without it?

Mayor Daines: No, we can't hear you without it. Kick it on - I don't think it's on.

Mr. Horowitz: Is it on . . . off?

Mr. Gregory: You have to speak into it.

Mayor Daines: Tap it and see if it's on. No, it isn't . . . alright . . . now it's on.

Mr. Horowitz: Sure - there are several questions - I don't believe that it's fair to say that Dr. Deacon hasn't let you know about the research. When anybody researches Lake Mead everybody knows about it - it's been passed out widely. I knew about it before I even got here.

The second question relative to Water Quality Standards that the phosphorus standard - here is, for example, the Standard that says the water in Las Vegas Wash shall have no taste. Well, we all know it's salty. Surely that is an obvious example, I would think, of the kind of standard that should be changed. What do you say about it?

Mr. Gregory: Well, I agree. In view of our discussions, at great length, last week, there are weaknesses in the Standards - some of them, and certainly maybe we should come upstream - the problem is you go through a swamp and into a clear area within a little bit. We tried to get the Standards to be compatible right at the head-end of the Las Vegas Bay - now, if you want Standards all the way back up stream for the various conditions, we can do that too.

Mr. Horowitz: But isn't that the whole idea of Federal Law - to protect the water for beneficial use anywhere. Not just some waters at one point but all waters everywhere -

Mr. Gregory: That's the intent of the Law, but we were trying to protect

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(cont'd)

the Las Vegas Bay - hence, Lake Mead, which is the water supply for Las Vegas.

Mr. Horowitz: Then how come they have no specific Standards for Las Vegas Bay but you have specific Standards for Las Vegas Wash at North Shore Road?

Mr. Gregory: We do have the Standards for Las Vegas Bay - the whole Lake area - the one Table says that the Standards that apply below Hoover Dam apply to any point in Lake Mead.

Mr. Horowitz: Sure - and that means that the Standards will apply to Lake Mojave below whatever is set and to various points unspecified in Lake Mead, so the standards apply to both Lake Mojave and Lake Mead but no special mention of Las Vegas Bay and the special problems there.

Mr. Gregory: We tried to take care of the problems in Las Vegas Bay - hence Lake Mead - by establishing Standards right at North Shore Road.

Mayor Daines: I really believe - I could sit and listen to this for hours - but I don't believe . . . the intent here is to get the input - I think what you are saying - the others say - are informational but it has become debateable - right?

Mr. Horowitz: Commissioner Broadbent has said that the Law is the Law and until it's changed we have to obey it. I entirely agree, but the Law we're looking at is the Clean Water Act, and it's true that it contains provisions that the effluent from Wastewater Treatment Plants have to comply . . . I don't argue with that. It also says that the water must comply with Water Quality Standards - in the same Law - and this AWT Plant does not assure that - and the "208" Plan does not assure that, and that's the reason I'm before you today. It does require revision of Water Quality Standards after one taste of Las Vegas Wash.

Mayor Daines: Thank you, Mr. Horowitz. Are there any other questions of Mr. Gregory? Mr. Kenney.

Response: I am Jack Kenney, 2330 Arbath Street, Las Vegas, Nevada. My business is a Home Builder, but I'm speaking as an individual and I would like to throw out for your consideration, a solution to our present dilemma. And the scenario would go something like this: We, certainly - as a Home Builder, I'm worried about a moratorium - but I am also very concerned that two wrongs never made a right.

I'd like to suggest this: That we don't want a moratorium so we continue to build the AWT Plant. It takes a couple of years to complete the Plan, but the bottom line is going to be - we may never run the Plant and, in the meantime, if we seek redress in Court, based on the discussions we've just had - then we go to State Court and we sue one of the State Agencies - the State Environmental Commission - the people that set these Standards. And, if you follow this scenario, by suing in the State Court there is no moratorium that comes down the line. I'm sure the attorneys later on (I'm not an attorney) but they can say if there is any merit to this line of thinking, or a change to this, and by the process of going through the State Court - what happens? We built the AWT Plant - we don't have a moratorium come down and then we continue to refine the "208" Plan, because the "208" Plan could be rejected by EPA after it leaves the State, and we

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(cont'd)

don't know where we stand on that part. And then what happens - assuming we win in State Court because of certain discussions about the Standards - I think certainly we could look at the case and claim that the state of our Commission in 1972 when they adopted the Standards really didn't have the empirical data - the background and expertise by the people that put the Standards forward. Therefore, two years down the road, then you take on the EPA in Federal Court . . . and you don't have as much chance, in my opinion and background, in Federal Court, and then we're stuck with a Sixty Million Dollar Plant. What do we do? Based upon the facts that have been presented, two years from now under the State Legislature - we say - look, we want to keep the credit of the State good - can we buy out of the Program for Fifteen Million Dollars - the 25% the State's got up - we pay off those bond-holders, and then we turn around and leave the Feds holding the 75% or the Forty-five Million Dollars and let them figure out what to do with the Plant. Thank you. It's just as simple as that, Mayor.

Mayor Daines: Here we've been sitting here for hours and the man has been sitting back there with the answer and wouldn't give it to us.

At this point we will go to Jan Stewart (Chief Deputy City Attorney for the City of Las Vegas) in consideration of the Interlocal Agreement.

See Pages 63 thru 74 of these Minutes (Interlocal Agreements)

Mayor Daines: I'm sorry - Jan, excuse me just a minute - did Dr. Deacon want to say something - I'm sorry to hold you up a little, Jan -

Response: I'm Jim Deacon, University of Nevada, Las Vegas. Yes, I just wanted to make a very brief statement, and this is with respect to Commissioner Broadbent's comment that I dropped on them for the first time this morning, some new information. As a matter of fact, the apology that I presented to Commissioner Broadbent was that I had just had my statement typed - I had been out of town for the last two days - and I was sorry I had been unable to get my formal statement to him sooner. In fact, I have made a very concerted effort to keep the County informed of the information that has been developed, both as a result of their support, and as the result of other support that we have received for development of information on Lake Mead. The information transmitted to him has been in the form of formal Reports - it's also been in the form of oral Reports before SWAC - it's also been in the form of telephone conversation with him. So, as the information and the ideas have developed in the Program, I really have made an honest effort to attempt to keep them informed of where the information is leading us.

What I am in the position of, of course, of doing is developing information and as it develops it is necessary for me to transmit it. I also want to be very clear about the fact that in my experience with the County Commissioners, and others involved in the Pollution Abatement Projects in various entities since 1972, and the earlier contact I had in a less formal way before that, it has been extremely impressive that everyone involved in the problem has sincerely and honestly attempted to solve the problem or to approach the situation with as much objectivity and as sincerely as possible.

I think Commissioner Broadbent's comments about the honest resistance that the Commission had in getting itself forced into the situation that we are in, are extremely accurate. They apply not only to the Commissioners, but

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(cont'd)

to others involved in the enforcement action and, in fact, to - in effect - necessity to come up with some recommendation on my part at the end of the first year of work.

So, what I really think we have here is an honest effort on everyone's part to attempt to do the best job possible and to keep everyone informed as much as possible. Thank you.

Mayor Daines: Jan (Stewart), if you are ready, I believe we'll go back to you.

Response (from audience): There is one more question -

Mayor Daines: Yes - Dr. Goldman.

Dr. Goldman: Just a very brief statement. We took a very careful look at the work that Dr. Deacon did during the early stages of the Lake Mead investigations and had very free access to all existing data and, frankly, when this Study began, all of the information wasn't in, and I don't think it's at all surprising that opinions change when more information has become available. And, in this sense, I'd like to particularly applaud Dr. Deacon's very straightforward presentation of the facts as he sees them, and I would like to personally thank him for this appearance and, further, I'd like to comment on the fact that Clark County has, in fact, been forced into a most difficult position, which I can particularly appreciate, and they really felt there were no alternatives to the action that they took. And, in this sense, I hope that we're all getting a lot closer together in coming up with a positive and effective solution. Thank you.

Mayor Daines: Thank you very much. Is there anyone else who wants to come up and speak from the audience?

(No response)

Mr. Stewart: Now?

Mayor Daines: Yes.

Mr. Stewart: We've heard a lot of talk about cooperation . . . there are two proposed Interlocal Cooperative Agreements for your consideration. I would like to point out that we are not asking for action today. In fact, I would warn you that it probably would not be appropriate - at least for the other cities who are visiting Las Vegas to take any action because of meeting outside their jurisdictions.

The first one creates a Regional Planning Agency to continue the "208" planning process. The second one creates a Regional Environmental Board to implement the "208" Plan.

I would like to point out that even though these Agreements are entered into and approved by the local entities involved, the Agencies still have to be appointed by the Governor and have to be approved by EPA.

The first Agreement deals with the Planning Agency and you will notice that the nature of the Bill is that there be representatives from each of the cities and Clark County. Las Vegas and Clark County representing the

INTERLOCAL COOPERATIVE AGREEMENT
FOR THE FORMATION OF A REGIONAL
ENVIRONMENTAL BOARD AND ALLIED
AGENCIES FOR WASTE WATER MANAGE-
MENT IMPLEMENTATION

THIS COOPERATIVE AGREEMENT, made and entered into this _____ day of _____, 1978, by and between the County of Clark, the City of Las Vegas, the City of North Las Vegas, the City of Boulder City, and the City of Henderson, each of which is a political sub-division of the State of Nevada:

W I T N E S S E T H

WHEREAS, Section 208 (c) (1) of Public Law 92-500, the Water Pollution Control Act Amendments of 1972, provides that the Governor of each state, in consultation with the planning agency designated under Section 208 (a) of such public law, shall designate one or more waste treatment management agencies for each planning area designated under Section 208 (a) and submit such designation to the administrator of the Environmental Protection Agency; and

WHEREAS, Section 208(c) (1) of Public Law 92-500 permits the Governor to designate a newly created regional agency to implement the waste treatment management plan; and

WHEREAS, the provisions of N.R.S. 277.110 authorize public agencies, including counties and incorporated cities, to enter into cooperative agreements for the joint exercise of any power, privilege or authority, which any of the participating public agencies could exercise alone; and

WHEREAS, the provisions of N.R.S. 244.9246 would permit the County of Clark and other public bodies in the County of Clark area, to enter into an agreement, respecting actions and proceedings pertaining to any power granted under N.R.S. 244.922 through 244.9263, the County Sewage Waste Water Law;

NOW, THEREFORE, pursuant to the provisions of N.R.S. 277.080 through 277.180 and N.R.S. 244.9246, the aforementioned five (5) legal entities of Clark County enter into an Agreement for the establishment of an administrative framework to carry out and implement appropriate portions of the area-wide waste treatment management plan in the Clark County area, developed under Section 208(b) of Public Law 92-500, according to the following terms:

A. REGIONAL ENVIRONMENTAL BOARD

1. The Regional Environmental Board is hereby created and established with such powers, duties, functions and responsibilities as set forth herein.

2. The voting members of the Board, who shall serve without compensation, shall consist of at least one (1) representative from each of the five participating political entities. Each political entity having a population of 150,000 shall be entitled to two (2) voting members and an additional representative for each 75,000 increase in population over 150,000. Population estimates shall be based on the most current figures available from the Clark County Regional Planning Council. The population of Clark County shall be determined from only the unincorporated areas of Clark County. The governing body of each political entity shall select its members on the Regional Environmental Board from members of its own body.

3. Each voting representative on the Regional Environmental Board shall serve at the pleasure of the governing body of the political entity which appointed him.

4. The Regional Environmental Board shall meet at least once in every calendar month, at the time and place provided in the Bylaws. Officers of the Regional Environmental Board shall consist of a Chairman and Vice-Chairman, both of whom must be voting members of the Regional Environmental Board and shall be selected by a majority of the vote of the Regional Environmental Board, at its regular meeting held in January of each year. The Chairman and Vice-Chairman shall serve for a term of one year, except that the initial officers shall be elected at the first meeting of the Regional Environmental Board and shall serve until the first January meeting held in 1979.

5. In the event of death, resignation, or removal of a member from the Regional Environmental Board, the governing body which appointed him shall appoint his successor.

6. The Bylaws shall be prepared by the Regional Environmental Board and adopted by a majority of the vote of the Board. The Bylaws may be amended from time to time by majority vote of the Board.

7. The Regional Environmental Board shall employ an executive director who shall be the Board's Chief Administrative Officer. The executive director shall be in charge of appointing staff personnel with the consent of the Regional Environmental Board. As many staff members may

be appointed as budgetary considerations allow and as are necessary to enable the Board to properly carry out its functions.

8. The Regional Environmental Board shall prepare annually a budget for the ensuing fiscal year and shall, prior to March 1st of each year, submit the same for ratification to the governing bodies of each participating political entity. The five (5) political entities shall contribute to the budget in proportion to their respective populations.

9. Whenever the need arises to acquire financing by short-term borrowing or the issuance of bonds, the parties may enter into joint agreements to issue the bonds or borrow the necessary funds for the board; or by majority vote of the board and the agreement of the County, issue the appropriate County securities. The Board shall have the power to pledge revenues to pay or secure the payment of all financial obligations incurred on its behalf.

10. The Regional Environmental Board is empowered to apply for and obtain Federal grants under Public Law 92-500 for the purpose of constructing publically owned waste treatment works and implementing the waste treatment management plan for the Clark County area, and to obtain other grants, gifts, and funding as permitted by Chapters 244 and 277 of Nevada Revised Statutes.

11. The Regional Environmental Board is empowered to provide the necessary political, financial and managerial authority to carry out the area-wide waste treatment management plan for the Clark County area, developed under Section 208(b) of Public Law 92-500; to manage effectively waste treatment works and related facilities serving the Clark County area in conformance with the plan developed under Section 208(b) of Public Law 92-500; to design and construct, directly or by contract, new treatment works, and to operate and maintain new and existing treatment works, as required by the plan for the Clark County area developed pursuant to Section 208(b); and to accept and utilize grants and funds from other sources for implementing the waste treatment plan.

B. REGIONAL ADVISORY BOARDS AND COMMISSIONS

1. A Regional Environmental Advisory Commission (REAC) shall be appointed by the Regional Environmental Board. The purpose of this Commission is to provide representation for those agencies in the Clark County area, whose planning and operation is affected by or concerns water quality control activities, and to allow such agencies to provide technical input to the Regional Environmental Board and its administrative staff. Representation on this Commission may include the following agencies:

- (a) The local and regional planning departments of the five participating political subdivisions;
- (b) The County Health District
- (c) The Flood Control District
- (d) The Parks and Recreation Departments of the five political subdivisions;
- (e) The Water District
- (f) The Conservation District
- (g) The State Division of Environmental Protection
- (h) The State Division of Water Resources
- (i) The Division of Colorado Resources
- (j) The Federal Bureau of Reclamation
- (k) The Environmental Protection Agency

2. The Regional Environmental Board shall also appoint a Sewage Waste Water Advisory Committee (SWAC), which shall consist of a representative from each of the political entities participating on the Board, and a representative from the Clark County Sanitation District. The purpose of the Sewage Waste Water Advisory Committee is to provide technical input to the Regional Environmental Board with respect to waste treatment matters, and to provide technical support services. The specific responsibilities of the Sewage Waste Water Advisory Committee shall be prescribed by the Regional Environmental Board.

3. The Regional Environmental Board shall appoint a Citizens Environmental Advisory Board (CEAB), which is to be comprised of citizens, residing in the Clark County area, who do not hold public office or who are not publically employed. In appointing this Citizens Environmental Advisory Board, the Regional Environmental Board shall consider persons who are members of existing citizens advisory committees and persons who are recommended by such existing committees. The purpose of the

Citizens Environmental Advisory Board shall be to provide citizens' advice and input to the Regional Environmental Board concerning the policy and goals of waste water management planning. The specific responsibilities of the Citizens Environmental Advisory Board shall be prescribed by the Regional Environmental Board.

C. DURATION OF AGREEMENT

The term of this Agreement shall be for a period of twenty (20) years, to begin after its execution by the governing bodies of the participating entities, and its submission to and approval by the Attorney General, pursuant to N.R.S. 277.140.

D. TERMINATION OF AGREEMENT

This Agreement may be terminated and the Regional Environmental Board and its Allied Advisory Committees disbanded prior to the expiration of such twenty (20) year period, by the adoption of a Resolution by the governing bodies of three (3) of the five (5) political entities represented on the Board.

To be effective, such Resolutions must be adopted within three (3) calendar months of each other. Termination, however, shall not occur earlier than the end of the Board's fiscal year in which the third termination resolution is adopted by one of the political entities.

E. DISPOSITION OF PROPERTY UPON TERMINATION

1. Except as provided in paragraph 2 of this Section, all property acquired pursuant to the provisions of this Agreement are subject to the jurisdiction and control of the Regional Environmental Board, and upon the termination of the Agreement, each participating entity is entitled to be reimbursed for a proportionate share of the fair market value of all the property acquired by the Board with local government funds. Each entity's proportionate share shall be based on the proportion of each entity's budgetary contribution, as determined in Section (A), Subsection (8) of this Agreement.

2. Property purchased with Federal funds shall be disposed of by a proper agency of the Federal Government or in accordance with Federal Regulations.

F. RECORDING OF INTERLOCAL AGREEMENT CREATING
REGIONAL ENVIRONMENTAL BOARD AND ALLIED
ADVISORY AGENCIES

After this Agreement's execution and its approval by the Attorney General, an original copy shall be filed with the County Recorder of Clark County and with the Secretary of State.

G. MERGER OF WASTE WATER PLANNING AND IMPLEMENTATION AGREEMENTS

If the Governor designates the Regional Environmental Board as the planning agency for area-wide waste water management under Public Law 92-500, and the Interlocal Cooperative Agreement establishing the Board as the planning agency is executed by the participating entities, then upon the designation by the Governor of the Board as the implementing agency under Public Law 92-500 and the execution of this Agreement, the functions of the Regional Environmental Board set forth in the Planning Agreement shall merge with the functions of the Board under this Agreement to create one single Regional Environmental Board with the functions of complete planning and implementation of waste water management for the Clark County area.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

ATTEST: CITY OF LAS VEGAS, NEVADA

City Clerk By WILLIAM H. BRIARE, MAYOR

ATTEST: CLARK COUNTY, NEVADA

County Clerk By THALIA DONDERO, CHAIRMAN

ATTEST: CITY OF NORTH LAS VEGAS, NEVADA

City Clerk By RAY DAINES, MAYOR

ATTEST: CITY OF HENDERSON, NEVADA

City Clerk By LORIN WILLIAMS, MAYOR

ATTEST: CITY OF BOULDER CITY, NEVADA

City Clerk By HEBER J. TOBLER, MAYOR

INTERLOCAL COOPERATIVE AGREEMENT
FOR THE FORMATION OF THE REGIONAL
ENVIRONMENTAL BOARD AND ALLIED
ADVISORY AGENCIES FOR WASTE WATER
MANAGEMENT PLANNING

THIS COOPERATIVE AGREEMENT, made and entered into this _____ day of _____, 1978, by and between the County of Clark, the City of Las Vegas, the City of North Las Vegas, the City of Boulder City, and the City of Henderson, each of which is a political subdivision of the State of Nevada:

W I T N E S S E T H

WHEREAS, Section 208 of Public Law 92-500, the Water Pollution Control Act Amendments of 1972, provide that the Governor of each state shall identify, after the publication of federal guidelines, each area within the state which, as a result of urban-industrialized concentrations or other factors, has substantial water quality control problems, and after consultation with elected and other officials of local governments having jurisdiction in such area, shall designate the boundaries of each such area and shall designate a single representative organization, including elected officials from local governments or their designees, capable of developing effective area-wide waste treatment management plans for such area; and

WHEREAS, Public Law 92-500 and the regulations prescribed thereunder (Code of Federal Regulations, Title 40, Chapter 1, Parts 130 and 131) provide that each area-wide planning agency designated by the Governor, shall be a representative organization whose membership shall include, but not be limited to, elected officials of local governments or their designees, having jurisdiction in the designated area-wide planning area, and shall have waste treatment planning jurisdiction in the entire designated area-wide planning area; and

WHEREAS, the primary objective of such water quality management plans shall be to define the programs necessary to achieve the national water quality goals established by Public Law 92-500 and the pertinent provisions of the Code of Federal Regulations; and

WHEREAS, each water quality management plan requires a continuous planning process which needs to be reviewed and revised at least annually; and

WHEREAS, under the aforementioned provisions of Public Law 92-500 and the regulations prescribed thereunder, the Governor of the State of Nevada has designated Clark County as an area with substantial water quality control problems and requiring an effective area-wide waste treatment management plan; and

WHEREAS, Chapters 244 and 277 of the Nevada Revised Statutes permit the various government entities in Clark County to enter into a cooperative agreement to carry out the waste water management planning process in such County, as required by Public Law 92-500 and the Governor's designation thereunder;

NOW, THEREFORE, pursuant to the provisions of Nevada Revised Statutes Chapters 244.9246 and 277.080 through 277.180, the aforementioned five (5) legal entities of Clark County enter into an agreement for the establishment of an administrative framework to carry out the continuing water quality management planning functions for the Clark County area, required by Public Law 92-500, according to the following terms:

A. REGIONAL ENVIRONMENTAL BOARD

1. The Regional Environmental Board is hereby created and established with such powers, duties, functions and responsibilities as set forth herein.
2. The voting members of the Board, who shall serve without compensation, shall consist of at least one (1) representative from each of the five (5) participating political entities. Each political entity having a population of 150,000 shall be entitled to two (2) voting members and an additional representative for each 75,000 increase in population over 150,000. Population estimates shall be based on the most current figures available from the Clark County Regional Planning Council. The population of Clark County shall be determined from only the unincorporated areas of Clark County. The governing body of each political entity shall select its members on the Regional Environmental Board from members of its own body.
3. Each voting representative on the Regional Environmental Board shall serve at the pleasure of the governing body of the political entity which appointed him.
4. The Regional Environmental Board shall meet at least once in every calendar month, at the time and place provided in the Bylaws. Officers of the Regional Environmental Board shall consist

of a Chairman and Vice-Chairman, both of whom must be voting members of the Regional Environmental Board and shall be selected by a majority of the vote of the Regional Environmental Board, at its regular meeting held in January of each year. The Chairman and Vice-Chairman shall serve for a term of one year, except that the initial officers shall be elected at the first meeting of the Regional Environmental Board and shall serve until the first January meeting held in 1979.

5. In the event of death, resignation, or removal of a member from the Regional Environmental Board, the governing body which appointed him shall appoint his successor.

6. The Bylaws shall be prepared by the Regional Environmental Board and adopted by a majority of the vote of the Board. The Bylaws may be amended from time to time by majority vote of the Board.

7. The Regional Environmental Board shall employ an executive director who shall be the Board's Chief Administrative Officer. The executive director shall be in charge of appointing staff personnel with the consent of the Regional Environmental Board. As many staff members may be appointed as budgetary considerations allow and as are necessary to enable the Board to properly carry out its functions.

8. The Regional Environmental Board shall prepare annually a budget for the ensuing fiscal year and shall, prior to March 1st of each year, submit the same for ratification to the governing bodies of each participating political entity. The five (5) political entities shall contribute to the budget in proportion to their respective populations. The Regional Environmental Board is empowered to apply for and obtain Federal grants under Section 208 of Public Law 92-500 for the purpose of developing and operating a continuing area-wide waste treatment management planning process, and to obtain other grants, gifts, and funding as permitted by Chapter 277 of N.R.S.

9. The primary responsibility and function of the Regional Environmental Board is to provide the necessary political, financial and managerial authority to develop, operate and conduct a continuing area-wide waste treatment management planning process for the Clark County area, as required by Section 208 of Public Law 92-500, the Water Pollution Control Act Amendments of 1972. The purpose of such waste water treatment planning process is to define and identify the programs necessary to achieve the water

of a Chairman and Vice-Chairman, both of whom must be voting members of the Regional Environmental Board and shall be selected by a majority of the vote of the Regional Environmental Board, at its regular meeting held in January of each year. The Chairman and Vice-Chairman shall serve for a term of one year, except that the initial officers shall be elected at the first meeting of the Regional Environmental Board and shall serve until the first January meeting held in 1979.

5. In the event of death, resignation, or removal of a member from the Regional Environmental Board, the governing body which appointed him shall appoint his successor.

6. The Bylaws shall be prepared by the Regional Environmental Board and adopted by a majority of the vote of the Board. The Bylaws may be amended from time to time by majority vote of the Board.

7. The Regional Environmental Board shall employ an executive director who shall be the Board's Chief Administrative Officer. The executive director shall be in charge of appointing staff personnel with the consent of the Regional Environmental Board. As many staff members may be appointed as budgetary considerations allow and as are necessary to enable the Board to properly carry out its functions.

8. The Regional Environmental Board shall prepare annually a budget for the ensuing fiscal year and shall, prior to March 1st of each year, submit the same for ratification to the governing bodies of each participating political entity. The five (5) political entities shall contribute to the budget in proportion to their respective populations. The Regional Environmental Board is empowered to apply for and obtain Federal grants under Section 208 of Public Law 92-500 for the purpose of developing and operating a continuing area-wide waste treatment management planning process, and to obtain other grants, gifts, and funding as permitted by Chapter 277 of N.R.S.

9. The primary responsibility and function of the Regional Environmental Board is to provide the necessary political, financial and managerial authority to develop, operate and conduct a continuing area-wide waste treatment management planning process for the Clark County area, as required by Section 208 of Public Law 92-500, the Water Pollution Control Act Amendments of 1972. The purpose of such waste water treatment planning process is to define and identify the programs necessary to achieve the water

citizens, residing in the Clark County area, who do not hold public office or who are not publically employed. In appointing this Citizens Environmental Advisory Board, the Regional Environmental Board shall consider persons who are members of existing citizens advisory committees and persons who are recommended by such existing committees. The purpose of the Citizens Environmental Advisory Board shall be to provide citizens' advice and input to the Regional Environmental Board concerning the policy and goals of waste water management planning and implementation. The specific responsibilities of the Citizens Environmental Advisory Board shall be prescribed by the Regional Environmental Board.

C. DURATION OF AGREEMENT

The term of this Agreement shall be for a period of twenty (20) years, to begin after its execution by the governing bodies of the participating entities, and its submission to and approval by the Attorney General, pursuant to N.R.S. 277.140.

D. TERMINATION OF AGREEMENT

This Agreement may be terminated and the Regional Environmental Board and its Allied Advisory Committees disbanded prior to the expiration of such twenty (20) year period, by the adoption of a Resolution by the governing bodies of three (3) of the five (5) political entities represented on the Board.

To be effective, such Resolution must be adopted within three (3) calendar months of each other. Termination however, shall not occur earlier than the end of the Board's fiscal year in which the third termination resolution is adopted by one of the political entities.

E. DISPOSITION OF PROPERTY UPON TERMINATION

1. Except as provided in paragraph 2 of this Section, all property acquired pursuant to the provisions of this Agreement are subject to the jurisdiction and control of the Regional Environmental Board, and upon the termination of the Agreement, each participating entity is entitled to be reimbursed for a proportionate share of the fair market value of all the property acquired by the Board with local government funds. Each entity's proportionate share shall be based on the proportion of each entity's budgetary contribution, as determined in Section (A), Subsection (8) of this Agreement.

2. Property purchased with Federal funds shall be disposed of by a proper agency of the Federal Government or in accordance with Federal Regulations.

F. RECORDING OF INTERLOCAL AGREEMENT CREATING
REGIONAL ENVIRONMENTAL BOARD AND ALLIED
ADVISORY AGENCIES

After this Agreement's execution and its approval by the Attorney General, an original copy shall be filed with the County Recorder of Clark County and with the Secretary of State.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on the day and year first above written.

ATTEST: CITY OF LAS VEGAS, NEVADA

EDWINA M. COLE, CITY CLERK by: WILLIAM H. BRIARE, MAYOR

ATTEST: BOARD OF COUNTY COMMISSIONERS
CLARK COUNTY, NEVADA

COUNTY CLERK by: CHAIRMAN

ATTEST: CITY OF NORTH LAS VEGAS, NEVADA

CITY CLERK by: MAYOR

ATTEST: CITY OF HENDERSON, NEVADA

CITY CLERK by: MAYOR

ATTEST: CITY OF BOULDER CITY, NEVADA

CITY CLERK by: MAYOR

PROPOSED
"208" PLAN
(cont'd)

Largest populations will have two (2) representatives. The other cities will have one (1).

This Agreement is for your consideration - we expect you to submit it to your own City Attorneys - have them evaluate it - make criticisms or suggestions. We are always open to suggestions.

I would like to comment briefly on the Law as it relates to the Planning Agency on "208". Federal Law specifies Planning Agency must be made up of elected representatives of the local governments involved in the planning area which has been designated. The Law appears in Public Law 92-500 and also appears in the Code of Federal Regulations. I could just quote, briefly: "Each area-wide Planning Agency shall be a representative organization whose membership includes but need not be limited, to elected officials of local governments, or their designees having jurisdiction in the designated Planning Area." I interpret this to mean that the Planning Agency should have representatives of the cities on that Agency in order to comply with Federal Law . . . (Mr. Stewart speaking from a microphone other than either of those at the podium and the remainder of this sentence is inaudible).

It is interesting to note that in 1974 there was communication between Region IX and the State in reference to the nature of this Planning Agency and I refer to a letter from Frank M. Covington, dated 7/11/74, in response to a question as to whether or not the County should be the sole Agency. His response was that the Agency should be made up, but not limited to elected officials of local governments or their designees having jurisdiction in the designated planning area.

It goes on to explain that if the County is designated, then one of three conditions must be met: (1) That the County must be a uni-government - that is, a City/County government - that has no application at this time in Clark County. (2) The County creates a governing Board to do the planning, the membership of which includes the elected officials from the various local governments involved. That has not occurred. (3) - the cities contract with the County to provide the planning services. That has not occurred either.

This letter has just recently come to light and apparently from this direction it was contemplated that the local governments should have representatives on the Planning Board.

The second Agreement deals with an Implementing Agency - the Agency to implement the "208" Plan. Federal Law does not specify that local governments have to have representatives on that Agency. However, some have suggested that it would be a good idea and the Plan would probably be more effective if there were. That is what the second Agreement provides for - the creation of an Implementing Agency.

I've heard stated that the County Wastewater & Sewer Law requires that the Governor appoint the County and the County only can be appointed. In fact, there is an opinion from Mr. Frank Daykin of the Legislative Council indicating that such is the case. In reviewing the opinion, however, it says . . . to examine some particular sections in the County Wastewater Law - Section 9246 of Chapter 244, NRS. Those Sections specifically provide for Interlocal Agreements to handle all the

A. Planning Agency

Attached are two proposed interlocal agreements. The first is an agreement to establish a "208" Planning Agency. The governing body of the agency is to be made up of elected officials from each city and Clark County. Each city would have at least one representative on the agency; Las Vegas would have two and Clark County would have two. The number of representatives on the board would be altered by changes in population, but each entity is guaranteed at least one representative. It is necessary for the Governor to formally designate the agency created by the agreements and obtain the approval of EPA Region IX before the agency can qualify as the "208" Planning Agency.

Federal law and Federal regulations require that the "208" Planning Agency must be composed of elected officials of local governments. Notice that "officials" and "governments" are plural words, not singular. Here are the relevant passages from Federal laws and regulations:

"the Governor shall designate . . . a single representative organization, including elected officials from local governments or their designees, capable of developing effective areawide waste treatment management plans. . . ." P.L. 92-500, as amended, sec. 208(a)(2).

"The (208) agency shall be a representative organization whose membership shall include but need not be limited to elected officials of local governments or their designees having jurisdiction in the designated planning area." Federal Register 38(178): 25681, 14 September 1973.

"Each areawide planning agency shall . . . be a representative organization whose membership shall include, but need not be limited to, elected officials of local governments or their designees having jurisdiction in the designated areawide planning area." Code of Federal Regulations, Title 40, Part 130.13(c)

The "208" Planning Agency for Clark County is the County Board of Commissioners. The County Board does not consist of elected officials of local governments. The cities of Las Vegas, North Las Vegas, Henderson, and Boulder City are not represented. EPA Region IX gave explicit instructions on this matter.

"As I previously mentioned, it is possible for a county to be designated as a planning agency for an area contained wholly (sic) within it. However, I want to emphasize that an agency must meet two requirements prior to designation.

"The agency must have waste treatment planning jurisdiction in the entire designated area, i.e., as defined in Section 201(b) of the Act. The agency must be able to plan for the control or treatment of all point and nonpoint sources of

of pollution, including in place or accumulated pollution sources, AND

the agency should be made of, but not limited to, elected officials of local governments or their designees having jurisdiction in the designated planning area.

Under these conditions, it is possible that a county government could be designated under the following arrangements:

Either the county is a uni-government, i.e., it is chartered as city/county form of government OR

the county, acting as the designated agency, creates a Governing Board whose membership should be made up of elected officials of the county and elected officials of local governments within the county. The Board should have the power to conduct the area-wide wastewater management plan pursuant to Sec. 208 of the Act and applicable regulations, OR

the incorporated communities within the county do not have the capability or resources to carry out the requirements under Section 208 of the Act and are willing to transfer their planning responsibilities to the county through a (sic) interlocal cooperation agreement pursuant to applicable state and local laws. This condition (sic) is parallel to situations in which small communities will contract with the county government for other domestic services." 11 July 1974. Letter from Frank M. Covington (Director of Air and Water Programs, EPA Region IX) to Bruce Arkell (Nevada State Planning Coordinator, State Capitol, Carson City)

Clark County is not uni-government. The County Board of Commissioners has not created a Governing Board whose membership is made up of elected officials of the county and elected officials of local governments. The cities in Clark County have not transferred their planning responsibilities to the County through an interlocal cooperative agreement. Consequently, we contend that the "208" Planning Agency for Clark County is illegal and that there should be a new designation of the planning agency.

B. Implementing Agency

The second agreement provides for an implementing agency to implement the "208" Plan. Federal law and regulations do not specify that the governing body of the implementing agency must consist of elected officials of the elected local governments. However, because the plan concerns so many responsibilities that traditionally have been municipal, we think the plan will be more effective by direct participation by the cities on the implementing board.

Although N.R.S. 244.922 et. seq. seems to indicate that Clark County should be the management agency, we believe the N.R.S. 244.9216 along with N.R.S. Chapter 277 provides the necessary authority to create such an agency.

N.R.S. Chapter 277 is the general law on interlocal cooperative agreements. N.R.S. 244.922 et. seq. is titled the County Sewage and Waste Water Law. It gives extensive powers to Clark County for areawide wastewater management. However, N.R.S. 244.9246 provides that the cities may enter into agreements with Clark County respecting those powers and provide an agency to administer the agreement.

"244.9246. Powers of other public bodies. The governing body of any public body, upon its behalf and in its name, for the purpose of aiding and cooperating in any project herein authorized, upon the terms and within or without consideration and without an election, may:

. . . .

3. Enter into any agreement or joint agreement between or among the Federal Government, the state, the county and any public bodies extending over any period not exceeding 50 years, which is mutually agreed thereby, notwithstanding any law to the contrary, respecting action or proceedings pertaining to any power herein granted, and the use or joint use of any facilities, projects or other property herein authorized.

. . . .

7. Provide for an agency, by any agreement herein authorized, to administer or execute that or any collateral agreement, which agency may be one of the parties to the agreement, or a commission or board constituted pursuant to the agreement.

8. Provide that any such agency shall possess the common power specified in the agreement, and may exercise it in the manner or according to the method provided in the agreement. Such power is subject to the restrictions upon the manner or exercising the power of any one of the contracting parties, which party shall be designated by the agreement.

9. Continue any agreement herein authorized for a define term not exceeding 50 years, or until rescinded or terminated, which agreement may provide for the method by which it may be rescinded or terminated by any party."

Just as the planning agency needs to be appointed by the Governor and EPA Region IX, the implementing agency also needs to be designated by the Governor and approved by EPA Region IX. Should both agreements be approved, the agencies would become one.

PROPOSED
"208" PLAN
(cont'd)

powers that are set forth in the County Wastewater & Sewer Law.

On the basis of these Sections I believe that the cities and the County, if they wish to cooperate, have the authority to enter into a Joint Agency for implementation. Thank you.

Mayor Daines: Thank you. I believe at this time there are a couple of things that you didn't know. I would like you to know that the Honorable Mayor of the City of Las Vegas, gave up today one of the things that are very important to him. He wanted his Bells to ring -

Mayor Briare: They're not going to ring today -

Mayor Daines: They were supposed to ring at noon.

We will conclude our portion of this meeting. I want to say thanks to everybody that attended - certainly thanks to those people from the County who are here, and thanks to our experts and I will now turn the gavel back to the Mayor of the City of Las Vegas - Mayor Briare.

Mayor Briare: All of us would like to join in a nice Thank You to you, Mayor Daines; for Chairing this extraordinary Meeting. Hopefully, we will do it again some time, and I would like to suggest that the City Managers need - and certainly urge the Manager of the Board of County Commissioners to join in an effort to put these proposed Agreements that Mr. Stewart has just presented to us, before their governing Boards within the next fifteen or twenty days so that we can get some definitive action, one way or another.

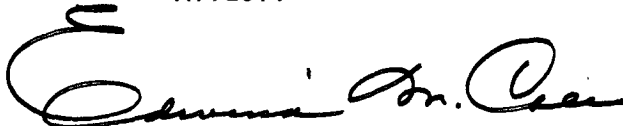
So unless there is anything further by the City Commissioners or Councilmen, we will declare this extraordinary, historic and significant occasion ADJOURNED. (12:45 P.M.)

APPROVED



MAYOR WILLIAM H. BRIARE

ATTEST:



EDWINA M. COLE, CMC
CITY CLERK

APPROVED BY REFERENCE _____ July 5 _____, 1978

SELECTED BACKGROUND MATERIALS

for the

JOINT CITIES MEETING

on

WATER QUALITY PLANNING

Las Vegas City Hall
May 24, 1973

FINAL REPORT

An Analysis of Planning for Advanced Wastewater Treatment (AWT)

By

**Jerome Horowitz
Larry Bazel**

Prepared for:

**Headquarters
U. S. Environmental Protection Agency
Office of Planning and Evaluation**

In response to:

EPA Contract 68-01-4338

July 1977



7655 OLD SPRINGHOUSE ROAD, MCLEAN, VA. 22101

ABSTRACT

Federal grants for Advanced Wastewater Treatment (AWT) should be stopped until two fundamental defects have been corrected:

- (1) The planning is often technically unsound, and the technical analysis specified in section 303(d) of P.L. 92-500 is ignored, oversimplified, or falsified.
- (2) The apparent need for AWT facilities varies greatly from State to State, and there is no uniform National policy to prevent some States from getting many large AWT grants while others do not qualify for any at all.

The great differences in AWT planning among the States do not relate to great differences in water quality or to pollution problems; rather, the differences must be traced to enormous disparities in water-quality standards, implementation plans, State laws and regulations, and perceived needs for treatment works.

Until these two defects have been worked out, the Federal grant program may be legitimately charged with hidden favoritism, unfairness, noncompliance with P.L. 92-500, and scientific incompetence. Meanwhile, Federal funds can be put to good use by building more secondary plants, correcting problems in sewer systems, and (in some instances) treating urban stormwater.

We therefore recommend that EPA should ask Congress to delete sections 303 and 510 from P.L. 92-500. Section 303, which covers water-quality standards and wasteload allocations, does not produce technically credible planning. Section 510 empowers the States to set arbitrarily severe treatment requirements -- requirements leading to very expensive treatment plants that may have little effect on water quality.

These conclusions and recommendations were derived from six detailed case studies, selected in cooperation with EPA Regional Offices and State pollution-control agencies as outstanding examples of AWT planning. Nearly every other example of AWT planning in the U.S. is probably at least as poor as these six.

1. THE REPORT IN BRIEF

Inequities Inherent in P.L. 92-500

A fundamental inequity is written into sections 301(b)(1)(C) and 510 of the Federal Water Pollution Control Act. These sections empower the States to adopt pollution-control measures that are more stringent than those set by the U.S. EPA. Some States (e.g. Texas) require AWT everywhere; others (e.g. Kansas) never require it. There is no uniform National policy to prevent this inequity, which provides large Federal subsidies to States that may be setting unrealistically demanding requirements for pollution control -- requirements leading to very expensive treatment plants that may have little effect on water quality.

Planning Is Inadequate and Differs from State to State

The planning sequence leading to AWT is complex, and all the principal structures in the sequence vary greatly among the States:

WATER-QUALITY STANDARDS are extremely variable and rarely make sense, despite public participation and EPA review. They are commonly filled with vagueness, paradox, internal contradiction, hedging, and simplistic notions of causation.

WATER-QUALITY SURVEYS are generally suspect on technical grounds, beset with irregularities in sampling and analysis, and naive in matters pertaining to hydraulics, sediments, and water chemistry.

MATHEMATICAL MODELS are oversimplified and filled with elaborate guesswork. They are intricate, abstruse fictions. They rarely account for even the principal features of the waterway they claim to represent, and they are usually built from inadequate data on hydrodynamics and water quality.

WASTELOAD ALLOCATIONS are the basis for discharge permits. They are principally derived from mathematical models, and share all their weaknesses. Section 303(d) of P.L. 92-500 requires wasteload allocations as the technical basis for AWT discharge permits, but this requirement is universally ignored, over-simplified, or falsified.

DISCHARGE PERMITS embody AWT requirements. They are commonly filled with confusions between wastewater effluents and the quality of the receiving water. Sometimes there are uniform effluent limits for an entire State, with no adjustment for local conditions or probable improvements in water quality; uniform effluent limits do not recognize any difference between an ocean and a puddle. In common with water-quality standards, discharge permits are rich in vagueness and internal inconsistency.

An Inseparable Cluster of Related Issues

AWT cannot be meaningfully addressed apart from a cluster of interdependent issues. Degree of treatment (AWT versus secondary) must be evaluated in a context of related questions:

WHAT IS TO BE TREATED? How many homes? How many industries? What kinds of industries? How much industrial pretreatment? How big will the sewer-service area be? How much stormwater will be treated? How much growth should be planned for?

HOW WILL WASTEWATERS BE CONVEYED? How many sewers? What kinds of sewers? How large? Where emplaced? How will peak flows be handled? Will storm sewers be entirely separate? How much leakage in the sewer system is tolerable? How should the budget for the sewer system be allocated among sanitary sewers, storm sewers, lift stations, pumping stations, interceptors, siphons, and river crossings?

HOW MUCH CENTRALIZATION SHOULD THERE BE? Will one treatment plant be enough, or should there be several? How much of the existing facilities can be salvaged? Where should the treatment plants be built?

WHERE SHOULD THE EFFLUENTS BE DISCHARGED? Into which watercourse? At how many points? Should the discharge be diffused and submerged? Should the wastewaters be disposed of on land, with no discharge to any waterway? Will groundwaters be contaminated?

Six Detailed Case Studies

We sought the cooperation of EPA Regional Offices and State pollution-control agencies in selecting six outstanding cases of AWT planning for detailed analysis. Even in these six exemplary cases, many of the AWT-related issues were not given the attention they merit; the planning suffered from large stretches of technical incompetence; and the inequities inherent in P.L. 92-500 were evident everywhere we looked.

A Word to the Reader

The six case studies occupy most of this report. They are not easy reading because the material is often very technical and our treatment of it is concentrated. We rarely pause for long explanations and recapitulations. Only in our first case study (Largo, Florida) do we go into lavish detail. In all the other case studies we cover a great deal of material, and we cover it quickly. At the beginning of each case, however, we summarize the most important issues and comment on their significance. You may find it helpful to refer to these summaries from time to time; it is easy to lose sight of the major issues as you slog through the detailed histories.

Except for Largo, all the case studies are organized into three sections: (1) The Issues in Brief, (2) History, and (3) Bibliography. The historical analyses are given in chronological order. As the history unfolds, the cast of characters swells and the planning issues grow

increasingly complex. We have studiously tried to avoid over-simplifying, but we have done our best to be clear. The histories are not light reading because the AWT planning did not unfold in simple chronological order. However, the strict chronological order lets you follow the issues as they developed. We have given cross-references wherever we thought they might help.

We have tried to be frank and candid. We may have been wrong on occasion (though we strived for accuracy and fairness), but we resisted the temptation to be vague, to hedge our bets, to cover our tracks.

Costs and benefits of AWT in these case studies are separately treated in Appendix A, prepared by Kennedy Engineers, Inc., of San Francisco. The Kennedy team compared AWT with secondary treatment (using EPA's definition of secondary treatment). Their analysis shows what a comparable secondary plant would have cost; it also shows the difference between AWT and secondary effluents in each of the five cases they evaluated. They explicitly identify their assumptions and their sources of information.

The bibliographies are long and detailed. We hope that they are thorough. They include all the material we used in our analyses -- we went through a lot of material. We had to, and if time had permitted, we would have gone through even more. If we have been successful, the histories will show you how the planning developed; the bibliographies will give you complete references to the material we used so that you can get more detail for yourself and explore many important issues we scarcely touched. Maps are in Appendix B; abbreviations are explained in Appendix C.

2. CONCLUSIONS

1. Our six case studies were not hastily selected. They were carefully chosen from lists of outstanding candidates prepared by EPA and State agencies. We tried hard to find the best the country had to offer. It saddens us to report that none of the six can be held up as a model of successful planning. It is probably safe to assume that nearly every other example of AWT planning in the U.S. is at least as poor as these six.

2. Although AWT plans were repeatedly reviewed by many agencies, massive faults were rarely identified. The review process was grossly inadequate in all six cases.

3. The Federal Water Pollution Control Act (P.L. 92-500) offers two principal justifications for AWT:

- Section 303(d) justifies AWT through water-quality standards (WQS), mathematical models, and wasteload allocations.
- Sections 301(b)(1)(C) and 510 empower the States to require AWT (or any other pollution-control requirement) at their discretion, so long as their requirements are more demanding than Federal requirements.

In our six cases, both justifications were bungled.

4. The justification based on WQS and mathematical models came to grief because (a) the WQS were a tissue of ambiguity and paradox, and (b) the mathematical models -- even at their best -- were filled with unverified assumptions, elaborate guesswork, and egregious oversimplifications.

5. The justification based on State requirements fell apart because the requirements were not accurately applied. Here is a light-hearted analogy. Suppose that State law requires all canaries to be housed in gilded cages. In enforcing the law, the State misidentified canaries as robins (and therefore did not require gilding where the law specified it) or mistook falcons for canaries (thereby requiring falconers to gild cages the law never mentioned). We found both kinds of errors in our six case studies. Springfield, Missouri, was a "robin"; Largo, Florida, was a "falcon."

6. When P.L. 92-500 was debated in Congress, proponents of the bill contended that it would do away with great inequities among the States by establishing uniform, nationwide standards for wastewater treatment. Our six cases show nothing of the kind. By permitting enormous variations among the States -- variations in WQS, mathematical models, wasteload allocations, pollution-control requirements -- the law perpetuates these inequities.

7. The various planning programs usually lead separate lives: setting WQS, surveying water quality and wastewater discharges, developing mathematical models and techniques for wasteload allocations, preparing basin plans, areawide plans, facility plans, discharge permits, and analyses of "environmental impact." The unresolved discrepancies among these planning

activities induce a kind of organizational schizophrenia. A concluded that B implied C, but B assumed that D tentatively meant C, and that C was being evaluated by E; but E's technical committee was instructed that C must be coordinated with F, and F couldn't be funded until B had reviewed A Consequently, everybody spent a lot of time going to meetings and reviewing position papers.

8. We are not the first to observe that planning is mired in paper, scattered, and poorly coordinated. Far too much of the planning we reviewed was paper-shuffling, a bureaucratic exercise rather than a concerted attempt to find out the facts and devise meaningful cures for long-standing pollution problems.

9. Pollution-control agencies are bigger and richer than ever. There is plenty of talent in the agencies and in their retinues of consultants. However, these resources are not being effectively mobilized. The busy business of planning consumes time and talent. It eats up budgets. It blurs issues where sharp focus is indispensable. It values quantity over quality. It diverts skills from meaningful work to facile elaborations on paper. Massive planning documents are thrown together in haste, without adequate attention to establishing the facts, without due regard for truth, with speed and size displacing such virtues as accuracy and fairness. It is not an edifying spectacle. AWT planning under P.L. 92-500 did not initiate this misapplication of resources, which has been common for generations, but it has exacerbated the problem.

10. AWT isn't cheap. Its voluminous planning consumes resources, beginning with time, paper, and manpower. An AWT plant always costs more

than a comparably sized secondary plant, and the Federal Treasury subsidizes most of the construction costs. AWT plants always cost more to run than secondary plants -- they consume more energy and more chemicals. Local sanitary districts must absorb all the running costs. The districts might be happy to bear the additional cost if they could be sure that they were getting something for their money, that AWT would make a substantial difference to water quality, that it would convert a polluted river into a valuable resource, an asset to the community. There is no assurance in our six case studies. AWT was not adequately justified in any of them.

11. There must be a profound revulsion to wet feet, a distaste for long hours on the open water, a dislike of careful scientific measurement. How else can one explain the extreme reluctance of pollution-control agencies to study water? The talk of water-quality improvement, aquatic ecology, non-degradation, and environmental integrity is mostly talk. Little time or money is actually spent on learning how a body of water behaves, how it responds to pollution, how it changes with the seasons, how it is modified by resource development, how it responds to unusual weather or hydraulic conditions. Surprisingly little is known about water quality or the factors that influence it.

Costly pollution-control projects are commonly built with almost no real knowledge of the waters that are to be protected by the generous investment in treatment facilities. The investment in public works far outstrips the investment in positive knowledge. The poverty of knowledge, the slender basis for massive investments in AWT facilities, the doubtful validity of many of the arguments advanced for AWT -- our six case studies

return to these points over and over again. There is no escaping them. The meager sources of data (usually of doubtful validity) have been stretched over a framework of assumptions and oversimplifications, then plastered under a heavy facade of paper. The paper does not strengthen the planning structure.

The planning is so far removed from reality, one must combat the illusion that it is a desperate fantasy world, something that Franz Kafka might have imagined. And indeed he did:

"Poseidon sat at his desk and calculated. The administration of all water gave him endless work. He could have had helpers, as many as he wanted, and he did have many; but since he took his job in earnest, he always recalculated everything himself, so his helpers didn't help much. It can't be said that he liked his work....

"What most irritated him -- and this largely explains why he disliked his job -- was to hear the idea people had of him: how he was forever gallivanting through the waves, trident in hand. But all the while he sat here in the ocean depths, calculating constantly. Every now and then a trip to Jupiter would break the monotony, but he returned more furious than ever. So he had scarcely seen the sea, only glimpses on quick trips to Olympus, and had never really gotten to know it." -- Franz Kafka, Parables and Paradoxes (trans. by J.H.)

12. In each of our case studies, there was little relation between the WQS and the substances that AWT will remove. Phosphorus is rarely mentioned in WQS anywhere, though phosphorus removal is one of the most common types of AWT. Ammonia fares somewhat better, but not much. Suspended solids are almost never included in WQS, though facilities for removing unusual quantities of suspended solids are extremely common in AWT plants. Why are these substances so dangerous that they must be removed from wastewaters, but not important enough for inclusion in the WQS? This discrepancy is always difficult to make sense of, but it is

particularly baffling when AWT is a planning issue. After all, P.L. 92-500 requires AWT when ordinary secondary treatment cannot ensure compliance with WQS. In theory, the relation between WQS and pollutant removal should be especially close when AWT is involved; in fact, it isn't.

One can readily understand why WQS are used so little. They are usually vague, hedged, non-numerical, internally contradictory, paradoxical, statistically ambiguous, and given to simplistic notions of causation. They commonly fail to distinguish between water quality and wastewater quality. These failings are analyzed at length in our case histories.

When the WQS are filled with ambiguity and contradiction, they cannot be meaningfully used in pollution-control planning. For meaningful compliance with section 303(d) of P.L. 92-500, the WQS must be clear and unambiguous. Until the WQS are greatly improved, one should not expect much of the planning required by section 303(d) -- the only section of P.L. 92-500 that provides a scientific basis for AWT planning.

13. The assumptions and oversimplifications in mathematical models necessarily weaken the case for AWT. One of our cases, San Jose/ Santa Clara (SJ/SC), offers an exceptional example of the trouble that models can cause. The models used in SJ/SC were unusually elaborate and well documented. San Francisco Bay has been studied by several generations of scientists, and it has been modeled repeatedly. The AWT decision for SJ/SC was largely justified by one of these models. However, a later model, a refined version of the earlier one, showed that AWT would not -- indeed, could not -- cure the water-quality problems in south San Francisco Bay and its tidal tributaries. Planners are now in a quandary. They have built some of the facilities recommended by the earlier model, but

cannot decide whether to proceed with the rest. They now question the assumptions and oversimplifications that the modelers had freely admitted to all along.

The new model for SJ/SC shows that the extensive marshes around the south bay are responsible for large quantities of deoxygenating matter. This conclusion has not been supported by measurements of the marshes, and State planners now insist that the model should not be believed until actual measurements have established the importance of the marshes (and several other phenomena) beyond any reasonable doubt. This conclusion is rather belated, since the earlier models contained even more assumptions and oversimplifications than the controversial new one, but better late than never.

Even after the marsh loads have been studied, the model will still have serious shortcomings. It will still be unable to simulate the powerful tides that surge through the south bay and its tributaries. The tides change the water level by about nine feet during the course of a day. As the water level is raised and lowered, the salt marshes are covered and uncovered, alternately drowned and drained. The tides also control the movement of water, but not nearly enough is known about the hydrodynamics of the south bay and its tributaries to deal with them meaningfully in any model. In its current version, the model can simulate only the average oxygen concentration in the water, but the WQS for these waters set limits on both the minimum oxygen concentration and the lower tenth percentile. In short, the marsh studies will certainly improve the model, but many more improvements will have to be made before the model can claim to represent these complicated waters.

The mathematical model of the Wallkill River (our case study in New Jersey) also assumes that marshes are responsible for many of the water-quality problems in the river. The model predicts that the large marshes below the proposed STP outfall will seriously affect the dissolved oxygen (DO) during severe summer droughts. No one has ever studied DO in marshy reaches of the Wallkill during hard summer droughts, and there is no evidence of a DO problem in the river. Everything depends on the accuracy of the model's predictions. If the marshes should consume a little more DO than the modelers have assumed, AWT will not cure the DO problem because the marshes will cause the river to fall below its DO standard anyway. Without accurate measurements of the marsh loads, the model is little more than an elaborate guess.

The Wallkill model guesses and oversimplifies in other ways as well. Anyone can see that the shallow Wallkill is carpeted with rooted aquatic weeds, but the weeds have been neglected in accounting for the oxygen regime of the river. The rooted weeds are nourished both by the mud in the riverbed and by the water in the river. They are unlikely to be greatly affected by AWT, but they are certain to have a profound effect on the oxygen regime of the river. (By draining the marshes and removing the sediments that support the growth of these aquatic weeds, the Wallkill would have much higher concentrations of DO and more capacity for assimilating the urban wastes from Sussex County; however, it is extremely unlikely that marsh drainage or sediment removal would be approved by environmentalists and planners.) The model ignores the weeds, guesses at the marshes, and guesses at the oxygen regime of the river during summer droughts.

Unlike California, the planners in New Jersey have not yet insisted that the Wallkill model should not be believed until its assumptions about the marshes have been verified by accurate measurements. Perhaps that is yet to come.

In both SJ/SC and the Wallkill, the modelers argued that decaying organic matter from the marshes uses up much of the assimilative capacity of the receiving waters, leaving very little capacity to assimilate wastes from STP discharges. The modelers may be right -- the hypothesis is plausible. But they cannot yet prove they are right, and until they can, AWT in these areas amounts to a costly conclusion from an unproven premise.

We must emphasize that the models used in SJ/SC and the Wallkill were unusually good -- vastly superior to the usual "canned" models. They were far superior to the other models we reviewed in these case studies. SJ/SC was easily the most sophisticated of the lot. It is no accident that the most sophisticated model is now the most controversial. With growing sophistication elsewhere, one should expect that the results of earlier modeling efforts will be doubted more and more. As the models are cast into doubt, the conclusions derived from them will become doubtful too, and AWT is a common conclusion.

14. AWT is not likely to cure the water-quality problems that were identified in any of our case studies.

The Tampa Bay Complex in Florida will not be affected by the new facilities in Largo, which is too small to make much difference to the bay complex. Most of the phosphorus that enters the bay complex comes from the extraordinary phosphate deposits and the enormous

concentration of phosphate industries in this part of Florida, which produces most of the phosphorus in the U.S. and about a third of all the phosphorus in the entire world. Red tides and algal rot -- the two most serious problems in the bay complex -- are not caused by urban wastewater or by phosphorus; they are caused by floods and on-shore winds.

AWT facilities for the Walkkill River Valley in New Jersey have been designed to cure a DO problem. There is no evidence of a DO problem in the river. The problem exists only as the prediction of an oversimplified, inadequately verified mathematical model. If the marshes and the aquatic flora consume a little less DO than the modelers have assumed, AWT will be wasteful because there will be no DO problem in marshy reaches of the river. The Walkkill marshes are important in another way as well. Although there is no evidence of a DO problem in the Walkkill, nearly every sample ever taken from the river is loaded with bacteria. However, it is not clear how much of the bacterial pollution should be attributed to sewage and how much to saprophytic bacteria flourishing in the marshes.

The outstanding problem in Springfield, Missouri, is persistent fishkills in the James River. The fishkills are known to occur only in wet weather, when a storm drenches Springfield before it hits the rest of the area. There is no question that stormwater is somehow (no one knows precisely how) the necessary agent for killing fish. The new AWT facilities will do almost nothing about the stormwater, and the problem of fishkills is expected to grow worse after the AWT facilities begin operating.

The estuary of the Fox River, Wisconsin, is one of the most polluted waters in the State. The little city of De Pere, at the head of the estuary, is too small to have much effect on this river, which

receives the wastes from a large complex of industries (especially paper-mills), from several larger cities upriver, and from the city of Green Bay. De Pere is the only wastewater source in the estuary required to provide AWT. A very large proportion of the wasteload in De Pere comes from two industries (a meat-packer and a dairy), which send their wastewaters to De Pere's STP for treatment. By severely curtailing these two industrial wasteloads, either by pretreatment measures or by making the industries build their own facilities for treatment and separate discharge, many of the problems at De Pere's STP would vanish.

South San Francisco Bay and its tidal tributaries will, according to the most recent planning documents, continue to have serious water-quality problems no matter what SJ/SC is required to do. Keeping the discharge where it is and upgrading waste treatment will not cure these problems, and moving the discharge far out into the bay won't cure them either. Twenty-five years of planning have ended in this blind alley, and no one knows a way out. Like De Pere, SJ/SC treats large quantities of waste from the food-processing industry, and these wastes stress nearly every process and facility at the STP. Paradoxically, AWT was largely justified by the need to remove ammoniacal nitrogen, but cannery wastes (the largest sources of industrial waste in the area) are virtually ammonia-free.

Over unusually strenuous objections from the city, Spokane has been required to build facilities for phosphorus removal, on the unproven theory that phosphorus from Spokane controls the growth of algae in Long Lake, a hydropower reservoir just downriver. It has not been shown that phosphorus from any source causes the algal blooms, and there are several

other large sources in the drainage basin, including the sediments themselves. It has not even been shown that algae cause the deoxygenation in Long Lake during the summer. There are two other likely causes: (1) sediment oxygen demand, and (2) entrapment of dispersed matter having long-term oxygen demand -- matter carried into the reservoir by Spring floods and trapped there during the summer. Neither of these explanations has been looked into.

15. Faulty sewers can cause problems when problems are least welcome. Section 201(g)(3) of P.L. 92-500 forbids grants for treatment works "unless the applicant shows to the satisfaction of the Administrator that each sewer collection system discharging into such treatment works is not subject to excessive infiltration." The words "satisfaction" and "excessive" must be elastic: Two of our case studies have serious problems with infiltration and inflow (Springfield and Spokane). Section 201(g)(3) mentions only infiltration, but EPA also requires analyses of inflow, and for good reason. But tight or leaky, separate or combined, sewers cause problems, and there is no uniform National policy for dealing with them.

Our case studies demonstrate how non-uniform these policies are. San Jose/Santa Clara (SJ/SC) has fairly tight, fully separated sewers. Springfield has serious infiltration and wet-weather overloading. Spokane has severe inflow and bypassing from combined sewers. Yet all three were awarded AWT grants, presumably because the Administrator was satisfied that their sewer systems were "not subject to excessive infiltration." Whatever else this may show, it does not show even-handed administration of the law.

SJ/SC has plenty of hydraulic capacity for wet-weather flows because its design was dictated by the canneries, which are active only in dry

weather. Besides, discharges from the storm drains never get to the STP. However, the County Health Department has complained for years about fishkills associated with discharges from the storm drains. Shouldn't toxic stormwater be treated? SJ/SC is in the middle of a National Wildlife Refuge.

The persistent fishkills below Springfield have been traced to stormwater. The city, State, and EPA Region VII have agreed that special facilities should be built to accommodate wet-weather flows, but EPA Headquarters has ignored their requests. Everyone agrees that the fishkills will persist until the stormwater problem has been cured. Why hasn't it been?

For more than a decade, the State has ordered Spokane to fix the bypasses and overflows in its sewers, but these problems have been deflated while pressures for phosphorus removal at the STP have built up. Spokane is building facilities for partially treating the bypasses and overflows, but not for removing phosphorus from them, and not for giving them secondary treatment, as required by P.L. 92-500. Why has phosphorus removal -- a relatively recent issue -- been attended to before the sewers?

SJ/SC must give complete treatment to all wastewater from all domestic, commercial, and industrial sources, and must do it all the time. Neither Springfield nor Spokane can give complete treatment to wastewaters from these three sources all the time because their sewers and STPs cannot accommodate wet-weather flows; in both cities, wastewater is mixed with infiltration water and stormwater in the sewers, and this happenstance exempts them from providing the complete treatment that is required of SJ/SC. SJ/SC treats none of the stormwater in the area; Spokane and Springfield treat part of it. Is this equal justice under law? Or is it one more of the inequities sanctioned under P.L. 92-500? A uniform, even-handed National policy on sewers is long overdue.

16. Owing to lack of coordination between AWT planning and the preparation of NPDES discharge permits, three of the six AWT plants we studied will violate their permit conditions.

- Largo cannot meet its effluent limits for nitrogen and phosphorus because it has no facilities for nutrient removal.
- There is no NPDES permit for the Wallkill River Valley.
- The NPDES permit for Springfield neglects the special facilities that were built to accommodate the high flows in wet weather. Through neglect of these facilities, the NPDES permit guarantees that the new STP cannot meet its limits for flow, biochemical oxygen demand, suspended solids, and ammoniacal nitrogen.
- There is no discrepancy between the NPDES permit and the facilities in De Pere.
- SJ/SC will certainly violate two conditions of its discharge permit, and it may violate two other conditions. It will violate the provision that forbids any wastewater discharge south of Dumbarton Bridge; the STP discharges into Artesian Slough, which is twelve miles south of the bridge. It will violate the receiving-water limitation for dissolved oxygen. It may violate the receiving-water limit for undissociated ammonium hydroxide, and it may violate the effluent limit for toxicity. The violations of the receiving-water limits can be cured by excising these limits from the permit.

Receiving-water limits are out of place in a discharge permit, and are a common source of trouble there. The prohibition against wastewater discharges south of Dumbarton Bridge will be violated until the costly outfall project is built; however, it is not yet clear whether the outfall project will ever be approved.

- There is no discrepancy between the NPDES permit and the facilities in Spokane.

Which is right, the AWT planning or the NPDES permits? Either the planning was right and the permits are wrong, or the permits are right and the planning was wrong. Better coordination between the plans and the permits would stop the shame of permit violations by brand-new, EPA-subsidized STPs.

17. AWT adds substantially to the costs of wastewater treatment. AWT costs more to build (higher capital costs) and more to run (higher costs of operation and maintenance). AWT facilities do little to improve removal of biochemical oxygen demand (BOD) and suspended solids (SS), but they may remove substantial amounts of other pollutants, especially ammoniacal nitrogen and phosphorus. In short, AWT adds greatly to the costs, but does not remove much more of the most common pollutants.

Kennedy Engineers has analyzed the benefits and costs of AWT in five of our six cases. Largo was excluded because it is not an AWT plant. The benefit-cost analysis is given in Appendix A of this report. In this analysis, AWT is compared with EPA's definition of secondary treatment, viz. an effluent containing 30 mg/l of BOD and 30 mg/l of SS.

The Wallkill STP, evaluated at an assumed design flow of 5 million gallons a day (5 mgd), will remove 10% more BOD, 7.5% more SS, 61% more ammoniacal nitrogen, and 68% more phosphorus than an equivalent secondary STP. Facilities for secondary treatment account for 66.7% of the capital cost and 52.1% of the annual cost of operation and maintenance (O&M). AWT accounts for 33.4% of the capital cost and 47.9% of the O&M. The grant-eligible capital cost is \$11 million; the annual O&M is \$1 million.

The Springfield STP, evaluated at a design flow of 30 mgd (which excludes the high flows during wet weather), will remove 7% more BOD, 13% more SS, and 63.4% more ammoniacal nitrogen than an equivalent secondary STP. AWT accounts for 41.8% of the capital cost and 37.4% of the O&M. The grant-eligible capital cost is \$41.5 million; the annual O&M is \$2.2 million.

The De Pere STP, evaluated at a design flow of 14.2 mgd, will remove 5.7% more BOD, 8% more SS, and 64% more phosphorus than an equivalent secondary STP. AWT accounts for 49.9% of the capital cost and 54.9% of the O&M. The grant-eligible capital cost is \$17.9 million; the annual O&M is \$1.5 million.

The STP at San Jose/Santa Clara was evaluated at a design flow of 143 mgd, which corresponds to the peak of the canning season. It will remove 3.8% more BOD, 5.2% more SS, and 67.5% more ammoniacal nitrogen than an equivalent secondary STP. AWT accounts for 98.9% of the capital cost and 40% of the O&M. The grant-eligible capital cost is \$64.3 million; the annual O&M is \$14 million.

The Spokane STP, evaluated at a design flow of 40 mgd (which excludes the high flow in wet weather) will remove 54% more phosphorus than an equivalent secondary STP; its BOD and SS removal are identical to secondary. AWT accounts for 11% of the capital cost and 33.2% of the O&M. The grant-eligible capital cost is \$41.9 million; the annual O&M is \$3.5 million.

18. The heavy expense of operating AWT facilities leads one to look for ways to save money. There may be substantial savings from operating AWT facilities only when they are needed: There are times of year when AWT can have little effect on the receiving waters. For example, AWT need not be operated year-round in the Wallkill. AWT in the Wallkill is required to prevent oxygen problems during extreme summer droughts. In winter and in wet weather, oxygen problems in the Wallkill are extremely unlikely; consequently, AWT can make little difference to the river then. In Spokane, phosphorus removal was justified by the need to prevent algal blooms in Long Lake during the summer; consequently, there is little to be gained by removing phosphorus during the winter. None of the discharge permits we reviewed allows the STPs to modify their operations to account for seasonal variations; this inflexibility forces the STPs to miss an important opportunity to save money, with little risk to the receiving waters.

19. We conclude, in short, that AWT planning is a mess that needs cleaning up.

He spent several days as if he were bewitched, softly repeating to himself a string of fearful conjectures without giving credit to his own understanding.... The children would remember for the rest of their lives the august solemnity with which their father, devastated by his prolonged vigil and by the wrath of his imagination, revealed his discovery to them:

"The earth is round, like an orange."

Úrsula lost her patience. "If you have to go crazy, please go crazy all by yourself!" she shouted. "But don't try to put your gypsy ideas into the heads of the children." Gabriel García Márquez (1967), One Hundred Years of Solitude (trans. by Gregory Rabassa)

REPORT TO THE CONGRESS



*BY THE COMPTROLLER GENERAL
OF THE UNITED STATES*

Better Data Collection And Planning Is Needed To Justify Advanced Waste Treatment Construction

Environmental Protection Agency

Costs for advanced waste treatment are higher than costs for secondary treatment. The Environmental Protection Agency is financing some advanced waste treatment facilities without sufficient water quality data and planning.

In many instances, these facilities may not be the most effective or efficient means for achieving water quality goals. The Agency and the States need to obtain better water quality information and consider all water pollution control alternatives so that treatment methods selected will improve water quality and will result in more effective and efficient use of Federal funds.

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

BETTER DATA COLLECTION AND
PLANNING IS NEEDED TO JUSTIFY
ADVANCED WASTE TREATMENT
CONSTRUCTION
Environmental Protection Agency

D I G E S T

The 1972 amendments to the Federal Water Pollution Control Act authorized \$18 billion for the construction of publicly owned waste treatment facilities. As of March 31, 1976, about \$8.9 billion had been obligated for constructing publicly owned waste treatment facilities.

To this end, the Environmental Protection Agency and the States have placed a high priority on constructing such facilities and on issuing discharge permits. In many cases, these facilities will provide advanced waste treatment that is expensive as compared to facilities providing secondary treatment.

Because the 1972 amendments require municipalities to provide secondary treatment by July 1, 1977, extensive planning and data gathering was not of major importance in deciding to build secondary treatment facilities, since the minimum treatment levels were stipulated by law.

As a result, low priority was placed on gathering data on types, extent, and sources of pollution and on preparing comprehensive pollution abatement plans for river basins and local areas. Without reliable data and sound plans, however, the multimillion dollar advanced waste treatment facilities being constructed may not be the most effective and efficient means for achieving water quality goals.

GAO recommends that the Environmental Protection Agency:

--Publish final regulations on data collection which indicate specifically how States are to obtain information on adequate water quality.

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- Reassess its existing priorities to determine whether comprehensive water quality planning and data collection programs should be given additional emphasis.
- Determine whether existing resources at the State level are adequate to implement effective comprehensive water quality planning and data collection programs, and if not, request additional resources from the Congress.
- Before approving grants for the construction of expensive advanced waste treatment facilities, make sure that all water pollution control alternatives have been considered and that adequate information has been obtained on expected water quality improvements, high initial capital costs and annual operation and maintenance expense, sludge disposal problems that may result, and the existence of trained personnel to properly operate and maintain the facility.

If the Congress wishes to maintain closer scrutiny over the Agency's funding of advanced treatment facilities, the Congress may want to consider having the Administrator, Environmental Protection Agency, report to the Congress annually on the (1) costs and potential water quality improvements of new advanced treatment facilities and (2) problems and accomplishments of completed advanced treatment facilities in meeting their water quality objectives.

NEED TO IMPROVE WATER QUALITY
PLANNING AND DATA COLLECTION

Comprehensive information on water quality conditions and trends is essential in planning abatement actions needed to improve water quality. The Congress recognized the need for this when it enacted the Federal Water Pollution Control Act Amendments of 1972. These amendments require that comprehensive areawide and basin plans be prepared for determining the best course of action to follow for improving water quality.

Water quality data needed to support river basin and areawide planning are generally inadequate, and it is unlikely that adequate water quality data for determining the best course of action at the least cost to solve water pollution problems will be included in the plans once they are completed. One reason planning by the States is not comprehensive enough to identify the specific causes of water quality problems is that the Agency did not provide the States with detailed regulations for developing data collection programs which would produce the water quality information necessary to support the planning function. (See pp. 13 to 17.)

GAO believes there will be no improvement to the continuing problem of a lack of comprehensive plans until adequate data on the causes and effects of water pollution is obtained. It is only on the basis of such data that rational decisions can be made on treatment and other pollution abatement measures.

CONSTRUCTING MUNICIPAL ADVANCED
WASTE TREATMENT FACILITIES NOT
ADEQUATELY JUSTIFIED

Many expensive municipal advanced waste treatment facilities are being constructed even though they may not be the most effective or efficient means for achieving water quality goals.

In the States GAO visited, municipalities are constructing or planning to construct 26 expensive advanced waste treatment facilities, involving about \$882 million in Federal funds, to remove higher percentages of pollutants and nutrients. However, adequate water quality information on the major causes of pollution was not available.

Without more information on the sources of pollution and their effects on water quality, a thorough analysis of all alternative means of reaching water quality goals, and additional experimentation with advanced processes, the justification for several of these

advanced waste treatment facilities is questionable. Possible alternatives to advanced waste treatment include low flow augmentation, control of nonpoint sources of pollution, and a variety of other pollution abatement actions.

Justifications for advanced waste treatment facilities should consider the high initial capital costs and annual operation and maintenance expenses of the proposed facilities as well as the resulting sludge disposal problems and the need for trained personnel to operate and maintain the facilities properly. (See pp. 22 to 35.)

In the Washington, D.C., area, the Blue Plains, Alexandria, and Arlington advanced treatment facilities are being built at an estimated Federal cost of \$459 million. There is considerable uncertainty as to the expected improvements these facilities will have on the water quality of the Potomac River. Operation and maintenance costs for these plants will total about \$90 million a year. (See pp. 28 to 34.)

In Maryland, advanced waste treatment facilities, costing an estimated \$69 million in Federal funds, were planned for the Patuxent River Basin. These facilities were to remove nitrogen. GAO's review of the information used to justify constructing these facilities indicated that a less expensive program--such as phosphorus removal--might also be as feasible in improving water quality in the Patuxent.

As a result of GAO's questions, Maryland re-evaluated the need for removing nitrogen at four facilities and decided to defer constructing the nitrogen removal process, thereby saving \$13.5 million in Federal funds. Maryland officials believe that greater benefits can be achieved by using the funds for other purposes, such as upgrading primary treatment facilities to secondary treatment. (See pp. 23 to 25.)

An example of the benefits of using good water quality data in planning is the U.S. Geological Survey study of the Willamette

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A REVIEW OF THE LIMNOLOGY OF
and
WATER QUALITY STANDARDS FOR
LAKE MEAD

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VIII. RECOMMENDATIONS

1. In view of the deficiencies in existing data identified in this report, we recommend that a decision on AWT be deferred until certain essential information is obtained. The most important informational requirements are to:

- (i.) Determine the actual circulation and flow patterns in Las Vegas Bay and Boulder Basin with emphasis on the fate of the Las Vegas Wash inflow.
- (ii.) Establish the role of eroded soil on nutrient availability and algal production.
- (iii.) Quantify the growth of Lake Mead algal communities and bloom organisms in water equivalent to that produced by various wastewater treatment alternatives.
- (iv.) Better quantify nutrient fluxes to and from the sediments under present conditions in Las Vegas Bay and Boulder Basin, and determine the magnitude of internal nutrient loading from the sediments to be expected upon the eventual reduction of nutrient loading to Las Vegas Bay.
- (v.) Assess the most probable downstream effects of the alternative wastewater treatment strategies under consideration for Lake Mead.
- (vi.) From the above information, develop a predictive model of algal growth in Lake Mead under various wastewater treatment strategies.

2. We recommend that a committee be formed (or an existing committee be expanded) to coordinate the activities of agencies in the Las Vegas-Lake Mead area in regard to projects related to Lake Mead water quality. This committee should include representatives of the Clark County Sanitation District, the Environmental Protection Agency, the Bureau of Reclamation, the National Park Service, and independent scientific advisors expert in the areas of wastewater treatment, hydrology, and limnology. This committee should specifically strive for the development and maintenance of a comprehensive and ecologically-sound water quality program for Lake Mead and the lower Colorado River.
3. We recommend that lake level fluctuations be considered in attempts to predict the effects of nutrient inflow on water quality. More specifically, if Vollenweider's "permissible" loading relationship or other models are to be used to establish water quality criteria, calculations should be based on the lowest probable lake levels in order to avoid serious water quality deterioration during low-volume periods.
4. We urge that secondary wastewater treatment coupled with biological stripping of nutrients and water and nutrient reclamation be seriously considered as an economical and ecologically-viable alternative to AWT.
5. Additionally, further consideration should be given to relocating the point of effluent discharge from Las Vegas Wash to Boulder Basin (as described in Alternative 6, Section VI of this report).