ORIGINAL

LAW OFFICES
ROSE, SUNDSTROM & BENTLEY, LLP
2548 BLAIRSTONE PINES DRIVE
TALLAHASSEE, FLORIDA 32301

(850) 877-6555
FAX (850) 656-4029
www rsbattorneys.com

CENTRAL FLORIDA OFFICE
600 S. NORTH LAKE BLVD., SUITE 160
ALTAMONTE SPRINGS, FLORIDA 32701
(407) 830-6331
FAX (407) 830-8522

FREDERICK L. ASCHAUER, JR.
CHRIS H BENTLEY, P.A.
ROBERT C BRANNAN
DAVID F. CHESTER
F MARSHALL DETERDING
JOHN R. JENKINS, P.A.
STEVEN T MINDLIN, P.A.
DAREN L. SHIPPY
WILLIAM E. SUNDSTROM, P.A
DIANE D TREMOR, P.A.
JOHN L. WHARTON
ROBERT M. C. ROSE, *OF COUNSEL*
WAYNE L. SCHIEFELBEIN, *OF COUNSEL*

MARTIN S. FRIEDMAN, P.A.
VALERIE L. LORD, *OF COUNSEL*
(LICENSED IN TEXAS ONLY)

March 29, 2004
VIA HAND DELIVERY

Rosanne Gervasi, Esquire
Legal Division
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, Florida 32399-0850

Re: Aloha Utilities, Inc.; PSC Docket No. 020896
Our File No. 26038.37

Dear Rosanne:

Thank you and the staff for allowing us the additional time that Aloha needed in order to review the questions posed by the staff and to investigate with vendors and suppliers the various alternatives proposed in Dr. Levine's report. As you know, our engineers also had numerous discussions with Dr. Levine in order to get clarifications of her proposals and her comments and suggestions. Her input has been fully incorporated into our responses.

I am attaching hereto the responses to the staff questions, both on the responses and the cost estimates, the summary of estimates for both capital and operational costs prepared by David Porter, and our rough calculation of the rate impact each of the alternatives would have. Keep in mind that there are many assumptions underlying both David's analysis and the rate impact analysis. We have tried to detail the major assumptions within this information and within David's responses to each of your specific numbered inquiries, but there are always so many assumptions underlying a conceptual estimate such as this before design or permitting is undertaken, that we cannot begin to explain each of those underlying assumptions. However, we do believe that the attached is a good conceptual response and analysis of each of the options outlined in Dr. Levine's reports and our understanding of her recommendations as further clarified through our subsequent discussions with her and

with the various vendors of material, supplies and equipment related to those options.

If the Commission staff intends to utilize any of the information from this report and distribute it at the customer service hearing, we caution you to make sure that its conceptual nature is clearly noted and the major assumptions underlying it are also included.

If you have any further questions in this regard, please do not hesitate to contact me.

Sincerely,

ROSE, SUNDSTROM & BENTLEY, LLP

E. Marshall Deterding
For The Firm

FMD\tms
cc: Marshall Willis, CPA
Mr. Tom Walden
Stephen Watford, President
David Porter, P.E.

Docket 020896-WS
PSC Letter Dated February 20, 2004
Staff Data Request
Data Submission by Aloha Utilities, Inc.

Due to time constraints, the cost data was developed based on limited data and, therefore, must be considered conceptual in nature. This cost analysis provides a means of comparing the treatment alternatives based on similar design assumptions. More accurate cost information will result from discussing regulatory requirements with the FDEP as the project design work is undertaken.

It has been assumed when preparing these estimates that the PSC Commissioners would revise their Order in Docket 010503-WU to require Aloha to produce a finished water that is consistent with hydrogen sulfide performance standards required by Tampa Bay Water, i.e. that the average concentration of hydrogen sulfide is no more than 0.1 mg/L based on an annual average of 4 quarterly samples collected at the point of entry into the distribution system at each water plant. This limitation is consistent with the goals of Tampa Bay Water which supplies water to numerous water systems in this region as Dr. Levine discusses in her Water Audit Report.

We have assumed that the FDEP required conversion of Aloha's existing water plants from free chlorine disinfection to the sequential use of free chlorine followed by chloramine disinfection to make Aloha's water compatible with Tampa Bay Water/Pasco County water would be required to be completed by January 2005. It is important to note that this date represents a slip from an October 2004 target conversion date provided to Aloha Utilities several months ago by Pasco County. The revised date was only recently provided to Aloha by Pasco County. Therefore, the January 2005 conversion date has been assumed for the purposes of developing the responses herein. As Aloha has discussed with the Staff and the Commission previously, Aloha must convert its water treatment systems to chloramine disinfection by January 2005 to allow its water to be compatible with water supplied by Pasco County (Tampa Bay Water). Therefore, any process chosen for the hydrogen sulfide treatment step must be able to be implemented by January 2005 also.

Each of the options presented, and the related cost data, include the addition of treatment technology to produce a finished water with an average hydrogen sulfide concentration of 0.1 mg/L as described above and to implement the change from free gaseous chlorine disinfection to the use of liquid chlorine (sodium hypochlorite) as a primary disinfectant followed by chloramine as a secondary disinfectant which will be required to be completed as part of the modification of the plants.

Each of the treatment technologies Dr. Levine recommended in her report are capable of reducing the hydrogen sulfide concentration of Aloha's raw water to very low levels. We agree with Dr. Levine that when the hydrogen sulfide concentration of the finished water is reduced, and the other benefits provided by her recommended processes are realized, the potential for water odor and/or color generation in our customer's homes may be reduced.

When developing our response, we felt that it was necessary to consult with Dr. Levine to obtain her council on our application of her recommendations and to insure that our interpretation of her recommendations and our application of them was correct. We have provided her with draft cost estimation documents and draft answers to your questions as we were developing them to allow her to critique our work and to obtain her input. Based on our conversations with Dr. Levine she supports our positions as reported here.

1. Dr. Levine's report presents an excellent overview of each of these technologies, therefore, we will not repeat that information here. Below, we provide our view of what advantages and disadvantages each of the processes proposed by Dr. Levine exhibit in Aloha's opinion:

Packed Tower Aeration

This process is capable of decreasing the concentration of hydrogen sulfide which naturally occurs in Aloha's well water to meet the goals discussed above. By reducing the pH of the raw water to approximately 6.0 pH units prior to the aeration process, the hydrogen sulfide concentration of the finished water would meet the target concentration utilized by Tampa Bay Water of 0.1 mg/L. The reduction of the hydrogen sulfide concentration by aeration will allow the chloramination process, which will follow the aeration process, to operate more reliably and efficiently. The total quantity of sulfur and sulfur compounds (mostly sulfate and very low levels of elemental sulfur in this case), known as the "total sulfur load," distributed with the finished water will be slightly reduced with this technology. However, the total reduction in total sulfur load will be small compared to the total background load. Also, turbidity can be generated by this treatment technology due to biological growth within the aeration towers. It is important to note that the water that will be provided to Aloha by Tampa Bay Water via Pasco County as supplemental supply starting early next year may at times contain considerably more total sulfur load than the water now produced by Aloha's system. This is because the water produced by the surface water treatment plant owned by Tampa Bay Water reportedly contains sulfate levels much higher than Aloha's water. Therefore, the small reduction in total sulfur load provided by the packed tower aeration system would appear to be of little, if any, measurable benefit. The water pH leaving this process will be increased to a value that may allow Aloha to forgo the use of the corrosion control chemical that it is now required to add to its water. If allowed by FDEP, and if the corrosion control program continues to meet USEPA and FDEP mandates, the reduction in O&M costs associated with addition of the present corrosion control chemical will offset part of the operating cost of this process. The O&M conceptual cost estimates provided for this process assume that the corrosion control chemical will not be required in the future if this process is implemented.

One major disadvantage associated with this process is that it can not be implemented at each of the existing well sites due to space limitations (the process equipment will not fit on the small existing well site parcels). In addition, noise and other environmental factors would likely prevent permitting approval for the installation of this process at the existing sites, the majority of which are located very near residential structures. Therefore, centralization of the water treatment functions into three plants would be required. This centralization requirement will result in higher estimated capital costs for this implementation of this process than any of the other options. The O&M costs associated with this process are also higher than the others. The time required to construct this process will be substantially longer than the time required for hydrogen peroxide oxidation treatment implementation. This is because the centralization of the facilities and construction of three new plants will be very time consuming. This process could not be implemented before the January 2005 deadline when Aloha must have the chloramination (and therefore, new hydrogen sulfide treatment systems) on line to comply with FDEP requirements that its water must be compatible with bulk water provided by Pasco County.

The process will also produce a highly oxygenated water. Some experts have indicated that they believe that high oxygen levels can increase copper corrosion rates, however, others have stated that the increase in oxygen levels may limit the growth of sulfur reducing bacteria (in at least cold water piping) that may lessen the reformation of hydrogen sulfide in homes which may reduce the corrosion of copper piping in the homes. There is merit to both of these positions. The extent to which copper corrosion will be reduced or increased is related to the relative effect of each of these actions, one offsetting the other. The overall effect of the increase in oxygen is therefore not known at this time and will not be known until the process is placed into service if it is chosen. If copper corrosion is lessened, that will be welcomed. If it is increased, then the current or an alternate corrosion inhibitor will be required to be added to the water to offset this new source of corrosion and these facilities would need to be added.

Hydrogen Peroxide Oxidation

This process is also capable of producing a finished water which will meet the Tampa Bay Water target hydrogen sulfide concentration of 0.1 mg/L when utilized with a chlorine oxidation polishing step. Conceptually, it appears that this process can be implemented where required at the existing well sites. Based on our discussions with Dr. Levine and our very preliminary conceptual process designs, it appears that the hydrogen peroxide oxidation step would be necessary at all wells except wells 1 and 7 and that only the chloramine conversation would need to be added at these sites. The reduction of the hydrogen sulfide concentration by hydrogen peroxide oxidation will allow the chloramination process, which will follow the hydrogen peroxide oxidation process, to operate more reliably and efficiently. As stated above, at this point it appears that this process can be implemented at each of the existing well sites where it is required and that has been assumed to be true for the purposes of this analysis of conceptual feasibility and costs. However, as the design and permitting process proceeds this may change. The capital and O&M costs associated with implementation of this process are relatively small when compared with the other alternatives. The pH of the water leaving this process will be increased to a value that may allow Aloha to forgo the use of the corrosion control chemical that it is required to add to its water. If allowed by FDEP, and if the corrosion control program continues to meet USEPA and FDEP mandates, the reduction in O&M costs associated with addition of the present corrosion control chemical will offset part of the operating cost of this process. The O&M conceptual cost estimates provided herein for this process assume that the corrosion control chemical will not be required in the future if this process is implemented. The oxygen levels of the water produced with this process alternative will be increased slightly. However, that increase will be much less than the oxygen levels expected with the packed tower aeration process. Dr. Levine, in her report, stated that she believed that this smaller level of oxygen concentration increase would limit the growth of sulfur reducing bacteria. We also believe that this is true, especially for cold water home piping systems. Since the oxygen concentration increases would be minimal, it is possible that selection of this process will result in a net reduction in copper pipe corrosion and help to reduce the formation of black water. The extent of this reduction, if any, would not be known until the process is placed into operation if this process is selected.

Because this process utilizes "off-the-shelf" chemical metering pumps and simple steel tanks as process equipment, this process can be implemented by the January 2005 FDEP deadline for Aloha to convert its systems to chloramine disinfection provided no unforeseen issues develop.

The use of hydrogen peroxide for hydrogen sulfide oxidation in drinking water is quite new. It has not been utilized anywhere in Florida for this express purpose previously. However, we have spoken with the FDEP permitting section engineers and, based on those informal discussions, we believe that with some additional bench-top pilot testing this process can be permitted. The total sulfur load of the finished water will not be reduced by the use of this process, however, as noted in the discussion of the packed tower aeration process, it will still be much lower than the sulfur levels associated with water produced by Tampa Bay Water at their surface water treatment plant which will begin flowing into Aloha's water system early next year. Therefore, this fact does not appear to constitute a disadvantage.

Ozone Oxidation

This process is also capable of producing a finished water which will meet the Tampa Bay Water target hydrogen sulfide concentration of 0.1 mg/L. The reduction of the hydrogen sulfide concentration by ozone oxidation will allow the chloramination process, which will follow the ozone oxidation process, to operate more reliably and efficiently. The capital cost to implement this process is relatively small in comparison with all the other processes being evaluated other than the hydrogen peroxide oxidation process without membrane filtration. Ozone is a toxic gas. It may not be feasible or desirable to construct ozone generation equipment and process off-gas

destruct units at the existing well sites due to the location of many homes very near some of the wells. If it is not feasible or desirable the facilities will need to be centralized. Also, as the design and permitting for this process proceeds it may be determined that the ozone equipment will not fit on the existing sites requiring centralization of the facilities. For purposes of this conceptual analysis it has been assumed that centralization will not be required for this process option. However, that assumption is tenuous. If centralization is required, capital costs for this option would be increased substantially. This would also greatly affect the estimated conceptual rate impacts. Additional operator training and certification is required for the use of ozonation equipment.

The time required to construct this process will be longer than the time required for hydrogen peroxide oxidation treatment. This is because the ozone generators and stainless steel reactors have a longer lead-time between order and delivery and their installation is more complicated. This process can not be implemented before the January 2005 deadline when Aloha must have the chloramination (and therefore, new hydrogen sulfide treatment systems) on-line to comply with FDEP requirements that its water must be compatible with bulk water received from Pasco County.

The total sulfur load of the finished water will not be reduced by the use of this process, however, as noted in the discussion of the packed tower aeration process, it will still be much lower than the water produced by Tampa Bay Water at their surface water treatment plant which will begin flowing into Aloha's water system early next year. Therefore, this fact does not appear to constitute a disadvantage. Based on our discussions with Dr. Levine and our very preliminary conceptual process designs, at this point, it appears that the ozone oxidation step would not be required at wells 1 and 7 and that only the chloramine conversation would be required to be added at these sites. The oxygen levels of the water produced will also be increased, however, much less than with the packed tower aeration process. Dr. Levine, in her report, stated that she believed that this level of oxygen concentration increase would limit the growth of sulfur reducing bacteria. We also believe that this is true, especially for cold water home piping systems. Since the oxygen concentration increases would be only moderate, it is possible that selection of this process will result in a net reduction in water quality problems associated with copper pipe corrosion. The extent of this reduction, if any, would not be known until the process is placed into operation if this process is selected.

Hydrogen Peroxide Oxidation Coupled with Membrane Filtration

This option adds a membrane filtration (MF) step after the hydrogen peroxide oxidation step. Here the hydrogen peroxide oxidation process would be operated differently than when it is utilized alone so as to produce more elemental sulfur than sulfate. The membrane filters would then remove the elemental sulfur generated during the oxidation step. Utilizing these two processes together in this manner would slightly reduce the overall sulfur load distributed with the finished water. However, since the raw water contains sulfate concentrations that will not be reduced by the process, the overall sulfur load reduction would be minor. Also, as stated earlier, this small sulfur load reduction would be greatly overshadowed by the increase in sulfur load which may be introduced by supplemental water which will be supplied by Pasco County (Tampa Bay Water) starting early next year. Therefore, there appears to be little benefit in adding the membrane filtration step to the hydrogen peroxide oxidation process in Aloha's case.

This process will result in approximately 3% or more (up to 60,000 gallons per day) of the raw water supply being lost as a waste product generated when the filters much be backwashed. This waste must be disposed of at a wastewater treatment plant. The disposal of this waste will require that a sewer connection is available to accommodate this waste disposal. Also, the existing wastewater plant available capacity will be reduced by the quantity of waste generated in this process. The size of the MF units are large and there may not be room to fit them on the existing sites. It may be found, as the engineering of the project begins, that centralization of the treatment systems will be required. For purposes of this conceptual analysis it has been assumed that

centralization will not be required for this process option. However, that assumption is tenuous. If centralization is required, capital costs for this option would be increased substantially. This would also greatly affect the estimated conceptual rate impacts.

Due to the long lead times associated with the membrane filtration equipment and the complexity of the implementation of this process, we do not believe that this process can be implemented by the FDEP deadline for Aloha to modify its plants to disinfect with chloramine.

2. Due to the FDEP requirement that the existing plants be modified to convert from free chlorine disinfection to combined free chlorine and chloramination disinfection by January 2005 at the latest, there is not sufficient time to allow all the various process options to be pilot tested. One of the processes must be selected immediately for implementation, piloted, designed, permitted and constructed as fast as possible if there is any hope in meeting the January 2005 deadline. The hydrogen peroxide oxidation process can be implemented by the required date providing no unforeseen issues develop. All other processes being considered can not be implemented by the required date. The conceptual estimated capital and O&M costs for the hydrogen peroxide oxidation process are also considerably lower than the next less expensive option. Therefore, it would appear to be prudent to pilot test only the hydrogen peroxide process so that final design data could be obtained and forgo pilot testing of the other options that can not be implemented in the allowable time or at a reasonable cost. To pilot test the other options would take many months and hundreds of thousands of dollars for no apparent benefit. We have spoken with Dr. Levine about this issue and she is in agreement with this position.

   There was insufficient time for Aloha to be able to develop the actual steps and timeframes you request. To be able to develop this type of information requires much more detailed analysis and discussions with FDEP than could be accomplished in the short time period since your request for information was received. Based on our conceptual analysis of the options (presented in 1 above), our discussions with Dr. Levine about our analysis and the time limitations that exist for the completion of actual construction of one of these options due to the FDEP required chloramine conversion by January 2005, we believe that the only option that is feasible on a cost and time basis is the hydrogen peroxide oxidation process without membrane filtration. Therefore, we took the very limited time available to attempt to determine how long the time frames for this one option were. Based on our very limited and informal meeting with FDEP staff permitting engineers, we estimate that the bench-top piloting of this process may be able to be completed in 4 to 6 weeks. Again, based on very conceptual data, we hope to be able to implement this process by January 2005.

3. Please see our response to your question number 2 for information on why only the hydrogen peroxide oxidation pilot testing costs were developed. The cost of bench-top piloting the hydrogen peroxide oxidation process is conceptually estimated to be less than $150,000. However, this estimate is based on only very preliminary discussions with FDEP and is therefore subject to change.

   We have attached a spreadsheet which provides conceptual estimated capital and O&M cost data for each of the identified options.

4. We have attached worksheets which provide conceptual percentage estimates of the rate impacts for each of the options.

5. Due to the fact that Aloha must modify its existing plants to convert from chlorine disinfection to combined free chlorine and chloramine disinfection by January 2005, the only treatment option recommended by Dr. Levine that appears to be able to be constructed within the time requirements is the hydrogen peroxide oxidation (without membrane filtration) process. This process is the lowest cost alternative from both a conceptual estimated capital cost and conceptual estimated O&M cost perspective. We have described the relative benefits Aloha feels this option affords in our answer to Question 1 above. Aloha and its consulting engineer like all the other experts who have been asked to

give an opinion of the ability of one process over another to "effectively and efficiently correct the black water problem" can not provide an answer to this question. Dr. Levine was not able to make such a statement, the best minds in State service who participated in the PSC sponsored study group could not make such a statement, numerous expert witnesses who gave testimony in the various dockets before the PSC related to this matter could not provide a definitive answer, and neither can Aloha or its consultants. However, having said this, Aloha agrees with Dr. Levine that the hydrogen peroxide oxidation process offers major benefits (as described above in the question 1 answer) and that it may lessen the chance for hydrogen sulfide reformation in the customer's home piping systems which should lessen the chance for the formation of black water.

6. Please see our answer to number 5 above.

Seven Springs Water System

Water Facilities Upgrades Conceptual Estimated Budget Costs

Summary Sheet

Treatment Option	Conceptual Capital Cost	Conceptual Incremental O&M Cost
Packed Tower Aeration	$14,500,000	$3,100,000
H2O2 Oxidation - Rental	$3,500,000	$390,000
H2O2 Oxidation - Purchase	$4,000,000	$340,000
Ozone Oxidation	$6,900,000	$520,000
H2O2 Oxidation/Membrane Filtration - Rental	$11,800,000	$580,000
H2O2 Oxidation/Membrane Filtration - Purchase	$12,300,000	$530,000

Notes:

1. Values are only conceptual in nature and subject to change as design and permitting activities are undertaken.
2. Values provided are to be used to compare the relative cost/benefit of one option verses another.
3. No costs are included for engineering, legal, project financing, etc.
4. The costs were developed prior to preliminary and final design engineering and permitting being undertaken, therefore, a number of items can affect the actual capital and/or O&M costs that will be realized. Also, FDEP has recently made major changes to their rules pertaining to water facility design, construction and operation and maintenance requirements. These scope of these requirements is broad; the impact of these FDEP rule requirements has not been included in these costs.
5. The Packed Tower Aeration costs include a number of items such as large storage and high service pumping facilities not included in the other options due to the need to centralize facilities with this option.
6. Once engineering design and permitting is underway, it may be found that the size of the existing well sites may be very limited, or not sufficient which will affect capital and O&M costs.
7. Conceptual Capital Costs rounded to the nearest $100,000.
8. Conceptual Incremental O&M Costs rounded to the nearest $10,000.
9. The word "Purchase" means purchase of the H2O2 and pH adjustment equipment. The word "Rental" means lease of the H2O2 and pH adjustment equipment.

ALOHA UTILITIES, INC.
Estimated Revenue Impact of Water Facilities Upgrades

PACKED TOWER AERATION

1.	Depreciation		
	Conceptual Capital Costs	$14,500,000 [1] & [2]	
	Depreciation Expense	3.5%[3]	
	Annual Depreciation Expense		$ 507,500
2.	Return on Added Investment		
	Conceptual Capital Costs	$14,500,000 [1] & [2]	
	Last Authorized Rate-of-Return	8.52%	
	Return on Improvements		1,235,400
3.	Conceptual Incremental Annual O&M Costs		3,100,000[1]
	Total Additional Expenses and Return		4,842,900
	Regulatory Assessment Fee Expansion Factor		÷ .955
	Total Revenue Impact		$ 5,071,099
	2002 Seven Springs Annualized Water Revenue		$ 1,935,872
	Percentage Increase in Rates		261.95%

[1] The estimates of capital costs and O&M costs may change significantly, once permitting requirements and the other DEP requirements are known and considered. In addition, centralization of water plant facilities may be required to implement most of the treatment processes evaluated. In the case of packed tower aeration, such centralization requirement is definite and the related costs have therefore been included in this conceptual analysis. While centralization is likely with regard to the addition of ozone treatment and any membrane filtration, such centralization costs have not been included in this conceptual analysis because the requirement for centralization in those cases is not conclusive. No centralization costs have been considered with regard to the H_2O_2 oxidation treatment alternative without membrane filtration, because it is currently believed that centralization will not be necessary for those treatment options alone.

Estimated conceptual O&M costs for each of the alternative treatment methods do not include additional income taxes, property taxes, insurance expenses, etc. associated with any of the alternative treatment changes discussed in these analyses. Only estimates of direct labor, chemicals and electric have been undertaken to calculate the conceptual incremental annual O&M costs.

[2] The Utility will also incur engineering, legal and other costs related to design, permitting and construction of the above components. These have not been included in the estimated conceptual capital costs.

[3] We have utilized for simplicity a 3.5% composite depreciation rate in calculating the rough estimate of revenue impact of the various alternatives. Component depreciation rates may also yield a different depreciation expense, especially with regard to short lived items like membrane filtration equipment, and may therefore increase depreciation expense substantially.

Schedule No. 2

ALOHA UTILITIES, INC.
Estimated Revenue Impact of Water Facilities Upgrades

H_2O_2 OXIDATION - RENTAL

1.	Depreciation		
	Conceptual Capital Costs	$ 3,500,000 [1] & [2]	
	Depreciation Expense	3.5% [3]	
	Annual Depreciation Expense		$ 122,500
2.	Return on Added Investment		
	Conceptual Capital Costs	$ 3,500,000 [1] & [2]	
	Last Authorized Rate-of-Return	8.52%	
	Return on Improvements		298,200
3.	Conceptual Incremental Annual O&M Costs		390,000[1]
	Total Additional Expenses and Return		$ 810,700
	Regulatory Assessment Fee Expansion Factor	÷	.955
	Total Revenue Impact		$ 848,901
	2002 Seven Springs Annualized Water Revenue		$ 1,935,872
	Percentage Increase in Rates		43.85%

[1] The estimates of capital costs and O&M costs may change significantly, once permitting requirements and the other DEP requirements are known and considered. In addition, centralization of water plant facilities may be required to implement most of the treatment processes evaluated. In the case of packed tower aeration, such centralization requirement is definite and the related costs have therefore been included in this conceptual analysis. While centralization is likely with regard to the addition of ozone treatment and any membrane filtration, such centralization costs have not been included in this conceptual analysis because the requirement for centralization in those cases is not conclusive. No centralization costs have been considered with regard to the H_2O_2 oxidation treatment alternative without membrane filtration, because it is currently believed that centralization will not be necessary for those treatment options alone.

Estimated conceptual O&M costs for each of the alternative treatment methods do not include additional income taxes, property taxes, insurance expenses, etc. associated with any of the alternative treatment changes discussed in these analyses. Only estimates of direct labor, chemicals and electric have been undertaken to calculate the conceptual incremental annual O&M costs.

[2] The Utility will also incur engineering, legal and other costs related to design, permitting and construction of the above components. These have not been included in the estimated conceptual capital costs.

[3] We have utilized for simplicity a 3.5% composite depreciation rate in calculating the rough estimate of revenue impact of the various alternatives. Component depreciation rates may also yield a different depreciation expense, especially with regard to short lived items like membrane filtration equipment, and may therefore increase depreciation expense substantially.

ALOHA UTILITIES, INC.
Estimated Revenue Impact of Water Facilities Upgrades

H_2O_2 OXIDATION - PURCHASE

1.	Depreciation		
	Conceptual Capital Costs	$ 4,000,000 [1] & [2]	
	Depreciation Expense	3.5%[3]	
	Annual Depreciation Expense		$ 140,000
2.	Return on Added Investment		
	Conceptual Capital Costs	$ 4,000,000 [1] & [2]	
	Last Authorized Rate-of-Return	8.52%	
	Return on Improvements		340,800
3.	Conceptual Incremental Annual O&M Costs		340,000[1]
	Total Additional Expenses and Return		$ 820,800
	Regulatory Assessment Fee Expansion Factor	÷	.955
	Total Revenue Impact		$ 859,476
	2002 Seven Springs Annualized Water Revenue		$ 1,935,872
	Percentage Increase in Rates		44.40%

[1] The estimates of capital costs and O&M costs may change significantly, once permitting requirements and the other DEP requirements are known and considered. In addition, centralization of water plant facilities may be required to implement most of the treatment processes evaluated. In the case of packed tower aeration, such centralization requirement is definite and the related costs have therefore been included in this conceptual analysis. While centralization is likely with regard to the addition of ozone treatment and any membrane filtration, such centralization costs have not been included in this conceptual analysis because the requirement for centralization in those cases is not conclusive. No centralization costs have been considered with regard to the H_2O_2 oxidation treatment alternative without membrane filtration, because it is currently believed that centralization will not be necessary for those treatment options alone.

Estimated conceptual O&M costs for each of the alternative treatment methods do not include additional income taxes, property taxes, insurance expenses, etc. associated with any of the alternative treatment changes discussed in these analyses. Only estimates of direct labor, chemicals and electric have been undertaken to calculate the conceptual incremental annual O&M costs.

[2] The Utility will also incur engineering, legal and other costs related to design, permitting and construction of the above components. These have not been included in the estimated conceptual capital costs.

[3] We have utilized for simplicity a 3.5% composite depreciation rate in calculating the rough estimate of revenue impact of the various alternatives. Component depreciation rates may also yield a different depreciation expense, especially with regard to short lived items like membrane filtration equipment, and may therefore increase depreciation expense substantially.

ALOHA UTILITIES, INC.
Estimated Revenue Impact of Water Facilities Upgrades

OZONE OXIDATION

1.	Depreciation		
	Conceptual Capital Costs	$ 6,900,000 [1] & [2]	
	Depreciation Expense	3.5%[3]	
	Annual Depreciation Expense		$ 241,500
2.	Return on Added Investment		
	Conceptual Capital Costs	$ 6,900,000 [1] & [2]	
	Last Authorized Rate-of-Return	8.52%	
	Return on Improvements		587,880
3.	Conceptual Incremental Annual O&M Costs		520,000[1]
	Total Additional Expenses and Return		1,349,380
	Regulatory Assessment Fee Expansion Factor		÷ .955
	Total Revenue Impact		$ 1,412,963
	2002 Seven Springs Annualized Water Revenue		$ 1,935,872
	Percentage Increase in Rates		72.99%

[1] The estimates of capital costs and O&M costs may change significantly, once permitting requirements and the other DEP requirements are known and considered. In addition, centralization of water plant facilities may be required to implement most of the treatment processes evaluated. In the case of packed tower aeration, such centralization requirement is definite and the related costs have therefore been included in this conceptual analysis. While centralization is likely with regard to the addition of ozone treatment and any membrane filtration, such centralization costs have not been included in this conceptual analysis because the requirement for centralization in those cases is not conclusive. No centralization costs have been considered with regard to the H_20_2 oxidation treatment alternative without membrane filtration, because it is currently believed that centralization will not be necessary for those treatment options alone.

Estimated conceptual O&M costs for each of the alternative treatment methods do not include additional income taxes, property taxes, insurance expenses, etc. associated with any of the alternative treatment changes discussed in these analyses. Only estimates of direct labor, chemicals and electric have been undertaken to calculate the conceptual incremental annual O&M costs.

[2] The Utility will also incur engineering, legal and other costs related to design, permitting and construction of the above components. These have not been included in the estimated conceptual capital costs.

[3] We have utilized for simplicity a 3.5% composite depreciation rate in calculating the rough estimate of revenue impact of the various alternatives. Component depreciation rates may also yield a different depreciation expense, especially with regard to short lived items like membrane filtration

ALOHA UTILITIES, INC.
Estimated Revenue Impact of Water Facilities Upgrades

H_2O_2 OXIDATION + MEMBRANE FILTRATION - Rental

1.	Depreciation		
	Conceptual Capital Costs	$ 11,800,000 [1] & [2]	
	Depreciation Expense	3.5%[3]	
	Annual Depreciation Expense		$ 413,000
2.	Return on Added Investment		
	Conceptual Capital Costs	$ 11,800,000 [1] & [2]	
	Last Authorized Rate-of-Return	8.52%	
	Return on Improvements		$ 1,005,360
3.	Conceptual Incremental Annual O&M Costs		580,000[1]
	Total Additional Expenses and Return		$ 1,998,360
	Regulatory Assessment Fee Expansion Factor	÷	.955
	Total Revenue Impact		$ 2,092,524
	2002 Seven Springs Annualized Water Revenue		$ 1,935,872
	Percentage Increase in Rates		108.09%

[1] The estimates of capital costs and O&M costs may change significantly, once permitting requirements and the other DEP requirements are known and considered. In addition, centralization of water plant facilities may be required to implement most of the treatment processes evaluated. In the case of packed tower aeration, such centralization requirement is definite and the related costs have therefore been included in this conceptual analysis. While centralization is likely with regard to the addition of ozone treatment and any membrane filtration, such centralization costs have not been included in this conceptual analysis because the requirement for centralization in those cases is not conclusive. No centralization costs have been considered with regard to the H_2O_2 oxidation treatment alternative without membrane filtration, because it is currently believed that centralization will not be necessary for those treatment options alone.

Estimated conceptual O&M costs for each of the alternative treatment methods do not include additional income taxes, property taxes, insurance expenses, etc. associated with any of the alternative treatment changes discussed in these analyses. Only estimates of direct labor, chemicals and electric have been undertaken to calculate the conceptual incremental annual O&M costs.

[2] The Utility will also incur engineering, legal and other costs related to design, permitting and construction of the above components. These have not been included in the estimated conceptual capital costs.

[3] We have utilized for simplicity a 3.5% composite depreciation rate in calculating the rough estimate of revenue impact of the various alternatives. Component depreciation rates may also yield a different depreciation expense, especially with regard to short lived items like membrane filtration equipment, and may therefore increase depreciation expense substantially.

ALOHA UTILITIES, INC.
Estimated Revenue Impact of Water Facilities Upgrades

H_2O_2 OXIDATION AND MEMBRANE FILTRATION - PURCHASE

1. Depreciation		
Conceptual Capital Costs	$ 12,300,000 [1] & [2]	
Depreciation Expense	3.5% [3]	
Annual Depreciation Expense		$ 430,500
2. Return on Added Investment		
Conceptual Capital Costs	$ 12,300,000 [1] & [2]	
Last Authorized Rate-of-Return	8.52%	
Return on Improvements		1,047,960
3. Conceptual Incremental Annual O&M Costs		530,000 [1]
Total Additional Expenses and Return		$ 2,008,460
Regulatory Assessment Fee Expansion Factor		÷ .955
Total Revenue Impact		$ 2,103,099
2002 Seven Springs Annualized Water Revenue		$ 1,935,872
Percentage Increase in Rates		108.64%

[1] The estimates of capital costs and O&M costs may change significantly, once permitting requirements and the other DEP requirements are known and considered. In addition, centralization of water plant facilities may be required to implement most of the treatment processes evaluated. In the case of packed tower aeration, such centralization requirement is definite and the related costs have therefore been included in this conceptual analysis. While centralization is likely with regard to the addition of ozone treatment and any membrane filtration, such centralization costs have not been included in this conceptual analysis because the requirement for centralization in those cases is not conclusive. No centralization costs have been considered with regard to the H_2O_2 oxidation treatment alternative without membrane filtration, because it is currently believed that centralization will not be necessary for those treatment options alone.

Estimated conceptual O&M costs for each of the alternative treatment methods do not include additional income taxes, property taxes, insurance expenses, etc. associated with any of the alternative treatment changes discussed in these analyses. Only estimates of direct labor, chemicals and electric have been undertaken to calculate the conceptual incremental annual O&M costs.

[2] The Utility will also incur engineering, legal and other costs related to design, permitting and construction of the above components. These have not been included in the estimated conceptual capital costs.

[3] We have utilized for simplicity a 3.5% composite depreciation rate in calculating the rough estimate of revenue impact of the various alternatives. Component depreciation rates may also yield a different depreciation expense, especially with regard to short lived items like membrane filtration equipment, and may therefore increase depreciation expense substantially.