BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

ALOHA UTILITIES, INC.

DOCKET NO. 010503-WU

REBUTTAL TESTIMONY OF DAVID W. PORTER, P.E., C.O.

Q. Please state your name and professional address.

A. David W. Porter, P.E., C.O., Water/Wastewater System Consulting Engineer, 3197 Ryans Court, Green Cove Springs, Florida, 32043

Q. Have you been retained by Aloha Utilities, Inc. to provide testimony and assist in the preparation of exhibits in this proceeding?

A. Yes.

Q. Have your previously provided direct testimony in this case?

A. Yes.

Q. What is the purpose of this testimony?

A. To respond to the various issues raised in the direct testimony of witnesses for the Office of Public Council (OPC), the South West Florida Water Management District (SWFWMD) and the Commission Staff.

Q. How is your rebuttal testimony organized?

A. First I have a series of comments that apply to the testimony of Mr. Biddy, Mr. Stewart and Mr. Stallcup. I will begin with those comments. Then I will go on to provide additional testimony specifically related to each

witness's testimony.

Comments Related to Mr. Biddy, Mr. Stewart and Mr. Stallcup

Q. You have read the testimony provided by Mr. Biddy, Mr. Stewart and Mr. Stallcup; do you have comments that applies to testimony given by all three of these gentlemen?

A. Yes. The testimony provided by each of these gentlemen includes statements which I believe indicates that each did not understand the basis for the argument the Utility is making related to demographic shifts taking place in the water system. These demographic changes required the water consumption projections to be determined in a way that perhaps is not familiar to these gentlemen. The water consumption methodology was developed to take account of the following facts:

1. In the early days, the majority of the homes constructed in Aloha's service area were very small retirement homes with few water use fixtures, few pools, small lawns (no individual lawns if they were condos or apartments) with little or no irrigation, and one or two persons who may only live in the unit on a seasonal basis. These customers use very little water. In fact, these people make up the majority of

the number of existing customers. Later, larger, more non-seasonal units began to be constructed in the service area. These customers were more affluent retiring couples which consumed larger quantities of water. The number of these types of customers is second in overall number to the early customers. Recently (within the last 10 years), the service area gained a reputation as a desirable location for commuting professional families to relocate to from the metropolitan Tampa-St. Petersburg area. At this same time, the quantity of available developable land in the service area began to diminish because those developers with foresight had already obtained or secured options on large portions of the service area. This caused the price of building lots to increase considerably. The homes constructed during this period, and those that will be constructed in the future, are quite different from those in the past, as is the demographic of the occupants of those homes. Newly constructed homes are large with 3, 4 or more bedrooms with multiple water fixtures, many have large pools and large lawns seeded with

expensive turf requiring irrigation. There was a time when homes in the service area sold for $40,000, however, the cost of the homes being constructed today is now approaching $400,000 in some of the more prestigious neighborhoods. These homes are largely located in prestige subdivisions with homeowner's associations that require the maintenance of all turf in good health (requiring water for irrigation). The persons inhabiting these homes are younger and are families with children, including teen-aged children which consume relatively large quantities of water (as any parent of teen-agers will attest). The builders brochures for the subdivisions with lots available in the service area expound on the amenities available in their subdivision for families (such as parks, playgrounds, etc.) and describe the large number of new schools that have recently been constructed in the service area for students from elementary school through college. Pasco County has indeed constructed new elementary, middle and high schools in the area during this period of demographic change. In addition a new college has been constructed,

as have YMCA type recreational areas. None of these facilities would have been constructed if it were not the opinion of the County, the YMCA Board, the College Trusties and the developers that a large number of new families were going to be relocating to the service area.

2. None of the subdivisions constructed to serve the early customers have any remaining lots on which to build. The subdivisions with remaining lots are those that have been constructed to serve those new, highly affluent, family-type customers. Therefore, all new Aloha customers will be from those newer subdivisions.

3. The Utility management and staff live in the general area and experience the changes first-hand. In addition, the Utility management interfaces with all the developers and is well aware of their development plans. Aloha's office and field staff interface with every new customer when they sign-up for service, when they pay their monthly bill and when they call for assistance. Mr. Watford has been with the Utility for over 25 years. Many of his staff have also been with the Utility for many years. Who, other than Aloha's management and staff,

would be in a position to see the changes taking place over time to Aloha's customer demographic. Certainly not someone who has been to the service area only a few times, if at all, as has Mr. Biddy, Mr. Stewart, the OPC staff or anyone from the Commission staff.

4. In early April of 2001, the Commission Staff and Aloha attended a meeting where they discussed the parameters for a rate case filing. The purpose of the meeting was to determine an acceptable test year and to discuss any special requirements that Staff would have related to the filing. Staff advised Aloha that it would expect Aloha to include the impact of increased usage by new customers added to Aloha's system on any water consumption projections. Staff was aware of the demographic shift taking place in Aloha's service area and that new customers consumed more water. This situation had been discussed in Aloha's wastewater case, Docket No. 991643-SU. The Utility was also aware of the shift in customer demographics and their related water consumption and agreed to comply with staff's request.

5. The Utility was also well aware that this rate case was all about being able to pay for water received from a third party (Pasco County) to serve its customers. This was required because their existing SWFWMD Water Use Permit did not allow Aloha to pump enough water from its own wells to serve the existing customers, much less the large number of new, higher water using customers to be added to the system each year. Aloha also knew that the County would charge $2.35 for every 1,000 gallons of water Aloha needed to take from the County to meet the demands of its customers. Therefore, Aloha realized that it was imperative that an accurate estimate of the number of gallons of water to be purchased from the County be developed. If this estimate is understated, the economic damage to the utility would be catastrophic due to the marginal cost of each 1,000 gallons of water that is provided in excess of Aloha's existing SWFWMD Water Use Permit. If the estimate was too low, the Utility could be bankrupt before a new rate case could be completed. Also, the cost of a second rate case to "true-up" the rates to

reflect the actual water consumption values would be great and place an unfair cost on the ratepayers. Aloha realized that the consumption estimates had to be right the first time.

6. Since **ALL** new customers will come from the high water use subdivisions, Aloha and its consultants developed a methodology that would take into consideration the changing demographics of its customers and their water use. The water consumption per ERC per year was obtained from Aloha's billing records for **EVERY** subdivision in its service area. Then the subdivision water consumption use records were separated out based on whether the subdivision was constructed prior to ten years ago (representing the earlier customer type) or within the last 10 years (representing the later customer type and those to be constructed in the future). The data set included the most recent 12 monthly billing records. This time period was chosen because the goal was to determine what the later customer type water consumption was for use in projecting test year use and on a going-forward basis. This data clearly showed that those customers in the

subdivisions constructed within the last 10 years used considerably more water then the earlier customers or the average of the water use for the system taken as a whole. These recent customers demanded approximately 500 gallons/ERC/day of water. This value is for the water sold to the customers and does not include water used in the treatment process itself, water used for system maintenance or water lost from the system.

7. Aloha's records for the last ten years have shown that the trend in the quantity of water used in its system increases each year. This is largely due to the additional water used by the new customers being added to the system each year. It would be foolish to believe that the quantity of water to be used in the test year would be less than for the year before due to the fact that some 473 new customers are projected to be added to the system in the test year. Since we know that **ALL** these new customers will come from the high water use subdivisions (which use 500 gallons/ERC/day), it should be a simple matter to project water consumption for the test year and for each year

thereafter based on this water use and the projected ERC growth. This is what Aloha did. On its face, this seems very logical. What needs to be understood here is that none of the earlier customer type homes will be added to the system in 2001. Also, none of the new users will consume the average quantity of water used by all customers in previous years because all the new customers come from the new customer demographic group. To apply anything but the 500/ERC/day consumption prediction to each of the projected new ERCs is completely illogical and defies reason.

Mr. Biddy, Mr. Stewart and Mr. Stallcup have all offered alternative methodologies that they state will provide a more representative estimation of the projected water consumption for the test year. All claim, however, that their models were not designed to project water use after the test year. This is a serious flaw in all of these models. As I discussed above, from this day forward, Aloha must purchase water, at greatly elevated cost per 1,000 gallons, from Pasco County for all water quantities in excess of the present quantities allowed in the SWFWMD Water Use Permit. If Mr. Biddy's, Mr. Stewart's and Mr. Stallcup's models produce projected water consumption

values that are "tuned" for the test year and do not reflect the actual water consumption going forward, the ramifications of adopting the values estimated from those models may be profound and may seriously economically damage the utility and/or cause the expenditure of a great deal of the rate payers money in applying for and obtaining another rate increase to correct the earlier mistakes. The hearing data in this case is January 9, 2002, therefore, Aloha will not be charging the final rates approved in this case in 2001. The goal here is to set going forward rates. Mr. Biddy and Mr. Stewart all claim that Aloha's consumption projections are faulty because customer water use was elevated during the time period Aloha chose to evaluate subdivision by subdivision water use (July 2000 through June 2001) was an abnormally dry period and therefore customers were irrigating their lawns more due to rainfall shortages. They claim that this "fact" creates an artificial increase in the water sold during the period and therefore, that the future consumption based on this data has also been artificially increased. They each go on to claim in their testimony that each other's methodology is flawed but that each is more correct then Aloha's methodology. The problem with each of their claims, however, is that they have each ignored a very important piece of information. First,

during the time period in question, they are correct that the SWFWMD had designated the area in drought. This has been the case for about the last 10 years. This drought is nothing new at this point. Mr. Biddy and Mr. Stewart claim that the year 2000 was the driest year on record for many years. This is also the case. However, as Mr. Stewart discusses in his testimony, lack of rainfall alone does not control the effect of a drought on the need to irrigate. A variable, called the moisture deficit variable, takes a number of variables into account which together actually determine the irrigation need. Based on Mr. Stallcup's analysis, the year 2000 wasn't any different than previous years as far as the moisture deficit variable is concerned. We agree. The factor that they all missed was that during this time period (and for several years now) the SWFWMD has placed water use restrictions on the users of water throughout the entire Aloha service area. For part of this one year water consumption analysis period, all users of water were restricted to watering their lawns only 2 days per week. For about the last six months of the period, they were restricted to watering lawns only one day per week. Also, a number of other water uses were controlled such as washing cars, boats, and sidewalks, etc. Therefore, the fact that the drought existed during this period, and the

fact that 2000 was a dry year, actually had the opposite effect that Mr. Biddy, Mr. Stewart and Mr. Stallcup claimed. If anything, the water use projected by Aloha may be found to be low if the SWFWMD district reduces or removes the water use restrictions in the future. In fact, within the last month, the District did just that for areas not served by Tampa Bay Water.

One of the new subdivisions located in the Seven Springs Service Area in which the customers are representative of the new demographics is Thousands Oaks. For the period July 2000 through June 2001 the average water consumption (based on actual customer bills) for this subdivision was 548 gallons/ERC/day. The interesting thing to note about this subdivision is that this is one of the new subdivisions that receive reuse water from Aloha. Therefore, the irrigation needs each of these customers is provided by non-potable water and all the water consumed was for home use. This fact only goes to prove Aloha's claim that the new customers use much more water then the customers that connected to the system earlier. Another claim that each of these gentlemen make is that Aloha's data set was too small, and that one years worth of data was not sufficient to give them confidence that the new customers were indeed consuming 500 gallons/ERC/day over the long term. They cite weather

related variables among others that could cause this number to change for any one year period and they claim that they have no way to know if this one year period was a fluke. Aloha selected the one year data set because it was important that the data selected accurately reflect the demographics of the new customers that Aloha could expect to be connecting to the system in the upcoming years. An additional analysis of the water consumption data for the period January 1, 1995 through November 30, 2001 (approximately 6 years data) was performed. This data set was chosen because the current computer billing system has data back to 1995 available to be analyzed. Completing the same analysis as was completed for the one year data set (which provided the consumption projections in the MFRs) yielded an average consumption for the "new" subdivisions of 511 gallons/ERC/day for the six year period. I have provided **Exhibit DWP-5**, which presents this information. This data shows that the 500 gallon/ERC/day consumption value has long-term validity. The results of this analysis, coupled with the fact that watering restrictions were in place for all of the analysis period (which artificially lowered the consumption) and the fact that the customers in Thousands Oaks subdivisions (where customers use reuse water for irrigation) demonstrates that the arguments of Mr. Biddy,

Mr. Stewart and Mr. Stallcup regarding the inappropriateness of Aloha's methodology are incorrect and must be rejected. It is important to reiterate here that Aloha chose to utilize a demographically sensitive model in projecting water consumption in this case largely due to the requests by staff that they do so. Aloha could have easily applied the same linear regression analysis to historical gallons sold/ERC that it and many utilities have done in the past. Aloha used this type of analysis to project the number of future ERCs in this case. Mr. Biddy and Mr. Stallcup have both agreed in deposition that they have no objection to the use of this methodology to project ERCs in this case and in fact they agree that this is the Commission's preferred methodology to use in projecting future variables. We prepared a linear regression model of water consumption/ERC, as is the standard practice in these cases, which we would have used if we were not concerned with demographic shift. My exhibit DWP-1 attached shows this projection. Based on the Commission's preferred method, liner regression over a five year period, this model projects Aloha's water consumption per ERC per day for the test year to be 285 gallons/ERC/day. If one takes this value and multiplies it by the projected number of ERCs (10,560) (which all parties have agreed to) this

model projects test year water use at 1,098,504,000 gallons. Aloha's Demographically based analysis projects test year water use of 1,105,067,967 gallons. The difference in these two projections is 6,563,967 gallons over a one year period. The two models only disagree by 0.6%. Statically this is a very small variation. This value also agrees with logic. It is logical to think that if the 5 year trend in water use is upward, and if you assume that a substantial number of new connections will be added to the system, and if all these connections will be located within subdivisions that show very high water use relative to the average use by all customers due to a demographic shift, then the projected water use should continue to increase as well. The projections provided by Mr. Biddy, Mr. Stewart and Mr. Stallcup all propose substantial reductions in the consumption of water for the system for the test year. Mr. Stewart and Mr. Stallcup both provide alternative water consumption per ERC values determined by their models. Mr. Stewart's value is 265 gallons/ERC/day. Mr. Stallcup's value is 259 gallons/ERC/day. Their projections are both counterintuitive. In order for either of these projections to be correct, the water use per ERC would have to fall from 277 gallons/ERC/day for 2000 to their values. Again, my exhibit DWP-1 shows how unlikely this

would be. The light and dark bars for 1995, 1996, 1997, 1998, 1999 and 2000 show the actual water consumption per ERC values for the Seven Springs Water System. The light value for 2001 is the water consumption value projected by Aloha when linear regression of the of the actual water consumption values for the 1995 through 2000 is completed. The dark value is the water consumption value projected by Mr. Stallcup's model. It can readily be seen that for Mr. Stallcup's projection to be correct, one would have to believe that the per ERC water use for the entire Seven Springs customer base would have to drop to pre 1996 values. This makes no logical sense. Given that Mr. Stewart and Mr. Stallcup have both agreed that the projected number of customers will increase by some 473 ERCs for 2001, what could possibly drive the water consumption per ERC value back to a value less than it was 5 years earlier? I have seen nothing in any of the testimony of Mr. Biddy, Mr. Stewart or Mr. Stallcup that would explain how this could happen once the weather argument has been shown not to be a factor (as I have demonstrated above). Again, the testimony of these gentlemen is incorrect and should be disregarded.

SWFWMD Witness John W. Parker

Q. In his testimony, Mr. Parker stated that District Staff met with Aloha representatives to discuss measures to

address Aloha's alleged non-compliance with its Water Use Permit (WUP). Were you involved in those discussions?

A. Yes, I participated in those discussions.

Q. Do you agree with Mr. Parker's characterization of the substance of those discussions?

A. In general I do. However, I believe that I must elaborate on Mr. Parker's statements because they have a bearing on the comments made by others that have given testimony in this case. As Mr. Parker states, beginning in May of 1997 a number of discussions related to Aloha's water supply needs were undertaken with the District. Aloha's goal in these discussions was to secure increased withdrawal permitted capacity in its WUP if at all possible. The majority of the discussions centered around this goal. Aloha and the District explored a number of possible scenarios which would lead to Aloha's WUP being modified to allow increased withdrawals. Some of the possible scenarios included: Aloha's purchase of existing wells from others and transferring the WUP capacity to its system; obtaining the capacity of Fox Hollow Golf Course's WUP (for its irrigation wells) when Aloha began supplying Fox Hollow Golf Course with reuse water; increasing the permitted withdrawals of its existing wells based on reuse water application in its service area; and increasing the permitted withdrawals of its

wells utilizing the standard permit modification procedures of the District. Aloha aggressively pursued each of these potential solutions to the water supply problem over the next year or two. Additional discussions were undertaken with District Staff to further discuss each of these options during that period. Aloha was very hopeful that one or more of these potential solutions would work out as they represented the least cost solutions available and would therefore result in the least rate increase to its customers. Aloha spent considerable resources in having its consultants search for WUPs to purchase and in having its attorneys attempt to negotiate to purchase those WUPs. Also, Aloha asked its consultants to look into what other alternative new water supply development options were, in general, available to it. Additional discussions were undertaken related to possible solutions that were based on obtaining new water supplies from sources not within Aloha's existing system. These discussions centered around obtaining supplemental water from Pasco County or developing new water supplies from a brackish water source. In 1997, the economic feasibility of developing a brackish water supply and constructing an R/O treatment facility was very doubtful. Since 1997, the current and projected future cost of water from other sources (Tampa

Bay Water/Pasco County) has significantly changed and resulted in a greatly increased potential feasibility of such a program. Further discussions are now being undertaken with the District related to brackish water supply/treatment system development based on these changes. The Pasco County supplemental supply alternative presented a number of technical and financial feasibility issues. Aloha had been utilizing its interconnect with Pasco County's water system to supply a relatively small quantity of water to assist Aloha in meeting its peak demands. This water was very costly, compared to Aloha's own water. Due to the relatively small quantity of Pasco Water used each year, the costs were manageable. However, if the quantity of water obtained from Pasco County was to increase dramatically, those costs would be very large. Integration of large quantities of Pasco County water into the Aloha system also posed a potentially significant technical and regulatory problem as well. In 1997 Aloha was in the early stages of implementation of its USEPA/FDEP required Corrosion Control Program (part of the Lead and Copper Rule). This program, which had taken over two years to develop and obtain approval from USEPA/FDEP, required identified and fixed water quality parameters to be adhered to Aloha. The program developed for Aloha was specific to that utility (as it is for

every utility) and was based on Aloha's water supply characteristics. Pasco County's water was different from Aloha's and therefore was not totally compatible with Aloha's corrosion control program. So long as the quantity of water taken from Pasco County was small as compared to the total supply, this incompatibility could be overcome by modifying Aloha's treatment program to add additional corrosion control chemical to offset the effect of Pasco County's water. However, it was not immediately known in 1997 what the effect of adding substantially more Pasco County Water to Aloha's system would be. It was Aloha's concern that if sufficient quantities were admitted to its system, its corrosion control program may be compromised. This was of great concern to Aloha for a number of reasons. The first was that it might cause Aloha to fail in its compliance with the USEPA/FDEP Lead and Copper Rule. This would have then required Aloha to possibly completely scrap its approved Corrosion Control Program and begin again at great cost to the rate payers. The second concern Aloha had was that if the corrosion control program was compromised and rendered ineffective, the corrosion control program would not be able to assist its customer's which were experiencing "black water" in their home copper piping systems in reducing the incidence of this problem. Aloha

had given assurances to the Public Service Commission and its customers that the corrosion control program would assist the customers in solving their "black water" problems. Aloha was therefore, most anxious to find a solution that would be cost effective for its customers, provide the best long-term solution to its water supply problems, allow it to stay in compliance with USEPA/FDEP Rules, and assist those customers experiencing the "black water" problem and reduce its effect.

Q. In testimony, Mr. Parker states that in October of 1998 Aloha submitted an application with the District to renew its WUP. Do you have any comments regarding Mr. Parker's testimony related to the WUP renewal?

A. Yes. Aloha did submit a WUP renewal application with the District in October of 1998. In the renewal application, Aloha demonstrated that its present permitted WUP withdrawals were not sufficient for it to meet present as well as future customer demands. Aloha requested that the permitted quantities be increased to meet those customer demands (it is my understanding from discussions with staff at SWFWMD that Representative Fasano has recently met with SWFWMD staff and attempted to persuade them to increase Aloha's WUP, however, he was also unsuccessful). In meetings with the District, Aloha was told that no increases in existing demands would be allowed and that

Aloha would need to develop other means of providing the water demanded by its customers that exceeded its presently authorized WUP withdrawals. Some of the alternatives discussed were those listed in Mr. Parker's testimony. All of those alternatives with the exception of attempting to increase customer conservation and obtaining water from other suppliers (Pasco County) were long term solutions at best (assuming that they were financially feasible). However, in the end Aloha's new WUP would not allow for any interim increases in water use to allow Aloha to study and implement alternative long-term water source additions to its system. Therefore, the only alternatives left which could be implemented in relatively short time was to attempt to have its customers increase water conversation efforts and to again consider obtaining additional water from Pasco County (with all the associated cost, regulatory, and technical problems outlined above). Regarding water conservation, Aloha's customers overall were already using water at a rate that was very low as compared to that in other water systems. Aloha's water use was lower than SWFWMD targeted per capita water use and, therefore, only slight (perhaps 5%) reductions were possible utilizing non-rate related conservation methods. These issues were discussed with the District Staff during the

WUP renewal process. When issued, the renewed WUP stated that the water withdrawals permitted would not be sufficient to provide all the water demanded by Aloha's existing, much less future customers.

Q. Mr. Parker testifies about Aloha's actions related to the water supply problems since the WUP renewal was issued in April of 1999. Do you have any comments related to Mr. Parker's testimony?

A. Again, in general I agree with Mr. Parker's testimony. However, I feel that additional comment is needed for his testimony to be fully understood in relation to the full situation that Aloha faced from a regulatory as well as an economic perspective. Since April of 1999, I have participated in a number of discussions with Aloha management and various others (County Utility staff and consultants, FDEP staff, SWFWMD staff, etc.) related to the future configuration of the Seven Springs Water System. This is a very complicated situation. There are a number of factors, which are interrelated and interdependent, that will ultimately control how water is obtained, treated, and distributed to the Seven Springs Water System customers. First, the cost of the water provided by each potential source varies considerably. Water obtained from Aloha's wells is much less costly than water obtained from Pasco County. It is also much

less costly than the projected cost of water obtained from a brackish water source after treatment. Aloha only learned several months ago that Pasco County will soon be modifying its water treatment processes to produce a water that is disinfected using chloramine instead of free chlorine. This will cause the County's water to be incompatible with Aloha's water, requiring Aloha to make substantial changes to its treatment systems to accommodate large quantities of Pasco County water if it is to be utilized. Aloha is under order from the FPSC to investigate treatment methods to reduce the hydrogen sulfide concentration of its raw well waters in a manner different than that which is now undertaken. Assuming that one of the methods being studied is implemented, this will create a second source of water that will be different chemically from the water now produced at the Seven Springs Water System. In order to meet its water quantity needs, Aloha is currently in negotiation with the SWFWMD to enter into a Consent Order that will require Aloha to study and, if feasible, develop an additional brackish water source and provide R/O treatment facilities for that water. This will introduce a third type of water chemistry to the existing Seven Springs Water System. The problem here is that at this time, none of the potential new water source chemistries

(Pasco County water, MIEX treated water and brackish-R/O water) are defined. They will remain undefined for the time needed to complete the necessary engineering studies by both Aloha and Pasco County. Until this information is known, it would be imprudent to move ahead, from a technical standpoint, and construct any of the support facilities until a full and complete engineering analysis of the combined effects of all the chosen alternatives can be completed. To do otherwise may result in substantial capital cost expenditures that could be found to be unusable or unneeded when the final analysis is complete. This would result in substantial amounts of the ratepayers' money being wasted. Aloha is moving ahead with the studies of all of these interrelated and interdependent options as quickly as they can be undertaken. However, regulatory activities and data submissions by others (Pasco County), which are beyond Aloha's control, set the pace for the completion of the work.

SWFWMD Witness Lois A. Sorensen

Q. After having read Ms. Sorensen's testimony, do you have any comments?

A. Yes. In general, I agree with Ms. Sorensen's testimony. However, I believe that I must comment and expand on her testimony in an effort to allow her statements to be

understood as they relate to Aloha's situation. First, it is important to note that each year, Aloha must file an Annual Water Use Report with the SWFWMD. Since I have been associated with Aloha (1994) these reports have always shown the Seven Springs Water System per capita water usage to be at or below that level required by SWFWMD rules. In fact, Aloha's customers generally utilize less water than the maximum allowed. I believe that this is because a large number of Aloha's customers do practice water conservation. The purpose of the District's water conservation programs is to encourage water customers to conserve water. Based on Aloha's Annual Water Use Reports, it would appear that Aloha's water conservation efforts are appropriate and working. It is important to note, however, that customer demographics are changing in Aloha's Seven Springs Service Area. Since the early days of the water system 30 years ago, the system has been maturing. Early customers built small retirement homes with one or two retired persons residing within. The newest customers (those connecting to the system within the last 10 years) are quite different demographically from the previous customers. The newest homes are very large with many water fixtures, swimming pools abound and large lots with specialized high-end turf requiring much more irrigation.

The occupants of these homes are frequently younger families with children. In the last 10 years, two elementary schools, one large middle school, one large high school and one college have all been constructed to serve this area. This level of school construction is indicative of an area with a large number of families with children. The fact that the three of the newest large schools (the middle school, high school and college) serve older children indicates that the School District and College Trustees believe that a substantial number of older students must now be living in, or soon will be living in, the Seven Springs Area. As anyone with teenage children can attest, teens typically consume large quantities of water, much more so than the older retired persons (that previously represented Aloha's typical customer). This trend is easily seen by studying Aloha's average per ERC water use rates for each year for the last 10 years. The trend has been increasing at a steady rate indicative of a steady increase in the number of new customers which fit the new demographic and utilize much more water then previous customers. Therefore, it would be most appropriate for Aloha to target these new customers in its efforts to affect a reduction in per capita water usage overall. As Ms. Sorensen states, one very effective means of reducing

water consumption of high water users is to limit the amount of water they can utilize to irrigate their lawns. In fact, for a number of years, the SWFWMD has limited the frequency (and therefore the quantity of water used) of lawn watering in the Seven Springs Service Area. Prior to 2001 lawn watering was limited by SWFWMD to twice per week and since 2001 it was decreased to once per week. Aloha has, on a number of occasions, sent their customers water conservation related information in bill inserts. These inserts also notified customers of the SWFWMD watering restrictions. Pasco County provides enforcement officers which patrol the Seven Springs Service Area to ensure that the watering restrictions are observed. Also, the bill inserts were utilized by Aloha to tell its customers that it had available detailed pamphlets on water conservation methods, produced by SWFWMD, for its customers free pickup. Based on the new customer demographic, these actions represented the most cost effective measures that Aloha could take to reduce its water use utilizing conservation measures.

OPC Witness Stephen A. Stewart

Q. After having read Mr. Stewart's testimony, do you have any comments?

A. Yes I do. Mr. Stewart states in his testimony that he was retained to "address the methodology used by Aloha to

project test year water consumption." In his testimony, Mr. Stewart also stated that it was his opinion that Aloha utilized a "number of competing methodologies" in calculating its water use projections presented in the MFRs. He further states that "this hodgepodge of methodologies is inappropriate." He concluded that "the hybrid methodology used by Aloha in this case failed to take into consideration the abnormally dry weather in 2000 and has resulted in an inflated projection of water consumption in 2001." Mr. Stewart was asked in deposition what experience he had in developing water and wastewater demographics and did he believe that differences in demographics could affect water and wastewater consumption levels. His response was "I don't have any firsthand knowledge that those types of things would affect water consumption, but I could build a model that might show that." Further he was asked if it was fair to say that he has never previously rendered an opinion on water use projection that took into account differing demographics of the groups that were likely to use the water. His response was "That would be true." These statements show that Mr. Stewart did not understand the basic underpinnings of the methodology used by Aloha in projecting test year water consumption nor did he understand the unique circumstances that require a very

careful consideration of water consumption in this case which I discussed earlier in this rebuttal testimony. Mr. Stewart's statements that Aloha's methodologies were a "hodgepodge" was directed at the fact that Aloha utilized linear regression analysis to develop its ERC projections and used the demographics based water use method to project future water consumption. His statements were incorrect and show his lack of understanding concerning the affects that demographics can have on water consumption projections and its importance in this case. Mr. Stewart's claim that Aloha utilized "competing methodologies" is totally false on its face. The number of future ERCs is related to growth of the service area and is related to past trends. Therefore, Aloha utilized a liner regression model to determine projected ERCs because that method would correctly project future numbers of ERCs. To project water consumption of the future customers, Aloha chose to use a model that reflected the change in the demographics that was actually occurring in the area in which ALL new customers would be constructing their homes. To use any consumption method that somehow averaged the existing water consumption of customers that did not represent the future customers to be added to the system would surely cause a large error in the determination of future water

consumption. As I discussed earlier in this testimony, Aloha did complete a linear regression analysis of water consumption/ERC/day as a check against its demographics based model and found that the two approaches agreed very well. For all the reasons stated in my testimony, Mr. Stewart's analysis is flawed, his conclusions are totally incorrect and not supported by the facts and, therefore, his projections should not be relied upon. The fact that Aloha's linear regression model of water consumed/ERC/day agrees very well with Aloha's demographics based analysis must once and for all eliminate any notion that Aloha's methodology was flawed due to the use of "competing methodologies."

OPC Witness Ted L. Biddy, PE, P.L.S.

Q. Mr. Biddy states in his testimony that he does not agree with the Utility's water consumption projections presented in the MFRs for a number of reasons. Do you wish to comment on the reasons he has presented?

A. Yes. My comments presented at the beginning of this testimony apply directly to Mr. Biddy's testimony. In addition, Mr. Biddy claims that one reason he does not agree with the Utility's projections is because I relied upon water use per ERC data provided to me by the Utility to develop my projections. Mr. Biddy states "he did not make any independent investigation concerning the water

use issue." When I read Mr. Biddy's testimony I took his statements to mean that he distrusts the validity of the data provided by the Utility. Why else would he claim that use of the Utility's data somehow caused my analysis to be invalid? At deposition, Mr. Biddy was asked directly if he had any reason to believe that the data provided by the Utility was incorrect or untrustworthy. He responded that he did not. He was also asked if he had reason to believe if the data was inaccurate. He said that he did not. Data concerning customer water billing information could have been obtained from no source other than the utility unless each and every customer was to be contacted and interviewed. Given the cost of the later method, utilizing the Utility's database information was the appropriate thing to do. Therefore, his statements regarding this reason for his objection to my projections must be dismissed. He claims that Aloha's data may have been selectively chosen by stating "Mr. Watford chose the 12 most recent subdivisions which also happen to have higher monthly uses." Here I believe that he is inferring again that the data provided me by the Utility is suspect as it may have been selected to skew the analysis. As I discussed earlier in this testimony, the data set was chosen to directly address the unique situation that exists in this case and was in no way chosen to skew the

analysis. Mr. Biddy also takes issue with the data set selection based on the length of time the data represented. He states that "Using a very limited time period as a data base in determining engineering projections is always suspect because one must always guard against unusual events skewing the results of projections obtained from short period data bases." He goes on to state that "Mr. Porter totally ignored the fact that his data base of flows included the driest weather period on record and that heavy irrigation would have obviously skewed his resulting projection to the high side." Mr. Biddy's statements are totally incorrect. Just because my calculations did not implicitly include weather variables does not mean that these variables were not considered. In fact, the effects of weather on water use was specifically excluded in this analysis because we believed that the drought conditions being experienced in the area for a number of years had the opposite effect that Mr. Biddy claims. Due to the drought conditions, the Water Management District had imposed outdoor water use restrictions for the customers of the Seven Springs Water System service area for a number of years. The use of water for irrigation had been severely curtailed during the June 2000 to July 2001 time period. These water use restrictions actually depressed the use of water and, if

anything, caused Aloha's estimates to be too low. Mr. Biddy also stated that he believed that irrigation of "new lawns" was partially responsible for the high per ERC water use exhibited by Aloha's new customers. For this to be true, these lawns would have to have been entirely exempt from the watering restrictions imposed by the SWFWMD. This is not the case. There were water use restrictions specifically directed at new lawn watering. Also, the relative number of "new lawns" in the entire subdivision would have had to be great for it to influence the overall water usage number. It is important to note that "new lawns" will continue to exist into the foreseeable future and require irrigation for as long as the subdivisions have vacant lots. "New lawn" watering will affect the water demands of Aloha's customers the same next year and in succeeding years as it did during 2000 and 2001. Mr. Biddy's claim is not supported by the facts.

Q. Mr. Biddy states that one of the reasons that he does not agree with Aloha's projected 500 gallons/ERC/day water consumption rate is that the actual water consumption rate for the first six months of 2001 do not show water consumption at the rate projected. Do you have any comments related to this issue?

A. Yes. Mr. Biddy did not take into consideration the SWFWMD

water use restrictions that I spoke about earlier in my testimony. He also did not take into account the fact that water use per month can be quite variable when a utility serves seasonal customers. Also, meter reading date variability can easily affect a partial year water use summary. The data shown on my exhibit DWP-1 shows quite clearly that the trend in water consumption for the last 5 years is upward and not decreasing. Mr. Biddy is incorrect.

Q Mr. Biddy provided testimony that 350 gallons/ERC/day is "the standard design value taught in engineering schools and is the standard in the engineering profession." Do you have any comments regarding this statement?

A. Yes. The 350 gallons/ERC/day value Mr. Biddy quoted is typical of many "rules of thumb" taught in engineering school. It is based on data that has existed for many, many years. If in fact, Mr. Biddy were to project water usage based upon an average of 350 gallons/ERC/day for the entire service area it would result in a much higher projected test year water use (1,349,040,000 gallons) then has been projected by Aloha or anyone else in the case. In the engineering world, rules of thumb are only to be used to give an engineer a rough idea of what the solution to a particular might be. When I attended engineering school, we were taught that rules of thumb

were only to be used for that purpose and the engineer had a responsibility and duty to test the appropriateness of the application of that rule of thumb number before any use of it was made. As an example, it was once common to assume that wastewater generation rates were 100 gallons/person/day. I personally have seen this number range from 50 gallons per person per day to over 200 gallons per person per day in Florida. This is because local conditions (e.g. ground water levels) have a direct affect on the quantity of wastewater actually generated in the system. If an engineer was to just use the rule of thumb value in the design of the wastewater system with 200 gallons per person per day wastewater generation rates the result would be a system that overflowed and would not be capable of performing the job it was designed to do. This water consumption value Mr. Biddy quotes is no different. I worked on a project in the Middle East where the cost of water was so great that water use per ERC was far below 350 gallons/ERC/day. In another system here in Florida, I worked on a project where the water use per ERC is over 700 gallons/ERC/day for the newer parts of the service area. This was due largely to demographic shift as is occurring here. I believe that these two systems are not the only systems experiencing this change in per ERC water use as the

demographics of their customer base is changing. The rule of thumb value will eventually change to reflect this new reality as it has in the past. For now, it is what it was meant to be, just a place for a responsible engineer to start his evaluation.

Q. Mr. Biddy states that another factor that may have skewed the water consumption values is the flushing of home water systems by those customers experiencing "black water." Do you have any comment related to this statement?

A. Yes. The "black water" issue has been discussed in detail in another case so here I will only address Mr. Biddy's contention that the water volume used to flush these homes somehow contributed to the high per ERC consumption values. First, testimony given in the prior case showed that the vast majority of the customers that reported "black water" problems said they experienced it infrequently. They also stated that when they did, they would flush their system for 10 minutes of so to clean the discoloration. If we were to assume that a customer experienced that problem once per week and flushed his entire home including hot water heater, the quantity of water flushed would be approximately 60 gallons per week (2 gpm times 10 minutes for the piping and 40 gallons for the hot water tank). This would amount to about 8.5

gallons/day/ERC for that homeowner. This should be considered a worst case scenario as few customers have ever reported that they flush their entire system every week. This 8.5 gallons/ERC/week is very small relative to the 500 gallons/ERC/day consumption rate we used. Also, since the number of customers reporting "black water" is very small relative to all the customers in the 12 subdivisions included in the data set, the effect of the home flushing becomes negligible. There is direct proof of this fact. The data reported by Aloha shows that for the Wyndtree Subdivision, which is one of the subdivisions with the highest reported incidence of "black water" problems, the water consumption was 317 gallons/ERC/day, which is one of the lowest consumption values of the 12 subdivisions in the data set. In contrast, Riviera, a subdivision which has a very low incidence of "black water" problems, reported the highest water consumption values of 1,084. Obviously, flushing was not responsible for this value. Mr. Biddy's argument is false and should not be relied upon.

Q. Mr. Biddy states that for the first six months of 2001, water consumption decreased by 54,412,000 gallons from water sold during the same period in the year 2000. He uses this data to try to invalidate Aloha's consumption projections. Do you have any comments?

A. Mr. Biddy has assumed that water use is constant throughout a given year. He assumes that lower water use during the first six months of 2001 will result in a lower annual water use. He further assumes that this lowered water use supports his claim that Aloha's earlier consumption projections were inflated and incorrect. Mr. Biddy is incorrect for a number of reasons. First, meter reading dates can affect the number of reported gallons sold during any partial year period when compared from one year to the next. Meter reading dates are rarely the same from year to year. If only one month metered results for one year were out of sync with the previous year's data the numbers would look completely different and would lead one to conclude that water use was different from one year to the next. In addition, Mr. Biddy has not taken into account the fact that SWFWMD/Pasco Count water use restrictions were made more stringent during this entire period. Lawn watering was reduced from 2 days/week to 1 day/week which would have further reduced water use during this period over the pervious year. This fact would easily explain the reported differences and further support Aloha's contention that weather and the drought have had the opposite affect on consumption than is assumed by Mr. Biddy, Mr. Stewart and Mr. Stallcup. The tightening of watering restrictions as rainfall

diminished and the drought intensified only served to artificially depress water consumption. Again we contend that this makes it more likely that Aloha's consumption projections are lower than what the actual rate would have been without the drought and water restrictions; when the water restrictions. When the water restrictions are lessened or removed in the future, the 500 gallons/ERC/day for the new customers may prove to be too low.

Q. Mr. Biddy states that Aloha actually purchased 103,056,000 gallons of the 483,253,297 gallons of water that Aloha projected would be purchased from Pasco County for the year 2001. He claims that the fact that Aloha is purchasing Pasco County water at a rate less then projected is proof that Aloha's projected water consumption rates are inflated and incorrect. Do you have any comments related to this statement?

A. Yes. Aloha was continuing to pump water in excess of its SWFWMD Water Use Permit from its own wells during this period instead of purchasing water from Pasco County. Until Aloha obtains rates that will allow it to pay for Pasco County water it must continue pumping the water from its wells. Mr. Biddy incorrectly assumes that because Aloha's purchased water rates have not met projected purchased water rates that the overall use of

water has fallen by a like amount. In addition, Mr. Biddy has not taken into account the fact that SWFWMD/Pasco County water use restrictions were made more stringent during this entire period. Lawn watering was reduced from 2 days/week to 1 day/week which would have further reduced water use during this period.

Q. Mr. Biddy states that he has calculated that the percentage of unaccounted for water that is appropriate for the Seven Springs Water System for the part of 2001 is 14%. Do you agree?

A. No. Mr. Biddy states in his testimony that he calculates unaccounted for water by subtracting the quantity of water sold to customers from the total water pumped and purchased by the utility. This is an incorrect method for determining unaccounted for water. The water used by the utility in operating the system (such as treatment plant loss and water main flushing water) is not unaccounted for water. In fact it is accounted for and must be subtracted from the water pumped and purchased before the quantity of water sold to customers is subtracted to obtain the quantity of unaccounted for water. This is not only the calculation accepted by the Commission but is the calculation used by utilities when determining this percentage for submission in the Annual Report to the commission. When the proper calculation is used, Aloha's

unaccounted for water is 10.2% for the first 9 months of 2001. Since the quantity of water pumped, sold, and used for line flushing, fire fighting, and as treatment loss varies from month to month we have no reason to believe that the unaccounted for water percentage will exceed the 10% value generally accepted by the Commission as appropriate.

Q. Mr. Biddy states that he has first-hand knowledge related to the demographics of the Seven Springs Water Service Area by virtue of his having visited the area on several occasions and talking with several customers.

A. This statement is absurd on its face. The demographic makeup of a major portion of the service area cannot be determined by driving through the area on several occasions and talking with several of the customers. As I stated earlier in my testimony, the number of new schools, playgrounds, and recreational facilities specifically targeted at families with children and all the other factors I discussed above speak more about the current and future demographic make-up of the area then Mr. Biddy's "visits."

Q. Mr. Biddy provides several pages of testimony related to the status of the "black water problem" and the progress that Aloha has made going forward to find a solution to the problem. He also provides his opinion as to Aloha's

compliance with the Commission's order which directs Aloha to implement a pilot project to enhance the water quality and to diminish the tendency of the water to produce copper sulfide. Do you have any comments regarding Mr. Biddy's testimony?

A. Yes. Mr. Biddy's testimony is puzzling. He reports that he has read the reports provided to the Commission, as required in the Commission's Order, and states that they were submitted each month as required. He further states that they report that Aloha immediately began the pilot project work when ordered by the Commission and that substantial progress was shown until approximately July 2001 when it was reported that water supply and water chemistry incompatibility issues came to the attention of the Utility by the SWFWMD and Pasco County. He stated that the reports discussed this new information and its effect on the project. This would seem to indicate that Aloha placed a high priority on compliance with the Commission's Order and proceeded with all due diligence to undertake the pilot project as soon as it was ordered. However, Mr. Biddy states that his opinion was that Aloha complied with the "letter but not the spirit of the Commission's Order." Mr. Biddy bases this statement on the fact that Aloha's August, September, and October reports are essentially identical and provide no further

evidence of the progress of the project. He claims that these reports show that the utility's action are "disingenuous" in his opinion. He further states that in his opinion "Aloha is simply stalling on this issue." These statements show that Mr. Biddy has no conception of what is involved in undertaking this pilot project. First let me state that the goal of this project is that which the Commission ordered, to implement a pilot project to determine what additional treatment technology could be utilized to enhance Aloha's water in such a way as to lessen the tendency for copper sulfide generation in the customer's home copper water system piping. The background of this issue has been discussed in great detail in other cases and has been the subject of a joint commission made up of a number of state agencies and coordinated by the Commission. The bottom line has never changed. This "black water' problem occurs in the customer's home water piping. The water delivered to Aloha's customer's is pure, clean, color free, odorless and meets all State and Federal laws, rules and regulations. The problem is not unique to the customers of Aloha Utilities and does occur in other areas of Florida. The "black water" problem is but one manifestation of a larger problem, that of copper piping corrosion, that is prevalent in many parts of Florida and

was wide-spread enough for the Commission to sponsor and act as coordinator of the interagency study group that was formed to try to deal with this issue on a state-wide basis. Aloha's task in the pilot project is to find a cost effective way to reduce sulfate and sulfur products in the finished water being distributed to its customers. This is because the copper sulfide problem occurs when elemental sulfur and/or sulfate in the water is converted biochemically in the customer's home from harmless sulfate and elemental sulfur to hydrogen sulfide which can attack the home copper water piping and create copper sulfide which is the black substance reported by some of Aloha's customers. It is important to note that Aloha's water contains very small quantities of sulfate as it is delivered to the customer, varying from single digit values in to the 20 to 25 mg/L level. The national drinking water standards allow 250 mg/L sulfate levels so you can see that Aloha's water contains at most only one tenth of the national limit. For any pilot project water treatment technology to be technologically capable of lessening the incidence of the formation of black water in the homes of the customer's the treatment process must lower the level of naturally occurring hydrogen sulfide at the well head to virtually non-measurable quantities. In addition, the water produced by the new process must

be compatible with all the different water sources which are combined to supply water to Aloha's customers. When the pilot project was conceived, the water sources to be combined were largely those of Aloha itself with supplemental water provided by Pasco County. Pasco County's water quality was similar to Aloha in general and the disinfection methods used by both utilities were compatible. Based on these facts, the pilot project progressed at a rapid pace in the first seven months of 2001. Beginning in July 2001, complicating factors began to emerge which have a major affect on the progress of the pilot project. Pasco County conducted a meeting with all of their bulk water customers to inform them that in 2002 the County would be changing its water disinfection process and that its water chemistry was going to be substantially different from that which had been previously provided. The County stated that at that time they were still conducting engineering studies and could not provide the bulk water customers with the specifics related to when the change would occur or the water chemistry characteristics until all the engineering studies were complete and evaluated. Since Aloha was being required by the SWFWMD to begin taking much larger quantities of Pasco County water into the Seven Springs System than had previously been taken, Aloha was no

longer in a position to evaluate the appropriateness of the MIEX treatment solution it had been investigating (until the County water quality and character data could be obtained). We have been told that the County's engineering report was submitted by its engineers for review and consideration only within the last two to three weeks. The County has not yet provided its bulk water customers with the data we need to allow us to continue with the MIEX process evaluation. In addition, during the last several months, Aloha has been in negotiations with the SWFWMD related to finding solutions to the long-term water supply needs of Aloha and its customers. The District has provided Aloha with a Draft Consent Agreement that will require Aloha to study, and if feasible, implement the development of an alternative brackish water source with R/O treatment system. This further complicates Aloha's evaluation of the technical and financial feasibility of the MIEX or any other hydrogen sulfide reduction process until this issue is more well defined. Because of these late-breaking complicating factors, Aloha has been forced to deal with these other issues before it can complete its MIEX pilot project report. The monthly status reports submitted to the Commission clearly discussed each of these problems and the situation as I have described it here. It is

clear that Aloha's reports do not report "no progress," they report that progress on the MIEX pilot project completion has been delayed while the unknowns which affect the evaluation of the MIEX project are resolved. There has been no attempt on Aloha's part to stall the continued progress of the pilot project.

Q. Mr. Biddy testifies that he had interviews with SWFWMD staff and states, "The District's personnel have serious doubts as to the technical feasibility of an R/O facility in the Aloha Service Area." He further states, "One professional Geologist in the District's Water Use Section states in a memorandum that the R/O system proposal by Aloha "contain this Utility's typical delaying tactic and wait and see approach."" Do you have any comments regarding Mr. Biddy's statements.

A. Yes. What Mr. Biddy did not say in his testimony was that the response that this Geologist received from his supervisor related to his comments quoted by Mr. Biddy was that the supervisor did not agree with his underling and that the District believes that the R/O project may indeed be feasible and that the District believes a feasibility study of that option was warranted and would be required by the District. In deposition, Mr. Biddy was asked about the meetings he attended with both the Geologist and his supervisor. Mr. Biddy admitted that in

those conversations the supervisor, Mr. Parker, told him that he believed the District would support Aloha going forward with an R/O feasibility study. Mr. Biddy was asked in deposition "… you believe they [SWFWMD] would support the feasibility study?" His answer was "Yes." Based on Mr. Biddy's testimony related to his conversations with SWFWMD at deposition, I believe that Mr. Biddy received confirmation that the SWFWMD believed that Aloha should move ahead with an R/O feasibility study and that action is likely to be required by the District in any consent order entered into with Aloha.

OPC Witness Hugh Larkin, Jr.

Q. Mr. Larkin states that he believes Aloha failed to meet a competitive standard and is therefore, should not receive a rate increase. He sites the testimony of Mr. Biddy related to the "black water" problem as one example where Aloha has failed to meet this standard. Do you wish to comment?

A. Yes. Mr. Larkin is mistaken when he sites the "black water" problem as one which in some way is the result of some wrongful action on Aloha's part. I discussed the "black water" issue earlier in my testimony in great detail so I will not go into it again here. However, I will repeat that Aloha's water meets all regulatory standards. The FDEP witnesses in this case stated this in

their testimony. In addition, Aloha's water has always been shown to be clean, clear, odor free, and colorless as it is delivered to the customer at the water meter. Based on my 29 years experience in the water industry with facilities around the world, this description of a water supply is characteristic of a superior product, not an poor one.

OPC Witness Donna Deronne

Q. Ms. Deronne states in her testimony that she recommends a reduction in the chemical and purchased power expense should be made based on the testimony of Steven Stewart and his statements that test year water consumption will be reduced according to his projection model. Do you have any comments?

A. Yes. Ms. Deronne incorrectly based her testimony on the assumption that Mr. Stewart's projections are correct. As I have shown in great detail earlier in this testimony, Mr. Stewart's model is seriously flawed and produces inaccurate projections. If anything, the chemical and power cost projections provided by Aloha are potentially understated due to the following facts:

1. Once Pasco County changes it's water disinfection treatment system, Aloha's chemical costs will rise significantly when they implement similar changes in their treatment

systems to make their water compatible with the County water.

2. Power costs will increase when Aloha begins using substantially more Pasco County water because it will need to add and operate pressure boosting pumping equipment to enable the County supply to meet the peak flow water demands of Aloha's customers.

The water use and chemical cost projections of Aloha are correct, and therefore, no adjustment is necessary.

Q. Ms. Deronne states that one of the reasons she believes an adjustment to working capital is necessary is that the pilot project has been "put on hold and delayed by the Company." Do you wish to comment?

A. Yes. Ms. Deronne is incorrectly characterizing the status of the Pilot Project. She based her statements on the testimony of Mr. Biddy. I have addressed Mr. Biddy's comments earlier in the testimony. The pilot project is moving ahead and has not been but on hold in any way. I am still working with the MIEX representatives in developing the next stage in the pilot process, the demonstration scale facility. Within the last 30 days I have received a proposal from the MIEX representatives related to this phase of the project and have completed my review of their draft plan. I have within the last

week discussed my comments with the MIEX representatives and have begun discussions with Aloha related to moving ahead with the demonstration facility early next year if everything is able to be arranged by that time. No working capital adjustment is justified.

Staff Witness Gerald Foster

Q. You have read Mr. Foster's testimony. Do you have any comments?

A. Yes. In general I agree with Mr. Foster's comments. There is only one correction to his testimony that I believe needs to be made. He describes the substance found in "black water" as copper sulfate. I am sure Mr. Foster meant to say "copper sulfide" and that the use of sulfate was a typographical error. I also wish to state that Mr. Foster's testimony directly states for the record that Aloha's water meets all drinking water standards. I believe that his statements impeach Mr. Larkin's testimony as it relates to Aloha's water quality being the cause of Aloha not meeting a competitive standard.

Staff Witness Van Hoofnagle

Q. You have read Mr. Hoofnagle's testimony. Do you have any comments?

A. Yes. In general I agree with the comments of Mr. Hoofnagle except in a few areas. Mr. Hoofnagle refers to the water treatment process MIOX in his testimony. Where

this is reported I believe that he meant MIEX. Also, the list of options that Mr. Hoofnagle provides related to methods and practices that Aloha could implement to eliminate the "black water" problem is similar to those methods and practices addressed in a report produced by Aloha in a previous water docket. Mr. Hoofnagle states in his testimony that "a centralized treatment system would not be cost effective." In the earlier docket Aloha also concluded that a single centralized treatment system would not be cost effective. Aloha proposed three dispersed regional treatment facilities that would provide for maximum cost effectiveness and reliability. However, since that time, new processes (such as the MIEX process) have been developed that may change the desirability of providing a certain number of treatment facilities. Only after the engineering studies are completed will this question be answered with any certainty.

Staff Witness Paul W. Stallcup

Q. You have read the testimony of Mr. Stallcup. Do you have any comments?

A. Yes. All of the comments I made at the beginning of this testimony related to Mr. Biddy, Mr. Stewart and Mr. Stallcup will not be repeated in detail here, however, those comments form the basis of my belief that Mr.

Stallcup's testimony related to water consumption projections is totally incorrect and must be disregarded. Mr. Stallcup's testimony is based on the assumption that weather, the drought, and therefore the moisture deficit variable, somehow has a direct influence on the quantity of water that will be demanded by Aloha's customer's for the test year and beyond. It is Mr. Stallcup's contention that Aloha's water consumption projection is overstated because the method that Aloha used to project water consumption did not take this moisture deficit variable into account. He goes on, through elaborate statistical manipulation of a number of variables, to purport to show that he has developed a model that more accurately projects water consumption. I have read his testimony, listened to a multi-hour deposition, read the transcript of the deposition and reviewed his workpapers and electronic spreadsheets. I have come to the conclusion that, in my opinion, Mr. Stallcup's methodology is seriously flawed. First, he has relied heavily on "binary variables" and "lag factors" to manipulate the raw data in such a way as to adjust the fit of the data to his model so that the statistical summary output will show good correlation values. In deposition, he stated that he applied the binary variables to the data to allow for a statistically better fit between his model and the data

set. The lag coefficient he applied was designed to again adjust the data set to better fit the data to the model. Mr. Stallcup was asked to provided a late filed exhibit to his deposition showing the output of his model without the influence of adding the binary variables to the data set. This output showed that without the influence of the binary variables, the correlation coefficient for this model dropped to 0.526 which shows a very poor fit of his model to the data. One can clearly see from my exhibit DWP-1, that the outcome of plain linear regression of the water consumption/ERC/day for the last five years produces a prediction that is consistent with the actual data set with nothing removed or adjusted. The outcome predicted by Mr. Stallcup's model produces an outcome that is obviously flawed. His outcome is not consistent with the data set in any way. In fact, as I described earlier, for his model to be correct one would have to believe that some major change in the water consumption of Aloha's customers will take place to cause them to use less water then they did in 1996. The actual water use data Aloha has provided has shown that this is not the case. In actuality, the new customers being added to Aloha's water system for the last ten years have consistently consumed 500 gallons/ERC/day due to changing demographics. One way to test the credibility of both Mr.

Stallcup's and Aloha's models is to assume that the water predictions of Aloha and Mr. Stallcup actually occur in 2001 and produce the 2001 data point predicted. Then, conduct a standard linear regression analysis on the 6 year data set and each prediction and see how the data fits (correlates). We conducted such an analysis. Exhibit DWP-2 shows the data sets for the two scenarios. Aloha's (Aloha's Position) data set includes the actual water consumption system wide for 1995 through 2000 (from MFR Schedule F-9, Column (6) x 1,000 divided by 365 days) and a prediction of water consumption based on linear regression of the first five years data. Mr. Stallcup's (Staff's Position) includes the actual water consumption data for the years 1995 through 2000 (from MFR Schedule F-9, Column (6) x 1,000 divided by 365 days) plus Mr. Stallcup's water consumption prediction for 2001 from his model. DWP-3 shows the summary of output of the liner regression model of Mr. Stallcup's prediction with the actual water consumption data set for 1995 though 2000 (shown as Staff Position). DWP-4 shows the summary output for the linear regression model of Aloha's prediction and the actual water consumption data set for 1995 though 2000 (shown as Aloha's position). The summary outputs show that the liner regression of Aloha's data set (which includes Aloha's projected 2001 water consumption) has a

correlation coefficient (R^2) value of 0.913 which indicates a very good correlation between all the data points (including Aloha's prediction). Also, note that the standard error for this analysis is 4.11 gallons/ERC/day. When the same data is reviewed for the Stallcup data set, the coefficient (R^2) value is only 0.351 showing a poor correlation between the all the data points (and Mr. Stallcup's prediction). The standard error is 9.33 gallons/ERC/day for this data set which is twice the error shown for the Aloha data set analysis. What this says is that if Mr. Stallcup's projected 2001 water consumption is accepted, the chances of it being accurate are very small because his projection has a poor fit with the actual data for the last 5 years. However, the Aloha projection has a high chance of being very accurate because it agrees very well with the last five years actual water consumption data. I believe this analysis shows why Mr. Stallcup needed to apply a number of "binary coefficients" and "lag factors" to the data sets he used in this model. The truth is that his model just doesn't work without them and with them they produce projections that do not agree with the actual historical data. Mr. Stallcup's testimony related to water consumption must be disregarded in its entirety.

Q. Please summarize your rate case expense to date and your

estimate of cost to complete these proceedings and your total rate case expense.

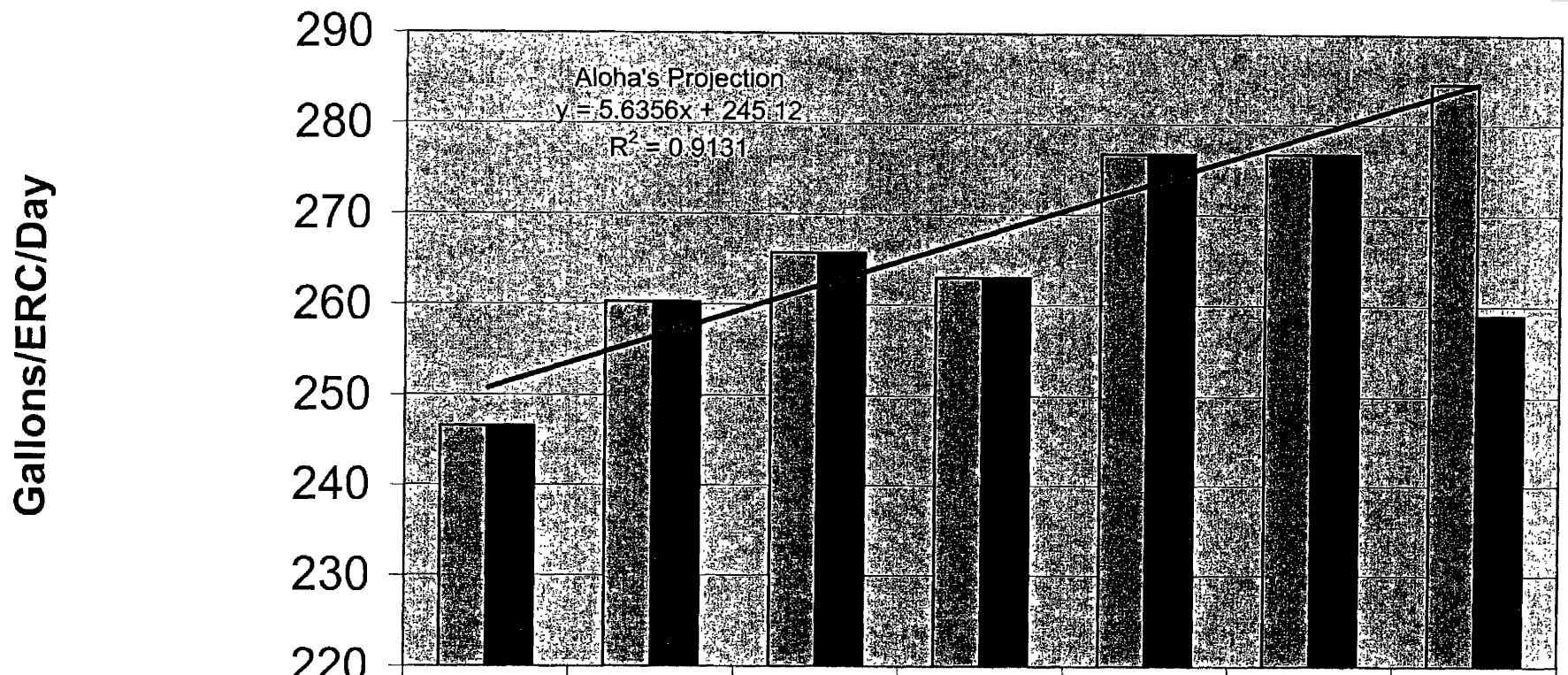
A. To date I have billed $8,005 for my work on this case through November 5, 2001. I have earned an additional $7,750 for the period November 6, 2001 through December 7, 2001 that has not as yet been billed. I estimate that my cost to complete my work on this docket will be $16,160. Therefore, my total estimated rate case expense is #31,915. Mr. Nixon has provided an exhibit in his testimony which provides a detailed breakdown of my estimated costs.

Q. Do you have anything else to offer at this time?

A. No.

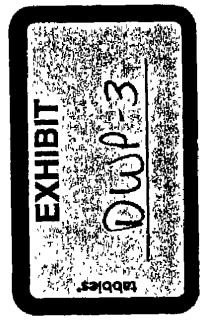
EXHIBIT Dwp-1

Gallons per ERC per Day



Data Table for Linear Regression analysis of Aloha vs. Staff position

Datapoint		Aloha Position GPD/ERC	Staff Position GPD/ERC
1	1995	246.5753	246.5753
2	1996	260.2740	260.2740
3	1997	265.7534	265.7534
4	1998	263.0137	263.0137
5	1999	276.7123	276.7123
6	2000	276.7123	276.7123
7	2001	284.5620	259.0000



Staff Position Linear Regression Analysis of Daily Gallons/ERC
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.592291021
R Square	0.350808654
Adjusted R Square	0.220970384
Standard Error	9.325227889
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	234.9559719	234.9559719	2.70188948	0.161150382
Residual	5	434.7993759	86.95987518		
Total	6	669.7553478			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	252.4187714	7.881256027	32.02773398	5.5737E-07	232.1593909	272.6781519	232.159391	272.6781519
X Variable 1	2.896771429	1.762302422	1.643742522	0.16115038	-1.633363765	7.426906622	-1.6333638	7.426906622

RESIDUAL OUTPUT

Observation	*Predicted Y*	*Residuals*	*Standard Residuals*
1	255.3155429	-8.740242857	-1.026726259
2	258.2123143	2.061685714	0.242188563
3	261.1090857	4.644314286	0.545572876
4	264.0058571	-0.992157143	-0.116549827
5	266.9026286	9.809671429	1.152353248
6	269.7994	6.9129	0.812066217
7	272.6961714	-13.69617143	-1.608904819

PROBABILITY OUTPUT

Percentile	*Y*
7.142857143	246.5753
21.42857143	259
35.71428571	260.274
50	263.0137
64.28571429	265.7534
78.57142857	276.7123
92.85714286	276.7123

Aloha Position Linear Regression Analysis of Daily Gallons/ERC
SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.955558351
R Square	0.913091761
Adjusted R Square	0.895710114
Standard Error	4.114377473
Observations	7

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	1	889.2661207	889.2661207	52.53194	0.000780747
Residual	5	84.64050994	16.92810199		
Total	6	973.9066306			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	245.1153429	3.477283627	70.49046588	1.09E-08	236.1767153	254.054	236.176715	254.05397
X Variable 1	5.635557143	0.777544257	7.247892444	0.000781	3.636819266	7.634295	3.63681927	7.63429502

RESIDUAL OUTPUT

Observation	*Predicted Y*	*Residuals*	*Standard Residuals*
1	250.7509	-4.1756	-1.111745496
2	256.3864571	3.887542857	1.035050833
3	262.0220143	3.731385714	0.993474293
4	267.6575714	-4.643871429	-1.236421866
5	273.2931286	3.419171429	0.910347838
6	278.9286857	-2.216385714	-0.590108448
7	284.5642429	-0.002242857	-0.000597156

PROBABILITY OUTPUT

Percentile	*Y*
7.142857143	246.5753
21.42857143	260.274
35.71428571	263.0137
50	265.7534
64.28571429	276.7123
78.57142857	276.7123
92.85714286	284.562

Water Consumption Data for Subdivisions Constructed Within Last 10 Years
Six Year Data Set - January 1. 2001 through November 30, 2001

Subdivision	Gal/ERC/Day
Chelsea Place	575
Cypress Lakes	455
Fox Hollow	701
Foxwood	580
Millpond	221
Natura	400
Natures Hideaway	334
Plantation	491
Riviera	1021
Thousand Oaks	414
Trinity Oaks	584
Wyndtree	358
Average	**511**

Exhibit DWP-5